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## MEMORANDUM

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**To:** Mayor McConnell and Assembly Members  
Jim Dinley, Municipal Administrator

**From:** Michael Harmon, P.E., Public Works Director  
Dan Tadic, P.E., Senior Engineer *DMT*  
Stan Eliason, Harbormaster *SE*

**Reviewed:** Jay Sweeney, Finance Director *J*  
Mellissa Cervera, Contract Coordinator *MC*

**Date:** January 2, 2013

**Subject:** **ANB Harbor Replacement**  
**Approval to Award Professional Services Contract**

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### **Background**

ANB Harbor (ANB) was originally constructed in 1956. Since that time, numerous repair and replacement projects have been undertaken at the facility. The facility is nearing the end of its useful life as confirmed by harbor condition assessments completed in 2008 and 2011. A budgetary cost estimate completed in May 2012 in conjunction with the Harbor Master Plan estimated the full replacement cost of ANB to be approximately \$8,250,000. ANB is currently the highest priority harbor infrastructure capital improvement project for the City and Borough of Sitka (CBS) Harbor Department.

A Request for Qualifications (RFQ) was advertised for the ANB Harbor Replacement project in accordance with the CBS procurement policies. Four proposals for this work were received. An evaluation committee made up of Public Works and Harbor Department staff reviewed the submittals and shortlisted three firms for interviews. After the interview process was completed, the committee scored the proposals and selected Moffatt & Nichol (M&N) as the most qualified proposer.

### **Analysis**

M&N is one of the largest maritime planning and engineering firms in the world and will staff the ANB project out of their offices in Seattle and Anchorage. The selection committee felt that aside from the technical expertise and unique contracting approach, M&N's enthusiasm and desire to establish this project as their Alaska portfolio afforded the ANB project the highest likelihood for success.

M&N has proposed a two-stage contracting process for this project. First, a Procurement Contract will be issued specifying "Owner-supplied" fabrications. CBS will procure these items directly from the fabricator(s) without paying marine contractor

markup on the fabrications. The second of the two stage contracting process entails the installation of the "Owner-supplied" fabrications (floats, gangways, pedestals, lighting) and the construction of the approach trestle, harbor utilities (electrical, lighting, potable water, and fire protection), and safety appurtenances. Interested marine contractors will respond with competitive bids to this unit price bid solicitation.

M&N teamed with Golder Associates of Anchorage (geotechnical engineering), RSA Engineering of Anchorage (electrical engineering), and O'Neill Surveying and Engineering of Sitka (surveying). Their scope of services includes project management, geophysical and geotechnical investigations, surveying, permitting, public involvement, engineering services for design and bid document development, bid assistance, and construction phase services to include fabrication inspections. The total estimated fee for the above described services is \$527,765. Note that the CBS budgetary cost estimate for ANB Harbor design, permitting, etc. is \$685,727 for a comparable scope.

### **Fiscal Note**

CBS received a FY13 State of Alaska Municipal Harbor Facility Matching Grant for the ANB Harbor Replacement project. This grant will cover 50% of eligible construction costs not to exceed \$4,250,000 in match funding. Engineering, survey, geotechnical, permitting, and public involvement are not items eligible for compensation under this grant requiring CBS to cover 100% of these items. The Harbor Department has budgeted \$500,000 toward these costs in the FY2013 budget (CBS Project No. 90674).

CBS has submitted a bonding application to the Alaska Municipal Bond Bank to issue revenue bonds in the amount of \$4,500,000. The bonding application was approved by the Bond Bank Board of Directors at their meeting on November 13, 2012. The proceeds from the bonding will be used to pay the municipality's portion of project expenses. Bond proceeds are expected to be received in mid-March 2013.

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### **Recommendation:**

Approve award of a Professional Services Contract to Moffatt & Nichol for the ANB Harbor Replacement Project on a time and materials basis for a not to exceed amount of \$527,765.

**CITY AND BOROUGH OF SITKA (CBS)  
ANB HARBOR FLOAT REPLACEMENT**

**APPENDIX A – SCOPE OF SERVICES**

**A. INTRODUCTION**

The City and Borough of Sitka (CBS) desires to replace the entire moorage system, approach dock, gangways and all utilities in ANB Harbor, beginning in October 2013. The harbor, originally constructed in 1956, and since maintained and rehabilitated under various projects, is nearing the end of its useful service life, as confirmed by harbor condition assessments completed in 2008 and 2011. Within the past decade, CBS directed the completion of Thomsen Harbor and look to that project as a benchmark for this project, in terms of: construction type, materials, features and appurtenances, and workmanship. Through the State Harbors Matching Grant Program, CBS has secured matching funding resulting in a budget of \$8.5M including construction, professional fees, contract administration and all contingencies.

The existing ANB Harbor facilities serve the local fishing fleet, and include timber floats with timber and galvanized steel guide piling (installed in various upgrade and repair contracts over the years) including three 10-foot wide headwalk floats, a 10-foot wide marginal float, and a 12-foot wide floating breakwater that offers both protection from localized wind waves, and side tie moorage. A timber access trestle and a single gangway in the 50-foot range provide access to the floats. Harbor services include power, lighting, potable water and fire suppression systems.

A review of the current harbor layout indicates the following slip mix (with some flexibility resulting from side-tie moorage designated for a certain vessel length that could conceivably accommodate a different vessel mix):

- 8 – 55-foot stalls (9%)
- 29 – 45-foot stalls (32%)
- 18 – 38-foot stalls (20%)
- 35 – 22-foot stalls (39%)
- Approximately 4,500 lineal feet of side-tie moorage, assigned among the larger vessel sizes

The current float layout and slip mix serves the local fishing community well, and changes to the harbor layout are expected to be minor in nature, with the following exceptions:

- It is desirable to increase the width of the south harbor entrance from its current 40-feet to perhaps 55-feet, to facilitate vessel access and egress.

- Sitka’s tidal range dictates that one 80-foot long gangway, meeting current Americans with Disabilities Act (ADA) guidelines, is installed. Although possible to install the longer gangway “angled” to keep the replacement floats in generally the same alignment, a longer “perpendicular” gangway and relocating the Marginal Float and Float 2 seaward will accommodate expanding the harbor entrance (as above); with the benefit of improved skiff access to, and perhaps increasing accessibility, on the east side of the new Marginal Float.
- Additional stalls and/or longer berths may be added consistent with the aforementioned changes to the float layout.
- Rock outcropping on the north side of Float 3 has been problematic, particularly at minus-tides. A geotechnical field investigation will identify whether the rock can be demolished and removed, or whether the new float layout should be repositioned to accommodate.

Reconstructed harbor amenities are expected to include, but not be limited to:

- Shore power distribution to serve the fishing fleet.
- Low level (pedestal mounted), high level (pole mounted) and/or on-float (luminaire) lighting.
- A year-round potable water system.
- A wet (continuously charged) or dry standpipe fire protection system.
- Safety appurtenances including life rings, fire extinguishers and safety ladders.
- A system of security cameras.

The float system, approach, and all utilities, systems and appurtenances will conform to a Basis of Design defining the functional, operations, environmental parameters, prevailing design codes, design criteria and best practices for the project, including:

- Sitka’s coastal environment (i.e., tide levels including consideration to sea level rise, wind climate, wave including tsunami and tidal current).
- Vessel characteristics for ANB Harbor (i.e., fishing vessels ranging from 17 to 60-feet in length with potential for larger vessels on the outer breakwater).
- Structural loads for guide piling (i.e., mooring loads for the site specific coastal environment and berthing loads).
- Utilities (i.e., water, electrical, lighting and fire protection).
- Americans with Disabilities Act (ADA) accessibility guidelines for gangways, clear and accessible transit and pathways, and removable bullrail on accessible slips.
- Safety features (i.e., ladders, life rings and fire extinguishers).

