Request for Clean Water Act
Section 401 Water Quality Certification
Washington State Department of Ecology
Phone: (360) 407-6076 or E-mail: ecyrefedpermits@ecy.wa.gov

AGENCY USE ONLY
Date Received:
Aquatics ID No.:
County:
Complete Request:

This Section 401 Water Quality Certification (WQC) request form must be submitted as part of a WQC request and identifies information needed for review. Please see Department of Ecology's (Ecology) webpage[1] for more information about the WQC request process and additional information regarding the request requirements.

Submit this WQC Request form along with the supporting information[2] to ecyrefedpermits@ecy.wa.gov.

Request packages should be sent in by email, mail submissions will not be accepted. Supporting information should not be consolidated into one large file, if your documents are consolidated into one file, please separate them before submitting.

Per the 2023 EPA Water Quality Certification rule, the certifying authority may identify the contents of a request for certification relevant to water quality related impacts from the activity. Items listed in Section D are always required for a complete application. If notified by Ecology prior to submittal of this request, items listed in Section E are also required. If this information has been provided to Ecology as part of your federal permit application, you do not need to submit them again. However, please indicate in Section D how they were provided. Ecology will provide acknowledgement of receipt of a complete WQC request to the project proponent. Once Ecology confirms we have received all the required information, our review time will begin.

A. Project Information

Project Name: Newhalem Creek Hydroelectric Project Decommissioning

Ecology Aquatics ID Number: 142546

Project Location (Please attach a project location map when submitting this form): See 30% design drawing Cover Sheet, Sheet G-1, Sheet 4 of 33

Project Address: Lat. 48.660180, Long. -121.247165 County: Whatcom

B. Federal Permit or License Reference Number, if known: FERC No. 2705, NWS-2024-1051

Federal Agency:
- ☑ U.S. Army Corps of Engineers (Corps)
- ☑ Federal Energy Regulatory Commission
- ☐ Other:
- ☐ U.S. Coast Guard
- ☐ Environmental Protection Agency (EPA)

Identify the U.S. Army Corps permit, if applicable: ☑ Nationwide Permit ☐ Individual ☐ Other: _____
If Nationwide Permit which one(s)? NWP(s) # 27

[1] https://ecology.wa.gov/Regulations-Permits/Permits-certifications/401-Water-quality-certification
[2] To submit documents over 25MB, e-mail ecyrefedpermits@ecy.wa.gov to request a secure link. Ecology does not accept outside links. Please include the Aquatics ID and project name when requesting a link.

To request an ADA accommodation, contact Ecology by phone at (360) 407-6076 or email at ecyrefedpermits@ecy.wa.gov, or visit https://ecology.wa.gov/accessibility.
For Relay Service or TTY call 711 or 877-833-6341.

Si necesita este formulario en español, por favor, llámenos a (360) 407-6076
o envíenos un correo electrónico a: ecyrefedpermits@ecy.wa.gov

C. Was a Pre-Filing Meeting Request submitted to Ecology prior to submitting this WQC request?

☑ Yes, a pre-filing meeting request was submitted on date: _____

D. Required for all projects requesting an individual WQC. Please check the boxes below indicating where the following documents can be found within this WQC request.

	Within WQC request	Within federal permit application	Previously submitted to Ecology and is still up to date	Notes to find information within the submission
Copy of the federal permit application package for the federal permit or license	☑			See submitted copy of the Surrer
Complete up to date JARPA or other accepted application form	☑	☑	☐ Date:	See submitted copies of the JAR
Status of State Environmental Policy Act (SEPA) determination and/or exemption	☑	☐	☐ Date:	NEPA determination is pending.
Project location map and drawings	☑	☑	☐ Date:	See submitted 30% design drawi
Best management practices (BMPs)	☑	☑	☐ Date:	See submitted 30% design drawi
Construction methodologies	☑	☑	☐ Date:	See submitted 30% design drawi
Requirements for In-Water Work				
Water quality monitoring plan	☑	☑	☐ Date:	See submitted draft water quality
Aquatic resource avoidance and minimization identified (e.g. eelgrass)	☑	☑	☐ Date:	See submitted 30% design drawi
Riparian revegetation, restoration, and management measures	☑	☑	☐ Date:	See submitted 30% design plan S
Requirements for Work in Wetlands				
Wetland delineation report with data sheets	☑	☑	☐ Date:	Completed data forms are found
Wetland ratings	☑	☑	☐ Date:	Completed rating form is in the su
Wetland mitigation plan, including avoidance and minimization measures, for wetland, stream, and/or other aquatic resources	☑	☑	☐ Date:	See 30% design plan Sheets C-1
Riparian planting and monitoring and measures	☑	☑	☐ Date:	See 30% design Sheets C-17 to

E. Required by project type or when identified by Ecology. Please check the boxes below indicating where the following documents can be found within this WQC request.

	Within WQC request	Within federal permit application	Previously submitted to Ecology and is still up to date	Notes to find information within the submission
Mitigation				
Wetland mitigation bank use plan	☐	☐	☐ Date:	Not applicable
In-lieu (ILF) use plan	☐	☐	☐ Date:	Not applicable
Water Quality Monitoring				
Water quality monitoring and protection plan	☑	☐	☐ Date:	See submitted draft water qualit
Spill prevention control and countermeasures plan	☑	☐	☐ Date:	See submitted project descriptic
Upland Work				
Erosion and sediment control plan	☑	☑	☐ Date:	See submitted 30% design plan
Stormwater pollution prevention plan	☑	☐	☐ Date:	See submitted project descriptic
De-Watering				
Flow diversion, cofferdam, and dewatering system plan	☑	☐	☐ Date:	See submitted 30% design plan
Stream bypass plan	☑	☐	☐ Date:	See submitted 30% design plan
Water dispersion/ infiltration plan	☑	☐	☐ Date:	See submitted water quality mo
Culverts and Bridges				
Bridge demolition and construction plan	☐	☐	☐ Date:	Not applicable
Culvert removal and replacement plan	☑	☐	☐ Date:	See submitted 30% design plan
Dredging				
Dredging and excavation plans	☐	☐	☐ Date:	No dredging; see submitted 30%
Suitability determination	☐	☐	☐ Date:	Not applicable
Soils testing and characterization reports	☐	☐	☐ Date:	Not applicable
Other				
Stone column installation plan	☐	☐	☐ Date:	Not applicable
Horizontal direction drill (HDD) inadvertent return plan	☐	☐	☐ Date:	Not applicable
Levee repair and bank stabilization plan	☐	☐	☐ Date:	Not applicable. See submitted 3
Piling removal and installation plan	☐	☐	☐ Date:	Not applicable
Wastewater servicing for marina operations	☐	☐	☐ Date:	Not applicable

Aquatic invasive species management plan	☑	☐	☐ Date:	See submitted project descriptic

F. Project Proponent Information

Project Proponent

First/Last Name: Scott Luchessa

Organization: Seattle City Light

Phone #: (206) 561-4838 E-mail: Scott.Luchessa@seattle.gov

Agent/Consultant

First/Last Name:

Organization:

Phone #: E-mail:

G. Required Certification Statements:

The project proponent hereby certifies that all information contained herein is true, accurate, and complete, to the best of my knowledge and belief.

The project proponent hereby requests that the certifying authority review and take action on this WQC request within the applicable reasonable period of time.

Signature:_____Date:_____

Print Name:_____

Seattle City Light

700 5th Ave. | P.O. Box 34023 | Seattle WA 98124-4023
TEL (206) 684-3000 TTY/TDD (206) 684-3225 FAX (206) 625-3709
seattle.gov/city-light

December 19, 2024

U.S. Army Corps of Engineers
Regulatory Branch
ATTN: Lydia Baldwin
P.O. Box 4735
Seattle, Washington
98124-3755

Subject: Newhalem Creek Hydroelectric Project Decommissioning JARPA Submittal

Lydia,

As you know, Seattle City Light (City Light) has elected to surrender our Federal Energy Regulatory Commission license (FERC No. 2705) and decommission the project by removing developed infrastructure and restore aquatic and riparian habitats as described in these JARPA submittals for a permit under Section 404 of the Clean Water Act. JARPA submittal documents include:

- A completed JARPA form
- Attachment 1, JARPA Permit Drawings
- Attachment 2, Wetland and Stream Delineation Report
- Attachment 3, Biological Assessment (BA)

The BA is being submitted for information only. FERC will act as the lead federal agency for Endangered Species Act consultation and will initiate consultation in the not too distant future. In addition, City Light has been designated by FERC as the non-federal representative on the National Historic Preservation Act Section 106 consultation and will lead that process. As requested by U.S. Army Corps of Engineers (Corps) Seattle District archaeologist Stephanie Neil, Seattle City Light will provide the Department of Archaeology and Historic Preservation concurrence letter once consultation has been completed. Section 106 consultation has been initiated and is ongoing.

Regarding the Clean Water Act permit needed to complete the project, City Light believes all elements of this project can be completed under the current Nationwide Permit (NWP) program and is requesting a letter of verification (LOV) from the Corps. Specifically removal of the small dam on Newhalem Creek and proposed channel restoration and removal of the small concrete barrier on the tailrace and restoration of high-flow refuge habitat meet the intent of NWP 27 (*Aquatic Habitat Restoration, Enhancement, and Establishment Activities*; 86 Federal Register 73576). NWP 27 covers activities that rehabilitate or enhance streams and wetlands when those activities result in a net increase in aquatic resource functions and services. Removal of existing infrastructure and restoration of aquatic and riparian ecosystems and associated functions is consistent with NWP 27 and the National Marine

Fisheries Service and U.S. Fish and Wildlife Services programmatic biological opinions for fish habitat restoration and passage in Washington State.

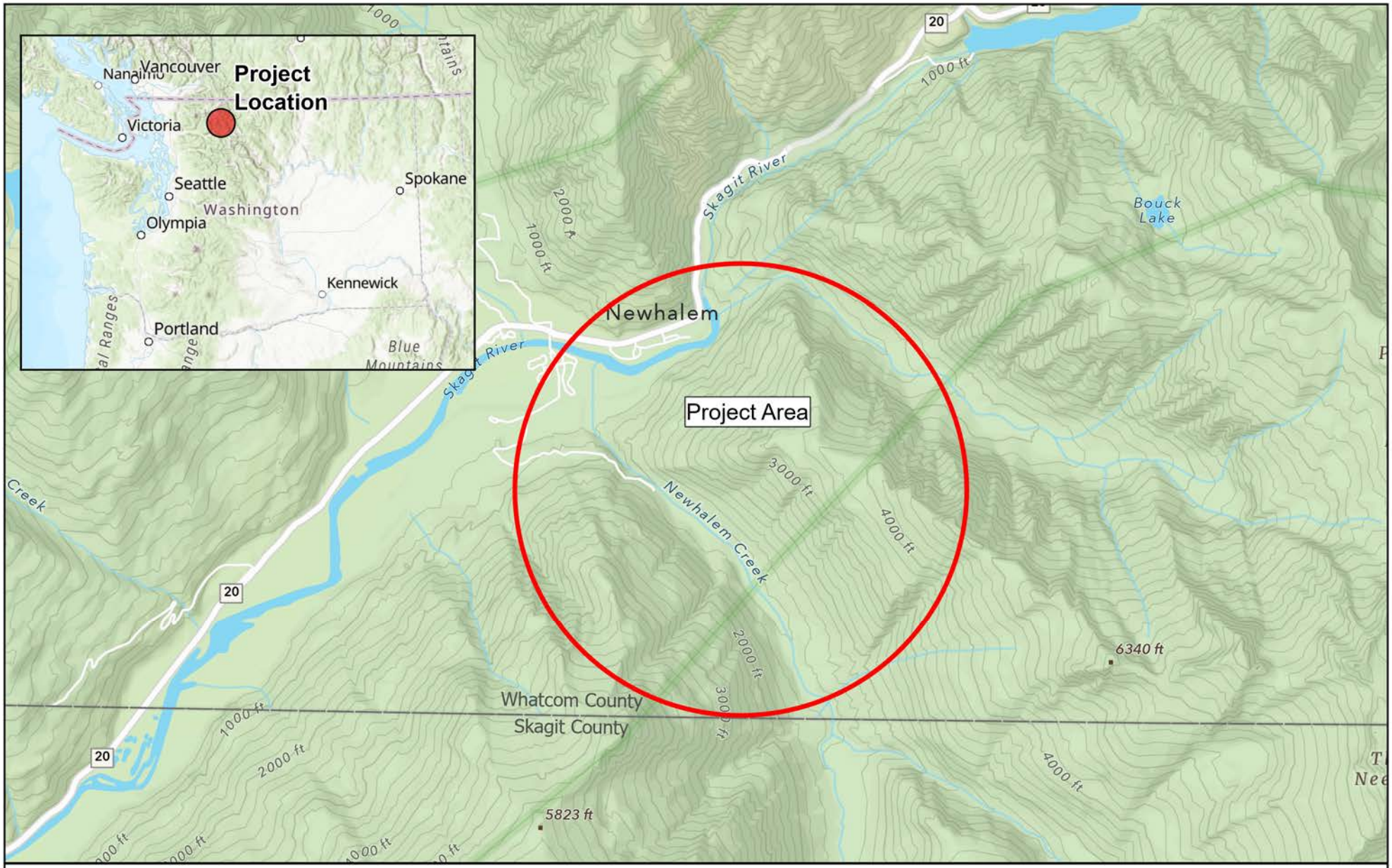
City Light is planning to complete this work under a Public Works contract in the summer low-flow period in 2026. The Public Works contracts process requires having all permits incorporated in the request for bid documents for the proposed restoration to ensure the selected contractor understands and abides by all applicable permit conditions.

We expect the information provided with this JARPA submittal provides the necessary and appropriate information the Corps needs to determine that the project is consistent with the current NWP 27 requirements and can issue us a timely LOV to help us complete this important habitat restoration within our planned timeframe. Proposed restoration will have a net benefit to critical habitat and recovery of federally listed anadromous fish species, including Puget Sound Chinook (*Oncorhynchus tshawytscha*) and Puget Sound Steelhead (*Oncorhynchus mykiss*). If you have any questions or require any additional information, please contact me at (206) 561-4838 or via email at scott.luchessa@seattle.gov.

Sincerely

Scott Luchessa

Scott Luchessa
Certified Ecologist, Sr. Capital Projects Coordinator
Seattle City Light



VICINITY MAP

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 1 of 23

DATE: 12/16/2024

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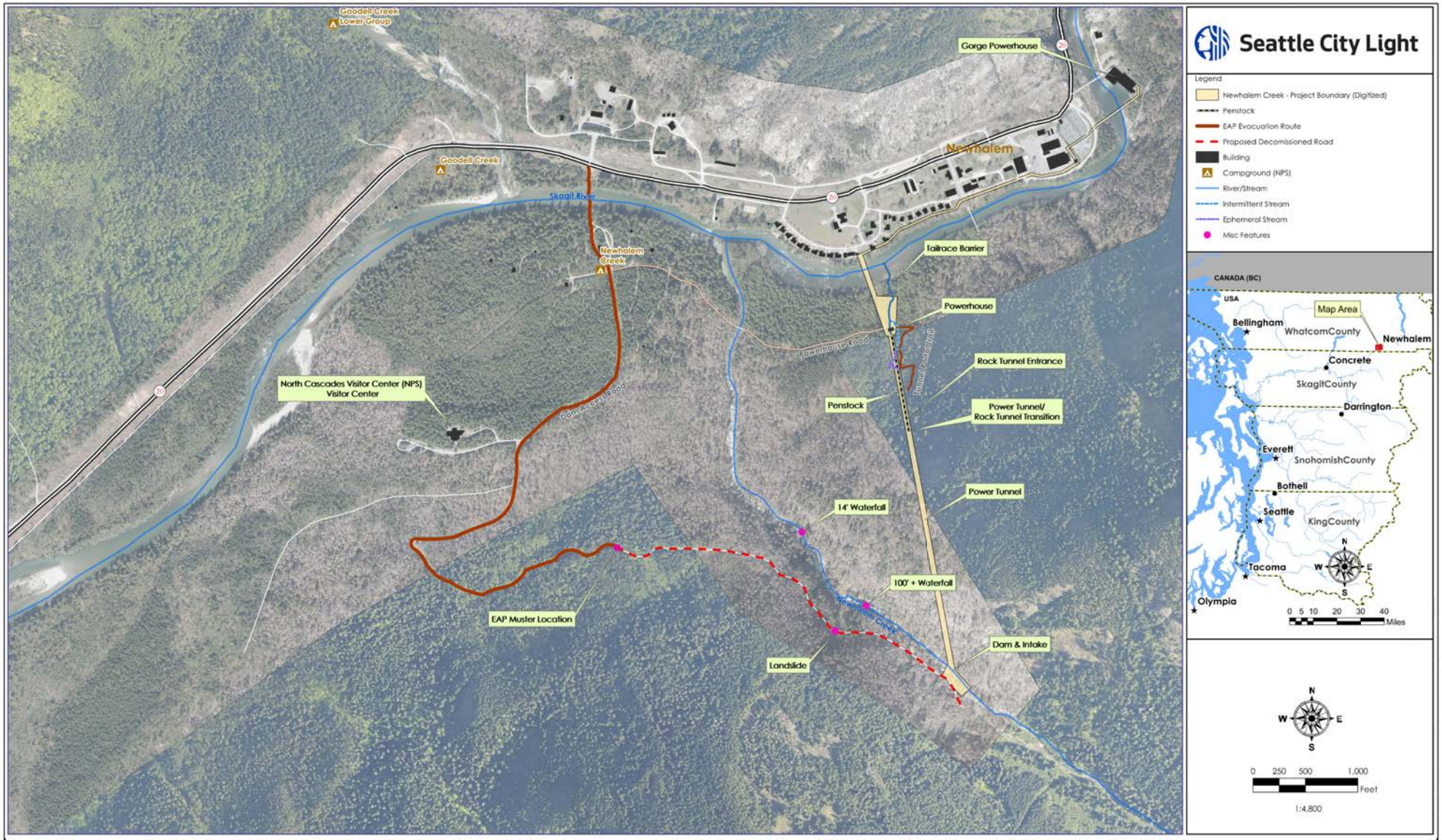

NEWHALEM CREEK HYDROELECTRIC PROJECT (FERC 2705)

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
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PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 2 of 23

DATE: 12/16/2024

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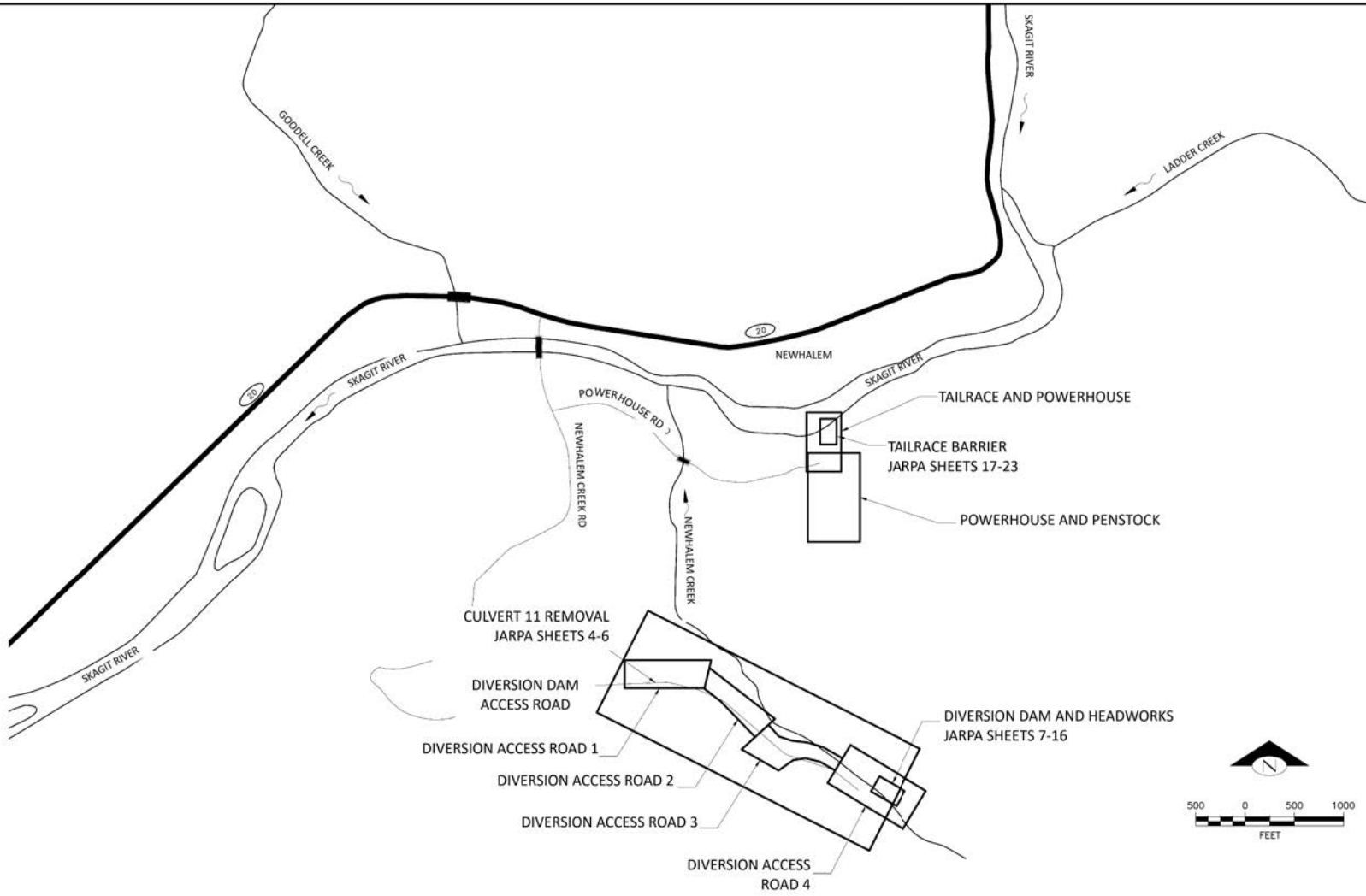

EXISTING CONDITIONS

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

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PROPOSED PROJECT:
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APPLICANT: Seattle City Light

SHEET 3 of 23

DATE: 12/16/2024

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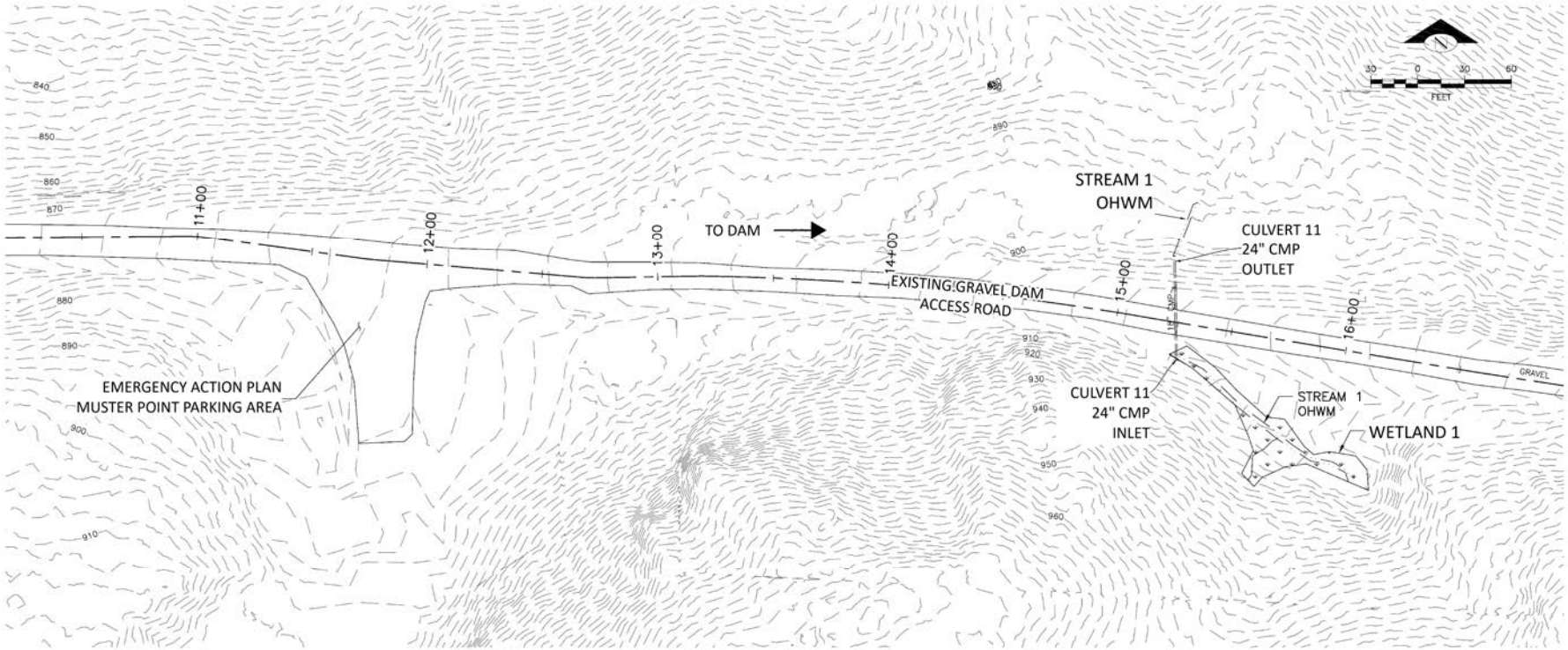
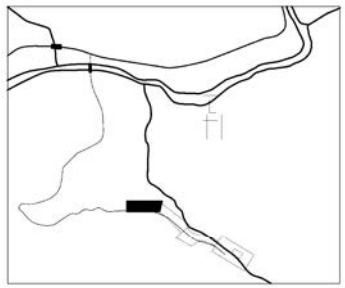


NOTES:

1. EXISTING SITE TOPOGRAPHY CONSISTS OF TOPOGRAPHIC SURVEY AND LIDAR DATA SOURCES INCLUDING: 2023 TOPOGRAPHIC SURVEY BY 1 ALLIANCE, 2022 TOPOBATHYMETRIC LIDAR FLOWN BY NV5, AND 2017 TERRESTRIAL LIDAR FLOWN BY QUANTUM SPATIAL.
2. TOPOGRAPHIC SURVEY DATA COLLECTED IN SEPTEMBER THROUGH DECEMBER 2023 BY 1 ALLIANCE
3. ORDINARY HIGH WATER MARK (OHWM) WAS COLLECTED IN NOVEMBER 2023 BY HDR.



KEYMAP

CULVERT 11 EXISTING CONDITIONS

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
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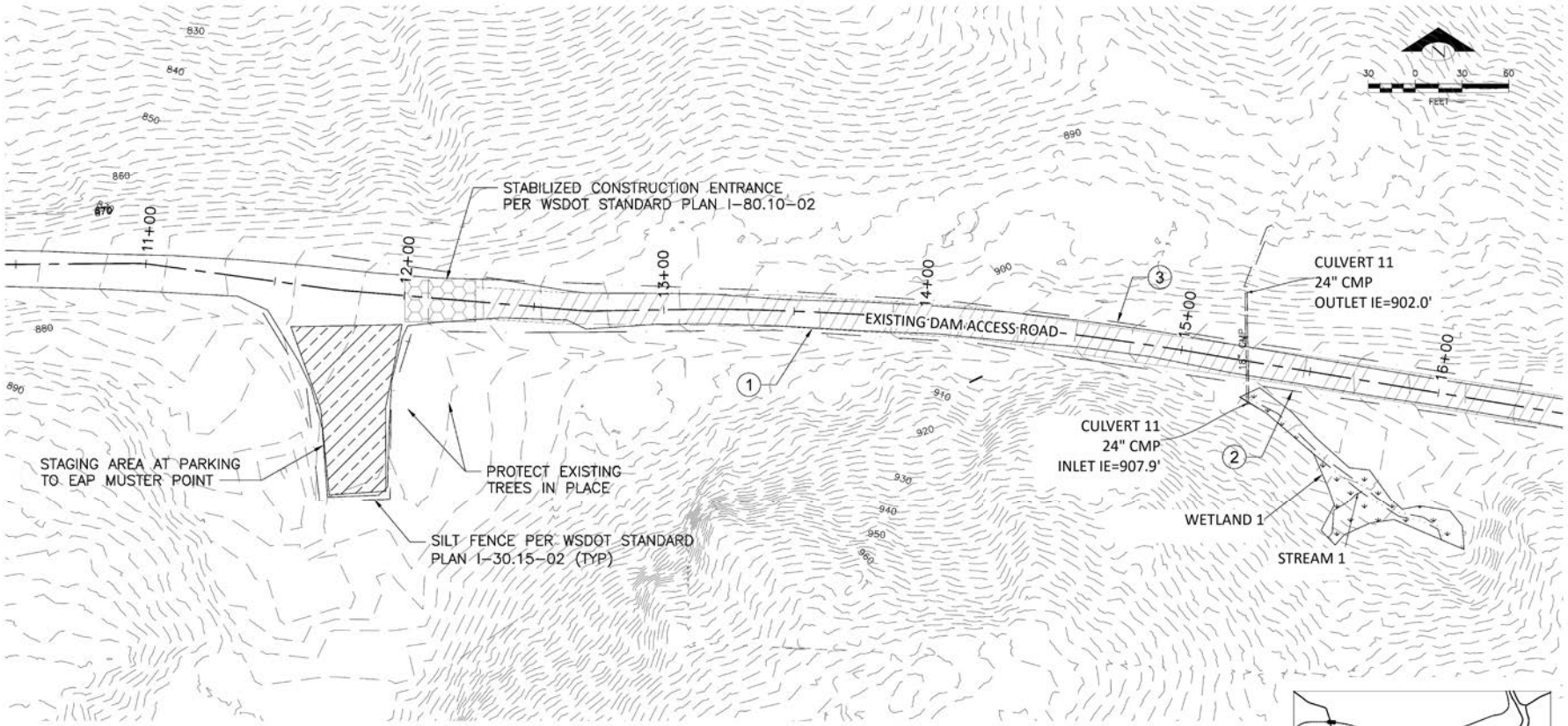
PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

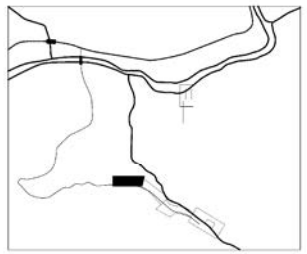
SHEET 4 of 23

DATE: 12/16/2024



NOTES:

1. ESTABLISH ACCESS ALONG EXISTING ROADWAY, MINOR ROADWAY GRADING AND CLEARING OF VEGETATION ANTICIPATED
2. INSTALL SILT FENCE ALONG ROADWAY ADJACENT TO EXISTING WETLAND
3. INSTALL SILT FENCE ALONG DOWNSLOPE EDGE OF ROADWAY



KEYMAP

CULVERT 11 REMOVAL AND CHANNEL RESTORATION: CONSTRUCTION ACCESS AND STAGING

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
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NEAR/AT: City of Newhalem

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APPLICANT: Seattle City Light

SHEET 5 of 23

DATE: 12/16/2024

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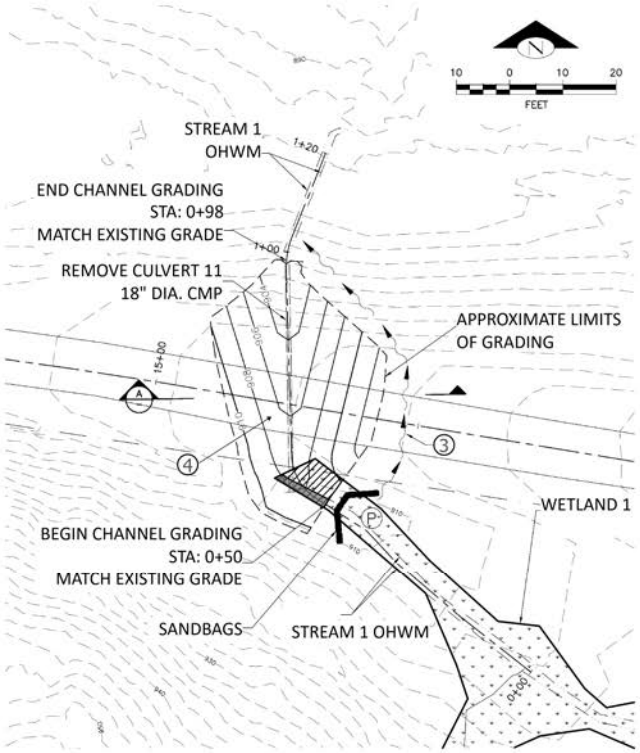
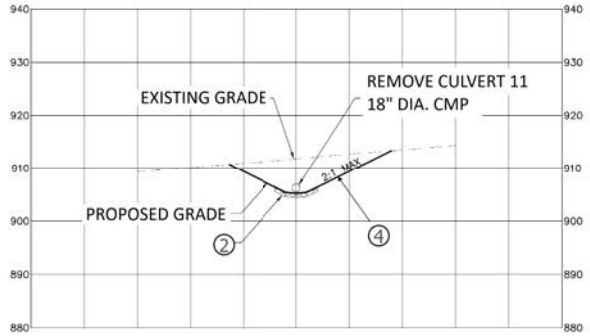
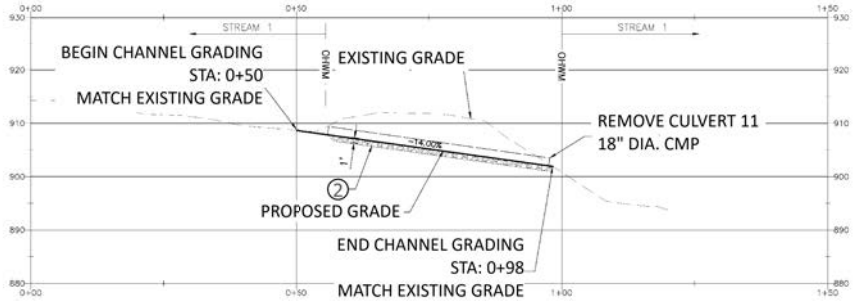


CULVERT 11 REMOVAL PLAN
SCALE: 1" = 10'



CULVERT 11 REMOVAL TYPICAL SECTION
SCALE: 1" = 10'



CULVERT 11 REMOVAL PROFILE
SCALE: 1" = 10'

NOTES:

1 CULVERT 11 REMOVAL AND STREAM GRADING SHALL BE PERFORMED FOLLOWING THE COMPLETION OF ALL DECOMMISIONING, SPOILS REMOVAL, AND RESTORATION ACTIVITIES AT THE DIVERSION DAM SITE.

2 PLACE SALVAGED STREAMBED MATERIAL FROM NEWHALEM CREEK TO ACHIEVE FINISHED GRADE.

3 INSTALL PUMPED TEMPORARY STREAM DIVERSION

4 REVEGETATE SLOPES WITH NATIVE RIPARIAN AND UPLAND VEGETATION. SPECIFIC VEGETATION RESTORAITON PROTOCOLS WILL BE PRESCIBED BY NPS DURING PERMITTING.

Activity	Aquatic Resource Name	Quantity (CY)	Impact Area	Duration of Impact
Fill: Temporary sandbag placement for Culvert 11 removal	Stream 1	1	10 sq ft/5 lf	Temporary
	Wetland 1	1	16 sq ft	Temporary
Remove Culvert 11 and road fill	Stream 1	2	20 sq ft/12 lf	Permanent
	Wetland 1	3	50 sq ft	Permanent

CULVERT 11 REMOVAL PLAN AND PROFILES

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

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NEAR/AT: City of Newhalem

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PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 6 of 23

DATE: 12/16/2024

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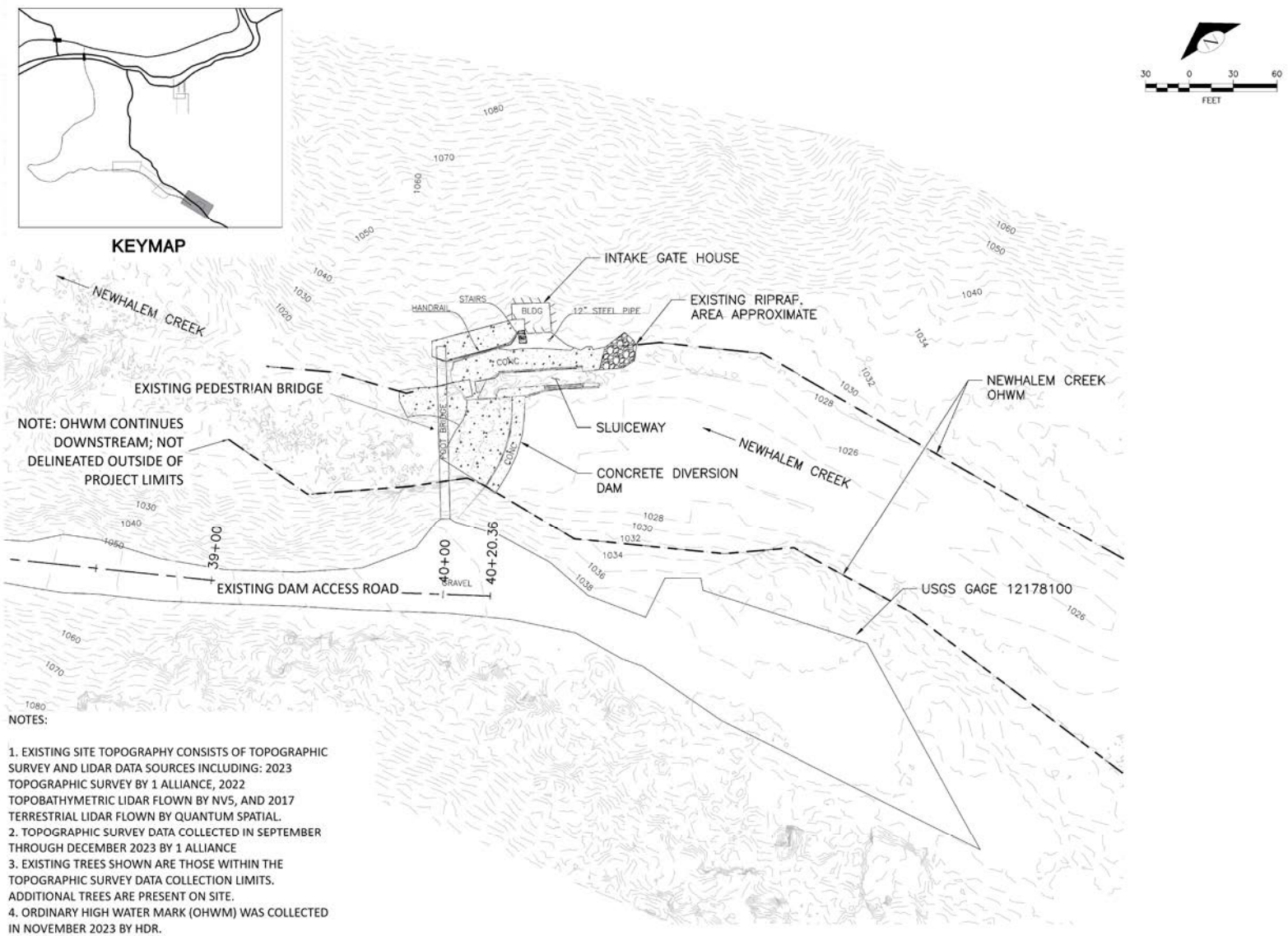

NOTES:

1. EXISTING SITE TOPOGRAPHY CONSISTS OF TOPOGRAPHIC SURVEY AND LIDAR DATA SOURCES INCLUDING: 2023 TOPOGRAPHIC SURVEY BY 1 ALLIANCE, 2022 TOPOBATHYMETRIC LIDAR FLOWN BY NV5, AND 2017 TERRESTRIAL LIDAR FLOWN BY QUANTUM SPATIAL.
2. TOPOGRAPHIC SURVEY DATA COLLECTED IN SEPTEMBER THROUGH DECEMBER 2023 BY 1 ALLIANCE
3. EXISTING TREES SHOWN ARE THOSE WITHIN THE TOPOGRAPHIC SURVEY DATA COLLECTION LIMITS. ADDITIONAL TREES ARE PRESENT ON SITE.
4. ORDINARY HIGH WATER MARK (OHWM) WAS COLLECTED IN NOVEMBER 2023 BY HDR.

NEWHALEM DAM AND HEADWORKS EXISTING SITE PLAN

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

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PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 7 of 23

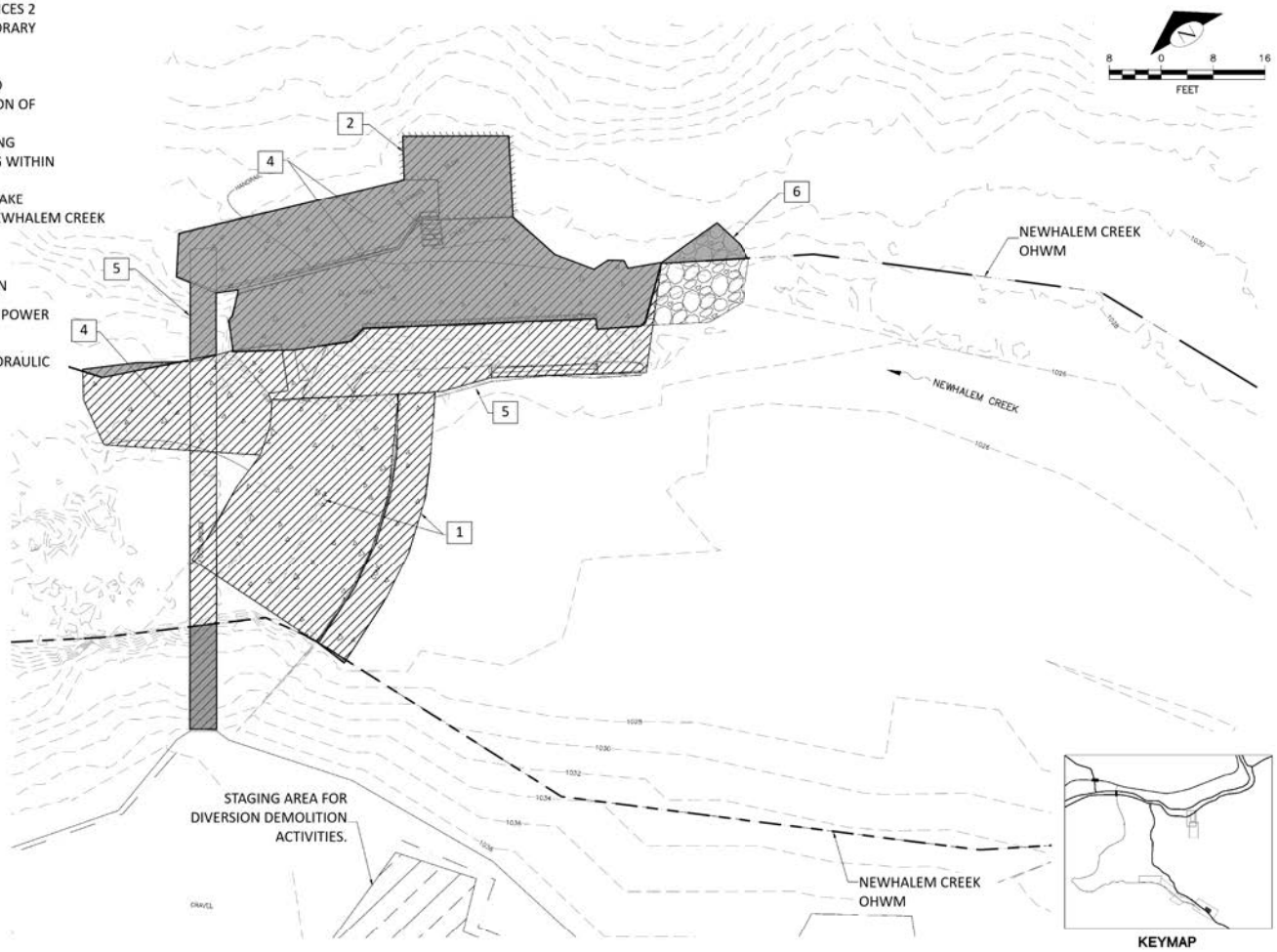
DATE: 12/16/2024

NOTES:
1. DEMOLITION ACTIVITIES SHALL OCCUR DURING PHASED TEMPORARY STREAM BYPASS OF NEWHALEM CREEK. DEMOLITION SEQUENCE 1 OCCURS DURING PHASE 1 OF THE TEMPORARY STREAM BYPASS. DEMOLITION SEQUENCES 2 THROUGH6 OCCUR DURING PHASE 2 OF THE TEMPORARY STREAM DIVERSION. SEE SHEETS 11 AND 12 FOR TEMPORARY STREAM DIVERSION PLANS.
2. CONTRACTOR SHALL IMPLEMENT TESC BMPS AND TEMPORARY STREAM DIVERSION PRIOR TO INITIATION OF DEMOLITION ACTIVITIES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING PERMITTING REQUIREMENTS RELATED TO WORKING WITHIN ORDINARY HIGH WATER.
4. FOLLOWING DEMOLITION OF DIVERSION AND INTAKE INFRASTRUCTURE, CONTRACTOR SHALL RESTORE NEWHALEM CREEK

POSSIBLE DEMOLITION SEQUENCE:

1. DEMOLISH CONCRETE DAM AND DAM APRON
2. DEMOLISH GATE HOUSE AND SEAL VERTICAL POWER TUNNEL. SEE SHEET 9.
3. DEMOLISH SLUICEWAY AND ASSOCIATED HYDRAULIC CONTROLS
4. DEMOLISH CONCRETE SLABS
5. REMOVE FOOT BRIDGE
6. REMOVE EXISTING RIPRAP AND INCORPORATE INTO BANK RESTORATION WITHIN HEADWORKS FOOTPRINT OR

PROJECT ELEMENTS LANDWARD OF OHWM



NEWHALEM DAM AND HEADWORKS DEMOLITION PLAN

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

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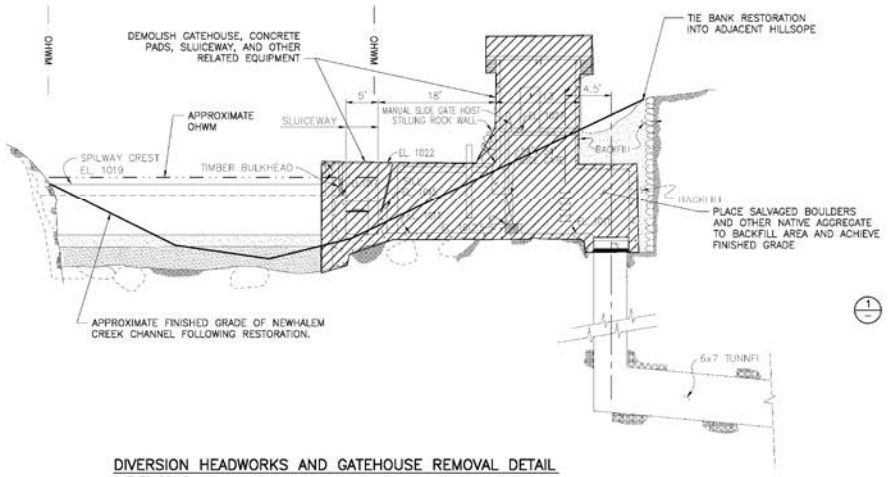
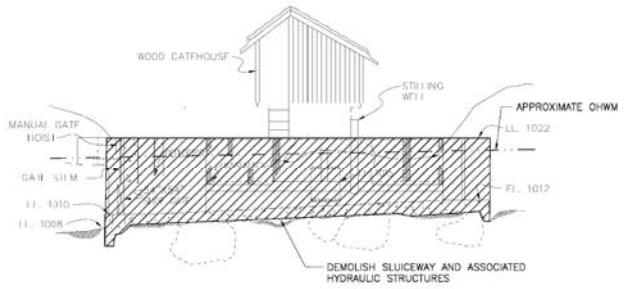
APPLICANT: Seattle City Light

SHEET 8 of 23

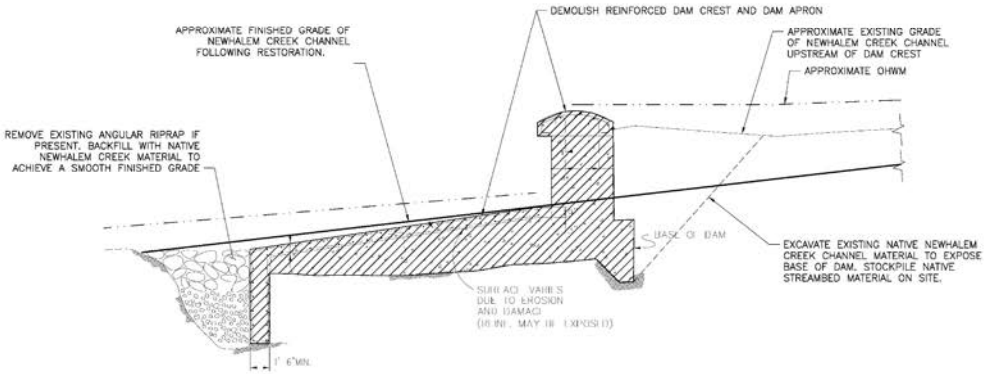
DATE: 12/16/2024



DIVERSION HEADWORKS AND GATEHOUSE REMOVAL DETAIL
NOT TO SCALE



SLUICEWAY REMOVAL DETAIL
NOT TO SCALE



DIVERSION DAM AND APRON REMOVAL DETAIL
NOT TO SCALE

NOTES:

1. DIVERSION DAM, HEADWORKS, AND INTAKE GATE HOUSE DETAILS TAKEN FROM FERC NO. 2705 EXHIBIT F, SEPTEMBER 1992.
2. ELEVATIONS SHOWN ON REFERENCE DRAWINGS ARE IN LOCAL PROJECT VERTICAL DATUM AND DO NOT CORRESPOND WITH ELEVATIONS SHOWN ON REMAINDER OF PLAN SET.
3. ORDINARY HIGH WATER MARK SHOWN ON REFERENCE DRAWINGS IS APPROXIMATE.
4. CONTRACTOR SHALL HAUL AND DISPOSE OF ALL CONCRETE, REBAR, METAL AND ASSOCIATED DEBRIS OFF SITE TO A LEGALLY DESIGNATED DISPOSAL LOCATION.

NEWHALEM DAM AND HEADWORKS DEMOLITION DETAILS

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

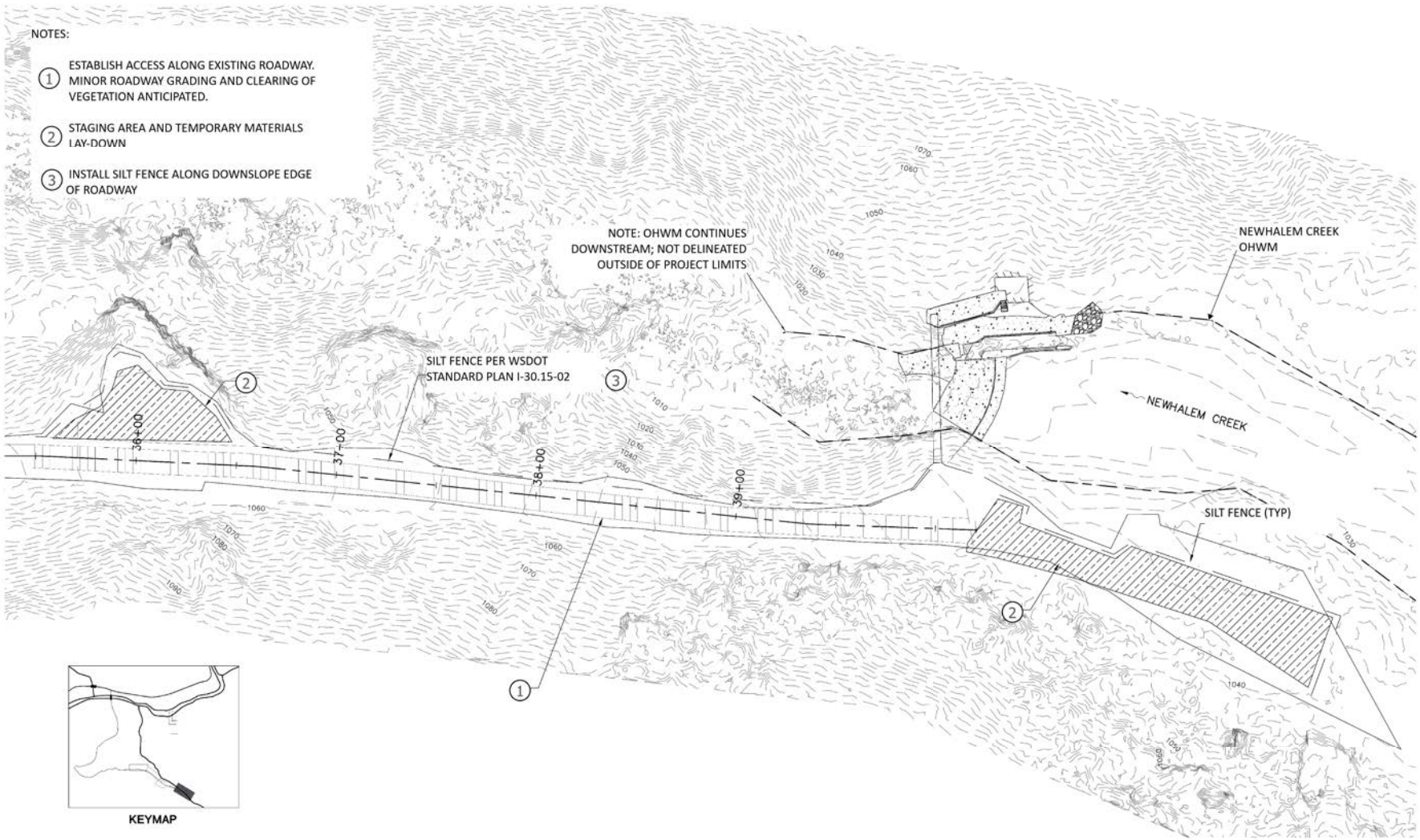
COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 9 of 23

DATE: 12/16/2024



NEWHALEM DAM AND HEADWORKS ACCESS AND STAGING PLAN

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 10 of 23

DATE: 12/16/2024

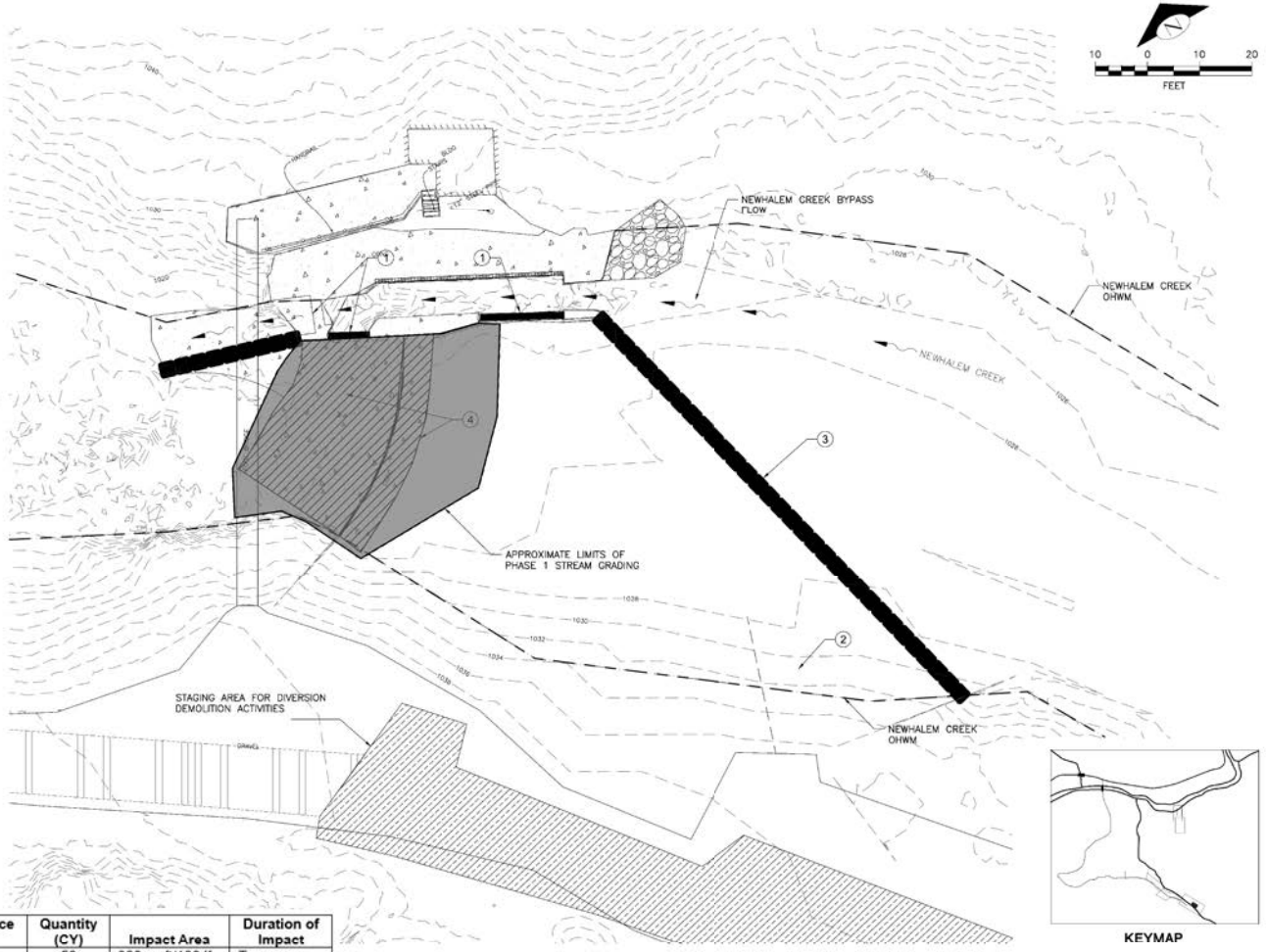
Document Path: X:\Projects\SCL\10135556_SCL_SkagitRelicensing_Newhalem\7.2_WIP\APRX\JARPA.aprx

NOTES:

1. THIS DRAWING SHOWS ANTICIPATED TEMPORARY STREAM DIVERSION PLAN AND SEQUENCING. CONTRACTOR SHALL DEVELOP A TEMPORARY STREAM DIVERSION PLAN MEETING THE REQUIREMENTS OF THESE DRAWINGS, THE PROJECT SPECIFICATIONS, AND ALL APPLICABLE PERMITS
2. CONTRACTOR SHALL PREPARE A TEMPORARY STREAM DIVERSION PLAN IN ACCORDANCE WITH THE SUBMITTALS OUTLINED IN THE PROJECT SPECIFICATIONS.
3. TEMPORARY STREAM DIVERSION SHALL BE PERFORMED IN ACCORDANCE WITH ALL STIPULATIONS PRESENTED IN APPROVED PROJECT PERMITS.
4. CONTRACTOR IS SOLELY RESPONSIBLE FOR DEVELOPMENT AND EXECUTION OF THE TEMPORARY STREAM DIVERSION PLAN.
5. CONTRACTOR IS RESPONSIBLE FOR ADDRESSING VARIED MATERIALS INCLUDING BOULDERS, POROUS SUBSTRATE, AND SIGNIFICANT GROUNDWATER DURING EXCAVATION AND DEWATERING.

ANTICIPATED TEMPORARY STREAM DIVERSION SEQUENCING AND DAM CREST AND APRON REMOVAL - PHASE 1

1. PREPARE SLUICEWAY FOR TEMPORARY STREAM DIVERSION. OPEN SLIDE GATE, BLOCK TIMBER WEIR AND BULKHEAD
2. ESTABLISH EQUIPMENT ACCESS TO CHANNEL THROUGH EXISTING MAINTENANCE POINT
3. INSTALL COFFER DAM CONSISTING OF SUPERSACKS FILLED WITH NATIVE STREAMBED MATERIAL
4. DEMOLISH DIVERSION DAM CREST AND APRON



Activity	Aquatic Resource Name	Quantity (CY)	Impact Area	Duration of Impact
Fill: Cofferdam placement	Newhalem Creek	50	390 sq ft/130 lf	Temporary
Remove concrete dam	Newhalem Creek	270	910 sq ft/20 lf	Permanent
Remove concrete dam apron	Newhalem Creek	170	830 sq ft/32 lf	Permanent

NEWHALEM DAM DECOMMISSIONING – PHASE 1

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 11 of 23

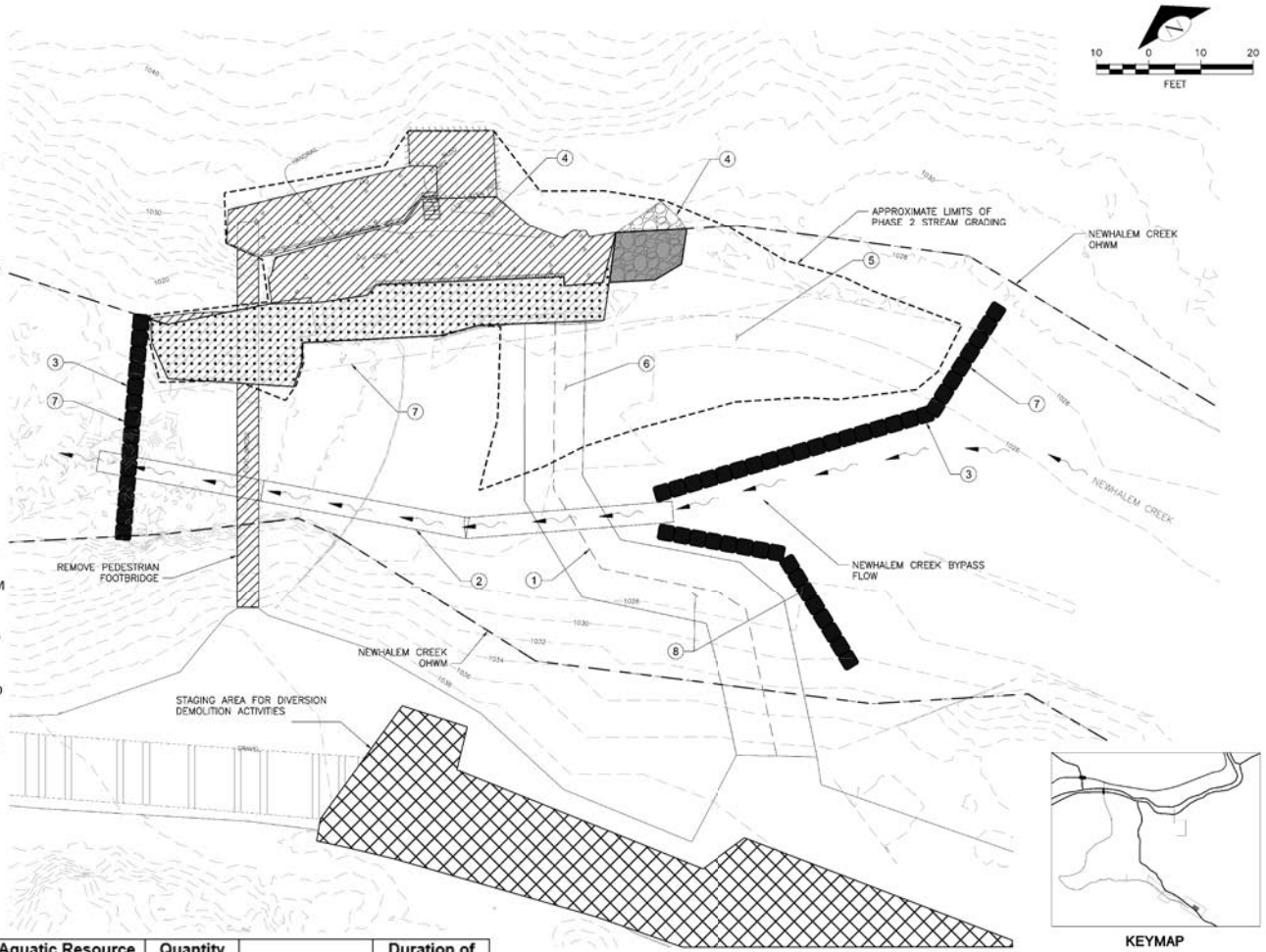
DATE: 12/16/2024

Document Path: X:\Projects\SCL\10135556_SCL_SkagitRelicensing_Newhalem\7.2_WIP\APRX\JARPA.aprx

NOTES:
1. THIS DRAWING SHOWS ANTICIPATED TEMPORARY STREAM DIVERSION PLAN AND SEQUENCING. CONTRACTOR SHALL DEVELOP A TEMPORARY STREAM DIVERSION PLAN MEETING THE REQUIREMENTS OF THESE DRAWINGS, THE PROJECT SPECIFICATIONS, AND ALL APPLICABLE PERMITS
2. CONTRACTOR SHALL PREPARE A TEMPORARY STREAM DIVERSION PLAN IN ACCORDANCE WITH THE SUBMITTALS OUTLINED IN THE PROJECT SPECIFICATIONS.
3. TEMPORARY STREAM DIVERSION SHALL BE PERFORMED IN ACCORDANCE WITH ALL STIPULATIONS PRESENTED IN APPROVED PROJECT PERMITS.
4. CONTRACTOR IS SOLELY RESPONSIBLE FOR DEVELOPMENT AND EXECUTION OF THE TEMPORARY STREAM DIVERSION PLAN.
5. CONTRACTOR IS RESPONSIBLE FOR ADDRESSING VARIED MATERIALS INCLUDING BOULDERS, POROUS SUBSTRATE, AND SIGNIFICANT GROUNDWATER DURING EXCAVATION AND DEWATERING.

