

SECTION 1135 DETAILED PROJECT REPORT

1. PROJECT: Codiga Farms Intertidal Restoration Project

State Congressional District - 09

2. LOCATION: The proposed project is located in Tukwila, Washington, in King County, approximately 10 miles south of Seattle along the Duwamish River. See attached location map (figure 1). The Duwamish River estuary extends from the mouth of the river to River Mile (RM) 14. The name then changes to the Green River and extends another 85 miles to the headwaters in the Cascade mountain range. The Codiga Farms project is located at about RM 10. A map of the project area is included as enclosure 1, a picture of the site is included as enclosure 2.

3. DESCRIPTION OF PROPOSED PROJECT.

The purpose of the proposed project is to restore tidal and riverine hydrology to the site in the form of an off-channel slough, estuarine marsh and riparian buffer. The project would improve overbank storage, increase the shoreline length, provide improved estuarine habitat and improve flood plain inundation. The project would create 830 linear feet of side channel rearing habitat for juvenile fish such as chinook and chum and create a small ½ acre estuarine marsh, which will provide important primary productivity and nutrient export. In addition, the project would provide approximately 1.6 acres in riparian and upland planting to provide cover and support wildlife. A perimeter fence will divide the habitat restoration features from the park to help minimize human traffic into the restored area. A proposed path will also help minimize access into the restored area and provide maintenance access to the restored area. The project would also include recreational and educational improvements on an existing 1.15-acre municipal park. Amenities would include interpretive signage on habitat restoration and historical uses of the area, an observation platform, paving of a parking lot and installing concrete on a portion of the path for wheelchair access. Project components include:

- excavation of two adjoining sloughs (25,000 cubic yards)
- placement of rock at the entrance channel and to support slopes (156 cubic yards)
- large wood debris with root wads (about 40)
- placement of gravel on the channel bottom (250 cubic yards)
- creation of an intertidal marsh (about 21,500 square feet and excavation of 13,000 cubic yards of material)
- perimeter fencing to allow for plant establishment and controlling duck and geese access to the site
- interpretive signs
- an observation platform
- a small covered picnic area

- seven picnic tables
- A portion of the gravel path will also serve as a hand boat launch area.
- Riparian, upland and marsh plantings

An existing barn will be demolished at the site and a small community garden (pea patch) and parking area will be realigned to accommodate the habitat restoration project.

How Existing Corps Project Would be Modified. The existing project at Howard Hanson Dam and upstream levee projects would not be directly modified for this project. The project seeks to restore tidal and riverine hydrology, which has been adversely effected by the construction and operation of Howard Hanson Dam and levee projects. The following discusses some of the impacts of the federally authorized and other projects in the basin as well as history of the site under consideration.

Basin Impacts The construction of the Tacoma Diversion Dam (in 1910 at RM 61), Howard Hanson Dam (HHD constructed 1960, RM 64), and numerous levees along the river have reduced the migration of the river within the middle and lower basins, affecting sediment transport; and reduced inundation of a significant portion of the historic floodplain. The HHD flood control operation eliminates flows sufficient to cause large-scale shifting or reconfiguring of the channel. Levees confine the river in numerous locations. Except for an area of braided multiple channels near O'Grady Park (RM 36.9 to RM 40.6), much of the river has assumed a single channel configuration. The Corps has constructed levees in the Middle Green River as well as Howard Hanson Dam in the upper basin.

Diminished channel length, reduced shoreline length, and considerably less estuary characterize the existing channel conditions in the middle and lower basin today as compared to conditions at the time of European settlement. The following table summarizes some of the physical changes in the system. Additional information on hydraulic changes in the system can be found in the August 2000 Preliminary Restoration Plan.

Table 1-1. Selected Parameters of the Green/Duwamish Basin

Parameter	Pre-settlement	1936	1994	% Change (from pre-settlement to 1994)
Basin Area * Duwamish only ** Green only	1,640 sq. miles*	483 sq. miles**	483 sq. miles**	-70%
River/Stream Miles Accessible to Fish * three basins combined ** Green/Duwamish only	1,900 miles	580 miles* 83 miles**	380 miles* 125 miles**	-66% -93%

Estuary Area	3,950 acres ¹	298 acres	45 acres	-99%
Channel Length ²	61 miles ³	55 miles	50.6 miles	-17%
Shoreline Length	152 miles	121 miles	111 miles	-27%
Channel Width ⁴	Unknown	277 feet	195 feet	-29% (between 1936 and 1994)

Notes:

1. Estimate includes tidal flats, tidal marsh, and tidal swamp.
2. Channel length is calculated for the Green/Duwamish River only. The estimate is from the estuary to the approximate downstream limit of the Green River Gorge at main RM 47.4.
3. Estimate includes some 21,000 feet of the Duwamish straightened during filling of the estuary and approximately 55,000 feet of braided channel and sloughs lost in the middle valley. It is a compilation of information from USGS maps and aerial photos and is an estimate of the maximum active river length for the period 1892 to 1936.
4. Estimate is a comparison of six cross sections within a reach in the middle Green River Valley between the Neeley Bridge at RM 35 and the Whitney Bridge at RM 39.

