

Draft Environmental Assessment

Nooksack River – Twin View Levee Rehabilitation of Flood Control Works Whatcom County, Washington



July, 2005



US Army Corps
of Engineers®
Seattle District

**Nooksack River Twin View Levee
Rehabilitation of Flood Control Works
Final Environmental Assessment
July 2004**

Responsible Agency: The responsible agency for rehabilitation of flood control works is the U.S. Army Corps of Engineers, Seattle District (Corps).

Abstract:

This Environmental Assessment (EA) evaluates the environmental effects of the proposed repair and reconstruction of Twin View levee, located on the Nooksack River near Everson, Washington. The Twin View levee is located along the left bank of the Nooksack River near the town of Everson, in Whatcom County, Washington at RM 23.80 to RM 25.10. The levee protects 258 acres of agricultural land, residential properties, and associated public infrastructure, including roads and a crude oil pipeline. The Corps is proposing the following project under the authority of Public Law 84-99 (33 USCA 701n). There are three damaged locations along the levee. The lower most location consists of 400 linear feet (LF) of massive failure of the levee and toe. The middle section consists of 200 LF of failed toe and riverward slopes. The uppermost section consists of 600 feet of failed riverward slope and toe. There is also 1200 LF landward slope scour damage from overtopping. The levee was damaged during the 24-26 November 2004 flood event.

The Corps proposes to permanently repair the levee. The recommended plan consists of rebuilding the levee to the pre-flood condition. This includes replacing the 5 ft deep by 10 ft wide toe and the three-foot thick blanket of class IV riprap on the riverward slope. The toe will be constructed as a weighted toe in the middle and upstream damage areas and as a buried toe in the downstream damage area. The repairs for the downstream, middle, and upstream sites will be 400, 200, and 600 feet, respectively. A total of 1200 feet of scour damage on the back slope will also be repaired. The landside damage is located in the same locations as the riverward slope and toe damage.

The proposed project will not constitute a major federal action significantly affecting the quality of the human environment.

This document is also available online at:
<http://www.nws.usace.army.mil/ers/envirdocs.html>

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1. INTRODUCTION

This Environmental Assessment (EA) evaluates the environmental effects of the proposed repair and reconstruction of Twin View Levee located on the Nooksack River near Everson, Washington. There are three damaged locations along the levee. The lower most location consists of 400 linear feet (LF) of massive failure of the levee and toe. The middle section consists of 200 LF of failed toe and riverward slopes. The uppermost section consists of 600 feet of failed riverward slope and toe. There is also 1200 LF landward slope scour damage from overtopping. The levee was damaged during the 24-26 November 2004 flood event.

The proposed work is not expected to significantly affect the quality of the human environment because the damaged section of shoreline will be returned to the pre-flood condition as built in place.

1.1 Location and Setting

The Twin View levee is located along the left bank of the Nooksack River near the town of Everson, in Whatcom County, Washington at RM 23.80 to RM 25.10. The levee is approximately 6,800 feet in length. The levee was identified as an earthen material levee with armor rock on the riverward slope and toe in previous levee inspections (the most recent was in Fall 2004). There are no special features, drainage structures, or culverts along the levee segment. The downstream end of the levee ties to high ground at the Everson Street Bridge. The levee protects 258 acres of agricultural land, residential properties, and associated public infrastructure such as roads and a crude oil pipeline. A location map may be found in Appendix C.

1.2 Background

The levee was originally constructed in the early 1900's by local farmers to protect crops, roads, and structures. Over the years, separate segments became interconnected to form a contiguous levee segment. The estimated completion of a contiguous segment is prior to 1936 when the Corps performed levee upgrades using Works Progress Administration (WPA) funding. After the WPA upgrades, Corps involvement has been limited to flood fights and levee rehabilitation.

The County performs annual maintenance including the removal of blackberries and thinning or removal of trees that would jeopardize levee integrity.

From November 24 through November 26 2004, the Nooksack River at Deming, Washington rose above 7000 Cubic Feet per Second (CFS) discharge according to the USGS gauging station, located upstream of the project location.

In December 2004, Whatcom County Public Works Department requested assistance under the PL84-99 Program in implementing a repair project at this location (Appendix A). The Corps has determined that the levee is in need of permanent repair and is proposing to repair 1200 linear feet of river-ward levee damage, in three locations within the site.

1.3 Purpose of and Need for the Proposed Action

The purpose of this project is to provide protection to the community and infrastructure from flood damage. This section of the levee sustained significant damage by erosion during a flood event in November 2004 and is in need of repair. There is a high potential that during the upcoming flood season, the river would overflow the levee again, posing a major threat to the community if no action is taken to contain the floodwaters.

1.4 Authority

The Twin View Levee Rehabilitation is authorized by Public Law 84-99 (33 USCA 701n). Corps rehabilitation and restoration work under this authority is limited to flood control works damaged or destroyed by flood. The rehabilitated structure will normally be designed to provide the same degree of protection as the original structure. This project has been authorized as having *emergency* status as stated under the PL 84-99 regulations. The Corps has determined that if the levee is not repaired by the next flood event, an *imminent threat* to human life and of loss of private and/or public property exists.

1.5 Action Area

The project area includes the 6800 feet long and 35 feet wide left bank of the Nooksack River. The action area for the project extends from the project site on the left bank of the Nooksack River, downstream approximately 500 feet for aquatic species and includes a 3/4-mile radius from the project area for terrestrial species, based on previous year's coordination of emergency actions and flood repairs in the Nooksack basin. Staging will be accomplished at the work site, and access will be obtained using existing levee access roads from existing paved roads

2. DESCRIPTION OF THE ALTERNATIVES

2.1 Preferred Alternative

The Corps proposes to repair the levee. The recommended plan consists of rebuilding the levee to the pre-flood condition. This includes replacing the 5 ft deep by 10 ft wide toe and the three-foot thick blanket of class IV riprap on the riverward slope at all three sites. The toe will be constructed as a weighted toe in the middle and upstream damage areas and as a buried toe in the downstream damage area. The repairs for the downstream, middle, and upstream sites will be 400, 200, and 600 feet, respectively. A total of 1200 feet of scour damage on the back slope will also be repaired by backfilling the scour holes with materials similar in gradation to current levee components. The Landside scour areas will then be hydroseeded. The landside damage is located in the same locations as the riverward slope and toe damage. The project will be constructed between July 15- August 15.

Project drawings are located in Appendix C. Access to the site will not require the construction of an access road, as a road currently exists.

2.2 Other Alternatives Analyzed

In order for any alternative to be acceptable for consideration it must meet certain objectives. The alternative must afford flood protection similar to the rest of the levee segment; it must be economically justified; it should be environmentally acceptable; and it should minimize costs for both the sponsor and the Federal government. Several other alternative actions were considered before the recommended alternative was selected. These alternatives include:

- No Federal Action (the No-Action Alternative),
- The Non-Structural Alternative,
- The Set- Back Alternative,
- The Repair-the-Scour Alternative

2.2.1 No Federal Action

The No-Action alternative would leave the levee in its current damaged condition. This alternative was discarded because it does not meet the acceptability criteria. Specifically, the levee is so damaged that it could easily be breached by even a small event.