Moffatt & Nichol (M&N) was selected by CBS to lead all aspects of the work out of its Anchorage office, with design by engineers licensed in the State of Alaska. Electrical engineering will be conducted by RSA Engineering (RSA) of Anchorage; and geotechnical engineering by Golder Associates (Golder) of Anchorage; and survey by O'Neill Surveying and Engineering (O'Neill) of Sitka. Services include: project management; site investigation; concept development; design and bid documents; environmental permitting; bid assistance for Procurement and Installation Contracts; and construction services for the Procurement Contract.

## **B. SCOPE OF SERVICES**

Work will be broken into the following tasks:

### **Task 1: Project Management**

Project management activities will include, but not be limited to:

- a. Team Coordination and Subconsultant Management. Facilitate and direct coordination, and collect and convey information between CBS, the design team and subconsultants.
- b. Public Involvement. Shaun McFarlane, Project Manager, will lead Public Involvement, including all Public and stakeholder presentations and meetings; drawing in support from remote team members as appropriate.
- c. Meetings. Schedule and organize project coordination meetings, and produce and distribute meeting notes.
- d. Progress Communication. Provide CBS with monthly reports accompanying project invoices, documenting design (and later, fabrication and installation) progress, anticipated work in the next period, and any special concerns or needs. Reporting will be at a level of detail suitable to inform the State of Alaska of project progress. To this end, M&N will review and recommend payment of progress requests by the Procurement Contractor.
- e. Change Management (e.g., scope, project cost, schedule). Provide clear descriptions regarding how changes to scope, schedule or budget are to be managed and documented.
- f. Schedule Support. Develop realistic design, Procurement and Installation Contract schedules and maintain an overall schedule for the project; updated with each progress invoice.

### **Task 2: Site Investigation**

#### **2.1 Site Visit & Intake Meetings**

M&N and RSA will travel to Sitka for two days to perform the following:

- a. A kickoff meeting with the CBS Project Manager, Harbormaster and others at CBS' discretion.
- b. A detailed harbor walkover at ANB and Thomsen Harbors with CBS Harbor and Maintenance personnel, in order to comprise a list of preferred features and those to avoid, and to discuss in detail the required levels of electrical service, lighting, potable water, safety and fire protection systems.
- c. A topside and low-tide under-pier visual observation of the ANB Harbor access trestle, in order to determine whether it should be repaired or replaced; a decision consistent with matching the residual life of a restored or replaced trestle to the useful service life of new harbor floats and gangway.
- d. A design charette with CBS Public Works, Harbors and Maintenance personnel.
- e. Meetings with other project Stakeholders as suggested or directed by CBS, for the purpose of gathering input to the project.
- f. A debrief meeting with CBS to discuss findings, recommendations and to clarify direction moving forward.

## **2.2 Subsurface & Geotechnical Investigations**

As a sub-consultant to M&N, Golder will travel to Sitka to explore the geotechnical subsurface and submarine conditions using a combination of marine geophysical survey and borehole data. Golder will subsequently perform laboratory tests, conduct a foundation analysis, and work closely with the M&N design team to develop a cost effective and practical lateral guide pile layout and design, and a piled foundation system for the new timber access trestle. Findings and recommendations will be summarized in a geotechnical and subsurface geophysical report sealed by a Geotechnical Engineer licensed in the State of Alaska. To supplement the drilling and to aid in the design of the harbor infrastructure, a marine geophysical survey is planned to characterize the seafloor bathymetry, map the horizontal and vertical extent of sediments, define the bedrock surface, and identify potential geohazards. This will allow rock, whether continuous or by localized obstruction, to be characterized with respect to challenges to pile driving. This survey will be done using one of several geophysical methods including swath bathymetry, sidescan sonar and seismic reflection (a.k.a. subbottom profiling).

M&N has acquired data for the ANB Harbor from ADOT&PF, including construction as-built drawings, which show typical details for piles installed into rock, and record pile logs. Bathymetric mapping data also acquired from the Alaska Division of Geological & Geophysical Surveys (ADGGS). These data are consistent with our general understanding of site conditions; however, the rock outcropping in the harbor was not identified in the bathymetric mapping. Golder will collect a combination of precision bathymetric, high-resolution marine reflection and

side-scan sonar data in the harbor area. Navigation of the survey vessel and positioning of the geophysical data will be controlled using differential GPS. Data will be collected along a number of transects, with locations and spacing depending on access to the harbor area; sufficient to adequately characterize the subsurface in order to make informed decisions about borehole locations and pile lengths during design. The marine geophysical investigation is planned for mid-January during a high tide cycle, and prior to the start of geotechnical drilling. This will allow us to optimize borehole locations and address any anomalies found, as well as to calibrate the survey results with borehole data.

The position of the survey vessel will be determined using the differential global positioning system (DGPS). The bathymetric data and subbottom data will be collected simultaneously. This data will be used to provide a contour map of the bottom and is of importance for aiding in the interpretation of the sidescan sonar, subbottom and seismic data. A high-resolution, marine seismic reflection (or sub-bottom) investigation will be conducted to characterize the subsurface soils and determine the depth and geologic characteristics of near-surface sediments. Data will be acquired with seismic reflection profiling which provides a continuous subsurface image of the seabed and the underlying stratigraphy and geology. The subsurface acoustic images are produced in real-time and displayed on a digital monitor which depicts the data as a profile or cross-section view along transects. Sidescan sonar is used to map surficial features and different sediment types (mud, sand, macrofauna, rock, cultural artifacts, etc.) on the seafloor. This system produces a plan view image of the seafloor to the left and right of the survey track line. Discrete targets, geomorphologic features (mud waves), or variations in sediment (silt, sand, gravel and rock) produce varying shades or intensity of print on the sonogram record.

A Subsurface Geophysical Report, sealed by a geotechnical engineer licensed in Alaska, will summarize the field procedure and instrumentation, describe the analysis and interpretation procedures, and present the results of the subsurface investigation. A series of plans will be included depicting the following information:

- a. Trackline map showing transect locations.
- b. Bathymetric contour map.
- c. Interpreted cross sections based on the seismic reflection.
- d. Interpreted sidescan sonar records showing rock outcropping and/or other bottom features of interest.
- e. Contour map of the top of interpreted bedrock or acoustic basement based on interpreted seismic reflection data.

The report will form part of the Reference Documents for the Procurement and Installation bid packages.

The geotechnical investigation will consist of up to four (4) boreholes, drilled from a landing craft type vessel mobilized from Southeast Alaska. Discovery Drilling will provide the drill and vessel. The drill rig will be mobilized from Anchorage via the Alaska Marine Highway System (AMHS). Borehole locations will be finalized based on the results of the geophysical survey and collaboration between M&N and Golder. Final locations may be adjusted to include investigation of anomalous subsea features identified in the geophysical survey, and to confirm the depth of sediment and rock quality. This information will be used to optimize pile lengths and requirements for rock tendons, anchors or sockets. The information will also be useful to marine contractors in selecting appropriate equipment for pile driving operations.

The investigation will include drilling and sampling through the sediments and coring into the bedrock to depths of approximately 15-feet, approximately 5-feet below the 10-foot socket depth planned during original harbor construction. Golder will apply for, and adhere to stipulations thereof, all applicable State, Federal, and Local permits needed to perform the investigations. Based on the work to be performed, we anticipate permit coordination with, but may not be limited to, Alaska Department of Natural Resources (ADNR; including Division of Mining), Alaska Department of Fish & Game (ADF&G), Alaska Department of Environmental Conservation (ADEC; Division of Water), U.S. Army Corps of Engineers (USACE), and Sitka Coastal District/CSB. Golder will coordinate with the Harbormaster through M&N to notify users of investigation work and limit disruption of marine traffic. Laboratory tests will be performed on recovered samples to measure primary soil index testing and rock strengths. Rock strength will be measured using point load and unconfined compression testing.

