



SHERMAN ENGINEERING

CIVIL • SANITARY • GEOTECHNICAL • ENVIRONMENTAL
DESIGN • TESTING • CONSTRUCTION MANAGEMENT

April 30, 2010

City of Nenana
PO Box 70
Nenana, Alaska 99760

Attention: The Honorable Jason P. Mayrand, Mayor

Reference: City of Nenana Port Improvements Project
Professional Services Proposal - Revised

Dear Mr. Mayrand

Sherman Engineering is pleased to offer this revised proposal for providing professional engineering services for improvements to the City of Nenana bulkhead, dock, upstream river restoration and erosion control on the Nenana River. We realize that the time frame for completing the project is short, and we are prepared to immediately begin the work necessary to complete the project in a timely manner.

The Scope of Work for this project includes providing professional engineering services for: planning, permitting, design, contract document preparation, bid and contract award, construction administration and record drawing services. It is understood that the project will be advertised for bid and the construction contract will be awarded to the lowest responsive bidder.

In our previous proposal the scope of work was limited to the proposed bulkhead retaining wall structure along the Nenana River. This revised proposal includes all work in the previous proposal, and supplements it with additional work to address potential erosion upstream from the new port bulkhead and barge landing. The additional work will include data collection and analysis, permitting, design and construction administration of stream bank and in-river improvements necessary to prevent erosion in the Nenana River upstream from the new bulkhead.

Subsequent to our original proposal it is our understanding that concern was raised regarding the potential for the Nenana River to erode upstream from the proposed new bulkhead structure. Recent river events, including the flooding of 2008, resulted in significant changes to the river channel, and if the trends are allowed to continue, could result in erosion behind the proposed bulkhead location. Unchecked river erosion could also damage the existing port facilities improvements, including the bulk fuel storage facility and railroad tracks that serve the Port of Nenana. All of these facilities are essential to the continued operation of the Port.

Several meetings have been held with the U.S. Army Corps of Engineers Regulatory Division (USACE) and the Alaska Department of Natural Resources (DNR) to discuss the permitting that will be required to complete this project. Our revised proposal includes acquiring the necessary permits to do the in-stream work for both the stream bank restoration/erosion protection and the bulkhead and dock structures. It will also be necessary to acquire long term leases from DNR for portions of the riverbank property that is not owned or leased to the City. The following services more fully describe the specific permitting, design and construction administration work.

The services for this project have been divided into separate phases to include Permitting, Schematic Design, Draft Final Design, Issued for Construction (Final) Design, Bid Support, Construction Administration, and Record Drawing services. The scope of work specifically excludes environmental investigations or hazardous waste cleanup or disposal design services. Specific environmental related engineering proposals will be provided if necessary.

Task 1 –Permitting

Permitting services include data collection, analysis, a preliminary design and cost estimate and preparation of permit requests to the USACE and DNR to construct improvements in and along the Nenana River. It is likely that two permits may be required for this project from the USACE. Section 10 of the Rivers and Harbors Act requires a permit to construct improvements or conduct activities within the waters of the U.S. that are regulated by the Corps of Engineers. Section 404 of the Clean Water Act requires a permit to discharge fill into the waters of the U.S. Both permits will be consolidated on this project into an individual permit for the work. There are nationwide general permits under both Acts that may apply to portions of the work; however it will be more efficient and take less time to acquire an individual permit to conduct all of the planned activities.

In addition to the USACE and DNR, we will coordinate permitting with the U.S. Coast Guard and Fish and Wildlife Service, the Alaska Departments of Fish and Game and Environmental Conservation, State Historical Preservation Office and other state and federal agencies as required.

An essential part of the permit request will be an updated topographic map showing the current location of the Nenana River and the location of proposed improvements. The basis for the project map will be the digital terrain model and planimetric map recently produced by Kalen and Associates Surveying. New development on the west side of the Nenana River has necessitated an improved barge and ferry landing near the current City of Nenana boat landing, about ¼ mile upstream from the existing barge dock. Additional field survey work has been completed in this area and will also be incorporated into the base map. Some additional survey work along the river bank to document the current edge of bank will also be performed and incorporated into the base map and digital terrain model. The new survey data will be tied to the existing datum used for development of the current Nenana Township survey.

The planning and permitting work will also include a historical perspective of the Nenana River that delineates the past river channel meanders and bank locations. We believe that a historical perspective will clearly demonstrate that the current location of the Nenana River is much different than when the port facility was first constructed, and that the river has eroded much of the bank that previously provided erosion protection. We further believe that demonstrating this through the use of a series of digitized historical air photos will support our position that the current project is primarily a bank restoration project and should receive favorable reviews during the permitting process.

A preliminary “conceptual” design and specifications will be prepared to support the permit requests. It will be necessary to develop the design to the point that impacts to the river system can be evaluated by the reviewing agencies. A completed permit request will be submitted to the USACE at the conclusion of Task 1. It is anticipated that follow up permitting work, including development of the river model, will be required throughout the project. A Funding Report will be submitted to the City with the conclusions and recommendation for the Design Phase. The Funding Report will include order-of-magnitude construction costs for all work, including the erosion protection and bank restoration, new bulkhead retaining wall and barge docking facilities.

