

Professional Services Agreement

Between

SKAGIT RIVER SYSTEM COOPERATIVE

And

CONFLUENCE ENVIRONMENTAL COMPANY

This AGREEMENT is made and entered into by and between SKAGIT RIVER SYSTEM COOPERATIVE (hereinafter called the "COOPERATIVE") located at 11426 Moorage Road, La Conner, WA 98257 and CONFLUENCE ENVIRONMENTAL COMPANY, (hereinafter called the SUBCONTRACTOR) located at 146 N Canal ST. Suite 111, Seattle WA 98103.

WHEREAS, SKAGIT RIVER SYSTEM COOPERATIVE has funding for the betterment of fish and wildlife throughout the Skagit River Basin, and the nearshore environment of the greater Whidbey Basin and needs professional engineering and consulting services in support of this work.

WHEREAS, CONFLUENCE ENVIRONMENTAL COMPANY has submitted its qualifications to help assist in the study of feasibility for restoration work at the Camano Island State Park project site.

THEREFORE, in consideration of the terms and conditions contained herein, or attached and incorporated and made a part hereof, the parties agree as follows:

STATEMENT OF WORK

SUBCONTRACTOR, under the direction of **JESSICA COTE'**, shall provide engineering and feasibility investigations for the Camano Island State Park Restoration project to the COOPERATIVE in support of our habitat restoration goals as agreed in advance by SUBCONTRACTOR and by the COOPERATIVE. The scope of work and budget for the project is included in the proposal provided as Exhibit "A." Additional tasks shall be agreed to in the form of task orders to this AGREEMENT, and define the scope of work and estimated cost for services, as mutually agreed upon by both parties. SUBCONTRACTOR shall provide all personnel, supplies, equipment and other services incidental to the conduct of the work covered by this AGREEMENT.

The technical supervision of the work under this AGREEMENT shall be:

For the COOPERATIVE:

Steve Hinton or his Designee

For the SUBCONTRACTOR:

Jessica Cote', or her Designee

TERMS AND CONDITIONS

All rights and obligations of the parties to this AGREEMENT shall be subject to and governed by the federal regulations applicable to the SUBCONTRACTOR and the provisions of this AGREEMENT. The SUBCONTRACTOR must follow all applicable laws and regulations while performing work under this AGREEMENT.

The SUBCONTRACTOR agrees that all work products and data generated, used, or acquired through this AGREEMENT shall become the property of the COOPERATIVE and that all data provided by the COOPERATIVE to the SUBCONTRACTOR can only be used in the performance of this AGREEMENT unless otherwise agreed to in writing.

PERIOD OF PERFORMANCE

The period of performance of this AGREEMENT shall commence on the date of the last signature and end on **January 31, 2018** unless terminated sooner as provided herein. No expenditures made before or after this period are eligible for reimbursement.

PROJECT BUDGET & BILLING PROCEDURES

COOPERATIVE will pay for work accomplished under the terms of this Contract according to the rates established in Exhibit A attached hereto and incorporated herein by this reference and shall not exceed **Sixty-Nine Thousand (\$69,000.00) dollars** except as may be allowed by agreement and written amendment to this contract by the parties.

SUBCONTRACTOR shall submit requests for compensation for work performed using invoices prepared in duplicate (original and one copy). Invoices shall report work progress, dates of activities, and percent complete for each sub-item per Project Budget in Exhibit "A" and any additional amendments. These invoices will be paid net 45 days upon receipt. The final invoices must be received by COOPERATIVE by **February 28, 2018**.

Invoices will clearly indicate that it is "FOR SERVICES RENDERED IN THE PERFORMANCE OF SRSC AGREEMENT Camano Island Feasibility Project #4121.SB." The original and one copy of each invoice shall be submitted to:

Skagit River System Cooperative
Attention: Steve Hinton
P. O. Box 368
La Conner, WA 98257

REPORTS/INVOICES

SUBCONTRACTOR shall comply with requests from COOPERATIVE for reports pertaining to the project. Invoices for work performed in the conduct of the project shall be submitted no more frequently than monthly.

MANAGEMENT

The COOPERATIVE'S Director of Restoration, Steve Hinton, or his designee shall provide SUBCONTRACTOR with assistance and guidance necessary for the performance of this AGREEMENT. Steve Hinton or his designee shall be responsible for the review and acceptance of all required performance reports and invoices. In the event of any inconsistency in the AGREEMENT, and unless otherwise provided herein, the inconsistency shall be resolved by giving precedence in the following order:

- 1) Applicable Federal Regulations;
- 2) SRSC Grant awards funding the work in question;
- 3) Any other provisions of this agreement whether incorporated by reference or otherwise.

ACCOUNTS, AUDITS, AND RECORDS

SUBCONTRACTOR shall maintain books, records, documents, accounting policies and procedures and other evidence, sufficient to reflect properly all costs claimed to have been incurred for the performance of this AGREEMENT. It is the responsibility of SUBCONTRACTOR to provide copies of such reports and/or records that the COOPERATIVE may request.

SUBCONTRACTOR shall preserve and make available its records for a period of six years after the expiration of this AGREEMENT or until audit is completed and all resulting questions are resolved, whichever occurs first.

INDEMNIFICATION

The parties to this AGREEMENT agree to hold each other harmless from any and all claims for damages to persons or property arising from acts or omissions of the indemnifying party, its officers, employees, or agents in the performance of its obligations under this AGREEMENT.

LIABILITY

The SUBCONTRACTOR assumes all liability for any injury or damage to the person or property of a third person caused by the personnel hired by the SUBCONTRACTOR to perform the work under this AGREEMENT during their period of service, if such liability occurs in their performance of official duties.

DEFAULT

If for any reason the SUBCONTRACTOR defaults or otherwise fails to complete the work under the terms of this AGREEMENT, the COOPERATIVE reserves the right to withhold payment for up to 15% for work completed to cover additional costs incurred to complete the project with an alternate contractor. In the event of default, all data and draft work products produced by the SUBCONTRACTOR for this project become the property of the COOPERATIVE.

MODIFICATIONS/TERMINATION

In the event the grant funding agency reduces, modifies, or cancels the contract to Skagit River System Cooperative, this AGREEMENT will be modified accordingly. Any written modifications

to this AGREEMENT shall be transmitted to SUBCONTRACTOR within a reasonable time to effect such changes to the conduct of the project. No party shall make any other modification to this AGREEMENT unless mutually agreed upon in writing. All modifications are considered as addenda to this AGREEMENT.