ANTICIPATED TEMPORARY STREAM DIVERSION AND HEADWORKS REMOVAL SEQUENCING - PHASE 2

1. CONSTRUCT TEMPORARY CONSTRUCTION ACCESS BERM TO DIVERSION INTAKE STRUCTURE BY PLACING STREAMBED MATERIALS ATOP TEMPORARY BYPASS CULVERT.
2. INSTALL TEMPORARY CULVERTS. MIN. DIA 48 INCHES.
3. INSTALL COFFER DAM CONSISTING OF SUPERSACKS FILLED WITH NATIVE STREAMBED MATERIAL. MINOR CHANNEL GRADING ANTICIPATED TO ESTABLISH TEMPORARY STREAM DIVERSION
4. REMOVE REMAINING HEADWORKS INFRASTRUCTURE AND SEAL VERTICAL POWER TUNNEL.
5. PERFORM CHANNEL EXCAVATION TO ESTABLISH PROPOSED NEWHALEM CREEK CHANNEL (SEE SHEET 13)
6. REMOVE ACCESS ROAD AND COMPLETE GRADING WITHIN LIMITS OF NEWHALEM CREEK CHANNEL GRADING
7. REWATER COMPLETED NEWHALEM CREEK CHANNEL IN A GRADUAL, CONTROLLED MANNER BY REMOVING DOWNSTREAM AND THEN UPSTREAM COFFERDAMS
8. REMOVE REMAINING TEMPORARY STREAM DIVERSION MATERIALS AND RESTORE CHANNEL BANKS TO PRE-



KEYMAP

Activity	Aquatic Resource Name	Quantity (CY)	Impact Area	Duration of Impact
Fill: Cofferdam placement	Newhalem Creek	60	540 sq ft/180 lf	Temporary
Excavate: Concrete sluiceway and headworks structures	Newhalem Creek	150	870 sq ft/90 lf	Permanent
Excavate: Riprap	Newhalem Creek	20	170 sq ft/20 lf	Permanent

Permanent impact – Excavate concrete sluiceway and headworks
Permanent impact – Excavate riprap
Elements landward of OHWM
Staging area

NEWHALEM DAM DECOMMISSIONING – PHASE 2

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 12 of 23

DATE: 12/16/2024

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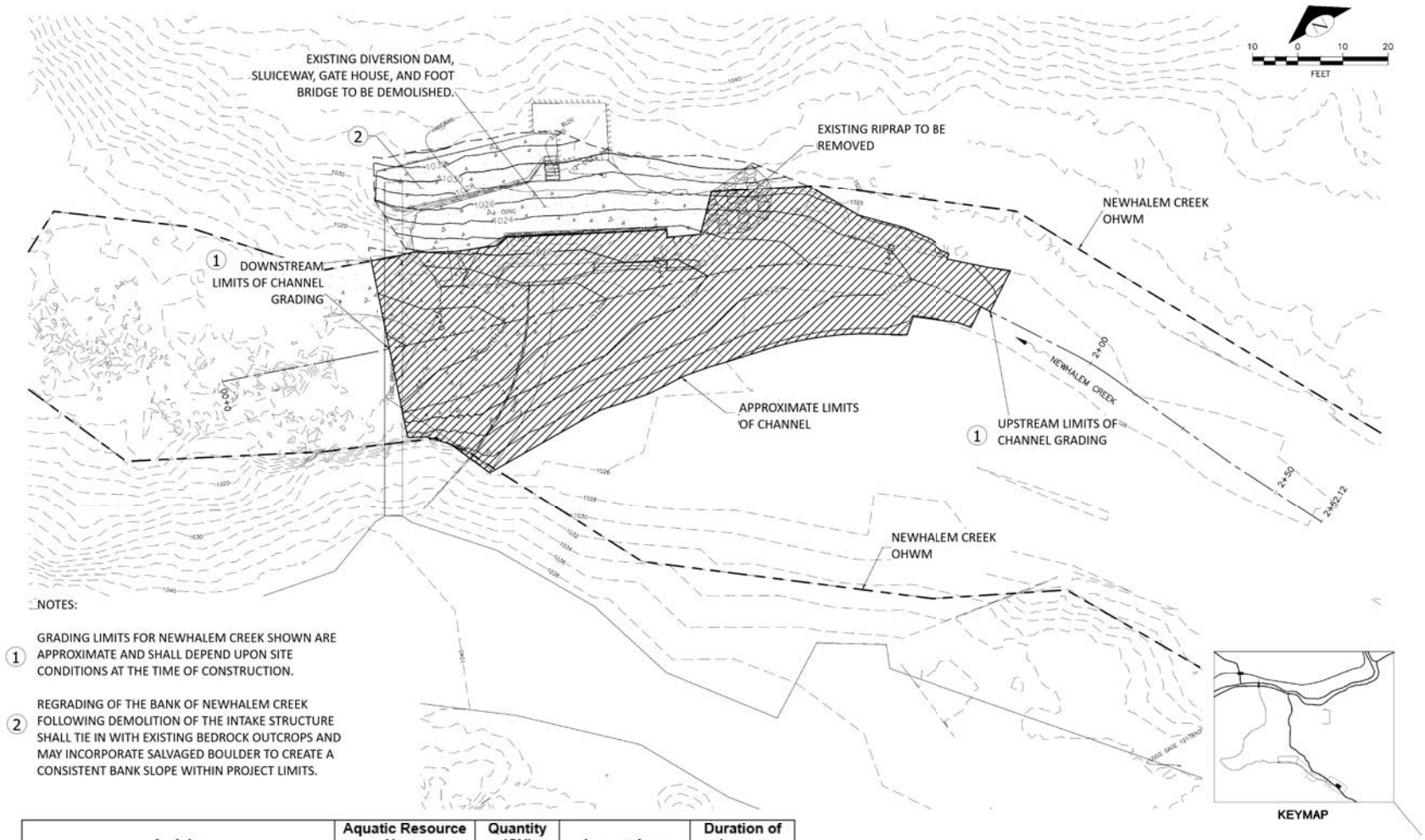

NOTES:

1. GRADING LIMITS FOR NEWHALEM CREEK SHOWN ARE APPROXIMATE AND SHALL DEPEND UPON SITE CONDITIONS AT THE TIME OF CONSTRUCTION.

2. REGRADING OF THE BANK OF NEWHALEM CREEK FOLLOWING DEMOLITION OF THE INTAKE STRUCTURE SHALL TIE IN WITH EXISTING BEDROCK OUTCROPS AND MAY INCORPORATE SALVAGED BOULDER TO CREATE A CONSISTENT BANK SLOPE WITHIN PROJECT LIMITS.

Activity	Aquatic Resource Name	Quantity (CY)	Impact Area	Duration of Impact
Excavate: Channel restoration: regrading and removal of accumulated streambed material	Newhalem Creek	400	4,620 sq ft/165 lf	Permanent

NEWHALEM CREEK CHANNEL RESTORATION PLAN – PHASE 2

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
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Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 13 of 23

DATE: 12/16/2024

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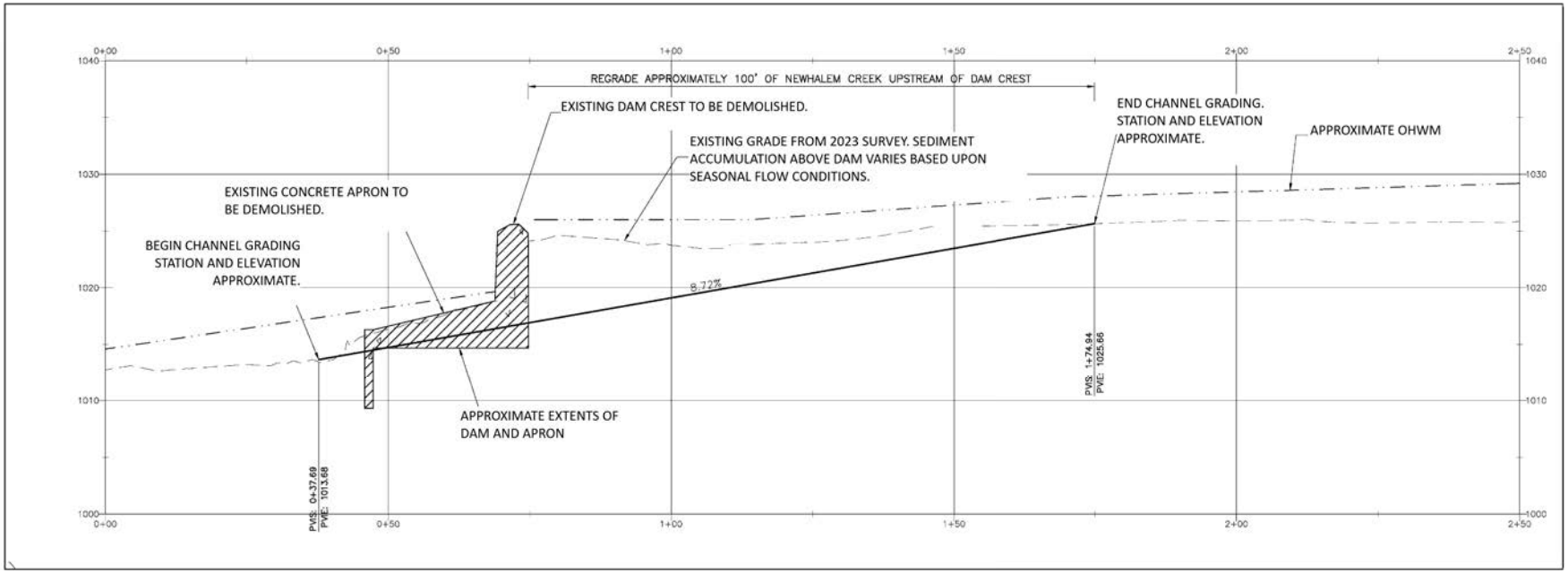

NEWHALEM CREEK CHANNEL PROFILE
SCALE: HORIZ 1" = 10' VERT 1" = 5'

NOTES:

1. ELEVATION OF OHWM ACROSS CHANNEL APPROXIMATE; OHWM ALONG RIGHT AND LEFT BANKS DELINEATED IN THE FIELD.

NEWHALEM CREEK CHANNEL RESTORATION PROFILE – PHASE 2

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

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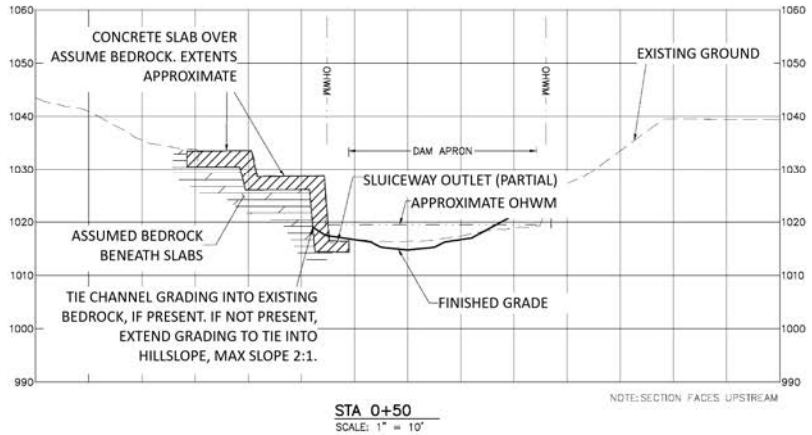
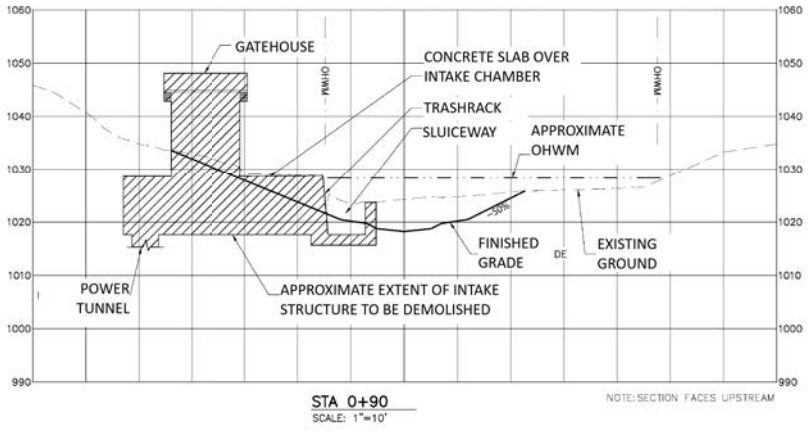
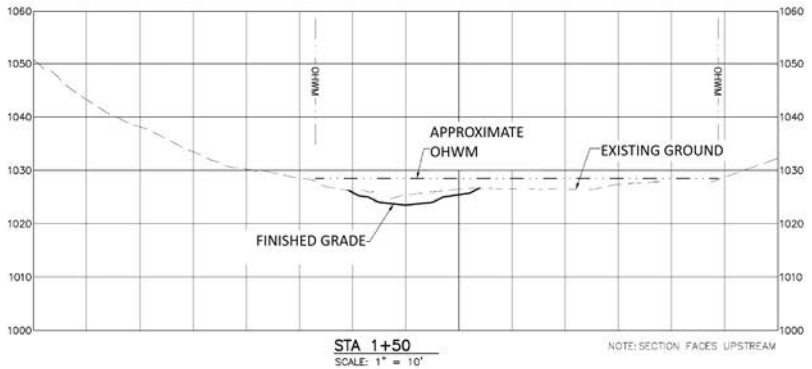
DATE: 12/16/2024



STA 0+50
SCALE: 1" = 10'



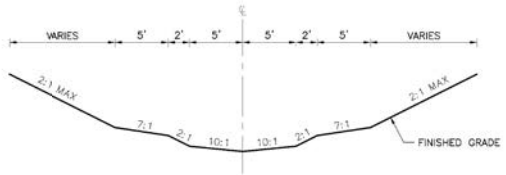
STA 0+90
SCALE: 1"=10'



STA 1+50
SCALE: 1" = 10'

NOTES:

1. ELEVATION OF OHWM ACROSS CHANNEL APPROXIMATE. OHWM ALONG RIGHT AND LEFT BANKS DELINEATED IN THE FIELD



NEWHALEM CREEK TYPICAL CHANNEL SECTION
SCALE: 1"=5'

NEWHALEM CREEK CHANNEL RESTORATION SECTIONS – PHASE 2

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 15 of 23

DATE: 12/16/2024

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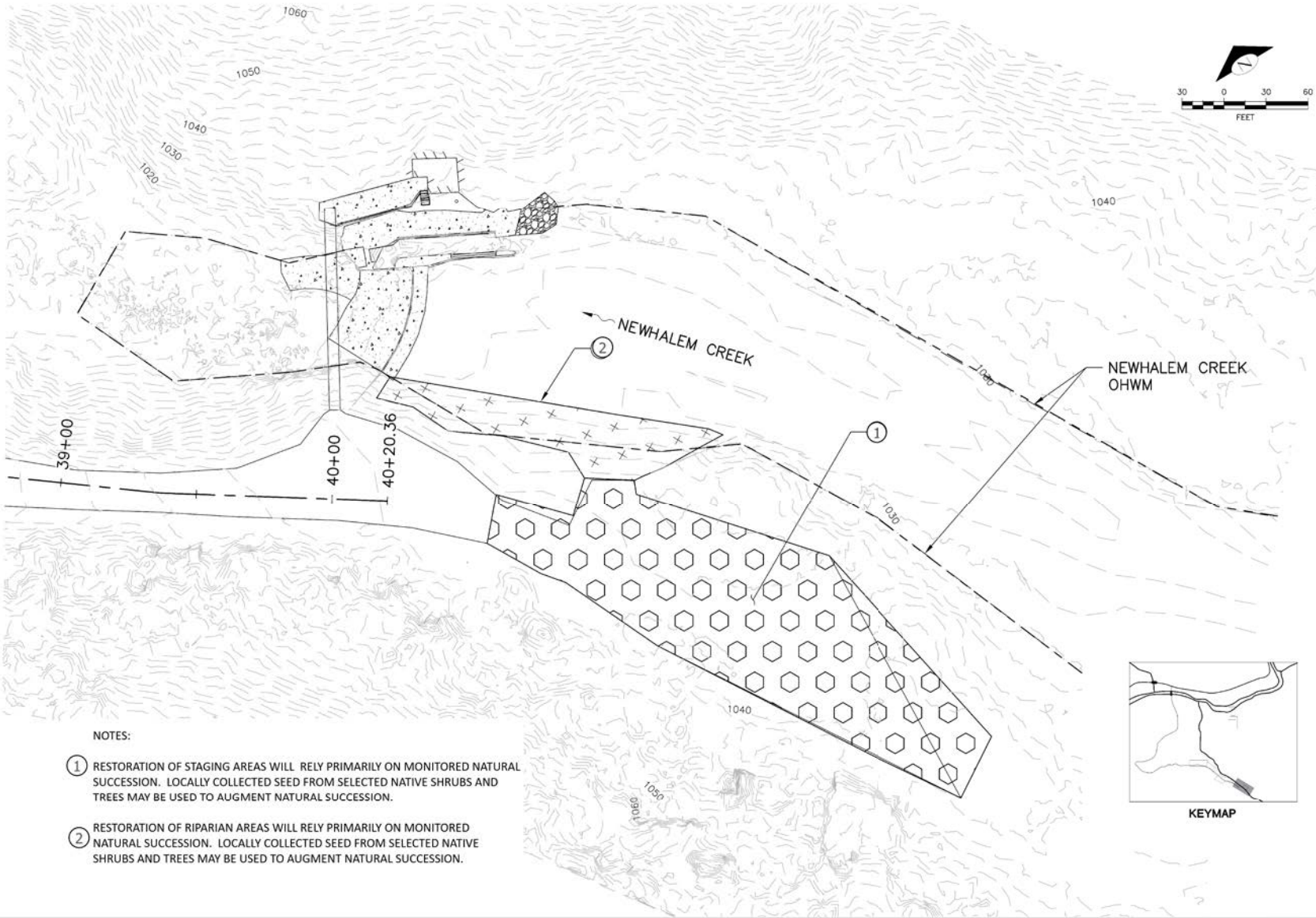

NEWHALEM DAM AND HEADWORKS RESTORATION PLAN

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 16 of 23

DATE: 12/16/2024

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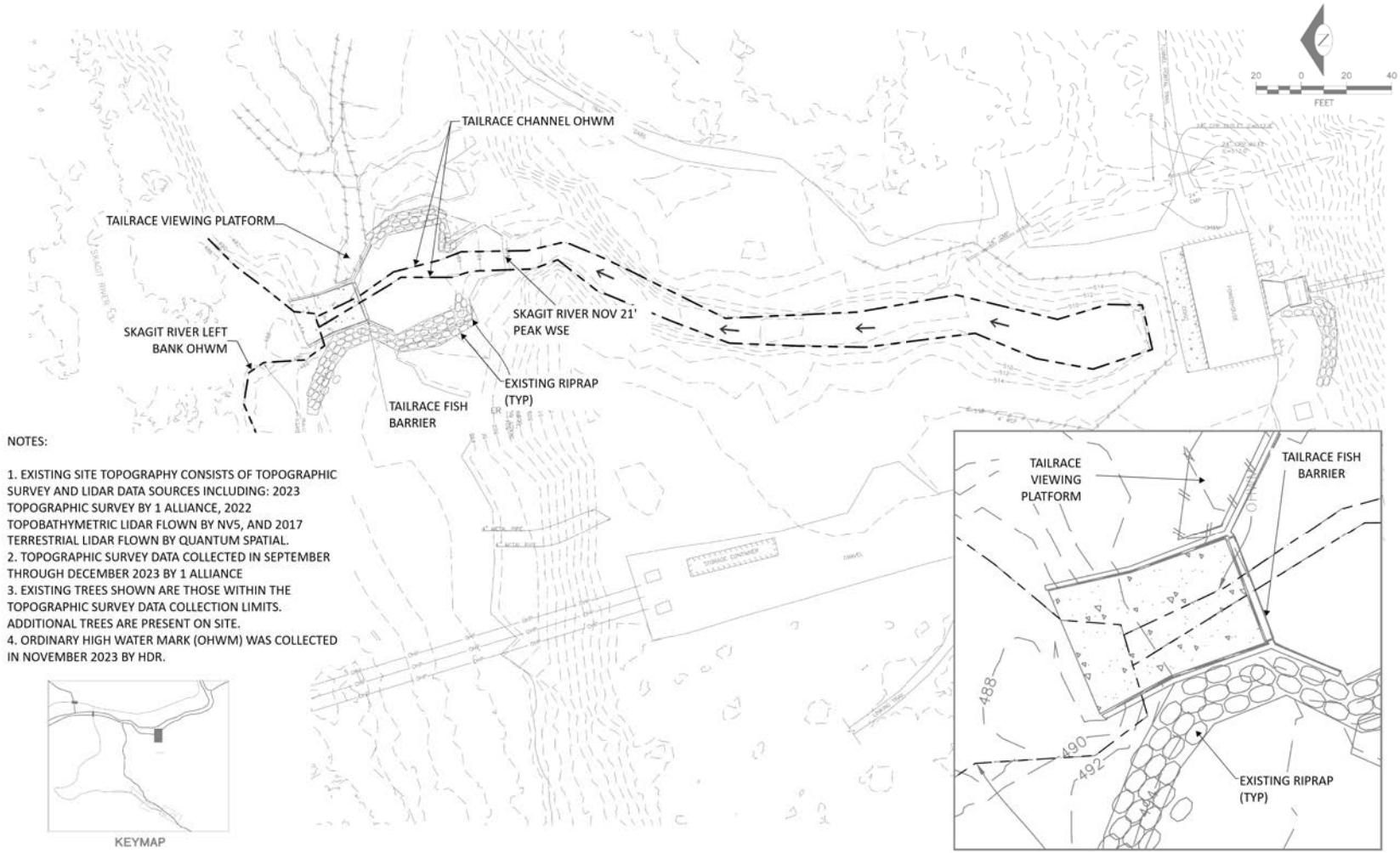


NOTES:

1. EXISTING SITE TOPOGRAPHY CONSISTS OF TOPOGRAPHIC SURVEY AND LIDAR DATA SOURCES INCLUDING: 2023 TOPOGRAPHIC SURVEY BY 1 ALLIANCE, 2022 TOPOBATHYMETRIC LIDAR FLOWN BY NV5, AND 2017 TERRESTRIAL LIDAR FLOWN BY QUANTUM SPATIAL.
2. TOPOGRAPHIC SURVEY DATA COLLECTED IN SEPTEMBER THROUGH DECEMBER 2023 BY 1 ALLIANCE
3. EXISTING TREES SHOWN ARE THOSE WITHIN THE TOPOGRAPHIC SURVEY DATA COLLECTION LIMITS. ADDITIONAL TREES ARE PRESENT ON SITE.
4. ORDINARY HIGH WATER MARK (OHWM) WAS COLLECTED IN NOVEMBER 2023 BY HDR.

KEYMAP

NEWHALEM POWERHOUSE TAILRACE EXISTING SITE PLAN

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

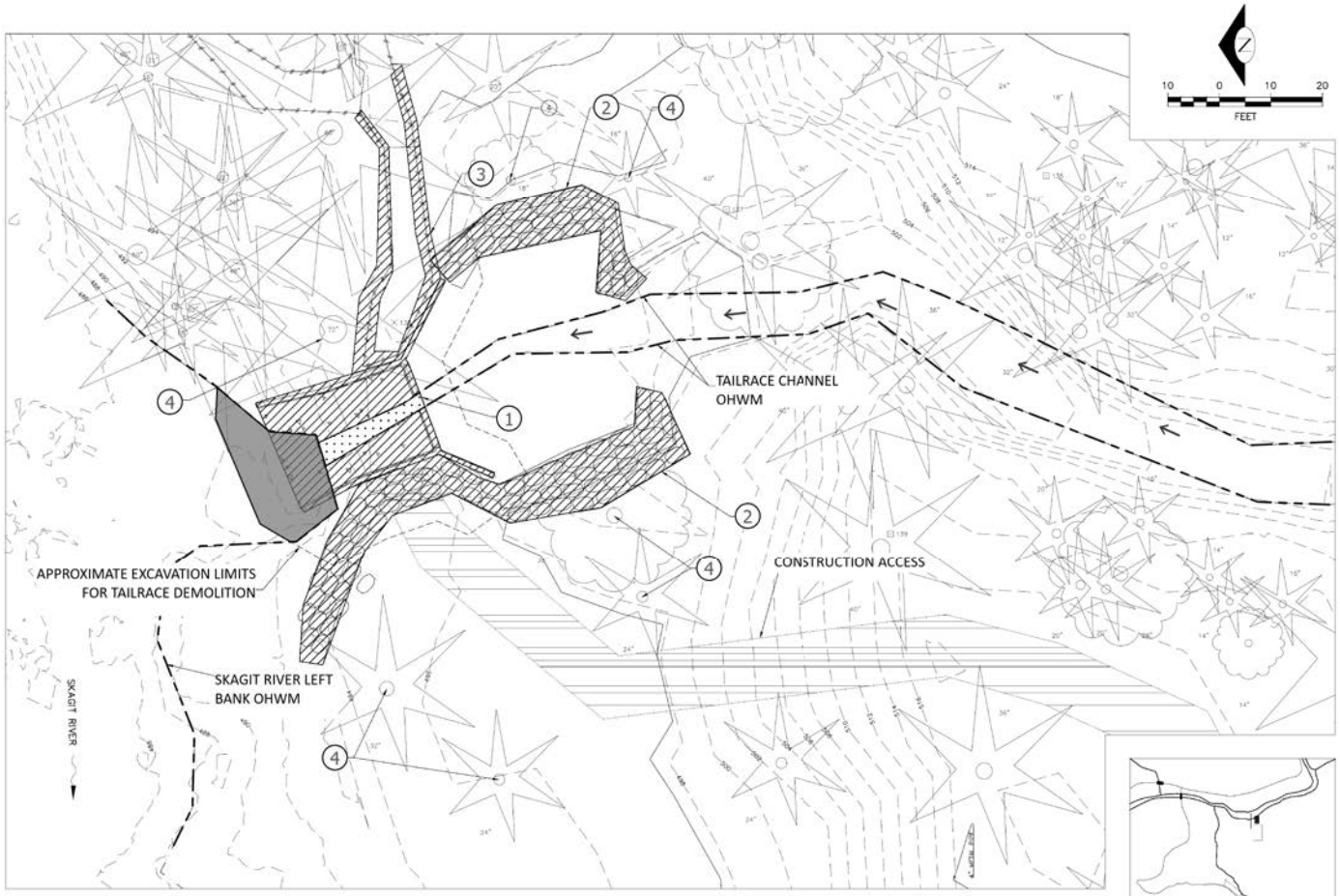
APPLICANT: Seattle City Light

SHEET 17 of 23

DATE: 12/16/2024

NOTES:

1. DEMOLISH AND REMOVE CONCRETE TAILRACE BARRIER
2. REMOVE AND DISPOSE OF EXISTING RIPRAP OFF SITE. ALL RIPRAP TO BE REMOVED IS LANDWARD OF OHWM
3. DEMOLISH EXISTING WOOD FENCE
4. PROTECT EXISTING TREE IN PLACE



KEYMAP

Activity	Aquatic Resource Name	Quantity (CY)	Impact Area	Duration of Impact
Excavate: Concrete tailrace barrier	Skagit River	40	400 sq ft/20 lf	Permanent
Excavate: Concrete tailrace barrier	Newhalem Powerhouse Tailrace	10	110 sq ft/30 lf	Permanent

NEWHALEM POWERHOUSE TAILRACE BARRIER DEMOLITION PLAN

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
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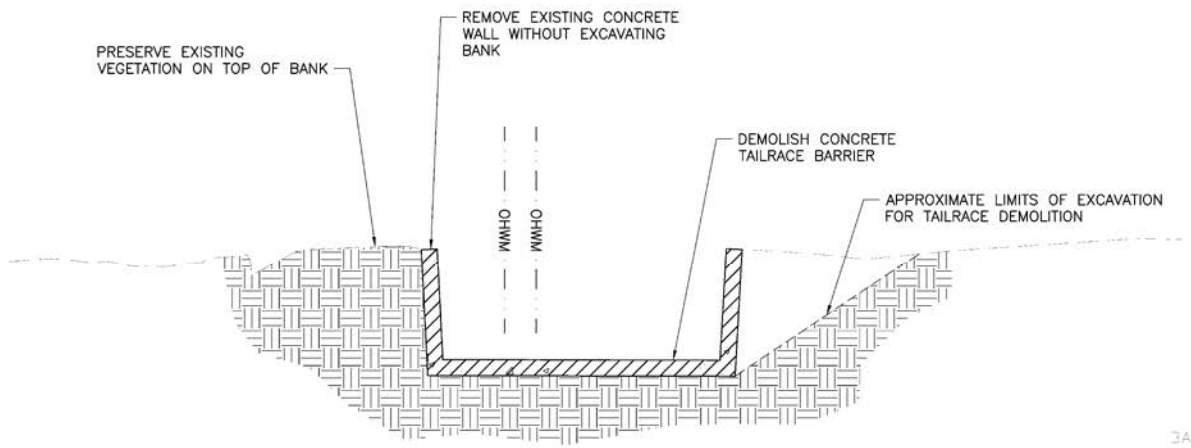
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

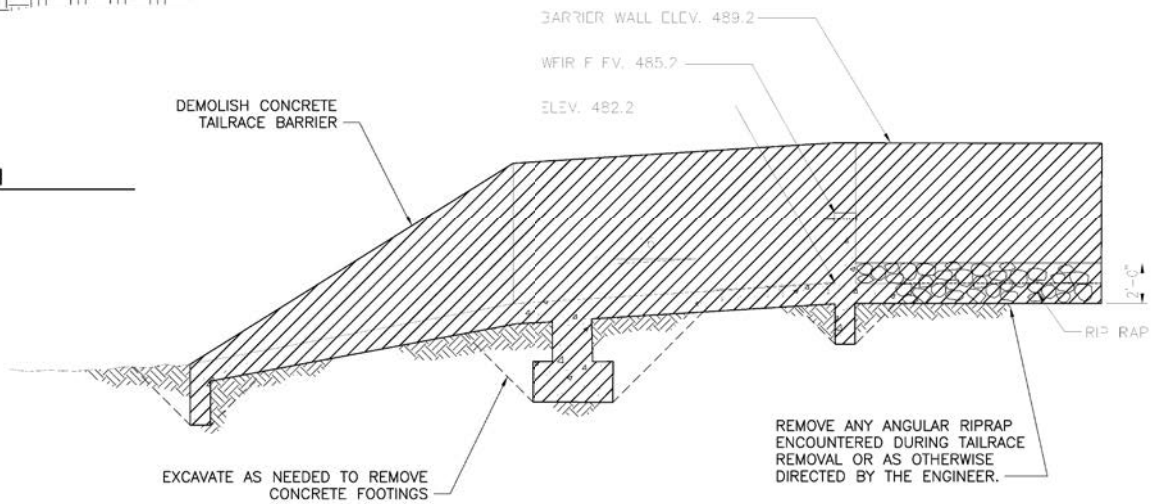
APPLICANT: Seattle City Light

SHEET 18 of 23

DATE: 12/16/2024



TYPICAL TAILRACE REMOVAL SECTION
NOT TO SCALE



NOTES:
1. CONCRETE TAILRACE BARRIER DETAIL TAKEN FROM FERC NO. 2705 EXHIBIT F, SEPTEMBER 1992. FULL EXHIBIT INCLUDED IN REFERENCE DRAWINGS.
2. ELEVATIONS SHOWN ON REFERENCE DRAWINGS ARE IN LOCAL PROJECT VERTICAL DATUM AND DO NOT CORRESPOND WITH ELEVATIONS SHOWN ON REMAINDER OF PLAN SET.

TYPICAL TAILRACE REMOVAL PROFILE
NOT TO SCALE

FOR THE PERMITTING PURPOSES, THE ENTIRETY OF THE DEPICTED SECTION IS ASSUMED TO BE LOCATED WITHIN THE HORIZONTAL OHWM. NO HYDRAULIC EVALUATION WAS CONDUCTED.

NEWHALEM POWERHOUSE TAILRACE BARRIER DEMOLITION PROFILE

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
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S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
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PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 19 of 23

DATE: 12/16/2024

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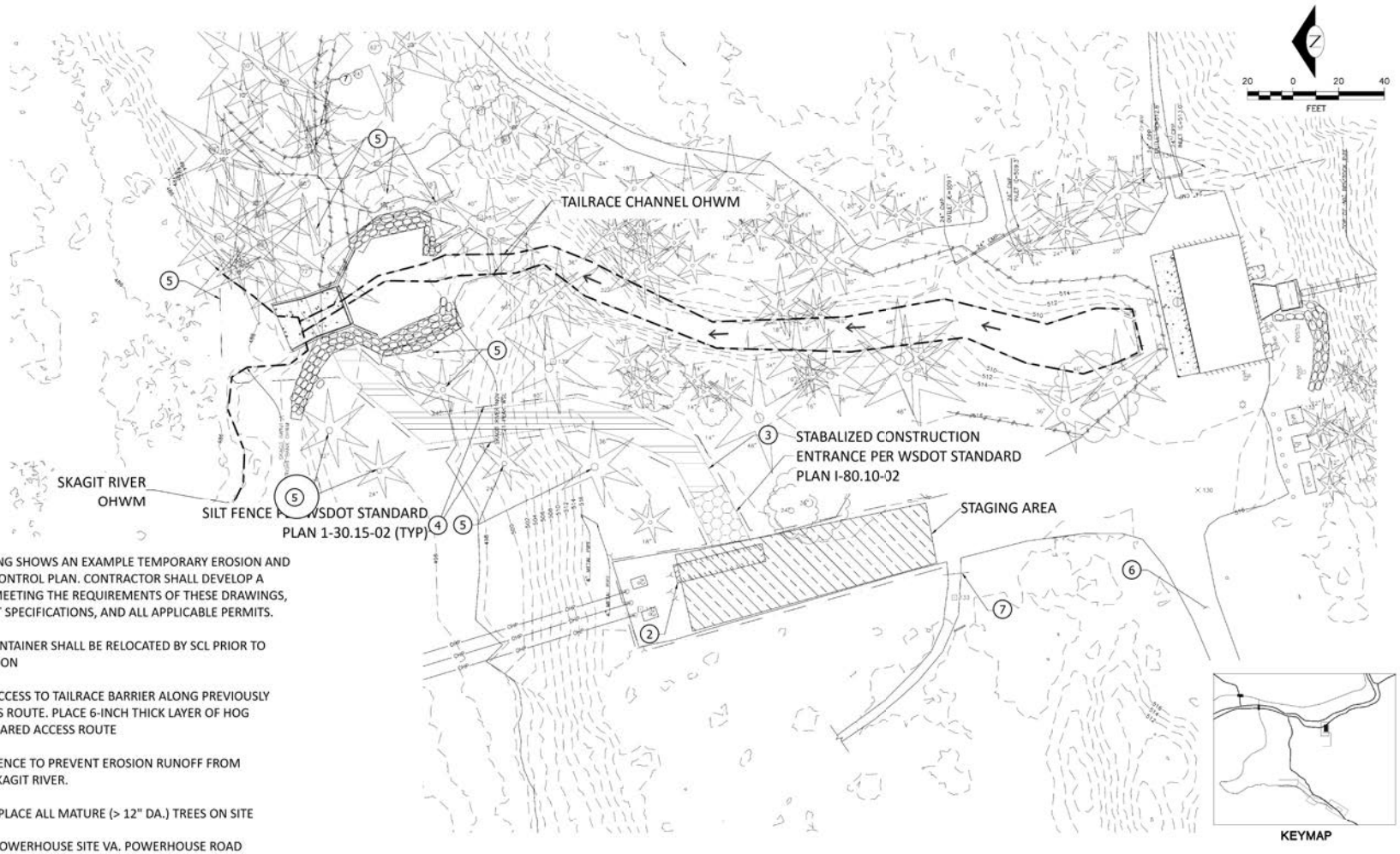

NOTES:

1. THIS DRAWING SHOWS AN EXAMPLE TEMPORARY EROSION AND SEDIMENT CONTROL PLAN. CONTRACTOR SHALL DEVELOP A TESC PLAN MEETING THE REQUIREMENTS OF THESE DRAWINGS, THE PROJECT SPECIFICATIONS, AND ALL APPLICABLE PERMITS.
2. EXISTING CONTAINER SHALL BE RELOCATED BY SCL PRIOR TO CONSTRUCTION
3. ESTABLISH ACCESS TO TAILRACE BARRIER ALONG PREVIOUSLY USED ACCESS ROUTE. PLACE 6-INCH THICK LAYER OF HOG FUEL ON CLEARED ACCESS ROUTE
4. PLACE SILT FENCE TO PREVENT EROSION RUNOFF FROM ENTERING SKAGIT RIVER.
5. PROTECT IN PLACE ALL MATURE (> 12" DA.) TREES ON SITE
6. ACCESS TO POWERHOUSE SITE VA. POWERHOUSE ROAD
7. CONTRACTORS SHALL COORDINATE WITH SCL RESIDENT ENGINEER TO CLOSE TRAIL ACCESS AND MAINTAIN SITE SAFETY FOR THE PUBLIC.

NEWHALEM POWERHOUSE TAILRACE BARRIER CONSTRUCTION ACCESS AND STAGING PLAN

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 20 of 23

DATE: 12/16/2024

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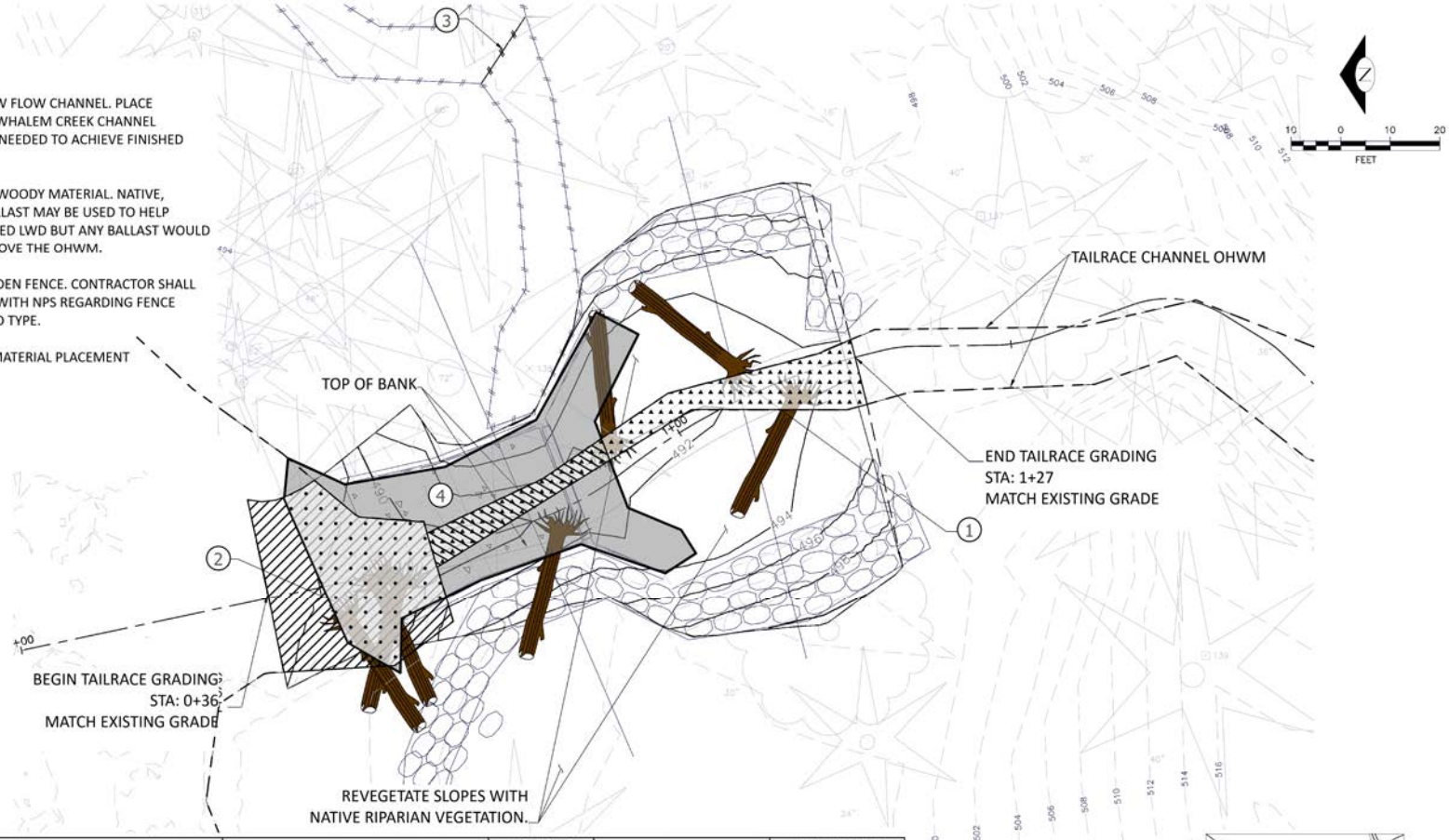
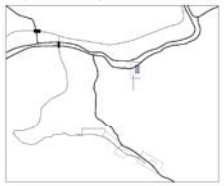
NOTES:

1. ESTABLISH LOW FLOW CHANNEL. PLACE SALVAGED NEWHALEM CREEK CHANNEL SEDIMENT AS NEEDED TO ACHIEVE FINISHED GRADE.
2. PLACE LARGE WOODY MATERIAL. NATIVE, ROUNDED BALLAST MAY BE USED TO HELP ANCHOR PLACED LWD BUT ANY BALLAST WOULD BE PLACED ABOVE THE OHWM.
3. INSTALL WOODEN FENCE. CONTRACTOR SHALL COORDINATE WITH NPS REGARDING FENCE LOCATION AND TYPE.
4. STREAMBED MATERIAL PLACEMENT



Activity	Aquatic Resource Name	Quantity (CY)	Impact Area	Duration of Impact
Excavate: channel grading to prevent fish stranding during floods that activate lower portion of tailrace	Skagit River	10	530 sq ft/20 lf	Permanent
Fill: Salvaged streambed material from Newhalem Creek for channel restoration	Skagit River	40	400 sq ft/20 lf	Permanent
Fill: Large woody material placement	Skagit River	2	30 sq ft/20 lf	Permanent
Excavate: Channel restoration	Newhalem Powerhouse Tailrace	11	310 sq ft/45 lf	Permanent
Fill: salvaged streambed material from Newhalem Creek for channel restoration	Newhalem Powerhouse Tailrace	10	300 sq ft/75 lf	Permanent
Fill: Large wood material placement	Newhalem Powerhouse Tailrace	2	30 sq ft/55 lf	Permanent



KEYMAP

NEWHALEM POWERHOUSE TAILRACE BARRIER CHANNEL RESTORATION PLAN

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

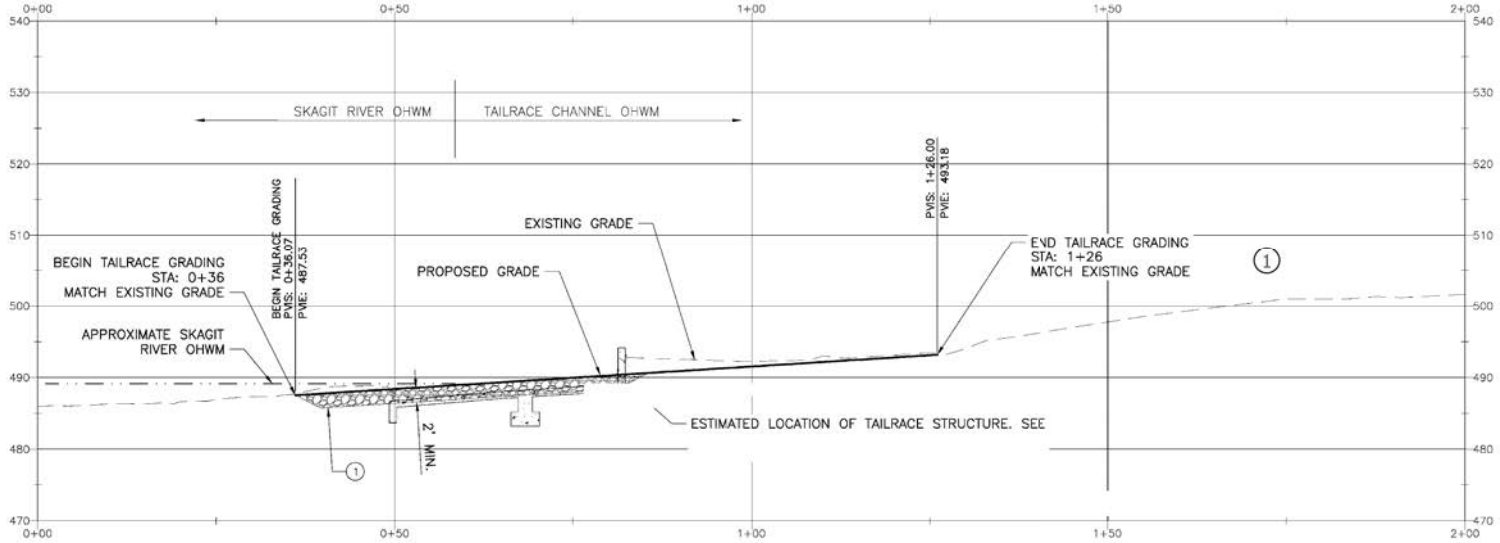
PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 21 of 23

DATE: 12/16/2024

Document Path: X:\Projects\SCL\10135556_SCL_SkagitRelicensing_Newhalem\7.2_WIP\APRX\JARPA.aprx

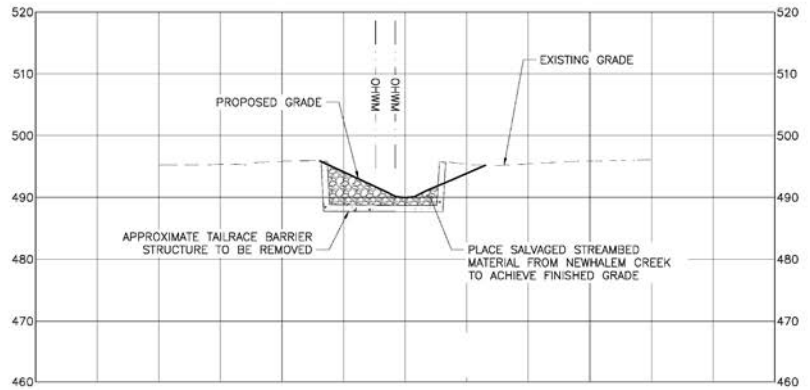


TAILRACE RESTORATION PROFILE
SCALE: 1" = 10'

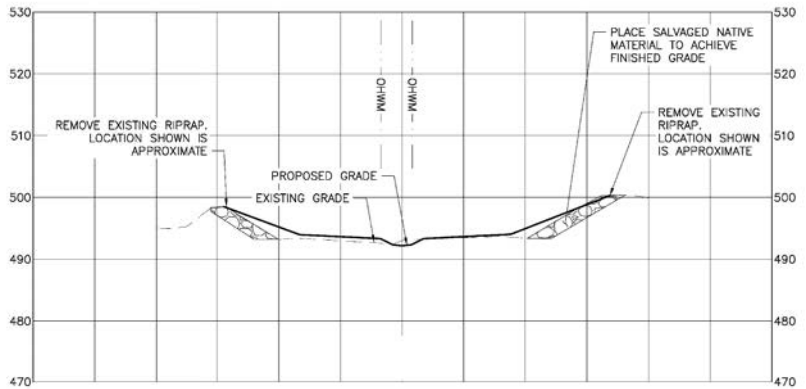
NOTES:

ELEVATION OF SKAGIT RIVER OHWM IS APPROXIMATE; OHWM LEFT BANK OF SKAGIT RIVER DELINEATED IN THE FIELD

FOR THE PERMITTING PURPOSES, THE ENTIRETY OF THE DEPICTED SECTION IS ASSUMED TO BE LOCATED WITHIN THE HORIZONTAL OHWM. NO HYDRAULIC EVALUATION WAS CONDUCTED.



DOWNSTREAM TAILRACE SECTION
SCALE: 1" = 10'



UPSTREAM TAILRACE SECTION
SCALE: 1" = 10'

NEWHALEM POWERHOUSE TAILRACE BARRIER RESTORATION PROFILE AND SECTIONS

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

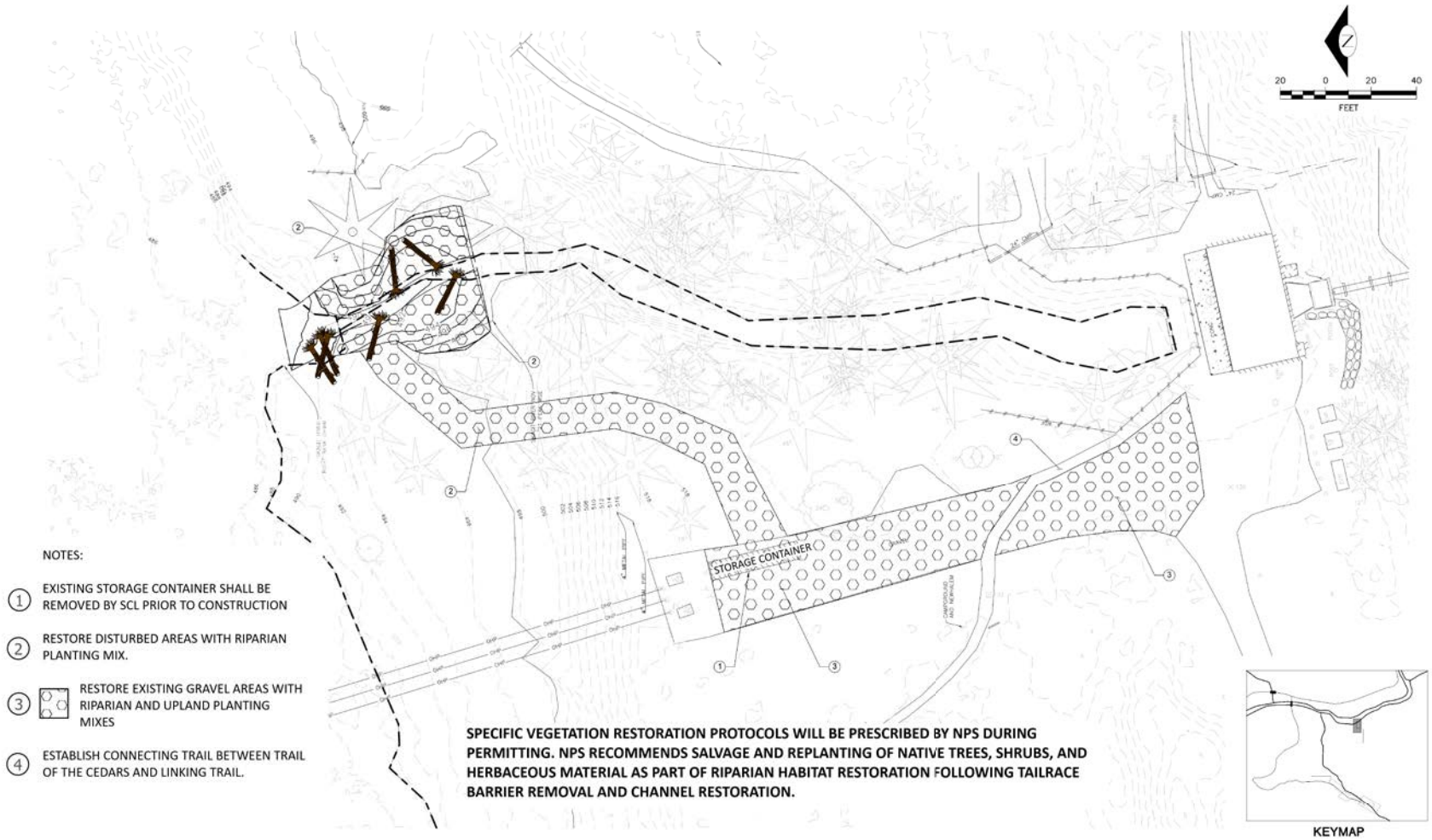
COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 22 of 23

DATE: 12/16/2024



NEWHALEM POWERHOUSE TAILRACE BARRIER RESTORATION PLAN

REFERENCE:

DATUM: NORTH AMERICAN DATUM 1988

ADJACENT PROPERTY OWNERS:
1. National Park Service

PROJECT NAME:
Newhalem Creek Hydroelectric Project Decommissioning

NEAR/AT: City of Newhalem

COUNTY: Whatcom
STATE: WA
S21 & S28 T37N R12E
LAT/LONGS: Tailrace Barrier: 48.670394, -121.249820
Newhalem Dam: 48.660095, -121.247049
Culvert 11: 48.663334, -121.256947

PROPOSED PROJECT:
Decommission Newhalem Creek Dam and Tailrace Barrier and In-River Improvements

APPLICANT: Seattle City Light

SHEET 23 of 23

DATE: 12/16/2024

Document Path: X:\Projects\SCL\10135556_SCL_SkagitRelicensing_Newhalem\7.2_WIP\APRX\JARPA.aprx

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form[1,2] [help]

US Army Corps of Engineers ®
Seattle District

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.

AGENCY USE ONLY

Date received:

Agency reference #: _____

Tax Parcel #(s): _____

_____

Part 1–Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
Newhalem Creek Hydroelectric Project Decommissioning (project)

Part 2–Applicant

The person and/or organization responsible for the project. [help]

2a. Name (Last, First, Middle)			
Luchessa, Scott			
2b. Organization (If applicable)			
Seattle City Light (City Light)			
2c. Mailing Address (Street or PO Box)			
P.O. Box 34023			
2d. City, State, Zip			
Seattle, WA 98124			
2e. Phone (1)	**2f.** Phone (2)	**2g.** Fax	**2h.** E-mail
(206) 561-4838			Scott.luchessa@seattle.gov

[1]Additional forms may be required for the following permits:
- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

[2]To access an online JARPA form with [help] screens, go to http://www.epermitting.wa.gov/site/alias__resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [help]

3a. Name (Last, First, Middle)			
3b. Organization (If applicable)			
3c. Mailing Address (Street or PO Box)			
3d. City, State, Zip			
3e. Phone (1)	**3f.** Phone (2)	**3g.** Fax	**3h.** E-mail

Part 4–Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [help]

☐ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☐ There are multiple upland property owners. Complete the section below and fill out JARPA Attachment A for each additional property owner.

☐ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete JARPA Attachment E to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
4b. Organization (If applicable)			
North Cascades National Park Service Complex			
4c. Mailing Address (Street or PO Box)			
810 State Route 20			
4d. City, State, Zip			
Sedro-Woolley, WA 98284			
4e. Phone (1)	**4f.** Phone (2)	**4g.** Fax	**4h.** E-mail
(360) 854-7200			roy_zipp@nps.gov

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☐ There are multiple project locations (e.g. linear projects). Complete the section below and use JARPA Attachment B for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]

☐ Private
☒ Federal
☐ Publicly owned (state, county, city, special districts like schools, ports, etc.)
☐ Tribal
☐ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)

5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]

No address. See Section 5f. See the Vicinity Map in Attachment 1.

5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]

Newhalem, WA 98267

5d. County [help]

Whatcom County

5e. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
	21 and 28	37N	12E

5f. Provide the latitude and longitude of the project location. [help]

- Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)

Newhalem Dam: 48.660180, -121.247165
Newhalem Powerhouse Tailrace Barrier: 48.670394, -121.249820
Culvert Removal: 48.663334, -121.256947

5g. List the tax parcel number(s) for the project location. [help]

- The local county assessor's office can provide this information.

Not applicable. The project is located within the Ross Lake National Recreation Area, which is part of the North Cascades National Park Complex.

5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]

Name	Mailing Address	Tax Parcel # (if known)
Roy Zipp North Cascades National Park Service Complex	810 State Route 20 Sedro-Woolley, WA 98284	N/A. Adjoining properties are part of the Ross Lake National Recreation Area

5i. List all wetlands on or adjacent to the project location. [help]

Per the May 2024 Wetland and Stream Delineation Report prepared for the project (Attachment 2), the following wetland was delineated within the project area:

Wetland Name	Size (acre)	HGM Classification	Cowardin Classification	Wetland Rating

Wetland 1	0.02	Slope	Palustrine Scrub-Shrub	Category IV

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]

Per the May 2024 Wetland and Stream Delineation Report prepared for the project (Attachment 2), the following waterbodies were delineated within the project area:

Stream Name	Tributary to	Stream Type	Average Channel Width in Project Area	Approximate Channel Length in Project Area
Stream 1	Newhalem Creek	Np	1.5 feet upstream of Stream 2; ~2 feet downstream of Stream 2 confluence.	170 feet
Stream 2	Stream 1	Ns	N/A	24 feet
Stream 3	Stream 4	Ns	~1 to 1.5 feet	137 feet
Stream 4[1]				
Stream 4a	Tailrace (via culvert)	Ns	1.5 feet upstream of Stream 3; ~3 feet downstream of Stream 3 confluence.	70 feet
Stream 4b		F	5 to 15 feet	100 feet
Stream 5	Stream 4	Ns	1 to 1.5 feet	8 feet
Tailrace	Skagit River	F[2]	3 to 26 feet	364 feet
Skagit River	Puget Sound	F	N/A[3]	265 feet
Newhalem Creek	Skagit River	F	30 to 90 feet	1,850 feet

1. Although Stream 4 is one contiguous stream, for the purposes of this project, it is divided into two stream segments (Stream 4a and Stream 4b) at the location of an impassible fish barrier (i.e., the rocky waterfall feature). Stream 4a is the portion of Stream 4 located upstream of the rocky waterfall feature and Stream 4b is the portion of Stream 4 located downstream.
2. The Washington Department of Natural Resources Forest Practices Application Mapping Tool has a mapped water type break located at the tailrace barrier and identifies the tailrace channel and upstream segments as Type N. Although much of the length of the tailrace channel contains only seasonal flow, physical characteristics and direct surface water connection to the Skagit River during higher flood flows suggest it should be a Type F stream. See Section 3.1.2.6 in Attachment 2 for additional information.
3. The project area overlaps a portion of the Skagit River but does not span both banks; therefore, only the left bank of the Skagit River was delineated as part of the wetland and stream investigation (Attachment 2).

Two ditches were also identified in the project area. Both ditches are excavated roadside features in uplands and are not used by fish or do not provide fish habitat. These ditches are described in detail in the attached wetland delineation report prepared for the project and do not meet the current regulatory definition of Waters of the U.S.

5k. Is any part of the project area within a 100-year floodplain? [help]

☒ Yes ☐ No ☐ Don't know.

5l. Briefly describe the vegetation and habitat conditions on the property. [help]

Historically, the lower elevations in the project area consisted of a mosaic of old-growth forest types dominated by western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and old-growth Douglas fir (*Pseudotsuga menziesii*) stands. However, in August 2015, the Goodell Fire burned approximately 7,118 acres in the Newhalem Creek and Skagit River valleys. Much of the forest in the project vicinity, except for some trees immediately adjacent to the creek. The Goodell Fire burned a mosaic across the landscape, fragmenting what had been a relatively consistent evergreen forest with herbaceous and scrub/shrub land cover types. Areas immediately surrounding the Newhalem Powerhouse tailrace barrier were not affected by the Goodell Fire and are characterized by closed canopy conifer or mixed conifer/deciduous forest stands, including Douglas fir and western red cedar. The understory consists of a variety of shrubs, ferns, other herbaceous perennials, and mosses; common species include sword fern (*Polystichum munitum*), salal (*Gaultheria shallon)*, red huckleberry (*Vaccinium parvifolium*), and vine maple (*Acer circinatum*).

Newhalem Creek is a moderate- to steep-gradient mountain stream characterized by variable substrate. Near and below the dam, substrate consists predominantly of a mixture of bedrock, boulder, cobble and gravel substrate. Resident rainbow trout (*Oncorhynchus mykiss*) and *cutthroat* trout (*Oncorhynchus clarki*) are present above the 167-foot waterfall just below the dam and extending upstream. The waterfall is impassable to anadromous fish. Below the falls, habitat consists of pools, riffles, and runs with boulder, cobble, gravel, and sand substrate. There is some spawning and rearing habitat in the lower section of Newhalem Creek for ESA-listed and other anadromous fish species present in the Skagit River mainstem. Puget Sound Chinook Salmon (*Oncorhynchus tshawytscha)*, Puget Sound steelhead (*O. mykiss*), Bull Trout (*Salvelinus confluentus*), and Dolly Varden (*Salvelinus malma*) are known to use the Skagit River in the area adjacent to the tailrace and at the confluence of the Skagit River and Newhalem Creek. Chinook Salmon and steelhead may spawn or rear in the Skagit River downstream of the Newhalem Powerhouse tailrace. For more details on aquatic and riparian habitat in the project area, please refer to the Biological Assessment (BA) prepared for the project (Attachment 3).

5m. Describe how the property is currently used. [help]

City Light owns and operates the Newhalem Creek Hydroelectric Project (See Sheets 2 and 3 in Attachment 1), which is licensed by the Federal Energy Regulatory Commission (FERC). The Project occupies 6.4 acres and is entirely on federal lands within the Ross Lake National Recreation Area, which is managed by the NPS as part of the North Cascades National Park Complex. When operational, the Newhalem Creek Hydroelectric Project served as one source of backup source of power to Gorge Powerhouse and the town of Newhalem, with a generating capacity of 2.125 megawatts. The Newhalem Creek Hydroelectric Project was in consistent use until 2010, when a series of equipment and structural problems caused an extended shutdown. It has not been operated since 2010 because of various problems, including leaks in the power tunnel, maintenance issues at the headworks, and lack of safe access to the dam because of an active landslide that blocks the dam access road.

5n. Describe how the adjacent properties are currently used. [help]

Adjacent properties are either within the Ross Lake Ross Lake National Recreation Area or Stephen Mather Wilderness, both of which are part of the North Cascades National Park Complex managed by the National Park Service.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]

The following structures are associated with the Newhalem Creek Hydroelectric Project. Figures in Attachment 1 reflect 30% design plans:

Newhalem Dam (Sheets 7-16 in Attachment 1)

- Newhalem Creek diversion dam, a run-of-river dam located on the creek at approximately river mile (RM) 1.0., which is a concrete, overflow structure that is 45 feet long by 10 feet high and when operational, diverts up to 69 cubic feet per second into an intake structure. City Light has ceased hydroelectric operations, and stopped diverting flow into the intake structure and power tunnel. At low flow conditions, water flows through the sluiceway. During high flow conditions water flows over the crest of the dam. Newhalem Dam features include:
  - Combination sluiceway/intake structure on the right bank of Newhalem Creek.
  - 55-foot-tall, 5-foot by 5-foot unlined rock vertical shaft that conveys water from the intake to a power tunnel.
  - Small gatehouse near the sluiceway/intake structure that contains the control gate and access to the rock vertical shaft.
  - Pedestrian bridge across the creek near the dam that provides access to the sluiceway/intake and gatehouse.

Power Tunnel, Rock Tunnel, and Penstocks (not subject to decommissioning activities) (Not shown in Attachment 1)

- 6-foot-wide by 7-foot-high by 2,452-foot-long unlined rock power tunnel.
- 925-foot-long by 33-inch-diameter steel penstock, supported by saddles, that conveys water from the tunnel to the powerhouse; includes a 218-foot-long, 30-inch-diameter section within the lower end of the rock tunnel and a 707-foot-long, 33-inch-diameter above-ground section supported by concrete saddles.

Powerhouse and Tailrace Barrier (Sheet 17 in Attachment 1)

- 30-foot by 56-foot wood framed powerhouse with a single generating unit—a double-overhung Pelton impulse turbine rated at 3,000 horsepower connected to a generator rated at 2,125 kilowatts (*Not subject to decommissioning activities*
- 350-foot-long unlined tailrace channel, varying from 5 to 40 feet wide, that discharges into the Skagit River.
- Concrete tailrace barrier structure, 3.6 feet high by 18 feet wide, with two 22.5-foot-long wing walls to prevent fish from entering the tailrace.
- 4,387-foot-long, 7.2-kilovolt transmission line consisting of four segments: (1) buried cable from the Newhalem Powerhouse to the Skagit River crossing (350 feet); (2) overhead river crossing (400 feet); (3) buried cable through the town of Newhalem (3,000 feet); and (4) overhead river crossing from the town of Newhalem to the Gorge Powerhouse (637 feet) (*Not subject to decommissioning activities)*
- Accessory equipment (*Not subject to decommissioning activities)*.

Access

- 1.4-mile-long gravel access road to the diversion dam and associated culverts.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]

From Interstate 5, take exit 232 east to Sedro-Woolley. From Sedro Woolley, take Highway 20 east for approximately 55 miles. Just before the town of Newhalem, take a right at the sign indicating the North Cascades Visitor's Center. Go over the Skagit River bridge, past the Newhalem Campground, and take a left up the gravel road just before the Visitor Center. Follow the road approximately 1.5 miles to the Newhalem Creek Dam.

Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [help]

City Light's proposed decommissioning project includes the following activities:

Diversion Dam Access, Culvert Removal, and Natural Drainage Restoration

- Establish safe, temporary construction access along existing roadway, including minor roadway grading, vegetation removal, and landslide debris clearing. Following decommissioning of all project elements at the diversion dam and associated headworks (described below), the diversion dam access road shall be closed to vehicular traffic above Seattle City Light's Emergency Access Plan (EAP) evacuation point located at approximately mile 0.5 near elevation 840 feet. Culvert 11, shall be removed to restore the natural drainage configuration and water bars and other road closure best management practices shall be implemented to close the 0.75-mile segment between the EAP evacuation point and the dam.

Newhalem Diversion Dam and Headworks Removal (Sheets 8 – 15 in Attachment 1)

- Demolish dam and apron, sluiceway, gatehouse, and footbridge bridge.
- Remove existing riprap at dam site.
- Restore Newhalem Creek stream channel to re-establish a low-flow channel through the removed diversion dam.
- Rebuild right bank of Newhalem Creek within the footprint of the removed sluiceway, gatehouse, and related headworks infrastructure.
- Seal the Newhalem Dam vertical power tunnel and abandon in place.

Newhalem Powerhouse Tailrace Barrier Removal and Restoration (Sheets 21-23 in Attachment 1)

- Demolish the Newhalem Powerhouse tailrace barrier; (Sheets 18- 20 in Attachment 1)
- Remove following elements near the tailrace barrier (all landward of OHWM): riprap, existing wood fence, spur trail, and wood viewing platform. No riprap is present within the OHWM at the tailrace barrier location.
- Positively grade Newhalem Powerhouse tailrace channel to prevent fish stranding during Skagit River flood events that activate lower portion of the tailrace.

- Place large woody material within Newhalem Powerhouse tailrace channel and restore disturbed areas with riparian and upland planting mixes approved by the National Park Service (Sheets 21 and in Attachment 1).

6b. Describe the purpose of the project and why you want or need to perform it. [help]

The current license for the Newhalem Creek Hydroelectric Project (FERC No. 2705) expires on January 31, 2027. As noted above, repair and maintenance costs make it impractical to continue to operate the project and City Light has decided not to seek a new license but rather surrender the license for the Newhalem Creek Hydroelectric Project and proposes to decommission it as described herein.

As part of decommissioning, City Light proposes to remove the dam and headworks and concrete barrier at the tailrace to restore riparian and aquatic habitat and associated functions Dam removal will restore natural riverine processes and will improve spawning gravel recruitment and transport to downstream reaches that may be used by Puget Sound steelhead, Puget Sound Chinook Salmon, bull trout, and other salmonid and resident fish species.

City Light believes all elements of this project are consistent with the current Nationwide Permit (NWP) program. Specifically, dam removal/Newhalem Creek channel restoration, and tailrace barrier removal/channel restoration appear to meet the intent of NWP 27 (*Aquatic Habitat Restoration, Enhancement, and Establishment Activities*; 86 Federal Register 73576). NWP 27 covers activities that rehabilitate or enhance streams and wetlands when those activities result in a net increase in aquatic resource functions and services. To be authorized by this NWP, the activity must be planned, designed, and implemented in a manner that results in the creation of aquatic habitat that resembles an ecological reference. The ecological reference upon which proposed restoration of aquatic habitat and riparian areas are based are adjacent undisturbed habitats on Newhalem Creek and the Skagit River. The proposed restoration has been designed to mimic existing channel conditions upstream of Newhalem Dam in Newhalem Creek, and to mimic natural high-velocity refugia conditions in the tailrace barrier channel. Culvert removal and associated channel restoration at Culvert 11 will restore drainage characteristics and functions by placing the channel back in a configuration and location resembling pre-development conditions.

6c. Indicate the project category. (Check all that apply) [help]

☐ Commercial ☐ Residential ☐ Institutional ☐ Transportation ☐ Recreational

☐ Maintenance ☒ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [help]

☐ Aquaculture	☒ Culvert	☐ Float	☐ Retaining Wall (upland)
☐ Bank Stabilization	☐ Dam / Weir (removal)	☐ Floating Home	☒ Road (Access improvements to existing road)
☐ Boat House	☐ Dike / Levee / Jetty	☐ Geotechnical Survey	☐ Scientific Measurement Device
☐ Boat Launch	☐ Ditch	☐ Land Clearing	☐ Stairs
☐ Boat Lift	☐ Dock / Pier	☐ Marina / Moorage	☐ Stormwater facility
☐ Bridge	☐ Dredging	☐ Mining	☐ Swimming Pool
☐ Bulkhead	☐ Fence	☐ Outfall Structure	☐ Utility Line
☐ Buoy	☐ Ferry Terminal	☐ Piling/Dolphin	
☒ Channel Modification (Dam Removal)	☐ Fishway	☐ Raft	

☒ Other: Aquatic Habitat Restoration, Enhancement, and Establishment

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.

- Indicate which activities are within the 100-year floodplain.

Newhalem Dam Decommissioning

Diversion Dam Access

A significant challenge in removing the Newhalem Creek diversion dam and other headworks is access. Currently, the dam access road is blocked with large rocks from an active landslide approximately 1,140 feet (0.2 mile) below the diversion dam. In addition to the recurring landslide, tension cracks and minor slumps have developed on the road edge in several locations on both sides of the landslide, and an existing retaining wall may need repairs to make the road serviceable for construction equipment used in proposed demolition and restoration activities.

While the road is the most likely means of accessing the diversion dam and headworks, it is possible that helicopters may occasionally be used. A combination of both land and air equipment may be utilized during project construction (e.g., trucks may primarily be used on the access road after it is temporarily cleared and repaired to accommodate heavy construction equipment and helicopter may occasionally be used, such as for foot bridge removal).

Access Alternative 1: Road Repair

The preferred approach to accessing the diversion dam site may require repairs of the existing access road to the extent needed for safe, short-term use by personnel, equipment, highway-legal dump trucks and other vehicles. City Light assumes any or all proposed methods could be used to improve the existing access road to allow access to the dam site, including:

- Clearing existing vegetation on the roadway and performing minor roadway grading.
- Scaling of the landslide slope above the road to remove hazard boulders.
- Clearing and hauling off accumulated landslide material from the roadway, including using a non-explosive cracking agent to break apart the large rocks. A portion of the larger boulders that are currently perched on the downslope edge of the road may be broken apart and placed over the edge of the roadway.
- In areas of existing roadway slumping or tension cracks, access would be routed toward the inboard side of the roadway to minimize loading of the fill slopes.

For large rock removal, the non-explosive rock cracking method includes drilling a small-diameter hole into rock and adding an expansive chemical agent that will expand and crack the rock over a period of hours, making removal more manageable for large boulders and other materials (e.g., concrete).

