Draft Environmental Assessment
Soldier's Home Levee Setback
Ecosystem Restoration Project
Orting, Washington

US Army Corps
of Engineers ®
Seattle District

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Responsible Agency: The responsible agency for setback of the Puyallup River Levee in Orting Washington is the U.S. Army Corps of Engineers, Seattle District.

Abstract:

The U.S. Army Corps of Engineers, Seattle District (the Corps), along with Pierce County as the non-federal sponsor, are proposing to 6376 linear feet of existing levee on the Puyallup River in Orting, WA. The setback will reconnect 67 acres of riparian-forested wetlands and floodplain to the river. This reconnection will substantially increase off channel rearing, refuge and forage habitat for Chinook, coho and pink salmon in a highly channelized river. Construction actions will consist of the removal of the existing levee on the left river bank, concurrent construction of a new levee away from the existing levee footprint, breaching of the existing levee in two places to facilitate the river reconnection, and the addition of riprap to both left and right bank levees above, adjacent to and below the project site to strengthen the remaining levee segments against altered flow patterns.

The project does not constitute a major Federal action and will not significantly affect the quality of the human or natural environment. The Corps will use best management practices to minimize potential adverse effects to aquatic and terrestrial resources. The project is believed to not significantly affect the quality of the human or natural environment.

This document is also available online at:
http://www.nws.usace.army.mil/ers/doc_table.cfm

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1.0 INTRODUCTION

A. Purpose and Need

The Soldier's Home project seeks to restore the maximum possible area of Puyallup River to historic pre-levee conditions for fish and wildlife. The historic loss of floodplains, due to the levee construction and channelization of the Puyallup River, dramatically reduced the productivity of the river. The proposed project will restore up to 67 acres of the floodplain habitat to a more natural condition, restoring many of the floodplain functions to the Puyallup River watershed. The dynamic nature of floodplains is critical for the maintenance of efficient energy processing, biodiversity, fish and wildlife production and migration pathways, transport of sediments and nutrients to support rich floodplain resources and conveyance, storage and moderation of floods. Fish capitalize on highly productive floodplain environments for feeding, spawning, nurseries, and refuge from adverse river conditions. (Welcomme, 1985).

B. Location

The proposed project is located adjacent to the Puyallup River, in the city of Orting, Pierce County, Washington. The project is located on the left bank at river mile (RM) 22 of the Puyallup River. This location spans parts of Township 19N, Range 5E, Section 5, and Township 18 N, Range 5E Section 5. Please note that left and right bank, or river left and river left, refers to the bank as viewed looking downstream. Thus, for the Puyallup River, the left bank is generally on the west side of the river, which flows generally south to north and/or northwest.

C. Authorization

The Soldier's Home levee setback project is being performed under the authority of the Water Resources Development Act (WRDA) of 1996, § 206 (P.L.104-303). This is a continuing authorities project, in which the Corp and the non-federal sponsor (Pierce County) share the cost of aquatic ecosystem restoration, with the federal/non-federal cost split at 65%/35%. The project must improve environmental quality, be in the public interest, and be cost effective.

D. NEPA Requirements

As the federal Action Agency for this project, the Corps is required by the National Environmental Policy Act (NEPA) (40 CFR § 1500 et. seq.) to assess the effects to the human environment of proposed agency actions, determine the significance of those effects, and coordinate with other agencies, Tribes, and the interested public in that assessment. The Corps has implemented NEPA through its ER 200-2-2 regulation. This EA has been prepared according to that regulation, and the guidance presented in the Planning Guidance Notebook, ER 1105-2-100. Pierce County has adopted this EA to

comply with their SEPA requirements for the Washington State Environmental Policy Act.

2.0 ALTERNATIVES

A No-Action alternative was analyzed. In this scenario, the existing levee would not be removed or replaced in any way. The floodplain would remain cut off from river processes. There would continue to be a severe lack of habitat for juvenile fish rearing and refuge, as well as for adult foraging and spawning. The forced channelization of the river, between two levees, would continue. The existing levees would continue to be prone to failure, due to different construction standards, and maintenance histories. The site would remain a forested wetland, disconnected from the river.

The project team conducted an initial analysis of three categories of alternatives: tide or flap gates within the existing levee; complete setback and removal of the existing levee; setback of portions of the existing levee and tie into a relict levee system and natural terrace within the project. The tide gate alternative was rejected from further review due to operation and maintenance costs post-construction, fish passage design issues, and lack of sponsor support. The partial setback of the existing levee with tie in to the relict levee and natural terrace alternative was rejected for further analysis due to this alternativenot completely meeting project goals, questions about feasibility of construction, and hydraulic design constraints.

Setback of the entire existing levee was developed into two alternatives based on real estate considerations and attempts to minimize to the greatest extent possible the amount of existing wetland filled by the construction. The alignment chosen as the preferred alternative accomplishes the project goal of opening the maximum amount of flood plain area to the river, minimizes the need to fill existing wetland, and is within existing real estate provided for the project by the sponsor. The proposed project limits coincide with the extent of the 100-year floodplain. The sponsor will additionally obtain two construction access easements to facilitate construction from both ends of the project through property currently owned by the Washington State Department of Veterans Affairs, and managed by the Washington Department of Natural Resources.

3.0 PROJECT DESCRIPTION

The project will consist of a setback levee of 6376 feet in length, with a maximum toe width of 50 feet. The top will be 12 feet wide, and the river face will have a buried toe of 9 feet width. Total width is expected to vary based on the height of levee. The back slope will be 5 to 1, and the fore slope will be 2 to 1. The levee will consist of 55,107 Cubic Yards (CY) of gravel, 3506 CY of ¾ inch minus crushed rock, and will be faced with 5929 CY of 30 inch minus riprap. The alignment of the levee is shown in Figure 1. The footprint ties in to the existing levee at the upstream boundary of Pierce County's property, and the proceeds out to an alignment along the access road adjacent to the WDNR Tree Farm property. The alignment follows property boundaries and roads until it tapers back into the existing levee at 5500 feet from the upstream end. The alignment

maximizes the floodplain area reconnected, while minimizing the impact to existing wetlands.

Construction will begin in 2004 with the setup of staging and construction management areas. Access will be obtained through Pierce County property, and through a construction access easement from the Washington State Soldiers Home.

Table 1 describes the quantities of the features to be built within the project. Construction of the levee will begin from the downstream end, and work upstream. Concurrently, the existing levee will be excavated to just above the Ordinary High Water mark. Materials from the existing levee will be salvaged and included in the new setback levee. Construction will proceed in this parallel fashion, with additional materials brought to the site from a Pierce County gravel pit located approximately 1 mile away. Construction is expected to be completed no later then 2005. Riprap will be added both upstream (350 ft) and downstream of the project to just below the Calastoga Road Bridge. Once the levee is complete, the existing outside levee will be breached in a downstream – upstream fashion, creating islands with existing vegetation. All armor or face rock will be removed at the request of the Washington Department of fish and Wildlife (WDFW). Existing levee vegetation larger then 8 inches DBH will be preserved, to comply with the policies of the Puyallup Tribe Vegetation Settlement agreement. Work will also occur on the right bank to strengthen the existing levee and replace lost riprap to offset any unanticipated changes in the hydraulic system in this part of the river. Thirty-six inch minus rock will be placed as need for approximately 6472 linear feet.

Table 1. Summary of physical construction features of the Old Soldier's Home Levee Setback project, Orting, WA.

Feature Name	Length (ft)	Width (ft)	Riprap Qty (CY)	Comments
Set-back Levee	6376	50	5929	950ft max setback from river
Right Bank levee upgrade	6472	Varies	3054	Sized based on need to reach 3ft total thickness based on existing riprap
RT bank below Bridge	145	Varies	84	
LFT Bank Below Bridge	150	50	89	
DS LFT Bank Existing levee	1090	50	1327	Flap gate for existing opening
US Left Bank	350	50	168	Protects new

Existing Levee				toe and tie-in point
Above Project LFT bank existing Levee	150	50	86	2900 ft above US end of new levee

4.0 EXISTING CONDITIONS

A. Introduction/General Setting/Climate

The Puyallup River Basin lies in the Puget Sound Lowland and Cascade Range of Western Washington State. In addition to the Puyallup River, the White River and the Carbon River also feed into the system. The tributary area to salt water at the mouth of the Puyallup River at Commencement Bay is now approximately 972 square miles, of which 494 square miles is tributary via the White River.