2.2.1.1 *Effects of No Federal Action.*

With no Corps assistance, the bank erosion would continue, and could lead to danger to human life, significant damage to commercial and residential structures, public utility infrastructure, and roads.

2.2.2 Non-Structural Alternative

The Non-Structural alternative would buy-out the existing residential and agricultural property and would also relocate any necessary public infrastructure. This alternative was not selected because the costs were deemed significantly higher when compared to the costs for the selected alternative.

2.2.3 The Setback Alternative

The setback alternative would construct a new levee behind the current alignment. This levee would be constructed to match the pre-flood level of protection of the original levee (i.e. same levee height). This alternative was not selected because the costs were deemed significantly higher when compared to the costs for the selected alternative.

2.2.4 Repair-the-Scour Alternative

The Repair the Scour Alternative would repair the slope damage and return the levee to its pre-flood condition. This alternative was selected because it provides the desired level of protection for the lowest costs.

3. AFFECTED ENVIRONMENT

3.1 General

In the project area the Nooksack River is a confined, single channel, low gradient system. The river provides spawning and rearing for all salmon species utilizing the upper mainstem Nooksack. These species include Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), chum (*O. keta*), pink (*O. gorbuscha*), sockeye (*O. nerka*), steelhead (*O. mykiss*) and large

numbers of coho (*O. kisutch*). Juvenile Chinook rearing does occur through the reach (Hyatt 2004). The riparian zone adjacent to the levees is well developed with a variety of flood plain and riparian species as outlined in Section 3.3 Vegetation (below). The riparian vegetation serves as habitat for a variety of raptors, woodpeckers, passerines and water-oriented mammals.

The following threatened species are expected to be found in the project area:

- Puget Sound Chinook salmon (2 essential stocks)
- Bull trout
- Bald eagle

Marbled murrelet may also transit the area going to nesting areas in the upper watershed or feeding areas in Puget Sound; however, they do not nest or feed within the project site or affected area.

3.2 Hydrology, Soils and Topography

Currently the river flows directly into the Upper Section of the levee due to a sharp bend in the river; the river then turn sharply river right and meanders within the levee system parallel to the middle and lower sites. The thalweg of the river runs along the Upper and Middle sites, and at flood condition the Lower site is also wetted. This abrupt change in the river channel results in rapid water velocity changes and the high potential for scour to occur in this section of the levee. The Upper and Middle sections are likely to be wet during construction.

Topography of the project site is flat river floodplain, bordered by ridge features on both sides. The soils are Pilchuck loamy fine sand and river wash (SCS, 1987). Average precipitation is 50 inches; average air temperature is 49 degrees F. The soils are well drained, and usually deposited on river alluvium. Erosion can be severe when exposed to flooding, and permeability is rapid (SCS, 1987). A wetland delineation and inspection was performed by the Corps on 8 June 2005. Wetlands are present immediately adjacent to the upper staging area, but are not directly within the project footprint, nor within any access or staging location.

3.3 Vegetation

Dominant vegetation was recorded along the access alignment, staging areas and construction footprints for each site by Corps personnel during a wetlands delineation on 8 June 2005. The Upper and Lower Twin View access and staging areas occur within a hayland pasture community dominated by common pasture grasses (*Gramineae*). On the toe of existing access roads reed canarygrass (*Phalaris arundinacea*) and tall fescue (*Festuca arundinacea*) are common. No emergent vegetation characteristic of farmed wetland pastures was observed. The construction footprint on Lower Twin View levee face is largely unvegetated and occurs as an eroded vertical wall. Black cottonwood (*Populus balsamifera*), red alder (*Alnus rubra*), cherry (*Prunus* sp.) and douglas-fir (*Pseudotsuga menziesii*) characterize the tree stratum within all, or a portion of the Middle Twin View site and Upper Twin View construction footprint. Dominant native shrubs include snowberry (*Symphoricarpos albus*), Pacific ninebark (*Physocarpus capitatus*) and Indian plum (*Oemelaria cerasiformes*). Invasive vegetation is common, and includes Himalyan blackberry (*Rubus discolor*) and knotweed (*Polygonum cuspidatum*).

3.4 Fish and Wildlife

The Nooksack River supports several species of salmon and trout. Trout species occasionally present at the site include bull trout, Dolly Varden, steelhead and cutthroat trout. The salmon species are Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), chum (*O. keta*), pink (*O. gorbuscha*), and sockeye (*O. nerka*).

The agricultural area surrounding the project site along the Nooksack River is frequented by a variety of wildlife species. Mammals include raccoon (*Procyon lotor*), Douglas squirrel (*Tamiasciurus douglasi*), little brown myotis (*Myotis lucifugus*), mink (*Carnivora mustelidae*) and Columbia black-tailed deer (*Odocoileus hemionus*). Bird species using or transiting the area could include bald eagles (*Haliaeetus leucocephalus*), marbled murrelets (*Brachyramphus marmoratus marmoratus*), and chestnut-backed chickadee (*Parus rufescens*).

3.5 Threatened and Endangered Species

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed and proposed threatened or endangered species. Four species listed as either threatened or endangered are potentially found in the area of the project, and are listed in Table 3-1.

Table 3-1. Endangered Species in the Project Vicinity

Scientific Name	Common Name	Status
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Threatened
<i>Oncorhynchus tshawytscha</i>	Puget Sound Chinook Salmon	Threatened
<i>Salvelinus confluentus</i>	Bull Trout	Threatened
<i>Brachyramphus marmoratus marmoratus</i>	Marbled Murrelet	Threatened

Information on known occurrences of candidate and threatened species in the project vicinity, and the impacts of the proposed projects on these species are addressed in Appendix B, Nooksack River Twin View Levee Repair ESA documentation, dated July 2004.

Bald eagle can be found in coastal and riparian areas. The project area is approximately 1/2 mile away from a nest; the nest is visible from the work site, but is located within an active farm. Nesting territory extends along much of the Nooksack River, as far north as Pioneer Park.

Marbled murrelet is found in coastal old-growth forest areas of Washington. Marbled murrelets do not nest or feed in the project area. The project site lacks old-growth forest and does not contain suitable marbled murrelet habitat. Marbled murrelet could transit the project area as they move between foraging and nesting sites.

Bull trout and Dolly Varden have been found to co-exist in streams in this region. Because these two species are closely related and have similar biological characteristics, the WDFW manages bull trout and Dolly Varden in the Nooksack together as "native char." Bull trout and Dolly Varden are very difficult to distinguish based on physical features and share similar life history traits and habitat requirements. Dolly Varden were not listed as a threatened species in the Coastal/Puget Sound Distinct Population segment when the USFWS revised the bull trout

listing in November 1999. However, the USFWS indicated on January 9, 2001 that Dolly Varden are being considered for listing as threatened due to their similarity of appearance to bull trout.

Bull trout were originally designated on June 10, 1998 as threatened in the contiguous U.S.A. (lower 48 states). Anadromous and resident bull trout spawn in the upper forks of the Nooksack River. Existing habitat suitability for char along this length of shoreline is low as the water velocities are quite high and this reach would likely be used only as a transportation corridor in the immediate project area.