ALL WRITINGS CONTAINED HEREIN

This AGREEMENT contains all the terms and conditions agreed to by the parties. No other understanding, oral or otherwise, regarding the subject matter of this AGREEMENT shall be deemed to exist or to bind any of the parties hereto.

The parties understand that this agreement does not waive or otherwise affect the sovereign immunity of the Swinomish Indian Tribal Community, or the Sauk-Suiattle Indian Tribe.

CONFLUENCE ENVIRONMENTAL COMPANY

BY: _____

Paul Schlegel
Partner

DATE: _____

6/26/2017

Federal ID/SSN# 20-8170492

SKAGIT RIVER SYSTEM COOPERATIVE

BY: _____

Jason Joseph, Board Chair

DATE: _____

Federal ID#91-0969916

Exhibit A: Scope of Work and Budget
See Attached Proposal



Proposal
**CAMANO ISLAND STATE PARK
TIDAL MARSH RECONNECTION PROJECT**

Prepared for:

Skagit River System Cooperative
Due April 25, 2017



This page intentionally left blank
for double-sided printing



146 N Canal St, Suite 111 • Seattle, WA 98103 • www.confenv.com

April 24, 2017

Mr. Eric Mickelson, Contract Manager
Skagit River System Cooperative
11426 Moorage Way
PO Box 368
LaConner, WA 98257

Re: Request for Proposals (RFP) for Camano Island State Park Tidal Marsh Reconnection Project

Dear Mr. Mickelson and Members of the Selection Committee:

Confluence Environmental Company (Confluence) is pleased to submit our Proposal for the Camano Island State Park Tidal Marsh Reconnection Project. This Proposal is submitted on behalf of the team proposed for this project, which includes the prime firm, Confluence, as well as subcontracting firms Loving Engineering and Ladd GEOservices LLC (hereafter referred to as the Confluence Team).

The Confluence Team will be led by Jessica Côté, P.E. Jessica has 18 years of experience in site-specific physical measurements, engineering analysis, and coastal geomorphic evaluation, and has used this expertise to manage multidisciplinary teams to develop restoration designs that balance habitat restoration with other site use requirements. She is joined at Confluence by Kathy Ketteridge, Ph.D., P.E., who has over 10 years of experience in evaluation and modeling of coastal and tidal physical processes in Puget Sound. Scott White, also from Confluence, will be acting as the Principal in Charge for overall QA/QC of the work, as well as bringing 20 years of expertise as an environmental planner with a long track record of success in negotiating with permitting and regulatory agencies. We have partnered with Ahmis Loving, P.E., from Loving Engineering to provide civil engineering design and stormwater management expertise. The team also includes Deb Ladd, P.E., L.G., L.Hg., of Ladd GEOservices, a geologist and geotechnical engineer with 25 years of regional experience in investigations to determine site feasibility, design, and construction.

The Confluence Team for this project offers the following advantages to Skagit River System Cooperative:

Cohesive team with expertise in coastal geomorphology and mixed sand/gravel transport

We recognize that the key issue for the restoration is the location and configuration of a lagoon outlet channel that provides fish access with minimal maintenance. The Confluence Team offers specialized technical experience in sediment transport processes of mixed sand and gravel beaches to provide an accurate analysis of how the site will function over time. At park sites, where full-restoration of coastal processes is not possible, a thorough understanding of how natural beach processes impact, and are impacted by, stream channels, structures (i.e., boat launch, docks), and other shoreline elements, is critical to design of a successful, sustainable project. Jessica is a recognized expert in the dynamics of mixed sand and gravel beaches of Puget Sound with numerous relevant publications on this topic. Overall, our team brings a combined 20 years of experience in evaluation, modeling, and design of projects along the mixed sand/gravel beaches within Puget Sound.

Mr. Eric Mickelson, Contract Manager
April 24, 2017



Proven experience implementing restoration projects at mixed-use sites

The restoration effort at Camano State Park will need to be balanced with the recreational and educational uses at the site, as envisioned by Washington State Parks (Parks) and citizen user groups. We understand that this park is important to the local community, and has been developed over time with their input. It will be critical to the success of the project to dovetail popular park uses (i.e., boat launch, picnicking in grassy areas) with the restoration options proposed for the project. We have worked on several projects located throughout Puget Sound with similar coastal processes that need to balance ecological objectives with the recreational experience for park users (e.g., Seahurst Park, Howarth Park, and Saltwater State Park). We are well versed in distilling the complexities of restoration goals, site-use needs, engineering, and permitting challenges in a way that allows stakeholders to identify a preferred alternative and align engineering and restoration strategies to produce the best overall project outcomes.

Streamlined approach to the project that focuses on developing and vetting sustainable solutions

The Confluence Team proposes to leverage earlier tidal modeling work at the site. We will apply our technical expertise in sand/gravel transport on beaches, and proven experience in developing sustainable restoration designs at mixed-use sites, to develop and vet solutions for the site. Modeling conducted as part of the initial feasibility study is adequate to provide a range of expected bed shear stresses in the restored tidal channel due to tidal flows. The question of continued tidal channel connectivity over time requires analysis of coastal processes (i.e., wind-waves) and geomorphology, rather than additional hydrodynamic modeling of static tidal channel conditions that does not account for morphologic change. Our feasibility approach will utilize a conceptual sediment transport model to identify tidal channel design features needed to provide a sustainable tidal connection.

The Confluence Team brings experience in the comprehensive service areas of coastal geomorphology, coastal engineering, stormwater engineering, geotechnical engineering, and permitting to develop creative solutions for this project. Although Confluence has experts in fisheries biology and ecological restoration, we have assumed that Skagit River Systems Cooperative will provide input and guidance on these subjects during conceptual design. Confluence has thoroughly reviewed the RFP and the terms and conditions of the Professional Services Agreement, and will accept all terms and conditions therein. Confluence will be bound by all statements made in our Proposal and, should we be chosen to conduct the work, will negotiate mutually agreeable terms with the Skagit River System Cooperative.

Thank you for the opportunity to bid on this project. We look forward to working with you towards the success of this project.

Respectfully yours,

A handwritten signature in black ink, appearing to read "Jessica Côté".

