

APPENDIX A
MEMORANDUM OF AGREEMENT

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**MEMORANDUM OF AGREEMENT
BETWEEN
THE STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND
PUBLIC FACILITIES AND THE NEWTOK TRADITIONAL COUNCIL**

This Memorandum of Agreement is entered into as of the __ day of March, 2011, by and between the State of Alaska, Department of Transportation and Public Facilities (hereafter referred to as "DOT&PF") and the Newtok Traditional Council, acting for the Village of Newtok (hereafter referred to as "Newtok").

Newtok is actively engaged in relocating to a new village site called Mertarvik. Newtok has received a grant from the Bureau of Indian Affairs agency (hereafter referred to as "BIA"), in the amount of \$350,500.00 (the "Grant"), for the purpose of performing a Mertarvik Waterfront Study (the "Study"). Accordingly, the parties agree as follows:

1. **Management.** DOT&PF agrees to manage all aspects of the study as described in Appendix A.
2. **Newtok Approval.** DOT&PF shall provide periodic updates to Newtok regarding progress of the work to be performed under this Agreement.
3. **Scope of Work.** DOT&PF shall submit a final report titled the "Mertarvik Waterfront Study" to Newtok. The scope of the work is described in Appendix A.
4. **Study Schedule.** The anticipated schedule for completion of the study is March 31, 2012, with deliverables described in Appendix B.
5. **Payment of Costs.** Newtok shall ultimately be responsible for completing the study as stipulated in the BIA grant. DOT&PF shall provide Newtok with invoices for the completion of tasks described in Appendix B as expenses are incurred. Upon receipt of each invoice from DOT&PF, Newtok shall promptly apply to BIA for reimbursement out of the BIA grant funds, and immediately upon receipt of those funds, Newtok shall remit to DOT&PF payment in the full amount of the invoice. DOT&PF shall be able to request advance payment from Newtok for consultant services. For example, Task 2, the Hydrographic Survey and Task 7, the Geotechnical Report, will require a consultant(s) to provide the necessary labor and equipment to complete those tasks.
6. **Procurement of Labor and Supplies.** Except as otherwise provided in this Agreement, all expenditures related to the study shall be made under the terms of the State of Alaska's Procurement Code, AS 36.30, and the regulations adopted pursuant thereto.

7. **Payment for DOT&PF Services.** Newtok agrees to reimburse DOT&PF the amount of DOT&PF's internal costs for providing services pursuant to this Agreement, including DOT&PF's personnel costs and overhead ("ICAP"). Services provided by DOT&PF employees shall be billed to the study at the same hourly rates used by DOT&PF for state funded studies during the year in which the services are performed. ICAP shall be billed to the study as a percentage of total study's costs, at the same rate used by DOT&PF for state funded studies during the year in which the costs are incurred. DOT&PF shall invoice Newtok for its internal costs incurred on a monthly basis, and Newtok shall pay such invoices from the Grant Funds in the manner provided for in paragraph 5.

8. **Completion Report.** Upon completion of the study, DOT&PF shall provide Newtok with a final expenditure report listing all expenditures incurred in the accomplishment of the study.

9. **Cost Overruns.** If at any time DOT&PF determines that there will not be sufficient funding to complete the study, DOT&PF shall notify Newtok, and the parties shall discuss what portions of the study, if any, to complete with the remaining funds available. If the parties are unable to agree on a plan for proceeding with the study, this agreement shall terminate, and DOT&PF shall be compensated for all work performed up to the date of termination.

10. **Obligation of Council.** In order to insure this Agreement is fully enforceable according to its terms, the Newtok Traditional Council agrees that, to the extent required, the Newtok Traditional Council itself shall be bound by all the terms of this Agreement.

11. **Study Representatives.** DOT&PF and Newtok shall each appoint a study representative for the work to be performed under this Agreement. All communications regarding the Mertarvik Waterfront Study shall be directed to the appropriate parties' study representative. Unless changed by written notice provided to the other party, the parties' study representatives shall be as follows:

DOT&PF: Michael Lukashin, State Ports & Harbors Engineer
Department of Transportation and Public Facilities
P.O. Box 112500
Juneau, Alaska 99811
(907) 465-3979

Newtok: Moses Carl, President
Newtok Traditional Council
P.O. Box 5545
Newtok, Alaska 99559

12. Waiver of Sovereign Immunity. Prior to the execution of this Agreement, Newtok's Board of Directors adopted a resolution waiving Newtok's sovereign immunity, and authorizing Newtok's president to execute the Waiver of Sovereign Immunity attached as Exhibit D to this Agreement. Newtok's secretary, or if Newtok has no secretary, its Administrator/Council Member, shall sign and deliver to DOT&PF a certificate in the form of the attached Exhibit E, certifying that the resolution was properly adopted by Newtok's Board of Directors according to any applicable tribal constitution, bylaws, policies or procedures. Newtok acknowledges that DOT&PF requested a copy of Newtok's constitution and any other documents that might relate to the procedures for adoption of a waiver of Newtok's sovereign immunity, and that the only existing documents meeting this description are the Newtok Tribal Council Policies and Procedures, and the Newtok Traditional Council Policies Manual, copies of which were provided to DOT&PF. Newtok is aware that the Newtok Traditional Council Policies Manual references a constitution and bylaws, and expressly represents and warrants to DOT&PF that no such documents currently exist.

13. Termination. Either party may terminate this agreement at any time and for any reason upon thirty days prior written notice to other party. Upon termination pursuant to this paragraph, DOT&PF shall provide to Newtok a final expenditure report listing all expenditures incurred in the accomplishment of the study up to the date of termination.

14. Governing Law. This Agreement shall be governed by the laws of the State of Alaska.

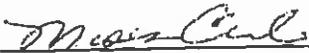
15. Interpretation. The parties have both had an opportunity to modify this Agreement, and agree the rule of construction interpreting any ambiguities against the drafter shall not apply. Likewise, the Indian Canon of Construction shall not apply to this Agreement or the Waiver of Sovereign Immunity required pursuant to this Agreement.

16. Disputes. Alaska State Courts shall have exclusive jurisdiction over all civil actions between the parties arising from this Agreement or from the Study. Venue for any action between the parties shall be in the Third Judicial District at Anchorage, Alaska.

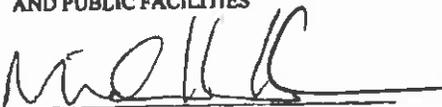
17. Entire Agreement. This Agreement, together with its exhibits and the Waiver of Sovereign Immunity signed by Newtok, constitute the entire agreement of the parties relating to the Mertarvik Waterfront Development Study. This agreement may be modified or amended only by written agreement signed by both parties.

EXECUTED BY THE PARTIES as of the date provided above.

NEWTOK TRADITIONAL COUNCIL

By: 
Moses Carl
President

DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

By: 
Michael Lukshin
State Ports & Harbors Engineer

Appendix A

Mertarik waterfront development scope and cost estimate			
Task	Work Item	Description	Cost
1	Hydrographic Survey	The hydrographic survey will cover roughly two miles of shoreline. Sections will be spaced about 500 feet and extend roughly 1000 feet from the high-water line to near the middle of the river channel. Several sections will extend across the full width of the channel. At the location of the proposed harbor the sections will be spaced at 200 foot intervals. The survey will be used to align and configure the mooring basin and breakwaters and also to aid in navigation.	\$89,000
2	Geotechnical Investigation	A geotechnical investigation shall provide soil data within the proposed mooring basin and along the alignment of the proposed breakwater. The investigation will be used to identify the material that needs to be dredged, including boulders. The geotechnical investigation must also determine if the bearing capacity of the water shall support a rubble mound breakwater. The investigation will also be used to determine the drivability and structural stability of sheet piles.	\$180,000
3	Fetch and wind wave analysis	This work will consist of a identifying the fetches and corresponding wind wave climate that will factor into the design of the mooring basin including alignment of the breakwaters and development of typical sections for the protective breakwater. It will also establish the boundary condition for the inner harbor diffraction analysis.	\$25,000
4	Water level analysis	This work will consist of estimating design water levels for the mooring basin and breakwaters. This will include meteorological data as well as a probability analysis of storm surges.	\$8,000
5	Current analysis	This will consist of identifying the currents that exist at the site with particular emphasis on currents that may result from storm surges. Currents associated with storm surges are a primary cause of many scour related failures of structures in tidal inlets. Current information will also be beneficial for navigation of skiffs and barges.	\$4,000
6	Identify design fleet	This will consist of identifying the future needs of the mooring basin including existing skiffs and potential use of larger vessels in the future.	\$4,000
7	Develop Alternative Plans	This will consist of developing several harbor alternatives that can be reviewed for functional design by the community and other state entities.	\$6,000
8	Inner harbor wave analysis	This work will consist of a performing a diffraction analysis to determine the wave effects in each of the inner harbor alternatives for the various fetch and wave conditions identified in task #3 & #4.	\$8,000
9	Develop breakwater sections	Typical breakwater sections will be developed based on the selected design waves, currents, water elevations, and geotechnical investigations.	\$6,000
10	Layout inner-harbor float facilities	This will include layouts, material quantities and cost estimates. Roughly three configurations of floats will be included for each alternative basin. It is anticipated that the floats will be removed from the water for winter storage.	\$3,000
11	Develop Upland Use Plan	A significant portion of the total harbor area may be comprised of uplands. Specific needs of the facility may include parking, boat storage, storage of commercial fishing gear, restroom facilities, etc.	\$3,500
12	Environmental	Water quality, fish passage, and other environmental factors will be considered.	\$4,000
13	Architectural	Project specific software development. Existing in-house software for harbor preliminary design and estimating will be modified and upgraded for this specific project.	\$4,000
14	Incidental	Travel. Two Site visits (2 people each)	\$4,000
15	Incidental	Administrative costs to participate in meetings, coordination efforts etc.	\$20,000
Total			\$590,500