Puget Sound Chinook salmon, an anadromous fish run in the Nooksack River area, is listed as threatened under the ESA. Chinook salmon in the Nooksack Basin are considered part of the Puget Sound Chinook salmon Evolutionarily Significant Unit (ESU) that was listed as threatened in March 1999. Three Chinook stocks have been identified in the Nooksack River basin; the North Fork spring-run, the South Fork spring-run and the Samish/Mainstem fall-run. The two spring-runs are distinct wild stocks of native origin while the Samish/Mainstem fall-run is a non-native introduced hatchery stock from the Green River.

Spring-run Chinook generally enter the Nooksack River between late March and early August, migrate rapidly upstream to the forks and hold there until July through early August, and spawn generally from August through October (Williams et al. 1975). Fall-run Chinook enter the river beginning in mid July and migrate upriver to the spawning grounds or hatchery of origin through the end of September, and generally spawn from mid September through mid November (Williams et al. 1975). Juvenile salmonid smolts and fry Chinook migrate downstream through the project reach from mid March through mid July (Williams et al. 1975). Available feeding and predator avoidance habitat in the lower river is usually associated with slow velocities along the shoreline or around woody debris and along shallow margin habitats of cobble and gravel bars. Existing habitat suitability for both juvenile and adult Chinook salmon along this length of shoreline is higher quality than adjacent areas as the gravel deposition zone within the adjacent river reach is known to contain active Chinook redds.

3.6 Cultural Resources

Swanton (1952:430) places the stretch of the river containing the project areas within the traditional territory of the Nooksack Tribe, who belonged to the coastal division of the Salishan linguistic family. Ruby and Brown (1992:152-153) provide information that the name Nooksack was originally the name of one of the tribe's villages and is also a corruption of one of the tribe's bands. During the middle of the nineteenth century the tribe was settled in three main villages: one of the villages was located near present-day Deming, one near Goshen, and the third near Everson (Ruby and Brown 1992:153). Suttles provides information that most of the 20 or more Nooksack villages were located in the level valley below the confluence of the north and south forks of the river (1990:456).

The 1874 General Land Office (GLO) map for T. 40 N., R. 4 E., W.M., shows the "Cranberry Marsh Trail" crossing the Nooksack approximately one fourth of a mile below the Lower Twin View repair. That crossing location would correspond to the area adjacent to the upstream side of the present-day Everson Bridge across the Nooksack River. A 1904 account of the history of Lynden states that:

The road to Whatcom at that time [1884] was east past the BRADLEY place, then over a long stretch of corduroy to Old Nooksack Crossing, now washed away, below where Everson now stands. Here the intrepid traveler crossed the raging Nooksack on a ferry or at low water forged it (Cline 1904:2).

The 1874 GLO map for T. 39 N., R. 4 E., W.M., shows eight Indian homesteads extending upstream southeast of the Upper Twin View repair location, between present-day Everson and Lawrence, but no homesteads or roads within the project Area of Potential Effect (APE).

3.7 Water Quality

Warm water temperatures are a problem in the mainstem Nooksack River. Water temperatures in the Nooksack River near North Cedarville (RM 30.9) were in the “poor” category (warmer than 16 C) for 54% of the samples in 1996 and 1997 (USGS 2001). Conditions worsen downstream near Everson (RM 23.2) where 65% of the samples are warmer than 16 °C and the peak temperature was 19.0 °C. Near the mouth (RM 3.4), 60% of the samples were warmer than 16 °C in July and August of 1996 and 1997 (USGS 2001). The entire length of the mainstem Nooksack River has a severely degraded riparian zone, which contributes to water quality exceedances. Shade levels were remarkably poor with no mainstem reaches achieving more than 40% of target shade levels, and most reaches had percent canopy cover in the 0 to 20% range (Coe 2001). Other potential causes of poor water quality include the surrounding agriculture, residential, and urban land use and the increased sedimentation from upstream sources. All of these water quality problems pose serious impacts to salmonids and result in a “poor” water quality rating for the mainstem Nooksack River.

3.8 Air Quality and Noise

Air quality in the Nooksack Basin is generally good. However, urban areas experience moderately degraded air quality during certain times of the year. Motor vehicles are the largest source of air pollutants in Whatcom County, although wood-burning stoves also contribute. Particulates, sulfur dioxide, ozone, and carbon monoxide are the pollutants of concern. High concentrations of these pollutants generally occur during the dry, late summer months when minimal wind conditions persist for long periods of time or during mid-winter thermal inversions.

This rural area is typically quiet. Existing sources of noise include farm machinery, trucks, automobiles, and other internal combustion engines.

3.9 Utilities and Public Services

The levee protects 258 acres of agricultural land, residential properties, a crude oil pipeline, and associated public infrastructure, such as roads.

3.10 Land Use

Land use in the project area is primarily rural residential and agricultural. There are scattered homes and farms in the surrounding area.

3.11 Recreation

Recreational uses of the Nooksack River at the project site are seasonal and moderate. They include, but are not limited to, sightseeing, wildlife observation, camping, photography, hiking, fishing and boating. However, public access at the Twin View location is highly restricted due to the need to cross private property to reach the river.

3.12 Hazardous, Toxic, and Radioactive Waste

There are no known sites at the project locations that have any hazardous, toxic, or radioactive waste.

3.13 Aesthetics

Along the Nooksack River, the landscape elements of landform, vegetation, water, color, and related factors have been impaired by the levees and agricultural use of adjacent land. Scenery and visual attractions are limited to the river corridor over this reach of the river.

4. EFFECTS OF THE ALTERNATIVES

4.1 General

4.1.1 Proposed Alternative

There will be short-term impacts from rehabilitation of the levee. The primary impacts will be minor temporary increases in turbidity at the upstream site and a temporary increase in noise due to construction equipment. The proposed project will require work below the Ordinary High Water Mark (OHWM) at each location, to repair the damaged toe sections. Because the work will be accomplished during the established work window (June 15 – August 31), the potential disruption of salmonid movement in the area will be minimized. If present, adult and juvenile salmonids may be temporarily displaced from the project location, but will have the option to migrate along the opposite riverbank. No construction will occur on known or active spawning gravels or redds.

Due to the timing of construction and design of the levee, no long-term impacts to the environment are anticipated. Any effects to fish and wildlife will be temporary and will primarily occur during construction. Additional willow plantings added to the site may increase some fish habitat values. Overall effects, both adverse and favorable, are considered insignificant.

4.1.2 No-Action Alternative

The No-Action alternative would not create any noise; it would not disrupt salmonid movement; it would not result in willows being planted; and it would not provide the desired flood protection.

4.2 Hydrology, Soils and Topography

4.2.1 Proposed Alternative

The proposed action will have no effect on hydrology, soils and topography. The levee will be restored to its previous shape, slope, and toe configuration. The river's thalweg is currently running against the upper site of the three damaged sites, thus repair is necessary for the levee to function against the increased hydraulic forces currently placed against it.

4.2.2 No-Action Alternative

The No-Action alternative may result in increased damage to the existing levee. Further loss of armor rock and/or armored/buried toe rock may lead to the levee being compromised or failing in subsequent floods. This could result in uncontrolled interaction between the river and adjacent properties.

4.3 Vegetation

4.3.1 Proposed Alternative

There are willows and cottonwoods present on the levee face and slope adjacent to and within the Upper and Middle sections. Tree removal will be necessary to place toe rock at these locations without putting equipment into the water. The riverward slope of the levee will incorporate willow cuttings into the design. Overall project effects to vegetation will be insignificant. In addition, our replanting efforts will increase vegetation in the project area.

