

# Memorandum

May 30, 2023

To: Carol Creasey and Joe Donisi – Clallam County

From: David Rice, PE – Anchor QEA, LLC

**Re: Dungeness Off-Channel Reservoir  
Progress Report – May 30, 2023**

This memorandum provides a brief update on the progress of the Dungeness Off-Channel Reservoir project as it relates to the work being completed by Anchor QEA and our subconsultants under our professional services agreement with Clallam County for design and permitting of the project. The work is being completed and tracked by Anchor QEA as follows:

- Phase 1 – Preliminary Design (Anchor QEA Project Number 210439-02.01)
- Phase 2 – Detailed Design and Permitting, which includes the following:
  - Work funded by a Streamflow Restoration Grant from the Washington Department of Ecology (Ecology) (Anchor QEA Project Number 210439-02.02)
  - Work funded by an Irrigation Efficiencies Grant Program from the Washington State Conservation Commission (Anchor QEA Project Number 210439-02.03)

A summary of the status of each Phase and the tasks included in Anchor QEA's approved scope of work for each phase of the project is provided below.

## Status – Phase 1 – Preliminary Design

The Phase 1 scope of work was completed in 2021 and 2022. The following provides a brief summary of the work completed as part of Anchor QEA's Phase 1 scope of work:

### Task 1-1: Data Collection/Validation of Concept

This task is complete. Most of the work was completed in 2021.

#### *Subtask 1-1.1: Collection and Review of Background Information*

This subtask is complete. The project team completed the following:

- Collected and reviewed available background information.
- Summarized background information in a short memorandum.
- Reviewed the memorandum and additional data needs with Clallam County.

#### *Subtask 1-1.2: Phase 1 Topographic Surveys*

This subtask is complete. The project team completed the following:

- The Phase 1 topographic surveys were completed by Anchor QEA's subconsultant, Parametrix. The following data was collected:
  - Key points along the thalweg of the H1 Lateral from the HID Main Canal through the reservoir parcel (Clallam County Parcel 04306210000).
  - Detailed topography of the HID Main Canal at the location of the flow control structure that will be constructed near the intersection of the HID Main Canal and H1 Lateral.
- Anchor QEA prepared a base map of existing conditions based on the survey data collected and publicly available LiDAR data.

Two optional survey work tasks were included in the Phase 1 scope of work that were not completed. Clallam County and Anchor QEA determined that these tasks will be completed by the City of Sequim as part of a separate, but related project:

- Survey of the overland flow capture system alignment, including:
  - The HID Canal from upstream of Sporseen Road to downstream of Happy Valley Road
  - The Happy Valley Road right-of-way from east of the HID Canal to the reservoir parcel
- Survey of wetlands along Happy Valley Road, related to the overland flow capture system.

### *Subtask 1-1.3: Phase 1 Geotechnical Explorations*

This subtask is complete. Anchor QEA worked with our subconsultant Shannon & Wilson to complete the Phase 1 Geotechnical Explorations. The following was completed by Shannon & Wilson:

- Review of existing project data, published geologic maps, well logs and other information.
- Participation in the project kick-off meeting at the site with the project team and County.
- Completion of a geologic reconnaissance of the site and geologic exposures near the site.
- Completion of Phase 1 explorations, including:
  - Marking exploration locations.
  - Contacting the one-call utility locate; initial coordination with the Washington State Department of Ecology Dam Safety Office (DSO) to advise them of the project.
  - Completion of borings and test pits to characterize subsurface soil conditions.
  - Installation of groundwater elevation monitoring devices in multiple borings
  - Laboratory testing of soil samples obtained.
- Preparation of a preliminary Geotechnical Data Report that presents the data collected, geologic reconnaissance, subsurface explorations, groundwater data, laboratory testing, and existing pre-project subsurface exploration data.

### *Subtask 1-1.4: Additional Cultural Resources Review*

This task is complete. Anchor QEA worked with our cultural resources experts and Dudek to complete the following:

- Coordination of cultural resources compliance with the funding agency (Ecology)

- Coordination of the cultural resources review with Phase 1 geotechnical work
- Preparation of cultural resources compliance memorandums and forms needed to continue to move the project forward

Anchor QEA worked closely with Dudek to complete a supplemental cultural resources survey of areas of the site that had not previously been surveyed in detail in the fall of 2022. Dudek completed a draft report of their findings in December 2022. That report was reviewed by the County, finalized, and then passed to Ecology in April 2023 for review and consultation with the tribes and the Washington Department of Historical Preservation (DAHP). The additional cultural resources work was included in our Phase 1 scope of work, but most of the work and budget related to the supplemental cultural resources survey and report was transferred to Phase 2 for invoicing and tracking so that it could be reimbursed with funding from the Irrigation Efficiencies Grant.