Appendix B - Deliverables

Martinevik Waterfront Development Study

<u>Task</u>	<u>Description</u>	<u>Scheduled Completion Date</u>	<u>Cost estimate</u>
1	First site visit	Jun-2011	\$ 4,000
2	Hydrographic Survey (consultant)	Jun-2011	\$ 65,000
3	Technical Memo 1: Wind Wave and Water Analysis	Jul-2011	\$ 38,000
4	Technical Memo 2: Design Fleet and Alternative Analyses	Jul-2011	\$ 28,000
5	Draft Report to include Tasks 1-4	Aug-2011	\$ 5,000
6	Second site visit to present the draft report to the Village of Newtok	Aug-2011	\$ 4,000
7	Geotechnical Investigation (consultant)	Dec-2011	\$ 180,000
8	Technical Memo 3: Preliminary Environmental Considerations	Jan-2012	\$ 8,000
9	Technical Memo 4: Uplands Development Plan	Jan-2012	\$ 3,600
10	Draft Final Report to include Tasks 1-9	Feb-2012	\$ 10,000
11	Final Report	Mar-2012	\$ 3,000
		Subtotal	\$ 343,600
		ICAP @ 2%	\$ 6,872
		Total Cost	\$ 350,472

Exhibit D

WAIVER OF SOVEREIGN IMMUNITY

This Waiver of Sovereign Immunity is executed by the Newtok Traditional Council (the "Council"), acting for Newtok Village (the "Village"), a federally recognized tribe. In this Waiver, the Council and the Village will be collectively referred to as the "Tribe."

The Council received a grant from the Bureau of Indian Affairs ("BIA") in the amount of \$350,500. The purpose of the BIA grant funds is to facilitate completion of the Mertarvik Waterfront Study (the "Study"). The State of Alaska, Department of Transportation and Public Facilities ("DOT&PF") has agreed to manage the study to be performed with the grant funds. The terms and conditions of DOT&PF's work are memorialized in a Memorandum of Agreement (the "MOA"). Because the MOA will require DOT&PF to incur expenses and then seek reimbursement from the BIA grant funds, DOT&PF is willing to enter into the MOA only if the MOA is fully enforceable according to its terms. In order to facilitate completion of the Mertarvik Waterfront Study, the Council agrees as follows:

1. The Council hereby expressly and irrevocably waives the Tribe's sovereign immunity, and gives consent on behalf of the Tribe to be sued in a formal or informal administrative agency action or the courts of the State of Alaska and to have judgment entered against it for legal or equitable relief as further specified in paragraph 2 below.

2. Immunity is waived for:

- a. any administrative agency action or civil action filed by the State against the Tribe or its officials arising under or in any manner related to the MOA or the actions taken or the obligations assumed by Tribe under this MOA;
- b. the assertion by the State against the Tribe or its officials of defenses, cross-claims, counterclaims, offsets, or third-party claims (as third-party claims are described in subparagraph (3) below) in any administrative agency or civil action arising under or in any manner related to the MOA;
- c. legal or equitable relief, including allowable interest (both pre-judgment and post-judgment), costs and attorneys' fees awarded in any civil action that arises under or is in any manner related to the

MOA, if the State is determined to be the prevailing party in the civil action, and whether the legal or equitable relief, costs and fees are:

i. incurred by the State in pursuing a civil action against the Tribe or its officials arising under or that is in any manner related to the MOA; or

ii. incurred by the State in asserting a defense, cross-claim, or counterclaim in any civil action filed by the Tribe against the State that arises under or is in any manner related to the MOA; and

d. entry and enforcement by levy and execution or otherwise of judgments, orders or injunction entered against the Tribe in state court. Levy and execution may be made against the Tribe's real property and other assets wherever located and whether owned in the name of the Tribe, Tribal Council, a Tribal corporation or other Tribal entity. If the Tribe sues the State alleging a breach of the MOA, this waiver and consent to levy and execution shall encompass any defenses, offsets or compulsory counterclaims that the State may assert against the Tribe.

3. The phrase "administrative agency action or civil action filed by the State" includes, but is not limited to:

a. an action by the State against the Tribe alleging breach of the MOA or failure to perform obligations assumed by the Tribe under the MOA; and

b. an action initiated by the State of Alaska naming the Tribe as a third-party defendant in any action brought by a plaintiff against the State of Alaska for actions that the State alleges were taken by the Tribe arising under or in any manner related to the MOA.

4. The Council promises that (a) it is the governing body for the Village, and as such, does not have a separate existence from the Village; and (b) this Waiver of Sovereign Immunity on behalf of the Tribe was approved by a majority vote of the Council, which is all that is required under the Tribe's constitution, bylaws, policies, procedures, customs, or practices to approve this Waiver.

5. This Waiver of Sovereign Immunity shall not be construed as an agreement or concession by the Tribe to waive the coverage of section 314 of Public Law 101-512 or the Federal Tort Claims Act for any claim to which those laws apply.

6. No provision of this waiver shall be interpreted as granting Tribal consent for a suit to be brought directly against the Tribe by any party other than the State of Alaska, nor shall any provision in this waiver be construed as creating in the public or any person a third party benefit or to otherwise authorize any person not a party to the MOA to maintain a suit for personal injury or other cause of action under the terms of this waiver or the MOA.

7. Except as otherwise provided by law, Alaska State Courts shall have exclusive jurisdiction over all civil actions described in this Waiver of Sovereign Immunity and any civil action initiated by either party that arises under or is in any manner related to the MOA shall be filed in the courts of the State of Alaska with venue in the Third Judicial District at Anchorage, Alaska.

ACCEPTANCE

The Newtok Traditional Council:



BY: Moses Carl

TITLE: President

DATE: 3-29-11

ACKNOWLEDGMENT

STATE OF ALASKA)
) ss.
FOURTH JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on the 29 day of March, 2011, the foregoing Waiver of Sovereign Immunity was signed and acknowledged before me by Moses Carl, the President of the Newtok Traditional Council, who swore, under oath or affirmation, that:

(1) he is acting on behalf of the Newtok Traditional Council and Newtok Village (collectively the "Tribe") and under the constitutional authority of the Tribe, (2) he has the authority to sign for and bind the Tribe, and its officials, employees and successors to the commitments and conditions of this Waiver of Sovereign Immunity; and (3) the Tribe fully complied with all current procedure and requirements necessary to validly authorize his signature on this Agreement and to waive the Tribe's sovereign immunity whether those procedures or requirements are contained in

the most recent versions of any applicable Constitution, constitutional bylaws, rules adopted under the Constitution, the Record of Organization of the Tribe, the Tribe's ordinances, or any other rules of the Tribe.



[Signature]
Notary Public in and for Alaska
My Commission expires: ~~REMOVED~~

Exhibit E

SECRETARY'S CERTIFICATE

I, George Tom, the secretary of the Newtok Traditional Council, certifies that at a meeting held on March 29, 2011, the Board of Directors of the Newtok Traditional Council, acting in conformity with all requirements of Traditional Council's governing instruments, adopted the following resolution:

RESOLVED, that the president of the Council is hereby authorized to execute, on behalf of the Council, a Memorandum of Agreement with the State of Alaska, Department of Transportation and Public Facilities, for the completion of the Mertarvik Waterfront Study; and it is further

RESOLVED, that the Council, acting on behalf of Newtok Village, hereby expressly and irrevocably waives sovereign immunity of Newtok Village and the Council, and gives its consent to the Village and the Council being sued in formal or informal administrative agency actions or the courts of the State of Alaska and to have judgment entered against them for legal or equitable relief, for disputes arising out of the Memorandum of Agreement with the State of Alaska, Department of Transportation and Public Facilities pertaining to the completion of the Mertarvik Waterfront Study; and it is further

RESOLVED, that the president of the Council is hereby authorized to execute a Waiver of Sovereign Immunity in the form of the attached as Exhibit D; and it is further

RESOLVED, that the Council's waiver of sovereign immunity shall be to the full extent of, but not greater than, the scope of the waiver contained in Exhibit D.

George Tom
(Signature)
George Tom, Secretary
(Name)

ATTEST:

George Tom
(Signature)
George Tom, Secretary
(Name) (Title)

APPENDIX B

HYDROGRAPHIC SURVEY

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APPENDIX B-a
CONSULTANT CONTRACT 2012

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State of Alaska

SEAN PARNELL, GOVERNOR

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
CENTRAL REGION – Right of Way Engineering, Survey/Locations Section

4111 Aviation Avenue
P.O. BOX 196900
ANCHORAGE, ALASKA 99519-6900
(907) 269-0560/FAX (907) 269-0600

September 21, 2011

E-MAIL DISTRIBUTION

William D. Cohen, P.L.S.
R&M Consultants, Inc.
9101 Vanguard Drive
Anchorage, Alaska 99507

RE: Innovative Term Agreement for Land Surveying Services
Request for Proposal 2011-3
Mertarvik Waterfront Development
Project No. 80861

Dear Land Surveying Term Contractor:

ADOT&PF requires the services of a Professional Land Surveyor to provide a Hydrographic Survey for the above referenced project. Survey Services to be performed are under PSA Appendix B, Article B3.1.3 are A, B, C (as-needed) and E. This will be a fixed price proposal.

