FINDING OF NO SIGNIFICANT IMPACT (FONSI)
2024 MARSHLAND LEVEE REPAIR PROJECT
SNOHOMISH COUNTY, WASHINGTON

The U.S. Army Corps of Engineers, Seattle District (USACE) has conducted an environmental analysis in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. The Final Environmental Assessment (EA) dated 1 July 2024, for the 2024 Marshland Levee Repair Project addresses flood damage to the levee near Snohomish, Washington.

The Final EA, incorporated herein by reference, evaluates various alternatives to restore flood protection to the damaged levee. There is one major federal action requiring NEPA compliance and analyzed in the Final EA summarized below.

Proposed Action: The preferred alternative is the Repair In-Kind Alternative. This alternative would reconstruct the riverward slope within the pre-damaged footprint. Total construction length, including transitions, would be 350 linear feet. Repair work under this alternative is summarized in section 2.4 of the Final EA and is hereby incorporated by reference.

Alternatives: In addition to a "no action" plan, three alternatives were evaluated. The alternatives include the Nonstructural, Levee Set-back, and the Repair In-Kind Alternatives. Of these, the potential effects were evaluated for the No Action and Repair In-Kind Alternatives. See section 2 of the Final EA for alternative formulation and selection. A summary assessment of the potential effects of the recommended plan are listed in Table 1:

Table 1: Summary of Potential Effects of the Proposed Action

	Insignificant effects	Insignificant effects because of mitigation*	Resource unaffected by action
Water Resources and Water Quality	☒	☐	☐
Wetlands	☐	☐	☒
Vegetation	☐	☒	☐
Fish and Wildlife	☐	☒	☐
Threatened and Endangered Species	☐	☒	☐
Cultural Resources	☒	☐	☐
Land Use, Utilities, and Infrastructure	☒	☐	☐
Air Quality and Climate Change	☒	☐	☐
Noise	☒	☐	☐
Hazardous, Toxic, and Radioactive Waste	☐	☐	☒
Environmental Justice in Minority and Low-Income Populations	☐	☐	☒
Recreation	☒	☐	☐

Impact Minimization: All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan (section 2.6) given the urgency of this activity. Best management practices, as detailed in section 2.7 the

Final EA, would be implemented to minimize impacts. Measures include water quality monitoring, restricting in-water work to July 1 to August 31 to minimize construction related impacts to protected salmon, and mitigating impacts to water quality and vegetation.

Mitigation: The preferred alternative would result in unavoidable adverse impacts to vegetation to construct the repair**.** To minimize these unavoidable adverse impacts, the USACE will incorporate approximately 58 willow bundles into the levee repair and plant 39 native trees on a riverward bench immediately downstream of the repair. These plantings will replace shade and other habitat functions to aquatic and terrestrial species in the Snohomish River that would be affected by the work. Additionally, invasive species will be removed, flood plain access will be restored, and large woody material will be placed above the OHWM. See section 2.6 in the Final EA for more details.

Public Review: Public review and comment of the Draft EA/FONSI for the proposed 2024 Marshland Levee Repair Project was completed on May 26, 2024. Comments and responses are included in Appendix G of the Final EA.

Treaty Tribes: The Snoqualmie Indian Tribe, Sauk-Suiattle Indian Tribe, Stillaguamish Tribe of Indians, Tulalip Tribes, Swinomish Indian Tribal Community, Muckleshoot Indian Tribe, Confederated Tribes and Bands of the Yakama Nation, Suquamish Indian Tribe of the Port Madison Reservation, Samish Indian Nation, and Upper Skagit Indian Tribe were contacted regarding the levee repairs and the USACE will continue to coordinate throughout the project to address rights reserved by Tribes in Treaties. Two comments were received from the Swinomish Indian Tribal Community (Swinomish) on April 9, 2024, and 8, 2024, raising concerns about the duration of monitoring and adaptive management (requesting five years after planting) and questioning the appropriateness of the USACE's 3:1 replacement ratio when replacing mature trees with new plantings. USACE provided responses to the Swinomish on April 7, 2024 and June 7, 2024, and Section 8.11 of the Final EA addresses this exchange. USACE's direct role in providing support for levee vegetation plantings is limited given, the urgent need to act in a quick time period, and the specific role that the federal government has to conduct for an emergency repair to this non-Federal flood control structure. The decisions for this project took into consideration site-specific circumstances and USACE's authority under PL 84-99. The local non-federal sponsor bears the long-term responsibility for upkeep of the flood control structure, not USACE, and the Federal government's role is intended to be short-term and limited to addressing damage caused by flooding to a flood control structure.

Compliance:

a. Endangered Species Act:

The National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFWS) are responsible for the Endangered Species Act of 1973 (ESA). The USACE requested emergency consultation with the USFWS and NMFS under section 7 of the ESA on March 6, 2024. The USACE will implement recommended measures from NMFS on March 27, 2024, to reduce the number, extent, and type of adverse effects the project may otherwise have on ESA-listed species and/or critical habitat. Consultation is ongoing and will likely be completed after the levee has been repaired. See section 8.6 in the Final EA for more details.

b. Magnuson-Stevens Fishery Conservation and Management Act:

Essential Fish Habitat (EFH) for Chinook, coho and pink salmon is present in the project area. Due to the emergency circumstances, consultation with NMFS will be completed after the levee has been repaired. See section 8.7 in the Final EA for more details.

c. Clean Water Act:

The USACE has determined the proposed repairs are exempt from the Clean Water Act. The proposed project does not include fill requiring consideration under Section 404. Since the project does not result in any Section 404 discharge into waters of the U.S., Section 401 Water Quality Certification is not required. Section 402 of the CWA is triggered when a construction site would have greater than 1 acre of ground disturbance. Proposed repairs to the Marshland Levee do not exceed 1 acre of ground disturbance.

d. Coastal Zone Management Act:

The USACE has determined the proposed repairs are consistent to the maximum extent practicable with the enforceable policies of the approved Washington Coastal Management Program. The USACE submitted a Coastal Zone Management Act (CZMA) Consistency Determination (CD) to the Washington Department of Ecology requesting concurrence with the USACE determination on April 12, 2024. Ecology issued a 21-day public notice on April 17, 2024, and received no comments. On May 30, 2024, Ecology requested a 15-day extension pursuant to 15 CFR Part 930.41(b) to allow additional time for Ecology staff to review the project for consistency with the Shoreline Management Act (SMA), extending the CZMA decision deadline to June 28, 2024. Ecology requested additional information on May 31, 2024, and a meeting was held on June 12, 2024, between USACE and Ecology. In light of the June 12 meeting, and the additional information received and discussed, Ecology asked USACE for an additional extension to the decision deadline, pursuant to 15 CFR 930.41(b). On June 18, 2024, USACE agreed to extend the deadline to July 3, 2024. Ecology provided concurrence, with three conditions, on July 2, 2024. Those conditions were: (1) create a standalone Shoreline Mitigation Plan submitted to Ecology for review and approval 14 business days prior to construction; (2) notify Ecology immediately if any changes are made to the Shoreline Mitigation Plan and provide Ecology with an updated plan; and (3) submit copies of all annual monitoring reports to Ecology by December 31 of each year. USACE considers the terms of Ecology's "Conditional Concurrence" to not be acceptable pursuant to 15 CFR § 930.4(a)(2), and provided notice to Ecology to this effect contemporaneously with finalization of NEPA. While these conditions are not necessary, nor based on an enforceable policy approved by the National Oceanic and Atmospheric Administration (NOAA), should USACE actually abide by these conditions, it would adversely increase the environmental impact of this proposed work, as USACE would no longer be able to ensure that construction would be concluded before the end of the in-water work window (July 1 to August 31) and would no longer be able to avoid and minimize impacts on ESA-listed species, designated critical habitat, as well as fish habitat, and it would increase the project's net ecological impact as assessed in the USACE CD.

Per NOAA's CZMA's implementing regulations at 15 CFR § 930.4(b), USACE will treat the conditional concurrence as an objection. As the 90-day period (15 CFR § 930.43(d)) ended for review of the Marshland Levee consistency determination on July 11, 2024, and USACE has concluded that the offered conditions are neither valid nor necessary to achieve consistency, and that the provisions of 15 CFR §§ 930.43(d)) are met, and USACE will proceed with the urgent Marshland Levee Repair as reflected in the consistency determination notwithstanding Ecology's conditioned concurrence.

e. National Historic Preservation Act:

The USACE initiated consultation with the Washington State Department of Archeology and Historic Preservation (DAHP) on the Area of Potential Effect (APE) on April 1, 2024. The DAHP concurred with the APE for both levee repairs on the same day. The USACE also coordinated with the Confederated Tribes and Bands of the Yakama Indian Nation, Sauk-Suiattle Indian Tribe, Snoqualmie Indian Tribe, Stillaguamish Tribe of Indians, Swinomish Indian Tribal Community, and Tulalip Tribes about the APE on April 1, 2024. The USACE consulted with DAHP on the survey results and effects determination on May 16, 2024. DAHP concurred with USACE's determination of no adverse effect to historic properties on May 21, 2024. To date the USACE has received no comment from the contacted Tribes regarding the APE letters.

Determination:

a. Summary of Impacts and Compliance:

Impacts of the proposed work are anticipated to be minor, short-term, and temporary. ESA and EFH consultations are ongoing. The USACE is in receipt of Ecology's conditional concurrence under CZMA dated July 2, 2024, and the USACE will treat the conditional concurrence as an objection under 15 CFR § 930.4(b) as it does not consider the offered conditions acceptable. The provisions of 15 CFR §§ 930.43(d)) are met, and USACE will proceed with the urgent Marshland Levee Repair as reflected in the consistency determination notwithstanding. The project is exempt from Section 404 of the Clean Water Act. The project complies with the National Historic Preservation Act and the USACE has coordinated the work with the Washington SHPO and affected Indian Tribes.

District Engineer's Conclusion: All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on the analysis presented in the Final EA, which has incorporated or referenced the best information available; the reviews by other Federal, state and local agencies, Tribes; input of the public; and the review by my staff, it is my determination that the preferred alternative would not cause significant adverse effects on the quality of the human environment and does not require preparation of an environmental impact statement.

19 July 2024
Date

Kathryn P. Sanborn, PhD, PE, PMP
Colonel, Corps of Engineers
District Commander

2024 MARSHLAND LEVEE REPAIR PROJECT

Environmental Assessment

Snohomish County, WA

July 2024

U.S. ARMY

US Army Corps of Engineers®

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Acronyms and Abbreviations

Term	Meaning
AEP	Annual Exceedance Probability
AQI	Air Quality Index
BA	Biological Assessment
BMP	Best Management Practices
CA	Cooperation Agreement
CEQ	Council on Environmental Quality
CD	Consistency Determination
CFR	Code of Federal Regulation
cfs	cubic feet per second
CWA	Clean Water Act
CY	Cubic yards
CZM	State Coastal Zone Management
CZMA	Coastal Zone Management Act
DAHP	Washington State Department of Archeology and Historic Preservation
dB	Decibel
dBA	Human Hearing Weighted Decibels
EA	Environmental Assessment
Ecology	Washington State Department of Ecology
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ER	Engineering Regulation
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FONSI	Finding of No Significant Impacts
H:V	Horizontal to Vertical ratio, measured in feet
LWM	Large Woody Material
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service / NOAA Fisheries
OHWM	Ordinary High-Water Mark
RM	River Mile
Services	U.S. Fish and Wildlife Service and National Marine Fisheries Service
SMA	State Shoreline Management Act
Sp., Spp	species (singular and plural)
SRKW	Southern Resident Killer Whale
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers, Seattle District
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
WDFW	Washington Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation

1 PROPOSAL FOR FEDERAL ACTION

The U.S. Army Corps of Engineers, Seattle District (USACE), prepared this Environmental Assessment (EA) in accordance with (1) the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. § 4321 et seq.), (2) regulations of the Council on Environmental Quality for implementing the procedural provisions of NEPA (40 CFR parts 1500-1508), and (3) USACE procedures for implementing NEPA (33 CFR 230; https://www.ecfr.gov/current/title-33/chapter-II/part-230). Pursuant to Section 102(C) of NEPA, this assessment evaluates the environmental consequences of the proposed Marshland Levee Repair project.

1.1 BACKGROUND

The Marshland Levee is approximately 29,400 feet long and was first built by non-federal entities in the early 1900s. In its undamaged state, the Marshland Levee provides a 10-year level of protection to agricultural, residential, and industrial properties. This level of protection corresponds to a 0.1 Annual Exceedance Probability (AEP) event. A flood event in December 2023 damaged the levee, reducing it to a 1-year level of flood protection (1.0 AEP event). Failure to repair the levee before the next storm season would result in a potential threat to human safety and improved property.

1.2 DAMAGING FLOOD EVENT

In early December 2023, an atmospheric river brought high amounts of precipitation to Western Washington, which increased the water level on the Snohomish River. The peak recorded discharge was 64,800 cubic feet per second (cfs) with a gage height of 27.69 feet at the USGS 12155500 gage at Snohomish River near Snohomish, Washington (USGS 2024, Figure 1 and Figure 2). Flood stage at this gage occurs when the height reaches 25 feet (Figure 2). The flood event caused scouring and sloughing along approximately 335 feet on the riverside slope of the Marshland Levee (Appendix A). In its damaged state, the level of protection provided by the Marshland Levee is reduced from a 10-year (0.1 AEP event) to a 1-year (1.0 AEP event) level of protection.

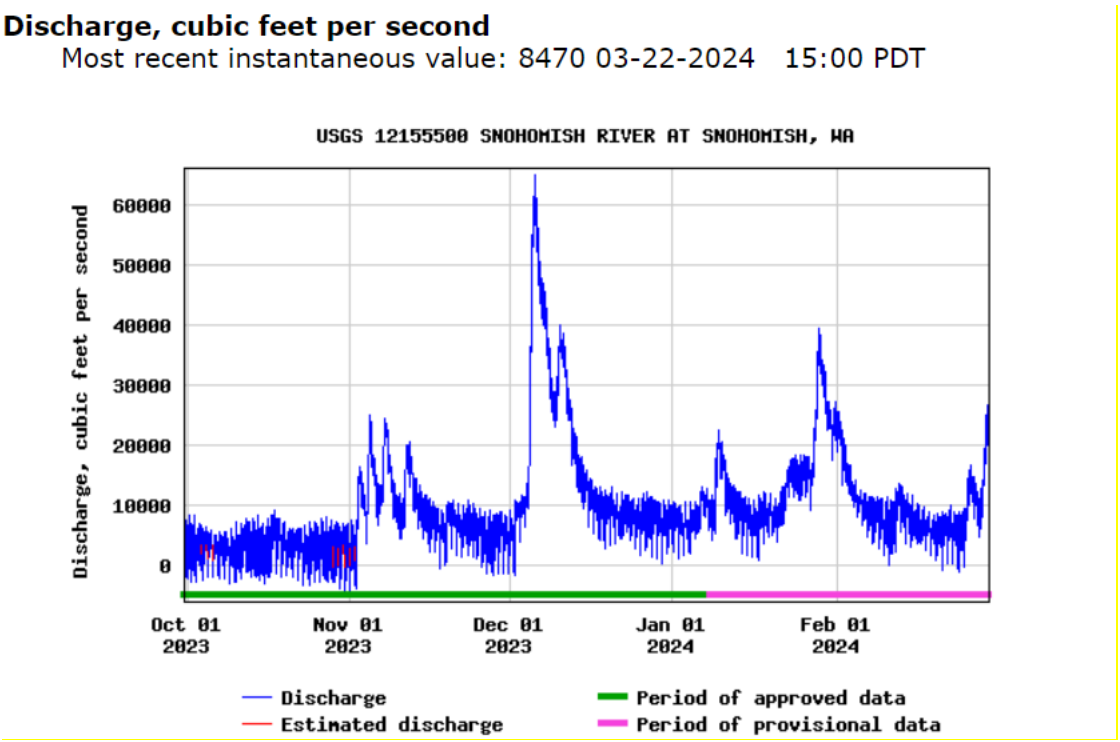

Figure 1. Discharge on the Snohomish River from October 1, 2023 to February 29, 2024. The flood event in December reached a discharge of approximately 64,800 cubic feet per second (USGS 2024).

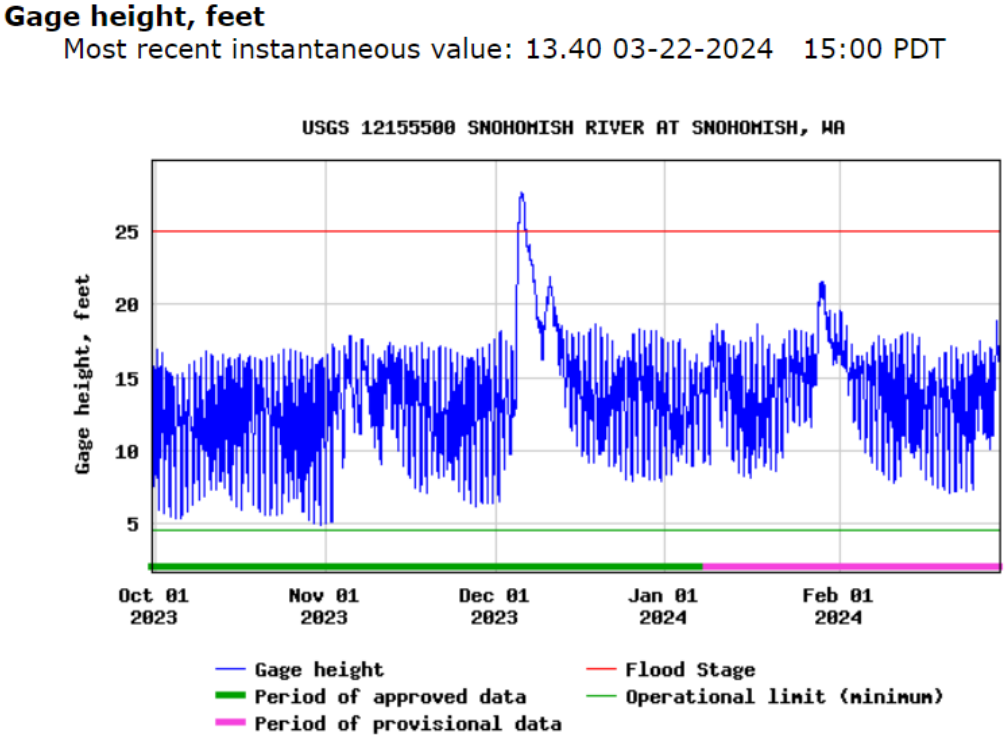

Figure 2. Gage height on the Snohomish River. Flood stage (shown in red) occurs when the gage height reaches 25 feet. The flood event in December surpassed this level and reached a heigh of 27.69 feet (USGS 2024).

1.3 AUTHORITY

The proposed Federal repairs to the Marshland Levee are authorized by Public Law (PL) 84-99 (33 U.S.C. § 701n(a)(1)). PL 84-99 provides USACE with the authority for "the repair or restoration of any flood control work threatened or destroyed by floods, including the strengthening, raising, extending, realigning, or other modification thereof as may be necessary in the discretion of the Chief of Engineers for the adequate functioning of the work for flood control and subject to the condition that the Chief of Engineers may include modifications to the structure or project, or in implementation of nonstructural alternatives to the repair or restoration of such flood control work if requested by the non-Federal sponsor."

USACE's repair work under PL 84-99 is limited to the repair of flood control works damaged or destroyed by floods. The statute authorizes rehabilitation to the level of protection exhibited by the flood control work prior to the damaging event (33 U.S.C. § 701n(a)(1)). The Marshland Flood Control District requested assistance to repair the levee following a flooding event in December 2023 (USACE 2024).

1.4 PROJECT LOCATION

The Marshland Levee is on the left bank of the Snohomish River, opposite of the Town of Snohomish, Washington (Sections 19 of Township 28 North, Range 06 East) (Figure 3). At the upstream end, the levee ties into a railroad embankment that continues for approximately 600 feet before tying into the valley wall at Fiddler's Bluff. The downstream end of the levee ties into Lowell Snohomish River Road. The project footprint, including access, staging, construction, and planting areas are shown in Figure 4. The total area of the project footprint is approximately 1.05 acres (Table 1).

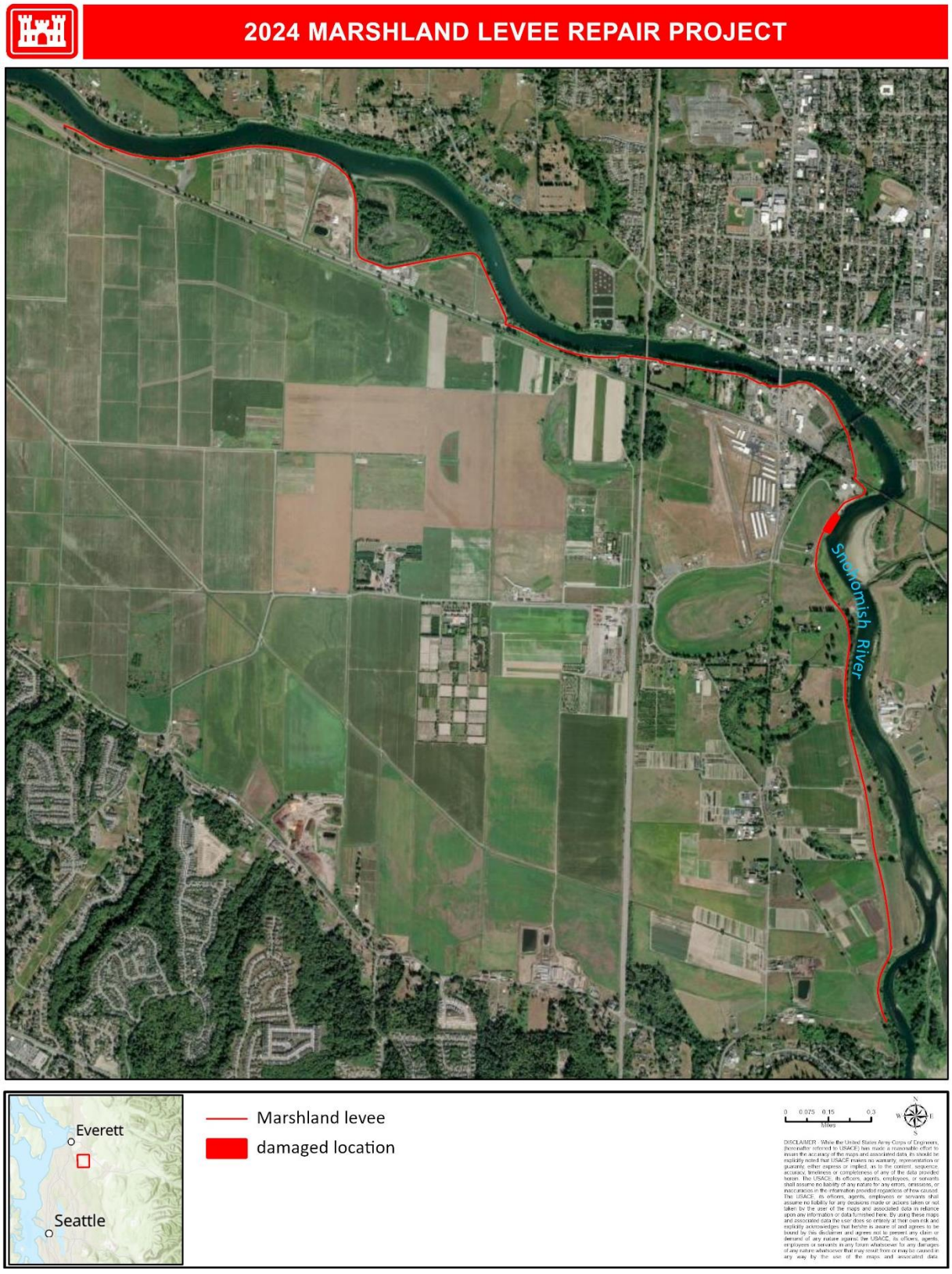

Figure 3: Location of the Marshland Levee Repair Project in Snohomish County, south of Snohomish, WA.

Figure 4: Approximate footprint of the Marshland Levee Repair Project.

Table 1. Area in acres of each project component.

Location	Acres
Staging	0.12
Repair	0.65
Planting Area	0.28
Total	1.05

1.5 PURPOSE AND NEED

The purpose of the project is to restore flood protection of the Marshland Levee to the pre-existing, designed 10-year (0.1 AEP event) level of protection. Action is needed because the levee was damaged by flooding in December 2023 (see section 1.2) and no longer provides the designated level of protection against flooding elevating the risk of damage to improved property and human safety.

Repairs would restore adequate and reliable flood protection to the same level provided by the levee prior to the damaging event. An assessment of the levee confirmed there is an increased likelihood of damages or breaching of the levee in its current condition (USACE 2024). If the levee was to fail, there would be an increased risk to human safety, improved property, and public infrastructure. The entire Marshland Levee protects approximately 590 people, 100 buildings, and $100 million worth of property (NLD 2024). Per PL 84-99, the USACE is authorized to repair damaged flood control works to the pre-flood level of protection.