#### *Subtask 1-1.5: Wetland Study (Optional)*

The portions of this task related to the reservoir are complete. A wetland delineation and ordinary high-water mark survey was completed for the reservoir site and the area in and around the existing HID intake facilities. The wetland delineation was summarized as a subsection in the Preliminary Basis of Design Report. Delineation of wetlands along Happy Valley Road was not completed as part of this scope of work. As noted previously, it was determined that delineation of wetlands related to the overland flow capture project would be completed by the City of Sequim under a separate scope of work for that project.

#### *Subtask 1-1.6: Phase 1 Infiltration Testing*

Limited work was completed on this task. Anchor QEA subcontracted with Pacific Groundwater Group to complete an evaluation of infiltration potential at the reservoir site. Work completed under this task by Pacific Groundwater Group was limited to the participation in meetings to discuss groundwater conditions at the site and observation of groundwater conditions in borings during the geotechnical exploration. It was determined that infiltration testing needed to support design of the proposed infiltration facility would be completed by the City of Sequim under a separate scope of work with grant funding they secured to complete analysis and design of the overland flow capture system and infiltration facilities.

### **Task 1-1 Deliverables**

Anchor QEA completed and submitted the following deliverables to Clallam County:

- Data Summary, Data Gaps, and Additional Data Collection Plan Memorandum
- Phase 1 Topographic Survey
- Preliminary Geotechnical Data Report

- Wetlands and Waters of the U.S. Delineation Summary (included as a subsection in the Preliminary Basis of Design Report)

## Task 1-2: Preliminary (30% Complete) Design

This task is complete. Preliminary design deliverables were submitted for review in December 2021. The preliminary design was presented to the County Commissioners and the Dungeness Reservoir Work Group early in 2021. The deliverables were then revised based on comments and submitted as final deliverables for the preliminary design phase of the project in March 2022.

### *Subtask 1-2.1: Preliminary Design Studies*

This subtask is complete. The following was completed as part of this subtask:

- **Reservoir Configuration Evaluation:** Anchor QEA reviewed and evaluated multiple reservoir configurations, including hosting a half-day design charette with Clallam County and Washington Water Trust to discuss the potential reservoir configurations, constraints, cost drivers, and other design considerations.
- **Reservoir Hydrology and Hydraulics Analysis:** Anchor QEA completed a preliminary reservoir hydrology and hydraulics analysis. The hydrology and hydraulics analysis was included as a section in the Preliminary Basis of Design Report.
- **Geotechnical Engineering Analyses:** Shannon & Wilson completed geotechnical engineering analyses to support preliminary design of the project, including the following:
  - Preliminary development of seismic design parameters and ground motion spectra
  - A preliminary liquefaction susceptibility evaluation for embankment foundation soils
  - A preliminary engineering seepage and stability analyses for the reservoir embankment and foundation and bluff west of the reservoir
  - Development of concept designs for the reservoir embankment
  - Development of concept sketches for the embankment slopes and internal zoning
  - Preparation of a Preliminary Geotechnical Engineering Design Report
- **HID Irrigation Intake and Screening Assessment:** Anchor QEA worked closely with our subconsultant, HDR, to complete the following as part of this assessment:
  - Review of existing project design and record (as-builts) documents.
  - Completion a site visit.
  - Discussion of operations and maintenance with HID personnel.
  - Completion of a brief condition assessment of the intake and associated structures.
  - Identification and preparation of an annotated list of potential improvement options.
  - Preparation of a short memorandum summarizing the assessment.
- **Water Quality Analysis:** Anchor QEA completed an analysis of water quality. The analysis included a detailed review of available water quality data from the site and information about water quality in similar lakes and initial water quality modeling to estimate nutrient loading,

generalized trophic conditions, and impact on dissolved oxygen and temperature. The results were summarized as a subsection in the Preliminary Basis of Design Report.

This task also included an optional evaluation of the overland flow capture and conveyance system and related infiltration facilities. This evaluation was not completed as it was determined that the study would be completed as part of a separate scope of work by the City of Sequim with funding provided for the analysis and design of the overland flow capture and infiltration facilities.

### *Subtask 1-2.2 Preliminary Permitting Approach and Outreach*

This subtask is complete. Anchor QEA initiated discussions with key regulatory agencies about the project, including the U.S. Army Corps of Engineers (USACE), the Washington Department of Fish and Wildlife (WDFW), and Clallam County. Anchor QEA prepared a detailed summary of anticipated permitting requirements and a recommended approach to obtaining the necessary permits and approvals, which were included as a subsection in the Preliminary Basis of Design Report.

### *Subtask 1-2.3: Preliminary (30% Complete) Design*

This subtask is complete. Anchor QEA prepared and submitted a draft Preliminary Basis of Design Report with preliminary design drawings and opinions of cost to Clallam County and the Dungeness Reservoir Work Group for review in December 2021. Comments were provided and the documents were then revised and submitted as the final deliverables for this task in March 2022.