SCOPE:

1. Horizontal and Vertical Control are based on **Exhibits B&C**.
2. A Hydrographic Survey will be performed in the area designated in **Exhibit A**.
 - a. Please outline your survey plan in the proposal with any concerns or suggestions.
 - b. Please include an additive alternate estimate for 1' contour interval (or as close to as possible) in the proposed harbor area.
3. All of Appendix B, Statement of Services, of the contract applies **EXCEPT** for the following paragraphs that are not applicable to this specific project.
 - a. B3.2.1.7 Monument Ties
 - b. B3.2.1.8 Survey Control Sheet
 - c. B3.2.2 Photogrammetry
 - d. B3.2.3.2 Highway Projects (as needed)
 - e. B3.2.3.3 Airport Projects (as needed)
 - f. B3.2.3.7 Geotech sample locations
 - g. B3.2.4 Bridge Site/Drainage Surveys

- h. B3.2.5 Special Features
- i. B3.2.6 Deliverables: items F,J,K,M,N,O are not required.
- j. B3.3 Surveying For Right of Way
- k. B3.4 Right-of-Way Mapping
- l. B3.5 Pre & post Construction Surveys
- m. B3.6 Right of Way Engineering Closeout Services

4. The Department no longer requires that the survey deliverables be submitted in a three ring binder. We are requesting that all deliverables be submitted on a CD/DVD with clearly labeled sub-folders.

PROVIDED ITEMS: Exhibit A (Survey Request), Exhibit B (SCD), and Exhibit C (SCS).

SCHEDULE: The draft deliverables are due 5 weeks after NTP with the final deliverables due two weeks after DOT review. Fieldwork shall begin no later than one week after NTP.

SUBMITTAL REQUIREMENTS, DEADLINE & LOCATION: Submit a proposal in accordance with Appendix F, Innovative Rotation Methodology, paragraph 2.3, no later than 4:00pm, September 26, 2011 to Sharon Frascati, PSA Unit Supervisor, at 4111 Aviation Avenue, Anchorage, Alaska 99502.

Proposals may be hand delivered, mailed, or faxed to (907) 269-0402. If mailing proposal, ensure that it arrives prior to the submittal deadline.

If you cannot perform this work, you must submit a written justification for refusal or unavailability to accept a project assignment within two working days of this letter, prior to the deadline shown above.

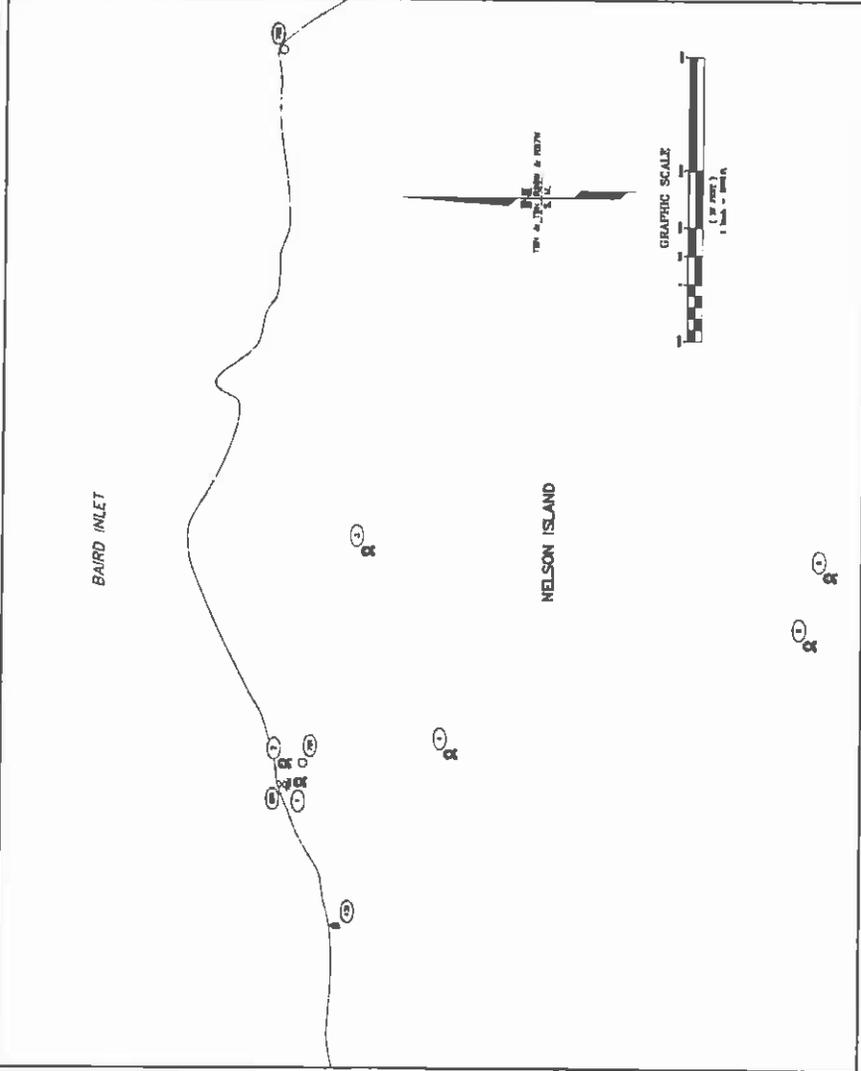
If you have any questions, please call me at 269-0701. Thank you for your attention and response to this request.

Sincerely,


Matt Burkholder, P.L.S.
Survey Consultant Coordinator
Central Region

cc: Sharon Frascati, PSA Unit Supervisor
Ruth Carter, P.E., AKDOT Coastal Engineering Project Manager
Harvey Smith, P.E., AKDOT Coastal Engineering
P. Louise Hooyer, P.L.S., ROW Engineering Supervisor
Anthony Boneta, P.L.S., DOT Survey Manager

Attachments: As stated.



Horizontal Control Statement

Coordinate System:
This project is located within the NAD83 datum, a U.S. Survey Foot based metric and geoid system developed by the Alaska Department of Transportation.

North of Coordinate:
The North of Coordinate is NAD83, based on the GRS 80 spheroid and the Program of Reference Surveys.

North of Reference:
The North of Reference is a local datum based on the 1983 U.S. Survey Foot based on the datum of 1973, U.S. Survey Foot from North-South, North-South, and East-West coordinates of 4308000.00 N, 2622200.00 E.

Translation Parameters:
Translation Parameters are based on the Alaska Department of Transportation Survey Foot coordinates. Translation parameters are: 1.0000000000000000, 0.0000000000000000, 0.0000000000000000, 0.0000000000000000, 0.0000000000000000, 0.0000000000000000, 0.0000000000000000, 0.0000000000000000, 0.0000000000000000, 0.0000000000000000, 0.0000000000000000, 0.0000000000000000.

Vertical Control Statement:
Mean Low Water (MLW), as determined by differential level lines performed by the Alaska Department of Transportation, based on the following information:
Temporary Bench Mark "Temp", as determined by and shown in reduced leveling on a definition of 3.25 feet as determined by NOAA information.

Notes:
1. This survey was completed between June 8 and June 18, 2008, by NOAA Consultants, Inc.
2. Horizontal control points were established using automatic optical GPS method.
3. All benchmark information shown herein was obtained from the USGS Bench Map.
4. All elevations and coordinates shown are in U.S. Survey Foot unless otherwise noted.

Legend:
 [Square] SET GPS CONTROL POINT
 [Triangle] SET PRIMARY SURVEY CONTROL POINT
 [Circle] RECOVERED SECONDARY MONUMENT
 [Cross] TEMPORARY BENCH MARK
 [Circle with number] SURVEY POINT NUMBER

STATE OF ALASKA
 PUBLIC FACILITIES
 Survey Control Diagram
 Record Of Survey
 AKSAS Project No. 01087
 METARTARK BARGE LANDING SITE

DEPARTMENT OF TRANSPORTATION
 Bristol Bay Recording District
 State Business - No Fee
 This survey does not constitute a subdivision as defined by AS 40.15.290

DATE: 06/17/2008
TIME: 09:00:00
BY: DAVID C. HALL
SCALE: 1" = 500'

APPROVED: [Signature]
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HORIZONTAL CONTROL POINTS - THIS SHEET

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	51804.525	29405.4175	30.08	Set BS (BARI) Mark1
2	51804.525	33047.2170	182.84	Set BS (BARI) Mark2
3	51804.525	33047.2170	182.84	Set BS (BARI) Mark3
4	50000.0000	33000.0000	320.23	Set BS (BARI) Mark4
5	43587.7577	31953.1092	357.86	Set BS (BARI) Mark5
6	43748.8867	33147.2745	330.22	Set BS (BARI) Mark6
401	32028.4712	29801.8338	20.37	Set. Peg

VERTICAL CONTROL POINTS - THIS SHEET

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
601	52975.5333	29455.8765	9.35	Set. DR. TBM "Bench"

RECOVERED CONTROL POINTS - THIS SHEET

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
701	51808.2274	29848.4433	43.17	Find ACADOTT. ROD
702	5057.3371	42374.3040	11.80	Find DR. Hatched

SURVEYOR'S CERTIFICATE
 I, David C. Hall, hereby certify that I am a registered professional land surveyor in the state of Alaska and that this drawing represents a survey made by me or under my supervision. I am a duly licensed and qualified person whose name and other data are listed on the certificate and other data are true and correct to the best of my knowledge.
 DAVID C. HALL, L.S. 10395
 Date: 06/17/2008





**STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
DESIGN AND ENGINEERING SERVICES
COASTAL ENGINEERING SECTION**

SUBJECT: Mertarvik Waterfront Development Survey
To: Tony Boneta, CR Surveys
FROM: Ruth A. Carter, P.E., Coastal Engineer
Harvey N. Smith, P.E., State Coastal Engineer
DATE: June 6, 2011

A hydrographic survey is required to facilitate the relocation of the village of Newtok to its new site at Mertarvik.