JESSICA CÔTÉ, P.E.
Principal Coastal Engineer
425.218.4503
jessica.cote@confenv.com

A handwritten signature in black ink, appearing to read "Scott White".

SCOTT WHITE
Principal Environmental Planner, President
425.345.7685
scott.white@confenv.com

PHASED PROJECT APPROACH

The Confluence Team understands that the long-term viability of the tidal channel connection to the proposed restored tidal marsh/lagoon is critical to project success. Based on this understanding, the Confluence Team does not propose to complete additional hydrodynamic modeling as part of this work. Modeling conducted as part of the initial feasibility study is adequate to provide a range of expected bed shear stresses in the restored tidal channel due to tidal flows. The question of tidal channel connectivity over time requires a targeted analysis on the influence of sand and gravel transport into and out of the tidal channel mouth due to waves (both “everyday” and storm waves). An analysis of coastal processes and sediment transport patterns that will affect the morphology within, and position of, the channel relative to the shoreline will be used to determine tidal channel design features needed to provide a reasonably sustainable tidal connection. We propose that this coastal analysis is conducted for an outlet location both south and north of the boat ramp.

The Confluence Team proposes to implement a phased approach for this project to meet stated project goals effectively and efficiently. The first phase of work will include a final feasibility analysis to identify a range of high-level conceptual restoration alternatives at the site that meet restoration goals (specifically tidal channel connectivity to restored lagoon); adequately provide access for recreational use at the site (including during construction); and address client, stakeholder, and public concerns. These conceptual alternatives will be evaluated to determine their long-term viability to meet restoration goals, including impacts of sea-level rise. In addition, a high-level risk assessment for each of the conceptual alternatives will also be conducted to determine if there are site constraints, constructability concerns, contamination or water quality issues, or other issues that could impact the project during future design and construction phases.

If one (or more) of the proposed alternatives is shown to be feasible and sustainable, then – with Skagit River System Cooperative (SRSC) approval – the project will move forward into the second phase of work. Phase 2 will include refinement of the conceptual alternatives, identifying a preferred alternative through input from the client, stakeholders, and the public, and preparation of a preliminary design of the preferred alternative. Detailed descriptions of work are provided below.

Phase 1: Feasibility Evaluation

The first phase of work will focus on developing a holistic understanding of coastal geological, physical, and biological processes at the site, developing a range of potential restoration options, and evaluating the short- and long-term sustainability of those options. In addition, site use constraints and design/construction challenges for the project will be identified, reviewed, and evaluated. This process will determine impacts (if any) to the proposed restoration plan and potential solutions to overcome or mitigate for the identified impacts. The Confluence Team will discuss results of the Phase 1 work with the SRSC and other project partners and work together to determine if it makes sense to move the project forward into conceptual design.

Task 1.1 Compile and Review Existing Data and Studies (Data Gaps Analysis): The Confluence Team will compile and review relevant available information on the project site and surrounding area, including the initial feasibility study conducted in 2010, appropriate references cited in that document, other site specific studies, and site-specific data. Data may include, but are not limited to, historical images, topography, bathymetry at and offshore of the site, tidal elevations, stream flows for local streams, long-term wind data nearby, sediment type, and gradation for materials currently on the beach and within areas to be excavated, site survey information showing locations of infrastructure (i.e., buildings, boat launch, culverts, utilities), and information related to historical uses of the site and adjacent upland areas. Data gaps will be identified and categorized as

either an immediate data need or a data need that will be required during future design stages. Our expectation is that immediate data needs will be collected as part of field data collection activities conducted in Task 1.2.

Task 1.2 Targeted Site Data Collection: This task includes collection of data identified as an immediate data need in Task 1.1, and 2 to 3 test pits to characterize sediment type and gradation within limits of proposed excavation (i.e., proposed tidal channel alignment). We anticipate utilizing the data collection capabilities of SRSC staff to fill any immediate data needs, to the extent practical. Identified data needs (in addition to test pits) may include targeted site survey data, delineation of freshwater wetlands on site, and additional sediment gradation sampling. This information, along with existing data compiled and reviewed as part of Task 1.1, will be combined to develop a working basemap of the project site for use in developing preliminary conceptual and preliminary design (if needed). Level of effort for this task will be highly dependent on the quality and quantity of available information from Task 1.1.

A site visit by at least two members of the Confluence will also be included in this task, which is expected to include a site walk with SRSC and Parks staff. The site walk will provide an opportunity to ground truth information compiled in Task 1.1, and collectively discuss project history and goals with the project team. In addition, the site visit will provide an opportunity to observe geomorphic indicators of sediment transport at the site, and identify potential locations for future monitoring of beach change to be done by SRSC staff to assist in verifying gravel transport rates.

Task 1.3 Develop High-Level Conceptual Alternatives: The Confluence Team will organize a workshop with SRSC and Parks staff to collaboratively develop a range of high-level conceptual alternatives for the project site. Confluence staff have effectively used these workshops to develop restoration concepts for several similar projects. This forum allows for restoration goals, site use concerns, constraints, and opportunities to be efficiently discussed with project proponents as part of the initial design process. A meeting summary will be developed to document the discussion, and will provide conceptual figures for each of the high-level concepts developed during the workshop (up to four in total).

Task 1.4 Feasibility Analysis of Alternatives: The feasibility analysis for the preliminary conceptual alternatives will focus on three issues: (1) ability of the restored tidal channel to sustain itself based on natural processes to provide inundation to the restored marsh and access for fish over the long-term, (2) identifying out of the box solutions to balance multiple land use objectives and maintenance concerns for the proposed restoration plan at the site, and (3) evaluation of site or constructability concerns or constraints that could impact the project during construction.

To address issue #1, a conceptual model of the sediment transport rates under various coastal processes within an area that includes the boat ramp and the new channel will be developed to assist in determining the sustainability of the restored tidal channel. The results of the conceptual model will provide the information to determine the relative rates of sediment into and out of the project area, and, therefore, the potential for filling and clearing of sediment within the tidal channel. The inputs to the conceptual model will include wave-driven bedload transport, wave-driven suspended load transport, and tidally driven suspended load transport into and out of the restored marsh. Data from geotechnical test pits will assist in informing this analysis.

