Date: May 16, 2016

Project: Bulk Fuel Upgrade Project On behalf of The City of Shishmaref, Alaska

Solicitation No.: 16004

Addendum No. One

TO ALL PLANHOLDERS:

The enclosed addendum amends the bid documents for the above referenced Project.

Acknowledgment of this addendum is required on the Bid Submittal. Failure to do so may subject the proposer to disqualification.

Sincerely,

Rich Wooten

Digitally signed by Rich Wooten,
DN: cn=Rich Wooten,, o, ou,
email=rwooten@aidea.org, c=US
Date: 2016.05.16 10:57:54 -08'00'

Rich Wooten, CDT, CPSM
Contract Compliance Specialist

ADDENDUM TO THE BID DOCUMENTS	Page Number 1	No. of Pages 2
Addendum No. ONE	**Date Addendum Issued:** May 16, 2016	
Issuing Office Rich Wooten, CDT, CPSM Alaska Energy Authority 813 W Northern Lights Blvd Anchorage, AK 99503 Phone: (907) 771-3019 Fax: (907) 771-3044	**Previous Addenda Issued** None	
Project: Bulk Fuel Upgrade Project On behalf of The City of Shishmaref, Alaska **Solicitation No.:** 16004	**Date and Hour Quotes Due:** May 23, 2016 at 2:00 p.m., prevailing Anchorage time.	

NOTICE TO BIDDERS:

Bidders must acknowledge receipt of this addendum prior to the hour and date set for proposal due date by one of the following methods:

(a) By acknowledging receipt of this addendum on the proposal form submitted.
(b) By email or telefacsimile which includes a reference to the project and addendum number.

The bid documents require acknowledgment individually of all addenda to the drawings and/or specifications. This is a mandatory requirement and any proposal received without acknowledgment of receipt of addenda may be classified as not being a responsive bid. If, by virtue of this addendum it is desired to modify a proposal already submitted, such modification may be made by email or telefacsimile provided such an email or telefacsimile makes reference to this addendum and is received prior to the opening hour and date specified above.

****

The Bid documents for the above project are amended as follows (All other terms and conditions remain unchanged):

GENERAL – QUESTIONS & ANSWERS

1) **Q:** Was there a Geotechnical report done in 2002 with the first Conceptual Design Report?

   A: Yes, the geotechnical report from the 2002 Conceptual Design Report is attached (attachment 1, thirteen pages). Note that the report recommends stripping off all organics and allowing the in-place frozen sand to thaw to a depth of at least 3-feet. The contract document requirements differ from the recommendations in the report. The frozen in-site material shall be removed and replaced with thawed, classified fill as shown on the contract drawings.

2) **Q**: Will the Pre-bid meeting sign-in sheet be available for review?

   A: Yes, attached (attachment 2, one page).

BID AND CONTRACT REQUIREMENTS

3) **Section 00800 Supplemental Conditions, SC 9 Special Damages:** Replace SC 9 in its entirety with the following paragraphs:

   A. Contractor shall coordinate construction activities with regional barge fuel companies as well as affected community entities (Corporation, City, AVEC, school district) as necessary to avoid conflicts. Contractor shall request fuel delivery timelines and insure that all barge headers and fill pipeline assemblies affected by the project (including all piping, valves, fittings, etc) are fully functional for receiving fuel during scheduled delivery times. In the event that the actions of the contractor result in additional fuel delivery related charges (such as fuel barge delay/standby time, cost for utilizing barge transfer hose, etc.) the Contractor shall be responsible for paying the additional delivery costs.

   B. In the event that the actions of the contractor prevent delivery of fuel that was ordered by one or more project participants Contractor shall take immediate action to supply the amount of fuel ordered

at no additional cost to the project. The entity receiving fuel from the Contractor shall reimburse the Contractor based on the barge contract price (FOB Shishmaref). In the event that fulfilling the order requires air transport of fuel, the Contractor shall be financially responsible for the difference in transportation costs (air delivery versus barge delivery).

C. The contractor shall coordinate with local fuel retailers to schedule outages necessary for construction. Outages shall not last more than three consecutive days. In the event that the actions of the contractor result in an unscheduled outage or an outage that lasts longer than three consecutive days, the contractor shall pay the Owner of the dispensing facility at the rate of $500 per day until such time as the dispensing facilities are back on line.

4) **Section 15191 Fuel Piping System, 1.03.B.2:** Replace 1.03.B.2 in its entirety with the following paragraph:

2. Operating temperature range: -20 degree F to 120 degree F.

5) **Appendix A, Shishmaref BFU Plan Set:** Replace sheet C7 with the attached revised sheet C7 (attachment three, one page).

END OF ADDENDUM

Duane Miller & Associates *Arctic & Geotechnical Engineering*
1041 E. 76th Avenue
Anchorage, Alaska 99518-3215
(907) 644-0510, fax 644-0507

May 15, 2002

PDC Inc.
1231 Gambell St
Anchorage, AK 99501

Attention: John Stricklan, P.E.

Subject: Geotechnical Exploration
AVEC Fuel Tank Farm and Power Plant
Shishmaref, Alaska
DM&A Job No. 4191.02

This letter presents the results of the geotechnical exploration for the foundation design for the proposed fuel tank and power plant in Shishmaref. This review was conducted in accordance with our proposal to PDC dated of January 23, 2002. Our report to PDC dated November 20, 2001, discussed the expected soil conditions based on existing data and presented preliminary conclusions regarding foundation design.

The power plant and fuel tank farm will be located south or southwest of the school at one of two alternative sites as shown on Plate 1. Based on our November report, we expect the tanks to be supported at-grade on earthen embankments with perimeter steel dikes. The power plants will be the standard AVEC modular units with relatively stiff floor framing.

Field and Laboratory work

We explored the subsurface conditions at the two sites by drilling and sampling eight borings on March 4 through 6, 2002. The holes were drilled to depths of 2 to 4 feet deep using a small auger drill (an Acker Soil Mechanic) and by drive sampling. Mr. Michael McKamey, an engineer with Golder Associates, was on site to sample and log the materials encountered in the holes. Mr. McKamey also collected samples for environmental screening. The results of the environmental screening were presented in Golder Associates' report dated March 26, 2002. A bulk sample of the local fill material was also collected during the field trip. Figure 1, the site plan from Golder's report follows this report and shows the locations of the borings.

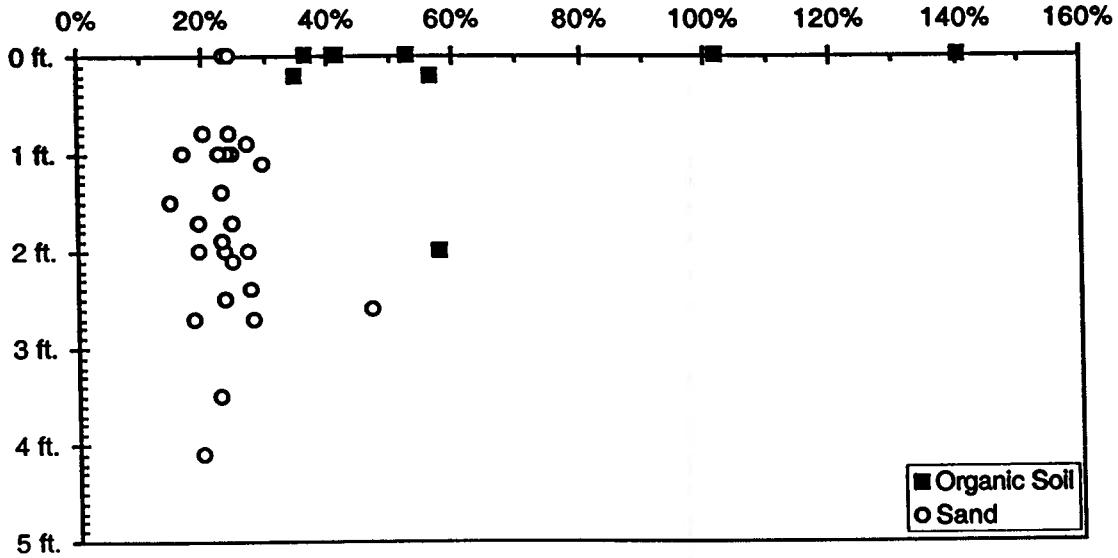
The samples were returned to Anchorage. The results of analytical testing for hydrocarbons were presented in Golder Associates' report. Samples were also returned to DM&A's laboratory. The samples were reexamined to confirm the field classification and tested for geotechnical properties such as moisture content, salinity, gradation and compacted density. The compacted density of the local sand was determined using a Harvard Miniature compaction apparatus.

