Scope of Work

ESTACADA LAKE LARGE WOOD HABITAT PROJECT, CLACKAMAS RIVER, OR

Introduction

McBain Associates (Consultant) will assist the Oregon Wildlife Foundation (OWF) with preparing an application to Portland General Electric Company's (PGE) Clackamas River Fish Habitat Enhancement Mitigation Fund (Mitigation Fund) for a habitat construction project on the mainstem Clackamas River at the upstream end of Estacada Lake, located approximately 0.3 miles downstream of the Faraday Powerhouse, and approximately 2.4 miles upstream of River Mill Dam (Figure 1). The project site is a gravel bar that is exposed when Estacada Lake levels are lowest (commonly during summer baseflows). During low lake level conditions, the exposed bar area is estimated to be approximately 500 feet long and roughly 1.3 acres in area (Figure 2); depending on site bathymetry, the total project area may be greater than 1.3 acres if shallow in-water construction around the perimeter of the gravel bar is possible. The overall project objective is to design and construct a series of large wood habitat structures, similar to those previously constructed farther upstream in North Fork Reservoir between 2016 and 2020, with project design and implementation funding provided by the Mitigation Fund.

Work for this project is separated into application and design phases (Phase 1 and Phase 2, respectively), with Phase 1 focusing on preparing the Mitigation Fund application, and Phase 2 focusing on the design and implementation effort, as outlined below:

Phase 1: Assist OWF with preparing and submitting an application to the Mitigation Funding Committee. Tasks include:

- Site visit, existing information review, and preliminary data collection.
- Preliminary hydraulic modeling for existing conditions.
- Develop conceptual design drawings and reconnaissance-level construction cost estimates.
- Preliminary permitting review, landowner confirmation and coordination.
- Prepare Mitigation Fund application, which would consist of Phase 2 tasks listed below with corresponding budget.
- Prepare and present proposal to the Mitigation Fund committee.

Phase 1 assumed timeline for all tasks: January 2023 – August 2023.

Phase 2 (if the project is funded): Prepare designs and implementation support. Tasks would include:

- Field data collection (site-specific bathymetry and reach bathymetry for final existing conditions and design conditions hydraulic model).
- Existing conditions and design conditions hydraulic modeling.
- Prepare draft and final stamped design drawings.
- Prepare a basis of design report.
- Permitting and regulatory compliance.
- Provide construction inspections.
- Document as-built conditions.

Phase 2 assumed timeline for all tasks: January 2024 – August 2025.

<u>The following scope of work is for Phase I only</u>. If project funding is awarded by the Mitigation Fund, the Consultant will develop a scope of work for Phase 2. In addition, this scope of work is developed assuming a design-build approach, with the understanding that Aquatic Contracting LLC will be the construction contractor, and that they will enter into agreement with OWF under a separate contract.

Phase 1 Tasks:

Work for Phase 1 focuses on assembling the information necessary to prepare a successful Mitigation Fund application, preparing the application (to be submitted by OWF), and presenting the project to the Mitigation Fund Committee on behalf of OWF. Preliminary hydraulic modeling and conceptual design drawings will be prepared as part of the application package to demonstrate a hydraulic and geomorphic understanding of the site, as well as a technical basis for the proposed work. To accomplish this, work will be performed under the following six tasks:

Task 1. Site Data Collection and Review. Collect and review data to characterize existing site conditions that may influence the proposed project, including reviewing site geomorphology and hydrology (channel stability, hydrograph components, flood frequency). One site visit will be conducted to (a) identify equipment access, materials access and staging areas with Aquatic Contracting, (b) conduct geomorphic reconnaissance, and (c) install and survey water surface elevation recorders for hydraulic model calibration. Water surface elevation recorders will be installed at upstream and downstream ends of the project site. Data will be collected continuously through Phase 1 and into Phase 2 to capture a range of flow events, and then correlated to USGS streamflow records below River Mill Dam and PGE operations records at River Mill Dam. Data will be used to confirm the existing site-specific stage-discharge relationship and calibrate the hydraulic model (Task 2).

Task 1 budget: $6,000

Task 1 Deliverables: One meeting (virtual) following field visit to discuss observations and next steps.