Tasks 2, 3 and 4 – Design Phases

There will be a total of 3 design phase submittals on this project – Schematic, Pre-final and Issued for Construction. In addition to the bulkhead and erosion protection design work, specific surveying, river modeling and geotechnical work will be completed during the design phases to support the permitting and design tasks.

The base map developed as part of the Permitting phase will be updated with the new information from a bathymetric survey and additional survey work in the vicinity of the proposed river bank protection and bulkhead improvements. Design drawings will be developed that incorporate the topography, the river bank locations and the general constraints that are imposed by the building materials and equipment access (such a pile driving equipment and large earth moving equipment).

Both the USACE and DNR indicated that a mathematical sediment transport and river surface model will be required to be submitted as part of the permit process. In order to construct a river system model, it will be necessary to chart the river surface elevations and the bottom of the river bed with a bathymetric survey. It will then be possible model the effect that existing and planned structures will have on the river system. It is also necessary to obtain topography of the river bed in order to design and construct any new in-river structures that are necessary to control erosion. The bathymetric survey will extend from the existing City-operated gravel pit, about ¼ mile upstream from the boat landing, down to the confluence of the Nenana and Tanana Rivers.

In order to design erosion control structures it is necessary to understand sediment transport dynamics and water surface levels in the river upstream and downstream from the proposed structures. New river bank protection or in-stream structures will affect stream sedimentation and erosion both upstream and downstream. A number of computer programs have been developed to model river behavior and sediment transport mechanisms based on survey data gathered in the field.

Our proposal is based on using a mathematical computer model developed for relatively simple erosion planning and design that is used by the Alaska Department of Transportation (ADOT) for the majority of their projects requiring river channel work. Likewise, our field and bathymetric survey scope of work is planned to provide only the topographic information required to use this model and to provide water level predictions within the accuracy of the model limitations. We believe that this model will accurately predict river levels as necessary to design the proposed erosion protection structures and should provide adequate information for the USACE and DNR to issue permits. Much more complex river modeling software is available but requires a higher level of analysis and significantly more detailed river bed bathymetry information. In the unlikely event that the permitting agencies mandate more complex modeling we will provide a fee proposal for the additional services.

In the area behind the expected location of the new bulkhead retaining wall, the work will include geotechnical drilling, soil sampling, and laboratory soils testing. In general the geotechnical borings will be nearly 20 feet in depth, with several drilled to depths of up to 30 feet as necessary to determine embankment conditions. The drilling will be accomplished by a rotary-driven hollow stem auger drill, with split spoon samples obtained at intervals that are sufficient to determine the subsurface conditions within the limit of the boring. It is anticipated that due to heaving sands that a bentonite slurry will be required to obtain the necessary soil data. The total amount of drilling will be limited to 200 feet, or however much can be accomplished in 3 full 8-hour days of drilling. Soil samples will be returned to a soils laboratory for moisture content and gradation analyses.

Each separate design task (Schematic, Pre-final and Issued for Construction) submittal will include a narrative, plans, specifications and a cost estimate appropriate for the specific level of completion. The Schematic submittal will also include a geotechnical report with boring logs, soil index test summaries, and bulkhead and erosion protection material recommendations. A Material Site report will be included outlining the required quantities of the different types of rock, rip rap and fill material required for the erosion protection structures and the availability and suitability of local material sources. The Schematic submittal will also include the river modeling output and design recommendations. Specifications will include Division 1 General Requirements, as well as all necessary Divisions 2 through 15 technical specification sections. The Issued for Construction submittal will include Division 0 bidding documents specifically developed for the City of Nenana.

Task 5 - Bid Support Services

Bid phase services include issuing Requests for Bids, Pre-bid meetings, issuing bid clarifications and addendums to the bid request, bid opening and bid review with a recommendation for award.

Task 6 - Construction Administration

Construction Administration (CA) services include conducting pre-construction meetings, submittal review and approval, periodic meetings with the contractor during construction to review progress, and review and approval of contractor requests for payment. Services also include periodic site visits to observe the construction work and to verify compliance with the construction documents, responding to contractor questions, issuing of Design Clarifications/Variation Requests. CA services include a full time project observer on site during the construction of any in-river structures and for all pile driving operations. Additional site visits will be coordinated to review critical elements of the work during construction at times that require an on-site presence to determine compliance with the construction documents. All buried work will be checked prior to backfill and all concrete placements will be monitored.

Task 7 - Record Drawing Services

This task includes preparation of record drawings based on contractor prepared markups of the construction drawings.

Project Deliverables

Project deliverables will be submitted at the end of each discrete task. Task 1 deliverables will include supporting documents for the permitting process along with the actual permit application. Each set of design task deliverables will include 3 sets of plans, 3 sets of bound narratives, catalog information and cost estimates, and an electronic version of each submittal in Adobe PDF. The plan format will be 11" x 17" for the interim submittals. The final plan set submittals will include 3 complete sets of documents as previously described, in addition to 10 full size (22" x 34") plan sets. A monthly progress report will be submitted with each pay request.