2 PROPOSED ACTION AND ALTERNATIVES

An evaluation has been conducted on the alternatives for fulfilling the purpose of restoring the level of protection, as discussed below. Viable alternatives must restore reliable flood protection to the level of protection prior to the damaging event, must be environmentally acceptable, and should address the identified flood risk. The preferred alternative is the least cost alternative that restores the level of protection while fulfilling all legal, technical and environmental requirements.

2.1 ALTERNATIVE 1: NO ACTION ALTERNATIVE

Under the No Action Alternative, the Marshland Levee would remain in its damaged condition. This alternative would not meet the project purpose because the pre-existing level of flood protection would not be restored and the levee would likely be further damaged in future flood events and could fail, which would increase the risk to human safety and improved property (agricultural, residential, and industrial). During any flood event that threatens the integrity of the levee system, response actions may be taken by local, state, or, upon request, Federal agencies such as USACE preserve the levee system and, to the extent possible, maintain protection of safety and property behind the levee. Emergency response to address an active flood event would address the emergency nature of the threat at that particular time, and would not be focused on identifying a durable or long-term solution. This reasonably could lead

to further and additional impacts through successive multiple future flood events. This approach could potentially cost more, and would likely be less protective of environmental and cultural resources given that there would be less time to identify specific avoidance and minimization measures for work at this site. A response would also take time to activate and execute, so there is some risk that an emergency response would not prevent levee failure, such as overtopping or breaching.

The No Action Alternative is not recommended because it would not address the persistent risk to human safety and improved property so long as the levee remains in its damaged state, which increases the likelihood of damages or breaching of the levee. It does not meet the project purpose and need, nor is it acceptable to the non-Federal sponsor. While the No Action Alternative is not recommended, it is carried forward for further evaluation to serve as a base condition for evaluation of other alternatives.

2.2 Alternative 2: Non-Structural Alternative

This alternative consists of floodplain management strategies that are offered by other Federal and state programs and generally involve changes in land use. Such strategies would include zoning, easements, flood-warning procedures, floodplain evacuation, and flood insurance. Nonstructural strategies involve acquiring, relocating, elevating, and flood-proofing existing structures. The cost and timeframe for implementing this alternative make it impractical to implement before the next flood season, and would involve actions by parties other than USACE. The participation of the non-Federal sponsor would be required for the USACE to implement a nonstructural alternative, and the Marshland Flood Control District is not interested in pursuing a nonstructural alternative. Therefore, this alternative is not carried forward for detailed consideration.

2.3 Alternative 3: Levee Set-Back

This alternative would shift the alignment of the levee embankment landward to avoid or minimize direct contact with the river and provide additional space for water conveyance. Typically, a setback would involve construction of a new earthen embankment structure and abandonment of the existing levee located on the riverbank. In this instance, a setback levee may be more costly than other alternatives due to the need for more embankment material and real estate acquisition. This approach could also encroach on existing structures, privately-owned land, and public infrastructure. Implementing this alternative by USACE would also require the support and participation of the non-Federal sponsor. While a set-back levee would meet the project purpose, the Marshland Flood Control District is not interested in the set-back alternative. Therefore, this alternative is not carried forward for detailed consideration.

2.4 Alternative 4: Repair In-Kind (Preferred Alternative)

The repair in-kind alternative would reconstruct the riverward slope within the pre-damaged footprint. This approach would excavate an existing riverward bench and construct a single 2H:1V riverward slope with a blanket of Class V riprap backed by quarry spalls. Total construction length, including transitions, would be 350 LF (STA 197+10 to 200+60). The

resulting footprint would maintain the riverward extent of the levee toe but lay back the levee slope thereby widening the floodplain. This approach is considered the most acceptable for technical reasons and is the least-cost option. It is acceptable to the non-Federal sponsor.

2.4.1 Detailed Repair Description

Repairing the levee in-kind within its pre-damaged footprint is the recommended approach. This approach would excavate the bench and construct a single 2H:1V riverward slope with a blanket of riprap backed by quarry spalls. A 4-foot-thick blanket of Class V riprap will be placed over a layer of quarry spalls. The USACE determined that Class V riprap would achieve the same level of flood protection as was previously provided by the levee in its pre-damaged condition. All reconstruction of the levee occurring below the OHWM will occur during the designated in-water work window (July 1 to August 31). Total construction area is 1.05 acres. Total construction length, including transitions, would be 350 linear feet. The upstream and downstream ends would be smoothly transitioned into the existing slopes. See Appendix B for the project design plans.

Anticipated equipment and materials used for the repair are outlined Table 2 and Table 3. All materials and equipment would be staged on site and within the project footprint including on the levee crown.

Table 2. Anticipated equipment used in the proposed 2024 Marshland Levee repair project.

Equipment	Equipment Notes	Number	Location	Activities	General Description	In-water?
Bulldozer	Blade length 12 ft	1	Throughout the repair footprint	Manipulates materials. Move and place rock, vegetation, and other materials	Move and place material	No
Grader	Similar to 12H, min hp 140, min lbs., 30,000, min blade length 12 ft	1	Haul route	Road grading, blade levels dirt or gravel for roads	Road construction	No
Excavator	Track-mounted hydraulic excavator w/hydraulic thumb, similar to 300 series, min hp 200, min lbs.	1	Throughout the repair footprint	Workhorse of the repair. Manipulates materials. Move and place rock, vegetation, and other materials.	Move and place material	Partial - Only bucket and thumb attachment

	70,000, min reach 30 ft					
Vibratory Compactor		1	Levee top	Compact fill material	Compact material	No
Water truck	Holds up to 3,000 gal	1	Haul route Existing roads	Wets road surface to control dust	Dust control	No
Dump truck	10-12 CY Solo Dump truck, haul up to Class V riprap	Dependent on delivery	Haul route Existing roads	Transport of materials to and from the project	Material transport	No

Table 3. Estimated materials and quantities for the proposed 2024 Marshland Levee repair project.

Material	Quantity	Location	Use
Repair Length (feet)	350		
Embankment Material (cubic yards [CY])	N/A	levee profile, landward and riverward of the levee centerline)	levee structure
Quarry Spalls (tons)	1,500	levee slope between riprap and levee embankment material	bedding course
Class V Riprap (tons)	6,500	levee slope	levee armor
Topsoil (tons)	300	with willow stakes at existing vegetation line	soil medium for willows and tree plantings
Willow stakes in bundles of 6 (3-5 ft long, 6 ft on center)	58	1-foot above ordinary high water mark (OHWM)	riparian habitat
Crushed Surface Base Course (CSBC)*(tons)	500	levee crown	access road
Tree plantings (one or two gallon in size and 2'-3' tall)	39	off-site riparian planting area adjacent to repair site	Planting trees off-site for riparian habitat
Quarry spalls are between 2-8 inches in diameter. Class V riprap ranges in size between 13-34 inches diameter, weight between 188-3,000 lbs. Embankment material consists of soil mixed with unsorted small rock. Suitable existing bank material would be reused. *CSBC is small gravel material, typically sized at 1 ¼ inches.			

2.4.2 Construction Sequence

USACE plans to complete repairs as soon as possible, with the soonest period starting in August 2024 and ending in September 2024. Construction would occur in a single construction period generally consisting of the following major components described below. Specific existing conditions for the location(s) where the fill material would be purchased are unknown, as the materials would be purchased from local, privately owned companies. The site(s) would be

chosen through a contract bidding process prior to construction. Furthermore, the best management practices (BMPs) outlined in section 2.7 would be implemented during the project.

- Site Preparation: A pre-construction meeting will be held by construction staff to go ensure a clear and thorough understanding of project requirements and clearly mark any sensitive project boundaries in the project area using stakes and flagging. The repair area would be cleared as necessary, including vegetation. While most of the vegetation at the site is invasive Himalayan blackberry (*Rubus armeniacus*), 13 native red alder (*Alnus rubra*) trees would be removed. No work is expected to improve existing access and staging areas, as they already exist in a useable condition. Staging activities consist of temporarily stockpiling rock, supplies, equipment, and vehicles.
- Deconstruct Damaged Levee: The damaged portion of the levee would be deconstructed by removing, salvaging, and stockpiling remnant riprap and other existing material as practicable. As necessary, sloughed embankment material would be excavated from the scoured riverward toe. These materials would be stockpiled for reuse in the repair (e.g., suitable embankment material) or disposed of off-site.
- Construct Levee Repair*:* Construction would commence at the toe, starting upstream and working downstream, to deflect flows and minimize turbidity in the construction area. The levee toe, prism, and slope would be constructed per the cross section shown in Appendix B. The repair would smoothly transition at the upstream and downstream limits of construction into the adjacent slopes.
- Complete Construction: Access routes and staging areas would be restored to pre-construction condition as necessary. A portion of the access road between the railroad crossing and the staging area will be resurfaced with recycled asphalt. Disturbed and bare soils would be treated with hydroseed, and plantings would be installed at the off-site location immediately downstream of the repair. See section 2.6.2 for planting details.

2.5 In Water Work Window

All work done in the water is scheduled to occur during the in-water work window for the Snohomish River (July 1 to August 31; USACE 2024).

2.6 Offset and Minimization Measures

There are four major components of the Offset and Minimization Measures Plan: removal of invasive species, plantings, placement of large woody material (LWM), and a maintenance, monitoring, and adaptive management plan. Details of each are outlined below. This list will be updated as necessary to conform with conservation recommendations or other applicable provisions from a concluded ESA Section 7 consultation, such as receipt of an Incidental Take Statement's reasonable and prudent measures, and its associated implementing terms and conditions from the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). NMFS provided USACE conservation recommendations for this proposed project on March 27, 2024 (see section 8.6 and Appendix F). These conservation recommendations have been accepted and integrated into the project.

2.6.1 Removal of Invasive Species

The project site is primarily vegetated with Himalayan blackberry, which would be removed within the project footprint when the repair site is cleared. Knotweed (*Fallopia sp*.) is known to occur in the region but was not identified within the repair site. Invasive vegetation would be disposed of off-site in a manner to prevent their spread.

2.6.2 Plantings

While most of the cleared vegetation is invasive Himalayan blackberry, there are 13 red alder trees that would also be removed. Removal of the red alders negatively impacts critical habitat for ESA-listed species, primarily salmonids. To offset this impact and the temporal lag until new vegetation is established, USACE would plant replacement trees at a 3:1 replacement ratio for a total of 39 trees on a riverward levee bench immediately downstream of the repair (Appendix B). The tree plantings would consist of native species identified in Table 4.

Approximately 58 willow bundles of Sitka (*Salix sitchensis*) or Hooker's willow (*S. Hookeriana*) would be incorporated into the levee slope 1 foot above the OHWM at 6-foot intervals along the length of the repair. These bundles would create overhanging cover along the river's edge. Willows provide multiple benefits to aquatic organisms such as increasing shade, as well as insect drop, and habitat complexity. Each willow bundle consists of six 4-foot-long willow stakes planted in a cylindrical soil matrix 12 inches in diameter and 3 feet deep (Figure 5).

Table 4. Proposed tree plantings.

Common name	Scientific name	Quantity
Red alder	*Alnus rubra*	12
Douglas fir	*Pseudotsuga menziesii*	11
Pacific willow	*Salix lucida*	8
Big-leaf maple	*Acer macrophyllum*	8
	Total	39

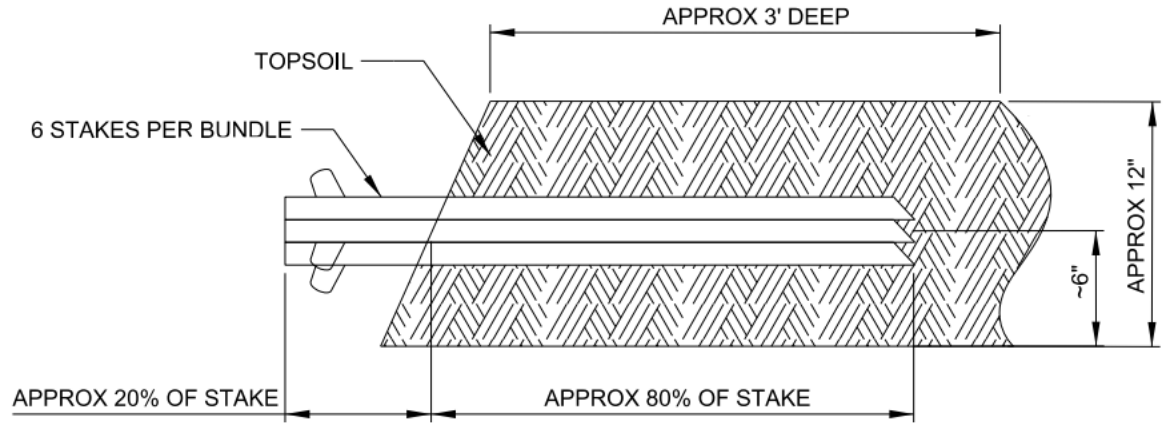

Figure 5. Willow bundle cross section.

2.6.3 Placement of Large Woody Material

LWM generated would be salvaged and placed onsite above OHWM with rootwads facing the river where it can continue to provide habitat function. This includes any tree trunks and large shrubs. LWM may also be placed in the planting area between plantings.

2.6.4 Maintenance, Monitoring, and Adaptive Management Plan

USACE would conduct monitoring and adaptive management of plantings, including replacement and maintenance, for the first year. USACE would re-plant if there is less than 80 percent survival during the first year. Adaptive management strategies would be developed with the goal of improving rate of survivability, if this threshold is not met. USACE would evaluate why the plantings failed and plan the best path forward for successful replacement, within existing agency funding and authority. Additionally, USACE would engage with the non-Federal sponsor to assist in identifying alternate planting practices for successful replanting. These may include planting different species, changing the configuration of the planting location within the site's footprint, or adding pest control or exclusion devices. If replacement occurs as a result of not meeting the 80 percent survival rate in the first year, USACE would monitor the plantings for an additional year. After this second year any further vegetation plantings on the site would be the responsibility of the non-federal sponsor as part of their ongoing operation and maintenance responsibility for the levee.

2.7 Best Management Practices for Impact Avoidance and Minimization

To minimize environmental impacts during construction and maintenance activities, USACE would incorporate the following Best Management Practices (BMPs) into the action:

1. USACE would conduct a pre-construction meeting to look at existing conditions and to fine-tune any possible BMPs or environmental requirements.
2. At least one USACE biologist and geotechnical engineer would be available via phone during construction. The biologist will be available to address environmental questions or concerns (e.g., conduct fish salvage). USACE biologists may visit the construction site and provide periodic updates to the Services (USFWS and NMFS) on the construction. USACE biologists may schedule a visit to construction sites with the Services. The geotechnical engineer will be available to address any questions or concerns, and may also visit the construction site. The Project Manager and Construction Manager would coordinate all visits.
3. Vegetation removal would be limited to the areas identified on the project plans.
4. All plantings would be watered at the time of installation and would be planted in autumn.
5. All disturbed areas with topsoil would be hydroseeded with a native seed mix appropriate for the site.
6. Noxious weeds would be disposed of separately from other organic materials at an approved off-site location.
7. Temporary erosion control would be evaluated for all phases of the work. Site appropriate erosion control measures would be installed (e.g., silt fencing, straw wattles, mulch), as needed to prevent the discharge or accumulation of sediment into

the water, wetlands, adjacent swales, catch basins, storm drains, and offsite. Accumulation of sediment would be monitored in adjacent swales or storm drains daily and clear accumulation to ensure continued service throughout construction.

8. LWM generated would be salvaged and placed onsite above OHWM with rootwads facing the river where it can continue to provide habitat function. This includes any tree trunks and large shrubs. LWM may also be placed in the planting area between plantings.
9. Work would be conducted during daylight hours.
10. In-water work shall occur during the in-water work window for the Snohomish River (July 1 to August 31).
11. The construction site boundaries would be clearly marked to avoid or minimize disturbance of riparian vegetation, wetlands, and other sensitive sites.
12. Drive trains would not operate in the water. Only the excavator bucket with thumb attachment would extend into the water.
13. Refueling would occur away from the riverward side of the levee, within the project footprint, and a fuel spill kit with absorbent pads would always be onsite.
14. All construction materials would be free of contaminants such as oils and excessive sediment.
15. Construction equipment would be regularly inspected for drips or leaks. Any leak would be fixed promptly, or the equipment would be removed from the project site.
16. All trash and unauthorized fill generated during the repair would be removed from the project and staging area, including concrete blocks or pieces, bricks, asphalt, metal, treated wood, glass, floating debris, and paper and disposed of properly after work is completed.
17. Water quality monitoring for turbidity would be performed as outlined in the Water Quality Monitoring Plan (Appendix C). If a potential exceedance is detected at the early warning sample locations, on-site personnel would stop work, assess sediment generating activities, and proceed under corrective measures. Examples include slowing down a specific in-water activity and changing the amount of material that is moved below the waterline.

3 ALTERNATIVES COMPARISON

This section provides information on the existing conditions of resources within the project area and issues relevant to the decision process for selecting the preferred alternative. Existing conditions are the physical, chemical, biological, and socioeconomic characteristics of the project area. Factors for selecting the preferred alternative include considering which of the alternatives would be the least costly, environmentally acceptable, consistent with engineering practices, and meet the purpose and need of the project. Table 5 identifies the resources evaluated for detailed analysis with a rationale for inclusion or exclusion. Resources were excluded from detailed analysis if they are not potentially affected by the alternatives or have no material bearing on the decision-making process.

Table 5: List of resources considered for detailed effects analysis and rationale for inclusion or exclusion.

Resource	Included in Detailed Analysis (Yes/No)	Rationale for inclusion or exclusion
Water Resources and Water Quality	Yes	The proposed action may affect water quality from vegetation removal and levee repair. Impacts could result from in-water work and removal of riparian vegetation. Additionally, a levee repair would impact hydrology and hydraulics. Analysis is required to establish present water quality conditions and to determine the extent of any potential effects.
Wetlands	No	The project area does not contain wetlands.
Vegetation	Yes	The proposed action would affect terrestrial and riparian vegetation located in the project footprint. Therefore, analysis is required to investigate what vegetation exists and to determine the extent of any potential effects.
Fish and Wildlife	Yes	The proposed action would affect species in the project area. Analysis is required to determine what species are present and the extent of potential effects.
Threatened and Endangered Species	Yes	The proposed project would affect protected species in the project area. Formal consultation with the USFWS and NMFS is required. Analysis is required to determine what species are present and the extent of potential effects.
Cultural Resources	Yes	Analysis is required to investigate cultural resources and to determine the extent of any potential effects.
Air Quality and Climate Change	Yes	The proposed action involves construction equipment that would generate exhaust and noise. Analysis is required to investigate what air quality and climate conditions there are and to determine the extent of any potential effects.
Noise	Yes	The proposed action involves construction equipment that would generate noise. Analysis is required to investigate what noise conditions there are and to determine the extent of any potential effects.
Land Use, Utilities, and Infrastructure	Yes	The proposed action would temporarily impact land use, utilities, and infrastructure during construction. Analysis is required to investigate what land use, utilities, and infrastructure may be impacted.
Hazardous, Toxic, and Radioactive Waste	No	The recommended alternative would not affect hazardous, toxic, and radioactive waste. The project area is not known to have contaminants. The closest superfund site is approximately 15 miles away.
Environmental Justice	Yes	Analysis is required to investigate impacts to marginalized communities and to determine the extent of any potential effects.
Recreation	Yes	Analysis is required to investigate recreational activities in the area and to determine the extent of any potential effects.

3.1 WATER RESOURCES AND WATER QUALITY

The Snohomish River forms at the confluence of the Snoqualmie and Skykomish Rivers near Monroe, WA. The Snoqualmie River's headwaters originate in the North Cascades from snowmelt. The Skykomish River's headwaters originate from Skykomish Peak on the North Fork of the Skykomish and the Tye and Foss Rivers on the South Fork. The Snohomish River is part of the Snohomish watershed and flows northwest through gently sloping foothills to flatter areas as it reaches its terminus at Port Gardner in Everett, WA. The Snohomish River estuary is composed of wetlands and mudflats. The Snohomish River is 45 miles long and is a source of water for irrigation and agriculture. The Snohomish River has a range in flow typically between 4,000 to 20,000 cfs. Near Snohomish WA, the Snohomish River reaches flood levels around 49,600 cfs or a gauge height of 25 feet (USGS 2024).

The Snohomish River is effectively channelized through the project reach limiting natural processes such as channel migration, development of side channels, and LWM recruitment. The Snohomish River basin has moderate water quality. The river adjacent to the repair is not listed as an impaired water on the 303(d) list by the Washington Department of Ecology (Ecology). However, approximately 2,700 feet downstream from the repair site the river is listed as impaired for temperature by Ecology on its 303(d) list (Ecology 2024a).

Ecology monitors water quality in the Snohomish River at Snohomish (gage 07A090), approximately 2,700 feet downstream from the Marshland Levee repair site. Ecology determined the water quality in the Snohomish in the project area is moderate (Ecology 2024b). By individual components, water quality was in the moderate range for suspended solids, total phosphorus, and turbidity. Other components including temperature, oxygen, pH, fecal coliform bacteria, and total persulfate nitrogen were considered good.

3.1.1 No Action Alternative

Under this alternative, the damaged levee could sustain further damage, which may lead to flood fighting measures and fill placement during future high-water events. This may increase sediment and turbidity in the river. Levee failure, if flood fighting efforts were infeasible or unsuccessful, could allow floodwater to transport debris, sediment, and pollutants back into the river from adjacent properties with substantial impacts to water quality and potential for sediment contamination. Adjacent areas include industrial, agricultural, and residential properties.

3.1.2 Repair in Kind (Preferred Alternative)

Under this alternative, the Marshland Levee would be repaired. All riverward repairs would occur within the pre-damage levee footprint (i.e., the levee would not encroach farther into the river).

Repairing the levee in-kind would require work in the active channel with some work below the OHWM. Construction could be expected to cause minor, temporary, and localized increases in turbidity. BMPs, including restrictions on fueling and prevention of fluid leaks from construction equipment, would be employed to minimize and prevent discharge of pollutants into the river. Materials used for the repair would be clean and contaminant free and purchased through a

contract bidding process from vendors fully permitted by the state. Turbidity would be monitored upstream and downstream of the project sites during construction (Appendix C). If turbidity exceeds state water quality standards, the USACE will modify or stop particulate-generating activities and commence contingency sampling requirements as outlined in the water quality monitoring plan (Appendix C).

This alternative would remove shoreline vegetation at the repair location that has overgrown the riprap armor layer of the initial fill design and replace it with rock armor, reducing shading and increasing localized water temperatures immediately along the shoreline. The effect to water temperature is not expected to be significant due to the type of vegetation present (primarily Himalayan blackberry) and the limited number of trees present that provide shade to the water. This small impact would be offset by on-site willow bundles incorporated into the repaired levee slopes, planting native vegetation at the off-site location directly downstream, and placement of hydroseed. Shading from these plantings would increase over time, improving local water temperatures immediately adjacent to the repair. Water temperatures are expected to remain unaffected overall in the Snohomish River and this alternative would not have measurable effects to pH, bacteria, and dissolved oxygen levels. Only clean, uncontaminated materials would be used, and no pollutants are expected to be introduced to the river. Effects to water quality from this alternative would be temporary and negligible.

3.2 VEGETATION

Shoreline conditions at the repair site are heavily modified and disturbed. Almost no intact riparian buffer exists in the Snohomish River near the city of Snohomish (Cardno 2018). A gravel road runs the length of the levee top for access and is routinely mowed or kept free of sod by the non-Federal sponsor. The riverward slope above the OHWM of the Marshland Levee at the repair and planting location is mostly vegetated with invasive Himalayan blackberry overgrowing the riprap armor layer of the initial fill design, interspersed with red alder trees. The top and back side of the levee are covered in sod or gravel.

3.2.1 No Action Alternative

Under this alternative, the damaged levee could sustain further damage, which may lead to flood fighting measures and fill placement during future high-water events. Construction during a flood event is difficult and is completed as quickly as possible; therefore, vegetation would be removed or buried as needed to accomplish the levee repair under difficult construction conditions, regardless of the type of vegetation. It is not possible to manage the construction process so as to install willow bundles during flood fights. If flood fights were infeasible or unsuccessful and the levees failed, inundation and possible channel migration could have considerable impacts on vegetation.

3.2.2 Preferred Alternative

Because of human disturbances, the proposed construction and staging areas are relatively free of native vegetation. The area that would be disturbed for repairs to the Marshland Levee is approximately 1.05 acres, of which 0.93 acre is vegetated, primarily with Himalayan blackberry. Approximately 0.65 acre of this vegetated area overlaps with the repair area. This area would

be cleared of vegetation and result in the removal of 13 trees. To offset this impact, the plantings described in section 2.6.2 would be installed. This would require clearing of an additional 0.28 acres to remove invasive species in the planting area adjacent to the repair.