Elevations within the basin range from 14,411 feet at the summit of Mt. Rainier, down to as much as eleven ft. below mean sea level at extreme low tide. Since it is only 43 nautical miles from the summit of Mt. Rainier to the river's mouth, the slopes of the rivers draining the basin are, in general, quite steep. The rivers typically exhibit a classic concave profile with very steep slopes in their upper reaches and comparatively gentle slopes in the lower reaches. In addition, since much of the basin consists of two eroded plateaus, the average slope of the land surface is also quite steep with the exception of the floodplains of the rivers, which are nearly level.

The mountain slopes above 1,500 ft. were deeply dissected by alpine glaciers during the recent Ice Age, while lowlands below that elevation were covered and re-worked by a continental ice sheet one to two thousand feet thick. The most recent retreat of the continental ice sheet occurred suddenly, leaving a deep outwash-current channel, while the alpine glaciers have not yet finished retreating. Thus the landforms and vegetative cover of the entire basin are comparatively new from a geological time frame.

The continental glacier carved wide troughs in the lower plateau. The bottoms of these interconnected troughs are typically hundreds of feet below sea level. As the glaciers melted, the troughs filled with seawater. As a result, in many places the lower plateau consisted of islands isolated by steep-walled waterways several miles wide. However, the rivers entering from the Cascades have filled in many portions of these channels along the east side of today's Puget Sound including the valley from Tacoma to Sumner and north to Seattle. A major portion of this infill came with the Osceola Mudflow, but river flow itself has also carried much material down to these valleys.

The Puyallup River basin has a modified marine climate with a dry season during the summer and mild, wet winters. This is a result of three major geographic factors: the ocean to the west, the mountains to the northwest and the mountain range to the east. Because of the moderating influence of the ocean, the area generally enjoys cooler

summers and warmer winters than other North American areas in these latitudes. The mountains also have an extensive influence on the weather by reducing the intensity of the oceanic storms, inhibiting the movement of cold arctic air into the region, and increasing rainfall because of their orographic effect. Measured annual average precipitation within the basin ranges from 40 inches at Puyallup to 77 inches at Electron; precipitation as derived from snow pack records in the mountain ranges up to 150 inches. Over eighty percent of the precipitation occurs in the six fall and winter months. The average seasonal snowfall in this area is 10 inches, 47 inches on the slopes.

B. Elements of the Natural Environment

1. Geology/Soils

Soils in the basin are derived from glacial deposits except in the mountains where bedrock is exposed and some valley soils are derived directly from the rock. Elsewhere, successive stages of glaciation have re-worked the sub-soils to depths of several thousand feet. Thus the parent material of the soil is usually a glacial or riverine deposit of some sort. Four basic soils types are found in the lowland area: glacial till overlaid with weathered till; mudflow deposits; outwash gravely plains, and river-bottom loamy sands (USDA, SCS, 1979). The first two are highly impermeable, but the third and fourth are extraordinarily permeable to runoff.

The Puyallup River occupies a broad floodplain bounded by steep bluffs hundreds of feet high in the lower reaches. The river is not large enough to have carved the broad, steep-walled valley it occupies. The valley was carved by the continental glaciers, and then partially refilled by the mudflows from the episodic disintegration of the mountain glaciers.

Soils in the project area were predominantly formed from outwash, and mudflows. Soils found in the project area include Aquic Xerofluents level, Orting fine loamy sand, riverwash, and Orting loam. The Orting soils are on a plain and have slopes of 0 to 3 percent (USDA, SCS, 1979).

2. Surface Water

Over the past one hundred twenty years, steadily increasing development has altered this ground cover and changed the basin's response to rainfall. Increased urbanization in the lower reaches of the basin and extensive logging of the upper basin have decreased the amount of infiltration occurring and the travel times for storm water runoff from these disturbed lands. This corroborates similar will-established trends worldwide of runoff peaks increasing with a reduction of forest cover, especially for small drainage basins.

Peak runoff events in the area are typically the result of a warm Pacific storm following a cold storm in the late autumn. In the mountains, the heavy rain and warm temperatures associated with the second storm melts the snow accumulated from the first one. Frequently the ground has either been saturated from antecedent snowmelt or frozen solid

by an antecedent cold snap. When this occurs runoff rates increase out of proportion to rainfall rates, and large areas of the flat valley floors become inundated, except where flood protection works have been provided. In years when this combination of storms does not occur, the peak flood may occur during late spring, due to rapid snowmelt. Spring snowmelt floods are usually of lesser magnitude, but greater regularity, than autumn storm floods.

Since the Puyallup River has its source in high mountain glaciers, and then flows for many miles through steep-walled alluvial valleys, it normally carries a heavy bedload of sediment out of the mountains onto the floodplain. The natural tendency to deposit the larger materials at the upper end of the floodplain, and the finer materials in the lower reaches, forming braided or meandered channels respectively, has been counteracted for over eighty years by human efforts to reclaim the valley floor as agricultural or urban land. Humans have reclaimed the valley floor by constructing dikes for flood protection.

Water quality of the Puyallup River in this area is rated Class A, excellent. Overall water quality of the Puyallup River at the city of Orting is far better than at the downstream stations. The overall water quality generally was consistent with Class A. Nevertheless, the Class A criteria for nutrients (phosphorus, nitrate-nitrogen), suspended solids, turbidity and fecal coliforms are occasionally exceeded. Potential sources of the observed contamination include agricultural runoff, erosion and sedimentation associated with agricultural and forest practices, and residential runoff. The project area is not currently on the 303 (d) list of Impaired Waterbodies provided by the Washington Department of Ecology.

3. **Plant Communities**

Vegetative cover in the basin, until development by Western Culture began over one hundred twenty years ago, consisted of extremely dense coverage of very large trees below the timberline, approximately 6,000 ft., with varying amounts of undergrowth. This covered most of the floodplains, valley walls, rolling plateaus and mountainsides. Human occupation by Native Americans and early settlers had little impact on this dense, absorptive ground cover.

Within the restoration site the dominant tree species include Black Cottonwood (*Populus balsamifera*) and Western Red Cedar (*Thuja plicata*). The subdominant species include Red Alder (*Alnus* rubra) and Western Hemlock (*Tsuga Heterophylla*). The site is primarily a wetland, which is split into three functional types: palustrine forested, scrub-shrub, and emergent. The wetland was delineated using USACE routine methodology, and a function al assessment was carried out using the WSDOT Wetland Functions Characterization Tool for Linear Projects. These assessments were completed on 11 August 2003, and are described in more detail in the report: *Wetland Delineation and Functional Assessment Soldiers Home Puyallup River Restoration Project, City of Orting, Pierce County, Washington* (USACE 2004). The wetlands report has been submitted with this EA to Washington Department of Ecology for review and concurrence.

4. **Fish**

Large pools, backwaters and gentle river gradients provide excellent holding and resting areas for adult Salmon and exceptional rearing habitat for juvenile fish. Chinook (*Oncorhynchus tschawytscha*) (spring and fall races), sockeye (*Oncorhynchus nerka*), coho (*Oncorhynchus kisutch*), chum (*Oncorhynchus keta*), and pink (*Oncorhynchus gorbuscha*) salmon, steelhead (*Oncorhynchus mykiss*), (summer and winter), Dolly Varden (*Salvelinus malma*), bull trout (*Salvelinus confluentus*) and searun cutthroat (*Oncorhynchus clarki*) are all present in the Puyallup River. Other species that are known to occur or potentially could be found include mountain whitefish, shad, suckers, and minnows.

The Washington State Salmon and Steelhead Stock Inventory (SASSI, 1992) report lists the Puyallup River coho as being depressed, exhibiting production levels below expected levels, based on available habitat and natural variations in survival rates, but above the level where permanent damage to the stock is likely. Bull trout are presently listed as threatened, and Chinook are also listed as threatened.