The Confluence Team proposes to conduct a wind-wave hindcast evaluation using long-term wind data from local meteorological stations to estimate annualized wind and wave distribution, and storm winds and waves for various return periods and wind directions. This information will be used to estimate alongshore sediment transport potential of the finer grain sediments at the site due to suspended load and bedload transport for several wind-wave conditions based on the CERC formulation developed by the USACE. Extensive gravel transport studies conducted in Rich Passage, Puget Sound, by Jessica Côté have shown the coarser fraction of the sediment grain size distribution of mixed sand and gravel beaches in Puget Sound is transported by wave-driven bedload transport. The method of Soulsby and Damgaard (2005) has been successfully applied in these conditions, and will be used to predict alongshore bed load sediment transport rates for gravels for the project site.

The final component of sediment transport required for the conceptual model is cross-shore transport under combined wave and tidal currents. A time series of tidal current velocity, output from the previous hydrodynamic modeling efforts, will be used to estimate cross-shore sediment transport according to Van Rijn (2007). The Soulsby and Damgaard (2005) formula will provide cross-shore sediment transport potential under wind-waves, which can be compared to the cross-shore transport under tidal currents to determine relative influence on overall transport from each mechanism and impacts to sustainability for each conceptual design alternative.

The Confluence Team will combine the results of the conceptual model with their experience modeling and evaluating similar lagoon/estuary restoration projects to assess each of the high-level concepts in achieving stated restoration and recreation goals, and to identify creative solutions to refine the designs for sustainability (addressing issue #2 above). A high-level risk assessment will also be conducted for each of the proposed concepts in terms of site constraints (i.e., utilities, sediment contamination) and constructability concerns (if any) to address issue #3 above. The results of this analysis will be summarized in a power point presentation for use in the review meeting outlined in Task 1.5.

Task 1.5 Review Meeting with SRSC: Following completion of Tasks 1.1 through 1.4, the Confluence Team will meet with SRSC and Parks to review and discuss the results of the final feasibility evaluation. The goal of the meeting will be to come to a consensus decision on whether or not one or more of the preliminary concepts is viable to move forward into design (Phase 2 work).

Phase 1 Deliverables:

- A power point presentation will be developed for the Review Meeting outlined in Task 1.3.
- A second power point presentation will be developed for the Review Meeting outlined in Task 1.5.
- If the final feasibility evaluation finds that the project is a non-starter due to lack of sustainability or due to land-use or constructability constraints, a Feasibility Study Report will be developed (in place of the BODR, Task 2.4) that summarizes the data used, methodology, evaluations conducted and results of the study.
- If the project is moved forward into Phase 2 (conceptual design) then the feasibility report will be folded in to the Basis of Design Memorandum (Task 2.4).

Phase 2: Alternatives Analysis and Conceptual Design

The second phase of work would be refinement of conceptual designs, selection of the preferred alternative, and development of 30% Concept-Level Drawings for the preferred alternative.

Task 2.1 Refine Viable Preliminary Conceptual Alternatives: The Confluence Team will refine the preliminary conceptual alternatives chosen to move forward into the design processes at the end of Phase 1 work. Alternatives will be refined to a point where a reasonable Engineer Opinion of Cost (EOC) could be developed for the proposed work. A plan view drawing, and at least one section of each of the refined conceptual alternatives (up to three in total), will be developed as part of this task. This task also includes a conference call meeting with SRSC and Parks to go over the concepts and EOCs to get input prior to moving into selection of the Preferred Alternatives. A meeting summary will be developed to document the discussion. The meeting summary will be an appendix to the Basis of Design Report (Task 2.4).

Task 2.2 Selection of Preferred Alternative: Following completion of Task 2.1, the Confluence Team will use results of the Feasibility Analysis conducted as part of Phase 1 work (Task 1.4) to score each of the Final Conceptual Alternatives based on ability to meet restoration goals and recreational use needs, sustainability, constructability, permitting requirements, and cost. These scores will be averaged to provide a comparison of alternatives, and will be used to inform selection of the preferred

alternative. The Confluence Team will meet with SRSC and Parks to review the scoring table, and to come to a consensus decision on selection of the preferred alternative. A meeting summary will be developed to document the discussion.

Task 2.3 30% Concept-Level Drawings and Engineer Opinion of Cost (EOC) for Preferred Alternative: Following selection of the preferred alternative, 30% Concept-Level Drawings and an EOC will be developed for construction of the preferred restoration concept. The EOC will also include a list of assumptions used to develop the concept level construction costs. Drawings are expected to include sheets showing the following information, at a minimum:

- Existing site conditions
- Plan view showing spatial extent of each of the proposed restoration activities on the site
- Grading plan for excavation work and material placement plan for any areas to be filled
- Plan view showing location of trails and plantings (specified by Parks staff)
- Access and staging plan for construction (i.e., access to the boat launch during construction)
- Typical details of channel and tidal wetland excavation sections

Task 2.4 Basis of Design Report: Work conducted as part of Phase 1 and Phase 2 work will be summarized in a succinct Basis of Design Report (BODR). The BODR will include a summary of the alternatives analysis, selection of the preferred alternative, and design criteria used to develop the preferred alternative into a 30% Concept-Level design. Appendices to the BODR will include: (1) summary of the final feasibility evaluation, (2) summary of data collected as part of Task 2.1, (3) meeting summary from the Alternatives Development workshop in Task 2.2, (4) meeting summary from the meeting to select the preferred alternatives in Task 2.3, and (5) figures and EOC for the preferred alternative developed as part of Task 2.5.

FIRM EXPERIENCE, ORGANIZATION

Proposed Team

Prime and Subcontracting Firms

Prime Firm: Confluence specializes in natural resources services; environmental project delivery; coastal engineering; restoration/mitigation; and regulatory strategy, compliance, and permitting. Our staff of 18 includes coastal and restoration engineers, fish and wetland scientists, cultural resources specialists, built and natural environment planners, GIS specialists, and permitting and regulatory experts. Confluence has been integrally involved with marine nearshore restoration planning and design throughout Puget Sound, including several shoreline parks. In Snohomish County, Confluence conducted nearshore restoration feasibility and design work on the Howarth Park beach restoration and beach nourishment sites between Mukilteo and Everett, and the Edmonds Marsh Reconnection/Willow Creek daylighting project in Edmonds. The following projects are a sample of Confluence's current shoreline park restoration projects:

- **McSorley Creek Pocket Estuary Restoration at Saltwater State Park, Des Moines, WA:** Managing this habitat restoration and park redevelopment project to enhance habitat for salmon, protect historic structures and tribal resources, and create a better recreational park experience.
- **Evergreen Rotary Park Beach Restoration Design, Bremerton, WA:** Completed geomorphic site assessment, hydrodynamic, wind-wave and sediment transport modeling to develop conceptual designs, identify preferred design and develop preliminary design for beach restoration at Evergreen Park along Port Washington Narrows to improve habitat and enhance public recreation.
- **Japanese Gulch Estuary Restoration, Mukilteo, WA:** Providing ecological and permitting services on a multi-disciplinary team designing the restoration of the creek estuary in the former tank farm. The restoration includes

daylighting the creek mouth and re-establishing a pocket estuary and tidal channel to create additional habitat for juvenile salmon.

