



**JEFFERSON COUNTY
BOARD OF COUNTY COMMISSIONERS**

AGENDA REQUEST

TO: Board of County Commissioners
Mark McCauley, County Administrator

FROM: Pinky Mingo, Environmental Public Health and Water Quality Director
Tami Pokorny, Natural Resources Program Coordinator

DATE: November 29, 2024

SUBJECT: Agenda Item – Amendment 1 to the Professional Services Agreement with Natural Systems Design + Coastal Geologic Services for the Hoh River Resiliency – Lindner Complex Reach Design Project; January 1, 2024 – June 30, 2026; to develop reach-scale restoration designs; Upon Signature \$0

STATEMENT OF ISSUE:

Jefferson County Public Health requests approval of Amendment 1 to the professional services agreement with Natural Systems Design + Coastal Geologic Services for the Hoh River Resiliency – Lindner Complex Reach Design Project; January 1, 2024 – June 30, 2026; to develop reach-scale restoration designs; Upon Signature: \$0

ANALYSIS/STRATEGIC GOALS/PROS and CONS:

Public Health requests approval of Amendment 1 to the professional services agreement with Natural Systems Design + Coastal Geologic Services for the Hoh River Resiliency – Lindner Complex Reach Design Project. The project is funded by RCO #22-1375 through the Washington Coast Restoration & Resiliency Initiative for a section of the middle Hoh River. Due to a change in landowner participation, the design effort will move upstream from the Lindner Complex reach to the Fletcher Ranch reach. An existing conditions assessment will be completed for the Lindner Reach. The project is to develop restoration designs for placement of ELJs to achieve multiple habitat and community objectives and to create and support area jobs. The Lindner Reach is located at RM 21 - 23; the Fletcher – TNC Reach is located at RM 27.3 – 28.3.

FISCAL IMPACT/COST BENEFIT ANALYSIS:

Funding for the agreement is provided by RCO#22-1375. An in-kind match of 2022 LiDAR and aerial imagery datasets valued at \$150,000 is being provided by the Hoh Tribe.

RECOMMENDATION:

JCPH Management recommends BoCC approval of Amendment 1 to the professional services agreement with Natural Systems Design + Coastal Geologic Services for the Hoh River Resiliency –

Lindner Complex Reach Preliminary and Final Design Project; January 1, 2024 – June 30, 2026; to develop reach-scale restoration designs; \$835,433

REVIEWED BY:

 11/18/24
Mark McCauley, County Administrator Date

CONTRACT REVIEW FORM

(INSTRUCTIONS ARE ON THE NEXT PAGE)

Clear Form

CONTRACT WITH: Natural Systems Design

Contract No: WQ-24-004-A1

Contract For: Lindner Complex Project

Term: 1/1/2024 - 6/30/2026

COUNTY DEPARTMENT: Environmental Health

Contact Person: Tami Pokorny

Contact Phone: #498

Contact email: tpokorny@co.jefferson.wa.us

AMOUNT: \$835,433.00 [NO CHANGE]

Revenue:

Expenditure: \$835,433.00

Matching Funds Required:

Sources(s) of Matching Funds

Fund # 128

Munis Org/Obj 12855310

PROCESS:

- ☐ Exempt from Bid Process
- ☐ Cooperative Purchase
- ☐ Competitive Sealed Bid
- ☐ Small Works Roster
- ☐ Vendor List Bid
- ☐ RFP or RFQ
- ☒ Other: Sole Source

APPROVAL STEPS:

STEP 1: DEPARTMENT CERTIFIES COMPLIANCE WITH JCC 3.55.080 AND CHAPTER 42.23 RCW.

CERTIFIED: ☒ N/A: ☐

Signature

Oct. 30, 2024

Date

STEP 2: DEPARTMENT CERTIFIES THE PERSON PROPOSED FOR CONTRACTING WITH THE COUNTY (CONTRACTOR) HAS NOT BEEN DEBARRED BY ANY FEDERAL, STATE, OR LOCAL AGENCY.

CERTIFIED: ☒ N/A: ☐

Signature

Oct. 30, 2024

Date

STEP 3: RISK MANAGEMENT REVIEW (will be added electronically through Laserfiche):

Electronically approved by Risk Management on 10/31/2024.

STEP 4: PROSECUTING ATTORNEY REVIEW (will be added electronically through Laserfiche):

Electronically approved as to form by PAO on 10/31/2024.
Standard amendment language and original agreement included.

STEP 5: DEPARTMENT MAKES REVISIONS & RESUBMITS TO RISK MANAGEMENT AND PROSECUTING ATTORNEY(IF REQUIRED).

STEP 6: CONTRACTOR SIGNS

STEP 7: SUBMIT TO BOCC FOR APPROVAL

Contract Amendment #1

Between

Natural Systems Design + Coastal Geologic Services, Inc.

And

Jefferson County Public Health

Hoh River Resiliency – Lindner Complex Reach Preliminary and Final Design

WHEREAS, Natural Systems Design + Coast Geologic Services, Inc. (Contractor) and Jefferson County (County) entered into an agreement on February 12, 2024 for Professional Services to develop engineered designs to restore habitat for salmon and steelhead, and to provide community benefits, for a segment of the Hoh River.

WHEREAS, the parties desire to amend the terms of that agreement.

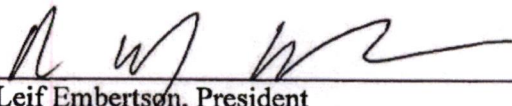
IT IS AGREED BETWEEN BOTH PARTIES AS NAMED HEREIN AS FOLLOWS:

1. The first three sentences of Section 1 will now read, “The Contractor is retained by the County to perform the following Project: Assist in the development of conceptual and preliminary designs for the Fletcher Ranch Reach, and final design for Phase 1, through a collaborative process and in partnership with the Hoh Tribe. The project reach is located at River Mile (RM) 27.1 – 28.2 of the Hoh River between Highway 101 and the Hoh Rainforest of Olympic National Park. The primary goals of the project are to increase spawning and rearing habitat for spring Chinook, steelhead, and coho, while improving local community resiliency by decreasing risks associated with flooding and erosion.
2. The existing Exhibit A Scope of Work for the Linder Reach (only) will now read as shown in Attachment A of this amendment.
3. A new Scope of Work for the Fletcher Ranch Reach (only) is added as Attachment B of this amendment.

4. All other terms and conditions of the agreement will remain ^{the} same.

Dated this _____ day of _____, 2024

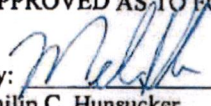
By: _____
Kate Dean, Chair
Jefferson Board of County Commissioners

By:  _____
Leif Embertson, President
Natural Systems Design

ATTEST:

By: _____
Carolyn Gallaway, CMC, Date
Clerk of the Board

APPROVED AS TO FORM ONLY:

By:  for 10/31/2024
Philip C. Hunsucker, Date
Chief Civil Deputy Prosecuting Attorney

Attachment A

Lindner Reach Scope of Work

For the middle Hoh River, the Contractor will perform an existing conditions assessment for the Lindner reach through a collaborative process and in partnership with the Hoh Tribe. The project reach is located between River Mile (RM) 5 – 6.5 on the Middle Hoh River between Highway 101 and Olympic National Park in western Jefferson County, Washington. The primary goals of the project are to increase spawning and rearing habitat for spring Chinook, steelhead, and coho while improving local community resiliency by decreasing risks associated with flooding and erosion. Work to be completed by the Contractor is divided into the following list of tasks and linked to specific project deliverables:

- Task 1: Existing Conditions Characterization
- Task 2: Existing Conditions Reach Hydrology & Hydraulics
- Task 3: Reach Geomorphology
- Task 4: Climate Change Impacts
- Task 5: Project Management & Coordination

Task 1. Existing Conditions Characterization

Contractor will collect and analyze information on current and past site conditions to inform development of conceptual restoration designs for the Lindner Complex Reach. The analysis approach supports reporting consistent with requirements in RCO SRFB Manual 18 (<https://rco.wa.gov/wp-content/uploads/2019/05/SAL-Manual18.pdf>). The existing conditions assessment field work will be limited to the channel and floodplain area south of the Upper Hoh Road where access has been arranged. Contractor will work with the County and RCO to determine the extent to which a Cultural Resources desktop review of the project area and development of a work plan should be initiated as part of this task to ensure sufficient time for consultation with RCO and the affected Tribes on the extent and nature of cultural resources field investigations. The Existing Conditions Characterization task is divided into the following sub-tasks:

Subtask 1.1. Riparian Forest and Floodplain Wetlands Condition Field Assessment

Contractor will characterize riparian floodplain conditions within the project reach. The riparian forestry mapping in the project reach completed for the Resiliency Plan will be updated using the 2022 LiDAR and verified in the field for accuracy. Contractor will complete a desktop review of National Wetland Inventory, Jefferson County wetland inventory, and National Resource Conservation Service (NRCS) soils mapper to identify areas of hydric soils and mapped wetlands and waters of the U.S. to support the subsequent field assessment. It is anticipated that 3 days of fieldwork will be required to fully assess this reach. The field verification effort will focus on collecting existing conditions data on:

- Riparian stand composition and condition
- Floodplain vegetation communities
- Extent and nature of wetlands proximate to the channel to determine extent of existing connectivity to key salmonid rearing habitats and opportunities for improved connectivity

- Indicators of the Ordinary High Water Mark (OHWM) to correlate with the existing conditions hydraulic modeling (Task 2)

Subtask 1.2. Geomorphic Field Assessment

Contractor will document and characterize active and impaired geomorphic processes in the reach, as well as record existing habitat protection and restoration opportunities. Data to be acquired to support the geomorphic assessment and design include:

- Active bank erosion
- Significant local sediment inputs
- Pebble counts sufficient to characterize mapped channels
- Active deposition and/or incision
- Bank protection
- Field verification of relative elevation model (REM)
- Design constraints

Task Assumptions

- County will coordinate permission to access private property needed for field surveys.
- River flows will be sufficiently low as to not restrict access to perform field work safely.
- Landowner meetings will not occur during field data visits.
- Travel costs and field equipment use will be billed as expenses and are included in costs.
- Additional topographic information will only be collected if deemed necessary at high-risk locations.

Task Deliverables:

- Existing conditions description chapter for assessment report and relevant figures and appendix.

Task 2. Existing Conditions Reach Hydrology & Hydraulics

Development of an existing conditions hydraulic model of the project reach will be a critical tool for understanding flow patterns during seasonal and flood levels, identifying restoration opportunities, characterizing the extent of floodplain and wetland connection currently.

Subtask 2.1. Hydrology

Hydrology for the hydraulic model will be developed by analyzing USGS gages (#12041200, #12041000) using Bulletin 17C guidelines (USGS 2018). Recurrence flows for the un-gaged tributaries will be estimated using regional regression equations developed by Mastin et. al. (2016). Tributaries less than 10 square miles of drainage area will not be included in the hydraulic model. Low flow discharge for the Hoh and tributaries will be estimated using methods outlined in Curran et. al. (2012).

Subtask 2.2. Hydraulics

Contractor will develop a 2-dimensional (2D) hydraulic model using the US Army Corps HEC-RAS program. The model will encompass the project reach and utilize 2022 bathymetric LiDAR

acquired by the Hoh Tribe as the primary source of topography for the model mesh. To ensure boundary conditions are not influencing results within the project reach, the 2D hydraulic model will be extended up to Spruce Canyon (near RM 25.5) and down to Schmidt Bar (near RM 19.5) where the valley naturally confines the channel.

Risk based and geomorphically relevant flow simulations will be performed for the 1, 2, 10, 25, 50, and 100-yr recurrence floods. In addition, flows during Winter Steelhead and Spring Chinook Salmon spawning periods will be modeled under existing conditions, to assess existing velocity and depth conditions during this critical life history stage to evaluate habitat suitability. Proposed condition model iterations will consider the same parameters to understand proposed habitat lift at the as-built condition. This information will guide design of optimal ecological outcomes and offer a useful communication tool for community members and other key stakeholders by species during spawning times.

The existing conditions 2-year flow output from the 2D hydraulic model will be compared to data collected in Task 1 relative to the Ordinary High-Water Mark (OHWM) to support delineation of that regulatory boundary (Task 10) and to characterize the extent to which floodplain surfaces, side channels, and associated wetlands are currently connected to flood flows. This data will be used in Task 10 to support the development of permit application materials and the demonstration and quantification of benefits to aquatic habitats, including wetlands.

The development and results of the existing conditions 2D hydraulic model, flow recurrence calculations and estimates, and recent trends in peak flows will all be detailed in a chapter of the basis of design report, including an appendix of maps illustrating the model results. Development of all proposed conditions, model simulations used for design development and FEMA compliance are included in later tasks.

Task Assumptions

- Streamflow estimates will follow USGS Bulletin 17B/C guidelines for gaged sites and using regional values for skew and standard error. No additional field streamflow measurements or gaging instrumentation are needed. USGS StreamStats will be used where no stream gage information is available.
- Models will not be calibrated to regulatory (e.g. FEMA FIS) models or existing benchmarks.

Task Deliverables:

- Reach Hydrology & Hydraulics chapter within assessment report, including relevant figures and map appendix.

Task 3. Reach Geomorphology

Contractor will document historic disturbances in the project reach that have impaired natural geomorphic process and broken the large wood cycle, resulting in a more dynamic and unstable system that lacks reliable instream and off-channel habitat for salmonids, and a river that regularly poses flooding and erosion risk to the community. Understanding the underlying mechanisms that continue to impair habitat availability and contribute to instability is critical to developing a restoration strategy that will put the system on a sustainable path to recovery.

Historic air photos, maps, and existing geospatial data will be used to characterize how the channel and floodplain have evolved over time in the project reach. Channel migration rates will be

quantified over time, channel avulsions will be documented, and the influence of large wood and logjams in the reach on channel migration and avulsions will be described. Remaining patches of old growth forest in the floodplain, more resistant to erosion, will be delineated and erosion rates compared to areas with less mature vegetation. The unvegetated active channel will also be delineated on historic air photos to measure change in area over time. Pre-disturbance channel migration and avulsion rates, unvegetated active channel area, and the role of large wood and logjams will be compared with those measured in the disturbed project reach using a reference reach on the Queets River between RM 19 and 23 that has a similar drainage area as the Lindner Reach.

The 2013/14 LiDAR of the project reach will be compared with the more recent 2022 LiDAR to quantify the magnitude and spatial distribution of changes between the two data sets. Peak flows occurring in the time period between LiDAR flights will be used to place the magnitude of changes in context with recent flood history. We will use the composite 2013/14 surface that includes the LiDAR data and channel bathymetry collected by Wild Fish Conservancy in 2014 to compare not only the overall changes to the surface, but also target changes specific to the channel thalweg over time.

The data and methods used for the geomorphic assessment will be detailed, along with results and implications for the design, and will be included in a chapter in the basis of design report, including maps and figures as needed to illustrate the results.

Task Assumptions

- Only publicly available georeferenced photos, including those used for the Resiliency Plan, will be used in the geomorphic assessment, NSD will not georeference additional historical aerial photos that do not have spatial metadata.

Task Deliverables:

- Reach Geomorphology chapter within the assessment report, including relevant figures and appendices.