There would be a temporary loss in habitat until the plantings described in section 2.6.2 become established. As the plantings grow, they would regain ecological functions, providing food and substrate for insects and contributing organic material to the river, including LWM. Shading and other functions along the levee could be limited by maintenance trimming and clearing to protect levee integrity and allow inspection through the non-Federal sponsor's maintenance regimen. Effects on vegetation would be temporary and negligible.

3.3 FISH AND WILDLIFE

The existing levee systems in the lower Pilchuck and Snohomish Rivers have effectively channelized the reach through the project area, leading to increased erosional forces, which in turn impacts instream habitat. Natural processes such as channel migration, development of side channels, and LWM recruitment is hampered within the project area due to channel constraints, including levees, which limit channel-floodplain interaction. The degradation and loss of aquatic habitat, especially side channels, are limiting factors for ESA-listed Chinook salmon, steelhead and bull trout, as well as other fish and wildlife species. Specific problems include (Haring 2002, SBSRF 2005, PSSRP 2007a):

- Degraded channel structure and complexity which limits available rearing, foraging, migratory, and overwintering habitat.
- Loss of refuge and rearing habitats such as side channels, back channels, shallow habitat with cover from predators, slow-water refuge areas, riparian wetlands, and other off-channel habitats.
- Reduced floodplain connectivity and lost functions such as floodwater storage, groundwater recharge, exchange of nutrients and organic material between land and water, and floodplain sediment sink.
- Degraded riparian vegetation contributing to elevated water temperatures and reduced availability of terrestrial food sources for aquatic organisms.
- Fewer pools and less cover for juvenile fish, historically provided by LWM recruited into the channel from the floodplain.

In addition to aquatic habitat, levee systems negatively impact adjacent riparian habitat by preventing overbank flooding and sediment deposition, and by reducing hydrologic connectivity with the river. Specific problems include the following:

- Reduced floodplain connectivity and lost functions such as floodwater storage, groundwater recharge, exchange of nutrients and organic material between land and water, and floodplain sediment sink.
- Degraded riparian vegetation contributing to elevated water temperatures and reduced availability of terrestrial food sources for aquatic organisms, and reduced habitat for mammals and birds.

The Washington Department of Fish and Wildlife (WDFW) documents a variety of species in the

area. These species and their recorded uses of the Snohomish River are as follows (WDFW 2024a):

- Bull Trout (*S. confluentus*), Rearing
- Chinook, summer (*O. tshawytscha*), Spawning
- Chinook, fall (*O. tshawytscha*), Presence
- Chum, fall (*O. keta*), Rearing
- Coho salmon (*O. kisutch*), Rearing
- Largemouth Bass (*Micropterus salmoides*), Presence
- Pink salmon, odd-year (*O. gorbuscha*), Presence
- Pink salmon, even-year (*O. gorbuscha*), Presence
- Resident Coastal Cutthroat (*O. clarkii*), Presence
- Sockeye (O*. nerka*), Rearing
- Steelhead, summer (O*. mykiss*), Presence
- Steelhead, winter (*O. mykiss*), Rearing

The mainstem of the Snohomish River includes spawning and freshwater rearing habitat for a variety of fish, including Chinook salmon. It is also a key migratory corridor for all salmon species present in the basin (SBSRF 2019). However, the quality of spawning gravel in the Snohomish River by the project area is poor because it accumulates high amounts of silt and sand (P. Verhey, personal communication, WDFW Fish Biologist, September 17 & 18, 2020).

Aquatic and terrestrial invertebrates are found in and along waterways in the region. According to Plotnikoff (1992), communities typical of rivers in the Puget Sound lowlands are dominated by stonefly, caddisfly, common midge, mosquito, aquatic isopods, and blackfly larvae. Other taxa present include worms, snails, slugs, ants, beetles, amphipods, and terrestrial isopods. Many lowland invertebrate assemblages are characterized as shredder-gatherer communities. Invertebrates found in the estuary and salt marsh area include oligochaete and polychaete worms, fly larvae, and crustaceans such as aquatic isopods, amphipods, and copepods (Cordell et al. 1999).

The repair site is surrounded by human development, including an airport, agricultural fields, parks, residential homes, roads, railroads, and industrial businesses. Terrestrial species inhabiting the area are limited to those acclimated to co-existing with humans in disturbed and developed areas. Mammal species using the action area include black-tailed deer (*Odocoileus hemionus*), raccoons (*Procyon lotor*), foxes (*Vulpes spp*.), coyote (*Canis latrans*), skunks (*Mephitis mephitis*), ground squirrels (*Spermophilus spp.*), marmots (*Marmota spp.*), mice (*Peromyscus spp.*), and voles (*Microtus spp.*).

Washington Birder (2020) lists 373 bird species in Snohomish County across a diversity of habitats. More locally, birders visiting five eBird hotspots around the city of Snohomish have recorded more than 353 species (eBird 2024). A variety of passerines, raptors, water birds, swallows, and other birds likely use the project area and the riparian habitat associated with it for nesting, feeding, and other life requirements. Query of the WDFW Priority Habitats and Species Database (WDFW 2024b) indicates that no bald eagle (*Haliaeetus leucocephalus*) nests are currently recorded as being near the levee repair site, and none were observed during site

visits.

3.3.1 No Action Alternative

The no action alternative could result in continued erosion of the bank, especially in a flood event, and could leave the levee vulnerable to continued damage and breaching. A breach would result in inundation behind the levee with associated severe turbidity and potential pollution impacts to the river. Flood waters could also carry fish through a breach and strand them behind the levee. A flood fight would likely be undertaken to prevent a breach. Such activities would likely cause fish and wildlife to leave the area. Emergency actions would entail more in-water work and vegetation clearing that would have greater impact on fish and wildlife than a scheduled repair action. The exact effect to fish and wildlife associated with emergency flood actions is difficult to quantify or predict but does have the potential to be considerable if the flood event warrants repairs at a damaged site.

3.3.2 Preferred Alternative

Repairs under this alternative would cause short-term impacts to fish and wildlife. The primary impacts would be a temporary increase in turbidity, noise, vibration, and human activity caused by heavy equipment use. These impacts would likely displace fish and wildlife from the repair site and immediate area during construction activities. Once construction is completed, fish and wildlife are expected to return. The plantings described in section 2.6.2 would offset the effects on fish and wildlife from vegetation removal. As the plantings mature the benefit to fish and wildlife would increase as the shoreline returns to a more natural riparian vegetated condition. The location of the plantings adjacent to the river would have a higher potential to reduce water temperature (Hannah et al. 2008) and the LWM would create habitat for fish and wildlife at a wide range of river flows, such as flood events (Shirvell 2011). Effects to fish and wildlife would be temporary and negligible.

3.4 THREATENED AND ENDANGERED SPECIES

In accordance with Section 7(a)(2) of the Endangered Species Act (ESA), Federally funded, constructed, permitted, or licensed projects must take into consideration impacts to Federally-listed and proposed threatened or endangered species. The species listed in Table 6 are protected under the ESA and may occur in the project area. The following sections briefly summarize relevant information about the protected species, current knowledge on the presence, and use of the project and action areas by these species. ESA consultation assesses how the proposed project may affect the species, concluding with a determination of effect. See section 8.6 for details about ESA compliance.

Table 6: ESA-listed species and designated critical habitat that may be present in or near the Marshland Levee Repair action area.

Species (Common Name and Scientific Name)	Federal Listing	Critical Habitat in Action Area	Potential Occurrence (Likely, Unlikely, or Absent) in Action Area
Chinook salmon (*Oncorhynchus tshawytscha*)	Threatened, Critical Habitat Designated	Yes	Likely
Steelhead (*O. mykiss*)	Threatened, Critical Habitat Designated	Yes	Likely
Bull Trout (*Salvelinus confluentus*)	Threatened, Critical Habitat Designated	Yes	Likely
Killer whale (*Orcinus orca*)	Endangered, Critical Habitat Designated	No	Absent
North American Wolverine (*Gulo gulo luscus*)	Threatened	N/A	Absent
Marbled murrelet (*Brachyramphus marmoratus)*	Threatened, Critical Habitat Designated	Does not overlap with Action Area	Unlikely
Yellow-billed Cuckoo (*Coccyzus americanus*)	Threatened, Critical Habitat Designated	Does not overlap with Action Area	Unlikely
Northwestern Pond Turtle (*Actinemys marmorata*)	Proposed Threatened	N/A	Absent

Several of the species in Table 6 may occur or may have historically occurred within the action area. However, these species have no potential to be affected by the proposed action due to limited and degraded terrestrial habitat in and around the action area. The proposed action will have "no effect" on wolverine, marbled murrelet, yellow-billed cuckoo or northwestern pond turtle and their designated critical habitat due to their specialized habitat requirements (which are not found in the action area), their lack of tolerance for human development or activities (which would preclude their presence in the action area), or both. Wolverines occupy alpine and subalpine forest habitats throughout the Cascade Mountain Range (WDFW 2024c), marbled murrelet are seabirds that nest in mature and old-growth conifer forests (WDFW 2024d), yellow-billed cuckoo prefer riparian zones with cottonwoods, willows, fir woodlands and open brushy hillsides (WDFW 2024e), and the northwestern pond turtle are in ponds and lakes in open, sunny upland habitats (WDFW 2024f). The preferred habitats for these species are not present in the project area and no critical habitat is designated in the action area. Consequently, these species and their critical habitats will not be affected by the proposed action and will not be discussed further in this document.

3.4.1 Puget Sound Chinook Salmon

Puget Sound Chinook salmon was listed as threatened on March 24, 1999, and revised on June 28, 2005 (NMFS 1999; NMFS 2005a). Critical habitat was designated for Puget Sound Chinook salmon in 2005 and includes the Snohomish River in the project area (NMFS 2005b).

Chinook salmon are most often found in large streams or rivers, and many stocks spawn far inland. Chinook salmon are considered main channel spawners, although they do use smaller channels and streams with sufficient flow. Due to their large size, Chinook salmon can spawn in larger substrate (up to 14 cm or about 5.5 inches) than most other salmon species (Anchor Environmental, L.L.C. 2003).

Two different stocks of Chinook salmon occur in the Snohomish River, described by differences in return, or run timing. Summer Chinook salmon are the early returning stocks and fall Chinook salmon are the late-returning stocks (Ruckelshaus et al. 2006). Summer Chinook salmon adults migrate upstream in August and September and spawn from September through early November (NMFS 2007a). Juveniles of this stock remain in freshwater for a full year before migrating to the ocean. Fall Chinook salmon adults migrate upstream in September, and spawn between mid-September and late-November (NMFS 2007a). Typically, fall Chinook salmon juveniles move downstream during their first spring to enter the estuary (SBSRTC 1999). Spawning is unlikely to occur at the repair site but may occur elsewhere in the Snohomish River where spawning conditions exist (Cardno 2018; WDFW 2024a; M. Rustay, personal communication, Snohomish County Department of Public Works Senior Habitat Specialist, August 13, 2020; P. Verhey, personal communication, WDFW Fish Biologist, September 17 & 18, 2020).

3.4.2 Puget Sound Steelhead

The Puget Sound Steelhead distinct population segment was listed in 2007 (NMFS 2007b). Critical habitat for steelhead was designated in 2016 and includes the Snohomish River in the project area (NMFS 2016).

Steelhead exhibit considerable diversity in age at smoltification, age at return or maturation, and spawning timing. Steelhead can also be repeat spawners (iteroparity). They generally reside longer in freshwater than salmon species (commonly one to four years) and use diverse tributary habitats with cool, clean water. Channel features such as side channels, adjacent small tributaries and floodplains, and abundant LWM and coarse substrate (boulders and cobble) provide important habitat for juvenile steelhead, including as cover from predators and as refuge from fall and winter floods (NMFS 2019).

Several summer-run and winter-run wild steelhead stocks occur in the Snohomish Basin (SBSRF 2019). Both run types are documented in the Snohomish River and neither are documented as spawning in the footprint of the Marshland Levee repair site (WDFW 2024a; SBSRF 2019). The Snohomish Basin has two summer runs of wild steelhead in the Tolt and North Fork Skykomish Rivers. Steelhead enter freshwater as sexually immature fish from May to October, although some may enter as early as February, and spawn several months to a year later (SBRTT 2008). They need deep pools for holding until they are ready to spawn. Summer run steelhead spawn in upper reaches of tributaries with steep gradients (SBSRF 2019). The Snohomish Basin hosts

three winter runs of wild steelhead: Pilchuck, Snohomish/ Skykomish, and Snoqualmie. Wild winter-run fish enter the river between February to May (SBRTT 2008). Spawning occurs within 3 to 12 weeks. Young steelhead disperse widely and rear in pools and along stream banks where they find protection beneath wood and vegetation. Wild juvenile steelhead in the Snohomish basin typically spend two years in freshwater before outmigrating to the marine environment in the late winter and spring (SBRTT 2008), so steelhead of multiple life stages move through the project area. Juveniles rearing in the area may include fry and yearling fish. Warmer waters can keep steelhead from migrating downstream to the Puget Sound.

3.4.3 Bull Trout

The Coastal-Puget Sound bull trout distinct population segment was listed as threatened on November 1, 1999, and is thought to contain the only anadromous form of bull trout in the coterminous U.S. (USFWS 1999). Critical habitat was originally designated for bull trout in 2005 and revised in 2010 and includes the Pilchuck and Snohomish Rivers in the project area (USFWS 2010).

Bull trout prefer cold streams, but are occasionally found in larger, warmer river systems and may use certain streams and rivers in the fall and winter when water temperatures seasonally drop. Because bull trout inhabit side channels and the margins of streams, they are highly sensitive to flow patterns and channel structure. They need complex forms of cover such as LWM, undercut banks, boulders, and pools to protect them from predators and to provide prey. Unlike other salmonids like Chinook salmon, bull trout survive to spawn year after year. Since many populations of bull trout migrate from their natal tributary streams to larger water bodies such as rivers, lakes and saltwater, bull trout require two-way passage for repeated spawning as well as foraging.

Bull trout express both resident and migratory life history strategies (Rieman and McIntyre 1993). Resident forms complete their entire life cycle in the tributary or nearby streams in which they spawn and rear. Migratory bull trout spawn in tributary streams, where juvenile fish rear before migrating to either a lake (adfluvial form; Downs et al. 2006), river (fluvial form; Fraley and Shepard 1989), or to saltwater in certain coastal areas (amphidromous; Brenkman and Corbett 2005). Juvenile bull trout from fluvial populations spend one to four years in their natal streams and then migrate to larger streams or rivers (Goetz et al. 2004; Goetz 2016).

Anadromous bull trout may migrate through the Snohomish River to tidally influenced areas in the lower Snohomish River and Puget Sound in late winter/spring, and then return to the freshwater in late spring and early summer. Anadromous and fluvial bull trout may remain in the Snohomish River to overwinter rather than migrating into the upper basin with spawning adults.

3.4.4 Southern Resident Killer Whale

Southern Resident Killer Whales (SRKWs) were listed as endangered on February 16, 2006 (NMFS 2005c). Their customary range is thought to be primarily within Puget Sound, and through and within the Georgia and Johnstone Straits. SRKWs occasionally migrate as far south as Monterey Bay, California and as far north as the northern Queen Charlotte Islands in Canada

(Krahn et al. 2004). Critical habitat was originally designated for the SRKW in 2005 (NMFS 2006) and revised in 2021 (NMFS 2021). The action area is not designated as SRKW critical habitat, but critical habitat is designated in the Puget Sound.

SRKWs are large mammals requiring abundant food sources to sustain metabolic processes throughout the year. Prey availability changes seasonally, and SRKWs appear to depend on different prey species and habitats throughout the year. The seasonal timing of salmon returns to southern Puget Sound river systems likely influence the movements of SRKWs out of core summer areas. Whales may travel significant distances to locate prey aggregations sufficient to support their numbers (NMFS 2006). SRKWs spend large amounts of time in "core" inland marine waters coinciding with congregations of migratory salmon returning from the Pacific Ocean to spawn in U.S. and Canadian Rivers (NMFS 2006). The topographic and oceanographic features in these core areas include channels and shorelines that congregate prey and assist with foraging. Their core range during the spring, summer, and fall includes the inland waterways of Puget Sound, Strait of Juan de Fuca, and Southern Georgia Strait. Little is known about the winter movements and range of the SRKW (NMFS 2005c).

SRKW do not use the Snohomish River. Even though SRKWs do not directly occupy the shallow waters of the rivers, they show a strong preference for Chinook salmon (primarily Fraser River Chinook salmon), with chum salmon as the second-most preferred (NMFS 2008). The survival of these whales has been shown to positively correlate with Chinook salmon abundance (Ford et al. 2010). Seventy-two percent of the 396 salmon taken by killer whales sampled from 1974 to 2004 were Chinook, despite the much higher abundance of the other species (Ford et al. 2005). SRKWs likely include Chinook salmon from the Snohomish River basin in their diet.

3.4.5 No Action Alternative

The No Action Alternative could result in continued erosion of the bank, especially in a flood event, and could leave the levee vulnerable to continued damage and breaching. A breach would result in inundation behind the levee with associated turbidity and potential pollution impacts to the river. A flood fight would likely be undertaken to prevent a breach and could require in-water work that could affect Chinook, steelhead, and bull trout near the emergency action site. Emergency actions would entail more in-water work and could have greater impact on aquatic dependent ESA-listed species habitat than a scheduled repair action. Flood fight actions that remove vegetation and disturb the river would have negative impacts, the severity of which is determined by timing, location, and extent which cannot be accurately predicted. If flood fights were unsuccessful, and the levee failed, inundation and possible channel migration could have considerable impacts on Chinook, steelhead, and bull trout. SRKW would likely be unaffected, however, there could be impacts depending on the location and scale of the inundation and channel migration. The size of the flood and the degree of levee failure would determine the magnitude of impacts to ESA-listed species and their critical habitat.

3.4.6 Preferred Alternative

On March 6, 2024, USACE requested emergency consultation from NMFS and USFWS under Section 7 of the ESA. See section 8.6 for compliance details with the ESA consultation. Effects on ESA-listed species and their critical habitat would be negligible.

3.4.6.1 Puget Sound Chinook Salmon

Construction activities in the work area could affect Chinook salmon juveniles, if present, rearing in the project area. Adults could also be present and affected by construction activities. Impacts to Chinook salmon from the proposed levee repairs would be similar to those from previous repairs. The 350 feet of Marshland Levee repairs would be completed over 8 weeks during the summer. All in-water work would be completed during the in-water work window (July 1 to August 31) when average river flows are generally at their lowest and water temperatures at their highest.

Impacts from in-water work may include elevated turbidity, physical disturbance, and noise from the excavation and placement of material that could result in interruption of foraging and migration behavior, elevated stress levels, and physical damage. In general, larger fish, like adult Chinook salmon, would be less impacted and better able to avoid these stressors. Juvenile Chinook salmon would be the most vulnerable because of their tendency to seek refuge along the shoreline.

Physiological effects of increased turbidity can include gill trauma (Servizi and Martens 1987; Noggle 1978; Redding and Schreck 1987), and affect osmoregulation, blood chemistry (Sigler, 1988), growth, and reproduction. Behavioral responses include feeding disruption from olfactory and visual impairment (Sigler 1988); gill flaring; and curtailment of territorial defense (LaSalle 1988). Turbidity would be monitored (see Appendix C, Water Quality Monitoring Plan) during in-water work to track compliance with water quality standards, thereby minimizing its effects on aquatic biota.

The proposed action could produce underwater sound from the removal and placement of rock along the shoreline. The construction activity's greatest underwater sound levels would likely be generated by removal and placement of rock below the waterline. Work conducted above the waterline could create sound that propagates through the ground to the water, albeit at a lower level than the source (Reinhall and Dahl 2011, Hawkins and Johnstone 1978). Studies directly measuring underwater sound from underwater rock placement are lacking (Wyatt 2008; Kongsberg Maritime Limited 2015). Underwater sound generated from rock placement along a riverbank has not been studied. One study did measure sound from rock placement from a vessel through a steel/HDPE pipe in an open-water marine environment. This study measured sound levels up to 120 decibels (dB) which were attributed primarily to the vessel (Nedwell and Edwards 2004). Underwater removal of rock conducted under the proposed action has similarities with backhoe dredging with respect to the equipment and material involved. A backhoe dredge is considerably larger and more powerful than excavators that would be used to conduct work under the proposed action, so the sound created by a backhoe would be louder than what would occur from the proposed action. Sound from backhoe dredging was measured between 124 and 148 dB at 60 meters (Reine and Dickerson 2012). The authors estimated a maximum intensity at 1 meter of 179 dB.

NMFS fish injury thresholds for both continuous and pulsed sound are 183 dB for cumulative sound and 206 dB for peak sound (NMFS et al. 2008). The limited data available suggests sound potentially created by the proposed action would not exceed these thresholds and therefore not cause fish injury. Popper et al. (2014) and Reine and Dickerson (2012) both indicate there is

no direct evidence for fish mortality or mortal injury from continuous sound such as that resulting from the proposed action.

The NMFS threshold for fish harassment is 150 dB (NMFS et al. 2008). It is possible this harassment threshold could be exceeded by the proposed in-water excavation work based on Reine and Dickerson (2012) discussed above. If this were to occur, it would result in salmon moving away from the immediate project site. This behavior is likely to occur regardless simply due to the ground and water disturbance associated with removing and placing rock along the levee. Since the river at the Marshland Levee repair site is approximately 350 feet wide, USACE anticipates that sound exceeding the harassment threshold would extend across the river during rock placement activities. Exceedance of this threshold would be intermittent and would occur only during rock placement activities below the waterline. Therefore, there could be intermittent periods when movement of fish is hindered.

USACE anticipates that intermittent passage would occur during breaks in the in-water work and at night when work is not occurring. Potential noise impacts would be minimized by operating within the approved fish window, which is based on a time when migrating salmonids are least likely to be present.

Bank excavation and placement of rock in the water may lead to localized increases in turbidity levels. This may result in some minor behavioral effects such as moving away from turbid conditions. For the proposed action, rock free of excessive sediment would be used, and turbidity during project construction would be monitored as outlined in the Water Quality Monitoring Plan (Appendix C). In order to minimize temporary increases in turbidity and potential related effects on juvenile salmonids, all in-water construction work would take place during the established in-water work window when river levels are lowest (July 1 to August 31). Construction techniques, sequencing, and timing would minimize soil disturbance to the extent practical to reduce the generation of turbidity during construction. Similarly, implementation of the BMPs, placement of staging areas in uplands, minimizing the number of trips heavy equipment make through the site, and revegetation of disturbed areas will further reduce the duration and magnitude of the temporary increases in turbidity. If a plume is noted, measurements would be taken downstream of the project at the Ecology-designated downstream point of compliance (300 feet), which allows for acceptable permissible mixing and dilution of any released sediment (Appendix C). USACE anticipates that effects of increased turbidity would be negligible. If rain occurs during construction, it is possible that soil would be washed into the river although this should be minimized by BMPs and construction timing during summer months when rainfall is less frequent.

There would be a minor benefit due to laying back the levee slope. As a consequence, the levee crest and riverward slope would shift inland from their current position, while maintaining the location of the riverward toe (Appendix B). This design would increase the channel area resulting in a decrease in river velocities during higher flows.

The shoreline at the repair site is heavily modified. A vast majority of vegetation is invasive and provides only localized shade and no LWM input. The temporary loss of 350 feet of riparian vegetation from the repair site could decrease organic input to the river and decrease shading. This would negatively impact foraging opportunities from insect fall for fish that juvenile

Chinook forage on. This loss would be offset by the plantings described in section 2.6, although there would be a temporary loss in habitat until this vegetation establishes. The plantings would benefit aquatic species (including ESA-listed salmonids) and local water quality in the Snohomish River. Growth in good conditions can reach 6-8 feet a year for the willow bundles, while the tree plantings would take longer. Site conditions may not be ideal so growth rates may be lower. Overall river temperatures are not expected to discernibly change due to this project.

3.4.6.2 Puget Sound Steelhead

Potential effects on steelhead from the proposed repair to the Marshland Levee are similar to those listed above for Chinook salmon. However, there is a reasonable expectation that more steelhead adults and juveniles would be present in the action area than Chinook salmon since steelhead stay in freshwater longer. During the proposed construction period, steelhead adults could be migrating through, and juveniles could be rearing in the action area. At the Marshland Levee repair site spawning habitat is not present due to lack of appropriate spawning substrate and excessive amounts of silt and sand (P. Verhey, personal communication, WDFW Fish Biologist, August 17 & 18, 2020).

3.4.6.3 Bull Trout

Potential effects on bull trout from the proposed repair to the Marshland Levee are similar to those discussed above for Chinook salmon and steelhead. However, due to in-water summer temperatures and migration behaviors, bull trout are unlikely to be present during the in-water work window. During this time, most sub-adult and adult bull trout have moved through the project area to upstream habitat areas or spawning sites. Some adults and sub-adults may not have migrated or have delayed their migration upstream and so could still be in the action area. Juveniles are not expected to occur in the action area since most juveniles rear in natal streams in the upper Skykomish River (SBSRF 2005).