## **Task 1-2 Deliverables**

Anchor QEA completed and submitted the following deliverables to Clallam County:

- Alternative Reservoir Configuration Figures and Summary Table
- Permitting Approach (provided as a subsection of the Preliminary Basis of Design Report)
- Preliminary Basis of Design Report
- Preliminary Design Drawings
- Preliminary Opinion of Probable Costs
- Preliminary Environmental Impacts Summary (also provided as a subsection of the Preliminary Basis of Design Report)

## **Task 1-3: Phase 1 Project Management and Coordination**

This task is complete and included the following:

- Management of the work completed during Phase 1 of the project.
- Scheduling and participation in a kick-off meeting and initial site visit with the project team in July 2021.
- Coordination of the work with Clallam County.

- Participation in meeting with the Dungeness Reservoir Work Group.
- Participation by Anchor QEA's project manager and principal-in-charge in weekly check-in meetings with Clallam County.
- Presentation of the preliminary design to the Clallam County Board of Commissioners.
- Presentation of the preliminary design to the Dungeness Reservoir Work Group.
- Preparation for a participation in a public meeting in December 2022.
- Support for public outreach and response to requests for information from the public.
- Preparation of invoices and regular coordination with the County's project manager.

### **Task 1-3 Deliverables**

Anchor QEA has completed and submitted the following deliverables to Clallam County as part of the work completed on Task 1-2:

- Invoices and progress reports (PDF format)
- Meeting notes (PDF format)
- Preliminary Design Presentation Materials (PDF and Microsoft PowerPoint format)

### **Phase 1 – Amendments**

The following changes in scope of work and amendments were incorporated into the Phase 1 work:

#### **Amendment No. 1 – Monitoring Well Installation and QAPP**

Anchor QEA coordinated with Shannon and Wilson to drill a shallow boring and install a monitoring well near the dump site at the south end of the reservoir parcel. A flush-mount monitoring well was installed to monitor groundwater conditions adjacent to the dump site. Anchor QEA's geologist developed the well and sampled the well for hydrocarbons and total and dissolved heavy metals. The data was integrated into a revision of the Phase 2 Environmental Site Assessment, previously prepared by Anchor QEA under a separate scope of work. Anchor QEA also update the opinion of probable cost for cleaning up the dump site.

As part of this amendment, Anchor QEA also prepared a QAPP, as required by Ecology, to support water quality monitoring of surface waters through the irrigation system.

#### **Amendment No. 2 – Time Extension**

Amendment No. 2 was a no cost time extension that extended the time for completion of the Phase 1 work until December 31, 2022.

### **Phase 1 – Additional Work Completed**

Anchor QEA has completed additional tasks that were not included in our approved scope of work but were requested by Clallam County to keep the project moving forward. These include:

- **Funding Application Support** – Anchor QEA provided many hours of support and input to grant funding applications for the project. The County has pursued funding from the Federal Emergency Management Agency (FEMA) Building Resilient Infrastructure and Communities (BRIC) program, the FEMA Hazard Mitigation Grant (HMG) program, the U.S. Bureau of Reclamation WaterSMART program, and Ecology’s Streamflow Restoration Grant program.
- **Participation in On-site Meeting with the Dungeness Reservoir Work Group** – Anchor QEA prepared for and participated in a meeting at the site with the Dungeness Reservoir Work Group in October 2021 during development of the preliminary designs.
- **Additional Cultural Resources Coordination with Ecology** – Additional time and effort was required, beyond what was included in our original scope of work, during initiation of the Phase 1 geotechnical field work to coordinate with Ecology. Multiple meetings were conducted with Ecology and the County and correspondence was completed in an effort to resolve these concerns to allow for the planned geotechnical field work to proceed. Adjustments were made to boring and test pit locations to allow for the work to progress.

## **Status – Phase 2 – Detailed Design and Permitting**

Phase 2 work on the detailed design and permitting for the project was initiated with an amendment in October 2022. The following provides a brief summary of the work completed as part of Anchor QEA’s Phase 2 scope of work:

### **Task 2-1: Permit Ready Design Drawings**

Anchor QEA is working on completing design drawings that will be submitted with permit applications to initiate environmental permit review for the project. Anchor QEA has coordinated with Clallam County to confirm the key design elements to be included in the detailed design for the project. Some key elements were not developed to the 30% level of design during Phase 1 – Preliminary Design. Others require revisions prior to submitting permit ready design drawings. The following additions and adjustments are being made to the design drawings so that the permit-ready drawing set reflects the intended project as accurately as possible:

- Development of design drawings for the intake and screening facility upgrades to the preliminary (30% complete) level. Only a concept drawing for these upgrades was included in the preliminary design deliverables. Additional detail is needed for permitting the project.
- Development of design drawings for piping of the HID Main Canal to the preliminary (30% complete) level. Design of the HID Main Canal was not included with the preliminary design deliverables but is needed for permitting the project.
- Adjustments to the reservoir design to reflect public comment. These adjustments are being evaluated and discussed with Clallam County.
- Adjustments to the design of the outlet works to reflect preliminary design comments.