Alteration of the flow regime by HHD and the various diversions of the river's original flows have affected the river in another significant way. Historically, when flows inundated the adjacent floodplains, floodwaters seeped into the floodplain, recharging the water table. This water slowly drained toward the river over the year, supplying small floodplain streams, side channels, and the mainstem of the river with cool flows through the summer low flows. Without floodplain inundation, this process cannot occur, and floodplain streams and side channels dry up earlier in the season. River temperatures may also be affected by the loss of cool groundwater inputs during the summer low flows.

Reduced flows have also reduced water supply to the banks and geomorphic surfaces within the active channel. This has reduced overbank storage and affected riparian growth. Reduced soil moisture conditions have been found to lower the growth rate and survival of typical riparian plants. Ultimately this leads to a reduction in riparian width and the eventual replacement of typical riparian plant species with species tolerant of drier conditions.

Site History and Impacts. The proposed project seeks to restore some of the habitat losses in the lower Duwamish. Historically, this portion of the Duwamish had a broad and connected flood plain. Within the tidal portion of the flood plain existed estuarine marshes and sloughs. Starting in the 1860's levees were constructed at the marsh edges and these areas were converted to agricultural production such as hop fields. The broad fertile flood plain of the Duwamish attracted many immigrant dairy farmers at

the turn of the 20th century. Archie Codiga moved into what was then called Allentown from Switzerland in 1910 and established a dairy farm. The site has been maintained as a farm since then, while many of the adjacent farmland was then converted to housing or industry.

Prior to 1860, the Duwamish was a flat, meandering river with tidal influence. The Duwamish Estuary was an extensive marsh of over 4,000 acres. This transitioned into a brackish marsh, saltmarsh, and mudflats on the farthest edges of the delta. The main channels were largely unvegetated mudflats and sandflats. Patches of eelgrass were likely present in the saline areas. The historic Duwamish Estuary in the lower basin was largely a detrital-based system and provided significant food and habitat for both terrestrial and marine organisms. Juvenile chum and chinook salmon frequently foraged in sand flat and marsh areas. These prime estuarine wetland and intertidal rearing areas for chum salmon converted high detrital carbon inputs from freshwater flows to forms usable to salmon. These forms included significant insect and crustacean populations in the marsh on which juvenile salmon feed.

From a fish and wildlife standpoint, this conversion had harsh consequences. Flow regulation at Howard Hanson Dam, the construction of levees and placement of fill that was put along the margins of the tidal portions of the river interrupted the flow and as a result, nutrient export from the marshes to the adjoining habitats such as mudflats was diminished. Intertidal sloughs that were once refuge areas for juvenile fish (salmon, sculpins, and sole) shorebirds (dunlin, sandpiper and yellowlegs) and waterfowl (pintail, and baldpate) was lost. The continuity of the large interspersed habitats of the estuary became fragmented. This project offers an opportunity to restore some of the former estuary.

Alternatives. Four alternatives were evaluated during the combined planning and design study. The following section addresses the measurement of environmental outputs, a description of each alternative and an evaluation of the alternatives based on costs and benefits. An economic evaluation of the recreation project components is also presented below.

Environmental Outputs and Costs. Environmental outputs for the alternatives include a quantitative measure of estuarine marsh, riparian buffer and estuarine slough length created under each alternative. Also under consideration is the overall quality of the habitat created. For the scale of project under consideration, this is a qualitative measure to take account of habitat complexity and species diversity as defined below.

- *Habitat complexity:* An interspersed of highly productive and varied habitat types is proposed for this project. This will allow for greater species diversity within the project area than is currently available. More of the life history needs (such as reproduction, feeding and rearing) of this diverse population will be able to occur within the project site which will lessen the need to disperse to other habitats. This will lower predation and expenditure of energy (increase in fitness).

- *Species Diversity*: Sometimes referred to as Biodiversity, it describes the variety of life forms, the ecological roles they perform and the genetic diversity they contain. For this project it is consideration of more than a single species approach. That is, by excluding exotics and invasive species from the project area, benefits (food, refuge or reproduction) will be provided to a variety of organisms.

Each of the alternatives under consideration was rated high, medium or low for habitat quality in context of diversity and complexity.

Habitat Restoration Alternative Evaluation.

The following table summarizes the components and costs of each alternative. The costs in the table only include construction costs, and do not include contingency or S&A. A description and evaluation of each alternative follows the alternative summary table. An incremental cost evaluation provides information to assist in selection of a preferred plan.

