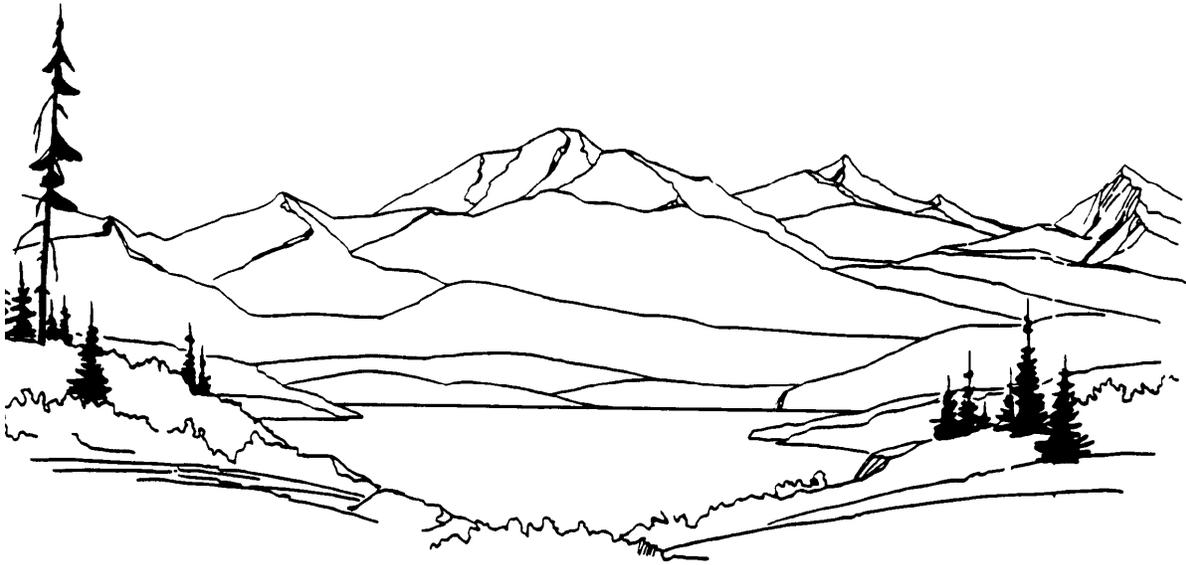


**STATE OF ALASKA  
DEPARTMENT OF NATURAL RESOURCES**

**DIVISION OF PARKS  
AND  
OUTDOOR RECREATION**



**PROPOSAL, CONTRACT, BOND  
AND SPECIAL PROVISIONS**

**DSP: BYERS LAKE  
BRIDGE REPLACEMENT REBID  
PROJECT NO. 78050-3**



# TABLE OF CONTENTS

(Federal-Aid)

## 1. Invitation

INVITATION FOR BIDS 25D-7DNR (06/11)  
SPECIAL NOTICE TO BIDDERS

## 2. Bid Notices

REQUIRED DOCUMENTS 25D-4DNR (11/10)

## 3. Forms

SUBCONTRACTOR LIST 25D-5DNR (10/12)  
CONTRACTOR'S QUESTIONNAIRE 25D-8DNR (11/10)  
BID FORM 25D-9DNR (06/11)  
BID SCHEDULE  
CONSTRUCTION CONTRACT 25D-10ADNR (06/11)  
PAYMENT BOND 25D-12DNR (11/10)  
PERFORMANCE BOND 25D-13DNR (11/10)  
BID BOND 25D-14DNR (11/10)  
BID MODIFICATION 25D-16DNR (11/10)

## 4. Contract Provisions and Specifications

SPECIAL PROVISIONS  
APPENDIX A – PERMITS  
APPENDIX B – SPECIAL REPORTS  
APPENDIX C – MASTER CERTIFICATION LIST (MCL)  
APPENDIX D – EROSION SEDIMENT CONTROL PLAN (ESCP)

## 5. State Wage Rates

State wage rates can be obtained at <http://www.labor.state.ak.us/lss/pamp600.htm>. Use the State wage rates that are in effect 10 days before Bid Opening. The Department will include a paper copy of the state wage rates in the signed Contract.



STATE OF ALASKA  
DEPARTMENT OF NATURAL RESOURCES



**INVITATION FOR BIDS**  
for Construction Contract

Date October 27, 2016

**DSP: Byers Lake Bridge Replacement Rebid, Project No. 78050-3**

**Project Name and Number**

Location of Project: Milepost 147, George Parks Highway, Alaska  
Contracting Officer: Rys Miranda, P.E., Chief, Design & Construction  
Issuing Office: Design & Construction Section, Division of Parks and Outdoor Recreation  
State Funded  Federal Aid

**Description of Work:**

Work under this Contract includes removal and disposal of one timber and steel suspension pedestrian bridge approximately 140' in length, as well as construction of a steel suspension bridge. Work will include installation of micropile foundations, steel towers, and steel bridge components. Worksite is relatively remote and will require special logistical attention.

The Engineer's Estimate is:  Less than \$100,000  Between \$1,000,000 and \$2,500,000  
 Between \$100,000 and \$250,000  Between \$2,500,000 and \$5,000,000  
 Between \$250,000 and \$500,000  Greater than \$5,000,000  
 Between \$500,000 and \$1,000,000

All work shall be completed in N/A Calendar Days, or by October 31, 2017.  
Interim Completion dates, if applicable, will be shown in the Special Provisions.

**Bidders are invited to submit sealed bids, in single copy, for furnishing all labor, equipment, and materials and for performing all work for the project described above. Bids will be opened publicly at 2:00 PM local time, at 550 W. 7<sup>th</sup> Ave., Suite 1340; Anchorage, AK 99501 on the 8<sup>th</sup> of December, 2016.**

**SUBMISSION OF BIDS**

ALL BIDS INCLUDING ANY AMENDMENTS OR WITHDRAWALS MUST BE RECEIVED PRIOR TO BID OPENING. BIDS SHALL BE SUBMITTED ON THE FORMS FURNISHED AND MUST BE IN A SEALED ENVELOPE MARKED AS FOLLOWS:

<b>Bid for Project:</b> <b>DSP: Byers Lake</b> <b>Bridge Replacement Rebid</b> <b>Project No. 78050-3</b>	<b>ATTN:</b> <b>Design &amp; Construction Section</b> <b>Division of Parks &amp; Outdoor Recreation</b> <b>550 W. 7<sup>th</sup> Ave., Suite 1340</b> <b>Anchorage AK 99501</b>
--	---

Bids, amendments or withdrawals transmitted by mail must be received at the above specified address no later than 30 minutes prior to the scheduled time of bid opening. Hand-delivered bids, amendments or withdrawals must be received at the above specified address prior to the scheduled time of bid opening. Faxed bid amendments must be addressed to the above specific address. Fax number: (907) 269-8917.

*A bid guaranty is required with each bid in the amount of 5% of the amount bid. (Alternate bid items as well as supplemental bid items appearing on the bid schedule shall be included as part of the total amount bid when determining the amount of bid guaranty required for the project.)*

The Department hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this Invitation, Disadvantaged Business Enterprises (DBEs) will be afforded full opportunity to submit bids and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

## NOTICE TO BIDDERS

Bidders are hereby notified that data to assist in preparing bids is available as follows:

SEE SPECIAL NOTICE TO BIDDERS

---

Plans and Specifications may be downloaded from: <http://dnr.alaska.gov/parks/designconstruct/bidcalresults.htm>  
For additional information contact:

Kathleen Raynor  
550 W. 7th Ave., Suite 1340  
Anchorage AK 99501  
Phone: (907) 269-8731

---

All questions relating to design features, constructability, quantities, or other technical aspects of the project should be directed to the following. Bidders requesting assistance in viewing the project must make arrangements at least 48 hours in advance with:

Luke Randall, P.E.  
Fax: (907) 269-8917      Phone: (907) 269-8734      Email: [luke.randall@alaska.gov](mailto:luke.randall@alaska.gov)

---

All questions concerning bidding procedures should be directed to:

Rys Miranda, P.E.  
Chief, Design & Construction  
550 W. 7<sup>th</sup> Ave., Suite 1340  
Anchorage AK 99501  
Phone: (907) 269-8736

---

Other Information:

Bid results are available approximately 30 minutes after each bid opening at  
<http://dnr.alaska.gov/parks/designconstruct/bidcalresults.htm>

## SPECIAL NOTICE TO BIDDERS

The Department hereby notifies bidders that information to assist in preparing bids is available.

1. Publications. These items are available upon request in the Anchorage Department of Transportation and Public Facilities Building Plans Room located at 4111 Aviation Avenue:
  - a. Standard Specifications for Highway Construction 2015. Available online at: [http://www.dot.state.ak.us/stwddes/dcspsecs/pop\\_hwyspecs\\_english.shtml](http://www.dot.state.ak.us/stwddes/dcspsecs/pop_hwyspecs_english.shtml)
2. Other Publications. These items are available upon request from the Department of Natural Resources, Division of Parks & Outdoor Recreation, Design & Construction Section (DNR-DPOR-D&C) at 550 West 7<sup>th</sup> Avenue, Suite 1340, Anchorage, AK:
  - a. Quantity Computations.
3. Materials Certification List (MCL). The MCL provides the Engineer with the appropriate approving authority. Contractor, submit certification for each material to the Engineer. The MCL is included in Appendix C.
4. High Visibility Clothing. The Department requires all workers within the project limits to wear an outer visible surface or layer of high visibility color and retroreflectivity.
5. Prevailing Wage Requirements. The Lt. Governor certified the revised regulatory definition of "on-site" in 8 AAC 30.910 to clarify the scope of activities covered by Alaska's Little Davis Bacon Act (AS 36.05.010 - AS 36.05.110) as proposed by the Department of Labor and Workforce Development (DOLWD) proposed a. For a copy of the revised definition of 8 AAC 30.910, go to: <http://www.labor.alaska.gov/lss/2011-02-22-regs.pdf>

DOLWD will enforce the revised provisions on all projects with bid opening date on or after February 15, 2011. Prospective bidders on projects with a bid opening date on or after February 15, 2011, must consider the impact of the revised regulation and bid accordingly. DOLWD will not enforce the new "on-site" definition on projects with a bid opening date prior to February 15, 2011.
6. Section 641. ESCP has been provided by the Department in the Appendix D.
7. Bid Opening. Questions will not be accepted within 3 days of bid opening.