Task 4. Stakeholder Engagement & Community Outreach

At the start of the project Contractor will work with County to develop an Engagement and Outreach Plan, to detail the process and schedule by which the project will connect with landowners, communicate with the Hoh Tribe and other identified groups and the public, and solicit input for the entire project, including final design development. It is anticipated the Plan will include the following:

- Making presentations and providing workshop or site visit materials at up to two watershed-level “Hoh River Resiliency” events (in person at various Hoh River, Forks, or project locations) with interested community members in the watershed in 2025 and/or 2026.
- Convene and facilitate four meetings for a new ad hoc Lindner Reach Technical Advisory Group (online or hybrid) that includes representatives from relevant permit agencies, County, and local technical experts including the Hoh Tribe at key design milestones including:
 - Completion of existing conditions characterization, draft concept designs, ranking and selection

- Completion of 30% design
- Completion of 60% design
- Completion of 90% design
- Present to Hoh Tribal Council, County leadership, City of Forks, user and/or economic groups (recreational boaters, guides, fishers, etc.), or other stakeholders (up to 10 in person meetings at various local locations.)
- Meet individually up to a combined 40 times with the Hoh Tribe, individual landowners, local businesses, and/or specific user groups (in person – Hoh River or North Olympic Peninsula)

With input from project partners, Contractor will support the County to organize, convene, and facilitate public meetings, and meetings with individual stakeholders and landowners.

Task Assumptions:

- County is responsible for scheduling and coordinating meetings and events except mutually agreed upon landowner meetings.

Task Deliverables:

- Engagement and Outreach Plan and Community Outreach and Engagement plan.
- Total of 1 presentation with Hoh Tribal Council
- Total of 1 presentation with landowners and agency representatives.

Task 5. Project Management & Coordination

Contractor will provide project management, coordination and support to the County for the duration of the project. Project management and coordination will be provided via brief 30-minute weekly (or 60-minute biweekly) check-in meetings with project management team, monthly invoices with project activities summarized, and regular correspondence between Contractor, project management team and County via email and phone to maintain open communication.

Mike Ericsson, Contractor's project manager, and Ryan DeKnikker, Contractor's deputy project manager, will co-lead activities. Ryan will cover project scheduling, maintaining adherence to the scope of work, timelines, and due dates; Mike will coordinate with the County and within the Contractor team, and Tim Abbe will lead the team interaction with local stakeholders and subconsultants, with support from Ryan as a part of Task 5: Stakeholder Engagement and Community Outreach. Both Mike and Ryan will ensure adherence to data quality assurance and controls, with Tim Abbe leading the project QA/QC process. Ryan will work with Mike to produce summaries of work completed to accompany our monthly invoices for services completed.

Task Assumptions

- The duration of the project will be 9 months, from January 2024 to September 2024.

Task Deliverables:

- Monthly invoicing detailing work completed.
- Regularly scheduled check-in meetings with Contractor and County (weekly or bi-weekly).

EXHIBIT A
Estimated Budget and Schedule - Lindner Reach

DESCRIPTION	BEGINNING DATE	ENDING DATE	SUB TOTAL
Task 1. Existing Conditions Characterization	January 2024	September 2024	\$61,714
Task 2. Existing Conditions Reach Hydrology & Hydraulics	January 2024	September 2024	\$50,584
Task 3. Reach Geomorphology	February 2024	September 2024	\$50,765
Task 5. Stakeholder Engagement & Community Outreach	January 2024	September 2024	\$19,449
Task 12. Project Management & Coordination	January 2024	September 2024	\$47,765
PROJECT TOTAL			\$230,277

Attachment B

Fletcher Ranch Reach Scope of Work

For the Middle Hoh River, the Contractor will assist in the development of conceptual and preliminary designs for the Fletcher Ranch reach, and final design for Phase 1, through a collaborative process and in partnership with the Hoh Tribe. The project reach is located between River Mile (RM) 27.1 and 28.2 on the between Highway 101 and Olympic National Park in western Jefferson County, Washington. The primary goals of the project are to increase spawning and rearing habitat for spring Chinook, steelhead, and coho, while improving local community resiliency by decreasing risks associated with flooding and erosion. Work to be completed by the Contractor is divided into the following list of tasks and linked to specific project deliverables:

- Task 1: Existing Conditions Characterization
- Task 2: Existing Conditions Reach Hydrology & Hydraulics
- Task 3: Reach Geomorphology
- Task 4: Climate Change Impacts
- Task 5: Stakeholder Engagement & Community Outreach
- Task 6: Concept Design Development
- Task 7: Preliminary Design Development
- Task 8: Invasive Plant Prevention Plan
- Task 9: Risk Assessment
- Task 10: Project Permitting
- Task 11: Phase 1 Final Design Development
- Task 12: Project Management & Coordination

Task 1. Existing Conditions Characterization

Contractor will collect and analyze information on current and past site conditions to inform development of conceptual restoration designs for the Fletcher Ranch Reach. The analysis approach supports reporting consistent with requirements in RCO SRFB Manual 18 (<https://rco.wa.gov/wp-content/uploads/2019/05/SAL-Manual18.pdf>). The existing conditions assessment field work will be limited to the channel and floodplain area where access has been arranged. The project team will work with the County to determine which information is most essential to the development of conceptual designs, versus data that is valuable but not essential. For example, Contractor will work with the County and RCO to determine the extent to which a Cultural Resources desktop review of the project area and development of a work plan should be initiated as part of this task to ensure sufficient time for consultation with RCO and the affected Tribes on the extent and nature of cultural resources field investigations. The Existing Conditions Characterization task is divided into the following sub-tasks:

Subtask 1.1. Riparian Forest and Floodplain Wetlands Condition Field Assessment

Contractor will characterize riparian floodplain conditions within the project reach. The riparian forestry mapping in the project reach completed for the Resiliency Plan will be updated using the 2022 LiDAR and verified in the field for accuracy. It is anticipated that 2 days of fieldwork will be required to fully assess this reach. The field verification effort will focus on collecting existing conditions data on:

- Riparian stand composition and condition
- Floodplain vegetation communities

Subtask 1.2. Habitat and Fish Use Field Assessment

Contractor will collect instream and off-channel habitat conditions within the project reach. It is anticipated that 5 days of field work will be required to fully assess this reach. The habitat assessment will include the collection of the following data in the mainstem river and side channels:

- Chinook, coho, and steelhead spawning and rearing habitat
- Presence of juvenile salmonids
- Annual spring and fall Chinook, coho, and steelhead spawning surveys
- Sharing salmonid redd data over time to document usage of the main stem and side channels
- Location and geometry of side channels and flow condition
- Size and location of pools, large wood, logjams

Subtask 1.3. Geomorphic Field Assessment

Contractor will document and characterize active and impaired geomorphic processes in the reach, as well as record existing habitat protection and restoration opportunities. It is anticipated that 2 days of fieldwork will be required to fully assess this reach. Data to be acquired to support the geomorphic assessment and design include:

- Active bank erosion
- Significant local sediment inputs, unstable slopes
- Pebble counts sufficient to characterize mapped channels
- Active deposition and/or incision
- Bank protection
- Field verification of relative elevation model (REM)
- Design constraints

Task Assumptions

- County will coordinate permission to access private property needed for field surveys.
- River flows will be sufficiently low as to not restrict access to perform field work safely.
- Travel costs and field equipment use will be billed as expenses and are included in costs.
- No additional topographic information will be needed to complete the designs.

Task Deliverables:

- January 2025 Existing conditions characterization chapter for the assessment report and relevant map appendix.

Task 2. Existing Conditions Reach Hydrology & Hydraulics

Development of an existing conditions hydraulic model of the project reach will be a critical tool for understanding flow patterns during seasonal and flood levels, identifying restoration opportunities, characterizing the extent of floodplain wetland connection currently occurring, and developing concept designs.

Subtask 2.1. Hydrology

Hydrology for the hydraulic model will be developed by analyzing USGS gages (#12041200, #12041000) using Bulletin 17C guidelines (USGS 2018). Recurrence flows for the un-gaged tributaries will be estimated using regional regression equations developed by Mastin et. al. (2016). Tributaries less than 10 square miles of drainage area will not be included in the hydraulic model. Low flow discharge for the Hoh will be estimated using methods outlined in Curran et. al. (2012).

Subtask 2.2. Hydraulics

Contractor will develop a 2-dimensional (2D) hydraulic model using the US Army Corps HEC-RAS program. The model will encompass the project reach and utilize 2022 bathymetric LiDAR acquired by the Hoh Tribe as the primary source of topography for the model mesh. To ensure boundary conditions are not influencing results within the project reach, the 2D hydraulic model will be extended up to near the South Fork Hoh confluence and down to Spruce Canyon (near RM 25.5) where the valley naturally confines the channel.

Risk based and geomorphically relevant flow simulations will be performed for the 1.25, 10, and 100-yr recurrence floods. In addition, flows during winter Steelhead and spring Chinook salmon spawning periods will be modeled under existing conditions, to assess existing velocity and depth conditions during this critical life history stage to evaluate habitat suitability. Proposed condition model iterations will consider the same parameters to understand proposed habitat lift at the as-built condition. This information will guide design of optimal ecological outcomes and offer a useful communication tool for community members and other key stakeholders by species during spawning times.

The existing conditions 1.25-year flow output from the 2D hydraulic model will be compared to data collected in Task 1 relative to the Ordinary High-Water Mark (OHWM) to support delineation of that regulatory boundary (Task 10) and to characterize the extent to which floodplain surfaces, side channels, and associated wetlands are currently connected to the mainstem flows. This data will be used in Task 10 to support the development of permit application materials and the demonstration and quantification of benefits to aquatic habitats, including wetlands.

The development and results of the existing conditions 2D hydraulic model, discharge recurrence calculations and estimates, and recent trends in peak flows will all be described in a chapter of the basis of design report, including an appendix of maps illustrating the model results. Development of all proposed conditions, model simulations used for design development and FEMA compliance are included in later tasks.

Task Assumptions

- Streamflow estimates will follow USGS Bulletin 17B/C guidelines for gaged sites and using regional values for skew and standard error. No additional field streamflow measurements or gaging instrumentation are needed. USGS StreamStats will be used where no stream gage information is available.

- Models will not be calibrated to regulatory (e.g. FEMA FIS) models or existing benchmarks.

Task Deliverables:

- January 2025 Reach Hydrology & Hydraulics chapter for the assessment report, including relevant figures and map appendix.

Task 3. Reach Geomorphology

Contractor will document historic disturbances in the project reach that have impaired natural geomorphic process and broken the large wood cycle, resulting in a more dynamic and unstable system that lacks reliable instream and off-channel habitat for salmonids, and a river that regularly poses flooding and erosion risk to the community. Understanding the underlying mechanisms that continue to impair habitat availability and contribute to instability is critical to developing a restoration strategy that will put the system on a sustainable path to recovery.

Historic air photos, maps, and existing geospatial data will be used to characterize how the channel and floodplain have evolved over time in the project reach. Channel migration rates will be quantified over time, channel avulsions will be documented, and the influence of large wood and logjams in the reach on channel migration and avulsions will be described. Remaining patches of old growth forest in the floodplain, more resistant to erosion, will be delineated and erosion rates compared to areas with less mature vegetation. The unvegetated active channel will also be delineated on historic air photos to measure change in area over time. Pre-disturbance channel migration and avulsion rates, unvegetated active channel area, and the role of large wood and logjams will be compared with those measured in the disturbed project reach using a reference reach on the Queets River between RM 19 and 23 that has a similar drainage area as the Fletcher-TNC reach.

The 2013/14 LiDAR of the project reach will be compared with the more recent 2022 LiDAR to quantify the magnitude and spatial distribution of changes between the two data sets. Peak flows occurring in the time period between LiDAR flights will be used to place the magnitude of changes in context with recent flood history. We will use the composite 2013/14 surface that includes the LiDAR data and channel bathymetry collected by Wild Fish Conservancy in 2014 to compare not only the overall changes to the surface, but also target changes specific to the channel thalweg over time.

The data and methods used for the geomorphic assessment will be detailed, along with results and implications for the design, and will be included in a chapter in the basis of design report, including maps and figures as needed to illustrate the results.

Task Assumptions

- Only publicly available georeferenced photos, including those used for the Resiliency Plan, will be used in the geomorphic assessment, NSD will not georeference additional historical aerial photos that do not have spatial metadata.

Task Deliverables:

- January 2025 - Reach Geomorphology chapter within the assessment report, including relevant figures and appendices.

Task 4. Climate Change

Contractor will utilize the river-scale findings from the Middle Hoh River Resiliency Plan (NSD 2022) to estimate the resiliency benefits of concept design alternatives under potential climate change conditions at the reach-scale. Any new climate model predictions that have been done since the Resiliency Plan will be incorporated into the assessment. At the watershed-scale, higher precipitation rates due to ongoing climate change effects will increase the magnitude of annual peak and average winter flows and contribute to increases in mass-wasting and sediment delivery to the river. Contractor will verify and apply these watershed-scale findings to the reach-scale to analyze the following:

- The potential effects of increased sediment delivery on the project reach in terms of channel bed aggradation, flooding, and channel migration.
- How increases in flow may expand flooding extent in the project reach and contribute to increases in channel migration rates.
- Impacts on the potential extent and availability of off-channel habitat for salmonid species.
- Potential impacts of erosion and channel migration on mature riparian and floodplain forest.
- Potential impacts to infrastructure and private property.
- Climate change mitigation opportunities will be evaluated as a part of Task 6: Concept Design Development.
- Recent channel changes, within the last 25-years, will be analyzed as a part of Task 3: Reach Geomorphology.
- The effects of climate change on peak flows will be simulated for each concept design alternative and the preliminary design as a part of Task 6 and Task 7, respectively using flows predicted in Task 4.
- The effects of climate change on ESA listed Bull Trout (*S. Confluentes*) who require cold, complex habitat to survive, and are therefore extremely sensitive to increasing temperatures.

Task Deliverables:

- January 2026 Climate Change chapter within the preliminary basis of design report, including relevant figures and appendices.

Task 5. Stakeholder Engagement & Community Outreach

The project Contractor will work with County to update the Engagement and Outreach Plan developed for the Lindner Reach, to detail the process and schedule by which the project will connect with landowners, communicate with the Hoh Tribe and other identified groups, and solicit input for the entire project, including final design development. It is anticipated the Plan will include the following:

- Convene and facilitate four meetings for a new Fletcher-TNC Reach Technical Advisory Group (online or hybrid) that includes representatives from relevant permit agencies, County (including leadership), and local technical experts including the Hoh Tribe at key design milestones including:

- Completion of existing conditions characterization, concept designs, ranking and selection
- Completion of 30% design
- Completion of 60% design
- Completion of 90% design
- Present to Hoh Tribal Council, (up to 4 in person meetings online.)
- Meet individually up to a combined 20 hours with the Hoh Tribe, landowners, and/or County representatives (online or in person – Hoh River or North Olympic Peninsula)

With input from project partners, Contractor will support the County to organize, convene, and facilitate public meetings, technical meetings, and meetings with individual stakeholders and landowners. Contractor will contribute to and review Agency-led outreach products including a watershed newsletter. As feasible, the project will offer opportunities to involve local community, faculty, and students from the new Natural Resources Program at Peninsula College in Forks: <https://pencol.edu/program/natural-resources>.

Task Assumptions:

- County is responsible for scheduling and coordinating meetings and events except mutually agreed upon landowner meetings.

Task Deliverables:

- January 2026 Engagement and Outreach Plan and Community Outreach and Engagement chapter for preliminary basis of design report.
- 4 TWG meetings (online/in person).
- Total of 4 workshops with Hoh Tribal Council, Jefferson County Board of Commissioners and Forks City Council (online/in-person).
- Up to 20 hours of meetings with landowners (Fletcher/TNC/DNR) and the public

Task 6. Concept Design Development

High-level concept designs were created for this reach as a part of the Middle Hoh Resiliency Action Plan. These concepts include actions to sustain side-channel habitat for salmonids, installation of engineered log jams (ELJs) to restore valuable salmonid habitat and limit large mass-wasting or avulsion events in the project reach. Contractor will re-evaluate these initial concept ideas within the context of a more-detailed existing conditions characterization (Tasks 1 -3), climate change impacts (Task 4), and up-to-date stakeholder and community input (Task 6).

