



INSTREAM PROJECT DESIGN CHECKLIST

For Design and Construction of Flood and Erosion Protection Facilities and Habitat Restoration Projects that May Include Large Wood Placement or Natural Wood Recruitment

Project Name: Stuck River Drive Revetment Repair Project **Project Manager:** Linda Bartolini Venegas

River/River Mile/Bank: Repair: White River (RM 7.84 Left Bank), Companion: White River (RM 9.3 Left Bank)

Date: June 17, 2020

Check one or both:

Project includes placement of large wood elements

Project may influence the recruitment, mobility and accumulation of natural large wood.

Note: If the project is comprised of emergency work, then fill out and file this form within 30 days of completion of emergency work.

I. Project Background and Preliminary Design (30-40 Percent) Information

(Provide general information at a conceptual level)

- 1. Describe the overall river management context, strategy and objectives for the river reach. Refer to pertinent plans, policies or documents pertaining to flood hazards, salmon recovery, etc.**

River management approaches in this river reach are informed by several plans and related documents that provide context for flood hazard management, salmon recovery, and agriculture.

- This project is consistent with the alternatives for managing King County's flood protection facilities in the adopted 2006 King County Flood Hazard Management Plan (updated in 2013).
- The Salmon Habitat Protection and Restoration Strategy for the Puyallup and Chambers/Clover Creek Watersheds (2018) Water Resource Inventory Area 10 and 12 provides a snapshot of the salmon recovery strategy for the White River.

- 2. Describe the goals and objectives of the project and its relative importance to the success of DNRP program goals and mandates. Identify funding source(s) and describe any applicable requirements or constraints.**

Stuck River Drive Revetment Repair

The Stuck River Drive Revetment Repair Project will repair up to 210 feet of damage on the Stuck River Drive revetment on the White River. The Stuck River Drive Revetment provides protection from river bank erosion to the White River Trail and Stuck River Drive. If left unrepaired, these damages could worsen or the revetment could fail, which presents risk to the trail and road.

TransCanada Companion Action

A companion action will remove existing bank armoring at the TransCanada levee, in the reach upstream of the project site. 200 to 400-linear feet of rock will be removed, which will restore natural geomorphic processes.

The project is funded by the King County Flood Control District.

3. Describe the existing (and historic, if relevant) site and reach conditions, including structural features, channel form, and the presence of naturally-deposited large wood. Describe known utilization by salmonids and any important or unique biological or ecological attributes.

The White River is sediment rich, typical for glacial rivers. The site is in a reach that is largely confined by flood protection facilities, creating high flow velocities and reducing local wood accumulation in the project reach. Some large wood still accumulates on the gravel bars that have formed along the banks and within the channel of the White River, with naturally occurring wood accumulating on the piers of the R Street Bridge.

The White River and its tributaries serve as essential spawning, rearing and migration habitat for chinook, pink, chum, sockeye and coho salmon, as well as winter and summer steelhead, resident rainbow, bull, and cutthroat trout. Currently, chinook, steelhead, and bull trout are listed as threatened under the Endangered Species Act.

Stuck River Drive Revetment Repair

The project site is located along the White River. The repair is located on the left (south) riverbank, adjacent to Stuck River Drive. The site is about 7.5 miles upstream of the White River's confluence with the Puyallup River. The Stuck River Drive revetment is a flood protection facility made primarily of rock riprap designed to protect the river bank from erosion. The revetment directly protects Stuck River Drive from erosion. At the Countyline Levee Setback Project about 1.5 miles downstream, a new channel area contains abundant natural wood that may span one or more of the new channels, as well as engineered logjams constructed in the floodplain and along the bank as part of the Countyline project.

TransCanada Companion Action

The companion project is located on the left (south) riverbank, between RM 9.0 and 9.3, on a parcel purchased by King County RFMS in 1999. All of the county ownership at this site is within the MIT Reservation. The north side of the river is bounded by a tall, steep, exposed bluff along the right bank of the White River, which constitutes the north valley wall. The left bank in this location is hardened continuously for about 2.5 miles downstream from the project site, and flow velocities along the left bank and throughout this reach can be high for fish during flood events.

4. Describe what is known about adjacent land uses and the type, frequency, and seasonality of recreational uses in the project area. Are there nearby trail corridors, schools or parks? What is the source(s) of your information?

The surrounding area for both the repair and companion action is a mix of forest and open scrub-shrub. The land cover is predominantly pasture, blackberry, and scattered native conifer and deciduous trees.

According to the King County 2013 River Recreation Study, this reach of the river experiences infrequent use by all categories of recreationists. River recreational use in the project reach is limited due primarily to high turbidity through the year which greatly limits visibility, and relatively cold temperatures due to its source from Mt. Rainier. Recreational use includes kayaking, fishing, boating, and occasional rafting (observed near R Street), which is generally highest in the spring and summer months.

Stuck River Drive Revetment Repair

Land use in the immediate vicinity of the project includes residential and commercial development, and recreational uses such as the White River Trail and the Game Farm Wilderness Park. Recreational use in the project area is year-round but is limited to passive recreational use of the White River Trail and Game Farm Wilderness Park.