STATE OF ALASKA  
DEPARTMENT OF NATURAL RESOURCES

**REQUIRED DOCUMENTS**

State Funded Contracts

**REQUIRED FOR BID.** Bids will not be considered if the following documents are not completely filled out and submitted at the time of bidding:

1. **Bid Form (Form 25D-9DNR)**
  2. **Bid Schedule**
  3. **Bid Security (Form 25D-14DNR or Certified Check)**
  4. Any bid revisions must be submitted by the bidder prior to bid opening on the following form:  
**Bid Modification (Form 25D-16DNR)**
- 

**REQUIRED AFTER NOTICE OF APPARENT LOW BIDDER.** The apparent low bidder is required to complete and submit the following document within 5 working days after receipt of written notification:

1. **Subcontractor List (Form 25D-5DNR)**
- 

**REQUIRED FOR AWARD.** In order to be awarded the contract, the successful bidder must completely fill out and submit the following documents within the time specified in the intent to award letter:

1. **Construction Contract (Form 25D-10ADNR)**
2. **Payment Bond (Form 25D-12DNR)**
3. **Performance Bond (Form 25D-13DNR)**
4. **Contractor's Questionnaire (Form 25D-8DNR)**
5. **Certificate of Insurance (from carrier)**









2. What percent of the total value of this contract do you intend to subcontract? \_\_\_\_\_%

3. Do you propose to purchase any equipment for use on this project?

NO       YES      If YES, describe type, quantity, and approximate cost:

---

---

---

4. Do you propose to rent any equipment for this work?

NO       YES      If YES, describe type and quantity:

---

---

---

5. Is your bid based on firm offers for all material necessary for this project?

NO       YES      If NO, explain:

---

---

---

**C. EXPERIENCE**

1. Have you had previous construction contracts or subcontracts with the State of Alaska?

NO       YES      If YES, explain:

---

---

---

---

2. List, as an attachment to this questionnaire, other construction projects you have completed, the dates of completion, scope of work, and total contract amount for each project completed in the past 12 months.

**I hereby certify that the above statements are true and complete.**

\_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Name & Title of Person Signing

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



STATE OF ALASKA  
DEPARTMENT OF NATURAL RESOURCES

**BID FORM**

for

---

**DSP: Byers Lake Bridge Replacement Rebid, Project No. 78050-3**  
Project Name and Number

by

---

Company Name

---

Company Address (Street or PO Box, City, State, Zip)

**TO THE CONTRACTING OFFICER,  
DEPARTMENT OF NATURAL RESOURCES:**

In compliance with your Invitation for Bids dated **October 27, 2016**, the Undersigned proposes to furnish and deliver all the materials and do all the work and labor required in the construction of the above-referenced Project, located at or near **Milepost 147, George Parks Highway**, Alaska, according to the plans and specifications and for the amount and prices named herein as indicated on the Bid Schedule consisting of 2 sheets, which is made a part of this Bid.

The Undersigned declares that he has carefully examined the contract requirements and that he has made a personal examination of the site of the work; that he understands that the quantities, where such are specified in the Bid Schedule or on the plans for this project, are approximate only and subject to increase or decrease, and that he is willing to perform increased or decreased quantities of work at unit prices bid under the conditions set forth in the Contract Documents.

The Undersigned hereby agrees to execute the said contract and bonds within fifteen calendar days, or such further time as may be allowed in writing by the Contracting Officer, after receiving notification of the acceptance of this bid, and it is hereby mutually understood and agreed that in case the Undersigned does not, the accompanying bid guarantee shall be forfeited to the State of Alaska, Department of Natural Resources as liquidated damages, and the said Contracting officer may proceed to award the contract to others.

The Undersigned agrees to commence the work within 10 calendar days, and to complete the work within N/A calendar days, after the effective date of the Notice to Proceed, or by **October 31, 2017**, unless extended in writing by the Contracting Officer.

The Undersigned proposes to furnish Payment Bond in the amount of **100%** (of the contract) and Performance Bond in the amount of **100%** (of the contract), as surety conditioned for the full, complete and faithful performance of this contract.



# BID SCHEDULE

STATE OF ALASKA – DEPARTMENT OF NATURAL RESOURCES – DIVISION OF PARKS AND OUTDOOR RECREATION

Project Name: DSP: Byers Lake Bridge Replacement Rebid

Project Number: 78050-3

Before preparing this bid schedule, read carefully, Section 102 of the 2015 edition of the Standard Specifications for Highway Construction, and the following:

The Bidder shall insert, as called for, a unit price or lump sum price in figures opposite each pay item for which an estimated quantity appears in the bid schedule. A unit price or lump sum price is not to be entered or tendered for any pay item not appearing in the bid schedule. The estimated quantity of work for payment on a lump sum basis will be "All Required" (All Req'd) and as further specified in the contract.

Whenever a Contingent Sum is shown for any item in this schedule, such amount shall govern and be included in the bid total.

Conditioned or qualified bids will be considered non-responsive.

Notice: Contract award will be made on the basis of the total adjusted basic bid.

The bidder shall insert a unit bid price for each pay item listed below. Type or print legibly.

Pay Item Number	Pay Item Description	Pay Unit	Quantity	Unit Bid Price	Amount Bid
***** BASIC BID *****					
201(1B)	Clearing	L.S.	All Req'd	\$	\$
202(1)	Removal of Structures and Obstructions	L.S.	All Req'd	\$	\$
501(9)	Premixed Concrete	L.S.	All Req'd	\$	\$
503(1)	Reinforcing Steel	L.S.	All Req'd	\$	\$
504(1)	Structural Steel	L.S.	All Req'd	\$	\$
504(3)	Structural Steel Bridge Rope and Accessories	L.S.	All Req'd	\$	\$
505(5)	Furnish Piles (7-Inch Diameter)	L.F.	234	\$	\$
505(6)	Pile Load Tests	L.S.	All Req'd	\$	\$
507(2)	Pedestrian Railing	L.F.	277	\$	\$

BID SCHEDULE  
 DSP: Byers Lake  
 Bridge Replacement Rebid  
 Project No. 78050-3

Name of Bidding Firm \_\_\_\_\_

Pay Item Number	Pay Item Description	Pay Unit	Quantity	Unit Bid Price	Amount Bid
-----------------	----------------------	----------	----------	----------------	------------

\*\*\*\*\* CONTINUE BASIC BID \*\*\*\*\*

640(1)	Mobilization and Demobilization	L.S.	All Req'd	\$	\$
641(1)	Erosion, Sediment, and Pollution Control Administration	L.S.	All Req'd	\$	\$
641(2)	Temporary Erosion, Sediment, and Pollution Control	C.S.	All Req'd	\$3,000.00	\$3,000.00
641(3)	ESCP Price Adjustment	C.S.	All Req'd	\$0.00	\$0.00
716(2)	Serrated Safety Grating	L.S.	All Req'd	\$	\$
a) TOTAL BASIC BID (BB)					\$

No: \_\_\_\_\_ Expires \_\_\_\_\_  
Alaska Business License

No: \_\_\_\_\_ Expires \_\_\_\_\_  
Alaska Contractor's License

BID SCHEDULE  
DSP: Byers Lake  
Bridge Replacement Rebid  
Project No. 78050-3

Name of Bidding Firm \_\_\_\_\_



STATE OF ALASKA  
DEPARTMENT OF NATURAL RESOURCES

**CONSTRUCTION CONTRACT**

**DSP: Byers Lake Bridge Replacement Rebid, Project No. 78050-3**

Project Name and Number

This CONTRACT, between the STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES, herein called the Department, acting by and through its Contracting Officer, and

Company Name

Company Address (Street or PO Box, City, State, Zip)

a/an  Individual  Partnership  Joint Venture  Sole Proprietorship  Corporation incorporated under the laws of the State of \_\_\_\_\_ its successors and assigns, herein called the Contractor, is effective the date of the signature of the Contracting Officer on this document.

WITNESSETH: That the Contractor, for and in consideration of the payment or payments herein specified and agreed to by the Department, hereby covenants and agrees to furnish and deliver all the materials and to do and perform all the work and labor required in the construction of the above-referenced project at the prices bid by the Contractor for the respective estimated quantities aggregating approximately the sum of

\_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_), and such other items as are mentioned in the original Bid, which Bid and prices named, together with the Contract Documents are made a part of this Contract and accepted as such.

It is distinctly understood and agreed that no claim for additional work or materials, done or furnished by the Contractor and not specifically herein provided for, will be allowed by the Department, nor shall the Contractor do any work or furnish any material not covered by this Contract, unless such work is ordered in writing by the Department. In no event shall the Department be liable for any materials furnished or used, or for any work or labor done, unless the materials, work, or labor are required by the Contract or on written order furnished by the Department. Any such work or materials which may be done or furnished by the Contractor without written order first being given shall be at the Contractor's own risk, cost, and expense and the Contractor hereby covenants and agrees to make no claim for compensation for work or materials done or furnished without such written order.

The Contractor further covenants and agrees that all materials shall be furnished and delivered and all labor shall be done and performed, in every respect, to the satisfaction of the Department, on or before: **October 31, 2017** or within N/A calendar days. It is expressly understood and agreed that in case of the failure on the part of the Contractor, for any reason, except with the written consent of the Department, to complete the furnishing and delivery of materials and the doing and performance of the work before the aforesaid date, the Department shall have the right to deduct from any money due or which may become due the Contractor, or if no money shall be due, the Department shall have the right to recover (See Section 108-1.07) \_\_\_\_\_ dollars (\$ \_\_\_\_\_) per day for each calendar day elapsing between the time stipulated for the completion and the actual date of completion in accordance with the terms hereof; such deduction to be made, or sum to be recovered, not as a penalty but as liquidated damages.