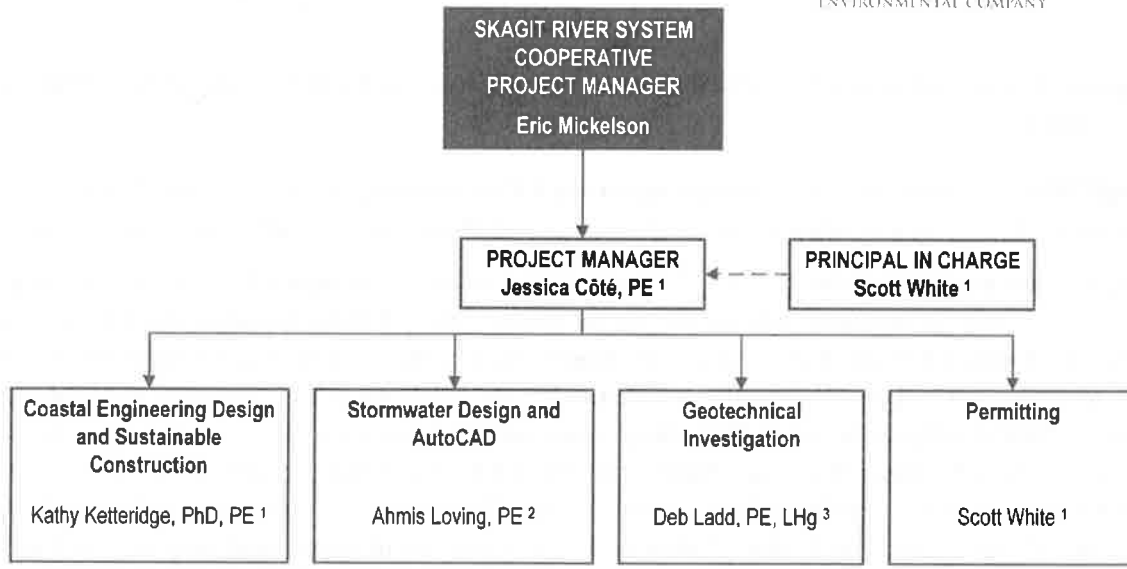
Subcontracting Firms: Confluence has added Loving Engineering & Consulting to provide stormwater design and AutoCAD services, and Ladd GEOServices to conduct geotechnical investigations. Both firms are small women-owned businesses.

- Loving Engineering & Consulting, P.S. Inc. (Loving), provides an ecosystem approach that encourages designs to be both sensitive to the environment and cost-effective for clients. Principal Ahmis Loving works side by side with clients, consultants, and review agencies to provide project solutions that are responsive to a wide variety of client needs, schedules, and budgets. Loving offers a wide array of site civil design services, as well as technical support services. This firm will provide AutoCAD drafting services and civil design support to ensure proposed concepts meet the criteria of Ecology's Stormwater Management Manual for Puget Sound. Similar past projects include Port Gamble Bay Beach Debris and Piling Removal (Port Gamble S'Klallam Tribe, Kitsap County, WA), Seabeck Creek Restoration Design ((Hood Canal Salmon Enhancement Group) House of Knowledge Complex, Port Gamble S'Klallam Tribe.
- Ladd GEOServices, LLC, specializes in combining geotechnical engineering and geology/hydrogeology services to help understand and solve the subsurface challenges on projects. The firm will assist the project team during conceptual and preliminary design to understand the geologic conditions and how they affect the restoration, including beach and tidal channel changes, and how the existing park features could be affected and replaced. The firm will investigate subsurface conditions (soil and groundwater) and help the team develop designs that work with site conditions and limitations. Investigations will consider the possible effects of historic practices associated with fill at the site, including the potential for contamination. Similar past projects include Shoreline and Slope Assessment (Port Gamble S'Klallam Tribe), Multiple Public Works Projects (Camano and Whidbey Islands, WA), and Cattle Point Road Investigations for American Camp National Historic Park Road Replacement EIS (San Juan County).

Project Manager and Team Organization

Jessica M. Côté, PE, is our proposed project manager. Jessica has 18 years of experience integrating physical and biological sciences with engineering to solve complex problems in estuarine, coastal, and ocean environments. Jessica has been managing multidisciplinary teams working on the shorelines of Puget Sound for the last 10 years to execute field data collection programs, conduct numerical modeling, and develop conceptual models through final design plans and specifications for coastal projects. She has worked primarily on federal and state funded projects with tight budgets, and understands the need to leverage client resources and the expertise of regional scientists to efficiently complete projects and build on the state of the knowledge of Puget Sound beaches and estuaries. Jessica has extensive experience describing complex coastal processes to stakeholder groups and clients in a simple and understandable way to get informed feedback on design and implementation of projects. She has developed technical expertise in process-based feasibility studies to quantify and characterize sediments, scour analysis, sediment pathways, and the interaction of structures with coastal processes on the mixed sand and gravel beaches of Puget Sound. Her resume in the Appendix provides more detail on her technical expertise as well as her publications on sediment transport and morphological variability of mixed sand and gravel beaches.

The organization chart below shows illustrates the proposed flow communication and roles for the project team.