ALTERNATIVE EVALUATION
Table 1: Alternative Outputs and Cost

Alternative	Estuarine Slough (linear feet)	Estuarine Marsh (sq. feet)	Riparian Buffer (sq. feet)	Municipal Park (sq. feet)	Habitat Quality	Cost (\$1000)
No Action	0	0	4,000	50,300	Low	\$0
Minimal	630 (5,040 sq ft)	0	4,000	50,300	Low-Moderate	\$784
Mixed-use Habitat & Recreation (Preferred)	830 (6,640 sq ft)	21,500	83,700	44,000	High	\$883
Full Buildout	1500 (12,000 sq ft)	43,000	126,000	0	High	\$1,464

- **The no action alternative.** The no action alternative maintains the current condition and serves as the current baseline condition. For comparison purposes the no action alternative includes 50,300 of parkland, 4,000 square feet of vegetated buffer and 126,700 square feet of degraded riverbank, for a total area at 181,000 square feet or 4.15 acres.
- **The minimal alternative.** This alternative would include excavation of one small slough (630 linear feet multiplied by an 8 foot bottom channel width) or 5,040 square feet) and no estuarine marsh. All interpretive and recreation features (covered picnic area, observation platform picnic tables and parking lot) would be included. For the alternative evaluation, recreational amenities were preliminarily estimated to cost \$44,100 and restoration features \$740,140. The total restored habitat area is 9,040 square feet, which includes the 5,040 of estuarine marsh and 4,000 square feet of riparian buffer. The cost per square foot of improved habitat area under this option would be roughly \$81.86 (\$740,000 divided by 9,040 square feet of improved habitat) per square foot. In addition to the high per unit cost of restoration, this option provides only minimal improvement to habitat complexity and opportunity for species diversity
- **The mixed use habitat restoration and recreation alternative.** This alternative proposes to excavate two adjoining sloughs totaling 830 linear feet (6,640 square feet), creation of a ½ acre intertidal marsh (21,000 square feet), and 1.6 acres (83,700 square feet) of riparian planting. This alternative slightly decreases the size of the existing park and provides for educational and recreational amenities. Cost shared recreation features include the interpretive signage, a concrete trail to the observation area, covered picnic area, and parking. Recreational features are preliminarily estimated at \$44,100 and include the same elements defined above. A gravel trail will also be provided from the parking lot to the river's edge to provide maintenance access to the restored area, the gravel path will also provide viewing access to the restoration features and serve as a boat launch ramp. This alternative would result in the creation of 111,840 square feet of improved habitat area. The total habitat restoration costs for this option are \$839,500, which would be about \$7.50 per square foot of improved area.
- **The full build-out option.** This alternative would convert the entire property into intertidal sloughs and estuarine marsh while retaining none of the recreation or interpretive amenities. This alternative creates the maximum habitat benefit area, nearly a fifty percent increase over the mixed-use plan. This plan would create 12,000 square feet of estuarine slough, 43,000 square feet of estuarine marsh and 126,000 square feet of riparian buffer. Total square footage of improved area would be 181,000 square feet. The cost of this alternative is estimated at \$1,464,000 resulting in an average cost per square foot of \$8.09. The cost increase is primarily due to significant increases in the quantity of material excavated, bank stabilization material and plantings.

The table below presents summary information from the incremental cost evaluation. The alternatives are first sorted by average cost per output, those plans which produce lower levels of output than the plan with the lowest average cost are eliminated from further consideration. In this case the mixed-use alternative has the lowest average cost per output while the minimal alternative has lower output but a higher average cost per output, as such the minimal alternative is eliminated from consideration. The next step is to compute the incremental costs per incremental output for the remaining alternatives.

Alternative Evaluation
Table 2: Incremental Evaluation for Restoration

Alternative	Total Restoration Costs (X \$1000)	Total Habitat Restored	Average Cost per Output	Incremental Cost per Incremental Output
No Action	\$0	0	\$0	n.a.
Mixed-use Habitat & Recreation (Preferred)	\$883	111,840	\$7.50	\$7.50
Full Buildout	\$1,464	181,000	\$8.09	\$8.40
Minimal	\$740	9,040	\$81.86	Eliminated from evaluation

Based on the cost effectiveness and incremental evaluation, either the mixed use plan or the full build out plan is incrementally justified. Although the full build out alternative provides the greatest increase in improved habitat, approximately a 32% increase compared to the mix use plan (137,000 square feet under the mixed-use plan compared to 181,000 square feet) and the incremental costs per output are not substantial, the added implementation costs of this option are not judged to be “worth it”. In addition, this limited evaluation does not include the value of the loss of the park. Additionally the non-federal sponsor is not willing to support a habitat restoration project that would include the loss of the park. Based on this evaluation the federally recommended alternative and the alternative supported by the non-federal sponsor is the mixed-use plan.

Recreation Evaluation.