TransCanada Companion Action

Land use in the immediate vicinity of the project includes residential and commercial development (opposite bank), and recreational uses such as the Game Farm Wilderness Park. The TransCanada Levee is also within the Muckleshoot Indian Reservation. Tribal members frequent the site for purposes of obtaining plant materials, to observe the river, and for fishing.

5. **If the project includes wood placement, describe the conceptual design of large wood elements of the project, including, if known at this stage in the design, the amount, size, location, orientation, elevation, anchoring techniques, and type of interaction with the river and stream at a range of flows.**

Stuck River Drive Revetment Repair

The project does not include any large wood incorporated into the design. The repair will be large rock at the toe and willow stakes and plants on the upper bank. There are up to three small trees currently on the bank that may need to be cut down and up to eight trees that will need to be limbed up to 15-16-feet in order to repair the rock revetment. As part of the County's mitigation requirements for obtaining a Hydraulic Project Approval from Washington Department of Fish and Wildlife, the removed trees will be placed into the river (unanchored) with at least 1/3 of their length within the low flow channel. Because the trees are less than 5 inches in diameter at breast height, they are not expected to remain at the project site.

TransCanada Companion Action

While efforts will be made to retain larger diameter trees at the site, approximately 26 trees will be removed during rock removal from the levee in order to facilitate access. At the upstream end of the project site, up to three larger trees (a three-stemmed Douglas-fir and two cottonwoods) would be removed. Of the total trees, up to four may be placed in the river, and the remaining 22 trees would be placed in the riparian area within the levee prism. The area will then be mulched and planted.

6. **If the project includes wood placement, what is the intended structural, ecological or hydraulic function of the placed wood? What role does the placed wood have in meeting the project's goals and objectives? Is the project intended to recruit or trap additional large wood that may be floating in the river?**

The wood placement is intended to serve an ecological function as fish habitat. Ecological functions include:

- Increased structural complexity of riverine habitat.
- Increase shading and refuge for wildlife and fish.

The wood to be placed are not expected to trap or recruit additional wood accumulations.

7. **Is the project likely to affect the recruitment, mobility or accumulation of natural large wood, e.g., by encouraging wood deposition on or near the site or promoting bank erosion that may cause tree toppling? Describe expected site evolution and its potential effects on natural wood dynamics.**

Stuck River Drive Revetment Repair

Current patterns of wood mobility or accumulation are not likely to change as a result of the project. The three trees that will be placed in the river will not be anchored and it is not expected for the wood to remain in place at the project site.

TransCanada Companion Action

The TransCanada Companion Action will locally reintroduce river processes with the removal of bank armoring. The removal of rock at this location will promote bank erosion and may cause trees to topple as the bank retreats. Of the up to four trees that may be placed in the river will not be anchored and are not expected to remain in place at the project site.

8. **Describe how public safety considerations have been incorporated into the preliminary project design. For placed wood, address each of the considerations:**

- a. **Type, frequency, and seasonality of recreational use:** According to the King County 2013 River Recreation Study, this reach experiences infrequent use by recreationists.
- b. **Wood location, positioning, and anchoring techniques:** Wood will not be anchored. It will be placed immediately adjacent to the bank, approximately parallel to shore.
- c. **Maximizing achievement of project goals and objectives while minimizing potential public safety risks:** The repair project goals do not include wood placement. It is a requirement in order to receive necessary environmental permits. The wood that will be placed as permit conditions is not expected to change the background wood loading in the system.

d. **Use of established and recognized engineering, geological, and ecological expertise:** Professional engineers, geologists and ecologists have been involved in design and review of the project. The methods used to design this project are consistent with best professional practices.

9. **Has the project been reviewed and approved by a Licensed Professional Civil Engineer? Please list other licensed technical staff who have reviewed and provided input on the design (e.g., Licensed Geologist and Licensed Engineering Geologist). Specify the Engineer of Record for the design and any other Licensed Professionals who have sealed their portion of the design plans. Were all reviews and approvals completed?**

Yes. Mark Beggs (Engineer of Record) and Mark Ruebel (Professional Engineer) designed the revetment repair and will oversee the wood placement. The project is currently at 30% design. All design reviews and approvals have been completed.

10. **Has the project been reviewed and approved by a King County Professional Ecologist (e.g., person with an advanced degree in aquatic and/or biological sciences from an accredited university or equivalent level of experience) if ecological benefits are an intended project objective, to evaluate the consistency of the design with project goals, existing environmental policies and regulations, and expected or known permit conditions? Specify the Reviewing Ecologist for the project. Was this review and approval completed? What is the anticipated schedule for completing project milestones (30-40% design, final design, major construction/earthmoving) and for soliciting public input)?**

Tom Bloxton, Project Ecologist, approved of the revetment repair design and placement of the wood. The project is currently at 30% design. The anticipated project construction date is August 2020.

Linda Bartolini Venegas 6-17-2020
Project Manager Date

Mark Ruebel
Supervising Engineer, Project Supervisor or Unit Manager Date