Any road repairs undertaken for access would be located in upland areas and would not impact wetlands or waterbodies.

Access Alternative 2: Helicopter Transport

Helicopter use for access to the diversion dam site is not preferred, but this alternative is included in case temporary road repair is infeasible. It is also possible that helicopters may occasionally be needed to aid with the decommissioning process at the headworks (i.e., removal of the foot bridge) even if the road is repaired.

This access alternative will primarily use helicopters to transport equipment to the dam to facilitate removal. It will require use of an existing helipad in Newhalem and a drop zone near the dam to transport the equipment necessary to deconstruct the diversion structure. Construction equipment will be disassembled and transported in pieces, then reassembled at the dam site (Sheet 10 in Attachment 1).

Access Road Closure, Culvert Removal, and Reestablishment of Drainage Crossing

Following decommissioning of all project elements at the diversion dam and associated headworks, the diversion dam access road shall be closed to vehicular traffic, associated roadway drainage structures shall be removed, and water bars and other road closure best management practices shall be installed. None of these future project elements will impact waterbodies beyond the disturbance for Culvert 11 removal at Stream 1 included in this JARPA. The existing culvert (Culvert 11) that conveys Stream 1 across the access road would be removed, and a new channel would be established to convey the perennial, non-fish bearing stream through the road prism (Sheets 4 – 6 in Attachment 1). Culvert removal and the reestablishment of a drainage crossing would impact Stream 1 and Wetland 1. Prior to culvert removal, the selected contractor would fill sandbags with native Newhalem Creek sediment to isolate the work area. The culvert would be removed, and stream grading would connect the existing drainage course on the upstream and downstream sides of the road prisms in a natural drainage configuration; stream grading would not exceed 2 horizontal: 1 vertical side slopes. Salvaged stream bed material from the Newhalem Creek channel restoration would be repurposed to rebuild the stream channel

bed. Stream 1 is non-fish bearing, as discussed in the May 2024 Wetland and Stream Delineation Report (Attachment 2). Therefore, work to remove the culvert is proposed to occur at any time of the year and would not be limited to an in-water work window unless required by WDFW in the HPA to be obtained for the project.

Newhalem Diversion Dam and Headworks Removal

Removal of the diversion dam and headworks will require work within and adjacent to Newhalem Creek. Infrastructure removal will occur in two phases to accommodate phased dewatering and an in-channel creek bypass (Sheets 7 – 16 in Attachment 1).

Dewatering Timing and Overview

All work within the Ordinary High Water Mark (OHWM) for diversion structure removal would be completed within the in-water work window for Newhalem Creek. The in-water work window for Newhalem Creek is July 16 through August 19. However, in consideration of potential delays to access road repairs required to access the dam site, City Light will request that in-water work be authorized through September 1 of the construction year. Therefore, the requested in-water work window for dam and headworks removal for the project is July 16 through September 1[3]. All cofferdam materials will be removed by September 1.

Prior to infrastructure removal, the dam site will be dewatered and isolated from active flow. City Light anticipates the following approach for dewatering:

- Establish upstream and downstream water quality monitoring stations.
- Identify the portion of the off-channel area to be used for temporary settling of nuisance water from isolation area, if required.
- Install fiber wattles or sediment fences parallel to both creek banks. These features will be positioned to the extent necessary to isolate streamside disturbances, including spoil piles, from the creek.
- Isolate in-water work areas for each phase of dam removal using supersacks (bulk bags) filled with native streambed materials.
- Resident fish salvage and relocation activities would be coordinated by a certified fish biologist with experience and training, and conducted by personnel trained in fish handling and isolation procedures. Fish salvage would be conducted in accordance with the Washington Department of Transportation Fish Exclusion Protocols and Standards or U.S. Fish and Wildlife Service (USFWS) 2012 protocols and standards[4].

Specific dewatering strategies for each phase are discussed in the following sections. Any substantive deviation from the approach presented herein will be coordinated with the National Park Service (NPS), National Marine Fisheries Service (NMFS), USFWS), Washington Department of Fish and Wildlife (WDFW), and the U.S. Army Corps of Engineers a minimum of 30 days prior to in-water work for approval.

Phase 1: Remove Diversion Dam and Downstream Concrete Apron

During the first phase of dam infrastructure decommissioning, the selected contractor will fill supersacks with native creek sand, gravel, and cobble and place them in the channel upstream of the impoundment, diverting water into the sluiceway to dewater the area around the dam (Sheet 11 in Attachment 1). During low-flow periods in summer and early fall, Newhalem Creek flows along the right bank into the sluiceway/intake structure, and the left side of the channel is typically dry (see photo below). This condition would allow for use of an excavator to fill supersacks with streambed gravels “in the dry” from the dewatered left-side of the channel. In the unlikely event that any flow is present along the left bank at the start of the work window, an excavator positioned from the bank would push accumulated gravel materials to form an earthen bridge to reach the accumulated gravel bar. Once the work area is isolated, the contractor would remove the diversion dam crest and apron by breaking apart the concrete with an excavator, jack hammer, and/or non-explosive cracking agent and hauling the demolished materials off site.

[3] The License Surrender application includes a July 16 – August 19 work window. For ESA consultation purposes, City Light requests a July 16 – September 1 work window.

[4] WSDOT. 2016. WSDOT Fish Exclusion Protocols and Standards. https://www.wsdot.wa.gov/sites/default/files/2017/10/26/Env-FW-FishMovingProtocols.pdf USFWS 2012 protocols and standards https://www.fws.gov/sites/default/files/documents/FishExclusionProtocolsStds2012.pdf

Newhalem Dam, August, showing low flow conditions, looking upstream. Creek flows along right bank into sluiceway; left bank “in the dry.”

Phase 2: Remove Other Headworks and Channel Grading

During Phase 2, the selected contractor would re-position the cofferdam to direct flow into a conduit (corrugated steel or plastic pipe) that would be placed along the left bank of the main channel and covered with native creek substrates to allow an excavator to access the channel and isolate the right bank intake/sluiceway area (Sheet 12 in Attachment 1). Minor channel grading may occur to establish the temporary stream diversion. The conduit would be sized to convey anticipated flows during in-water work, with a 10 percent exceedance. Following isolation, the contractor would remove the trashrack, intake, and sluiceway. An area of right-bank substrate armoring (concrete) located under the bridge and extending approximately 20 feet downstream would also be removed. Concrete would be broken apart with an excavator, jack hammer, and/or non-explosive cracking agent.

Phase 2 would also include the removal of the gatehouse, pedestrian bridge, and bridge abutments. The vertical power tunnel would be sealed (Sheet 12 in Attachment 1). The pedestrian bridge abutments are located along the streambank atop bedrock, primarily landward of the OHWM. Therefore, in-water work to remove the bridge would be limited to an excavator that may be positioned within the dewatered area for access to the right bank. The bridge could be dismantled in pieces, or could be airlifted as a full span depending upon equipment capabilities and availability. The bridge would be transported to an approved upland location to be determined by City Light. Following the removal of the remaining headworks infrastructure, the conduit in the stream channel would be removed and the stream channel would be graded for approximately 100 feet upstream of the dam

crest location to establish the proposed Newhalem Creek channel (Sheets 13 – 15 in Attachment 1)[5]. The proposed channel section is based on representative geometry from the upstream reach. The existing bedrock at the base of the dam would remain as a grade control hard point.

Following channel grading, the cofferdams would be removed and emptied, and all equipment would exit Newhalem Creek. Areas disturbed by deconstruction activities and the sites previously occupied by headworks will rely on natural succession processes to restore native riparian vegetation. Seed rain and water-borne seed dispersal are expected to result in effective regeneration of desirable native riparian plant communities but seeding selected native shrubs and trees may be used to augment natural succession processes, if necessary (Sheet 16 in Attachment 1).

The face of some bedrock in the adjacent uplands exposed by demolition activities may be chipped with hand tools to restore a more natural appearance and improve aesthetics as requested by the Upper Skagit Indian Tribe.

Newhalem Powerhouse Tailrace Barrier Removal and Restoration

The dam diverts water from Newhalem Creek into a buried shaft under the right-bank gatehouse. Water is then delivered into a buried tunnel and to a penstock that traverses the Newhalem Creek canyon, ending at the powerhouse located about 3,600 feet northeast of the dam. The powerhouse discharges water diverted at the dam into a 350-foot-long tailrace channel; a concrete barrier at the lower end of the channel prevents fish from the Skagit River from entering the tailrace during high flow (Sheet 17 in Attachment 1). At most flows, the concrete barrier is “in the dry” and has no connection to the Skagit River (see photos below).

The tailrace fish barrier would be demolished with an excavator-mounted jackhammer, assisted by a non-explosive cracking agent, concrete saw, and/or waterjet cutter. Additionally, the landward riprap associated with the tailrace barrier and the spur trail would be removed. No riprap is present within the OHWM of the tailrace barrier. The wood platform viewing area and the existing wood fence would also be removed. The former road used to install the tailrace barrier is still evident and would be re-commissioned to provide temporary construction access and staging for this work (Sheets 18 – 20 in Attachment 1). Dump trucks would haul spoils offsite. Although a portion of the tailrace barrier is located within the OHWM of the Skagit River, a cofferdam is not proposed for barrier removal due to its location on the right bank of the Skagit River channel, outside the typical wetted perimeter. This approach was verified on-site during a September 13 field visit to the tailrace with NPS and WDFW. Silt fencing would be used to prevent erosion and to prevent sedimentation into the Skagit River. The tailrace barrier would be removed during the drier months. Because the Skagit River is not hydrologically connected during most flow conditions, work would therefore be conducted in the dry (see photos below of the tailrace during a November of 2023 field investigation); no stream isolation would be used. Although work is planned to occur during the dry summer months, during a September 13 site visit to the tailrace, WDFW Habitat Biologists confirmed work to remove the tailrace barrier would not need to adhere to the in-water work window because no turbidity upsets are likely to occur and the work area is expected to be dry.

Following removal of these components, a low flow channel would be established by grading the tailrace upstream and downstream as specified in Table 8e. Large woody material would then be placed in the graded channel (Sheet 21 in Attachment 1). Large woody material will be anchored by embedding into existing channel banks and/or possibly supplemented by boulder ballast. Any boulder ballast would consist of rounded streambed boulders and placed outside of the OHWM. This would create high-flow refugia habitat for anadromous fish and minimize potential stranding potential during 100-year flood events. Tailrace barrier removal and restoration would occur within the 100-year floodplain. See Sheets 17 – 23 in Attachment 1 for work related to the Newhalem Powerhouse tailrace barrier.

During an October 8, 2024 site visit with Beth Fallon (NPS plant ecologist), Curtis Clement (Upper Skagit Indian Tribe geologist), and Scott Luchessa (City Light Lead Restoration Ecologist), the participants conducted a walk-through of the Powerhouse tailrace area to discuss potential vegetation salvage and restoration approaches that would minimize impacts to and loss of native riparian vegetation during tailrace barrier removal. During the site visit, the NPS recommend salvage and replanting of native trees, shrubs, and herbaceous material as part of riparian habitat restoration following construction. Cedar and western hemlock saplings could be salvaged for replanting. Similarly, salmonberry (*Rubus spectabilis*), sword fern, and selected native shrubs could be salvaged from the access corridor for replanting. Although specific vegetation restoration protocols will be further vetted with the NPS, salvaged plants could potentially be temporarily staged under the forest canopy adjacent to the

[5] Excess material not required for Stream 1 and tailrace barrier restoration will be relocated to Newhalem Creek downstream of the existing dam location for natural transport downstream.

temporary access road or possibly in the shade of existing forest adjacent to the Powerhouse parking area until ready for replanting.

Anticipated Construction Equipment for all Project Elements

Equipment would likely include the following: mini-track excavator; 12,000-pound excavator, articulated excavator, dump truck or similar, heavy-capacity helicopter, light-weight helicopter, rock trim-blasting, non-explosive cracking agents for breaking apart boulders or concrete, grader, jackhammer, concrete saw, diesel generators, air compressor, dewatering pumps, rock drill, and crane.

Tailrace (Type F stream), facing upstream (south). Aside from the pool near the powerhouse, no surface flow was observed in the tailrace during the field investigation in November 2023.

Tailrace, facing downstream (north). Aside from the pool near the powerhouse, no surface flow was observed in the tailrace during the field investigation in November 2023.

Northernmost extent of the tailrace, facing downstream (north) towards the tailrace barrier with the Skagit River visible in the background. In the portion of the tailrace pictured above, the tailrace channel narrows to approximately 4 to 6 feet wide and disperses into a relatively flat, rocky area (pictured below).

Tailrace barrier. Photo taken November 2023 facing upstream (south) into the tailrace from the left bank of the Skagit River.

6f. What are the anticipated start and end dates for project construction? (Month/Year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Start Date: June 2026 End Date: October 2026 ☐ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

$2.7 million

6h. Will any portion of the project receive federal funding? [help]

- **If yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☒ Check here if there are wetlands or wetland buffers on or adjacent to the project area.
(If there are none, skip to Part 8.) [help]

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☐ Not applicable

Stream 1 flows through the delineated boundary of Wetland 1. Minor temporary impacts to Wetland 1 and the adjacent wetland buffer will be minimized but likely cannot be avoided entirely at the culvert inlet during removal of the access road culvert (Culvert 11). Erosion and sedimentation control measures would be installed prior to and maintained during construction to minimize impacts to the extent possible and no fill would be placed in Wetland 1.

7b. Will the project impact wetlands? [help]

☒ Yes ☐ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☒ Yes ☐ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☒ Yes ☐ No

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☒ Yes ☐ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☐ Yes ☒ No ☐ Don't know

Although excavation would be required in Wetland 1 for culvert removal, permanent impacts would total approximately 50 square feet. The culvert removal and channel restoration would be self-mitigating as it would improve water flow and habitat, and impacts would not occur but for the overall Stream 1 channel restoration. Therefore, no mitigation is proposed.

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

Not applicable.

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [help]

Activity (fill, drain, excavate, flood, etc.)	Wetland Name[1]	Wetland type and rating category[2]	Impact area (sq. ft. or Acres)	Duration of impact[3]	Proposed mitigation type[4]	Wetland mitigation area (sq. ft. or acres)
Culvert Removal						
Excavate: Culvert 11 removal and channel grading	Wetland 1	PSS/IV	50 sq ft	Permanent	None	N/A
Fill: Sandbag placement for Culvert 11 removal	Wetland 1	PSS/IV	16 sq ft	Temporary	None	N/A

[1] If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.
[2] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.
[3] Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.
[4] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: NA

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

Fill Location	Fill Use	Source of Fill Material	Type of Fill Material	Estimated Amount in CY	How and where placed
Temporary sandbag placement	In-water isolation and dewatering	On-site	Sandbags filled with native Newhalem Creek streambed sediment.	1 CY	Sandbags placed by hand and/or excavator.

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

Activity	Method	Material Type	Estimated Amount in CY	Placement Method
Culvert 11 removal and channel grading	Excavator and backhoe	Corrugated metal pipe, soil, rock	3 CY	An excavator will remove road fill and the culvert to restore the natural drainage pattern.

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☐ Not applicable

Several construction techniques would be employed to minimize effects on listed or proposed species and designated critical habitat. The contractor would be required to use construction best management practices (BMPs), such as those in the Washington State Department of Ecology's most current *Stormwater Management Manual for Western Washington* and follow all applicable terms and conditions of all required permits and authorizations. The measures presented below are (1) components of the project and (2) requirements of the contractor during project implementation:

- Before commencing any decommissioning activities, including the establishment of temporary spoils disposal areas and staging areas, access road improvements, and landslide boulder and debris removal, the selected contractor would install sedimentation and erosion control measures. Plans will include Ecology-approved source control and runoff conveyance and treatment construction BMPs, such as silt fencing, vegetated strips, wattles, plastic covering, erosion control nets and blankets, mulching and other methods to control erosion and limit potential sediment impacts to Waters of the U.S.
- Clearing and construction limits would be identified on all design drawings and would be established before initiation of staging or demolition activities. Clearing and construction limits may be marked by fencing or other means to clearly define the clearing limits and protect non-project areas from vehicle intrusion or debris disposal, as defined in the approved Temporary Erosion and Sediment Control Plan. Concrete spoils from the demolition activities will be temporarily stored in the old gravel parking area that has been previously cleared and will be used as a staging area during demolition activities (see Sheet 12 in Attachment 1). Temporarily stored material will be hauled off site to an approved upland location. Spoils would be removed with dump trucks via the access road or helicopters if needed.
- All equipment would be inspected daily for fluid leaks before leaving the staging area, and any leaks would be repaired before the vehicle resumes operation. The contractor would be responsible for preparing and implementing a Spill Plan prior to construction.
- To prevent potential introduction of invasive plants, all construction equipment would be washed to remove soil, seeds, plants, and plant fragments before being allowed to come into the project area. Use of a high-

pressure washing system is recommended to remove all seeds, plants, plant fragments, dirt, and debris from construction equipment, taking care to wash the sides, tops, and undercarriages.

- Clearing and construction limits shall be clearly marked to minimize disturbance of riparian vegetation.

In-Water Construction Impact Minimization

ESA-listed fish have no access to the dam site due to the presence of two impassable waterfall barriers downstream of the dam. Thus, there would be no direct impacts from removal of the dam and headworks. Potential indirect effects to aquatic species would be avoided by scheduling in-water work during the low-flow window to minimize the potential for sediment transport to downstream habitats occupied by ESA-listed fish. For more details on potential mitigation measures to minimize impacts to listed species, please refer to the BA (Attachment 3). Additional measures include the following:

- The cofferdam and sandbag dewatering systems for Newhalem Creek and Stream 1 would be in place prior to any dam demolition or culvert removal. Excavators may be operated instream to set cofferdams at Newhalem Creek. If this occurs, excavators would operate on portions of the streambed that are naturally dewatered during the summer in-water work period or would use materials placed on the substrate (e.g., timber cribbing, existing streambed materials) so that excavator tracks are elevated above water level.
- Cofferdams would be constructed of an approved combination of streambed materials, including supersacks filled with native material that are placed within the channel by an excavator or other suitable lifting equipment.
- For Newhalem Creek, supersacks would be filled with native streambed materials using an excavator positioned on top of gravel bars that are naturally dewatered during low-flow summer conditions.
- The selected contractor would be required to install adequate provisions to limit seepage into the isolation area to help minimize temporary increases in turbidity. Measures to limit seepage into the work area could include the use of plastic sheeting aprons upstream of cofferdams, pumped flow from sumps, and isolation of clean versus sediment-laden water in the construction areas.
- Cofferdams and sandbags would be removed and repositioned cleanly and incrementally to reduce sedimentation pulses downstream.
- Any resident fish that may be present would be rescued and relocated from the in-water work isolation area after it is isolated, in compliance with future requirements of the Hydraulic Project Approval to be issued by WDFW.
- Silt fencing and other construction source control and conveyance and flow treatment BMPs as part of an approved erosion and sediment control plan to limit erosion and sedimentation into Newhalem Creek and the Skagit River downstream of habitat restoration areas.

Measures to reduce the potential for hazardous/contaminated material release include:

- Washing heavy equipment needed for work below OHWM before it is delivered to the job site.
- Inspecting construction equipment before accessing instream work areas to remove vegetation and dirt clods that may contain noxious weed seeds.
- Inspecting machinery daily for fuel or lubricant leaks.
- Inspecting and cleaning all equipment that would operate below OHWM (flowing or not); replacing all hydraulic fluids with biodegradable fluid (a standard requirement for Ecology 401 water quality certification and WDFW Hydraulic Project Approval terms and conditions).

Riparian Corridor Restoration

City Light would require that the selected contractor minimize vegetation clearing along riparian areas. Temporarily disturbed areas adjoining Stream 1 (Sheet 6 in Attachment 1), Newhalem Creek (Sheet 16 in Attachment 1) and Newhalem Powerhouse tailrace barrier location (Sheet 23 in Attachment 1) would be restored in accordance with the restoration plan to be developed in collaboration with natural resource management agencies, Tribes, and the NPS. A formal riparian restoration/landscaping plan would be prepared during final design. City Light would coordinate with NPS, Tribes, and other interested parties to implement the approved restoration plan for each restoration area. It is expected that the habitat restoration will rely predominantly on natural succession processes but may include local collection of seed for selected native plants found to augment restoration of native plant communities.

8b. Will your project impact a waterbody or the area around a waterbody? [help]

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If Yes**, submit the plan with the JARPA package and answer 8d.
- **If No, or Not applicable,** explain below why a mitigation plan should not be required.

☐ Yes ☒ No ☐ Don't know

Mitigation is not proposed because the activity itself is self-mitigating and would result in a net increase in stream and riparian function. Dam removal would fully restore natural fluvial processes, including spawning gravel recruitment and transport to downstream reaches that may be used by Puget Sound steelhead, Puget Sound Chinook salmon, bull trout, and other salmonid species. Culvert removal will improve natural hydraulic processes. Tailrace barrier removal will provide unimpeded access to high flow, off-channel refugia during significant flood events on the Skagit River.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [help]

Not applicable. A mitigation plan would not be prepared because of the self-mitigating nature of the project.

8e. Summarize impact(s) to each waterbody in the table below. [help]

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name[1]	Impact location[2]	Duration of impact[3]	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Culvert 11 Removal and Drainage Restoration					
Fill: Temporary stream diversion - Sandbag placement	Stream 1	In-water	Temporary	1	10 sq ft/5 lf
Remove Culvert 11 and road fill	Stream 1	In-water	Permanent	2	20 sq ft/12 lf
Newhalem Dam Decommissioning – Phase 1					
Fill: Cofferdam placement	Newhalem Creek	In-water	Temporary	50	390 sq ft/130 lf
Remove: Concrete dam	Newhalem Creek	In-water	Permanent	270	910 sq ft/20 lf
Remove: Concrete dam apron	Newhalem Creek	In-water	Permanent	170	830 sq ft/32 lf
Newhalem Dam Decommissioning – Phase 2					
Fill: Cofferdam placement	Newhalem Creek	In-water	Temporary	60	540 sq ft/180 lf
Excavate: Concrete sluiceway and headworks structures	Newhalem Creek	In-water	Permanent	150	870 sq ft/90 lf
Excavate: Riprap	Newhalem Creek	In-water	Permanent	20	170 sq ft/20 lf
Excavate: Channel restoration:	Newhalem Creek	In-water	Permanent	400	4,620 sq ft/165 lf

regrading and removal of accumulated streambed material					
Newhalem Powerhouse Tailrace Barrier Removal and Restoration (Elements within OHWM) **NOTE: Note the OHWMs of the Skagit River and tailrace barrier overlap near the existing tailrace barrier and quantities reflect specific locations of project elements.**					
Excavate: Concrete tailrace barrier	Skagit River	In-water	Permanent	40	400 sq ft/20 lf
Excavate: channel grading to prevent fish stranding during floods that activate lower portion of tailrace	Skagit River	In-water	Permanent	10	530 sq ft/20 lf
Fill: Salvaged streambed material from Newhalem Creek for channel restoration	Skagit River	In-water	Permanent	40	400 sq ft/20 lf
Fill: Large woody material placement	Skagit River	In-water	Permanent	2	30 sq ft/20 lf
Excavate: Concrete tailrace barrier	Newhalem Powerhouse Tailrace	In-water	Permanent	10	110 sq ft/30 lf
Excavate: Channel restoration	Newhalem Powerhouse Tailrace	In-water	Permanent	11	110 sq ft/45 lf
Fill: salvaged streambed material from Newhalem Creek for channel restoration	Newhalem Powerhouse Tailrace	In-water	Permanent	10	300 sq ft/70 lf
Fill: Large wood material placement	Newhalem Powerhouse Tailrace	In-water	Permanent	2	30 sq ft/55 lf

[1] If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.
[2] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
[3] Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

The amount of material that would be placed in surface waters has been estimated using the 30-percent design. With the exception of temporary cofferdam materials and activities, all fill quantities would be permanent.

Fill Location	Fill Use	Source of Fill Material	Type of Fill Material	How and where placed
Fill: Cofferdam placement – Newhalem Creek	In-water isolation and dewatering	On-site	SuperSacks filled with native streambed material.	SuperSacks placed by crane and/or excavator. Excavator will operate atop accumulated streambed materials "in the dry".
Fill: Cofferdam placement – Stream 1	In-water isolation and dewatering	On-site	Sandbags filled with Newhalem Creek native sediment (excess material removed during dam removal activities).	Sandbags placed by crane and/or excavator.
Fill: Large woody material – Tailrace	Habitat restoration	Off-site	Imported Douglas Fir, 18-inch diameter and range in length from 15 to 25 feet and include intact rootwads.	Large woody material placed by crane and/or excavator
Fill: Salvaged streambed material from Newhalem Creek for channel restoration at Newhalem Powerhouse tailrace barrier	Streambed restoration	On-site	Native streambed material from Newhalem Creek (excess material removed during dam removal activities).	Native substrates redistributed by excavator/backhoe or crane, guided by personnel in channel.

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

The amount of material that would be excavated from surface waters has been estimated using the 30-percent design. All excavation quantities (Table 8e) would be permanent.

Excavation Activity	Excavation Purpose	Method	Type of Excavated Material	How and where placed
Culvert removal (Culvert 11)	Channel restoration	Excavator/backhoe	Corrugated metal pipe, stream substrates, rock	Placed in upland storage and laydown areas until taken off site to approved location
Newhalem Dam removal	Dam removal and channel restoration	Contractor to determine: options include hydraulic hammer on an excavator; expansive grout; excavator and dump trucks	Concrete, rebar	Placed in upland storage and laydown areas until taken off site to approved location
Newhalem Dam apron removal	Dam removal and channel restoration		Concrete, rebar	Placed in upland storage and laydown areas until taken off site to approved location
Newhalem Dam sluiceway and headworks	Dam removal and channel restoration		Concrete, rebar, wood	
Newhalem Creek riprap removal	Channel restoration and channel restoration	Excavator/backhoe	Riprap	Placed in upland storage and laydown areas until taken off site to approved location

Newhalem Creek channel excavation/grading	Channel restoration	Excavator/backhoe	Stream substrates	Skagit River/Tailrace restoration site
Newhalem Powerhouse tailrace barrier removal	Barrier removal and channel restoration	Contractor to determine: options include hydraulic hammer on an excavator; expansive grout; excavator and dump trucks	Concrete, rebar	Placed in upland storage and laydown areas until taken off site to approved location
Skagit River channel grading	Channel restoration	Excavator/backhoe	Stream substrates	Placed in upland storage and laydown areas until taken off site to approved location
Newhalem Powerhouse Tailrace excavation	Channel restoration	Excavator/backhoe	Stream substrates	Placed in upland storage and laydown areas until taken off site to approved location

8h. Have you prepared a Water Quality Monitoring Plan (WQMP) for all in-water work (below ordinary high water), over water work or discharges to waters of the state?

☒ Yes ☐ No

If NO describe the monitoring that you will be conducting including parameters, equipment and locations, or explain why monitoring will not be necessary. [help]

A WQMP has been prepared for the project and is attached to this JARPA.

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
NPS	Roy Zipp	(360) 854-7200 Roy_Zipp@nps.gov	12/9/24
NMFS	David Price	(253) 317-1498 david.price@noaa.gov	10/25/24
USFWS	Jeff Garnett	(360) 701-6838 Jeffrey_garnett@fws.gov	9/13/24
FERC	Diana Shannon	(202) 502-6135 Diana.Shannon@ferc.gov	12/9/24
Ecology	Rachel McCrea	(206) 594-0146 Rachel.McCrea@ecy.wa.gov	12/9/24
WDFW	Alexander Richard	(360) 791-3517 Alexander.Richard@dfw.wa.gov	12/11/24
Upper Skagit Indian Tribe	Scott Schuyler	(360) 854-7000 ScottS@UPPERSKAGIT.com	10/17/24
U.S. Army Corps of Engineers	Lydia Baldwin	(360) 399-8034 lydia.baldwin@usace.army.mil	12/9/24

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help]

- **If Yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d.

☐ Yes ☒ No

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

171100050706

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to https://ecology.wa.gov/Water-Shorelines/Water-supply/Water-availability/Watershed-look-up to find the WRIA #.

WRIA 4 – Upper Skagit

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to https://ecology.wa.gov/Water-Shorelines/Water-quality/Freshwater/Surface-water-quality-standards/Criteria for the standards.

☒ Yes ☐ No ☐ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.
- For more information, go to: https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Shoreline-laws-rules-and-cases.

☐ Urban ☐ Natural ☒ Aquatic ☒ Conservancy ☐ Other: (Skagit River)

9g. What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/forest-practices-water-typing for the Forest Practices Water Typing System.

☒ Shoreline ☒ Fish ☒ Non-Fish Perennial ☒ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

Name of manual: 2024 Ecology Stormwater Management Manual for Western Washington

9i. Does the project site have known contaminated sediment? [help]

- **If Yes**, please describe below.

☐ Yes ☒ No

9j. If you know what the property was used for in the past, describe below. [help]

The site has been used since 1921 to supply power to the town of Newhalem and to construct Gorge Dam and Powerhouse.

9k. Is the project located in or adjacent to a designated state or federal contaminated site or clean-up site. (e.g. MTCA or CERCLA)?

- **If Yes**, provide any additional details below.

☒ Yes ☐ No

The Seattle City Light Newhalem Penstock, located adjacent to the tailrace, was remediated through a Time-Critical Removal Action and subsequent Non-Time Critical Removal Action administered by the National Park Service per the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Following both actions, the conclusion by the National Park Service as documented in an Action Memorandum dated September 25, 2023, is that the site poses no unacceptable risk to people or ecological receptors.

9l. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If Yes**, attach it to your JARPA package.

☒ Yes ☐ No

FERC will act as the lead federal agency for NHPA consultation. Seattle City Light has been designated by FERC as the nonfederal representative for Section 106 consultation.

9m. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]

The following ESA-listed, proposed, or candidate species may occur in the vicinity of the project. Please see the BA (Attachment 3) for more details on potential impacts to listed species that may occur in the project area.

Marbled Murrelet (*Brachyramphus marmoratus*)

Northern Spotted Owl (*Strix occidentalis caurina*)

Western Distinct Population Segment Yellow-billed Cuckoo (*Coccyzus americanus*)

Mt. Rainier White-tailed Ptarmigan (*Lagopus leucura rainierensis*)

Gray Wolf(*Canis lupus*)

Canada Lynx[1] (*Lynx canadensis*)

Grizzly Bear[1] (*Ursus arctos horribilis*)

North American Wolverine (*Gulo gulo luscus*)

Bull Trout

Puget Sound Steelhead

Puget Sound Chinook Salmon

Monarch Butterfly (*Danaus plexippus*)

Whitebark Pine (*Pinus albicaulis*)

FERC will act as the lead federal agency for ESA consultation. A Biological Assessment has been prepared for the project and is available upon request.

1. The IPaC obtained for the action area on November 12, 2024 did not include Canada lynx or grizzly bears; however, these species are included based on previous ESA consultations completed in the area and the presence of potentially suitable habitat.

9n. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]

The following PHS species may be located in or near the project area:

Pink Salmon (*O. gorbuscha*)
Dolly Varden/Bull Trout
Resident Coastal Cutthroat
Bull Trout
Chum Salmon (*O. keta*)
Chinook Salmon
Coho Salmon (*O. kisutch*)
Rainbow Trout (*O. mykiss*)
Steelhead
Sockeye Salmon (*O. nerka*)
Little Brown Bat (*Myotis lucifugus*)
Northern Spotted Owl
Yuma myotis (*Myotis yumanensis*)

Although not mapped in WDFW's fish barrier inventory (WDFW 2023), two natural waterfalls are total barriers to upstream fish passage at CM 0.65 (14-foot waterfall) and CM 0.8 (Newhalem Falls, 167-foot waterfall; see Figure 1 of attached Wetland and Stream Delineation Report for approximate location). These features are identified in *A Catalog of Washington Streams and Salmon Utilization* (Williams and Phinney 1975). From RM 0.65 to the diversion site at RM 1.0, Newhalem Creek is a transport reach characterized by high gradients with deep plunge pools interspersed by steep cascades and waterfalls.

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.oria.wa.gov/opas/.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on agency addresses for completed JARPA.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help]

- For more information about SEPA, go to https://ecology.wa.gov/regulations-permits/SEPA-environmental-review.

☐ A copy of the SEPA determination or letter of exemption is included with this application.

☒ A SEPA determination is pending with Seattle City Light (lead agency). The expected decision date is TBD. City Light intends to prepare an adoption of FERC's Environmental Assessment (NEPA) and will issue the public notice and administer SEPA at that time.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [help]

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt? _____

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [help]

LOCAL GOVERNMENT

Local Government Shoreline permits:

☐ Substantial Development ☐ Conditional Use ☐ Variance

☐ Shoreline Exemption Type (explain): Per WAC 173-27-040, restoration activities that do not involve development or redevelopment, such as this project, do not require a Shoreline permit.

Other City/County permits:

☐ Floodplain Development Permit ☐ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – Attach Exemption Form

Washington Department of Natural Resources:

☐ Aquatic Use Authorization

Complete JARPA Attachment E and submit a check for $25 payable to the Washington Department of Natural Resources. **Do not send cash.**

Washington Department of Ecology:

☒ Section 401 Water Quality Certification

☐ Authorization to impact waters of the state, including wetlands (Check this box if the proposed impacts are to waters not subject to the federal Clean Water Act)

FEDERAL AND TRIBAL GOVERNMENT

United States Department of the Army (U.S. Army Corps of Engineers):

☒ Section 404 (discharges into waters of the U.S.) ☐ Section 10 (work in navigable waters)

United States Coast Guard:

For projects or bridges over waters of the United States, contact the U.S. Coast Guard at:

☐ Bridge Permit: D13-SMB-D13-BRIDGES@uscg.mil

☐ Private Aids to Navigation (or other non-bridge permits): D13-SMB-D13-PATON@uscg.mil

United States Environmental Protection Agency:

☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) on tribal lands where tribes do not have treatment as a state (TAS)

Tribal Permits: (Check with the tribe to see if there are other tribal permits, e.g., Tribal Environmental Protection Act, Shoreline Permits, Hydraulic Project Permits, or other in addition to CWA Section 401 WQC)

☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) where the tribe has treatment as a state (TAS).

Part 11–Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [help]

11a. Applicant Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. _____ (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. ___SL_____ (initial)

Scott Luchessa	Scott Luchessa	12/19/24
Applicant Printed Name	Applicant Signature	Date

11b. Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Authorized Agent Printed Name	Authorized Agent Signature	Date

11c. Property Owner Signature (if not applicant)[6] [help]

Not required if project is on existing rights-of-way or easements (provide copy of easement with JARPA).

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner Printed Name	Property Owner Signature	Date

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-011 rev. 09/2018

[6] Areas subject to CWA 404 authorization are located within the FERC boundary. Therefore, NPS signature as property owner is not required for this application.

WETLAND AND STREAM DELINEATION REPORT

NEWHALEM CREEK HYDROELECTRIC PROJECT DECOMMISSIONING

May 2024

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List of Acronyms and Abbreviations

cfs.....cubic feet per second
City Light.....Seattle City Light
CM .....creek mile
DNR .....Department of Natural Resources
FERC.....Federal Energy Regulatory Commission
HDR .....HDR Engineering, Inc.
HGM .....hydrogeomorphic
NAVD 88.....North American Vertical Datum of 1988
NOCA .....North Cascades National Park Service Complex
NPS .....National Park Service
NRCS .....Natural Resources Conservation Service
OHWM .....ordinary high water mark
Project .....Newhalem Creek Hydroelectric Project
RCW .....Revised Code of Washington
RLNRA.....Ross Lake National Recreation Area
USFWS .....U.S. Fish and Wildlife Service
WAC .....Washington Administrative Code
WCC .....Whatcom County Code
WDFW.....Washington Department of Fish and Wildlife

1.0 INTRODUCTION

Seattle City Light (City Light) owns and operates the Newhalem Creek Hydroelectric Project (Project), which is licensed by the Federal Energy Regulatory Commission (FERC). The Project is in Whatcom County, immediately southwest of the town of Newhalem, along Newhalem Creek, a tributary to the Skagit River, and the Skagit River (Figure 1-1). The Project occupies approximately 6.4 acres of land within the Ross Lake National Recreation Area (RLNRA), which is managed by the National Park Service (NPS) as part of the North Cascades National Park Service Complex (NOCA).

The current license for the Project (FERC No. 2705) expires on January 31, 2027. The Project was in consistent active use until 2010, when a series of equipment and structural problems caused an extended shutdown. Currently, it cannot be operated due to leaks in the power tunnel, maintenance needs at the headworks, and lack of safe access to the dam. Based on an engineering and economic analysis of the necessary repairs, City Light has determined that Project costs far exceed the revenues. For this reason, City Light has decided not to seek a new license for the Project and proposes to decommission the existing Project. City Light filed a Notice of Intent with FERC on April 28, 2021, to surrender the license for the Project.

This report describes the methods and findings of wetland and stream delineation for the proposed decommissioning of the Project. The report has been prepared by HDR, Engineering Inc. (HDR) biologists and is intended to provide documentation for local, state, and federal permitting activities required for decommissioning the Project.

1.1 Project Location

The Project is located south of State Route 20 and the Skagit River, just downstream of the Gorge Powerhouse (Figure 1-1) on NPS-managed land within the RLNRA. The Project powerhouse is reached via a road that traverses NPS's Newhalem Creek Campground and provides access to Newhalem Creek and several hiking trails.

The Newhalem Creek diversion structure, located at creek mile (CM) 1.0 just above a 167-foot waterfall (Newhalem Falls, CM 0.8), is run-of-the-river and impounds very little water (approximately 0.1 acre/0.6 acre-feet). Access to the dam is via a 1.4-mile-long gravel section of a former logging road, starting near the parking lot of NOCA Visitor Center, and continuing past the dam along the Newhalem Creek drainage as an unmaintained gravel trail. The upper portion of the gravel dam access road is closed to public access due to a landslide (see Appendix D, Photo 1).

1.2 Project Description

City Light's proposed decommissioning Project includes the following activities:

- Remove the dam, sluiceway/intake structure, gatehouse, and pedestrian bridge
- Plug the power tunnel and abandon in place
- Deactivate the equipment in the powerhouse

- Gate the road to the dam at the muster point near elevation 840 feet North American Vertical Datum of 1988 (NAVD 88) and maintain the road up to this point (approximately 0.5 mile) for emergency evacuation per the Skagit River Project Emergency Action Plan in case of failure at Ross Dam; an approximate 0.75-mile section of road above elevation 840 feet NAVD 88 will be permanently blocked and decommissioned
- Remove the tailrace fish barrier
- Remove the transformer and overhead transmission lines and abandon the underground transmission lines.

City Light plans to retain the powerhouse, penstock, and penstock saddles to interpret as historic resources, as they are accessible and visible to the public and are designated on the National Register of Historic Places as contributing resources to the Skagit River and Newhalem Creek Hydroelectric Projects Historic District. There are currently three interpretive panels along the front of the powerhouse; these will be updated, along with other interpretive elements, in collaboration with NPS and the Department of Archeology and Historic Preservation. The equipment in the plant will be deactivated but retained in place. City Light will continue to maintain these features in perpetuity.

Other Project features to be retained include the tailrace, electrical service line to the powerhouse and four associated poles, and the trail along the penstock. The tailrace will remain in place because it is part of a stream. The trail along the penstock is an emergency access route identified in the Skagit River Emergency Action Plan, and City Light will continue to maintain it.

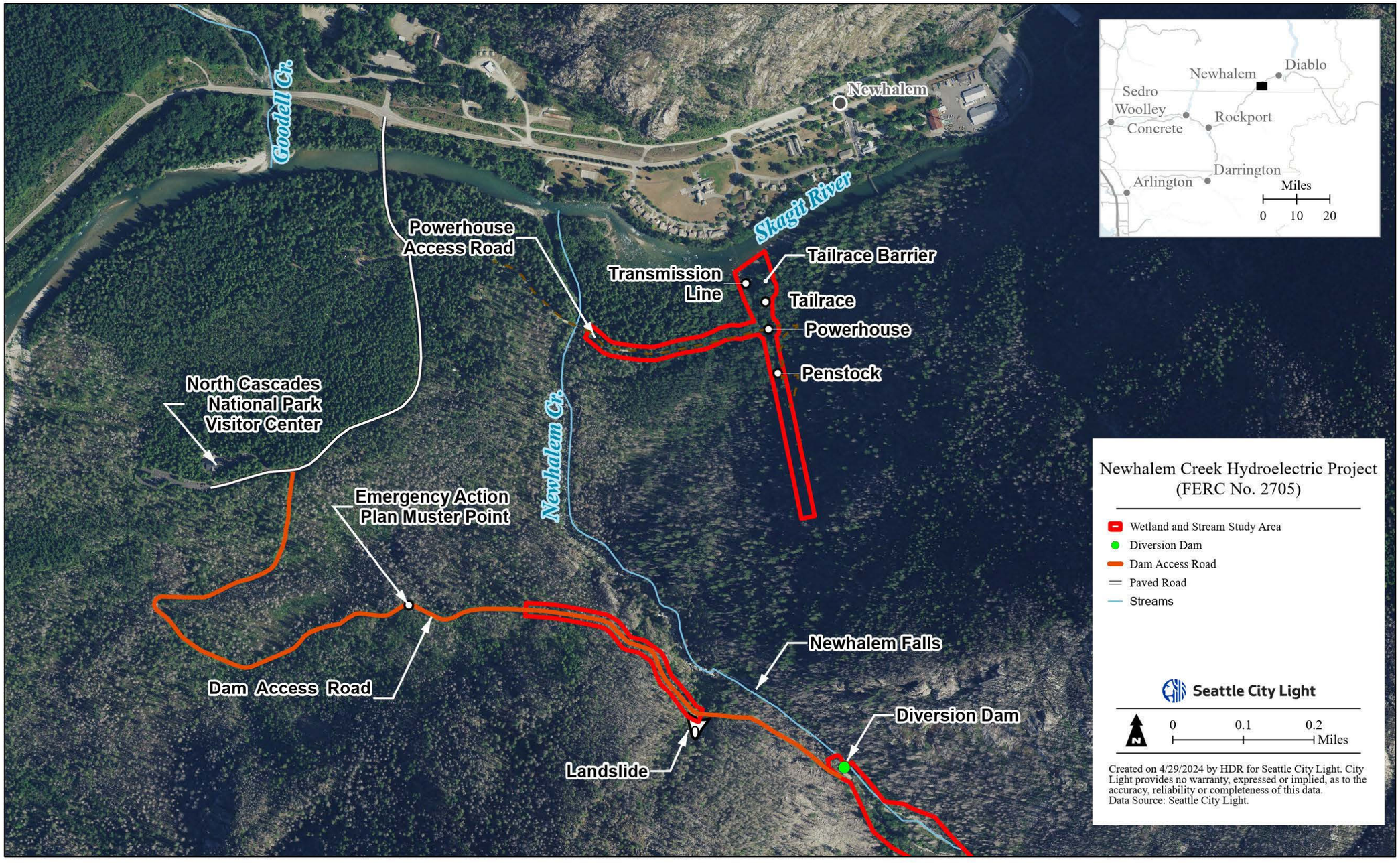

Figure 1-1. Project vicinity and prominent features of the Project.

2.0 STUDY METHODS

The study area, consisting of multiple areas near the Project, was investigated for the presence and geographic extent of wetlands and other waters of the U.S. The southern portion of the study area is comprised of a 50-foot-wide buffer on the gravel dam access road that extends approximately 1,700 feet (0.32-mile) along the road, starting at the muster point (Figure 1-1). The northern portion of the study area is comprised of a continuous polygon that extends approximately 50 feet from either side of the following Project features: the penstock, powerhouse, tailrace, the transmission line extending from the powerhouse to the left bank of the Skagit River, and a 1,370-foot (0.26-mile) section of the access road leading to the powerhouse (Figure 1-1). An 1,850-foot (0.35-mile) section of Newhalem Creek, extending approximately 100 feet downstream and 1,750 feet upstream of Newhalem Dam, was also delineated as part of the field investigation.

Wetlands and other waters of the U.S. were identified through a two-step process. HDR biologists first reviewed relevant information including online maps, public databases, and historic documentation in the office. Following this office review, HDR biologists completed a thorough field survey of the study area to identify, delineate, and classify wetlands and other waters of the U.S.

2.1 Review of Relevant Information

Information reviewed for this study include the following:

- Forest Practice Base Maps accessible on Department of Natural Resources (DNR) Forest Practices Application Mapping Tool (DNR 2023)
- DNR Washington Natural Heritage Program Data Explorer (2024)
- Soils maps generated on the Natural Resources Conservation Service (NRCS) Web Soil Survey (2019)
- Northwest Indian Fisheries Commission, Statewide Washington Integrated Fish Distribution Map Viewer (NWIFC 2023)
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory maps (2023)
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species online mapper (2023a)
- WDFW Fish Barrier Inventory (2023b).

These documents provide background information on the soils, hydrology, land use, fish and wildlife use, and documented wetlands and streams in the study area. The USFWS National Wetlands Inventory maps (USFWS 2023) document two perennial surface waters within the study area: Newhalem Creek and the Skagit River. The tailrace is also included on the USFWS National Wetlands Inventory maps as an intermittently flowing riverine system. None of these sources identified any wetlands within the study area.

2.2 Field Investigation

Field investigations for the Project were conducted by HDR biologists in the study area on November 20, 2023. Additionally, the ordinary high water mark (OHWM) of Newhalem Creek

was delineated by HDR biologists on July 11, 2023. Climate data for the Project were determined from the Newhalem weather station (NOAA Cooperative Station 455840), located approximately 0.56-mile northeast of the powerhouse. Like the Project site, the Newhalem weather station is located in the East Olympic Cascade Foothills climate division and is the station closest to the Project area with the requisite data history to statistically determine the normality of recent precipitation (NRCS 2023). During the 3 months preceding the field survey on November 20, 2023, a total of 5.6 inches of rain fell at the Newhalem station. Recorded precipitation levels were below normal for August, normal for September, and below normal for October. According to the Direct Antecedent Rainfall Evaluation Method (Sumner et al. 2009), the 3-month antecedent precipitation was drier than normal. During the 2 weeks before the field investigation in November 2023, 3.52 inches of precipitation was observed at the Newhalem station, which is lower than the average of 6.43 inches for the same dates (NRCS 2023). Weather conditions for the site visit were cold and partly sunny. In general, weather conditions were fairly typical for November in Newhalem, with a daily high temperature of 49 degrees Fahrenheit (NRCS 2023).

2.2.1 Wetlands

HDR biologists made wetland determinations and delineated wetlands within the study area using the routine onsite determination method described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), as updated by the Regional Supplement to the *Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region-Version 2.0* (USACE 2010). A more detailed description of the field methods used to identify and delineate wetlands in this study is provided in Appendix A. Formal paired data plots were established to characterize the wetland and adjacent uplands identified within the study area; an additional sample plot was established to characterize conditions within the tailrace. Data from all plots are presented in Appendix B. Delineated wetland boundaries and sample plots were surveyed using a Trimble DA2 Global Positioning System (GPS) unit capable of sub-meter horizontal accuracy.

As required by Whatcom County Code (WCC) 16.16.610, on-site wetlands were rated using the *Washington State Wetland Rating System for Western Washington: 2014 Update, Version 2.0* Washington State Department of Ecology (Ecology) Publication # 23-06-009 (Hruby and Yahnke 2023). Wetlands were rated using the Wetlands Rating Field Data Form provided with the rating system manual (Appendix C). The rating system scores wetlands according to their capacity to improve water quality, maintain hydrologic integrity, and provide habitat. Required buffer widths are based on wetland rating category, habitat function score, and land use intensity. Whatcom County defines land use intensity as high, moderate, or low. High intensity land uses include commercial, urban, industrial, institutional, retail sales, residential (more than one unit/acre), high-intensity new agriculture, high-intensity recreation (golf courses, ball fields), hobby farms, and Class IV special forest practices, including the building of logging roads. Moderate intensity land use includes residential (one unit/gross acre or less), moderate-intensity open space (parks), moderate-intensity new agriculture (orchards and hay fields), and paved trails. Low intensity land uses include forestry (cutting of trees only), low intensity open space (such as passive recreation and natural resources preservation), and unpaved trails (WCC 16.16.900). The proposed decommissioning of the Project is not specifically categorized into any one impact type, though it most closely aligns with low intensity land use, as removal of the dam infrastructure and

abandonment of the dam access road above elevation 840 feet NAVD 88 will return the study area to a more natural state compared to existing conditions.

Required wetland buffers are shown in Table 2-1. A detailed analysis of wetland functions is not included in this report; however, a brief description of wetland functions is provided. Wetland habitats in the study area were also classified according to the system outlined by the USFWS in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). The Cowardin system classifies wetlands based on their dominant vegetation structure, hydrologic regime, and other factors.

Table 2-1. Summary of wetland buffer requirements in Whatcom County.

Wetland Category	Habitat Function Score	Land Use Intensity		
		High Buffer Width (feet)	Moderate Buffer Width (feet)	Low Buffer Width (feet)
Category 1	8 to 9	300	225	150
	5 to 7	150	110	75
	< 5	100	75	50
Category 2	8 to 9	275	150	100
	5 to 7	150	110	75
	< 5	80	60	50
Category 3	8 to 9	150	110	75
	5 to 7	150	100	60
	< 5	80	60	50
Category 4	8 to < 5	50	40	25

Source: WCC 16.16.630, Table 1.

2.2.2 Streams

Whatcom County defines streams as the following (WCC 16.16.900):

> *"'Streams' mean those areas where surface water flows are sufficient to produce a defined channel or bed. A defined channel or bed is an area that demonstrates clear evidence of the passage of water and includes, but is not limited to, bedrock channels, gravel beds, sand and silt beds, and defined-channel swales. The channel or bed need not contain water year-round. This definition is not meant to include ditches or other artificial water courses unless they are used to convey streams naturally occurring prior to human alteration, and/or the waterway is used by anadromous or other fish populations, or flows directly into shellfish habitat conservation areas."*

HDR biologists identified the OHWM of streams in the study area using Ecology's guidance for OHWM identification (Anderson et al. 2016), which is based on the Shoreline Management Act (Revised Code of Washington [RCW] 90.58.030(2)(b)) and Washington Administrative Code [WAC] 173-22-030(11)). HDR biologists looked for physical indicators including, but not limited to, a natural scour line impressed on the bank, distribution of upland and water tolerant vegetation,

and drift deposits. The OHWM for identified streams within the study area was surveyed and mapped in the field using the Trimble GPS.

Streams identified in the study area were classified according to the stream definitions and aquatic area typing systems detailed in WCC 16.16.710(C)(1)(a), which classifies stream type according to WAC 222-16-030. Criteria for this typing system are described in Table 2-2. The stream types described in this report are based on the stream reaches within the study area; upstream or downstream reaches may be rated lower or higher. Whatcom County stream buffers are outlined in Table 2-3.

Table 2-2. Summary of the stream typing system for Whatcom County streams.

Stream Type	Definition[1]
Type S	Type S streams are those surface waters which meet the criteria of DNR, WAC 222-16-030(1) as now or hereafter amended, as a Type S water and are inventoried as "shorelines of the state" under the Shoreline Management Master Program for Whatcom County, pursuant to Chapter 90.58 RCW. Type S waters contain salmonid fish habitat.
Type F	Type F streams are those surface waters which meet the criteria of DNRs, WAC 222-16-030(2) as now or hereafter amended, as Type F water. Type F streams contain habitat for salmonid fish, game fish and other anadromous fish and are characterized as having a defined channel of 2 feet or greater within the bankfull width and a gradient of 16 percent or less or between 16 and 20 percent with a contributing basin greater than 50 acres in Western Washington (WAC 222-16-031[3]).
Type Np	Type Np streams are those surface waters which meet the criteria of DNR, WAC 222-16-030(3) as now or hereafter amended, as Type Np water. Type Np streams are all segments of natural waters within the bankfull width of defined channels that are perennial non-fish habitat streams. Perennial streams are flowing waters that do not go dry any time of a year of normal rainfall and include the intermittent dry portions of the perennial channel below the uppermost point of perennial flow. Type Np waters do not contain fish habitat.
Type Ns	Type Ns streams are those surface waters which meet the criteria of the Washington Department of Natural Resources, WAC 222-16-030(4) as now or hereafter amended, as a Type Ns water. These streams are areas of perennial or intermittent seepage, ponds, and drainage ways having short periods of spring or storm runoff. Type Ns waters do not contain fish habitat.

1. WCC 16.16.710(C)(1)(a), WAC 222-16-030, and WAC 222-16-031.

Table 2-3. Whatcom County stream buffers.

Stream Type	Buffer Requirement[1]
Shoreline streams (Type S)	150 feet
Fish-bearing streams (Type F)	100 feet
Non-fish-bearing streams (Type Np, Ns)	50 feet

1. WCC 16.16.730(B)(3).

2.2.3 Ditches

Whatcom County defines ditches as the following (WCC 16.16.900):

> *"'Ditch' or 'drainage ditch' means an artificially created watercourse constructed to convey surface or groundwater. Ditches are graded (manmade) channels installed to collect and convey water to or from fields and roadways."*

As described in WCC 16.16.710(C)(1)(b), ditches or other artificial water courses are considered streams for the purposes of Whatcom County Critical Areas Code (WCC 16.16) when:

(1) The water course used to convey natural streams existing prior to human alteration; and/or

(2) The water course is used by anadromous or resident salmonid or other resident fish populations; or

(3) The water course flows directly into shellfish habitat conservation areas.

HDR biologists identified all ditches in the study area and determined if they are classified as ditches or streams based on the guidance described above. HDR biologists assessed each ditch to determine the presence of physical indicators including, but not limited to, areas showing scour marks or evidence of occasional flow, areas lacking vegetation, presence of a defined channel (bed/bank), and areas of flowing or standing water.

3.0 RESULTS

HDR biologists identified one wetland (Wetland 1), eight streams (Stream 1 through Stream 5, Newhalem Creek, the tailrace, and the Skagit River), and two ditches not considered to be streams (Ditch 1 and Ditch 2) within the study area, as are described in detail below.

3.1.1 Wetlands

Wetland 1 is located adjacent to the gravel dam access road in the southern portion of the study area. The identified wetland is a slope wetland that contains two non-fish-bearing streams (Stream 1 and Stream 2, see Section 3.1.2.1 and Section 3.1.2.2, respectively) and a permanently flowing outlet at Culvert 11.

The wetland was distinguished from adjoining uplands by the presence of indicators for wetland hydrology, hydric soils, and hydrophytic vegetation. Wetland determination data sheets are provided in Appendix B, wetland rating forms are in Appendix C, and photos of the wetland and surrounding areas are in Appendix D (see Photo 9 through Photo 13). A summary of wetland characteristics is provided in Table 3-1. Figure 3-1 through Figure 3-3 show the location and geographic extent of the wetland and the locations of the sample plots that were established in the study area during the survey. A detailed description of the identified wetland (Wetland 1) is provided below. Wetland 1 was likely created by the construction of the dam access road and contains two streams: Stream 1 (non-fish bearing perennial stream; see Section 3.1.2.1) and Stream 2 (non-fish bearing seasonal stream; see Section 3.1.2.2).

Table 3-1. Summary of wetlands delineated in the study area.

Wetland Name	Size (acre)	HGM Classification[1]	Cowardin Classification[2]	Wetland Rating[3]	Required Buffer Width[4] (feet)
Wetland 1	0.02	Slope	PSS	Category IV	25 feet

1. Hydrogeomorphic (HGM) classification is based on *A Hydrogeomorphic Classification for Wetlands* (Brinson 1993).
2. Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). PSS = Palustrine Scrub-Shrub.
3. Washington State Rating System for Western Washington (Hruby 2014).
4. WCC 16.16.630.

Wetland 1 – INFORMATION SUMMARY	
Location:	Latitude: 48.663157, Longitude: -121.255647

Local Jurisdiction	Whatcom County
Water Resource Inventory Area	4 – Upper Skagit
Ecology Rating (Hruby 2014)	IV
Water Quality	3
Hydrologic	4
Habitat	6
Local Rating	Category IV
Local Buffer Width	25 feet
Wetland Size	0.02 acres
Cowardin Classification	PSS
HGM Classification	Slope
Wetland Data Sheet(s)	SP 1-1
Upland Data Sheet (s)	SP 1-2

Dominant Vegetation	Wetland 1 is a palustrine scrub-shrub wetland that is dominated by salmonberry (*Rubus spectabilis*, FAC), with scattered devil's club (*Oplopanax horridus*, FAC), western red cedar saplings (*Thuja plicata*, FAC) and red alder saplings (*Alnus rubra*, FAC). Herbaceous vegetation observed within the wetland includes fringed willowherb (*Epilobium ciliatum*, FACW), lesser herb-Robert (*Geranium robertianum*, FACU), sword fern (*Polystichum munitum*, FACU), and lady fern (*Athyrium cyclosorum*, FAC). Plant communities observed in Wetland 1 meet the dominance test for hydrophytic vegetation. A large quantity of woody debris and downed trees were present throughout the wetland.
Soils	Soils in Wetland 1 are mapped by NRCS (2019) as Thorton-Ragged-Benzarino complex, a well-drained, non-hydric soil commonly found on mountain slopes. Soils observed at sample plot SP 1-1 in the wetland consist of 4 inches of very dark gray (10YR 3/1) sandy loam over 8 inches of black (7.5YR 2.5/1) loam with an estimated 5% dark brown (7.5YR 3/3) redoximorphic concentrations. Soils in Wetland 1 meet the hydric soil indicator for redox dark surface (F6).
Hydrology	Wetland 1 is a slope wetland that contains two non-fish-bearing streams (Stream 1 and Stream 2) and a permanently flowing outlet at Culvert 11. The hydrology of the wetland is supported by a perched water table located on shallow bedrock and hydrologic inputs from hillside seeps located on the east and south sides of the wetland. At the wetland sample plot (SP 1-1), a high water table was observed at 8 inches and saturation was present at the soil surface. SP 1-1 is located within 2 feet of Stream 1 and met primary hydrology indicators for high water table (A2) and saturation (A3), in addition to a secondary hydrology indicator for the presence of a shallow aquitard (D3).
Rationale for Delineation	The wetland is bounded by a variable topographical break at the toe of slope adjacent to the dam access road and a rocky berm to the north. The eastern and southern wetland boundaries were determined based on the presence of a relatively steep slope just outside of the study area. At the northwest corner of the wetland, Wetland 1 becomes narrow along Stream 1 before discharging to Culvert 11.
Rationale for Local Rating	Category IV based on functions with a total score of 13 points.

Wetland Functions Summary	
Water Quality	Wetland 1 has low potential to improve water quality due to a relatively steep slope (greater than 2%-5%), resulting in a low potential to retain surface water, sediments, and associated pollutants. The wetland has dense, uncut herbaceous plants throughout a portion (~70 percent) of the wetland area, which can marginally improve water quality in the wetland despite the relatively steep slope. Because the wetland is not located in proximity to land uses that generate pollutants, nor is it located in proximity to an impaired waterbody, the water quality functions provided by the wetland are of low value to the surrounding landscape.
Hydrologic	The wetland has low potential to reduce flooding and erosion because the herbaceous vegetation in the wetland is dominated by fringed willowherb, lesser herb-Robert, and other species that are not rigid enough to meaningfully reduce water velocity during high flows. Wetland 1 has two hydrologic regimes (saturated only and permanently flowing stream). Two streams, Stream 1 (perennial; see Section 3.1.2.1) and Stream 2 (seasonal; see Section 3.1.2.2), are located within the wetland boundary, but Stream 2 does not occupy more than 10% of the wetland area and is therefore not counted as a distinct hydroperiod. Because surface flooding is an issue downstream of Newhalem in the Skagit River basin, hydrologic functions provided by Wetland 1 are of moderate value to society.
Habitat	Wetland 1 has low potential to provide wildlife habitat due to the presence of one vegetation structure (scrub-shrub), two hydroperiods (saturated only and a permanently flowing stream in the wetland), moderate plant diversity, no habitat interspersion, and four special habitat features (large downed wood, standing snags, overhanging plants, and low invasive plant cover). The surrounding landscape gives the wetland high potential to provide habitat functions due to nearby undisturbed and accessible wildlife habitat. The wetland is also moderately valuable to human society because it is close to a WDFW priority habitat (riparian and snags/logs).

Note: FAC = Facultative plants; FACU = Facultative Upland plants; FACW = Facultative Wetland plants (Lichvar et al. 2012). See Appendix A for a detailed description of wetland delineation methodology.

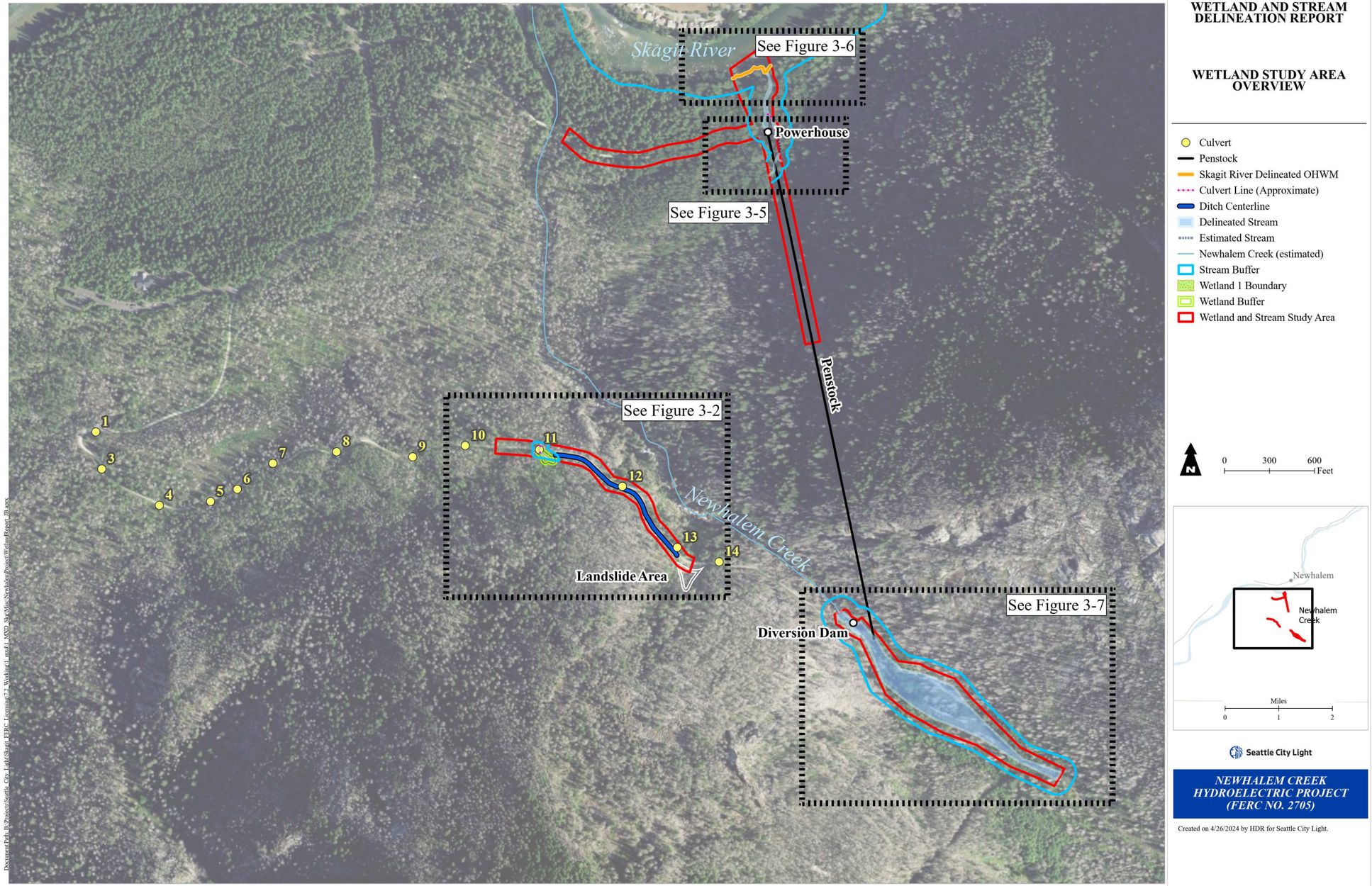

Figure 3-1. Overview of existing wetlands and streams within the study area.

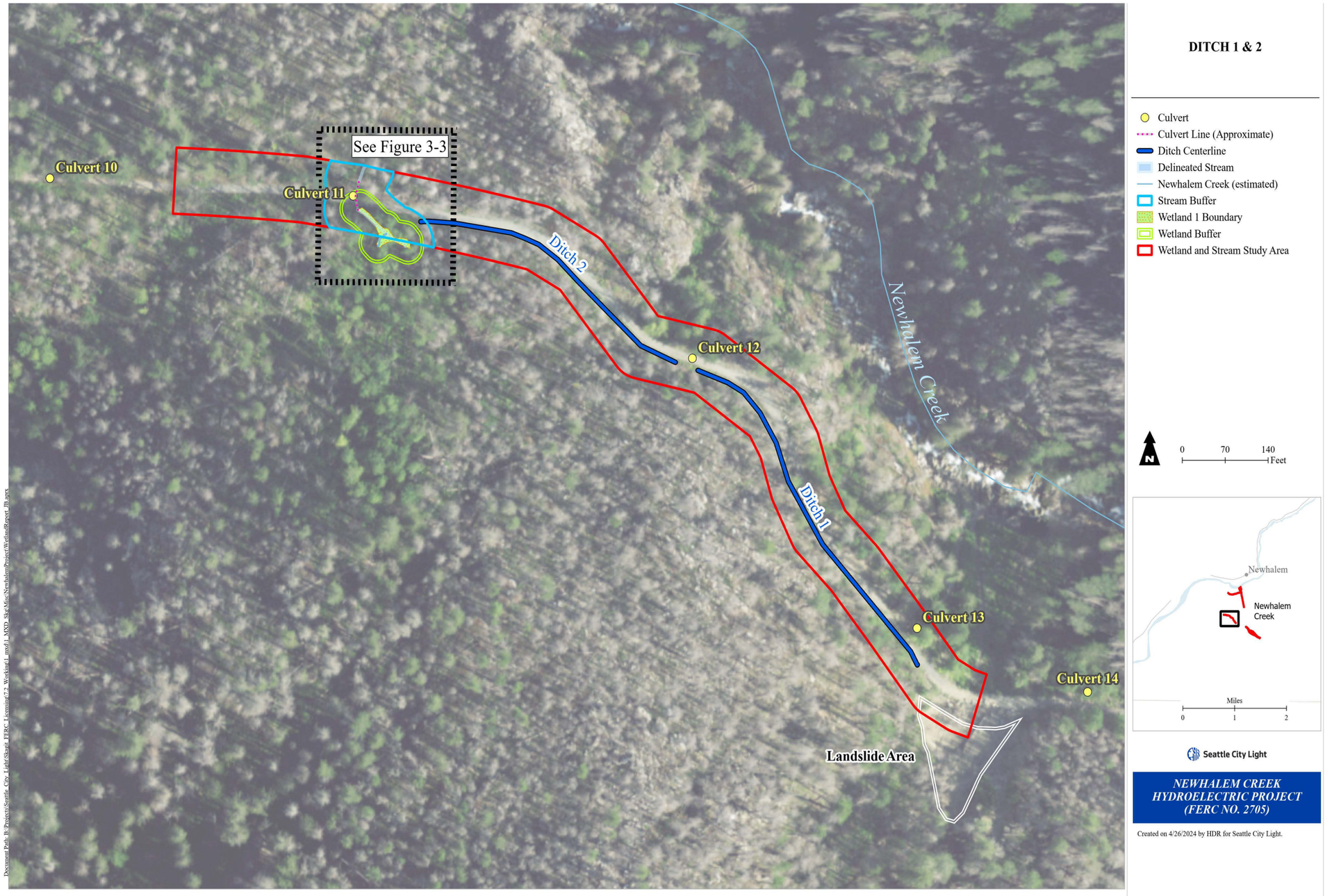

Figure 3-2. Existing wetlands, ditches, and streams along the dam access road.