A Geotechnical Report, sealed by a geotechnical engineer licensed in Alaska, will summarize findings and design guidance developed, including: background; methods of geotechnical and geophysical investigations; subsurface conditions; sub-marine mapping; and engineering design recommendations. The report, which will be included as part of the Reference Documents for the Procurement and Installation bid packages, will address:

- a. Geotechnical recommendations for socketed steel piles
- b. Recommendations for removal of the rock outcrop within the existing basin.
- c. Pile material, design recommendations, and installation recommendations.
- d. Parameters for LPILE analysis to be conducted by M&N and Golder.
- e. Geotechnical recommendations for the dock upgrade.
- f. Seismic considerations including lateral loading and liquefaction.
- g. Coordination with M&N structural engineers.



A total of four (4) days of field investigation have been estimated and budgeted. No contingency was included for standby or downtime due to weather. Additional standby days will be billable at \$4,600 per day (plus standard subconsultant mark-up).

### **2.3 Boundary Survey & Base Plan**

As a subconsultant to M&N, O'Neill will conduct a topographic boundary survey in the vicinity of ANB Harbor to provide site specific information and project control coordinates as follows:

- a. Upland boundaries from the Shee Atika Totem Square Inn to North Pacific Seafoods.
- b. Known water boundaries, transposed from Alaska Tidelands Survey (ATS 15), including: tideland leases, easements, deeded waterways and the outer boundary of the City Tidelands (a.k.a. Director's Line).
- c. Overwater: the current locations of ANB Harbor main floats, gangway and the approach trestle.
- d. Upland: Corners of the ANB building, location of utilities serving the harbor, the Mariner's Wall facility, and topography between the ANB building and the edge of the paved parking area, to an elevation of 0.0 feet MLLW.
- e. Monumentation will be located and annotated for horizontal and vertical site control.

O'Neill will provide M&N with a point plan in AutoCAD format for the purposes of developing a site base plan

M&N will subsequently prepare a project base plan in AutoCAD, overlaid on a recent aerial photograph of the harbor.

### **Task 3: Concept Development**

#### **3.1 Development Conceptual Alternatives (2)**

M&N will develop two (2) scaled conceptual layout alternatives with corresponding Rough Order of Magnitude (ROM) construction cost estimates for the ANB Harbor replacement, generally conforming to the following:

- a. Alternative 1: "In Place, In Kind", with floats generally in the current arrangement and configuration with the exception that accommodations for an 80-foot long ADA-accessible gangway (i.e., either "angled" or attached to a truncated access trestle) will be required.

- b. Alternative 2: “Preferred Layout”, including an increased south entrance width, seaward relocation of the Marginal Float to accommodate an 80-foot accessible gangway, and the potential addition of stalls and moorage consistent with these geometric changes.

Draft alternatives will be issued to CBS for review and comment, and subsequently finalized for inclusion in the CBS Assembly packet.

### **3.2 CBS Assembly & Public Workshop**

M&N will travel to Sitka to present the two (2) layout alternatives to the Port & Harbors Commission (a public meeting), discussing the relative features, merits and costs of each, and will seek approval to proceed with the “Preferred Layout” (Alternative 2). Following this meeting, M&N will present the “Preferred Layout” to CBS Assembly for their approval. Prior to leaving Sitka, M&N will debrief with the CBS Project Manager and Harbor and Maintenance personnel to reach agreement on direction moving forward.

#### **Task 4: Environmental Permitting**

M&N will identify, prepare, submit and negotiate on behalf of CBS all required Municipal, State and Federal permits for in-water and shoreline construction and associated harbor utilities. This will include a pre-application teleconference with the U.S. Army Corps of Engineers, Alaska District (Regulatory Division), and responding to all agency review comments and questions. We anticipate a straightforward, noncontroversial permitting process, and anticipate securing the following permits:

- a. U.S. Army Corps of Engineers Section 10 permit for in-water work.
- b. U.S. Army Corps of Engineers Section 404 permit for dredging (i.e., removal of rock obstructions above the harbor dredge line.)
- c. Alaska Department of Environmental Conservation (ADEC) permit for the potable water system, noting that final design documents are required for ADEC review and approval.
- d. CBS permits as needed for structural, electrical and fire protection systems.

M&N will demonstrate cooperation, collaboration and mutual respect in working with permitting authorities; a proven strategy for streamlining the permitting process. A close dialogue will be maintained with CBS on all permitting matters that could affect the project schedule, build-out, features or project cost.

We have assumed and budgeted for a noncontroversial permitting process. Also assumed is that rock obstructions may be removed and/or broken for partial removal above dredge depth using mechanical (i.e., not ballistic) methods, and that the U.S. Army Corps Regulatory Division will

concur that partial removal within the permitted dredge prism will constitute maintenance dredging only. This scope and fee do not accommodate for protracted permit negotiations, a capital dredging permit, mitigation or additional permitting effort associated with rock blasting.

### **Task 5: Design & Bid Documents; Task 6: Bid Assistance; and Task 7: Construction Phase Services**

Note: Work under these tasks is aggregated in this Scope of Work to more clearly define and describe the two-part (Procurement/Installation) contracting method. Tasks and subtasks are broken out separately in the accompanying Fee Proposal (Appendix B).

#### **5.1, 6.1 & 7.1 Procurement Contract**

This is the first of two stages of the contracting process: specifying “Owner-supplied” fabrications. Interested bidders will submit detailed design briefs describing their proprietary floats and guide piling systems and gangways; and specifications for proposed power pedestals and light fixtures meeting the specified performance criteria. This strategy allows float manufacturers to employ their own familiar proprietary float systems with associated design and fabrication efficiencies, and all cost savings are passed on to the project.

M&N will prepare a preliminary design of the float system illustrating the floats, gangway and trestle in plan, profile and elevation, in sufficient detail to illustrate overall dimensions (e.g., float freeboard, width overall and clear transit), features (e.g., bullrails and mooring cleats), the water and fire protection systems and water riser locations, and electrical cable chaseways and shore power pedestal and other appurtenance locations.

Using the results of the geotechnical investigation and associated design guidance, the M&N design team will design a conservative arrangement of guide piling sufficient to handle the mooring and berthing loads, which are in turn determined by the preferred arrangement of floats in the new harbor. Support piling for the new trestle will also be designed. We will develop and include the preliminary pile design and layout as part of the performance specifications for the bid package, and will estimate the number, diameter, gauge and lengths of all in-water piling to inform the permit applications. Final pile sizing and layout will later be refined by the float manufacturer consistent with their proposed float system for the harbor.

M&N will complete a soil-structure interaction analysis using LPILE™ design software, with design criteria developed collaboratively between the Golder and M&N design team. Structural engineers will complete the lateral and support pile analysis using soil parameters provided the Golder to identify the appropriate pile sizes, and the final analysis and pile arrangement will be

validated by the geotechnical engineer. Since water depth varies within the marina, M&N will propose a pile layout consisting of two different pile sizes within the piling layout to optimize the conceptual design.