3.4.6.4 Southern Resident Killer Whale

Repairs to the Marshland Levee would not directly affect SRKW, as they do not inhabit the project or action area. There is potential for indirect impacts through project effects to their prey base, which includes Chinook and chum salmon. Construction related impacts to these prey species would be minor and temporary, and they would be offset with plantings (see section 2.6). Because the percentage of Snohomish River Chinook and chum salmon that make up the SRKW diet is likely small, the USACE expects little to no discernable effect to their food base.

3.5 CULTURAL RESOURCES

The Marshland Levee was originally constructed in the early 1900s by local interests and updated in the 1960s. Since the levee is more than 50 years old, it may be potential historic property per the National Historic Preservation Act. A literature review and a records search found no previous surveys for cultural resources in the repair footprint. However, it did indicate six previously recorded historic period archaeological sites within one mile of the repair sites.

No archaeological sites are recorded within the repair footprint at the levee. A cultural resource inspection was complete by a USACE archaeologist on February 5, 2023. No cultural resources were observed during the inspection.

3.5.1 No Action Alternative

The No Action Alternative would result in continued degradation of the levees through natural processes. It is likely that at an unknown time the levees would fail causing irreparable damage to the structure potentially causing an adverse effect to a historic structure that is potentially eligible for inclusion on the National Register of Historic Places.

3.5.2 Preferred Alternative

Under this alternative, the Marshland Levee would be repaired, avoiding adverse effects to any historic structures and archaeological sites. Consultation with the Washington State Department of Archeology and Historic Preservation (DAHP), the Snoqualmie Indian Tribe, Sauk-Suiattle Indian Tribe, Stillaguamish Tribe of Indians, Tulalip Tribes, Swinomish Indian Tribal Community, Muckleshoot Indian Tribe, Confederated Tribes and Bands of the Yakama Nation, Suquamish Indian Tribe of the Port Madison Reservation, Samish Indian Nation, and Upper Skagit Indian Tribe is ongoing (see section 8.10). Based on previous projects near this location and preliminary literature review and a records search, cultural resource inspection, and coordination with DAHP and the contacted Tribes, the USACE expects the proposed repairs would have no adverse effect to historic properties. Coordination with DAHP and the contacted Tribes has been completed. See section 8.10 for details. Effects on cultural resources would be negligible.

3.6 LAND USE, UTILITIES, AND INFRASTRUCTURE

Land use in the vicinity of the levee is a mix of residential, commercial, and agricultural. The city of Snohomish is north of the Marshland Levee repair site. The left bank of the Snohomish River is predominantly agricultural. North (downstream) of the proposed Marshland Levee repair site is a railroad bridge that crosses the Snohomish River. Landward of the levee are roads important to local and regional transportation. Further inland are commercial properties and the Harvey Airfield, which services small fixed-winged and rotary aircraft. There are no utilities in the proposed Marshland Levee repair footprint. The repair footprint does not include public roads; however, private roads behind the levee, and the levee crest, are used by landowners and the non-Federal sponsor. Access to the Marshland Levee repair site would occur from Airport Way and through private property.

3.6.1 No Action Alternative

Under the No Action Alternative, a higher risk exists for flood damage to land use, utilities, and infrastructure. If the levee isn't repaired, and flooding occurs due to breaches in weak sections of the levee, public infrastructure could be damaged or lost and local area traffic could be affected. This could affect commercial traffic, access to private residences, evacuations, and emergency response services. Depending on the severity of flooding, emergency flood fight efforts may occur to protect safety and property. These activities and local efforts to maintain

the levees are expected to be sufficient to maintain existing land use, utilities, and infrastructure. Effects on land use, utilities, and infrastructure would be negligible.

3.6.2 Preferred Alternative

Under this alternative there would be minor and temporary impacts to land use, utilities, and infrastructure. Land use in the project area would not change but may be disrupted temporarily from construction activities and equipment. Before work is started, a utility locate would be completed to verify the presence and absence of utilities in the construction footprints. Construction-related traffic may cause temporary increases to, and disruption of, local traffic. Flaggers and signs would be used, as needed, to direct traffic safely around the construction site. Existing infrastructure would not be altered to prevent their intended purpose and use. Damaged utilities and infrastructure would be replaced or repaired as necessary. Effects to land use, utilities, and infrastructure would be negligible.

3.7 Air Quality and Climate Change

Under the Clean Air Act, the Environmental Protection Agency (EPA) sets standards for air quality to regulate harmful pollutants. National ambient air quality standards are set for six common air pollutants: ozone, carbon monoxide, nitrogen dioxide, particulate matter (solid and liquid particles suspended in the air), sulfur dioxide, and lead. Areas that do not meet the national ambient air quality standards are designated non-attainment areas. The EPA sets *de minimis* thresholds for pollutants in non-attainment areas. National ambient air quality standards are met across Washington state, but Ecology and other clean air agencies continue to monitor air quality at 55 locations (Ecology 2020). Two of these 55 sites are in Snohomish County, in Marysville and Darrington, both for particulate matter. Neither site is near the project area.

The EPA established the Air Quality Index (AQI) as a simplified tool for communicating daily air quality forecasts and near real-time information to people for planning their daily activities. The AQI indicates how clean or polluted air is and what associated health effects might be a concern. It focuses on health effects that may be experienced within a few hours or days after breathing polluted air. An AQI value of 100 generally corresponds to the air quality standard for the pollutant set to protect public health. Table *7* shows the AQI rating for 2021 (the most recent available data) by county in the region of the Puget Sound Clean Air Agency (PSCAA 2022). A higher AQI indicates higher levels of air pollution and greater health concern.

Table 7. AQI ratings for 2021 (PSCAA 2022).

County	AQI Rating (percent of year)					Highest AQI
	Good (0-50 AQI)	Moderate (51-100 AQI)	Unhealthy for Sensitive Groups (101-150 AQI)	Unhealthy (151-200 AQI)	Very Unhealthy (201-200 AQI)	
Snohomish	82.5	16.7	0.8	0	0	137
King	84.1	14.8	0.3	0.5	0.3	246
Pierce	83.6	15.6	0.8	0	0	139
Kitsap	98.4	1.4	0.3	0	0	113

As concentrations of greenhouse gases continue to increase due to the contribution of anthropogenic sources, the Earth's temperature is also increasing above past levels. The Earth's average land and ocean surface temperature has increased by about 2.0 degrees Fahrenheit (°F) from the 1850 to 1900 period to the decade of 2011 to 2020 (IPCC 2021). The last four decades have each been the warmest decade successively at the Earth's surface since at least 1850 (IPCC 2021). Other aspects of the climate are also changing, such as rainfall patterns, snow and ice cover, and sea level. Global mean sea level increased by about 7.9 inches between 1901 and 2018. The average rate of sea level rise between 2006 and 2018 was estimated at 0.15 inches per year (IPCC 2021). Global surface temperature is expected to continue to increase until at least mid-century and a global warming of about 2.7°F to 3.6°F will be exceeded during the 21st century unless deep reductions in CO_2 and other greenhouse gas emissions occur in the coming decades (IPCC 2021).

In Snohomish County, climate change is expected to cause the following impacts on hydrology and flood resilience (Snohomish County 2023):

- Increase average summer temperatures. This could affect people, landscaping, agriculture, and natural areas like wetlands, wildlife habitats, and other ecosystems.
- Increase the chance for wildfires. This could impact more homes, businesses, farms, and infrastructure. It could also cause health-safety concerns (e.g., wildfire smoke inhalation). Areas that have recently burned are less able to store water, increasing storm runoff and erosion.
- More frequent and intense storms. This could affect flooding, erosion, and runoff and impact stormwater systems, transportation, and emergency responses.
- Increase in peak stream flows, more areas flooded with increased frequency and extent of coastal flooding. This could impact more homes, businesses, farms, and infrastructure.
- Less stored water in snow, and less water available for streams, soil, and reservoirs.

3.7.1 No Action Alternative

The No Action Alternative would have no direct effect on air quality or climate change. Emergency actions may be required to protect lives and property in the event of a flood. These actions would likely have similar air emissions and climate change effects as the preferred alternative but could differ depending on timing and scope of the emergency action. Effects to air quality would be temporary and within the range of intensity of noise produced by on-going activities in the area. There would be unquantifiable but negligible exacerbation of effects of CO_2 emissions on global climate change. Effects on air quality and climate change would be negligible and unquantifiable.

3.7.2 Preferred Alternative

Construction vehicles and heavy equipment used in construction would temporarily and locally generate increased gasoline and diesel exhaust fumes. The small area of construction and the short duration of the activities would limit the impact to air quality. The proposed project would constitute routine repair of an existing facility, generating an increase in direct emissions of a criteria pollutant or its precursors that would be *de minimis*, and would therefore be

exempt by 40 CFR Section 93.153(c)(2)(iv) from the conformity determination requirements. Emissions generated by the construction activity are expected to be minor, short-term, and would not affect the implementation of Washington's Clean Air Act implementation plan. Fugitive dust will be reduced in the long-term with the resurfacing of the access road between the railroad crossing and the staging area.

The effects of climate change are expected to increase the frequency and severity of floods in the Snohomish River basin. The preferred alternative will repair the levee so that it can continue to protect against the increased risk of floods. As the levee system is owned and maintained by the Non-Federal Sponsor, they have the responsibility to address the systemic effects that climate change will have on their flood control system. This information can be found in the Snohomish River Comprehensive Flood Control Management Plan which is available from Snohomish County and currently being updated. Overall, effects on air quality and climate change would be negligible. The preferred alternative would increase flood resilience in the face of climate change.

3.8 NOISE

The project site and its surroundings have been developed, with a wide variety of human activities contributing to ambient noise levels. Human-related existing noise sources at the project site include traffic, construction, internal combustion engines, and agricultural activities. Based on the population density of Snohomish, the expected ambient noise level near the project area is considered quiet, between 45-50 dBA (decibels weighted to human hearing. However, noise in the project area could be louder from traffic on local roads and nearby highways. Hearing loss can occur from actions like airplane noise, that generate 170 dBA, while freeway traffic is about 70 dBA and can make telephone use difficult.

3.8.1 No Action Alternative

The No Action Alternative would have no direct effect on noise. Emergency actions may be required to protect lives and property in the event of a flood. These actions would likely have similar noise effects as the preferred alternative but could differ depending on timing and scope of the emergency action. Effects to noise would be temporary and within the range of intensity of noise produced by on-going activities in the area. Effects on noise would be negligible.

3.8.2 Preferred Alternative

Construction vehicles and heavy equipment used in construction would temporarily and locally generate increased noise levels. Proposed repairs would be conducted during daylight hours from 7 AM to 7 PM to limit noise impacts on surrounding properties. Effects on noise would be negligible.

3.9 ENVIRONMENTAL JUSTICE IN MINORITY POPULATIONS AND LOW-INCOME POPULATIONS

Executive Orders (EOs):

1. **EO 12898:** Environmental Justice in Minority Populations and Low-Income Populations,
2. **EO 14008:** Tackling the Climate Crisis,
3. **EO 13985 & 14091:** Advancing Racial Equity and Support for Underserved Communities Through the Federal Government
4. **EO 14096**: Revitalizing Our Nation's Commitment to Environmental Justice for All

"Environmental Justice" is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income regarding the development, implementation, and enforcement of environmental laws, regulations, and policies, with no group bearing a disproportionate burden of environmental harms and risks. Environmental justice and disproportionate impacts to disadvantaged communities shall be considered throughout the Civil Works programs and in all phases of project planning and decision-making, consistent with the goals and objectives of various Administration policies.

EO 12898 directs Federal agencies to take the appropriate steps to identify and address any disproportionately high and adverse human health or environmental effects of Federal programs, policies, and activities on minority and low-income populations. Minority populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, and Pacific Islander. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population. EO 14008 updates EO 12898 and has expanded Federal agencies' responsibilities for assessing environmental justice consequences of their actions. EO 13985, EO 14091, and EO 14096 charge the Federal Government with advancing equity for all, including communities that have long been underserved, and addressing systemic racism in our Nation's policies and programs.

3.9.1 Analysis Methods

USACE analyzed demographic data to assess the approximate locations and potential concerns of low-income and minority populations in the community of concern. The analysis relied on the EPA's EJScreen tool and the White House Council on Environmental Quality (CEQ) Climate and Economic Justice Screening Tool (EPA 2024b; CEQ 2024).

EJScreen is EPA's environmental justice mapping and screening tool that provides a nationally consistent dataset and approach for combining environmental and demographic socioeconomic indicators. Using the tool, USACE analysts chose a geographic area on the EJScreen map. The tool then synthesized demographic socioeconomic and environmental information for that area to express them in the context of 13 indicators or indexes. The environmental justice indexes are exposure to toxic air pollutants including particulate matter, ozone, and lead, proximity to superfund sites, hazardous waste, and wastewater discharge. Demographic indexes are the percentages of the population that are people of color, low income, unemployed, with limited English speakers, less than a high school education and population under 5 or over 64. Vulnerability to flood, wildfire, and sea level rise due to climate change and lack of health,

housing, transportation, and food services are also analyzed. The environmental justice index uses the concept of "excess risk" by looking at how far above the national average the block group's demographics are. USACE analysts applied the EJScreen assessment of the 13 indicators within an affected radius around the project area of approximately 5 miles. USACE compared indicators for the project area to those in the City of Snohomish and Washington State. EPA considers a project to be in an area of potential environmental justice concern when an EJScreen analysis for the impacted area shows one or more of the 13 environmental justice indexes at or above the 80th percentile in the nation and/or state. A percentile is a relative term, and tells you how something compares the other things. For example, a percentile of 80 means that you scored equal to or better than 80% of people who took the test. The area consisting of the repair and 5-mile buffer and town of Snohomish are not over the 80th percentile for any of the environmental justice indexes (Appendix D).

The CEQ's Climate and Economic Justice Screen Tool is a geospatial mapping tool used to identify disadvantaged communities that face burdens. The tool has an interactive map and uses datasets that are indicators of burdens. Communities are considered disadvantaged if they are in a census tract that meets the threshold for at least one of the tool's categories of burden and corresponding economic indicator or are on the lands of a federally recognized Tribe. USACE researched this additional information from the CEQ tool to ensure it rigorously investigated the existence of environmental justice communities or issues of concern.

3.9.2 Analysis Results

Detailed data generated from the EJScreen report can be found in Appendix D and online at the following link: https://www.epa.gov/ejscreen.

From the EJScreen research, USACE found that the aggregate minority population is estimated at 26 percent in the affected area, 32 percent in the State of Washington, and 39 percent for the United States (EPA 2024a, Appendix D). The town of Snohomish has an estimated aggregate minority population of 17 percent, which is less than that of the population within 5 miles of the project area (EPA 2024b, Appendix D).

The aggregate low-income population percentage within 5 miles of the project area and town of Snohomish is below the state and country average. The aggregate low-income population is estimated at 12 percent within 5 miles of the project area, 24 percent in the state of Washington, and 31 percent for the United States (EPA 2024a, Appendix D). The aggregate low-income population is estimated at 22 percent in the town of Snohomish (EPA 2024c, Appendix D).

The percentage within 5 miles of the project area and the town of Snohomish does not exceed 50 percent. Therefore, affected area is not considered to have a high concentration of low-income persons based on EPA criteria.

The area around the project is above the 50th percentile for members of the population who are unemployed, limited English speakers, less than a high school education, and those over the age of 64.

Detailed information from the CEQ tool can be found at the following URL:

https://screeningtool.geoplatform.gov/en/.

Using the CEQ's Climate and Economic Justice Screening Tools, USACE found the project site is not located within a disadvantaged track (CEQ 2024). However, the project site is above the 90th percentile for expected population loss from natural hazards and projected flood risk within 30 years (CEQ 2024).

3.9.3 No Action Alternative

The No Action Alternative could result in continued erosion of the bank, especially in a flood event, and could leave the levee vulnerable to continued damage and breaching. In an undamaged condition the Marshland Levee provides a 100-year (0.1 AEP event) level of protection. In the current damaged condition, the levee provides an approximate 1-year (1.0 AEP event) level of protection. A levee breach would result in inundation behind the levee. A flood fight would likely be undertaken to prevent a breach. Such activities would be made to preserve those behind the levee, including environmental justice communities. If flood fights were infeasible or unsuccessful and the levees failed, inundation and possible channel migration could have considerable impacts on communities in the area.

3.9.4 Preferred Alternative

The Repair In-Kind Alternative does not involve a facility siting decision and will not disproportionately affect minority or low-income populations, nor will it have any adverse human health impacts. The area is not at or above the 80th percentile in the nation and/or state for any of the eleven environmental justice indexes. Repair work to the Marshland Levee will not cause long-term increases to any of the eleven environmental justice indexes. Only minor and temporary increases related to construction equipment emissions are anticipated. Other environmental justice Indexes unrelated to emissions will remain unaffected (e.g., Superfund proximity, wastewater discharge indicator, etc.). The project maintains flood protection for the affected area which is above the 90th percentile for expected population loss from natural hazards and projected flood risk. Populations with higher unemployment, limited English skills, less than a high school education, and over the age of 64 are more vulnerable to the impacts of flooding and are less able to move in order to avoid this risk. If this alternative is not implemented, the surrounding communities would experience greater flood risk. Additionally, tribal governments in the project area have been engaged and informed about the proposed action. This project will not have any disproportionate negative impacts on environmental justice communities, nor will its interactions with other projects have disproportionate negative impacts. No cumulative impact to environmental justice is expected from interaction of the proposed levee repairs with other past, present, and reasonably foreseeable projects. The proposed action will not directly or through contractual or other arrangements, use criteria, methods, or practices that discriminate on the basis of race, color, or national origin, nor would it have a disproportionate effect on minority or low-income communities.

3.10 RECREATION

Outdoor recreational activities and facilities are common on the Snohomish River. In the city limits of Snohomish alone, there is approximately 170 acres of parks and open spaces offering access to natural resources, community recreation, and local heritage. There are no recreational sites or facilities present in the project footprint. However, upstream of the site is a private boat ramp and approximately 1,000 feet downstream from the damaged Marshland Levee site is the Pilchuck Julia Landing. Opened in 2017, the Pilchuck Julia Landing is a city-owned boat launch for motorized and non-motorized boats accessing the Snohomish River (City of Snohomish 2021).

3.10.1 No Action Alternative

Under the No Action Alternative, a higher risk exists for flood damage to recreation. If the levee isn't repaired, and flooding occurs due to breaches in weak sections of the levee, recreational use behind the levee could be interrupted or damaged. Depending on the severity of flooding, emergency flood fight efforts may occur to ensure safety and protect property. These activities and local efforts to maintain the levees are expected to be sufficient to maintain existing recreation. Effects on recreation would be negligible.

3.10.2 Preferred Alternative

Under this alternative there could be minor and temporary impacts to recreation. Construction would not prevent recreational activities or change recreational facilities and property. However, due to its proximity to various recreational facilities in the area, construction activities may cause temporary and minor impacts related to traffic and noise, which would not persist after repairs are completed. Effects to recreation would be negligible.

4 MITIGATION

As outlined in 40 CFR § 1508.1(s)(1-5), under NEPA "mitigation means measures that avoid, minimize, or compensate for effects caused by a proposed action or alternatives as described in an environmental document or record of decision and that have a nexus to those effects. While NEPA requires consideration of mitigation, it does not mandate the form or adoption of any mitigation. Mitigation includes:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments."

Measures to minimize and rectify the loss of riparian habitat from the preferred alternative are described in section 2.6. These measures include removal of invasive species, plantings, and

placement of LWM above the OHWM. Maintenance monitoring and adaptive management would be implemented to ensure success of these measures (section 2.6.4). Although there is a 10–15-year time lag for tree plantings to establish, the other measures would immediately rehabilitate or restore functionality due to, project impacts to aquatic and terrestrial species and their habitat. The planted vegetation would replace riparian habitat removed by the construction work.

5 UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects associated with the preferred alternative at each site would be: (1) temporary and localized increases in noise, activity, and emissions which may affect fish and wildlife in the area; (2) temporary and localized disruption of local traffic by construction activity and vehicles; (3) irretrievable commitment of fuels and other materials for repairs; (4) temporary and localized increase in turbidity levels during in-water construction, which may affect aquatic organisms in the area; and (5) removal of vegetation from within the proposed construction areas in the riparian zone. The vegetation removal has the longest duration of impact due to the length of time needed for the new plants to grow to a similar size. Vegetation impacts from construction work would be offset by the proposed plantings (see section 2.6.2).

6 CUMULATIVE EFFECTS

The CEQ regulations implementing NEPA define cumulative effects as the effects on the environment which result from the incremental effects of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR §1508.1).

The Snohomish River Basin covers 1,856 square miles in King and Snohomish County (Snohomish County 2024) and has a history of floodplain development, river armoring, and channel manipulation to support growing communities, especially in Everett and Marysville (SBSRF 2019). While over 70 percent of the Snohomish River Basin is forested, over 90 percent of the basin in more populated areas has been filled, channeled, or drained to support development and agriculture (SBSRF 2019). Changes to the natural floodplain, channel migration, and sediment fluxes of the Snohomish River from private, city, state, and Federal actions further impact the quality of habitat, abundance of species present, and ecological processes of the river basin.

Construction and development near the project location are primarily conducted by state, local, and Federal agencies. The actions near the project location involve flood control, river access improvements, or road work (Table 8). Overall, these projects have or would continue to maintain channelization, reduce riparian habitat, and disrupt natural hydrology and hydraulics on the Snohomish River in this area. Conversely, some projects are directed towards protecting habitat like conservation efforts at the Snohomish Slough and vegetation planting at the

Pilchuck Julia Landing Planting event.

As the local non-Federal sponsor, the Marshland Flood Control District will continue to maintain the levee and conduct periodic repairs and vegetation maintenance. These actions by the local sponsor, along with similar activities by other entities in the basin, maintain the status quo. Future flooding on the Snohomish River and its tributaries is likely to damage non-Federal structures. Non-Federal entities would likely undertake at least some repair actions under those circumstances and may seek Federal assistance with repairs or emergency responses. If USACE determines that the damages are eligible for assistance under the PL 84-99 Levee Rehabilitation Program, then additional future repairs by USACE would take place.

In general, future activities along the Snohomish River to maintain existing land use development will cause similar impacts to those from the 2024 Marshland Levee Repair Project. The proposed project will contribute to maintaining the current channelized state of the river, and protect existing investment in a community with agriculture, industrial, and residential development. When evaluated in the context of past, present, reasonably foreseeable future actions, the proposed project would not result in significant incremental effects, and does not appreciably alter the existing pattern of land use development and cumulative effects within the Snohomish River.

Table 8: Past, current, and future projects near the Marshland Levee Project location. Projects listed below are WA State Department of Ecology projects, Washington State Department of Transportation projects, and USACE regulatory projects.

Project Name	Location	Type of Project	Year of Construction	Agency
Pilchuck Julia Landing Planting Event	City of Snohomish near River Mile (RM) 13	Agroforestry project in Snohomish that offers a boat launch, river access, and includes plantings of edible plants and trees.	2021	Snohomish Conservation District
Shop Riverbank Stabilization	City of Snohomish near RM 12	Stabilizing bank of Snohomish River	Future	City of Snohomish
French Slough Flood Control District	Pilchuck River RM 13	Bank Stabilization through flood fence on the Pilchuck River	2011	French Slough Flood Control District and USACE
Backfill Boring Holes	Snohomish River near RM 12	Geotechnical borings on the Snohomish River	2013	WSDOT
Snohomish Delta Sediment Flux	Snohomish River near RM 12	Installation of 7 scientific measurement devices to assess sediment flux	2022	EPA and USGS
City of Snohomish Boat Ramp	Snohomish River near RM 13	Construction of a public boat ramp	2015	WDFW
Riverview, Rivershore Road: Multisite Embankment Repair	Snohomish River near RM 9	Multisite embankment repair	2020	Snohomish County Public Works
Rotary Park Boat Ramp Float Replacement	Snohomish River near RM 7	Replacement of the public boat ramp	2021	City of Everett
SR 9- Marsh Road to 2nd Street Vicinity	State Route 9 with bridge repair over the Snohomish River near RM 12	Widening State Route 9 near the city of Snohomish and repainting the bridge over the Snohomish	2019-2026	WSDOT
No Name	Snohomish River near RM 8	Shoreline management for 1,700 cubic yards of fill	2014	WA Dept Ecology
Marshland Flood Control District Flood Canal Maintenance	South of Snohomish, WA and Snohomish River near RMs 8-15	Maintenance of sediment ponds, ditches, and flood canals	2020	WA Dept Ecology
Aquatic Land Withdraw for Snohomish Watershed Kelp and Eelgrass Protection Zone	Possession Sound west of Snohomish River Estuary	WDFW proposed withdraw of 2,298 acres of aquatic land from leasing and development	2022	WA Dept Ecology

7 COORDINATION

The following agencies and entities have been involved with the environmental coordination of the proposed project:

The proposed work has been coordinated with the following agencies:

1. USFWS
2. NMFS
3. EPA
4. WDFW
5. Ecology
6. DAHP
7. Snoqualmie Indian Tribe
8. Sauk-Suiattle Indian Tribe
9. Stillaguamish Tribe of Indians
10. Tulalip Tribes
11. Swinomish Indian Tribal Community
12. Muckleshoot Indian Tribe
13. Confederated Tribes and Bands of the Yakama Nation
14. Suquamish Indian Tribe of the Port Madison Reservation
15. Samish Indian Nation
16. Upper Skagit Indian Tribe

USACE released a Draft EA and Draft Finding of No Significant Impacts (FONSI) for the proposed project on April 26, 2024, for a 30-day public review and comment period. One comment was received (Appendix G).