In accordance with EP 1165-2-502, recreation components of ecosystem restoration projects must meet several criteria. They must be economically justified, cannot increase the overall ecosystem project cost by more than 10%, cannot impact or reduce the restoration outputs and must be provided on the lands needed for the basic ecosystem restoration project. Exceptions to the last criteria are where lands may be needed for parking, public access and health and safety features.

Costs. The recreation features that are proposed for inclusion in the Codiga farms project include signage, parking improvements, picnic tables, a picnic shelter and a viewing platform. The preliminary cost estimate for these items is \$44,000. Average annual costs based on a 50-year project life and the federal discount rate for 2002 of 6.125% are \$2,840.

Benefits. The Unit Day Value Method (UDV) was used for the economic evaluation. This method assigns a value per use based on the willingness to pay of users. The value is determined based the overall recreation experience at the site, the availability of other similar recreation opportunities in the area, the carrying capacity of the site, the site accessibility, and the esthetic value of the site.

Based on the generalized scoring system in EGM 01-01, the existing condition score for the site was assessed and determined to be 15 corresponding to a general recreation value of \$3.53. With the project in place the score increases to 48 which corresponds to a value of \$5.85. The City of Tukwila does not track annual usage of the existing site, however use information is available for the Pea Patch at the site. This information combined with estimates for expected increases in park usage can be compared to recreation costs to determine the projects economic viability.

The existing site use under current conditions is primarily by individuals who use the existing pea patch. Based on use over the past five years, an expected 20 individuals will participate in the pea patch program. Based on this information, it is assumed that at least 20 individuals will visit the site an estimated 10 times per year for a total annual use of 200 days. This will serve as the existing condition usage estimate. Based on this information, the usage is multiplied by the existing condition value of \$3.53 to arrive at the annual recreation value of \$706.

Park usage is expected to increase with the added recreational amenities at the site. Existing pea patch program participants are expected to continue using the project, but the unit day value will increase for these individuals. New users to the park are also expected. If we assume that the added amenities to the park would attract 15 additional users per week between May and October and an additional 2 people per week between November and April the total annual user days is 642. This usage multiplied by the increased value with the project in place of \$5.85, results in a total annual value of \$3,755.

Based on this information the net annual increase in value over the existing condition is \$3,049. This figure represents a conservative estimate of recreation project benefits. The benefit figure is divided by the annual costs to arrive at a benefit to cost ratio. The benefit to cost ratio is calculated to be 1.1. The proposed recreation amenities at the site are economically justified.

Project Benefits. By restoring flood plain connectivity and intertidal habitats (i.e. small blind channels, mudflats, intertidal marsh) a variety of benefits could be expected. The following are three of the most important considerations:

- The Codiga Farm area would be restored to a more historic condition. By doing so, both primary and secondary productivity at the site would be increased. By restoring habitat types that produce the basic food sources (such as organic carbon, detritus, and benthic and epibenthic organisms) at the base of the food chain, the benefits will be realized throughout the trophic structure. This restoration would also facilitate nutrient exchange as well as provide better fish access.
- As a result of restoring several habitat types (mudflat, tidal slough and marsh) and establishing functional connections between the watershed and estuary, the restoration work would also significantly increase the species diversity at the project site. Many of these species are sensitive species or are currently in decline in the region due to development and loss of habitat.
- Also as a result of restoring a complex and interconnected system, the restoration work would provide better support at critical life stages to the more diverse species assemblages that could now utilize the site. These life stages include reproduction, rearing, feeding, refuge, immigration, and emigration. The site also offers one of the few off-channel refuge areas during high flow events in many miles.

Target species that would most benefit from this potential project include many species of fish, birds, and mammals. Fish species include juvenile sole, sculpins, stickleback, chum salmon, chinook salmon, and cutthroat trout. Bird species include geese, goldeneye, coot, gadwall, bufflehead, merganser, great blue heron, green-winged teal, killdeer, mallard, sandpipers, dunlin, goldfinch, juncos, osprey, redtail hawk, bald eagle, redwinged blackbird, and song sparrows. Mammal species include river otter, raccoon, and muskrat. The increase in shallow water habitat would probably benefit chinook and chum salmon the most and these important species have been in serious decline in the Puget Sound basin within the past few decades. Puget Sound chinook has been listed as a threatened species under the Endangered Species Act.

The following table describes the physical changes in habitat that can be expected if construction is completed.

Table 1-2 Project Habitat Benefits

Physical Change in:	Pre-Project Condition	Post Project Condition
Estuarine Marsh	0	21,500 sq. feet
Riparian Buffer	4,000 sq. feet	83,700 sq. feet
Estuarine slough length	0 linear feet	830 linear feet

Importance of the proposed outputs. Specific species that would benefit include the Washington State sensitive species such as great blue heron, the federally threatened species American bald eagle, and significant species that are regionally in decline such as dunlin, goldeneye, and gadwall. The project site would provide overwintering habitat for the common merganser and nesting sites for the spotted sandpiper. Several salmon and trout species would especially benefit from this project as well. These include the threatened Puget Sound chinook, and chum salmon, steelhead and cutthroat trout. If residence time is increased due to the feeding and refuge opportunities afforded by this project, the salmon would be larger and more fit as they migrate to the ocean. This would increase their survival rate during their long migration prior to spawning. Many salmon species in the Northwest are currently in severe decline and have been petitioned for endangered species status. Currently chinook is listed and bull trout is proposed for listing. The wild stocks of salmon and trout in Duwamish/Green Basin are but a small fraction of their historic numbers.