Task 2. Preliminary Hydraulic Modeling. Conduct preliminary hydraulic modeling for the project site to characterize site hydraulics (e.g., depth, velocity, shear stress) and inform conceptual design development using an existing hydraulic model. The existing hydraulic model encompasses the project site and was recently developed for work performed by the Consultant for PGE to support construction at the Faraday Powerhouse. Channel conditions have changed since this hydraulic model was developed due to construction activities; however, the model can be used for this project phase to evaluate conceptual design hydraulics and demonstrate proof of concept. If the project is funded by the Mitigation Fund, new channel bathymetry surveys and hydraulic modeling will need to be performed as part of Phase 2 to develop draft and final designs.

Task 2 budget: $7,700

Task 2 deliverables: Graphical hydraulic model results to be included with the Mitigation Fund application and presentation.

Task 3. Develop Conceptual Designs and Construction Cost Estimates. Prepare conceptual design drawings that represent preliminary habitat structure placement strategy. Conceptual design drawings will be based on existing topography and bathymetry. Conceptual design drawings will be included with the Mitigation Fund application, and will be developed in consultation with OWF for approval prior to OWF submitting the application. In addition, construction and materials cost estimates will be developed to provide total project funding requests in the Mitigation Fund application.

Assumptions: (1) Additional bathymetry and topography data collection, and hydraulic modeling, will be needed in Phase 2 to provide necessary site-specific data, and (2) construction cost estimates will be developed in coordination with Aquatic Contracting.

Task 3 budget: $8,700

Task 3 deliverables: Draft conceptual design drawings for review and approval to include with Mitigation Fund application.

Task 4. Preliminary Permitting Review, Landowner Confirmation, and Coordination. Conduct an assessment of land ownership for the project site, construction access, and required permits to implement the project. Information provided by Clackamas County and PGE suggests project site land ownership includes PGE and the State of Oregon. Work for this task will include contacting both landowners to discuss proposed project plans, confirm support, identify constraints or conditional approvals, and establish involvement for design review and implementation. For example, the project site is influenced by Estacada Lake, which is regulated at River Mill Dam by PGE, who also has power generation and transmission infrastructure within the project vicinity. In addition, all other county, state, and federal agencies with regulatory authority over the proposed activities will be identified and preliminary outreach will be made to confirm required regulatory consultations and approvals.

Assumptions: Project site property ownership is PGE and the State of Oregon

Task 4 budget: $3,600

Task 4 Deliverables: A summary of correspondence with confirmed landowners and a description of potential regulatory approvals and conditions, as available.

Task 5. Prepare Clackamas River Mitigation Fund Application: The Consultant will prepare the 2023 Mitigation Fund application based on the conceptual design in Task 3 and regulatory review in Task 4. This task includes proposal preparation time and one trip to PGE's Faraday office to present the project to the Clackamas River Mitigation Fund committee, assumed in July 2023.

Assumptions: (1) Application will become available in April 2023, will be due in May 2023, and will be of the same format and require the same information as pre previous Mitigation Fund applications, and (2) the Consultant will prepare the application for OWF, and OWF will submit the application to the Mitigation Fund.

Task 5 budget: $11,500

Task 5 Deliverables: Completed application, submitted in coordination with OWF, by the specified Mitigation Fund proposal due date. Includes one trip in July 2023 to PGE (assumed Faraday office) to present the proposed project to the Mitigation Fund committee.

Task 6. Project Management. Conduct project management, contractor coordination, and staff coordination.

Assumptions: Phase 1 project management will be required from January 2023 through August 2023.

Task 6 budget: $4,500

Task 6 deliverables: Monthly invoices submitted to OWF and work progress reports to OWF as requested.

Task and budget summary:

TASK	***DESCRIPTION***	***TASK COST***
TASK 1	Site Data Collection and Review	$6,000
TASK 2	Preliminary Hydraulic Modeling	$7,700
TASK 3	Develop Conceptual Designs and Construction Cost Estimates	$8,700
TASK 4	Preliminary Permitting Review, Landowner Confirmation and Coordination	$3,600
TASK 5	Prepare Clackamas River Mitigation Fund Application	$11,500
TASK 6	Project Management	$4,500
	TOTAL:	**$ 42,000**

Figure 1. Aerial photograph of Estacada Lake showing from upstream to downstream: Faraday Powerhouse, the proposed Project Site (outlined by red polygon), and River Mill Dam. The distance from Faraday Powerhouse to the project site is approximately 0.3 miles, and from the project site to River Mill Dam is approximately 2.4 miles.