Following the completion of the Existing Conditions Characterization Tasks (Tasks 1 - 3), Contractor will work with the County to develop up to 3 conceptual design alternatives for the Fletcher-TNC Reach. The design team will collaborate with the County on development and evaluation of different design alternatives to achieve the project goals and objectives. The 2D hydraulic model developed in Task 3 will be updated to depict each alternative to determine possible side channel flow pathways and to identify flood hazards and range of ecological benefits to aquatic and floodplain wetland habitats.

Large wood structures will be incorporated into the model mesh to investigate hydraulic influence. The benefits of each alternative will be compared, and the hydraulic models will be reviewed to analyze potential for floodplain wetland restoration and riparian community enhancement.

Compliance with floodplain regulations will be an important consideration in evaluation of design alternatives. Evaluation criteria that may be considered include wetland restoration and aquatic habitat improvements, anticipated geomorphic response, construction feasibility, regulatory complexity and timeline, infrastructure impacts, and cost. A “no action alternative” will be included that compares the evaluation criteria for the proposed concept designs to existing conditions.

Initial consultation with regulatory agencies during the conceptual design phase will be completed as part of Task 10 to clearly understand the implications and complexity of each alternative and to contrast with no action and road-first protections. Permit application preparation, including the cultural resources assessment and wetland delineation, will occur following the selection of the preferred alternative and advancement through the Preliminary Design phase (Task 7).

Contractor will draft plan view maps of the design alternatives and describe project elements in relation to project goals and objectives as well as potential modification to existing habitats, land use and regulatory constraints. The design evaluation is anticipated to include discussion of the type, size, and proposed quantity of wood placements within the side channel and related ecological benefits, in addition to other design criteria.

Contractor will document evaluation of design alternatives as part of the Conceptual Design Development chapter within the basis of design report, including recommendation of a preferred design alternative and submit the draft report to the County for review. County will provide review comments and guidance regarding decision on selecting a preferred alternative that will be advanced to a preliminary design stage in the next task. Contractor will revise the working draft of the Conceptual Design.

The Development chapter will incorporate the County’s review comments as part of the basis for selecting the preferred alternative. The revised draft will provide a deliverable that can be shared with the SRFB review panel and other stakeholders for additional review. The design and deliverables will meet the requirements presented in Manual 18: Salmon Recovery Grants.

Task Assumptions

- Reporting for conceptual designs will focus on treatment methods and screening criteria and will not be detailed site-specific design.
- Detailed design will not occur at this phase of the project.
- County will select a Preferred Design to move forward into Preliminary Design
- County will provide one round of consolidated review and comment on draft deliverables. Comments and any subsequent design revisions will be incorporated during Preliminary Design (on all concept design deliverables).
- Conceptual design sheets will be provided in 11x17 pdf format and will be limited to simple plan view representations of proposed actions under each alternative.
- Up to three (3) proposed conditions alternatives will be considered.
- Hydraulic modeling of design alternatives will utilize the same hydrology and model flows developed for Task 3.
- Potential impacts to the FEMA approximate Zone A special flood hazard area (SFHA) will be considered during alternative development and analysis.
- The project will not progress into preliminary design until the County selects a preferred alternative.

- Contractor will not develop special provisions as part of the concept designs.
- Cost estimates will be developed as rough order of magnitude estimates and will use rolled up cost line items that are anticipated to be refined in final design.

Task Deliverables:

- May 2025 Three concept design alternative drawings/plans, maps comparing changes in hydraulic conditions for each design alternative relative to existing condition, ranking matrix for concept design comparison
- January 2026 Concept Design Development chapter within the preliminary basis of design report.

Task 7. Preliminary Design Development

The preliminary design plans are intended to be permit-ready plans for use in initiating project permitting discussions with the County, Tribal and federal, state, and local regulatory agencies. The development of the 60% plans will include the following subtasks:

- Draft (30%) and Final (60%) Preliminary Plans
- Draft (30%) and Final (60%) Preliminary Cost Estimate
- Draft (30%) and Final (60%) Preliminary Basis of Design Report
- Proposed Conditions Hydraulic Models

All landowner outreach and stakeholder engagement associated with the preliminary design is included in Task 5 Stakeholder Engagement and Community Outreach. Regulatory permit application preparation, including delineation of wetlands and cultural resources assessment are included in Task 10.

Subtask 7.1. Draft (30%) and Final (60%) Preliminary Plans

Contractor will create a 30% design based on the preferred concept design alternative and further develop the 30% design to a 60% design level. It is anticipated design elements will include potential grading of channel features, engineered log jam locations, sizes and types, site restoration planting areas and silviculture treatments, stabilization of existing logjams, proposed relocation of existing facilities and/or infrastructure, and invasive species removal and control areas. Contractor will refine design elements to meet project goals and objectives as the project advances through the design process and stakeholder and community engagement process.

We anticipate the following sheets to be included in the preliminary design drawing set:

- Cover
- General Notes
- Legend
- Existing Condition Site Overview
- Access and Staging
- Proposed Conditions Overview Plan
- Proposed Conditions Plans at Site-Scale (1" = 100' or less)
- Engineered Log Jam Structure Details and Sequencing

- TESC Plan and Details
- Invasive Plant Prevention Plan and Details
- Site Restoration Plan and Plant Schedule(s)
- Planting Details
- Wood and Materials Schedule

Subtask 7.2. Draft (30%) and Final (60%) Preliminary Construction Cost Estimate

Contractor will update an estimate of probable construction cost based on the 30% and 60% designs. Contractor will use publicly available cost values (from WSDOT or the County for example), reaching out to suppliers, and examples from our past projects.

Subtask 7.3. Draft (30%) and Final (60%) Preliminary Basis of Design Report

Contractor will create a Basis of Design report for the 30% design and update it for the 60% design. The 30% design report will focus on the design layout and intended function of each restoration element, anticipated changes resulting from the project, updates to the hydraulic model, site restoration, and initial cost estimate. The 60% design report will add more detailed descriptions of engineering assumptions and calculations, further updates to the hydraulic model, a description of invasive plant prevention and treatment, site restoration plan, and updates to the construction cost estimate.

Subtask 7.4. Proposed Conditions Hydraulic Models

During development of the draft preliminary design, Contractor will prepare a proposed conditions hydraulic model of the project reach incorporating proposed restoration actions to evaluate the performance of the design relative to the project goals, to evaluate flooding and erosion risks, and to serve as the basis for documenting compliance with Jefferson County and National Floodplain Insurance Program (NFIP) code as part of Task 10 (Project Permitting). The suite of flows developed to characterize hydrology (Task 2) will be included as proposed condition models, as well as projected climate change flows, to ensure proposed elements are evaluated over a wide range of flow conditions. The results of the proposed hydraulic modeling will be used to modify the design to maximize benefits and minimize any potential adverse impacts, to anticipate future channel changes resulting from the restoration actions, and to facilitate early discussions with permit agencies. Once the design flood event has been selected the hydraulic model results will be used to assess stability of any proposed instream structures.

Task Assumptions

- OHWM boundaries will be developed from hydraulic model outputs, verified with field indications. Wetland boundaries will be approximated during field data collection (Subtask 1.1).
- Property boundaries will be shown based on available parcel data. No boundary survey is included in this task.
- Design drawings will be produced in Autodesk Civil 3D and delivered as 11" x 17" format PDFs.
- Contractor will only submit the 30% and 60% deliverables for comment and review.

- No hard copy or wet stamped versions of the plans will be produced.
- Design plans will be prepared using NSD's CAD standards.
- Project Special Provisions (Divisions 2 through 9) will utilize the Washington Department of Transportation (WSDOT, current year) Standard Specifications for Road, Bridge, and Municipal Construction, current edition.
- Preliminary level of design will be used to apply for project permits under all applicable federal, state, and local regulations.
- Contractor will receive one set of consolidated comments on the preliminary design. As part of this consolidation, County will resolve conflicting comments. Revisions to address comments will be completed during the final design task.
- No archiving or e-transmittal of AutoCAD format (.dwg) files is included in this scope of work.
- Planting plans will be prepared by others and are not included in this scope of work.
- Construction support is not included in this scope of work.
- Design effort does not include contaminant testing nor remediation.
- Design effort does not include cultural resources investigations.
- Design effort does not include utilities, stormwater, or roadway improvements.
- Design effort does not include geotechnical investigation.
- Design effort does not include floodplain analysis or permitting.
- The level of effort for these deliverables has been set based on the assumption that review rounds do not exceed anticipated effort (1 round of review where noted) and no major design changes (revision of the number/location/type of structures) are requested.

Task Deliverables:

- October 2025 Draft (30%) Preliminary design drawings/plans, hydraulic model results, cost estimate, preliminary basis of design report, relevant appendices (hydraulic model results, stability calculations).
- January 2026 Final (60%) Preliminary design drawings/plans, hydraulic model results, cost estimate, preliminary basis of design report, relevant appendices (hydraulic model results, stability calculations).

Task 8. Invasive Plant Prevention Plan

10,000 Years Institute (Subcontractor), will design and implement an approach to managing invasive plants that is based on supporting native plant community succession. The plan will both describe the necessary ongoing survey and treatment of invasive plants in the Fletcher-TNC reach during the period of performance and will also detail the preferred approach to preventing the introduction and spread of invasive plants during future construction phases. Subcontractor will identify and describe sources, vectors and pathways of non-native invasive plants that impair and arrest the growth and resiliency of native plant communities in the project area. Subcontractor will utilize a local workforce to conduct persistent tracking and mapping followed by rapid control methods.

To limit the introduction and spread of new, existing, and previously seeded invasive plant species (IPS) during all phases of project implementation, Subcontractor will include the following in the Invasive Plant Prevention Plan:

- Survey and treatment methods and schedule for target invasive plant species.
- Maps and GIS locations of all previously documented IPS. Subcontractor will provide review, guidance, maps and GIS data as needed or requested.
- Identification guidance for reporting observations.
- Recommendations for:
 - Siting the most appropriate invasive-free access routes for truck and equipment use.
 - Siting the most suitable location for a vehicle and equipment wash station.
 - Equipment washing prior to entering and upon leaving construction zones, including between different sections of the Fletcher-TNC floodplain reaches.
 - Containing effluent to the wash station area with appropriately scaled pit.
 - Remediating the wash station area.

Task Deliverables:

- October 2025 Draft Invasive Plant Prevention Plan.
- January 2026 Final Invasive Plant Prevention Plan.

Task 9. Risk Assessment

Contractor will describe the risk to existing infrastructure and private property from flooding and erosion under existing conditions and the final preliminary design. The assessment of risk will include the Upper Hoh Road, any utilities, private property and homes, as well as the risk of losing instream and associated floodplain salmonid habitats (e.g., side channels). The risk assessment will also include a description of boater safety under existing and proposed conditions to ensure the placement of instream structures will not increase risk. It will also evaluate how potential changes in river planform will affect flooding and erosion.

Projected river trends and avulsion scenarios will be included to evaluate how risk changes as the main stem channel moves over time. The risk assessment will rely on the 2022 LiDAR, geomorphic assessment, and existing and proposed hydraulic model results to perform the needed analyses. Contractor has completed dozens of risk assessments and contributed to state guidelines developed by DNR Aquatic Lands. In addition to looking at risks to infrastructure and property under the no-action and proposed action alternatives, the risk to recreational boaters will be assessed. Natural and engineered log jams (ELJs) can pose risks to inexperienced boaters; thus, it is important to consider how they could interact with recreation.

Over the last twenty years the hundreds of ELJs built in Washington have an excellent safety record. The Middle Hoh has historically had numerous snags and logjams which are regularly navigated by experienced boaters. Contractor will consider boater safety in all designs. Because of their stability, ELJs will be in known locations and thus become familiar to recreational users. All ELJs will be analyzed for stability and designed to be stable in a 100 yr flood (existing and projected for 2070 under latest climate models). Currently most natural logjams are unstable and form in different places year to year. The risk assessment will also examine the risk to habitat of the no-action alternative and proposed actions. The risk assessment will include the impacts associated with the warming climate.

Assumptions

- Much of the analysis will rely on existing and proposed hydraulic model outputs.

Deliverables:

- October 2025 Draft Risk Assessment appendix to the Preliminary Basis of Design Report.
- January 2026 Final Risk Assessment appendix to the Preliminary Basis of Design Report.

Task 10. Project Permitting

Subtask 10.1. Wetlands Assessment and Delineation

The Contractor will utilize the existing condition data collected in Task 1 regarding the estimated extent and nature of wetlands and alignment of OHWM indicators with the modeled 2-year flow to inform the development of the preliminary design. Those field efforts will build upon our team's knowledge of the geomorphic, habitat, and ecological conditions of the reach and serve as the baseline conditions against which we will evaluate proposed restoration actions.

As the preliminary design progresses, we will complete a delineation of wetlands within the project area, leveraging our expertise in elevation-based wetland delineations to cover the large project area efficiently. Prior to field work, the contractor will complete a desktop review of National Wetland Inventory, Jefferson County wetland inventory, and National Resource Conservation Service (NRCS) soils mapper to identify areas of hydric soils and mapped wetlands and waters of the U.S. to support the subsequent field assessment. The delineation will include Washington State Department of Ecology (Ecology) required wetland rating forms for a suite of wetlands characteristics of those affected by the project. Contractor will complete the delineation within the area of potential effect (APE) derived from the preliminary design and will draft a delineation report with required Ecology rating form graphics, which will become a component of the project's permit application materials.

The wetlands work will also help identify off-channel rearing and floodplain reconnection opportunities and support the analysis of project impacts and benefits that is required as part of the federal permitting process to show the net benefit of the project and alignment with the Corps' Nationwide Permit 27 pathway. Our approach is to integrate these elements early so the project can be designed to have a net benefit to aquatic species and habitats and so that impacts to wetlands and waters can be avoided, minimized and rectified. This approach is proven to effectively align the project with the Corps' Nationwide Permit 27 process and the USFWS and NMFS ESA programmatic, alignment with which creates a streamlined permitting process pathway for restoration actions.

Subtask 10.2. Cultural Resources Assessment

Successful environmental permitting of this project will require a comprehensive cultural resources assessment that can serve as Section 106 documentation for CWA 404 permitting by USACE, and for compliance with GEO 21-02 required by RCO funding. Contractor will work through our partner, Willamette Cultural Resources (Subcontractor), to complete archival review of the natural and cultural setting of the APE and vicinity (APE derived from the preliminary design). Results of this desktop study and any input willing to be shared by cultural resource staff of affected Tribes

(e.g., Hoh and Quileute Tribes, Quinault Indian Nation) will be used to gauge relative sensitivity for cultural resources that may be impacted by project restoration activities.

If required by RCO, Subcontractor will then draft a cultural resource assessment workplan and vet the plan with RCO, DAHP, and affected Tribes. Once that consultation is completed, Subcontractor will complete a field survey with a level of effort tailored to relative sensitivity and anticipated project activities within the APE. The fieldwork will seek to identify cultural resources that may be impacted by the project so any such impact can be avoided.

If any resources are identified, their significance and anticipated project effects will be assessed to the extent allowed during the fieldwork session. If additional fieldwork or archival research is needed to document and evaluate the historic register eligibility of a resource, it would be conducted under a separate scope of work.

Subcontractor will then draft a technical report which will become a component of the project's permit application materials to summarize background research, methods and results of the fieldwork. The report will include evaluation of any resources that may be identified, concluding with recommendations regarding resources identified and any other cultural resources management measures that may be appropriate. Subcontractor will assist Contractor and the County through the consultation process required by Section 106 and GEO 21-02, coordinating with RCO, USACE, DAHP, and affected Tribes to ensure timely review of our cultural resource assessment documentation.