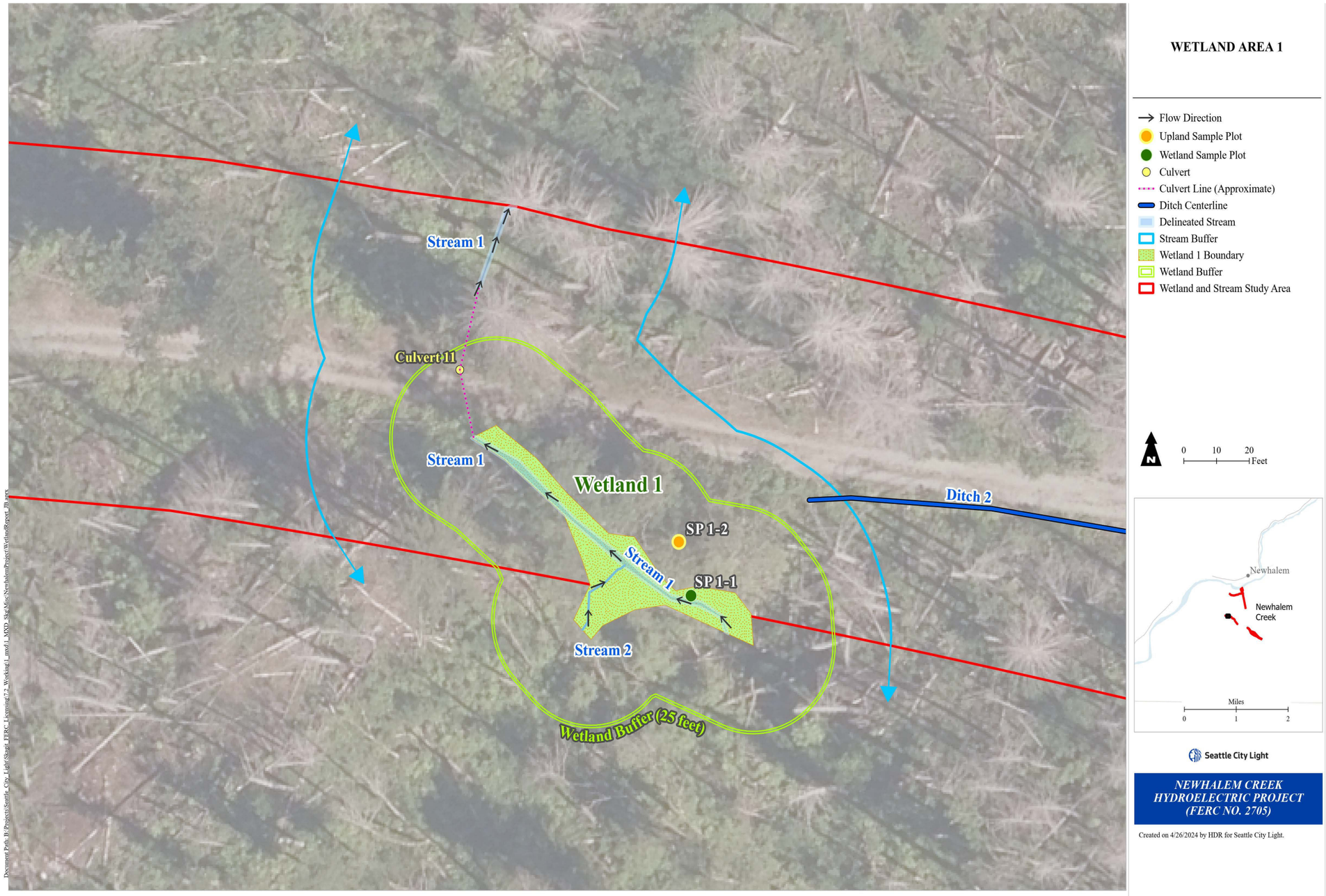

Figure 3-3. Wetland 1, Stream 1, and Stream 2 along dam access road.

3.1.2 Streams

A total of eight streams (Stream 1 through Stream 5, Newhalem Creek, the tailrace, and the Skagit River) were identified in the study area. Stream 1 and Stream 2 are located adjacent to the gravel dam access road in the southern portion of the study area; Stream 3, Stream 4, Stream 5, the tailrace, and the Skagit River are located in the northern portion of the study area near the penstock and the powerhouse (Figure 3-1). As noted previously, a 0.35-mile section of Newhalem Creek was also delineated as part of the field investigation near Newhalem Dam (Figure 3-1). A summary of streams delineated in the study area is provided in Table 3-2 and photos of the streams and surrounding areas are in Appendix D. A detailed description of each identified stream is provided below.

3.1.2.1 Stream 1

Stream 1 originates from seeps south and upslope of the study area above the dam access road. The stream flows northwest through Wetland 1 at an approximate 5 percent slope and is joined by Stream 2 before flowing through Culvert 11 under the dam access road and discharging downslope of the road (Figure 3-3). Upstream of its confluence with Stream 2, Stream 1 has a bankfull width of approximately 1.5 feet and widens to approximately 2 feet downstream of Stream 2. At the time of the field investigation in November 2023, Stream 1 had less than 1 cubic feet per second (cfs) of flow and water depths between 1 and 3 inches. The stream substrate is comprised primarily of silt and sand with some small gravel. Within Wetland 1, Stream 1 is covered extensively with downed trees and large, woody debris. Streambank vegetation consists of salmonberry, western red cedar, and red alder saplings, in addition to herbaceous wetland vegetation. See Appendix D, Photo 9 through Photo 13 for photos of Stream 1, Stream 2, and Wetland 1 upstream of Culvert 11.

Downstream of the Culvert 11 outlet, Stream 1 flows north. Water conveyed through Culvert 11 discharges onto large boulders and drops approximately 6 feet below the culvert (see Appendix D, Photo 14 and 15). Downstream of the dam access road, Stream 1 is approximately 2 feet wide and has a steep slope (approximately 15 to 20 percent). A large boulder field dominates the hillside downslope of Culvert 11 and is vegetated with sword fern, lesser herb-Robert, and red alder saplings. Outside of the study area, Stream 1 flows through buried rocks for approximately 20 feet before forming a narrow (less than 1 foot wide), nearly vertical (100 percent slope) channel and flowing approximately 400 feet before entering Newhalem Creek. Although this portion of the stream is located outside of the study area and was too steep to access during the field investigation, it appears that there is likely a direct surface water connection between Newhalem Creek and Stream 1. The stream is too narrow and steep to meet the physical criteria of a fish-bearing stream and is therefore typed as non-fish bearing perennial (Type Np). Stream 1 is not mapped on the Forest Practices Application Mapping Tool (DNR 2023).

3.1.2.2 Stream 2

Similar to Stream 1, Stream 2 originates from seeps upslope of the study area and flows into Wetland 1 above the dam access road. Stream 2 is located in a large slash pile and sheet flows roughly northeast down a steep slope (approximately 50 to 60 percent) through downed wood prior to flowing into Stream 1 (see Appendix D, Photo 12). Because Stream 2 has no discernible bed and bank in the study area, a stream centerline was delineated as part of the field investigation (Figure 3-3). Vegetation along Stream 2 consists of salmonberry, sword fern, lady fern, and red

alder. Due to the stream characteristics within the study area (i.e., steep sheetflow from hillside seeps), Stream 2 does not meet the physical criteria of a fish-bearing stream and is typed as a non-fish bearing seasonal waterbody (Type Ns). Stream 2 is not mapped on the Forest Practices Application Mapping Tool (DNR 2023).

3.1.2.3 Stream 3

Stream 3 is located in the northern portion of the study area near the penstock (Figure 3-5). The stream originates west of the study area and flows roughly northeast through the study area and under the penstock to its confluence with Stream 4. Within the study area, the bankfull width of Stream 3 is approximately 1 to 1.5 feet wide and the slope is approximately 9 to 17 percent. The stream substrate in the study area is comprised of silt and sand with some small gravel. No flow was observed in Stream 3 during the field investigation in November 2023. Streambank vegetation consists of dense bracken fern (*Pteridium aquilinum*), sword fern, and scattered Himalayan blackberry (*Rubus bifrons*) (see Appendix D, Photos 18 and 19). The stream is too narrow to meet the physical criteria of a fish-bearing stream and is therefore typed as a non-fish bearing seasonal waterbody (Type Ns). Stream 3 is not mapped on the Forest Practices Application Mapping Tool (DNR 2023).

3.1.2.4 Stream 4

Stream 4 is located in the northern portion of the study area and originates south of the powerhouse and east of the penstock (Figure 3-5). The stream flows roughly north and is a tributary to the tailrace via a culvert. Within the study area, Stream 4 is joined by two seasonal streams (Stream 3 and Stream 5) prior to flowing into the tailrace. Although Stream 4 is one contiguous stream, for the purposes of this study, it is divided into two stream segments (Stream 4a and Stream 4b) at the location of an impassible fish barrier (i.e., the rocky waterfall feature described in detail below). Stream 4a is the portion of Stream 4 located upstream of the rocky waterfall feature and Stream 4b is the portion of Stream 4 located downstream. A description of both stream segments is provided below. Stream 4 is not mapped on the Forest Practices Application Mapping Tool (DNR 2023).

Stream 4a

Stream 4a flows roughly northwest and along the east side of the penstock to its confluence with Stream 3 (Figure 3-5). Upstream of the confluence with Stream 3, Stream 4a has a slope of 5 to 10 percent, bankfull width of approximately 1.5 feet, and predominantly silt/sand and gravel substrate (see Appendix D, Photo 20). At the time of the field investigation in November 2023, the portion of Stream 4a upstream of the confluence with Stream 3 had less than 1 cfs of flow and water depths between 1 and 2 inches. Upstream of the confluence with Stream 3, Stream 4a is too narrow to meet the criteria of a fish-bearing stream and is therefore typed as a non-fish-bearing seasonal stream (Type Ns).

Downstream of the confluence with Stream 3, Stream 4a widens to approximately 3 feet (see Appendix D, Photo 21 and 22), with a slope of less than 5 percent and small pools approximately 1 to 4 inches deep observed during the field investigation in November 2023. The substrate in this portion of Stream 4a is comprised of gravel and small cobbles and streambank vegetation consists of salmonberry, sword fern, and lady fern. The stream flows northeast under an old, broken bridge

(see Appendix D, Photo 22) and exits the study area approximately 40 feet downstream of the confluence with Stream 3. Stream 4a flows northeast and outside of the study area for approximately 100 feet before reentering the study area near the powerhouse and flowing north through a rocky waterfall feature comprised of bedrock (Figure 3-4). Although the segment of Stream 4a between the confluence with Stream 3 and the waterfall meets the physical criteria for a fish-bearing stream (i.e., bankfull width greater than 2 feet and slope less than 16 percent), this portion of the stream is located upstream of an impassable barrier to fish and is therefore typed as a non-fish-bearing seasonal stream (Type Ns).

As noted previously, a rocky waterfall feature is located within Stream 4. The waterfall feature is approximately 8 to 10 feet tall, approximately 30 feet long, and consists of large boulders (generally larger than 5 feet across) and bedrock (Figure 3-4). During the field investigation in November 2023, a small quantity of diffuse surface flow (less than 1 cfs and less than 1 inch deep) was observed in the waterfall that percolated through large cobbles and boulders (see Appendix D, Photo 23 through 25). Dense moss was also present across the majority of the surface of the boulders, indicating that typical flows through this portion of the stream are not sufficient to allow for fish passage. Further, no pools or areas of standing water were observed within or adjacent to the waterfall that may provide resting areas for fish. Stream typing guidance provided by DNR (2002) specifies that "natural barriers consisting of waterfalls greater than twelve feet in vertical height or long, steep cascades without fish resting areas generally block upstream migration of anadromous fish". Therefore, the waterfall is a water type break and an impassable fish barrier under all flow conditions.

Stream 4b

Downstream of the rocky waterfall feature described above, Stream 4b forms a defined, flattened channel approximately 12 feet wide and with a slope of less than 5 percent (see Appendix D, Photo 23 through 26). Vegetation near this portion of Stream 4b transitions to a mature forested canopy dominated by big leaf maple (*Acer macrophyllum*) and black cottonwood (*Populus balsamifera*) with an open understory vegetated with scattered sword fern.

As observed during the field investigation in November 2023, after forming a flattened channel downstream of the rocky waterfall feature, Stream 4b flows through a plastic corrugated pipe just east of the powerhouse and creates a small pool at the culvert outlet (see Appendix D, Photo 27), then flow goes subsurface. The pool was approximately 5 feet wide and approximately 1 to 2 feet deep during the field investigation in November 2023. The substrate in this portion of Stream 4b includes gravel and small cobbles (see Appendix D, Photo 28). Although flow was not observed outside of the small pool in this portion of Stream 4b during the field investigation in November 2023, a culvert is located at the northern extent of Stream 4 that conveys surface flows into the tailrace (see Appendix D, Photo 29). Stream 5 also flows into Stream 4b approximately 18 feet upstream of the culvert (see Appendix D, Photo 30).

Because Stream 4b meets the physical criteria of a potentially fish-bearing stream (i.e., bankfull width greater than 2 feet and slope less than 16 percent), has a defined bed and bank, and has a direct surface water connection to downstream fish-bearing waters (the tailrace and the Skagit River; see Sections 3.1.2.6 and 3.1.2.7, respectively), this portion of Stream 4 has been considered a Type F water for the purposes of this study.

3.1.2.5 Stream 5

Stream 5 is located in the northern portion of the study area and flows west into Stream 4 just east of the tailrace (Figure 3-5, Figure 3-6). Within the study area, Stream 5 is approximately 1 to 1.5 feet wide and has an approximately 5 percent slope. No flow was observed in Stream 5 during the field investigation in November 2023 (see Appendix D, Photo 31). Within the study area, the stream substrate varies and consists of gravel and small cobbles near the confluence with Stream 4 and silt/sand and gravel near the eastern edge of the study area. Similar to Stream 4, vegetation near Stream 5 consists of a mature forested canopy dominated by big leaf maple and black cottonwood and an open understory vegetated with scattered sword fern. Stream 5 is too narrow to meet the physical criteria of a fish-bearing stream and is therefore typed as a non-fish bearing seasonal waterbody (Type Ns). Stream 5 is not mapped on the Forest Practices Application Mapping Tool (DNR 2023).

Figure 3-4. Photos of rocky waterfall feature in Stream 4

Figure 3-5. Stream 3 and Stream 4 in the study area.

Figure 3-6. Tailrace, Stream 4, and Stream 5 in the study area.

3.1.2.6 Tailrace

The tailrace is approximately 364 feet long, has a slope of approximately 4 to 10 percent, and ranges from 9 to 36 feet wide in the study area (Figure 3-6). When the Project was consistently operational (i.e., prior to 2010), water diverted at Newhalem Dam passed through the powerhouse and discharged into the tailrace channel, which, during high-flow events, discharges to the Skagit River. A discernible bed and bank was visible during the field investigation in November 2023, although no surface flow was observed in the tailrace aside from a large pool located just north of the powerhouse (see Appendix D, Photo 32). The pool was approximately 20 to 25 feet wide and approximately 2 to 4 feet deep during the field investigation in November 2023. Dominant substrate in the pool is cobble and gravel. Substrate in the tailrace varies and consists of silt/sand interspersed with gravel and large cobbles. Downstream of the pool, the tailrace contains numerous downed trees and large, woody debris within the channel (see Appendix D, Photo 33 and Photo 34). Streambank vegetation near the tailrace primarily consists of sword fern, trailing blackberry (*Rubus ursinus*), salmonberry, and snowberry (*Symphoricarpos albus*) with an overstory of big leaf maple, western red cedar, Douglas fir (*Pseudotsuga menziesii*), and black cottonwood. The tailrace channel narrows to approximately 4 to 6 feet wide and disperses into a relatively flat, rocky and sandy area just upstream of the tailrace barrier (see Appendix D, Photo 35 and Photo 36). Sample plot SP V1 is located in this area and was determined to be non-wetland (see Appendix B).

The tailrace barrier is a concrete structure that is 3 feet high by 14 feet wide, with two 22-foot, 5-inch-long wing walls to prevent fish from entering the tailrace (see Appendix D, Photo 37). The Forest Practices Application Mapping Tool (DNR 2023) has a mapped water type break located at the tailrace barrier and identifies the tailrace channel and upstream segments as Type N. However, stream typing guidance provided by DNR (2002) specifies that, above human-made fish blockages, physical criteria are used to determine the presumption of fish use, unless otherwise approved by relevant agencies and affected tribes. Because the Project is no longer operational, the tailrace channel no longer receives large volumes of water diverted at Newhalem Dam; however, the tailrace still receives seasonal surface flows from Stream 3, Stream 4, and Stream 5. Further, the tailrace still contains a defined bed and bank and meets the physical criteria of a potentially fish-bearing stream (i.e., bankfull width greater than 2 feet and slope less than 16 percent). Two salmonids, approximately 6 to 8 inches total length, have been observed in the pool near the powerhouse, although no fish were observed during the field investigation in November 2023. Although much of the length of the tailrace channel contains only seasonal flow, fish presence and physical characteristics and direct surface water connection to the Skagit River during high flows suggest it should be a Type F stream .

3.1.2.7 Skagit River

The Skagit River is located in the northern portion of the study area. Within the study area, the OHWM along approximately 265 feet of the left bank of the Skagit River was delineated during the field investigation in November 2023 (Figure 3-6). Stream substrate in the Skagit River in the study area is comprised of gravel and cobbles with scattered boulders (see Appendix D, Photo 38). Streambank vegetation along the left bank of the river primarily consists of red alder, big leaf maple, western red cedar, Douglas fir, and salmonberry. Approximately 0.3-mile downstream of the study area, Newhalem Creek enters the Skagit River.

Fish use in the reach of the Skagit River within the study area includes the following: documented presence of Sockeye Salmon (*Oncorhynchus nerka*), Rainbow Trout (*O. mykiss*), resident Coastal Cutthroat Trout (*O. clarkii clarkii*), and summer-run steelhead (anadromous *O. mykiss*); documented spawning of odd-year Pink Salmon (*O. gorbuscha*), fall-run Chum Salmon (*O. keta*), winter-run steelhead, and summer-run Chinook Salmon (*O. tshawytscha*); and documented rearing of Coho Salmon (*O. kisutch*) and Dolly Varden/Bull Trout (*Salvelinus malma/S. confluentus*) (NWIFC 2023, WDFW 2023a).

Although the Forest Practices Application Mapping Tool (DNR 2023) includes the entire length of the Skagit River as a Type S water (i.e., shoreline of the state), the Whatcom County Shoreline Management Program considers the Skagit River a Type S stream "upstream of the Whatcom-Skagit County line to the point where the mean annual flow is measured at 1,000 cfs or more, approximately, at the confluence of Newhalem Creek" (WCC 23.40.020[B][2]). Therefore, as noted in Table 3-2, because the portion of the Skagit River in the study area is upstream of the confluence with Newhalem Creek (see Figure 1-1), the Skagit River within the study area is considered a Type F stream for the purposes of this study.

3.1.2.8 Newhalem Creek

A 0.35-mile section of Newhalem Creek, extending approximately 100 feet downstream and 1,750 feet upstream of Newhalem Dam, was delineated in July 2023 as part of the field investigation (Figure 3-7). The delineated reach did not extend further downstream due to near vertical slopes adjacent to Newhalem Creek and resulting access issues. The delineated reach of Newhalem Creek has a bankfull width that ranges from approximately 30 to 90 feet. Approximately 550 feet upstream of the diversion dam, Newhalem Creek has a side channel along the right bank that flows for approximately 500 feet before rejoining the main channel (see Appendix D, Photo 39).

Stream substrate in this reach of Newhalem Creek is generally coarse and includes boulders, cobbles, and gravels with little fine sediment (see Appendix D, Photo 40 and 41). The banks of the creek immediately upstream and downstream of the diversion structure are generally steep and composed of bedrock (see Appendix D, Photo 42 and 43). Streambank vegetation through the delineated reach of Newhalem Creek primarily consists of salmonberry, vine maple (*Acer circinatum*), red alder, willows (*Salix* spp.), and devil's club. Outside of the immediate riparian corridor, much of the surrounding forest near the site of the diversion dam burned during the Goodell Fire in August 2015 (see Appendix D, Photo 44 and 45).

Fish use in the delineated reach of Newhalem Creek includes the documented presence of resident Rainbow Trout and resident Coastal Cutthroat Trout (NWIFC 2023, WDFW 2023a). Downstream of the diversion dam and outside of the reach that was delineated as part of the field investigation, Newhalem Creek enters a very high-gradient (10 to 25 percent) bedrock canyon with numerous waterfalls. Although not mapped in WDFW's fish barrier inventory (WDFW 2023b), two natural waterfalls are total barriers to upstream fish passage at CM 0.65 (14-foot waterfall) and CM 0.8 (Newhalem Falls, 167-foot waterfall; see Figure 1-1 for approximate location). These features are identified in *A Catalog of Washington Streams and Salmon Utilization* (Williams and Phinney 1975). From CM 0.65 to the diversion dam (located at CM 1.0), Newhalem Creek is a transport reach characterized by high gradients with deep plunge pools interspersed by steep cascades and waterfalls (City Light 2022).

Although the Forest Practices Application Mapping Tool (DNR 2023) includes Newhalem Creek as a Type S water, the Whatcom County Shoreline Management Program does not include Newhalem Creek in the list of designated shorelines of statewide significance in unincorporated Whatcom County (WCC 23.40.020[B]). Therefore, Newhalem Creek is considered a Type F stream for the purposes of this study due to documented fish use, physical criteria, and a direct surface water connection to the Skagit River.

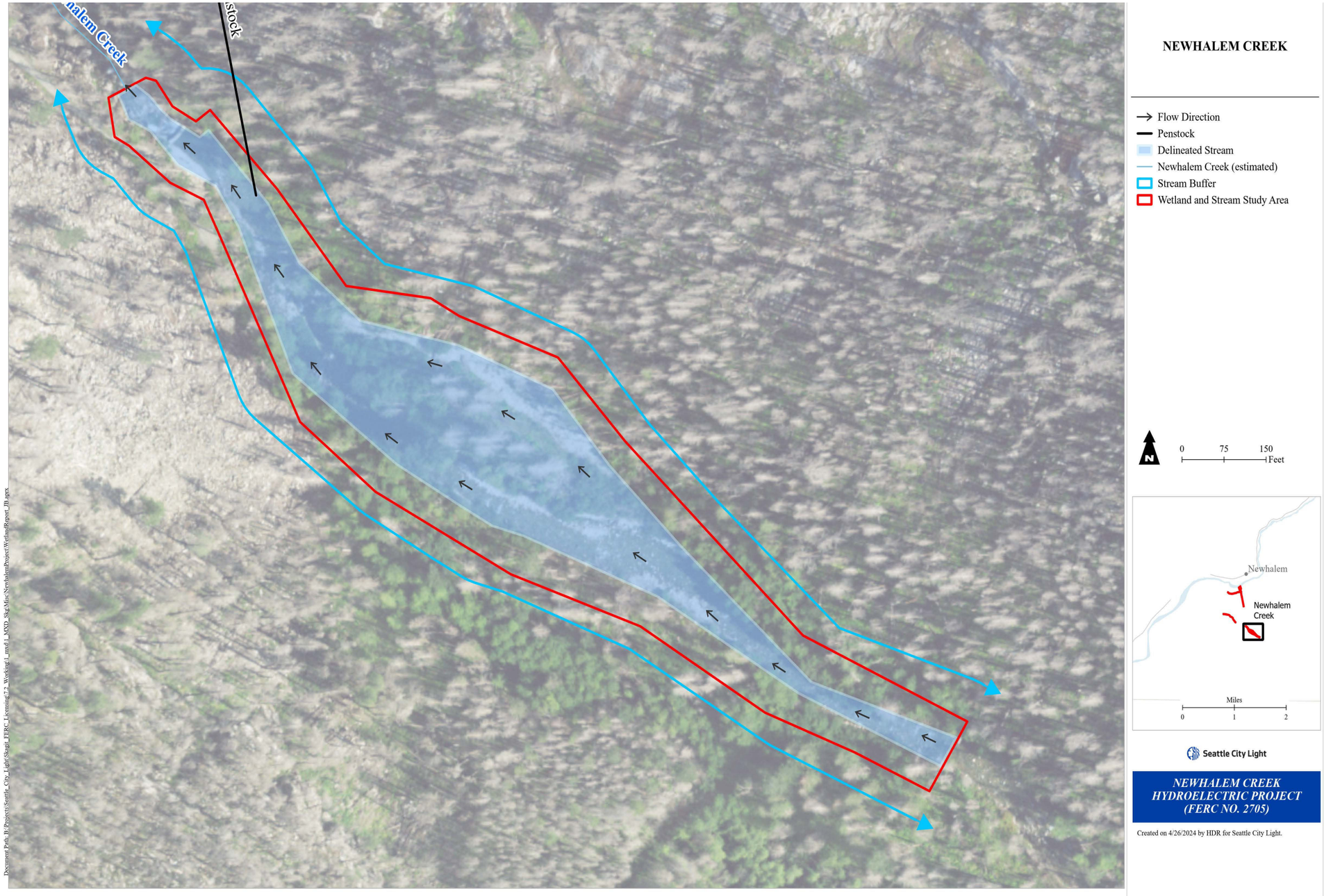

Figure 3-7. Delineated portion of Newhalem Creek.

Table 3-2. Summary of streams delineated in the study area.

Stream Name	Tributary to	Stream Type[1]	Average Channel Width in Study Area	Approximate Channel Length in Study Area	Stream buffer width (feet)[2]
Stream 1	Newhalem Creek	Np	1.5 feet upstream of Stream 2; ~2 feet downstream of Stream 2 confluence.	170 feet	50
Stream 2	Stream 1	Ns	N/A[3]	24 feet	50
Stream 3	Stream 4a	Ns	~1 to 1.5 feet	137 feet	50
Stream 4[4]					
Stream 4a	Tailrace (via culvert)	Ns	1.5 feet upstream of Stream 3; ~3 feet downstream of Stream 3 confluence.	70 feet	50
Stream 4b		F	5 to 15 feet	100 feet	100
Stream 5	Stream 4b	Ns	1 to 1.5 feet	8 feet	50
Tailrace	Skagit River	F	9 to 36 feet	364 feet	100
Skagit River	Puget Sound	F[5]	N/A[6]	265 feet	100
Newhalem Creek	Skagit River	F	30 to 90 feet	1,850 feet	100

1. Based on WCC 16.16.710(C)(1)(a) and WAC 222-16-030. Ns = non-fish-bearing seasonal, Np = non-fish-bearing perennial, F = fish-bearing.
2. WCC 16.16.730(B)(3).
3. Within the study area, Stream 2 sheetflows through downed wood and did not have a discernible bed and bank nor a measurable channel width. Therefore, an approximate stream centerline is provided in Figure 3-3.
4. Although Stream 4 is one contiguous stream, for the purposes of this study, it is divided into two stream segments (Stream 4a and Stream 4b) at the location of an impassible fish barrier (i.e., the rocky waterfall feature described in Section 3.1.2.4). Stream 4a is the portion of Stream 4 located upstream of the rocky waterfall feature and Stream 4b is the portion of Stream 4 located downstream.
5. According to the Whatcom County Shoreline Management Program, the Skagit River is considered a shoreline of statewide significance (i.e., a Type S stream) upstream of the Whatcom-Skagit County line to the point where the mean annual flow is measured at 1,000 cfs or more, approximately, at the confluence of Newhalem Creek (WCC 23.40.020[B][2]). Therefore, because the portion of the Skagit River in the study area is upstream of the confluence with Newhalem Creek (see Figure 1-1), the Skagit River is considered a Type F stream for the purposes of this study.
6. The study area overlaps a portion of the Skagit River but does not span both banks; therefore, only the left bank of the Skagit River was delineated as part of the wetland and stream investigation.

3.1.3 Ditches

Two ditches were identified within the study area along the dam access road. A summary of ditches in the study area is provided in Table 3-3, and ditch locations are shown in Figure 3-2. Both ditches are excavated roadside features in uplands that convey storm runoff and hillside seeps during rain events, as described in more detail below, and do not provide fish habitat.

Table 3-3. Summary of ditches in the study area.

Ditch Name	Approx. Width	Approx. Depth	Discharge Location
Ditch 1	2 to 3 feet	1.5 feet	Culvert 12
Ditch 2	1 to 2 feet	2 feet	Disperses into uplands

Ditch 1 is an excavated roadside feature that conveys stormwater northwest along the dam access road, extending approximately from the landslide area to Culvert 12 (Figure 3-2**).** The bed and right bank of the ditch are primarily comprised of quarry spalls overlain by a thick layer of soil, and the left bank is comprised of eroded soils (Appendix D, Photo 3 and 4). Ditch 1 does not contain wetland vegetation and no flow was observed during the site visit in November 2023. Prior to discharging to Culvert 12, the last 15 feet of Ditch 1 contains some expressed groundwater that flows through the culvert and is discharged to the top of a cliff on the other side of the dam access road (Appendix D, Photo 5 and 6). Immediately after the cliff and outside of the study area, the conveyed flow transitions subsurface and lacks a downstream connection to Newhalem Creek. Ditch 1 is not considered a stream and does not provide fish habitat.

Ditch 2 originates approximately 10 feet west of Culvert 12. Like Ditch 1, Ditch 2 is an excavated, roadside feature located upslope of the dam access road that conveys stormwater northwest along the road (Figure 3-2). The bed and bank of the ditch are comprised of quarry spall and gravel. Ditch 2 does not contain wetland vegetation; portions of the ditch are vegetated with sword fern and western hemlock (*Tsuga heterophylla*) and Douglas fir saplings (Appendix D, Photo 7 and 8). Ditch 2 flows in response to precipitation, and no flow was observed during the site visit in November 2023. The excavated feature drains only uplands along the roadway and disperses to uplands just northeast of Wetland 1 (Figure 3-3). Similar to Ditch 1, Ditch 2 is not considered a stream and does not provide fish habitat.

Consistent with WCC 16.16.710(C)(1)(b) as described in Section 2.2.3, Ditch 1 and Ditch 2 are not considered streams because these features originated from excavation through uplands for construction of the dam access road. Because the ditches are artificially created watercourses that did not convey natural streams prior to human alteration, are not used by fish, do not provide fish habitat, and do not flow directly into shellfish habitat conservation areas, they are regulated as ditches in Whatcom County.

4.0 CONCLUSIONS

HDR biologists identified one wetland (Wetland 1), eight streams (Stream 1 through Stream 5, Newhalem Creek, the tailrace, and the Skagit River), and two ditches (Ditch 1 and Ditch 2) within the study area. Stream 4 is comprised of two segments; Stream 4a, a non-fish bearing segment located upstream of an impassible fish barrier and Stream 4b, the portion of Stream 4 downstream of the fish barrier. Of the eight streams identified within the study area, four were determined to be fish-bearing (Type F): Stream 4b, the tailrace, Skagit River, and Newhalem Creek.

Although the federal jurisdictional status of Wetland 1 and identified streams must be determined by the Corps, all delineated waters appear to have a surface water connection to Waters of the U.S. and are likely regulated under Sections 404 and 401 of the Clean Water Act. Ditches are not likely federally regulated features; however, a jurisdictional determination should be made upon application for discharge authorization under Section 404 of the Clean Water Act.

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Appendix A. Wetland Delineation Methodology

Wetland Delineation Methodology

Wetlands are defined as areas saturated or inundated by surface or groundwater at a frequency and duration sufficient to support, and which under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. The methods used to delineate the on-site wetlands conform to methods described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (USACE 2010). All delineated wetlands were instrument-surveyed and mapped on project base maps.

To be considered a wetland, an area must have hydrophytic vegetation, hydric soils, and wetland hydrology. HDR staff collected data on these parameters in areas representative of typical site conditions. Staff collected additional data in associated uplands, as needed, to confirm wetland boundaries.

Vegetation

The dominant plants and their wetland indicator status were evaluated to determine if the vegetation was hydrophytic. To determine which plants were dominant at a sample plot, biologists applied the 50/20 rule per U.S. Army Corps of Engineers (USACE) recommendations. Under this guidance, absolute cover estimates were made for each species found rooted within the sample plot, for each vegetative strata found in the habitat (tree, sapling/shrub, herb, and woody vine). The species that had the most cover was included along with the next species until the absolute cover of these totaled more than 50 percent of the total absolute cover. Any other species that represented at least 20 percent of the total absolute cover was also included as a dominant species for that vegetative stratum.

Sample plots varied in size depending on site topography and habitat complexity. The objective of establishing a plot was to depict particular plant associations that reflect specific water regimes or other ecological factors. Therefore, on steep-sided riparian areas, a plot may consist of a narrow strip along the water's edge, or within a broader area, a plot may be a 30-foot-diameter circular area.

Hydrophytic vegetation is defined as vegetation adapted to wetland conditions. To meet the hydrophytic vegetation criterion, more than 50 percent of the dominant plants in each stratum must be Facultative, Facultative Wetland, or Obligate, based on the wetland indicator category assigned to each plant species on the National Wetland Plant List developed by USACE (2020). Table A-1 lists the definitions of the indicator categories. If the plant community failed to meet the above hydrophytic vegetation criterion, but indicators of hydric soil and wetland hydrology were both present, additional indicators of hydrophytic vegetation were assessed per USACE recommendations (USACE 2010).

Table A-1. Definitions of Wetland Plant Indicator Categories used to Determine the Presence of Hydrophytic Vegetation

Wetland Indicator Category	Symbol	Definition
Obligate Wetland Plants	OBL	Almost always occur in wetlands.
Facultative Wetland Plants	FACW	Usually occur in wetlands, but may occur in non-wetlands.
Facultative Plants	FAC	Occur in wetlands and non-wetlands.
Facultative Upland Plants	FACU	Usually occur in non-wetlands, but may occur in wetlands.
Upland Plants	UPL	Almost never occur in wetlands.

Source: Lichvar et al. (2012).

HDR biologists identified plants to species in the field and estimated percent cover of dominant plants. Scientific and common plant names follow currently accepted nomenclature and are consistent with *Flora of the Pacific Northwest Second Edition* (Hitchcock and Cronquist 2018) and the PLANTS Database (USDA NRCS 2023b). During the field investigation, staff observed and recorded the dominant plant species on data sheets for each data plot.

Soils

Generally, an area must contain hydric soils to be a wetland. Hydric soil forms when soils are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (12 inches). Biological activities in saturated soil result in reduced oxygen concentrations and organisms turn to anaerobic processes for metabolism. Over time, anaerobic biological processes result in certain soil color patterns, which are used as indicators of hydric soil. Typically, low-chroma colors are formed in the soil matrix, and bright-colored redoximorphic features form within the matrix. Other important hydric soil indicators include organic matter accumulations in the surface horizon, reduced sulfur odors, and organic matter staining in the subsurface (USDA NRCS 2018).

HDR staff examined soils by excavating sample pits to a depth of 18 inches to observe soil profiles, colors, and textures. In some case, a shallower soil pit was adequate to document hydric soil indicators. Munsell color charts (Munsell Color 2009) were used to describe soil colors.

Hydrology

Project staff examined the area for evidence of wetland hydrology. Wetland hydrology criteria were considered to be satisfied if evidence indicated that the area was inundated or saturated to the surface for a consecutive number of days greater than or equal to 12.5 percent of the growing season. The growing season for the area was determined based on the period in which temperatures are above 28 degrees Fahrenheit 5 out of 10 years using the long-term climatological data collected by the U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS 2023a). Using the USDA NRCS WETS table for the nearest station (Newhalem), the growing season was approximated to be typically between February 22 and December 15, or a total of 296 days.

Wetland hydrology indicators are divided into two categories: primary and secondary (USACE 2010). Primary indicators of hydrology include surface inundation, high water table, and saturated soils. The presence of one primary indicator is sufficient to conclude that wetland hydrology is present. In the absence of a primary indicator, observation of two or more secondary indicators is required to

conclude that wetland hydrology is present. Secondary indicators of hydrology include dry-season water table, shallow aquitard, and FAC-neutral test (USACE 2010).

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Appendix B. Wetland Delineation Data Forms

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

Project/Site: Newhalem Decommissioning | City/County: Whatcom | Sampling Date: 11/20/2023

Applicant/Owner: Seattle City Light | State: WA | Sampling SP 1-1

Investigators: STORY | Section, Township, Range: T37N R12E S28

Landform (hillslope, terrace, etc.): Hillslope | Local Relief (concave, convex, none): Concave | Slope(%): 4

Subregion (LRR): A - Northwestern Forest, | Lat: 48.663158 | Long: -121.255524 | Datum: WGS84

Soil Map Unit Name: Thorton-Ragged-Benzarino complex, 35 to 100 percent slopes | NWI Classification: Not Mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (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 a site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Sample plot located on bench adjacent to Stream 1, separated from road by large rock berm. Precipitation for preceding 3 months drier than normal. Sample plot meets 3 of 3 wetland criteria and is located within Wetland 1.

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator
Tree Statum (Plot size: 5m)	% Cover	Species?	Status
1. Thuja plicata	20	Yes	FAC
2.			
3.			
4.			
	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m)			
1. Rubus spectabilis	7	Yes	FAC
2. Alnus rubra	5	Yes	FAC
3.			
4.			
5.			
	12	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. Epilobium ciliatum	25	Yes	FACW
2. Geranium robertianum	20	Yes	FACU
3. Polystichum munitum	15	Yes	FACU
4. Athyrium cyclosorum	10	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 30

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	25	x2=	50
FAC species	42	x3=	126
FACU species	35	x4=	140
UPL species		x5=	0
Column Totals:	102 (A)		316 (B)

Prevalence Index = B/A= 3.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ___

Remarks:

Bare ground from Stream 1 BFW. Sample plot meets the dominance test for hydrophytic vegetation.

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					Sandy Loam	
4-12	7.5YR 2.5/1	95	7.5YR 3/3	5	C	M	Loam	High organic content. Gravel in

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Bedrock

Depth (inches): 12

Hydric Soil Present? Yes X No ___

Remarks:

Pyrite or mica flakes present. Woody debris present in lower layers. Gravel and bedrock fragments present in lower layer. Soil meets indicator F6, Redox Dark Surface

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ___ Water Stained Leaves (B9) (**MRLA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aeriel Imagery (C9)
- ___ Geomorphic Position (D2)
- X 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 X No ___ Depth (inches): 8.0

Saturation Present? Yes X No ___ Depth (inches): 0.0

(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Flowing stream within 2 feet of sample point. Water table perched and stream perched on shallow bedrock. Sample plot meets primary hydrology indicator A2, high water table, and A3, saturation, and secondary hydrology indicator D3, shallow aquitard.

Additional Reference Data: Photos

Photo Name: Photo_231120100512

Caption: Soil pit at sample plot SP 1-1.

Photo Name: Photo_231120100522

Caption: Vegetation at sample plot SP 1-1.

Photo Name: Photo_231120100518

Caption: Soil profile at sample plot SP 1-1. Shovel blade 16" long

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

Project/Site: Newhalem Decommissioning | City/County: Whatcom | Sampling Date: 11/20/2023

Applicant/Owner: Seattle City Light | State: WA | Sampling Point: SP 1-2

Investigators: STORY | Section, Township, Range: T37N R12E S28

Landform (hillslope, terrace, etc.): Hillslope | Local Relief (concave, convex, none): Convex | Slope(%): 10

Subregion (LRR): A - Northwestern Forest, | Lat: 48.663204 | Long: -121.255638 | Datum: WGS84

Soil Map Unit Name: Thorton-Ragged-Benzarino complex, 35 to 100 percent slopes | NWI Classification: Not Mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (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 a site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Sample plot located on small rocky berm between Stream 1/Wetland 1 and road. Approximately 2 vertical feet above and 6 feet east of SP 1-1. Precipitation for preceding 3 months drier than normal. Sample plot meets 0 of 3 wetland criteria and is not located within a wetland.

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator
Tree Statum (Plot size: 5m)	% Cover	Species?	Status
1. Thuja plicata	30	Yes	FAC
2. Tsuga heterophylla	15	Yes	FACU
3.			
4.			
	45	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 1m)			
1. Polystichum munitum	15	Yes	FACU
2. Geranium robertianum	3	No	FACU
3. Tolmiea menziesii	2	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species		x2=	0
FAC species	32	x3=	96
FACU species	33	x4=	132
UPL species		x5=	0
Column Totals:	65 (A)		228 (B)

Prevalence Index = B/A= 3.51

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

Bare ground from mosses and bare rock. Sample plot does not meet dominance test for hydrophytic vegetation.

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					Sandy Loam	Many live roots. Leaf litter
5-18	10YR 3/3	100					Loamy Sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

Sample plot lacks hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ___ Water Stained Leaves (B9) (**MRLA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aeriel 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? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

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

Remarks:

Soil is moist but not saturated. No primary or secondary wetland hydrology indicators observed.

Additional Reference Data: Photos

Photo Name: Photo_231120103026

Caption: Soil profile at sample plot SP 1-2.

Photo Name: Photo_231120103023

Caption: Soil pit at sample plot SP 1-2.

Photo Name: Photo_231120103033

Caption: Vegetation at sample plot SP 1-2.

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

Project/Site: Newhalem Decommissioning | City/County: Whatcom | Sampling Date: 11/20/2023

Applicant/Owner: Seattle City Light | State: WA | Sampling Point: SP V1

Investigators: STORY | Section, Township, Range: T37N R12E S21

Landform (hillslope, terrace, etc.): Channel | Local Relief (concave, convex, none): Concave | Slope(%): 3

Subregion (LRR): A - Northwestern Forest, | Lat: 48.670376 | Long: -121.249710 | Datum: WGS84

Soil Map Unit Name: Tricouni-Ragged-Easy complex, 5 to 50 percent slopes | NWI Classification: R4SBC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (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 a site map showing sampling point locations, transects, important features, etc.

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

Remarks:

Verification plot at lowest portion of tailrace. Has not been operated for multiple years, vegetation beginning to colonize. Precipitation for preceding 3 months drier than normal. Plot meets 0 of 3 wetland criteria, is not located in wetland.

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator
Tree Statum (Plot size: 5m)	% Cover	Species?	Status
1.			
2.			
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m)			
1. Frangula purshiana	10	Yes	FAC
2. Rubus spectabilis	7	Yes	FAC
3. Symphoricarpos albus	7	Yes	FACU
4. Thuja plicata	5	No	FAC
5. Rubus parviflorus	3	No	FACU
	35	= Total Cover	
Herb Stratum (Plot size: 1m)			
1. Rubus ursinus	30	Yes	FACU
2. Geum macrophyllum	15	Yes	FAC
3. Geranium robertianum	15	Yes	FACU
4. Epilobium ciliatum	5	No	FACW
5. Veronica serpyllifolia	3	No	FAC
6. Galium aparine	3	No	FACU
7.			
8.			
9.			
10.			
11.			
	71	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 29

Dominance Test Worksheet:

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

Total Number of Dominant Species Across All Strata: 6 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1=	
FACW species	8	x2=	16
FAC species	40	x3=	120
FACU species	58	x4=	232
UPL species		x5=	0
Column Totals:	106 (A)		368 (B)

Prevalence Index = B/A= 3.47

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

Vegetation mostly newly established saplings or pioneering herbaceous species. Sample plot does not meet dominance test for hydrophytic vegetation

SOIL

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/2	100					Sandy Loam	
7-18	2.5Y 4/2	100					Sand	Deposited by tail race. Depositional

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

Sample plot lacks hydric soil indicators. Soil is clearly deposited by tailrace when it was operational, and was likely dredged frequently during operation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ___ Water Stained Leaves (B9) (**MRLA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aeriel 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? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

No primary or secondary wetland hydrology indicators observed. Soil is moist but not saturated.

Additional Reference Data: Photos

Photo Name: Photo_231120142910

Caption: Soil profile at sample plot SP V1.

Photo Name: Photo_231120142916

Caption: Vegetation at sample plot SP V1.

Photo Name: Photo_231120142925

Caption: Soil pit and surrounding vegetation at sample plot SP V1.

Additional Reference Data: Photos

Photo Name: Photo_231120142932

Caption: Surrounding vegetation and tailrace barrier at sample plot SP V1.

Appendix C. Wetland Rating Forms and Figures

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Wetland name or number WL 1

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland 1 Date of site visit: 11/20/23

Rated by T. Story Trained by Ecology? ☑ Yes ☐ No Date of training 3/17/15

HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Y ☑ N

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

Source of base aerial photo/map Bing Aerials/WATOR

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

1. Category of wetland based on FUNCTIONS

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

☐ **Category II** – Total score = 20 - 22

☐ **Category III** – Total score = 16 - 19

☑ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H ☐ M ☐ L ☑	H ☐ M ☐ L ☑	H ☐ M ☐ L ☑	
Landscape Potential	H ☐ M ☐ L ☑	H ☐ M ☐ L ☑	H ☑ M ☐ L ☐	
Value	H ☐ M ☐ L ☑	H ☐ M ☑ L ☐	H ☐ M ☑ L ☐	TOTAL
Score Based on Ratings	3	4	6	13

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

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

2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number WL 1

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

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

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and total 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	1
Hydroperiods	H 1.2	2
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	3
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and total habitat	H 2.1, H 2.2, H 2.3	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	7

Wetland name or number WL 1

HGM Classification of Wetlands in Western Washington

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

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

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

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

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

☐ **NO – Saltwater Tidal Fringe (Estuarine)** ☐ **YES – Freshwater Tidal Fringe**

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

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

☑ NO – go to 3 ☐ **YES** – The wetland class is **Flats**

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

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

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size,

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

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

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

☑ The wetland is on a slope (slope can be very gradual),

☑ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheet flow, 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).

Wetland name or number WL 1

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.

Wetland name or number WL 1

SLOPE WETLANDS

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

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (A 1% slope has a 1 ft vertical change in elevation for every 100 ft of horizontal distance.) ☐ Slope is 1% or less — points = 3 ☐ Slope is > 1%-2% — points = 2 ☑ Slope is > 2%-5% — points = 1 ☐ Slope is greater than 5% — points = 0	1
S 1.2. The soil 2 in. below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 ☐ No = 0 ☑	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed, and plants are higher than 6 in. ☐ Dense, uncut, herbaceous plants > 90% of the wetland area — points = 6 ☑ Dense, uncut, herbaceous plants > ½ of area — points = 3 ☐ Dense, woody, plants > ½ of area — points = 2 ☐ Dense, uncut, herbaceous plants > ¼ of area — points = 1 ☐ Does not meet any of the criteria above for plants — points = 0	3
Total for S 1 — Add the points in the boxes above	4

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

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? ☐ Yes = 1 ☑ No = 0	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ ☐ Yes = 1 ☑ No = 0	0
Total for S 2 — Add the points in the boxes above	0

Rating of Landscape Potential If score is: ☐ **1-2 = M** ☑ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 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
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? (At least one aquatic resource in the basin is on the 303(d) list.) ☐ Yes = 1 ☑ No = 0	0
S 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 in development or in effect for the basin in which unit is found.) ☐ Yes = 2 ☑ No = 0	0
Total for S 3 — Add the points in the boxes above	0

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

Wetland name or number WL 1

SLOPE WETLANDS

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

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows. ☐ Dense, uncut, **rigid** plants cover > 90% of the area of the wetland — points = 1 ☑ All other conditions — points = 0	0

Rating of Site Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? ☐ Yes = 1 ☑ No = 0	0

Rating of Landscape Potential If score is: ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: ☐ The sub-basin immediately downgradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) — points = 2 ☑ Surface flooding problems are in a sub-basin farther downgradient — points = 1 ☐ No flooding problems anywhere downstream — points = 0	1
S 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 S 6 — Add the points in the boxes above	1

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

NOTES and FIELD OBSERVATIONS:

S 3.2 - nearest mapped 303(d) listed water is approximately 40 miles downstream on Skagit River.
S 3.3 - Newhalem Creek near the wetland is listed as a 4c water for instream flow, not applicable to Wetland 1 or water quality.
S 6.1 - surface flooding is an issue further downstream along the Skagit River.

Wetland name or number WL 1

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 if the unit is at least 2.5 ac, or more than 10% of the unit if it is smaller than 2.5 ac.

- ☐ Aquatic bed
- ☐ Emergent
- ☑ Scrub-shrub (areas where shrubs have > 30% cover)
- ☐ Forested (areas where trees have > 30% cover)

☐ 4 structures or more: points = 4
☐ 3 structures: points = 2
☐ 2 structures: points = 1
☑ 1 structure: points = 0

If the unit has a Forested class, check if:

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

0

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if the unit is < 2.5 ac, or ¼ ac if the unit is at least 2.5 ac to count (see text for descriptions of hydroperiods).

- ☐ Permanently flooded or inundated
- ☐ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☑ Saturated only
- ☑ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Intermittently or seasonally flowing stream in, or adjacent to the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☐ **Freshwater tidal wetland** **2 points**

☐ 4 or more types present: points = 3
☐ 3 types present: points = 2
☑ 2 types present: points = 1
☐ 1 type present: points = 0

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

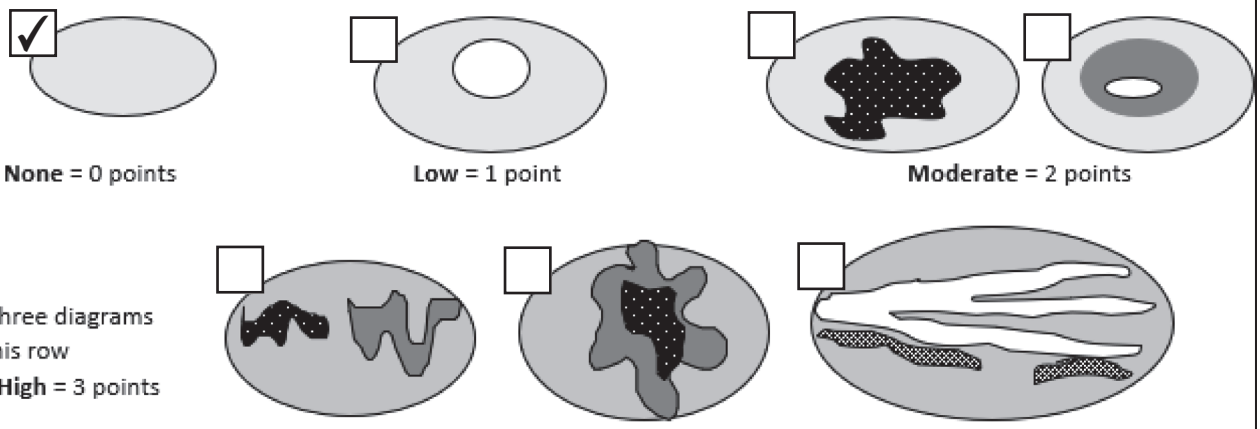
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. **Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canada thistle**

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

1

H 1.4. Interspersion of habitats

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



☑ **None** = 0 points

☐ **Low** = 1 point

☐ ☐ **Moderate** = 2 points

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

☐ ☐ ☐

0

Wetland name or number WL 1

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

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

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

H 2.1. Accessible habitat (include only habitat polygons accessible from the wetland. *Calculate:* % relatively undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 3.5 = 83.50 % 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	3
H 2.2. Total habitat in 1 km Polygon around the wetland. *Calculate:* % relatively undisturbed habitat 87 + [(% moderate and low intensity land uses)/2] 3.5 = 90.50 % ☑ Total habitat > 50% of Polygon points = 3 ☐ Total habitat 10-50% and in 1-3 patches points = 2 ☐ Total habitat 10-50% and > 3 patches points = 1 ☐ Total habitat < 10% of 1 km Polygon points = 0	3
H 2.3. Land use intensity in 1 km Polygon: ☐ > 50% of 1 km Polygon is high intensity land use points = (- 2) ☑ ≤ 50% of 1 km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	6

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 data ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ☑ Site has 1 or 2 Priority Habitats (listed on next page) within 100 m points = 1 ☐ Site does not meet any of the criteria above points = 0	1

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

Wetland name or number WL 1

WDFW Priority Habitats

See complete descriptions of Priority Habitats listed by WDFW, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008 (current year, as revised). Priority Habitat and Species List.[133] This list was updated for consistency with guidance from WDFW.

This question is independent of the land use between the wetland unit and the Priority Habitat. All vegetated wetlands are by definition a Priority Habitat but are not included in this list because they are addressed by this rating system.

Count how many of the following Priority Habitats are within 330 ft (100 m) of the wetland unit:

☐ **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. This habitat automatically counts if mapped on the PHS online map within 100m of the wetland. If not mapped, a determination can be made in the field.

☐ **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.

☐ **Fresh Deepwater:** Lands permanently flooded with freshwater, including environments where surface water is permanent and often deep, so that water, rather than air, is the principal medium within which the dominant organisms live. Substrate does not support emergent vegetation. Do not select if Instream habitat is also present, or if the entire Deepwater feature is included in the wetland unit being rated (such as a pond with a vegetated fringe).

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

☐ **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. Do not select if Fresh Deepwater habitat is also present.

☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore.

☐ **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) diameter at breast height (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.

[133] http://wdfw.wa.gov/publications/00165/wdfw00165.pdf

Wetland name or number WL 1

☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important. For single oaks or oak stands <0.4 ha in urban areas, WDFW's Management Recommendations for Oregon White Oak[134] provides more detail for determining if they are Priority Habitats

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

☑ **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.

☐ **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.

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie.

[134] https://wdfw.wa.gov/publications/00030/wdfw00030.pdf

Wetland name or number WL 1

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes – Go to **SC 1.1** ☑ No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No – Go to **SC 1.2**	**Cat. I** ☐
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 10% cover of non-native plant species. If non-native species are *Spartina*, see chapter 4.8 in the manual. ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	**Cat. I** ☐ **Cat. II** ☐
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Does the wetland overlap with any known or historical rare plant or rare & high-quality ecosystem polygons on the WNHP Data Explorer?[135] ☐ Yes = **Category I** ☑ No – Go to **SC 2.2** SC 2.2. Does the wetland have a rare plant species, rare ecosystem (e.g., plant community), or high-quality common ecosystem that may qualify the site as a WHCV? Contact WNHP for resources to help determine the presence of these elements. ☐ Yes – Submit data to WA Natural Heritage Program for determination,[136] Go to **SC 2.3** ☑ No = **Not a WHCV** SC 2.3. Did WNHP review the site within 30 days and determine that it has a rare plant or ecosystem that meets their criteria? ☐ Yes = **Category I** ☐ No = **Not a WHCV**	**Cat. I** ☐
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES, you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in. or more of the first 32 in. of the soil profile? ☐ Yes – Go to **SC 3.3** ☑ No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in. deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes – Go to **SC 3.3** ☑ No = **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 = **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 = **Category I bog** ☐ No = **Not a bog**	**Cat. I** ☐

[135] https://www.dnr.wa.gov/NHPdata
[136] https://www.dnr.wa.gov/Publications/amp_nh_sighting_form.pdf

Wetland name or number WL 1

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as Priority Habitats? ***If you answer YES, you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in. (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in. (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

Cat. I ☐

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)*

☐ The lagoon retains some of its surface water at low tide during spring tides

☐ Yes – Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

Cat. I ☐

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 in H 1.5 in the manual).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

Cat. II ☐

☐ 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)? ***If you answer YES, you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 and Ocean Shores Blvd SW, including lands west of E. Oceans Shores Blvd SW.

Cat I ☐

☐ Yes – Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

Cat. II ☐

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**

Cat. III ☐

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? ☐ Yes = **Category III** ☐ No = **Category IV**

Cat. IV ☐

Category of wetland based on Special Characteristics
If you answered No for all types, enter "Not Applicable" on Summary Form

NA

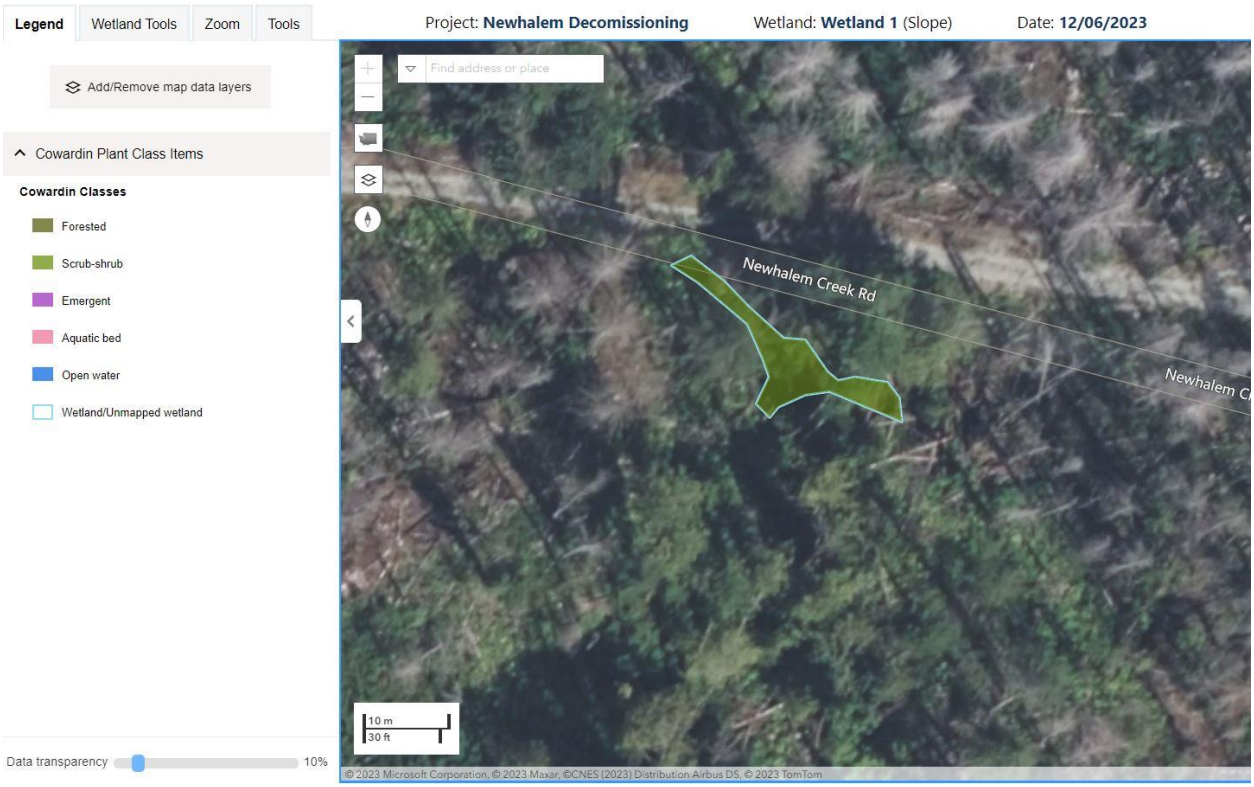


Figure 1: Cowardin plant classes.

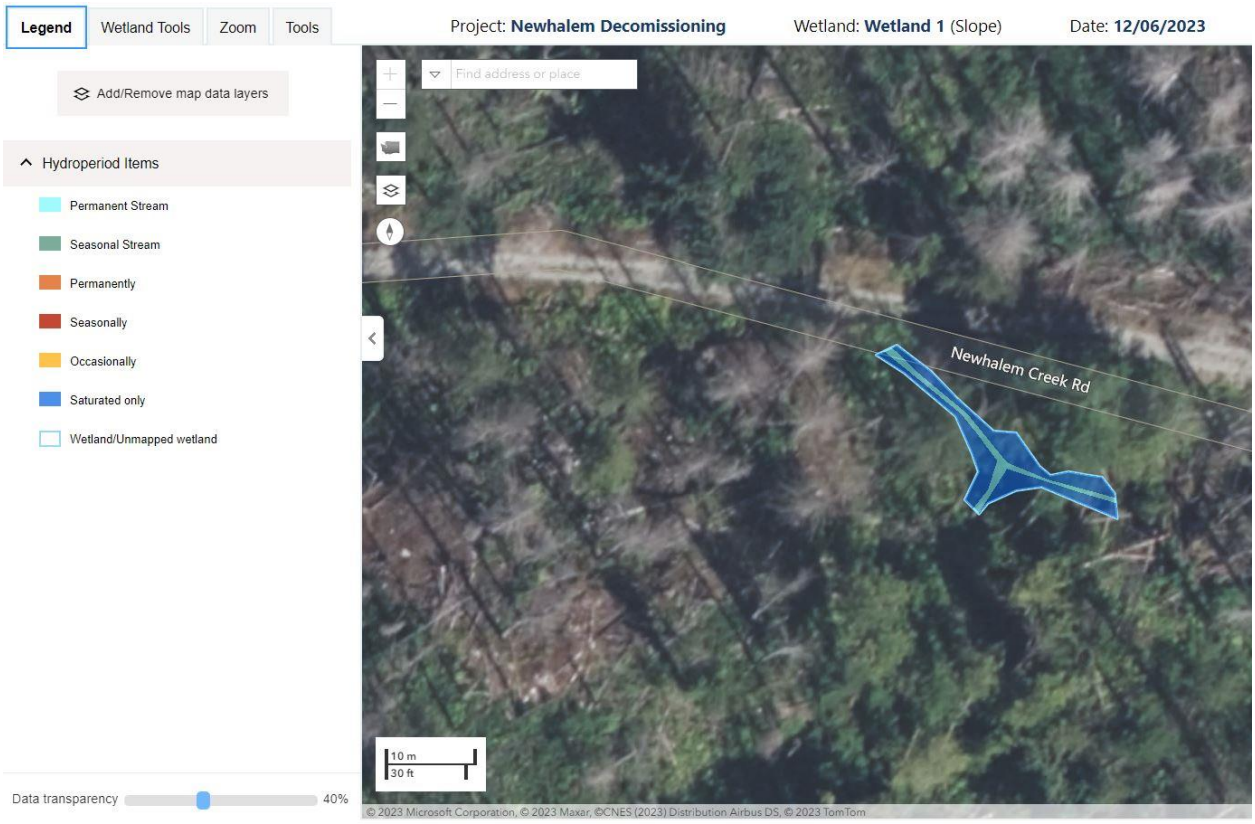


Figure 2: Hydroperiods

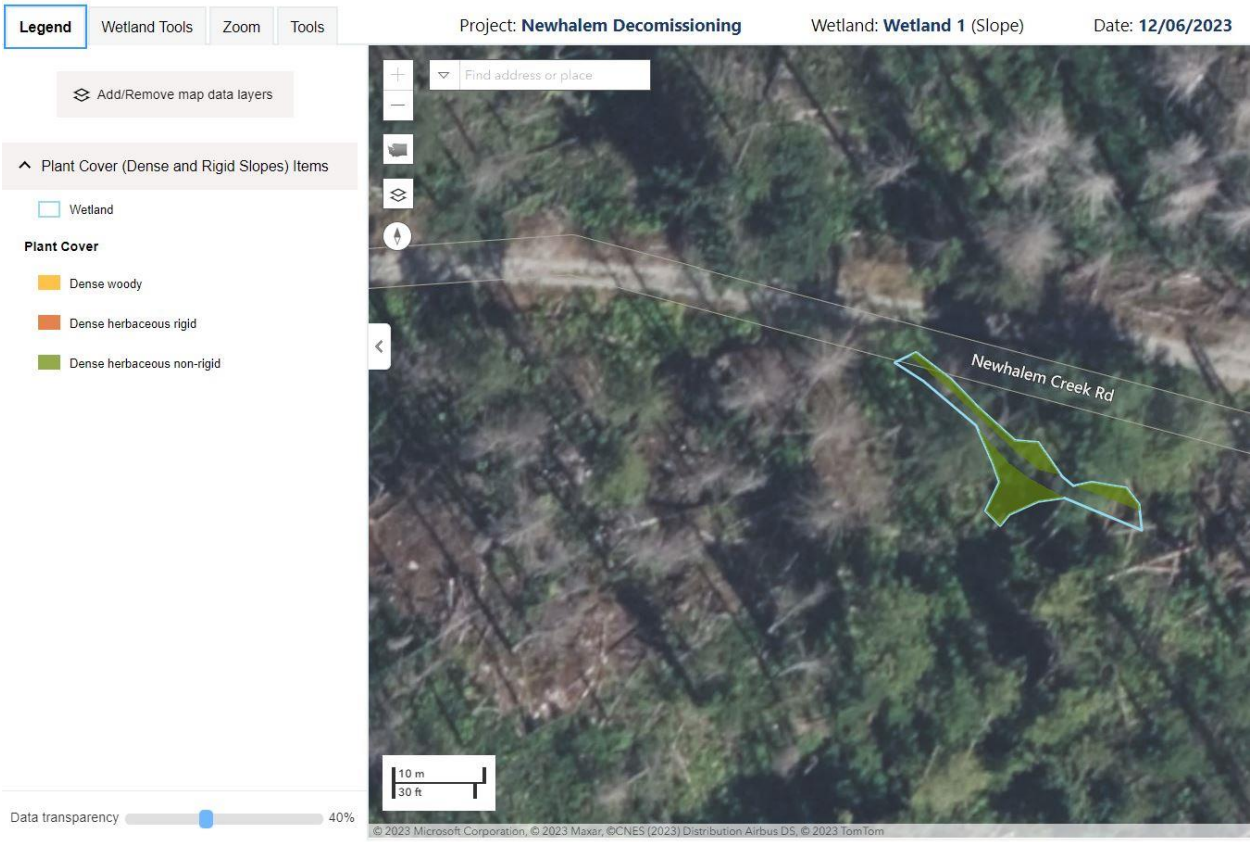


Figure 3: Plant Cover (dense and rigid slopes)

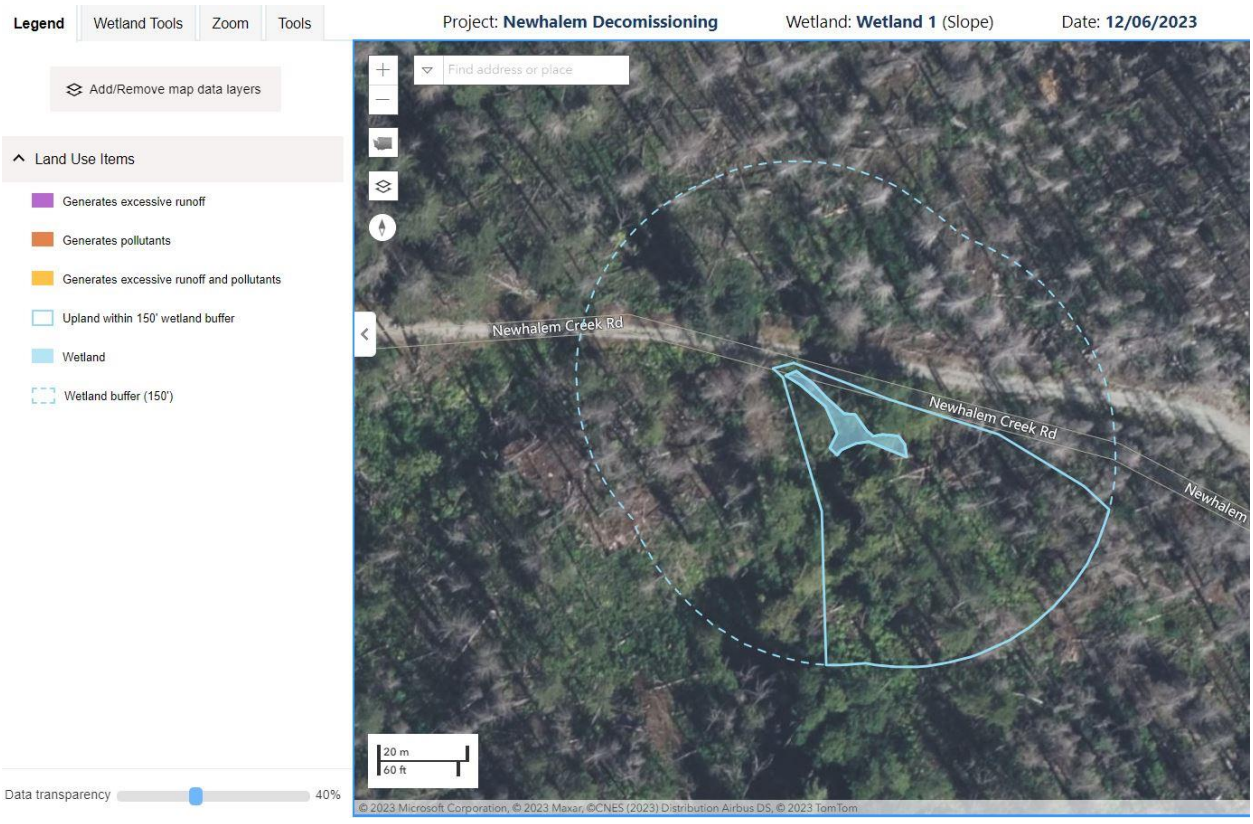


Figure 4: Boundary of area within 150 feet of the wetland.

Figure 5: 1km polygon.