Support for the Procurement Contract will include:

- a. Performance Specifications. M&N will prepare bid documents for the fabrication and delivery of timber floats, aluminum gangway, power pedestals, lighting bollards and/or luminaires, and galvanized steel guide piling; as “Owner-supplied” materials, in a single, comprehensive bid package. A volume of reference documents including the harbor layout, preliminary pile layout and float drawings, project permits and the subsurface investigation report will be appended to these performance specifications for use in defining the project to interested bidders.
- b. Opinion of Probable Construction Cost (OPCC). M&N will provide an OPCC of the value of all fabrications and materials to be “Owner-supplied” including delivery to Sitka. Since this is a performance-based specification (i.e., not a detailed design), the estimate will employ contingencies suitable to a preliminary or 30-percent level of design development; generally on the order of 25-percent. The OPCC will be structured to match the bid form and tabulated in a format suitable for comparing bids.
- c. Bid Assistance. M&N will assist CBS to advertise and bid the project, and CBS will prepare and disseminating bid documents to the various plans rooms, bid clearinghouses and direct to interested bidders, on request. M&N will convene a telephonic pre-bid meeting for interested bidders. During the bidding phase, the M&N Team will provide timely responses to scope and technical queries related to the project. Contractual inquiries will be coordinated with CBS and carefully prepared responses will be available for review as addenda by qualified bidders.
- d. Bid Analysis and Award. Upon receipt of the bids and technical (design) submissions from the prospective Contractors, the M&N Team will review each submission in detail. The purpose of the review will be to verify that the bids are in compliance with the instructions and specifications of the contract documents, to evaluate in detail the design submitted, and to provide a technical analysis of the bid sensitivities to changes in quantities and scope (i.e., bid imbalancing). The review will also include an evaluation of suggested design or material alternatives. M&N will then make a recommendation for award to CBS.
- e. Contract Administration. M&N will solicit and review all statutory and design submittals required by the Procurement Contract, including contract documents (initiation, progress and close-out), shop drawings, material samples, specification sheets for ordered fabrications (e.g., pedestals and luminaires), and progress payment requests. A detailed record will be maintained and an archive forwarded to CBS at the conclusion of the project.

- f. Fabrication Observation. M&N will perform up to three (3) float fabrication observations and up to two (2) piling observations during various stages of float assembly, reporting progress to CBS with annotated photographs. Observations will review the fabricator's conformance to shop drawings and will consider the progress and quality of the work. Piling observations will include spot checking of galvanizing thickness. Observations will be conducted by qualified engineer inspectors out of M&N's Seattle office, which is proximal to all float manufacturers and likely pile fabricators in the Puget Sound area.

#### **4.2, 6.2 & 7.2 Installation Contract**

The second of two stages of the contracting process entails the installation of "Owner-supplied" fabrications (floats, gangways pedestals and lighting) and the construction of the trestle and harbor utilities (electrical, lighting, potable water and fire protection), and safety appurtenances. Interested marine contractors will respond with competitive bids to this unit price bid solicitation.

M&N will design and detail: (1) repairs and upgrades to the existing piled timber access trestle; or (2) a replacement trestle; contingent on the decision made during the initial site walk and visual observation of the existing trestle. Since the presence of shallow, contiguous bedrock is anticipated in the area of the new floats, M&N will complete a rock socket or anchor design for the pile sizes identified. The design will subsequently be revised if needed following award of the Procurement Contract, if pile sizes change from the preliminary pile layout. M&N, with assistance from Golder, will design the underwater excavation of selected rock outcropping within the basin. M&N will design a supplemental cathodic protection system for treslet piling and float guide piling (i.e., bolted- or welded-on anodes).

RSA will provide electrical engineering services, including a design document illustrating: new electrical service to the replacement harbor; power distribution for shore power to vessels; lighting trestles, gangways and floats; and electrical distribution for miscellaneous harbor equipment. RSA will design telecommunications systems as requested by CBS including communications, wireless and security camera systems. RSA will assist in designing float, gangway and harbor structures to accommodate electrical equipment.

The successful float manufacturer will provide sealed float assembly drawings as part of the Owner supplied float design, and these will be furnished to the Installation Contractor, when complete, forming part of the Installation Contract documents.

Support for the Installation Contract will include:

- a. Plans and Specifications. M&N will prepare plans and specifications for the trestle repairs and/or reconstruction; underwater rock excavation; rock sockets or anchors for guide piling; cathodic protection; electrical, lighting, potable water and fire protection systems and safety features; detailed plans for demolition, removals and salvage (if desired by CBS); and detailed plans for the installation of "Owner-supplied" floats, guide piling, and the gangway.
- b. Opinion of Probable Construction Cost (OPCC). M&N will provide an OPCC for the Installation Contract, including contingencies suitable to a 90-percent level of design development; generally on the order of 10-percent. The OPCC will be structured to match the bid form and tabulated in a format suitable for comparing bids.
- c. Bid Assistance. M&N will assist CBS to advertise and bid the project, and CBS will prepare and disseminating bid documents to the various plans rooms, bid clearinghouses and direct to interested bidders, on request. M&N will lead a non-mandatory pre-bid meeting and site walk in Sitka for interested bidders. During the bidding phase, the M&N Team will provide timely responses to scope and technical queries related to the project. Contractual inquiries will be coordinated with CBS and carefully prepared responses will be available for review as addenda by qualified bidders.
- d. Bid Analysis and Award. Upon receipt of the bids M&N will review all submittals to verify that the bids are in compliance with the instructions and specifications of the contract documents, and to provide a technical analysis of the bid sensitivities to changes in quantities and scope (i.e., bid unbalancing). M&N will then make a recommendation for award.
- e. Pre-construction Conference. M&N will travel to Sitka to conduct a pre-construction conference with the successful Installation Contractor, including a visual observation and inventory of all Owner-supplied fabrications (i.e, floats, gangway, piling, pedestals and other appurtenances.) The fabrication contractor will be notified of deficiencies (if any) in the delivered Owner-supplied fabrications.

### **Quality Assurance/Quality Control (QA/QC)**

Included in the above tasks is an appropriate level of QA/QC, performed by M&N senior staff and other members of the design team. Subconsultants are responsible for their own in-house QA/QC and have each committed to following quality standards consistent with those of M&N. We will be responsible for the quality of our design to our industry's standard of care. All work will be performed consistent with M&N's corporate Quality Manual. QA/QC for the project shall include checking and reviewing M&N's work for consistency with that of other members of the design team to deliver a coordinated set of construction documents. Typical QA/QC tasks include, but are not limited to:

- Integrity Check. The design checker is responsible for verifying the adequacy of the main elements of the work. Verification will consist of independent calculations or a thorough review of the designer's calculations of guide piles, trestle piles and other designed structural elements.
- Plan Check. The checker performs a thorough review of the plans to confirm that sufficient detail has been provided and that the plans accurately reflect the results of the design calculations, e.g. major controlling geometry, elevations, dimensions are checked. Final quantities and specifications are reviewed.
- Constructability Check. A review of the plans is performed to confirm that the design is constructible and that details and notes are consistent and clear.

### **Additional Services**

The following optional services are NOT IN SCOPE and have not been priced at this time but may be authorized by CBS at a later date:

- a. Resident Construction Observation. M&N will mobilize qualified resident engineer(s) to Sitka for up to sixteen (16) weeks of construction. Three (3) round-trips between Seattle and Sitka will allow for punctuated observation during critical periods of construction (e.g., pile driving), to allow for inspectors to be changed out, and to accommodate stoppages in the work (e.g., over the December holidays). Senior M&N staff will support the resident engineer as required including attendance at a pre-construction meeting. M&N will develop and issue technical sketches to address minor changes to the Contractor's scope of work and provide timely review and return of fabrication (shop) drawings, product samples, proposed alternatives, other Contractor submittals and responses to technical queries; and will advise the resident engineer of any deviations or discrepancies in the reviewed submittals so that appropriate response to the Installation Contractor can be made. Daily and weekly reports will be maintained at the M&N field office and will be compiled into an archival record documenting the work.
- b. Substantial and Final Completion Inspections. M&N's engineer of record, or other qualified senior personnel engaged in the design of the project will travel to Sitka to perform the Substantial Completion and Final Inspections with the Installation Contractor, M&N's resident inspector, and CBS personnel. A punchlist will be generated at substantial completion and adhered to for final acceptance of the work.
- c. Project Record Documents. Upon completion of the project, M&N will record all changes to the float installation on a set of Project Record Documents.
- d. Warranty Inspections. The performance criteria for the project will dictate a one-year warranty on harbor installation with the marine contractor; and a three-year warranty on

floats, gangways, galvanized piling, pedestals and other appurtenances. M&N will conduct warranty inspections on behalf of CBS, highlighting any apparent deficiencies.