The bonds given by the Contractor in the sum of \$ **(100% of Contract)** Payment Bond, and \$ **(100% of Contract)** Performance Bond, to secure the proper compliance with the terms and provisions of this Contract, are submitted herewith and made a part hereof.

IN WITNESS WHEREOF, the parties hereto have executed this Contract and hereby agree to its terms and conditions.

---

**CONTRACTOR**

---

**Company Name**

---

**Signature of Authorized Company Representative**

---

**Typed Name and Title**

---

**Date**

(Corporate Seal)

---

**STATE OF ALASKA  
DEPARTMENT OF NATURAL RESOURCES**

---

**Design & Construction Duly Authorized Representative (Signature)**

**Date**

---

**Typed Name**

---

**Signature of Contracting Officer**

**Date**

---

**Typed Name**



STATE OF ALASKA  
DEPARTMENT OF NATURAL RESOURCES

**PAYMENT BOND**

Bond No. \_\_\_\_\_

For

**DSP: Byers Lake Bridge Replacement Rebid, Project No. 78050-3**

Project Name and Number

KNOW ALL WHO SHALL SEE THESE PRESENTS:

That \_\_\_\_\_  
of \_\_\_\_\_ as Principal,  
and \_\_\_\_\_  
of \_\_\_\_\_ as Surety,  
firmly bound and held unto the State of Alaska in the penal sum of \_\_\_\_\_ Dollars

(\$ \_\_\_\_\_) good and lawful money of the United States of America for the payment whereof, well and truly to be paid to the State of Alaska, we bind ourselves, our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said Principal has entered into a written contract with said State of Alaska, on the \_\_\_\_\_ of \_\_\_\_\_ A.D., 20\_\_\_\_, for construction of the above-referenced project, said work to be done according to the terms of said contract.

Now, THEREFORE, the conditions of the foregoing obligation are such that if the said Principal shall comply with all requirements of law and pay, as they become due, all just claims for labor performed and materials and supplies furnished upon or for the work under said contract, whether said labor be performed and said materials and supplies be furnished under the original contract, any subcontract, or any and all duly authorized modifications thereto, then these presents shall become null and void; otherwise they shall remain in full force and effect.

IN WITNESS WHEREOF, we have hereunto set our hands and seals at \_\_\_\_\_, \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_ A.D., 20\_\_\_\_.

**Principal:** \_\_\_\_\_  
**Address:** \_\_\_\_\_  
**By:** \_\_\_\_\_  
**Contact Name:** \_\_\_\_\_  
**Phone:** (    ) \_\_\_\_\_

**Surety:** \_\_\_\_\_  
**Address:** \_\_\_\_\_  
**By:** \_\_\_\_\_  
**Contact Name:** \_\_\_\_\_  
**Phone:** (    ) \_\_\_\_\_

The offered bond has been checked for adequacy under the applicable statutes and regulations:

\_\_\_\_\_  
Alaska Department of Natural Resources Authorized Representative

\_\_\_\_\_  
Date

See Instructions on Reverse

## INSTRUCTIONS

1. This form, for the protection of persons supplying labor and material, shall be used whenever a payment bond is required. There shall be no deviation from this form without approval from the Contracting Officer.
2. The full legal name, business address, phone number, and point of contact of the Principal and Surety shall be typed on the face of the form. Where more than a single surety is involved, a separate form shall be executed for each surety.
3. The penal amount of the bond, or in the case of more than one surety the amount of obligation, shall be typed in words and in figures.
4. Where individual sureties are involved, a completed Affidavit of Individual Surety shall accompany the bond. Such forms are available upon request from the Contracting Officer.
5. The bond shall be signed by authorized persons. Where such persons are signing in a representative capacity (e.g., an attorney-in-fact), but is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved, evidence of authority must be furnished.



STATE OF ALASKA  
DEPARTMENT OF NATURAL RESOURCES

**PERFORMANCE BOND**

Bond No. \_\_\_\_\_

For

**DSP: Byers Lake Bridge Replacement Rebid, Project No. 78050-3**

Project Name and Number

KNOW ALL WHO SHALL SEE THESE PRESENTS:

That \_\_\_\_\_  
of \_\_\_\_\_ as Principal,  
and \_\_\_\_\_  
of \_\_\_\_\_ as Surety,  
firmly bound and held unto the State of Alaska in the penal sum of \_\_\_\_\_ Dollars

(\$ \_\_\_\_\_) good and lawful money of the United States of America for the payment whereof, well and truly to be paid to the State of Alaska, we bind ourselves, our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said Principal has entered into a written contract with said State of Alaska, on the \_\_\_\_\_ of \_\_\_\_\_ A.D., 20\_\_\_\_, for construction of the above-named project, said work to be done according to the terms of said contract.

Now, THEREFORE, the conditions of the foregoing obligation are such that if the said Principal shall well and truly perform and complete all obligations and work under said contract and if the Principal shall reimburse upon demand of the Department of Transportation and Public Facilities any sums paid him which exceed the final payment determined to be due upon completion of the project, then these presents shall become null and void; otherwise they shall remain in full force and effect.

IN WITNESS WHEREOF, we have hereunto set our hands and seals at \_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_ A.D., 20\_\_\_\_.

**Principal:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**By:** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_

**Phone:** ( ) \_\_\_\_\_

**Surety:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**By:** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_

**Phone:** ( ) \_\_\_\_\_

The offered bond has been checked for adequacy under the applicable statutes and regulations:

\_\_\_\_\_  
Alaska Department of Natural Resources Authorized Representative

\_\_\_\_\_  
Date

See Instructions on Reverse

## INSTRUCTIONS

1. This form shall be used whenever a performance bond is required. There shall be no deviation from this form without approval from the Contracting Officer.
2. The full legal name, business address, phone number, and point of contact of the Principal and Surety shall be typed on the face of the form. Where more than a single surety is involved, a separate form shall be executed for each surety.
3. The penal amount of the bond, or in the case of more than one surety the amount of obligation, shall be typed in words and in figures.
4. Where individual sureties are involved, a completed Affidavit of Individual Surety shall accompany the bond. Such forms are available upon request from the Contracting Officer.
5. The bond shall be signed by authorized persons. Where such person is signing in a representative capacity (e.g., an attorney-in-fact), but is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved, evidence of authority must be furnished.



STATE OF ALASKA  
DEPARTMENT OF NATURAL RESOURCES

**BID BOND**

For

**DSP: Byers Lake Bridge Replacement Rebid, Project No. 78050-3**

Project Name and Number

DATE BOND EXECUTED: \_\_\_\_\_

PRINCIPAL (Legal name and business address):

TYPE OF ORGANIZATION:

	[ <input type="checkbox"/> ] Individual	[ <input type="checkbox"/> ] Partnership
	[ <input type="checkbox"/> ] Joint Venture	[ <input type="checkbox"/> ] Corporation
STATE OF INCORPORATION: _____		

SURETY(IES) (Name and business address):

<b>A.</b>	<b>B.</b>	<b>C.</b>
PENAL SUM OF BOND: _____		DATE OF BID: _____

We, the PRINCIPAL and SURETY above named, are held and firmly bound to the State (State of Alaska), in the penal sum of the amount stated above, for the payment of which sum will be made, we bind ourselves and our legal representatives and successors, jointly and severally, by this instrument.

THE CONDITION OF THE FOREGOING OBLIGATION is that the Principal has submitted the accompanying bid in writing, date as shown above, on the above-referenced Project in accordance with contract documents filed in the office of the Contracting Officer, and under the Invitation for Bids therefor, and is required to furnish a bond in the amount stated above.

If the Principal's bid is accepted and he is offered the proposed contract for award, and if the Principal fails to enter into the contract, then the obligation to the State created by this bond shall be in full force and effect.

If the Principal enters into the contract, then the foregoing obligation is null and void.

**PRINCIPAL**

Signature(s)	1.	2.	3.
Name(s) & Title(s) (Typed)	1.	2.	3.

Corporate  
Seal

**See Instructions on Reverse**

**CORPORATE SURETY(IES)**

<b>Surety A</b>	Name of Corporation	State of Incorporation	Liability Limit \$
Signature(s)	1.	2.	Corporate Seal
Name(s) & Titles (Typed)	1.	2.	

<b>Surety B</b>	Name of Corporation	State of Incorporation	Liability Limit \$
Signature(s)	1.	2.	Corporate Seal
Name(s) & Titles (Typed)	1.	2.	

<b>Surety C</b>	Name of Corporation	State of Incorporation	Liability Limit \$
Signature(s)	1.	2.	Corporate Seal
Name(s) & Titles (Typed)	1.	2.	

**INSTRUCTIONS**

1. This form shall be used whenever a bid bond is submitted.
2. Insert the full legal name and business address of the Principal in the space designated. If the Principal is a partnership or joint venture, the names of all principal parties must be included (e.g., "Smith Construction, Inc. and Jones Contracting, Inc. DBA Smith/Jones Builders, a joint venture"). If the Principal is a corporation, the name of the state in which incorporated shall be inserted in the space provided.
3. Insert the full legal name and business address of the Surety in the space designated. The Surety on the bond may be any corporation or partnership authorized to do business in Alaska as an insurer under AS 21.09. Individual sureties will not be accepted.
4. The penal amount of the bond may be shown either as an amount (in words and figures) or as a percent of the contract bid price (a not-to-exceed amount may be included).
5. The scheduled bid opening date shall be entered in the space marked Date of Bid.
6. The bond shall be executed by authorized representatives of the Principal and Surety. Corporations executing the bond shall also affix their corporate seal.
7. Any person signing in a representative capacity (e.g., an attorney-in-fact) must furnish evidence of authority if that representative is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved.
8. The states of incorporation and the limits of liability of each surety shall be indicated in the spaces provided.
9. The date that bond is executed must not be later than the bid opening date.