Subtask 10.3. Permit Application Preparation, Submittals, and Process Management

Contractor will support the County by initiating pre-application meetings with the federal and state agencies to review the project and answer questions prior to completion of the application materials. Contractor will then create the application materials and manage the application submittal and tracking process necessary to obtain federal, state, and local regulatory approvals for this project. Contractor proposes to leverage the active outreach to stakeholders, including federal and state regulatory agencies, completed as part of Task 5 to initiate conversations and identify the appropriate permit pathway. It is important to clarify the pathway early in the process since there are several possible pathways that influence each other, our level of effort, and the overall project schedule.

Contractor will work directly with the County and WDFW to evaluate the potential for the project to align with either the Fish Habitat Enhancement Project (FHEP) HPA exemption that eliminates the need for local permitting, or the Habitat Recovery Pilot Program (HRPP), if that program is renewed by the State legislature before it expires in June of 2025. If the HRPP is renewed, or the project is determined to qualify for the FHEP process, then the project would not need to go through SEPA review nor the formal Shoreline permitting process.

For federal permits, Consultant will design the project to qualify for a Clean Water Act Section 404 Nationwide 27 permit from the Corps and to be consistent with the Coastal Zone Management Act (CZMA) requirements. For ESA-listed species, Contractor will similarly aim for restoration actions that will be consistent with the action categories covered in the NMFS and USFWS restoration programmatic agreements with the Army Corps of Engineers. Contractor will prepare the appropriate ESA-consultation documents as determined through agency consultation (e.g., ABBE,

NEL, FPRP III form) while noting that the programmatic are currently set to expire before the permit submittals will occur for this project, creating some uncertainty.

For Washington state's permitting agencies, a WDFW Hydraulic Project Approval (HPA) permit will be needed, as well as a Section 401 water quality certification from Ecology. We will prepare the pre-meeting request and 401 request forms as needed and coordinate in advance with WDFW as noted, and Ecology to verify pathways and processes. For example, for many projects of this scale, Ecology will require a Water Quality Monitoring Plan be submitted as part of the Section 401 water quality certification process. Contractor will leverage templates developed for other projects to efficiently complete this plan if required. It should be noted that the recent changes in federal regulatory jurisdiction of wetlands and some waters of the U.S. make the Contractor's approach of early and proactive coordination all the more critical to reaching construction permits in a timely and predictable manner.

Contractor will also reach out to WADNR to determine the extent of DNR administered State-owned Aquatic Lands within the project area and will assist the County with the licensing process, if necessary. In addition, the project may need a Construction Stormwater National Pollutant Discharge Elimination System (CNPDES) permit if the area of disturbance exceeds 1 acre. If necessary, Contractor will assist the County in applying for that permit during the final design phase.

Because the project reach is in a Special Flood Hazard Area (SFHA), Contractor will develop a design where the proposed hydraulic effects comply with minimum County and FEMA standards. Since the project reach is within an approximate SFHA Zone A, without a designated floodway nor assigned base flood elevations (BFEs), it is assumed that project actions can raise water up to 1-foot at the 100-year flood event (base flood). With our experience on rivers the size of the Hoh, it is likely we can propose ELJs in the channel without causing excessive rise, thus negating the need for any formal Letter of Map Change (LOMC) process.

Contractor will introduce the project to Jefferson County Floodplain Development Code staff early on and determine the most efficient way to provide floodplain compliance documentation. Contractor will utilize the existing conditions and proposed conditions 2D hydraulic model output developed for the design as the basis for documenting floodplain compliance for the County. In addition to meeting minimum County and NFIP flood code, we will also conduct a risk-assessment using the 2D hydraulic model to ensure no residences, private property, or infrastructure is at increased flood risk because of proposed actions. This risk assessment will be documented in the Basis of Design report.

Contractor will develop the applications for the suite of local permits determined necessary based on the WDFW HPA pathway consultation. A Jefferson County clearing and grading permit may be required, particularly for developing staging areas and any temporary access routes. Depending on the resolution of the HPA process with WDFW, the project could also require a SEPA checklist and Shorelines permit process. Contractor will work with the County and WDFW to ideally align the project with the Restoration Pilot Program process which would avoid those requirements.

Task Assumptions

- No CLOMR. If CLOMR is needed, design will be modified to prevent need for CLOMR, or additional budget will be needed.
- Contractor will serve as the Authorized Agent for County when submitting permit applications to the permitting agencies.
- Budget assumes Nationwide Permit (NWP) conditions at the time of permitting will be in line with existing 2023 conditions.
- Permit scope and budget is based on assumption that a standard HPA will be required.
- Phase 1 design wetlands will be approximately mapped based on a 1-day site reconnaissance. Wetlands will not be flagged in the field.
- Phase 1 wetland delineation assumes project area is <200 acres within which wetlands might be directly or indirectly impacted.
- If needed, Contractor will develop the Notice of Intent (NOI) and Stormwater Pollution Prevention Plan (SWPPP) to support CNPDES application.
- Ordinary high water will be approximated based on a hydraulic modelling output refined and calibrated to field data collected during the site reconnaissance.
- The final engineering plans (11x17 sized) will accompany the permit applications.
- Contractor will develop JARPA figures to support permit applications.
- Since the project reach is not included in any FEMA or Jefferson County flood hazard mapping studies, a formal flood impacts analysis is not anticipated to be required so is not included here. A qualitative risk- assessment to downstream and adjacent infrastructure or property will be conducted and documented in the basis of design report.
- For potential riparian treatments, Contractor will work with DNR to identify the appropriate approval process for that supplemental habitat enhancement work.

Task Deliverables:

- February 2026 Preparation and submittal of federal, state, and local permit applications, including JARPA, JARPA figures, ESA consultation documents, CZMA and Ecology 401 application materials including Water Quality Monitoring Plan, Floodplain Compliance documentation to Jefferson County, if required; WDFW APPS application for HPA, SEPA checklist, local county permit applications, WDNR Attachment E, if required; meetings, associated Wetland and Waters Delineation and Cultural Resources reports, and associated documentation.

Task 11. Phase 1 Final Design Development

Once the preliminary designs are complete, Contractor will work with the County to identify an area of the project reach to develop final designs. It is anticipated that recent channel changes will largely drive where Phase I will be located. Other considerations for locating Phase 1 may include permitting complexity, meeting floodplain compliance requirements, opportunistic/reactionary based on channel location, cost, and others. Contractor will leverage our experience implementing large, multi-phase projects like on the Quinault and Cispus Rivers, to develop a phased implementation approach that considers funding availability, landowner agreements, and ensuring project performance and risk are considered for the time period between construction phases. All

phases of construction will be stand-alone in that they will meet the project goals independent of completing future phases.

The development of final plans, special provisions, and construction cost estimates are intended to support the construction bid process. Contractor will progress the 60% preliminary plan set following review by the permitting agencies, County, and larger stakeholder group including landowners. The development of the final plans, special provisions, and cost estimate will include the following tasks:

- April 2026 Develop Draft (90%) Plans, Cost Estimate, Special Provisions, and 90% Basis of Design Report.
- May 2026 Develop Draft (90%) Plans, Cost Estimate, Special Provisions, and 90% Basis of Design Report.
- May 2026 Proposed Conditions Hydraulic Models.

All landowner outreach and stakeholder engagement associated with the final design is included in Task 5 Stakeholder Engagement and Community Outreach.

Subtask 11.1. Develop Draft (90%) and Final (100%) Plans, Cost Estimate, and Special Provisions

Contractor will use feedback from the County, permittees, landowners, and project stakeholders, to advance the design and associated construction plans to Final Design. Design modifications which are supported through analysis will be included in the final design submittal package. The construction cost estimate and Basis of Design report will also be updated and finalized as part of this task. Major design changes are not anticipated and are not included in this scope, however an updated air photo of the final design area will be acquired prior to finalizing the final design. This air photo will be used to make any changes needed to the design to accommodate changes in the main stem channel location during the multi-year design process, like changing temporary access route and staging area locations.

The final construction plans, cost estimate, and special provisions will be reviewed and certified by a Professional Engineer registered to practice in the state of Washington. Contractor will also prepare a stand-alone spreadsheet of construction materials and quantities (Bid Tab). Contractor will prepare construction special provisions that will follow WSDOT Standard Specifications and Special Provisions standard format. Construction special provisions prepared by Contractor will be limited to project-specific special provisions (Divisions 2-9); no Division 1 special provisions related to contracting are included as part of this scope of work. If project specific Division 1 special provisions are necessary, Contractor assumes they will be prepared by the County. Contractor will prepare a final, stamped plan set and final construction special provisions to be used for contractor bid documents as prepared by others.

Subtask 11.2. Develop Draft (90%) and Final (100%) Basis of Design Report

Contractor will update and finalize the Basis of Design report prepared for the 60% designs to reflect the final design. This will include an update of the description of engineering assumptions and calculations, function of each restoration element, and updated final hydraulic model output, if necessary.

Subtask 11.3. Proposed Conditions Hydraulic Models

During development of the draft final design, Contractor will update the proposed conditions hydraulic model of the project reach developed during preliminary design incorporating any changes to proposed restoration actions. The models will be used to evaluate any changes in hydraulic conditions as a result of the design modifications to ensure the project goals are met and flooding and erosion risks have not increased as a result. The suite of flows developed to characterize hydrology (Task 2) will be included as proposed condition models, as well as projected climate change flows, to ensure proposed elements are evaluated over a wide range of flow conditions.

Task Assumptions

- Permit agency and stakeholder comments on the Final 60% plans will be provided by County and incorporated into the Final Design.
- County will be responsible for Division 1 of the Special Provisions.
- The bid package will be compiled by the County.
- All review will be addressed between the 60% Design and submittal of the Final Design.
- The level of effort for these deliverables has been set based on the assumption that review rounds do not exceed anticipated effort (1 round of review where noted) and no major design changes (revision of the number/location/type of structures) are requested.
- Bidding and Construction Support is not included in this scope or fee estimate.

Task Deliverables:

- April 2026 Draft (90%) Final design drawings/plans, hydraulic model results, cost estimate, Final Basis of Design Report, relevant appendices (hydraulic model results, stability calculations).
- May 2026 Final (100%) design drawings/plans, hydraulic model results, cost estimate (Final PS&E), Final Basis of Design Report, relevant appendices (hydraulic model results, stability calculations).

Task 12. Project Management & Coordination

Contractor will provide project management, coordination and support to the County for the duration of the project. Project management and coordination will be provided via brief 30-minute weekly (or 60-minute biweekly) check-in meetings with project management team, monthly invoices with project activities summarized, and regular correspondence between Contractor, project management team and County via email and phone to maintain open communication.

Mike Ericsson, Contractor's project manager, and Ryan DeKnicker, Contractor's deputy project manager, will co-lead activities. Ryan will cover project scheduling, maintaining adherence to the scope of work, timelines, and due dates; Mike will coordinate with the County and within the Contractor team, and Tim Abbe will lead the team interaction with local stakeholders and subconsultants, with support from Ryan as a part of Task 5: Stakeholder Engagement and Community Outreach. Both Mike and Ryan will ensure adherence to data quality assurance and controls, with Tim Abbe leading the project QA/QC process. Ryan will work with Mike to produce summaries of work completed to accompany our monthly invoices for services completed.

Task Assumptions

- ▶ The duration of the project will be 29 months, from October 2024 to May 2026.

Task Deliverables:

- ▶ Monthly invoicing detailing work completed.
- ▶ Regularly scheduled check-in meetings with Contractor and County (weekly or bi-weekly).

EXHIBIT A
Estimated Budget and Schedule – Fletcher Ranch Reach

DESCRIPTION	BEGINNING DATE	ENDING DATE	DELIVERABLE DATE	SUB TOTAL
Task 1. Existing Conditions Characterization	October 2024	November 2025	Assessment Report – January 2025	\$88,674
Task 2. Existing Conditions Reach Hydrology & Hydraulics	October 2024	January 2025		\$15,619
Task 3. Reach Geomorphology	October 2024	January 2025		\$12,550
Task 4. Climate Change	March 2025	January 2026	Preliminary Design Report – January 2026	\$15,092
Task 5. Stakeholder Engagement & Community Outreach	October 2024	May 2026		\$36,406
Task 6. Concept Design Development	January 2025	May 2025		\$34,505
Task 7. Preliminary Design Development	May 2025	January 2026		\$107,509
Task 8. Invasive Plant Prevention Plan	May 2025	January 2026		\$40,019
Task 9. Risk Assessment	October 2025	January 2026		\$15,930
Task 10. Project Permitting	May 2025	February 2026		\$114,327
Task 11. Phase 1 Final Design Development	February 2026	May 2026	Final Design Report – May 2026	\$64,068
Task 12. Project Management & Coordination	October 2024	May 2026	Ongoing for duration of the project	\$60,457
PROJECT TOTAL				\$605,156

PROFESSIONAL SERVICES AGREEMENT

Between

Natural Systems Design + Coastal Geologic Services

And

Jefferson County

Hoh River Resiliency – Lindner Complex Reach Preliminary and Final Design

THIS PROFESSIONAL SERVICES AGREEMENT (“this Agreement”) is entered into between the County of Jefferson, a municipal corporation (“the County”), and Natural Systems Design + Coastal Geologic Services (“the Contractor”), in consideration of the mutual benefits, terms, and conditions specified below.

1. Project Designation. The Contractor is retained by the County to perform the following Project: For the middle Hoh River, assist in the development of conceptual and preliminary designs for the Lindner reach, and final design for Phase 1, through a collaborative process and in partnership with the Hoh Tribe. The project reach is located between river mile (RM) 5 – 6.5 on the Middle Hoh River between Highway 101 and the Hoh Rainforest of Olympic National Park. The primary goals of the project are to increase spawning and rearing habitat for spring Chinook, steelhead, coho, and bull trout, while improving local community resiliency by decreasing risks associated with flooding and erosion. Funding for this agreement is provided by a grant from the Recreation and Conservation Office for projects identified and recommended by the Hood Canal Coordinating Council Lead Entity, RCO #22-1375. This project builds upon, and partially implements, recommendations from the Middle Hoh River Resiliency and Action Plans for the Lindner Reach (RCO #18-2005).
2. Scope of Services. Contractor agrees to perform the services identified on Exhibit “A” attached hereto including the provision of all labor.
3. Time for Performance. This Agreement shall commence on January 1, 2024 and continue through June 30, 2026. Work performed consistent with this Agreement during its term, put prior to the adoption of this Agreement, is hereby ratified. The Contractor shall perform all services pursuant to this Agreement as outlined on Exhibit “A”. Time is of the essence in the performance of this Agreement.