### C. PERIOD OF PERFORMANCE

Services associated with this Scope of Work will be completed by September 30, 2013. A project schedule will be developed by the Consultant in collaboration with CBS upon award of the Contract, and updates will be provided by the Consultant with each milestone. Major project milestones identified at this time (with month indicated where dates remain to be determined), include the following:

January 9, 2013	Notice of Award
January 10, 2013	Signed Contract and Notice to Proceed
January 14-19, 2013	Boundary Survey (O'Neill)
January 28-31, 2013	Geophysical Subsurface and Geotechnical Investigations (Golder)
January 30, 2013	Boundary Survey Base Map to M&N
January 31, 2013	Draft Conceptual Layout Alternatives (2) to CBS
February 4, 2013	Final Conceptual Layout Alternatives (2) to CBS
February 15, 2013	Preliminary Design Complete
March 1, 2013	Permit Applications Submitted
March 1, 2013	35-percent Bid Documents and OPCC (Procurement Contract) to CBS
March 2013	65-percent Bid Documents and OPCC (Procurement Contract) to CBS
March 29, 2013	Draft Subsurface Geophysical and Geotechnical Reports to M&N
April 19, 2013	Final Subsurface Geophysical and Geotechnical Reports to CBS
April 2013	35-percent Bid Documents and OPCC (Installation Contract) to CBS
April 2013	95-percent Bid Documents and OPCC (Procurement Contract) to CBS
May 2013	Bid-ready Documents and OPCC (Procurement Contract) to CBS
May 2013	65-percent Bid Documents and OPCC (Installation Contract) to CBS
June 2013	95-percent Bid Documents and OPCC (Installation Contract) to CBS
July 2013	Bid-ready Documents and OPCC (Installation Contract) to CBS
June 2013	Bid Opening (Procurement Contract)
June 2013	Recommendation for Award (Procurement Contract) to CBS



August 2013	Bid Opening (Installation Contract)
August 2013	Recommendation for Award (Installation Contract) to CBS
September 2013	Delivery of Floats, Gangways, Piling and Appurtenances to Sitka

**D. EXPECTED MEETINGS & PRESENTATIONS**

One CBS Assembly presentation, followed by a Public workshop, is anticipated. A PowerPoint presentation will be prepared, along with handouts. The purpose of the presentation will be to inform the CBS Assembly and Public-At-Large of the project and to allow for Public comment on the conceptual layout and the services and features of the harbor replacement project.

The following trips to Sitka by senior Consultant team personnel to meet with CBS personnel are anticipated and budgeted at this time (with month indicated where dates remain to be determined):

Jan. 14-15, 2013 <sup>2</sup>	Site visit, kickoff and intake meetings (M&N, RSA)
Feb. 11-12, 2013 <sup>2</sup>	CBS Assembly & Port & Harbors Commission Presentation & Public Workshop (M&N)
Jul. 2013 <sup>1</sup>	Pre-bid Conference (Installation Contract) (M&N)
Sep. 2013 <sup>2</sup>	Pre-construction Conference (Installation Contract) (M&N)

<sup>1</sup>One (1) day in Sitka    <sup>2</sup>Two (2) days in Sitka

These trips may be scheduled, at CBS discretion, to coincide with scheduled meetings of the CBS Assembly and/or Port & Harbors Commission for the purposes of delivering progress updates.

Coordination meetings between the Consultant team and CBS Project Manager will be scheduled on an approximately monthly basis throughout the duration of the project, utilizing WebEx or similar software for remote participation.

**E. ITEMS TO BE PREPARED / FURNISHED BY CONTRACTOR**

The following documents, exhibits, and other presentations shall be furnished to CBS upon completion of the various phases of the work. All such material will become the property of CBS and may be used without restriction. The documents provided are intended solely for use on this project. The consultants will be indemnified and held harmless for any modifications or use of these documents on other projects by CBS or its representatives. Unless noted otherwise, “electronic format” refers to PDF format: native format is available on request.

1. Meeting notes.
2. Monthly progress reports, invoices and updated project schedule.
3. Presentation graphics and PowerPoint presentations prepared for CBS Port & Harbors Commission and CBS Assembly presentations (electronic format; hard copy handouts), including Draft and Final layout plans illustrating two (2) conceptual harbor layout alternatives.
4. Review bid documents at 35-, 65- and 95-percent design for Procurement and Installation bid packages (electronic format); and final bid documents for both contracts.

**F. ITEMS TO BE FURNISHED BY CITY AND BOROUGH OF SITKA**

1. Alaska Tideland Survey (ATS 15) for Sitka ANB Harbor and vicinity.
2. High resolution electronic file of recent aerial photograph of ANB Harbor (i.e., Sheet 1/1 in the project RFQ).
3. Front-end bid documents for completion of Procurement and Installation bid packages (MSWord format).
4. CBS Assembly, Stakeholder meeting and Public Workshop coordination.
5. Bid advertisement for Procurement and Installation bid packages; management of the Planholders list for both contracts; and dissemination of bid documents and addenda.
6. A single set of coordinated annotated review comments for each review deliverable (i.e., 35-, 65- and 95-percent design submittals) of Procurement and Installation bid documents, within one week of receipt for review.

Appendix B - Fee Proposal

Project Number: P12715  
 Project Title: ANB Anchor Bolt Replacement - Siltar, AK  
 Project Manager: Shaun McFarlane, PE  
 Project Principal: Tom McCough, PE

Date: 12/17/12  
 Revision: 1

Subcontractor Markup: 10%  
 ODC Markup: 10%

I. MAN-HOUR BUDGET

Phase	Task	Title	Principal Eng./Sci. P-6, P-4	Senior Eng./Sci. P-6	Supervisory Eng./Sci. P-7	Eng./Sci. III P-5	Eng./Sci. II P-4	Eng./Sci. I P-3	Staff Eng. P-2, P-1	Senior Tech. P-3	CADD III Designer P-4	CADD II P-3	CADD I P-2, P-1	Wood Processor A-4, A-3	General Clerk A-2, A-1	HOURS	LABOR TOTAL
PM	1	Project Management			168		56									24	\$ 43,200
Site Inv.	2	Site Investigation															
	2.1	Site Visit & Initial Meeting (M&N, RSA)			28											2	\$ 5,600
	2.2	Surface & Geospatial (Golder)			2											12	\$ 2,170
	2.3	Boundary Survey (O'Reilly & Pear Film)			2											54	\$ 5,310
Design	3	Concept Development															
	3.1	Develop Conceptual Alternative (2)			8											2	\$ 5
	3.2	GIS Assembly & Public Workshop			28											4	\$ 8,630
Design	4	Environmental Permitting															
	4.1	Design & Bid Docs. (35%, 65%, 95%, Final)			48											2	\$ 4,460
	4.2	Procurement Contract			32											36	\$ 54,920
	4.3	Installation Contract			16											48	\$ 90,960
BAC	5	BA Assistance															
	5.1	Procurement Contract			15											2	\$ 5
	5.2	Installation Contract			49											4	\$ 8,160
BAC	6	Construction Phase Services															
	6.1	Procurement Contract			24											8	\$ 19,680
	6.2	Installation Contract			32											2	\$ 4,160
TOTAL MAN-HOURS			48	110	186	182	464	204	30	0	166	576	50	144	80	2,402	\$ 307,340