Relationship of proposed project to other projects and plans. Several agencies have been working cooperatively to restore the Duwamish estuary. There is currently a Coastal America demonstration project within the estuary. This demonstration project was completed in late 1994 and is similar in scope to the potential Section 1135 project in that it too involved the removal of material to restore the shoreline to its natural shallow water habitat. This new project that is being proposed under Section 1135 would further develop the partnerships fostered in the original demonstration project and would benefit from the lessons learned. Additionally, working with King County (under the 1135 program) and the Port of Seattle (under 206 authority), two other estuarine habitat projects have been constructed further down stream. This project would have a cumulative beneficial effect for those projects.

The Codiga Farms project is a “spin-off, early action project” of Seattle District’s ongoing Green/Duwamish Ecosystem General Investigation Study (G.I.). The Codiga Farms project received one of the highest project rankings of any of the projects evaluated in the G.I (over 50 projects were evaluated). This project is consistent with the goals and objectives established in the G.I and address many of the limiting factors of habitat productivity that were established under the G.I. (estuarine loss, off-channel feeding and rearing opportunities for juvenile salmonids).

Lands, Easements and Rights of Way (LER).

Approximately 4.13 acres of land is required for the proposed Section 1135 Project. The city of Tukwila, one of the two Non-Federal Sponsors already owns fee interest to 4.11

acres of which 3.10 acres of fee interest is necessary for the proposed restoration project, with an estimated value of \$147,000. Washington State Department of Natural Resources (DNR) a co-sponsor owns the additional 0.02 of an acre in public trust, necessary for the proposed restoration project, which it will make available for the project. The value of the DNR land is considered nominal. Access to the site is from an existing public road. During construction the City of Tukwila will also make available 1.01 acres for a strip of land between the public road and a portion of the permanent Section 1135 project site for a temporary staging area, with final further improvement to a section of this area for construction of a parking lot as part of a recreation feature outside the Section 1135 permanent project footprint. Since there is no loss in utility to the ecosystem project if the parking lot was not built or a loss in utility if the recreation feature is built without the ecosystem project, the parking lot is viewed as a stand-alone item that the City could choose to relocate in the future if necessary. So the City will only receive credit toward its cost-share requirement for the temporary work area easement, including the parking lot area within the temporary work area footprint for the purposes of the Section 1135 project. The estimated value of this temporary right is \$7,000. See the project drawing for the location of these items.

Following is a summary of the estates and estimated fair market value by each estate proposed for implementing the Section 1135 project.

TABLE I

ESTATE	ACRES	ESTIMATED FAIR MARKET VALUE
Fee	3.12	\$147,000
Temporary Work Area Easement (15 months)	1.01	7,000
<i>Subtotal</i>	<i>4.13</i>	<i>\$154,000</i>
Contingency 25%		<u>38,500</u>
TOTAL	4.13	\$193,000 (rounded)

Real Estate Baseline Cost Estimate

Before advertising for project construction both the City of Tukwila and Washington State, Department of Natural Resources will need to certify their LER available for construction. See Table II below for the real estate cost estimate for this proposed project. The cost includes an estimated fair market value of the lands to be provided for the project and administrative costs for certifying their LER available and any acquisition costs, (e.g. incidental acquisition costs, such as title, survey, appraisal costs, negotiations, recording fees, legal fees, etc) if the lands were acquired within a five-year period of the date the Project Cooperation Agreement is signed. The Federal review and assistance costs are estimated at \$12,000 and include providing Non-Federal Sponsors with LER requirements, review of appraisals, coordination meetings, review of right-of-way documents, legal support, crediting activities, etc.).

TABLE E-II

FEATURE CODE 01 LANDS AND DAMAGES

Lands and Damages	\$193,000
Non-Federal Sponsor's Costs	<u>28,000</u>
Subtotal of Sponsor LER Credit	\$221,000
Federal Review and Assistance Costs	<u>12,000</u>
TOTAL LER (includes 25% contingency)	\$233,000

4. CONSISTENCY STATEMENT: The project modifications would be consistent with the authorized Howard Hansen Dam project and would in no way adversely impact the project.