4.3.2 No-Action Alternative

The No-Action alternative would result in the levee being temporarily devoid of vegetation at the failure sites and would likely result in the project area being populated with Himalayan blackberry.

4.4 Fish and Wildlife

4.4.1 Proposed Alternative

Effects to fish and wildlife, if any, will be temporary and will occur primarily during construction. The addition of the willow plantings to the site may increase some fish habitat values. Overall effects, both adverse and favorable, are considered insignificant.

4.4.2 No-Action Alternative

The No-Action alternative would have no effect to fish or wildlife species. The current existing armor rock would continue to be in place, and may move or fail as a result of subsequent floods. As discussed for vegetation, above, no riparian plantings would be carried out, and no new riparian vegetation would be added to the project site.

4.5 Threatened and Endangered Species

4.5.1 Proposed Alternative

Bald Eagle

The project impacts are not a concern to nesting behavior due to construction timing. WDFW eagle experts have indicated that the young in this nest have typically fledged by the middle of July. No construction activity restrictions are identified in the ESA documentation as the nature of the construction work will not be significantly different from ongoing farm activities which are carried out in close proximity to the nest. The ESA document addressed the expected effect of the project on bald eagles and made a “**May affect, not likely to adversely affect**” determination.

Marbled murrelet

The project would not occur during marbled murrelet nesting season and would not have a detrimental effect on the species. The ESA document addressed the expected effect of the project on marbled murrelet and made a “**No effect**” determination.

Bull trout and Dolly Varden

It is unlikely that bull trout are present in this portion of the river, as the known spawning areas in the Nooksack system are well upstream. In addition, the ESA document addressed the expected effect of the project on bull trout and Dolly Varden and made a “**May affect, not likely to adversely affect**” determination.

Puget Sound Chinook salmon

The procedure to repair the levee was designed to avoid or minimize potential "take" during construction. Although spawning and rearing do occur in the project reach, the habitat at the Upper and Middle project sites is generally not suitable for Chinook rearing and functions primarily as a transportation corridor to and from saltwater. The project is scheduled during the approved in-water construction period to avoid periods of greatest Chinook vulnerability and highest expected use. The ESA document addressed the expected effect of the project on Chinook salmon and made a “**May affect, not likely to adversely affect**” determination.

4.5.2 No-Action

As there would be no change to the existing condition from No-Action, there is **No effect** anticipated to listed species from the No-Action Alternative.

4.6 Cultural Resources

4.6.1 Proposed Alternative

The proposed project has been determined to be a Federal undertaking of the type that could affect historic properties and must, therefore, comply with the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA). Section 106 requires that Federal agencies identify and assess the effects of Federally assisted undertakings on historic properties and to consult with others to find acceptable ways to resolve adverse effects.

Properties protected under Section 106 are sites, buildings, structures, or objects included on or eligible for listing on the National Register of Historic Places (NRHP). Eligible properties must

generally be at least 50 years old, possess integrity of physical characteristics, and meet at least one of four criteria for significance. Regulations implementing Section 106 (36 CFR Part 800) encourage maximum coordination with the environmental review process required by the National Environmental Policy Act (NEPA) and with other statutes. The Washington State Archaeological Sites and Resources Act (RCW 27.53) may also apply.

The Area of Potential Effects (APE) was defined as the project boundaries, including access roads and staging areas. Materials used in the repairs will come from existing quarries and borrow areas. No sites listed in the NRHP or the Washington State Office of Archaeology and Historic Preservation (OAHP) electronic Historic Property Inventory Database were found to be located within or near the project APE. The OAHP database does show that an historic bridge was once located just below the lower repair area where the old trail Cranberry Marsh trail crossing was once located. A professional cultural resources reconnaissance survey of the APE was completed on 27 January 2005 with negative results. Archaeological monitoring was performed on 8 June 2005 during a Corps wetland delineation using shovel probes that were placed along the access roads, staging areas, and repair sites with negative results. The cultural resources investigation did not produce any evidence of Native American prehistoric or historic-period activity within the APE.

As required under Section 106 of the NHPA, the Corps is coordinating with the Washington State Historic Preservation Officer (SHPO) and the Nooksack Tribe and Lummi Nation. The Corps has determined that no historic properties will be affected by the proposed project, but of this date has not received SHPO concurrence with its determination. The Final EA will document the results of this coordination process. In the event of an inadvertent discovery of cultural resources, construction will cease in the area of the find and the protocol detailed in the Corps' Construction Management Plan will be followed. The Construction Management Plan will contain wording to the effect that activities will cease in that area, a Corps archaeologist will initially identify the findings and if appropriate, Dr. Robert Whitlam of the Washington State OAHP, the Nooksack Tribe, and the Lummi Nation will be contacted to arrange for evaluation and treatment of the material.

4.6.2 No-Action Alternative

In many cases levees protect cultural resources located adjacent and inland of them from river erosion. There are no known cultural resources within or near the project that could be affected should the project not be constructed and the levee fails during the upcoming flood season.

4.7 Water Quality

4.7.1 Proposed Alternative

Water quality will not be significantly impacted by construction activities. Equipment will not enter the water and would remain on dry ground at all times. During construction, best management practices for equipment operation and storage and use of hazardous materials would be employed. Therefore, no leakage or spills of hazardous materials are expected to occur.

The Nooksack is a high flow, high energy river and carries a turbidity load through out the year. Any increases in turbidity will be minor and localized to the project site.

According to the Code of Federal Regulations, Title 33, Section 323.4 (a) (2) levee repair is an activity not prohibited by or otherwise subject to regulation under Section 404 of the Clean Water Act. Therefore, a section 401 Water Quality Certification is not required.

4.7.2 No-Action Alternative

It is likely that if the project is not constructed the levee will fail during the upcoming flood season, resulting in an increase in turbidity in the Nooksack River due to levee breaches or bank erosion.

4.8 Air Quality and Noise

4.8.1 Proposed Alternative

Air quality would meet the standards as set forth by the Washington Department of Ecology and would not be permanently affected by the construction of the project. Noise would be intermittent at the site and varied depending on the frequency of trucks arriving with the material and construction of the identified features. Noise disruption factors were considered for their effect on threatened and endangered species in the ESA document.

During construction, there would be temporary and localized reduction in air quality due to emissions from heavy machinery (e.g. dump trucks, shovel excavators) operating during fill placement, and grading. These emissions would not exceed EPA's *de minimis* threshold levels (100 tons/year for carbon monoxide and 50 tons/year for ozone) or affect the implementation of Washington's Clean Air Act implementation plan. Therefore, impacts would not be significant.

Ambient noise levels would increase slightly while construction equipment was operating. However, these effects would be temporary and localized, and occur only during daylight working hours. As a result, impacts are considered insignificant.

4.8.2 No-Action Alternative

No effects anticipated as a result of the No-Action alternative.

4.9 Utilities and Public Services

4.9.1 Proposed Alternative

Failure to repair the levee could have a serious impact on local commercial and private citizens through increased flood damage to homes, agricultural operations, roads, a crude oil pipeline, and other commercial and residential infrastructure. Construction vehicles associated with the project would create minimal, temporary disruptions to public services and transportation due to increased truck traffic merging, turning, and traveling together with local traffic. Such a disruption would be temporary and highly localized, and therefore impacts are considered insignificant.