We also tested the sand for the effectiveness of treatment with Portland cement. Samples of sand were mixed with 6%, 8%, and 10% Type III Portland cement by dry weight, molded into cylinders using the Harvard Miniature compaction mold and allowed to cure in a sealed container with excess moisture. After a week the samples were examined and tested for cohesiveness by pricking the sample with a small pick. Significant strength was only observed in the sample with 10% cement added to the sand.

The boring logs are presented on Plates 2 through 5. The soils have been classified in accordance with the Unified Soil Classification system described on Plate 6. The results of the geotechnical testing are summarized on the logs of the borings and on the Sample Summary, Plate 7. The results of the particle size analysis are shown on Plate 8. The results of the compaction test on the sand is presented on Plate 9.

Site and subsurface conditions

Shishmaref is on Sarichef Island, which is a segmented portion of a long narrow barrier spit trending northeast along the Chukchi Sea coast and is roughly four miles long and one mile wide. Sarichef Island is composed of beach sand. The sand is fine-grained and is subject to erosion by wind and wind-driven tides and waves. Shishmaref is in the Transitional Climatic Zone of Alaska, with summer temperatures moderated by the influence of the Arctic Ocean, and arctic cold when the ocean water freezes in November.



The conditions that we found in the borings fit well with the past explorations on the island. A surface organic layer was found at seven of the boring locations; no organic layer was present at Boring GAI-02-2. At the other holes, the organic material was found to depths of 0.8 to 2.6 feet. The organic material is underlain by uniform, fine grained sand to the depths explored. The

sand has varying amounts of silt and is occasionally classified as a silty sand. As shown in the preceding plot, the sand has an average moisture content of 25% and only one of the sand samples had a moisture content greater than 30%. The highest moisture content in the sand, 47%, was near the surface of the permafrost layer, and the sample contained excess ice.

All of the materials were frozen, but based on the degree of ice bonding, the surface of the permafrost appears to be at depths of 2 to 4 feet. The greatest depth to permafrost is at Boring GAI-02-2 where the organic layer is missing.

Based on previous work at the village, the sand is expected to extend to considerable depth. The base of the permafrost is also expected to be deep. Local groundwater is perched above permafrost and was noted during the airport study at ranging from the surface to five feet below the surface.

Material Sources

Sand is the only construction material at Shishmaref. Mr. McKamey visited a material site about 1/4-mile northeast of the village. Fine sand was collected and returned to the laboratory. As shown on the particle size analysis, Plate 8, 100% of the collected sample is finer than the #40 sieve size and less than 1% was finer than the #200 sieve. The compaction test on the sand showed the material has a maximum dry density of 100 pounds per cubic foot (pcf).

Conclusions and Recommendations

The conclusions in our preliminary letter of November 20, 2001, still appear to be suitable for the design of the fuel tank and power plant facility. As assumed in November, the site for the new fuel tanks and power plant is underlain by a layer of organic soil over sand with some intervening massive ice and icy sand layers. If the facility is constructed and the icy soil melts, unacceptable settlements will occur. The sand sample with a moisture content of 47% would settle about 2 inches per foot of thaw.

A cost effective method to reduce the risk of thaw settlement is to remove the near surface icy soils and develop a compacted layer of sand fill under the tank farm and power plant. The following procedure is recommended for development of the site.

- The surface organic soils should be stripped and removed from the site. Stripping depths are expected to average about 15 inches and might be as deep as 30 inches or greater.
- The top 1 foot of sand below the organics should be stripped from the grading area and stockpiled and allowed to thaw.
- Thaw should be allowed to progress at least 3 feet into the sand below the stripping level. The thawed sand should then be compacted. The hole should be backfilled with properly compacted sand.

Water flowing into the excavation should be controlled and removed by perimeter ditches and sumps and pumps. The thawed sand must be kept dry enough so that proper compaction can be achieved. The required depth of thaw should be verified by digging test pits in the work area.

After fill placement and compaction is completed, the total thickness of compacted material will be about 6 feet. The tanks, containment dike and power plant units can be supported on the compacted sand fill. Even if thaw progresses deeper than the base of the initially thawed material, the overlying compacted sand fill will help reduce any effects of deeper differential settlements. Long term settlements are expected to be less than 2 inches.

The natural sand is fine grained and provides a poor bearing surface and is subject to erosion by wind or water. Consequently, the sand will be treated with Portland cement. The cement treated sand will have a higher allowable bearing capacity and will be resistant to wind erosion. A 10% addition of Type III Portland cement will bind the material adequately for strength and erosion resistance. A 10% mixture is equal to 10 pounds of Portland cement per cubic foot of sand. The sand and cement should be thoroughly mixed at a field moisture content of about 20% and then compacted in thin lifts.

With a cement treated surface, the tanks or powerplant units can be supported on timber sills bearing on the cement treated sand. The allowable bearing pressure is 3,000 psf for total design load for a 12-inch wide timber sill bearing on a cement treated sand layer that is at least 12 inches thick.

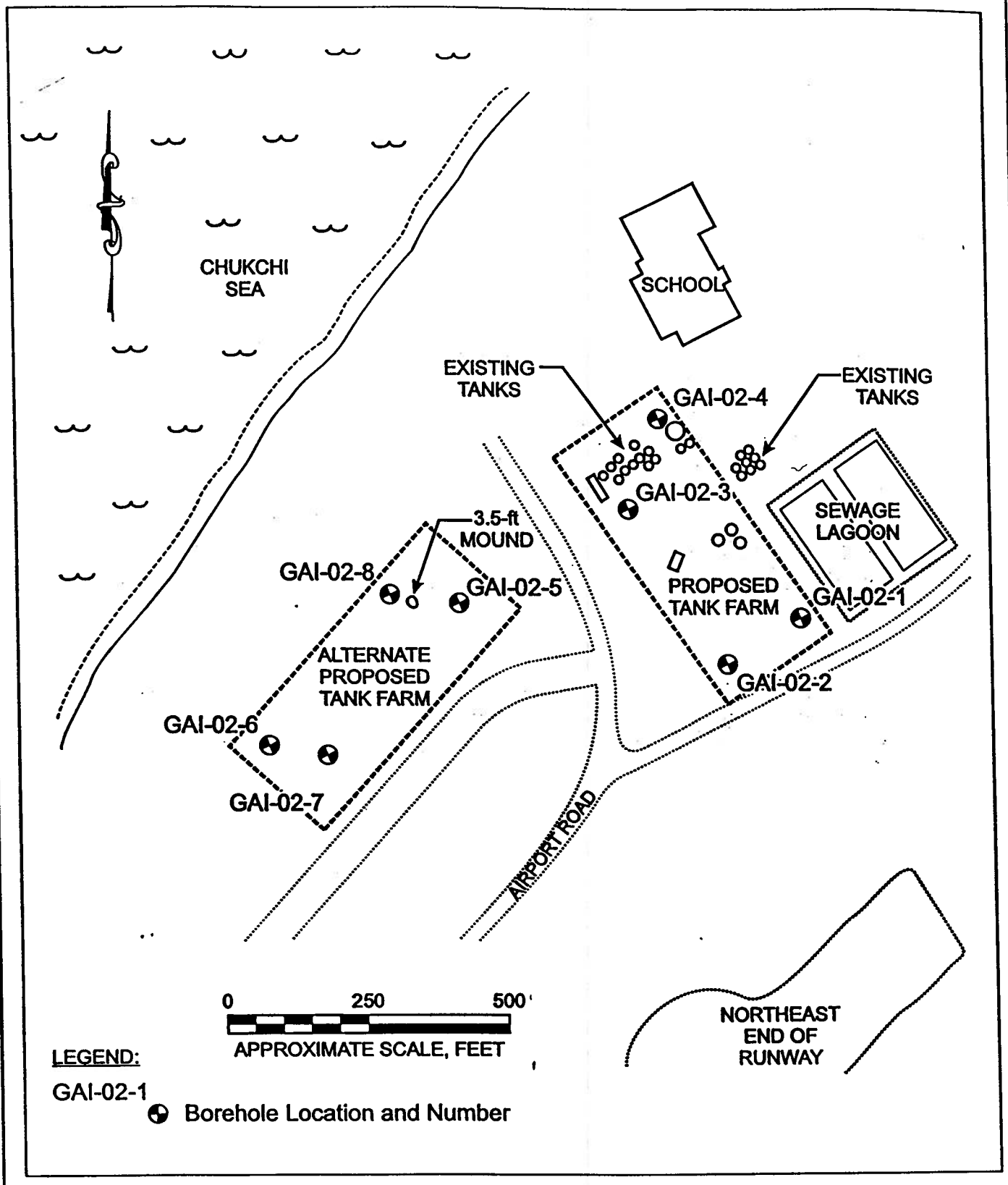
The overexcavation and compaction of the sand and the cement treatment should be inspected by an experienced engineer. If conditions are encountered that are different than those expected from this inviestigation, we should be notified so that our recommendations can be changed if necessary.