5. VIEWS OF SPONSOR: The city of Tukwila will act as the non-Federal sponsor for cost-sharing purposes for this project. Washington State, Department of Natural Resources also acting as a non-Federal Sponsor with limited participation to only providing their LER. The city has expressed a strong interest in and commitment to restoring the biological productivity of Codiga Farms. Their letter requesting assistance, dated January 25, 2000 is attached as enclosure 4. The city and Washington State and the Department of Natural Resources are in agreement with the project as described in this fact sheet. The City of Tukwila is in agreement with the estimated implementation cost and has set aside funding for the project in their capitol improvement program budget for 2002. By letter dated 28 February 2002, the sponsor has outlined their understanding of their responsibilities under the program, including cost-sharing and agreement with the terms of the PCA, and indicates their continued support for the project.

6. VIEWS OF FEDERAL, TRIBAL, STATE, AND REGIONAL AGENCIES:

There is strong interest in and commitment to achieving the goals of this potential restoration project amongst state and Federal resource agencies.

During project development and planning, District staff worked closely with representatives of the Muckleshoot Indian Tribe to identify and address cultural issues relating to the property. Tribal representatives participated fully in the Green Duwamish General Investigation study under which the Codiga Farms 1135 was initially proposed. The Tribal representatives also participated in the decision to go ahead with Codiga Project under the section 1135 program, and not the larger Green/Duwamish Ecosystem Restoration Project. Tribal fisheries staff were consulted during the preparation of the EA and FONSI, and offered no comments during the public comment period. Seattle District Staff archeologists surveyed the site for native artifacts, and coordinated the finding with both the Tribe and the SHPO. To date, the Tribal representatives have provided continued input, and have not given written indication of unanswered concerns. Seattle District ERS will continue to coordinate with the Tribe during the construction and monitoring phases of the project.

7. STATUS OF ENVIRONMENTAL COMPLIANCE: This project is compliant with all applicable regulatory requirements. An Environmental Assessment, 404(b)(1) analysis, water quality certification, Coastal Zone consistency and a Biological Assessment have been completed for the project. Under section 404 of the Clean Water Act, Nationwide permit 27 applies. The FONSI was signed 4 September 2001 and the HPA was received 23 July 2001. Endangered Species Act compliance is being met through the Programmatic Biological Assessment (June 2000) prepared for the Green-Duwamish Ecosystem General Investigation Study. Concurrence letters for the Codiga Farms Project were received 10 April 2001 from the NMFS and on 10 March 2001 from the USFWS. All environmental compliance is complete.

8. COSTS AND BENEFITS: The benefits associated with implementation of this project will outweigh the project costs. The project will result in ecosystem benefits to a variety of organisms and increased biodiversity. The recommended plan is the NER plan and the plan supported by the non-federal sponsor.

9. SCHEDULE:

Begin Planning and Design	1 December 2000
Complete Planning and Design	5 March 2002
Sign PCA	30 July 2002
Contract Award (Sponsor In-Kind)	10 August 2002
Complete Construction	15 July 2003
Complete Monitoring	30 October 2007

10. SUPPLEMENTAL INFORMATION:

- **In-kind Services.** The local sponsor has indicated that they wish to perform limited in-kind services, in the form of materials and equipment. This effort is estimated to be \$146,000.
- **Monitoring.** There will be monitoring associated with this project. Monitoring is needed to ensure both biological and functional effectiveness. Monitoring will be focused on the factors that are targeted for improvement. In years one, three and five we will monitor: plant survivability (percent cover), fish use (primarily juvenile salmon), prey resource production, and cross sectional area at the mouth of the slough where it meets the Duwamish River. Estimated monitoring is expected to be \$45,000 total for the project (\$30,000 biological and \$15,000 physical). Note the monitoring cost represent about 3% of the total budget. Additional documentation on the unique demands for monitoring can be found in the August 2000 Preliminary Restoration Plan. Approval for the additional monitoring was provided in earlier documentation.
- **Co-sponsor.** A deviation to the model PCA is being requested. A portion of the entrance channel is under Department of Natural Resources (DNR) jurisdiction. The City of Tukwila and the Washington Department of Natural Resources will

act as non-federal sponsors. The DNR parcel is estimated at 0.02 of an acre (640 square feet), more or less as documented on Plate G-2 of the project drawings based on 2' contour information. Design and construction requirements specify that the channel must extend from elevation 0' to -2' (N.G.V.D., 1929) and be of sufficient width to allow for construction and maintenance of the backwater channel and re-vegetation of the area.