Upland surveys have been completed and are available.

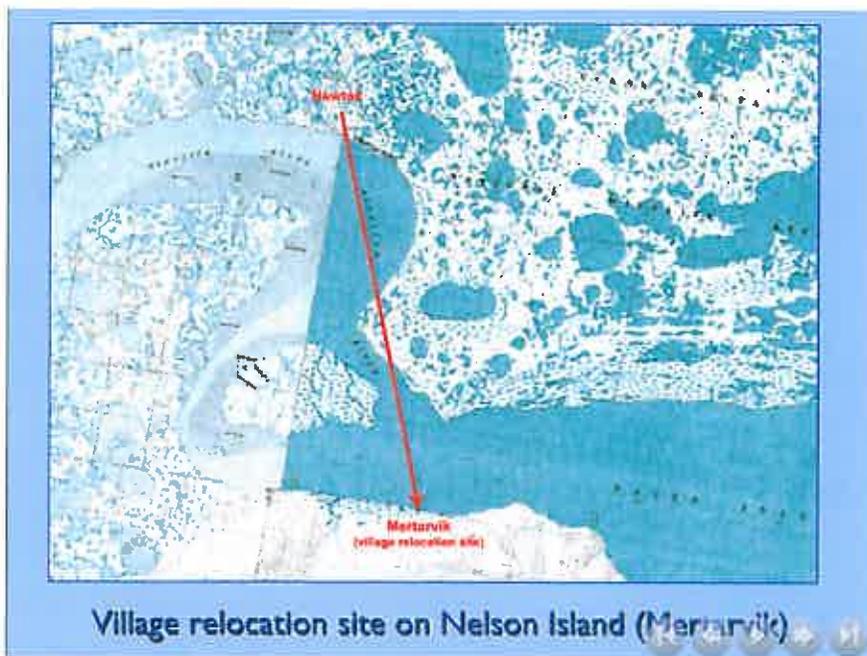
Special Considerations

- 1) The upper beach is a mud flat at low tides and is included in the survey.
- 2) The water depth through the survey area is unknown; however, it will generally be shallow on the order of several feet with occasional boulders. The depth will increase moving offshore as the near shore bottom transitions into the main Ninglick River channel. The depth of the main river channel is also unknown, but may be ten to twenty feet or deeper (one source suggested a 30-foot deep channel).
- 3) General observations of features such as boulders should be located visually during the lowest point of the tide(s).
- 4) Tidal range is estimated to be about four feet.
- 5) Location and depth of the Ninglick River channel needs to be defined.
- 6) The water surface elevation and corresponding time should be checked roughly every hour during the survey.

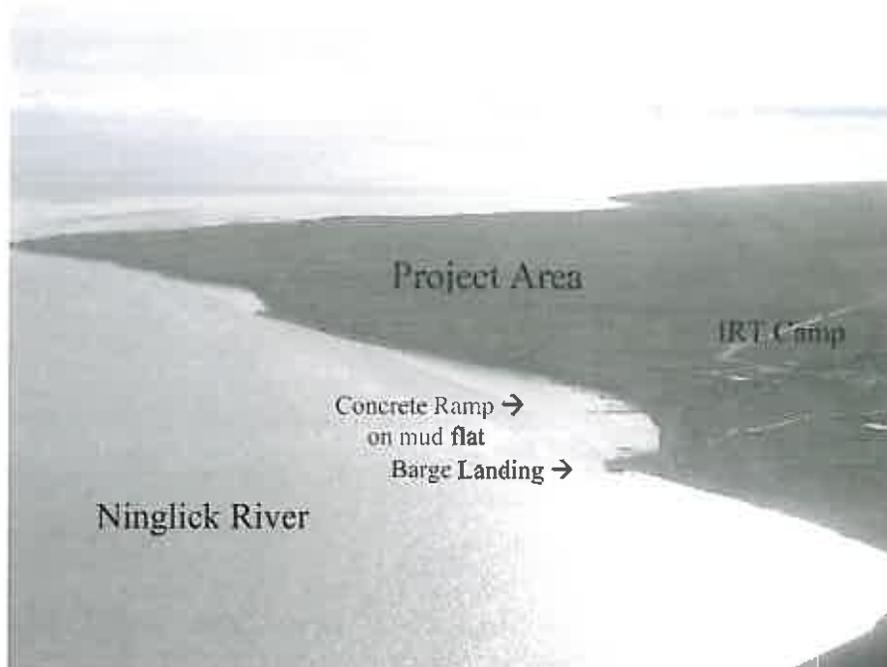
Survey details

1. The hydrographic survey will cover roughly two miles of shoreline and extend about 1000 feet offshore.
2. Sections will be spaced about 500 feet and extend roughly 1000 feet from the high water line to the middle of the river channel.
3. Several sections will extend across the full width of the channel.
4. At the location of the proposed harbor the sections will be spaced at 200 foot intervals.
5. The survey will be used to align and configure the mooring basin and breakwaters and also to aid in navigation.

6. This is a feasibility level study; we will not be looking for an ATS tideland survey at this time, although one may exist through the USACE Alaska District.



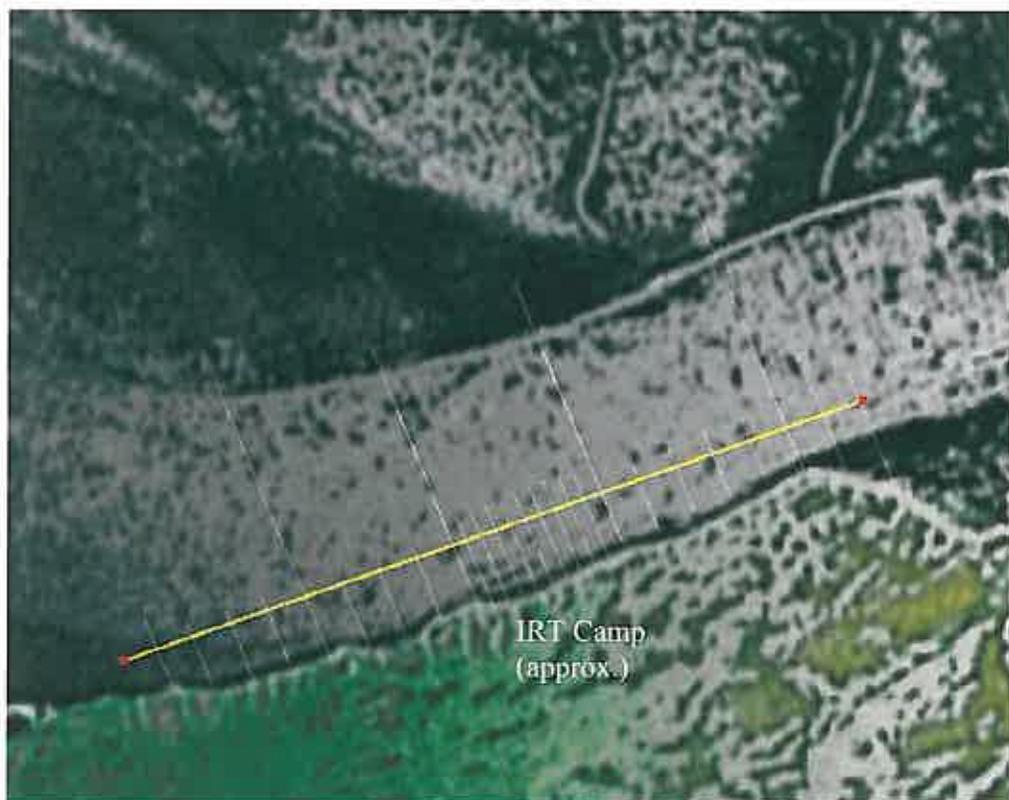
This figure shows the relocation site relative to Newtok, AK



Oblique view of shoreline at Mertarvik



Shoreline - Area of Interest



Approximate location of survey lines.

IRT Base Camp at Mertarvik Barge Landing and Staging Area



There is a great deal of information available on the project site that can be found on the website.
http://www.commerce.state.ak.us/dcra/planning/npg/Newtok_Planning_Group.htm



Mertarvik Waterfront Development, Project No. 80861

RFP 2011-3

Dear Mr. Burkholder:

R&M Consultants, Inc. (R&M) is looking forward to providing the Department of Transportation & Public Facilities, Central Region (DOT&PF), with the services required by your September 21, 2011 Request For Proposal (RFP) letter.

1. Objectives and Services

The R&M team is well qualified to perform this project. We understand the objectives and have performed the required services on similar projects.