# **SPECIAL PROVISIONS**

to the

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES  
2015 STANDARD SPECIFICATIONS for HIGHWAY CONSTRUCTION

**DSP: BYERS LAKE**

**BRIDGE REPLACEMENT REBID**

**PROJECT NUMBER 78050-3**



## SECTION 101

### DEFINITIONS AND TERMS

#### 101-1.03 DEFINITIONS.

**DEPARTMENT.** Replace with the following: The Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation. (01/01/01)PARKS-Special Provision

**ROADWAY.** Replace with the following: The portion of a highway or park facility including shoulders within the limits of construction. (01/01/01)PARKS-Special Provision

## SECTION 102

### BIDDING REQUIREMENTS AND CONDITIONS

**102-1.04 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND WORK SITE.** Add the following after the second paragraph: Material Reports and/or Soils Investigation Reports are found in Appendix B. (01/01/05)PARKS-Special Provision

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

**SECTION 105**  
**CONTROL OF WORK**

**105-1.02 PLANS AND WORKING DRAWINGS.** Add the following to the first paragraph: Full size plan sheets are 11” by 17”. Plans are not available in CAD digital format. (01/01/01)PARKS-Special Provision

(01/27/07)E33-Standard Modification

**105-1.06 UTILITIES.** Add the following:

Request locates from the utilities having facilities in the area. Use the Alaska Digline, Inc. Locate Call Center for the following utilities.

**ALASKA DIGLINE, INC.**

---

Locate Call Centers:

Anchorage	278-3121
Statewide	(800) 478-3121

---

**105-1.13 MAINTENANCE DURING CONSTRUCTION.**

Replace the first sentence of the first paragraph with the following: The Contractor shall maintain the entire area located within the project limits from the date construction begins until the Contractor receives a letter of substantial completion. (03/11/15) PARKS-Special Provision

**105-1.15 PROJECT COMPLETION.** In the third paragraph, first sentence, delete: “Subsection 621-3.04” and replace with: Subsection 618-3.06 and 621-3.04.

(02/02/15) PARKS-Special Provision

**105-1.17 CLAIMS.** Add the following: Any appeal to the superior court under AS 36.30.685 must be filed in the third judicial district. (03/21/01)R93-Special Provision

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

## SECTION 107

### LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

#### 107-1.02 PERMITS, LICENSES, AND TAXES.

Add the following to the second paragraph:

3. The Department has received the following permits on the Contractor's behalf:
  - a. SHPO "No Historic Properties Affected" Letter of Concurrence, Issue Date: May 20, 2015, Expire Date: N/A

Byers Creek is an anadromous waterbody, specified as being important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The Contractor will be responsible for obtaining an ADF&G Fish Habitat Permit if any equipment or materials will enter or cross Byers Creek below Ordinary High Water.

(03/11/15)PARKS-Special Provision

Add the following to the fourth paragraph:

5. Provide a wetland specialist to conduct the determination and delineations of sites outside the project limits or not previously permitted, impacted by the Contractor's operations. These delineations will be subject to Corps of Engineers approval. The wetland specialist shall conduct wetlands determinations and delineations according to the Corps of Engineers 1987 Wetland Delineation Manual, and the Regional Supplement to the Corps of Engineers Wetland Delineations Manual (Alaska Region, Version 2.0, September 2007). .

(03/21/11)PARKS-Special Provision

Add the following: All clearing and/or grubbing activities shall take place outside of the Migratory Bird Treaty Act (MBTA) window as determined by the U.S. Fish and Wildlife Service (FWS) under the website publication for the construction year:

[http://alaska.fws.gov/fisheries/fieldoffice/anchorage/pdf/vegetation\\_clearing.pdf](http://alaska.fws.gov/fisheries/fieldoffice/anchorage/pdf/vegetation_clearing.pdf)

(06/30/98)PARKS-Special Provision

Add the following:

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

Bald Eagles are protected under the Bald Eagle Protection Act (16 U.S.C. 668-668c) which prohibits “takes” of bald eagles, their eggs, nests, or any part of the bird. The Act defines “taking” as “to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.”

Maintain a Primary Zone of a minimum 330 ft as an undisturbed habitat buffer around nesting bald eagles. If topography or vegetation does not provide an adequate screen or separation, extend this buffer to 0.25 miles, or a sufficient distance to screen the nest from human activities. The actual distance will depend on site conditions and the individual eagle’s tolerance for human activity. Within the Secondary Zone, between 330 ft and 660 ft from eagles nest tree no obtrusive facilities or major habitat modifications shall occur. If nesting occurs in sparse stands of trees, treeless areas, or where activities would occur within line-of-site of the nest, this buffer shall extend up to 0.5 miles. No blasting, logging and other noisy, disturbing activities should occur during the nesting period (March 1 – August 31) within the primary or secondary zones.

Extremely noisy activities such as road construction or other activities that occur within the Secondary Zone shall be conducted outside the nesting period to avoid disturbance to eagles. If activities occur in proximity to a nest site, employ an individual qualified to observe and assess the impact of such activities on nesting eagles. Behavior generally associated with disturbed eagles includes alarm calls, birds flushed from their nest or perch, and aggressiveness.

If nest trees are discovered within the vicinity of the project site, the U.S. Fish and Wildlife Service must be notified immediately by calling (907) 786-3503 or (907) 271-2772, before starting construction activities, for further site evaluation.

(08/12/10)CR1071-Special Provision

## SECTION 108

### PROSECUTION AND PROGRESS

**108-1.01 SUBLETTING OF CONTRACT.** Delete paragraph one and replace with the following: The Contractor shall submit a Contractor Self Certification for Subcontractors and Lower Tier Subcontractors, Form 25D-042, before the Contractor or any subcontractor sublets, sells, transfers, assigns, or otherwise disposes of the Contract or any portion of the Contract. The Department has authority to review subcontracts and to deny permission to sublet work. The Department may penalize the Contractor for false statements or omissions made in connection with Form 25D-042.

Delete paragraph four and replace with the following:

1. The Contractor shall ensure that for all subcontracts (agreements):
  - a. The Department is furnished with one completed Contractor Self certification, Form 25D-042, for each subcontract;
  - b. The required prompt payment provisions of AS 36.90.210, as well as other items listed in Form 25D-042, are included in the subcontracts;
  - c. The subcontractors pay current prevailing rate of wages as per Subsection 107-1.04 and file certified payrolls with the Engineer and DOLWD for all work performed on the project; and
  - d. Upon receipt of a request for more information regarding subcontracts, the requested information is provided to the Department within 5 calendar days.

(05/02/11)PARKS-Special Provision

**108-1.02 NOTICE TO PROCEED.** Add the following: The Contractor may request a Limited Notice to Proceed after the Award has been made, to permit him to order long lead materials which would cause delays in project completion. However, granting is within the sole discretion of the Contracting Officer, and refusal or failure to grant a Limited Notice to Proceed shall not be a basis for claiming for delay, extension of time, or alteration of price.

(6/30/98)PARKS-Special Provision

**108-1.03 PROSECUTION AND PROGRESS.** Replace the last sentence of the first paragraph with the following: Submit the following at the Preconstruction Conference:

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

Replace item 1. A progress schedule. with the following:

1. A Critical Path Method (CPM) Schedule is required, in a format acceptable to the Engineer, showing the order the work will be carried out and the contemplated dates the Contractor and subcontractors will start and finish each of the salient features of the work, including scheduled periods of shutdown. Indicate anticipated periods of multiple shift work in the CPM Schedule. Revise to the proposed CPM Schedule promptly. Promptly submit a revised CPM Schedule if there are substantial changes to the schedule, or upon request of the Engineer.

(12/13/02)R261-Special Provisions

## SECTION 109

### MEASUREMENT AND PAYMENT

#### **109-1.02 MEASUREMENT OF QUANTITIES.** Add the following:

14. Hour. Measured items by the hour shall be full payment for the work described in the contract including labor, equipment, and operating costs of the equipment. Items to be measured by the hour will be recorded to the nearest quarter-hour by the Engineer. The measurement shall start when the required equipment & operator, surveyor, or survey party begins work at the specified location as directed by the Engineer. The measurement will stop when the required work is accomplished, when the equipment fails, when directed to stop work by the Engineer, or when the operator stops work. Times will be reconciled with the Contractor on a daily basis.

(02/23/15)PARKS-Special Provision

**109-1.05 COMPENSATION FOR EXTRA WORK ON TIME AND MATERIALS BASIS.** Under item 3. Equipment, subitem a. Hourly Rental Rate, add the following to the second paragraph: The rental rate area adjustment factors for this project shall be as specified on the adjustment maps for the Alaska - CENTRAL. (04/31/05)R14-Special Provision

## SECTION 201

### CLEARING AND GRUBBING

**201-3.01 GENERAL.** Add the following: All clearing and/or grubbing activities shall abide by the Migratory Bird Treaty Act (MBTA). (09/15/08)PARKS-Special Provision

Add the following: Timber with a 5 inch diameter or larger at breast height shall be cut into 8-foot lengths, de-limbed, and stacked at locations approved by the Engineer for public removal. These locations shall be adjacent to the nearest side street or other approved site which does not create a traffic hazard due to lack of adequate parking for the public. The Department will notify the public of the availability of the timber once it has been stacked. The Contractor shall schedule the clearing and grubbing work so as to provide two weeks for the public to access those areas of the project where such timber is available prior to completion of the clearing and grubbing work in those areas. With the Engineer's approval the Contractor may dispose of the timber left by the public by chipping into mulch for use by the Contractor as a BMP for temporary erosion, sediment and pollution control.

**201-3.02 CLEARING.** Add the following: Remove branches to provide 12 feet vertical clearance above road surface, shoulder to shoulder. Remove branches to provide 10 feet vertical clearance above sidewalk, deck, trail and pathway surfaces. (01/01/01)PARKS-Special Provision

**201-3.06 DISPOSAL.** Replace paragraphs three and four with the following: Combustible material from any operations shall be disposed of by transporting to locations outside the park controlled lands. Burning will not be permitted in other areas close to the park to cause, as determined by the Engineer, a fire danger to the park resources.

Burning will not be permitted on private lands without the written approval of the property owner. The approval of the Engineer shall be required on a day to day basis when burning is within a two mile radius of the park lands. Constant care by competent watchmen with immediate access to adequate firefighting equipment shall be required during burning operations. Full compliance with applicable laws and ordinances will be the Contractor's responsibility.

