

REVIEW PLAN

**Duwamish / Green River Ecosystem Restoration Project
Riverview Park, King County, Kent, Washington**

95% Design / Environment Assessment / Design Documentation Report

Seattle District

09 June, 2010



**US Army Corps
of Engineers ®**

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**Duwamish / Green River Ecosystem Restoration Project
Riverview Park, King County, Kent, Washington
95% Design**

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1. PURPOSE AND REQUIREMENTS

- a. Purpose.** This Review Plan (RP) defines the scope and level of review for the Duwamish / Green River Ecosystem Restoration Project, Riverview Park. The Review Plan describes the review for the 95% design submittal designed by Tetra Tech, the Environmental Assessment (EA), and the Design Documentation Report (DDR).
- b. References**
- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010
 - (2) Engineering Regulation (ER) 1105-2-100, Planning Guidance Notebook
 - (3) EC 1105-2-407, Planning Models Improvement Program: Model Certification, 31 May 2005
 - (4) ER 1110-2-12, Quality Management, 30 Sep 2006
 - (5) Riverview Park Restoration Project Management Plan (PMP) for Design, 19 June 2009
- c. Requirements.** This RP was developed in accordance with EC 1165-2-209, which establishes the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) design and environmental documents through independent review. The EC outlines four levels of review: District Quality Control (DQC), Agency Technical Review (ATR), and Type I Independent External Peer Review (IEPR) and Type II IEPR. In addition to these four levels of review, decision documents are subject to policy and legal compliance review and, if applicable, model certification/approval. These various elements shall be documented in a RP as part of the Project Management Plan (PMP).

2. PROJECT INFORMATION

- a. Project Authority.** The project is a separable element of the Duwamish / Green Ecosystem Restoration Project, authorized by Section 101 (b)(26) of the Water Resources Development Act of 2000, Public Law 106-541 in accordance with the plans and subject to conditions, recommended in a final report of the Chief of Engineers if a favorable report of the Chief is completed not later than 31 December 2000. A favorable final report of the Chief of Engineers was completed on 29 December 2000. The project is listed as the "Green River Park" which gained construction New Start capability in the Water and Energy Act of 2003. The project was renamed to Riverview Park in early 2006 when the period of design was initiated.

The Non-Federal sponsor for this project in the City of Kent, WA.

- b. Project Phase.** The project is at the 95% design level and is scheduled for construction award in summer 2010 using ARRA funds. The estimated cost for the project is \$4,461,000.00.
- c. Project Description.** The Green River originates in the Cascade Range south of Stampede Pass at an elevation of about 4500 ft. and flows northwest 90.5 miles to Elliot Bay in Puget Sound. The highest elevation in the basin is at 5,750 ft. on Blowout Mountain. The Green River becomes the Duwamish River at River Mile (RM) 11 where the historic Black River joins the Green River. The entire watershed is within King County.

The Riverview Park Ecosystem Restoration project is located at the end of Hawley Road in the City of Kent, WA. The site is located downstream of State Route 167 near River Mile (RM) 23.7 of the Green River. The project site is located within an undeveloped portion of the City of Kent's Riverview Park. The site is a relatively flat field with some mature vegetation consisting of brush and trees growing along the banks of the Green River. Figure 1 illustrates the vicinity of the project site.

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The project proposes the creation of a side channel on the east side of the Green River to provide benefits for fish and other species. The side channel is intended to provide low-velocity refuge and habitat during period of high flow on the Green River. The project will have an upstream and downstream connection to the Green River. The side channel will provide nearly full-time fish access throughout the year. Below provides a summary of the current project design for the Riverview Park Ecosystem Restoration project:

- Channel Profile and Section – The current project design proposes a 750-ft long side channel with an average longitudinal slope of approximately 0.167 percent. The basic cross-section for the side channel is a composite trapezoidal section approximately 24-ft deep with a 20-ft base width. The basic channel cross-section has 2H:1V side slopes on the lower 8-ft of the section and 3H:1V on the above slopes.
- Inlet/Outlet Configuration – The upstream invert of the side channel is 22.08-ft NAVD88. This elevation should maintain inflow to the side channel over 90 percent of the time annually and approximately 99 percent of the time during the critical fish migration window. The side channel inlet is also slightly perched (2-4 feet) above the channel bed of the Green River, which may also help minimize potential sedimentation issues at the side channel inlet. The side channel outlet is also positioned to avoid potential sediment deposition issues.
- Maintenance Bridge – The design specifies a contractor-supplied, 130-ft pre-fabricated long span bridge.
- Grading Plan – The plans call for 5-8 feet of fill to be placed on the east side of the channel excavation, allowing most of the excavated material to remain on-site.
- Slope Protection – Rock slope protection was designed to defend against impinging flow from the Green River at the downstream side of the inlet and outlet of the side channel. Rock slope protection will also be live-staked with a variety of willow species. Rock slope protection is specified at the inlet and outlet of the side channel, as well as lowest 2-ft along the toe over the length of the side channel. In addition to the rock slope protection, fabric-reinforced soil lift slope protection will remain on the lower 8-ft of the channel cross section above the rock toe and coir fabric blanket for the upper portions of the channel section.
- Woody Debris (Log Clusters) – The project design proposes many wood habitat installation (log clusters) along the length of the side channel to enhance habitat diversity and deflect impinging flows to help reduce the potential for scour.
- Landscape and Irrigation – The landscape design specifies a diverse plant palette of native species appropriate to the conditions present in the side channel restoration plan. Plantings will also border the riparian zone on the island that meets the river. The irrigation plan specifies a low-volume, low-pressure drip irrigation system fed by temporary cisterns located throughout the project site.

Permit applications are in progress.

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3/31/2008 9:51 AM P:\T21811 Riverview Park\10. GISMaps\121811 Riverview Location Map (No Title Block).mxd