8 ENVIRONMENTAL COMPLIANCE

This EA is being prepared pursuant to Sec. 102(C) of the NEPA, and includes compliance with other laws, regulations and Executive Orders as discussed below.

8.1 AMERICAN INDIAN RELIGIOUS FREEDOM ACT

The American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996) establishes protection and preservation of Native Americans' rights of freedom of belief, expression, and exercise of traditional religions. Courts have interpreted the Act to mean that public officials must consider Native Americans' interests before undertaking actions that might impact their religious

practices, including impact on sacred sites.

No alternative is expected to have any effect upon Native Americans' rights of freedom of belief, expression, and exercise of traditional religions. There are no known cultural resources or sacred sites at the project location.

8.2 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. § 668-668d) prohibits the taking, possession, or commerce of bald and golden eagles, except under certain circumstances. A USACE biologist did not observe any eagle nests at the project site during the project scoping site visit. Based on iNaturalist observations (2024), no bald eagles or nests have been sighted near the project area. The closest recent bald eagle sightings were approximately 1-mile northwest from the project location. The recommended alternative is not expected to cause take of either bald or golden eagles since there are no known nests near the repair site.

8.3 Clean Air Act of 1972

The Clean Air Act as Amended (42 U.S.C. § 7401 et seq.) prohibits Federal agencies from approving any action that does not conform to an approved State or Federal implementation plan. The operation of heavy equipment, removal and placement of rock, and the operation of vehicles during construction would result in increased vehicle emissions and a slight increase in fugitive dust during construction but a long-term reduction after repairs are completed. These effects would be localized and temporary. The project area is not located within a non-attainment area (Ecology 2024c). USACE has determined that the combination of emissions of the proposed repairs constitutes a routine facility repair generating an increase in emissions that is clearly *de minimis*, and thus a conformity determination is not required, pursuant to 40 C.F.R. 93.153 (c)(2)(iv).

8.4 Clean Water Act- Federal Water Pollution Control

The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.) is more commonly referred to as the Clean Water Act (CWA). This act is the primary legislative vehicle for Federal water pollution control programs and the basic structure for regulating discharges of pollutants into waters of the U.S. The CWA was established to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." The CWA sets goals to eliminate discharges of pollutants into navigable waters, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment.

This EA evaluates possible impacts to water quality, primarily with respect to turbidity and water temperature. The proposed levee rehabilitation work does require work in the active channel since some construction activities would take place below the OHWM (Appendix B). BMPs, including restrictions on fueling and prevention of fluid leaks from construction equipment, would be employed to minimize and avoid discharge of pollutants into the river (Section 2.7).

Three sections of the CWA are pertinent to the proposed action. Section 401 covers water quality and evaluation of the effects discharges would have on water quality standards. Section

402 addresses non-point discharges including, but not limited to, stormwater runoff from construction sites. Section 404 addresses discharge of fill into Waters of the United States. Requirements of those three CWA sections are briefly discussed below.

8.4.1 Section 404 and 401

USACE is responsible for administration of Section 404 of the CWA. USACE does not issue Section 404 permits to itself for its own civil works activities, but USACE accepts responsibility for the compliance of its civil works projects with Sections 404 under the CWA for jurisdictional activity. Pursuant to CWA Section 404(f)(1)(B), "[T]he discharge of dredged or fill material . . . for the purpose of maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, and bridge abutments or approaches, and transportation structures…is not prohibited by or otherwise subject to regulation under this section…" Pursuant to 33 U.S.C. 323.4(a)(2), the implementing definition of "maintenance" includes "emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, bridge abutments or approaches, and transportation structures. Maintenance does not include any modification that changes the character, scope, or size of the original fill design. Emergency reconstruction must occur within a reasonable period of time after damage occurs in order to qualify for this exemption."

Below and waterward of ordinary high water, this project remains within the same prism, profile, and footprint of the original fill for the levee project, and is replacing a damaged rock armor layer with another rock armor layer. As such, it does not present a change in the character, scope, or size of the original fill design. The levee is being reconstructed in the first construction season after the damaging flood event to ensure that it can provide flood protection before the next flood season. Therefore, the project qualifies as emergency reconstruction to repair a levee within a reasonable period of time, and is exempt from regulation under Section 404 of the CWA. As the proposed project does not result in any jurisdictional discharge into waters of the U.S. under Section 404, a Section 401 Water Quality Certification is not required to address this proposed fill activity.

8.4.2 Section 402

Section 402 of the CWA is triggered when a construction site would have greater than 1 acre of ground disturbance. While the total construction footprint of the Marshland Levee repair project is estimated at 1.05 acres (Table 1), it does not involve over an acre of ground disturbance.

8.5 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) of 1972 as amended (16 U.S.C. §1451-1464) requires Federal agencies to conduct activities in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved State Coastal Zone Management (CZM) Program. USACE has determined that this project is consistent to the maximum extent practicable with the enforceable polices of the Coastal Zone Management

Program contained in the State Clean Air Act, State Water Pollution Control Act, and the State Shoreline Management Act (SMA). USACE sent a CZMA Consistency Determination(CD) to Ecology requesting concurrence that the proposed repairs are consistent to the maximum extent practicable with the enforceable policies of the approved CZM Program on April 12, 2024. Ecology issued a 21-day public notice on April 17, 2024, and received no comments. On May 30, 2024, Ecology requested a 15-day extension pursuant to 15 CFR Part 930.41(b), extending the CZM decision deadline to June 28, 2024. Ecology requested an additional meeting on May 31, 2024, which was held on June 12, 2024, where Ecology requested an additional extension to the decision deadline. On June 18, 2024, USACE agreed to extend the deadline to July 3, 2024. USACE received conditional concurrence from Ecology on July 2, 2024. Ecology's concurrence letters included one recommendation and three conditions (Appendix E).

The three conditions from Ecology are: (1) create a standalone Shoreline Mitigation Plan submitted to Ecology for review and approval 14 business days prior to construction; (2) notify Ecology immediately if any changes are made to the Shoreline Mitigation Plan and provide Ecology with an updated plan; and (3) submit copies of all annual monitoring reports to Ecology by December 31 of each year. USACE considers the terms of Ecology's "Conditional Concurrence" to not be acceptable pursuant to 15 CFR § 930.4(a)(2), and provided notice to Ecology to this effect contemporaneously with finalization of NEPA.

USACE has determined that these conditions are not based on enforceable policies as defined by 15 CFR § 930.11(h) and are beyond Ecology's authority to require. 15 C.F.R. § 930.4(a)(1) requires Ecology to identify the specific enforceable policies that USACE has not demonstrated consistency within its CD. Ecology's three conditions are not derived from the enforceable policies approved by NOAA under Washington's CZM program. The provisions Ecology cites in the conditional concurrence letter (WAC 173-26-201(2)(a) and WAC 173-26-221(5)) as the specific enforceable policies are requirements for local Shoreline Master Programs (SMPs). Whereas the SMPs may be local expressions of the Shoreline Management Act (SMA), per Ecology's own February 2022 Federal Consistency Procedures guidance document, "local SMPs are not enforceable policies of Washington's [Coastal Zone Management Program] CZMP." Furthermore, USACE's Marshland CD already includes information that Ecology purports to seek in a "standalone" Shoreline Mitigation Plan, such as a site plan showing the location of vegetation planting areas (Figure 6, page 14), plant list (Table 4, page 15), performance standards for Year 1 (Page 15), circumstances for monitoring after Year 1 (Page 15, 37), and adaptive management (Page 15); it also addresses how the proposed work is consistent with the shoreline vegetation conservation standards in WAC 173-26-221(5) (Page 50). Lastly, it is outside of the WA CZMP's enforceable policies to require a new "standalone Shoreline Mitigation Plan" at the tail-end of the 90-day CZMA review period, subject to Ecology's review and approval 14 days before the start of the USACE's work; as well as ongoing immediate notification to Ecology of any updates to the mitigation plan, and annual reports.

Contract solicitation for the Marshland levee repair project began July 12, 2024, and contract award is scheduled to occur on July 30, 2024. The USACE plans to start construction in August 2024 and anticipates completing repairs in September 2024. All in-water work is scheduled to occur during the in-water work window for the Snohomish River (July 1 to August 31). This project requires 4 weeks of in-water construction work that must be completed during the only

remaining designated in-water-work time window prior to the inception of the fall flood season to avoid and minimize environmental impacts.

USACE has planned and coordinated extensively for the Marshland Levee repair in recognition of the urgency of the flood risk posed by the December 2023 flood damage to the Marshland levee. Failing to begin construction in early August will jeopardize completion of the emergency levee rehabilitation in 2024 within the approved in-water work window. Working within the approved in-water work window is a critical part of avoiding and minimizing the environmental impact of this proposed project under multiple environmental laws, including the Endangered Species Act (ESA), the National Environmental Policy Act (NEPA), as well as the Coastal Zone Management Act (CZMA).

8.6 ENDANGERED SPECIES ACT

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed or proposed threatened or endangered species and their critical habitats.

USACE requested emergency consultation with the USFWS and NMFS under section 7 of the Endangered Species Act (ESA) on March 6, 2024, according to regulations for interagency cooperation found at 50 CFR §402.5. On March 7, 2024, the NMFS acknowledged receipt of the request and assigned a tracking number (INQ-2024-00049). On March 27, 2024, NMFS transmitted to USACE recommended measures to reduce the number, extent, and type of adverse effects the project may otherwise have on ESA listed species and their designated critical habitat, which USACE reviewed and responded to on March 28, 2024. A summary of the recommendations and USACE's responses are available in Appendix F. All the recommended measures provided by NMFS will be implemented. To date, the USFWS has not responded to the emergency consultation request, but USACE will implement recommendations provided by USFWS if received.

Once the emergency response is over, USACE will notify USFWS and NMFS of the measures that were implemented, how they were implemented, and impacts to critical habitat. The USACE will coordinate with the NMFS and USFWS during and after the emergency repair is complete and initiate after the fact consultation in accordance with 50 CFR §402.5.

8.7 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT OF 1976

The Magnuson-Stevens Fishery Conservation and Management Act, (16 U.S.C. § 1801 *et. seq.*), as amended by the Sustainable Fisheries Act of 1996 (PL 104-267) requires Federal agencies to consult with the NMFS regarding actions that may adversely affect essential fish habitat (EFH) for Pacific coast groundfish, coastal pelagic species, and Pacific salmon. The Act defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH is the habitat (waters and substrate) required to support a sustainable fishery and a managed species' contribution to a healthy ecosystem. Waters include aquatic areas and their associated physical, chemical, and biological properties used by fish. Substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities.

USACE plans to complete coordination under this act after the fact, in tandem with the ESA consultation.

8.8 Migratory Bird Treaty Act of 1918 and Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds

The Migratory Bird Treaty Act (16 U.S.C. § 703-712) as amended protects over 800 bird species and their habitat and commits that the U.S. would take measures to protect identified ecosystems of special importance to migratory birds against pollution, detrimental alterations, and other environmental degradations. EO 13186 directs Federal agencies to evaluate the effects of their actions on migratory birds, with emphasis on species of concern, and inform the USFWS of potential negative effects to migratory birds.

Work is proposed after the prime nesting season (April to mid-June) to comply with the in-water work window (July 1 to August 31). Trees that may provide nesting to migratory birds would be removed. Plantings to offset tree removal would provide good nesting habitat as the plantings mature. Implementation of the preferred alternative would not have any direct, affirmative, or purposeful negative effect to migratory birds. There would be no adverse effect on habitat and the project would only have minimal and temporary incidental effects to a small number of individual birds that may be present in the project area. No permit application for "take" of migratory birds is required.

8.9 National Environmental Policy Act

The NEPA (42 U.S.C. § 4321 et seq.) commits Federal agencies to considering, documenting, and publicly disclosing the environmental effects of their actions. It requires that an EIS be included when a recommendation or report on proposals for legislation and other major Federal actions significantly affects the quality of the human environment. Major Federal actions determined not likely to have significant effects on the quality of the human environment may be evaluated through an EA.

This EA evaluates the environmental effects requiring NEPA compliance with the proposed 2024 Marshland Levee Repair Project.

8.9.1 NEPA / Cooperation Agreement

USACE entered into a Cooperation Agreement with the non-Federal sponsor, the Marshland Flood Control District to pursue this proposed project on May 13, 2024. At that time, USACE initiated but not yet concluded full NEPA compliance for the levee repair project. The timing of signature of the Cooperation Agreement was critical because it is the triggering event in a subsequent series of critical-path steps leading to project execution. The Determination of Practicability for NEPA Compliance dated May 13, 2024 articulated the minimum time intervals required for each step in the procurement and execution processes leading up to the deadline for completion of in-water construction, some of which are necessarily sequential, and also took into account the resourcing and sequencing of milestones associated with conducting two levee repair projects during the summer of 2024 in addition to the Marshland Levee repair. If the USACE had failed to timely execute the Cooperation Agreements and initiate a sequence of

meeting the subsequent critical-path milestones, the Marshland Levee repair would have been in jeopardy of delay, leaving the levee in its current damaged condition into a second flood season. Completion of the NEPA documentation prior to executing the Cooperation Agreements, while still fulfilling the agency's emergency levee rehabilitation authorities and responsibilities under P.L. 84-99, was determined to be not practicable. At the time of execution of the Cooperation Agreement, USACE complied with NEPA "to the fullest extent possible" under the circumstances, considering what was practicable given the exigency of the need of reducing the urgent risk presented by this damaged flood control structure before the next flood season.

8.9.2 NEPA / Proposed Action

The prospective Federal action is the proposed repair to the Marshland Levee as discussed in the body of this EA. This EA has been prepared pursuant to NEPA. Effects on the quality of the human environment as a result of the proposed levee repair are anticipated to be less than significant.

8.9.3 NEPA Summary

A draft EA/FONSI for the proposed project was made available for public review and comment on April 26, 2024. The comment period ended on May 26, 2024. One comment was received from the EPA. The comment and response is included in Appendix G.

8.10 NATIONAL HISTORIC PRESERVATION ACT OF 1966

Section 106 (54 U.S.C. § 306108) of the NHPA (54 U.S.C. § 300101) requires that Federal agencies evaluate the effects of Federal undertakings on historical, archeological, and cultural resources and afford the Advisory Council on Historic Preservation opportunities to comment on the proposed undertaking if there is an adverse effect to an eligible Historic Property. The lead agency must examine whether feasible alternatives exist that avoid eligible cultural resources. If an effect cannot reasonably be avoided, measures must be taken to minimize or mitigate potential adverse effects.

USACE initiated consultation with DAHP and the Confederated Tribes and Bands of the Yakama Indian Nation, Sauk-Suiattle Indian Tribe, Snoqualmie Indian Tribe, Stillaguamish Tribe of Indians, Swinomish Indian Tribal Community, and Tulalip Tribes on April 1, 2024, and received concurrence with the Area of Potential Effect on the same day (Appendix H). A USACE archaeologist reviewed online records to identify previously conducted inventories and recorded historic properties. This records search identified one previous cultural resource study area, the previous levee repair. No other cultural resources and historic properties eligible for listing on the National Register for Historic Places were identified. The USACE consulted with DAHP on the survey results and effects determination on May 16, 2024. DAHP concurred with the USACE's determination of no adverse effect to historic properties on May 21, 2024 (Appendix H). To date the USACE has received no comments from the contacted Tribes.

8.11 Native American Tribal Treaty Rights & Tribal Consultation under EO 13175, Consultation and Coordination with Indian Tribal Governments

The United States has a unique, legally affirmed Nation-to-Nation relationship with American Indians and Alaska Native Tribal Nations, which is recognized under the Constitution of the United States, treaties, statutes, EOs, and court decisions. The United States recognizes the right of Tribal Governments to self-govern and supports Tribal sovereignty and self-determination. The United States also has a unique trust relationship with and responsibility to protect and support Tribal Nations.

Between 1778 and 1871, the United States entered into about 400 treaties with various Indian Nations on a government-to-government basis. Under the United States Constitution, treaties are accorded precedence equal to Federal law. Treaty rights are binding on all Federal and state agencies, and take precedence over State constitutions, laws, and judicial decisions. Treaty terms, and the rights arising from them, cannot be rescinded or cancelled without explicit and specific evidence of Congressional intent – indicating that Congress was aware of the conflict between its intended action on the one hand and Indian treaty rights on the other, and chose to resolve the conflict by abrogating the treaty. A right enumerated in a treaty ratified by the Senate may only be superseded by a subsequent act of Congress.

USACE has a trust policy to consult with, and consider views of, federally recognized American Indian Tribes when proposing an action that may have the potential to significantly affect tribal rights, resources and lands. See Department of Defense Instruction (DODI) 4710.02, Section 3, Subject: DOD Interactions with Federally Recognized Tribes (24 September 2018). USACE discharges that duty by notifying, consulting with, and meaningfully considering tribal concerns that are raised through this consultation process.

In the 1850s, in exchange for the cession of their ancestral lands, numerous tribes in the Pacific Northwest entered into treaties with the United States to secure for themselves, amongst other considerations, the preservation of fishing rights in the ceded areas. These treaties were negotiated and signed by the then-Governor of the Washington Territory, Isaac I. Stevens, and are collectively known as the "Stevens Treaties."

In 1974, many (but not all) of the Stevens Treaties signatory tribes' "usual and accustomed grounds" within Puget Sound were delineated in a Federal court adjudication, U.S. V. Washington, 384 F. Supp. 312 (W.D. Wash. 1974). The Stevens treaties reserved the signatory tribes' right to "take fish at usual and accustomed grounds and stations . . . in common with all citizens of the territory" U.S. v. Washington, 384 F. Supp. at 332. Federal case law has recognized that the signatory Tribes also reserved the right to take up to 50 percent of the harvestable anadromous fish runs passing through those grounds (Fair Share). Over the years, the courts have held that this right also comprehends certain subsidiary rights, such as access to their "usual and accustomed" fishing grounds. See Northwest Sea Farms v. USACE, 931 F. Supp 1515 (W.D. Wash.1996).

USACE has evaluated impacts to fish and wildlife in this project and sent letters to the Snoqualmie Indian Tribe, Sauk-Suiattle Indian Tribe, Stillaguamish Tribe of Indians, Tulalip Tribes, Swinomish Indian Tribal Community, Muckleshoot Indian Tribe, Confederated Tribes and

Bands of the Yakama Nation, Suquamish Indian Tribe of the Port Madison Reservation, Samish Indian Nation, and Upper Skagit Indian Tribe requesting comments on the proposed project. To date, USACE has received two comments from the Swinomish Indian Tribal Community regarding the proposed vegetation plantings. USACE responded on May 7, 2024, that the PL 84-99 program is limited to emergency repairs and that long term management of the levee, and the plantings are the responsibility of the non-federal sponsor. On June 7, 2024, USACE provided additional information on how the planting plan was developed. These comments and responses are provided in Appendix I.

8.12 Executive Order 11988 Floodplain Management

Executive Order 11988 requires Federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy of the floodplain, and to avoid direct and indirect support of floodplain development where there is a practicable alternative. The proposed repair to the Marshland Levee does not constitute a major rehabilitation project, require extensive engineering and development, or significantly change the project footprint. The proposed repair does not directly affect either the modification or occupancy of floodplains and does not directly or indirectly impact floodplain development.

8.13 Executive Order 11990 Protection of Wetlands

EO 11990 encourages Federal agencies to take actions to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands when undertaking Federal activities and programs. No wetlands would be destroyed, lost, or degraded by the proposed action.

9 SUMMARY OF ASSESSMENT

The No Action Alternative does not meet the project's purpose and need. The Preferred Alternative fulfills the project’s purpose and need by restoring flood protection to the area damaged by the 2024 flood. Based on the above analysis the proposed 2024 Marshland Levee Repair Project would not constitute a major Federal action significantly affecting the quality of the human environment, and therefore does not require preparation of an EIS.

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11 APPENDICIES

Appendix A – Site Photographs

Appendix B – Design Plans

Appendix C – Water Quality Monitoring Plan

Appendix D – Environmental Justice Analysis

Appendix E – Coastal Zone Management Act Coordination

Appendix F – Endangered Species Act Coordination

Appendix G – Public Comments and Responses

Appendix H – Section 106 Consultation Documentation

Appendix I – Tribal Comments and Responses

11.1 APPENDIX A: SITE PHOTOGRAPHS

Photo 1: Riverbank Erosion, shown in red, downstream oriented (197+50).

Photo 2: Scour hole, shown in red, on the riverward slope, downstream oriented (198+00).

Photo 3: Sloughing landward of the trees on the riverward slope, downstream oriented (199+50).

Photo 4: Scour hole and subsequent sloughing on the riverward slope, upstream oriented (STA 199+50).

11.2 APPENDIX B: DESIGN PLANS

US Army Corps of Engineers ®
Seattle District

FY24 P2-518200 MARSH MARSHLAND 2024 LEVEE REHAB

SNOHOMISH, WA

SHEET ID	TITLE
	GENERAL
G-001	TITLE, VICINITY MAP, PROJECT MAP, AND INDEX
	CIVIL
CS-100	ACCESS AND HAUL ROUTE
CS-101	PROPOSED SITE PLAN
C-301	CROSS SECTION
	LANDSCAPE
L-101	PLANTING SITE PLAN
L-501	PLANTING DETAILS

PROJECT VICINITY MAP
NTS

PROJECT LOCATION MAP
NTS

SAFETY PAYS

IF SHEET MEASURES LESS THAN 22" X 34" IT IS A REDUCED PRINT. REDUCE SCALE ACCORDINGLY.