4. Payment. The Contractor shall be paid by the County for completed work and for services rendered under this Agreement as follows:
- a. Payment for the work provided by Contractor shall be made as provided on Exhibit "B" attached hereto, provided that the total amount of payment to Contractor shall not exceed \$835,433.00 without express written modification of the Agreement signed by the County. The anticipated timeline for completing the project is detailed in Exhibit "C".
 - b. Invoices must be submitted by the 10th of the month for the previous month's expenses. Such invoices will be checked by the County, and upon approval thereof, payment will be made to the Contractor in the amount approved. Failure to submit timely invoices and reports pursuant to Exhibit B of the Agreement may result in a denial of reimbursement. Invoices not submitted within 60 days may be denied.
 - c. Final payment of any balance due the Contractor of the total contract price earned will be made promptly upon its ascertainment and verification by the County after the completion of the work and submittal of reports under this Agreement and its acceptance by the County.
 - d. Consultant shall provide invoices and necessary backup documentation for all services including timesheets and statements (specifying the services provided). Any indirect charges require the submittal of an indirect cost methodology and rate using 2 C.F.R. Part 255 and 2 C.F.R. Part 230.
 - e. The Contractor's records and accounts pertaining to this Agreement are to be kept available for inspection by representatives of the County and state for a period of six (6) years after final payments. Copies shall be made available upon request.
5. Ownership and Use of Documents. All non-confidential or de-identified documents, drawings, specifications, and other materials produced by the Contractor in connection with the services rendered under this Agreement shall be the property of the County whether the project for which they are made is executed or not. The Contractor shall be permitted to retain copies, including reproducible copies, of drawings and specifications for information, reference and use in connection with Contractor's endeavors. Contractor shall not be held liable for reuse of documents or modifications thereof, including electronic data, by County or its representatives for any purpose other than the intent of this Agreement.
6. Compliance with Laws. Contractor shall, in performing the services contemplated by this Agreement, faithfully observe and comply with all federal, state, and local laws, ordinances and regulations, applicable to the services to be rendered under this Agreement.

7. Audit. An audit will be submitted to the County upon request. Upon request, Contractor will submit the most recent financial audit within 30 days.
- a. Upon request the County shall have the option of performing an onsite review of all records, statements, and documentation.
 - b. If the County finds indications of potential non-compliance during the monitoring process, the County shall notify Contractor within ten (10) days. County and Contractor shall meet to discuss areas of contention in an attempt to resolve issues.
 - c. Audit will provide statements consistent with the guidelines of Reporting for Other Non-Profit Organizations AICPA SOP 78-10, and is performed in accordance with generally accepted auditing standards and with Federal Standards for Audit of Governmental Organizations, Programs, Activities and Functions, and meeting all requirements of 2 C.F.R. Part 200, as applicable.

8. Indemnification.

- a. To the extent of its comparative liability, each party agrees to indemnify, defend and hold the other party, its officers, officials, employees, agents and volunteers (and their marital communities), harmless from and against any and all claims, damages, losses and expenses, including but not limited to court costs, attorney's fees and alternative dispute resolution costs, for any personal injury, for any bodily injury, sickness, disease or death and for any damage to or destruction of any property (including the loss of use resulting therefrom) which are alleged or proven to be caused by an act or omission, negligent or otherwise, of its officers, officials, employees, agents and volunteers (and their marital communities).
- b. A party shall not be required to indemnify, defend, or hold the other party or its officers, officials, employees, agents and volunteers (and their marital communities) harmless if the claim, damage, loss or expense for personal injury, for any bodily injury, sickness, disease or death or for any damage to or destruction of any property (including the loss of use resulting therefrom) is caused by the sole act or omission of the other party or its officers, officials, employees, agents and volunteers.
- c. In the event of any concurrent act or omission of the parties and their officers, officials, employees, agents and volunteers, negligent or otherwise, these indemnity provisions shall be valid and enforceable only to the extent of the comparative liability of each party and its officers, officials, employees, agents or volunteers.
- d. The parties agree to maintain a consolidated defense to claims made against them and to reserve all indemnity claims against each other until after liability to the claimant and damages, if any, are adjudicated. If any claim is resolved

by voluntary settlement and the parties cannot agree upon apportionment of damages and defense costs, they shall submit apportionment to binding arbitration.

- e. The indemnification obligations of the parties shall not be limited in any way by the Washington State Industrial Insurance Act, Title 51 RCW, or by application of any other workmen's compensation act, disability benefit act or other employee benefit act. Each party hereby expressly waives any immunity afforded by such acts to the extent required by a party's obligations to indemnify, defend and hold harmless the other party, its officers, officials, employees, agents and volunteers (and their marital communities). A party's waiver of immunity does not extend to claims made by its own employees directly against that party as employer. The indemnity provisions of this section are a material inducement to enter into this Agreement and have been mutually negotiated.
 - f. The provisions of this section shall survive the expiration or termination of this Agreement.
9. Insurance. Prior to commencing work, the Contractor shall obtain at its own cost and expense the following insurance coverage specified below and shall keep such coverage in force during the terms of the Agreement.
- a. Commercial Automobile Liability Insurance providing bodily injury and property damage liability coverage for all owned and non-owned vehicles assigned to or used in the performance of the work for a combined single limit of not less than \$500,000 each occurrence with the County named as an additional insured in connection with the Contractor's performance of this Agreement. This insurance shall indicate on the certificate of insurance the following coverage: (a) Owned automobiles; (b) Hired automobiles; and, (c) Non-owned automobiles.
 - b. Commercial General Liability Insurance in an amount not less than a single limit of one million dollars (\$1,000,000) per occurrence and an aggregate of not less than two (2) times the occurrence amount (\$2,000,000.00 minimum) for bodily injury, including death and property damage, unless a greater amount is specified in the contract specifications. The insurance coverage shall contain no limitations on the scope of the protection provided and include the following minimum coverage:
 - i. Broad Form Property Damage, with no employee exclusion;
 - ii. Personal Injury Liability, including extended bodily injury;
 - iii. Broad Form Contractual/Commercial Liability – including coverage for products and completed operations;
 - iv. Premises – Operations Liability (M&C);

v. Independent Contractors and Subcontractors;

vi. Blanket Contractual Liability.

- c. Professional Liability Insurance. The Contractor shall maintain professional liability insurance against legal liability arising out of activity related to the performance of this Agreement, on a form acceptable to Jefferson County Risk Management in the amounts of not less than \$1,000,000 Each Claim and \$2,000,000 Aggregate. The professional liability insurance policy should be on an "occurrence" form. If the professional liability policy is "claims made," then an extended reporting periods coverage (tail coverage) shall be purchased for three (3) years after the end of this Agreement, at the Contractor's sole expense. The Contractor agrees the Contractor's insurance obligation to provide professional liability insurance shall survive the completion or termination of this Agreement for a minimum period of three (3) years.
- d. The County shall be named as an "additional named insured" under all insurance policies required by this Agreement, except Professional Liability Insurance when not allowed by the insurer.
- e. Such insurance coverage shall be evidenced by one of the following methods:
(a) Certificate of Insurance; or, (b) Self-insurance through an irrevocable Letter of Credit from a qualified financial institution.
- f. The Contractor shall furnish the County with properly executed certificates of insurance that, at a minimum, shall include: (a) The limits of coverage; (b) The project name to which it applies; (c) The certificate holder as Jefferson County, Washington and its elected officials, officers, and employees with the address of Jefferson County Public Health 615 Sheridan Street, Port Townsend, WA 98368, and, (d) A statement that the insurance policy shall not be canceled or allowed to expire except on thirty (30) days prior written notice to the County. If the proof of insurance or certificate indicating the County is an "additional insured" to a policy obtained by the Contractor refers to an endorsement (by number or name) but does not provide the full text of that endorsement, then it shall be the obligation of the Contractor to obtain the full text of that endorsement and forward that full text to the County. Certificates of coverage as required by this section shall be delivered to the County within fifteen (15) days of execution of this Agreement.
- g. Failure of the Contractor to take out or maintain any required insurance shall not relieve the Contractor from any liability under this Agreement, nor shall the insurance requirements be construed to conflict with or otherwise limit the obligations concerning indemnification of the County.
- h. The Contractor's insurers shall have no right of recovery or subrogation against the County (including its employees and other agents and agencies), it being the intention of the parties that the insurance policies, with the exception of Professional

Liability Insurance, so affected shall protect both parties and be primary coverage for all losses covered by the above described insurance.

- i. Insurance companies issuing the policy or policies shall have no recourse against the County (including its employees and other agents and agencies) for payment of any premiums or for assessments under any form of policy.
- j. All deductibles in the above described insurance policies shall be assumed by and be at the sole risk of the Contractor.
- k. Any deductibles or self-insured retention shall be declared to and approved by the County prior to the approval of this Agreement by the County. At the option of the County, the insurer shall reduce or eliminate deductibles or self-insured retention, or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.
- l. Any judgments for which the County may be liable, in excess of insured amounts required by this Agreement, or any portion thereof, may be withheld from payment due, or to become due, to the Contractor until the Contractor shall furnish additional security covering such judgment as may be determined by the County.
- m. Any coverage for third party liability claims provided to the County by a "Risk Pool" created pursuant to Ch. 48.62 RCW shall be non-contributory with respect to any policy of insurance the Contractor must provide in order to comply with this Agreement.
- n. The County may, upon the Contractor's failure to comply with all provisions of this Agreement relating to insurance, withhold payment or compensation that would otherwise be due to the Contractor.
- o. The Contractor's liability insurance provisions shall be primary and noncontributory with respect to any insurance or self-insurance programs covering the County, its elected and appointed officers, officials, employees, and agents.
- p. Any failure to comply with reporting provisions of the insurance policies shall not affect coverage provided to the County, its officers, officials, employees, or agents.
- q. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
- r. The Contractor shall include all subcontractors as insured under its insurance policies or shall furnish separate certificates and endorsements for each subcontractor. All insurance provisions for subcontractors shall be subject to all the requirements stated herein.

- s. The insurance limits mandated for any insurance coverage required by this Agreement are not intended to be an indication of exposure nor are they limitations on indemnification.
- t. The Contractor shall maintain all required insurance policies in force from the time services commence until services are completed. Certificates, insurance policies, and endorsements expiring before completion of services shall be promptly replaced. All the insurance policies required by this Agreement shall provide that thirty (30) days prior to cancellation, suspension, reduction or material change in the policy, notice of same shall be given to the Jefferson County Public Health Contracts Manager by registered mail, return receipt requested.
- u. The Contractor shall place insurance with insurers licensed to do business in the State of Washington and having A.M. Best Company ratings of no less than A-, with the exception that excess and umbrella coverage used to meet the requirements for limits of liability or gaps in coverage need not be placed with insurers or re-insurers licensed in the State of Washington.
- v. The County reserves the right to request additional insurance on an individual basis for extra hazardous contracts and specific service agreements.

10. Worker's Compensation (Industrial Insurance).

- a. If and only if the Contractor employs any person(s) in the status of employee or employees separate from or in addition to any equity owners, sole proprietor, partners, owners or shareholders of the Contractor, the Contractor shall maintain workers' compensation insurance at its own expense, as required by Title 51 RCW, for the term of this Agreement and shall provide evidence of coverage to Jefferson County Public Health, upon request.
- b. Worker's compensation insurance covering all employees with limits meeting all applicable state and federal laws. This coverage shall include Employer's Liability with limits meeting all applicable state and federal laws.
- c. This coverage shall extend to any subcontractor that does not have their own worker's compensation and employer's liability insurance.
- d. The Contractor expressly waives by mutual negotiation all immunity and limitations on liability, with respect to the County, under any industrial insurance act, disability benefit act, or other employee benefit act of any jurisdiction which would otherwise be applicable in the case of such claim.
- e. If the County incurs any costs to enforce the provisions of this subsection, all cost and fees shall be recoverable from the Contractor.

11. Independent Contractor. The Contractor and the County agree that the Contractor is an independent Contractor with respect to the services provided pursuant to this Agreement. The Contractor specifically has the right to direct and control Contractor's own activities, and the activities of its subcontractors, employees, agents, and representatives, in providing the agreed services in accordance with the specifications set out in this Agreement. Nothing in this Agreement shall be considered to create the relationship of employer and employee between the parties. Neither Contractor nor any employee of Contractor shall be entitled to any benefits accorded County employees by virtue of the services provided under this Agreement, including, but not limited to: retirement, vacation pay; holiday pay; sick leave pay; medical, dental, or other insurance benefits; fringe benefits; or any other rights or privileges afforded to Jefferson County employees. The County shall not be responsible for withholding or otherwise deducting federal income tax or social security or for contributing to the state industrial insurance program, otherwise assuming the duties of an employer with respect to Contractor, or any employee of Contractor.

12. Subcontracting Requirements.

- a. The Contractor is responsible for meeting all terms and conditions of this Agreement including standards of service, quality of materials and workmanship, costs, and schedules. Failure of a subcontractor to perform is no defense to a breach of this Agreement. The Contractor assumes responsibility for and all liability for the actions and quality of services performed by any subcontractor.
- b. Every subcontractor must agree in writing to follow every term of this Agreement. The Contractor must provide every subcontractor's written agreement to follow every term of this Agreement before the subcontractor can perform any services under this Agreement. The Public Health Director or their designee must approve any proposed subcontractors in writing.
- c. Any dispute arising between the Contractor and any subcontractors or between subcontractors must be resolved without involvement of any kind on the part of the County and without detrimental impact on the Contractor's performance required by this Agreement.

13. Covenant Against Contingent Fees. The Contractor warrants that he has not employed or retained any company or person, other than a bona fide employee working solely for the Contractor, to solicit or secure this Agreement, and that he has not paid or agreed to pay any company or person, other than a bona fide employee working solely for the Contractor, any fee, commission, percentage, brokerage fee, gifts, or any other consideration contingent upon or resulting from the award or making of this Agreement. For breach or violation of this warranty, the County shall have the right to annul this Agreement without liability or, in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift, or contingent fee.

14. Discrimination Prohibited. The Contractor, with regard to the work performed by it under this Agreement, will not discriminate on the grounds of race, color, national origin, religion, creed, age, gender, sexual orientation, material status, sex, or the presence of any physical or sensory handicap in the selection and retention of employees or procurement of materials or supplies.
15. No Assignment. The Contractor shall not sublet or assign any of the services covered by this Agreement without the express written consent of the County. Assignment does not include printing or other customary reimbursable expenses that may be provided in an agreement.
16. Non-Waiver. Waiver by the County of any provision of this Agreement or any time limitation provided for in this Agreement shall not constitute a waiver of any other provision.
17. Termination.
 - a. The County reserves the right to terminate this Agreement at any time by giving ten (10) days written notice to the Contractor.
 - b. In the event of the death of a member, partner, or officer of the Contractor, or any of its supervisory personnel assigned to the project, the surviving members of the Contractor hereby agree to complete the work under the terms of this Agreement, if requested to do so by the County. This section shall not be a bar to renegotiations of this Agreement between surviving members of the Contractor and the County, if the County so chooses.
 - c. The County reserves the right to terminate this contract in whole or in part, with 10 days' notice, in the event that expected or actual funding from any funding source is withdrawn, reduced, or limited in any way after the effective date of this agreement. In the event of termination under this clause, the County shall be liable for only payment for services rendered prior to the effective date of termination.
18. Notices. All notices or other communications which any party desires or is required to give shall be given in writing and shall be deemed to have been given if hand-delivered, sent by facsimile, email, or mailed by depositing in the United States mail, prepaid to the party at the address listed below or such other address as a party may designate in writing from time to time. Notices to the County shall be sent to the following address:

Tami Pokorny, Natural Resources Program Coordinator
Jefferson County Public Health Department
615 Sheridan Street
Port Townsend, WA 98368
Office: 360-379-4498
Email: tpokorny@co.jefferson.wa.us

Notices to Contractor shall be sent to the following address:

Dawn Duncan, Office Manager
Natural Systems Design, Inc.
1900 Northlake Way, Suite 211
Seattle, WA 98103
Ph: 206-480-1114
Email: dawn@naturaldes.com

19. Integrated Agreement. This Agreement together with attachments or addenda represents the entire and integrated Agreement between the County and the Contractor and supersedes all prior negotiations, representations, or agreements written or oral. No representation or promise not expressly contained in this Agreement has been made. This Agreement supersedes all prior or simultaneous representations, discussions, negotiations, and agreements, whether written or oral, by the County within the scope of this Agreement. The Contractor ratifies and adopts all statements, representations, warranties, covenants, and agreements contained in its proposal, and the supporting material submitted by the Contractor, accepts this Agreement and agrees to all of the terms and conditions of this Agreement.
20. Modification of this Agreement. This Agreement may be amended only by written instrument signed by both County and Contractor.
21. Disputes. The parties agree to use their best efforts to prevent and resolve disputes before they escalate into claims or legal actions. Any disputed issue not resolved pursuant to the terms of this Agreement shall be submitted in writing within 10 days to the County Risk Manager, whose decision in the matter shall be final, but shall be subject to judicial review. If either party deem it necessary to institute legal action or proceeding to enforce any right or obligation under this Agreement, each party in such action shall bear the cost of its own attorney's fees and court costs. Any legal action shall be initiated in the Superior Court of the State of Washington for Jefferson County. The parties agree that all questions shall be resolved by application of Washington law and that the parties have the right of appeal from such decisions of the Superior Court in accordance with the laws of the State of Washington. The Contractor hereby consents to the personal jurisdiction of the Superior Court of the State of Washington for Jefferson County.
22. Section Headings. The headings of the sections of this Agreement are for convenience of reference only and are not intended to restrict, affect, or be of any weight in the interpretation or construction of the provisions of the sections or this Agreement.
23. Limits of Any Waiver of Default. No consent by either party to, or waiver of, a breach by either party, whether express or implied, shall constitute a consent to, waiver of, or excuse of any other, different, or subsequent breach by either party.