(01/01/01)PARKS-Special Provision

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

#### **201-4.01 METHOD OF MEASUREMENT.**

Add the following: Removal of branches for vertical clearance in accordance with Subsection 201-3.02 will not be measured directly for payment but will be considered subsidiary to work in this Section. (01/01/01)PARKS-Special Provision

Add the following: The work required to cut, de-limb and stack timber for public removal and to preserve and restore land monuments and property corners will be subsidiary to Item 201(1B) Clearing. (06/10/04)R107USC04-Special Provision

#### **201-5.01 BASIS OF PAYMENT.**

Add the following:

Material not incorporated into the project and disposed of offsite shall be subsidiary to clearing and grubbing items.

(05/06/11)PARKS-Special Provision

## SECTION 202

### REMOVAL OF STRUCTURES AND OBSTRUCTIONS

**202-1.01 DESCRIPTION.** Replace the first sentence with the following: This work shall consist of, but not be limited to, the removal of existing bridge structure, including truss, cables, abutments, pilings, tower structures and any other obstructions which are not designated or permitted to remain, except for the obstructions to be removed and disposed of under other items in the contract. (03/11/15)PARKS-Special Provision

**202-3.01 GENERAL.** Replace paragraphs three, four, and five with the following: Remove and satisfactorily dispose of materials not designated to be salvaged and materials determined by the Engineer to be unusable to the Department. (01/01/01)PARKS-Special Provision

Delete Section 501 Subsection 1.01 through 3.11 and replace with the following. Retain Subsections 4.01 and 5.01

## **SECTION 501**

### **STRUCTURAL CONCRETE**

#### **501-1.01 DESCRIPTION.**

Furnish, place, finish, and cure Portland cement concrete for structures and incidental construction as shown on the Plans. Use the following classes of concrete, as specified.

#### **CLASSES OF CONCRETE**

Class A: Reinforced and non-reinforced concrete structures

#### **501-2.01 MATERIALS.**

Use materials that conform to the following:

Prepackaged dry-combined materials	ACI Publication 301 Section 4.3.1.3
Blended Hydraulic Cement Grout	Section 701
Expanded Polystyrene	ASTM C578 Type XII or Type X
Water	Subsection 712-2.01

#### **CONSTRUCTION REQUIREMENTS**

#### **501-3.01 PROPORTIONING.**

Provide Prepackaged dry-combined materials, according to ACI Publication 301 Section 4.3.1.3 that meets or exceeds a 28 day compressive strength of 5,000 psi when tested in accordance with ASTM C 39.

Alternative materials shall conform to ACI Publication 301 with a required 28 day compressive strength of 4500 psi.

Obtain Engineer's approval of manufacturer's data sheets for prepackaged dry-combined materials or alternative materials mix design, prior to use.

#### **501-3.02 ACCEPTANCE OF CONCRETE.**

The Engineer may accept concrete based on Certificates of Compliance provided by the supplier.

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

### **501-3.03 MIXING.**

Mix concrete in a batch mixer of the approved type and capacity. Mix for at least 60 seconds after all component materials, including water, are in the drum.

Measure total water for batch volume prior to start of mixing using laboratory verified volume measures and/or scales. Begin charging water into the mixer before the cement and aggregates enter the drum. During mixing, operate the drum at speeds specified by the manufacturer and shown on the name plate on the machine. Replace pickup blades in the drum of the mixer that, at any point, are worn down 1/4 inch or more. Discharge the entire contents of the mixer from the drum before placing materials for a succeeding batch into the drum.

Use a mixer equipped with a timing device to mix for the minimum time specified. Do not allow the batch volume to exceed the manufacturer's rated capacity of the mixer. Do not use a mixer with a rated capacity of less than 3 cubic feet without written permission.

Mix only the quantity of concrete required for immediate use. Do not retemper concrete. When stopping mixing for a considerable length of time, clean the mixer thoroughly. When resuming mixing, include with the first batch of concrete material placed in the mixer enough sand, cement, and water to coat the inside surface of the drum without diminishing the required cement content of the mix.

### **501-3.04 COLD WEATHER CONCRETE.**

Submit a written cold weather concreting plan when air temperatures are expected to fall below 35 °F during the cure period. Obtain the Engineer's approval of the plan and put it into effect before placing any concrete when the descending air temperature in the shade, away from artificial heat, falls below 40 °F or, in the opinion of the Engineer, will likely do so within 24 hours after concrete is placed. Have in place the materials and equipment required to heat mixing water and aggregate and to protect freshly placed concrete from freezing.

1. Temperature of Concrete. When the air temperature falls below 40 °F, ensure that concrete placed in forms has a temperature between 50 °F and 70°F. Obtain these temperatures by heating the mixing water and/or aggregate. Heat mixing water to no more than 160 °F. Heat aggregate as provided in Subsection 501-3.03. When the temperature of the water or aggregate exceeds 100 °F, mix them together so that the temperature of the mix does not exceed 80 °F when the cement is added.
2. Admixtures. Use only admixtures shown in the approved mix design. Do not use calcium chloride.

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

3. Cold Weather Placement. When placing concrete in cold weather, follow these precautions in addition to the above requirements:
  - a. Heat ground that will be in contact with concrete, forms and reinforcing steel before placing concrete to remove frost, ice, and snow from surfaces that will contact fresh concrete.
  - b. When fresh concrete will contact hardened concrete, warm the surface of the hardened concrete to at least 35 °F and thoroughly wet. Remove free water before placing fresh concrete.
4. Protection of Concrete. Maintain freshly placed concrete at a temperature of at least 70 °F for 3 days or at least 50 °F for 5 days. The above requirements do not apply when the concrete no longer is in danger of freezing or when air temperatures of 40 °F or higher are anticipated during the 2 weeks after concrete placement.

Maintain the concrete temperature using methods such as insulated forms, enclosures, and indirect heat. Maintain curing moisture. Protect the structure from overheating and fire.

At the end of the curing period, remove the protection so the concrete drops in temperature gradually and not more than 30 °F in the first 24 hours.

Protect the concrete during cold weather operations. Remove and replace concrete injured by frost action or overheating at no cost to the Department.

#### **501-3.05 FORMS.**

Use forms and falsework designed and constructed according to Section 512.

#### **501-3.06 PLACING CONCRETE.**

1. General. Provide a placement plan. Place and consolidate the concrete mix in approved forms to make a dense homogeneous concrete. Place concrete before it has initially set or within 30 minutes after mixing. Place concrete continuously and compact each layer before the succeeding one is dumped to prevent unplanned cold joints or damage to newly set concrete.

Place concrete as near as possible to final position. Do not deposit a large quantity at any point and run or work it along the forms. Regulate concrete placement so that the pressures caused by wet concrete do not exceed those used in the design of the forms.

Avoid segregating coarse or fine portions of the mixture while placing concrete. Limit lift thickness to no more than 2 feet, or the capacity of the vibrators to consolidate

and merge the concrete with the previous lift. Use a tube with a hopper head or other approved device when dropping concrete more than 5 feet. Use clean, watertight equipment and material, but do not use those made of aluminum. Equip chutes on steep slopes with baffles or reverses.

Eliminate rock pockets and air bubbles. Vibrate along faces to obtain smooth surfaces. Prevent mortar from spattering on forms and reinforcing steel and from drying ahead of the final concrete covering.

Use troughs, pipes, or short chutes as aids in placing concrete. Where steep slopes are required, use troughs and chutes equipped with baffle boards or short enough to reverse the direction of movement. Keep chutes, troughs, and pipe clean and free of hardened concrete by flushing thoroughly with water after each run. Keep discharge water used for flushing clear of the concrete in place. When discharge must be intermittent, provide a hopper or other device for regulating the discharge.

Consolidate all concrete by mechanical vibration. Use internal vibration, except for thin sections, with forms designed for external vibration. Use proper sized vibrators with a minimum frequency of 5,000 cycles per minute and capable of visibly affecting a properly designed mixture with a 1-inch slump for a distance of at least 18 inches from the vibrator. Use enough vibrators to consolidate the fresh concrete within 15 minutes of placing it in the forms, with one or more spare vibrators in case of breakdown. Vibrate at point of deposit. Insert vibrators vertically and withdraw slowly to avoid segregation or grout pockets. Vibrate in a uniform pattern spaced less than 1.5 times the radius of visible effectiveness. Avoid vibration of hardened layers below the placement. Do not hold vibrators against forms or reinforcing steel or use them to flow the concrete or spread it into place. Manipulate vibrators to produce concrete that is free of voids and that has the proper texture on exposed faces and the maximum consolidation. Do not hold vibrators so long that the concrete segregates or laitance forms on the surface.

Place concrete continuously throughout each section of the structure or between indicated joints. If an emergency forces you to stop placing concrete before a section is completed, place bulkheads as the Engineer may direct. Treat the resulting joint as a construction joint.

Place and vibrate concrete in piles as specified in Subsection 505-3.06.

Structures with excessive honeycomb areas will be rejected. Upon written notice that a structure has been rejected, remove and rebuild the structure, in part or wholly as specified.

2. Placing Anchor Bolts. Secure anchor bolt assemblies where shown on the Plans before placing concrete in the forms. Check the positions and make adjustments as

soon as the concrete has been placed. Where Adhesive Anchor Bolts are used the manufacture, installation and inspection of the adhesive system shall conform to one of the following:

- a. ICC-ES ESR-3187 Hilit HIT-HY 200 Adhesive Anchor System
- b. ICC-ES ESR-2583 Powers PE1000+ Adhesive Anchor System

Adhesive anchors shall be installed when concrete has reached a minimum age of 21 days. Adhesive anchors shall be “hammer drilled” and installed under “damp hole/saturated concrete” conditions (no standing water, no free water in the hole, but the concrete has seen moisture in the preceding 14 days).

3. Setting Shoes and Bearing Plates. Finish bridge seat bearing areas high and rub or grind them to elevation and grade. In no case shall a bridge bearing seat be set in a depression in the concrete foundation that has the potential to hold water. Set shoes, elastomeric bearing pads, and bearing plates as specified in Section 504. Set pier and abutment caps on bridges parallel to the roadway grade and parallel to the roadway cross slope or crown, unless otherwise shown on the Plans.