- Adjustments to the spillway design to reflect preliminary design comments and our more recent review of site topography and layout.

### Task 2-1 Deliverables

No deliverables have been submitted yet in support of this task.

### Task 2-2: Support for Funding Applications

Anchor QEA continues to support Clallam County in developing and completing requests and applications for funding. Support provided during Phase 2 has included providing updated information to FEMA for the Hazard Mitigation Grant Program funds that the County applied for in 2021 and support for requests for congressional funding appropriation from offices of members of the U.S. Congress that represent Washington and Clallam County.

### Task 2-3: Phase 2 Field Data Collection

A multiphase approach to collect field data needed to support the design was proposed at the outset of the project. This second phase of targeted field data collection has been initiated.

#### Subtask 2-3.1: Phase 2 Topographic and Boundary Surveys

This subtask is mostly complete. Anchor QEA has been working with our subconsultant, Parametrix, to complete collection of the following topographic survey data:

- **Survey of HID Intake Structure, Diversion Canal, and Fish Screen.** This data was collected in December 2022 and a base map was provided early in 2023.
- **Survey of HID Main Canal Pipeline Alignment.** This data was also collected in December 2021 and a base map was provided early in 2023.
- **Survey of Existing Independent Canal Intake Channel and Screening Facility.** Topographic survey of the area around the Independent Canal screening facility and the outlet of the proposed spillway was completed in December 2022 and January 2023. A base map was provided early in 2023.
- **Geophysical Survey Lines.** As an additional item of work, stake locations placed by the geophysical survey team were located by the surveyor in January 2023.
- **Boring Locations.** The locations of geotechnical borings that have been completed to date, including the Phase 1 borings and two borings completed during Phase 2 on the HID Main Canal, were collected by the surveyor in April 2023.
- **Boundary Survey.** The surveyor completed a boundary survey and related calculations to locate and map the parcel boundary for the reservoir parcel (Clallam County Parcel 043036210000). The field work was completed in late April 2023 and mapping was provided early in May 2023.

- **Additional Survey Points.** Additional data was collected during the field work that was completed in April 2023 to supplement the survey of the HID intake structure, diversion canal, and fish screen.

The remaining task to be completed during Phase 2 will include the location of additional borings that will be completed at the reservoir site once property owner permission is granted and the Phase 2 geotechnical site investigations are completed.

### **Subtask 2-3.2: Phase 2 Geotechnical Explorations and Recommendations**

This subtask is partially complete. Anchor QEA is working with Shannon & Wilson to complete the supplemental geotechnical explorations and develop recommendations for detailed design. To date, the following work has been completed by Shannon & Wilson or our other subconsultants:

- **Additional consultation with the Washington Department of Ecology DSO.** Anchor QEA and Shannon & Wilson participated in a call with DSO in early March 2023.
- **Geophysical Survey.** Shannon & Wilson worked with Global Geophysics and Jamestown Excavating to complete a geophysical survey of subsurface soils to estimate the depth to the top of the glacial till layer that underlies the site. This included the following work:
  - Clearing limbs off trees and bushes to establish site lines.
  - Completion of the geophysical survey.
  - Calibration and interpretation of the resulting geophysical data.
- **Phase 2 Borings on HID Main Canal.** Shannon & Wilson and Holt Services completed borings near the HID fish screen facility and near the bifurcation of the HID Main Canal and H1 Lateral in April 2023. These two borings were completed within the HID Main Canal easement and were located by the surveyor, as indicated in the summary of Subtask 2-3.1.

Shannon & Wilson plans to complete a seismic reconnaissance in the next month or so. Completion of borings and test pits on the reservoir property is on hold until the property owner (Washington Department of Natural Resources) provides an updated land use license that will allow for this field work. The current land use license only allows for non-ground disturbing field work. The locations of borings and test pits will be refined based on the results of the geophysical survey prior to completing the work. Additional work that is yet to be completed will also include suspension logging in one of the deep borings to obtain seismic shear wave velocities, completion of additional observation wells, hydraulic conductivity testing, and laboratory testing of samples collected in borings and test pits. The work will be summarized in a Phase 2 Geotechnical Data Report.