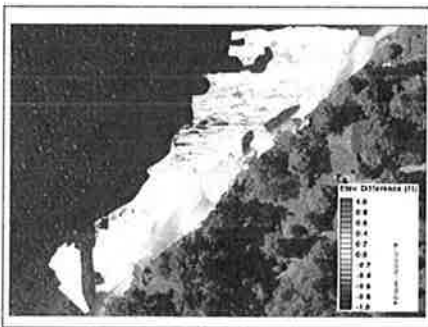
1 = Confluence Environmental Company; 2 = Loving Engineering LLC; 3 = Ladd GEOServices

Relevant Projects and References

Rich Passage Wave Energy Evaluation and Gravel Transport Study Kitsap Transit, Seattle to Bremerton, WA

Proposed Staff Involved in Project: Jessica Côté, PE	Client Reference and Contact Information: John Clauson, Executive Director Kitsap Transit (360) 478-6223 johnc@kitsaptransit.com
Consulting Fees: \$2,500,000	

The plan for a passenger-only fast ferry (POFF) between Seattle and Bremerton has been hindered by potential environmental impacts, particularly from wake-induced shoreline erosion in environmentally sensitive Rich Passage. Confluence's Jessica Côté was the project manager for a 10-year research program to evaluate the relevant coastal processes, morphologic variability and biological habitats required for determining the feasibility of re-implementing high speed POFF service between Seattle and Bremerton. The primary focus of the program was to evaluate the relative rates of sediment transport under vessel-induced waves from POFFs and other vessels to sediment transport under tidal currents and wind-waves. This study included collecting data and developing predictive tools that can be applied to evaluate the dynamics of mixed sand and gravel beaches under various forcing mechanisms as well as the properties of vessel-generated waves which will have the least impact on Rich Passage shorelines. Work performed on this project included the following tasks:



- Collected physical and biological data to determine beach response.
- Developed new methods to monitor mixed and gravel beaches.
- Applied integrated impact modeling and analysis.
- Developed project performance criteria.
- Completed environmental permitting.
- Oversaw vessel optimization and design.
- Conducted vessel performance trials and in-situ impact studies.
- Participated in public outreach and communication.

With assistance from Jessica, Kitsap Transit now has a scientifically defensible method to evaluate the sediment transport potential under POFF operations in Rich Passage. An added benefit comes from the ability for the study methodology to be applied to other environmentally sensitive locations where vessel wakes are a concern.

Similk Estuary Restoration, Skagit River Systems Cooperative, Skagit County, WA

Proposed Staff Involved in Project: Dr. Kathy Ketteridge	Client Reference and Contact Information: Steve Hinton, Restoration Director Skagit Systems River Cooperative (360) 391-1354 shinton@skagticoop.org
Consulting Fees: ~\$35,000	

Confluence's Kathy Ketteridge worked with SRSC to provide coastal engineering, modeling, and risk assessment services to support proposed restoration of the Similk Bay Estuary site. The SRSC worked closely with the Swinomish Indian Tribal Community, Skagit County Public Works, and Similk, Inc. to conduct a feasibility evaluation of conceptual alternatives to determine the best approach for restoring this important nearshore salt marsh and barrier lagoon complex, followed by preliminary design services for the selected preferred alternative. Early estimates indicated that a project could restore upwards of 17 acres of salt marsh habitat if project partners and area landowners can agree upon a viable alternative.



Existing drainage channels in estuary.

Confluence staff assisted SRSC with a preliminary coastal engineering analysis and risk assessment for the proposed estuary restoration project at Similk Beach. The historic pocket estuary at Similk Beach is currently cut off from the adjacent nearshore by a County road and a manmade berm. The proposed restoration project is intended to result in the restoration of pocket estuary habitat for juvenile salmonids on the north end of Similk Bay, particularly for the fry migrant life history of Skagit Chinook.

The services conducted for the project included development and implementation of a 2-D hydrodynamic model (Delft3d) to evaluate potential for tidal inundation into the estuary based on proposed alternatives. Alternatives included a single breach and double breach in the levee (with bridge construction for the road) and complete levee and road removal. Analyses included an evaluation of the resiliency of the proposed restoration actions due to impacts from predicted sea level rise.

Squalicum Estuary Restoration, Port of Bellingham, Bellingham, WA

Proposed Staff Involved in Project: Dr. Kathy Ketteridge	Client Reference and Contact Information: Adam Fulton, Director of Facilities Port of Bellingham (360) 715-7393 adamf@portofbellingham.com
Consulting Fees: ~\$125,000	

Confluence's Kathy Ketteridge was the lead coastal engineer on this project, which restored the lower portion of Squalicum Creek and the intertidal and nearshore areas of Squalicum Estuary. ESA-listed salmonids have been documented within the project area, yet the waterbodies are largely devoid of natural habitat and fish passage and migration barriers exist near the mouth of the creek. The goals of the project were to develop an estuary restoration plan that removed derelict infrastructure and debris and restored shallow water nearshore and intertidal habitat and created salt marsh habitat. Work included wave modeling using SMS with STWAVE (a 2-D spectral wave model developed by the U.S. Army Corps of Engineers) to appropriately design a rock berm breakwater to provide protection for constructed saltmarsh habitat within the restored estuary. The berm breakwater was designed to deform within a specified tolerance



under the design wave condition; which allowed the breakwater to be built with smaller rock sizes than traditional breakwaters (median diameter of 6 inches) while performing as required to protect the new marsh. Kathy Ketteridge assisted with development of 30%, 90% and Final construction plans and technical specifications, as well as monitoring plans for the breakwater/shoreline and the riparian and marsh planting areas. Construction of the project was completed in January 2014. Kathy Ketteridge assisted with post-construction monitoring efforts, which included three years of biological and physical monitoring. As of the Year 3 monitoring report, the breakwater has met all performance criteria and a majority of the plantings have retained their target density.

McSorley Creek Pocket Estuary Restoration Project at Saltwater State Park, King County Department of Natural Resources and Parks, Des Moines, WA

Proposed Staff Involved in Project: Jessica Côté, PE, and Scott White	Client Reference and Contact Information: Jennifer Vanderhoof, Ecologist King County Department of Natural Resources and Parks (206) 477-4840 jennifer.vanderhoof@kingcounty.gov
Consulting Fees: \$246,580	

Confluence is delivering this project that will reconstruct the beach front, nearshore, tributary stream, and park design of Saltwater State Park to enhance habitat for salmon. Key features of this work include realigning McSorley Creek to restore stream and estuary habitat and the removal of marine shoreline armoring to create a dynamic and natural beach front and nearshore area, as well as redesign of the park recreational facilities. Confluence is managing a multidisciplinary team to deliver all aspects of the project. Project activities include a robust



Existing conditions that are to be restored are shown in the photo, including nearshore fill and armoring along shoreline, constrained stream channel lined by rock, and lack of a natural estuary.