24. No Oral Waiver. No term or provision of this Agreement will be considered waived by either party, and no breach excused by either party, unless such waiver or consent is in writing signed on behalf of the party against whom the waiver is asserted. Failure of a party to declare any breach or default immediately upon the occurrence thereof, or delay in taking any action in connection with, shall not waive such breach or default.
25. Severability. Provided it does not result in a material change in the terms of this Agreement, if any provision of this Agreement or the application of this Agreement to any person or circumstance shall be invalid, illegal, or unenforceable to any extent, the remainder of this Agreement and the application this Agreement shall not be affected and shall be enforceable to the fullest extent permitted by law.
26. Binding on Successors, Heirs and Assigns. This Agreement shall be binding upon and inure to the benefit of the parties' successors in interest, heirs, and assigns.
27. No Assignment. The Contractor shall not sell, assign, or transfer any of rights obtained by this Agreement without the express written consent of the County.
28. No Third-party Beneficiaries. The parties do not intend, and nothing in this Agreement shall be construed to mean, that any provision in this Agreement is for the benefit of any person or entity who is not a party.
29. Signature in Counterparts. The parties agree that separate copies of this Agreement may be signed by each of the parties and this Agreement shall have the same force and effect as if all the parties had signed the original.
30. Facsimile and Electronic Signatures. The parties agree that facsimile and electronic signatures shall have the same force and effect as original signatures.
31. Arms-Length Negotiations. The parties agree that this Agreement has been negotiated at arms-length, with the assistance and advice of competent, independent legal counsel.
32. Public Records Act. Notwithstanding the provisions of this Agreement to the contrary, to the extent any record, including any electronic, audio, paper or other media, is required to be kept or indexed as a public record in accordance with the Washington Public Records Act, Chapter 42.56 RCW, as may hereafter be amended, the Contractor agrees to maintain all records constituting public records and to produce or assist the County in producing such records, within the time frames and parameters set forth in state law. The Contractor further agrees that upon receipt of any written public record request, Contractor shall, within two business days, notify the County by providing a copy of the request per the notice provisions of this Agreement.
33. Confidentiality. With respect to all information relating to County that is confidential and clearly so designated, as required by the Health Insurance Portability and Accountability Act (HIPAA) and any other applicable privacy laws, the Contractor agrees to keep such information confidential. The Contractor shall not disclose, transfer,

or sell any such information to any party, except as provided by law or, in the case of personal information, with the prior written consent of the person to whom the personal information pertains. The Contractor shall maintain the confidentiality of all personal information and other information gained by reason of this Agreement, and shall return or certify the destruction of such information if requested in writing by Jefferson County. This Agreement, once executed, will be a "public record" subject to production to a third party if same is requested pursuant to the Washington Public Records Act, Chapter 42.56 RCW, as may hereafter be amended.

DATED this 17th day of February, 20 24.

(SIGNATURES FOLLOW ON THE NEXT PAGE)

SIGNATURE PAGE

JEFFERSON COUNTY WASHINGTON

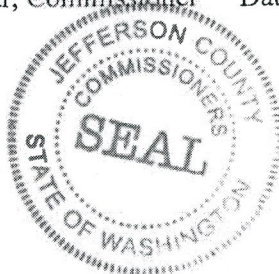
Board of County Commissioners
Jefferson County, Washington

By: Approved Telephonically 2/12/24
Kate Dean, Chair Date

By: [Signature] 2/12/24
Greg Brotherton, Commissioner Date

By: [Signature] 2/12/24
Heidi Eisenhour, Commissioner Date

SEAL:



ATTEST:

Carolyn Gallaway 2/12/24
Carolyn Gallaway CMC, Date
Clerk of the Board

Approved as to form only:

[Signature] January 24, 2024
Philip C. Hunsucker, Date
Chief Civil Deputy Prosecuting Attorney

**NATURAL SYSTEMS DESIGN +
COASTAL GEOLOGIC SERVICES**

By: [Signature]
Signature

Name: Leif Embertson

Title: President

Date: 02/02/24

Exhibit A Scope of Work

For the middle Hoh River, the Contractor will assist in the development of conceptual and preliminary designs for the Lindner reach, and final design for Phase 1, through a collaborative process and in partnership with the Hoh Tribe. The project reach is located between river mile (RM) 5 – 6.5 on the Middle Hoh River between Highway 101 and Olympic National Park in western Jefferson County, Washington. The primary goals of the project are to increase spawning and rearing habitat for spring Chinook, steelhead, coho, and bull trout, while improving local community resiliency by decreasing risks associated with flooding and erosion. Work to be completed by the Contractor is divided into the following list of tasks and linked to specific project deliverables:

- Task 1: Existing Conditions Characterization
- Task 2: Existing Conditions Reach Hydrology & Hydraulics
- Task 3: Reach Geomorphology
- Task 4: Climate Change Impacts
- Task 5: Stakeholder Engagement & Community Outreach
- Task 6: Concept Design Development
- Task 7: Preliminary Design Development
- Task 8: Invasive Plant Prevention Plan
- Task 9: Risk Assessment
- Task 10: Project Permitting
- Task 11: Phase 1 Final Design Development
- Task 12: Project Management & Coordination

Task 1. Existing Conditions Characterization

Contractor will collect and analyze information on current and past site conditions to inform development of conceptual restoration designs for the Lindner Complex Reach. The analysis approach supports reporting consistent with requirements in RCO SRFB Manual 18 (<https://rco.wa.gov/wp-content/uploads/2019/05/SAL-Manual18.pdf>). The existing conditions assessment field work will be limited to the channel and floodplain area south of the Upper Hoh Road where access has been arranged. The project team will work with the County to determine which information is most essential to the development of conceptual designs, versus data that is valuable but not essential. For example, Contractor will work with the County and RCO to determine the extent to which a Cultural Resources desktop review of the project area and development of a work plan should be initiated as part of this task to ensure sufficient time for consultation with RCO and the affected Tribes on the extent and nature of cultural resources field investigations. The Existing Conditions Characterization task is divided into the following sub-tasks:

1.1.1. Riparian Forest and Floodplain Wetlands Condition Field Assessment

Contractor will characterize riparian floodplain conditions within the project reach. The riparian forestry mapping in the project reach completed for the Resiliency Plan will be updated using the 2022 LiDAR and verified in the field for accuracy. Contractor will complete a desktop review of

National Wetland Inventory, Jefferson County wetland inventory, and National Resource Conservation Service (NRCS) soils mapper to identify areas of hydric soils and mapped wetlands and waters of the U.S. to support the subsequent field assessment. It is anticipated that 3 days of fieldwork will be required to fully assess this reach. The field verification effort will focus on collecting existing conditions data on:

- Riparian stand composition and condition
- Floodplain vegetation communities
- Extent and nature of wetlands proximate to the channel to determine extent of existing connectivity to key salmonid rearing habitats and opportunities for improved connectivity
- Indicators of the Ordinary High Water Mark (OHWM) to correlate with the existing conditions hydraulic modeling (Task 2) and ultimately support Task 10 Project Permitting

Subtask 1.2. Habitat and Fish Use Field Assessment

Contractor will collect instream and off-channel habitat conditions within the project reach. It is anticipated that 5 days of field work will be required to fully assess this reach. The habitat assessment will include the collection of the following data in the mainstem river and side channels:

- Chinook, coho, and steelhead spawning and rearing habitat
- Presence of juvenile salmonids
- Annual spring and fall Chinook, coho, and steelhead spawning surveys
- Sharing salmonid redd data over time to document usage of the main stem and side channels
- Location and geometry of side channels and flow condition
- Size and location of pools, large wood, logjams

Subtask 1.3. Geomorphic Field Assessment

Contractor will document and characterize active and impaired geomorphic processes in the reach, as well as record existing habitat protection and restoration opportunities. Data to be acquired to support the geomorphic assessment and design include:

- Active bank erosion
- Significant local sediment inputs
- Pebble counts sufficient to characterize mapped channels
- Active deposition and/or incision
- Bank protection
- Field verification of relative elevation model (REM)
- Design constraints

Task Assumptions

- County will coordinate permission to access private property needed for field surveys.
- River flows will be sufficiently low as to not restrict access to perform field work safely.
- Landowner meetings will not occur during field data visits.
- Travel costs and field equipment use will be billed as expenses and are included in costs.
- Additional topographic information will only be collected if deemed necessary at high-risk locations.

Task Deliverables:

- Existing conditions characterization chapter for basis of design report relevant map appendix.

Task 2. Existing Conditions Reach Hydrology & Hydraulics

Development of an existing conditions hydraulic model of the project reach will be a critical tool for understanding flow patterns during seasonal and flood levels, identifying restoration opportunities, characterizing the extent of floodplain wetland connection currently occurring, and developing concept designs.

Subtask 2.1. Hydrology

Hydrology for the hydraulic model will be developed by analyzing USGS gages (#12041200, #12041000) using Bulletin 17C guidelines (USGS 2018). Recurrence flows for the un-gaged tributaries will be estimated using regional regression equations developed by Mastin et. al. (2016). Major tributary inputs (Tower, Clear, Red, Lindner, and Willoughby Creeks) will be included in the model simulations to account for their flow contributions, assuming a similar flow recurrence is occurring in the tributary and the main stem Hoh River concurrently (the 2-yr flow simulation for the Hoh River will include tributary inputs also at the 2-yr flow). Low flow discharge for the Hoh and tributaries will be estimated using methods outlined in Curran et. al. (2012).

The impacts of climate change have already begun to alter the flow regime in the Hoh River watershed, increasing peak flow frequency and magnitude over time, while simultaneously decreasing summer baseflow. Recent flood history will be described and put in context with historic peak flow timing and trends in the basin to demonstrate how peak flows have already changed. Projecting future changes to flow is included in a later task describing climate change impacts.

Subtask 2.2. Hydraulics

Contractor will develop a 2-dimensional (2D) hydraulic model using the US Army Corps HEC-RAS program. The model will encompass the project reach and utilize 2022 bathymetric LiDAR acquired by the Hoh Tribe as the primary source of topography for the model mesh. To ensure boundary conditions are not influencing results within the project reach, the 2D hydraulic model will be extended up to Spruce Canyon (near RM 25.5) and down to Schmidt Bar (near RM 19.5) where the valley naturally confines the channel.

Risk based and geomorphically relevant flow simulations will be performed for the 1, 2, 10, 25, 50, and 100-yr recurrence floods. In addition, flows during Winter Steelhead and Spring Chinook

Salmon spawning periods will be modeled under existing conditions, to assess existing velocity and depth conditions during this critical life history stage to evaluate habitat suitability. Proposed condition model iterations will consider the same parameters to understand proposed habitat lift at the as-built condition. This information will guide design of optimal ecological outcomes and offer a useful communication tool for community members and other key stakeholders by species during spawning times.

The existing conditions 2-year flow output from the 2D hydraulic model will be compared to data collected in Task 1 relative to the Ordinary High-Water Mark (OHWM) to support delineation of that regulatory boundary (Task 10) and to characterize the extent to which floodplain surfaces, side channels, and associated wetlands are currently connected to flood flows. This data will be used in Task 10 to support the development of permit application materials and the demonstration and quantification of benefits to aquatic habitats, including wetlands.

The development and results of the existing conditions 2D hydraulic model, flow recurrence calculations and estimates, and recent trends in peak flows will all be detailed in a chapter of the basis of design report, including an appendix of maps illustrating the model results. Development of all proposed conditions, model simulations used for design development and FEMA compliance are included in later tasks.

Task Assumptions

- Streamflow estimates will follow USGS Bulletin 17B/C guidelines for gaged sites and using regional values for skew and standard error. No additional field streamflow measurements or gaging instrumentation are needed. USGS StreamStats will be used where no stream gage information is available.
- Models will not be calibrated to regulatory (e.g. FEMA FIS) models or existing benchmarks.

Task Deliverables:

- Reach Hydrology & Hydraulics chapter within the basis of design report, including relevant figures and map appendix.

Task 3. Reach Geomorphology

Contractor will document historic disturbances in the project reach that have impaired natural geomorphic process and broken the large wood cycle, resulting in a more dynamic and unstable system that lacks reliable instream and off-channel habitat for salmonids, and a river that regularly poses flooding and erosion risk to the community. Understanding the underlying mechanisms that continue to impair habitat availability and contribute to instability is critical to developing a restoration strategy that will put the system on a sustainable path to recovery.

Historic air photos, maps, and existing geospatial data will be used to characterize how the channel and floodplain have evolved over time in the project reach. Channel migration rates will be quantified over time, channel avulsions will be documented, and the influence of large wood and logjams in the reach on channel migration and avulsions will be described. Remaining patches of old growth forest in the floodplain, more resistant to erosion, will be delineated and erosion rates compared to areas with less mature vegetation. The unvegetated active channel will also be

delineated on historic air photos to measure change in area over time. Pre-disturbance channel migration and avulsion rates, unvegetated active channel area, and the role of large wood and logjams will be compared with those measured in the disturbed project reach using a reference reach on the Queets River between RM 19 and 23 that has a similar drainage area as the Lindner Reach.

The 2013/14 LiDAR of the project reach will be compared with the more recent 2022 LiDAR to quantify the magnitude and spatial distribution of changes between the two data sets. Peak flows occurring in the time period between LiDAR flights will be used to place the magnitude of changes in context with recent flood history. We will use the composite 2013/14 surface that includes the LiDAR data and channel bathymetry collected by Wild Fish Conservancy in 2014 to compare not only the overall changes to the surface, but also target changes specific to the channel thalweg over time.

The data and methods used for the geomorphic assessment will be detailed, along with results and implications for the design, and will be included in a chapter in the basis of design report, including maps and figures as needed to illustrate the results.

Task Assumptions

- Only publicly available georeferenced photos, including those used for the Resiliency Plan, will be used in the geomorphic assessment, NSD will not georeference additional historical aerial photos that do not have spatial metadata.

Task Deliverables:

- Reach Geomorphology chapter within the basis of design report, including relevant figures and appendices.