### **Subtask 2-3.3: Utility Locations**

Anchor QEA coordinated with the City of Sequim to discuss the location of utilities known to exist in River Road. The City of Sequim has a 12-inch asbestos-cement water main in River Road. A City of

Sequim vector truck crew located the 12-inch main, with the assistance of Clallam County and Anchor QEA, in April 2023. The location will be used to refine the design of the inlet pipeline to ensure that water main is protected during construction of the inlet pipeline.

#### **Subtask 2-3.4: Verify Capacity of the HID Main Canal**

Anchor QEA visited the site with HID personnel in the fall of 2022 to measure flow in the HID Main Canal to estimate the capacity of the canal. Those measurements have been completed and the analysis has confirmed the need for replacing the canal with a pipeline to increase the capacity to 25 cfs. The work will be summarized in the Basis of Design Report for the project.

#### **Task 2-3 Deliverables**

Anchor QEA has not completed or submitted any formal deliverables yet, but shared field data with Clallam County during our weekly check-in meetings.

#### **Task 2-4: Detailed Design Analyses**

This task has been initiated as described below.

##### **Subtask 2-4.1: Geotechnical Engineering Analyses**

Shannon & Wilson has initiated the review of geophysical data. The data provided from the geophysical survey has been imported into a model so that the data can be reviewed in a three-dimensional format relative to the three-dimensional model of the preliminary reservoir configuration. The analysis is progressing and will be refined to support the design.

In addition, Shannon & Wilson completed a detailed field reconnaissance of seismic conditions at the site. Shannon & Wilson's geologists visited the site to review site conditions and document the presence of potential seismic hazards. They followed up the site visit by additional analyses of LiDAR mapping and a more detailed review of geologic mapping and information to draw conclusions about the presence of seismic hazards. A preliminary presentation of the information collected to date was provided to Clallam County late in May 2023.

Additional geotechnical engineering analysis tasks that have not been initiated or completed yet include seepage and stability analyses, refined seismic design analyses, supplemental geologic hazards review, embankment construction materials review, review of reservoir liner and core material options. The analyses and geotechnical recommendations will be summarized in a final Geotechnical Engineering Report.

##### **Subtask 2-4.2: Final Design Studies and Final Basis of Design Report**

This task has been initiated with the following work:

- Initial work has been completed to evaluate a potential dam breach and resulting inundation extents. A hydraulic model has been developed for this analysis. Additional refinement is needed to complete this work and to reflect any adjustments to the reservoir design.
- Additional hydrology and hydraulic analyses are underway.

Additional work that has not yet been initiated but will be completed as part of this subtask include a detailed reservoir operations plan and analysis, additional water quality analyses, and an evaluation of drought pumping to the HID Main Canal. The work will be incorporated into the Basis of Design Report for the project.

### **Task 2-4 Deliverables**

No deliverables have been submitted yet in support of this task.

### **Task 2-5: Detailed Design Documents**

Anchor QEA has initiated work on several detailed design tasks. As noted in the update for Task 2-1, the primary design work being completed now includes development of designs for key elements that were not developed to the preliminary design level during preliminary design and adjustments needed to reflect comments on the preliminary design from the public and the Dungeness Reservoir Work Group. These design activities were summarized as part of the update for Task 2-1.

#### **Subtask 2-5.1: 60% Design**

Limited design work is being done to set up the 60% drawings and incorporate the elements identified as part of the update for Task 2-1.

#### **Subtask 2-5.1: 60% Design**

This subtask has not yet been initiated.

#### **Subtask 2-5.3: Final Design**

This subtask has not yet been initiated.

### **Task 2-5 Deliverables**

No deliverables have been submitted yet in support of this task.

### **Task 2-6: Permitting**

Anchor QEA is working on applications for local, state, and federal permits. Work completed to date primarily includes the following:

- Preparation and review of a SEPA checklist for the project.
- Initiation of documentation to support application for a shoreline permit by Clallam County, which will trigger their review and SEPA determination.

- Coordination with the permitting agencies.
- Participation in a virtual pre-planning meeting with key regulatory personnel from Clallam County, the U.S. Army Corps of Engineers, and the Washington Department of Fish and Wildlife.

Anchor QEA is working on scheduling a formal permitting review meeting with Clallam County and is working toward completion of permit applications. The initial effort is to initiate the permitting process, which may likely take up to year to complete, and to help the County make a determination regarding SEPA compliance. If the SEPA determination indicates that more a more detailed project-level environmental review is required, that could significantly impact the project schedule.

Completion of the applications will be contingent on completion of permit-ready design drawings, which are underway. However, key decisions about how to incorporate public comment still need to be made before the drawings and permit applications can be completed.

### **Task 2-6 Deliverables**

A draft SEPA checklist was submitted to the County for review in February 2022. Additional permit documents will be submitted to the County for review as they are completed. The completion of permit applications and supporting documentation will be completed once additional direction is provided regarding the configuration of the reservoir and other key elements.