4.9.2 No-Action Alternative

The No-Action alternative would not result in an increase in traffic on the local roads, and it would not result in providing the desired flood protection to public infrastructure.

4.10 Land Use

4.10.1 Proposed Alternative

The proposed project will not cause any unique effects or impacts to land use.

4.10.2 No-Action Alternative

No effects are anticipated as a result of the No-Action alternative.

4.11 Recreation

4.11.1 Proposed Alternative

Effects to recreation values are insignificant because the site has been in a degraded condition compared with other nearby locations, and is thus not selected for many recreational activities. Recreational resource and value uses are not changed.

4.11.2 No-Action Alternative

No effects are anticipated as a result of the No-Action alternative.

4.12 Hazardous, Toxic, and Radioactive Waste

4.12.1 Proposed Alternative

There are no known sites at the project locations that have any hazardous, toxic, or radioactive waste; therefore, the Corps does not anticipate any effect.

4.12.2 No-Action Alternative

No effects are anticipated as a result of the No-Action alternative.

4.13 Aesthetics

4.13.1 Proposed Alternative

Restoration of the constructed features of the project will not significantly affect the aesthetics of the site or the river.

4.13.2 No-Action Proposed Alternative Aesthetics

No effects are anticipated as a result of the No-Action alternative.

5. UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects associated with this project include:

- (1) minor temporary increases in river turbidity,
- (2) temporary dislocation of migrating salmon to other parts of the river channel
- (3) a minor, temporary and localized increase in noise, which may disrupt wildlife in the area,
- (4) a minor, temporary and localized disruption of local traffic by construction vehicles

6. COORDINATION

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

- Washington Department of Ecology (Ecology)
- NOAA-Fisheries (formerly the National Marine Fisheries Service)
- U.S. Fish and Wildlife Service (USFWS)
- Washington Department of Fish and Wildlife (WDFW)
- The Nooksack Tribe
- The Lummi Tribe
- Washington State Office of Archaeology and Historic Preservation
- Whatcom County

Representatives from NOAA-Fisheries, Whatcom County, the Washington Department of Fish and Wildlife, The Nooksack Tribe and the Corps inspected this site as part of a basin-wide levee repair program inspection on March 9, 2005. NOAA-Fisheries and the Nooksack Tribe provided written comments during the preparation of the Project Information Report. These comments have been addressed in the design and in correspondence to the extent practicable under the PL 84-99 authority.

7. CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this evaluation. Future federal actions would require separate NEPA coordination at the time of their development.

There are no significant cumulative effects that can be identified from implementation of this project. Because of frequent flooding in the area, the adjacent property is expected to remain agricultural and no development is anticipated in the vicinity of the project. There are no known plans to raise the levees to provide an increased level of flood protection. The levees would continue to be maintained at their current level.

The Corps is also proposing four other levee rehabilitation projects on the Nooksack River which are being addressed through separate Environmental Analysis documents. The total length of shoreline that is being returned to the pre-flood condition is approximately 1.0 mile in a 33.0 mile stretch of the Nooksack River. Class III riprap (or larger) will be added to the banks of the river to replace the riprap that was eroded during the flood event. Water quality will not be permanently affected by the proposed repairs; short term temporary impacts to water quality may occur during construction. Riparian vegetation will need to be removed to repair the levees; however, all projects include the planting of native vegetation including willows, resulting in a net increase in riparian vegetation to the basin. Cumulative effects to fish and wildlife, if any,

will be temporary and occur primarily during construction. The addition of the willow plantings, and the decrease in toe width by 5 feet may increase some fish habitat values.

Cumulative impacts from local, short-term disturbances caused by the construction project (noise, emissions, traffic disruptions, etc.) will be minor and insignificant.

8. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The irreversible and irretrievable commitment of resources is the use of materials, resources, or land during implementation of an alternative that makes these resources unavailable for other uses, given known technology and reasonable economics.

Industrial resources required during implementation of the selected alternative included fossil fuels, construction-related materials, as well as labor and capital.

9. ENVIRONMENTAL COMPLIANCE

Table 9.1 summarizes the proposed actions compliance and/or consistency with applicable environmental laws, regulations and Executive Orders.

Table 9.1. Summary of Consistency of Project With Applicable Laws, Regulations and Policies¹

LAWS AND REGULATIONS RELATING TO THE PROPOSED ALTERNATIVES	REQUIREMENT SUMMARIZED	CONSISTENCY OF PREFERRED ALTERNATIVE
National Environmental Policy Act (NEPA) 42 USC 4321 et seq.	Requires all federal agencies to consider the environmental effects of their actions and to seek to minimize negative impacts.	Consistent; Draft document will receive agency and public comment and response.
Clean Air Act 42 USC 7401, et seq.	Requires federal agencies to consult with state air pollution control agencies to assure that construction plans conform with local air quality standards	Consistent
Clean Water Act 33 USC 1251 et seq. (CWA)	Requires federal agencies to protect waters of the United States. Disallows the placement of dredged or fill material into waters (and excavation) unless it can be demonstrated there are no reasonable alternatives. Requires federal agencies to comply with state water quality standards.	Covered by 33 CFR 323.4 (a) 2
Rivers and Harbors Act 33 USC 403	Prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waters of the U.S. in the absence of Congressional consent and approval of the plans by the Chief of Engineers and the Secretary of the Army.	Not in Section 10 jurisdiction
Fish and Wildlife Coordination Act 16 USC 661 et seq.	Requires federal agencies to consult with the US Fish & Wildlife Service on any activity that could affect fish or wildlife.	Not Applicable
Endangered Species Act 16 USC 1531-1544	Requires federal agencies to protect listed species and consult with US Fish & Wildlife or NMFS regarding the proposed action.	Consistent; Consultation currently ongoing. ESA package sent to Services 12 July 2005.
National Historic Preservation Act 16 USC 470 et seq.	Requires federal agencies to identify and protect historic properties.	Coordination underway; SHPO report complete and sent to SHPO for concurrence.
Wild and Scenic Rivers Act 16 USC 1271-1287	Requires that "In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas."	Consistent – Not a designated or study river.
Executive Order 11988,	Requires federal agencies to consider how	Consistent – action

Floodplain Management	their activities may encourage future development in floodplains.	maintains pre-existing condition.
Migratory Bird Treaty Act and Migratory Bird Conservation Act <i>16 USC 701-715</i>	Requires not harming or harassing migratory birds.	Consistent
Watershed Protection and Flood Prevention Act, as Amended <i>16 USC 1001 et seq.</i>	Authorizes Federal assistance for implementing projects in watershed areas and use of land and water and flood prevention.	Consistent
Farmland Protection Policy Act <i>7 USC 4201</i>	Requires identification of proposed actions that would affect any lands classified as prime and unique farmlands.	Consistent
Executive Order 11990, Protection of Wetlands	Requires federal agencies to protect wetland habitats.	Consistent – no wetlands within project footprint.
Coastal Zone Management Act (CZMA) <i>16 USC 1451-1465</i>	Requires federal agencies to comply with state and local plans to protect and enhance coastal zones and shorelines.	Consistent to the maximum extent practicable; Whatcom County Shoreline Exemption issued 30 June 2005
Washington Hydraulic Code	Requires proponents of developments, etc. to protect state waters, wetlands and fish life.	Not Applicable to Federal Projects
Whatcom County Flood Hazard Reduction Plan	Requires implementing projects that would result in innovative, comprehensive and permanent solutions to flooding problems using environmentally sensitive techniques.	Not Applicable

10. CONCLUSION

Based on the above analysis, the levee rehabilitation project is not a major Federal action significantly affecting the quality of the human environment, and therefore does not require preparation of an environmental impact statement.