### **501-3.07 FINISHING CONCRETE SURFACES.**

Give all concrete surfaces exposed in the completed work an ordinary finish.

1. Ordinary Finish. An ordinary finish is the finish left on a surface after you have removed the forms, filled the holes left by the form ties, and repaired the defects. Ensure that the surface is true and even and free from stone pockets and depressions or projections. Give a rubbed finish to surfaces that cannot be repaired satisfactorily.

Use a straightedge to strike off the concrete in caps and tops of walls and then float the concrete to a true grade. Do not use mortar topping for concrete surfaces.

Immediately after removing the forms, remove the metal devices holding the forms in place and passing through the body of the concrete, or cut them back at least 1 inch beneath the surface of the concrete. Remove fins of mortar and irregularities caused by form joints.

If small holes, depressions, and voids show after the forms have been removed, fill them with cement mortar mixed in the same proportions as that used in the body of the work. When patching larger holes and honeycombs, chip away coarse or broken material to obtain a dense, uniform surface of concrete exposing solid coarse aggregate. If chipping exposes more than half of the perimeter of a reinforcing bar, completely expose the bar with enough clearance around the bar to allow the patching material to encase it. Cut away feathered edges to form faces

perpendicular to the surface. Saturate surfaces with water, then apply a thin layer of neat cement mortar.

Fill the cavity with stiff mortar composed of 1 part of portland cement to 2 parts of sand. Thoroughly tamp the mixture into place. Pre-shrink the mortar by mixing it approximately 20 minutes before using it. Vary the length of time according to the brand of cement used, temperature, humidity, and other conditions. Float the surface of the mortar with a wooden float before it initially sets to make it neat in appearance. Cure the patch according to Subsection 501-3.08.1.

When patching large or deep areas, add coarse aggregate to the patching material. When using mortar for patching surfaces that will be exposed to view in the completed structure, color match the mortar to the concrete. Conduct test patches for color matching on concrete that will be hidden from view. Obtain approval of the color.

**501-3.08 CURING CONCRETE.**

1. Water Curing. Keep concrete surfaces wet for at least 7 days after placing concrete.

Completely cover the tops of concrete decks with wet burlap or wet cotton mats immediately after the final finishing. Cover the burlap or cotton mats with an impermeable plastic sheeting (visqueen) and keep it completely wet during the curing period. If covering the deck is delayed, keep the surface damp with a fine mist of water using an atomizing nozzle. Do not spray.

Until the end of the curing period, keep other surfaces not protected by forms thoroughly wet, either by sprinkling or by using wet burlap, cotton mats, or other fabric. If wood forms can remain in place during the curing period, do not relax the form fasteners and keep the forms moist at all times to prevent opening at joints.

**501-5.01 BASIS OF PAYMENT.**

Add the following: Excavation for Structures shall be subsidiary to the Contract price for the cast-in-place structure.

Expanded Polystyrene and formwork shall be subsidiary to the Contract price for the cast-in-place structure.

Pay Item	Pay Unit
501(9) Premixed Concrete	Lump Sum

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

**SECTION 504**  
**STEEL STRUCTURES**

**504-2.01 MATERIALS.** Add to the following:

Galvanized Structural Bridge Rope      Section 709-2.02

Add the following Subsection:

**504-2.03 GALVANIZED STRUCTURAL BRIDGE ROPE.**

Provide Galvanized Structural Bridge Rope in the size and grade specified on the Plans. Provide all fittings, forgings, sockets and other miscellaneous cable accessories as specified on the Plans. Bridge Rope shall be permanently socket cast with zinc attachment of structural strand into specified sockets.

**504-5.01 BASIS OF PAYMENT.** Add the following:

Fittings, forgings, sockets, bridge clamps, and other miscellaneous cable accessories shall be subsidiary to Structural Steel Bridge Rope and Accessories.

Payment will be made Under:

Pay Item	Pay Unit
504(3) Structural Steel Bridge Rope and Accessories	Lump Sum

Delete Section 505 in its entirety and replace with the following:

## **SECTION 505**

### **PILING**

#### **514-1.01 DESCRIPTION.**

Furnish and construct Type B micropiles, and assist in pile testing.

#### **505-1.02 DEFINITIONS.**

**BAR REINFORCEMENT.** The reinforcing bar centralized in the micropile.

**CENTRALIZER.** Material used to maintain the position of the reinforcing bar in the center of the micropile.

**CUT-OFF.** The cut off end of a pile, or cutting a pile end at the finish elevation.

**ESTIMATED PILE TIP ELEVATION.** The elevation at which the Department expects the driving resistance to be achieved.

**FRESH HEADING.** Cutting the end of a pile perpendicular to the long axis to remove damage, and to obtain a proper driving or splicing surface.

**MINIMUM PENETRATION.** The minimum length of pile below the footing or finished ground elevation to which the pile must be driven.

**TEST PILE.** A pile that has a pile load test performed on it.

**TEMPLATE.** A structure affixed to the ground used to maintain proper pile alignment during installation.

#### **505-2.01 MATERIALS.**

Use materials that conform to the following:

Structural Steel Piles  
Bar Reinforcement  
Centralizers

Section 715  
Section 709-2.01  
Centralizers shall be fabricated from plastic, steel, or material that is non-detrimental to the reinforcing bar.  
ASTM C1107

Cement (Non-shrink grout)

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

## **505-2.02 PILES.**

Furnish piles sufficient in length to obtain the required resistance and to extend to the estimated pile length specified in the Contract documents. Furnish full-length structural steel piles for casing where practical. Where splices are required, follow the provisions of Subsection 505-3.04. Furnish additional pile length to provide for fresh heading and to suit the method of installation. Use metal shoes or reinforced tips as required. Store and handle piles in a manner that protects them from damage.

1. Steel Piles. Furnish H-pile sections, pipe piles, sheet piles or other structural steel sections described in the Contract.

Do not furnish spirally welded pipe piles.

The Engineer will reject steel piles that exceed the camber and sweep permitted by allowable mill tolerance.

Hot-dip galvanize steel piles a minimum thickness of 4 mils according to Subsection 716-2.07.

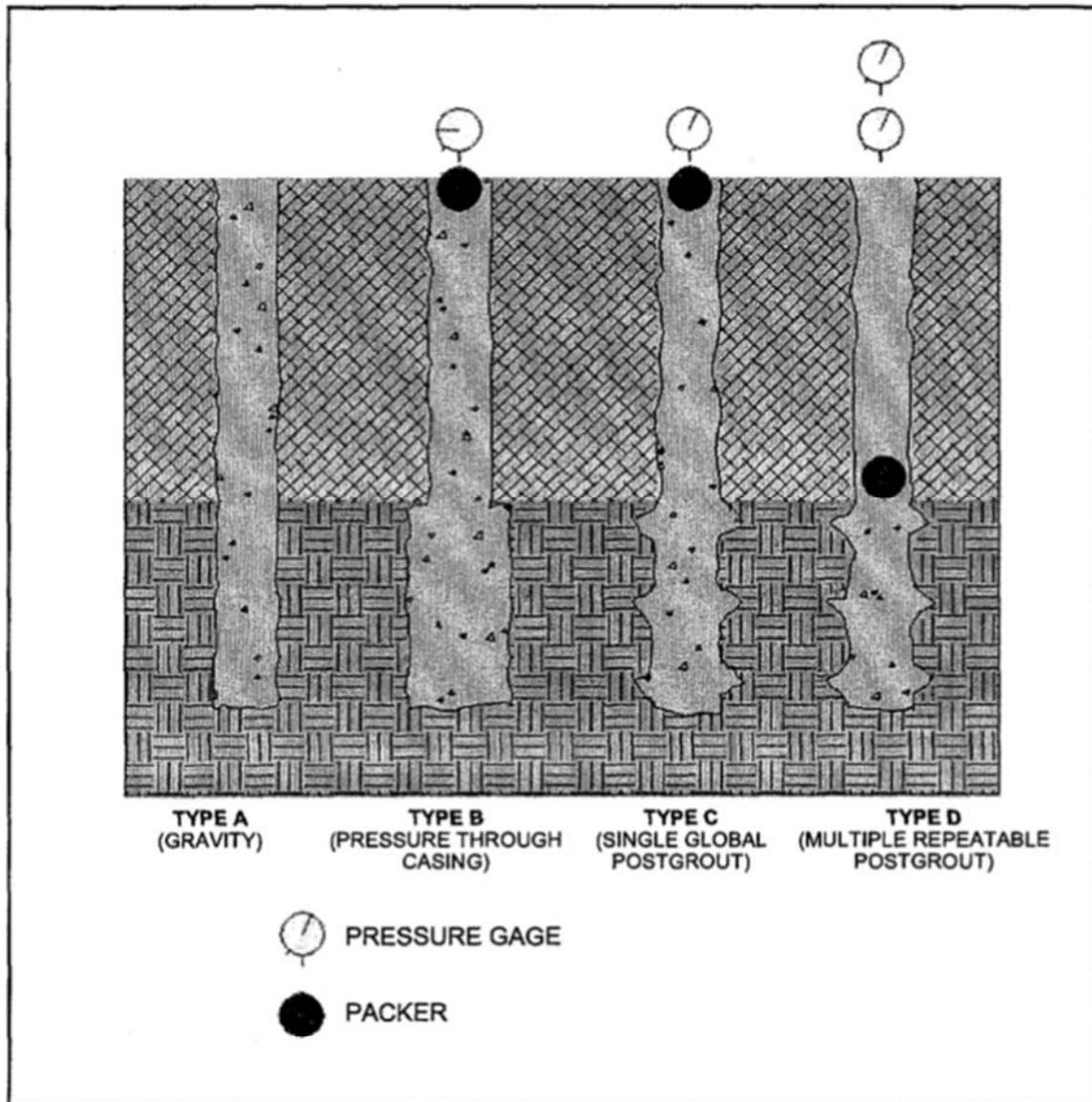
## **CONSTRUCTION REQUIREMENTS**

### **505-3.01 PILE INSTALLATION.**

The micropile Contractor shall select the drilling method and grouting procedures used for the installation of the micropiles. The drilling equipment, methods and sequence shall be suitable for drilling through the conditions to be encountered.