US Army Corps of Engineers ®

U.S. ARMY CORPS OF ENGINEERS
4735 E. MARGINAL WAY S.
SEATTLE, WASHINGTON

FY24 P2-518200 MARSH
FY24 MARSHLAND LEVEE 2024
SNOHOMISH COUNTY, WA

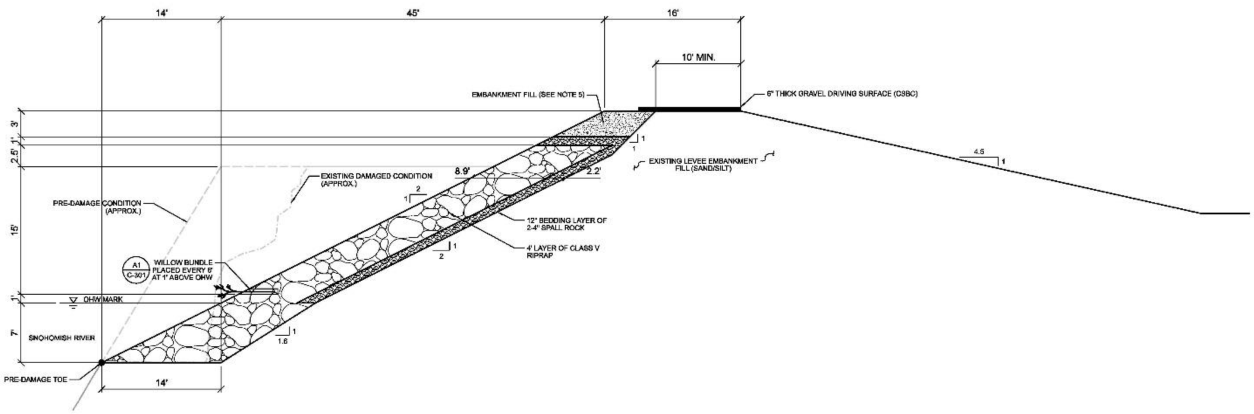
COVER SHEET

SHEET ID
G-001

95% DESIGN SUBMITTAL


STAGING AREA
POWERPOLE
ACCESS ROAD
FLOW
SNOHOMISH RIVER
POWERPOLE
PLANTING SITE A1 L-101
REPAIR SITE A1 CS-101
ACCESS ROAD
POWERPOLES
AIRPORT WAY
TOWARDS ROUTE 9
RAILROAD TRACKS
MARSHLAND LEVEE CENTERLINE
A1 ACCESS AND HAUL ROUTE
NTS
GENERAL NOTES:
1. PROJECT ACCESS WILL BE FROM ROUTE 9 ONTO AIRPORT WAY. CROSS THE RAILROAD TRACK, TAKE A LEFT AT THE INTERSECTION, AND CONTINUE TOWARDS THE STAGING AREA.
2. UPON PROJECT COMPLETION, STAGING AREA WILL BE RESTORED TO MATCH EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
3. USACE SHALL BE RESPONSIBLE FOR LOCATING UNDERGROUND AND OVERHEAD UTILITIES AS APPLICABLE PRIOR TO COMMENCING WORK.
4. ALL CONSTRUCTION SHALL OCCUR WITHIN THE REPAIR SITE FOOTPRINT SHOWN ON SHEET CS-101, AND ALL STAGING SHALL OCCUR WITHIN THE STAGING AREA FOOTPRINT SHOWN ON SHEET L-101.
5. ALL DISTURBED AREAS WITH TOPSOIL WILL BE HYDROSEEDED WITH A NATIVE SEED MIX APPROPRIATE FOR THE SITE, SEE TABLE 5 ON SHEET C-301.
6. HYDROSEED WILL NOT BE PLACED ON ARBORIST CHIPS.
7. TREES CUT DURING CLEARING AND GRUBBING SHALL BE USED AS LARGE WOODY MATERIAL (LWM). LWM SHALL BE PLACED IN THE PLANTING AREA OR ALONG THE FACE OF THE LEVEE WITH ROOTWADS LYING TOWARDS THE RIVER. LWM WILL NOT BE PLACED BELOW THE OHWM. SEE SHEET L-501 FOR MORE DETAIL.
US Army Corps of Engineers
ACCESS AND HAUL ROUTE
SHEET ID
CS-100
95% DESIGN SUBMITTAL


GENERAL NOTES:
1. STATIONING DERIVED FROM THE NATIONAL LEVEE DATABASE (NLD).
2. LEVEE REPAIR SPANS FROM 197+10 TO 200+60 AS SHOWN.
3. IN-WATER WORK WINDOW IS FROM JULY 1 TO AUGUST 31.
4. TRANSITION UPSTREAM AND DOWNSTREAM ENDS OF REPAIR TO SMOOTHLY TIE INTO EXISTING SLOPES AND ELEVATIONS.
5. SEE SHEET L-101 FOR PLANTING SITE PLAN.
ACCESS ROAD ON EXISTING CRUSHED SURFACING BASE COURSE
197+00
197+10
NO SLOPE
2H:1V
PLANTING SITE
198+00
199+00
200+00
200+60
201+00
APPROXIMATE ORDINARY HIGH WATER MARK (OHWM)
EXISTING CRUSHED GRAVEL DRIVING SURFACE
FLOW
SNOHOMISH RIVER
REPAIR SITE
EXISTING LEVEE CENTERLINE
12'
4'
45'
14'
A1 SITE PLAN
NTS
US Army Corps of Engineers
SHEET ID
CS-101
SITE PLAN
95% DESIGN SUBMITTAL



D1 PROPOSED CROSS SECTION
NTS

GENERAL NOTES:

1. PROJECT SITE EXTENDS FOR 350 LINEAR FEET INCLUDING TRANSITIONS FROM NATIONAL LEVEE DATABASE (NLD) FROM STATION 197+10 TO STATION 200+60. ACTUAL STATION OF CROSS SECTIONS WILL VARY DEPENDING ON FIELD CONDITIONS.
2. USACE SHALL BE RESPONSIBLE FOR LOCATING UNDERGROUND AND OVERHEAD UTILITIES AS APPLICABLE PRIOR TO COMMENCING WORK.
3. BEDDING LAYER SPALLS SHALL CONFORM TO GRADATIONS IN TABLE 1 ON C-301 AND SHALL CONSIST OF CLEAN, ANGULAR, SCREENED AND CRUSHED ROCK.
4. CLASS V RIPRAP SHALL CONFORM TO THE GRADATIONS IN TABLE 3 ON C-301. STONE SHALL BE HARD, SOUND, AND DURABLE MATERIAL, FREE FROM SEAMS, CRACKS AND OTHER DEFECTS TENDING TO LEAD TO PREMATURE WEATHERING.
5. EXCAVATED EXISTING LEVEE FILL SHALL BE STOCKPILED AND REUSED AS EMBANKMENT FILL. PARTICLES LARGER THAN 4 INCHES SHALL BE REMOVED FROM THE EMBANKMENT FILL PRIOR TO PLACEMENT. EMBANKMENT FILL SHALL BE PLACED IN 8 INCH LOOSE LIFTS AND COMPACTED USING THE EXCAVATOR BUCKET.
6. TOPSOIL PLANTING MATRIX SHALL CONSIST OF A 75/25 MIXTURE OF SOIL AND ORGANIC COMPOST. ENGINEERED TOPSOIL SHALL CONFORM TO GRADATION IN TABLE 4 ON C-301 AND SHALL BE FREE OF ROOTS, CHEMICALS, GARBAGE, AND DEBRIS.
7. CRUSHED SURFACING BASE COURSE (CSBC) SHALL CONFORM TO GRADATIONS IN TABLE 2 ON C-301 AND SHALL CONSIST OF CLEAN, ANGULAR, SCREENED AND CRUSHED ROCK. INSTALL TO MATCH EXISTING.
8. WHERE HISTORICAL RIVERWARD TOE EXCEEDS THE EXTENT OF THE LEVEE REPAIR, EFFORT SHOULD BE MADE FOR EXISTING MATERIAL TO REMAIN INTACT SUCH THAT SAFE CONSTRUCTION PRACTICES AND STABLE SLOPES ARE STILL MAINTAINED AND TO REDUCE IN-WATER WORK.
9. ALL WORK ACTIVITIES AND STAGING SHALL BE LIMITED TO THE CONSTRUCTION FOOTPRINT.
10. IN-WATER WORK WINDOW IS FROM JULY 1 - AUGUST 31.
11. TREES CUT DURING CLEARING AND GRUBBING SHALL BE USED AS LARGE WOODY MATERIAL (LWM). LWM SHALL BE PLACED IN THE PLANTING AREA OR ALONG THE FACE OF THE LEVEE WITH ROOTWADS LYING TOWARDS THE RIVER. LWM WILL NOT BE PLACED BELOW THE OHWM. SEE SHEET L-101 FOR MORE DETAILS.
12. HYDROSEED SHALL CONSIST OF A NATIVE SEED MIX APPROPRIATE FOR THE SITE. SEE TABLE 1 ON SHEET L-101.

* AS-BUILT DRAWINGS WERE NOT ACCESSIBLE. PREDAMAGED GRADE IS BASED ON ASSOCIATED HISTORICAL DESIGN RECORDS, SATELLITE IMAGERY, AND BEST PROFESSIONAL JUDGEMENT.

REPAIR STEPS
1. CLEAR AND PREPARE REPAIR SITE AS NECESSARY. INVASIVE VEGETATION, INCLUDING JAPANESE KNOTWEED AND HIMALAYAN BLACKBERRY, WHICH WILL BE DISPOSED OF PROPERLY AND IN A MANNER TO PREVENT THE SPREAD OF INVASIVE VEGETATION.
2. EXCAVATE SLOUGHED MATERIAL FROM TOE OF SLOPE.
3. REMOVE EXISTING RIPRAP AND RETAIN AS PRACTICABLE.
4. RECONSTRUCT TOE ACCORDING TO THE CROSS SECTION.
5. INSTALL WILLOW BUNDLES ACCORDING TO THE PLANTING STEPS.
6. RECONSTRUCT THE LEVEE SLOPE BY GRADING THE EMBANKMENT AS NECESSARY AND INSTALLING A 4-FOOT BLANKET OF CLASS V RIPRAP OVER A BEDDING LAYER AS SHOWN IN DETAIL A-1.
7. ONCE THE RIPRAP HAS BEEN PLACED AS SHOWN IN A-1, INSTALL A 1-FOOT BEDDING LAYER OF SPALLS AND PLACE EMBANKMENT FILL. REFER TO GENERAL NOTE 5 FOR EMBANKMENT FILL PLACEMENT AND COMPACTION.
8. TRANSITION UPSTREAM AND DOWNSTREAM ENDS OF REPAIR TO SMOOTHLY TIE INTO EXISTING SLOPE AND EXISTING ELEVATION.
9. RESTORE CROWN WITH CSBC AS NEEDED. MATCH TO ADJACENT EXISTING.
10. HYDROSEED EXPOSED GROUND WITH NATIVE SEED MIX. SEE TABLE 1 ON SHEET L-101.

TABLE 1: BEDDING LAYER SPALL GRADATION

SIEVE SIZE	PERCENT PASSING
4"	100
2"	0

TABLE 2: 1-1/4" MINUS CSBC GRADATION

SIEVE SIZE	PERCENT PASSING BY WEIGHT
1-1/4"	100
1"	80-100
5/8"	50-80
NO. 4	25-45
NO. 40	3-18
NO. 200	7.5 MAX.

TABLE 3: RIPRAP GRADATIONS (ASSUMED SPECIFIC GRAVITY = 2.60)

DISTRIBUTION	CLASS V	
	WEIGHT* (LBS)	DIAMETER (IN)
100% SMALLER THAN	3000	34
50%	750	21
10%	188	13
Cu		2.2

* A DEVIATION OF ±4% IS ALLOWED FOR SIZE AND ±10% FOR WEIGHT.

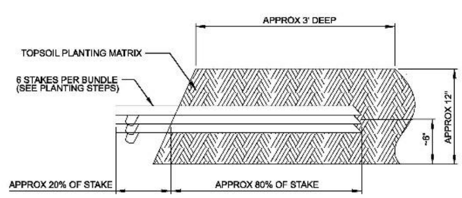
TABLE 4: ENGINEERED TOPSOIL GRADATION

SIEVE SIZE	PRECENT PASSING BY WEIGHT
1/2"	100
NO. 4	75-100
NO. 10	40-75
NO. 16	25-55
NO. 40	25-50
NO. 200	10-20

TABLE 5: MATERIAL QUANTITIES

SITE	LENGTH (FEET)	CLASS V RIPRAP (TONS)	2"-4" SPALLS (TONS)	CSBC/GRAVEL 1-1/4" ROCK* (CY)	TOPSOIL* (CY)	HYDROSEED (ACRES)
TOTAL	350	6200	1340	30	250	0.5

* INCLUDES QUANTITIES FOR RESTORATION TO MATCH EXISTING CONDITIONS PRIOR TO CONSTRUCTION.



A1 WILLOW BUNDLE CROSS SECTION (SINGLE LIFT)
NTS

PLANTING STEPS:
1. WHEN SLOPE ARMOR IS PLACED TO THE ORDINARY HIGH WATER MARK, INSTALL WILLOW BUNDLES 1' ABOVE OHW.
2. WILLOW BUNDLES SHALL BE COMPRISED OF SITKA WILLOW (*SALIX SITHCENSIS*) AND/OR HOOKER'S WILLOW (*SALIX HOOKERIANA*) STAKES.
3. EACH WILLOW BUNDLE SHALL CONSIST OF SIX (6) WILLOW STAKES PLANTED IN A CYLINDRICAL SOIL MATRIX CONSISTING OF TOPSOIL 12 INCHES IN DIAMETER AND 3 FEET DEEP, AS PER DETAIL A1 ON SHEET C-301.
4. EACH STAKE SHALL BE CUT TO 4-FOOT LENGTHS WITH AN ANGLE CUT (45 DEGREES) BASAL END OF 0.5" TO 1.5" IN DIAMETER AND PERPENDICULAR CUT JUST ABOVE A NODE (BUD) AT THE TOP.
5. INSTALL WILLOW BUNDLES EVERY 6 FEET ON CENTER ALONG SITE.
6. CONTINUE SLOPE ARMOR PLACEMENT ABOVE WILLOW BUNDLES CAREFULLY PLACING ROCK SO AS TO NOT CRUSH OR DAMAGE WILLOW STAKES.

US Army Corps of Engineers

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON

CROSS SECTION

SHEET ID
C-301

95% DESIGN SUBMITTAL

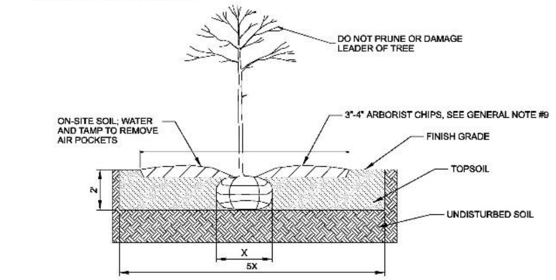

STAGING AREA ON EXISTING CRUSHED GRAVEL SURFACE
ACCESS ROAD
EXISTING LEVEE CENTERLINE
REPAIR SITE
FLOW
SNOHOMISH RIVER
A1 MITIGATION SITE PLAN
NTS
GENERAL NOTES:
1. PROJECT ACCESS WILL BE FROM ROUTE 9 ONTO AIRPORT WAY. CROSS THE RAILROAD TRACK, TAKE A LEFT AT THE INTERSECTION, AND CONTINUE TOWARDS THE STAGING AREA.
2. SEE SHEET L-501 FOR PLANTING DETAILS
3. HYDROSEED APPLICATIONS SHALL INCLUDE A MINIMUM OF 1,000 POUNDS PER ACRE OF MULCH WITH 3 PERCENT TACKIFIER. SEE THE STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON FOR ADDITIONAL HYDROSEEDING DETAILS. APPLY AT A RATE OF 120 POUNDS PER ACRE.
4. SUBSTITUTES AND FIELD ADJUSTMENTS MAY OCCUR AFTER REVIEW AND APPROVAL BY PROJECT BIOLOGIST.
5. VERIFY DIMENSIONS IN FIELD.
LEGEND
REMOVE INVASIVE SPECIES AND HYDROSEED
TABLE 1: RECOMMENDED NATIVE HYDROSEED MIX
COMMON NAME | SCIENTIFIC NAME | PERCENT BY WEIGHT
REDTOP OR OREGON BENTGRASS | AGROSTUS ALBA O.S. AGROSTIS ORREGONENSIS | 20
RED FESCUE | FESTUCA RUBRA | 70
WHITE DUTCH CLOVER | TRIFOLIUM REPENS | 10
FROM THE STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON
TABLE 2: TREE INFORMATION
SYMBOL | SPECIES | SCIENTIFIC NAME | QTY
A | RED ALDER | ALNUS RUBRA | 12
F | DOUGLAS FIR | PSEUDOTSUGA MENZIESII | 11
W | PACIFIC WILLOW | SALIX LUCIDA | 8
M | BIG-LEAF MAPLE | ACER MACROPHYLLUM | 8
TOTAL | | | 39
US Army Corps of Engineers ®
95% DESIGN SUBMITTAL
PLANTING SITE PLAN
SHEET ID
L-101

PLANTING NOTES:

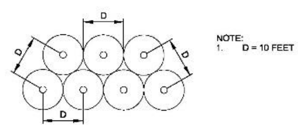
1. NEW TREES SHALL RECEIVE A 3 FT DIAMETER MULCHED CIRCLE.
2. DO NOT STAKE TREES.
3. PLANT PIT DIMENSIONS ARE TYPICAL FOR ALL TREES.
4. PLACE ALL ROOTBALLS SO TOPS ARE LEVEL WITH FINISHED GRADE.
5. PLANTINGS WILL BE SELECTED BASED ON SEASONAL AVAILABILITY AND INTERPLANTED ACCORDING TO THE SPACING REQUIREMENTS.
6. REMOVE INVASIVE VEGETATION FROM MITIGATION AREA (I.E. HIMALAYAN BLACKBERRY, REED CANARY GRASS, JAPANESE BLACKBERRY, ETC.)
7. SEE TABLE 2 ON SHEET L-101 FOR SPECIES AND NUMBER OF MITIGATION PLANTINGS.
8. HYDROSEED DISTURBED AREAS AND BARE SOILS WITH SPECIFIED SEED MIX AS PER GENERAL NOTE #12, SHEET C-301.
9. NO HYDROSEED WILL BE PLACED ON ARBORIST CHIPS.
10. REMOVE INVASIVE SPECIES FROM SITE AND DISPOSE OF PROPERLY TO PREVENT SPREAD. DO NOT ALLOW JAPANESE KNOTWEED TO ENTER THE RIVER.
11. VEGETATION PLANTING WILL START AT THE END OF CONSTRUCTION IN LATE SEPTEMBER OR OCTOBER TO LIMIT EXPOSURE TO DRY PERIODS.
12. MULCH WILL BE ADDED TO PREVENT RECRUITMENT OF INVASIVE SPECIES.
13. SOIL AMMENDMENTS: AT LEAST 2 FEET DEEP OF SOIL AMENDMENTS (MINERAL: ORGANIC, 75:25 MIX) WILL BE ADDED TO HELP ESTABLISH VEGETATION.
14. SUBSTITUTES AND FIELD ADJUSTMENTS MAY OCCUR AFTER REVIEW AND APPROVAL BY PROJECT BIOLOGIST.

TABLE 1: INVASIVE SPECIES

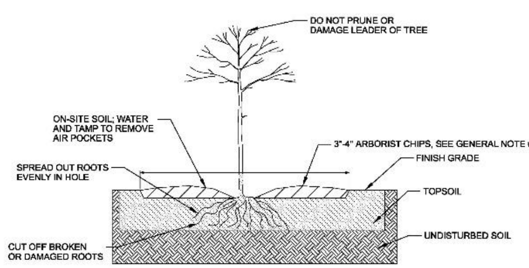
COMMON NAME	SPECIES NAME	NOXIOUS WEED CLASS	REMOVAL METHODS
HIMALAYAN BLACKBERRY	RUBUS ARMENIACUS	C	DIGGING, MOWING, AND HERBICIDE. CUTTING FOLLOWED BY DIGGING UP ROOT CROWNS IS MUCH MORE EFFECTIVE. FOR HERBICIDES, FOLLOW PRODUCT LABELS FOR TIMING AND APPLICATION INSTRUCTIONS.
KNOTWEED	FALLOPIA SPP. (4 DIFFERENT SPP.)	B	DIGGING, CUTTING, COVERING, CHEMICAL, SPRAYING, AND STEM INJECTIONS MAY BE REQUIRED IF NEAR WATER.



D1 TREE PLANTING, WITH ROOTBALL
NTS



D5 TREE PLANTING SPACING
NTS



A1 BAREROOT PLANTING
NTS

US Army Corps of Engineers ®

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON

PLANTING DETAILS

SHEET ID
L-501

95% DESIGN SUBMITTAL

11.3 APPENDIX C: WATER QUALITY MONITORING PLAN

Project: **2024 Marshland Levee Repair Project**

Date: **March 18, 2024**

Water quality monitoring will occur during in-water sediment-generating activities. Each new type of sediment-generating activity will be monitored.

Sediment-Generating Activities Triggering Monitoring Efforts

- Removal of levee material
- Placement of repair materials

Monitoring Frequency / Duration

- Point of Compliance monitoring will occur once per hour for the first three hours after the start of each new sediment-generating activity and then once every 3 hours, if no exceedance is noted, until the end of the workday.
    - The following will be taken at the same frequency as the Point of Compliance samples:
        - Early Warning sample
        - Background sample
- If, after a minimum of one full day, the monitoring results verify that turbidity levels from a certain sediment-generating activity are remaining consistently below the stated water quality standards, physical monitoring may be reduced or stopped for that activity. Physical monitoring will be resumed during new sediment-generating activities or if precipitation events or any other changes will result in higher or lower project-related turbidity. Sampling will resume if visual monitoring indicates possible exceedance at the Early Warning or Point of Compliance sample locations. BMPs will be evaluated to see if additional steps can be taken to reduce and control turbidity.
- Visual monitoring will be done continuously for all in-water work.
- Maximum turbidity levels will meet WAC 173-201A-200. Turbidity must not exceed 5 NTU over background when the background is 50 NTU or less; or a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.

Sampling Locations

- Sampling locations are shown in Attachment B and are located at the following points:
    - Background – 100 feet upstream of the repair site or the closest safe accessible location.
    - Early Warning – 150 feet downstream of the project site.
    - Point of Compliance – 300 feet downstream of the project site.

Sampling Procedures

- Water samples will be collected and analyzed for the appropriate parameters, per the monitoring frequency described above, following the equipment and sampling guidelines below:
    - Continuous visual monitoring will occur to identify the presence of oil or grease on the water's surface.
    - Turbidity will be monitored using a Hach turbidimeter or equivalent.
    - The onsite Corps Biologist or Quality Construction Assurance Personnel will conduct the water quality monitoring and are responsible for providing the results to the Washington State Department of Ecology.
    - A portable turbidity meter will be used in the field. 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:
        - Use a clean container to obtain a sample from the source.
        - Collect the sample with care to avoid disturbance of sediments and collecting surface contaminants.
        - Gently but thoroughly mix the sample before pouring it into the small vial used to read the sample in the turbidimeter.
        - Without allowing the sample to settle, take turbidity reading according to turbidimeter manufacturer's instructions.
        - Several measurements can be taken, with the average used as the data for comparison.
    - A calibration check of the turbidimeter using secondary standards will be carried out regularly (at least once per week). The instrument will be recalibrated using primary standards at least once every 3 months, or more when a calibration check indicates there is a problem. The manufacturer's calibration procedures will be followed.

Non-Compliance

- The Corps will notify Washington State Department of Ecology if either visual or physical monitoring indicates that water quality standards have been exceeded. See the Reporting section of this plan for reporting details. Notifications will be made per the following requirements:
    - Notify Washington State Department of Ecology within 24 hours of the exceedance.
    - Submit a detailed written report to Washington State Department of Ecology within 5 days describing the nature of the event, corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of any samples taken, and any other pertinent information.
    - Work will stop and cleanup efforts initiated if an oil or grease sheen is observed in the river. Equipment will be inspected to determine the source of the sheen. All oil and grease spills will be reported immediately.

Contingency Sampling

- If sample results confirm that water quality is out of compliance with water quality standards, the Corps will modify or stop the activity causing the problem and commence the contingency sampling requirements (Table 1). Contingency Monitoring will also commence if visual monitoring indicates possible exceedances at the Point of Compliance. The Corps shall return to standard sampling procedures after two consecutive sample periods show compliance with water quality standards.

Table 1. Contingency sampling requirements.

Parameter	Contingency Sampling Location	Contingency Frequency	WQ Standard
Turbidity	Point of Compliance	Hourly	When background < 50 NTU: not to exceed 5 NTU over background When background > 50 NTU: Not to exceed 10% over background
Oil/Grease	Throughout project area	Continuous-Visual	No Sheen

Reporting

- All water quality monitoring results (visual and physical) will be recorded on the monitoring form (see below).

Turbidity

- All sample results or exceedances will be provided to Washington State Department of Ecology at the following email addresses:
    - fednotification@ecy.wa.gov
- Sample results will be provided to Washington State Department of Ecology 30 days after construction is completed.

Oil / Grease

- The following entities will be contacted immediately in the event of an oil or grease spill. Details of the spill will be recorded on the monitoring form.
    - Ecology. Additional details available online: https://ecology.wa.gov/About-us/Get-involved/Report-an-environmental-issue/Report-a-spill
    - fednotification@ecy.wa.gov
    - Washington Emergency Management Division, 1-800-258-5990
    - Ecology's Regional Spill Response Office for the project area
    - National Response Center, 1-800-424-8802
    - Washington Department of Fish and Wildlife Oil Spill Team Manager and Habitat Biologist for the area.

Water quality monitoring sample locations for the 2024 Marshland Levee Repair Project.