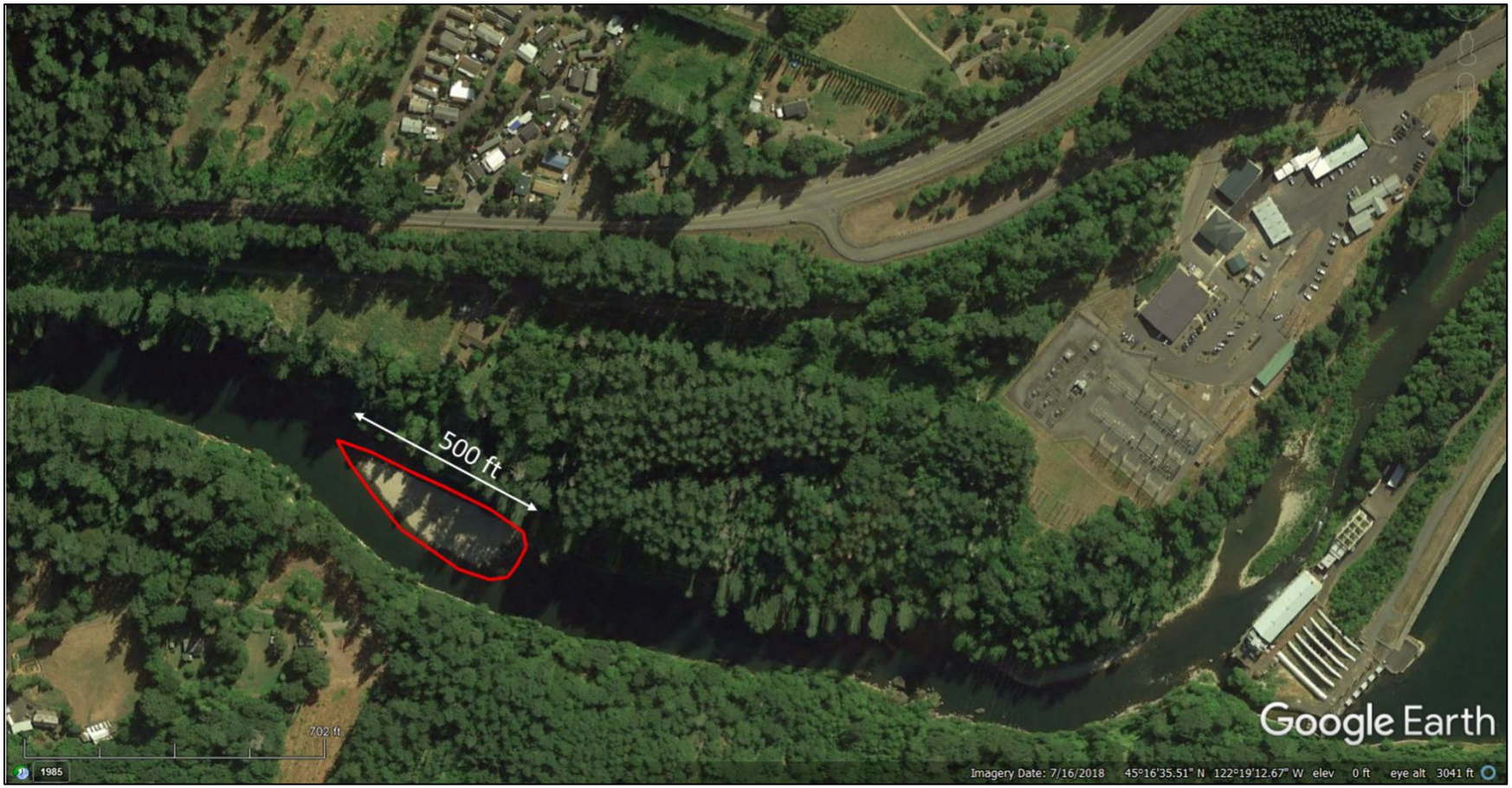

Figure 2. Aerial photograph of the proposed project site (enlargement of Figure 1). Red polygon surrounding the exposed bar is approximately 1.3 acres and is approximately 500 feet long. Habitat features would be constructed across the bar surface (which is commonly inundated) and along the shallow margins. The actual project area will be larger than the red polygon shown but depends on site bathymetry, i.e., the amount of available additional shallow water area where habitat features can be constructed.