Very truly yours,

Duane L. Miller

Duane L. Miller, P.E.

Attachments:	Plate 1	Site Plan, Golder Associates
	Plates 2 through 5	Logs of Borings
	Plate 6	Soil Classification System
	Plate 7	Summary of Samples
	Plate 8	Particle Size Data
	Plate 9	Compaction Test Data



NOTES:

1) THE LOCATION OF THE BOREHOLES WERE FIELD LOCATED AND SHOULD BE CONSIDERED APPROXIMATE.
2) SITE DRAWING BASED ON SITE PLAN FROM "ALTERNATE BULK FUEL UPGRADE CONCEPTUAL DESIGN REPORT" COMMUNITY FUEL SYSTEM FIGURE, PDC, DECEMBER 2001.

Figure 1

SITE PLAN
BOREHOLE LOCATIONS

DUANE MILLER & ASSOC. / SHISHMAREF BULK FUEL / AK

PROJECT: 023-5528 FILE: 5528Site Plan.CDR DATE: 03/11/02 DRAWN: MGM CHECKED:

Golder Associates

DUANE MILLER & ASSOCIATES

Project: **Shishmaref Fuels**

DM&A Job No. :4191.02

Logged By: Michael McKamey, EIT

Log of HOLE : GAI 02-1

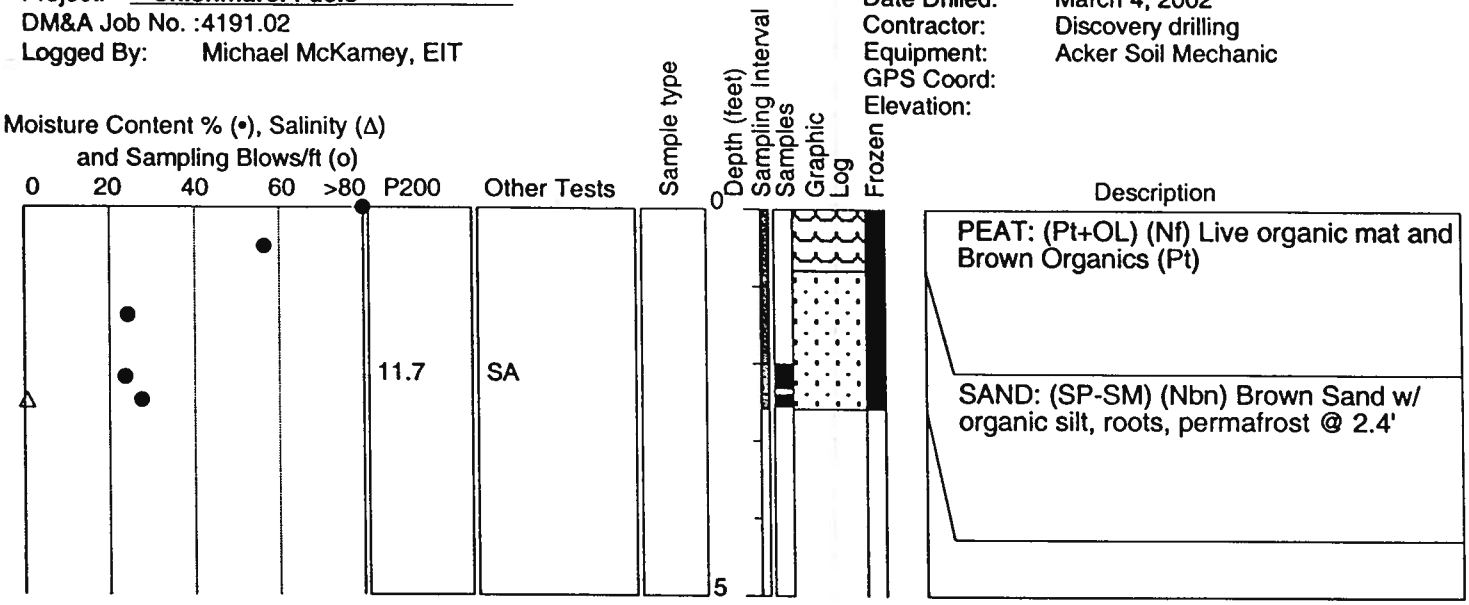
Date Drilled: March 4, 2002

Contractor: Discovery drilling

Equipment: Acker Soil Mechanic

GPS Coord:

Elevation:



DUANE MILLER & ASSOCIATES

Project: **Shishmaref Fuels**

DM&A Job No. :4191.02

Logged By: Michael McKamey, EIT

Log of HOLE : GAI 02-2

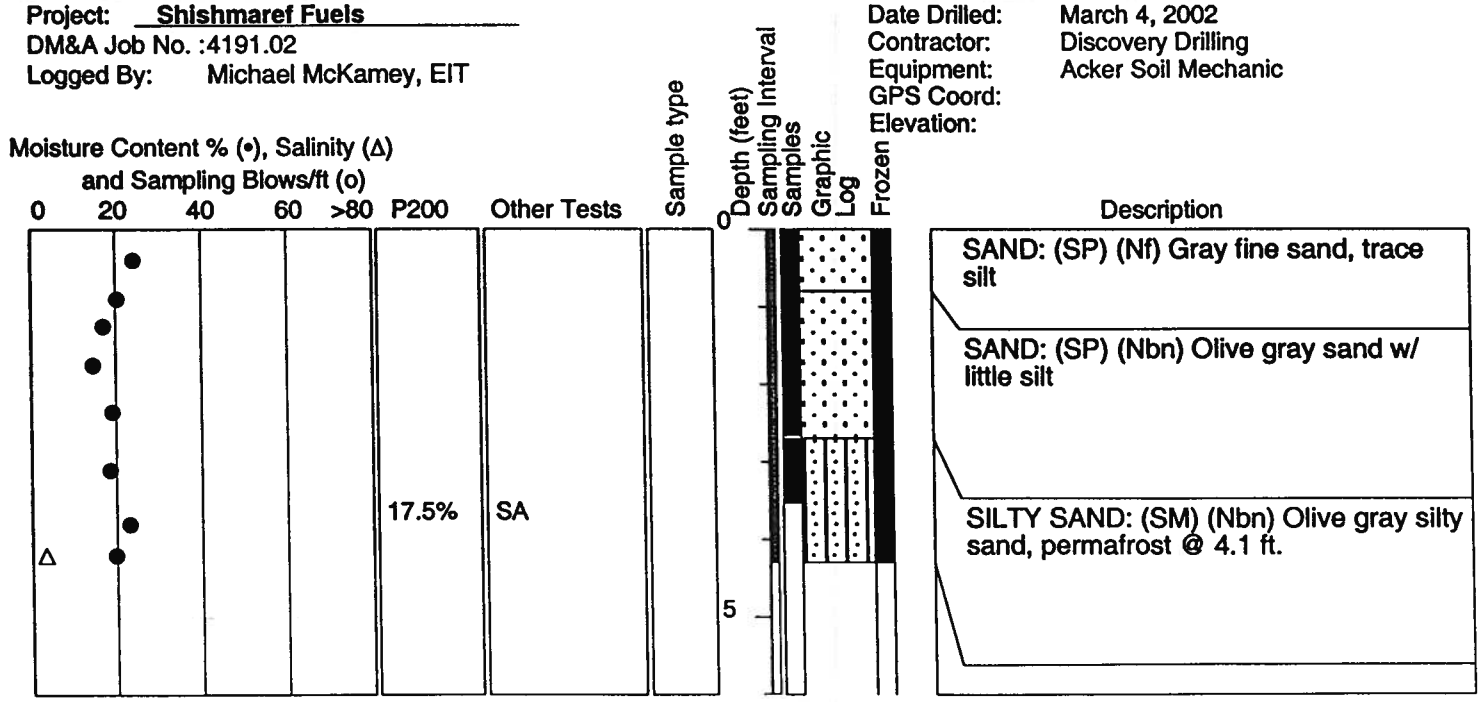
Date Drilled: March 4, 2002

Contractor: Discovery Drilling

Equipment: Acker Soil Mechanic

GPS Coord:

Elevation:



DUANE MILLER & ASSOCIATES

Project: **Shishmaref Fuels**

DM&A Job No. :4191.02

Logged By: Michael McKamey, EIT

Log of HOLE : GAI 02-3

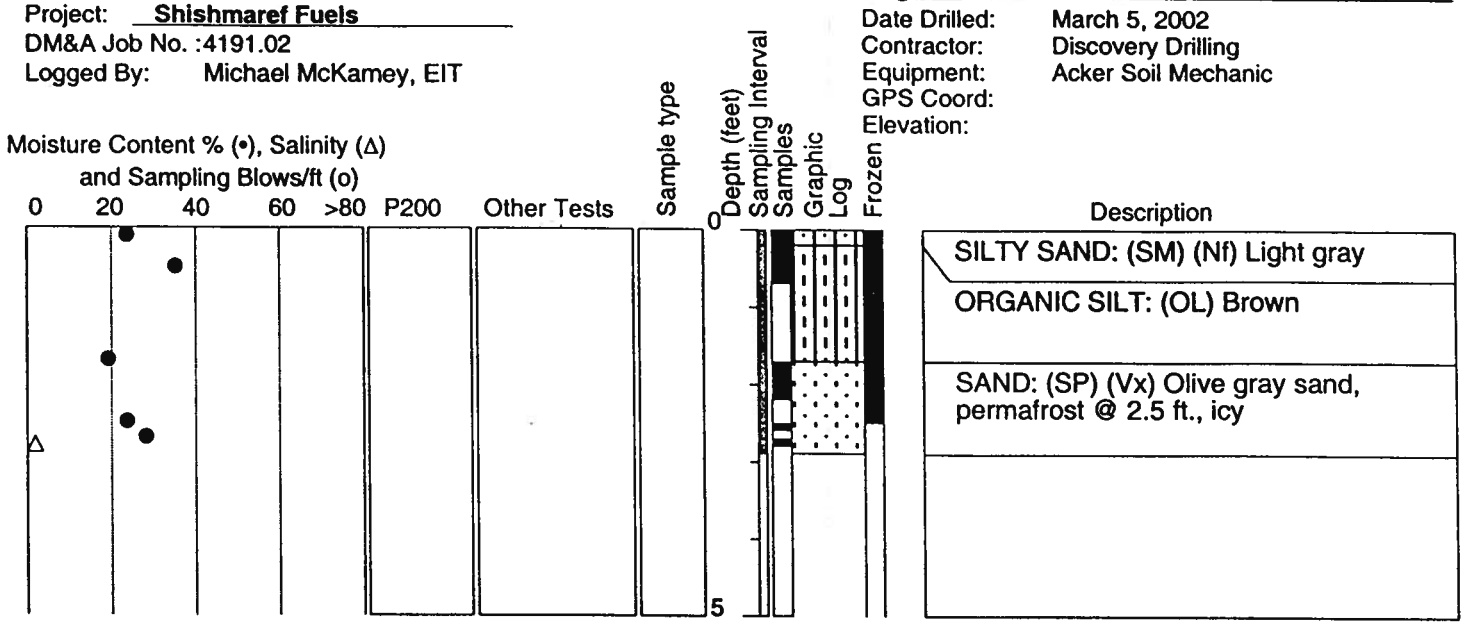
Date Drilled: March 5, 2002

Contractor: Discovery Drilling

Equipment: Acker Soil Mechanic

GPS Coord:

Elevation:



DUANE MILLER & ASSOCIATES

Project: **Shishmaref Fuels**

DM&A Job No. :4191.02

Logged By: Michael McKamey, EIT

Log of HOLE : GAI 02-4

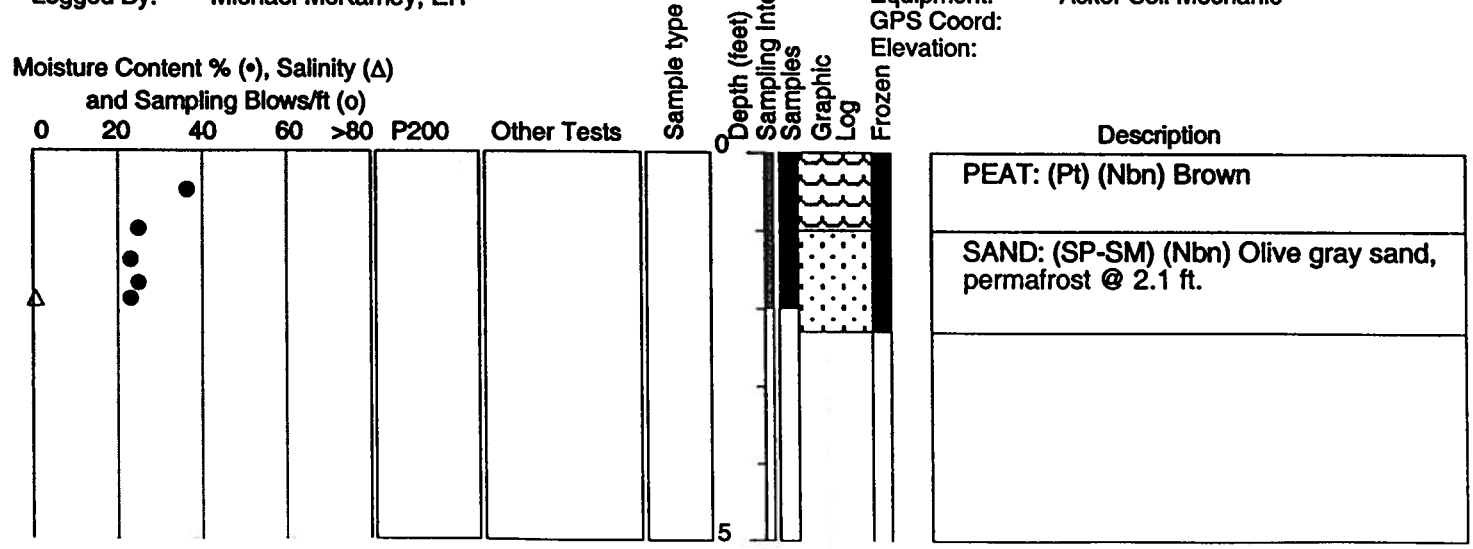
Date Drilled: March 5, 2002

Contractor: Discovery Drilling

Equipment: Acker Soil Mechanic

GPS Coord:

Elevation:



DUANE MILLER & ASSOCIATES

Project: **Shishmaref Fuels**

DM&A Job No. :4191.02

Logged By: Michael McKamey, EIT

Log of HOLE : GAI 02-5

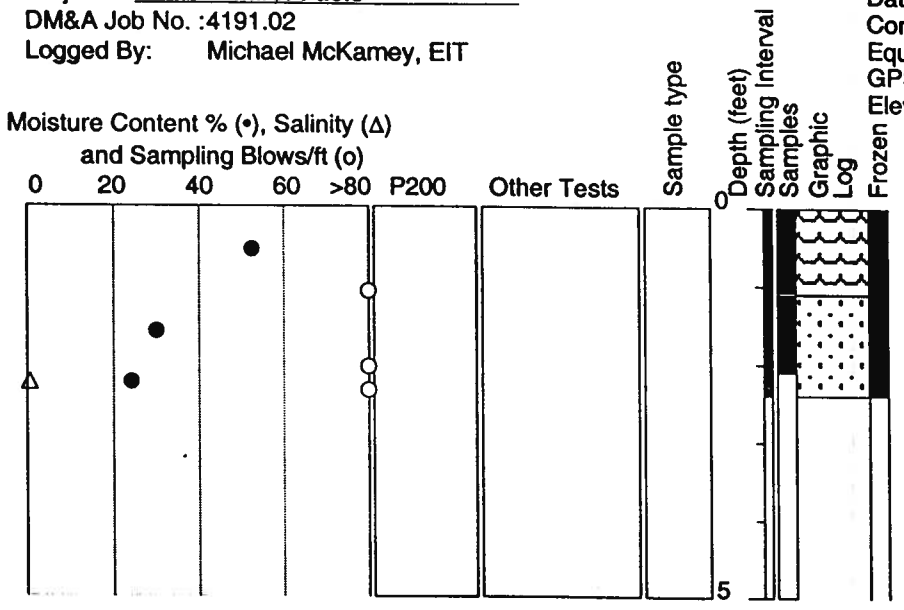
Date Drilled: March 5, 2002

Contractor: Discovery Drilling

Equipment: Acker Soil Mechanic

GPS Coord:

Elevation:



Description
PEAT: (Pt) (Nf) Brown organics
SAND: (SP-SM) (Vx+Vc) Olive gray sand, permafrost @ 2.1 ft.

DUANE MILLER & ASSOCIATES

Project: **Shishmaref Fuels**

DM&A Job No. :4191.02

Logged By: Michael McKamey, EIT

Log of HOLE : GAI 02-6

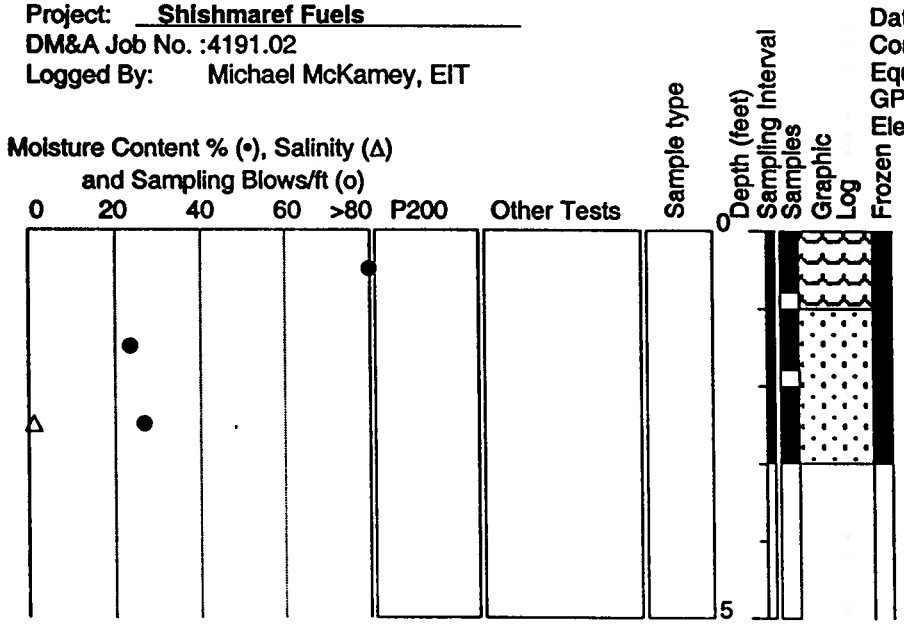
Date Drilled: March 6, 2002

Contractor: Discovery Drilling

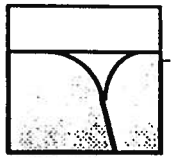
Equipment: Acker Soil Mechanic

GPS Coord:

Elevation:



Description
PEAT: (Pt) (Nf) Brown, fibrous
SAND: (SP-SM) (Nf) Light gray sand, little organics, permafrost @ 2.4 ft.



Duane Miller & Associates
Arctic & Geotechnical Engineering
Job No.: 4191.02
Date : April 2002

LOG of BORINGS GAI 2-5 & GAI 2-6
Shishmaref Fuels
Shishmaref, Alaska

Plate
4

DUANE MILLER & ASSOCIATES

Project: **Shishmaref Fuels**

DM&A Job No. :4191.02

Logged By: Michael McKamey, EIT

Log of HOLE : GAI 02-7

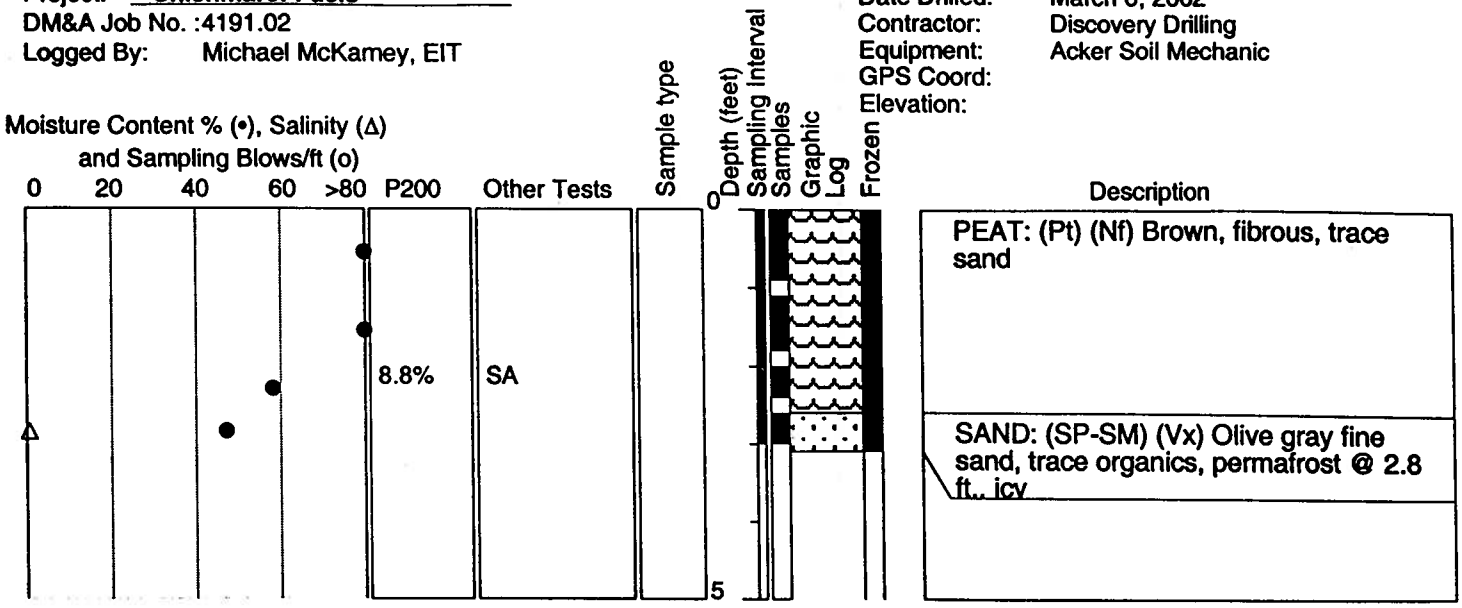
Date Drilled: March 6, 2002

Contractor: Discovery Drilling

Equipment: Acker Soil Mechanic

GPS Coord:

Elevation:



DUANE MILLER & ASSOCIATES

Project: **Shishmaref Fuels**

DM&A Job No. :4191.02

Logged By: Michael McKamey, EIT

Log of HOLE : GAI 02-8

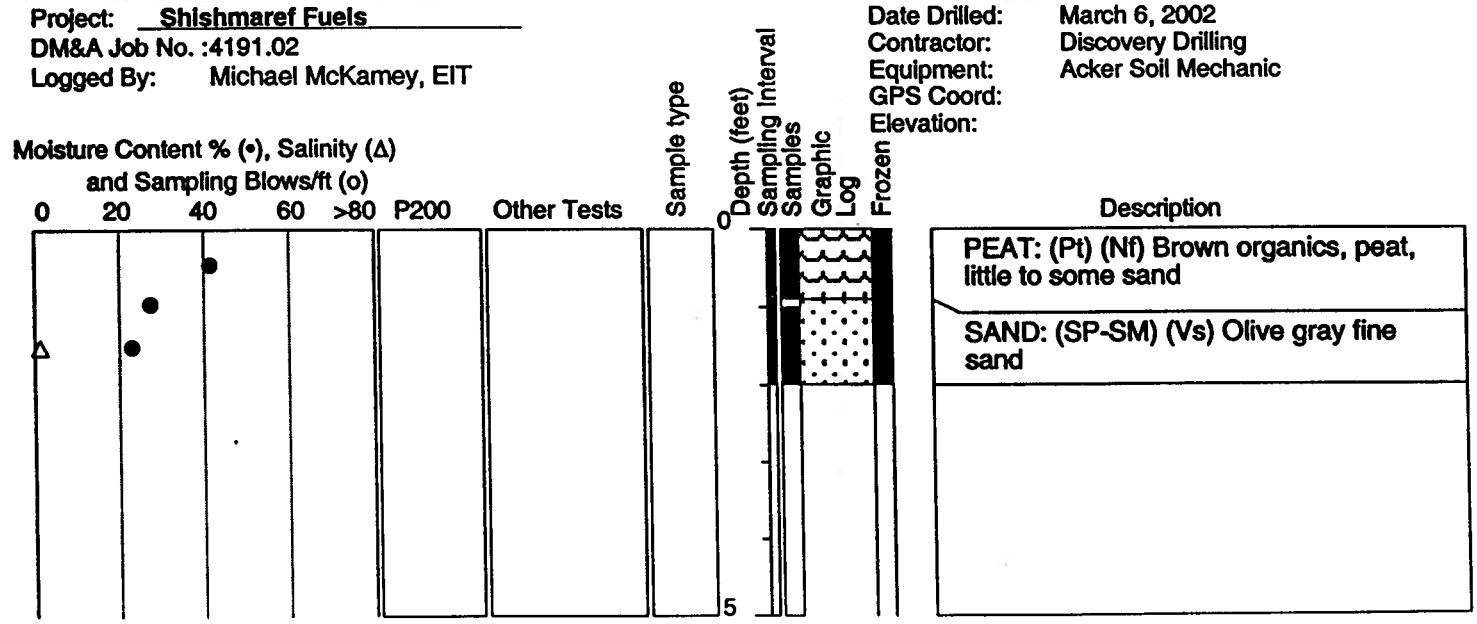
Date Drilled: March 6, 2002

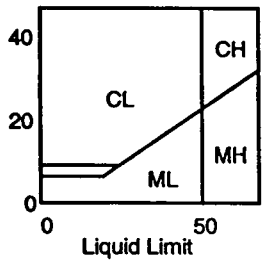
Contractor: Discovery Drilling

Equipment: Acker Soil Mechanic

GPS Coord:

Elevation:



MAJOR DIVISIONS			SYMBOL	TYPICAL NAMES
COARSE GRAINED SOILS >50% larger than #200 sieve, 75µm	**GRAVELS** More than half of the coarse fraction is larger than #4 sieve size, > 4.75 mm.	Clean gravels with little or no fines (<5%)	GW	Well graded gravels, sandy gravel
			GP	Poorly graded gravels, sandy gravel
		Gravels with more than 12% fines	GM	Silty gravels, silt sand gravel mixtures
			GC	Clayey gravels, clay sand gravel mixtures
	SANDS More than half of the coarse fraction is smaller than #4 sieve size < 4.75 mm.	Clean sands with little or no fines (<5%)	SW	Well graded sand, gravelly sand
			SP	Poorly graded sands, gravelly sand
		Sands with more than 12% fines	SM	Silty sand, silt gravel sand mixtures
			SC	Clayey sand, clay gravel sand mixtures
FINE GRAINED SOILS >50% finer than #200 sieve, 75µm	Plasticity Chart 	**SILTS and CLAYS** Liquid limit less than 50	ML	Inorganic silt and very fine sand, rock flour
			CL	Inorganic clay, gravelly and sandy clay, silty clay
			OL	Organic silts and clay of low plasticity
		SILTS and CLAYS Liquid limit greater than 50	MH	Inorganic silt
			CH	Inorganic clay, fat clay
			OH	Organic silt and clay of high plasticity
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soil

KEY TO TEST DATA

Dd = Dry Density (pcf)
TC = Thaw Consolidation
TCf = Thaw Consolidation (field)
LL = Liquid Limit
PL = Plastic Limit
PI = Plastic Index
SpG = Specific Gravity
SA = Sieve Analysis
MA = Sieve and Hydrometer Analysis
OLI = Organic Loss
TXUU = Unconsolidated Undrained Triaxial
TXCU = Consolidated Undrained Triaxial
TXCD = Consolidated Drained Triaxial
XXX (YYY)
XXX=$(\sigma 1-\sigma 3)/2$
YYY=$\sigma 3$

KEY TO SAMPLE TYPE

Ag = Auger grab
Ab = Auger bulk
Ac = Air chip
Cc = Continuous Core
Ss = 1.4" ID split barrel w/140 lb. manual hammer
Sh = 2.5" ID split barrel w/340 lb. manual hammer
Sha= 2.5" ID split barrel w/340 lb. automatic hammer
Tw = Shelby tube

UNIFIED SOIL CLASSIFICATION SYSTEM

GROUP	ICE VISIBILITY	DESCRIPTION		SYMBOL	
N	Segregated ice not visible by eye	Poorly bonded or friable		Nf	
		Well bonded	No excess ice	Nb	Nbn
			Excess microscopic ice		Nbe
V	Segregated ice is visible by eye and is one inch or less in thickness	Individual ice crystals or inclusions		Vx	
		Ice coatings on particles		Vc	
		Random or irregularly oriented ice formations		Vr	
		Stratified or distinctly oriented ice formations		Vs	
		Uniformly distributed ice		Vu	
ICE	Ice greater than one inch in thickness	Ice with soil inclusions		ICE + soil type	
		Ice without soil inclusions		ICE	