Runoff from agricultural, urban, and logged lands within the watershed contributes sediment and other contaminants to streams in the Puyallup watershed, potentially covering spawning beds and degrading water quality. Much of the natural habitat in the Puyallup estuary has been eliminated by urban development.

From its confluence with the White River upstream to the Electron Dam, the river channel has limited areas with water depth and velocity suitable for juvenile salmonid rearing, and limited amounts of woody debris is present to provide them with in-stream or overhead cover.

Human activities within the project area that may have had impacts on fisheries resources in the project area include channelization, diking, bank protection, gravel extraction, removal of debris and riparian vegetation. These in-stream activities may have reduced the quality and quantity of salmonid spawning and rearing habitat.

5. **Wildlife**

In the late 1700's and 1800's much of Pierce County was covered with mature coniferous forests. Most of the wildlife in the area inhabited the forested edges along the waterways and shorelines and openings resulting from wind or fire disturbances.

During the mid-1800's settlers moved into the area and began farming and logging. These activities created additional openings in the forest, allowing understory plants to thrive. The interspersion of forest with croplands, grasslands, water, and native herbaceous vegetation some allowed wildlife populations to prosper. However, increased human numbers, accompanied by industrial and urban development, has subsequently

eliminated or altered many areas of food, water, or cover that are necessary to sustain optimum wildlife populations (USDA, SCS, 1979).

The Puyallup River Basin holds a diverse assemblage of wildlife from the alpine zone of Mt. Rainier to the estuarine zone of Commencement Bay (Table 2.). Several species move throughout the basin occupying many habitats, but yet have different life history traits allowing them to use each habitat differently. Land use within the Puyallup River Basin bears little resemblance to its historic condition. This consequently has had many impacts on wildlife resulting in several populations being considered depressed (USACE, 2002). In the lower portions of the basin, including the project area, extensive alterations to land forms, river courses, and stream channels have occurred as a result of urban, industrial, and agricultural development. In 1906, when the White River was diverted into the Puyallup River, the resulting flows almost doubled in the lower reach of the river. Concurrently, there was extensive channelization of the lower 26 miles of the Puyallup River system. Some of the immediate impacts to wildlife were the loss of connectivity via riparian corridors, human encroachment into habitats, and the fragmentation of large blocks of contiguous habitat from this same encroachment. Specific to the project area, and taken from Washington's GAP analysis (WDFW, 2001), the habitats surrounding the project area derived historically from a western hemlock dominated zone that is now a dispersed landscape of young, mixed hardwood/conifer forests within the confines of agricultural development.

The shift from historical habitat conditions has had varying impacts to wildlife species found within the project area. Although little, if any, information specific to the project area is available, by taking a somewhat broader basin-wide approach, patterns emerge that are indicative to the current status of wildlife and can be considered loosely representative for the project area in lieu of definitive surveys. As stated earlier, several wildlife populations are considered depressed. Some of these species include those that the public sees most often such as black-tailed deer, elk, and black bear. Since 1994, WDFW has tracked a 30% decline in the Mt. Rainier elk herd, a herd whose range encompasses the project area (WDFW, 1999). Furthermore, WDFW indicates that contributions to this type of decline can be attributed to habitat loss through urbanization, timber harvest, agriculture and domestic livestock, road management, and hydroelectric development (WDFW, 1996). In another instance, increased residential development poses the greatest threat to black bear habitat and consequently, black bear populations. Increasing development is likely to reduce suitable habitat and lead to an increase in bear/human encounters and conflicts (WDFW, 1996; 1998; 1999). In reviewing the literature, rural development and land use modification such as the project area, was a common theme found in all of the above species habitat conditions and trends. It was found that when rural development expanded into areas that were previously remote, wildlife species suffered through the loss of available habitat that inherently exerts stress on the species' viability and their population numbers.

The habitat of the project area is primarily a bottomland deciduous wetland with a small mixed coniferous upland component. The species likely to use this area are listed in Table 2. The habitat is functioning well for those species that are dependent upon, or can

thrive, in younger, less diverse wet habitats such as beavers. A majority of the site is cottonwood with a somewhat low, clustered snag density. The habitat is good for dabbling waterfowl, but still lacks sufficient snag densities for cavity nesting birds. The mixed-forested upland has potential to develop into a mature forest type with several older-aged western red cedars and Douglas firs on site. For the size of this area, the snag density is adequate and does show signs of use. Protection of this area would be important for its current and future diversity to wildlife.

Table 2 Fish and Wildlife Species known from the project area. Species listed are from the Larson Levee repair Biological Assessment and Environmental Assessment, supplemented by current correspondence from the U.S. Fish and Wildlife Service.

Type of Animal	Common Name	Scientific Name
Mammal	Blacktailed Deer	*Odocoileus hemionus*
	River otter	*Lontra canadensis*
	Muskrat	*Ondatra zibethicus*
	Raccoon	*Procyon lotor*
	Coyote	*Canis latrans*
	Vagrant shrew	*Sorex vagrans.*
	Mink	*Mustela vison*
	Beaver	*Castor canadensis*
	Little brown bat	*Myotis lucifugus*
Resident Birds	Great horned owl	*Bobo virginianus*
	Red Tailed Hawk	*Buteo jamaicensisi*
	Sharp-shinned Hawk	*Accipter striatus*
	Bald eagle	*Haliaetus leucocephalus*
	Great blue heron	*Ardea herodias*
	Spotted sandpiper	*Actitis macularia*
	Wood duck	*Aix sponsa*
	Common crow	*Crovus brachyfhynchos*
	Steller's Jay	*Cyanocitta stelleri*
	Belted kingfisher	*Megacercyle alycon*
	Golden-crowned kinglet	*Regulus satrapa*
	American Robin	*Turdis migratorius*
	Red-breasted nuthatch	*Sitta canadensis*
	Winter wren	*Troglodytes troglodytes*
	Bewick's wren	*Thryomanes bewickii*
	Black-capped chickadee	*Parus atricapillus*
	Chestnut-backed chickadee	*Parus rufescens*
	Spotted towhee	*Piplio maculatus*
	Song sparrow	*Melospiza melodia*
	White-crowned sparrow	*Zonotricchia albicollis*
	Oregon junco	*Junco hyemalia*
	Red-winged blackbird	*Agelaius phoeniceus*
	Starling	*Sturnus vulgaris*

	Brown-headed cowbirds	*Molothrus ater*
	Rock dove	*Columba livia*
Wintering waterfowl	Mallard	*Anas platyrhnchos*
	American widgeon	*Anas americana*
	Common merganser	*Mergus merganser*
Neotropical migratory birds	Pacific slope flycatcher	*Epidonax difficillis*
	Western wood peewee	*Contopus sordidulus*
	Olive-sided flycatcher	*Contopus borealis*
	Barn swallow	*Hirundo rustica*
	Northern rough-winged swallow	*Stelg idoptryx serripennis*
	Tree swallow	*Irdoprocne bicolor*
	Violet-green swallow	*Tachycineta thalassina*
	Swainson's thrush	*Catharus ustulatus*
	Hutton's vireo	*Vireo huttoni*
	Solitary vireo	*Vireo solitarius*
	Warbling vireo	*Vireo gilvus*
	Orange-crowned warbler	*Vermivora celata*
	Wilson's warbler	*Wilsonia pusilla*
	Black-throated gray warbler	*Dendroica nigrescens*
	Common yellow throat	*Geothlypis trichas*
	Western tanger	*Piranga ludoviciana*
	Black-headed grosbeak	*Pheucticus melanocephalus*

6. **Endangered Species**

Federally listed, proposed, and candidate animal species under the jurisdiction of the National Marine Fisheries Service (NMFS), which may occur in the project vicinity, include: Chinook salmon (*Oncorhynchus tshawytscha*), and coho salmon (*Oncorhynchus kisutch*). In addition, Essential Fish Habitat has been designated in the project area for Chinook, Coho and Pink salmon by NMFS under the Magnuson/Stevens Fishery Conservation and Management act. Species under the jurisdiction of The U.S. Fish and Wildlife Service (FWS) include: Bald Eagles (*Haliaeetus leucocephalus*) and bull trout (*Salvelinus confluentus*). FWS also lists 24 Species of Concern in Pierce County, Washington where the project is located. These species are listed in Table 2. None are believed by FWS to occur within 1 mile of the project site. A review of the Washington Natural Heritage Program database of high quality habitats and endangered plant and animal species showed no such habitats or species in the project vicinity, though Pierce County does have a number of high quality habitat listings in this database (primarily at Ft. Lewis).