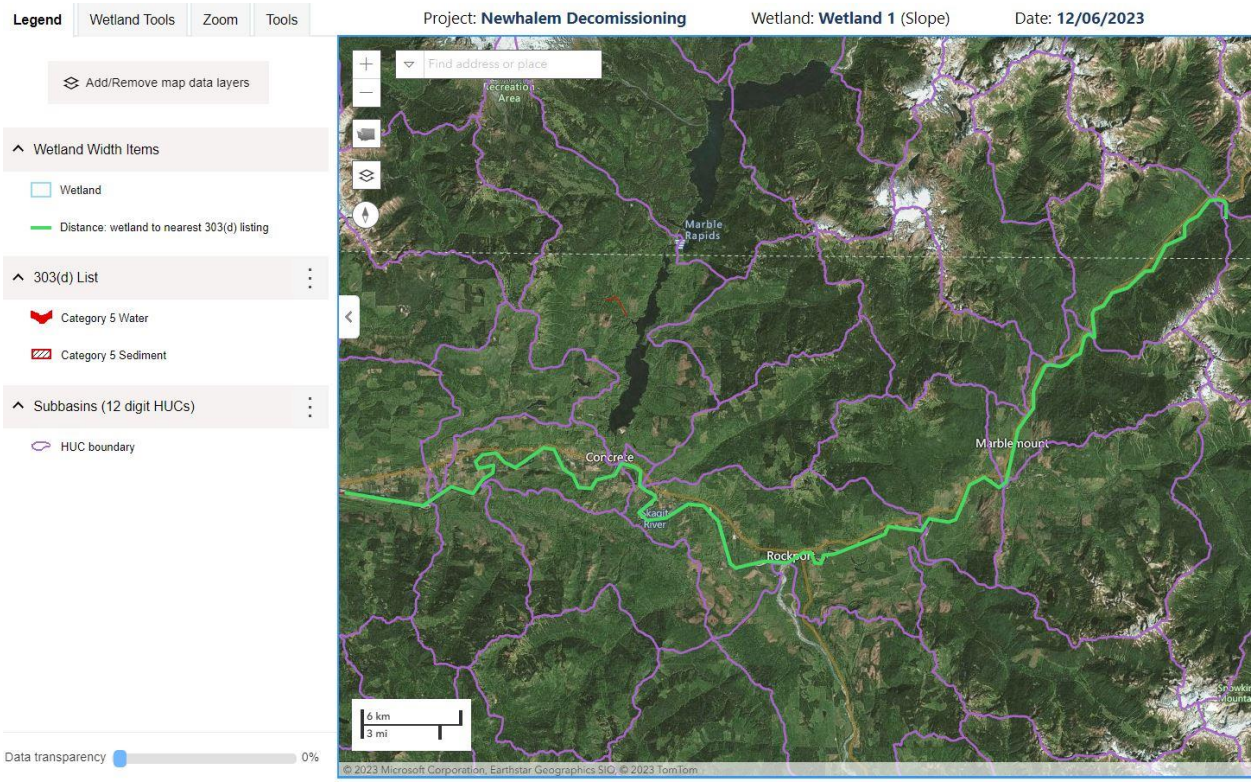


Figure 6: 303(d) listed waters in basin.

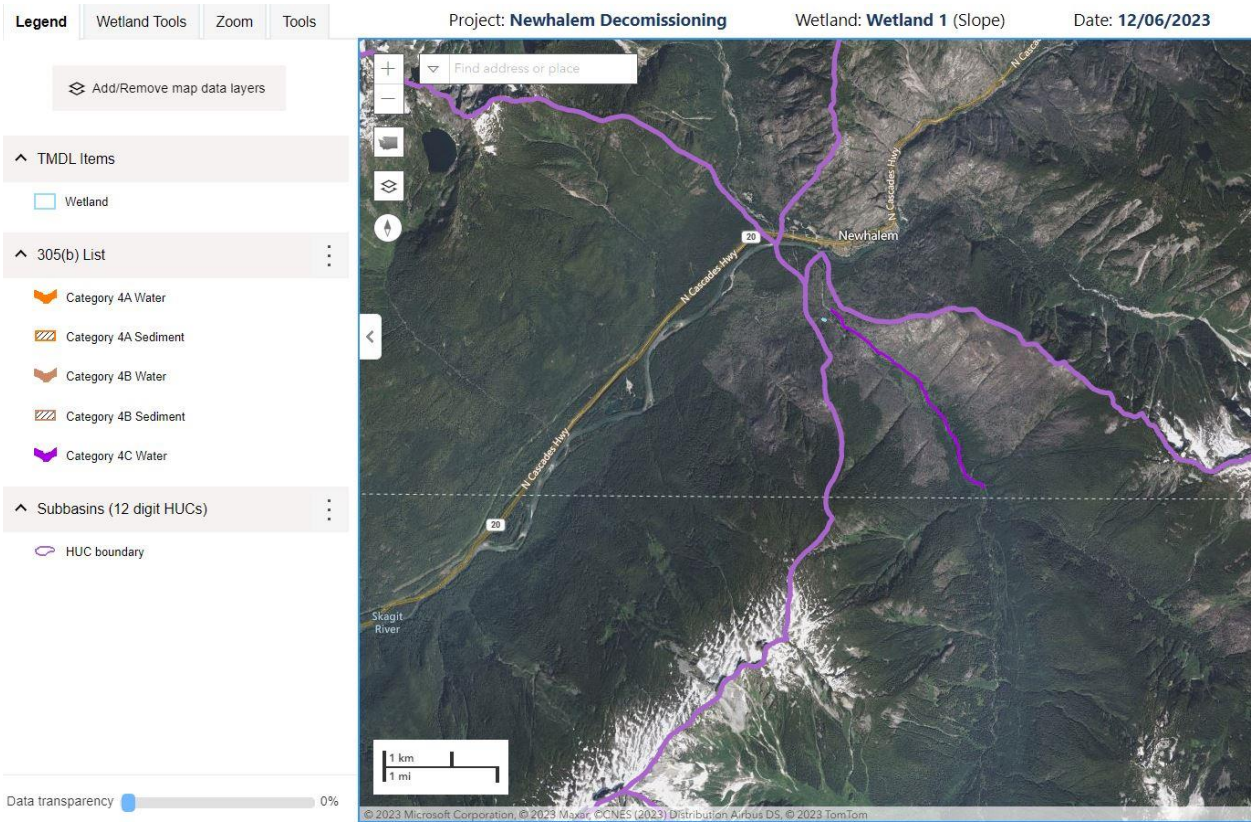


Figure 7: TMDLs for WRIA in which wetland is found.

Appendix D. Site Photos

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Photo 1: Landslide on dam access road as of November 2023. Photo taken facing SW from dam access road.

Photo 2: Culvert 13 outlet. Culvert 13 is a perched culvert located underneath the dam access road just downslope of the landslide area. The inlet to Culvert 13 appears to be buried and was not visible during the site investigation in November 2023.

Photo 3: Ditch 1, an excavated feature located downslope from the landslide area and adjacent to the dam access road between Culvert 13 and Culvert 12. Photo taken facing SE toward Culvert 13 and the landslide area.

Photo 4: Ditch 1, comprised of quarry spall and scattered upland vegetation. Photo taken facing SE.

Photo 5: Culvert 12 inlet, containing expressed groundwater and hillside seeps conveyed in Ditch 1.

Photo 6: Culvert 12 outlet. Expressed groundwater and stormwater runoff from Ditch 1 flows through Culvert 12 and is discharged to the top of a steep slope/cliff. Immediately after the cliff and outside of the study area, the conveyed flow goes subsurface and lacks a downstream connection to Newhalem Creek.

Photo 7: Ditch 2, located approximately 10 feet west of Culvert 12. Ditch 2 is an excavated roadside feature that conveys stormwater northwest along the dam access road. The bed and bank of the ditch are comprised of quarry spall and gravel, with scattered upland vegetation.

Photo 8: Ditch 2. Photo taken facing east along dam access road near the location where Ditch 2 disperses into uplands.

Photo 9: Wetland 1, with Stream 1 visible at the bottom of the photo. Photo taken facing southwest near sample plot SP 1-1.

Photo 10: Sampled soils and wetland vegetation near sample plot SP 1-1 in Wetland 1. Stream 1 also included in photo.

Photo 11: Stream 1 (Type Np) in Wetland 1, upstream of confluence with Stream 2.

Photo 12: Stream 2 (Type Ns) in Wetland 1. Photo taken facing upstream on Stream 2 from the confluence of Stream 1 and Stream 2. Stream 2 in the study area is steep (approximately 50-60% slope) and mostly consists of sheetflow through downed wood. Approximate stream centerline sketched in blue.

Photo 13: Culvert 11 inlet, located on the boundary of Wetland 1. Culvert 11 conveys Stream 1 under the dam access road.

Photo 14: Culvert 11 outlet, located on the north side of the dam access road. Water conveyed through the culvert discharges onto large boulders and drops approximately 6 feet below the culvert.

Photo 15: Stream 1 downstream of Culvert 11 outlet. Downstream of the dam access road, Stream 1 has a 12-15 percent slope and is approximately 2 feet wide. Stream 1 is disconnected from downstream habitat in Newhalem Creek due to a large (~100 percent slope) cliff located outside of the study area.

Photo 16: Overview photo of the northern portion of the study area along the penstock. Photo taken facing north towards the powerhouse. No wetlands were identified in the northern portion of the study area near the penstock.

Photo 17: Overview photo of the northern portion of the study area along the penstock. Photo taken facing SW towards the penstock.

Photo 18: Stream 3 in the study area (Type Ns), just upstream of where the stream crosses under the penstock. Stream 3 lacked flow during the field investigation in November 2023. Photo taken facing NE.

Photo 19: Bed and bank of Stream 3 in the study area, upstream of the confluence with Stream 4a. Stream 3 has a bankfull width of approximately 1-1.5 feet in the study area and lacked flow during the field investigation in November 2023.

Photo 20: Stream 4a in the study area (approximately 1.5 feet wide; Type Ns), upstream of the confluence with Stream 3.

Photo 21: Stream 4a in the study area, downstream of the confluence with Stream 3.

Photo 22: Stream 4a in the study area, flowing under an old, broken bridge downstream of the confluence with Stream 3.

Photo 23: Stream 4a just prior to reentering the study area near the powerhouse. Photo taken facing downstream (north) towards the top of the rocky waterfall feature pictured in Photos 24 and 25 below.

Photo 24: Top of the rocky waterfall feature within Stream 4 as it re-enters the study area, with some visible surface flow. Photo taken facing downstream (north) towards Stream 4b and the culvert pictured in Photo 26 below. Stream 4a is the portion of Stream 4 located upstream of the rocky waterfall feature (Type Ns) and Stream 4b is the portion of Stream 4 located downstream (Type F).

Photo 25: Stream 4 after reentering the study area near the powerhouse, facing upstream. Stream 4 flows through a rocky waterfall feature (pictured above) before forming a defined, flattened channel (i.e., Stream 4b) just east of the powerhouse (see Photo 26, below). As noted above, Stream 4a is the portion of Stream 4 located upstream of the rocky waterfall feature (Type Ns) and Stream 4b is the portion of Stream 4 located downstream (Type F).

Photo 26: Stream 4b, just east of the powerhouse. Photo taken facing north (downstream) towards culvert that conveys Stream 4b under a trail.

Photo 27: Stream 4b, forming a pool at the culvert outlet.

Photo 28: Stream 4b, facing upstream (south). This portion of the stream lacked surface flows during the field investigation in November 2023. The powerhouse is visible to the west.

Photo 29: Inlet of culvert that conveys Stream 4b into the tailrace. No flow was observed in this portion of Stream 4b during the field investigation in November 2023.

Photo 30: Confluence of Stream 4b and Stream 5. Photo taken facing upstream (east) in Stream 5, with Stream 4b visible in lower lefthand corner of photo. No flow was observed in this portion of Stream 4b, nor Stream 5, during the field investigation in November 2023. Stream 5 flows into Stream 4b approximately 18 feet upstream of the culvert pictured in Photo 29 above.

Photo 31: Stream 5 (Type Ns stream), facing upstream (east) towards edge of study area. No flow was observed in Stream 5 during the field investigation in November 2023.

Photo 32: Large pool in the tailrace, just north of the powerhouse. Photo taken facing north. Aside from the pool shown above, no surface flow was observed in the tailrace during the field investigation in November 2023.

Photo 33: Tailrace (Type F stream), facing upstream (south). Aside from the pool near the powerhouse, no surface flow was observed in the tailrace during the field investigation in November 2023.

Photo 34: Tailrace, facing downstream (north). Aside from the pool near the powerhouse, no surface flow was observed in the tailrace during the field investigation in November 2023.

Photo 35: Northernmost extent of the tailrace, facing downstream (north) towards the tailrace barrier with the Skagit River visible in the background. In the portion of the tailrace pictured above, the tailrace channel narrows to approximately 4 to 6 feet wide and disperses into a relatively flat, rocky area (pictured in Photo 36, below).

Photo 36: Flat, rocky portion of the tailrace, just upstream of the tailrace barrier. Photo taken facing upstream (south). Sample plot SP V1 is located in this area and confirmed that the area is non-wetland.

Photo 37: Tailrace barrier. Photo taken facing upstream (south) into the tailrace from the left bank of the Skagit River.

Photo 38: Skagit River in the study area (Type F stream). Photo taken facing downstream (west) along the left bank of the Skagit River.

Photo 39: Delineated segment of Newhalem Creek (Type F stream) upstream of the diversion dam. Project archive photo from June 2021 taken from the left bank, facing upstream (northeast). The outlet of the side channel located along the right bank of Newhalem Creek is visible near the center of the photo.

Photo 40: Delineated segment of Newhalem Creek. Photo taken in July 2023 from the left bank, just upstream of the diversion dam and facing north towards the dam and gatehouse.

Photo 41: Delineated segment of Newhalem Creek. Photo taken in July 2023 from the footbridge, facing upstream (northeast) towards the gatehouse and sluiceway.

Photo 42: Concrete apron in Newhalem Creek, just downstream of the diversion dam. Photo taken in July 2023, facing upstream towards the dam.

Photo 43: Newhalem Creek, just downstream of the diversion dam and the footbridge. Photo taken in July 2023, facing northeast.

Photo 44: Newhalem Creek and surrounding forest burned during the Goodell Fire in 2015. Photo taken from the footbridge at the diversion dam site, facing downstream, in July 2023.

Photo 45: Newhalem Creek and surrounding forest burned during the Goodell Fire in 2015. Project archive photo taken in June 2021 from the left bank of the creek just upstream of the diversion dam, facing upstream.

DRAFT

Water Quality Monitoring Plan

Newhalem Creek Hydroelectric Project Decommissioning

Newhalem, Washington

January 29, 2025

Contents

Tables

Figures

1.0 Introduction

Seattle City Light (City Light) owns and operates the Newhalem Creek Hydroelectric Project (Project), which is licensed by the Federal Energy Regulatory Commission (FERC). The Project is in Whatcom County, immediately south of the town of Newhalem, along Newhalem Creek, a tributary to the Skagit River (Figure 1). The current license for the Project (FERC No. 2705) expires on January 31, 2027. The Newhalem Creek Hydroelectric Project was in active use until 2010, when a series of equipment and structural problems caused an extended shutdown. Currently, it cannot be operated due to leaks in the power tunnel, maintenance needs at the headworks, and lack of safe access to the dam due to an active landslide. Based on an engineering and economic analysis of the necessary repairs, City Light has determined that repair costs far exceed current revenues. For this reason, City Light decided not to seek a new license for the Project and filed a Notice of Intent with FERC on April 28, 2021 to surrender the license and decommission the Project. Decommissioning activities are described in detail in the FERC License Surrender Application (City Light 2022) and subsequent filings. In summary, decommissioning includes the following activities:

Diversion Dam Access, Culvert Removal, and Reestablishment of Drainage Crossing

- Establish safe, temporary construction access along the existing roadway, including minor roadway grading, vegetation removal, and landslide debris clearing. Improvements may necessitate rock scaling and the removal of large boulders from the hillside to allow safe access.
- Following decommissioning of all Project elements at the diversion dam and associated headworks, the diversion dam access road will be closed to vehicular traffic.
- Remove culverts along the access road and re-establish natural drainage crossings (note, only one culvert (Culvert 11) conveys a natural stream (Stream 1); other culverts convey drainage from man-made ditches).

Newhalem Diversion Dam and Headworks Removal

- Demolish dam and apron with hydraulic equipment, sluiceway, gatehouse, and footbridge .
- Remove existing riprap at the dam site.
- Restore Newhalem Creek stream channel to re-establish a low-flow channel through the removed diversion dam reach.
- Rebuild the right bank of Newhalem Creek within the footprint of the removed sluiceway, gatehouse, and related headworks infrastructure.
- Using native streambed material sourced from channel grading, establish a left-bank lateral bar to perpetuate streambed gravel transport downstream following dam removal.
- Seal the Newhalem Dam vertical power tunnel with a concrete plug and abandon in place. The centerline of the power tunnel is approximately 35 feet landward of the ordinary high water mark (OHWM) of Newhalem Creek (approximately 31 feet

to the front edge of the tunnel). Concrete for the tunnel plug will not be poured in- or near-channel. The contractor will be required to ensure BMPs are in place to prevent any entry of concrete into the creek during plugging of the tunnel over 30 feet from the creek.

Newhalem Powerhouse Tailrace Barrier Removal and Restoration

- Demolish the Newhalem Powerhouse tailrace barrier and remove the following elements (all landward of OHWM): riprap, existing wood fence, and wood viewing platform. No riprap is present within the OHWM at the tailrace barrier location.
- Positively grade Newhalem Powerhouse tailrace channel to prevent fish stranding during Skagit River flood events that backwater the lower portion of the tailrace.
- Place large woody material within Newhalem Powerhouse tailrace channel and restore disturbed areas with riparian and upland planting mixes approved by the National Park Service.

Penstock and Powerhouse Removal

- Demolish Powerhouse with an excavator and/or other conventional equipment. Equipment inside the powerhouse and the transformers located just outside of the powerhouse will be salvaged or disposed of off-site.
- The powerhouse site and the cleared area adjacent to the powerhouse will be restored. The access road between the powerhouse and the Rock Shelter Trail will be permanently blocked and decommissioned.
- Remove lower portions of the penstock, saddles, and thrust blocks with a conventional excavator as allowed by the slope.

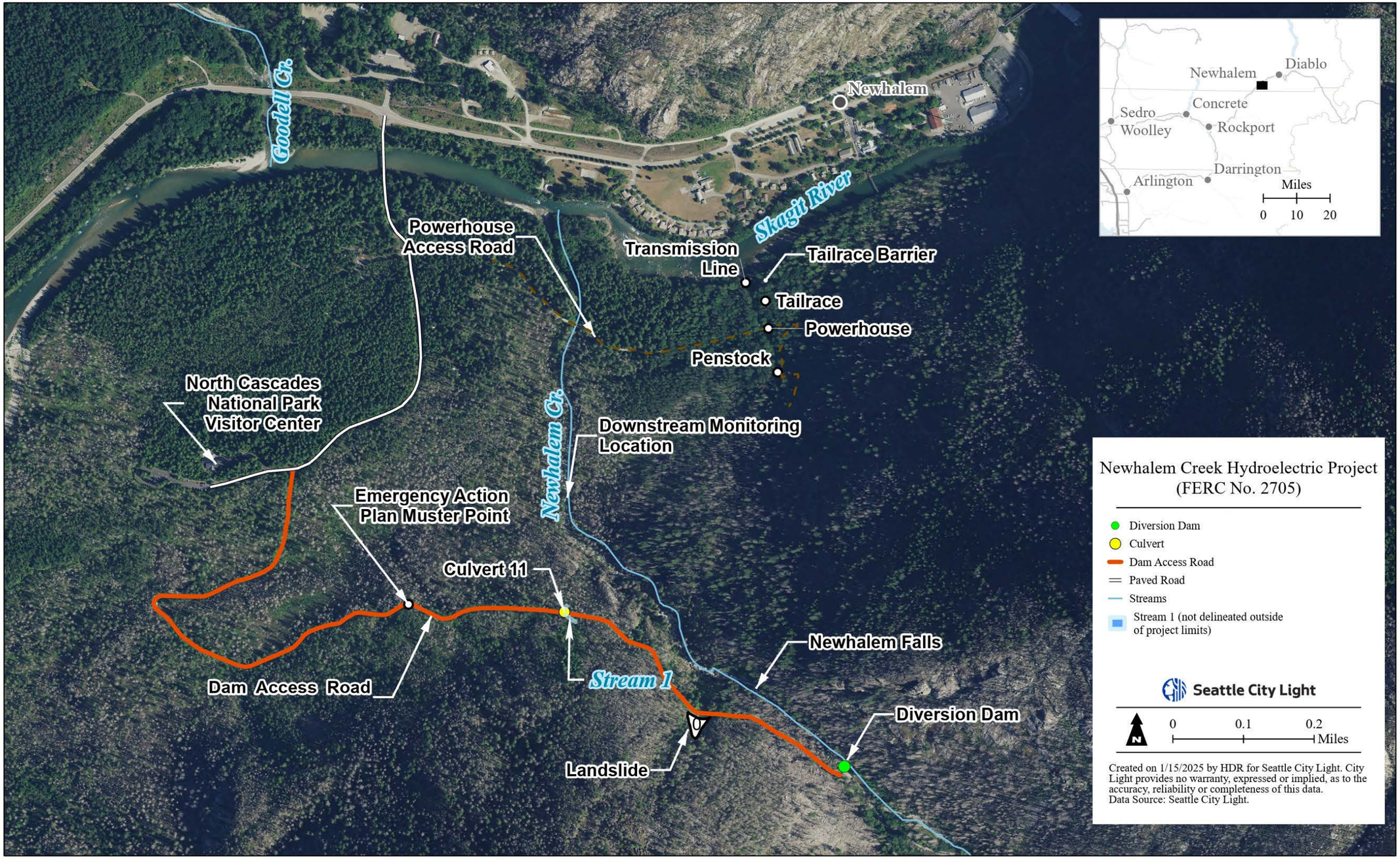


Figure 1. Project Location and Vicinity

1.1 Purpose

This Water Quality Monitoring Plan (WQMP) is provided with the Section 401 Water Quality Certification request to the Washington State Department of Ecology (Ecology) and describes proposed approaches to monitor receiving water quality during construction associated with decommissioning of the Newhalem Creek Hydroelectric Project.

This WQMP has been prepared as part of the request package for a Water Quality Certification for City Light for Project decommissioning. Any changes to the WQMP must be reviewed and approved by the Washington State Department of Ecology (Ecology).

1.2 Existing Conditions

The Project is in Water Resource Inventory Area (WRIA) 4, the Upper Skagit. Newhalem Creek is a left-bank tributary that enters the Skagit River at river mile (RM) 93.3. Newhalem Creek is a moderate- to steep-gradient stream characterized by large cobble and boulder substrates. The banks of the creek immediately upstream and downstream of Newhalem Dam are generally steep and composed of bedrock. Streambank vegetation adjacent to the dam reach primarily consists of salmonberry (*Rubus spectabilis*), vine maple (*Acer circinatum*), red alder (*Alnus rubra*), willows (*Salix* spp.), and devil's club (*Oplopanax horridus*). Outside of the immediate riparian corridor, much of the surrounding forest near the site of the diversion dam burned because of the Goodell Fire in August 2015.

Flow in Newhalem Creek is currently monitored at USGS gage site 12178150. Discharge in Newhalem Creek is highest during the spring snowmelt period from April to June and during the large rainfall events in late fall and early winter. Low flows in Newhalem Creek occur during late summer, early fall, and mid-winter. During low-flow periods in summer and early fall, Newhalem Creek flows along the right bank into the sluiceway/intake structure, and the left side of the channel is typically dry. Flow passes over the dam during higher flow conditions. According to recent gage data (USGS 12178150) flows during the opening of the in-water work window (July 16) typically exceed 100 cfs, but decrease dramatically in August and September, when they are typically well under 100 cfs. The impoundment behind the dam is approximately 0.10 acre.

Fish use above the impassable waterfalls of Newhalem Creek includes resident trout (*Oncorhynchus mykiss)* and resident Coastal Cutthroat Trout (*O. clarki*) (NWIFC 2024, WDFW 2024a). Downstream of the diversion dam and outside of the reach that was delineated as part of the 2023 field investigation, Newhalem Creek enters a very high-gradient (10 to 25 percent) bedrock canyon with numerous waterfalls. From RM 0.65 to the diversion site at RM 1.0, Newhalem Creek is a transport reach characterized by high gradients with deep plunge pools interspersed by steep cascades and waterfalls (City Light 2022). Although not mapped in the Washington Department of Fish and Wildlife (WDFW) fish barrier inventory (WDFW 2023), two natural waterfalls downstream of the dam site are total barriers to upstream fish passage at RM 0.65 (14-foot waterfall) and RM 0.8 (Newhalem Falls, a 167-foot waterfall). These features are identified in *A Catalog of Washington Streams and Salmon Utilization* (Williams and Phinney 1975). The lower reaches of the creek are accessible to and used by anadromous fish species found in the

Skagit River though there is limited spawning habitat as discussed in detail in the Biological Assessment (part of the JARPA submittal).

1.3 Water Quality Standards

Newhalem Creek upstream from the mouth is designated as Char spawning and rearing habitat (from Table 602, Chapter 172-201A WAC).

Surface water quality standards that support this use are specified for water temperature, dissolved oxygen, pH, turbidity, bacteria, toxic, radioactive and deleterious material concentrations (Table 1).

Table 1. Applicable State water quality standards for Newhalem Creek

Parameter	Water Quality Standards
Char Spawning and Rearing	
Turbidity	Not to exceed 5 nephelometric turbidity units (NTU) over background when the background is 50 NTU or less; not to exceed a 10% increase in turbidity when the background turbidity is more than 50 NTU
Temperature	Not to exceed 7DADMax[1] of 12°C (53.6°F)
Dissolved Oxygen	10 mg/L or 90% saturation (1 day minimum)
Total Dissolved Gas	Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection.
pH	pH shall be within the range of 6.5 to 8.5, with a human-caused variation within the above range of less than 0.2 units.
Primary Contact Recreation Bacteria Criteria in Fresh Water	
Bacteria	*E. coli* organism levels within an averaging period must not exceed a geometric mean value of 100 CFU or MPN per 100 mL, with not more than 10 percent of all samples (or any single sample when less than 10 sample points exist) obtained within the averaging period exceeding 320 CFU or MPN per 100 mL.
Water Supply Uses	
Toxics, Radioactive and deleterious material	Toxic, radioactive, or deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health

1. 7-day average of the daily maximum temperatures.

1.3.1 Water Quality

In addition to USGS gage 12178150, a now-discontinued USGS gage 12178100 collected temperature data for Newhalem Creek. Temperatures between 2017 and 2021 ranged from 2.8ºC in February to 11.7ºC in August. Gage 12178150 indicates several days during August 2024 when temperatures exceeded 15ºC, but high temperatures are generally between 12 and 14ºC from late July through September. Summer temperatures during low flow periods may therefore exceed 7-day maximums thresholds for char spawning and rearing (Table 1) under baseline conditions. Per Ecology's Water Quality Atlas, Newhalem Creek is on the Category 4c list for inadequate upstream flow from Newhalem Dam to the mouth of the Skagit River.

2.0 Anticipated Construction Approach

City Light's proposed decommissioning Project includes the following activities that may affect water quality.

2.1 Tailrace Barrier Removal and Restoration

The Newhalem Powerhouse tailrace barrier removal and channel restoration site includes work within the OHWM of the tailrace and the Skagit River. However, work will occur during low flow months when the tailrace is dry and hydrologically disconnected from any surface waters including the Skagit River (see Photos 2-5 of Appendix A). Silt fencing will be placed downstream of the construction area to prevent erosion and to prevent sedimentation into the Skagit River. Because the tailrace removal and restoration will occur during low flow months, "in the dry", no in-water work will occur, and water quality monitoring is not proposed along the Skagit River (40 feet or more from the barrier) for tailrace barrier decommissioning activities. This approach was confirmed onsite with the National Park Service (NPS), the WDFW, and the U.S. Fish and Wildlife Service (USFWS) during a September 2024 site visit with City Light. During concrete demolition of the tailrace barrier, the contractor will place mats or tarps adjacent to the barrier to collect concrete debris and dust. Matting will be vacuumed (or similarly cleaned) and all concrete debris will be hauled offsite. In the unlikely event there is any hyporheic flow during excavation of tailrace channel for restoration, a sump and upland disposal and infiltration may be used to dewater the work area.

2.2 Culvert 11 Removal and Channel Restoration

Following decommissioning of all Project elements at the diversion dam and associated headworks, the existing dam access road will be converted to road storage. Existing culverts along the road will be removed and natural drainage patterns will be re-established. One of the culverts (Culvert 11) along the road conveys flow from a natural stream and slope wetland. As discussed in the Project wetland and stream report (HDR 2024), Stream 1, a non-fish-bearing perennial stream, flows through Culvert 11 and discharges over a 6-foot drop onto boulders. From there, it has a steep slope (15 to 20 percent) for approximately 20 feet, and then flows down a nearly 100 percent slope into Newhalem Creek on the (north) side of the existing dam access road (See Photo 1, Appendix A). At the time of the November 2023 field survey, Stream 1 had less than 1 cubic foot per second (cfs) of flow. Given site conditions, it is not possible to monitor turbidity at the point of compliance 100 feet downstream of the culvert removal location per WAC 173-201A-200. However, considering the low amount of flow, nature of work, lack of fine materials in the boulder-dominated narrow stream, and proposed construction BMPs, it is likely the water quality criterion for turbidity will be met. Additionally, it is unlikely any turbid water would reach Newhalem Creek, which is approximately 400 feet downstream. Visual monitoring for downstream turbidity and sheen will occur during culvert removal at Stream 1.

2.3 Diversion Dam Access

Currently, the dam access road is blocked with large rocks from an active landslide approximately 1,140 feet (0.2 mile) below the diversion dam. In addition to the recurring landslide, tension cracks and minor slumps have developed on the road edge in multiple locations on both sides of the landslide, and an existing retaining wall may need repairs to make the road serviceable for construction equipment used in proposed demolition and restoration activities. Improvements may necessitate the removal of large boulders from the hillside to allow safe access. Although the final disposition of these rocks will be determined by the selected contractor, it is possible that a few of these rocks may be passed over the hillside and potentially enter Newhalem Creek. This approach was discussed onsite with representatives from the NPS during a site visit to discuss dam access road improvements in 2024. No in-water work will occur for access road improvements.

2.4 Penstock and Powerhouse Removal

The powerhouse and its foundation will be demolished with an excavator and/or other conventional equipment. Powerhouse equipment and the transformers located just outside of the powerhouse will be salvaged or disposed of off-site. The powerhouse site, the gravel pad and adjacent parking area to the powerhouse, and the transmission line right-of-way on the southwest side of the Skagit River will all be restored to native forest relying predominantly on monitored natural succession. Seeding and planting may be used to augment natural regeneration of native forest if monitoring demonstrates proposed performance standards in the restoration plan being developed cooperatively with the NPS, Tribes, Ecology and other natural resource management agencies involved in the Project are not being met. The access road between the powerhouse and the Rock Shelter Trail will be permanently blocked and decommissioned.

The penstock, 54 concrete and 2 wooden saddles, and thrust blocks will be completely removed. A conventional tracked excavator is expected to be used to remove the lower section of the penstock, saddles, and thrust blocks and an articulated excavator may be used in the steeper upper section of the penstock. Upper portions of the penstock may be taken down using cables to control movement or potentially with helicopter assistance. The penstock will be removed in segments by separating sections at their expansion joints. Removed segments may be pulled or lowered down the hill using an excavator. The saddles not bolted to bedrock and the thrust blocks will be broken apart with an excavator or hand tools. Saddles bolted to bedrock may be chipped from the bedrock with a jackhammer or cut. Trucks will be used to haul removed material to an off-site disposal area. Areas disturbed by the removal of the penstock and saddles will be restored either by monitored natural succession or combination of natural succession processes and seeding and planting as agreed in the restoration plan being collaboratively developed with the NPS, Tribes, Ecology, and other natural resource management agencies involved in the Project.

No in-water work will occur for penstock or powerhouse removal. A narrow (1 – 1.5 feet wide) ephemeral non-fish-bearing stream (Stream 3 as described in the Wetland and Stream Delineation Report prepared for the Project; HDR 2024) crosses under the

penstock in a relatively flat area on the old terrace above the powerhouse. The bed and banks of this stream were discernible during a November 2023 site visit, but no flow was observed. Based on historic monitoring done by City Light during the penstock removal project a few years ago, there is rarely any flow in this stream, and flows of less than 1 cfs persist only for a day or two after months of heavy fall precipitation. It is very unlikely any flow would occur during the project even if there are any heavy summer precipitation events. Appropriate materials for erosion source control and flow conveyance will nonetheless be kept on hand during construction. Examples of flow conveyance measures that could be used to control erosion include placing a steel plate across the ephemeral stream to accommodate access or a temporary pipe crossing with quarry spalls.

2.5 Newhalem Diversion Dam and Headworks Removal

Removal of the diversion dam and headworks will require work within and adjacent to Newhalem Creek. Infrastructure removal will occur in two phases to accommodate phased dewatering and an in-channel creek bypass.

2.5.1 Dewatering Timing and Overview

All work below the OHWM of Newhalem Creek associated with diversion structure removal will be completed between July 16 – September 1[1]. All cofferdam materials will be removed by September 1.

Prior to infrastructure removal, the dam site will be dewatered and isolated from active flow. City Light anticipates the following approach for dewatering and managing and monitoring potential temporary increases in turbidity:

- Establish upstream and downstream water quality monitoring stations.
- Identify and use an upland area for turbid hyporheic flow intercepted from the work isolation area, if required. This could include pumping to suitable upland area for dispersion and infiltration.
- Install fiber wattles or sediment fences parallel to the left creek bank (right bank is bedrock or concrete). These features will be positioned to the extent necessary to isolate streamside disturbances, including spoil piles, from the creek.
- Isolate in-water work areas for each phase of dam removal using temporary cofferdams built with supersacks (bulk bags) filled with native streambed materials sourced from portions of the channel that are typically dewatered along the left bank (see JARPA for more details and photographs).

Specific dewatering strategies for each phase are discussed in the following sections. Any substantive deviation from the approach presented herein will be coordinated with the NPS, National Marine Fisheries Service (NMFS), USFWS, WDFW, and the U.S. Army Corps of Engineers a minimum of 30 days prior to in-water work for approval.

[1] For ESA consultation purposes, City Light requested a July 16 – September 1 work window. This window has been discussed and verified with USFWS, NMFS, and WDFW.

2.5.2 Phase 1: Remove Diversion Dam and Downstream Concrete Apron

During the first phase of dam infrastructure decommissioning, the selected contractor will fill supersacks with native creek sand, gravel, and cobble sourced from material along the left bank to form a temporary cofferdam upstream of the diversion dam. The temporary diversion dam will divert water into the sluiceway and dewater the work area around the dam. During low-flow periods in summer and early fall, including the proposed work window, Newhalem Creek naturally flows along the right bank into the sluiceway/intake structure, and the left side of the channel is typically dry (see Photo 6 in Appendix A). This condition will allow for use of an excavator to fill supersacks with streambed gravels “in the dry” from the dewatered left-side of the channel. In the unlikely event that any flow is present along the left bank at the start of the work window, an excavator positioned from the bank will push accumulated gravel materials to form an earthen bridge to reach the accumulated gravel bar. Once the work area is isolated, the contractor will remove the diversion dam crest and apron by breaking apart the concrete with an excavator, jack hammer, and/or non-explosive cracking agent and hauling the demolished materials off site (Figure 2).

NOTES:

1. THIS DRAWING SHOWS ANTICIPATED TEMPORARY STREAM DIVERSION PLAN AND SEQUENCING. CONTRACTOR SHALL DEVELOP A TEMPORARY STREAM DIVERSION PLAN MEETING THE REQUIREMENTS OF THESE DRAWINGS, THE PROJECT SPECIFICATIONS, AND ALL APPLICABLE PERMITS
2. CONTRACTOR SHALL PREPARE A TEMPORARY STREAM DIVERSION PLAN IN ACCORDANCE WITH THE SUBMITTALS OUTLINED IN THE PROJECT SPECIFICATIONS.
3. TEMPORARY STREAM DIVERSION SHALL BE PERFORMED IN ACCORDANCE WITH ALL STIPULATIONS PRESENTED IN APPROVED PROJECT PERMITS.
4. CONTRACTOR IS SOLELY RESPONSIBLE FOR DEVELOPMENT AND EXECUTION OF THE TEMPORARY STREAM DIVERSION PLAN.
5. CONTRACTOR IS RESPONSIBLE FOR ADDRESSING VARIED MATERIALS INCLUDING BOULDERS, POROUS SUBSTRATE, AND SIGNIFICANT GROUNDWATER DURING EXCAVATION AND DEWATERING.

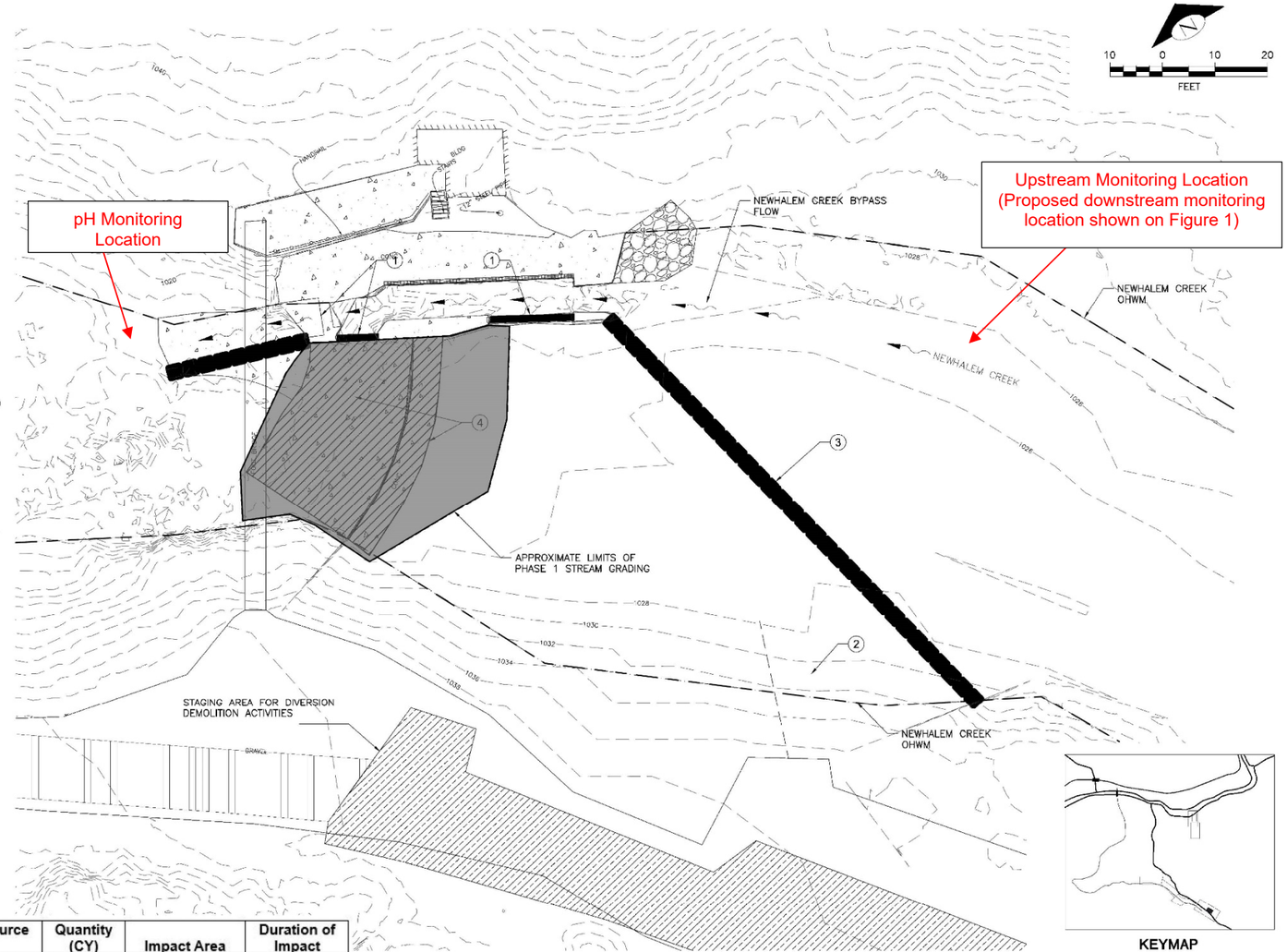
ANTICIPATED TEMPORARY STREAM DIVERSION SEQUENCING AND DAM CREST AND APRON REMOVAL - PHASE 1

(1) PREPARE SLUICEWAY FOR TEMPORARY STREAM DIVERSION. OPEN SLIDE GATE, BLOCK TIMBER WEIR AND BULKHEAD

(2) ESTABLISH EQUIPMENT ACCESS TO CHANNEL THROUGH EXISTING MAINTENANCE POINT

(3) INSTALL COFFER DAM CONSISTING OF SUPERSACKS FILLED WITH NATIVE STREAMBED MATERIAL

(4) DEMOLISH DIVERSION DAM CREST AND APRON



Activity	Aquatic Resource Name	Quantity (CY)	Impact Area	Duration of Impact
Fill: Cofferdam placement	Newhalem Creek	50	390 sq ft/130 lf	Temporary
Excavate: Concrete dam	Newhalem Creek	270	910 sq ft/20 lf	Permanent
Excavate: Concrete dam apron	Newhalem Creek	170	830 sq ft/32 lf	Permanent

Not for Construction

Figure 2. Phase 1 Temporary Stream Bypass and Cofferdam Placement

2.5.3 Phase 2: Remove Other Headworks and Channel Grading

During Phase 2, the selected contractor will re-position the temporary cofferdam (Figure 3) to direct flow into a conduit (corrugated steel or plastic pipe) that will be placed along the left bank of the main channel and covered with native creek substrates to allow an excavator to access the channel and isolate the right bank intake/sluiceway area. Minor channel grading may occur to establish the temporary stream diversion. The conduit will be sized to convey anticipated flows during in-water work, with a 10 percent exceedance. Following isolation, the contractor will remove the trash rack, intake, and sluiceway. An area of right-bank substrate armoring (concrete) located under the pedestrian bridge and extending approximately 20 feet downstream will also be removed. Concrete will be broken apart with an excavator, jack hammer, and/or non-explosive cracking agent.

Phase 2 will also include the removal of the gatehouse, pedestrian bridge, and bridge abutments. The vertical power tunnel, located landward of the OHWM, will be sealed with concrete. The pedestrian bridge abutments are located along the streambank atop bedrock, primarily landward of the OHWM. Therefore, in-water work to remove the bridge will be limited to an excavator that may be positioned within the dewatered area for access to the right bank. The bridge could be dismantled in pieces or could be airlifted as a full span depending upon equipment capabilities and availability. The bridge will be transported to an approved upland location to be determined by City Light. Following the removal of the remaining headworks infrastructure, the stream channel will be graded for approximately 100 feet upstream of the former dam crest location to establish the proposed Newhalem Creek channel. Native materials sourced from channel grading will be positioned along the left bank to form a lateral bar. The proposed channel section in the dam reach has been designed based on representative geometry from the upstream reach. The existing bedrock at the base of the dam will remain as a grade control hard point.

Following channel grading, the cofferdams will be removed and native alluvium emptied from the supersacks. Some of the native alluvium will be used for channel grading at Stream 1 (Culvert 11 removal) or for tailrace barrier restoration. Any remaining materials will be left instream in the lateral bar formed on the left bank below the OHWM where it can be naturally transported downstream during future higher flow events. All equipment will exit Newhalem Creek. Areas disturbed during dam and headworks removal will be replanted if the native substrate is conducive to replanting. See Section 2.6.2 for more details.

Figure 3 and Figure 4 show the stream bypass, cofferdam placement, and decommissioning activities proposed as part of Phase 2.

NOTES:
1. THIS DRAWING SHOWS ANTICIPATED TEMPORARY STREAM DIVERSION PLAN AND SEQUENCING. CONTRACTOR SHALL DEVELOP A TEMPORARY STREAM DIVERSION PLAN MEETING THE REQUIREMENTS OF THESE DRAWINGS, THE PROJECT SPECIFICATIONS, AND ALL APPLICABLE PERMITS
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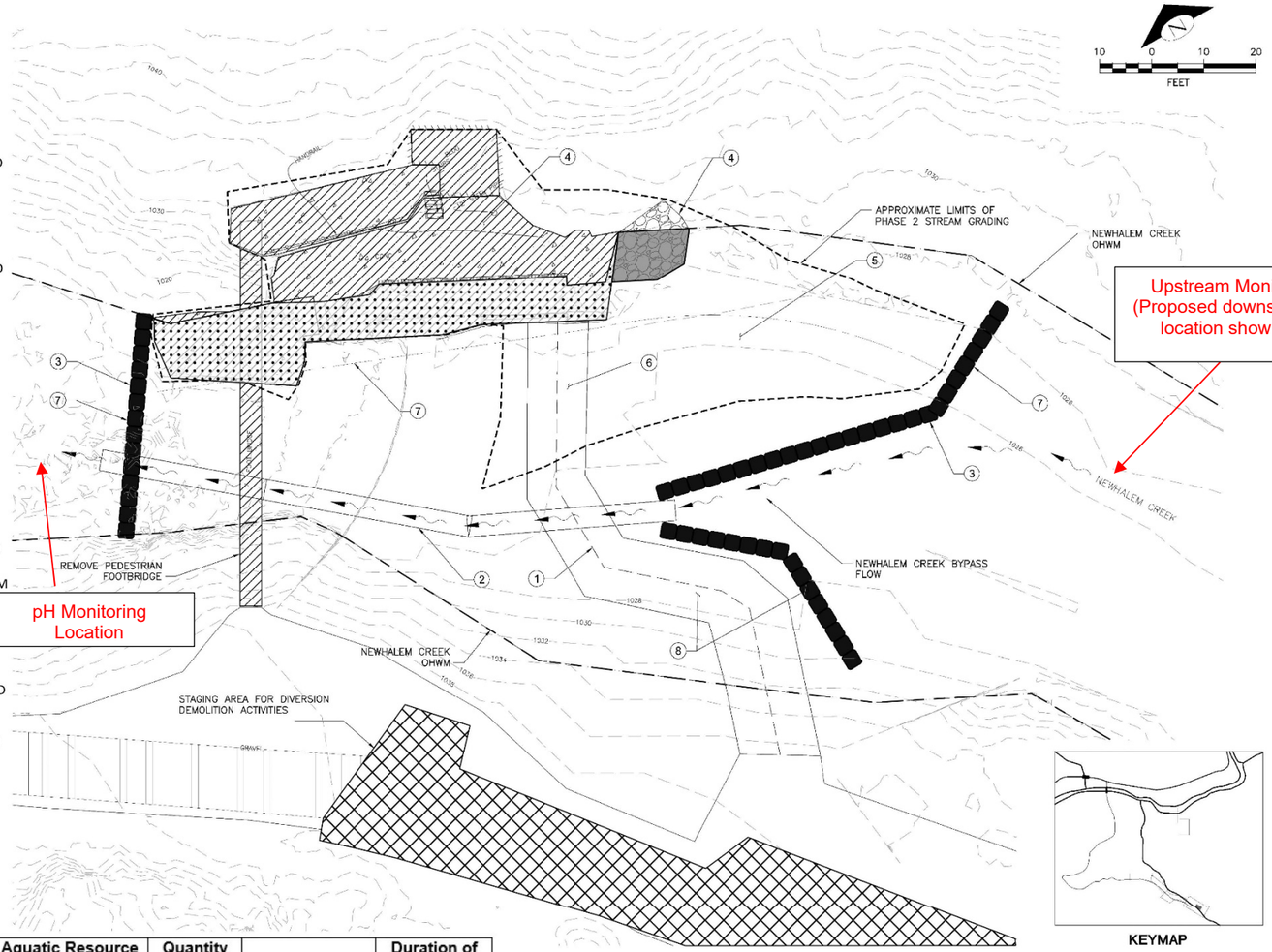
5. CONTRACTOR IS RESPONSIBLE FOR ADDRESSING VARIED MATERIALS INCLUDING BOULDERS, POROUS SUBSTRATE, AND SIGNIFICANT GROUNDWATER DURING EXCAVATION AND DEWATERING.

ANTICIPATED TEMPORARY STREAM DIVERSION AND HEADWORKS REMOVAL SEQUENCING - PHASE 2

1. CONSTRUCT TEMPORARY CONSTRUCTION ACCESS BERM TO DIVERSION INTAKE STRUCTURE BY PLACING STREAMBED MATERIALS ATOP TEMPORARY BYPASS CULVERT.
2. INSTALL TEMPORARY CULVERTS. MIN. DIA 48 INCHES.
3. INSTALL COFFER DAM CONSISTING OF SUPERSACKS FILLED WITH NATIVE STREAMBED MATERIAL. MINOR CHANNEL GRADING ANTICIPATED TO ESTABLISH TEMPORARY STREAM DIVERSION
4. REMOVE REMAINING HEADWORKS INFRASTRUCTURE A SEAL VERTICAL POWER TUNNEL.
5. PERFORM CHANNEL EXCAVATION TO ESTABLISH PROPOSED NEWHALEM CREEK CHANNEL (SEE SHEET 13)
6. REMOVE ACCESS ROAD AND COMPLETE GRADING WITHIN LIMITS OF NEWHALEM CREEK CHANNEL GRADING
7. REWATER COMPLETED NEWHALEM CREEK CHANNEL IN A GRADUAL, CONTROLLED MANNER BY REMOVING DOWNSTREAM AND THEN UPSTREAM COFFERDAMS
8. REMOVE REMAINING TEMPORARY STREAM DIVERSION MATERIALS AND RESTORE CHANNEL BANKS TO PRE-

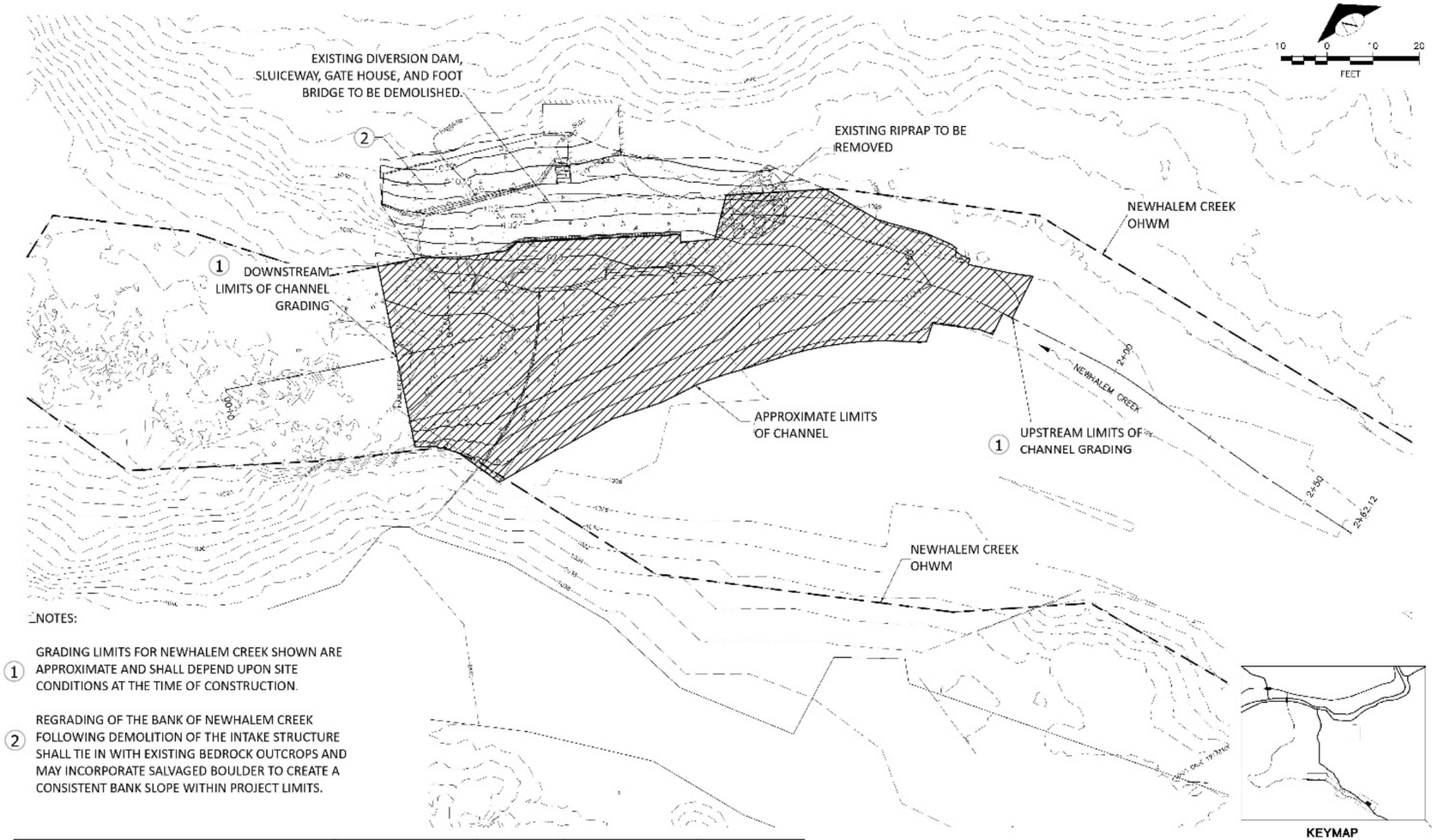


Activity	Aquatic Resource Name	Quantity (CY)	Impact Area	Duration of Impact
Fill: Cofferdam placement	Newhalem Creek	60	540 sq ft/180 lf	Temporary
Excavate: Concrete sluiceway and headworks structures	Newhalem Creek	150	870 sq ft/90 lf	Permanent
Excavate: Riprap	Newhalem Creek	20	170 sq ft/20 lf	Permanent

Not for Construction

Permanent impact – Excavate concrete sluiceway and headworks
Permanent impact – Excavate riprap
Elements landward of OHWM
Staging area

Figure 3. Newhalem Dam Decommissioning Phase 2



Activity	Aquatic Resource Name	Quantity (CY)	Impact Area	Duration of Impact
Excavate: Channel restoration: regrading and accumulated streambed material removal	Newhalem Creek	400	4,620 sq ft/165 lf	Permanent

Not for Construction

Figure 4. Phase 2 Newhalem Creek Channel Restoration

2.6 General List of BMPs for Near-shore and In-water Work

Several construction techniques will be employed to minimize temporary, short-term effects on water quality and aquatic resources and beneficial uses. The contractor will be required to implement reasonable and appropriate best management practices (BMPs) prescribed in the Washington State Department of Ecology's most current Stormwater Management Manual for Western Washington. Additionally, the contractor will be required to comply with all terms and conditions of all future permits and authorizations needed for the Project. The measures presented below are (1) components of the Project and (2) requirements of the contractor during Project implementation:

- Prior to work within or adjacent to Newhalem Creek, including the establishment of temporary spoils disposal areas and staging areas, access road improvements, and landslide boulder and debris removal, the selected contractor will install sedimentation and erosion control measures. These may include the use of silt fencing, certified noxious weed-free straw wattles, compostable protective sheeting on erodible soils (e.g., jute matting), or mulch along the road embankments or streambanks adjacent to the tailrace barrier and dam removal locations to prevent sediments from entering waterways. Use of these BMPs is intended to prevent construction stormwater from entering Waters of the U.S.
- Clearing limits will be identified on all design drawings and will be fenced prior to initiation of staging or demolition activities. The fence will clearly define the clearing limits and will protect non-Project areas from vehicle intrusion or debris disposal.
- Because the Project is likely to affect more than 1 acre of land, the contractor will implement a grading plan and Sediment and Erosion Control Plan prior to site preparation, to ensure that ground disturbing effects are minimized. During clearing, grading, and construction activities, all exposed areas at final grade will be protected from erosion using weed-free straw mulch, wood chips or other mulch acceptable to City Light, coir fabric, plastic covering, or similar method in accordance with the Sediment and Erosion Control Plan.
- A stormwater pollution prevention plan (SWPPP) will be developed as part of the Construction Stormwater General National Pollutant Discharge Elimination Stormwater (NPDES) permit. The contractor will be responsible for implementing and maintaining all BMPs installed for the duration of construction and complying with discharge monitoring and discharge monitoring report (DMR) submittal requirements and compliance with state water quality standards during construction. Following completion of construction, CSWG NPDES permit coverage will be transferred to City Light and City Light will be responsible for monitoring, submittal of DMRs, and compliance with state water quality standards until final site stabilization and termination of coverage under the permit.
- Concrete debris from the demolition activities will be temporarily stored in a gravel parking area that has been previously cleared, located landward of the OHWM along the left bank, upstream of the diversion structure. Temporarily stored material will be hauled off site with dump trucks or helicopters (if needed) to a recycler or an approved disposal location.

- All equipment will be inspected daily for fluid leaks before leaving the staging area, and any leaks will be repaired before the vehicle resumes operation. All equipment working instream will be required to use non-petroleum-based, biodegradable hydraulic fluid. The contractor will be responsible for preparing and implementing a Spill Plan prior to construction.
- Prior to arriving at the construction site, equipment will be washed and treated to remove seeds, plants, and plant fragments. Use of a high-pressure washing system is recommended to remove all seeds, plants, plant fragments, dirt, and debris from construction equipment, taking care to wash the sides, tops, and undercarriages. Any equipment working instream will be decontaminated per WDFW protocols as likely required in the Hydraulic Project Approval permit.
- Disturbance of riparian vegetation will be limited to the minimum amount necessary to achieve construction objectives to minimize habitat alteration and limit the effects of erosion and sedimentation.

2.6.1 In-Water Construction Impact Minimization

Anadromous salmonids and amphidromous Bull Trout have no access to the dam site due to the presence of two natural waterfall barriers downstream of the dam. The primary way to avoid direct effects to aquatic species is to schedule in-water work during low-flow summer periods to minimize the potential for sediment transport during sensitive life-history periods (e.g., fall to spring spawning and incubation) in downstream habitats occupied by fish and aquatic resources. Additional measures include the following:

- The cofferdam dewatering systems will be in place prior to any dam demolition. Excavators may be operated instream to set cofferdams. If this occurs, excavators will operate on gravel bars and portions of the streambed that are naturally dewatered during the summer in-water work period or will use materials placed on the substrate (e.g., timber cribbing, existing streambed materials) so that excavator tracks are elevated above water level.
- Cofferdams will be constructed of an approved combination of streambed materials, including supersacks filled with native material that are placed within the channel by an excavator or other suitable lifting equipment.
- The contractor will clearly identify contingencies for dewatering and cofferdam function to reliably isolate the work area from the active stream flow and minimize the risk of cofferdam overtopping.
- At least two dewatering sumps are expected to be employed during construction to manage hyporheic flow and keep the dewatered site as dry as possible during decommissioning activities, one on the upstream end of the cofferdam and one on the downstream end of the cofferdam. Pumps will be screened and water routed to a settling area. Options for settling of water will be determined by the contractor but may include either pumping water to upland areas for infiltration or routing water to biobags or dirtbags. Clear water pumped from the upstream sump may be returned directly to the creek.
- Following dewatering, matting or tarps will be placed on the dry creek bed to capture any concrete fragments or dust. Matting will be vacuumed (or similarly cleaned) and all

concrete debris will be hauled offsite. Similar matting will be used at the Powerhouse Tailrace Barrier location during concrete removal.

- Cofferdams will be removed and repositioned cleanly and incrementally to reduce sedimentation pulses downstream.
- During dewatering, resident fish species will be rescued and relocated from the in-water work isolation area, in compliance with future requirements of the Hydraulic Project Approval to be issued by WDFW.
- Removal of the upstream and downstream cofferdams will be accomplished over several hours to help minimize temporary, short-term impacts to suspended solids and turbidity.

2.6.2 Riparian Corridor Restoration

City Light will require the selected contractor to minimize vegetation clearing along riparian areas. Areas disturbed by deconstruction activities and the sites previously occupied by headworks will rely on natural succession processes to restore native riparian vegetation. Seed rain and water-borne seed dispersal are expected to result in effective regeneration of desirable native riparian plant communities but seeding selected native shrubs and trees may be used to augment natural succession processes, if necessary .

3.0 Construction Water Quality Monitoring Design

3.1 Monitoring Locations

3.1.1 Newhalem Dam and Headworks Removal

Water quality monitoring locations for dam decommissioning in Newhalem Creek include one upstream location for turbidity and pH, and two downstream monitoring locations: one for turbidity (see Figure 1) and one for pH (immediately downstream of the pedestrian bridge at the dam site; see Figure 2). Prior to in-water work, City Light will establish the monitoring stations and begin to collect data to record baseline conditions.

For turbidity, a terminal downstream point of compliance was sought to be consistent with mixing-zone lengths used in compliance monitoring for short-term turbidity in freshwater (WAC 173-201A-200(1)(e)(i)). Per the WAC, downstream points of compliance are specified at 100 feet for streams with less than 10 cfs discharge, 200 feet downstream for 10 to 100 cfs discharge, and 300 feet downstream for greater than 100 cfs discharge.

From 1961 through 2022, Newhalem Creek flows at the U.S. Geologic Survey (Gage 12178100) averaged 252 cfs in July, 112 cfs in August, and 85 cfs in September. A new gage operating since 2023 (Gage 12178150) indicates slightly lower average flows in August in September. Therefore, flows are anticipated to be greater than 100 cfs during the early portion of decommissioning activities during the July 16 through September 1 work window, and potentially less than 100 cfs during latter portions of the work window. Although City Light expects turbidity criteria will be met at the respective points of downstream compliance during most phases of in-water work in Newhalem Creek during

dam decommissioning, some temporary exceedences could occur even with all reasonable and appropriate BMPs in place because background turbidity is expected to be less than 1 during construction.

Due to the steep topography in the Project area, safe downstream turbidity monitoring locations do not exist at the point of compliance 300 feet downstream from the in-water work area. Therefore, City Light proposes monitoring at a safe and reasonably accessible location approximately 2,800 feet downstream of the point of construction. The proposed downstream turbidity monitoring location is shown on Figure 1. Upstream turbidity/pH monitoring locations and downstream pH monitoring locations are shown on Figure 2 and Figure 3. Sheen (oil and grease) will be monitored throughout the Project site, including both inside and outside of cofferdams.

3.1.2 Access Road Improvements Along Landslide Area

As noted in Section 2.1, road improvements are required for construction access to the Newhalem Creek Diversion Dam, including removal of large boulders from the hillside. No in-water work will occur as part of access improvements. A few boulders may roll down the hillside during limited scaling activities for safety improvements and end up in the creek. If some scaled boulders enter Newhalem Creek, measurable turbidity is not expected beyond the downstream point of compliance given the bedrock nature and very coarse nature of substrate (lack of fines) within the waterfall section of the creek. For this reason, City Light expects water quality criteria associated with this element will be met at the point of compliance for turbidity. Regardless, City Light will monitor for turbidity daily during roadwork at the downstream Project monitoring point identified in Figure 1. Visual monitoring of the area immediately downstream of the road improvements is not safely possible.

3.1.3 Penstock Removal and Ephemeral Stream

As discussed in the wetland and stream report prepared for the Project (HDR 2024), a seasonal stream (Stream 3) passes under the penstock, which is proposed for removal as part of Project decommissioning. The stream was dry during a November 2023 site visit and contains only very low (less than 1 cfs) ephemeral flows for very short duration (day or two) during the wet season, according to previous monitoring done by Seattle City Light. No in-water work within Stream 3 will be required to remove the penstock or saddles. Stream 3 merges with Stream 4 east of the penstock removal area. In the very unlikely event flow is present in this ephemeral stream (Stream 3) during penstock removal, a steel plate will be laid over the stream or a temporary pipe and quarry spalls will be used to provide construction access and avoid impacts to the stream channel. All downstream waters will be monitored visually for turbidity and sheen. If visual monitoring determines sediment or pollutants are entering the streams, the contractor will stop activities and adjust BMPs. Silt fencing or jute matting will be placed along these channels in proximity to construction to preclude the entry of construction-related sediments or pollutants into these small channels.

3.1.4 Tailrace Barrier Removal/Restoration Site and Culvert 11 Removal Site

As discussed in Sections 2.1 and 2.2, no water quality monitoring is proposed for the tailrace barrier removal. Visual monitoring of Stream 1 downstream of Culvert 11 will occur twice a day for turbidity and sheen.

3.2 Monitoring Parameters, Frequency and Duration

Construction activities have the potential to cause short-term, temporary increases in turbidity, pH, and oil and grease in Newhalem Creek, intermittent streams, and the Skagit River. Table 2 outlines the monitoring parameters and sampling frequency for all in-water work activities for Project decommissioning. Grab samples and visual observation will be collected for the duration of each construction activity at the frequency listed in Table 2. Visual monitoring will be done continuously for all construction activities located in or adjacent to water. In addition to the discrete oil/grease sheen monitoring events (i.e., twice a day).

Table 2. Construction activities, and associated monitoring parameters, frequency, and duration

Activity	Frequency	Parameters
In-water work area isolation and dewatering	Twice a day	Turbidity; oil and grease
Dam and concrete apron removal	Twice a day	Turbidity; pH, oil and grease
Concrete sluiceway and headworks structures removal	Twice a day	Turbidity; pH, oil and grease
Riprap removal	Twice a day	Turbidity; oil and grease
Channel restoration: regrading and accumulated streambed material removal	Twice a day	Turbidity; oil and grease
Cofferdam removal/channel re-watering	Twice a day	Turbidity; oil and grease
Culvert 11 removal and channel restoration	Twice a day	Turbidity; oil and grease (visual only)
Penstock removal over Stream 3	Twice a day	Turbidity; oil and grease (visual only)

4.0 Monitoring Methods

4.1 Monitoring Procedures

A background sample must be taken outside the area of influence upstream of the Project area and immediately prior to the downstream samples. Water samples will be collected and analyzed for the parameters listed above in Section 3, Construction Water Quality Monitoring Design. At Newhalem Creek, upstream samples will be collected directly from the creek upstream of the cofferdam site accessed from shore (Figures 2 and 3). The downstream turbidity samples will be collected directly from the creek at the downstream monitoring location accessible via a hiking trail approximately 2,800 feet downstream. pH

will be measured directly downstream of the construction area. The equipment and sampling guidelines are listed below:

1. pH (when required) and turbidity will be measured from water samples collected directly from the creek or with a pole sampler.
2. Turbidity will be measured using a portable turbidity meter (SM 2130B, Nephelometric method). The first compliance sample for turbidity will be taken approximately 1 hour after the in-water activity starts, unless there is a visual plume at the point of compliance prior to 1 hour. A representative sample should accurately reflect the true condition of the water source from which the sample was taken. The following protocol will be used to ensure a representative sample is analyzed:
    a. Use a clean container to obtain a grab sample
    b. Collect the sample with care to avoid disturbance of sediments and collecting surface contaminants;
    c. Gently but thoroughly mix the sample before pouring it into the small vial used to read the sample in the turbidimeter
    d. Without allowing the sample to settle, take turbidity reading according to turbidimeter manufacturer's instructions.
3. Oil and grease will be monitored continuously using visual observation for a visible sheen on the water's surface.
4. The pH will be monitored using a field meter (SM 4500, potentiometric method using a hydrogen electrode). Measurements of pH will be obtained using the same grab sample as used for turbidity, if being measured at the same time.

4.2 Quality Assurance/ Quality Control

A calibration check of the turbidimeter and pH meter using secondary standards will be carried out regularly (at least once per week). The instruments will be recalibrated using primary standards per the manufacturer's recommended schedule, or more when a calibration check indicates there is a problem. The manufacturer's calibration procedures will be followed.

4.3 Reporting

- City Light staff will be responsible for providing Ecology with the necessary notifications and results of the water quality monitoring per the frequency specified in the Section 401 Water Quality Certification. The City and contractor will develop a clear plan and line of communication for reporting these data to ensure that it is submitted.
- A City Light staff or contractor will be conducting the Section 401 water quality monitoring. The contact information for the monitoring lead will be available after contractor selection.
- All water quality monitoring results (visual and physical) will be recorded on a standard monitoring form.

- All sample results will be submitted to Ecology's Federal Permit Manager/Coordinator per the frequency specified in the Section 401 Water Quality Certification.
- If sample results or visual monitoring indicate an exceedance of water quality standards, notification shall be made within 24 hours to Ecology's Federal Permit Manager/Coordinator. Notification will include:
    - A description of the nature and cause of exceedance.
    - The period of non-compliance, including exact dates, duration, and times and/or the anticipated time when the Applicant will return to compliance.
    - The steps taken, or to be taken, to reduce, eliminate, and prevent recurrence of the non-compliance.
    - Within five (5) days after notification of an exceedance, a written report will be submitted to Ecology that describes the nature of the exceedance, monitoring results and location, photographs, and any other pertinent information.

5.0 References

City Light (Seattle City Light). 2022. Biological Assessment and EFH Assessment: Newhalem Creek Hydroelectric Project Decommissioning. Seattle City Light. January 2022.