ICE CLASSIFICATION SYSTEM

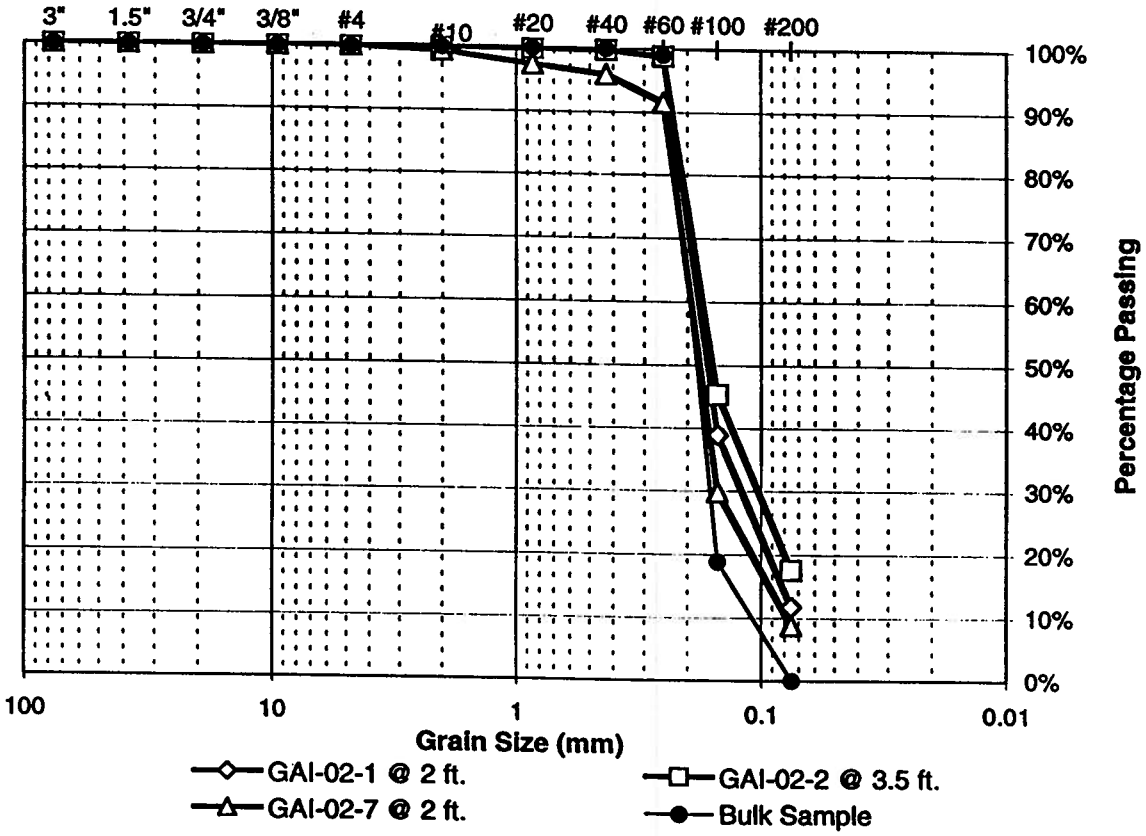
Duane Miller & Associates
Arctic & Geotechnical Engineering
Job No.: 4191.02
Date: April 2002

SOIL and ICE CLASSIFICATION and KEY TO DATA
Shishmaref Fuels
Shishmaref, Alaska

Plate **6**

Boring	Sample Depth	Soil Type (USCS)	Thermal State	Moisture Content	Salinity	Passing #200	Other Tests
GAI-02-1	0.0 ft.	Pt	Frozen	140.6%			
GAI-02-1	0.2 ft.	Pt	Frozen	56.5%			
GAI-02-1	0.8 ft.	SP-SM	Frozen	24.5%			
GAI-02-1	2.0 ft.	SP-SM	Frozen	23.6%		11.7%	SA
GAI-02-1	2.4 ft.	SP-SM	Frozen	27.7%	0 ppt		
GAI-02-2	0.0 ft.	SP-SM	Frozen	24.4%			
GAI-02-2	0.8 ft.	SP-SM	Frozen	20.2%			
GAI-02-2	1.0 ft.	SP-SM	Frozen	17.1%			
GAI-02-2	1.5 ft.	SP-SM	Frozen	14.8%			
GAI-02-2	2.0 ft.	SP-SM	Frozen	19.2%			
GAI-02-2	2.7 ft.	SP-SM	Frozen	18.7%			
GAI-02-2	3.5 ft.	SM	Frozen	22.9%		17.5%	SA
GAI-02-2	4.1 ft.	SP-SM	Frozen	19.8%	3 ppt		
GAI-02-3	0.0 ft.	SM	Frozen	23.7%			
GAI-02-3	0.2 ft.	OL	Frozen	35.2%			
GAI-02-3	1.7 ft.	SP-SM	Frozen	19.3%			
GAI-02-3	2.5 ft.	SP-SM	Frozen	23.6%			
GAI-02-3	2.7 ft.	SP-SM	Frozen	28.2%	2 ppt		
GAI-02-4	0.0 ft.	Pt + ML	Frozen	36.6%			
GAI-02-4	1.0 ft.	SP-SM	Frozen	24.9%			
GAI-02-4	1.4 ft.	SP-SM	Frozen	23.3%			
GAI-02-4	1.7 ft.	SP-SM	Frozen	25.0%			
GAI-02-4	1.9 ft.	SP-SM	Frozen	23.1%	1 ppt		
GAI-02-5	0.0 ft.	Pt	Frozen	52.8%			
GAI-02-5	1.1 ft.	SM	Frozen	29.8%			
GAI-02-5	2.1 ft.	SP-SM	Frozen	24.6%	1 ppt		
GAI-02-6	0.0 ft.	Pt	Frozen	102.0%			
GAI-02-6	1.0 ft.	SP-SM	Frozen	23.9%			
GAI-02-6	2.0 ft.	SP-SM	Frozen	27.1%	1 ppt		
GAI-02-7	0.0 ft.	Pt	Frozen	709.5%			
GAI-02-7	1.1 ft.	Pt + ML	Frozen	224.8%			
GAI-02-7	2.0 ft.	Pt+SP	Frozen	58.0%		8.8%	SA
GAI-02-7	2.6 ft.	SP	Frozen	47.3%	0 ppt		
GAI-02-8	0.0 ft.	Pt	Frozen	41.9%			
GAI-02-8	0.9 ft.	SP-SM	Frozen	27.4%			
GAI-02-8	1.0 ft.	SP-SM	Frozen	22.9%	1 ppt		

Boring =>	GAI-02-1	GAI-02-2	GAI-02-7	Bulk Sample
Depth =>	2.0 ft.	3.5 ft.	2.0 ft.	
3" =>	100%	100%	100%	100%
1 1/2" =>	100%	100%	100%	100%
3/4" =>	100%	100%	100%	100%
3/8" =>	100%	100%	100%	100%
#4 =>	100%	100%	100%	100%
#10 =>	100%	100%	99%	100%
#20 =>	100%	100%	98%	100%
#40 =>	100%	100%	96%	100%
#60 =>	99%	99%	92%	99%
#100 =>	39%	45%	30%	19%
#200 =>	11.7%	17.5%	8.8%	0.1%
Analysis of Data				
D10 size =>			0.078 mm	0.108 mm
D30 size =>	0.120 mm	0.102 mm	0.150 mm	0.161 mm
D50 size =>	0.165 mm	0.157 mm	0.177 mm	0.183 mm
D60 size =>	0.180 mm	0.173 mm	0.192 mm	0.195 mm
Coeff. of Uniformity, Cu =			2.47	1.80
Coeff. of Curvature, Cc =			1.50	1.23
Gravel (+#4) percentage =	0%	0%	0%	0%
Sand percentage =	88.3%	82.5%	91.2%	99.9%
Fines percentage =	11.7%	17.5%	8.8%	0.1%
Unified Soil Class Symbol =	**SP-SM**	**SM**	**SP-SM**	**SP**