Table 3 Species of Concern in Pierce County, Washington following correspondence from the U.S. Fish and Wildlife Service (26 March, 2003).

Common Name	Scientific Name
California Wolverine	*Gulo gulo luteus*
Cascades Frog	*Rana cascadae*
Fender's Soliperlan stonefly	*Soliperla fenderi*
Long-eared Myotis	*Myotis evotis*
Long-legged Myotis	*Myotis volans*
Northern Goshawk	*Accipter gentilis*
Northern Sea Otter	*Enhydra lutris kenyoni*
Northwestern Pond Turtle	*Emys (=Clemmys) marmorata marmorata*
Olive-sided Flycatcher	*Contopus cooperi*
Oregon Vesper Sparrow	*Pooectetes gramineus affinis*
Pacific Fisher	*Martes pennanti pacifica*
Pacific Lamprey	*Lampetra tridentata*
Pacific Townsend's Big-eared Bat	*Corynorhinus townsendii towensendii*
Peregrine Falcon	*Falco peregrinus*
River lamprey	*Lampetra ayresi*
Slender-billed White-breasted Nuthatch	*Sitta carolinensis aculeate*
Tailed Frog	*Ascaphus truei*
Valley Silverspot	*Speyeria zerene bremeri*
Western Gray Squirrel	*Scirius griseus griseus*
Van Dyke's Salamander	*Plethodon vandykei*
White-top Aster	*Aster curtus*
Trianglelobe (Upswept) Moonwort	*Botrychium ascendens*
Obscure Indian Paintbrush	*Castilleja cryptantha*
Clustered Lady's Slipper	*Cypripedium fasiculatum*

C. Elements of the Built Environment

1. Land and Shoreline Use

Lands adjacent to the project site have been used for various agricultural endeavors. Currently, a Washington Department of Natural Resources (WDNR) tree farm is located on the upstream or southern boundary of the property. The farm supplies seedling native trees to various WDNR reforestation and restoration projects. Small family farm plots comprise the rest of the adjacent property. Crops grown include pumpkins, strawberries, lettuce, and other row crops. Pierce County has acquired the land from the adjacent property owners on which the project will be built. Cattle are also grazed on private property immediately upstream of the project location.

There are several private residences on adjacent property, including a house just below the downstream end of the project adjacent to the bridge on Calastoga Road. The Washington State Soldier's Home (discussed below in Cultural Resources) is also an adjacent landowner.

2. Cultural Resources

Lands included in the proposed project area were historically filed as donation land claims in 1854. No improvements such as buildings or structures are apparent from the earliest homestead records through the historic period of 1873-1952. However, a trail through the northern half of sections 5 and 6 in Township 18N Range 5E was in existence by 1884. The trail extended to the Puyallup River in an east-west direction and passed through lands later built upon for the State Soldiers Home and Colony. A professional cultural resources study is being conducted for the proposed project. The studies included an examination of the archaeological and historic site records at the Washington State Office of Archaeology and Historic Preservation (OAHP). The records search indicated that no properties listed on the National Register of Historic Places (NRHP) are located within the proposed project site. The Washington State Soldiers Home, an adjacent property, is listed as a state historic property.

3. Native American Issues

Three are no known existing Tribal issues as of this date. The project was identified as beneficial restoration in the *Restoration Opportunities on the Puyallup River – Restoration Site Catalogue*, which the Puyallup Tribe prepared with Pierce County.

4. Recreation

River oriented recreation in this stretch of the Puyallup River is focused on recreational fishing under the management of the Washington Department of Fish and Wildlife (WDFW). Additional upland recreation includes hunting on nearby private property, hiking/walking along the right riverbank levee by Orting residents, and some nature watching activities. There is a county soccer field downstream of the site on the opposite side of the river.

5. Noise

Due to the Project's location in a rural/agricultural area, there are few local activities that generate noise above the natural background. Local noise sources include automotive traffic on adjacent roads, occasional over-flights by commercial and military air traffic, and a small sawmill located along the right bank just upstream of the site.

6. Air Quality

The project is not located within any of the EPA-designated non-attainment areas within Washington. Air quality in the project vicinity is regulated by the Puget Sound Clean Air Agency, in conjunction with the Washington Department of Ecology (Ecology) and EPA Region 10. The sawmill located upstream of the project location may contribute minor pollutants to the local area.

7. Environmental Health/ Hazardous and Toxic Waste

USACE has performed the Phase I Preliminary Assessment on the project area for the feasibility study for the Old Soldier's Home Levee Setback Project.

The preliminary assessment conducted for the project has revealed the following recognized environmental conditions that could be perceived to potentially present a risk to human health or the environment

- During the Environmental Site Assessment (ESA) that Golder Associates conducted on the Devco property, petroleum hydrocarbons and polyaromatic hydrocarbons (PAHs) were found in the soil. A cleanup was performed by excavation, and confirmation samples were taken, which demonstrated that the cleanup was successful. The potential always remains that residual contamination exists on site, however, additional sampling is not warranted. It should be noted that while construction or excavation is happening in this area, particular caution and observation should be used.

- The Soldier's Home property has been listed on the Leaking Underground Storage Tank (LUST) list for having 4 underground storage tanks containing gasoline. Three of the tanks were removed, one was closed in the place, and the groundwater has been monitored since 1997. Data shows that no contaminants are present above Washington State regulatory limits. Due to the distance of the tanks from the project site, any small amount of contamination that may be present does not pose a risk to the project.

- During the ESA that Golder Associates conducted on the Sasaki property, a drum disposal site was found on the property, and the groundwater found to contain TPH above Model Toxics Control Act (MTCA) cleanup levels. A cleanup of the area was performed by excavation, and confirmatory samples were taken. Results showed that there is no evidence of release. The potential exists that residual contamination may be present onsite, but the information collected has shown that the investigation and cleanup performed by Golder was satisfactory. During construction in this area, particular caution should be taken, but no additional sampling is needed.

- The Sasaki farm at one time contained five underground storage tanks containing gasoline that were listed on the Underground Storage Tank (UST) list. They were installed in 1965 and removed in 1985. They are not listed on the LUST list, and there is no evidence that a release occurred associated with these tanks. Because of this, and their distance from the project site (500 feet) it is not necessary to sample.

- The Sasaki property has been used for farming since the 1960s, and the Pfafman property once had a small-scale orchard operation. The potential exists that residual agricultural chemicals may be present onsite from runoff of pesticides or herbicides that may have been used during farming operations. However, there is

no evidence that any chemicals were stored, handled, or released on or near the project site, so soil and groundwater sampling is not warranted.

- The EPA Siteinfo search for sites within 1 mile of the project yielded one site, Hobart Bakery Systems, which was listed on TRIS and the LUST list for leaking underground storage tanks containing waste oil. Because this site is located on the other side of the Puyallup River, which is presumably a hydrologic barrier to groundwater migration, there is no risk to the project from Hobart Bakery Systems.

5.0 ENVIRONMENTAL EFFECTS OF THE PREFERRED ALTERNATIVE

A. Existing Conditions

1. General Setting/ Climate

The preferred alternative is expected to have beneficial, permanent effects on the general setting and climate. Specifically, by reconnecting approximately 67 acres of floodplain to the river channel, natural flood processes, along with increased habitat will be created. This will be done within current flood damage reduction standards for the P.L. 84-99 program, which are higher then the current protection provided by existing levees within the project site; the set-back levee will protect an historic property (the Washington State Soldiers Home), and adjacent property from flood damage. There will be additional levee upgrades both upstream and downstream of the setback levee. Properties on the right bank will also receive increased protection, due to levee upgrades currently needed. The right bank upgrades will have a permanent minor impact due to increased amounts of riprap that will be placed to accomplish the upgrade.