The **objective** of this contract is to complete a Hydrographic Survey for the Mertarvik Waterfront Development under the Innovative Term Agreement for Land Surveying Services Contract.

Survey **services** at Mertarvik will include a hydrographic survey two miles long, centered on the barge landing. The survey will extend approximately 1000' from the high water line or to the middle of the Ninglick River channel, whichever is farther offshore. Survey lines will be spaced at 500' intervals except at the location of the barge landing where they will be spaced at 200' intervals. Four of the sections will extend completely across the river.

We will include the mud flat to the high water line in our survey lines. The location and depth of the Ninglick River channel will be defined. General observations of any features such as boulders will be noted, located and photos acquired.

In addition we will include and an upland survey that includes the barge landing, harbor area and 1000' past it on both sides. Uplands topo outside the harbor area includes top of bank shot and one shot 50'± upland at approximately 100' intervals. Topo in harbor area will include improvements and one shot to natural ground.

With the equipment we propose to use it will not be necessary to check water surface elevations

hourly. We will however note water elevations and the time acquired several times a day.

Our final deliverable will be items A., B., C., D., E., G., H., I., & L. per Section B3.2.6 of the contract.

R&M understands the need to complete this project ASAP we will have a crew on-site during the third week of October, 2011.

As Professional Land Surveyors licensed to practice in Alaska, we strictly adhere to State and Federal laws and the standards of practice and code of ethics adopted by the Alaska Society of Professional Land Surveyors (ASPLS). All survey services conducted by R&M are performed by, or under, the direct supervision of Alaska licensed Professional Land Surveyors.

The only assumption R&M has made in the formation of this response is that wind and temperature conditions will allow boat use on the Ninglick River in late October.

2. Technical Approach

Our Contract Manager has completed adequate research to prepare a fixed price cost estimate. The cost estimate has been included separately. If additional negotiations are required, we will address them immediately.

Project research will be performed, ensuring that we have all the plats, plans, field notes, etc. necessary to complete the project. R&M will hold a staff meeting to discuss logistics, timing, filed/office procedures and project standards. We will then request a pre-work meeting with ADOT&PF, including the R&M Project Manager, to review standards, scope, procedures and acquire any new information.

The field survey will be performed by a two-person crew equipped with a HydroLite-TM, Leica TCR 1103 Total Station, a minimum of four dual frequency GPS receivers, a level, a



Mertarvik Waterfront Development, Project No. 80861

RFP 2011-3

notebook computer, and all the ancillary equipment needed to perform the field tasks.

Before commencing the field survey on remote projects, logistics are pre-arranged. Our two-person crew will mobilize from Anchorage to Bethel on a regular scheduled flight. Airfreight will be sent to Bethel several days ahead of time so that the equipment is in Bethel when the crew arrives. From Bethel we will charter to Newtok. This will ensure that the crew and all the required equipment arrive in Newtok at the same time.

Once in Newtok we will stay at the high school. Sleeping and cooking facilities are available at the high school but all food, cooking utensils, sleeping bags, etc. will be sent with the crew. We are unable to stay in housing at the Mertarvik site due to no electricity. This will require a daily commute by boat from Newtok to Mertarvik. We have contacted a local village resident who will rent a four-wheeler for on-site transportation in Newtok and will rent and operate a boat for the survey effort.

To complete the field tasks we will begin by locating existing control monuments, preparing them for occupation and refurbishing when necessary. Upon recovery and verification of control we will perform the hydrographic survey, gathering all the required information. The Party Chief will perform nightly data downloads and processing to insure that each day's work is complete and correct.

Our ability to work on the water will be affected by weather and tides. We will work as efficiently as possible performing work on the mud flats and locating features such as boulders at low tide and perform boat work as the weather and water level permits.

As you are aware at this time of year our ability to work on the water may be affected by wind and temperature. We have included standby hours in our fixed price estimate to account for days we may not be able to go out on the water.

The SCD will be recorded as a Record of Survey in the Bethel Recording District in accordance with DOT&PF requirements.

3. Management

R&M has assembled a team of experienced, talented professionals. Members of our project team have successfully performed their proposed roles on many other DOT&PF contracts.

Mr. Bill Cohen, LS (Alaska #LS7537), R&M's Survey Division Manager, will be our Contract Manager and will have overall responsibility for the contract. This responsibility includes ensuring that the Project Manager is provided with sufficient resources to fulfill the contract requirements and that communication is maintained between R&M and DOT&PF. Bill will be responsible for determining resources needed to meet schedules and will perform administrative duties for project cost accounting.

Responsibility for specific disciplines.

Project Manager Mr. Jim Robar, LS (Alaska #LS6095) will be the single point-of-contact with DOT&PF and will have overall responsibility for the performance of project tasks. He will ensure coordination of the project team and provide liaison between DOT&PF. Jim is in our Anchorage office Monday thru Friday. He is accessible by telephone and almost always available to meet on short notice.

Where services will be performed. Other than the field effort R&M's project work will be performed in our Anchorage office.

Communications. All project team members use telephone, fax and e-mail communications. E-mail has proven to be extremely effective on past and current projects, both for DOT&PF and other clients.

We always encourage direct communications between R&M personnel performing the project



tasks and our clients. Appropriate team members will attend as many meetings with DOT&PF's personnel as the project demands. Meetings between our team members will be held as frequently as necessary to keep the project on track. We will keep written records of all meetings and distribute them to team members, DOT&PF and other interested parties.

4. Proposed Project Staff

Our key team members and their duties under this term contract are: **Bill Cohen, LS**, Contract Management, **Jim Robar, LS**, Project Management / Land Surveyor. Other team members who may participate in this contract are **Lyndon Lange** and **Dylan Jones** for Field Surveying.

Contract Management

Bill Cohen, PLS (LS7537) will serve as Contract Manager. He will have overall responsibility for the contract and the administrative relationship between R&M and DOT&PF. Bill will perform administrative duties for project cost accounting, establishment of project goals, and review of all submittals. He has more than 35 years of experience, including the management of surveying and mapping services for many DOT&PF projects in locations throughout Alaska.

Project Management/Land Surveyor

Jim Robar, PLS, (LS6095) will be the single point-of-contact with DOT&PF and will have overall responsibility for the performance of project tasks. He will ensure coordination of the project team, providing liaison between DOT&PF and R&M. Jim will be responsible for field surveying participating as the active on-site supervisor, research, data reduction and preparation of final survey and ROS deliverables. Jim has participated in many DOT&PF projects throughout his career. Jim has also participated in Port of Bethel hydrographic surveys within the Kuskokwim River.

5. Schedule

Due to the onset of winter we will have a crew in Newtok no later than the third week of October, 2011. Draft deliverables will be submitted within five weeks of the NTP and final deliverables within two weeks of receipt of DOT&PF review comments.

DOT/PF PROFIT/FEE OBJECTIVE WORKSHEET			PROJECT: 0		
Line No.	Cost Component and Sub-Factors	Fee Range %	Fee Assigned	Cost	Fee
Direct Cost of Direct Cost (DCDL)					
1	Method of Payment	0 - 7.00	4.00%		
2	Magnitude of DLC	1.50 - 3.00	2.00%		
3	Complexity of Work	0 - 1.50	1.00%		
4	Performance Methods	0 - 1.50	1.00%		
5	Professional/Non-Professional	0 - 1.00	1.00%		
6	Distinct Qualifications	0 - 0.50	0.50%		
7	Period of Contract	0 - 0.50	0.50%		
8	Sum of lines 1 thru 7		10.00%	\$22,249	\$2,224.90
9	Indirect Cost (IDC)		15.00%	\$27,411	\$4,111.62
Fee for Sub-Contracts					
10	Subcontracts-Fixed Price	0 - 10	5.00%		\$0.00
10	Subcontracts-Fixed Price	0 - 10	5.00%		\$0.00
10	Subcontracts-Fixed Price	0 - 10	5.00%		\$0.00
11	Subcontracts-Cost Reimbursement	0-5	2.00%		\$0.00
11	Subcontracts-Cost Reimbursement	0-5	2.00%		\$0.00
11	Subcontracts-Cost Reimbursement	0-5	2.00%		\$0.00
12	DBE Sub Fee	2	2.00%		\$0.00
13	Company Owned Equipment	0 - 15	5.00%		\$0.00
14	Expenses	0	0.00%	\$24,782	\$0.00
15	Special Considerations	0	0.00%	\$0	\$0.00
16	TOTAL PROFIT /FEE (Sum of lines 8 thru 19)				\$6,336.52
	Direct Labor Cost	\$22,249			
	Indirect Labor Cost	\$27,411			
	Other Direct Cost	\$24,782			
	Sub Total	\$74,442			\$74,442
				Total	\$80,778.28

RECORD OF NEGOTIATION AND SELECTION (RONS)

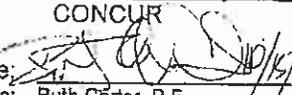
Agreement No: 02522002
 AKSAS Project No: 80861
 Federal Project No: N/A

Project Title: Mertarvik Waterfront Development - Innovative Term Agreement for Land Surveying and Mapping Services (2011)
 Contractor: R&M Consultants, Inc.

PURPOSE/SERVICES/PRICE (WITHIN THIS SPACE, without referencing other documents, provide a clear statement of the final negotiated purpose and services to be obtained. If an Amendment, *briefly* explain why it is necessary and whether it is an anticipated, or unanticipated, new task - or more effort/expense for the original Agreement.)

