

Pre-Design Guidance for Fish Passage Projects

Updated: 1/24/2022

This document provides guidance for the pre-design (prior to beginning of Preliminary Engineering) effort recommended for fish passage projects. This guidance is intended for any team or office responsible for delivering a fish passage project in the pre-design phase or to use as a resource for team alignment, pre-design planning, and general best practices for fish passage delivery. It includes processes, roles and responsibilities of various subject matter experts, and common deliverables for the many topics that fish passage projects need to consider early on in project scoping to provide more schedule reliability and reduce re-design in the preliminary engineering phase. This document contains many links to other guidance, policy, templates, and examples.

For current guidance, use the following resources:

- [Pre-design Process Guidelines](#)
- [Process for Pre-Design Work on a Project](#)

Common Pre-Design Needs

The following topics outline actions, activities and deliverables that are likely needed or would be valuable to a fish passage project, prior to entering the Preliminary Engineering phase:

[Coordination and facilitation of the Bank Full Width concurrence site visits](#)

Prior to completing the PHDR, a Concurrence site visit between WSDOT, applicable tribes and WDFW is held to gain concurrence on the bank full width measurements taken by the PHDR authors. This generally involves identifying who the required attendees are, proposing dates and times, developing a meeting agenda and site visit logistics. Post site visit duties include distribution of field notes or site visit summaries. In addition to the hydraulic summaries the following items should be included: any measurements or observations taken in the field, comments from tribes and WDFW, commitments by WSDOT, and concurrence on the bank full width measurement or design methodology to be used in the PHDR. Site visit summaries are generally prepared by the PHD authors but could be by others. Use the [Hydraulics Field Report Form](#) for documentation purposes.

[PHDR Management during Pre-Design](#)

The development of a PHDR requires action and assistance from others outside of the report authors. The activities/actions listed below are typically needed to complete the PHDR:

1. Participating in the internal review of PHDRs and providing comment to the PHDR author.
2. Planning/coordinating PHDR priorities with HQ Hydraulics and HQ Fish Passage Delivery Team and Region.
3. Researching parcel ownership adjacent to barrier locations.
4. Coordinating with PHDR author to determine responsible party for providing topo survey.
5. Drafting and distributing [Notification of Entry](#) (NOE) letters to adjacent property owners in advance of PHDR field work. Verify with the respective region real-estate services team which activities are covered under the NOE letter. The [HQ Fish Passage Information Flyer](#) may be helpful to include with the initial physical contact materials.

- a. This also includes acting as the main point of contact for property owners who may have questions or special requests for notification and passing that info on to the appropriate groups.

Management of PHDR comment and response process

Management of the Preliminary Hydraulic Design Report (PHDR) external review process is the responsibility of the region and is completed during the pre-design phase. Management of the process includes but is not limited to:

1. Identification of the individuals responsible for the process.
2. Coordination with HQ Hydraulics PHDR authors and Fish Passage Delivery Engineer when PHDRs are ready for external review.
3. Distribution of the PHDR and comment form to external parties (generally tribes and WDFW).
 - a. Any available information on Structure Free Zone (SFZ) determinations or decisions made about structure type or size should accompany the PHDR when submitted for external review.
4. Communicating comment due dates to external parties.
5. Distributing PHDR comments received to the appropriate group for response. Distributing comment responses and providing an updated PHDR (if applicable) back to the commenters.

Pre-Design Geotechnical Exploration Assistance

The HQ Geotechnical group is providing geotechnical explorations and a scoping level memo for all sites during or before PHDR development. Assistance by the Regions is generally provided by:

1. Determining the need for piezometers and schedule installation.
2. Tracking status of planned drillings.
3. Developing NOE letters for advanced drilling if outside WSDOT R/W. Verify with the respective region real-estate services team which activities are covered under the NOE letter. [HQ Fish Passage Information Flyer](#) may be a helpful communication tool for this.
4. Working with Region Environmental Office to obtain ESA, Section 106 clearances, and/or any other environmental requirements for geotechnical exploration.
5. Receiving, reviewing, commenting on and distributing geotechnical scoping memorandums.
6. The Fish Passage Delivery Engineer uploads completed geotechnical scoping memo to Fish Passage database.
7. Coordinating the post-drilling location survey of explorations.
8. For questions on process or priorities, contact the [Assistant State Engineering Geologist](#) for fish passage.

Fish Passage delivery planning/coordination

1. Reviewing the Region / HQ Fish Passage delivery plan and making recommendations on delivery strategies such as bundling with other Fish Passage sites, delivery method selection (Design-Build vs Design-Bid-Build), and adjustment of PE and CN dates. View the [PDMSG Guidance](#) for more information.

Barrier site data collection

(Future guidance is pending for this list)

Collection of the following list of site specific data is vital for early identification of risks to schedule, and contextual needs that may impact the ultimate type, size and location of the crossing structure:

1. Right of Way plans
2. As-built data from past projects
3. Existing utility locations and agreement type (franchise/permit v. easement)
4. LIDAR data
5. Traffic volume and collisions data
6. Identifying any areas of maintenance concern via coordination with area maintenance staff.

Project Documentation Development

Documents listed below are traditionally part of a project scoping effort and many of them are REQUIRED, prior to authorization of the Preliminary Engineering Phase.