B. Elements of the Natural Environment

1. Geology/ Soils

There will be minor permanent effects to local soils immediately adjacent to the setback levee footprint. These effects will be composed of excavation and filling for a buried rock toe on the river face of the levee, and compaction of native soils under the levee, as well as along the adjacent haul road. The levee toe will be covered with native topsoils after it is complete, but those soils may be subject to erosion from the river in extreme flood situations.

2. Surface water

The preferred alternative will have minor permanent effects to surface water within and adjacent to the project site. Surface water currently behind the existing levee will be opened to river processes, and beaver ponds and other features will be subject to natural floods and channel shifts, which may result in their removal. Surface waters draining toward the river will encounter the setback levee sooner then the current levee, and will likely run along its backslope toward the Road on the downstream end of the site. The current property owner at that location has dug an opening to allow water to flow through the levee during flood periods. The Corps will replace with either a screw gate or a flap

gate to allow water to reenter the river without sacrificing the integrity of the setback levee.

3. Plant Communities

There will be minor permanent effects to local plant communities from the preferred alternative. Vegetation at the edges of the existing wetland-forest complex will be removed during construction. Much of this vegetation is Himalayan Blackberry, an invasive exotic. Some clearing of small cottonwoods and alders may also occur during construction. Approximately 2.5 acres of the edge oof the palustrine forested wetland will be fill during levee construction (Figure 1). The levee alignment has been pushed as close to the edge of the available property as is practical, reducing fill from an original cumulative fill amount of 6.65 acres. Following the reconnection of the river to the site, approximately 67 acres of the remaining wetlands will be permanently reconnected to the rivers hydrologic cycle. Existing vegetation may be inundated and or removed by flood processes and channel shifts. The wetlands functional assessment, previously discussed, documented an expected change to "improved" or "No effect" for indetified wetland functions.

4. Fish

The Corps expects beneficial permanent effects to fish from the setback levee. The reconnection of 67 acres of flood plain to the river system will provide numerous rearing and refuge habitats for juvenile fish that are currently missing from the system. River flood and channel migration processes are expected to bring large wood debris and river gravel and cobble back into the river system from areas presently cut-off from the river.

5. Wildlife

The preferred alternative will have little effect to wildlife species currently using the site. In its current condition, the levee prism is protecting the site from being manipulated by the Puyallup River and could, over time, allow for an older-age, more mature forest to develop. The maturing of this habitat would not necessarily be considered its specific historic condition, but would, in general, provide wildlife habitat that was historically present in the area. Given the rural development and lack of an older, more mature forest, this area may be important in the future for those wildlife species dependent upon a mature forest condition.

By implementing the preferred alternative, the Corps is returning 67 acres of floodplain to the Puyallup River Basin. The effects of this action are likely to be minor, and short-term to those wildlife species using the area. By allowing the river to move unimpeded throughout the 67 acres, new channels may be formed, riparian habitat may be shifted, and the possible shift in habitat composition may occur given the area's susceptibility to flooding. These impacts will have little effect on the current makeup of those wildlife species present. The species occupying this area are capable of adapting naturally to shifts in the river and thrive in most cases presented. The benefits associated with the preferred alternative stem primarily from a more naturally functioning ecosystem.

6. Endangered Species

As discussed under Fish, above, the preferred alternative will open 67 acres of river floodplain back to the river for use by fish. The habitat is currently forested wetland, and as such, will be easily accessible and usable to threatened Chinook salmon, as well as coho and pink salmon that spawn in various parts of the river. Loss of this off-channel habitat is believed to be a critical factor in declines of salmon in the Pacific Northwest. A Biological Assessment has been completed for these species under Section 7 of the ESA. The conclusions of the BA are that this action "may effect but is not likely to adversely effect" Bald eagles, Chinook salmon and bull trout in the project area. The Corps is awaiting completion of this process.

C. Elements of the Built Environment

1. Land and Shoreline Use

There will be no effect to land and shoreline use from the proposed project. The project will be constructed within lands acquired for this project by Pierce County. Uses of adjacent lands for agricultural, residential and other purposes will not be altered.

2. Cultural Resources

A professional cultural resources study is being conducted for the proposed project. The studies includes an examination of the archaeological and historic site records at the Washington State Office of Archaeology and Historic Preservation (OAHP), a pedestrian survey, and archaeological testing of the project area. The records search indicated that no properties listed on the National Register of Historic Places (NRHP) are located within the proposed project site. The field studies have not been completed as of this date and are continuing.

3. Native American Issues

Tribal coordination for cultural resources is being conducted at the staff level with the Puyallup Tribe, the Muckleshoot Tribe, and the Yakima Nation. Letters soliciting knowledge and concerns for the project have been sent to the Tribes. The Puyallup Tribe has provided information useful to the present studies.

4. Recreation

There will be no effect to the recreational uses of the nearby soccer field, or hunting on adjacent lands. There will be minor, temporary construction effects to the right bank levee during riprap installation, which will interfere with local walking, hiking and nature viewing activities. The Corps anticipates beneficial effects to recreational fishing, in as much as reconnecting the river to its historic flood plain will enhance juvenile salmon refuge and rearing habitat, as well as increasing the foraging opportunities for adult resident fish.

5. Noise

There will be minor and temporary increases to local noise levels associated with the operation of construction machinery. This effect will occur during normal daylight working hours, and may occur on weekends depending on work schedule and needs.

6. Air Quality

There will *be de minimus* impacts to air quality from the operation of construction machinery. The proposed alternative is thus considered to be in compliance with the enforceable sections of the Clean Air Act.

7. Environmental Health/ Hazardous and Toxic Waste

There will be no effect to environmental health or Hazardous wastes from the preferred alternative. The project, while containing several formerly contaminated areas, will be constructed on lands which have been acquired by Pierce County for this purpose, and which the County has already cleaned up.

6.0 LEGAL, POLICY AND REGULATORY CONSTRAINTS/COMPLIANCE AND RELATIONSHIP TO OTHER PLANS

Compliance with the following laws and regulations are required for the proposed action.

Table 4 Federal Laws, Regulations, and Policies applicable to the Old Soldiers Home Levee Setback Project.

Law/Policy/Regulation	Compliance Action & Date
1. Clean Water Act (§ 401 & 404)	The Corps will obtain and adhere to a Water Quality Certification from Ecology
2. Coastal Zone Management Act (16 USC 1451) Sec 307 (c)(1)	The Corps is seeking a Consistency Concurrence from Ecology
3. Endangered Species Act (Sec 7)	The Corps will complete Section 7 consultation; a BA was submitted to the Services on 22 January 2004
4. National Historic Preservation Act (16 USC 470)	Consistent with this document; initial site and literature surveys are complete
5. Clean Air Act (Pl 91-604)	No Further action Necessary
6. National Environmental Policy Act	Consistent through this document
7. Native American Graves Protection and Repatriation Act	Consistent through this document
8. Executive Order (E.O.) 11988 Flood Plain Management	In Compliance; there will be an enhancement of flood protection from this project.
9. E.O. 12898 Environmental Justice in Minority populations	There will be no impact to minority communities from this project.

Table 5 Local Laws, Regulations, and Policies applicable to the Old Soldier's Home Levee Setback Project.

Law/Policy/Regulation	Compliance Action & Date
1. Pierce County Comprehensive Plan	Consistent per CZM determination
2. Washington State Shoreline Management Plan (Ch. 90.58) City of Orting Shoreline Master Program	The Corps will adhere to the maximum extent practicable to the enforceable policies of this program; Pierce County will obtain a Shoreline permit for the project.
3. Washington State Growth Management Act	Not Applicable
4. Hydraulic Project Approval – WDFW	Not Applicable to the Corps, however The Corps will adhere to the maximum extent practicable to the enforceable policies of this program; Pierce County will obtain an HPA for O&M

The draft EA will be provided to the following agencies, Tribes and the interested public for 30 days of public review and comment:

- NOAA Fisheries (formerly National Marine Fisheries Service)
- U.S. Fish and Wildlife Service
- U.S. Environmental Protection Agency
- Pierce County
- City of Orting
- Washington Department of Fish and Wildlife
- Washington Department of Ecology
- Washington Department of Natural Resources
- Puyallup Tribe
- Muckleshoot Tribe

Comments received during this period and the Corps' responses to those comments are provided in Appendix A – Comment and Concurrence Letters.