site investigation for geomorphologic and cultural resource investigations (e.g., beachfront sediment grain size analysis and Native American artifacts), habitat assessment, and topographic and bathymetric surveys; an eelgrass survey; an alternatives analysis (including substantial public involvement); engineering (preliminary and final design); NEPA/SEPA review; permitting; and construction services. Several unique and diverse challenges have required development and implementation of special studies. For example, an eroding scarp in need of stabilization required geotechnical bluff analysis, and the existence of several Civilian Conservation Corps-era state park structures and a shell midden triggered Tribal coordination and a cultural resources assessment and development of a plan to relocate the structures and protect the Native American site. This project is funded, in part, by the Puget Sound Acquisition and Restoration Fund and the Washington State Recreation and Conservation Office. Due to grant funding requirements, this work must be completed on an extremely short timeframe, and Confluence has developed and is implementing a complex critical path schedule and budget to achieve the necessary end date

Evergreen Rotary Park Beach and Cove Restoration, City of Bremerton, Bremerton, WA

Proposed Staff Involved in Project: Jessica Côté, PE	Client Reference and Contact Information: Chance Berthiaume City of Bremerton Public Works Department (360) 473-5929 Chance.Berthiaume@ci.bremerton.wa.us
Consulting Fees: \$300,000	



Existing conditions of Evergreen Rotary Park Shoreline.

Confluence staff have worked closely with the City of Bremerton over the last 10 years to reimagine the shoreline of the Evergreen Rotary Park. The first phase of this project (2006-2009) was to develop a pocket beach at the terminus of a proposed boardwalk in conjunction with shoreline improvements along the Port Washington Narrows. However, the park area was previously an industrial site with an artificial headland built to support a fuel tank farm and required remediation (2009-2011) prior to removing shoreline structures. Starting in 2014, Confluence staff worked with the City, stakeholder groups, and state agencies to develop a basis for an ecological project that would improve forage fish spawning habitat and provide benefits to salmon. During phase 1, Jessica Côté participated in a geocoastal study that involved evaluating the relevant coastal and marine physical processes in the

project area to establish design parameters for the boardwalk and shoreline improvements. Jessica contributed to development of conceptual through final design and permitting for a pocket beach with headlands at Evergreen Park. Confluence is leading the coastal engineering and ecological design of the current project including design criteria, conceptual design, and preliminary design. Work performed on this project has included the following tasks:

- Collected field data collection to determine wind-waves, tidal currents and water levels.
- Analyzed wind-driven waves, extreme water levels and sea-level rise, currents, circulation, and sediment transport in Port Washington Narrows and Sinclair Inlet.
- Worked closely with geotechnical engineers to determine sediment gradations and slope stability
- Regional circulation modeling to simulate tidal currents and evaluate sediment transport conditions and scour.
- Developed design guidelines and conceptual alternatives for scour and erosion protection.
- Developed design guidelines and conceptual alternatives for shoreline restoration with natural sediment gradations, back beach habitat and riparian vegetation
- Assisted with Salmon Recovery Funding Board grant application.

Point Julia South Boat Ramp Replacement, Port Gamble S'Klallam Tribe, Kitsap County, WA

Proposed Staff Involved in Project: Ahmis Loving	Client Reference and Contact Information: Paul McCollum, Natural Resources Planning Director Port Gamble S'Klallam Tribe (360) 297-6288 paulm@pgst.nsn.us
Consulting Fees: \$37,000	

Loving Engineering is currently providing planning, permitting and project management services for the Port Gamble S'Klallam Tribe's Point Julia South Boat Ramp Replacement. Loving Engineering successfully completed permitting for a boat ramp replacement on the northern margin of Point Julia in 2016, including a Corps Nationwide Permit. Professional services began with project development including interviews with fishers, development of environmental considerations with the Natural Resources Department and presentation of three design options to Tribal Council. Loving Engineering's project scope includes team coordination with the structural design engineer, coastal engineer, and the biologist preparing the Biological Evaluation. An existing on-grade concrete ramp will be replaced with an elevated, pile-supported ramp with floating dock system. The existing ramp interferes with littoral draft and forage fish spawning. Construction of an elevated ramp will restore forage fish spawning habitat and sediment transport along the beach.

STAFF QUALIFICATIONS AND AVAILABILITY

The Confluence Team includes highly experienced professionals who have worked together for many years conducting similar projects. This section provides details of how each key staff member is exceptionally qualified to conduct this work; resumé for each key staff member (provided in an Appendix to this proposal) provide further details, including descriptions of additional relevant projects conducted by the individuals.

Jessica M. Côté, P.E., Principal Coastal Engineer

Role on Project: Project Manager and Coastal Geomorphology

Availability: 60%

Jessica has 18 years of experience in coastal engineering and coastal geomorphology and holds a Professional Engineering license in Washington and Alaska. She has worked in Puget Sound for the last 11 years to understand the sediment transport processes of mixed sand and gravel beaches and the interaction of these processes with coastal structures. Much of this experience was gained through her work in Rich Passage, Kitsap County, where she was instrumental in assessing the relative effects of currents, wind-waves, and vessel wakes on beach response along 10 miles of shoreline. Jessica is passionate about implementing nature-based designs which replace or augment hard structures in the marine environment and enhancing nearshore habitat. She has been a member of the Stillaguamish Technical Advisory Group on Salmon Recovery for the last year. Jessica was chosen to participate in the Shoreline Armoring Implementation Strategy Interdisciplinary Team to provide technical expertise on the steps needed to accelerate regional recovery efforts to reduce shoreline armoring. She has conducted feasibility studies for coastal and estuarine projects throughout the Salish Sea, has presented and published multiple papers on the dynamics of Puget Sound beaches and has been acknowledged as adept at presenting technical information to stakeholders.