Date:	Weather:		Site Designation/Location:				
Time of Day	Construction Activity	Background Sample (NTU)	Early Warning Sample (NTU)	Point of Compliance Sample (NTU)	Background & Compliance Change (NTU)	Description of visible plume (length downstream, width as % of channel)	Description of visible sheen (length downstream, width as % of channel)
Example: 0700	Excavation and toe rock placement	20.2	22	21.1	+0.9	Visible plume 50 ft long, <10% of channel width	Visible sheen 12ft long, 1 to 5% of channel width

11.4 APPENDIX D: ENVIRONMENTAL JUSTICE ANALYSIS

EPA logo

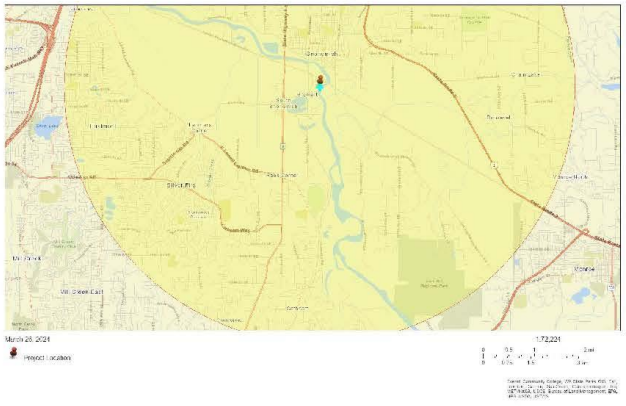
EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Snohomish County, WA

5 miles Ring Centered at 47.903656,-122.093993
Population: 81,902
Area in square miles: 78.53

A3 Landscape



COMMUNITY INFORMATION

Low Income: 12 percent	People of color: 26 percent	Less than high school education: 5 percent	Limited English households: 3 percent
Unemployment: 5 percent	Persons with disabilities: 10 percent	Male: 51 percent	Female: 49 percent
76 years Average life expectancy	$49,165 Per capita income	House icon Number of households: 28,835	Owner occupied: 82 percent

BREAKDOWN BY RACE

White: 74%	Black: 2%	American Indian: 0%	Asian: 11%
Hawaiian/Pacific Islander: 0%	Other race: 0%	Two or more races: 6%	Hispanic: 7%

BREAKDOWN BY AGE

From Ages 1 to 4	6%
From Ages 1 to 18	23%
From Ages 18 and up	77%
From Ages 65 and up	13%

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	83%
Spanish	5%
Russian, Polish, or Other Slavic	1%
Other Indo-European	2%
Korean	2%
Chinese (including Mandarin, Cantonese)	1%
Vietnamese	1%
Tagalog (including Filipino)	1%
Other Asian and Pacific Island	2%
Arabic	1%
Other and Unspecified	1%
Total Non-English	17%

LIMITED ENGLISH SPEAKING BREAKDOWN

Speak Spanish	20%
Speak Other Indo-European Languages	16%
Speak Asian-Pacific Island Languages	56%
Speak Other Languages	8%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race. Source: U.S. Census Bureau, American Community Survey (ACS) 2017 -2021. Life expectancy data comes from the Centers for Disease Control.

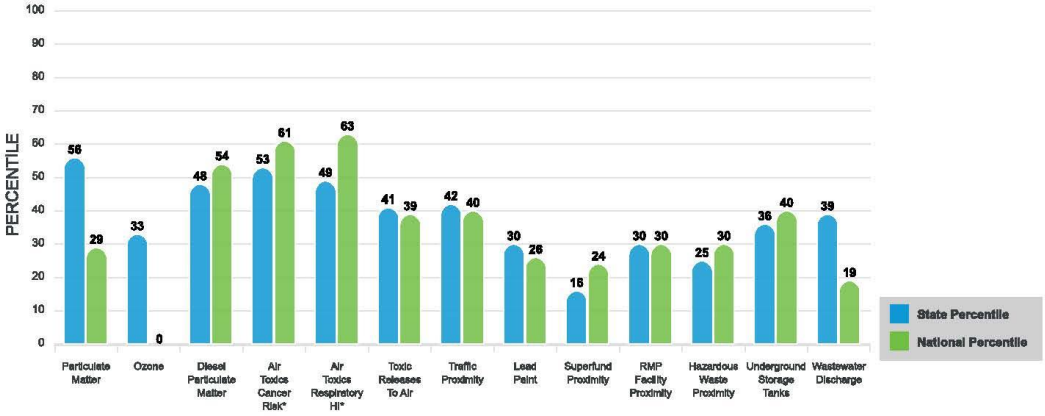
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

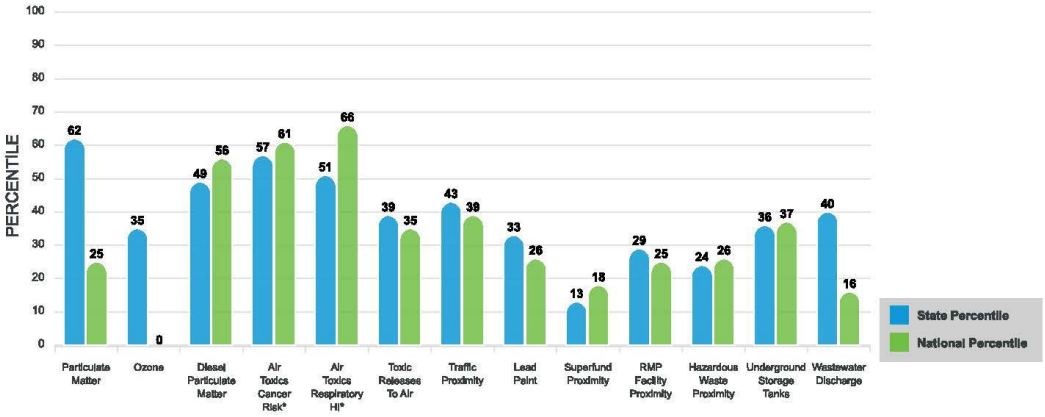
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 5 miles Ring Centered at 47.903658,-122.093993

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter (µg/m^3)	7.4	7.02	71	8.08	29
Ozone (ppb)	47.3	49.8	36	61.6	0
Diesel Particulate Matter (µg/m^3)	0.327	0.355	51	0.261	73
Air Toxics Cancer Risk* (lifetime risk per million)	30	27	37	25	52
Air Toxics Respiratory HI*	0.4	0.39	39	0.31	70
Toxic Releases to Air	430	1,800	42	4,600	44
Traffic Proximity (daily traffic count/distance to road)	75	190	48	210	49
Lead Paint (% Pre-1960 Housing)	0.097	0.23	42	0.3	34
Superfund Proximity (site count/km distance)	0.026	0.18	15	0.13	24
RMP Facility Proximity (facility count/km distance)	0.098	0.4	28	0.43	29
Hazardous Waste Proximity (facility count/km distance)	0.23	1.6	33	1.9	38
Underground Storage Tanks (count/km^2)	2	6.3	52	3.9	59
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.00053	0.024	82	22	43
SOCIOECONOMIC INDICATORS					
Demographic Index	19%	28%	33	35%	30
Supplemental Demographic Index	8%	12%	33	14%	25
People of Color	26%	32%	47	39%	45
Low Income	12%	24%	29	31%	22
Unemployment Rate	5%	5%	57	6%	56
Limited English Speaking Households	3%	4%	67	5%	69
Less Than High School Education	5%	8%	47	12%	36
Under Age 5	6%	6%	62	6%	63
Over Age 64	13%	16%	42	17%	39
Low Life Expectancy	17%	18%	34	20%	25

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund	0
Hazardous Waste, Treatment, Storage, and Disposal Facilities	1
Water Dischargers	150
Air Pollution	7
Brownfields	1
Toxic Release Inventory	2

Other community features within defined area:

Schools	27
Hospitals	0
Places of Worship	7

Other environmental data:

Air Non-attainment	No
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community	No

Selected location contains an EPA IRA disadvantaged community	Yes

Report for 5 miles Ring Centered at 47.903656,-122.093993

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	17%	18%	34	20%	25
Heart Disease	4.2	5.3	21	6.1	13
Asthma	10.5	10.5	47	10	69
Cancer	5.7	6.3	34	6.1	37
Persons with Disabilities	9.6%	13.1%	30	13.4%	29

CLIMATE INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	6%	11%	51	12%	45
Wildfire Risk	0%	12%	0	14%	0

CRITICAL SERVICE GAPS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	6%	9%	50	14%	33
Lack of Health Insurance	4%	6%	37	9%	30
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	Yes	N/A	N/A	N/A	N/A

Report for 5 miles Ring Centered at 47.903656,-122.093993

EPA

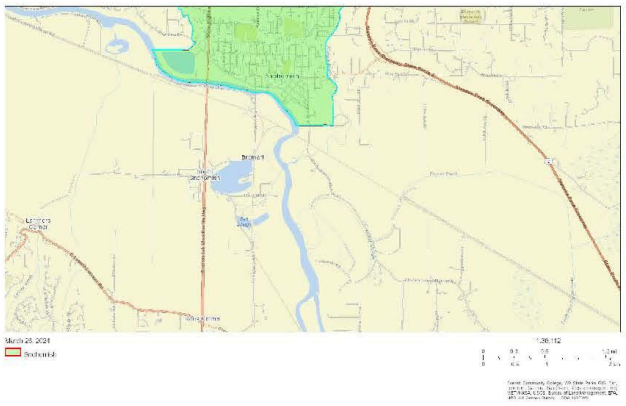
EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Snohomish, WA

City: Snohomish
Population: 10,210
Area in square miles: 3.72

A3 Landscape



COMMUNITY INFORMATION

Low income: 22 percent	People of color: 17 percent	Less than high school education: 8 percent	Limited English households: 1 percent
Unemployment: 8 percent	Persons with disabilities: 15 percent	Male: 49 percent	Female: 51 percent
79 years Average life expectancy	$42,808 Per capita income	Number of households: 4,267	Owner occupied: 55 percent

BREAKDOWN BY RACE

White: 83%	Black: 1%	American Indian: 0%	Asian: 3%
Hawaiian/Pacific Islander: 1%	Other race: 0%	Two or more races: 6%	Hispanic: 6%

BREAKDOWN BY AGE

From Ages 1 to 4	6%
From Ages 1 to 18	22%
From Ages 18 and up	78%
From Ages 65 and up	18%

LIMITED ENGLISH SPEAKING BREAKDOWN

Speak Spanish	31%
Speak Other Indo-European Languages	68%
Speak Asian-Pacific Island Languages	1%
Speak Other Languages	0%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, American Community Survey (ACS) 2017-2021. Life expectancy data comes from the Centers for Disease Control.

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	93%
Spanish	3%
Chinese (including Mandarin, Cantonese)	1%
Other Asian and Pacific Island	1%
Total Non-English	7%

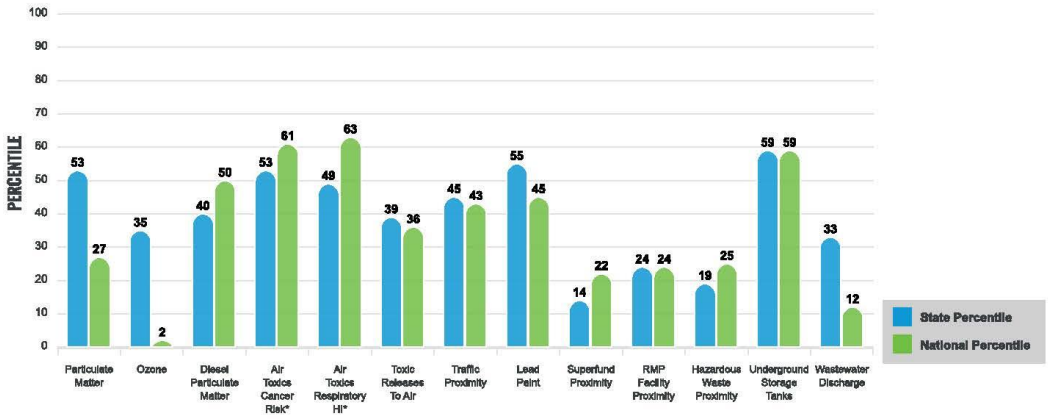
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ Indexes help users screen for potential EJ concerns. To do this, the EJ Index combines data on low income and people of color populations with a single environmental indicator.

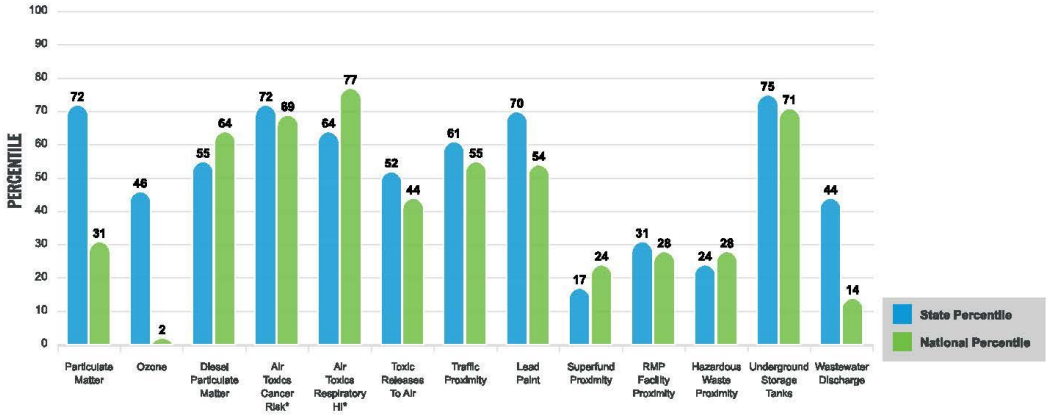
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for City: Snohomish

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter ($\mu g/m^3$)	7.28	7.02	67	8.08	27
Ozone (ppb)	47.5	49.8	37	61.6	1
Diesel Particulate Matter ($\mu g/m^3$)	0.271	0.355	42	0.261	62
Air Toxics Cancer Risk* (lifetime risk per million)	30	27	37	25	52
Air Toxics Respiratory HI*	0.4	0.39	39	0.31	70
Toxic Releases to Air	340	1,800	40	4,600	40
Traffic Proximity (daily traffic count/distance to road)	97	190	55	210	56
Lead Paint (% Pre-1960 Housing)	0.27	0.23	66	0.3	55
Superfund Proximity (site count/km distance)	0.023	0.18	13	0.13	21
RMP Facility Proximity (facility count/km distance)	0.083	0.4	22	0.43	23
Hazardous Waste Proximity (facility count/km distance)	0.11	1.6	16	1.9	22
Underground Storage Tanks (count/km^2)	9.4	6.3	79	3.9	88
Wastewater Discharge (toxicity-weighted concentration/m distance)	2.9E-06	0.024	33	22	12
SOCIOECONOMIC INDICATORS					
Demographic Index	19%	28%	33	35%	30
Supplemental Demographic Index	12%	12%	58	14%	45
People of Color	17%	32%	28	39%	34
Low Income	22%	24%	53	31%	40
Unemployment Rate	8%	5%	76	6%	73
Limited English Speaking Households	1%	4%	52	5%	57
Less Than High School Education	8%	8%	62	12%	49
Under Age 5	6%	6%	57	6%	58
Over Age 64	18%	16%	65	17%	61
Low Life Expectancy	21%	18%	80	20%	64

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund	0
Hazardous Waste, Treatment, Storage, and Disposal Facilities	0
Water Dischargers	27
Air Pollution	1
Brownfields	0
Toxic Release Inventory	1

Other community features within defined area:

Schools	8
Hospitals	0
Places of Worship	2

Other environmental data:

Air Non-attainment	No
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community	No
Selected location contains an EPA IRA disadvantaged community	Yes

Report for City: Snohomish

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	21%	18%	80	20%	64
Heart Disease	5.3	5.3	48	6.1	33
Asthma	11.4	10.5	79	10	84
Cancer	6.7	6.3	62	6.1	62
Persons with Disabilities	14.8%	13.1%	64	13.4%	64

CLIMATE INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	6%	11%	53	12%	47
Wildfire Risk	0%	12%	0	14%	0

CRITICAL SERVICE GAPS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	12%	9%	71	14%	52
Lack of Health Insurance	4%	6%	33	9%	27
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	Yes	N/A	N/A	N/A	N/A

Report for City: Snohomish

11.5 APPENDIX E: COASTAL ZONE MANAGEMENT ACT COORDINATION

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600, Olympia, WA 98504-7600 • 360-407-6000

July 2, 2024

The Department of the Army
U.S. Army Corps of Engineers
ATTN: Caren Crandell
4735 East Marginal Way South, Building 1202
Seattle, WA 98134-2388

Re: Coastal Zone Management Federal Consistency Decision for the Marshland Levee Repair, Snohomish River, in Snohomish, Snohomish County, Washington

Dear Caren Crandell:

The Department of Ecology (Ecology) is issuing a Conditional Concurrence to the U.S. Army Corps of Engineers (Corps) for the above-mentioned project. The three conditions require submittal of the following to Ecology: (1) a standalone Shoreline Mitigation Plan for the monitoring and adaptive management of riparian plantings and, (2) an updated plan as may be appropriate, and (3) annual riparian planting monitoring reports.

While Ecology is not explicitly including a 5-year monitoring requirement for the shoreline mitigation, we strongly recommend that the Corps monitor riparian plantings for a 5-year period. This recommendation is for this project *and all future levee repair projects*.

Ecology would also like to take this opportunity to ask for future discussions with the Corps regarding ways in which levee repair projects can be more consistent with Washington's CZMP, specifically with respect to the SMA and Guidelines. Additionally, we would like to discuss opportunities for improved coordination with local governments that have SMA jurisdiction, earlier engagement with local sponsors, and clearer communication on policy goals related to CZM federal consistency review. Ecology looks forward to having conversations with the Corps on these topics.

Agency Coordination & Discussion

On April 12, 2024, the Corps submitted a CD with the Washington CZMP. Ecology issued a 21-day public notice on April 17, 2024, and received no comments. On May 30, 2024, Ecology requested a 15-day extension pursuant to 15 CFR Part 930.41(b) to allow additional time for Ecology staff to review the project for consistency with the Shoreline Management Act, extending the CZM decision deadline to June 28, 2024. Ecology requested additional information on May 31, 2024, and a meeting was held on June 12, 2024 between the Corps and Ecology. In light of the June 12th meeting, and the additional information received and discussed, Ecology asked the Corps for an additional extension to the CZM decision deadline, pursuant to 15 CFR 930.41(b). On June 18, 2024, the Corps agreed to extend the deadline to July 3, 2024.

Proposed Action

The Corps, in partnership with the Marshland Flood Control District, is proposing to repair the Marshland Levee, near the town of Snohomish, Washington. In an undamaged state, the Marshland Levee provides a 10-year level of protection to agricultural, residential, and industrial properties. This level of protection corresponds to 0.1 Annual Exceedance Probability event. A flood event in December 2023 damaged the levee, reducing its level of protection.

The Corps plans to start construction in August 2024 and anticipates completing repairs in September 2024. All in-water work is scheduled to occur during the in-water work window for the Snohomish River (July 1 to August 31) to avoid and minimize impacts to listed species during this emergency repair. The Marshland levee is on the left bank of the Snohomish River, opposite of the Town of Snohomish, Washington (Sections 19 of Township 28 North, Range 06 East).

The Corps proposes to excavate the bench and construct a single 2H:1V riverward slope with a blanket of riprap backed by quarry spalls. Total construction length, including transitions, would be 350 linear feet. Construction generally consists of the following major components:

- Site Preparation: The repair area would be cleared as necessary, including vegetation. While most of the vegetation is invasive Himalayan blackberry (*Rubus armeniacus*), 13 red alder (*Alnus rubra*) trees would be removed. The diameter of these trees range in size from 4- to 15-inches in diameter at breast height. Staging activities consist of temporarily stockpiling rock, supplies, equipment, and vehicles.
- Deconstruct Damaged Levee: The damaged portion of the levee would be deconstructed by removing, salvaging, and stockpiling remnant riprap and other existing material as practicable. As necessary, sloughed embankment material would be excavated from the scoured riverward toe.
- Construct Levee Repair: Construction would commence at the toe, starting upstream and working downstream, to deflect flows and minimize turbidity in the construction

area. The repair would smoothly transition at the upstream and downstream limits of construction into the adjacent slopes.

- Complete Construction: Disturbed and bare soils would be treated with hydroseed and plantings installed at the off-site location, immediately downstream of the repair.

The Corps would plant replacement trees at a 3:1 replacement ratio for a total of 39 trees on a riverward levee bench immediately downstream of the repair. The tree plantings would consist of red alder (Alnus rubra), douglas fir (*Pseudotsuga menziesii*), Pacific willow (Salix lasiandra), and big-leaf maple (*Acer macrophyllum*). Approximately 58 willow bundles of Sitka (*Salix sitchensis*) or Hooker's (*S. Hookeriana*) willow would be incorporated into the levee slope 1 foot above the OHWM at 6-foot intervals along the length of the repair. These bundles would create overhanging cover along the river's edge. Large Woody Material (LWM) generated would be salvaged and placed on site above the ordinary high water mark with rootwads facing the river where it can continue to provide habitat function. This includes any tree trunks and large shrubs. LWM may also be placed in the planting area between plantings.

The Corps would conduct monitoring and adaptive management of plantings, including replacement and maintenance, for the first year. The Corps would re-plant trees if there is less than 80% survival during the first year. If replacement occurs, the USACE would monitor the plantings for an additional year.

Ecology's Conditions

As stated in the SMA Chapter 90.58.020 RCW): "The legislature finds that the shorelines of the state are among the most valuable and fragile of its natural resources and that there is great concern throughout the state relating to their utilization, protection, restoration, and preservation. In addition, it finds that ever increasing pressures of additional uses are being placed on the shorelines necessitating increased coordination in the management and development of the shorelines of the state."

Chapter 173-26-221(5) WAC outlines the value of riparian habitat in Washington state, the ecologically important role that trees play in providing ecosystem functions that would be at risk without proper mitigation to ensure their survival, and the need for shoreline vegetation conservation:

> *In the Pacific Northwest, aquatic environments, as well as their associated upland vegetation and wetlands, provide significant habitat for a myriad of fish and wildlife species. Healthy environments for aquatic species are inseparably linked with the ecological integrity of the surrounding terrestrial ecosystem. For example, a nearly continuous corridor of mature forest characterizes the natural riparian conditions of the Pacific Northwest. Riparian corridors along marine shorelines provide many of the same functions as their freshwater counterparts. The most commonly recognized functions of the shoreline vegetation include, but are not limited to:*

- *Providing shade necessary to maintain the cool temperatures required by salmonids, spawning forage fish, and other aquatic biota.*
- *Providing organic inputs critical for aquatic life.*
- *Providing food in the form of various insects and other benthic macroinvertebrates.*
- *Stabilizing banks, minimizing erosion, and reducing the occurrence of landslides. The roots of trees and other riparian vegetation provide the bulk of this function.*
- *Reducing fine sediment input into the aquatic environment through stormwater retention and vegetative filtering.*
- *Filtering and vegetative uptake of nutrients and pollutants from ground water and surface runoff.*
- *Providing a source of large woody debris into the aquatic system. Large woody debris is the primary structural element that functions as a hydraulic roughness element to moderate flows. Large woody debris also serves a pool-forming function, providing critical salmonid rearing and refuge habitat. Abundant large woody debris increases aquatic diversity and stabilization.*
- *Regulation of microclimate in the stream-riparian and intertidal corridors.*
- *Providing critical wildlife habitat, including migration corridors and feeding, watering, rearing, and refugia areas* (Chapter 173-26-221(5)(b) WAC).

WAC 173-26-221(5)(b) highlights the value of shoreline vegetation, which can help increase the stability of river banks and coastal bluffs, reduce the need for structural shoreline stabilization measures, improve the visual and aesthetic qualities of the shoreline, protect plant and animal species and their habitats, and to enhance shoreline uses. Addressing vegetation conservation is necessary to "assure no net loss of shoreline ecological functions and ecosystem-wide processes, to avoid adverse impacts to soil hydrology, and to reduce the hazard of slope failures or accelerated erosion". It further states that "in establishing vegetation conservation regulations, local governments must use available scientific and technical information, as described in WAC 173-26-201(2)(a)".

Pursuant to Section 307(c)(3) of the Coastal Zone Management Act of 1972 as amended, Ecology concurs with the Corps' determination that the proposed work is consistent with Washington's CZMP, provided the following conditions are met:

1. The Corps shall submit a standalone Shoreline Mitigation Plan that provides for the monitoring and adaptive management of riparian plantings to Ecology for review and approval at least 14 business days prior to the start of work. The plan shall include:
    a. A site plan showing the location of the shoreline mitigation areas on the parcel(s). Plan details contained in drawings and maps should be legible on a computer screen.
    b. Plant list.
    c. Performance standards for successful mitigation for Year 1 (additionally, Years 2, 3, 4, and 5 if the Corps implements Ecology's recommendation).

   d. Monitoring: The condition of riparian plantings documented at the end of Year 1 (additionally, Years 2, 3, 4, and 5 if the Corps implements Ecology's recommendation). Monitoring reports should document plant survival and vigor, include representative photos from permanent locations, document specific actions taken, and include drawings as appropriate.
   e. Adaptive management program describing monitoring and enhancement measures to ensure the viability of the mitigation over time.
2. The Corps shall notify Ecology immediately if there are any changes to the mitigation plan submitted to Ecology in accordance with the condition above, particularly in regard to changes in required monitoring, and shall provide Ecology with an updated plan.
3. The Corps shall submit copies of all annual monitoring reports to Ecology by December 31 of each year, or other date as agreed to by the Corps and Ecology that is more in accordance with any other required performance reporting for this project.

All documentation related to the conditions above can be sent to Ecology's Federal Notification Box at fednotification@ecy.wa.gov, with "Marshland Levee Repair, Aquatics #143762" in the subject line.

Ecology's conditional concurrence is issued pursuant to 15 CFR part 930(4). If the Corps does not comply with the above conditions in this decision letter, then all parties shall treat this conditional concurrence as an objection pursuant to 15 CFR 930 subpart C.

If you have any questions regarding Ecology's Conditional Concurrence, please contact Teressa Pucylowski at (360) 764-0546.