7.0 CUMULATIVE IMPACTS

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 additional NEPA and ESA evaluation at the time of their development.

The preferred alternative will be constructed in the vicinity of the following additional Corps Projects, previously completed:

1. Ford/Hatten/Filbin Levee setback (1997)

2. Larson Revetment Restoration (2002)
3. Puyallup River General Investigation (ongoing)

The preferred alternative will add habitat benefits to the project vicinity, and will not create negative effects to the projects, nor to any other project that may be planned or constructed at a future date. There are no interrelated effects from this project, and the Corps anticipates beneficial cumulative effects when this project is added to the area of the above listed projects.

8.0 COORDINATION AND COMMENTS

Pre-construction coordination has consisted of one on-site visit at the Ford Levee setback site upstream. This meeting was for purposes of reviewing success at this site that may be applied to the Soldier's Home project (25 September 2002) Attendees included The Puyallup tribe, USFWS, NOAA Fisheries, WDFW, Pierce County and the Corps. An additional coordination meeting was held with staff from the City of Orting and Pierce County Water Programs on 22 January 2004.

Appendix A Comment and Concurrence Letters

WASHINGTON STATE DEPARTMENT OF
Natural Resources

DOUG SUTHERLAND
Commissioner of Public Lands

April 23, 2003

RECEIVED
APR 29 2003

Mark Ziminske
Department of the Army
Seattle District, Corps of Engineers
PO Box 3755
Seattle WA 98124-3755

SUBJECT: Proposed Removal or Alteration of Existing Levee on the Puyallup River (T18N R05E S05-09; T19N R05E S32-33)

We've searched the Natural Heritage Information System for information on significant natural features in your project area. Currently, we have no records for rare plants or high quality native ecosystems in the vicinity of your project.

The information provided by the Washington Natural Heritage Program is based solely on existing information in the database. In the absence of field inventories, we cannot state whether or not a given site contains high quality ecosystems or rare plant species; there may be significant natural features in your study area of which we are not aware.

The Washington Natural Heritage Program is responsible for information on the state's rare plants as well as high quality ecosystems. For information on animal species of concern, please contact Priority Habitats and Species, Washington Department of Fish and Wildlife, 600 Capitol Way N, Olympia WA 98501-1091, or by phone (360) 902-2543.

Please visit our internet website for more information. Lists of rare plants and their status, as well as rare plant fact sheets, are available for download from the site. You will find us listed under *Programs & Topics* on the WA DNR homepage at www.wa.gov/dnr/ . Please call me at (360) 902-1667 if you have any questions, or by E-Mail: sandra.moody@wadnr.gov.

Sincerely,

Sandy Swope Moody, Environmental Review Coordinator
Washington Natural Heritage Program

Asset Management & Protection Division, PO Box 47014, Olympia WA 98504-7014
FAX 360-902-1789

1111 WASHINGTON ST SE ▮ PO BOX 47000 ▮ OLYMPIA, WA 98504-7000
TEL: (360) 902-1000 ▮ FAX: (360) 902-1775 ▮ TTY: (360) 902-1125
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RECYCLED PAPER

Pierce County
Public Works and Utilities
JOHN O. TRENT, P.E.
Director

Transportation Services
2401 South 35th Street, Room 150
Tacoma, Washington 98409-7485
(253) 798-7250 • FAX (253) 798-2740

Mike
FYI

Pat

July 20, 2001

Colonel Ralph H. Graves
U.S. Army Corps of Engineers
Seattle District — CENPS-EN-PL
PO Box 3755
Seattle WA 98124-2255

Dear Colonel Graves:

This letter is to seek the assistance of the U.S. Army Corps of Engineers in planning for, designing, and constructing a project to restore fish and wildlife habitat while also providing a higher degree of flooding protection under Section 206 of the Water Resources Development Act of 1996. Pierce County intends to apply for a Washington State Salmon Recovery Funding Board (SRFB) grant for a portion of the necessary local funding. The ACOE and the Puyallup Tribe of Indians would be co-operators with Pierce County for the SRFB grant project.

The proposed Soldiers' Home setback levee would remove an existing levee on the Puyallup River (left bank near RM 22) and construct a 5500 foot long setback levee exposing approximately 51 acres of floodplain to natural channel migration. The project would allow the occurrence of natural channel processes and result in the creation of off-channel and side-channel salmon habitat for ESA listed independent populations of Chinook salmon and bull trout as well as other salmon species and wildlife. This project also provides a greater degree of flood hazard reduction and protection to critical facilities. Opportunities to enhance the restoration of natural channel processes and other habitat restoration within the setback area would be explored during the planning and design phases.

We are aware of the requirements to provide 35 percent of the total project costs and we are willing and able to meet all requirements and obligations, subject to obtaining SRFB funding in the late 2001 grant cycle. We are also aware that we will be required to provide all lands, easements, rights-of way, relocations, and disposal areas (LERRD) necessary for the project and/or assume costs to demonstrate ownership of such. The county has already acquired the necessary property to proceed with the project. Some additional acquisitions are contemplated which would increase the project area. All or a portion of the value of our LERRD costs could be attributed to our 35% share of the project costs. We will also assume responsibility for any operation and maintenance of the project.

Your consideration of this request is appreciated. Please contact David Renstrom, fisheries biologist, at (253)798-4680 for further coordination.

Sincerely,

JOHN O. TRENT, PE
Director of Public Works and Utilities

cc: Lester Soule (PM-PL) US Army COE, PO Box 3755, Seattle, WA 98124-2255
Patrick Cagney (PM-PL-ER) US Army COE, PO Box 3755, Seattle, WA 98124-2255
John W. Ladenburg, Pierce County Executive
Lyle Quasim, Executive Chief of Staff
Karen Goon, Deputy Director of Pierce County Public Works and Utilities
David Renstrom, Public Works and Utilities – Water Programs