- **Project Costs.** The project will be conducted through an equipment rental contract, District Emergency Management staff has reviewed the project cost estimate.
- **Technical Documentation.** Additional project documentation related to the hydrologic design of the project, HTRW investigations, and geotechnical evaluation is available at the District.
- **HTRW Investigations.** HTRW investigations found that a portion of the barn removal (lead paint on the milk barn, and asbestos on several windows) and soil removal related to a waste oil spill are not eligible for cost sharing in accordance with ER 1165-2-132. The Corps has estimated the amount not eligible for cost share is \$17,000. The sponsor as an in-kind contribution will complete barn demolition and disposal. The sponsor will be required to demonstrate to the Corps that all CERCLA hazardous material has been removed from the site, including confirmation sampling of the soil.
- **Financial Capability.** The City of Tukwila, the project sponsor for all financial considerations, has demonstrated their financial capability to implement the project. The City has set aside \$100,000 in their 2002 budget to meet their required cash contribution and to fund several work-in-kind items to be contracted. The remainder of the non-federal share will be comprised of work-in-kind, performed by in-house staff and provision of necessary real estate.
- **Historical Preservation.** As indicated by a MOU signed by the Corps and the SHIPO, Historical documentation of the barn is required. Estimated costs for this item are \$13,000 and will be a 100% federal responsibility in accordance with the provisions of P. L. 93-291, the Archeological and Historic Data Preservation Act.
- This project was a congressional add for FY00.

11. FINANCIAL DATA: a. (all costs in thousands of dollars)
Project Costs

	Totals	Non-Fed	Federal	Federal Funding Needs			FY+
				FY01	FY02	FY03	
Planning and Design	158		158	158			
Construction							
Restoration	<u>1186</u>	<u>336</u>	<u>850</u>		<u>400</u>	<u>445</u>	<u>5</u>
<i>Total 75%/25%</i>	1344	336	1008				
Recreation <i>50/50</i>	52	26	26			26	
Historic Pres. <i>100/0</i>	13		13		13		
HTRW <i>0/100</i>	<u>17</u>	<u>17</u>					
Total Project	1426	379	1047	158	413	471	5

Note: Projects with a Federal cost of \$1,000,000 or less will have a combined entry for planning and design instead of separate report and plans and specifications rows.

b. Non-Federal Requirements:

LER	\$221,000
Cash	\$ 11,900
In Kind Services	\$146,000
Annual OMRR&R	\$ 2,000

c. Fully funded Cost Estimate: The fully funded cost as found in the PCA is estimated to be \$1,426,000.