11. REFERENCES

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Corps of Engineers. November 13, 1986. *Final Rule for Regulatory Programs of the Corps of Engineers*. Federal Register 51(219): 41206-41254.

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13. APPENDICES

Appendix A

Requests for Corps Assistance

WHATCOM COUNTY
PUBLIC WORKS DEPARTMENT

JEFFREY M. MONSEN, P.E.
Director



River and Flood Division

322 N. Commercial Street, Suite 120
Bellingham, WA 98225
Phone: (360) 676-6876, (360) 398-1310
Fax: (360) 738-2468

December 15, 2004

Doug Weber
US Army Corps of Engineers
P.O. Box C-3755
4735 E. Marginal Way S.
Seattle, WA 98124-2255

Re: Levee Repair Work in Whatcom County

Dear Mr. Weber:

During the recent flooding in Whatcom County on November 24th, 2004, multiple levees were damaged along the Nooksack River and its tributaries. They include the following:

- The "Williams Levee" - an approximately 100-foot section of this levee located on the left bank of the Nooksack River near Everson was damaged.
- The "Sande-Williams Levee" - an approximately 200-foot section of this levee located on the right bank of the Nooksack River near Deming was damaged.
- The "Right Bank Bertrand Creek Levee" - an approximately 100-foot section of this levee located on the right bank of Bertrand Creek near Ferndale failed.
- The "Hannegan Levee" - an approximately 500-foot section of this levee located on the left bank of the Nooksack River near Lynden was damaged.
- The "Bylsma Levee" - an approximately 500-foot section of this levee located on the left bank of the Nooksack River near Lynden was damaged.
- The "Vanderpol Levee" - the upstream segment of this levee located on the left bank of the Nooksack River near Lynden was damaged.
- The "Twin-View Levee" - a portion of this levee located on the left bank of the Nooksack River near Everson was damaged.

We are officially requesting assistance under the PL84-99 Program in implementing repair projects at these locations. The County will act as the local sponsor and provide all necessary lands, rights-of-way, and easements for these projects.

If you have any questions or need any additional information please don't hesitate to contact me at (360) 676-6876.

Sincerely,

A handwritten signature in black ink, appearing to read "James E. Lee".

James E. Lee, P.E.
River & Flood Engineer

Appendix B

ESA Consultation Document

NOOKSACK RIVER TWIN VIEW LEVEE
Rehabilitation of Flood Control Works
Whatcom County, Washington
ESA Consultation Document
July - August 2005

1.0 Introduction

This document evaluates the environmental effects of the proposed repair and reconstruction of Twin View Levee located on the Nooksack River near Everson, Washington. The Twin View levee is located along the left bank of the Nooksack River near the town of Everson, in Whatcom County, Washington at RM 23.80 to RM 25.10. The levee protects 280 acres of agricultural land, residential properties, and associated public infrastructure, including roads and a crude oil pipeline. The Corps is proposing the following project under the authority of Public Law 84-99 (33 USCA 701n). There are three damaged locations along the levee. The lower most location consists of 400 linear feet (LF) of massive failure of the levee and toe. The middle section consists of 200 LF of failed toe and riverward slopes. The uppermost section consists of 600 feet of failed riverward slope and toe. There is also 1200 LF landward slope scour damage from overtopping. The levee was damaged during the 24-26 November 2004 flood event. The Corps proposes to permanently repair the levee. The recommended plan consists of rebuilding the levee to the pre-flood condition. This includes replacing the 5 ft deep by 10 ft wide toe and the three-foot thick blanket of class IV riprap on the riverward slope. The toe will be constructed as a weighted toe in the middle and upstream damage areas and as a buried toe in the downstream damage area. Up to 20 cottonwood trees may be removed to allow placement of toe rock from the bank. The repairs for the downstream, middle, and upstream sites will be 400, 200, and 600 feet, respectively. A total of 1200 feet of scour damage on the back slope will also be repaired. The landside damage is located in the same locations as the riverward slope and toe damage.

The project is located on the left bank of the Nooksack River between RM 23.80 to RM 25.10, near Everson, Washington, within Whatcom County, Washington at Range 4 East, Township 40 North, Section 31.

The potential impacts to species listed under the Endangered Species Act (ESA) and candidate species as a result of the Nooksack River Twin View Levee Repair project are addressed in this biological assessment. There are three species listed by the U.S. Fish and Wildlife Service (USFWS) under the ESA as threatened; bull trout (*Salvelinus confluentus*), bald eagle (*Haliaeetus leucocephalus*), and marbled murrelet (*Brachyramphus marmoratus*). The National Marine Fisheries Service (NMFS) identified one species under ESA listed as threatened; Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*) as utilizing the proposed project location.

2.0 Effects of the Proposed Action and Effects Determinations

2.1 Chinook salmon

A review of the 2002 update to the Salmonid Stock Inventory (WDFW, 2002; at <http://wdfw.wa.gov/fish/sasi/>) documents Chinook salmon spawning habitat upstream of the project site in the South Fork Nooksack River, North Fork Nooksack River, and at the intersection of the Middle Fork and Mainstem Nooksack River. Informal communication (Sibley & Tonnes, 2005) from NOAA Fisheries indicate the presence of spawning Chinook on the opposite river bank as the proposed action, however the dynamic nature of the river would likely prevent any effects from construction to reach the opposite bank in this suspected spawning area. The proposed project **may affect, but is not likely to adversely affect** Chinook salmon and is not likely to adversely modify proposed critical habitat for Chinook; but should critical habitat be designated, the project is not likely to adversely affect designated critical habitat for this species. The procedure to repair the levee was designed to avoid or minimize potential "take" during construction by constructing during the in-water construction period (June 15-August 15) to avoid periods of greatest Chinook vulnerability and highest expected use. In addition, the incorporation of willow plantings, decreases in toe width, conducting all work for land (at a minimum above Ordinary High Water) and replacement of gravels over the toe at the lower site will minimize potential effects to Chinook salmon.

2.2 Bull Trout

Bull trout in the Nooksack River system were identified by the 1998 Washington State Salmonid Stock Inventory as spawning well upstream of the project location. The geographically closest stock is the Lower Nooksack stock, which occurs in the Middle Fork of the river upstream of its intersection with the river mainstem. No bull trout stocks are known to utilize the project area, except for migration along the river corridor. The proposed project **may affect, but is not likely to adversely affect** bull trout and is not not likely to adversely modify proposed critical habitat for bull trout; should critical habitat be designated, the project is not likely to adversely affect designated critical habitat Best management practices to reduce or eliminate the possibility of turbidity during construction will be implemented. This determination is based upon the low likelihood that bull trout would be present in the action area during construction activities and the potential positive benefits attributed to the added salmonid habitat features such as willow plantings.