Appendix B – Site Maps and Project Drawings

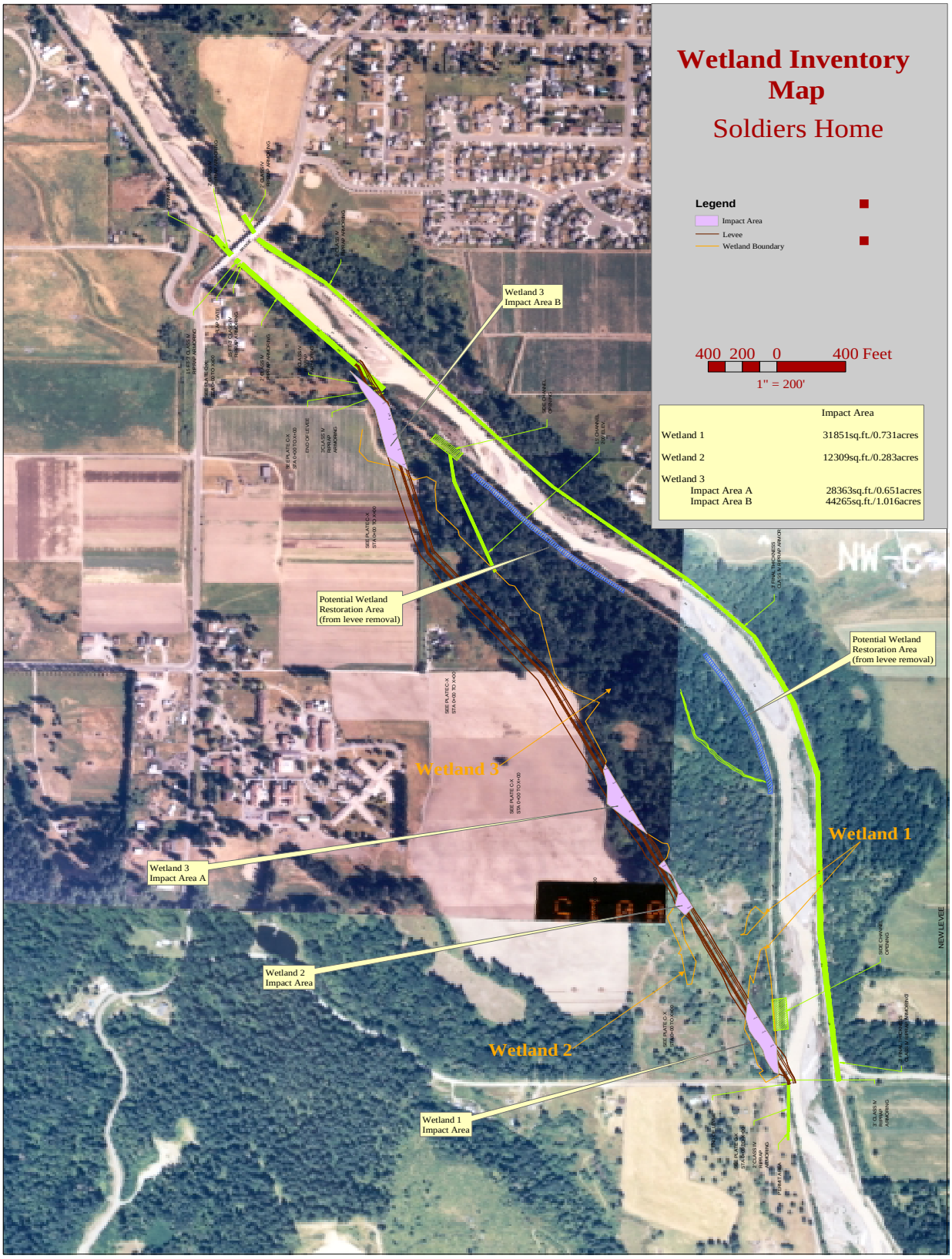

Figure 1. Project footprint, wetlands impacts, and area features for the Soldier's Home Levee setback project, Orting, Pierce County, WA.

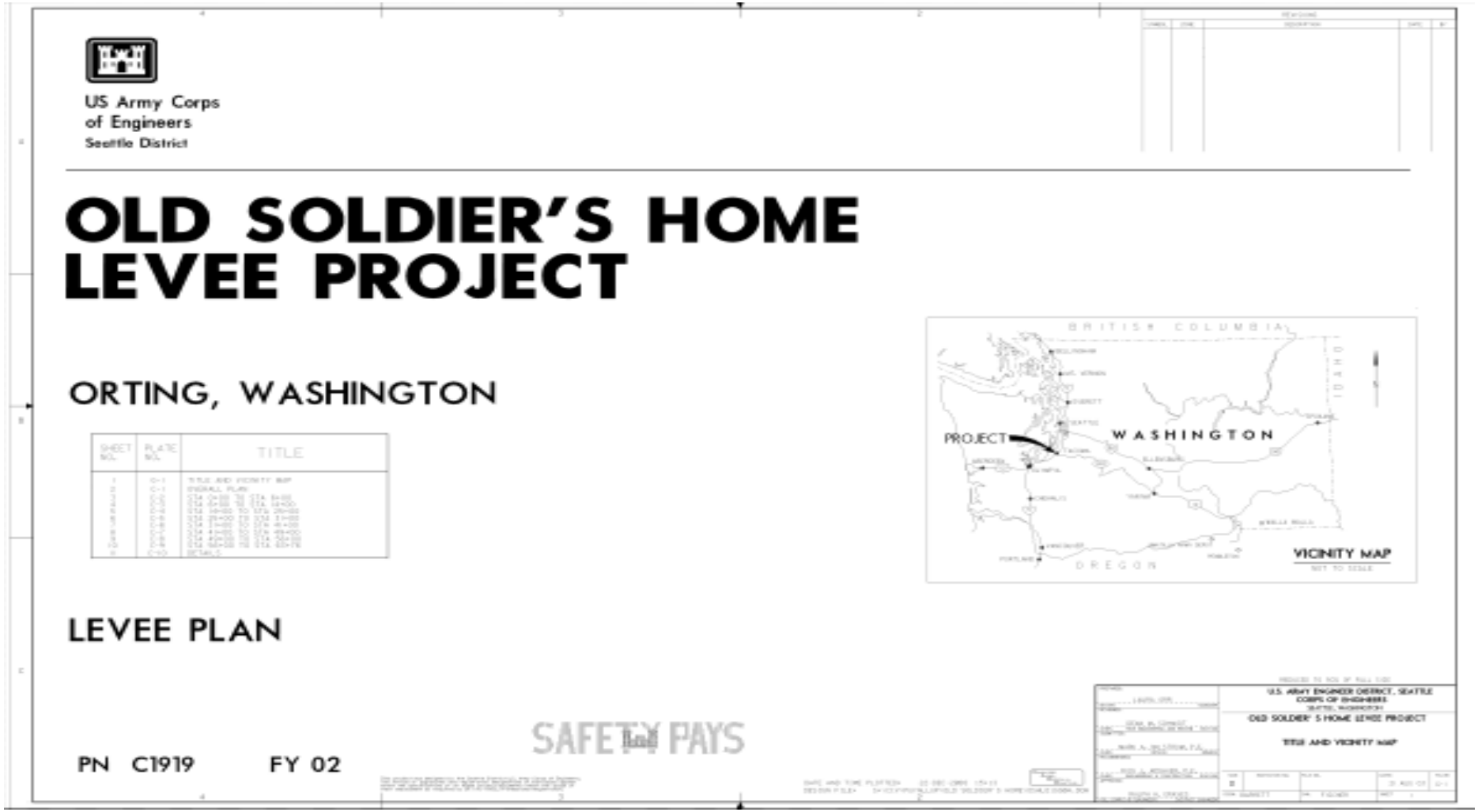

Figure 2. Location map for the Old Soldier's Home Levee Setback project, Orting, WA. The map is taken from the front page of the plan set.