### **Task 2-7: Dam Construction Permit**

Anchor QEA has continued consultation with the Washington Department of Ecology DSO. Anchor QEA, Shannon & Wilson, and Clallam County participated in a check-in call early in March 2022. A dam construction permit application will be completed and submitted soon to formalize DSO's engagement in the project. They will then be given an opportunity to review geotechnical field activities and design deliverables as they are completed.

### **Task 2-7 Deliverables**

No deliverables have been submitted yet in support of this task.

### **Task 2-8: Operations and Maintenance**

This task has not yet been initiated.

### **Task 2-9: Phase 2 Project Management**

Anchor QEA is actively managing the work being completed during Phase 2 of the project. Work completed to date has included:

- Initiation and management of the work completed during Phase 2 of the project.
- Coordination of the work with Clallam County.

- Participation by Anchor QEA's project manager and principal-in-charge in weekly check-in meetings with Clallam County.
- Participation in three virtual meetings with the Jamestown S'Klallam Tribe and the Washington Department of Fish and Wildlife to discuss impacts on fish.
- Preparation for and participation in meetings with the Dungeness Reservoir Work Group on March 13, 2022, and May 11, 2023.
- Preparation for and participation in design review meetings with the County's project manager, other public works staff, and Commissioner Ozias to discuss the reservoir configurations and potential adjustments that may need to be made to address concerns and comments provided by the public and the County's project partners. Design review meetings were held with the County on January 20, 2023, and April 17, 2023.
- Support for public outreach and response to requests for information from the public.
- Preparation of invoices and regular coordination with the County's project manager.

## Task 2-9 Deliverables

The following have been prepared and submitted as deliverables for this subtask:

- Monthly invoices
- This progress report
- Meeting notes

## Phase 2 – Amendments

No amendments have been requested or approved to date during the Phase 2 work. However, several out-of-scope work items have been completed, as noted below under "Phase 2 – Additional Work Completed". Amendments may be required to cover some of this additional work. Anchor QEA will continue to monitor the additional work against the overall Phase 2 budget and will communicate with Clallam County to determine when an amendment is warranted.

## Phase 2 – Additional Work Completed

Anchor QEA has completed additional tasks that were not included in our approved scope of work but were requested by Clallam County to keep the project moving forward. These include:

- **Additional Cultural Resources Survey Work – Main Canal from Intake to H1 Lateral** – Anchor QEA issued an amendment to Dudek for this work in October 2022 to include a survey of the HID Main Canal. Work was completed during their field survey in November 2022 and summarized in their final report, which was finalized in April 2023. The cultural resources work is being tracked as Task 2-3.5.
- **Additional Topographic Survey Work** – The cost of the topographic survey increased when we contracted the work with our subconsultant, Parametrix, due to additional detail that was

needed near the intake facilities and along the HID Main Canal, as part of the work outlined in Task 2-3.1 of our approved scope of work. We also made adjustments to the scope of the survey and requested additional detail in the area at the Dungeness River side channel near the Independent Canal diversion facilities to support the design of the spillway facilities. In addition, we asked the surveyor to gather the locations of stakes along the geophysical lines, which was not part of their original scope of work, but they were able to gather that data within the time frame allocated for their most recent trip to the site.

- **Review of Alternate Reservoir Configurations** – In response to the comments from the public and project partners, Anchor QEA has reviewed three potential alternate reservoir configurations. This review has consisted of the following work for each alternate configuration:
  - Revisions to the reservoir grading to determine the size and shape of the alternate reservoir configuration. Each alternate configuration was reviewed to confirm that it provides roughly the same storage capacity as the preliminary design, but with a lower embankment to elevation.
  - Calculation of the volumes of materials required for each alternate reservoir configuration.
  - Completion of a high-level opinion of cost (by plugging new volumes into the opinion of cost for the preliminary design configuration) to reflect the volumes to understand the order-of-magnitude impact on the cost of the project.
  - Preparation of figures to illustrate the alternate configuration relative to the preliminary design, including plan and section views.
- **Additional Meetings and Coordination** – Anchor QEA has prepared for and participated in several meetings to coordinate the work with Clallam County, the Dungeness Reservoir Work Group, and key stakeholders that were not anticipated in our Phase 2 Scope of Work. These have included the following meetings:
  - A virtual design review meeting to discuss potential reservoir design adjustments with Clallam County, Shannon & Wilson, and Anchor QEA on January 20, 2023.
  - A virtual meeting to discuss concerns about the impact of upgrades to HID intake facilities on fish habitat with Clallam County, the Jamestown S’Klallam Tribe, WDFW, HID, Anchor QEA, and HDR on February 17, 2023.
  - A virtual meeting to discuss concerns about the impact of upgrades to HID intake facilities on fish habitat with Clallam County, the Jamestown S’Klallam Tribe, WDFW, HID, Anchor QEA, and HDR on March 3, 2023.
  - A meeting with the Dungeness River Work Group to review progress on the design and respond to questions for the Work Group with Anchor QEA and Shannon & Wilson on March 13, 2023.