HDR. 2024. Wetland and Stream Delineation Report Newhalem Creek Hydroelectric Project Decommissioning. May 2024.

NWIFC (Northwest Indian Fisheries Commission). 2023. Statewide Washington Integrated Fish Distribution Map Viewer. Available online: *https://geo.nwifc.org/swifd/*. Accessed October 17, 2024.

WDFW (Washington Department of Fish and Wildlife). 2024a. Priority Habitats and Species on the Web. Available online: *https://geodataservices.wdfw.wa.gov/hp/phs/*. Accessed October 17, 2024.

WDFW. 2024b. Washington State Fish Passage Mapper. Available online: *https://geodataservices.wdfw.wa.gov/hp/fishpassage/index.html*. Accessed October 17, 2024.

Williams, R.W. and L.A. Phinney. 1975. A Catalog of Washington Streams and Salmon Utilization. Washington Department of Fisheries.

Appendix A
Site Photos

Photo 1. Culvert 11 outlet. Stream 1 flows through Culvert 11 and immediately discharges over a 6-foot drop onto boulders. From there, it has a steep slope (15 to 20 percent) for approximately 20 feet, and then flows over a near vertical drop to Newhalem Creek.

Photo 2. Tailrace, facing upstream (south). Aside from the pool near the powerhouse, no surface flow was observed in the tailrace during the field investigation in November 2023.

Photo 3. Tailrace, facing downstream (north). Aside from the pool near the powerhouse, no surface flow was observed in the tailrace during the field investigation in November 2023.

Photo 4. Northernmost extent of the tailrace, facing downstream (north) towards the tailrace barrier with the Skagit River visible in the background. In the portion of the tailrace pictured above, the tailrace channel narrows to approximately 4 to 6 feet wide and disperses into a relatively flat, rocky area.

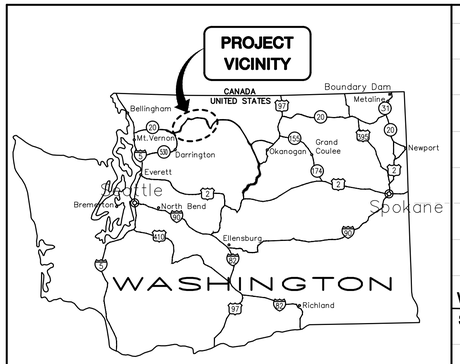
Photo 5. Tailrace barrier. Photo taken November 2023 facing upstream (south) into the tailrace from the left bank of the Skagit River.

Photo 6. Newhalem Dam, August 2024, showing low flow conditions, looking upstream. Creek flows along right bank into sluiceway; left bank "in the dry."

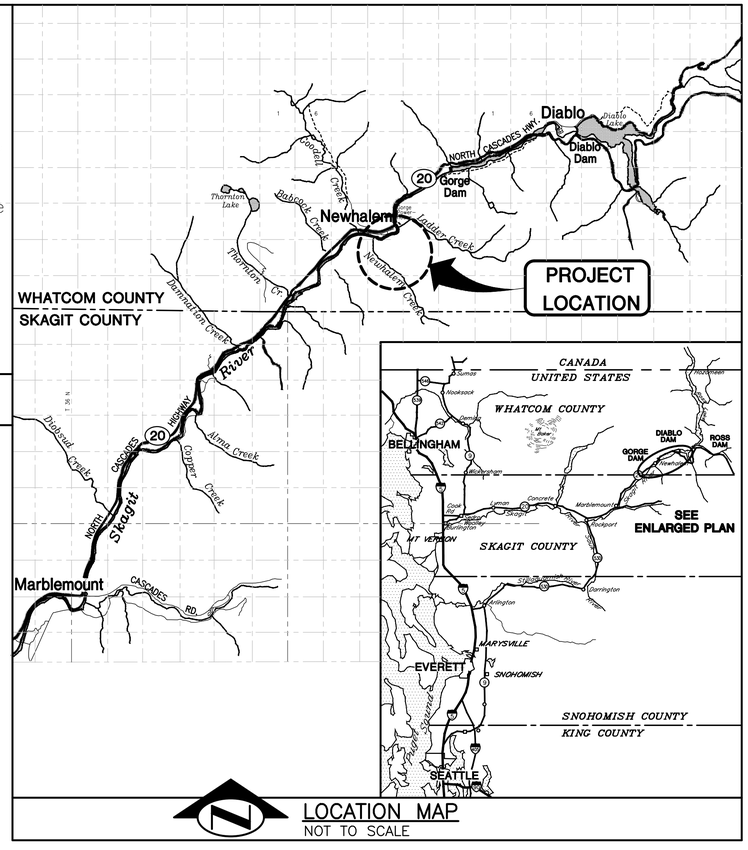
CITY LIGHT DEPARTMENT

NEWHALEM CREEK HYDROELECTRIC DECOMISSIONING

PW#: 0000-000



STATE MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

SHEET INDEX

SHEET #	SHEET TITLE	DRAWING #	REVISION #
1	COVER SHEET VICINITY MAP DRAWING INDEX	--	0
2	GENERAL NOTES SURVEY NOTES ELECTRICAL NOTES	--	0
3	ABBREVIATIONS LEGEND SYMBOLS	--	0
4	KEYMAP LOCATION MAP PLAN	--	0
5	CONTRACTOR LAYDOWN AREAS LOCATION MAP PLAN	--	0
6	TAILRACE AND POWERHOUSE EXISTING CONDITIONS PLAN	--	0
7	POWERHOUSE AND PENSTOCK EXISTING CONDITIONS PLAN	--	0
8	DIVERSION ACCESS ROAD 1 EXISTING CONDITIONS PLAN	--	0
9	DIVERSION ACCESS ROAD 2 EXISTING CONDITIONS PLAN	--	0
10	DIVERSION ACCESS ROAD 3 EXISTING CONDITIONS PLAN	--	0
11	DIVERSION AREA EXISTING CONDITIONS PLAN	--	0
12	DIVERSION AREA DEMOLITION PLAN	--	0
13	DIVERSION AREA DEMOLITION DETAILS	--	0
14	DIVERSION AREA ACCESS, STAGING, AND TESC PLAN	--	0
15	DIVERSION AREA TEMPORARY STREAM DIVERSION PLAN – PHASE 1	--	0
16	DIVERSION AREA TEMPORARY STREAM DIVERSION PLAN – PHASE 2	--	0
17	DIVERSION AREA CHANNEL RESTORATION PLAN	--	0
18	DIVERSION AREA CHANNEL RESTORATION PLAN	--	0
19	DIVERSION AREA CHANNEL RESTORATION SECTIONS	--	0
20	DIVERSION AREA SITE ACCESS OVERVIEW PLAN	--	0
21	DIVERSION AREA ACCESS, STAGING, AND TESC 1 PLAN	--	0
22	DIVERSION AREA ACCESS, STAGING, AND TESC 2 PLAN	--	0
23	DIVERSION AREA ACCESS, STAGING, AND TESC 3 PLAN	--	0
24	DIVERSION AREA ACCESS, STAGING, AND TESC 4 PLAN	--	0
25	DIVERSION AREA RESTORATION PLAN	--	0
26	DIVERSION AREA ACCESS LANDSLIDE DETAILS	--	0
27	DIVERSION DAM ACCESS ROAD CULVERT 11 REMOVAL PLAN AND SECTIONS	--	0
28	TAILRACE DEMOLITION PLAN	--	0
29	TAILRACE DEMOLITION SECTIONS	--	0
30	TAILRACE ACCESS, STAGING, AND TESC PLAN	--	0
31	TAILRACE CHANNEL RESTORATION PLAN	--	0
32	TAILRACE CHANNEL RESTORATION PROFILE AND SECTIONS	--	0
33	TAILRACE RESTORATION PLAN	--	0

LEGAL DESCRIPTION:

LEGAL DESCRIPTION

PROJECT DESCRIPTION:

PROJECT DESCRIPTION

PROPERTY TAX ACCOUNT NO:

000000000000

SURVEY DATUM:

1. HORIZONTAL DATUM: PROJECT SYSTEM DERIVED FROM THE WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE 4601, NAD83–2011 EPOCH 2010.00 COORDINATES, US SURVEY FOOT.
2. VERTICAL DATUM: NAVD88
3. BASIS OF BEARINGS: WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE 4601, NAD83/91, US SURVEY FOOT (GRID) S53° 57' 59.83"E [SET SPIKE (1–ALLIANCE #103) TO SET SPIKE (1–ALLIANCE #102)]]
4. PROJECT BENCHMARK: (1–ALLIANCE #4503) FOUND BRASS CAP NGS PID DQ4438 4503, ELEV = 504.61

BASIS OF BEARING
WASHINGTON STATE PLANE
NORTH ZONE
NAD 83/91

VERTICAL DATUM
NAVD 88

811 Know what's below. Call before you dig.

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
0	9/22/2024	

DRAWN: BY: | CHECKED BY: | APPROVED BY:
WORK ORDER #: | DESCRIPTION | HM | KM | WORK ORDER #:

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHECK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING
LOCATION: NEWHALEM CREEK DAM
TITLE: COVER SHEET VICINITY MAP DRAWING INDEX

SHEET: 1 OF 33
CLASS \ SHEET: G-1
DRAWING NO.: ####
SCALE: AS NOTED
REV. NO.: 0

GENERAL NOTES
UNLESS OTHERWISE NOTED:

1. ALL WORK SHALL CONFORM TO THE 2020 CITY OF SEATTLE (COS) STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, THE 2020 CITY OF SEATTLE STANDARD PLANS, AND SEATTLE DEPARTMENT OF TRANSPORTATION (SDOT) DIRECTORS RULE 01-2017 FOR RIGHT OF WAY OPENING AND RESTORATION RULES (ROWORR). A COPY OF THESE DOCUMENTS SHALL BE ON SITE AT ALL TIMES DURING CONSTRUCTION.
2. A COPY OF THE APPROVED PLANS AND PERMITS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
3. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH ALL PERMITS REQUIRED FOR WORK WITHIN THE PUBLIC RIGHT-OF-WAY. ALL PUBLIC ROADWAY OPERATIONS AND TRAFFIC CONTROL MEASURES SHALL BE CONDUCTED UNDER THE PROVISIONS OF AN APPROVED TRAFFIC CONTROL PLAN PER SDOT REQUIREMENTS AND COS SPECIFICATION SECTION 1-10.2(5).
4. PAVED SURFACES IN THE PUBLIC RIGHT OF WAY INCLUDING ROADWAYS, SIDEWALKS, AND CURBS THAT ARE DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER.
5. THE CONTRACTOR SHALL CONTACT THE UTILITIES UNDERGROUND LOCATION CENTER (1-800-424-5555) NO LESS THAN TWO DAYS AND NO MORE THAN 10 DAYS PRIOR TO ANY EXCAVATION THAT MIGHT AFFECT UNDERGROUND FACILITIES. SEE COS SPECIFICATIONS SECTION 1-07.28. A PRIVATE/THIRD PARTY LOCATE SERVICE SHALL BE USED TO LOCATE/IDENTIFY BURIED UTILITIES ON PRIVATE PROPERTY.
6. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXTENT OF AND HAZARD CREATED BY OVERHEAD POWER AND OTHER UTILITIES. THE CONTRACTOR SHALL MEET WITH UTILITY OWNERS PRIOR TO CONSTRUCTION AND SHALL TAKE WHATEVER PRECAUTIONS ARE REQUIRED BY LAW AND REGULATIONS, UTILITY OWNERS, AND SAFE CONSTRUCTION PRACTICES. SEE COS SPECIFICATIONS SECTION 1-05.2 FOR FURTHER INFORMATION ON ELECTRICAL SAFETY AND RESPONSIBILITIES.
7. ALL LOCATIONS OF EXISTING UTILITIES SHOWN HEREON HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD THEREFORE BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS SHOWN AND TO FURTHER DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN HEREON WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN.
8. INSPECTION AND ACCEPTANCE OF ALL WORK WILL BE ACCOMPLISHED BY THE ENGINEER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE AND SCHEDULE APPROPRIATE INSPECTIONS, ALLOWING PROPER ADVANCE NOTICE. THE ENGINEER MAY REQUIRE RECONSTRUCTION, AT CONTRACTOR'S EXPENSE, OF ITEMS THAT DO NOT MEET CITY STANDARDS OR THAT WERE CONSTRUCTED WITHOUT INSPECTION.
9. THE REQUIREMENTS OF THIS PLAN ARE THE MINIMUM REQUIREMENTS. THEY DO NOT REPLACE, REPEAL, ABROGATE, SUPERSEDE, OR AFFECT ANY OTHER MORE STRINGENT REQUIREMENTS, RULES, REGULATIONS, STANDARDS, OR RESTRICTIONS.
10. THE CONTRACTOR SHALL LOCATE AND PROTECT ALL CASTINGS AND UTILITIES DURING CONSTRUCTION.
11. IN ACCORDANCE WITH COS SPECIFICATION SECTION 7-20.3, THE CONTRACTOR SHALL ADJUST ALL MAINTENANCE HOLE CASTINGS, DRAINAGE STRUCTURE LIDS, VALVE BOXES, AND UTILITY ACCESS STRUCTURES TO FINISHED GRADE WITHIN AREAS AFFECTED BY THE PROPOSED IMPROVEMENTS.
12. TRUCK TRAFFIC SHALL BE MINIMIZED THROUGH THE NEIGHBORHOODS. TRUCK TRAFFIC SHALL USE ARTERIAL ROUTES WHERE POSSIBLE.
13. THE CONTRACTOR SHALL COMPLY WITH CITY OF SEATTLE'S TRUCK-IDLING PROVISION OF 2008.
14. THE CONTRACTOR SHALL NOTIFY THE SEATTLE FIRE DEPARTMENT (SFD) AT LEAST TWENTY-FOUR (24) HOURS IN ADVANCE OF ALL WATER SERVICE INTERRUPTIONS, HYDRANT SHUTOFFS, AND STREET CLOSURES OR OTHER ACCESS BLOCKAGE. THE CONTRACTOR SHALL ALSO NOTIFY THE DISPATCHER OF ALL NEW, RELOCATED, OR ELIMINATED HYDRANTS RESULTING FROM THIS WORK. CONTACT THE SFD DISPATCHER AT (206)-386-1494 AND CAPTAIN BRIAN MAIER OF FIRE STATION 14 AT (206)-386-1414.
15. ANY CONSTRUCTION OR INSTALLATION ACTIVITIES AFFECTING TRANSIT OPERATIONS MUST BE COORDINATED THROUGH METRO TRANSIT CONSTRUCTION INFORMATION CENTER. FOR NOTIFICATION INFORMATION AND GUIDELINES, PLEASE VISIT: HTTP://WWW.KINGCOUNTY.GOV/TRANSPORTATION/KCDOT/METROTRANSIT/CONSTRUCTION.ASPX OR CONTACT CONSTRUCTION COORDINATORS AT 206-477-1140. PLEASE PROVIDE FIVE BUSINESS DAYS NOTIFICATION FOR BUS REROUTES AND THREE BUSINESS DAYS NOTIFICATION FOR BUS STOP IMPACTS.

PAVING NOTES
UNLESS OTHERWISE NOTED:

1. EXISTING ASPHALT PAVING SHALL BE SAWCUT AND REMOVED ON A NEAT LINE WITH A SAW CUT ADJACENT TO NEW CONSTRUCTION.
2. CONTRACTOR SHALL NOTIFY ENGINEER AT LEAST 48 HOURS IN ADVANCE OF SOIL COMPACTION TESTING. AFTER SOIL COMPACTION TESTING AND OBTAINMENT OF IN-PLACE SOIL SAMPLES, 48 HOURS WILL BE REQUIRED TO PROCESS SAMPLES. CONTRACTOR SHALL NOT PROCEED WITH SUBSEQUENT RELATED WORK INCLUDING PAVING UNTIL ACCEPTABLE TEST RESULTS ARE OBTAINED. ANY COSTS ASSOCIATED WITH DELAYS AS RESULT OF NON-COMPLIANCE WITH THIS REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. THE APPROVED PLANS SHOW THE APPROXIMATE AREA OF PAVEMENT RESTORATION BASED ON THE DEPTH OF UTILITY CUTS AND/OR THE AREA OF CURB AND/OR PAVEMENT TO BE REMOVED AND REPLACED. THE ACTUAL LIMITS OF THE PAVEMENT RESTORATION SHALL BE PER THE RIGHT-OF-WAY OPENING AND RESTORATION RULES (ROWORR) DIRECTOR'S RULE 01-2017 AND WILL BE DETERMINED IN THE FIELD BY THE SEATTLE DEPARTMENT OF TRANSPORTATION STREET USE INSPECTOR PRIOR TO THE PAVEMENT RESTORATION.
4. CASTINGS AND COVERS WILL BE PROVIDED BY THE CONTRACTOR. THE CONTRACTOR SHALL ADJUST ALL UTILITY CASTINGS AND METER BOXES TO GRADE PRIOR TO THE INSTALLATION OF THE FINAL WEARING COURSE. CASTINGS AND METER BOXES DAMAGED DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
5. CONTRACTOR TO RESTORE ALL PAVEMENT MARKINGS DISTURBED BY CONSTRUCTION.

SURVEY NOTES
UNLESS OTHERWISE NOTED:

1. STATIONING AND OFFSETS ON SEWER PLAN AND PROFILE, AS WELL AS PAVING PLAN AND PROFILE, ARE RELATIVE TO SURVEY MONUMENT ALIGNMENT.
2. ALL PROPERTY CORNERS WITHIN THE PROJECT AREA SHALL BE REFERENCED OUT BY A SPU LAND SURVEYOR.
3. HORIZONTAL DATUM: NAD83-2011 EPOCH 2010.00 DERIVED FROM THE WSRN AND NGS CORS

   VERTICAL DATUM: NAVD88
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REFERENCING AND REPLACING ALL SURVEY MONUMENTS PER RCW 58.24.040(8) AND PER SEATTLE STANDARD SPECIFICATIONS 2020 EDITION SECTION 1-07.28(17). THE WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES PUBLIC LAND SURVEY OFFICE PERMIT MUST BE SUBMITTED TO THE SPU LAND SURVEY SECTION FOUR DAYS PRIOR TO REMOVING OR DESTROYING A SURVEY MONUMENT TO ENSURE THE MONUMENTS ARE "TIED OUT". THE CONTRACTOR MAY REQUEST THAT THE SPU LAND SURVEY SECTION PERFORM THE REQUIRED SURVEY MONUMENT PERMITTING AND SURVEYING (SPU LAND SURVEY SECTION: 206-866-6093 OR SPU_LANDSURVEY@SEATTLE.GOV).
5. ALL SURVEYING AND STAKING OF IMPROVEMENTS ARE TO BE PROVIDED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE IN ACCORDANCE WITH COS STANDARDS.

JOINTING NOTES:
UNLESS OTHERWISE NOTED:

1. ALL TRANSVERSE JOINTS SHALL BE CONSTRUCTED WITH DOWEL BARS ACCORDING TO CITY OF SEATTLE STANDARD PLAN NO. 405.
2. THE MAXIMUM SPACING FOR TRANSVERSE JOINTS IS 15'-0".
3. TRANSVERSE JOINT SPACING SHALL BE UNIFORM ALONG ROADWAYS AND THROUGH INTERSECTIONS. SPACING CHANGES AT INTERSECTIONS SHALL BE HELD THROUGH THE INTERSECTION.
4. PANELS SHALL NOT EXCEED THE MAXIMUM SURFACE AREA OF 225 SQ. FT.
5. LONGITUDINAL JOINTS SHALL BE CONSTRUCTED WITH THE TIE BARS ACCORDING TO CITY OF SEATTLE STANDARD PLAN NO. 405.
6. JOINT INTERSECTION ANGLES LESS THAN 60 DEGREES ARE NOT PERMITTED.
7. THE SPACING BETWEEN PANEL JOINTS, AND BETWEEN ANY PANEL JOINT AND THE EDGE OF THE CONCRETE PAVEMENT IS 2'-0".
8. FOR JOINT DETAILS AND TYPES, SEE CITY OF SEATTLE STANDARD PLAN NO. 405.
9. TRANSVERSE JOINTS MAY NEED TO BE FIELD ADJUSTED BASED ON UTILITY AND DRIVEWAY AS-BUILTS CONDITIONS.
10. FOR ANGLED JOINTS, PREVENT OVERSAWING INTO ADJACENT SLABS.
11. MANHOLE FRAME & COVER SHALL BE REINFORCED PER CITY OF SEATTLE STANDARD PLAN NO. 406.
12. FOR NEW CEMENT CONCRETE MATCHES TO EXISTING CEMENT CONCRETE PAVEMENT, SEE CITY OF SEATTLE STANDARD PLAN NO. 405.

ELECTRICAL NOTES:
UNLESS OTHERWISE NOTED:

1. EXISTING STREET LIGHTING SYSTEM SHALL BE MAINTAINED DURING CONSTRUCTION.
2. WORK MUST BE SCHEDULED SUCH THAT NO TWO (2) ADJACENT OR OPPOSITE STREETLIGHTS ARE DISABLED AT ANY ONE TIME.
3. ANY EXCAVATION IN PROXIMITY TO AN EXISTING STREETLIGHT POLE MUST BE DONE WITHOUT UNDERMINING ITS STABILITY. CONTRACTOR IS RESPONSIBLE FOR TEMPORARY STABILIZING SUPPORT.
4. MAINTAIN MINIMUM HORIZONTAL & VERTICAL CLEARANCES BETWEEN SCL UNDERGROUND STRUCTURES AND VARIOUS OTHER UTILITY STRUCTURES PER SCL CONSTRUCTION STANDARD 0214.00.
5. PROTECT ALL EXISTING POWER POLES AND OBSERVE WORKING CLEARANCES TO OVERHEAD 26KV POWER.
6. ALL EXCAVATIONS ADJACENT TO SEATTLE CITY LIGHT POLES OR OTHER FACILITIES (DUCT BANKS, VAULTS, HANDHOLES, ETC.) SHALL COMPLY WITH WAC 296-155, PART N, EXCAVATION, TRENCHING AND SHORING. POLE PROTECTION/SUPPORTING SYSTEMS USED WHILE EXCAVATING SHALL COMPLY WITH WAC 296-155-655, GENERAL PROTECTION REQUIREMENTS, ITEM (9) AND SHALL NOT AFFECT THE STRUCTURAL INTEGRITY OF POLES WHILE THE SYSTEMS ARE IN PLACE OR AFTER THE SYSTEMS HAVE BEEN REMOVED.
7. IN ACCORDANCE WITH COS SPECIFICATION SECTION 1-07.28, THE CONTRACTOR SHALL NOTIFY SEATTLE CITY LIGHT AT LEAST 10 WORKING DAYS PRIOR TO ANY EXCAVATION AT OR NEAR UNDERGROUND ELECTRICAL TRANSMISSION OR DISTRIBUTION SYSTEMS. THE CONTRACTOR SHALL ALSO COORDINATE WITH SEATTLE CITY LIGHT AT LEAST FOUR DAYS IN ADVANCE WHEN INSTALLING PIPES UNDERNEATH ELECTRICAL DUCTS OR WITHIN FIVE FEET OF ANY LINES OR POLES. CONTACT SCL ESE THOMAS GRAVELL AT (206) 386-1672 OR THOMAS.GRAVELL@SEATTLE.GOV.
8. STATE LAW REQUIRES CONSTRUCTION WORKERS, THEIR TOOLS, MACHINERY, EQUIPMENT AND MATERIALS TO MAINTAIN CLEARANCE FROM POWER LINES. REVIEW WAC 296-24-960. NOTIFY SEATTLE CITY LIGHT (SCL) WELL IN ADVANCE TO DE-ENERGIZE AND GROUND THE LINES, OR RELOCATE THE LINES TEMPORARILY.

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
0	9/22/2024	

DRAWN BY: | CHECKED BY: | APPROVED BY:
WORK ORDER #: | DESCRIPTION | WORK ORDER #:

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHECK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

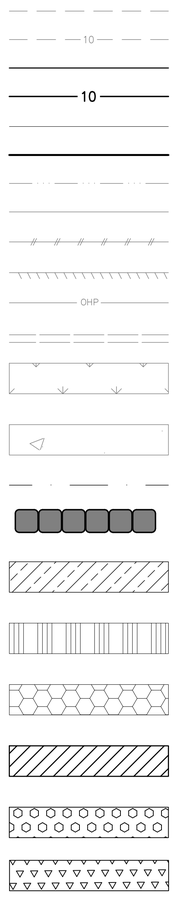
DATE

SUBJECT	DECOMISSIONING
LOCATION	NEWHALEM CREEK DAM
TITLE	GENERAL NOTES SURVEY NOTES ELECTRICAL NOTES
SHEET	2 OF 33
CLASS \ SHEET	G-2
DRAWING NO.	####
SCALE	AS NOTED
REV. NO.	0

ABBREVIATIONS

A	ALDER
AB	ANCHOR BOLT, ABANDONED
AB	AGGREGATE BASE
ABT	ABOUT
AC	ASPHALTIC CONCRETE
ACI	AMERICAN CONCRETE INSTITUTE
ADA	AMERICAN DISABILITIES ACT
AGGR	AGGREGATE
ALT	ALTERNATE
AMP	AMPERES
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APN	ASSESSOR'S PARCEL NUMBER
APPROX	APPROXIMATE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AT	ACCESS TUNNEL
ATB	ASPHALT TREATED BASE
AVE	AVENUE
B	BIRCH
BE	BEECH
BC	BEGINNING OF CURVE
BET	BETWEEN
BF	BOTTOM FACE
BLDG	BUILDING
BOP	BOTTOM OF PIPE
BOT	BOTTOM
BP	BEGINNING POINT
BVCE	BEGINNING OF VERTICAL CURVE ELEVATION
BVCS	BEGINNING OF VERTICAL CURVE STATION
C	CEDAR, CURVE
C–C	CENTER TO CENTER
CB	CATCH BASIN
CDF	CONTROLLED DENSITY FILL
CIP	CAST IN PLACE
CLR	CLEAR
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CML	CEMENT MORTAR LINING
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
COMM	COMMUNICATIONS
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUE
CNTR	CONNECTOR
CT	CIRCULAR CURVE TO TANGENT
CU YD	CUBIC YARD
CW	COTTONWOOD
DBH	DESIGN BREAST HEIGHT
DCVA	DOUBLE CHECK VALVE ASSEMBLY
DET	DETAIL
DIA	DIAMETER
DN	DOWN
DR	DRIVE
DW	DEWATERING PIPE
DWG	DRAWING
E	EAST, EVERGREEN
EA	EACH
EC	END CURVE
ECC	ECCENTRIC
EF	EACH FACE
EHH	ELECTRICAL HAND HOLE
EL, ELEV	ELEVATION
ELB	ELBOW
ELECT	ELECTRICAL
ELMH	ELECTRICAL MANHOLE
EP	EDGE OF PAVEMENT, END POINT
EQ	EQUAL
ES	EACH SIDE, ELECTRICAL (POWER) SUPPLY
ESA	ENVIRONMENTALLY SENSITIVE AREA
ESC	EROSION SEDIMENT CONTROL
ET	EXISTING TUNNEL
EVCE	END OF VERTICAL CURVE ELEVATION
EVCS	END OF VERTICAL CURVE STATION
EV	ELECTRICAL VAULT
EW	EACH WAY
EXIST	EXISTING
EXP JT	EXPANSION JOINT
F	FIR
FERC	FEDERAL ENERGY REGULATION COMMISSION
FOC	FACE OF CURB
FG	FINISHED GRADE
FIN	FINISHED
FL	FLANGE, FLOW LINE
FLG	FLANGE
FM	FORCE MAIN, FLOW METER
FPS	FEET PER SECOND
FRP	FIBER REINFORCED PLASTIC
FRS	FIBER REINFORCED SHOTCRETE
FT	FEET
FTG	FOOTING
G2T	GORGE 2ND TUNNEL
GA	GAUGE
GAL	GALLON
GPM	GALLONS PER MINUTE
GR	GROUND
GV	GATE VALVE
H	HEIGHT
HDPE	HIGH DENSITY POLYETHYLENE
HH	HAND HOLE
HI	HIGH
HORIZ	HORIZONTAL
H PT	HIGH POINT
HWY	HIGHWAY
ID	INSIDE DIAMETER
IN	INCH
INT	INTERIOR
INV	INVERT
INV EL	INVERT ELEVATION
IRRV	IRRIGATION VALVE
JT	JOINT
K	CURVE COEFFICIENT
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
L	LENGTH, LEFT, LEYLAND CYPRESS, LOW, LONDON
LBS	POUNDS
LC	LAWSON CYPRESS
LF	LINEAR FEET
LG	LONG
LONGT	LONGITUDINAL
LVC	LENGTH OF VERTICAL CURVE
M	MAPLE
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MET	METAL
MFG	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MON	MONUMENT
MSL	MEAN SEA LEVEL
N	NORTH
NAD	NORTH AMERICAN DATUM
NEC	NECESSARY
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OHWM	ORDINARY HIGH WATER MARK
OPNG	OPENING
OPP	OPPOSITE
P	POPLAR, PAPERBARK, PINE
PC	POINT OF CURVATURE
PE	POLYETHYLENE
PERF	PERFORATED
PI	POINT OF INTERSECTION
PLC	PLACES
P/L	PIPE LINE
PM	PRESSURE METER
POC	POINT OF CONNECTION
P	PRESS, PRESSURE
PP	POWER POLE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAGE
PT	POINT OF TANGENCY, POINT
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVIE	POINT OF VERTICAL INTERSECTION ELEVATION
PVIS	POINT OF VERTICAL INTERSECTION STATION
R, RAD	RADIUS
REINF(T)	REINFORCE(MENT)
RD	ROAD
RT	RIGHT
R/W, S	ROW RIGHT OF WAY SLOPE, SOUTH, SPRUCE
SCHED	SCHEDULE
SCL	SEATTLE CITY LIGHT
SD	STORM DRAIN
SEC	SECOND(S)
SECT	SECTION(S)
SFR	STEEL FIBER REINFORCED
SF	SQUARE FEET
SHT	SHEET
SIM	SIMILAR
SMH	SEWER MANHOLE
SP	SPLITLEAF ALDER
SPEC	SPECIFICATION(S)
SPU	SEATTLE PUBLIC UTILITIES
SR	STATE ROUTE
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STHH	STREET LIGHT HAND HOLE
STR	STREAM
SYM	SYMMETRICAL, SYMMETRIC
TBD	TO BE DETERMINED
TBM	TUNNEL BORING MACHINE
TEL	TELEPHONE
TAN	TANGENCY
TEMP	TEMPORARY
TESC	TEMPORARY EROSION AND SEDIMENT CONTROL
TF	TOP FACE
THDD	THREADED
TOS	TOP OF SLAB/ TOP OF STEEL
TYP	TYPICAL
TXX	REMOVE TREE SEE TREE REMOVAL TABLE
UNO	UNLESS NOTED OTHERWISE
U	UNKNOWN DECIDOUS, UNKNOWN CONIFER
VC	VERTICAL CURVE
VEG	VEGETATION
VERT	VERTICAL
VIF	VERIFY IN FIELD
VOL	VOLUME
W	WATER, WEST, WIDE FLANGE, WIDTH
W/	WITH
WD	WOOD
W/O	WITHOUT
WM	WATER METER
WP	WORK POINT
WS	WATER SURFACE
WSP	WELDED STEEL PIPE
WT	WEIGHT
WWF	WELDED WIRE FABRIC
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
YRD	YARD

LEGEND



EXISTING GRADE CONTOURS (MINOR)

EXISTING GRADE CONTOURS (MAJOR)

FINISHED GRADE CONTOURS (MINOR)

FINISHED GRADE CONTOURS (MAJOR)

EXISTING GRADE (SECTION)

FINISHED GRADE (SECTION)

ORDINARY HIGH WATER MARK

EXISTING EDGE OF GRAVEL

EXISTING WOOD FENCE

EXISTING STRUCTURE

EXISTING POWER LINE

EXISTING CULVERT

EXISTING WETLAND

EXISTING CONCRETE

SILT FENCE

COFFERDAM

STAGING OR LAY–DOWN AREA

TEMPORARY ACCESS ROAD

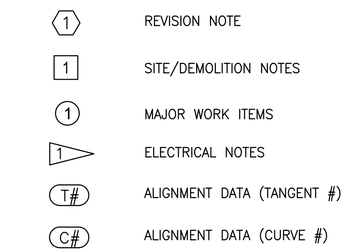
TEMPORARY CONSTRUCTION ENTRANCE

DEMOLITION

PLANTING AREA

RIPARIAN AND UPLAND PLANT MIX

NOTE CALLOUT



REVISION NOTE

SITE/DEMOLITION NOTES

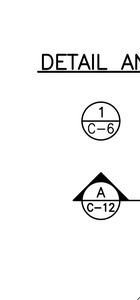
MAJOR WORK ITEMS

ELECTRICAL NOTES

ALIGNMENT DATA (TANGENT #)

ALIGNMENT DATA (CURVE #)

SYMBOLS



& AND

@ AT

± PLUS OR MINUS

ø DIAMETER

Δ DELTA

< LESS THAN

= EQUAL

> GREATER THAN

≤ LESS THAN OR EQUAL TO

℄ CENTERLINE

℄ PLATE/PROPERTY LINE

NORTH ARROW

MONUMENT AS NOTED

MONUMENT IN CASE

REBAR AND CAP–FOUND

PK NAIL

HUB AND TACK

SHRUB

STUMP

STOP BAR

GROUND GRID

DECIDUOUS TREE

CONIFEROUS TREE

METAL STREET LIGHT

TRAFFIC SIGNAL

POWER POLE

GUY WIRE

ELETRICAL HANDHOLE

STREETLIGHT HANDHOLE

ELECTRICAL TRANSFORMER

ELECTRICAL VAULT

COMMUNICATION HANDHOLE

TELEPHONE PEDASTAL

WATER VALVE (SIDE OF CASE)

WATER VALVE

WATER FAUCET/HOSE BIBB

FIRE HYDRANT

IRRIGATION SPRINKLER

EXISTING SIGN

REMOVABLE BOLLARD

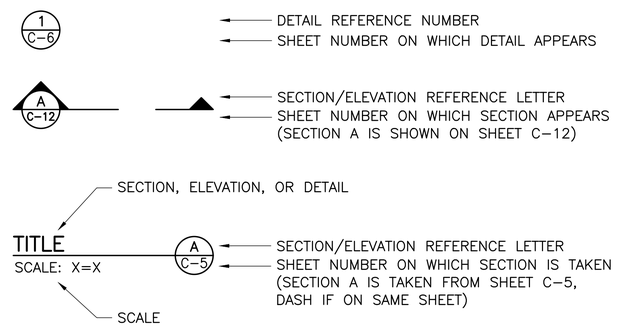
BOLT DOWN BOLLARD

GATE POST

TEST HOLE

EXISTING SIGN

DETAIL AND SECTION REFERENCING



DETAIL REFERENCE NUMBER
SHEET NUMBER ON WHICH DETAIL APPEARS

SECTION/ELEVATION REFERENCE LETTER
SHEET NUMBER ON WHICH SECTION APPEARS (SECTION A IS SHOWN ON SHEET C–12)

SECTION/ELEVATION REFERENCE LETTER
SHEET NUMBER ON WHICH SECTION IS TAKEN (SECTION A IS TAKEN FROM SHEET C–5, DASH IF ON SAME SHEET)

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY	CHECKED BY	APPROVED BY
WORK ORDER #:	DESCRIPTION	
0	9/22/2024	
	HM	KM
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

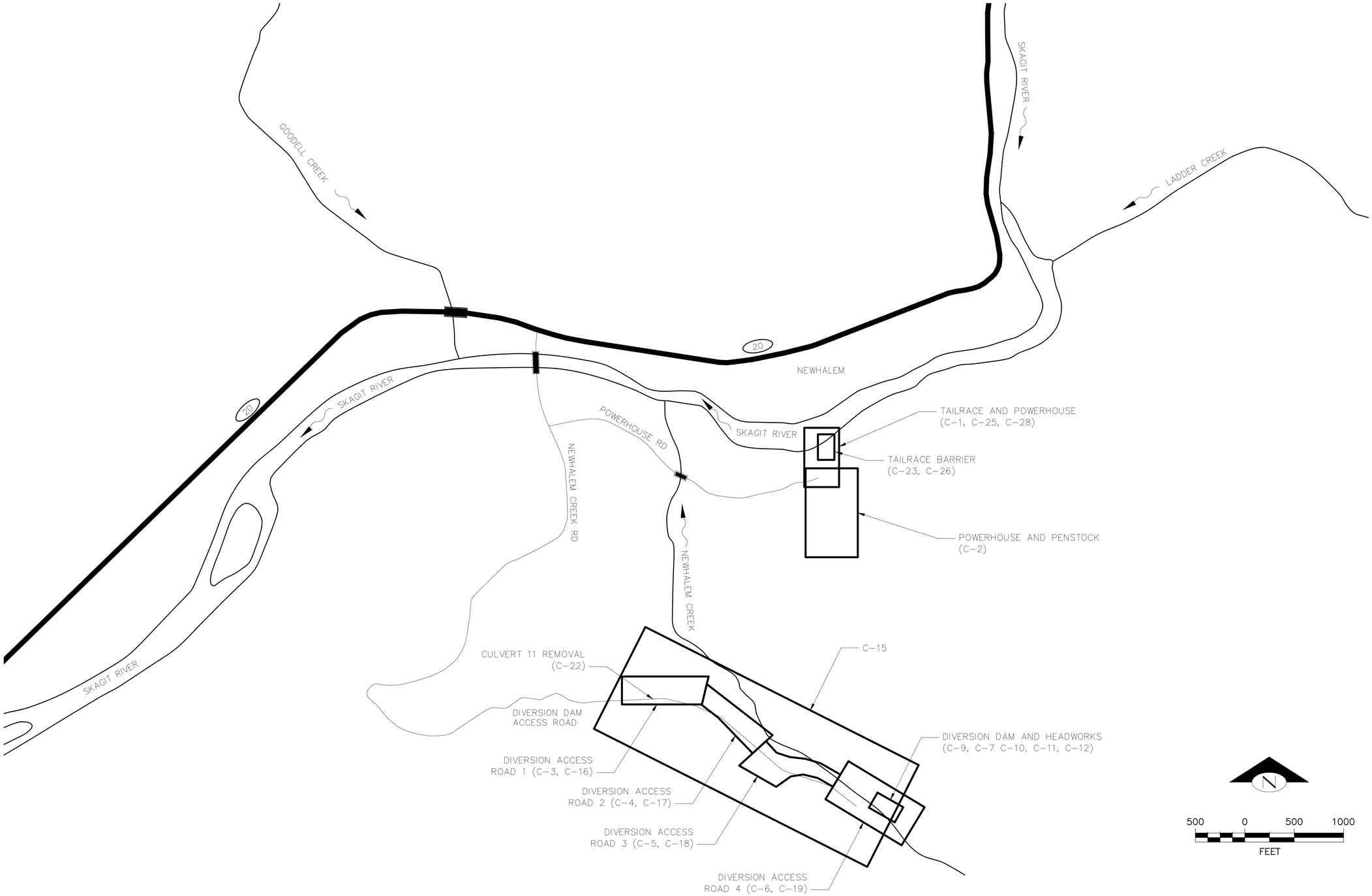
ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
DES: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: HM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT	DECOMISSIONING
LOCATION	NEWHALEM CREEK DAM
TITLE	ABBREVIATIONS LEGEND SYMBOLS
SHEET	3 OF 33
CLASS \ SHEET	G-3
DRAWING NO.	####
SCALE	AS NOTED
REV. NO.	0



ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		
DESCRIPTION		
0	9/22/2024	
HM	KM	
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: KEYMAP
LOCATION MAP
PLAN

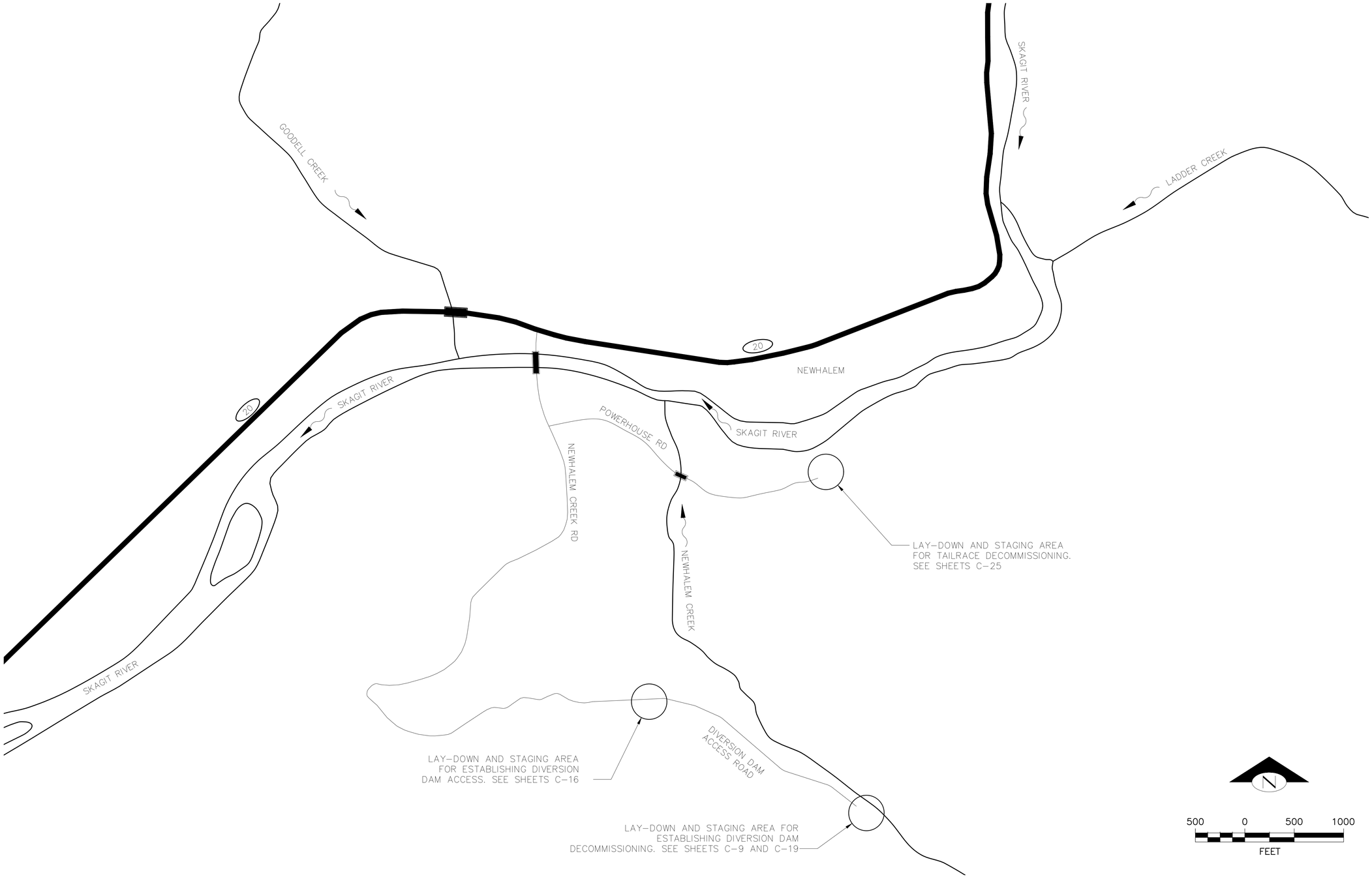
SHEET 4 OF 33

CLASS \ SHEET G-4

DRAWING NO. ####

SCALE AS NOTED

REV. NO. 0



ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		

DESCRIPTION		
0	9/22/2024	
	HM	KM
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

SIGNATURE	DATE
DRAWN: HM	9/22/204
CHK: TP	9/22/204
DESIGN: JS	9/22/204
CHECK: KM	9/22/204

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: CONTRACTOR LAYDOWN AREAS LOCATION MAP PLAN

SHEET: 5 OF 33

CLASS \ SHEET: G-5

DRAWING NO.: ####

SCALE: AS NOTED

REV. NO.: 0

NOTES:

1. EXISTING SITE TOPOGRAPHY CONSISTS OF TOPOGRAPHIC SURVEY AND LIDAR DATA SOURCES INCLUDING: 2023 TOPOGRAPHIC SURVEY BY 1 ALLIANCE, 2022 TOPOBATHYMETRIC LIDAR FLOWN BY NV5, AND 2017 TERRESTRIAL LIDAR FLOWN BY QUANTUM SPATIAL.
2. TOPOGRAPHIC SURVEY DATA COLLECTED IN SEPTEMBER THROUGH DECEMBER 2023 BY 1 ALLIANCE.
3. EXISTING TREES SHOWN ARE THOSE WITHIN THE TOPOGRAPHIC SURVEY DATA COLLECTION LIMITS. ADDTIONAL TREES ARE PRESENT ON SITE.
4. ORDINARY HIGH WATER MARK (OHWM) WAS COLLECTED IN NOVEMBER 2023 BY HDR.

1 ALLIANCE GEOMATICS CONTROL TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
130	609138.31	1539762.97	516.25	SPK
132	609093.58	1539799.22	516.95	TL
138	609518.25	1539860.28	496.08	SPK

KEYMAP

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		

DESCRIPTION		
0	9/22/2024	
HM	TP	
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHK'D: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK POWERHOUSE

TITLE: TAILRACE AND POWERHOUSE EXISTING CONDITIONS PLAN

SHEET: 6 OF 33

CLASS \ SHEET: C-1

DRAWING NO.: ####

SCALE: AS NOTED

REV. NO.: 0

NOTES:

1. EXISTING SITE TOPOGRAPHY CONSISTS OF TOPOGRAPHIC SURVEY AND LIDAR DATA SOURCES INCLUDING: 2023 TOPOGRAPHIC SURVEY BY 1 ALLIANCE, 2022 TOPOBATHYMETRIC LIDAR FLOWN BY NV5, AND 2017 TERRESTRIAL LIDAR FLOWN BY QUANTUM SPATIAL.
2. TOPOGRAPHIC SURVEY DATA COLLECTED IN SEPTEMBER THROUGH DECEMBER 2023 BY 1 ALLIANCE.
3. EXISTING TREES SHOWN ARE THOSE WITHIN THE TOPOGRAPHIC SURVEY DATA COLLECTION LIMITS. ADDTIONAL TREES ARE PRESENT ON SITE.
4. ORDINARY HIGH WATER MARK (OHWM) WAS COLLECTED IN NOVEMBER 2023 BY HDR.

30 0 30 60
FEET

ENTRANCE TO POWER TUNNEL. PENSTOCK EXTENDS FOR ADDITIONAL 220 FEET INTO POWER TUNNEL

THRUST BLOCK VI

THRUST BLOCK V

THRUST BLOCK IV

THRUST BLOCK III

THRUST BLOCK II

THRUST BLOCK I

CONCRETE SADDLE (TYP)

TOP OF PENSTOCK PIPE

30-INCH DIA. PENSTOCK

33-INCH DIA. PENSTOCK

TUNNEL PORTAL TRAIL

24" CPP OUTLET IE=512.8'

24" CPP INLET IE=513.0'

24" CMP

POWERHOUSE

POWERHOUSE ROAD

GRAVEL

KEYMAP

c:\pwworking\west01\d3752126\C-01.dwg, ANSI-D: 22x34, HMEISBURGER, January 27, 2025 10:51 AM

ONE INCH AT FULL SIZE

REVISIONS			
REV	DATE	IMAGE	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
WORK ORDER #:			
DESCRIPTION			
0	9/22/2024		
HM	KM		
WORK ORDER #:			

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
[illegible]: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK POWERHOUSE

TITLE: POWERHOUSE AND PENSTOCK EXISTING CONDITIONS PLAN

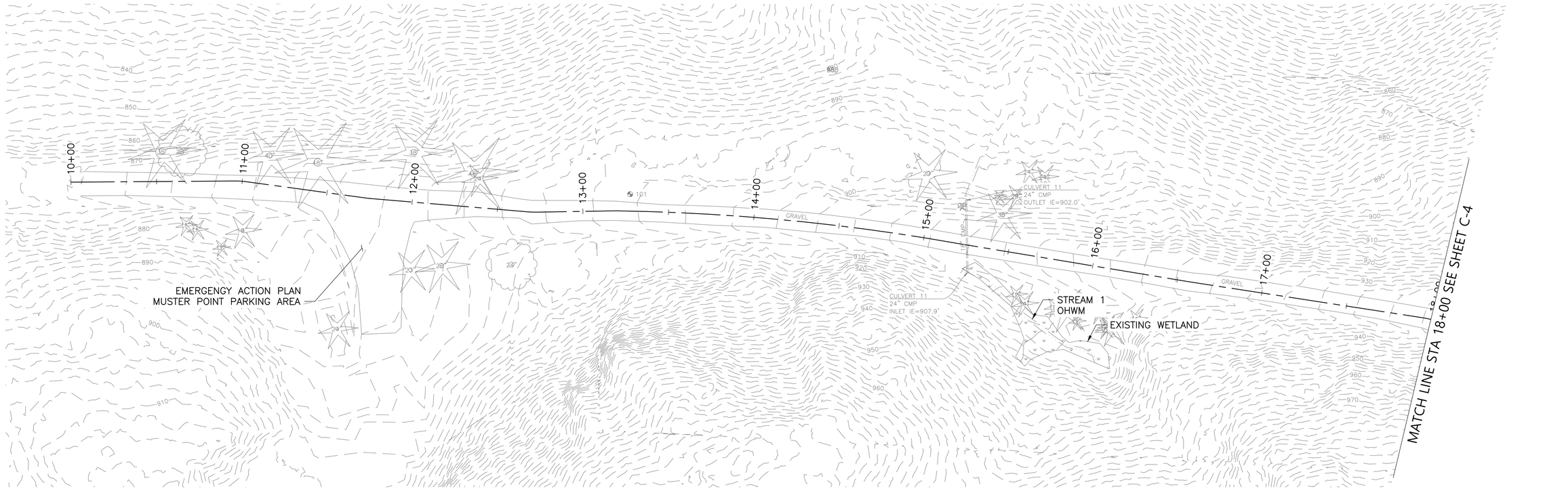
SHEET: 7 OF 33

CLASS \ SHEET: C-2

DRAWING NO.: ####

SCALE: AS NOTED

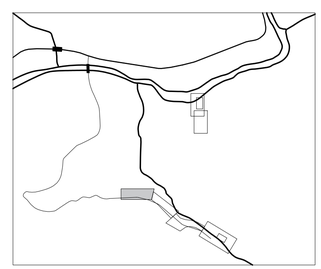
REV. NO.: 0



NOTES:

1. EXISTING SITE TOPOGRAPHY CONSISTS OF TOPOGRAPHIC SURVEY AND LIDAR DATA SOURCES INCLUDING: 2023 TOPOGRAPHIC SURVEY BY 1 ALLIANCE, 2022 TOPOBATHYMETRIC LIDAR FLOWN BY NV5, AND 2017 TERRESTRIAL LIDAR FLOWN BY QUANTUM SPATIAL.
2. TOPOGRAPHIC SURVEY DATA COLLECTED IN SEPTEMBER THROUGH DECEMBER 2023 BY 1 ALLIANCE.
3. ORDINARY HIGH WATER MARK (OHWM) WAS COLLECTED IN NOVEMBER 2023 BY HDR.

Primary Survey Control Table				
Point #	Northing	Easting	Elevation	Description
101	607031.98	1538132.57	895.65	RC



KEYMAP

c:\pwworking\west01\d3752126\C-03.dwg, ANSI-D: 22x34, HMEISBURGER, January 27, 2025 10:52 AM

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
0	9/22/2024	

DRAWN BY: HM | CHECKED BY: KM | APPROVED BY:

WORK ORDER #: | DESCRIPTION | WORK ORDER #:

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHECK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: DIVERSION ACCESS ROAD 1 EXISTING CONDITIONS PLAN

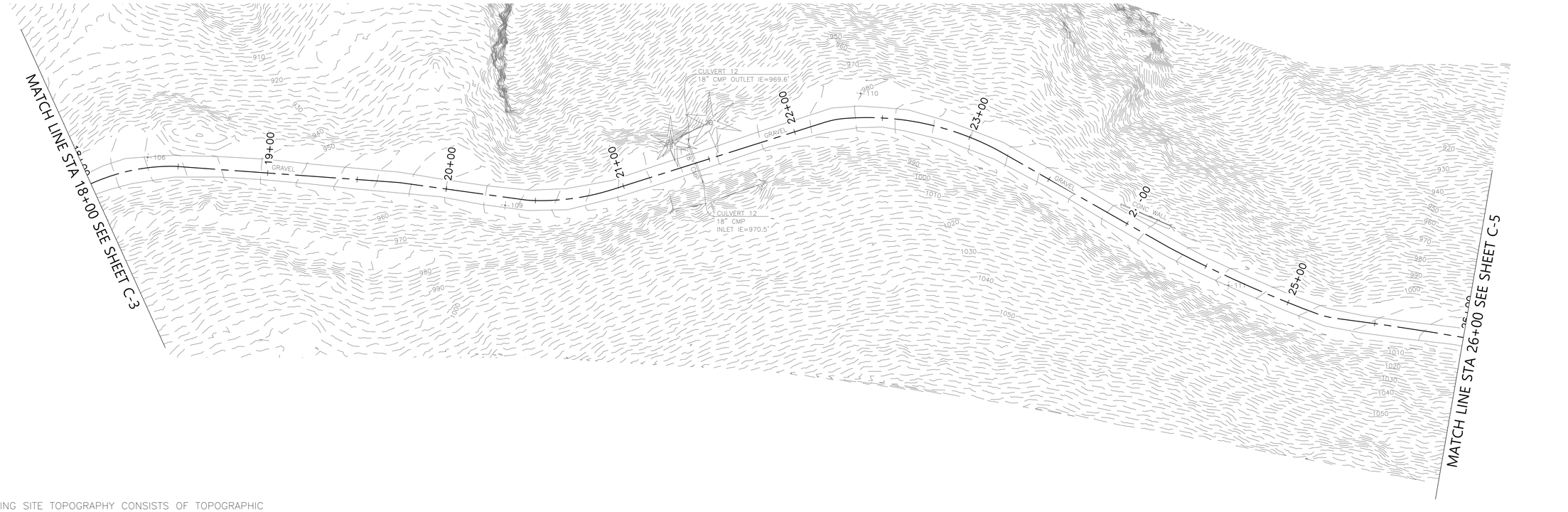
SHEET: 8 OF 33

CLASS \ SHEET: C-3

DRAWING NO.: ####

SCALE: AS NOTED

REV. NO.: 0

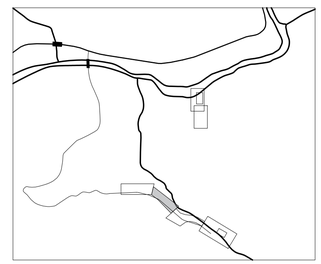


NOTES:

1. EXISTING SITE TOPOGRAPHY CONSISTS OF TOPOGRAPHIC SURVEY AND LIDAR DATA SOURCES INCLUDING: 2023 TOPOGRAPHIC SURVEY BY 1 ALLIANCE, 2022 TOPOBATHYMETRIC LIDAR FLOWN BY NV5, AND 2017 TERRESTRIAL LIDAR FLOWN BY QUANTUM SPATIAL.
2. TOPOGRAPHIC SURVEY DATA COLLECTED IN SEPTEMBER THROUGH DECEMBER 2023 BY 1 ALLIANCE.

Primary Survey Control Table

Point #	Northing	Easting	Elevation	Description
106	606951.04	1538634.29	942.24	SPK
109	606807.91	1538775.33	961.38	SPK
110	606735.87	1538969.96	979.95	SPK
111	606525.87	1539066.48	1000.63	SPK



KEYMAP

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		
DESCRIPTION		
0	9/22/2024	KM
	HM	
WORK ORDER #:		

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHECK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: DIVERSION ACCESS ROAD 2 EXISTING CONDITIONS PLAN

SHEET: 9 OF 33

CLASS \ SHEET: C-4

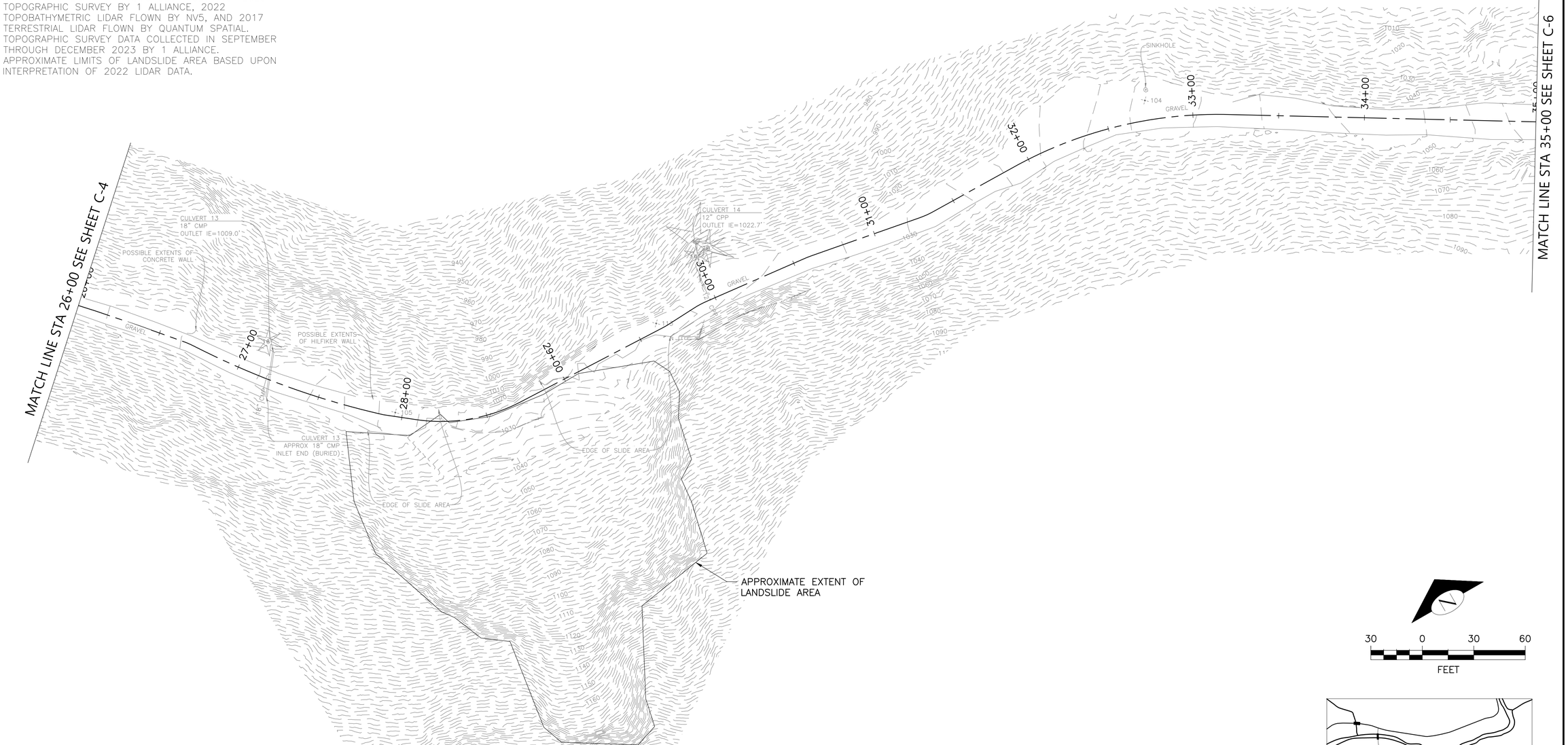
DRAWING NO.: ####

SCALE: AS NOTED

REV. NO.: 0

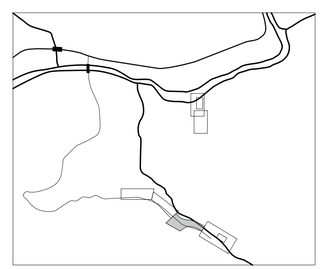
NOTES:

1. EXISTING SITE TOPOGRAPHY CONSISTS OF TOPOGRAPHIC SURVEY AND LIDAR DATA SOURCES INCLUDING: 2023 TOPOGRAPHIC SURVEY BY 1 ALLIANCE, 2022 TOPOBATHYMETRIC LIDAR FLOWN BY NV5, AND 2017 TERRESTRIAL LIDAR FLOWN BY QUANTUM SPATIAL.
2. TOPOGRAPHIC SURVEY DATA COLLECTED IN SEPTEMBER THROUGH DECEMBER 2023 BY 1 ALLIANCE.
3. APPROXIMATE LIMITS OF LANDSLIDE AREA BASED UPON INTERPRETATION OF 2022 LIDAR DATA.



Primary Survey Control Table				
Point #	Northing	Easting	Elevation	Description
104	606217.68	1539751.00	1040.97	SPK
105	606276.82	1539281.45	1021.20	SPK
113	606246.37	1539439.23	1026.35	SPK

30 0 30 60
FEET



KEYMAP

c:\pwworking\west01\d3752126\C-03.dwg, ANSI-D: 22x34, HMEISBURGER, January 27, 2025 10:53 AM

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		
DESCRIPTION		
0	9/22/2024	
	KM	
	HM	
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHECK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: DIVERSION ACCESS ROAD 3 EXISTING CONDITIONS PLAN

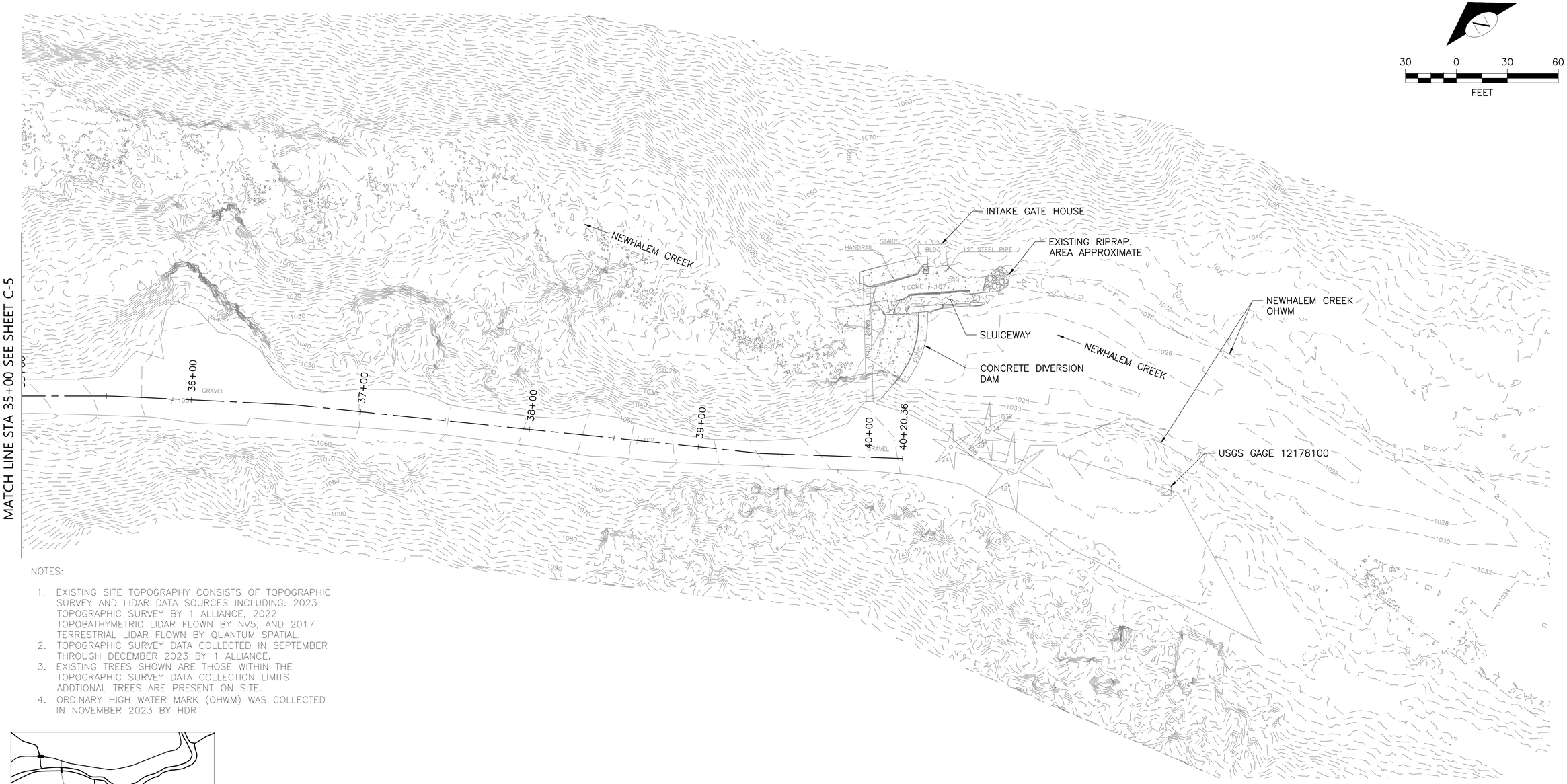
SHEET: 10 OF 33

CLASS \ SHEET: C-5

DRAWING NO.: ####

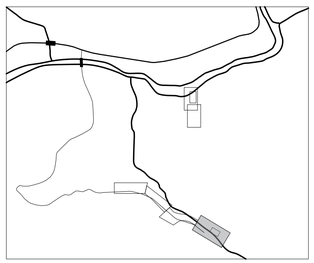
SCALE: AS NOTED

REV. NO.: 0



NOTES:

1. EXISTING SITE TOPOGRAPHY CONSISTS OF TOPOGRAPHIC SURVEY AND LIDAR DATA SOURCES INCLUDING: 2023 TOPOGRAPHIC SURVEY BY 1 ALLIANCE, 2022 TOPOBATHYMETRIC LIDAR FLOWN BY NV5, AND 2017 TERRESTRIAL LIDAR FLOWN BY QUANTUM SPATIAL.
2. TOPOGRAPHIC SURVEY DATA COLLECTED IN SEPTEMBER THROUGH DECEMBER 2023 BY 1 ALLIANCE.
3. EXISTING TREES SHOWN ARE THOSE WITHIN THE TOPOGRAPHIC SURVEY DATA COLLECTION LIMITS. ADDTIONAL TREES ARE PRESENT ON SITE.
4. ORDINARY HIGH WATER MARK (OHWM) WAS COLLECTED IN NOVEMBER 2023 BY HDR.



