

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 Middle Boise-Evans Large Wood Placement Project Project Manager Josh Latterell

River/River Mile/Bank RM 2 (268th Ave SE) Date 07/26/18

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.

Boise Creek is a channelized stream running through an agricultural area on the Enumclaw Plateau. The overall context for stream management is salmon recovery.

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.

The overall goal of the project is to increase Chinook and steelhead rearing and refuge habitat.

Boise Creek is a high priority for aquatic habitat restoration, large wood enhancement, and revegetation.

The project is intended to place large wood in a quantity and arrangement that is consistent with regional guidelines for stream restoration projects (Fox and Bolton 2007). The objective is to place six 'key pieces' approximately with attached rootwads and 55 logs without rootwads in five logjams in close contact with the wetted channel. Jams will be stabilized by the key pieces and contact with existing wood clusters. Each jam will be constructed within the widened channel area created in 2013.

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.

In 2013, King County implemented a habitat restoration project on the property to benefit juvenile Chinook salmon and steelhead trout. The channel was widened and native riparian plants were planted. Large wood clusters were built 30-40 feet apart in the widened channel to encourage the development of scour pools and other diverse aquatic habitats, while simultaneously reducing streambank erosion in the reach. The project produced significant habitat improvements and juvenile salmonids have responded very favorably. However, additional habitat capacity may be achievable by adding

more submerged and overhead cover. In 2013, King County assured co-managers and the U.S. Army Corps of Engineers that additional wood would be placed if certain conditions were met after construction. These conditions were intended to determine whether additional wood could be placed without interfering with project goals. Given that these commitments to co-managers were made in good faith and codified in the federal permit, and the required conditions have been met, King County intends to place additional wood at the project site. In doing so, King County will be helping to achieve salmon recovery goals in WRIA 10 and the White River basin.

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?

Adjacent land use is agricultural with no recreational use. Boise Creek is too small for floating, fishing or other forms of in-water recreation. The primary recreational use is for bird-watching, not instream uses.

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.

The project will place 61 logs in five logjams with close contact with the wetted channel. Six key pieces will be used to stabilize the jams. Key pieces will be at least 22 to 25 inches in diameter and at least thirty feet long with an attached rootwad. Fifty-five racking logs at least 18-21 inches in diameter and at least thirty feet long will be placed in the jams. Racking wood will be in contact with the streambed. Key logs will be partially above the bankfull elevation. Jams will interact with streamflows at all discharge levels. No wood will be placed in the original mainstem of the channel.

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 design intent is to provide cover for juvenile salmon and trout so they can escape predation and survive floods. The placed wood is central to meeting the project goal. The project is intended to trap a small amount of additional wood that may be floating in the river, preventing it from getting trapped under the bridge downstream.

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.

The logs are not expected to trap very much natural large wood because the creek is small and only a small amount of wood moves through the river.

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;

Boise Creek has no recreational use.

- b. Wood location, positioning, and anchoring techniques;

The logs will be stabilized by placing large key pieces on top of the racking pieces, building them against existing embedded log clusters, and by wedging them into the creek banks.

- c. Maximizing achievement of project goals and objectives while minimizing potential public safety risks;

No logs will be placed in the original mainstem of the channel; only in the widened portion of the channel.

- d. Use of established and recognized engineering, geological, and ecological expertise.

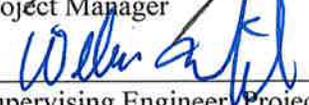
Wood size and quantity and arrangement is intended to be consistent with regional guidelines for stream restoration projects (Fox and Bolton 2007). The project was designed by a professional engineer and professional river ecologist.

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 – the Engineer of Record (Will Mansfield) reviewed, approved, and stamped the plans. A Licensed Engineering Geologist provided design input.

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)?

Yes – Josh Latterell, Ph.D. provided design input and approved the design from an ecological perspective.

	7-26-18
Project Manager	Date
	7/27/18
Supervising Engineer, Project Supervisor or Unit Manager	Date

II. Pre-Construction Information (70% or 100% design with permits) *These questions relate to the designed and permitted project. Information should include input resulting from permit review process, SEPA, boater safety meetings and any other stakeholders.*

11. Have any answers provided in Section I at the Preliminary Design Phase changed in the interim? If so, provide the new answers and the rationale for the change.

No

12. What regulatory review or permits are required for the project (e.g. HPA, Clearing and Grading permit, COE permits)? List any conditions or requirements included in the permit approvals relevant to placement of large wood in the project.

HPA (streamlined fish enhancement project).

13. What specific actions or project elements were employed to address public safety in the final, permit-approved design?

None beyond those considered at 30% design.

14. Describe how the project team solicited public input on the preliminary design. Describe the input received from the public and how, if appropriate, the project team has responded to this input.

A design charrette was held at the Enumclaw public library in 2016. The project team worked with the landowners to design the project. The team also worked with stakeholders (permit agencies, WRIA 10, and the basin steward) and the Muckleshoot and Puyallup Tribes to design a project that optimizes fish habitat restoration potential. Letters and emails were also sent to adjacent landowners notifying them of the project and providing contact information should they have questions.

15. Describe any additional design modifications or mitigating actions that were or will be taken in response to the public comments.

N/A.

16. Will further educational or informational materials be made available to the public to heighten awareness of the project (e.g., public meeting, press release, informational website, or temporary or permanent signage posted in the vicinity of the project)? If so, explain.

The project effectiveness will be made available in online monitoring reports. No signs or educational materials are planned.

17. If the project is expected to influence the recruitment, mobility or accumulation of natural wood, has a Public Safety Management Plan been completed? *N/A*


Project Manager 7-26-18
Date


Supervising Engineer, Project Supervisor or Unit Manager 7/27/18
Date

III. Post-Construction Actions or Project Modifications

18. Have any answers provided in Sections I and II at the Preliminary design and Pre-Construction phases changed in the interim? If so, provide the new answers and the rationale for the change.

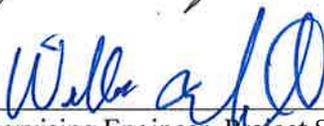
No.

19. Briefly describe the scope and timing of post-construction monitoring and inspection activities planned for the project as they relate to large wood. If a Public Safety Management Plan or Monitoring Plan has been developed for the project, you may simply reference and attach that document.

Five years of monitoring has been performed at this site. Additional fish and habitat monitoring may be completed as funding allows. No safety management plan was needed.

20. If post construction monitoring or inspections result in modifications to the project, please describe the action taken and the rationale and consistency with the Public Safety Management Plan, if applicable.

N/A

	
Project Manager	Date
	
Supervising Engineer, Project Supervisor or Unit Manager	Date