- A virtual design review meeting to discuss potential reservoir design adjustments with Clallam County, Shannon & Wilson, and Anchor QEA on April 17, 2023.
- A meeting with the Dungeness River Work Group to review progress on the design and respond to comments for Work Group members with Anchor QEA on May 11, 2023.

Anchor QEA has also assisted the County in developing responses to comments from various members of the Dungeness Reservoir Work Group and is currently helping the County prepare a comment response table that will track comments from Work Group members.

- **Frequently Asked Questions (FAQ) Document** – Anchor QEA assisted Clallam County and Washington Water Trust in preparing an FAQ document to summarize questions submitted by the public through the public meeting in December, through the County’s web site, and via other communications with the County. A response was prepared for each question, either by Anchor QEA, Clallam County, or Washington Water Trust. The FAQ document was then formatted and edited by Anchor QEA, submitted to the Dungeness Reservoir Work Group for review, then edited further to address comments provided. The FAQ document was finalized and published to the County’s web site late in May 2023.
- **Geotechnical Field Work – Additional Trip to Complete Borings** – Anchor QEA coordinated with Shannon & Wilson to schedule an additional trip to the site to complete borings on the HID Main Canal near the fish screen/settling basin and at the H1 Lateral, so that the work could be reimbursed with IEGP funds before they expire. These borings were planned as part of the overall Phase 2 geotechnical program in our approved scope of work but were intended to be completed at the same time as borings to be completed at the reservoir site. The additional trip will result in a change in the cost of the Phase 2 geotechnical field work due to increased labor time for those involved and an additional mobilization/demobilization fee from the drilling contractor.
- **Topographic Survey – Additional Data Collection Trip** – Anchor QEA coordinated with the surveyor to collect the remaining data that could be collected at the site, including the property boundary at the reservoir site and Phase 1 boring locations, to allow for reimbursement with IEGP funds before they expire. The Phase 2 boring locations will not be complete, so an additional trip will be required to collect those locations. The collection of this data is included in Anchor QEA’s scope of work, but the additional trip may result in additional surveying costs that are above the budget allocated for that work. However, based on the work invoiced to date, we are hopeful that the additional trip will fit within the budget allocated for the work.

## Status of Overall Project Budget

Table 1 outlines the costs that have been invoiced to date for the Anchor QEA team's work on this project and a comparison against the budgets that have been allocated for the work. As shown in Table 1 and as requested by Clallam County, Anchor QEA is tracking the work completed under Phase 2 under two different project numbers. Each project number reflects work that the County is intending to reimburse with separate funding sources. One source is the Ecology Streamflow Restoration Grant and the other is the Washington State Conservation Commission Irrigation Efficiencies Grant. In addition, Anchor QEA is tracking work that will be constructed with funds from the U.S. Bureau of Reclamation's WaterSMART Grant with separate task numbers with a "WS" suffix, so that the County can track funds that can be used as match for that grant.

It should also be noted that the work that has been invoiced to date includes the additional work completed to date that was not originally part of our scope of work. This work is listed above under Phase 2 – Additional Work Completed. As noted previously, no amendments or increases to the budget have been requested yet to cover this work. However, an amendment or amendments may be required to cover some of this additional work. Anchor QEA will continue to monitor the additional work against the overall Phase 2 budget and will communicate with Clallam County to determine when an amendment is warranted.

Anchor QEA appreciates the opportunity to work on this project with Clallam County. Please feel free to contact Anchor QEA's project manager (David Rice, [drice@anchorqea.com](mailto:drice@anchorqea.com) or 206-219-5902) with any questions or concerns regarding the progress of the project to date.