KEYMAP

Primary Survey Control Table

Point #	Northing	Easting	Elevation	Description
102	605883.74	1540239.60	1050.03	SPK
103	606045.45	1540017.30	1059.09	SPK
107	605872.24	1540433.22	1028.83	SCRB

c:\pwworking\west01\d3752126\C-03.dwg, ANSI-D: 22x34, HMEISBURGER, January 27, 2025 10:54 AM

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
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WORK ORDER #:	DESCRIPTION	
0	9/22/2024	
	HM	KM
WORK ORDER #:		

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHECK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: DIVERSION AREA EXISTING CONDITIONS PLAN

SHEET: 11 OF 33

CLASS \ SHEET: C-6

DRAWING NO.: ####

SCALE: AS NOTED

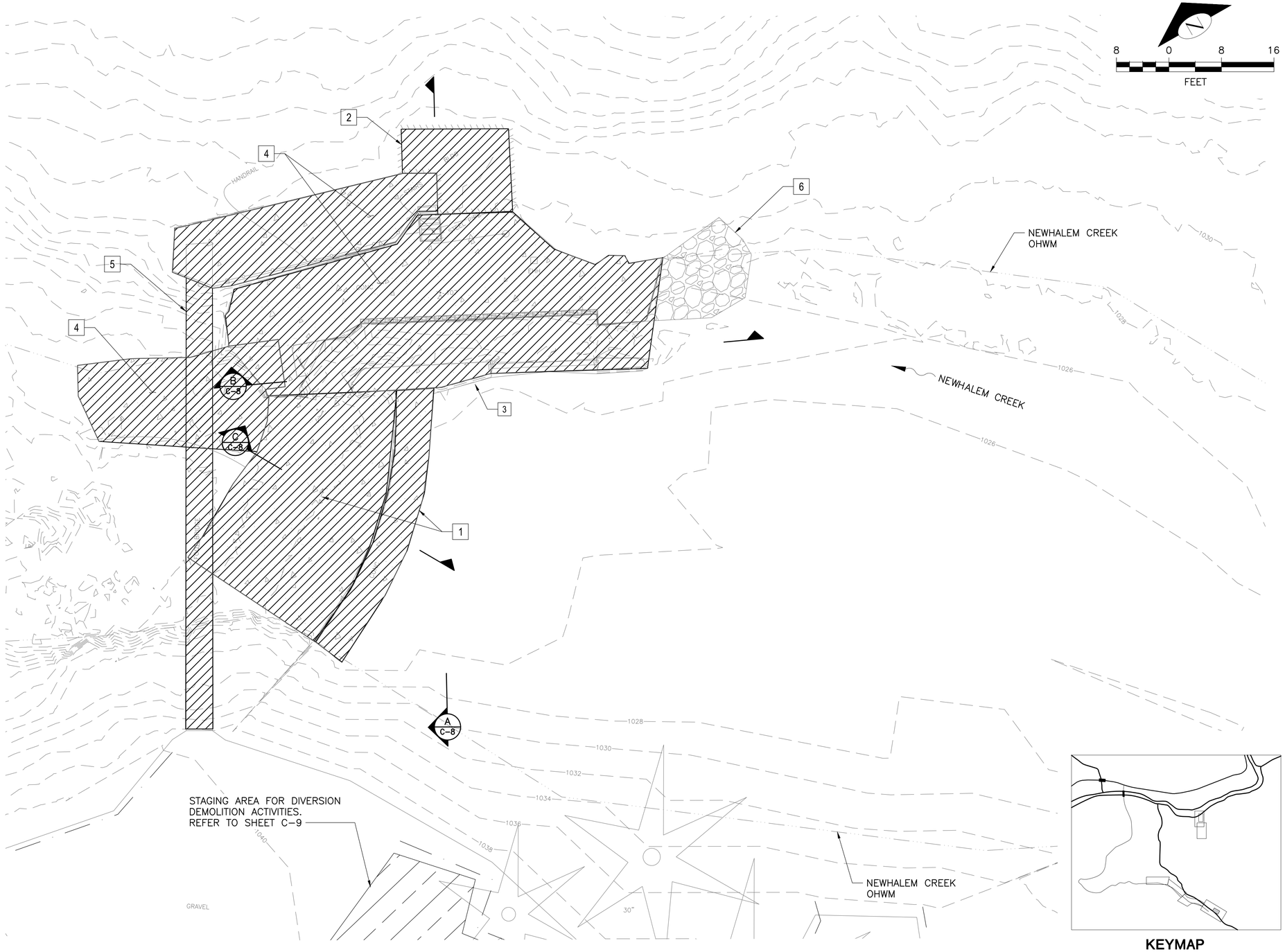
REV. NO.: 0

NOTES:

1. DEMOLITION ACTIVITIES SHALL OCCUR DURING PHASED TEMPORARY STREAM BYPASS OF NEWHALEM CREEK. DEMOLITION SEQUENCE 1 OCCURS DURING PHASE 1 OF THE TEMPORARY STREAM BYPASS. DEMOLITION SEQUENCES 2 THROUGH 6 OCCUR DURING PHASE 2 OF THE TEMPORARY STREAM DIVERSION. SEE SHEETS C–10 AND C–11 FOR TEMPORARY STREAM DIVERSION PLANS
2. CONTRACTOR SHALL IMPLEMENT TESC BMPS AND TEMPORARY STREAM DIVERSION PRIOR TO INITIATION OF DEMOLITION ACTIVITIES. SEE SHEET C–9 FOR THE TESC PLAN AND C–10 AND C–11 FOR THE TEMPORARY STREAM DIVERSION PLANS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING PERMITTING REQUIREMENTS RELATED TO WORKING WITHIN ORDINARY HIGH WATER.
4. FOLLOWING DEMOLITION OF DIVERSION AND INTAKE INFRASTRUCTURE, CONTRACTOR SHALL RESTORE NEWHALEM CREEK CHANNEL AND BANKS PER SHEETS C–12 TO C–14.
5. CONTRACTOR SHALL HAUL AND DISPOSE OF ALL CONCRETE, REBAR, METAL AND ASSOCIATED DEBRIS OFF SITE TO A LEGALLY DESIGNATED DISPOSAL LOCATION.

POSSIBLE DEMOLITION SEQUENCE:

1. DEMOLISH CONCRETE DAM AND DAM APRON
2. DEMOLISH GATE HOUSE AND SEAL VERTICAL POWER TUNNEL.
3. DEMOLISH SLUICEWAY AND ASSOCIATED HYDRAULIC CONTROLS
4. DEMOLISH CONCRETE SLABS
5. SALVAGE EXISTING FOOTBRIDGE FOR REUSE BY OWNER
6. REMOVE EXISTING RIPRAP AND INCORPORATE INTO BANK RESTORATION WITHIN HEADWORKS FOOTPRINT OR DISPOSE OF OFF SITE



KEYMAP

ONE INCH AT FULL SIZE	REVISIONS			
	REV	DATE	IMAGE	
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WORK ORDER #:				
	DESCRIPTION			
	0	9/22/2024		
		HM	KM	
WORK ORDER #:				

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

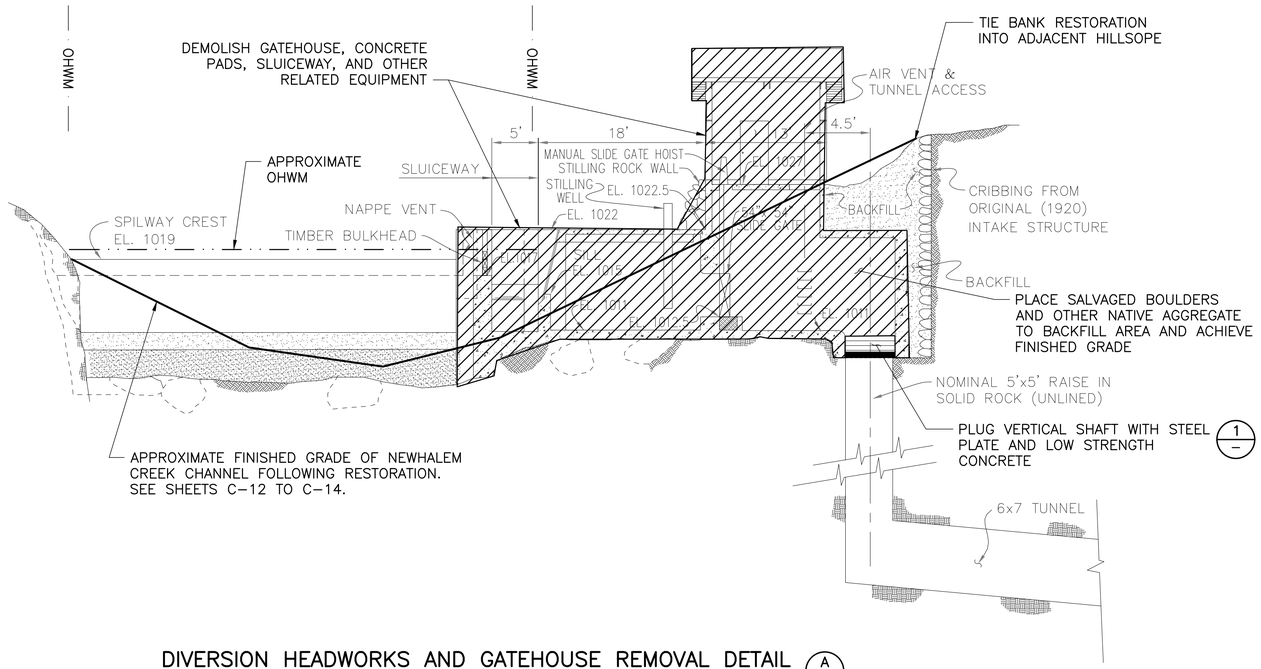
ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

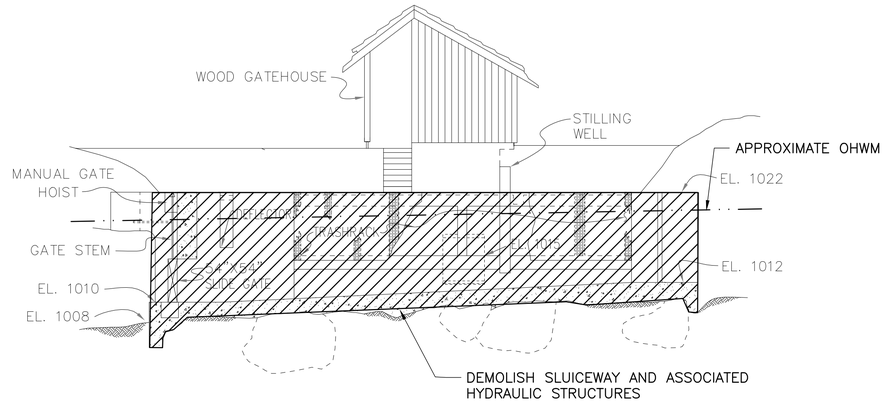
DATE

SUBJECT	DECOMISSIONING
LOCATION	NEWHALEM CREEK DAM
TITLE	DIVERSION AREA DEMOLITION PLAN
SHEET	12 OF 33
CLASS \ SHEET	C-7
DRAWING NO.	####
SCALE	AS NOTED
REV. NO.	0



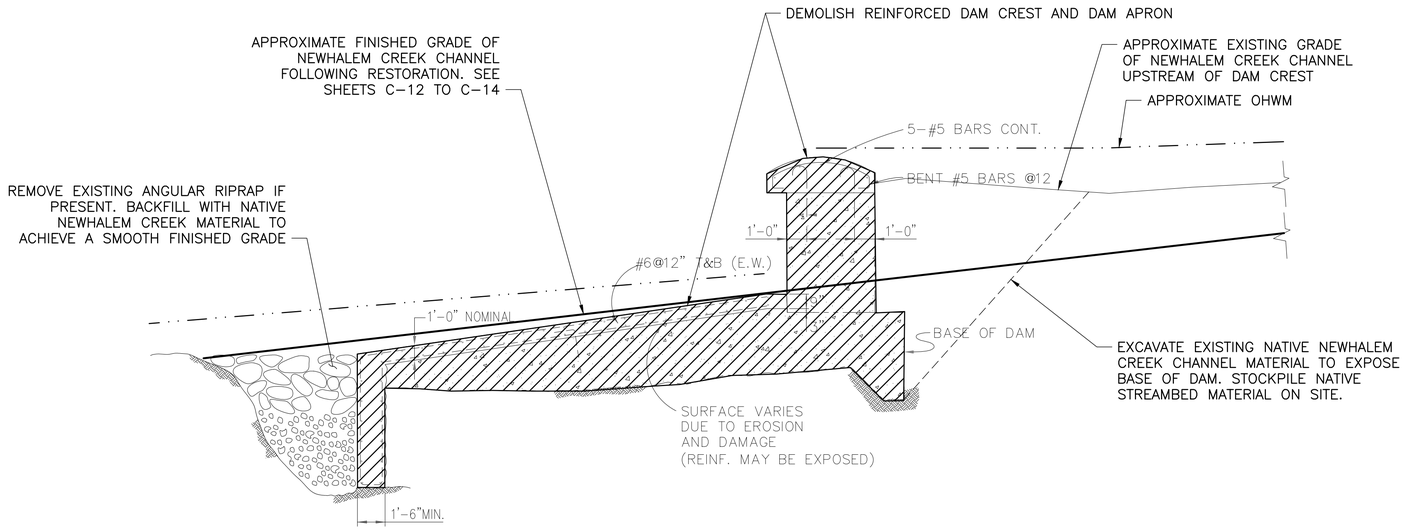
DIVERSION HEADWORKS AND GATEHOUSE REMOVAL DETAIL (A / C–7)

NOT TO SCALE



SLUICEWAY REMOVAL DETAIL (C / C–7)

NOT TO SCALE



DIVERSION DAM AND APRON REMOVAL DETAIL (B / C–7)

NOT TO SCALE

TO BE DEVELOPED AT LATER SUBMITTAL

VERTICAL SHAFT PLUG DETAIL (1 / –)

NOT TO SCALE

NOTES:

1. DIVERSION DAM, HEADWORKS, AND INTAKE GATE HOUSE DETAILS TAKEN FROM FERC NO. 2705 EXHIBIT F, SEPTEMBER 1992. FULL EXHIBIT INCLUDED IN REFERENCE DRAWINGS. SEE R–XX.
2. ELEVATIONS SHOWN ON REFERENCE DRAWINGS ARE IN LOCAL PROJECT VERTICAL DATUM AND DO NOT CORRESPOND WITH ELEVATIONS SHOWN ON REMAINDER OF PLAN SET.
3. ORDINARY HIGH WATER MARK SHOWN ON REFERENCE DRAWINGS IS APPROXIMATE.
4. CONTRACTOR SHALL HAUL AND DISPOSE OF ALL CONCRETE, REBAR, METAL AND ASSOCIATED DEBRIS OFF SITE TO A LEGALLY DESIGNATED DISPOSAL LOCATION.

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		
DESCRIPTION		
0	9/22/2024	
	HM	KM
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT	DECOMISSIONING
LOCATION	NEWHALEM CREEK DAM
TITLE	DIVERSION AREA DEMOLITION DETAILS
SHEET	13 OF 33
CLASS \ SHEET	C-8
DRAWING NO.	####
SCALE	AS NOTED
REV. NO.	0

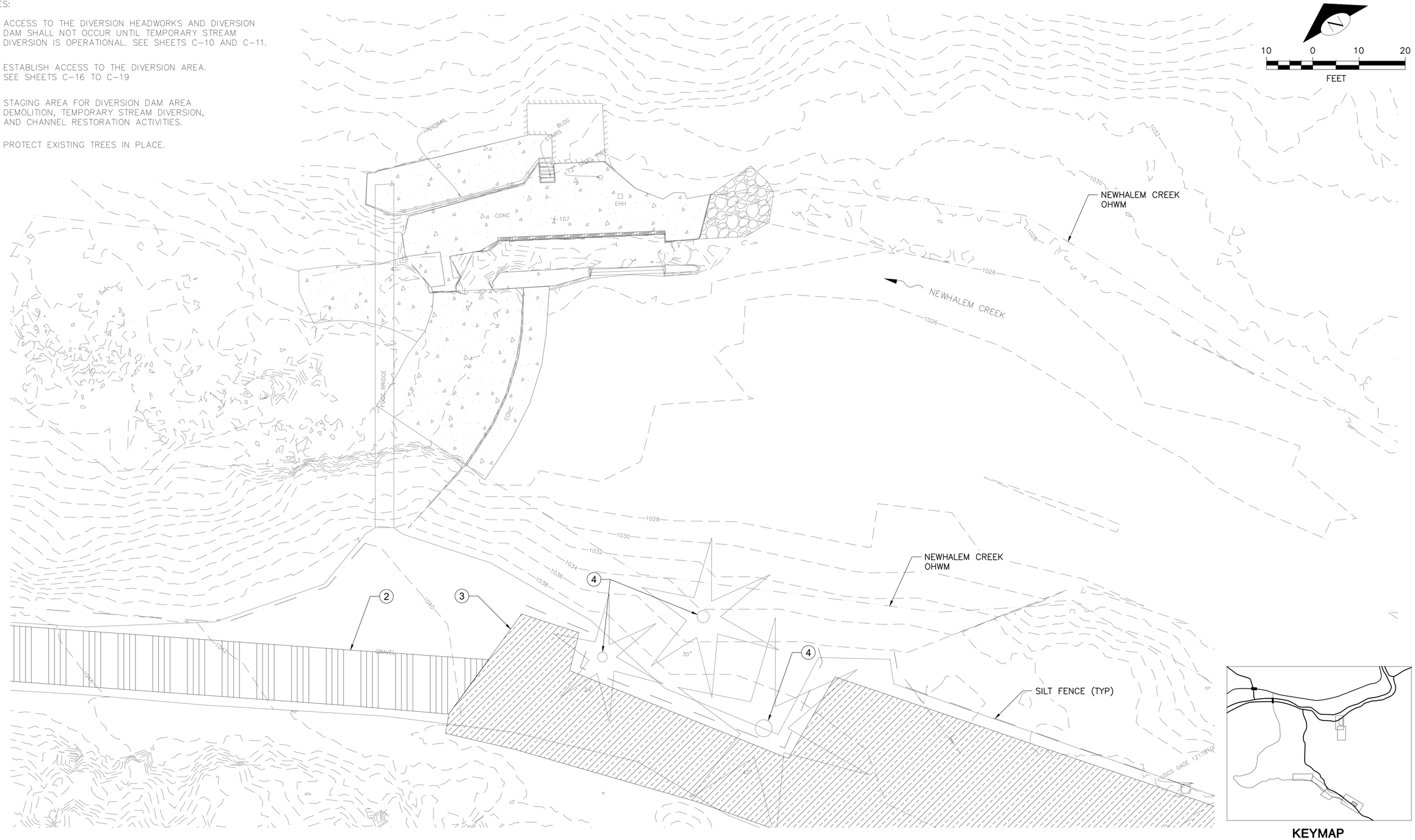
NOTES:

1. ACCESS TO THE DIVERSION HEADWORKS AND DIVERSION DAM SHALL NOT OCCUR UNTIL TEMPORARY STREAM DIVERSION IS OPERATIONAL. SEE SHEETS C-10 AND C-11.

(2) ESTABLISH ACCESS TO THE DIVERSION AREA. SEE SHEETS C-16 TO C-19

(3) STAGING AREA FOR DIVERSION DAM AREA DEMOLITION, TEMPORARY STREAM DIVERSION, AND CHANNEL RESTORATION ACTIVITIES.

(4) PROTECT EXISTING TREES IN PLACE.



KEYMAP

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		
DESCRIPTION		
0	9/22/2024	
	HM	KM
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
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DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: DIVERSION AREA ACCESS, STAGING, AND TESC PLAN

SHEET: 14 OF 33

CLASS \ SHEET: C-9

DRAWING NO.: ####

SCALE: AS NOTED

REV. NO.: 0

NOTES:

1. THIS DRAWING SHOWS AN EXAMPLE TEMPORARY STREAM DIVERSION PLAN AND SEQUENCING. CONTRACTOR SHALL DEVELOP A TEMPORARY STREAM DIVERSION PLAN MEETING THE REQUIREMENTS OF THESE DRAWINGS, THE PROJECT SPECIFICATIONS, AND ALL APPLICABLE PERMITS.
2. CONTRACTOR SHALL PREPARE A TEMPORARY STREAM DIVERSION PLAN IN ACCORDANCE WITH THE SUBMITTALS OUTLINED IN THE PROJECT SPECIFICATIONS.
3. TEMPORARY STREAM DIVERSION SHALL BE PERFORMED IN ACCORDANCE WITH ALL STIPULATIONS PRESENTED IN APPROVED PROJECT PERMITS.
4. CONTRACTOR IS SOLELY RESPONSIBLE FOR DEVELOPMENT AND EXECUTION OF THE TEMPORARY STREAM DIVERSION PLAN.
5. CONTRACTOR IS RESPONSIBLE FOR ADDRESSING VARIED MATERIALS INCLUDING BOULDERS, POROUS SUBSTRATE, AND SIGNIFICANT GROUNDWATER DURING EXCAVATION AND DEWATERING

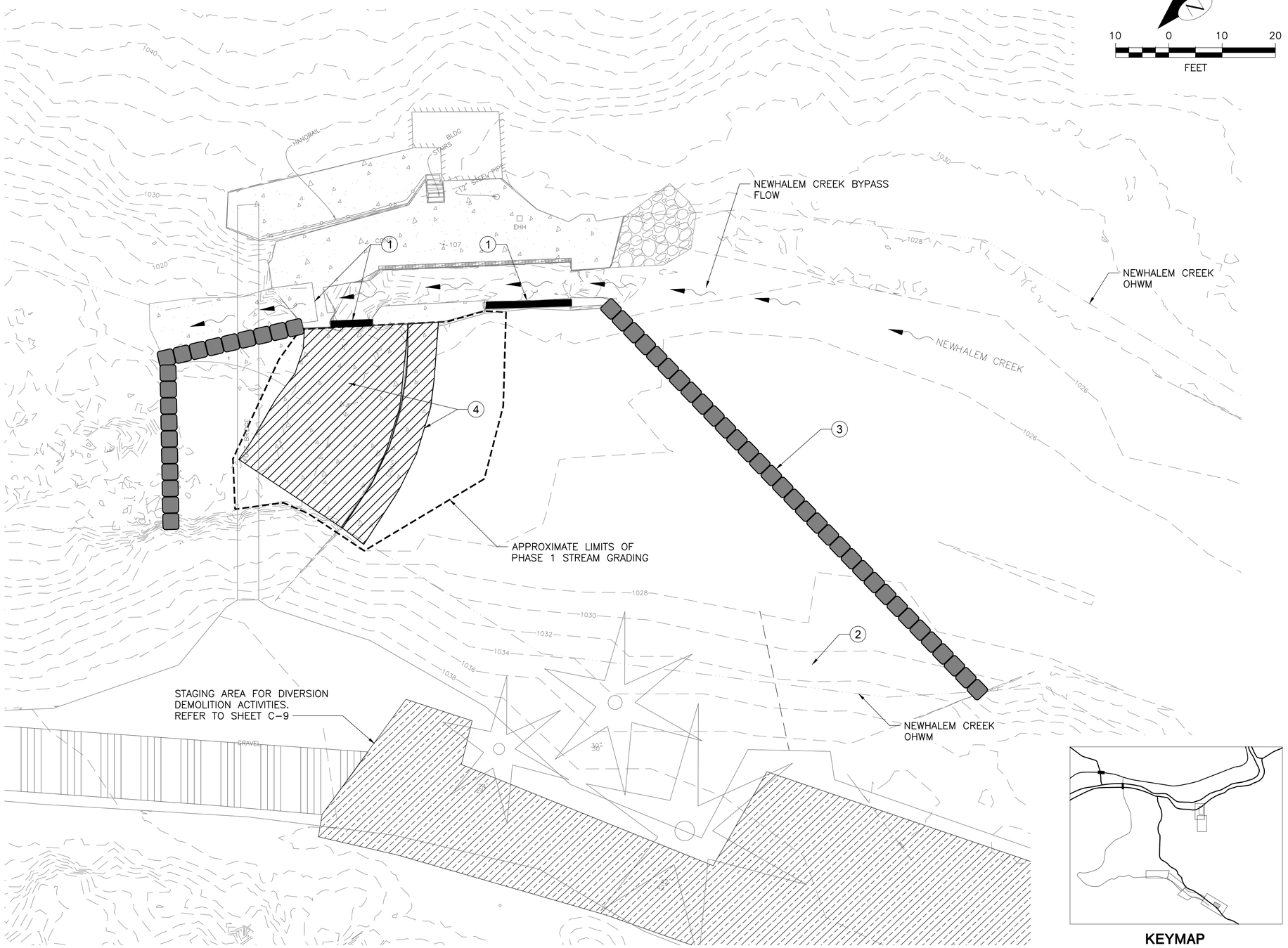
EXAMPLE TEMPORARY STREAM DIVERSION SEQUENCING – PHASE 1

(1) PREPARE SLUICEWAY FOR TEMPORARY STREAM DIVERSION. OPEN SLIDE GATE, BLOCK TIMBER WEIR AND BULKHEAD

(2) ESTABLISH EQUIPMENT ACCESS TO CHANNEL THROUGH EXISTING SLC MAINTENANCE ACCESS POINT

(3) INSTALL COFFER DAM CONSISTING OF SUPERSACKS FILLED WITH NATIVE STREAMBED MATERIAL

(4) DEMOLISH DIVERSION DAM CREST AND APRON



KEYMAP

ONE INCH AT FULL SIZE

REVISIONS			
REV	DATE	IMAGE	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
WORK ORDER #:			
REV	DESCRIPTION		
0	9/22/2024		
	HM	KM	
WORK ORDER #:			

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30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
DES: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: DIVERSION AREA TEMPORARY STREAM DIVERSION PLAN - PHASE 1

SHEET: 15 OF 33

CLASS \ SHEET: C-10

DRAWING NO.: ####

SCALE: AS NOTED

REV. NO.: 0

NOTES:

1. THIS DRAWING SHOWS AN EXAMPLE TEMPORARY STREAM DIVERSION PLAN AND SEQUENCING. CONTRACTOR SHALL DEVELOP A TEMPORARY STREAM DIVERSION PLAN MEETING THE REQUIREMENTS OF THESE DRAWINGS, THE PROJECT SPECIFICATIONS, AND ALL APPLICABLE PERMITS.
2. CONTRACTOR SHALL PREPARE A TEMPORARY STREAM DIVERSION PLAN IN ACCORDANCE WITH THE SUBMITTALS OUTLINED IN THE PROJECT SPECIFICATIONS.
3. TEMPORARY STREAM DIVERSION SHALL BE PERFORMED IN ACCORDANCE WITH ALL STIPULATIONS PRESENTED IN APPROVED PROJECT PERMITS.
4. CONTRACTOR IS SOLELY RESPONSIBLE FOR DEVELOPMENT AND EXECUTION OF THE TEMPORARY STREAM DIVERSION PLAN.
5. CONTRACTOR IS RESPONSIBLE FOR ADDRESSING VARIED MATERIALS INCLUDING BOULDERS, POROUS SUBSTRATE, AND SIGNIFICANT GROUNDWATER DURING EXCAVATION AND DEWATERING

EXAMPLE TEMPORARY STREAM DIVERSION SEQUENCING – PHASE 2

(1) INSTALL COFFER DAM CONSISTING OF SUPERSACKS FILLED WITH NATIVE STREAMBED MATERIAL. MINOR CHANNEL GRADING ANTICIPATED TO ESTABLISH TEMPORARY STREAM DIVERSION.

(2) INSTALL TEMPORARY CULVERTS, MIN. DIA 48 INCHES.

(3) CONSTRUCT ACCESS ROAD TO DIVERSION INTAKE STRUCTURE

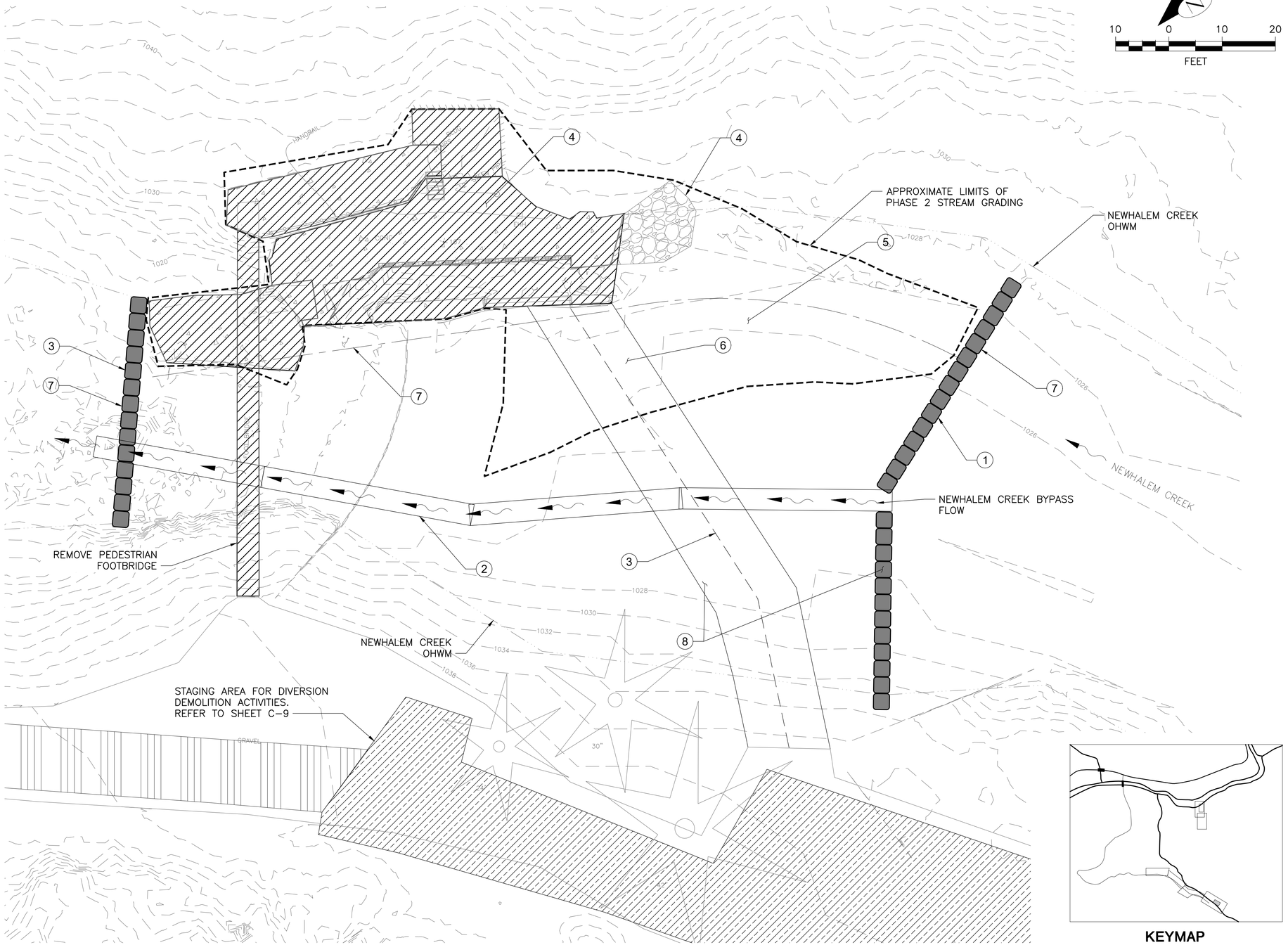
(4) REMOVE REMAINING HEADWORKS INFRASTURUCTURE AND SEAL VERTICAL POWER TUNNEL. REFER TO SHEETS C–7 AND C–8.

(5) PERFORM CHANNEL EXCAVATION TO ESTABLISH PROPOSED NEWHALEM CREEK CHANNEL.

(6) REMOVE ACCESS ROAD AND COMPLETE GRADING WITHIN LIMITS OF NEWHALEM CREEK CHANNEL GRADING

(7) REWATER COMPLETED NEWHALEM CREEK CHANNEL IN A GRADUAL, CONTROLLED MANNER BY REMOVING DOWNSTREAM AND THEN UPSTREAM COFFERDAMS

(8) REMOVE REMAINING TEMPORARY STREAM DIVERSION MATERIALS AND RESTORE CHANNEL BANKS TO PRE–CONSTRUCTION GRADE.



KEYMAP

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		
DESCRIPTION		
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HM	KM	
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT	DECOMISSIONING
LOCATION	NEWHALEM CREEK DAM
TITLE	DIVERSION AREA TEMPORARY STREAM DIVERSION PLAN - PHASE 2
SHEET	16 OF 33
CLASS \ SHEET	C-11
DRAWING NO.	####
SCALE	AS NOTED
REV. NO.	0

EXISTING DIVERSION DAM, SLUICEWAY, GATE HOUSE, AND FOOT BRIDGE TO BE DEMOLISHED. SEE SHEETS C-7 AND C-8.

EXISTING RIPRAP TO BE REMOVED

NEWHALEM CREEK OHWM

1 C-14 DOWNSTREAM LIMITS OF CHANNEL GRADING

APPROXIMATE LIMITS OF CHANNEL GRADING

UPSTREAM LIMITS OF CHANNEL GRADING 1 C-14

NEWHALEM CREEK

NEWHALEM CREEK OHWM

0+00 1+00 1+50 2+00 2+50 2+62.12

A C-14 B C-14 C C-14

10 0 10 20
FEET

NOTES:

1. GRADING LIMITS FOR NEWHALEM CREEK SHOWN ARE APPROXIMATE AND SHALL DEPEND UPON SITE CONDITIONS AT THE TIME OF CONSTRUCTION. EXTENTS OF GRADING SHALL BE FIELD DETERMINED TO PRESERVE VEGETATION TO MAXIMUM EXTENT POSSIBLE.
2. FINISH GRADE CONTOURS IN THIS LOCATION ARE APPROXIMATE. REGRADING OF THE BANK OF NEWHALEM CREEK FOLLOWING DEMOLITION OF THE INTAKE STRUCTURE SHALL TIE IN WITH EXISTING BEDROCK OUTCROPS AND MAY INCORPORATE SALVAGED BOULDER TO CREATE A CONSISTENT BANK SLOPE WITHIN PROJECT LIMITS.

KEYMAP

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:	DESCRIPTION	
0	9/22/2024	
	HM	KM
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

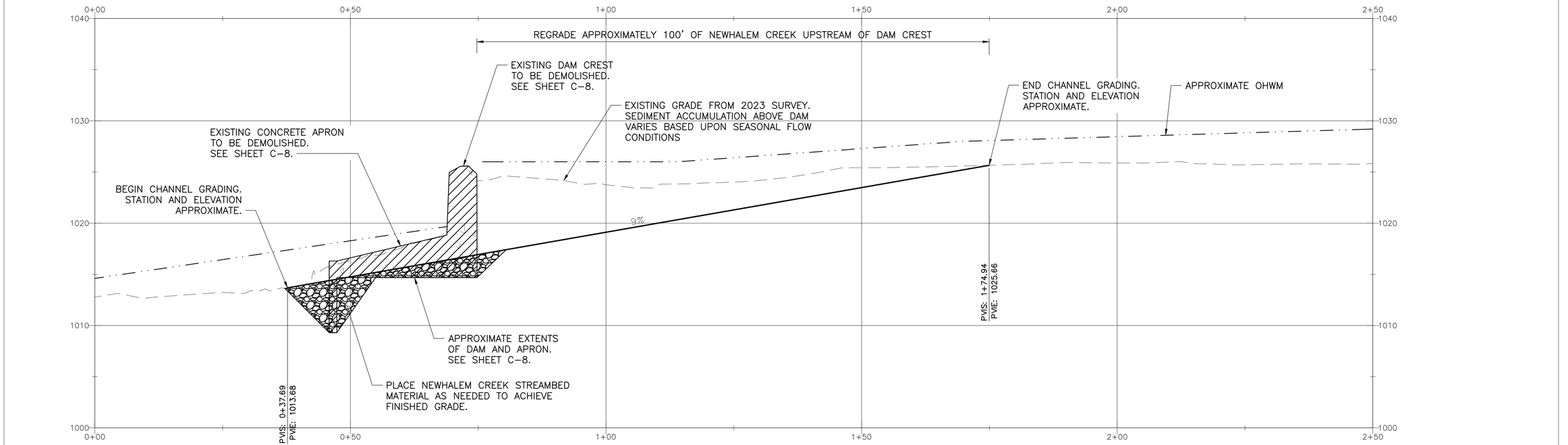
SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHECKED: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT	DECOMISSIONING
LOCATION	NEWHALEM CREEK DAM
TITLE	DIVERSION AREA CHANNEL RESTORATION PLAN
SHEET	17 OF 33
CLASS \ SHEET	C-12
DRAWING NO.	####
SCALE	AS NOTED
REV. NO.	0



NEWHALEM CREEK CHANNEL PROFILE

SCALE: HORIZ 1" = 10' VERT 1" = 5'

1 / C-12

NOTES:

1. ELEVATION OF OHWM ACROSS CHANNEL APPROXIMATE; OHWM ALONG RIGHT AND LEFT BANKS DELINEATED IN THE FIELD.

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		

	DESCRIPTION
0	9/22/2024
HM	KM
WORK ORDER #:	

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

SIGNATURE	DATE
DRAWN: HM	9/22/2024
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DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: DIVERSION AREA CHANNEL RESTORATION PLAN

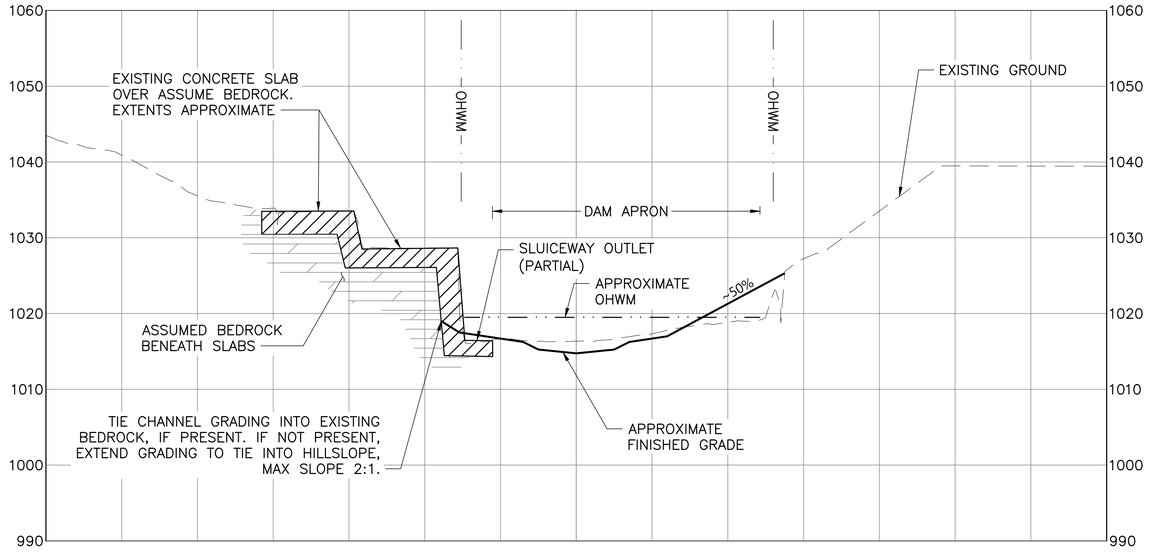
SHEET: 18 OF 33

CLASS \ SHEET: C-13

DRAWING NO.: ####

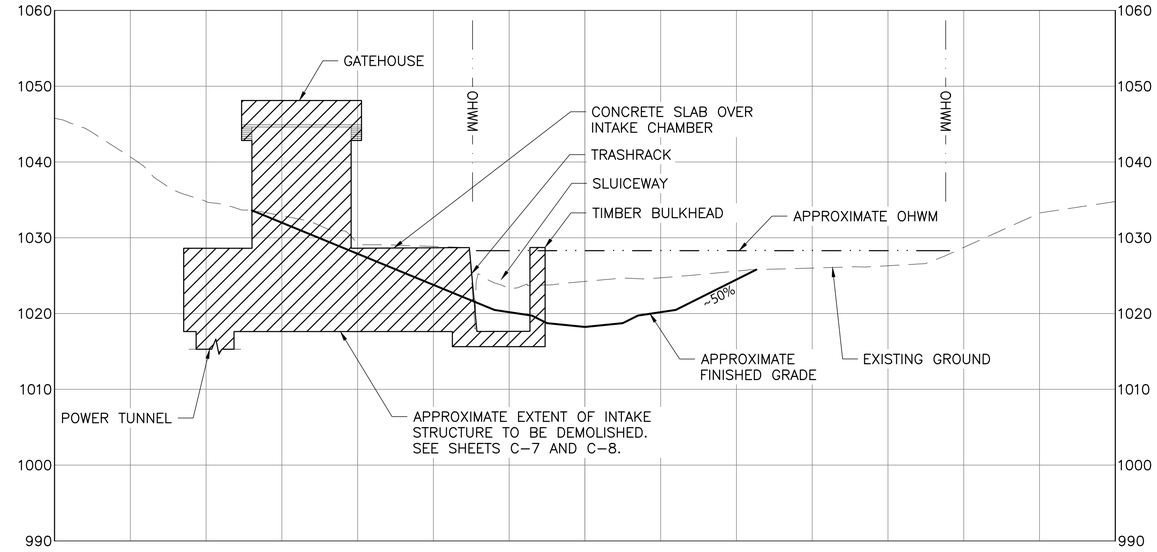
SCALE: AS NOTED

REV. NO.: 0



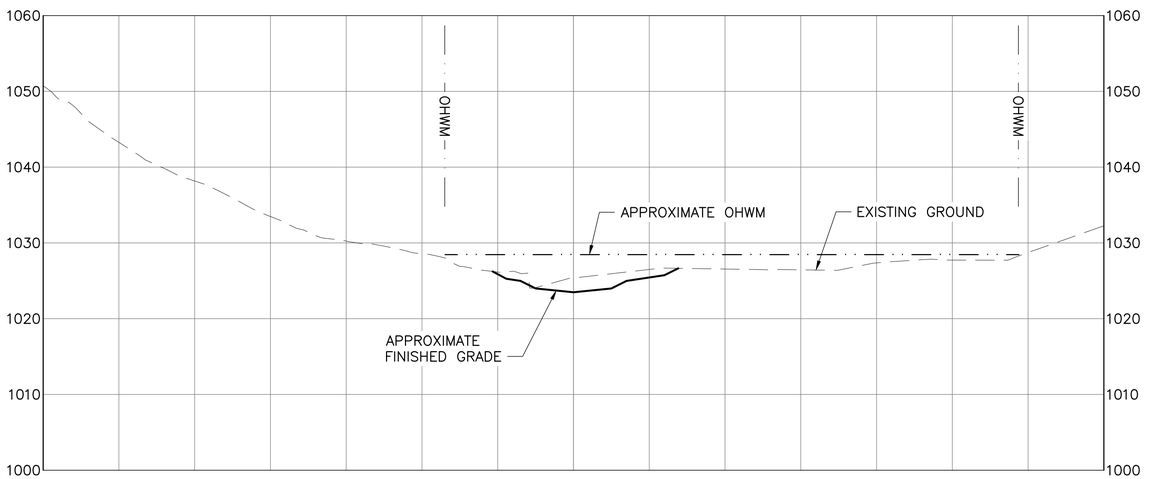
NOTE: SECTION FACES UPSTREAM

STA 0+50 (A / C-12)
SCALE: 1" = 10'



NOTE: SECTION FACES UPSTREAM

STA 0+90 (B / C-12)
SCALE: 1"=10'

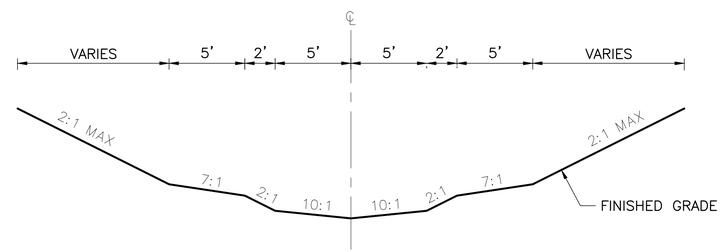


NOTE: SECTION FACES UPSTREAM

STA 1+50 (B / C-12)
SCALE: 1" = 10'

NOTES:

1. ELEVATION OF OHWM ACROSS CHANNEL APPROXIMATE; OHWM ALONG RIGHT AND LEFT BANKS DELINEATED IN THE FIELD.



NEWHALEM CREEK TYPICAL CHANNEL SECTION (1 / C-12)
SCALE: 1"=5'

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
0	9/22/2024	

DRAWN BY: HM | CHECKED BY: KM | APPROVED BY:
WORK ORDER #:
WORK ORDER #:

DESCRIPTION

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS		
SIGNATURE		DATE
DRAWN: HM		9/22/2024
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DESIGN: JS		9/22/2024
CHECK: KM		9/22/2024

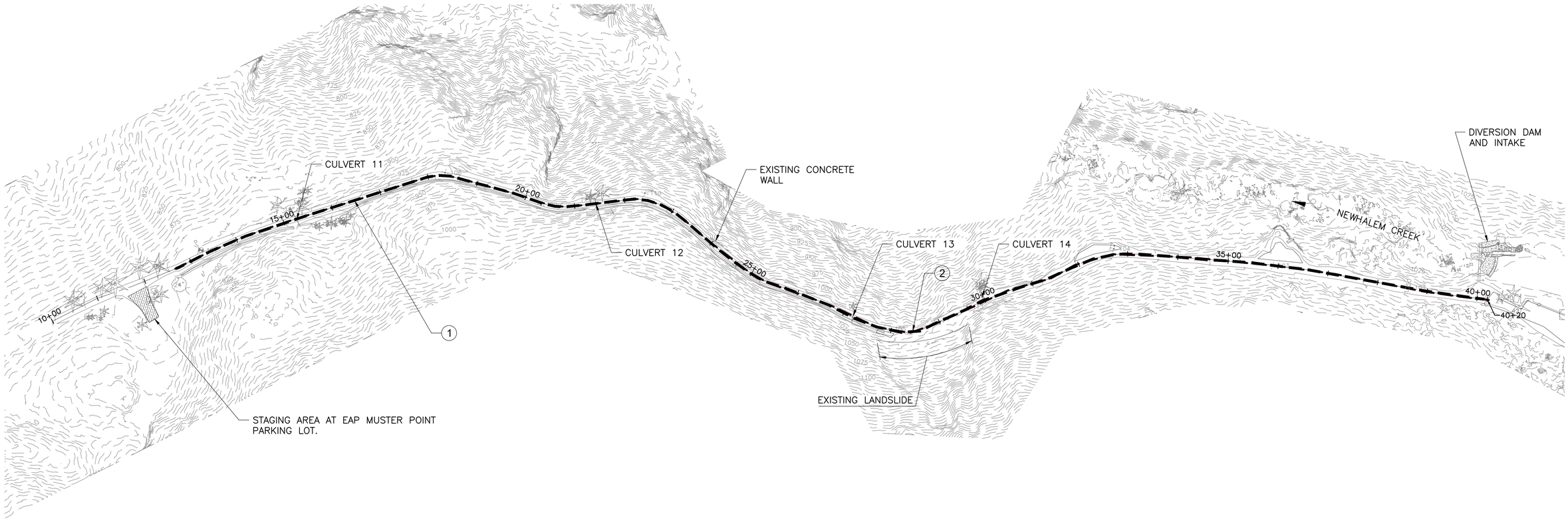
Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING
LOCATION: NEWHALEM CREEK DAM
TITLE: DIVERSION AREA CHANNEL RESTORATION SECTIONS

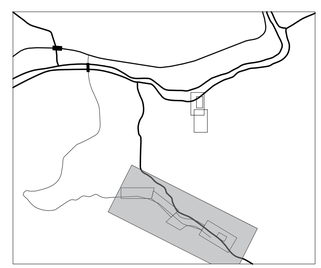
SHEET: 19 OF 33
CLASS \ SHEET: C-14
DRAWING NO.: ####
SCALE: AS NOTED
REV. NO.: 0



EXISTING ACCESS ROAD FEATURES	
STATION	FEATURE
15+25.5	CULVERT 11: 24–INCH CMP
21+42.3	CUVLERT 12: 18–INCH CMP
26+30.9	BEGINNING OF CONCRETE WALL
26+68.7	END OF CONCRETE WALL
27+19.4	CULVERT 13: 18–INCH CMP
27+82.2	BEGINNING OF LANDSLIDE
29+66.2	END OF LANDSLIDE
30+00	CULVERT 14: 12–INCH CPP
40+00	DIVERSION DAM AND INTAKE

NOTES:

1. ESTABLISH ACCESS ALONG EXISTING ROADWAY, MINOR ROADWAY GRADING AND CLEARING OF VEGETATION ANTICIPATED.
2. CONTRACTOR SHALL CLEAR EXISTING LANDSLIDE DEBRIS TO ESTABLISH SAFE ACCESS TO DIVERSION DAM SITE. SEE DETAILS ON SHEET C–21.



KEYMAP

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
0	9/22/2024	
DRAWN BY: HM	CHECKED BY: KM	APPROVED BY:
WORK ORDER #:		WORK ORDER #:

DESCRIPTION

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
DESIGN: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: DIVERSION AREA SITE ACCESS OVERVIEW PLAN

SHEET: 20 OF 33

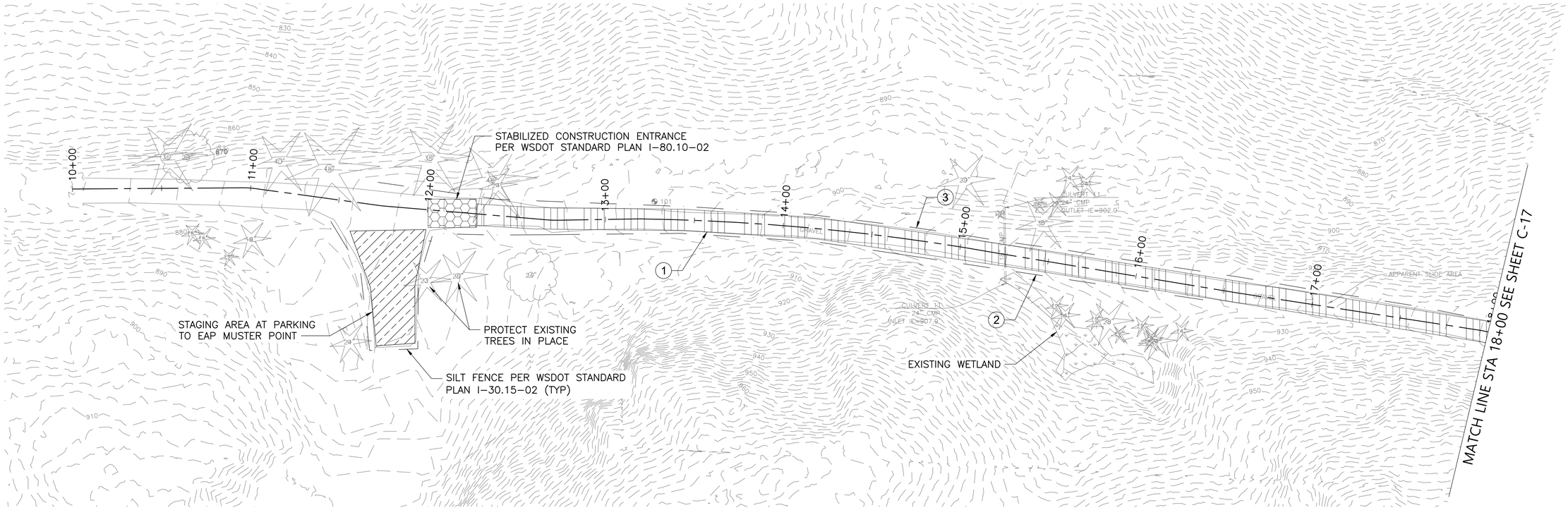
CLASS \ SHEET: C-15

DRAWING NO.: ####

SCALE: AS NOTED

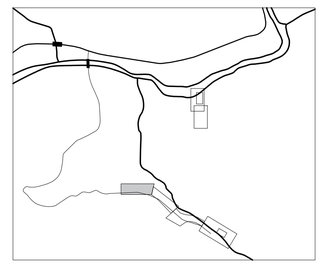
REV. NO.: 0

30 0 30 60
FEET



NOTES:

1. ESTABLISH ACCESS ALONG EXISTING ROADWAY, MINOR ROADWAY GRADING AND CLEARING OF VEGETATION ANTICIPATED.
2. INSTALL SILT FENCE ALONG ROADWAY ADJACENT TO EXISTING WETLAND.
3. INSTALL SILT FENCE ALONG DOWNSLOPE EDGE OF ROADWAY.



KEYMAP

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
0	9/22/2024	

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DESCRIPTION	
WORK ORDER #:	

HDR

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ENDORSEMENTS

SIGNATURE		DATE
DRAWN:	HM	9/22/2024
[illegible]:	TP	9/22/2024
DESIGN:	JS	9/22/2024
CHECK:	KM	9/22/2024

Seattle City Light
Generation and Substations

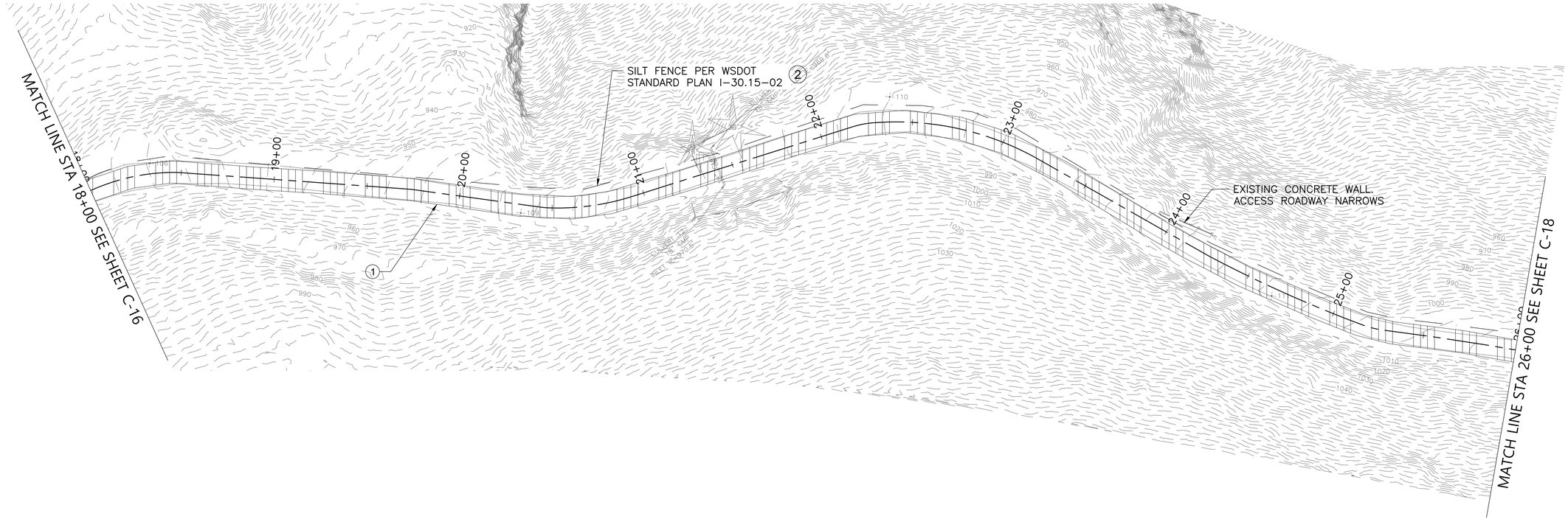
APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING
LOCATION: NEWHALEM CREEK DAM
TITLE: DIVERSION AREA ACCESS, STAGING, AND TESC 1 PLAN

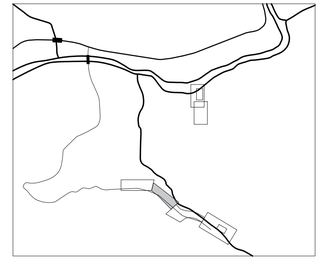
SHEET: 21 OF 33
CLASS \ SHEET: C-16
DRAWING NO.: ####
SCALE: AS NOTED
REV. NO.: 0

30 0 30 60
FEET



NOTES:

1. ESTABLISH ACCESS ALONG EXISTING ROADWAY, MINOR ROADWAY GRADING AND CLEARING OF VEGETATION ANTICIPATED.
2. INSTALL SILT FENCE ALONG DOWNSLOPE EDGE OF ROADWAY.



KEYMAP

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
0	9/22/2024	
HM	KM	

DRAWN: BY: | CHECKED BY: | APPROVED BY:
WORK ORDER #: | DESCRIPTION | WORK ORDER #:

HDR

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ENDORSEMENTS

SIGNATURE		DATE
DRAWN:	HM	9/22/2024
[illegible]:	TP	9/22/2024
DESIGN:	JS	9/22/2024
CHECK:	KM	9/22/2024

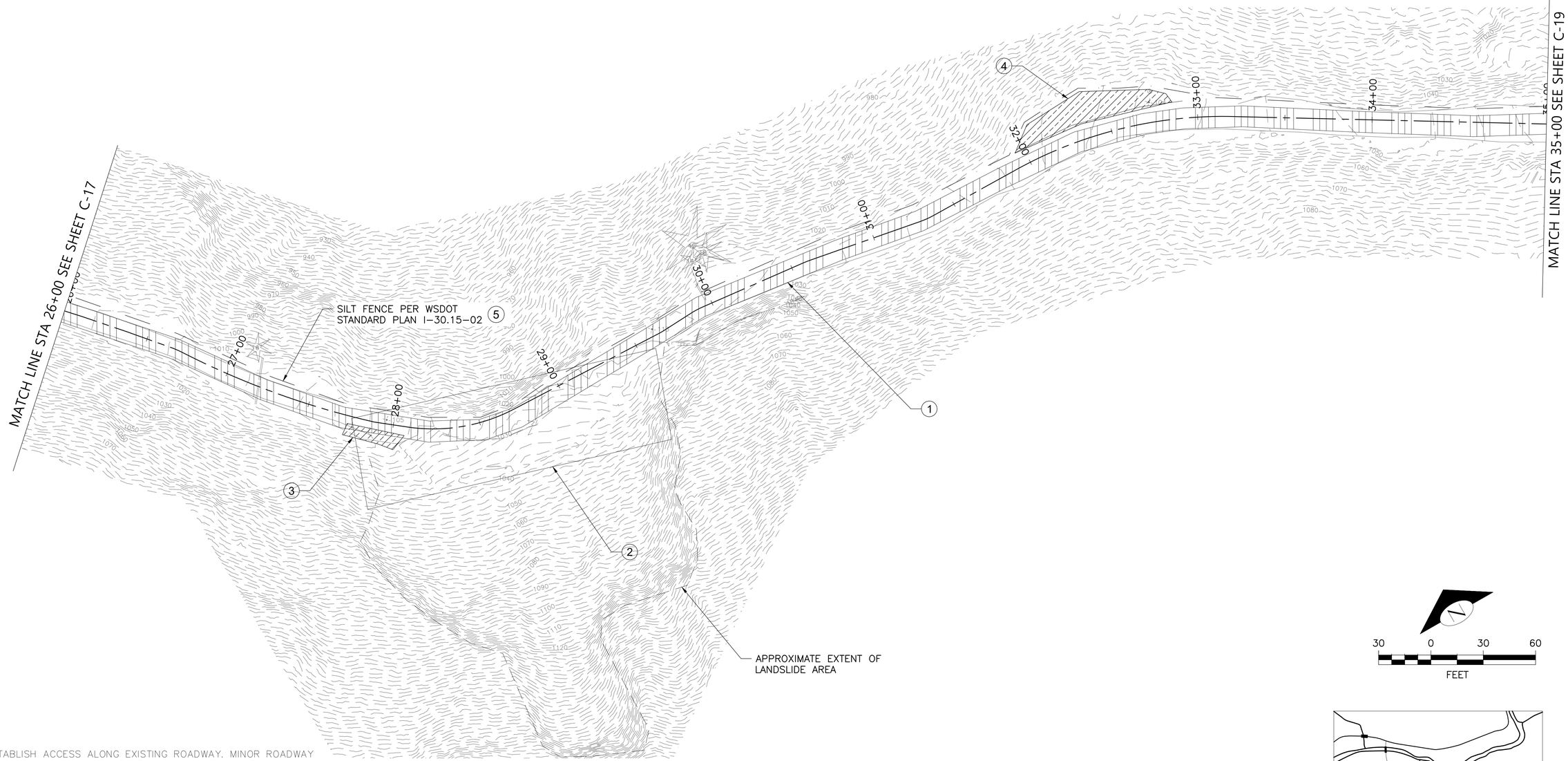
Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

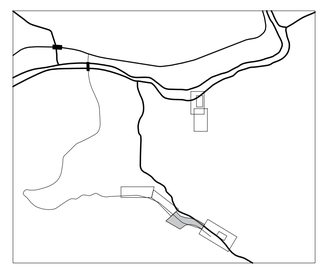
SUBJECT: DECOMISSIONING
LOCATION: NEWHALEM CREEK DAM
TITLE: DIVERSION AREA ACCESS, STAGING, AND TESC 2 PLAN

SHEET: 22 OF 33
CLASS \ SHEET: C-17
DRAWING NO.: ####
SCALE: AS NOTED
REV. NO.: 0



NOTES:

1. ESTABLISH ACCESS ALONG EXISTING ROADWAY. MINOR ROADWAY GRADING AND CLEARING OF VEGETATION ANTICIPATED.
2. CONTRACTOR SHALL CLEAR EXISTING LANDSLIDE DEBRIS TO ESTABLISH SAFE ACCESS TO DIVERSION DAM SITE. SEE DETAILS ON SHEET C–21.
3. TEMPORARY STAGING AREA FOR LANDSLIDE DEBRIS.
4. POTENTIAL TURN–AROUND OR MATERIALS STAGING AREA.
5. INSTALL SILT FENCE ALONG DOWNSLOPE EDGE OF ROADWAY.



KEYMAP

ONE INCH AT FULL SIZE

REVISIONS				
REV	DATE	IMAGE		
0	9/22/2024			
DRAWN BY:	HM	CHECKED BY:	KM	APPROVED BY:
WORK ORDER #:		WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: DIVERSION AREA ACCESS, STAGING, AND TESC 3 PLAN

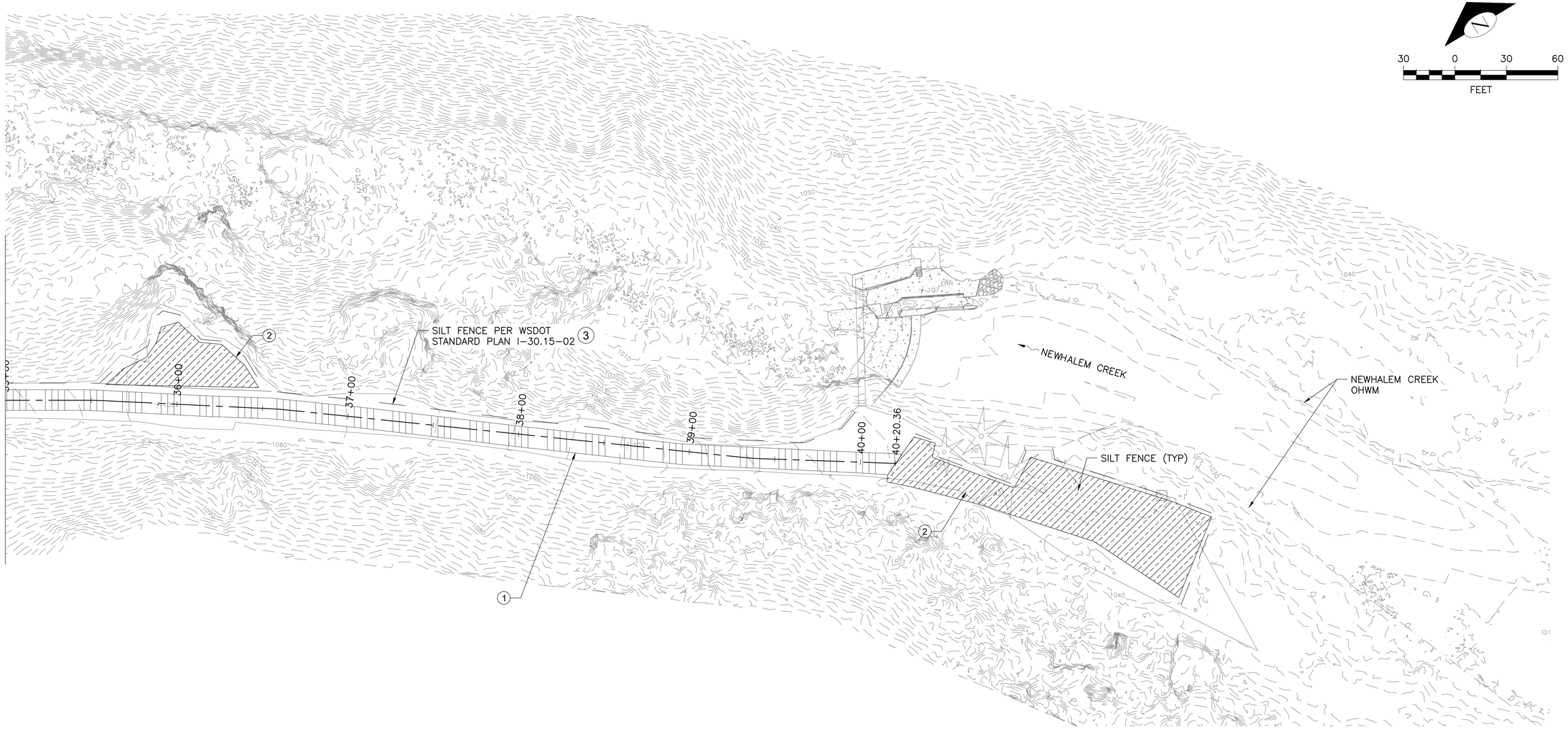
SHEET: 23 OF 33

CLASS \ SHEET: C-18

DRAWING NO.: ####

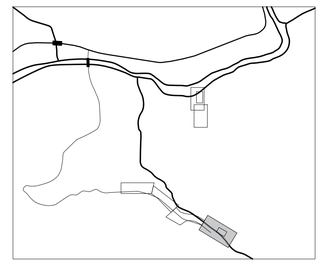
SCALE: AS NOTED

REV. NO.: 0



NOTES:

1. ESTABLISH ACCESS ALONG EXISTING ROADWAY. MINOR ROADWAY GRADING AND CLEARING OF VEGETATION ANTICIPATED.
2. STAGING AREA AND TEMPORARY MATERIALS LAY-DOWN.
3. INSTALL SILT FENCE ALONG DOWNSLOPE EDGE OF ROADWAY.



KEYMAP

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
0	9/22/2024	

DRAWN BY: HM | CHECKED BY: KM | APPROVED BY:

WORK ORDER #: | WORK ORDER #:

DESCRIPTION

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

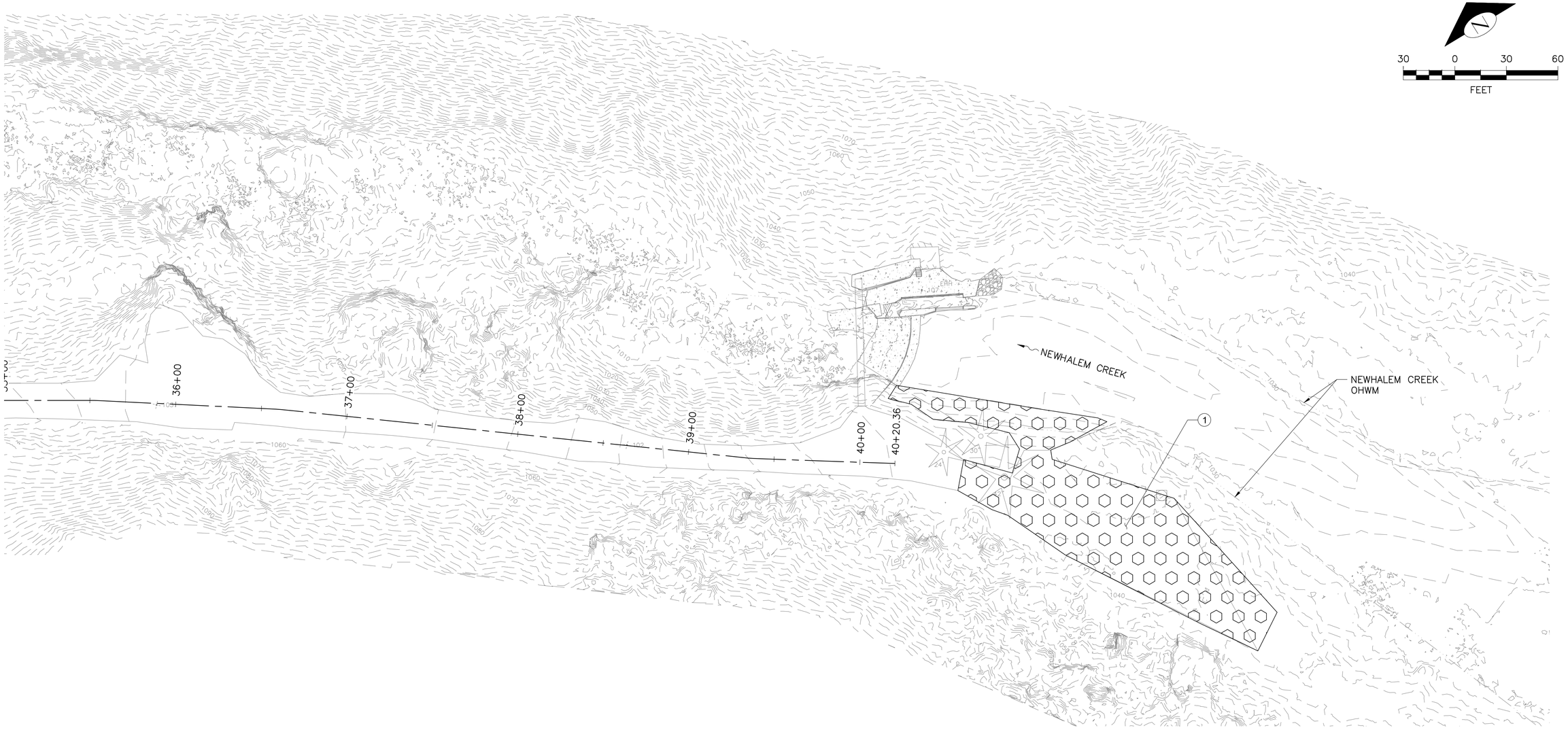
SIGNATURE		DATE
DRAWN:	HM	9/22/2024
CHKD:	TP	9/22/2024
DESIGN:	JS	9/22/2024
CHECK:	KM	9/22/2024

Seattle City Light Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

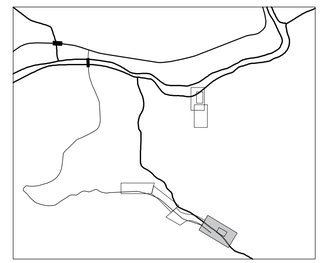
DATE

SUBJECT	DECOMISSIONING
LOCATION	NEWHALEM CREEK DAM
TITLE	DIVERSION AREA ACCESS, STAGING, AND TESC 4 PLAN
SHEET	24 OF 33
CLASS \ SHEET	C-19
DRAWING NO.	####
SCALE	AS NOTED
REV. NO.	0



NOTES:

1. ROUGHEN AND LOOSEN WITH AN EXCAVATOR TO CREATE MICROTOPOGRAPHY THAT WILL FACILITATE NATURAL REGENERATION OF NATIVE RIPARIAN FOREST VEGETATION THROUGH MONITORED NATURAL SUCCESSION.
2. MONITOR NATURAL SUCCESSION PROCESSES AND CONSIDER COLLECTING AND SOWING SEED OF SELECTED NATIVE TREES AND SHRUBS TO AUGMENT NATURAL SUCCESSION PROCESSES.
3. A RESTORATION AND INVASIVE SPECIES MANAGEMENT PLAN IS BEING DEVELOPED IN COLLABORATION WITH THE NPS, TRIBES, NATURAL RESOURCE MANAGEMENT AGENCIES AND OTHER INTERVENORS.