The Contractor will provide a post construction survey of the Landfill Access road. This is necessary to establish whether the road was built within the provided Right of Way and to check monumentation.

PRICE: The negotiated maximum total Price for the services in this RONS is: \$80,778.00

PREPARED BY	CONCUR	PROCUREMENT OFFICER APPROVAL
Signature:  Name/Date: Matt Burkholder, P.L.S. / 10/12/11 Title: Survey Consultant Coordinator	Signature:  Name/Date: Ruth Carter, P.E. / 10/15/11 Title: Project Manager	Signature: _____ Name/Date: K. Kim Rice, P.E. Title: Director, Design & Construction

This RONS is for: <input type="checkbox"/> Original Agreement <input type="checkbox"/> Amendment <input checked="" type="checkbox"/> NTP for Term PSA	Procurement method was: <input type="checkbox"/> Small Procurement (<\$100,000) <input type="checkbox"/> Competitive Sealed Proposals <input checked="" type="checkbox"/> Established Agreement <input type="checkbox"/> Other _____	AKSAS Collocation Code 24418002 AKSAS Ledger Code 30120242
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PROCEDURE (WITHIN THIS SPACE, 1) describe the procedure used to obtain proposals for this Agreement, this Amendment or this Term Agreement NTP; and 2) If this RONS is for an Original Agreement or an NTP under a Term Agreement, explain why the Contractor was selected from all of the Offerors - you may reference and attach the Committee Evaluation Report if procurement was by Competitive Sealed Proposals.)

The Consultant was asked to provide a proposal for this work because they were next in the Innovative Term Contract Rotation, according to Appendix F, Rotation Methodology.

RESIDENCY (CHECK ONE OF THE FOLLOWING)

This item is not applicable for Amendments, OR NTPs under Term Agreements.

The selected contractor is an ALASKA CONTRACTOR defined by AS 38.30.170(b) as: (1) Holds a current Alaska Business License; (2) Submits an offer for goods, services, or construction under the name as appearing on that current Alaska Business License; (3) Has maintained a place of business within the State, staffed by the Contractor or an employee of the Contractor, for a period of six months immediately preceding the date of the proposal; (4) Is incorporated or qualified to do business as a corporation under the laws of the State, is a sole proprietorship, and the proprietor is a resident of the State, or is a partnership, and all partners are residents of the State; and (5) if a joint venture, is composed entirely of entities that qualify under (1)-(4).

OR The selected contractor is a NON-RESIDENT CONTRACTOR and as per AS 38.30.362, the basis of award is:

Alaska preferences do not apply to this Federally funded contract (AS 38.30.890).

Services cannot be obtained from sources within the State of Alaska.

Other (explain):



NOTICE TO PROCEED & INVOICE SUMMARY

NTP No: 1
 Agreement No: 02522002
 AKSAS Project No: 80861
 PSA Expiration Date: 5/31/12

(This form is for any FIXED PRICE Agreement or for a COST REIMBURSEMENT Agreement in which the sum of all NTPs will not exceed \$250,000.)

Contractor: R&M Consultants, Inc.
 Project Title: Mertarvik Waterfront Development - Innovative Term Agreement for Land Surveying and Mapping Services (2011)

NOTICE TO PROCEED

In accordance with our Agreement, provide the following services (or services described in the following referenced attachment): DOT/PF Request for Proposal with Exhibits (8 Pages attached) dated September 21, 2011, Contractor's proposal dated September 27, 2011 (3 Pages).

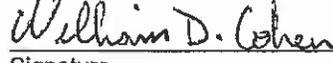
The Contractor shall perform a Hydrographic Survey for this project. Any other services beyond the written scope and/or any costs above the price estimate require prior Agency approval. Work shall be completed by 05/31/2012.

Compensation for this NTP shall be by the method(s) and not exceed the authorized amount(s) specified in the Invoice Summary (below) The Agency Contract Manager for this NTP is: Matthew T. Burkholder Tel No.: 269-0701

Issued for the Contracting Agency per ADOT&PF Policy #01.01.050 by:

Accepted for the Contractor by:

Signature: 
 Date: 10/20/11
 Name: K. Kim Rice, P.E. Director, Design & Construction

Signature: 
 Date: 10/24/11
 Name: William D. Cohen, P.L.S., Senior Vice-President

INVOICE SUMMARY

This Invoice is for [] Progress OR [] Final Payment. **Sequential Invoice Number for this NTP is: []**.

* Generally, each firm may be compensated by only one of the following Methods of Payment for this NTP:
 Fixed Price (FP) Amounts entered in Columns "c" and "g" only Cost Plus Fixed Fee (CPFF) Columns "c", "d", "e", "f" and "g" only
 FP + Expenses (FPPE) Columns "c", "e" and "g" only Time and Expenses (T&E) Columns "c", "e" and "g" only

Firms (Prime & Subcontractors)*	Meth of Pay	Labor (or FP)	Indirect Cost	Expenses	Fixed Fee	Total Price
R&M Consultants, Inc.	FP	\$80,672.00	\$0.00	\$0.00	\$0.00	\$80,672.00
Total NTP Amount Authorized for All Firms		\$80,672.00	\$0.00	\$0.00	\$0.00	\$80,672.00
Sum of Prior APPROVED Payments						
Sum for THIS INVOICE						
Sum of Prior Payments and this Invoice						
Balance of Authorized Amount						

Collocation Code

24462217

Ledger Code

30865382

Program Code

57202

Account Code

57801

PAYMENT REQUEST (Contractor):

Signature: _____ Date: _____
 Name: William D. Cohen, P.L.S., Senior Vice-President

APPROVAL FOR PAYMENT

PAYMENT RECOMMENDED: I certify this Invoice to be valid and accurate and that services were performed substantially in conformance with the contract requirements and schedule.

Signature: _____ Date: _____
 Name: Matthew T. Burkholder, P.L.S. Consultant Coordinator

PAYMENT APPROVED: Based upon the Contract Manager's recommendation and certification, I hereby approve payment.

Signature: _____ Date: _____
 Name: Sharon Frascati, PSA Unit Supervisor

INSTRUCTIONS TO CONTRACTOR
for
NOTICE TO PROCEED & INVOICE SUMMARY (NTP)

1. Retain an unmarked, as issued, copy of this (NTP) form to be used for reproduction and billing.

Note *Several NTPs may be concurrently active under one Professional Services Agreement, each requiring separate cost accounting.*

2. If this NTP is unacceptable, notify the Contracting Agency immediately. If acceptable, acknowledge by signature where indicated on a copy of this NTP and return it within ten days after your receipt.
3. Submit monthly Invoices to the Agency Contract Manager named in this NTP. You may use your firm's Invoice forms; however, you must also provide a copy of page one of this NTP form as the **FACE PAGE** of each invoice submitted and with the following entries accurately completed:
 - a) Indicate if the Invoice is for Progress or Final Payment and show the Sequential Invoice Number for this NTP.
 - b) In each column (c, d, e, f & g) where there is an Authorized Amount, show amounts for: Prior APPROVED Payments; THIS INVOICE; Prior Payments plus this Invoice; and Balance of Authorized Amount.

Note "Prior APPROVED Payments" amounts may NOT be the same as the total of all your prior invoices if some items were disallowed or adjustments were made. If a prior billing has not been acknowledged with any payment, or a different amount from your billing was paid without notification to you of the reason(s), attach a request for an explanation and remedial action.

4. Sign, date and enter printed or typed name under "PAYMENT REQUEST (Contractor)" thereby attesting to the following:

"By signature on this form, the Contractor certifies entries to be true and correct for the services performed to date under or by virtue of said Agreement and in accordance with AS 36.30.400. The Contractor further certifies that all applicable Federal, State and Local taxes incurred by the Contractor in the performance of the services have been paid and that all Subcontractors engaged by the Contractor for the services included in any invoice shall be fully compensated by the Contractor for such services."

5. Substantiate all charges on each Invoice, other than for Fixed Prices or Fixed Fees, by attaching a summary of hours expended and hourly labor rate per employee; summary of units completed; subcontractor invoices; expense receipts, etc.; or other proof of expenditures.
6. ***Prime Contractor's Labor and Indirect Cost shall be billed to the Contracting Agency within 45 days of performance. Subcontractors' Labor and Indirect Cost shall be billed to the Contracting Agency within 60 days of performance. All of the Contractor's and Subcontractors' Other Direct Costs (Expenses) shall be billed to the Contracting Agency within 90 days of being Incurred. Charges submitted after the above stated times will, at the Contracting Agency's discretion, not be paid.***
7. When each NTP is approximately 75% complete, the Contractor shall determine if the Authorized Amount(s) might be exceeded; and, if so, shall provide an estimate of cost to complete. The Contracting Agency will determine after discussion with the Contractor if additional cost is reasonable and does not include costs that should be absorbed by the Contractor. If additional cost is validated, a negotiated Amendment will be executed which either (1) reduces the scope of services/work products required commensurate with the Authorized Amount(s), or (2) increases the Authorized Amount(s) to that required for completion of the original contract scope.

MEMORANDUM

State of Alaska

Department of Transportation and Public Facilities

TO: Project Accounting
Attention: Cheryl Daily

DATE: October 24, 2011

FROM: Matt Burkholder, P.L.S. 
Survey Consultant Coordinator

TELEPHONE NO: 269-0701

SUBJECT: Project: Mertarvik Waterfront
Development
Project No: 80861

Encumbrance Request

Please encumber amounts listed below for the attached documents ** and provide me with an AKSAS Screen Print as evidence of the Encumbrance(s).