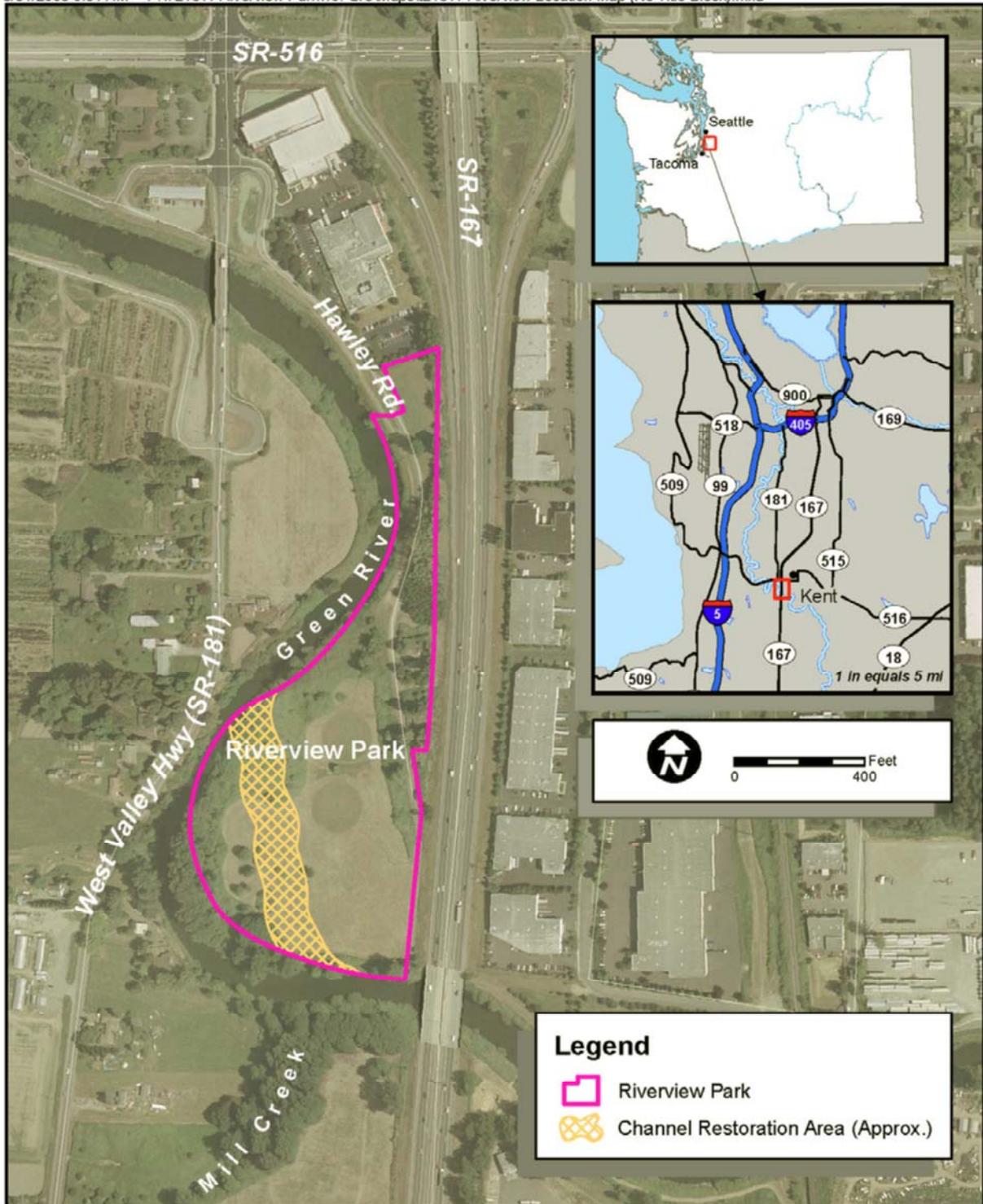


Figure 1 Riverview Park Vicinity Map

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- d. Factors Affecting the Scope and Level of Review.** A risk informed decision was made that ATR is necessary for all major deliverables for this project. This risk informed decision to conduct ATR was guided by criteria presented in EC 1165-2-209, Section 15. Risk Informed Decisions on Appropriate Reviews. Additionally, it was determined that neither Type I nor Type II IEPR is needed for any products associated with this project. Below is justification for why IEPR is not required:
- This is an implementation document and not a decision document, therefore Type I IEPR is not applicable.
 - The project does not include flood risk management or coastal storm damage reduction components, therefore Type II IEPR is not applicable.
- e. Cost-Share Contributions.** The local sponsor shall provide 25% of the total design costs during the period of design in Non-Federal cash, in accordance with the Design Agreement (DA) signed by the local sponsor and the Corps on 17 May 2007. Costs to fund the review process will be covered under the Design Agreement.
- f. Project Delivery Team (PDT).** The PDT is presented in Attachment 2. The project manager is the main point of contact at the Seattle District for more information about this project and the RP.

3. DISTRICT QUALITY CONTROL

a. General. DQC is covered by EC 1165-2-209 is managed by the Seattle District. All draft products and deliverables have been reviewed within the District by the PDT as they are developed to ensure they meet project and customer objectives, comply with regulatory and engineering guidance, and meet customer expectations of quality. All comments have been recorded through a comment log by various disciplines reviewing the products. Work products have been forwarded to the appropriate Branch Chiefs of disciplines directly involved with the development of the document. The Branch Chiefs have assigned the most appropriate person to carry out the review of the document.

b. Products for Review.

- (1) The 95% Design for review shall include all plans and specifications, design analysis report, constructability analysis report, and construction cost estimate. The DQC for the 95% design was completed by the NWS team in April of 2010.
- (2) Draft Environmental Assessment (concurrent consultation with the Tribes and other Agencies). The DQC of the Environmental Assessment was completed by the NWS team in March of 2010.
- (3) Design Documentation Report. The DQC for the Design Documentation Report was completed by the NWS team in April of 2010.

c. Documentation of DQC. A comment log will be used to document all DQC comment, responses, and associated resolutions throughout the review process. Relevant DQC records will be reviewed during each ATR event and the ATR team will provide comments as to the adequacy of the DQC effort for the associated product.

4. AGENCY TECHNICAL REVIEW

a. General. ATR for decision documents covered by EC 1165-2-209 is managed by the appropriate MSC. The ATR shall ensure that the product is consistent with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct

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and comply with published USACE guidance, and that the document explains the analyses and the results in a reasonably clear manner for the public and decision makers. Products will be reviewed against published guidance, including ER's, EC's, manuals, engineering technical letters, and bulletins.

b. Products for Review.

- (1) The 95% Design for review shall include all plans and specifications, design analysis report, constructability analysis report, and construction cost estimate.
- (2) Draft Environmental Assessment (concurrent consultation with the Tribes and other Agencies)
- (3) Design Documentation Report

c. Required ATR Team Expertise. The current ATR plan is to include at least seven technical reviewers. Reviewers will include disciplines from the following:

- Civil Engineering - Senior Civil Engineer (Licensed Professional Engineer) with experience in site design, and hydraulic design of storm water collection and conveyance systems.
- Environmental Coordinator - Senior biologist/archeologist/environmental coordinator with experience in NEPA, ESA, CZMA and NHPA (Section 106)
- Geotechnical Engineering
- Hydraulic Engineering - Senior hydraulic engineer experienced with fluvial-geomorphic processes (erosion, sedimentation, channel stability) and design of minor hydraulic structures and revetments.
- Structural Engineering - Senior Structural Engineer (Licensed Professional Engineer) with 3 - 5 years of experience in bridge design and/or construction.

d. Documentation of ATR. DrCheckssm review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The ATR team leader will prepare a Review Report which includes a summary of each unresolved issue; each unresolved issue will be raised to the vertical team for resolution.