KEYMAP

ONE INCH AT FULL SIZE

REVISIONS

REV	DESCRIPTION	DATE	IMAGE
0		9/22/2024	
DRAWN BY:		HM	CHECKED BY: KM
WORK ORDER #:		WORK ORDER #:	

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

	SIGNATURE	DATE
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DESIGN:	--	--
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Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: DIVERSION AREA RESTORATION PLAN

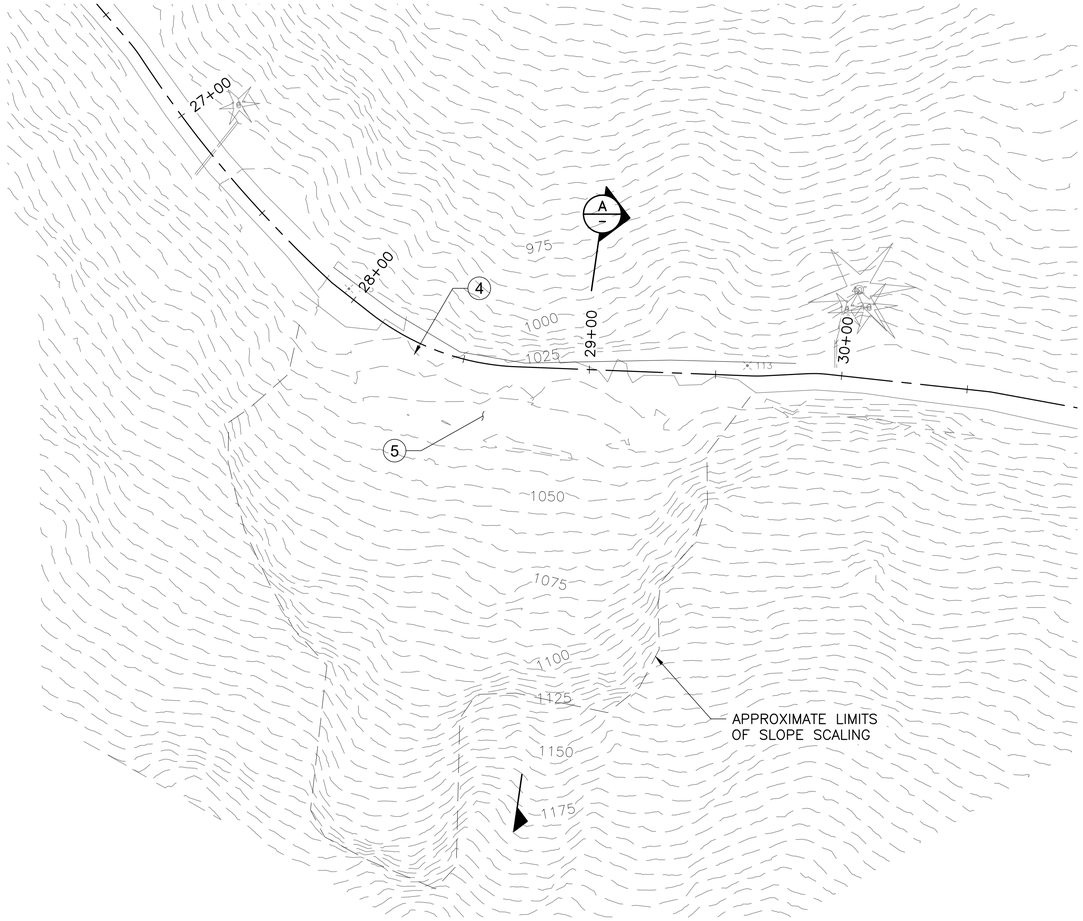
SHEET: 25 OF 33

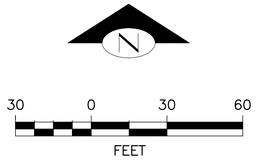
CLASS \ SHEET: C-20

DRAWING NO.: ####

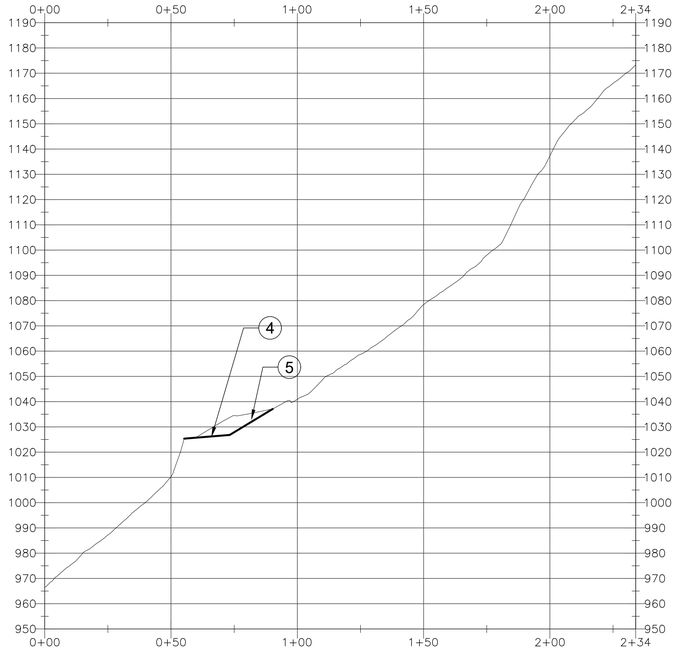
SCALE: AS NOTED

REV. NO.: 0





LANDSLIDE ACCESS PLAN
SCALE: 1" = 30'
1



LANDSLIDE SECTION
SCALE: 1" = 30'
A

NOTES:

1. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE SAFETY IN ESTABLISHING AND MAINTAINING A SAFE WORK AREA DURING MOBILIZATION, CONSTRUCTION ACTIVITIES AND DEMOBILIZATION.
2. PRIOR TO CONSTRUCTION ACTIVITIES, CONTRACTOR WILL SUBMIT A TEMPORARY ROCKFALL PROTECTION PLAN TO ESTABLISH SAFE ACCESS THROUGH THE LANDSLIDE AREA FOR THE DURATION OF CONSTRUCTION FOR APPROVAL BY THE ENGINEER.
3. SCALING OF LARGE LANDSLIDE BOULDERS ON THE EXISTING HILLSLOPE SHALL BE ANTICIPATED BY THE CONTRACTOR.

(4) ESTABLISH A CLEAR AREA FOR CONSTRUCTION TRAFFIC. WORK SHALL REQUIRE RELOCATION OF 10-FOOT DIAMETER BOULDERS. CONTRACTOR MAY USE NON-EXPLOSIVE CRACKING METHODS TO REDUCE BOULDER SIZE.

(5) REMOVE AND OFF HAUL LANDSLIDE DEBRIS AS NEEDED.

TYPICAL LANDSLIDE DEBRIS
SCALE: NTS
2

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		
0	9/22/2024	
HM	KM	
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

SIGNATURE	DATE
DRAWN: HM	9/22/2024
DESIGN: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

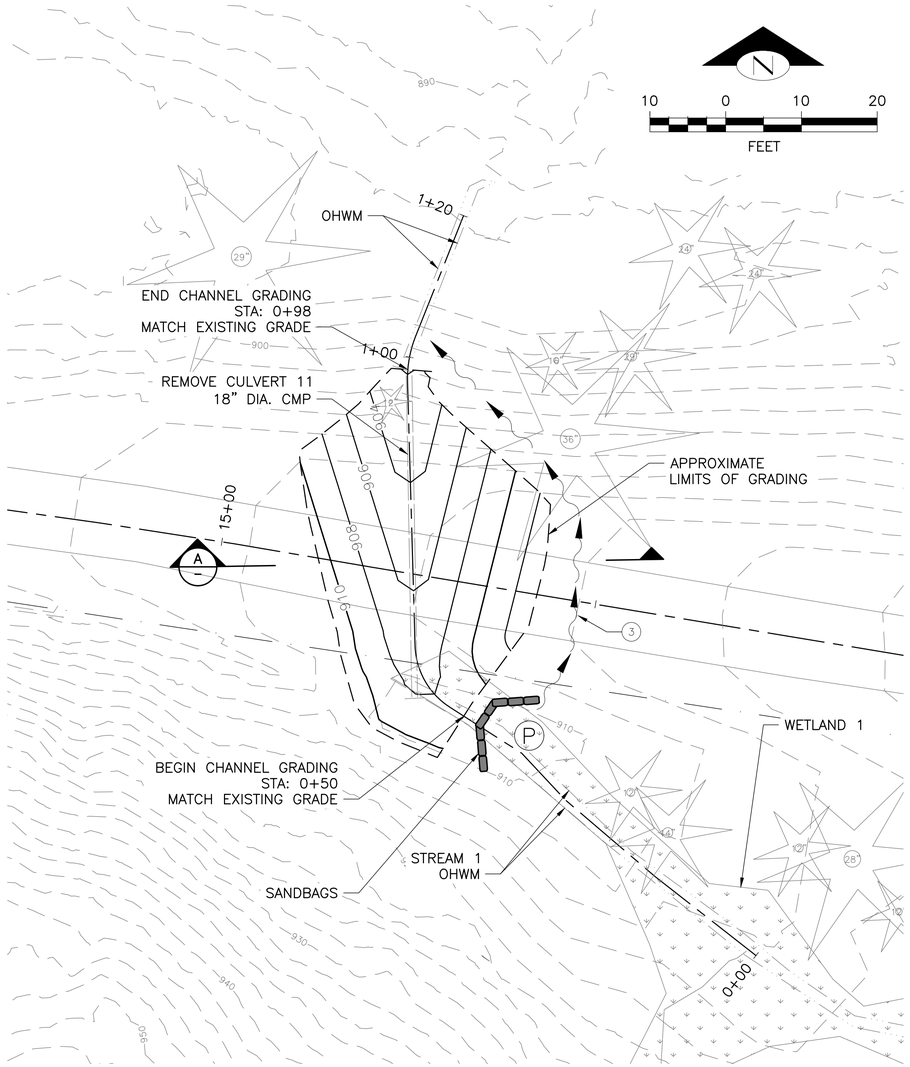
Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

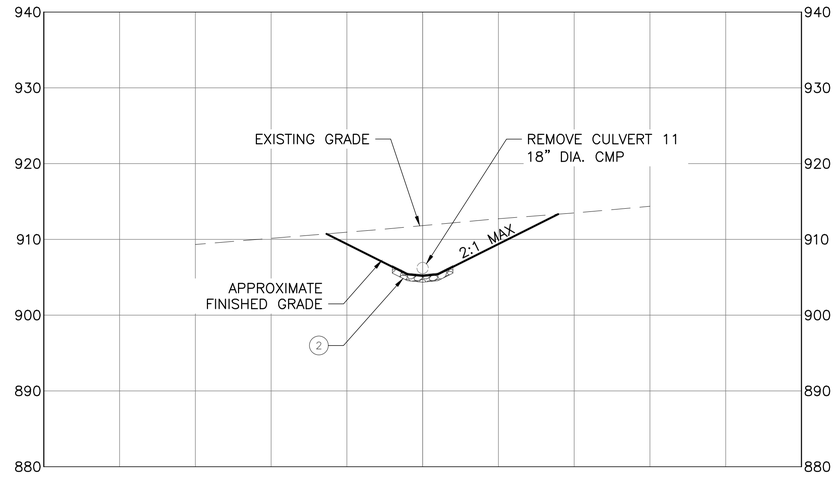
DATE

SUBJECT: DECOMISSIONING
LOCATION: NEWHALEM CREEK DAM
TITLE: DIVERSION AREA ACCESS LANDSLIDE DETAILS

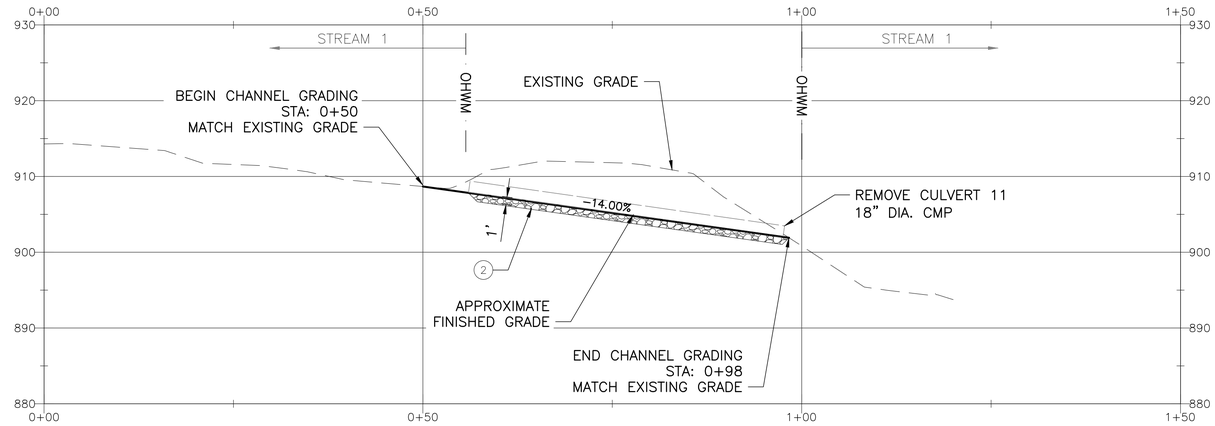
SHEET: 26 OF 33
CLASS \ SHEET: C-21
DRAWING NO.: ####
SCALE: AS NOTED
REV. NO.: 0



CULVERT 11 REMOVAL PLAN (1)
SCALE: 1" = 10'



CULVERT 11 REMOVAL TYPICAL SECTION (A)
SCALE: 1" = 10'



CULVERT 11 REMOVAL PROFILE (2)
SCALE: 1" = 10'

NOTES:

1. CULVERT 11 REMOVAL AND STREAM GRADING SHALL BE PERFORMED FOLLOWING THE COMPLETION OF ALL DECOMMISSIONING, SPOILS REMOVAL, AND RESTORATION ACTIVITIES AT THE DIVERSION DAM SITE.

(2) PLACE SALVAGED STREAMBED MATERIAL FROM NEWHALEM CREEK TO ACHIEVE FINISHED GRADE.

(3) INSTALL PUMPED TEMPORARY STREAM DIVERSION.

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN: BY:	CHECKED: BY:	APPROVED: BY:
WORK ORDER #:		
DESCRIPTION		
0	9/22/2024	
HM	KM	
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMMISSIONING

LOCATION: NEWHALEM CREEK DAM

TITLE: DIVERSION DAM ACCESS ROAD CULVERT 11 REMOVAL PLAN AND SECTIONS

SHEET: 27 OF 33

CLASS \ SHEET: C-22

DRAWING NO.: ####

SCALE: AS NOTED

REV. NO.: ----

NOTES:

1. CONTRACTOR SHALL IMPLEMENT TESC BMPS AND TEMPORARY STREAM DIVERSION PRIOR TO INITIATION OF DEMOLITION ACTIVITIES. SEE SHEET C-25 FOR THE TESC PLAN.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING PERMITTING REQUIREMENTS RELATED TO WORKING WITHIN ORDINARY HIGH WATER.
3. FOLLOWING DEMOLITION OF TAILRACE BARRIER, CONTRACTOR SHALL RESTORE SITE PER SHEETS C-26 TO C-28.
4. CONTRACTOR SHALL HAUL AND DISPOSE OF ALL CONCRETE, REBAR, METAL AND ASSOCIATED DEBRIS OFF SITE TO A LEGALLY DESIGNATED DISPOSAL LOCATION.

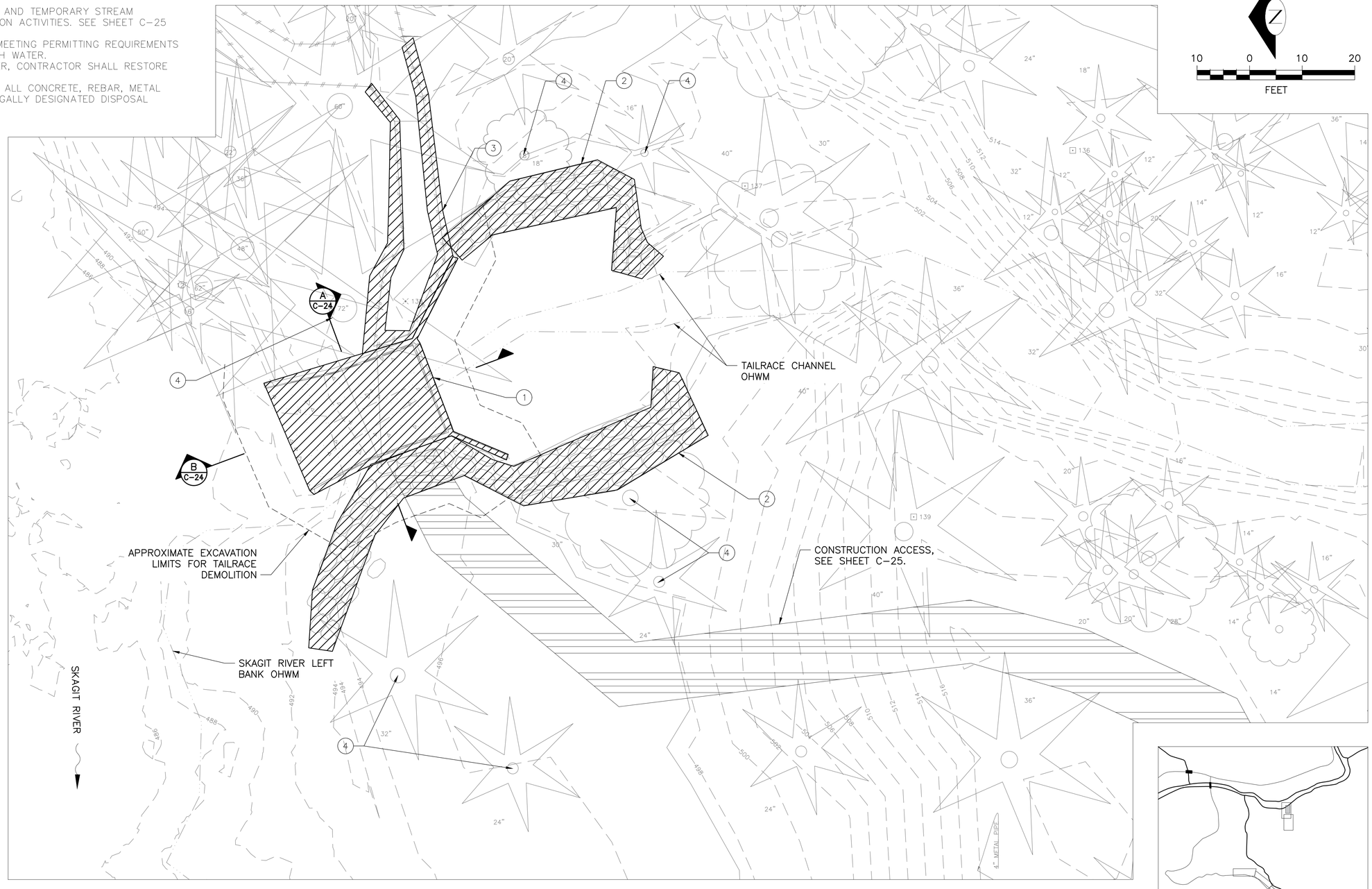
DEMOLITION NOTES:

(1) DEMOLISH AND REMOVE CONCRETE TAILRACE BARRIER

(2) REMOVE AND DISPOSE OF EXISTING RIPRAP OFF SITE

(3) DEMOLISH EXISTING WOOD FENCE

(4) PROTECT EXISTING TREE IN PLACE



KEYMAP

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		
DESCRIPTION		
0	9/22/2024	
HM	KM	
WORK ORDER #:		

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30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK POWERHOUSE

TITLE: TAILRACE DEMOLITION PLAN

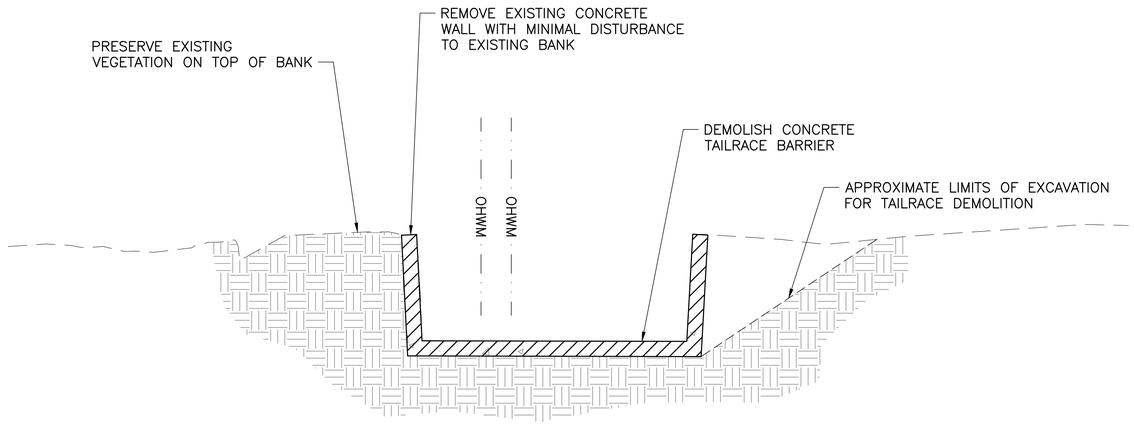
SHEET: 28 OF 33

CLASS \ SHEET: C-23

DRAWING NO.: ####

SCALE: AS NOTED

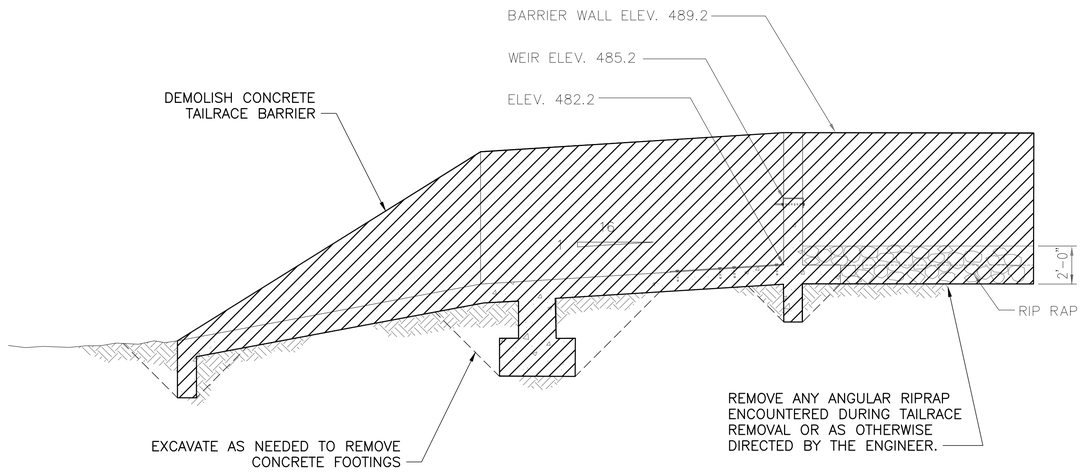
REV. NO.: 0



TYPICAL TAILRACE REMOVAL SECTION

NOT TO SCALE

A
C-23



SECTION SHOWN IS LOCATED COMPLETELY WITHIN OHWM.

TYPICAL TAILRACE REMOVAL PROFILE

NOT TO SCALE

B
C-23

NOTES:

1. CONCRETE TAIL RACE BARRIER DETAIL TAKEN FROM FERC NO. 2705 EXHIBIT F, SEPTEMBER 1992. FULL EXHIBIT INCLUDED IN REFERENCE DRAWINGS. SEE R-XX.
2. ELEVATIONS SHOWN ON REFERENCE DRAWINGS ARE IN LOCAL PROJECT VERTICAL DATUM AND DO NOT CORRESPOND WITH ELEVATIONS SHOWN ON REMAINDER OF PLAN SET.
4. CONTRACTOR SHALL HAUL AND DISPOSE OF ALL CONCRETE, REBAR, METAL AND ASSOCIATED DEBRIS OFF SITE TO A LEGALLY DESIGNATED DISPOSAL LOCATION.

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		

DESCRIPTION		
0	9/22/2024	
	HM	KM
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

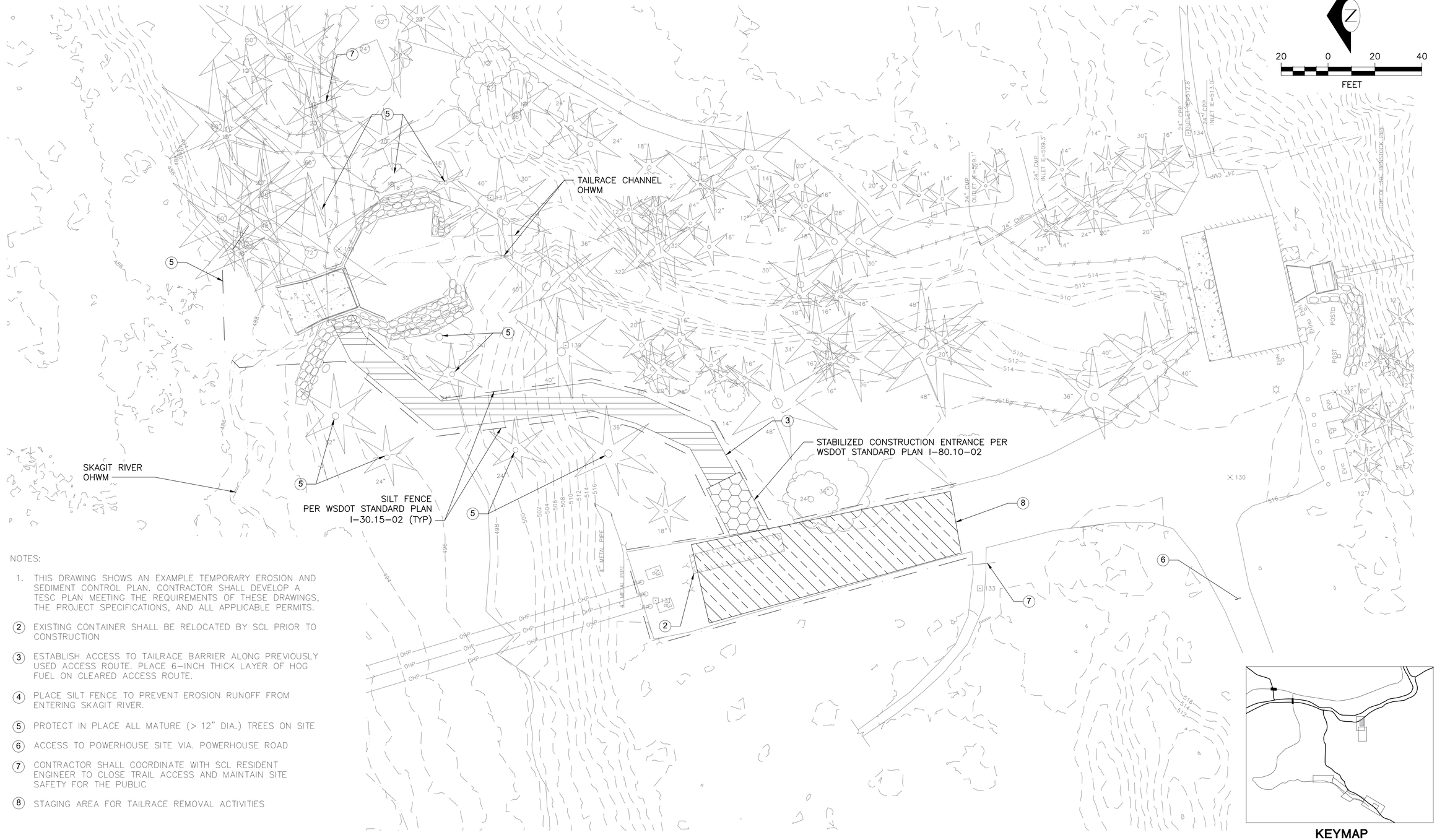
SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT	DECOMISSIONING
LOCATION	NEWHALEM CREEK POWERHOUSE
TITLE	TAILRACE DEMOLITION SECTIONS
SHEET	29 OF 33
CLASS \ SHEET	C-24
DRAWING NO.	####
SCALE	AS NOTED
REV. NO.	0



NOTES:

1. THIS DRAWING SHOWS AN EXAMPLE TEMPORARY EROSION AND SEDIMENT CONTROL PLAN. CONTRACTOR SHALL DEVELOP A TESC PLAN MEETING THE REQUIREMENTS OF THESE DRAWINGS, THE PROJECT SPECIFICATIONS, AND ALL APPLICABLE PERMITS.

(2) EXISTING CONTAINER SHALL BE RELOCATED BY SCL PRIOR TO CONSTRUCTION

(3) ESTABLISH ACCESS TO TAILRACE BARRIER ALONG PREVIOUSLY USED ACCESS ROUTE. PLACE 6-INCH THICK LAYER OF HOG FUEL ON CLEARED ACCESS ROUTE.

(4) PLACE SILT FENCE TO PREVENT EROSION RUNOFF FROM ENTERING SKAGIT RIVER.

(5) PROTECT IN PLACE ALL MATURE (> 12" DIA.) TREES ON SITE

(6) ACCESS TO POWERHOUSE SITE VIA. POWERHOUSE ROAD

(7) CONTRACTOR SHALL COORDINATE WITH SCL RESIDENT ENGINEER TO CLOSE TRAIL ACCESS AND MAINTAIN SITE SAFETY FOR THE PUBLIC

(8) STAGING AREA FOR TAILRACE REMOVAL ACTIVITIES

KEYMAP

ONE INCH AT FULL SIZE

REVISIONS			
REV	DATE	IMAGE	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
WORK ORDER #:			
DESCRIPTION			
0	9/22/2024		
HM	KM		
WORK ORDER #:			

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
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DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT	DECOMISSIONING
LOCATION	NEWHALEM CREEK POWERHOUSE
TITLE	TAILRACE ACCESS, STAGING, AND TESC PLAN
SHEET	30 OF 33
CLASS \ SHEET	C-25
DRAWING NO.	####
SCALE	AS NOTED
REV. NO.	0

NOTES:

1. ESTABLISH LOW FLOW CHANNEL. PLACE SALVAGED NEWHALEM CREEK CHANNEL SEDIMENT AS NEEDED TO ACHIEVE FINISHED GRADE.
2. PLACE LARGE WOODY MATERIAL
3. INSTALL WOODEN FENCE. CONTRACTOR SHALL COORDINATE WITH SCL RESIDENT ENGINEERING REGARDING FENCE LOCATION AND TYPE.

KEYMAP

ONE INCH AT FULL SIZE

REVISIONS			
REV	DATE	IMAGE	
DRAWN BY:	CHECKED BY:	APPROVED BY:	
WORK ORDER #:			
DESCRIPTION			
0	9/22/2024		
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WORK ORDER #:			

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

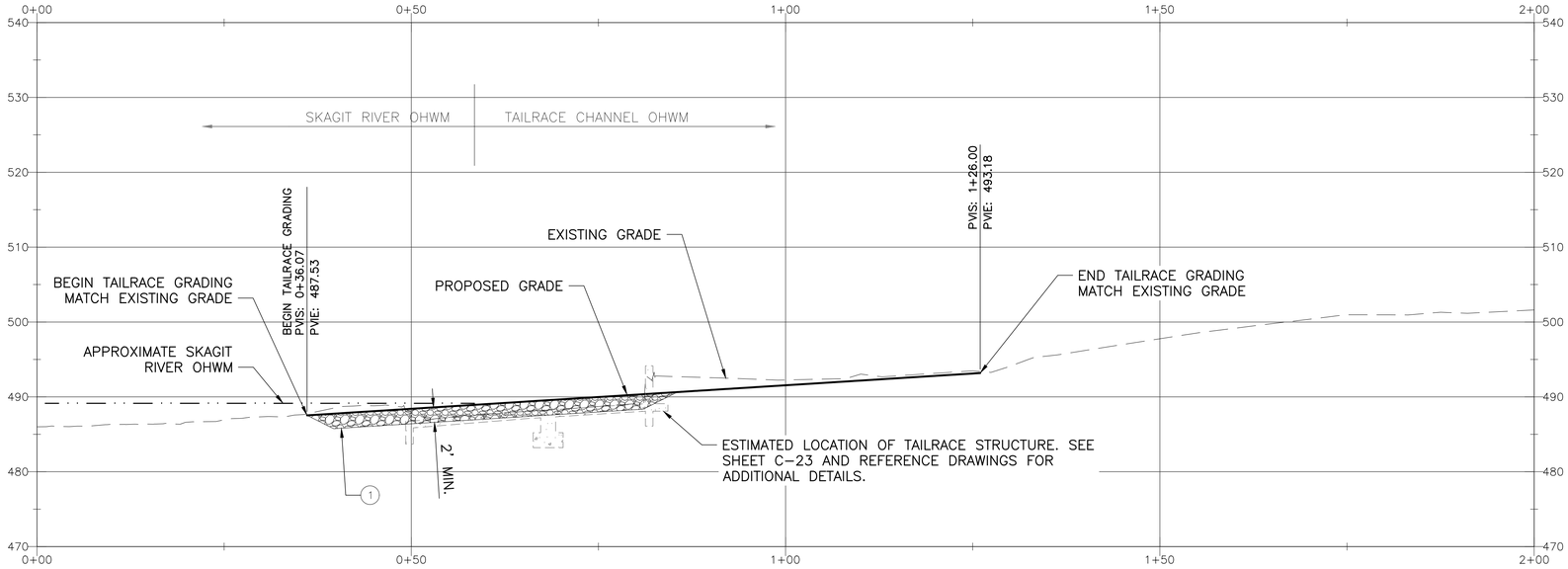
ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: HM	9/22/2024
CHECK: TP	9/22/2024
DESIGN: JS	9/22/2024
CHECK: KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

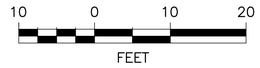
SUBJECT	DECOMISSIONING
LOCATION	NEWHALEM CREEK POWERHOUSE
TITLE	TAILRACE CHANNEL RESTORATION PLAN
SHEET	31 OF 33
CLASS \ SHEET	C-26
DRAWING NO.	####
SCALE	AS NOTED
REV. NO.	0



TAILRACE RESTORATION PROFILE

SCALE: 1" = 10'

(1 / –)

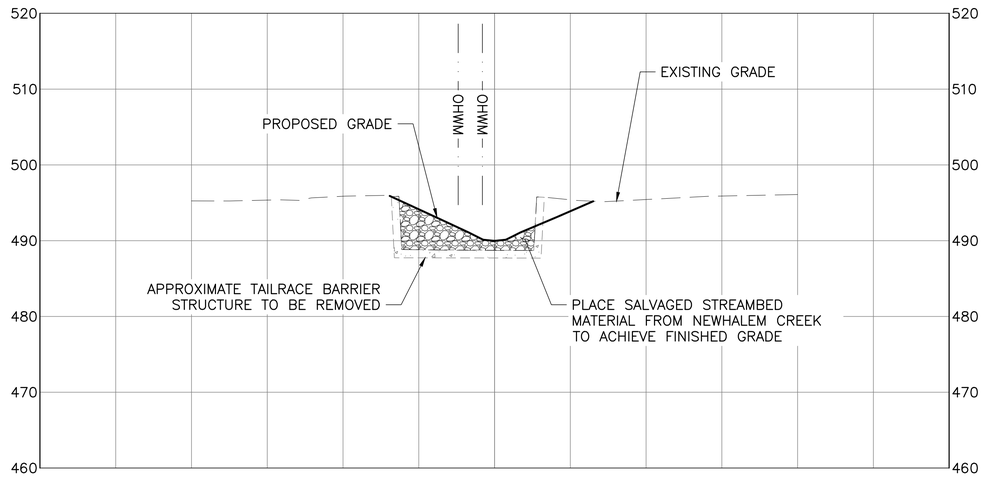


NOTES:

(1) PLACE SALVAGED STREAMBED MATERIAL FROM NEWHALEM CREEK TO ACHIEVE FINISHED GRADE

NOTES:

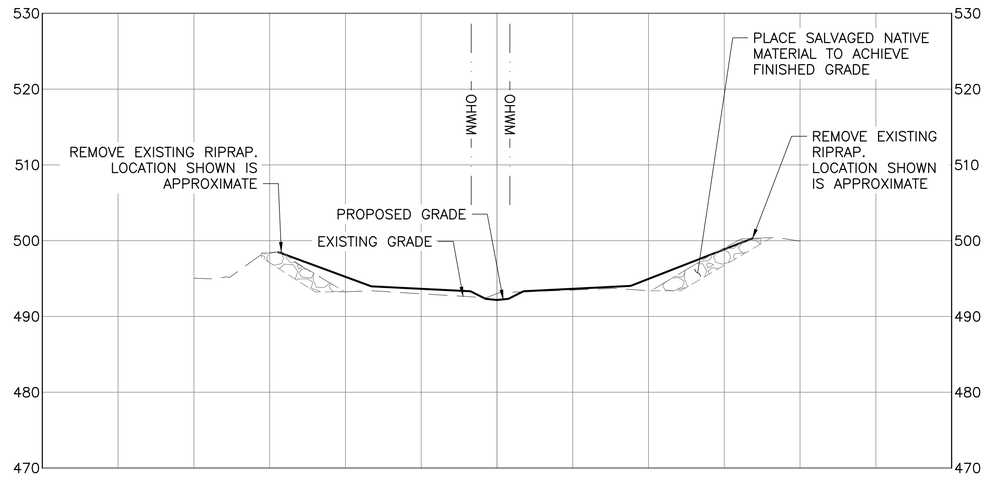
1. ELEVATION OF SKAGIT RIVER OHWM IS APPROXIMATE; OHWM LEFT BANK OF SKAGIT RIVER DELINEATED IN THE FIELD.



DOWNSTREAM TAILRACE SECTION

SCALE: 1" = 10'

(A / C-26)



UPSTREAM TAILRACE SECTION

SCALE: 1" = 10'

(B / C-26)

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY:	CHECKED BY:	APPROVED BY:
WORK ORDER #:		
DESCRIPTION		
0	9/22/2024	
HM	KM	
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS

	SIGNATURE	DATE
DRAWN:	HM	9/22/2024
LEAD:	TP	9/22/2024
DESIGN:	JS	9/22/2024
CHECK:	KM	9/22/2024

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT: DECOMISSIONING

LOCATION: NEWHALEM CREEK POWERHOUSE

TITLE: TAILRACE CHANNEL RESTORATION PROFILE AND SECTIONS

SHEET: 32 OF 33

CLASS \ SHEET: C-27

DRAWING NO.: ####

SCALE: AS NOTED

REV. NO.: 0

NOTES:

1. EXISTING STORAGE CONTAINER SHALL BE REMOVED BY SCL PRIOR TO CONSTRUCTION.
2. PLANT SALVAGED NATIVE TREES AND SHRUBS; MONITOR NATURAL SUCCESSION AND CONTROL INVASIVE PLANT SPECIES FOR AT LEAST THREE YEARS.
3. ROUGHEN AND LOOSEN WITH AN EXCAVATOR TO CREATE MICROTOPOGRAPHY THAT WILL FACILITATE NATURAL REGENERATION OF NATIVE RIPARIAN FOREST VEGETATION THROUGH MONITORED NATURAL SUCCESSION.
4. ESTABLISH CONNECTING TRAIL BETWEEN TRAIL OF THE CEDARS AND LINKING TRAIL.
5. MONITOR NATURAL SUCCESSION AND CONSIDER COLLECTING AND SOWING SEED OF SELECTED NATIVE PLANTS SUITABLE FOR SITE CONDITIONS TO AUGMENT NATURAL SUCCESSION PROCESSES.
6. A RESTORATION AND INVASIVE PLANT MANAGEMENT PLAN IS BEING DEVELOPED IN COLLABORATION WITH THE NPS, TRIBES, NATURAL RESOURCE MANAGEMENT AGENCIES AND OTHER INTERVENORS.

KEYMAP

ONE INCH AT FULL SIZE

REVISIONS

REV	DATE	IMAGE
DRAWN BY	CHECKED BY	APPROVED BY
WORK ORDER #:		
DESCRIPTION		
0	9/22/2024	
HM	KM	
WORK ORDER #:		

HDR

30% SUBMITTAL (NOT FOR CONSTRUCTION)

ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: --	--
[illegible]: TP	--
DESIGN: --	--
CHECK: --	--

Seattle City Light
Generation and Substations

APPROVED FOR SEATTLE CITY LIGHT

DATE

SUBJECT	DECOMISSIONING
LOCATION	NEWHALEM CREEK POWERHOUSE
TITLE	TAILRACE RESTORATION PLAN
SHEET	33 OF 33
CLASS \ SHEET	C-28
DRAWING NO.	####
SCALE	AS NOTED
REV. NO.	0

From: Matt Holmquist
To: Luchessa, Scott
Cc: Scott Pratschner
Subject: RE: Permit needed for deconstruction activities?
Date: Thursday, February 6, 2025 10:55:42 AM
Attachments: image001.png

Scott L,

Based on my understanding of your project, a permit will not be needed from NWCAA. NWCAA's permitting rules can be found under New Source Review in NWCAA Section 300.

A Notice of Intent (NOI) for demolition and/or asbestos removal will be required. Your abatement contractor can you assist you with this. Scott Pratschner, copied on this email, can also provide any needed guidance.

NWCAA's asbestos control standards in NWCAA Section 570 define ASBESTOS-CONTAINING MATERIAL as any material containing more than 1 percent asbestos as determined using the method specified in 40 CFR Part 763 Subpart E, Appendix E, Section 1, Polarized Light Microscopy. This definition includes any loose vermiculite, unless sampled using the Cincinnati Method (EPA 600/R-04/004) and found to contain 1 percent or less asbestos.

Matt Holmquist
Registered Source Program Manager
Northwest Clean Air Agency
1600 S. Second St
Mount Vernon, WA 98273
Direct: 360.419.6840
nwcleanairwa.gov

From: Luchessa, Scott <Scott.Luchessa@seattle.gov>
Sent: Thursday, February 6, 2025 10:46 AM
To: Matt Holmquist <MattH@nwcleanairwa.gov>
Subject: RE: Permit needed for deconstruction activities?

Thanks, Matt. So, my understanding is that no CAA permit is needed from you. I will advise our project manager to have our asbestos abatement contractor to take a look at the diversion dam, sluiceway and headgate too. You mentioned in our telephone conversation a threshold beyond which if asbestos is in the concrete a CAA permit would be required. Could you please state what the threshold is in your response to this email.

Thanks,

SCOTT LUCHESSA
SEATTLE CITY LIGHT
O: 206-733-9655 | M: 206-561-4838

From: Matt Holmquist <MattH@nwcleanairwa.gov>
Sent: Thursday, February 6, 2025 10:35 AM
To: Luchessa, Scott <Scott.Luchessa@seattle.gov>; Scott Pratschner <ScottP@nwcleanairwa.gov>
Subject: RE: Permit needed for deconstruction activities?

Scott,
As we discussed via telephone, the four Seattle City Light locations below seem unaffected by the scope of the decommissioning project you're working on. For example, air permits at Newhalem are for abrasive blasting and spray coating operations which aren't impacted by your project. In addition, registered equipment / operations such as the emergency engine, gasoline dispensing, plasma cutting table, wastewater treatment, and wood processing dust collector remain unaffected. You'll need to make sure to meet asbestos control and demolition requirements as Scott Pratscher spelled out. The likelihood of asbestos in the cement is something you should talk to your AHERA Building Inspector about.
Thank you.
Matt

Matt Holmquist
Registered Source Program Manager
Northwest Clean Air Agency
1600 S. Second St
Mount Vernon, WA 98273
Direct: 360.419.6840
nwcleanairwa.gov

From: Luchessa, Scott <Scott.Luchessa@seattle.gov>
Sent: Thursday, February 6, 2025 10:22 AM
To: Matt Holmquist <MattH@nwcleanairwa.gov>; Scott Pratschner <ScottP@nwcleanairwa.gov>
Subject: RE: Permit needed for deconstruction activities?

Matt,

The Newhalem Creek Hydroelectric Project is close to the town of Newhalem. So, I suppose that corresponds to the Milepost 120 Off Hwy 20. Perhaps a call might be easier to help you better understand what decommissioning entails and whether some sort of permit is required. I'll try you now as we are trying to prepare a filing for FERC to go out today. If I am unable to get a hold of you, please try to reach me later today at the mobile number below.

Thanks,

Scott

SCOTT LUCHESSA
SEATTLE CITY LIGHT
O: 206-733-9655 | M: 206-561-4838

From: Matt Holmquist <MattH@nwcleanairwa.gov>
Sent: Thursday, February 6, 2025 7:17 AM
To: Scott Pratschner <ScottP@nwcleanairwa.gov>; Luchessa, Scott <Scott.Luchessa@seattle.gov>
Subject: RE: Permit needed for deconstruction activities?

Scott L –
Does the project relate to one of these four locations?

Name	Street	City
Seattle City Light - Diablo	T38N R13E S35	Diablo
Seattle City Light - Gorge	Milepost 123 off Highway 20	Newhalem
Seattle City Light - Newhalem	Milepost 120 off Hwy 20	Newhalem
Seattle City Light - Ross	T37N R13E S5	Newhalem

Matt Holmquist
Registered Source Program Manager
Northwest Clean Air Agency
1600 S. Second St
Mount Vernon, WA 98273
Direct: 360.419.6840
nwcleanairwa.gov

From: Scott Pratschner <ScottP@nwcleanairwa.gov>
Sent: Wednesday, February 5, 2025 12:12 PM
To: Luchessa, Scott <Scott.Luchessa@seattle.gov>; Matt Holmquist <MattH@nwcleanairwa.gov>
Subject: RE: Permit needed for deconstruction activities?

Nothing else comes to mind, though if the structure was previously permitted as a registered source with

us there might also be a shutdown notice involved. I'll check in with Matt Holmquist, our registered source program lead.

Matt, anything else they might need on your end?

Scott Pratschner (he/him)
Inspector
Northwest Clean Air Agency
Office: 360-428-1617
Cell: 360-420-2301

From: Luchessa, Scott <Scott.Luchessa@seattle.gov>
Sent: Wednesday, February 5, 2025 12:06 PM
To: Scott Pratschner <ScottP@nwcleanairwa.gov>
Cc: info <info@nwcleanairwa.gov>; Seth Preston <SethP@nwcleanairwa.gov>
Subject: RE: Permit needed for deconstruction activities?

Thanks for the prompt reply, Scott. Understood. Our asbestos abatement contractor has tons of experience and knows the drill as do we. Otherwise, there's no CAA permit needed for demolition of concrete at the diversion dam and barrier at the tailrace? The diversion dam and associated structures were constructed in the mid-1920s and the barrier on the tailrace was built in the mid-1990s to keep salmon out.

Scott

SCOTT LUCHESSA
SEATTLE CITY LIGHT
O: 206-733-9655 | M: 206-561-4838

From: Scott Pratschner <ScottP@nwcleanairwa.gov>
Sent: Wednesday, February 5, 2025 12:00 PM
To: Luchessa, Scott <Scott.Luchessa@seattle.gov>
Cc: info <info@nwcleanairwa.gov>; Seth Preston <SethP@nwcleanairwa.gov>
Subject: RE: Permit needed for deconstruction activities?

Hi Scott,
 You'll need to be sure asbestos removal and demolition notifications are filed when the time comes, though usually the asbestos contractor will take care of that. Be sure to let them know that any required abatement work is pre-demolition, so they file both notifications together.

Best,
Scott Pratschner (he/him)
Inspector
Northwest Clean Air Agency
Office: 360-428-1617
Cell: 360-420-2301

From: Seth Preston <SethP@nwcleanairwa.gov>
Sent: Wednesday, February 5, 2025 11:37 AM
To: Scott Pratschner <ScottP@nwcleanairwa.gov>
Cc: info <info@nwcleanairwa.gov>
Subject: FW: Permit needed for deconstruction activities?

Looks like a good one for you, Scott!

Seth Preston
(he/him/his)
Communications Program Manager
Northwest Clean Air Agency
Desk: 360-419-6764
Mobile: 360-724-8766

From: Seth Preston <sethp@nwcleanairwa.gov>
Sent: Wednesday, February 5, 2025 11:36 AM
To: Seth Preston <SethP@nwcleanairwa.gov>
Subject: Permit needed for deconstruction activities?

Name
Scott Luchessa
Email
scott.luchessa@seattle.gov
Phone
(206) 561-4838
Subject
Permit needed for deconstruction activities?
Message
Hello, I am the lead on permitting the decommissioning of the Newhalem Creek Hydroelectric Project (FERC No. 2705) for Seattle City Light. City Light submitted a surrender license application to FERC in 2022 and is in the process of completing design plans for deconstructing all of the structural elements of the project, including the small diversion dam (~13-ft. tall x 40-ft. wide), sluiceway, and headgate; powerhouse, penstock and saddles, and concrete barrier on the tailrace. We are developing habitat restoration plans in collaboration with the National Park Service. The powerhouse burned down in the mid-1960s and was rebuilt. An asbestos hazard assessment will be completed this summer and any asbestos that may be present remediated by a qualified contractor before any deconstruction occurs.. Do we need a CAA permit for this deconstruction work?

Newhalem Creek Hydroelectric Project Decommissioning Project Description

Background

The Newhalem Creek Hydroelectric Project (Project) is in the Cascade Mountains of northern Washington State on a tributary to the upper Skagit River. Project operations began in 1921 to supply power to the town of Newhalem for construction of Gorge Dam and Powerhouse, which are part of the Skagit River Hydroelectric Project. The Project occupies 6.4 acres of federal lands within the Ross Lake National Recreation Area, which is managed by the National Park Service (NPS) as part of the North Cascades National Park Complex.

The Project consists of a concrete, overflow, diversion dam; a combination sluiceway/intake structure and small gatehouse at the dam; an unlined rock vertical shaft that conveys water from the intake to an unlined power tunnel; a steel penstock that conveys water from the power tunnel to a wood-framed powerhouse with a double-overhung Pelton impulse turbine connected to a single generating unit; a tailrace channel that discharges into the Skagit River over a concrete tailrace fish barrier; and a 7.2 kilovolt transmission line, consisting of overhead and buried cable, that connects to Gorge Powerhouse (30% Design Plan Sheets G-5 and C-1 to C-6).

The Project, which is owned and operated by Seattle City Light (City Light), was most recently licensed by the Federal Energy Regulatory Commission (FERC) in 1997 for 30 years (Project No. 2705). The dam is located 1 mile above the confluence with the Skagit River at Creek Mile (CM) 1.0, just above a 100-foot (ft) waterfall that is a permanent barrier to upstream fish passage. When operational, it diverts a portion of the flow from the lower 1 mile of Newhalem Creek and generates 2.125 megawatts of power. The Project, however, has not been consistently in service since 2010 and cannot be operated due to three significant issues: leaks in the power tunnel, maintenance needs at the headworks and powerhouse, and access road safety concerns (active landslide).

After conducting an engineering analysis in 2020, City Light concluded that the cost of relicensing the Project and making the necessary repairs and upgrades to equipment/facilities and the access road far exceeded the estimated future value of the Project. On January 28, 2022, City Light filed a Surrender of License application with FERC to surrender the Project license and decommission the existing infrastructure (see submitted Surrender of License Application). Since then, City Light has been working with the intervening parties including the NPS, resource management agencies, Tribes, and non-governmental agencies to define the scope of the project. The following represents the scope of the project after reaching consensus with the intervening parties.

Project Description

All buildings, structures, equipment, and infrastructure associated with the Newhalem Creek Hydroelectric Project would be removed, including the powerhouse; tailrace fish barrier; penstock

and saddles; dam, sluiceway, gatehouse and footbridge; electrical and communication lines over the Skagit River; utility poles on each side of the river; and all below-ground infrastructure including electrical lines, water lines, and septic system. The power tunnel and buried power lines on the north side of the Skagit River through Newhalem would be abandoned in place.[1]

In the upper portion of the project area, access to the dam would need to be re-established, requiring some repairs to Newhalem Creek Road between Station 12+00 and Station 40+20 (30% Design Plan Sheets C-3 to C-6). A landslide that currently blocks the road at Station 29+00 would require repairs to improve slope stability and the roadbed structure for safety and short-term access through the landslide area (Sheet C-18). Work in the landslide area may include the following:

- Clearing material from the roadway, including using a non-explosive cracking agent to break apart the largest boulders.
- Using some or all the cleared material to construct a protective berm as a barrier between the road and the slope above the road.
- Scaling the slope above the road to remove hazard rocks, which may involve the use of small explosives. A few scaled rocks may pass over the road and reach Newhalem Creek.

Road repair and slope stabilization would occur in summer, in the weeks before dam removal, once conditions are dry and the danger of landslides and rockfall are lowest. Once the repairs are complete, equipment and materials needed to demolish the diversion dam and other headworks would be transported to the diversion dam area. While the road is the most likely means of accessing the diversion dam and headworks, it is possible that a helicopter assist may occasionally be needed.

Before beginning deconstruction of the diversion dam and other infrastructure, all reasonable and appropriate BMPs to control erosion and sedimentation would be installed. A temporary coffer dam would be installed composed of supersacks filled with native alluvium to divert the flow of water and isolate the work area so deconstruction would be completed in the dry. Concrete structures, including the sluiceway, dam and apron, and slabs adjacent to the gatehouse would likely be removed with an excavator or possibly with an excavator equipped with a breaker bar or jackhammer. The gatehouse and pedestrian bridge would be removed after work on the diversion dam and sluiceway/intake is complete, and the power tunnel would be sealed at the upper end (see 30% Design Plan Sheets C-7 to C-11 and JARPA for additional details). Once the headworks are removed, some channel grading would be done as part of proposed channel restoration (30% Design Plan Sheets C-12 to C-14).

[1] The submitted 30% design plans include removal plans the headworks, tailrace fish barrier, and culvert 11 but only show the existing footprint of the penstock and powerhouse. As discussed with Ecology during the pre-filing meeting, City Light only agreed recently to the penstock and powerhouse removal, which are part of the "full removal" alternative and 30% design plans for their removal are not yet available. However, proposed work in those areas is described in detail below.

Removal of the diversion dam and other concrete portions of the headworks is expected to generate approximately 560 cubic yards (CY) of concrete debris, in addition to other construction debris. Highway legal dump trucks would be used to remove the concrete and other demolition debris off site for disposal or recycling. Helicopters also could be used for all or some of this work.

After the headworks are removed, the gravel staging area would be restored by roughening and loosening with an excavator to create a pit and mound topography like that found in natural mature forests in the Pacific Northwest. This roughening and loosening method (Polster 2013) is commonly used on heavily disturbed industrial sites and has been used effectively by City Light and other restoration practitioners to facilitate natural succession and regeneration of desirable native forest types on earthen dams, mine sites, and abandoned roads. Restoration of native forest vegetation types will rely primarily on natural succession processes such as transport of native plant seed by hydrochory (water), wind, and animal dispersal mechanisms. Natural succession of native riparian and upland forest types found in adjacent undisturbed areas will be monitored and invasive species controlled as documented in a restoration and invasive species management plan being developed in collaboration with the NPS, Tribes, natural resource management agencies and other intervenors.

The gravel road between the Skagit Emergency Action Plan (EAP) evacuation muster site at Station 12+00 and the former diversion dam at Station 40+20 would be placed in "storage." Road storage is a form of abandonment that prevents damage to adjacent resources but preserves the road for future NPS access above the dam. Storing Newhalem Creek Road will include the following:

- Filling existing ditch lines.
- Placing water bars at regular intervals along the roadway surface to control stormwater runoff and minimize potential erosion and sedimentation impacts.
- Removing 4 existing culverts.
- For one of the culverts, Culvert 11, the existing culvert would be removed and the natural drainage configuration restored, which will include removal of road fill and re-establishment of a stream channel (30% Design Plan Sheet C-22).
- In sections of the roadway where slumping and erosion of the outboard roadway has been observed, fill would be removed to reduce the risk of ongoing erosion or failure of the road prism.
- Slopes disturbed from construction activities would be stabilized and revegetated by mulching, seeding or monitored natural succession as specified in the restoration and invasive species management plan being developed in collaboration with the NPS, Tribes, natural resource management agencies and other intervenors.
- Large boulders would be placed at Station 12+00 to prevent vehicular access.

In the lower portion of the project area, the penstock and saddles would be removed using construction equipment such as a conventional excavator, articulated excavator, or hand-held jackhammer. Temporary construction of a new route partially up the slope to the lower thrust block above the powerhouse may be necessary. The 54 concrete saddles (plus 2 wooden saddles) located every 20 ft up the hillside would also be removed. The saddles are 6-ft- wide, 10 inches

(in) thick, range from 4.3 to 6-ft-tall, and are either buried approximately 3-ft deep or embedded onto bedrock with four rock anchors. The six concrete thrust blocks range in size from 5 ft long by 5 ft wide to 10 ft long by 7 ft wide, with heights varying between 5 and 8-ft See Sheet C-2 in the submitted 30% design plans for the existing conditions plan for the powerhouse and penstock areas, which shows these features.

The saddles and the thrust blocks would be broken apart with an excavator equipped with a breaker bar attachment, jackhammer, and/or hand tools. Saddles bolted to bedrock may need to be and cut and chipped from the bedrock with a jackhammer.

The penstock would be cut from the concrete plug separating the power tunnel from the penstock and removed from the rock tunnel. The opening of the rock tunnel would be gated to allow for passage of smaller wildlife. Ground water seeps into the tunnel through natural fissures and cracks in the bedrock. Ground water seepage dissipates through these fissures and cracks in the tunnel recharging shallow ground water and some becomes surface flow that flows out of the adit and enters existing ephemeral and intermittent streams drainages. After the intake is plugged and the penstock removed, City Light will monitor surface flow out of the adit and into existing streams and assess whether any additional action is necessary.

The transmission and electrical service lines that cross the Skagit River would be removed along with their power poles. The transmission lines would be removed with a truck-mounted cable reel. The underground water lines, electrical lines, fire hydrant, and septic tank on the south side of the Skagit River would be excavated and removed. The powerhouse and its foundation would be demolished with an excavator and/or other conventional equipment. Generating equipment inside the powerhouse and the transformers outside the powerhouse would be salvaged or disposed of off-site. The powerhouse site, gravel parking lot and the gravel road between the powerhouse and Newhalem Creek would be restored to native forest types as specified in the restoration and invasive species management plan being developed in collaboration with the NPS, Tribes, natural resource management agencies and other intervenors.

Tailrace Creek downstream of the powerhouse would be retained because it is part of the existing intermittent stream. However, the concrete tailrace fish barrier and apron would be demolished using an excavator-mounted jackhammer, possibly assisted by a non-explosive cracking agent, concrete saw, and/or waterjet cutter. The tailrace barrier consists of approximately 99 CY of reinforced concrete. City Light would develop BMPs to ensure that concrete dust is controlled. Dump trucks would transport the concrete debris and rebar to an appropriate disposal site or recycling facility. Additionally, the riprap associated with the tailrace barrier would be removed, as would the concrete viewing platform. The approximate 60-ft-long spur trail from the Trail of the Cedars would be restored and the tailrace fish barrier site would be regraded and restored to provide for high-flow fish refugia (see submitted 30% design plan Sheets C-26 to C-28). The temporary access route used to install the tailrace barrier is still evident and would be re-established (see submitted 30% design plan Sheet C-25). Re-establishment of this temporary access minimizes the number of trees and other riparian vegetation that would need to be removed. A thick layer of hog fuel or wood chip mulch is proposed to be used to preserve the

rhizomes (roots) of native plants and minimize compaction of forest soils. Rhizomes preserved beneath the mulch left in place after construction would be allowed to regrow as part of planned restoration. While proposed restoration of native riparian forest will rely primarily on natural succession processes, some plants salvaged before construction will be replanted, and seed of selected species of native plants may be collected locally and sown to augment natural regeneration and succession processes. Some of the native species selected may include culturally important plants identified by our Tribal partners. Restoration concept for the powerhouse and tailrace area are shown in the cited 30% design plan noted above. Additionally, a restoration and invasive species management plan are being developed in collaboration with the NPS, Tribes, natural resource management agencies, and other intervenors.

Mitigation Measures

Seattle City Light requires all contractors to comply with the most current version of the City of Seattle's Standard Specifications for Road, Bridge, and Municipal Construction (City Construction Specifications). City Construction Specifications are incorporated into the project contract as are all required government approvals and permits. Among the requirements of the City Construction Specifications are preparation of specific plans by the contractor that are subject to approval by the City Light Project Engineer in charge of overseeing that the contractor complies with all contract plans and specifications. The plans in the following subsections must be developed by the selected contractor and approved by City Light before construction begins. City Light's construction management process, which includes the Project Engineer and others is a quality assurance process that ensures that all project plans, specifications, and permit requirements are followed.

Tree, Vegetation and Soil Protection Plan

The selected contract will be required to prepare a Tree, Vegetation and Soil Protection Plan (TVSPP) for approval by City Light before construction begins. The TVSPP must show the location of BMPs used to protect existing trees, vegetation, and soil for the duration of the contract. BMPs may include marking clearing limits and enclosing vegetation to be preserved within protected fencing. Following the approved TVSPP will help limit unnecessary clearing and preserve upland, riparian, wetland and other desirable native plant communities adjacent to Project elements.

Spill Prevention Control and Countermeasures Plan

City Construction Specifications require preparation of a project specific prevention, control and countermeasures Spill Plan (SP) that must be approved by the City Light's Project Engineer before construction begins. The SP must contain appropriate BMPs to protect water quality and downstream resources. For this project specific BMPs that are likely to be included in the SP are also likely to be conditions in required permits, such as the Hydraulic Project Approval and Construction Stormwater General National Pollutant Discharge Eliminations System (CSWG NPDES) permit, and include locating any fuel storage and fueling areas, and heavy equipment repair areas in designated upland areas at least 100 feet away from waters of the state; using non-

petroleum based, biodegradable hydraulic fluid in all equipment operating below the ordinary high water mark (OHWM) of waters of the state; checking equipment daily at a minimum before work begins for leaks and repairing any leaks before equipment can be used; using double-walled fuel containment tanks or having proper secondary containment capable of capturing 110% of the volume of the largest fuel tank; having proper coverage for fuel storage and/or containment and equipment repair areas; identify spill response kit contents and locations and have personnel trained in the proper use of the spill kit contents; and immediately notifying City Light's Emergency Management and Containment contacts in the event of a spill who will then notify state and federal regulatory agencies as required by law.

Stormwater Pollution Prevention Plan

City Construction Specifications require preparation of a Construction Stormwater and Erosion Control Plan (CSECP) that must be approved before construction begins. This is the City's equivalent to a Stormwater Pollution Prevention Plan (SWPPP). The CSECP must include plan drawings showing the locations ad types of temporary erosion and sediment controls; provide detailed plan and typical details of how proposed BMPs are to be installed and maintained during the project; and provide the name of the Certified Erosion and Sediment Control Lead (CESCL) or Certified Professional in Erosion and Sediment Control (CPESC), including contact information. The CESCL or CPESC is responsible for maintaining inspection logs and updating plans to show any changes in BMPs required to prevent erosion and sediment problems. The CSECP must be prepared by the contractor and approved by City Light's Project Engineer before construction begins. The CSECP is expected to include all reasonable and appropriate BMPs, such as those identified in submitted 30% design plans.

In addition, a CSWG NPDES permit is going to be required for the project as more than an acre of disturbance will occur from the Project. One of City Light's CESCLs will submit a Notice of Intent seeking coverage and obtain coverage for the Project. Coverage and responsibility for completing a SWPPP, monitoring, and submitting discharge monitoring reports (DMR) for the duration of the Project will be transferred to the selected contractor. Following completion of all Project work to the satisfaction of City Light, coverage will be transferred back to City Light and one of City Light's CESCLs will take over monitoring and DMR submittals until the permit coverage is terminated following permanent site stabilization.

Aquatic Invasive Species Management Plan

City Light hydroelectric projects all have their own aquatic invasive species management policies and facilities. Any equipment coming onto the Skagit Hydroelectric Project that will work below the OHWM of waters of the state must be decontaminated and inspected by Skagit personnel trained in the invasive species decontamination protocol and inspection processes. The protocol is intended to prevent the accidental introduction of aquatic invasive species, including zebra and quagga mussels that can adversely affect aquatic ecosystems and damage hydroelectric project infrastructure. The Skagit Hydroelectric Project has a hot-wash facility designed for decontaminating construction equipment. All construction equipment that will be used for

instream work must be decontaminated before working instream to prevent introduction of aquatic invasive species into the Tier IIIA extraordinary high quality resource waters of the Upper Skagit River Basin.

In addition, it is expected that all construction equipment working instream will be required to follow Washington State Department of Fish and Wildlife's (WDFW) decontamination protocol for aquatic invasive species before working instream. It is likely that all equipment coming to work at the Skagit instream will be required to follow the most stringent protocol (Level 2 Decontamination Protocol) as a condition of the Hydraulic Project Approval permit.

Following required decontamination protocols in place is expected to prevent the potential accidental introduction of aquatic invasive species to Newhalem Creek or the Skagit River.

Literature Cited

Polster, D. 2013. Making sites rough and loose: a soil adjustment technique. Technical Note, June 2013. Boreal Reclamation Program, Boreal Research Institute, Centre for Boreal Research, Edmonton, Alberta, Canada.

From:	ECY RE FED PERMITS (SEA)
To:	Luchessa, Scott
Cc:	Padgett, Rebekah (ECY); Luerkens, Chris (ECY); lydia.baldwin@usace.army.mil
Subject:	142546 - WQC Acknowledgment - RE: Request for secure file transfer site for Section 401 Water Quality Certification Request documents - Aquatics ID No. 142546
Date:	Friday, February 7, 2025 6:50:57 AM

Hi Scott,

Ecology received your Section 401 Water Quality Certification (WQC) request package on **January 30, 2025**.

> To view status updates and project details, please use the Aquatics ID number below on Ecology's Status Viewer.
>
> **Aquatics ID number:** 142546
> **Project Name:** Newhalem Creek Hydroelectric Project Decommissioning
> **County:** Whatcom
> **Project Manager:** Rebekah Padgett

Ecology will notify you if we require additional information as we process your request. Visit Ecology's Clean Water Act - Section 401 Water Quality Certifications webpage for all current forms and information regarding the WQC process. If you have further questions, please email us at: ecyrefedpermits@ecy.wa.gov.

Thank you,

Sadie Gaubert She/Her
Aquatic Permitting & Protection Section
Shorelands & Environmental Assistance Program
Washington State Department of Ecology
(360) 407-6076

From: ECY RE FED PERMITS (SEA)
Sent: Wednesday, January 29, 2025 7:54 AM
To: Luchessa, Scott <Scott.Luchessa@seattle.gov>
Subject: 142546 - RE: Request for secure file transfer site for Section 401 Water Quality Certification Request documents - Aquatics ID No. 142546

Hi Scott,

Please see the attached instructions to upload your materials to our Managed File Transfer link. Let us know once you are finished or if you are having trouble logging in.