1. [Basis of Design documentation](#)
2. Project Profile (formerly Project Summary)
3. Scoping level Estimates for barrier correction and Basis of Estimate documentation
4. Coordination of Wildlife Habitat memo development
5. Risk register
6. [Stormwater Retrofit Analysis](#)
7. Value Engineering (VE) Study - [When a VE Study needed](#)

Draft proposal for crossing structure TSL

The actual crossing structure type, size and location and/or defined limits of a Structure Free Zone, will likely be influenced by many other factors outside of what is needed to satisfy hydraulic requirements, many of which are already captured elsewhere in this list of pre-design needs. During the pre-design effort a draft proposal of the crossing structure type, size and location should be developed with consideration given to these and other factors:

1. Hydraulic requirements
2. Commitments to Tribe/WDFW or other entities
3. Constructability considerations
4. Maintenance of Traffic
5. [Wildlife connectivity – I4 Scoping Instructions](#)
6. Recommendations from Geotechnical Scoping Memo

Additional guidance on structure selection process can be found (*Guidance in Progress*)

General Coordination

Other general coordination effort to support the pre-design effort outlined below:

1. Coordination with WSDOT specialty groups (Bridge, Geotech, Hydraulics, etc.), as needed
2. Leading regular coordination meetings with partners

3. Engage local jurisdictions to talk about Floodplain Development permit requirements. See [FEMA Floodway guidance](#) for working with locals for more information.

Pre-Design Handoff / Documentation

Data collected and decisions made during the Pre-Design effort are key to the success of project delivery and need to be formally passed on to a design team or documented in some form so that others down the road will be able to pick up where the pre-design effort ended. Of primary importance are type, size and location decisions and any commitments made to outside agencies or tribes related structure type, size and location or restoration design. In cases where the PE phase is scheduled to begin immediately after the pre-design effort is concluded it is recommended that handoff meeting be held between the pre-design team and Project Engineering Office (if it is not the same office). If the PE phase is not scheduled to begin for some time, data collected should be moved to a shared location like ProjectWise. A [Pre-Design Handoff Checklist](#) covering common deliverables for the pre-design effort is available in the resources section of this document.

Development of dedicated Pre-Design teams

Significant effort, resources and wide variety of subject matter experts are needed to accomplish the pre-design needs identified above. As such, it is recommended that regions form dedicated teams comprised of the various SMEs. The role of the Pre-Design team (PDT) would be to manage the development and collection of pre-design effort.

Pre-Design Team Structure

Below is a list of the SMEs that should be considered when putting together a pre-design team:

Pre-Design Manager – Primary point of contact for all Pre-Design support, manages team members, provides direction, develops, manages, and communicates schedules, budgets, and workforce needs for Pre-Design support.

Pre-Design Engineering staff – Project-specific point of contact for other Pre-Design team members. Develop conceptual drawings, scoping-level estimates, and compile data to support the Pre-Design effort. Coordination with Construction Engineers Office.

Pre-Design Environmental staff – Project-specific point of contact for environmental related pre-design needs. Could include leading regulatory and tribal coordination.

Pre-Design Utilities staff – Project-specific point of contact for Pre-Design utility needs. Identify existing utilities and associated agreements within the project study area. Coordinate with utility companies as needed.

Pre-Design Real Estate Services staff – Project-specific point of contact for Pre-Design Real Estate needs. Assist with entry notifications and Temporary Construction Easements for preliminary design investigations as needed. Identify anticipated effort needed in PE phase.

Pre-Design Geotechnical staff – Project-specific point of contact for Pre-Design Geotechnical needs. Identify exploration locations, gather existing geotechnical data, author/coordinate geotechnical scoping memo.

Pre-Design Bridge and Structures staff– Project-specific point of contact for Pre-Design structural needs. Provide scoping level cost estimate for structure type selected, develop preliminary structural plans/exhibits.

Pre-Design resources

Resource documents are listed/linked below that will assist an individual or pre-design team complete many of the pre-design needs identified above.

- [PHDR External Comment Form](#) - Form provided to reviewers during the External review period. Generally WDFW & tribes but could be others.
- [Fish Passage Folio](#) - Brief overview of the background and basics of WSDOT's Fish Passage program.
- [Notice of Entry Letter](#) - Template letter to provide property owners in advance of accessing private property for geotechnical exploration.
- [Project Delivery Method Selection Checklist \(PDMSC\)](#) - Checklist that aids in the decision making behind delivery method selection. Required for all projects.
- [Study area influencing factors](#) - Brief overview to reduce re-work associated with unexpectedly expanding a study area later in design by identifying site specific considerations that may influence the study area and project footprint.
- [Program Tracking and prioritization](#) - Flowchart explaining the different steps of the External PHD review and who is involved at each step.
- [BOD document for Fish Passage](#) - Basis of Design document set up for stand-alone Fish Passage projects.
- [Stormwater Retrofit Analysis Template](#) - This assessment is to be completed for all fish passage projects prior to Project Summary submittal for HQ review. A separate assessment is required for each fish passage site in a project.
- [Design Instruction – Vertical Clearance Considerations](#) - Provides information and guidance for designers on how to determine vertical clearance needs on a project.
- [Fish passage database \(Internal Only Database\)](#) – Provides site and project specific fish passage information for WSDOT owned structures.