Micropiles shall be "Type B" and installed as described below. Per AASHTO LRFD Article 10.9.1: "Type B micropiles are constructed by injecting a neat cement grout under pressure (typically 6-21 ksf) into the drilled hole while the temporary drill casing or auger is withdrawn."

From Publication No. FHWA-SA-97-070:



**Figure 2 – 5.** Micropile Classification Based on Type of Grouting.(Refer to Table 2-1 for details)

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

1. Micropile Installation Plan. No less than 30 days prior to the anticipated start of pile installation, submit for approval the details of each proposed installation system. Include in the micropile installation plan:
  - a. A list of equipment to be used.
  - b. Manufacturer’s catalog cuts, specifications, manuals, guidelines, and technical bulletins for all equipment to be used.
  - c. A description of the techniques to be used for ensuring proper placement and alignment of the piles, obtaining grout pressures, and advancing the piles to the design length.
  - d. Alternate methods of pile installation in the event obstructions are encountered.

The Engineer will base approval of the reasonableness of the installation approach and the requirements in this Subsection. The Engineer’s approval of the installation plan will not relieve the Contractor of responsibility for:

- removing and replacing piles damaged during installation operations, or
- meeting pile tip elevation specified in the Contract documents.

Do not mobilize installation equipment to the site without an approved installation plan.

Submit all revisions to the approved installation plan to the Engineer for approval. For all installation equipment not previously identified in the installation plan, include in the submittal all of the information required above for the installation plan. Explain to the Engineer, in writing, which portions of the approved installation plan will be superseded by the revision and which portions remain unchanged. Allow at least 5 days for the Engineer’s approval of installation plan revisions.

2. Micropile Installation. All installation techniques shall be scheduled such that there will be no interconnection or damage to piles in which grout has not achieved final set.

After drilling, the hole shall be flushed with water and/or air to remove drill cuttings and/or other loose debris. The borehole must be open to the defined nominal diameter, full length, prior to placing grout and reinforcement. The central reinforcement steel with centralizers shall be placed into the stabilized drill holes to the desired depth without difficulty. Partially inserted reinforcing bars shall not be driven or forced into the hole. Centralizers shall be provided at no greater than 10 ft. maximum spacing on the central reinforcement, centralizer spacing may not exceed 10 feet. The uppermost centralizer shall be located a maximum of 5 ft. from the top

of the central reinforcement. Centralizers shall be sized such as to provide adequate grout cover for central reinforcement.

The vertical centerline of the piles shall not be more than 3 inches from the indicated plan location. Pile hole alignment shall be within 2 percent of design alignment. Top elevation of the pile shall be within +1 inch to -2 inches of the design vertical elevation. The centerline of core reinforcement shall not be more than  $\frac{3}{4}$  inch from the centerline of the pile.

The Contractor shall check pile top elevations and cut off all installed micropiles to the planned elevations.

3. Grouting. The contractor shall provide a stable, homogeneous neat cement grout conforming to ASTM C1107. The grout shall not contain lumps or any other evidence of poor or incomplete mixing.

The Contractor shall provide systems and equipment to measure the grout quantity and pumping pressure during the grouting operations. The grout pump shall be equipped with a pressure gauge to monitor grout pressures. The pressure gauge shall be capable of measuring pressures of at least 150 psi or twice the actual grout pressures used by the Contractor, whichever is greater. The grout should be kept in constant agitation prior to pumping.

The grout shall be injected from the lowest point of the drill hole (by tremie methods) until clean, pure grout flows from the top of the micropile. The tremie grout may be pumped through grout tubes, hollow stem augers, or drill rods. Subsequent to tremie grouting, all operations must ensure complete continuity of the grout column. The entire pile shall be grouted to the design cut-off level.

Upon completion of tremie grouting, the grout tube shall not remain in the hole unless approved by the Engineer. If the grout tube remains in the pile, it shall be filled with grout.

Grout within the micropile shall be allowed to attain 3000 psi prior to being loaded.

### **505-3.02 PILE TESTING.**

Pile load tests shall be performed to verify the adequacy of the design and construction of the micropile system, and shall be reviewed and accepted by the Engineer prior to the contractor's initiation of production micropile installation. One production pile shall be tested at each abutment. Give the Engineer 7 days advance notice before pile testing.

The micropile load testing procedure is defined in this Section and shall be performed in general conformance with ASTM D1143 Quick Load Test procedure. Contractor shall provide the following information:

- Type of apparatus for measuring load,
- Type of apparatus for applying load,
- Type of apparatus for measuring the pile deformation/movement,
- Type and capacity of reaction load system.

The Contractor may provide two test pile locations that are identical to the production piles. The drilling and grouting methods, pipe/casing and other reinforcement details, and depth of embedment for the test pile(s) shall be identical to the production piles, except where approved otherwise by the Engineer. The test micropiles may be sacrificial (not part of the final production micropiles) and may for ease of testing, be installed plumb. Piles shall be tested in tension and the core reinforcement size may be increased for the test pile(s) only to allow tension testing to the required test load.

The test micropiles shall be loaded to 150% of the service design load (DL). The jack shall be positioned at the beginning of the test such that the unloading and repositions of the jack during the test will not be required. Piles may be tested under tension or compression loading. An alignment Load (AL) may be applied to the pile prior to setting the movement recording devices. This Alignment Load shall be no more than 0.05DL. Dial gauges shall be zeroed at the first setting of AL.

Axial pile load tests shall be made by loading the micropile in the steps shown in Table 1, recording the pile head movement at each step.

Measurement of pile movement shall be obtained at each increment. The load hold period shall start as soon as the test load is applied and the pile movement, with respect to a fixed reference, shall be measured and recorded at 1 minute, 2, 3, 4, 5, and 10 minutes (load cycle maxima only) until the end of the hold time.

Acceptance criteria for micropile pre-production load tests are:

1. If the bonded zone is entirely in soil, test piles shall have a creep rate at the end of the 1.30DL increment which is not greater than 0.040 inches per log cycle of time (1-10 minutes). If that value is exceeded, then the total creep movement within the period between 6 and 60 minutes shall not exceed 0.080 in.
2. Failure occurs prior to 1.50DL. Failure is defined as when attempts to further increase the test load simply result in continued pile movement without increase in load.

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

**Table 505-1. PILE LOAD TEST**

<b>Interval</b>	<b>LOAD</b>	<b>HOLD TIME (minutes)</b>
1	AL	-
2	0.15DL	2.5
3	0.30DL	2.5
4	0.45DL	2.5
5	0.60DL	2.5
6	0.75DL	2.5
7	0.90DL	2.5
8	1.00DL	2.5
9	1.20DL	2.5
10	1.30DL	10 OR 60
11	1.50DL	2.5
12	1.00DL	2.5
13	0.50DL	2.5
14	AL	2.5

If the micropile load test(s) fail to meet the design requirements, the micropile design and/or installation methods shall be modified by the Engineer and the new system shall be retested at the Contractor's expense. Any modification which requires changes to the structure shall have prior review and acceptance of the Engineer.

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

### **505-3.03 SPLICES, EXTENSIONS AND BUILD-UPS.**

If the length of a steel pile is not sufficient to obtain the minimum length specified in the Contract documents, the pile may be spliced in order to obtain the length required to reach the minimum length. Use pile additions with cross sections identical to the pile cross sections.

Make splices with complete joint penetration welds over the entire cross section. If approved, piles may be spliced using pile cut-offs and short pieces if no piece used is less than 10 feet long.

Meet the welding requirements of Section 504. Align the piles at a splice to meet the dimensional tolerances for the allowable variation in straightness of welded columns in AWS D1.1.

### **505-3.04 DEFECTIVE PILES.**

Use an installation method which does not damage the pile. Do not manipulate the piles to force them into proper position. Correct damaged or improperly positioned piles using a method approved by the Engineer.

### **505-3.05 CUTTING OFF PILES.**

Cut off the piles at the elevations indicated on the Plans. Ensure that all injured material is removed.

When steel piles are shown embedded in concrete footings or pile caps, cut off piles within -1/2 inch to +3 inches of the plan embedment, but do not interfere with reinforcing steel or other items embedded in concrete. When steel pipe piles are shown cutoff below concrete footings or pile caps, cut off piles within -1/2 inch to +1/2 inch of the plan elevation. In pile bents with steel cap beams, make accurate cut-offs to ensure full bearing between the caps and piles.

### **505-3.06 CONSTRUCTION SUBMITTALS.**

Working drawings and relevant calculations prepared by the Contractor for the planned micropile system or systems shall be submitted for review and approval prior to the start of construction.

Certified mill test reports for the reinforcing steel shall be submitted for record purposes as the materials are delivered. The ultimate strength, yield strength, elongation, and chemical analysis shall be included. For steel pipe used as permanent casing, two representative coupon tests or mill certifications shall be submitted on each load delivered to the project.

The Contractor shall submit manufacturer's data sheets on the grout mix to be incorporated.

The Contractor shall submit load testing information in accordance with Section 505-3.02.

The Contractor shall submit calibration reports for each test jack and pressure gauge to be used. The calibration tests shall be performed by an independent testing laboratory.

Work shall not begin until the appropriate submittals have been approved in writing.

The following installation records shall be submitted after pile installation is completed. As a minimum, the records shall include the following:

- Drilling logs including description of soil and rock encountered, approximate final tip elevation, approximate final tip elevation, and description of any unusual behavior or conditions.
- Grouting logs including grout quantities and grout pressures attained (where applicable).
- Load testing results.

If significant changes are made to the location of the piles, their depth and inclination, or details of composition, such changes must be submitted to the Engineer for approval and as-built drawings showing such changes shall be submitted.

#### **505-3.07 QUALIFICATIONS.**

The micropile Contractor shall be experienced in the construction and load testing of micropiles and have successfully constructed at least 3 projects of similar scope.

The Contractor shall assign an engineer to supervise the work with experience on at least 3 projects of similar scope. The contractor shall not use consultants or manufacturer's representatives to satisfy the supervising Engineer requirements.