Task 4. Climate Change

Contractor will utilize the river-scale findings from the Middle Hoh River Resiliency Plan (NSD 2022) to estimate the resiliency benefits of concept design alternatives under potential climate change conditions at the reach-scale. Any new climate model predictions that have been done since the Resiliency Plan will be incorporated into the assessment. At the watershed-scale, higher precipitation rates due to ongoing climate change effects will increase the magnitude of annual peak and average winter flows and contribute to increases in mass-wasting and sediment delivery to the river. Contractor will verify and apply these watershed-scale findings to the reach-scale to analyze the following:

- The potential effects of increased sediment delivery on the project reach in terms of channel bed aggradation, flooding, and channel migration.
- How increases in flow may expand flooding extent in the project reach and contribute to increases in channel migration rates.
- Impacts on the potential extent and availability of off-channel habitat for salmonid species.
- Potential impacts of erosion and channel migration on mature riparian and floodplain forest.

- Potential impacts to infrastructure and private property.
- Climate change mitigation opportunities will be evaluated as a part of Task 6: Concept Design Development.
- Recent channel changes, within the last 25-years, will be analyzed as a part of Task 3: Reach Geomorphology.
- The effects of climate change on peak flows will be simulated for each concept design alternative and the preliminary design as a part of Task 6 and Task 7, respectively using flows predicted in Task 4.
- The effects of climate change on ESA listed Bull Trout (*S. Confluente*) who require cold, complex habitat to survive, and are therefore extremely sensitive to increasing temperatures.

Task Deliverables:

- Climate Change chapter within the basis of design report, including relevant figures and appendices.

Task 5. Stakeholder Engagement & Community Outreach

At the start of the project Contractor will work with County to develop an Engagement and Outreach Plan, to detail the process and schedule by which the project will connect with landowners, communicate with the Hoh Tribe and other identified groups and the public, and solicit input for the entire project, including final design development. It is anticipated the Plan will include the following:

- Making presentations and providing workshop or site visit materials at up to two watershed-level “Hoh River Resiliency” events (in person at various Hoh River, Forks, or project locations) with interested community members in the watershed in 2025 and/or 2026.
- Convene and facilitate four meetings for a new ad hoc Lindner Reach Technical Advisory Group (online or hybrid) that includes representatives from relevant permit agencies, County, and local technical experts including the Hoh Tribe at key design milestones including:
 - Completion of existing conditions characterization, draft concept designs, ranking and selection
 - Completion of 30% design
 - Completion of 60% design
 - Completion of 90% design
- Present to Hoh Tribal Council, County leadership, City of Forks, user and/or economic groups (recreational boaters, guides, fishers, etc.), or other stakeholders (up to 10 in person meetings at various local locations.)
- Meet individually up to a combined 40 times with the Hoh Tribe, individual landowners, local businesses, and/or specific user groups (in person – Hoh River or North Olympic Peninsula)

With input from project partners, Contractor will support the County to organize, convene, and facilitate public meetings, technical meetings, and meetings with individual stakeholders and landowners. Contractor will contribute to and review Agency-led outreach products including a watershed newsletter. As feasible, the project will offer opportunities to involve local community, faculty, and students from the new Natural Resources Program at Peninsula College in Forks: <https://pencol.edu/program/natural-resources>. Notes from all meetings will be included in the basis of design report, with relevant outcomes and content covered at each.

Task Assumptions:

- County is responsible for scheduling and coordinating meetings and events except mutually agreed upon landowner meetings.

Task Deliverables:

- Engagement and Outreach Plan and Community Outreach and Engagement chapter for basis of design report.
- 2 Hoh River Resiliency events (in person).
- 4 TWG meetings (online/in person).
- Total of 10 meetings with several groups including Hoh Tribal Council, County leadership, City of Forks (in person).
- Up to 40 meetings with landowners, local businesses, and river user groups in the reach (in person).

Task 6. Concept Design Development

High-level concept designs were created for this reach as a part of the Middle Hoh Resiliency Action Plan. These concepts include actions to sustain side-channel habitat for salmonids, potential relocation of Jefferson County Public Works facilities, installation of engineered log jams (ELJs) to protect infrastructure, preserve valuable existing salmonid habitat and prevent large mass-wasting events or avulsion events in the project reach. Contractor will re-evaluate these initial concept ideas within the context of a more-detailed existing conditions characterization (Tasks 1 -3), climate change impacts (Task 4), and up-to-date stakeholder and community input (Task 6).

Following the completion of the Existing Conditions Characterization Tasks and Climate Change Impacts Task (Tasks 1 - 4), Contractor will work with the County to develop up to 3 conceptual design alternatives for the Lindner Complex Reach. The design team will collaborate with the County on development and evaluation of different design alternatives to achieve the project goals and objectives. The 2D hydraulic model developed in Task 3 will be updated to depict each alternative to determine possible side channel flow pathways and to identify flood hazards and range of ecological benefits to aquatic and floodplain wetland habitats.

Large wood structures will be incorporated into the model mesh to investigate hydraulic influence. The benefits of each alternative will be compared, and the hydraulic models will be reviewed, to analyze the potential need for a CLOMR and potential for floodplain wetland restoration and riparian community enhancement. Compliance with floodplain regulations will be an important consideration in evaluation of design alternatives. Evaluation criteria that may be considered include wetland restoration and aquatic habitat improvements, anticipated geomorphic response,

construction feasibility, regulatory complexity and timeline, infrastructure impacts, and cost. A no action alternative will be included that compares the evaluation criteria for the proposed concept designs to current approaches relying on emergency riprap and designed projects utilizing dolos.

Initial consultation with regulatory agencies during the conceptual design phase will be completed as part of Task 10 to clearly understand the implications and complexity of each alternative and to contrast with no action and road-first protections. Permit application preparation, including the cultural resources assessment and wetland delineation, will occur during and following the selection of the preferred alternative and advancement through the Preliminary Design phase (Task 7).

Contractor will draft plan view maps of the design alternatives and describe project elements in relation to project goals and objectives as well as potential modification to existing habitats, land use and regulatory constraints. The design evaluation is anticipated to include discussion of the type, size, and proposed quantity of wood placements within the side channel and related ecological benefits, in addition to other design criteria.

Contractor will document evaluation of design alternatives as part of the Conceptual Design Development chapter within the basis of design report, including recommendation of a preferred design alternative and submit the draft report to the County for review. County will provide review comments and guidance regarding decision on selecting a preferred alternative that will be advanced to a preliminary design stage in the next task. Contractor will revise the working draft of the Conceptual Design.

The Development chapter will incorporate the County's review comments as part of the basis for selecting the preferred alternative. The revised draft will provide a deliverable that can be shared with the SRFB review panel and other stakeholders for additional review. The design and deliverables will meet the requirements presented in Manual 18: Salmon Recovery Grants.

Task Assumptions

- Reporting for conceptual designs will focus on treatment methods and screening criteria and will not be detailed site-specific design.
- Detailed design will not occur at this phase of the project.
- County will select a Preferred Design to move forward into Preliminary Design
- County will provide one round of consolidated review and comment on draft deliverables. Comments and any subsequent design revisions will be incorporated during Preliminary Design (on all concept design deliverables).
- Conceptual design sheets will be provided in 11x17 pdf format and will be limited to simple plan view representations of proposed actions under each alternative.
- Up to three (3) proposed conditions alternatives will be considered.
- Hydraulic modeling of design alternatives will utilize the same hydrology and model flows developed for Task 3.
- Potential impacts to the regulatory floodway will be considered during alternative development and analysis.
- The project will not progress into preliminary design until the County selects a preferred alternative.

- Contractor will not develop special provisions as part of the concept designs.
- Cost estimates will be developed as rough order of magnitude estimates and will use rolled up cost line items that are anticipated to be refined in final design.

Task Deliverables:

- Concept Design Development chapter within the basis of design report, including three concept design alternative drawings/plans, maps comparing changes in hydraulic conditions for each design alternative relative to existing condition, ranking matrix for concept design comparison.

Task 7. Preliminary Design Development

The preliminary design plans are intended to be permit-ready plans for use in initiating project permitting discussions with the County, Tribal and federal, state, and local regulatory agencies. The development of the 60% plans will include the following subtasks:

- Draft (30%) and Final (60%) Preliminary Plans
- Draft (30%) and Final (60%) Preliminary Cost Estimate
- Draft (30%) and Final (60%) Preliminary Basis of Design Report
- Proposed Conditions Hydraulic Models

All landowner outreach and stakeholder engagement associated with the preliminary design is included in Task 5 Stakeholder Engagement and Community Outreach. Regulatory permit application preparation, including delineation of wetlands and cultural resources assessment are included in Task 10.

Subtask 7.1. Draft (30%) and Final (60%) Preliminary Plans

Contractor will create a 30% design based on the preferred concept design alternative and further develop the 30% design to a 60% design level. It is anticipated design elements will include potential grading of channel features, engineered log jam locations, sizes and types, site restoration planting areas and silviculture treatments, stabilization of existing logjams, proposed relocation of existing facilities and/or infrastructure, and invasive species removal and control areas. Contractor will refine design elements to meet project goals and objectives as the project advances through the design process and stakeholder and community engagement process.

We anticipate the following sheets to be included in the preliminary design drawing set:

- Cover
- General Notes
- Legend
- Existing Condition Site Overview
- Access and Staging
- Proposed Conditions Overview Plan
- Proposed Conditions Plans at Site-Scale (1" = 100' or less)

- Cross-Sections
- Profiles(s)
- Engineered Log Jam Structure Details and Sequencing
- TESC Plan and Details
- Invasive Plant Prevention Plan and Details
- Site Restoration Plan and Plant Schedule(s)
- Planting Details
- Wood and Materials Schedule

Subtask 7.1. Draft (30%) and Final (60%) Preliminary Construction Cost Estimate

Contractor will update an estimate of probable construction cost based on the 30% and 60% designs. Contractor will use publicly available cost values (from WSDOT or the County for example), reaching out to suppliers, and examples from our past projects.

Subtask 7.2. Draft (30%) and Final (60%) Preliminary Basis of Design Report

Contractor will create a Basis of Design report for the 30% design and update it for the 60% design. The 30% design report will focus on the design layout and intended function of each restoration element, anticipated changes resulting from the project, updates to the hydraulic model, site restoration, and initial cost estimate. The 60% design report will add more detailed descriptions of engineering assumptions and calculations, further updates to the hydraulic model, a description of invasive plant prevention and treatment, site restoration plan, and updates to the construction cost estimate.

Subtask 7.3. Proposed Conditions Hydraulic Models

During development of the draft preliminary design, Contractor will prepare a proposed conditions hydraulic model of the project reach incorporating proposed restoration actions to evaluate the performance of the design relative to the project goals, to evaluate flooding and erosion risks, and to serve as the basis for documenting compliance with Jefferson County and National Floodplain Insurance Program (NFIP) code as part of Task 10 (Project Permitting). The suite of flows developed to characterize hydrology (Task 2) will be included as proposed condition models, as well as projected climate change flows, to ensure proposed elements are evaluated over a wide range of flow conditions. The results of the proposed hydraulic modeling will be used to modify the design to maximize benefits and minimize any potential adverse impacts, to anticipate future channel changes resulting from the restoration actions, and to facilitate early discussions with permit agencies. Once the design flood event has been selected the hydraulic model results will be used to assess stability of any proposed instream structures.

Task Assumptions:

- OHWM boundaries will be developed from hydraulic model outputs, verified with field indications. Wetland boundaries will be approximated during field data collection (Subtask 1.1).

- Property boundaries will be shown based on available parcel data. No boundary survey is included in this task.
- Design drawings will be produced in Autodesk Civil 3D and delivered as 11" x 17" format PDFs.
- Contractor will only submit the 30% and 60% deliverables for comment and review.
- No hard copy or wet stamped versions of the plans will be produced.
- Design plans will be prepared using NSD's CAD standards.
- Project Special Provisions (Divisions 2 through 9) will utilize the Washington Department of Transportation (WSDOT, current year) Standard Specifications for Road, Bridge, and Municipal Construction, current edition.
- Preliminary level of design will be used to apply for project permits under all applicable federal, state, and local regulations.
- Contractor will receive one set of consolidated comments on the preliminary design. As part of this consolidation, County will resolve conflicting comments. Revisions to address comments will be completed during the final design task.
- No archiving or e-transmittal of AutoCAD format (.dwg) files is included in this scope of work.
- Planting plans will be prepared by others and are not included in this scope of work.
- Construction support is not included in this scope of work.
- Design effort does not include contaminant testing nor remediation.
- Design effort does not include cultural resources investigations.
- Design effort does not include utilities, stormwater, or roadway improvements.
- Design effort does not include geotechnical investigation.
- Design effort does not include floodplain analysis or permitting.
- The level of effort for these deliverables has been set based on the assumption that review rounds do not exceed anticipated effort (1 round of review where noted) and no major design changes (revision of the number/location/type of structures) are requested.

Task Deliverables:

- Draft (30%) and Final (60%) Preliminary design drawings/plans, hydraulic model results, cost estimate, preliminary basis of design report, relevant appendices (hydraulic model results, stability calculations).

Task 8. Invasive Plant Prevention Plan

10,000 Years Institute (Subcontractor), will design and implement an approach to managing invasive plants that is based on supporting native plant community succession. The plan will both describe the necessary ongoing survey and treatment of invasive plants in the Lindner Complex during the period of performance and will also detail the preferred approach to preventing the introduction and spread of invasive plants during future construction phases. Subcontractor will identify and describe sources, vectors and pathways of non-native invasive plants that impair and

arrest the growth and resiliency of native plant communities in the project area. Subcontractor will utilize a local workforce to conduct persistent tracking and mapping followed by rapid control methods.

To limit the introduction and spread of new, existing, and previously seeded invasive plant species (IPS) during all phases of project implementation, Subcontractor will include the following in the Invasive Plant Prevention Plan:

- Survey and treatment methods and schedule for target invasive plant species.
- Maps and GIS locations of all previously documented IPS. Subcontractor will provide review, guidance, maps and GIS data as needed or requested.
- Identification guidance for reporting observations.
- Recommendations for:
 - Siting the most appropriate invasive-free access routes for truck and equipment use.
 - Siting the most suitable location for a vehicle and equipment wash station.
 - Equipment washing prior to entering and upon leaving construction zones, including between different sections of the Lindner floodplain reaches.
 - Containing effluent to the wash station area with appropriately scaled pit.
 - Remediating the wash station area.

Task Deliverables:

- Draft and Final Invasive Plant Prevention Plan.

Task 9. Risk Assessment

Contractor will describe the risk to existing infrastructure and private property from flooding and erosion under existing conditions and the final preliminary design. The assessment of risk will include the Upper Hoh Road, Jefferson County Public Works facility, local businesses, private property and homes, as well as the risk of losing instream and associated floodplain salmonid habitats (e.g., side channels). The risk assessment will also include a description of boater safety under existing and proposed conditions to ensure the placement of instream structures will not increase risk. It will also evaluate how potential changes in river planform will affect flooding and erosion.

Projected river trends and avulsion scenarios will be included to evaluate how risk changes as the main stem channel moves over time. The risk assessment will rely on the 2022 LiDAR, geomorphic assessment, and existing and proposed hydraulic model results to perform the needed analyses. Contractor has completed dozens of risk assessments and contributed to state guidelines developed by DNR Aquatic Lands. In addition to looking at risks to infrastructure and property under the no-action and proposed action alternatives, the risk to recreational boaters will be assessed. Natural and engineered logjams (ELJs) can pose risks to inexperienced boaters; thus, it is important to consider how they could interact with recreation.

Over the last twenty years the hundreds of ELJs built in Washington have an excellent safety record. The Middle Hoh has historically had numerous snags and logjams which are regularly navigated by experienced boaters. Contractor will consider boater safety in all designs. Because of

their stability, ELJs will be in known locations and thus become familiar to recreational users. All ELJs will be analyzed for stability and designed to be stable in a 100 yr flood (existing and projected for 2070 under latest climate models). Currently most natural logjams are unstable and form in different places year to year. The risk assessment will also examine the risk to habitat of the no-action alternative and proposed actions. The risk assessment will include the impacts associated with the warming climate.