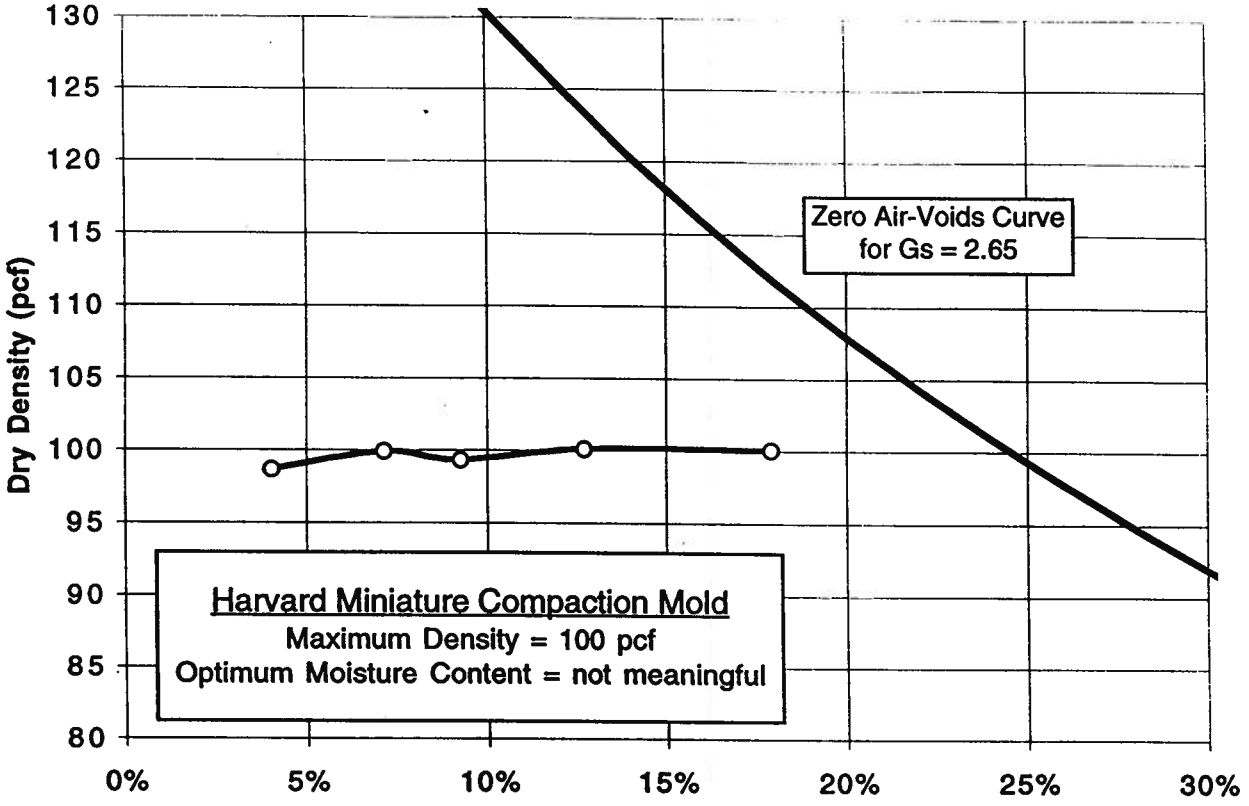
Duane Miller & Associates
Job No. 4191.02
May 2002

PARTICLE SIZE DATA
Fuel Tank Farm
Shishmaref, Alaska

Plate
8

Project = Shishmaref
Job No. = 4191.02
Sample Source = Bulk Sample from borrow site
Sample Description = Fine grained Sand (SP)

By = D. Lommel
Date = Apr-02



Compaction Test

Mold Weight	138.1 g	138.1 g	138.1 g	138.1 g	138.1 g
Mold + Soil	240.7 g	245.1 g	246.6 g	250.9 g	256.0 g
Moisture Content					
Tare No.	2156	2252	2079	2360	2469
Tare+Wet Soil	108.9	113.3	115.7	120	125.5
Tare+Dry Soil	105	106.3	106.6	107.4	107.7
Results					
Moisture Content	4.0%	7.1%	9.2%	12.7%	17.9%
Wet Density	102.6pcf	107.0pcf	108.5pcf	112.8pcf	117.9pcf
Dry Density	98.6 lb	99.9 lb	99.3 lb	100.1 lb	100.0 lb
Torvane	0.0 ksf	0.0 ksf	0.0 ksf	0.0 ksf	0.0 ksf
Pocket Penetrometer	0.0 ksf	0.0 ksf	0.0 ksf	0.0 ksf	0.0 ksf

Duane Miller & Associates
Job No 4191.02
May 2002

COMPACTION TEST DATA
Fuel Tank Farm
Shishmaref, Alaska

Plate
9

May 12, 2016 at 1:00 p.m.
Pre-bid meeting for Bulk Fuel Upgrade Project on behalf of
The City of Shishmaref, Alaska
Invitation to Bid 16104

Please print

Name	Firm	Telephone/Fax	Email
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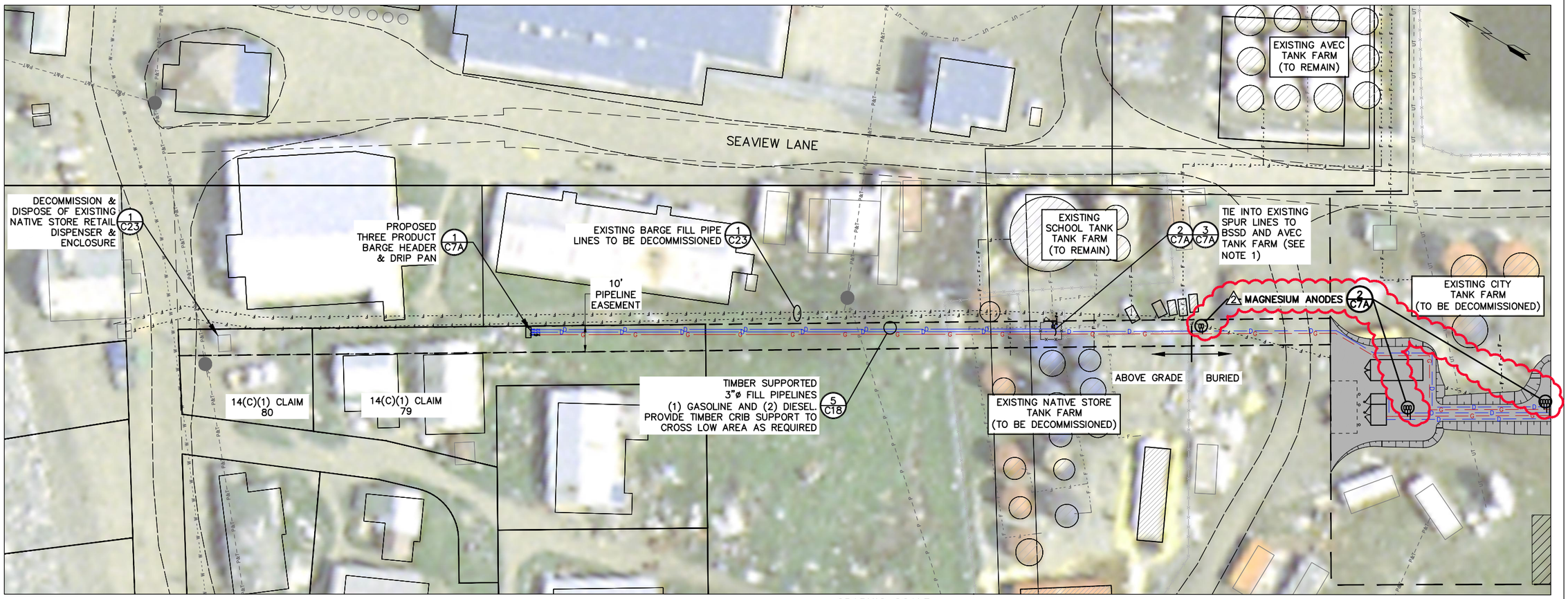

1 FACILITY FILL PIPILINE PLAN
SCALE: GRAPHIC

GRAPHIC SCALE
20 0 20 40
SCALE IN FEET

2 EXISTING CONDITIONS AT BSSD & AVEC TANK FARM TIE IN POINT
SCALE: IMAGE

NOTES:

1. DECOMMISSION & DISPOSE OF EXISTING VALVES, PIPING & FENCE SHOWN IN 2/C7. REPLACE WITH 3WAY VALVE ASSEMBLY & ENCLOSURE SHOWN IN 6/C7A.
2. SYSTEM REPRESENTATIONS ON THIS SHEET ARE SCHEMATIC.
3. SEE SHEET–C23 FOR PIPING DECOMMISSIONING EXTENTS.

ALASKA ENERGY AUTHORITY
813 WEST NORTHERN LIGHTS BLVD.
ANCHORAGE, ALASKA 99503

STATE OF ALASKA 49TH ANDY HORAZDOVSKY CE-14054 2/15/16 REGISTERED PROFESSIONAL ENGINEER

CRW ENGINEERING GROUP LLC
3940 ARCTIC BLVD. SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
FAX: (907) 561-2273

SHISHMAREF, ALASKA
SHISHMAREF BFU PROJECT
TANK FARM FILL PIPELINE

NO.	REVISION	BY	DATE
1	ISSUE FOR BIDDING DRAWINGS	AH	5/12/16
2	ADDENDUM #1	AH	5/13/16

Plot Date 5/12/16
Designed NCP
Drawn NCP
Approved AH

Sheet No. C7

File: J:\Jobsdata\30404.12 Shishmaref BFU\00 CADD\01 Working Set\01 Civil\30403.22_CsheetsNP.dwg