2.3 Bald Eagles

The project area is approximately 1/2 mile away from the closest nest and the nest is visible from the project area. The project impacts are not a concern to nesting behavior due to construction timing. In addition, the nest is located within an active farm, and construction activities are not believed to differ from normal agricultural practices to which the eagles are exposed. WDFW eagle experts have indicated that the young in this nest have typically fledged by the middle of July therefore, the Corps will construct the project between July 15-August 15. Since construction activities will not occur during the nesting season, it will not affect nesting habitat or behaviors. Prey (salmonid) production will likely remain the same, and only minor disruptions to foraging activities are expected during construction. The proposed project **May affect but is not likely to adversely affect** bald eagle.

2.4 Marbled Murrelet

Marbled murrelets do not nest or feed in the project area. The project site lacks old-growth forest and does not contain suitable marbled murrelet habitat. The project would not occur during marbled murrelet nesting season and would not have a detrimental effect on the species. The proposed project has **No Affect** on the marbled murrelet.

2.5 Essential Fish Habitat

The project area has been designated Essential Fish Habitat (EFH) for various life stages of four species of Pacific salmon. Freshwater EFH for Pacific salmon consists of four major components: (1) spawning and incubation areas; (2) juvenile rearing habitat; (3) juvenile migration corridors; (4) adult migration corridors and adult holding habitat. Important features of essential habitat for spawning, rearing and migration include: (1) substrate composition; (2) water quality, particularly with respect to dissolved oxygen, nutrients and temperature; (3) water quantity, depth and velocity; (4) channel gradient and stability; (5) food; (6) cover and habitat complexity; (7) space; (8) fish access and passage; and (9) flood plain habitat and connectivity.

The Corps has determined that the proposed action will not reduce the quality or quantity of EFH for Pacific salmon. No adverse effects to EFH are expected to result from the proposed action, as there will no new or additional encroachment into the river channel; no existing riparian vegetation will be removed, and willow whips will be incorporated into the repair design to restore riparian cover.

3.0 Cumulative Effects

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this evaluation. Future federal actions would require separate Section 7 consultation at the time of their development.

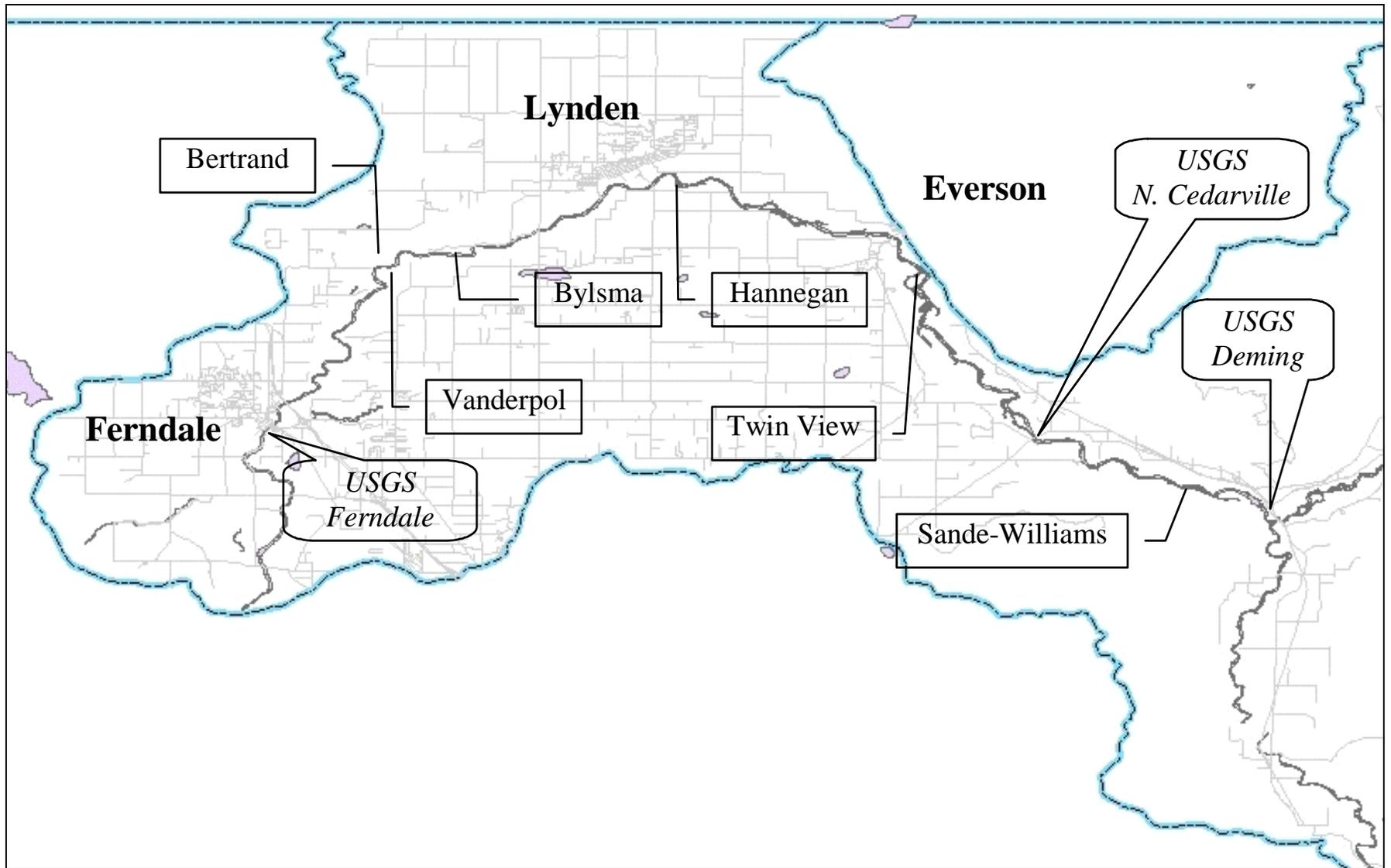
There are no significant cumulative effects that can be identified from implementation of this project. Because of frequent flooding in the area, the adjacent property is expected to remain agricultural and no development is anticipated in the vicinity of the project. There are no known plans to raise the levees to provide an increased level of flood protection. The levees would continue to be maintained at their current level.