Additional submittals during the Pre-bid and Construction Administration (CA) phase will include progress and meeting reports, field notes and photos, submitted in PDF digital format, and a complete Submittal Schedule and Approval document. CA services also include review and approval of all contractor pay requests, review of contractor certified payroll, and regular construction cash flow requirements.

The record drawing deliverable will include 3 sets of half size and one set of full size hard copy construction plans and an Adobe PDF file of the record drawings and specifications.

Project team

Mark Sherman, PE will coordinate and manage all aspects of the design, bid phase, construction administration and record drawing phases. Contract documents produced under this Work Order will include all required plans and specifications necessary for a contractor to complete the work. Input from the City and discussions within the design team will be used to select the final structural design for a retaining wall system.

The design team for this phase of work is managed by Sherman Engineering. The engineer team was assembled specifically to provide Alaska expertise for this project. Permitting is a critical task, and we will aggressively pursue permits from DNR and the USACE for the necessary dredging, fill placement and construction permits. Sherman Engineering will be responsible for the permitting tasks. The topographic and bathymetric survey will be conducted by Kalen and Associates, supervised by Pat Kalen, RLS, who will also assemble historical documentation to support the permitting tasks. River modeling will be provided by Don Carlson, PE, recently retired ADOT/PF Northern Region Hydrologist, now working as a consultant with Sherman Engineering. Gary Halmstead of Homestead Drilling will provide all drilling services, and Sherman Engineering will log the test borings and will prepare a field investigation report including boring logs. Soil samples will be sent to Shannon & Wilson, Inc for index property testing and reporting. Leroy Hulseley, PhD, PE with Alignment Systems, Inc. will evaluate the geotechnical conditions and provide recommendations for a suitable bulkhead retaining wall that meets the objectives of this project. Sherman Engineering will be responsible for all design plans, specifications and cost estimating work.

We propose to complete all work on this project for a lump sum fee of \$309,447. The attached spreadsheet is provided for informational purposes only and provides a description of the effort and fee associated with each task.

We are available to begin work immediately. We understand the importance of this project to you and the City of Nenana and we look forward to working with you. Please feel free to contact me at any time if you have questions regarding our Proposal.

Sincerely,

Sherman Engineering



Mark B. Sherman, PE
President

Attachment: Fee proposal spreadsheet

CC: File

FEE PROPOSAL -
PROJECT
LOCATION

City of Nenana
Nenana Port Improvement Project
Nenana, Alaska

HOURLY SUMMARY							
Task	Principal Professional	Project Inspector	Engineer III	Engineer II	Engineer I	Engineer Tech	Total
Task 1 - Permitting	88	0	76	0	72	0	236
Task 2 - Schematic Design	96	0	96	0	116	0	308
Task 3 - Draft Final Design	72	0	68	0	76	0	216
Task 4 - Issued for Construction Design	46	0	42	0	22	0	110
Task 5 - Bid Support	40	0	36	0	34	8	118
Task 6 - Construction Administration	144	0	144	0	252	0	540
Task 7 - Record Drawings	12	0	4	0	32	0	48
	498	0	466	0	604	8	1,576

FEE PROPOSAL -		City of Nenana		
PROJECT		Nenana Port Improvement Project		
LOCATION		Nenana, Alaska		
PROJECT NUMBER				
FEE SUMMARY				
Task	Sherman Engineering	Sherman Engineering ODC's	Subconsultants	Task Totals
Task 1 - Permitting	\$30,040	\$1,277	\$20,160	\$51,477
Task 2 - Schematic Design	\$37,900	\$1,207	\$70,560	\$109,667
Task 3 - Draft Final Design	\$26,900	\$1,033	\$4,480	\$32,413
Task 4 - Issued for Construction Design	\$14,490	\$614	\$1,680	\$16,784
Task 5 - Bid Support	\$14,430	\$1,676	\$0	\$16,106
Task 6 - Construction Administration	\$64,260	\$10,394	\$2,240	\$76,894
Task 7 - Record Drawings	\$5,440	\$668	\$0	\$6,108
	\$193,460	\$16,867	\$99,120	\$309,447

Staff Name	Classification	Billing Rate Per Hour
Sherman, M	Principal Professional	\$160
	Project Inspector	\$130
	Engineer III	\$120
	Engineer II	\$105
Allen, E./Tonya Bear	Engineer I	\$95
Kyle Teegardin/Chad Roe	Engineering Technician I	\$60

SUBCONSULTANTS	
Standard Subconsultant's Rate plus 12% O&P Markup	

OTHER DIRECT COSTS	
Lodging: \$130 / day	\$130
Vehicular Travel: \$0.65 / mile	\$0.65
Other Travel: actual cost + 12% Markup	
Per Diem: \$70/day	\$70