12. FEDERAL ALLOCATIONS TO DATE:

Feasibility:	\$158,000
Plans and Specs:	\$0
Construction:	\$0



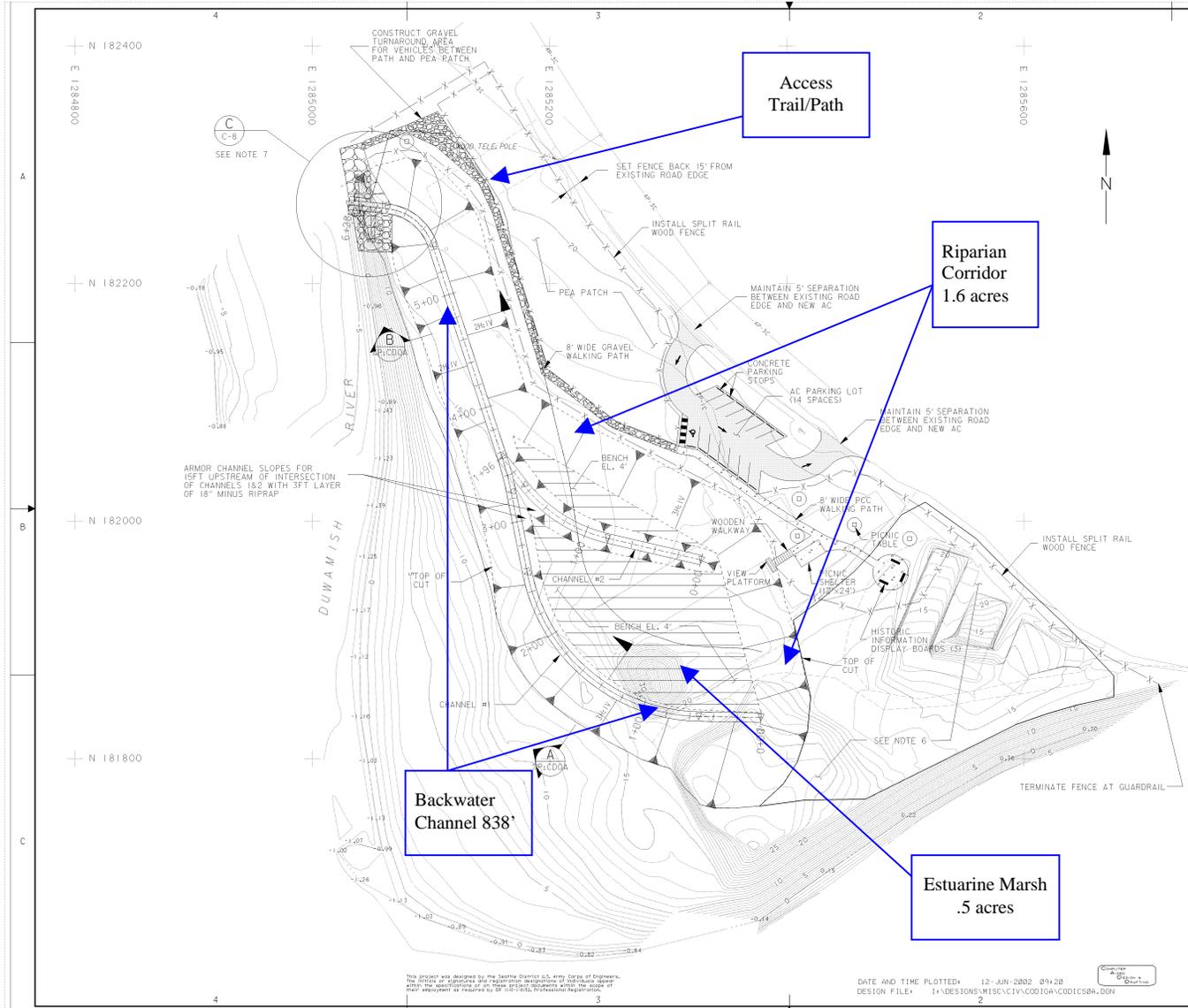
CITY OF TUKWILA



Figure 1



Figure 2



REVISIONS				
SYMBOL	ZONE	DESCRIPTION	DATE	BY

- NOTES:
1. ALL EXCAVATED SLOPES SHALL BE EITHER 3H:IV OR 2H:IV AS INDICATED.
 2. CONTRACTOR SHALL FOLLOW BEST MANAGEMENT PRACTICES ESTABLISHED FOR GREEN/DUWAMISH ESA AS WELL AS THE REQUIREMENTS DOCUMENTED IN PROJECT PERMITS.
 3. HORIZONTAL CONTROL BASED ON NAD 83/91, WASHINGTON NORTH ZONE.
 4. VERTICAL CONTROL BASED ON N.G.V.D., 1929 GA., SA., 47
 5. PICNIC TABLE AND SHELTER LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY LOCATIONS WITH GOVERNMENT REPRESENTATIVE. THERE ARE A TOTAL OF SEVEN PICNIC TABLES, TWO INSIDE THE SHELTER.
 6. SPREAD FILL MATERIAL IN THIS AREA (TOPSOIL, WOOD BARK, OR EXCAVATED MATERIAL) TO PROVIDE SMOOTH GRADE (MAX. SLOPE TO BE 4H:V) BETWEEN TOP OF RIVER BANK AND TOP OF CHANNEL # 1. DO NOT PLACE FILL MATERIAL CLOSER THAN 5 FEET FROM TOP OF RIVER/CHANNEL BANK. ALL EXCESS EXCAVATED EMBANKMENT MATERIAL WHICH CANNOT BE SUITABLY USED IN CONSTRUCTION OF PROJECT FEATURES SHALL BE DISPOSED OF OFF-SITE.
 7. ARMOR CHANNEL # 1 AND RIVER SLOPES TO 15FT FROM OUTLET WITH 3FT LAYER OF 18" MINUS RIP RAP. INCORPORATE MINIMUM 4 PIECES OF LWD INTO BANK AT OUTLET.
 8. 100 YEAR FLOOD ELEVATION IS 13'.
 9. MAINTAIN EXISTING TREES IN THE AREA OF THE BARN. MAINTAIN COTTONWOODS AND OTHER TREES ON THE SOUTH SIDE OF THE PROJECT FOOTPRINT AND IN THE VICINITY OF THE ENTRANCE CHANNEL TO THE EXTENT PRACTICAL.
 10. PARKING LOT GRADING AND DRAINAGE SHALL BE COMPLETED IN ACCORDANCE WITH GENERAL CITY OF TUKWILA SPECIFICATIONS. SEE PLATE C-5 FOR DETAILS.
 11. REMOVAL AND DISPOSAL OF THE BARN AND ASSOCIATED BUILDING, CONCRETE PADS, AND CONCRETE RINGS SHALL BE THE RESPONSIBILITY OF THE SPONSOR AS AN IN-KIND CONTRIBUTION.
 12. SPICOT LOCATION ADJACENT TO VIEWING PLATFORM.
 13. EXISTING FENCE TO BE USED ON SITE. NEW FENCING TO MATCH EXISTING SPLIT RAIL FENCE.
 14. OSPREY POLE TO BE FIELD LOCATED.

DRAFT



REDUCED TO 50% OF FULL SIZE

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

CODIGA FARMS HABITAT RESTORATION

SITE PLAN

KING COUNTY		WASHINGTON	
DATE	INVESTMENT NO.	FILE NO.	SHEET
D			15JUN01 C-2
ISSN: PWN	CHK: DAF	DATE	SHEET 4

This project was designed by the Seattle District U.S. Army Corps of Engineers. The official of operations and responsible signature of professional engineer shall be the responsibility of the project engineer. All the work of this project shall be the responsibility of the project engineer as required by 48 CFR 101-11.5, Professional Registration.