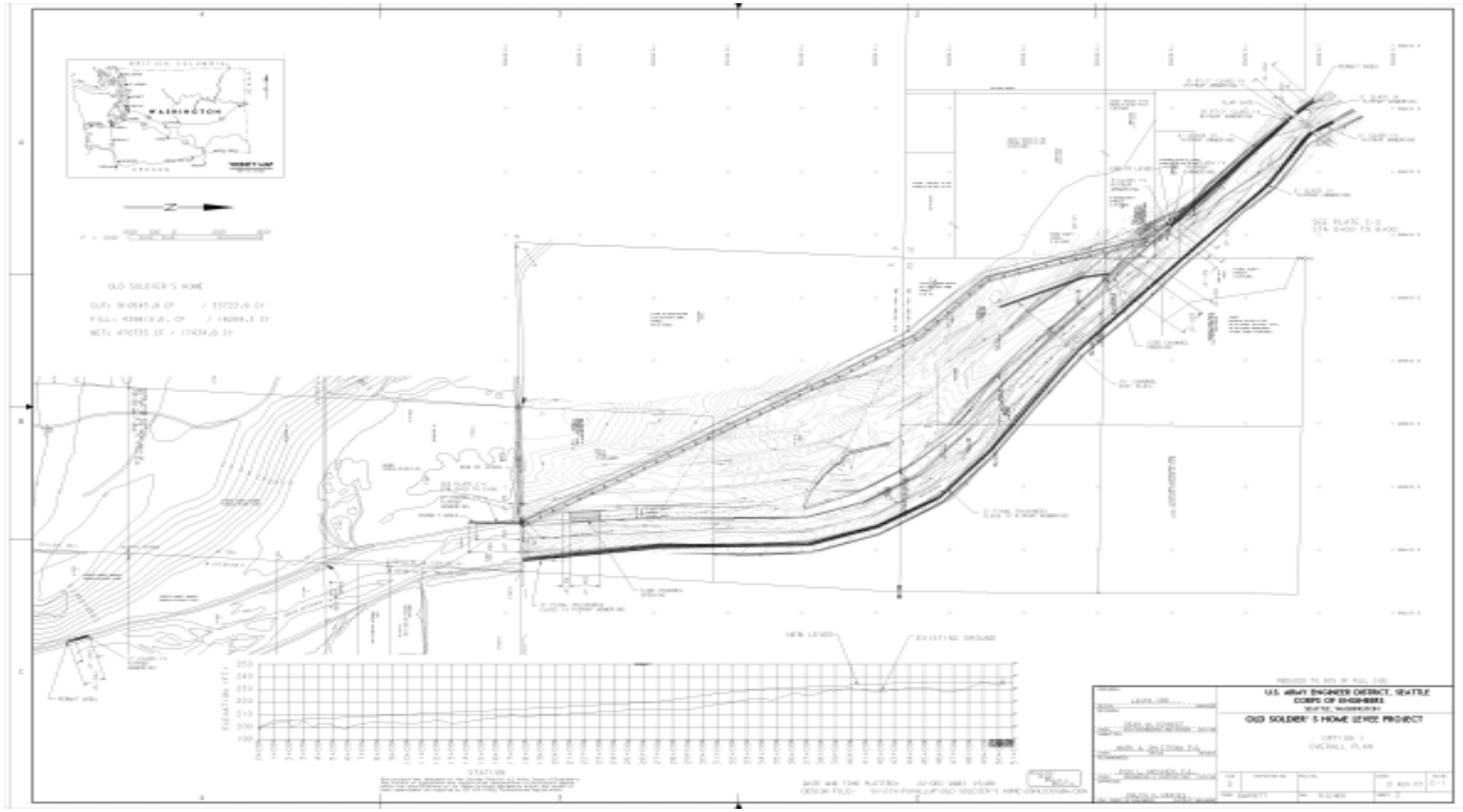

Figure 3. Site Plan for the Old Soldier's Home Levee Set--Back Project, Orting Washington. The work includes a setback levee on the left bank and riprap reinforcement on the right bank.

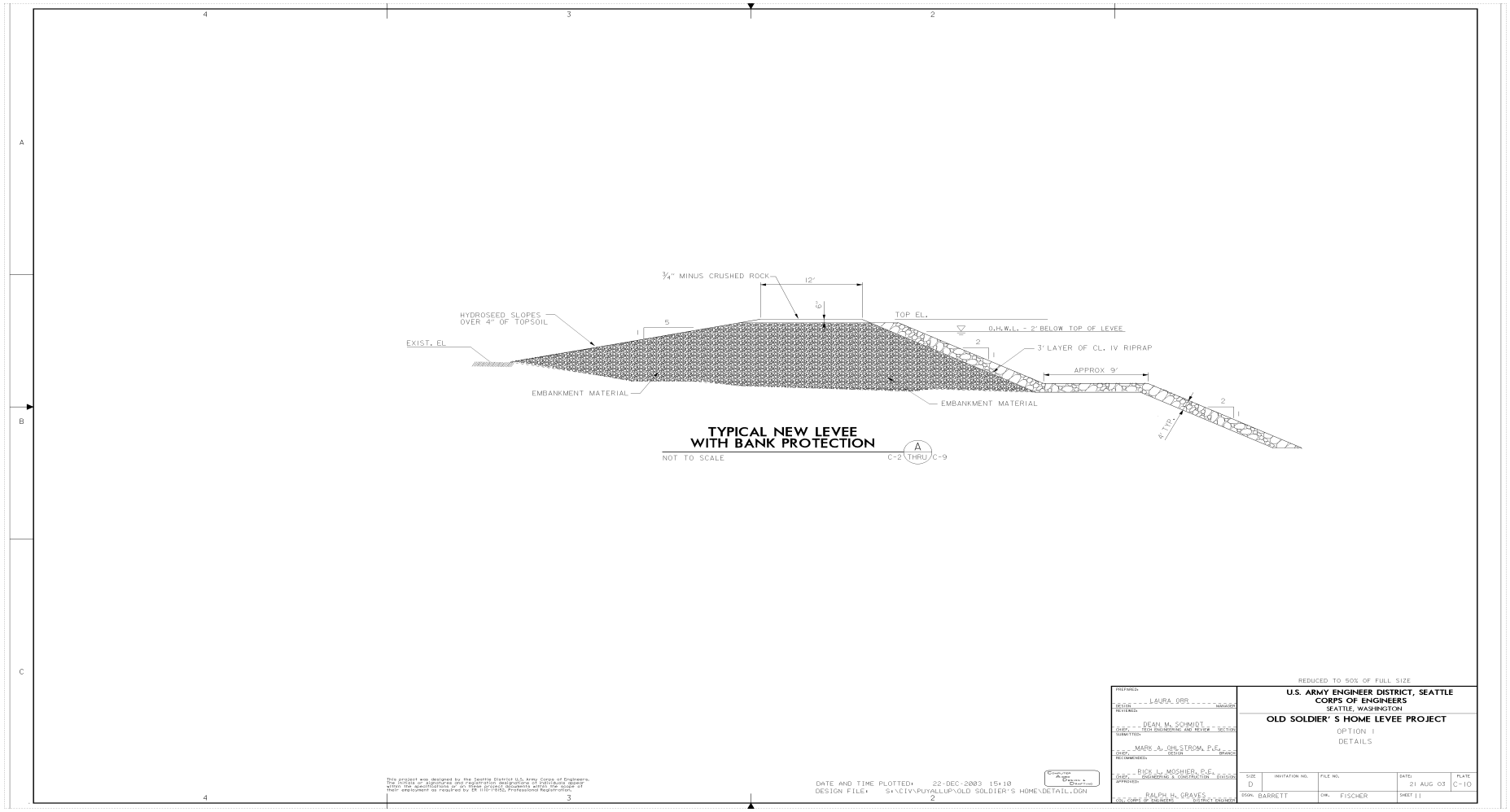

Figure 4. Typical levee cross-section for the Old Soldier's Home Levee Setback Project.

Appendix C

DRAFT
Finding of No Significant Impact (FONSI)

DRAFT
FINDING OF NO SIGNIFICANT IMPACT

Soldier's Home Levee Setback Ecosystem Restoration Project,
Orting, Pierce County Washington

1. Proposed Action The U.S. Army Corps of Engineers, Seattle District (Corps), and Pierce County, Washington, as the non-federal sponsor, are proposing to 6376 linear feet of existing levee on the Puyallup River in Orting, Washington. The levee setback will allow reconnection of 67 acres of riparian-forested wetlands and floodplain to the river. This reconnection will substantially increase off channel rearing, refuge and forage habitat for Chinook, coho and pink salmon in a highly channelized river. Construction actions will consist of the removal of the existing levee on the left river bank, concurrent construction of a new levee away from the existing levee footprint, breaching of the existing levee in two places to facilitate the river reconnection, and the addition of riprap to both left and right bank levees above, adjacent to and below the project site to strengthen the remaining levee segments against altered flow patterns and increase the local flood protection level to the 100-year flood equivalent.

2. **Summary of Impacts**. Nearly three acres of wetland margin habitat will be filled to construct the setback levee along an alignment as close as practicable to the edge of available property. However, the levee setback will allow reconnection of 67 acres of riparian-forested wetlands and floodplain to the river. This reconnection will substantially increase off channel rearing, refuge and forage habitat for Chinook, coho and pink salmon in a highly channelized river. The Corps will use best management practices to minimize potential adverse effects to aquatic and terrestrial resources. The project is believed to not significantly affect the quality of the human or natural environment.

3. Finding of No Significant Impact. I have determined that the proposed action is in accordance with the environmental documentation, and that planning for this project complies with all applicable laws, regulations, and agency consultations, including the Endangered Species Act, Fish and Wildlife Coordination Act, and National Environmental Policy Act. Based on the analyses described in the accompanying EA, I determine that this project is not a major Federal action significantly affecting the quality of human environment, and therefore, does not require preparation of an environmental impact statement.

_____ _____

Date

DEBRA M. LEWIS
Colonel,
Corps of Engineers