II. MAN-POWER

Man by Hour Cost	\$ 12,800
Man by Labor Cost	\$ 30,734

III. OTHER COSTS

A. Subcontractors:	
1. Golder Associates	\$ 12,800
2. RSA Engineering	\$ 8,160
3. O'Reilly Surveying & Engineering	\$ 12,800
	\$ 33,760
B. Other Project Costs (ODC):	
1. Airtels (6 trips: Rates 2.1, 3.2, 6.2, 7.2)	\$ 2,652
2. Lodging (6 nights)	\$ 888
3. Meals, Incidental (16 days)	\$ 720
4. Recharge/rental Car (11 days)	\$ 1,800
5. Outside representation	\$ 600
6. Postage/Delivery	\$ 240
Telephone/Fax	\$ 0
Rent/Driving Equipment	\$ 0
Other	\$ 6,694
	\$ 6,694

IV. PROJECT SUMMARY

Total M&M Labor	\$ 307,340	58%
Total Subcontractor Cost	\$ 193,492	37%
Total Other Direct Cost (ODCs)	\$ 6,894	1%
Markup on Subcontractors	\$ 19,349	4%
Markup on ODCs	\$ 689	0%
<b>TOTAL FEE ESTIMATE</b>	<b>\$ 527,765</b>	
Total Project Budget	\$ 3,300,000	
Administrative Costs (CBS)	\$ 425,000	
Allowance for Installation CM, Warranty Inspection & Additional PM	\$ 212,500	
Balance for Contingency	\$ 7,334,735	

Fee Breakdown by Task:

Task	Estimation	T&M Fee
1 Project Management	\$ 43,200	8%
2 Site Investigation	\$ 17,348	30%
3 Concept Development	\$ 20,243	4%
4 Environmental Permitting	\$ 16,280	3%
5 Design & Bid Documents	\$ 193,630	37%
6 Bid Assistance	\$ 46,690	9%
7 Construction Phase Services	\$ 50,374	10%
Included in Allow Task Breakdown:	\$ 8,400	2%



moffatt & nichol

**RATE SCHEDULE FOR PROFESSIONAL SERVICES**

**Effective July 1, 2012 Until Revised**

	<u>CLASSIFICATION</u>	<u>UNIT RATE</u>
<b>PROFESSIONALS</b>	Supervisory Engineer / Scientist	\$ 195.00 / hour
	Senior Engineer / Scientist	\$ 170.00 / hour
	Engineer / Scientist III	\$ 150.00 / hour
	Engineer / Scientist II	\$ 120.00 / hour
	Engineer / Scientist I	\$ 105.00 / hour
	Staff Engineer / Scientist	\$ 90.00 / hour
<b>TECHNICIANS</b>	Senior Technician	\$ 125.00 / hour
	Designer	\$ 110.00 / hour
	CADD II	\$ 95.00 / hour
	CADD I	\$ 75.00 / hour
<b>CLERICAL</b>	Word Processing	\$ 85.00 / hour
	General Clerical	\$ 70.00 / hour
<b>SPECIAL</b>	Principal Engineer / Scientist	\$ 210.00 / hour
	Deposition / Trial Testimony	\$ 265.00 / hour

**REIMBURSEABLE EXPENSES (Unless Otherwise Stated in Written Agreement)**

**Subcontractors / Outside Services / Equipment Rental** Cost + 10%

**Reproduction**

In-house:

Mylar Plots (B&W)	\$ 2.00 / SF
Color Plots	\$ 4.00 / SF
Vellum Plots (B&W)	\$ 1.00 / SF
Bond Plots (B&W)	\$ 0.50 / SF
Color Copies / Prints	\$ 0.20 / sheet
B&W Copies / Prints	\$ 0.10 / sheet

Outside: Cost + 10%

**Travel**

Airfare, Meals, Lodging, Car Rental, Gas, Incidentals	Cost + 10%
---	------------

Mileage \$ 0.55 / mile

## **Task 2 – Site Investigation**

As a sub-consultant to M&N, Golder will explore the geotechnical subsurface and submarine conditions using a combination of marine geophysical survey and borehole data. Golder will subsequently perform laboratory tests, conduct a foundation analysis, and work closely with the M&N design team to develop a cost effective and practical lateral guide pile layout and design, and a piled foundation system for the new timber access trestle.

To supplement the drilling and to aid in the design of the harbor infrastructure, a marine geophysical survey is planned to characterize the seafloor bathymetry, map the horizontal and vertical extent of sediments, define the bedrock surface, and identify potential geohazards. This will allow them to determine if rock (whether continuous or by localized obstruction) is likely to present a challenge to pile driving. This survey will be done using one of several geophysical methods including swath bathymetry, sidescan sonar and seismic reflection (a.k.a. subbottom profiling). Appropriate drilling permits will be acquired and safety protocols employed throughout the field investigation.

Golder has acquired data for the ANB Harbor from ADOT&PF, including construction as-built drawings, which show typical details for piles installed into rock, and record pile logs. Also, bathymetric mapping data (in GIS format) has also been acquired from the Alaska Division of Geological & Geophysical Surveys (ADGGS) that was completed as part of a tsunami study for Sitka. These data are consistent with our general understanding of site conditions (i.e. relatively shallow bedrock and thin overburden); however, the rock outcrop in the harbor does not appear to be delineated in the bathymetry mapping; therefore, we still recommend conducting a site specific geophysical survey.

Following completion of the marine geophysical survey, Golder will also advance up to 4 boreholes at locations that will be refined based on the results of the marine geophysical survey, anticipated subsurface conditions, and existing and proposed facilities.

### **Task 2.1 - Marine Geophysical Survey**

Prior to drilling, Golder will collect a combination of precision bathymetric, high-resolution marine reflection, and side-scan sonar data in the harbor area. Navigation of the survey vessel and positioning of the geophysical data will be controlled using differential GPS. Data will be collected along a number of transects, with locations and spacing depending on access in the harbor area. We expect the number of survey transects to be sufficient to adequately characterize the subsurface to make informed decisions about borehole locations and pile lengths during design.

The marine geophysical investigation is planned for mid-January during a high tide cycle, and prior to the start of geotechnical drilling. We understand that the Harbor Master will lend vessel support during the survey. This will allow us to optimize borehole locations and address any anomalies found, as well as to calibrate the survey results with borehole data.

### Navigation

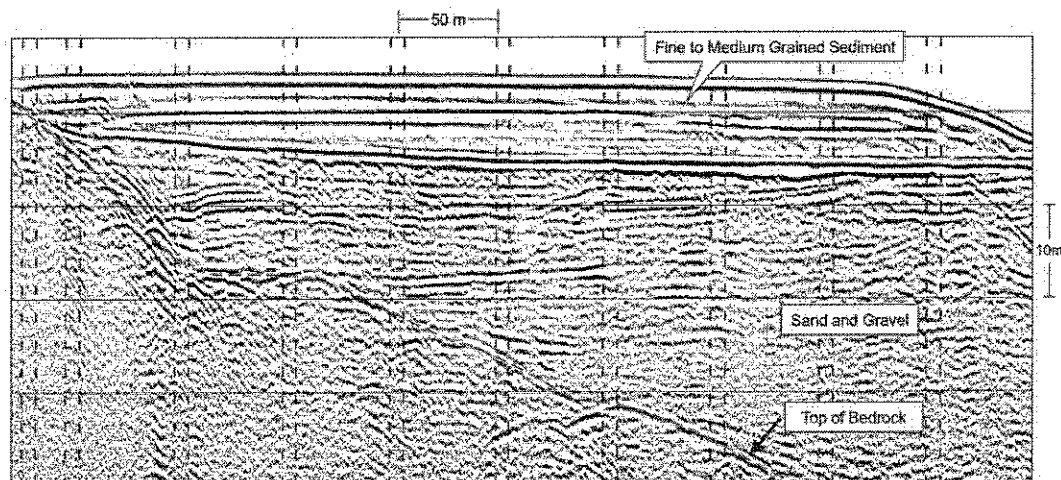
The position of the survey vessel will be determined using the differential global positioning system (DGPS). The position of the survey vessel will be plotted on a vessel track plot and displayed in real-time on a color monitor that will also provide additional navigation parameters to the helmsman. This enables piloting the survey vessel along predetermined survey lines and obtaining additional coverage in selected areas of concern. Position fixes will be acquired at a rate of 10 per second. The navigation system will be interfaced with the geophysical instruments (graphic recorders and digital acquisition systems) and provide event marks or fixes at a 30 second interval.