Document P02522002, NTP 1

Expiration Date May 31, 2012

Contractor R&M Consultants, Inc.

Federal Tax ID No.....

Project Title..... Mertarvik Waterfront Development

Funding Codes

<u>COLLOCATION</u>	<u>PROGRAM</u>	<u>LEDGER</u>	<u>ACCOUNT</u>	<u>AMOUNT (\$)</u>
24462217	57213	30665382	57801	\$80,672.00
TOTAL (must agree with attached documents)				<u>\$80,672.00</u>

**** Only the first two pages of any Agreement, Amendment or Term Agreement NTP, need be attached to this request.**

**APPENDIX B-b
SURVEY RESULTS
(DRAFT, to be finalized)**

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**MERTARVIK WATERFRONT DEVELOPMENT
HYDROGRAPHIC SURVEY
PROJECT No. 80861**

SURVEY REPORT

HORIZONTAL CONTROL

Horizontal Control for this survey is based upon the ADOT&PF Survey Control Diagram, Record of Survey, Mertarvik Barge Landing Site, Recorded as Plat No. 2008-13 in the Bristol Bay Recording District.

The following control monuments were recovered in good condition and described in the field book:

- GPS Control Points 1 (MERT 1) and 2 (MERT 2)
- R&M Primary Monuments 703, 704, 708 and 709

At least 2 digital photographs were taken of each recovered monument.

Positions of all recovered monuments were verified using real-time kinematic (RTK) GPS methods. A Trimble 5700 dual frequency GPS receiver with an HPB450 base radio was mounted on a Dutch Hills tripod and centered over Point No. 1 (MERT 1) using a Leica GDF122 tribrach. The antenna slant height was measured in feet and meters both before and after the occupation. Static GPS data was collected while the RTK base was running. A Trimble 5800 dual frequency GPS receiver mounted on a Trimble graphite RTK pole and connected to a Trimble TSC2 controller was used as the rover. The receiver number, antenna height and start/stop times were recorded for both the base and rover receivers. Check shots were recorded on all the other recovered points and verified the record coordinates. See the table below. The ADOT&PF record coordinates were held for all the recovered points.

Point No. 1 was chosen as the RTK Base point because it had the best GPS visibility and radio coverage of the entire project area. Building supplies, conexs and a boat were stored 20'± SW of Point No. 2 and may have blocked the SW portion of the project.

VERTICAL CONTROL

Vertical Control for this survey is based upon the ADOT&PF Survey Control Diagram, Record of Survey, Mertarvik Barge Landing Site, Recorded as Plat No. 2008-13 in the Bristol Bay Recording District. The MLLW elevation of 27.55 feet was held for Point No. 2 (MERT 2). A differential level loop was run from Point No. 2 through points 1, 704 and 708.

The leveled elevation of Point No. 1 (MERT 1) was 30.53' which is 0.45' higher than the original 2008 elevation of 30.08'. Levels run during a survey for ADOT&PF, AKSAS Project No.

50850/80605, DNR Tidelands Permit Field Survey, in 2010 showed that Point No. 1 was 0.23' higher than the original 2008 elevation, relative to Point No. 2. A 2010 analysis of NGS OPUS data from GPS observations on MERT 1, MERT 2, MERT 3, and MERT 4 indicated that MERT 2 was probably the most stable and it's record elevation was held to control that project. Points 703, 704, 708 and 709 were set as part of the 2010 survey. Elevations of these monuments were established in 2010 by static GPS. The leveled elevation of Point 704 was the same as the 2010 elevation. The leveled elevation of Point 708 was 0.08' higher than the 2010 elevation. Levels were not run through Points 703 and 709 but their elevations were checked by RTK and were 0.05' and 0.04' lower than the 2010 elevations.

Therefore the record elevation of Point No. 2 was held for this survey and the leveled elevation of Point No. 1 was used for the RTK base station.

HORIZONTAL AND VERTICAL CONTROL CHECK POINTS

	Point	North	East	Elevation
From	6901	52531.11	29869.64	46.12
To	708	52531.10	29869.69	46.15
		0.01	-0.05	-0.03
From	6902	52975.33	29640.37	16.61
To	704	52975.35	29640.44	16.57
		-0.02	-0.06	0.04
From	6904	52968.63	29822.14	27.57
To	2	52968.62	29822.31	27.55
		0.01	-0.16	0.02
From	6905	52919.40	28993.93	19.66
To	703	52919.48	28994.03	19.71
		-0.08	-0.10	-0.05
From	6906	52875.09	29016.82	20.28
To	709	52875.07	29016.97	20.32
		0.02	-0.15	-0.04

The field work was performed using the record NAD83 (CORS96) (EPOCH:2003) Alaska State Plane Zone 8 coordinates and NAVD88(GEOID06) vertical datum. When all the field work was completed the coordinates were scaled and translated into the Mertarvik local adjustment and the elevations were shifted to the Mertarvik MLLW datum. See the ADOT&PF Survey Control Diagram, Record of Survey, Newtok Airport Relocation, Recorded as Plat No. 2009-17 in the Bethel Recording District.

HYDROGRAPHIC SURVEY

The hydrographic survey was performed using an OHMEX Sonarmite Echo Sounder, a Trimble 5800 dual frequency GPS receiver and a Trimble TSC2 controller. The GPS receiver and the sonar transponder were attached to a RTK pole and mounted on the gunnel of a 22 foot aluminum boat. The transponder was 1 foot below the water line and the rod height was measured from the transponder to the ARP of the GPS receiver. The Sonarmite unit and TSC2 controller were kept inboard, protected from water spray or rain. A Trimble 5700 dual frequency GPS receiver with an HPB450 base radio was set on Point No. 1 (MERT-1) as a GPS RTK base station. Before measurements were recorded a depth check was performed comparing the depth measured by the sonar to that measured with a level rod. Depths were recorded at 25'± interval along lines spaced 500'± apart, outside the designated harbor area, and 100'± inside the harbor area. Winds were generally light, rarely exceeding an estimated 10 mph, which minimized wave action. Tidal currents were encountered. Typically lines were run from their offshore end SE'ly towards the shoreline and data points were also recorded on the diagonal from the end of one line to the beginning of the next.

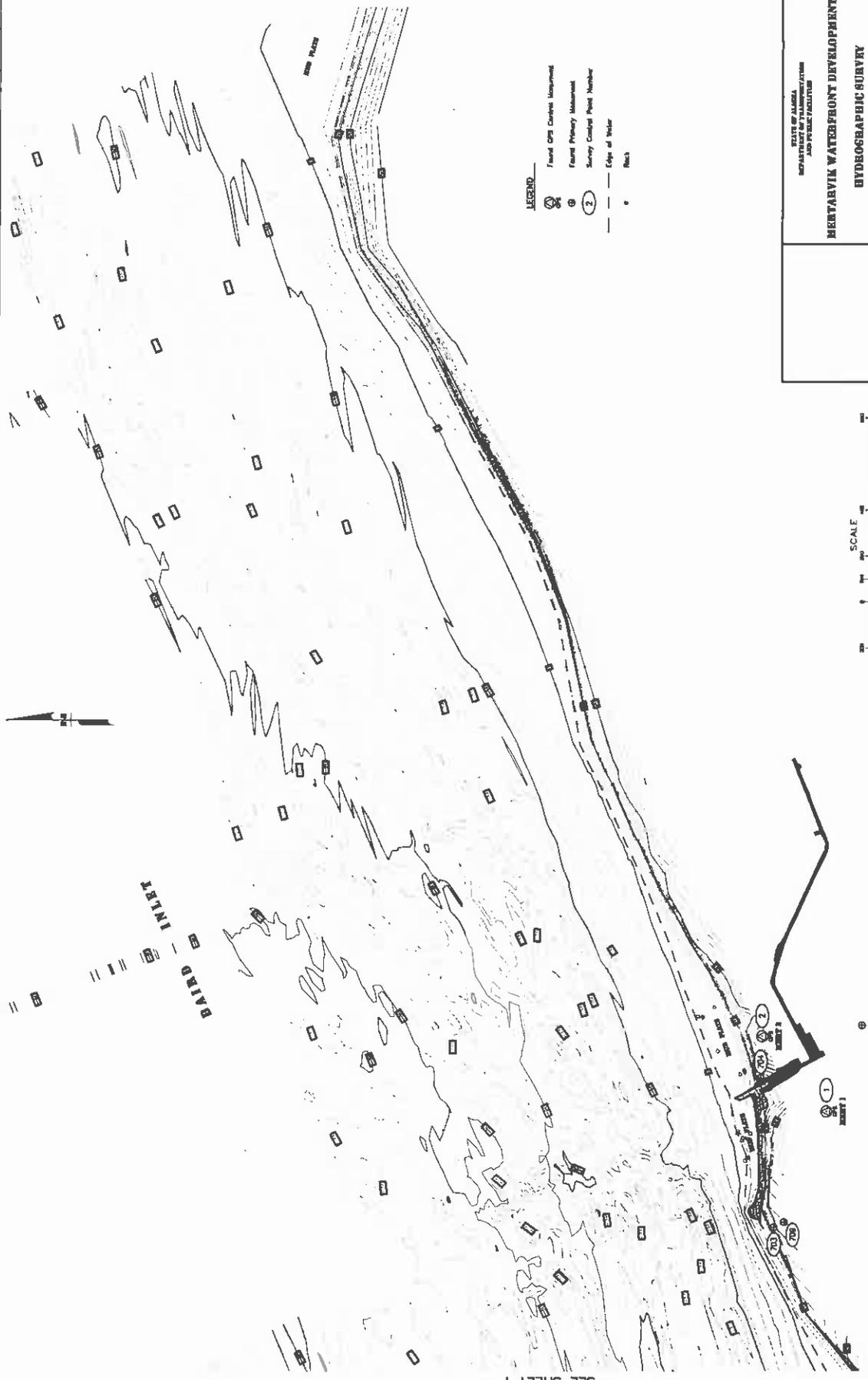
Shoreline topography, from the edge of the water to one point past the top of the bank, was measured at each sonar line using RTK GPS. It should be noted that the TIN surface in the upland areas is only approximate, intended for cross sections at the sonar lines, features between the sonar lines are not represented accurately (accurate upland topography can be found the 2010 AutoCAD drawing "Mertarvik planbase - v2005.dwg"). Cross section points collected on the existing roadways and ramp verify that these features are the same as they were in 2010. The mudflats at the existing barge landing site are hazardous to walk on. Data in this area was collected using a Leica TCRA 1105 total station. Points that could not be reached on foot were measured using reflectorless mode.