Your right to appeal

You have a right to appeal this decision to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal, you must do all of the following within 30 days of the date of receipt of this decision:

- File your notice of appeal and a copy of this decision with the PCHB (see filing information below). "Filing" means actual receipt by the PCHB during regular business hours as defined in WAC 371-08-305 and -335. "Notice of appeal" is defined in WAC 371-08-340.

- Serve a copy of your notice of appeal and this decision on the Department of Ecology mail, in person, or by email (see addresses below).

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Filing an appeal

Filing with the PCHB

For the most current information regarding filing with the PCHB, visit: https://eluho.wa.gov/ or call: 360-664-9160.

Service on Ecology

Street Addresses:

Department of Ecology
Attn: Appeals Processing Desk
300 Desmond Drive SE
Lacey, WA 98503

Mailing Addresses:

Department of Ecology
Attn: Appeals Processing Desk
PO Box 47608
Olympia, WA 98504-7608

E-Mail Address:

ecologyappeals@ecy.wa.gov

Sincerely,

Loree' Randall, Section Manager
Aquatic Permitting & Protection Section
Shorelands and Environmental Assistance Program

Sent via e-mail: caren.j.crandell@usace.army.mil

E-cc: Colin Ray, U.S. Army Corps of Engineers
Zachary Wilson, U.S. Army Corps of Engineers
Teressa Pucylowski, Ecology
Stephanie Barney, Ecology
fedconsistency@ecy.wa.gov

11.6 Appendix F: Endangered Species Act Coordination

A copy of the email correspondence between USACE and NMFS has been reproduced below in a readable text format. This format is used instead of computer screenshots to remain compliant with Section 508 of the Rehabilitation Act (29 U.S.C. 794d).

From: Wilson, Zachary M CIV USARMY CENWS (USA)
Sent: Wednesday, March 6, 2024 3:44 PM
To: owco.wa.consultationrequest@noaa.gov
Cc: Pepi, Vanessa E CIV USARMY CENWS (USA)
Subject: Emergency Consultation Request for the 2024 Marshland Levee Repair Project

The U.S. Army Corps of Engineers (USACE) is requesting emergency consultation with the National Marine Fisheries Service (NMFS) under section 7 of the Endangered Species Act (ESA). The USACE is proposing to repair 350 feet of the Marshland Levee that was damaged in December 2023 on the Snohomish River near the city of Snohomish, Washington. Emergency repair of this levee is part of the USACE's prompt response to restore the prior level of protection provided by the levee in an undamaged state. Until this levee is restored to its prior level of flood protection, there is a threat of loss to human life and property. The USACE plans to start construction in August 2024 and anticipates completing repairs in September 2024. All in-water work is scheduled to occur during the in-water work window for the Snohomish River (July 1 to August 31). See attached for details.

From: OWCO ConsultationRequest - NOAA Service Account
Sent: Thursday, March 7, 2024 8:15 AM
To: Wilson, Zachary M CIV USARMY CENWS (USA); Elizabeth Babcock - NOAA Federal; Donald Hubner - NOAA Federal
Cc: Pepi, Vanessa E CIV USARMY CENWS (USA)
Subject: [Non-DoD Source] Re: Emergency Consultation Request for the 2024 Marshland Levee Repair Project

We have received your request for comments due to an emergency action request. The Project has been logged into our database as a TECH ASSIST and given a tracking number of INQ-2024-00049 Please make sure that when you do come back to us with the after the fact consultation for this project to provide this information as part of the consultation package so that we have a complete administrative record for this project. I have included the branch chief in this email so you are aware of who the request for recommendation has been given to initially, they will either respond to you directly or have one of their project managers respond to you with the recommendation.

From: Donald Hubner - NOAA Federal
Sent: Wednesday, March 27, 2024 12:13 PM
To: Wilson, Zachary M CIV USARMY CENWS (USA); Pepi, Vanessa E CIV USARMY CENWS (USA)
Cc: Elizabeth Babcock - NOAA Federal; ConsultationUpdates
Subject: [Non-DoD Source] Re: Emergency Consultation Request for the 2024 Marshland Levee Repair Project (INQ-2024-00049)

Dear Zachary and Vanessa

Thank you for informing the NMFS of the USACE's intention to perform PL 84-99 emergency repair of 350 feet of the Marshland Levee on the Snohomish River near the city of Snohomish, Washington, which was damaged by flooding in December 2023. In summary, the USACE intends to repair the levee in-kind, and within its pre-damaged footprint. The work would include excavation of a bench and installation of riprap backed by quarry spalls to create a 2H:1V riverward slope. Construction is planned to occur between August and September 2024.

As indicated in the email from OWCO ConsultationRequest - NOAA Service Account that was sent on March 7, 2024, your notification has been issued the NMFS tracking number INQ-2024-00049. Please be sure to include this number in future communications regarding this authorization.

We provide the following technical assistance regarding your proposed action. In addition to or in support of any terms and conditions to avoid and minimize damage to the aquatic resources that the USACE would apply to this project, we recommend that you require that the following steps or measures be taken. These recommended measures should help your agency reduce the number, extent, and type of adverse effects the project may otherwise have on ESA-listed species and or critical habitats:

FISH SALVAGE

- WDFW's SalmonScape website indicates that at the project site, the Snohomish River supports spawning for summer run PS Chinook salmon, as well as migration for summer and fall runs; rearing for winter run PS steelhead, as well as migration for winter and summer runs; rearing and migration for coho salmon; and migration for pink salmon. Because juvenile steelhead, stream-type Chinook salmon, and coho salmon typically rear in freshwater for multiple years, construction crews should be prepared to protectively remove juvenile salmonids from the project area using the most current WDFW fish removal protocols.

STAGING AND POLLUTION PREVENTION

- Stage equipment and supplies in locations and with containment that will prevent toxics or harmful materials from entering waters of the state.
- Check equipment daily for leaks, complete any needed repairs, and clean the equipment before using it in or near the water.
- To the greatest extent practicable, use lubricants composed of biodegradable base oils such as vegetable oils, synthetic esters, and polyalkylene glycols in equipment operated

in or near water.

- Dispose of all project-related trash and debris at appropriate upland disposal facilities.

CONSTRUCTION

- Limit excavation and fill to the minimum extent practicable.
- To the greatest extent practicable, install embankment materials carefully, do not dump them.
- To the greatest extent practicable, utilize armoring techniques that would minimize aquatic impacts, such as decreasing the slope angle, installing large wood with root wads attached, and installing plantings on the repaired bank.
- Remove all anthropogenic debris from the project area.

If your agency should follow this action with a request for formal consultation per 50 CFR 405(b), the NMFS reserves the right to evaluate if the definition of an emergency under the ESA statute and implementing regulations was met at the time the work was performed, and whether formal consultation should occur. If a formal consultation is warranted, we may require project modifications through our Section 7 ESA authority.

Thank you for the opportunity to comment on this action and please let us know if you have any questions about our recommended measures.

From: Wilson, Zachary M CIV USARMY CENWS (USA)
Sent: Thursday, March 28, 2024 3:27 PM
To: Donald Hubner - NOAA Federal; Pepi, Vanessa E CIV USARMY CENWS (USA)
Cc: Elizabeth Babcock - NOAA Federal; ConsultationUpdates
Subject: RE: [Non-DoD Source] Re: Emergency Consultation Request for the 2024 Marshland Levee Repair Project (INQ-2024-00049)

NMFS tracking number: INQ-2024-00049

Afternoon,

This email transmits the USACE response to the recommended conservation measures received from NMFS on March 27, 2024 for the 2024 Marshland Levee Repair Project. The measures were provided under the following three categories: Fish Salvage, Staging and Pollution Prevention, and Construction. USACE provides its response to the measures below.

FISH SALVAGE

The recommendation provided by NMFS under this category will be implemented. The work area will be monitored during construction for the presence of fish. Fish present in the area will be removed if necessary. The number, species, and condition of the fish will be recorded.

STAGING AND POLLUTION PREVENTION

The recommendations listed under this category will be followed through implementation of the following BMPs:

- Drive trains will not operate in the water. Only the excavator bucket with thumb

attachment will extend into the water.

- Refueling will occur away from the riverward side of the levee, within the project footprint, and a fuel spill kit with absorbent pads will always be onsite.
- All construction materials will be free of contaminants such as oils and excessive sediment.
- Construction equipment will be regularly inspected for drips or leaks. Any leak will be fixed promptly, or the equipment will be removed from the project site.
- All trash and unauthorized fill generated during the repair will be removed from the project and staging area, including concrete blocks or pieces, bricks, asphalt, metal, treated wood, glass, floating debris, and paper and disposed of properly after work is completed.
- To the greatest extent practicable, lubricants composed of biodegradable base oils (e.g., vegetable oils, synthetic esters, and polyalkylene glycols) will be used in equipment operated in or near water.

CONSTRUCTION

The recommendations provided under this category will be implemented. Work will be limited to the footprint necessary to repair damages by working within the existing levee footprint. Material will be removed and placed in a controlled manner. Large woody material (LWM) generated during repairs will be salvaged and placed onsite above OHWM with rootwads facing the river where it can continue to provide habitat function. This includes any tree trunks and large shrubs. LWM may also be placed in the planting area between plantings. Approximately 58 willow bundles will be incorporated into the levee slope 1 foot above the OHWM at 6-foot intervals along the length of the repair. All trash and unauthorized fill generated during the repair will be removed from the project and staging area, including concrete blocks or pieces, bricks, asphalt, metal, treated wood, glass, floating debris, and paper and disposed of properly after work is completed.

11.7 Appendix G: Public Comments and Responses

Comment:

REGION 10
SEATTLE, WA 98101

May 22, 2024

Zachary Wilson
U.S. Army Corps of Engineers
Attn: Planning, Environmental, and Cultural Resources Branch
PO Box 3755
Seattle, WA, 98124-3755

Dear Zachary Wilson:

The U.S. Environmental Protection Agency has reviewed the 2024 Marshland Levee Repair Project Draft Environmental Assessment and Draft Finding of No Significant Impact (FONSI) (EPA Project Number 24-0028-USACE). The EPA has conducted its review pursuant to the National Environmental Policy Act and our review authority under Section 309 of the Clean Air Act. The CAA Section 309 role is unique to the EPA and requires the EPA to review and comment publicly on any proposed federal action subject to NEPA's environmental impact statement requirement.

The DEA evaluates the potential environmental impacts associated with proposed levee repairs at the Marshland Levee near the city of Snohomish, Snohomish County, Washington. Repair work is intended to address damage caused by flooding in December 2023 on the Snohomish River. The DEA identifies and evaluates a No Action Alternative (Alternative 1) and three action alternatives, non-structural floodplain management (Alternative 2), levee setback (Alternative 3), and repair in-kind (Alternative 4). The USACE identified Alternative 4 as the preferred alternative as funding is limited to emergency repairs, and Alternatives 2 and 3 did not have support from the Marshland Flood Control District.

The EPA is aware that levees in the area are subject to repeated emergency repairs, such as the sections damaged during 2020 storm events described in the USACE's Pilchuck Levee and Marshland Levee Repair Projects June 2023 EA and FONSI.[1] Climate change impacts in Washington include extreme precipitation events that are anticipated to intensify and further

[1] https://www.nws.usace.army.mil/Portals/27/docs/environmental/resources/2018EnvironmentalDocuments/Final%20Pilchuck%20Marshland%20EA%20FONSI_signed.pdf. Accessed 5/16/24.

stress water systems across the Northwest.[2] More frequent and severe flooding is anticipated in the Snohomish River as the Snohomish estuary experiences sea level rise, the watershed experiences more frequent and severe heavy rain events, and earlier peak flows as snowpack decreases.[3] A key message from the US Global Change Research Program's Fifth National Climate Assessment regarding the Northwest is that cross-sectoral planning, which can include redesigning aging infrastructure and incorporating climate considerations in planning, can increase resilience to future climate variability and extremes. [4]

In consideration of the reasonably foreseeable climate change impacts which may affect the success of the proposed project, the EPA recommends the NEPA analysis describe how the proposed repairs fit into the broader watershed plans for flood resilience under current and future climate change scenarios and climate adaptation plans. The EPA recommends the NEPA document reference the Council on Environmental Quality (CEQ)'s January 9, 2023 National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change.[5] CEQ developed this guidance in response to EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*. For example, to address climate resilience, the EPA recommends the NEPA document include a discussion of reasonably foreseeable effects that changes in the climate (e.g., changes in precipitation patterns, hydrology, and drought) may have on the proposed project, and what impacts the proposed project will have on local climate change consequences (i.e., hydrology, water use, etc.).

The EPA also recommends the NEPA document describe opportunities to include mitigation to offset any potential project climate impacts, reduce greenhouse gas emissions, and design facilities to mitigate potential structural impacts associated with extreme weather events. EPA also suggests the NEPA document describe USACE management actions to provide for diverse, healthy ecosystems that are resilient to climate stressors and summarize relevant state, Tribal, or local climate resilience or adaptation plans.

[2] https://nca2023.globalchange.gov/chapter/27/. Accessed 5/17/24.
[3] University of Washington Climate Impacts Group. Climate Change in the Snohomish River. https://cig.uw.edu/wp-content/uploads/sites/2/2018/10/FbD_Snohomish-climatechange_web.pdf. Accessed 5/17/24.
[4] USGCRP, 2023: *Fifth National Climate Assessment*. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA. https://doi.org/10.7930/NCA5.2023
[5] https://www.federalregister.gov/documents/2023/01/09/2023-00158/national-environmental-policy-act-guidance-on-consideration-of-greenhouse-gas-emissions-and-climate. Accessed 5/16/2024.

USACE Response: The USACE included additional climate change related analysis in section 3.7 of the Final EA.

11.8 APPENDIX H: SECTION 106 CONSULTATION DOCUMENTATION

dahp
protect the past, shape the future

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

April 1, 2024

Collin Ray
Environmental Resources Section
Corps of Engineers – Seattle District
PO Box 3755
Seattle, Washington 98124-3755

Re: PL 84-99 Marshlands Levee Project Bank Non-Federal Levee Rehabilitation Project
Log No.: 2024-03-01578-COE-S

Dear Collin Ray:

Thank you for contacting our department. We have reviewed the materials you provided for the Area of Potential Effect (APE) for the proposed *PL 84-99 Marshlands Levee Project Bank Non-Federal Levee Rehabilitation Project* along the Snohomish River near the city of Snohomish, Snohomish County, Washington

We concur with your determination of the Area of Potential Effect (APE) as described and presented in your figures and text.

We look forward to further consultation as you consult with the concerned tribal governments, the results of your identification efforts, and your determination of effect.

We would also appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer in compliance with the Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations 36CFR800.4. Should additional information become available, our assessment may be revised. Thank you for the opportunity to comment.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 890-2615
email: *rob.whitlam@dahp.wa.gov*

State of Washington • **Department of Archaeology & Historic Preservation**
P.O. Box 48343 • Olympia, Washington 98504-8343 • (360) 586-3065
www.dahp.wa.gov

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

May 21, 2024

Collin Ray
Chief
Planning and Environmental and Cultural Resources Branch
US Army Corps of Engineers – Seattle District

In future correspondence please refer to:
Project Tracking Code: 2024-03-01578
Property: PL 84-99 Marshlands Levee Project Bank Non-Federal Levee Rehabilitation, Snohomish, Snohomish County, Washington
Re: No Adverse Effect

Dear Colin Ray:

Thank you for contacting the Washington State Department of Archaeology and Historic Preservation (DAHP) regarding the above referenced proposal. This action has been reviewed on behalf of the State Historic Preservation Officer (SHPO) under provisions of Section 106 of the National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800. Our review is based upon documentation contained in your communication.

We concur that the project as proposed will have no adverse effect on resources listed in, or eligible for listing in, the National Register of Historic Places, including the recently determined eligible Marshland Levee (Property ID: 724404).

As a result of our concurrence, further contact with DAHP on this proposal is not necessary. However, if new information about affected resources becomes available and/or the project scope of work changes significantly, please resume consultation as our assessment may be revised. Also, if any archaeological resources are uncovered during construction, please halt work immediately in the area of discovery and contact the appropriate Native American Tribes and DAHP for further consultation.

Thank you for the opportunity to review and comment. If you have any questions, please feel free to contact me.

Sincerely,

Maddie Levesque, M.A
Architectural Historian
(360) 819-7203
Maddie.Levesque@dahp.wa.gov

11.9 APPENDIX I: TRIBAL COMMENTS AND RESPONSES

Wilson, Zachary M CIV USARMY CENWS (USA)

From: Wilson, Zachary M CIV USARMY CENWS (USA)
Sent: Friday, June 7, 2024 10:23 AM
To: Amy Trainer; THPO
Cc: Leslie, Melissa L CIV USARMY CENWS (USA); Bunch, Jordan A CIV USARMY CENWS (USA); Walker, Krystle M CIV USARMY CENWS (USA); Downing, Daryl S CIV USARMY CENWS (USA)
Subject: RE: 2024 Marshland Levee Repair Project

Morning Amy! Apologies for the tardy reply. I was travelling and am now getting back into the rhythm of things at the office.

When creating a planting plan for a PL 84-99 repair, the US Army Corps of Engineers (USACE) considers the unique circumstances of each repair site and sponsor. Real estate availability is a critical factor, as the program lacks the authority to acquire land. Instead, USACE relies on the sponsor's existing real estate or what they are willing to obtain themselves. Given the diverse range of sponsors—from small local farmers to large cities and counties—the available resources can vary significantly.

The USACE had previously evaluated planting sites in 2020/2021 for Marshland and was aware that available and appropriate planting locations were limited. In light of this limitation, the USACE determined that the best option was to plant adjacent to the repair site on a riverward bench.

During a site visit, USACE engineers and biologists assessed the conditions and determined that the riverward bench had sufficient space for planting large shrubs or trees without compromising levee stability. Additionally, the site was free of native trees and shrubs and so the plantings would not be replacing al-ready intact native riparian habitat. Based on this information, the planting plan was developed.

For PL 84-99 repairs, the USACE typically employs a 3:1 replacement ratio for trees (three tree plantings for each tree removed). The proposed plantings are densely spaced, approximately 10 feet apart, to outcompete invasive species and allow room for tree growth. This arrangement fills the available area while maintaining a safe distance from the levee prism (avoiding significant levee safety concerns).

In addition, USACE typically places willow bundles along the levee repair length. For the proposed repair, these bundles are spaced every 6 feet and provide overhanging vegetation and facilitate both visual and physical access for levee inspections.

Site conditions are carefully considered when choosing what species to plant, so they establish and provide long-term benefits. Given the varying site conditions due to seasonal changes and river water levels, the USACE chose species that thrive in a broader range of riparian environments. Additionally, growth characteristics played a role in the selection process. Red alder and Pacific willow were chosen for their rapid growth rates, while big-leaf maple and Douglas fir were selected for their larger canopy size, height, and woody material.

We also invite you to comment on the Draft National Levee Safety Guidelines, including the Vegetation Management Best Practices, which are currently being drafted by FEMA and USACE. Public comments are due July 31, 2024. These drafts can be found at https://www.leveesafety.org/pages/nlsg.

Thank you
Zach

-----Original Message-----

From: Amy Trainer <atrainer@swinomish.nsn.us>
Sent: Wednesday, May 8, 2024 7:33 AM
To: Wilson, Zachary M CIV USARMY CENWS (USA) <Zachary.M.Wilson@usace.army.mil>; THPO <THPO@swinomish.nsn.us>
Cc: Leslie, Melissa L CIV USARMY CENWS (USA) <Melissa.L.Leslie@usace.army.mil>; Bunch, Jordan A CIV USARMY CENWS (USA) <Jordan.A.Bunch@usace.army.mil>; Walker, Krystle M CIV USARMY CENWS (USA) <Krystle.M.Walker@usace.army.mil>; Downing, Daryl S CIV USARMY CENWS (USA) <Daryl.S.Downing@usace.army.mil>; Amy Trainer <atrainer@swinomish.nsn.us>
Subject: [Non-DoD Source] Re: 2024 Marshland Levee Repair Project

Thanks, Zach, I appreciate the information.

Can you please provide me with the scientific basis for the Army Corps reliance on a 3:1 ratio of replacing mature trees that provide shade and multiple habitat benefits for the river and salmon, with new plantings that will take decades to mature and replace those lost ecosystem functions? How does the Corps' reliance on this ratio account for the multiple decades that habitat will not functional at this location?

Thanks,
Amy

On 5/7/24, 1:21 PM, "Wilson, Zachary M CIV USARMY CENWS (USA)" <Zachary.M.Wilson@usace.army.mil <mailto:Zachary.M.Wilson@usace.army.mil>> wrote:

Afternoon Amy!

Thank you for your comment. Levee rehabilitation work under PL 84-99 is intended to restore the level of protection as soon as possible for the purpose of life safety and the protection of property. Therefore, funding is not available for additional work beyond the period of construction. The USACE's current proposal for the plantings is consistent with the limitations of the program. The proposal, which includes replanting in the second year if 80 percent of the plantings don't survive, is outlined in the draft EA/FONSI. A link to the Draft EA/FONSI is listed in the attached NOA.

After the repair, USACE does not have the authority to place additional requirements on the non-Federal sponsor of a PL 84-99 repair, other than what is captured in the Cooperation Agreement (CA). The CA is an agreement entered into by a District Commander (acting as the agent for the Department of the Army on behalf of the United States Government) and the public sponsor for the purpose of identifying each party's rights and obligations concerning the expenditure of federal funds under authority of PL 84-99. The CA is a templated document defined by HQUSACE. See attached for the CA template.

After repairs are completed, the non-Federal sponsor assumes full responsibility for all aspects of the repaired structure, including the plantings. The USACE will inform the non-Federal sponsor that the plantings must be maintained as part of their operation and maintenance obligations.

If you have additional questions, specifically those related to PL 84-99, you may reach out to Krystal Walker, Chief of Emergency Management in the Seattle District (CCd).

Zachary Wilson
Environmental Analysis Section
Planning, Environmental, and Cultural Resources Branch U.S. Army Corps of Engineers, Seattle District
206.713.0963

Don't let the pursuit of the perfect be the enemy of the good

-----Original Message-----
From: Amy Trainer <atrainer@swinomish.nsn.us <mailto:atrainer@swinomish.nsn.us>>
Sent: Tuesday, April 9, 2024 8:58 AM
To: Wilson, Zachary M CIV USARMY CENWS (USA) <Zachary.M.Wilson@usace.army.mil <mailto:Zachary.M.Wilson@usace.army.mil>>; THPO <THPO@swinomish.nsn.us <mailto:THPO@swinomish.nsn.us>>
Cc: Leslie, Melissa L CIV USARMY CENWS (USA) <Melissa.L.Leslie@usace.army.mil <mailto:Melissa.L.Leslie@usace.army.mil>>; Bunch, Jordan A CIV USARMY CENWS (USA) <Jordan.A.Bunch@usace.army.mil <mailto:Jordan.A.Bunch@usace.army.mil>>
Subject: [Non-DoD Source] Re: 2024 Marshland Levee Repair Project

Zachary,

Thank you for your letter about the proposed repairs to the Marshland Levee. My initial comment would be that the Corps include a requirement to maintain and care for the newly planted trees, shrubs and willows for at least 5 years to ensure that they are successfully established. I look forward to review further design and engineering documents as this project moves forward.

Thanks,
Amy

Amy Trainer
Environmental Policy Director
Swinomish Indian Tribal Community
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From: "Wilson, Zachary M CIV USARMY CENWS (USA)" <Zachary.M.Wilson@usace.army.mil <mailto:Zachary.M.Wilson@usace.army.mil>>
Date: Thursday, March 14, 2024 at 11:03 AM

To: Chairman Steve Edwards <sedwards@swinomish.nsn.us <mailto:sedwards@swinomish.nsn.us>>, Amy Trainer <atrainer@swinomish.nsn.us <mailto:atrainer@swinomish.nsn.us>>, THPO <THPO@swinomish.nsn.us <mailto:THPO@swinomish.nsn.us>>
Cc: "Leslie, Melissa L CIV USARMY CENWS (USA)" <Melissa.L.Leslie@usace.army.mil <mailto:Melissa.L.Leslie@usace.army.mil>>, "Bunch, Jordan A CIV USARMY CENWS (USA)" <Jordan.A.Bunch@usace.army.mil <mailto:Jordan.A.Bunch@usace.army.mil>>
Subject: 2024 Marshland Levee Repair Project

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The Seattle District, U.S. Army Corps of Engineers (USACE) in partnership with the Marshland Flood Control District is proposing to repair the Marshland Levee, near the town of Snohomish, Washington this summer. Repairs to the Marshland Levee are authorized by Public Law 84-99 (33 USC § 701n). Details are provided in the attached letter. The USACE requests comments on the proposed project. We are interested in your comments and will fully consider any comments we receive.

Thank you
Zachary Wilson
Environmental Analysis Section
Planning, Environmental, and Cultural Resources Branch U.S. Army Corps of Engineers, Seattle District
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