### Precision Bathymetry

A single-beam precision bathymetric survey will be conducted using an Odom CV200 or similar survey-grade echo-sounder interfaced with a 2.9 degree, 200 kHz transducer to collect water depth with a digital output that will be interfaced with the navigation system. This system is rated by the manufacturer to achieve near-centimeter accuracy. The transducer will be deployed from an over-the-side mounted bracket, and the GPS antenna will be installed directly above the transducer. The bathymetric data and subbottom data will be collected simultaneously. This data will be used to provide a contour map of the bottom and is of importance for aiding in the interpretation of the sidescan sonar, subbottom and seismic data

### Reflection and Side-Scan Data Acquisition

A high-resolution, marine seismic reflection (or sub-bottom) investigation will be conducted to characterize the subsurface soils and determine the depth and geologic characteristics of near-surface sediments. Data will be acquired with seismic reflection profiling which provides a continuous subsurface image of the seabed and the underlying stratigraphy and geology. The subsurface acoustic images are produced in real-time and displayed on a digital monitor which depicts the data as a profile or cross-section view along the transects (see example below).



For this investigation the data will be acquired with a medium frequency (350 to 800 Hz) seismic reflection system to map the depth to bedrock or acoustic basement to approximately 100 to 150 feet

below the seabed depending on the geology. This system has been used successfully in Alaska on over 50 surveys. The system is small, requires less than 1kw of electrical energy and can be deployed from a small vessel.

Sidescan sonar is used to map surficial features and different sediment types (mud, sand, macrofauna, rock, cultural artifacts, etc.) on the seafloor. This system produces a plan view image of the seafloor to the left and right of the survey track line. Discrete targets, geomorphologic features (mud waves), or variations in sediment (silt, sand, gravel rock) produce varying shades or intensity of print on the sonogram record. High intensity reflections represent coarse-grained material, such as cobble, boulders, or exposed bedrock. Low intensity reflections represent fine-grained sediment such as silt and sand.

The following table summarizes the equipment proposed for this investigation.

**Table 1. Geophysical Instrumentation and Specifications**

<b>System</b>	<b>Manufacturer</b>	<b>Parameters</b>
Differential GPS	Hemisphere R130	L1 C/A code, 24 Channel with beacon receiver
Precision Echosounder	Odom CV200	200 kHz
Digital Acquisition	Chesapeake SonarWIZ and HYPAK	TVG, 12 bit logging
	GeoAcoustics or Imagenex YellowFin Dual Frequency	260 kHz / 330 kHz / 800 kHz
	GeoAcoustics or Datasonics Model SBT-2200 Sub-Bottom	100 to 200 kHz

## **DELIVERABLES**

At the end of each survey day the data will be reviewed and preliminary interpretation will be performed to verify that the survey coverage and data quality meets the project objectives. Geophysical data will also be post-processed upon return from the field survey.

Results of the survey will be incorporated into the geotechnical report. The report will discuss the field procedure and instrumentation, describe the analysis and interpretation procedures, and present the results. A series of AutoCAD maps will be included in the report depicting the following information.

- Trackline map showing survey transect locations.
- Bathymetric contour map.
- Interpreted cross sections based on the seismic reflection.
- Interpreted side-scan sonar records showing rock outcrop or other bottom features of interest.
- Contour map of the top of interpreted bedrock or acoustic basement based on interpreted seismic reflection data.

## **Task 2.2 - Geotechnical Field Investigation**

The geotechnical investigation will consist of up to 4 boreholes drilled from a landing craft vessel that is based in Sitka. We plan to utilize a drill rig that is owned and operated by MW Drilling and currently located in Sitka. Use of this landing craft requires tying-off to the existing floats, since it is not equipped with a multi-point anchoring system suitable for stable drilling. Golder will coordinate these efforts with the Harbor Master, including providing borehole locations and tie-off points prior to the work. The geotechnical investigation is planned for late-January to early-February, but is in part contingent upon permit acquisition, other MW Drilling commitments in Sitka, and vessel availability. Standby rates, in cases of weather related delays, will be billed at \$4,600 per day.

### **Boreholes and Testing**

Borehole locations will be finalized based on the results of the geophysical survey and in collaboration with Moffatt & Nichol. Final locations may be adjusted to include investigation of anomalous subsea features identified in the geophysical survey, confirm depth of sediment, and rock quality. This information will be used to optimize pile lengths and requirements for rock sockets. The additional information will also be useful to contractors when they are selecting appropriate equipment to for their work.

The investigation will include drilling and sampling through the sediments and coring into the bedrock to depths of approximately 15 feet, approximately 5 feet below the 10 foot socket depth that was planned during original construction.

Golder will apply for, and adhere to stipulations thereof, all applicable State, Federal, and Local permits needed to perform the investigations. Based on the work to be performed, we anticipate permit coordination with, but may not be limited to, Alaska DNR (including Division of Mining), Alaska Department of Fish & Game, Alaska Department of Environmental Conservation - Division of Water, US Army Corps of Engineers, and Sitka Coastal District / CSB. We understand that working safely is paramount, especially in demanding off-shore conditions; and we will develop appropriate safety plans and protocols specific to this project. Being an active public facility, we will coordinate with the Harbor Master, CBS, and Moffatt & Nichol to notify users of our investigation work and limit disruption of other marine traffic.

Laboratory tests will be performed on recovered samples to measure primary soil index testing and rock strengths. Rock strength will be measured using point load and unconfined compression testing.

### **Deliverables**

An engineering report will be developed with all findings and design guidance developed, including: background; methods of geotechnical and geophysical investigations; subsurface conditions; sub-marine mapping; and engineering design recommendations. The geotechnical analysis and recommendations will address:

- Geotechnical recommendations for socketed steel piles
- Recommendations for removal of the rock outcrop within the existing basin.
- Pile material, design recommendations, and installation recommendations;



- Parameters for LPILE analysis to be conducted by Moffatt & Nichol, and subsequently validated by Golder.
- Geotechnical recommendations for the dock upgrade;
- Seismic design values and potential seismic hazard considerations (including possible ground deformation / lateral spreading or liquefaction that could result in ground induced loading on the piles, although not expected to be an issue); and
- Coordination with Moffatt & Nichol structural engineers.

The report will be provided in draft format for review, with a final report submitted addressing review comments. This report will be appended to the procurement (Task 5) and installation (Task 6) bid documents, and will provide the basis of design for float manufacturers developing piling layouts to suit their proprietary float systems, and for the selection of pile driving equipment by marine contractors. Three record copies will be issued to CBS for archiving and future reference.