Horizontal and vertical check shots, into at least two control points were taken before and after data collection activity. The check shots were evaluated in the field and in the office at the end of each day.

DRAFTING

Drawings were produced using AutoCAD Civil 3D version 2011. Symbols used in the drawing came from the ADOT template A3_LEGEND_V11.dwg and are at the scale of the drawing which is 1" = 200'. A TIN surface was created, capable of generating 1 foot contours within the designated harbor area and named "Mertarvik Hydro 7-6-1012". Planimetric features mapped during the 2010 survey are shown to clarify the relationship between the hydrographic survey and the upland improvements (Note: the upland topography in TIN surface "Mertarvik Hydro 7-6-2012" is not accurate for these features). Monument symbols for survey control points, with pre-code descriptors, are by Point Style and are not inserted blocks. Entities in model space have color and line type by layer. The drawing was purged prior to submittal.

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	80861	2012	2	2



LEGEND

- Found GPS Control Monument
- Found Primary Monument
- Survey Control Point Number
- Edge of Water
- Rocks



STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
AND PUBLIC FACILITIES

**HERTAVIK WATERFRONT DEVELOPMENT
HYDROGRAPHIC SURVEY**

PROJECT NO. 80861

SEE SHEET 1

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	80861	2012	1	2

HORIZONTAL CONTROL

Coordinate System: The project is located entirely within the Meritalk adjustment, a local surface and coordinate system represented in U.S. Survey Feet, developed by the Alaska Department of Transportation.

Point of Control: The Point of Control (MERT 4) located near the top of the MR scale of the existing bridge leading and roadway. Said station has local coordinates of 50,000,000.000 N and 30,000,000.000 E.

Source of Data: MERT 4 (50000000) Alaska State Plane Zone 3 NAD 83. MERT 2 (30000000) Alaska State Plane Zone 3 NAD 83. U.S. Survey Feet from MERT 1 & MERT 2 has local coordinates of 50,000,000.000 N and 30,000,000.000 E.

Transition Parameters: MERT 4 coordinates to MERT 2 (50000000) (50000000) Alaska State Plane Zone 3 NAD 83. U.S. Survey Feet from MERT 1 & MERT 2 has local coordinates of 50,000,000.000 N and 30,000,000.000 E. U.S. Survey Feet (NAD 83) coordinates expressed in U.S. Survey Feet (NAD 83) using 0.9999716172.

VERTICAL CONTROL

The Vertical Datum is Mean Lower Low Water (MLLW) as determined by the Mean Sea Level (MSL) as determined by the Alaska Department of Transportation. The MSL is determined by the Alaska Department of Transportation. The MSL is determined by the Alaska Department of Transportation. The MSL is determined by the Alaska Department of Transportation.

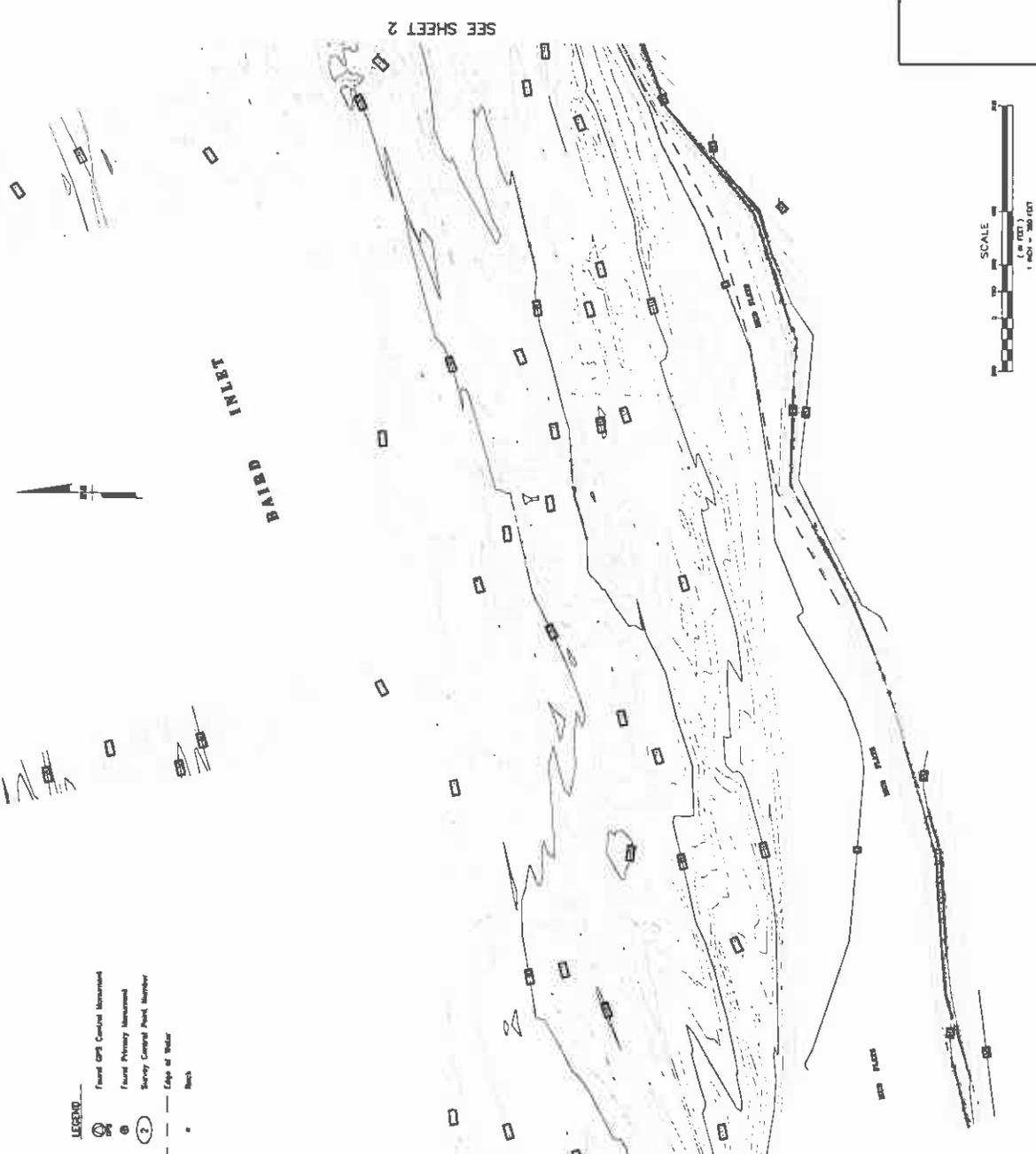
The Basis of Vertical Control is MERT 2, having an elevation of 27.50 feet (MLW) established by BM Consultants, Inc. in June 2008 using differential leveling methods.

Project Control was established by a differential level loop from MERT 2 (Point No. 2) through MERT 1 (Point No. 1), Point No. 704 and Point No. 705.

MLLW = 0.00 feet
MSL = 0.50 feet
MERT 2 = 4.98 feet

NOTES

- The field survey was performed by BM Consultants, Inc. (BMC) between July 2, and July 6, 2012. Field survey information is located in Report File No. 1206-01, pages 1 through 14.
- All elevations shown herein are in U.S. Survey Feet unless otherwise noted.
- Reference Survey Control Diagram, Report of Survey, Meritalk, Bridge and Roadway, Project No. 2008-13 in the Bristol Bay Recording District.
- The topographic survey was performed using a Trimble Sprocket Pro 5600, a Trimble 5600 dual frequency GPS receiver and a Trimble 5600 dual frequency GPS antenna with an HB100 base station. The point no. 1 (MERT 1) is a GPS RIK base station.
- The edge of water line shown was located at various times of the day and does not represent any single stage of the tide.
- The improvements shown were located during a field survey performed by BM Consultants, Inc. (BMC) between July 21, and July 27, 2012. The field survey information is located in Report File No. 1206-01, pages 1 through 31.



STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC SAFETY

MERTALK WATERFRONT DEVELOPMENT

HYDROGRAPHIC SURVEY

PROJECT NO. 80861