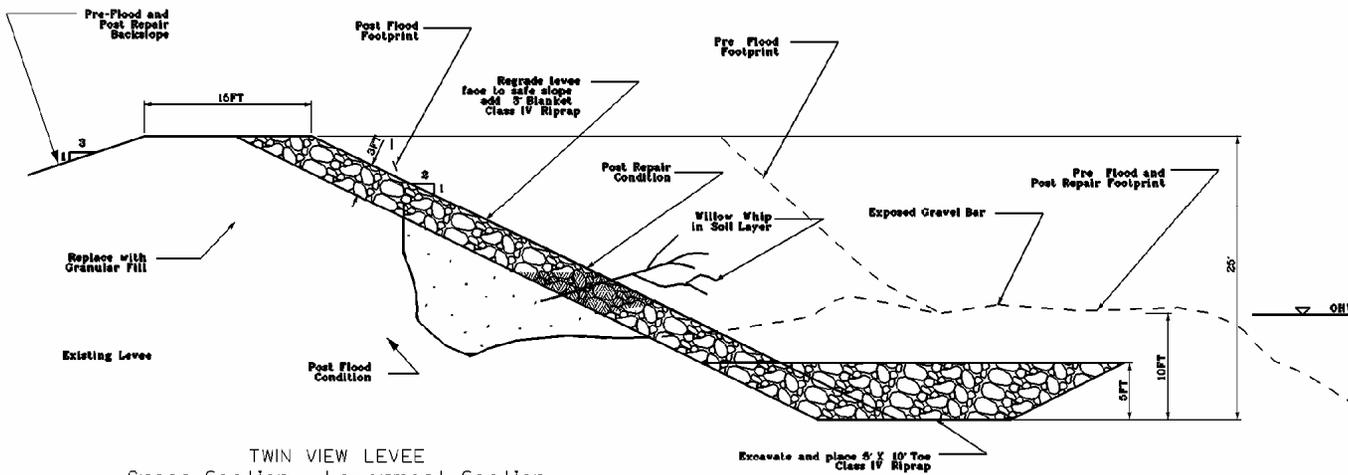
The Corps is also proposing four other levee rehabilitation projects on the Nooksack River which are being addressed through separate Section 7 consultations. The total length of shoreline that is being returned to the pre-flood condition is approximately 1.0 mile in a 33.0 mile stretch of the Nooksack River. Class III riprap (or larger) will be added to the banks of the river to replace the riprap that was eroded during the flood event. Water quality will not be permanently affected by the proposed repairs; short term temporary impacts to water quality may occur during construction. Riparian vegetation will need to be removed to repair the levees; however, all projects include the planting of native vegetation including willows, resulting in a net increase in riparian vegetation to the basin. Cumulative effects to fish and wildlife, if any, will be temporary and occur primarily during construction. The addition of the willow plantings, and the decrease in toe width by 5 feet may increase some fish habitat values.

Cumulative impacts from local, short-term disturbances caused by the construction project (noise, emissions, traffic disruptions, etc.) will be minor and insignificant.

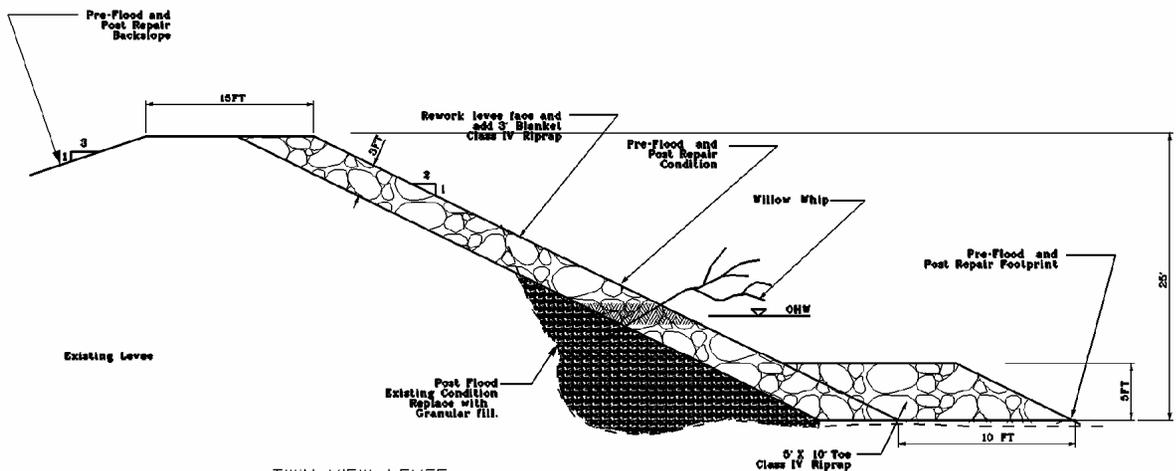
Appendix C

Proposed Project Drawing





TWIN VIEW LEVEE
Cross Section - Lowermost Section



TWIN VIEW LEVEE
Cross Section - Middle Section

Project: Twin View Levee	Dwn: Desjardin	Date: Feb 05
Subject: Typical Cross Section	Chkd: Kaiser	Sheet: 1 of 2

Appendix E

Draft FONSI

REHABILITATION OF FLOOD CONTROL WORKS TWIN VIEW LEVEE
WHATCOM COUNTY, WASHINGTON

DRAFT FINDING OF NO SIGNIFICANT IMPACT

1. Background. The Twin View levee is located along the left bank of the Nooksack River near the town of Everson, in Whatcom County, Washington at RM 23.80 to RM 25.10. The levee is approximately 6,800 feet in length. The levee is an earthen material levee with armor rock on the riverward slope and toe. There are no special features, drainage structures, or culverts along the levee segment. The downstream end of the levee ties to high ground at the Everson Street Bridge. The levee protects 258 acres of agricultural land, residential properties, a crude oil pipeline, and associated public infrastructure, such as roads (more detail in Section 12). There are three damaged locations along the levee. The lower most location consists of 400 linear feet (LF) of massive failure of the levee and toe. The middle section consists of 200 LF of failed toe and riverward slopes. The uppermost section consists of 600 feet of failed riverward slope and toe. There is also 1200 LF landward slope scour damage from overtopping. The levee was damaged during the 24-26 November 2004 flood event.

2. Purpose of and Need for Action. The purpose of this project is to provide protection to the community and infrastructure from flood damage. This section of the levee sustained significant damage by erosion during a flood event in November 2004 and is in need of permanent repair. There is a high potential that during the upcoming flood season, the river would overflow the levee again, posing a major threat to community, if no action is taken to contain the floodwaters.

3. Action. The recommended plan consists of rebuilding the levee to the pre-flood condition. This includes replacing the 5 ft deep by 10 ft wide toe and the three-foot thick blanket of class IV riprap on the riverward slope. The toe will be constructed as a weighted toe in the middle and upstream damage areas and as a buried toe in the downstream damage area. The repairs for the downstream, middle, and upstream sites will be 400, 200, and 600 feet, respectively. A total of 1200 feet of scour damage on the back slope will also be repaired. The landside damage is located in the same locations as the riverward slope and toe damage.

4. Summary of Impacts. The primary impacts of this action will be the temporary and localized increases in turbidity, noise in the construction area, and the potential for temporary dislocation of salmonids to other areas of the channel. To minimize the project impacts to vegetation, the project area will be replanted with native willow plantings.

The attached draft environmental assessment provides an evaluation of the proposed levee rehabilitation project and its effects on the existing environment.

No significant adverse impacts to fish and wildlife or their habitat, air quality, noise, aesthetics, historical resources, cultural resources, or the social or economic environment are anticipated as a result of the project.

5. Finding. For the reasons described above, I have determined that the levee rehabilitation project will not result in significant adverse environmental impacts. The project will not constitute a major Federal action with significant impacts on the environment and, therefore, does not require an environmental impact statement.

Date

Debra M. Lewis
Colonel, Corps of Engineers
District Engineer

HOFFMAN/PM-PL-ER

ZIMINSKE/PM-PL-ER

KOMOROSKE/OD-EM

THOMASON/PM-PL

NELSON/OC

BEVENS/PM/

LEIGHOW/DDE

LEWIS/DE/s/

PM-PL-ER FILE