#### **Task 4 – Design & Bid documents**

Golder will review design documents and specifications pertaining to installation of the socketed piles, as requested. Our effort will also include review of the final design lateral capacity. We have included a nominal 40 man-hours of effort for our project engineer to complete this task.

#### **Task 6 – Bid Assistance**

Golder will provide assistance as requested during bidding to review submittals. We have included a nominal 24 man-hours of effort for our project engineer to complete this task.

#### **Task 7 – Construction Assistance**

Golder will provide construction assistance as required. We anticipate that this will include one visit to the site either at the project kickoff or during implementation of the work. Work may also include consultation with the geotechnical designer retained by the fabricator/supplier of the float system. We have included a nominal 24 man-hours of effort for our project engineer to complete this task.







**Engineering, Inc.**

*Designing in Alaska for Over 20 Years*

Mechanical & Electrical Engineers

December 11, 2012  
**Revised December 13, 2012**

Moffatt & Nichol  
645 G Street Suite 100-532  
Anchorage, AK 99501

ATTENTION: Shaun McFarlane

Dear Shaun,

**REFERENCE: Sitka ANB Harbor Float Replacement  
Electrical Fee Proposal**

RSA Engineering is pleased to offer a fee proposal for electrical engineering services for the referenced project. Our understanding of the scope of work required for this project is based upon the following assumptions:

- RSA Engineering will provide a preliminary site visit to review the electrical systems for the existing harbor, interview harbor staff and maintenance personnel, and attempt to locate any on-site plans for the existing facility.
- RSA will design the demolition of the existing electrical and telephone equipment to accommodate the float replacement.
- RSA will coordinate with the City of Sitka Public Work to upgrade service for connection to the new facilities.
- RSA will design power distribution systems including electrical service equipment, on float distribution for shore power and miscellaneous harbor equipment.
- RSA will design lighting systems for floats, gangways and trestles to meet ADOT Harbor Electrical Guidelines.
- RSA will design a CCTV security system for the harbor facilities including, CCTV camera equipment, transfer of data for system monitoring and recording at the harbor master's office.
- This fee assumes that telecommunication shore power connections will be provided by the local telecommunications facility on a per request basis. RSA will assist in the design of telecommunications pathways in the float system to accommodate utility installation of telecommunications service.
- This fee assumes book type specification in CSI format will be developed as part of the design.
- This fee assumes that there will be three review submittals during the design phase at 35% 65% and 95%. RSA will provide written responses to Owner review comments and incorporate comments deemed appropriate into the design.

**ANCHORAGE  
WASILLA**

2522 Arctic Boulevard, Suite 200 • Anchorage, AK 99503-2516 • p907.276.0521 • f907.276.1751  
191 E. Swanson Avenue, Suite 101 • Wasilla, AK 99654 • p907.357.1521 • f907.357.1751  
www.rsa-ak.com

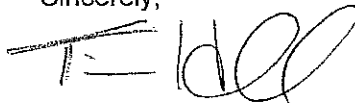
- This fee assumes that the project will be delivered in two phases with procurement of the floats and long lead equipment as part of Phase I and installation of the floats and harbor appurtenances as part of Phase II. For the Phase I RSA assumes that procurement specification will be developed at roughly the 65% design for electrical items that are deemed to best fit in the Owner procurement package.
- RSA will provide final documents for bidding after incorporating 95% review comments.
- RSA will provide bid phase services including: attendance telephonically at a pre-bid meeting, field and answer bidder questions as directed by your office, prepare addenda material as necessary for your office to include in Contract Addenda, and provide Conformed Drawings with any changes to the Contract required during the bid phase.
- RSA will provide construction phase services including: attendance telephonically at a pre-construction meeting, submittal review, DCVR (RFI) review/response, review of operation and maintenance manuals and preparation of record drawings based upon contractor generated redline mark-ups.
- This fee assumes that RSA will provide a substantial completion inspection of the electrical design components.

RSA proposes a time and expenses base fee for this project of \$57,345.00 (fifty-seven thousand three hundred forty-five dollars) based on the attached spread sheet.

We will provide one electronic copy of design documents at each milestone submittal to allow your office to produce the required number of copies necessary for distribution to affected parties.

Please review and advise if this proposal is acceptable by signing below and returning a copy to our office as our notice to proceed. We look forward to working with you on this project.

Sincerely,



Timothy E. Hall, P.E.  
Vice President

teh/hhm  
12-0935r/P12-379  
Attachment

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Accepted for Moffat & Nichol

COST ESTIMATE PER TASK

FIRM: RSA, Inc.		PROJECT TITLE: Sitka ANB Harbor Replacement		DATE: 12/13/2012						
TASK NO: 1	TASK DESCRIPTION: Mechanical and Electrical Engineering	PREPARED BY: Timothy Hall								
GROUP: 1	METHOD OF PAYMENT: <input type="checkbox"/> FP <input type="checkbox"/> FPPE <input checked="" type="checkbox"/> T&E <input type="checkbox"/> CPFF									
LABOR HOURS PER JOB CLASSIFICATION										
SUB-TASK NO.	SUB-TASK DESCRIPTION	T. Hall Principal	K. Rauf Engineer II	M. Spano Drafter	Xuan Ta Assoc. Prin	H. Mahaney Admin. Asst.	R. Weese Principal	Name, Title	Name, Title	Task Sum
1	Preliminary Site Visit	12				1				\$2,449.05
2	35% Design	16	44	12		2				\$7,593.78
3	65% Design	24	52	24		2	2			\$10,715.90
4	95% Design	28	42	22		4	4			\$11,101.44
5	Bid Documents	8	24	12	16	1	2			\$7,405.37
6	Bid Phase	6	12	4		1				\$2,459.03
7	Confirmed Documents	1	8	6		2				\$1,284.75
8	Construction Assistance	20	40	32		4				\$8,984.56
9	Inspections	18				1				\$3,633.63
<b>TOTAL LABOR HOURS</b>		133	222	112	16	18	8	0	0	
<b>* LABOR RATES (\$/HR)</b>		\$197.43	\$86.43	\$39.35	\$176.28	\$79.89	\$189.52	\$100.00	\$100.00	\$100.00
<b>LABOR COSTS (\$)</b>		\$26,258.19	\$19,187.46	\$4,407.20	\$2,820.48	\$1,438.02	\$1,516.16	\$0.00	\$0.00	\$0.00
<b>COMMENTS:</b>										
SUB-TASK NO.	ITEM(S)	QUANTITY	UNIT PRICE	TOTAL PRICE						
1	Airline Ticket	1	\$700.00	\$700.00						
1	Meals and Expenses	1	\$45.00	\$45.00						
1	Parking	1	\$13.00	\$13.00						
1	Car Rental	1	\$60.00	\$60.00						
9	Airline Ticket	1	\$700.00	\$700.00						
9	Meals and Expenses	1	\$45.00	\$45.00						
9	Parking	1	\$13.00	\$13.00						
9	Car Rental	1	\$60.00	\$60.00						
		0	\$0.00	\$0.00						
<b>TOTAL EXPENSES:</b>				<b>\$1,636</b>						
<b>TOTAL LABOR:</b>					<b>\$55,628</b>					
<b>FIRM'S TOTAL EXPENSES</b>					<b>\$1,636</b>					
<b>MARKUP ON EXPENSES (6%)</b>					<b>\$82</b>					
<b>FIRM'S TOTAL COST (no Subcontracts or Fee)</b>					<b>\$57,345</b>					
<b>TOTAL SUBCONTRACTOR w/ 10% Mark-Up:</b>					<b>\$0</b>					
<b>TASK TOTAL:</b>					<b>\$57,345</b>					

SUB-CONTRACTORS: Firm Initials and Price Per Task

FIRM: N/A

AMOUNT: \$0