Assumptions

- Much of the analysis will rely on existing and proposed hydraulic model outputs.

Deliverables:

- Draft and Final Risk Assessment appendix to the Final Basis of Design Report.

Task 10. Project Permitting

Subtask 10.1. Wetlands Assessment and Delineation

The Contractor will utilize the existing condition data collected in Task 1 regarding the estimated extent and nature of wetlands and alignment of OHWM indicators with the modeled 2-year flow to inform the development of the preliminary design. Those field efforts will build upon our team's knowledge of the geomorphic, habitat, and ecological conditions of the reach and serve as the baseline conditions against which we will evaluate proposed restoration actions.

As the preliminary design progresses, we will complete a delineation of wetlands within the project area, leveraging our expertise in elevation-based wetland delineations to cover the large project area efficiently. The delineation will include Washington State Department of Ecology (Ecology) required wetland rating forms for a suite of wetlands characteristics of those affected by the project, an approach we have used on several projects in the Chehalis River basin to save budget while meeting permit application requirements. Contractor will complete the delineation within the area of potential effect (APE) derived from the preliminary design and will draft a delineation report with required Ecology rating form graphics, which will become a component of the project's permit application materials.

The wetlands work will also help identify off-channel rearing and floodplain reconnection opportunities and support the analysis of project impacts and benefits that is required as part of the federal permitting process to show the net benefit of the project and alignment with the Corps' Nationwide Permit 27 pathway. Our approach is to integrate these elements early so the project can be designed to have a net benefit to aquatic species and habitats and so that impacts to wetlands and waters can be avoided, minimized and rectified. This approach is proven to effectively align the project with the Corps' Nationwide Permit 27 process and the USFWS and NMFS ESA programmatic, alignment with which creates a streamlined permitting process pathway for restoration actions.

Subtask 10.2. Cultural Resources Assessment

Successful environmental permitting of this project will require a comprehensive cultural resources assessment that can serve as Section 106 documentation for CWA 404 permitting by USACE, and for compliance with GEO 21-02 required by RCO funding. Contractor will work through our

partner, Willamette (Subcontractor), to complete archival review of the natural and cultural setting of the APE vicinity (APE derived from the preliminary design). Results of this desktop study and any input willing to be shared by cultural resource staff of affected Tribes (e.g., Hoh and Quileute Tribes, Quinault Indian Nation) will be used to gauge relative sensitivity for cultural resources that may be impacted by project restoration activities.

If required by RCO, Subcontractor will then draft a cultural resource assessment workplan and vet the plan with RCO, DAHP, and affected Tribes. Once that consultation is completed, Subcontractor will complete a field survey with a level of effort tailored to relative sensitivity and anticipated project activities within the APE. The fieldwork will seek to identify cultural resources that may be impacted by the project so any such impact can be avoided.

If any resources are identified, their significance and anticipated project effects will be assessed to the extent allowed during the fieldwork session. If additional fieldwork or archival research is needed to document and evaluate the historic register eligibility of a resource, it would be conducted under a separate scope of work.

Subcontractor will then draft a technical report which will become a component of the project's permit application materials to summarize background research, methods and results of the fieldwork. The report will include evaluation of any resources that may be identified, concluding with recommendations regarding resources identified and any other cultural resources management measures that may be appropriate. Subcontractor will assist Contractor and the County through the consultation process required by Section 106 and GEO 21-02, coordinating with RCO, USACE, DAHP, and affected Tribes to ensure timely review of our cultural resource assessment documentation.

Subtask 10.3. Permit Application Preparation, Submittals, and Process Management

Contractor will support the County by initiating pre-application meetings with the federal and state agencies to review the project and answer questions prior to completion of the application materials. Contractor will then create the application materials and manage the application submittal and tracking process necessary to obtain federal, state, and local regulatory approvals for this project. Contractor proposes to leverage the active outreach to stakeholders, including federal and state regulatory agencies, completed as part of Task 5 to initiate conversations and identify the appropriate permit pathway. It is important to clarify the pathway early in the process since there are several possible pathways that influence each other, our level of effort, and the overall project schedule.

Contractor will work directly with the County and WDFW to evaluate the potential for the project to align with either the Fish Habitat Enhancement Project (FHEP) HPA exemption that eliminates the need for local permitting, or the Habitat Recovery Pilot Program (HRPP). If the HRPP is approved by WDFW, then the project would not need to go through SEPA review nor the formal Shoreline permitting process.

For federal permits, Consultant will design the project to qualify for a Clean Water Act Section 404 Nationwide 27 permit from the Corps and to be consistent with the Coastal Zone Management Act (CZMA) requirements. For ESA-listed species, Contractor will similarly aim for restoration actions

that will be consistent with the action categories covered in the NMFS and USFWS restoration programmatic agreements with the Army Corps of Engineers. Contractor will prepare the appropriate ESA-consultation documents as determined through agency consultation (e.g., ABBE, NEL, FPRP III form) while noting that the programmatic are currently set to expire before the permit submittals will occur for this project, creating some uncertainty.

For Washington state's permitting agencies, a WDFW Hydraulic Project Approval (HPA) permit will be needed, as well as a Section 401 water quality certification from Ecology. We will prepare the pre-meeting request and 401 request forms as needed and coordinate in advance with WDFW as noted, and Ecology to verify pathways and processes. For example, for many projects of this scale, Ecology will require a Water Quality monitoring plan be submitted as part of the Section 401 water quality certification process. Contractor will leverage templates developed for other projects to efficiently complete this plan if required. It should be noted that the recent changes in federal regulatory jurisdiction of wetlands and some waters of the U.S. make the Contractor's approach of early and proactive coordination all the more critical to reaching construction permits in a timely and predictable manner.

Contractor will also reach out to WA DNR to determine the extent of DNR administered State-owned Aquatic Lands within the project area and will assist the County with the easement process, if necessary. In addition, the project may need a Construction Stormwater National Pollutant Discharge Elimination System (CNPDES) permit if the area of disturbance exceeds 1 acre. If necessary, Contractor will assist the County in applying for that permit during the final design phase.

Because the project reach is in a Special Flood Hazard Area (SFHA), Contractor will develop a design where the proposed hydraulic effects comply with minimum County and FEMA standards. Since the project reach is within an approximate SFHA Zone A, without a designated floodway nor assigned base flood elevations (BFEs), it is assumed that project actions can raise water up to 1-foot at the 100-year flood event (base flood). With our experience on rivers the size of the Hoh, it is likely we can propose ELJs in the channel without causing excessive rise, thus negating the need for any formal Letter of Map Change (LOMC) process.

Contractor will introduce the project to Jefferson County Floodplain Development Code staff early on and determine the most efficient way to provide floodplain compliance documentation. Contractor will utilize the existing conditions and proposed conditions 2D hydraulic model output developed for the design as the basis for documenting floodplain compliance for the County. In addition to meeting minimum County and NFIP flood code, we will also conduct a risk-assessment using the 2D hydraulic model to ensure no residences, private property, or infrastructure is at increased flood risk because of proposed actions. This risk assessment will be documented in the Basis of Design report.

Contractor will develop the applications for the suite of local permits determined necessary based on the WDFW HPA pathway consultation. A Jefferson County clearing and grading permit may be required, particularly for developing staging areas and any temporary access routes. Depending on the resolution of the HPA process with WDFW, the project could also require a SEPA checklist and Shorelines permit process. Contractor will work with the County and WDFW to ideally align the project with the Restoration Pilot Program process which would avoid those requirements.

Task Assumptions

- No CLOMR. If CLOMR is needed, design will be modified to prevent need for CLOMR, or additional budget will be needed.
- Contractor will serve as the Authorized Agent for County when submitting permit applications to the permitting agencies.
- Budget assumes NWP spell out? conditions at the time of permitting will be in line with existing 2023 conditions.
- Permit scope and budget is based on assumption that WDFW will use the HRPP pathway and County will not require SEPA Determination or Shoreline Development permits.
- Phase 1 design wetlands will be approximately mapped based on a 2-day site reconnaissance. Wetlands will not be flagged in the field.
- Phase 1 wetland delineation assumes project area is <200 acres within which wetlands might be directly or indirectly impacted.
- If needed, Contractor will develop the Notice of Intent (NOI) and Stormwater Pollution Prevention Plan (SWPPP) to support CNPDES application.
- Ordinary high water will be approximated based on a hydraulic modelling output refined and calibrated to field data collected during the site reconnaissance.
- The final engineering plans (11x17 sized) will accompany the permit applications.
- Contractor will develop JARPA figures to support permit applications.
- Since the project reach is not included in any FEMA or Jefferson County flood hazard mapping studies, a formal flood impacts analysis is not anticipated to be required so is not included here. A qualitative risk- assessment to downstream and adjacent infrastructure or property will be conducted and documented in the basis of design report.
- For potential riparian treatments, Contractor will work with DNR to identify the appropriate approval process for that supplemental habitat enhancement work.

Task Deliverables:

- Preparation and submittal of federal, state, and local permit applications, including JARPA, JARPA figures, ESA consultation documents, CZMA and Ecology 401 application materials including Water Quality Monitoring Plan, Floodplain Compliance documentation to Jefferson County, if required; WDFW APPS application for HPA, WDNR Attachment E, if required; meetings, associated Wetland and Waters Delineation and Cultural Resources reports, and associated documentation.

Task 11. Phase 1 Final Design Development

Once the preliminary designs are complete, Contractor will work with the County to identify an area of the project reach to develop final designs. It is anticipated that landowner agreements will largely drive where a Phase I can be developed. Other considerations for locating Phase 1 may include permitting complexity, meeting floodplain compliance requirements,

opportunistic/reactionary based on channel location, cost, and others. Contractor will leverage our experience implementing large, multi-phase projects like on the Quinault and Cispus Rivers, to develop a phased implementation approach that considers funding availability, landowner agreements, and ensuring project performance and risk are considered for the time period between construction phases. All phases of construction will be stand-alone in that they will meet the project goals independent of completing future phases.

The development of final plans, special provisions, and construction cost estimates are intended to support the construction bid process. Contractor will progress the 60% preliminary plan set following review by the permitting agencies, County, and larger stakeholder group including landowners. The development of the final plans, special provisions, and cost estimate will include the following tasks:

- Develop Draft (90%) and Final (100%) Plans, Cost Estimate, and Special Provisions.
- Draft (90%) and Final (100%) Basis of Design Report.
- Proposed Conditions Hydraulic Models.

All landowner outreach and stakeholder engagement associated with the final design is included in Task 5 Stakeholder Engagement and Community Outreach.

Subtask 11.1. Develop Draft (90%) and Final (100%) Plans, Cost Estimate, and Special Provisions

Contractor will use feedback from the County, permittees, landowners, and project stakeholders, to advance the design and associated construction plans to Final Design. Design modifications which are supported through analysis will be included in the final design submittal package. The construction cost estimate and Basis of Design report will also be updated and finalized as part of this task. Major design changes are not anticipated and are not included in this scope; however, an updated air photo of the final design area will be acquired prior to finalizing the final design. This air photo will be used to make any changes needed to the design to accommodate changes in the main stem channel location during the multi-year design process, like changing temporary access route and staging area locations.

The final construction plans, cost estimate, and special provisions will be reviewed and certified by a Professional Engineer registered to practice in the state of Washington. Contractor will also prepare a stand-alone spreadsheet of construction materials and quantities (Bid Tab). Contractor will prepare construction special provisions that will follow WSDOT Standard Specifications and Special Provisions standard format. Construction special provisions prepared by Contractor will be limited to project-specific special provisions (Divisions 2-9); no Division 1 special provisions related to contracting are included as part of this scope of work. If project specific Division 1 special provisions are necessary, Contractor assumes they will be prepared by the County. Contractor will prepare a final, stamped plan set and final construction special provisions to be used for contractor bid documents as prepared by others.

Subtask 11.2. Develop Draft (90%) and Final (100%) Basis of Design Report

Contractor will update and finalize the Basis of Design report prepared for the 60% designs to reflect the final design. This will include an update of the description of engineering assumptions

and calculations, function of each restoration element, and updated final hydraulic model output, if necessary.

Subtask 11.3. Proposed Conditions Hydraulic Models

During development of the draft final design, Contractor will update the proposed conditions hydraulic model of the project reach developed during preliminary design incorporating any changes to proposed restoration actions. The models will be used to evaluate any changes in hydraulic conditions as a result of the design modifications to ensure the project goals are met and flooding and erosion risks have not increased as a result. The suite of flows developed to characterize hydrology (Task 2) will be included as proposed condition models, as well as projected climate change flows, to ensure proposed elements are evaluated over a wide range of flow conditions.

Task Assumptions

- Permit agency and stakeholder comments on the Final 60% plans will be provided by County and incorporated into the Final Design.
- County will be responsible for Division 1 of the Special Provisions.
- The bid package will be compiled by others.
- All review will be addressed between the 60% Design and submittal of the Final Design.
- The level of effort for these deliverables has been set based on the assumption that review rounds do not exceed anticipated effort (1 round of review where noted) and no major design changes (revision of the number/location/type of structures) are requested.
- Bidding and Construction Support is not included in this scope or fee estimate.

Task Deliverables:

- Draft and Final design drawings/plans, hydraulic model results, cost estimate (Final PS&E), Final Basis of Design Report, relevant appendices (hydraulic model results, stability calculations).

Task 12. Project Management & Coordination

Contractor will provide project management, coordination and support to the County for the duration of the project. Project management and coordination will be provided via brief 30-minute weekly (or 60-minute biweekly) check-in meetings with project management team, monthly invoices with project activities summarized, and regular correspondence between Contractor, project management team and County via email and phone to maintain open communication.

Mike Ericsson, Contractor's project manager, and Ryan DeKnikker, Contractor's deputy project manager, will co-lead activities. Ryan will cover project scheduling, maintaining adherence to the scope of work, timelines, and due dates; Mike will coordinate with the County and within the Contractor team, and Tim Abbe will lead the team interaction with local stakeholders and subconsultants, with support from Ryan as a part of Task 5: Stakeholder Engagement and Community Outreach. Both Mike and Ryan will ensure adherence to data quality assurance and

controls, with Tim Abbe leading the project QA/QC process. Ryan will work with Mike to produce summaries of work completed to accompany our monthly invoices for services completed.

Task Assumptions

- ▶ The duration of the project will be 29 months, from January 2024 to May 2026.

Task Deliverables:

- ▶ Monthly invoicing detailing work completed.
- ▶ Regularly scheduled check-in meetings with Contractor and County (weekly or bi-weekly).

EXHIBIT B
Estimated Budget and Schedule

DESCRIPTION	BEGINNING DATE	ENDING DATE	SUB TOTAL
Task 1. Existing Conditions Characterization	January 2024	November 2025	\$110,477
Task 2. Existing Conditions Reach Hydrology & Hydraulics	January 2024	March 2024	\$26,321
Task 3. Reach Geomorphology	February 2024	May 2024	\$20,005
Task 4. Climate Change	February 2024	May 2024	\$15,093
Task 5. Stakeholder Engagement & Community Outreach	January 2024	May 2026	\$80,426
Task 6. Concept Design Development	May 2024	August 2024	\$38,461
Task 7. Preliminary Design Development	September 2024	June 2025	\$129,087
Task 8. Invasive Plant Prevention Plan	October 2024	June 2025	\$40,020
Task 9. Risk Assessment	January 2025	April 2025	\$15,930
Task 10. Project Permitting	March 2025	November 2025	\$185,844
Task 11. Phase 1 Final Design Development	July 2025	May 2026	\$77,409
Task 12. Project Management & Coordination	January 2024	May 2026	\$96,360
PROJECT TOTAL			\$835,433