Kathy Ketteridge, P.E., Principal Coastal Engineer

Role on Project: Coastal Engineering Design and Sustainable Construction

Availability: 60%

Dr. Ketteridge has more than 15 years of experience in analysis and design of a wide variety of restoration and enhancement projects within the aquatic environment from open coast to inland rivers. She has managed numerous shoreline restoration and park enhancement/development projects throughout Puget Sound from stakeholder visioning and conceptual design through construction. She has developed design documents from concept figures through final design drawings, cost estimates and technical specifications. She has also provided bid assistance and construction oversight for restoration projects throughout Puget Sound. She brings focused and proven technical proficiency to the team in the areas of processes-based restoration, interaction and integration of shoreline armoring with natural shorelines, nearshore sediment transport, evaluation of waves and water levels, and evaluation of sustainability of marine projects. She has been involved in numerous complex coastal and estuarine park development and restoration projects involving significant stakeholder and public involvement in the Puget Sound (and across the country) for Washington Department of Fish and Wildlife (WDFW), South Puget Sound Salmon Enhancement Group (SPSSEG), Seattle Parks, the U.S. Navy, Port of Bellingham, Snohomish County Department of Parks and Recreation, Northwest Straits Foundation, and others.

Scott White

Role on Project: Principal in Charge and Permitting

Time Commitment: 60%

Scott White provides leadership and strategy to planning and permitting efforts in support of infrastructure and other capital projects for state and municipal agencies and private developers. Scott has 20 years of experience managing and reviewing all manner of road, bridge, storm drainage infrastructure, restoration, and development projects for both public agencies and private firms, and he has developed and managed critical path work schedules, budgets, and earned value for multiple mega-projects. Scott has in-depth knowledge of local, state, and federal laws, regulations, and policies relating to land use, surface water, natural resource management, and transportation projects. He has extensive experience working with local, state, and federal agencies such as WSDOT, Ecology, WDFW, the Federal Highway Administration, NMFS, USFWS, Federal Emergency Management Agency, the Corps, and U.S. Forest Service.

Ahmis Loving, P.E., Civil Engineer

Role on Project: Stormwater Design and AutoCAD

Availability: 40%

Ahmis has been working with tribes for over 13 years, and has been involved in tribal shoreline projects for the last 8 years. Ahmis provides civil engineering design, including stormwater management, for such diverse projects as new residential development to commercial projects on the shoreline. Shoreline projects often include balancing the restoration of natural features with the recreation needs of the community. Ahmis managed a recent debris removal project that included the removal of creosote pilings and a pier. While the pier was a landmark to the community, the removal of toxins from the marine environment outweighed the need for a defunct marine access facility. Currently, Ahmis is supporting the planning and permitting of an elevated boat ramp that will serve commercial and recreational fishers while providing the least footprint and impact to forage fish spawning habitat and eelgrass beds.

Deb Ladd, P.E., L.Hg., L.G.

Role on Project: Geotechnical Investigation

Availability: 40%

Deb Ladd is a licensed geotechnical engineer and hydrogeologist with over 25 years' regional experience providing services from site feasibility through investigations, design, and construction. Her background allows her to contribute as both a scientist and engineer on projects - a combination that is particularly helpful where the natural environment has a high value. She has worked in shoreline and natural areas using investigation approaches from surface mapping and hand dug investigations to drilling with remote access equipment. Ms. Ladd is experienced in helping project teams understand how geotechnical and geological conditions affect project alternatives and the resulting conceptual and preliminary designs. Ms. Ladd is knowledgeable about bluff and shoreline processes and has completed multiple projects with the types of improvements common in parks including roadways, parking, culverts, trails, and public access. Ms. Ladd also has geotechnical construction experience that she will bring to the project team to help identify potential construction opportunities and risks associated with soil and groundwater.

PROPOSED EFFORT

Confluence understands the Project will be contracted under Time and Materials, Not to Exceed a total cost of \$68,935. The proposed level of effort for Phase 1 and Phase 2 work described in the project approach (hours and hourly rates by staff), as well as costs associated with expected geotechnical studies (e.g., test pits) is provided in Table 1. Level of effort estimate, and costs for sub-consultants, were developed based on our current understanding of the project as outlined in the RFP and written answers to questions provided by SRSC. The following assumptions have been applied to estimating the costs:

- Costs for geotechnical data collection are associated with 2-3 test pits that will be evaluated for sediment type. Sediment testing for chemistry or geotechnical properties is not anticipated or included.
- There are no instrumentation rentals or other field equipment costs provided as Confluence has assumed field data collection will be done by SRSC staff utilizing SRSC equipment.
- Confluence has not provided staff or hours for consultation on fisheries biology or ecological restoration, as we have assumed this role will be filled by the scientists on staff at SRSC who are leaders in these fields.
- The level of effort associated with 30% Concept-Level Drawings in Phase 2 does not include 30% level design for “hard” civil engineering elements, if needed. These elements, if required for the preferred alternative, will be included in the engineering drawings at the conceptual level only.
- “Soft” civil engineering elements, such as excavation and grading, will be developed to the 30% conceptual level in the documents as part of Phase 2 work.

Table 1. Proposed Cost for Confluence Staff, Sub-consultants, and Expenses

Staff	Task	Phase 1		Phase 2		Sub-Total
		Rate	Hours	Costs	Hours	Cost
Principal Planner		\$195	6	\$ 1,170	6	\$1,170
Principal Coastal Engineer/ Geomorphologist		\$175	94	\$16,450	72	\$12,600
Project Scientist		\$105	76	\$ 7,980	64	\$6,720
Accounting Specialist		\$ 90	2	\$ 180	3	\$270
Technical Editor		\$ 90	3	\$ 270	5	\$450
Stormwater Engineer/ AutoCAD (Loving Engineering)		\$125	34	\$ 4,250	56	\$7,000
Geotechnical Engineer (Ladd GEOsciences)		\$150	32	\$ 4,800	18	\$2,700
Geotechnical Investigation Expenses		N/A	--	\$ 2,925	--	--
TOTAL						\$68,935

PROPOSED PROJECT SCHEDULE

The Confluence Team is committed to meeting the project timeline as described in the RFP. Table 2 shows the proposed schedule from the RFP; with one proposed change. We plan on completing the feasibility study (Phase 1 work) by August 15th. We believe this schedule is achievable by leveraging previous studies to quickly identify key issues that need to be addressed to complete the final feasibility study. We want to accelerate the feasibility assessment to provide additional time for authorization to begin Phase 2 and to have enough time to further develop preliminary design concepts.

Table 2. Proposed Schedule

Task	Due
Contract Award Notice	MAY 15th
Notice to Proceed	ASAP (anticipated JUNE 1 st)
Feasibility Assessment (Phase 1)	AUGUST 15th
Development of Preliminary Design Concepts (Phase 2)	SEPTEMBER 30th
Selection of Preferred Design (Phase 2)	OCTOBER 31st