**Table 1  
Dungeness Reservoir – Budget Status Summary**

Phase/Task	Description	Funding Source – Ecology Streamflow Grant		Funding Source – Irrigation Efficiencies Grant		Total – All Funding Sources	
		Budget	Invoiced to Date	Budget	Invoiced to Date	Budget	Invoiced to Date
<b>Phase 1 – Preliminary Design</b>							
<b>Total</b>	<b>Phase 1 – Preliminary Design<sup>2,3</sup></b>	<b>\$926,464</b>	<b>\$926,171</b>			<b>\$926,464</b>	<b>\$926,171</b>
<b>Phase 2 – Detailed Design and Permitting</b>							
2-1	Permit Ready Design Drawings	\$10,774	\$8,782			\$10,774	\$8,782
2-1-WS	Permit Ready Design Drawings – WS <sup>5</sup>	\$4,000	\$0			\$4,000	\$0
2-2	Support for Funding Applications	\$26,382	\$2,917			\$26,382	\$2,917
2-3	Phase 2 Field Data Collection	\$493,616	\$229,180	\$292,866	\$136,184	\$786,482	\$365,364
2-3.1-OPT	Reservoir LiDAR Survey (Optional) <sup>1</sup>	\$52,704	\$0			\$52,704	\$0
2-3.1	Topographic and Boundary Surveys <sup>1</sup>			\$111,477	\$92,570	\$111,477	\$65,494
2-3.2	Phase 2 Geotechnical Explorations <sup>1</sup>	\$438,265	\$228,566	\$152,000	\$13,927	\$590,265	\$242,493
2-3.3	Utility Locations <sup>1</sup>	\$2,647	\$614			\$2,647	\$614
2-3.4	Verify Capacity of the HID Main Canal <sup>1</sup>			\$3,970	\$3,920	\$3,970	\$3,920
2-3.5	Cultural Resources <sup>1</sup>			\$25,419	\$25,767	\$25,419	\$25,767
2-3-WS	Phase 2 Field Data Collection - WS <sup>5</sup>			\$30,066	\$29,391	\$30,066	\$29,391
2-3.1-WS	Topographic Survey of Intake Facilities - WS <sup>1,5</sup>			\$13,066	\$13,504	\$13,066	\$13,504
2-3.2-WS	Phase 2 Geotechnical Borings and Wells - WS <sup>1,5</sup>			\$14,000	\$13,614	\$14,000	\$13,614
2-3.5-WS	Cultural Resources - WS <sup>1,5</sup>			\$3,000	\$2,273	\$3,000	\$2,273
2-4	Detailed Design Analysis	\$343,065	\$24,765	\$19,000	\$5,978	\$362,065	\$30,743
2-4-WS	Detailed Design Analysis	\$15,000	\$676			\$15,000	\$676
2-5	Detailed Design Documents	\$434,723	\$58,249			\$434,723	\$58,249
2-5-WS	Detailed Design Documents	\$190,000	\$13,250			\$190,000	\$13,250
2-6	Permitting	\$39,363	\$25,339			\$39,363	\$25,339
2-6-WS	Permitting - WS <sup>4</sup>	\$16,000	\$0			\$16,000	\$0
2-7	Dam Construction Permit	\$37,221	\$1,381			\$37,221	\$1,381
2-8	Operations and Maintenance	\$39,254	\$0			\$39,254	\$0
2-8-OPT	Energy Generation Feasibility (Optional)	\$18,359	\$0			\$18,359	\$0
2-9	Phase 2 Project Management	\$175,887	\$104,780			\$175,887	\$104,780
<b>Total</b>	<b>Phase 2 – Detailed Design and Permitting<sup>5</sup></b>	<b>\$1,843,644</b>	<b>\$469,319</b>	<b>\$341,932</b>	<b>\$171,553</b>	<b>\$2,185,576</b>	<b>\$640,872</b>
<b>Total</b>	<b>All Phases</b>	<b>\$2,770,108</b>	<b>\$1,395,490</b>	<b>\$341,932</b>	<b>\$171,553</b>	<b>\$3,112,040</b>	<b>\$1,567,043</b>

Notes:

1. The numbers for sub-tasks shaded in gray roll up into the totals for the task above the gray shaded rows.
2. The original budget approved for preliminary design and related amendments was \$931,464. Of the budget allocated to cultural resources review as part of the Phase 1 budget, \$25,000 was transferred to Tasks 2-3.5 and 2-3.5-WS under Phase 2 so that it could be invoiced against funding provided by the Irrigation Efficiencies Grant. To accommodate additional effort that was needed to prepare and participate in the public meeting in December, \$20,000 of budget was transferred from the Phase 2 budget for Tasks 2-5 and 2-5-WS to Phase 1. The net decrease in the Phase 1 budget was \$5,000.
3. Most of the Phase 1 budget for optional work that was not completed was reallocated to additional work that was required during Phase 1, including funding application support, additional meetings and coordination, and additional cultural resources coordination with Ecology.
4. The budget approved for Phase 2 was \$2,180,576. That included \$2,109,512 of non-optional work and \$71,063 of optional work. As noted above, \$25,000 was transferred to Tasks 2-3.5 and 2-3.5-WS from Phase 1 so that it could be invoiced against funding provided by the Irrigation Efficiencies Grant. To accommodate additional effort that was needed to prepare and participate in the public meeting in December, \$20,000 of budget was transferred from the Phase 2 budget for Tasks 2-5 and 2-5-WS to Phase 1. The net increase in the Phase 2 budget was \$5,000.
5. Tasks with a "WS" suffix indicate design and permitting work for items that will be constructed with U.S. Bureau of Reclamation WaterSMART funds.