ATR may be certified when all ATR concerns are either resolved or referred to USACE Headquarters (HQUSACE) for resolution and the ATR documentation is complete. Certification of ATR should be completed, based on work reviewed to date.

5. INDEPENDENT EXTERNAL PEER REVIEW

a. General. Type I IEPR is conducted for decision documents if there is a vertical team decision (involving the district, MSC, PCX, and HQUSACE members) that the covered subject matter meets certain criteria (described in EC 1165-2-209) where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside the USACE is warranted. IEPR is conducted by nationally recognized technical experts outside of the Corps of Engineers. IEPR is coordinated by the appropriate PCX and managed by an Outside Eligible Organization (OEO) external to the USACE. The scope of the review will address all underlying planning, engineering, including safety assurance, economics, and environmental analyses performed, not just one aspect of the project.

Type I IEPR is typically conducted on study phase decision documents. Type I IEPR is 100% federal cost and limited to \$500,000. Type II IEPR, also known as Safety Assurance Review, is typically conducted on implementation documents related to design and construction activities, especially

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those where potential hazards that pose significant threat to human life exist. The cost for Type II IEPR will be cost shared in accordance with the project purpose and phase.

- b. **Decision on IEPR.** As discussed in Section 2.c. of the RP, since these are implementation documents, Type I IEPR is not applicable and the project does not warrant Type II IEPR.

6. MODEL CERTIFICATION AND APPROVAL

- a. **General.** The use of certified or approved models for all planning activities is required by EC 1105-2-407. This policy is applicable to all planning models currently in use, models under development and new models. The appropriate PCX will be responsible for model certification/approval. Both the planning models (including the certification/approval status of each model) and engineering models used in the development of the decision document are described below:

Planning Models. No planning models were used during the design phase of this study. No model approval/certification is needed.

Engineering Models.

- Plaxis 2D Version 8.6
- HEC-RAS

All models are standard models that have been previously certified and approved.

7. REVIEW SCHEDULES AND COSTS

- a. **ATR Schedule and Cost.**

The ATR schedule and cost estimate is presented in Table 1. ATR completion is needed by 26 April 2010.

Table 1. ATR Schedule

<u>Task</u>	<u>Date</u>	<u>Estimated Cost</u>
ATR of 95% Design	May 2010	\$10,000.00
ATR of Environmental Assessment	March 2010	\$2,000.00
ATR of DDR	May2010	\$2,000.00
Total:		\$14,000.00

- b. **IEPR Schedule and Cost.** Not applicable.
- c. **Model Certification/Approval Schedule and Cost.** Not applicable.

8. PUBLIC PARTICIPATION

This RP and the accompanying PMP will be posted to the District web site for public review once it is approved by the MSC.

9. PCX COORDINATION

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Not Applicable.

10. MSC APPROVAL

Northwestern Division is the MSC that oversees the Seattle District, and is responsible for approving the RP. A MSC approval letter is required for each review plan and must be signed by the MSC Commander. The commander's approval should reflect vertical team input (involving district, MSC, PCX, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the RP is a living document and may change as the study progresses. Changes to the RP should be approved by following the process used for initially approving the plan. In all cases the MSC will review the decision on the level of review and any changes made in updates to the project.

11. REVIEW PLAN POINTS OF CONTACT

Questions and/or comments on this RP can be directed to the following points of contact:

- Point of Contact –
- Point of Contact at home MSC –

ATTACHMENT 1: TEAM ROSTERS

PROJECT DELIVERY TEAM ROSTER

<u>Discipline</u>	<u>Name</u>	<u>Organization</u>
Project Manager		
Assistant Project Manager		
Lead Planner		
Environmental Coordinator		
Cultural Resource Specialist		
Civil Engineer		
Structural Engineer		
Hydraulic Engineer		
HTRW		
Real Estate		
Geotechnical		
Public Affairs		
Cost Engineering		
Project Manager (Non-Fed Sponsor)		City of Kent, Public Works

The PDT members will also act as the DQC team since the project was designed and completed by Tetra Tech. The EA was completed by the Seattle District.

AGENCY TECHNICAL REVIEW TEAM ROSTER

<u>Discipline</u>	<u>Name</u>	<u>Office/Agency</u>	<u>Years Experience</u>
Review Team Lead	TBD		
Environmental Coordinator			
Civil/Soils Engineer			
Structural Engineer			
Hydraulic Engineer			
Geotechnical Engineer			
Cost Engineering			