The following elements of projects should be discussed before the production of a Preliminary Hydraulic Design by members of both WSDOT and WDFW to help identify the level of complexity for each site, and subsequent need for communication and review. While certain elements may be categorized as indicators of a low/medium/high complexity project, these are only suggestions. The ultimate category for a given site is up to both WSDOT and WDFW, considering both site characteristics and synergistic effects. Ultimately, WSDOT needs to acquire an HPA from WDFW for fish passage projects and the agreed upon ongoing communication of project elements will contribute to efficiencies in the permitting process.

Low Complexity

*These sites have certain elements identified by WSDOT and WDFW as needing further communication and review, but the project is not expected to be complicated or needing in-depth review. The following elements are characteristics of sites that may have a lower level of complexity. If new information becomes available, the level of complexity and associated documentation may change.*

* Minor stream grading
* Low risk of degradation
* The stream is expected to remain in its general location in terms of both profile and alignment, as based on grading limitations
* Low gradient, does not isolate wetlands
* Low potential for backwater impacts to WSDOT structures
* Anticipated freeboard requirement is achievable
* Small stream - ~15ft Bankfull Width (BFW) or less
* Slope ratio is achievable
* Sediment supply is readily available
* Stream simulation is easy to accomplish and document
* Confined channel
* Low risk for Geotech and/or seismic considerations to significantly change the design
* Not tidally influenced
* Not within an alluvial fan
* Low fill
* Locations with multiple barriers don’t influence each other (i.e. each barrier can be considered on it’s own)
* Low potential for bank protection
* No nearby infrastructure that will constrain project

Medium/High Complexity

*These sites have certain elements identified by WSDOT and WDFW as needing further communication and review on. Certain elements may be more or less complex and should be collaboratively discussed to reach consensus about the ultimate level of complexity for the project as a whole.*

* Significant stream grading
* Aggradation/degradation risk and potential regrade length – both outfall and channel length should be discussed
* Complex channel realignment
* High gradient present – step pool or boulder cascade morphology
* Potential for backwater impacts to WSDOT structures from downstream structures
* Freeboard requirements may not be reasonable to achieve
* Bankfull Width – both small and large BFWs could cause challenges and should be discussed
* Slope ratio may not be reasonable to achieve due to presence of constraint upstream/downstream, or deciding not to grade extensively due to potential environmental impacts
* Sediment supply is a concern
* There are challenges to meeting stream simulation
* Floodplain utilization ratio – there is frequent floodplain utilization where a water crossing structure could impact overbank flows
* Complex seismic and/or Geotech considerations that complicate the design
* Site is tidally influenced
* Site is within an alluvial fan
* Deep fill
* Locations with multiple barriers that influence each other and create design complexities
* Projects with potential requirements for bank protection
* Nearby infrastructure will likely constrain the project

**Minimum Info Required for all projects to determine level of complexity and documentation**

From WSDOT to WDFW:

1. Pre-Site Visit meeting (present overview of site visit # 2)
2. Site visit # 3
3. Hydraulic Field Report to include:
   * Site visit write-up/notes
   * Basic stream simulation checklist (including fatal flaws/red flags)
   * Proposed level of complexity

From WDFW to WSDOT:

* Comments/concurrence on Draft Hydraulic Field Report

**Information from WSDOT to WDFW for each level of complexity**

**LOW**

*PreDesign*

*WSDOT provides to WDFW*

* A brief project summary (include red flag summary)
* Document how project will meet or exceed stream simulation and WAC 220.660.190
* Identify structure free zone
* General project status updates during coordination meetings

*Design*

* Identify elements to continue coordination on, and only move forward with those
* Any new design considerations that were not anticipated at the level of complexity determination
* If Design Build, Section 2.30 of RFP
* Provide draft HPA permit drawings (Note the review time required in the WSDOT/WDFW agreement)
* Final HPA application with comanager concurrence in APPs– This should be referenced as the “approved plans in HPA”
* Final Hydraulic Design

**MEDIUM**

*PreDesign*

* A brief project summary (include red flag summary)
* Document how project will meet/exceed stream simulation and WAC 220.660.190
* Structure Free Zone/Structure Proposal/Type Size Location Documentation
* PHD “Light” (developed based on information in the hydraulic field report identified as concerns/red flags)
* General project status updates during coordination meetings

*Design*

* Identify elements to continue coordination on, and only move forward with those
* Any new design considerations that were not anticipated at the level of complexity determination
* If Design Build, Section 2.30 of RFP
* Preliminary Bridge Plans (if applicable)
* Bank protection proposal (if applicable)
* Draft stream plans at around 60% design
* Provide draft HPA permit drawings (WSDOT/WDFW agreement will be amended to include review time)
* Final HPA application with comanager concurrence in APPs– This should be referenced as the “approved plans in HPA”
* Final Hydraulic Design

**HIGH**

*PreDesign*

* A brief project summary (include red flag summary)
* Document how project will meet/exceed stream simulation and WAC 220.660.190
* Structure Free Zone/Structure Proposal/Type Size Location Documentation
* Full PHD current process
* General project status updates during coordination meetings

*Design*

* Identify elements to continue coordination on
* Any new design considerations that were not anticipated at the level of complexity determination
* If Design Build, Section 2.30 of RFP
* Preliminary Bridge Plans (if applicable)
* Bank protection proposal (if applicable)
* Draft stream plans at around 60% design
* Provide draft HPA permit drawings (WSDOT/WDFW agreement will be amended to include review time)
* Final HPA application with comanager concurrence in APPs– This should be referenced as the “approved plans in HPA”
* Final Hydraulic Design

Link to examples of low/medium/high complexity projects and deliverables.