#### **505-4.01 METHOD OF MEASUREMENT.**

Section 109 and as follows:

Furnish Piles. The sum of the lengths of the piles in place in the completed structure, measured from the tip of pile to the cut-off elevation.

**505-5.01 BASIS OF PAYMENT.**

Furnish Piles. The contract price includes all labor, equipment, and materials delivered to the site, pile shoes, reinforced tips, casing, reinforcement bar, grout, and effort to drive and drill the piles. Unused pile lengths removed by cut-offs and fresh heading are subsidiary. The payment amount will be calculated using the quantity of pile indicated on the plans, or the quantity of piles installed with Engineer approval, whichever is greater.

Pile Load Test. The contract price includes all equipment, supplies, material, labor and standby time to properly conduct the pile load tests.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
505(5) Furnish Piles (7 inch diameter)	Linear Foot
505(6) Pile Load Tests	Lump Sum

## SECTION 640

### MOBILIZATION AND DEMOBILIZATION

**640-1.01 DESCRIPTION.** Add the following:

6. Comply with the Alaska Department of Labor and Workforce Development (DOLWD) requirements for Worker Meals and Lodging, or Per Diem; as described in their July 25, 2005 memo WHPL #197 (A2) and the State Laborer's and Mechanic's Minimum Rates of Pay (current issue). On Federal-aid projects, PL 109-59, 119 STAT. 1233, Sec. 1409(c) also applies.

Ensure subcontractors comply with the Federal and State DOLWD requirements.

Ensure facilities meet the Alaska Administrative Code 8 AAC 61.1010 and 8 AAC 61.1040 *Occupational Safety and Health Standards*, 18 AAC 31 *Alaska Food Code*, and U.S. Code of Federal Regulations 29 CFR Section 1910.142 *Temporary Labor Camps*.

Do not consider the cost of Meals and Lodging, or Per Diem in setting wages for the worker or in meeting wage requirements under AS 23.10.065 or AS 36.05.

**640-4.01 METHOD OF MEASUREMENT.** Delete the numbered paragraph 3 and substitute the following:

3. The remaining balance of the amount bid for Mobilization and Demobilization will be paid after all submittals required under the Contract are received and approved.

(05/28/10)E89-Standard Modification

Add the following:

4. Progress payments for Worker Meals and Lodging, or Per Diem will be subsidiary to 640(1) Mobilization and Demobilization.

(09/15/07)PARKS-Special Provision

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

Replace Section 641 with the following:

## SECTION 641

### EROSION, SEDIMENT, AND POLLUTION CONTROL

**641-1.01 DESCRIPTION.** Plan, provide, inspect, and maintain control of erosion, sedimentation, water pollution, and hazardous materials contamination.

**641-1.02 DEFINITIONS.** These definitions apply only to Section 641.

**Alaska Department of Environmental Conservation (ADEC).** The state agency authorized by EPA to administer the Clean Water Act's National Pollutant Discharge Elimination System.

**Alaska Pollutant Discharge Elimination System (APDES).** A system administered by ADEC that issues and tracks permits for storm water discharges.

**Best Management Practices (BMPs).** Temporary or permanent structural and non-structural devices, schedules of activities, prohibition of practices, maintenance procedures, and other management practices to prevent or minimize the discharge of pollutants to waters of the United States. BMPs also include, but are not limited to, treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from material storage.

**Clean Water Act (CWA).** Federal Water Pollution Control Amendments of 1972, as amended (33 U.S.C. 1251 et seq.).

**Construction Activity.** Physical activity by the Contractor, Subcontractor or utility company; that may result in erosion, sedimentation, or a discharge of pollutants into storm water. Construction Activity includes soil disturbing activities (e.g. clearing, grubbing, grading, excavating); and construction materials or equipment storage or maintenance (e.g. material piles, borrow area, concrete truck chute washdown, fueling); and other industrial storm water directly related to the construction process (e.g. concrete or asphalt batch plants).

**Environmental Protection Agency (EPA).** A federal agency charged to protect human health and the environment.

**Erosion and Sediment Control Plan (ESCP).** The Department's project specific document that illustrates measures to control erosion and sediment on the project.

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

**Final Stabilization.** Final stabilization occurs when soil disturbing activities at the site have been completed and one of the following methods, as identified in the contract, has been completed: (a) establish a uniform and evenly distributed perennial vegetative cover with a density of 70 percent of the native background vegetative cover, or (b) construct non-erodible permanent stabilization measures (such as riprap, gabions, geotextiles, pavement, and crushed aggregate base course) where vegetative cover is not required.

**Haul Route.** Existing or newly constructed road where construction materials are transported and where disposition of sediments or erodible materials may result from the material hauling activity or from the Contractor's activity to construct or maintain the road.

**Hazardous Material Control Plan (HMCP).** The Contractor's detailed project specific plan for prevention of pollution from storage, use, transfer, containment, cleanup, and disposal of hazardous material (including, but are not limited to, petroleum products related to construction activities and equipment). The HMCP is included as an appendix to the ESCP.

**Multi-Sector General Permit (MSGP).** The Alaska Pollutant Discharge Elimination System General Permit for storm water discharges associated with industrial activity.

**Pollutant.** Any substance or item meeting the definition of pollutant contained in 40 CFR § 122.2. A partial listing from this definition includes: dredged spoil, solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, wrecked or discarded equipment, rock, sand, cellar dirt and industrial or municipal waste.

**Project Area.** The physical area provided by the Department for Construction. The Project Area includes the area of the facility under construction, project staging and equipment areas, and material and disposal sites; when those areas, routes and sites, are provided by the Department by the Contract and are directly related to the Contract. Support Activities including material sites, material processing sites, disposal sites, haul routes, staging and equipment storage areas; that are furnished by the Contractor or a commercial operator, are not included in the Project Area.

**Spill Prevention, Control, and Countermeasure Plan (SPCC Plan).** The Contractor's detailed plan for petroleum spill prevention and control measures that meet the requirements of 40 CFR 112.

**Spill Response Field Representative.** The Contractor's representative with authority and responsibility for managing, implementing, and executing the HMCP and SPCC Plan.

**Subcontractor Spill Response Coordinator.** The subcontractor's representative with authority and responsibility for coordinating the subcontractor's activities in compliance with the HMCP and SPCC Plan.

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

**Superintendent.** The Superintendent has responsibility and authority for the overall operation of the Project and for Contractor furnished sites and facilities directly related to the Project.

**Temporary Stabilization.** The protection of exposed soils (disturbed land) from wind and water erosion during the construction process until final stabilization occurs.

**641-1.04 SUBMITTALS.** Submit two copies each of the SPCC ,HMCP, and amended ESCP, if applicable, to the Engineer for approval. Sign submittals. Deliver these documents to the Engineer.

The Department will review the submittals within 14 calendar days. Submittals will be returned to the Contractor as either requiring modification, or as approved by the Department.

The final ESCP, approved HMCP, and submitted SPCC Plan become the basis of the work required for the project's erosion, sediment, and pollution controls.

**641-2.01 EROSION SEDIMENT CONTROL PLAN (ESCP) REQUIREMENTS.** The Department will develop the project's base ESCP and include it as an appendix in the Special Provisions. The Contractor shall prepare any amendments to the ESCP based on scheduling, equipment, and use of alternative BMPs. The ESCP must include both erosion control and sediment control measures. The plan must address first preventing erosion, then minimizing erosion, and finally trapping sediment before it leaves the project site. The plan must address site specific controls and management plan for the construction site. The plan must also incorporate the requirements of the project permits.

The Contractor is responsible for amending the ESCP to include site specific control and management plan for material sites, waste disposal sites, haul routes, and other affected areas, public or private.

Specify the line of authority and designate a field representative for implementing ESCP compliance.

**641-2.02 HAZARDOUS MATERIAL CONTROL PLAN (HMCP) REQUIREMENTS.** Prepare the HMCP for prevention of pollution from storage, use, containment, cleanup, and disposal of all hazardous material, including petroleum products related to construction activities and equipment. Include the HMCP as an appendix to the ESCP. Compile Material Safety Data Sheets in one location and reference that location in the HMCP.

Designate a Contractor's Spill Response Field Representative with 24 hour contact information. Designate a Subcontractor Spill Response Coordinator for each subcontractor. The Superintendent and Contractor's Spill Response Field Representative

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

must have 24 hour contact information for each Subcontractor Spill Response Coordinator and the Utility Spill Response Coordinator.

List and give the location and estimated quantities of hazardous materials (Including materials or substances listed in 40 CFR 117 and 302, and petroleum products) to be used or stored on the Project. Hazardous materials must be stored in covered storage areas. Include secondary containment for all hazardous material storage areas.

Identify the locations where fueling and maintenance activities will take place, describe the activities, and list controls to prevent the accidental spillage of petroleum products and other hazardous materials. Controls include placing absorbent pads or other suitable containment under fill ports while fueling, and under equipment during maintenance or repairs.

Use secondary containment under all stationary equipment (equipment that does not have a seat for driving) that contains petroleum products. Use secondary containment under pumps, compressors, and generators.

List the types and approximate quantities of response equipment and cleanup materials available on the Project. Include a list and location map of cleanup materials, at each different work site and readily available off site (materials sources, material processing sites, disposal sites, staging areas, etc). Spill response materials must be stored in sufficient quantity at each work location, appropriate to the hazards associated with that site.

Describe procedures for containment and cleanup of hazardous materials. Describe a plan for the prevention, containment, cleanup, and disposal of soil and water contaminated by spills. Describe a plan for dealing with contaminated soil and water encountered during construction. Clean up of spills or contaminated surfaces must be initiated immediately and completed as soon as practicable.

Describe methods of disposing of waste petroleum products and other hazardous materials generated by the Project, including routine maintenance. Identify haul methods and final disposal areas. Assure final disposal areas are permitted for hazardous material disposal.

Describe methods of complying with the requirements of AS 46.04.010-900, Oil and Hazardous Substances Pollution Control, and 18 AAC 75. Include contact information for reporting hazardous materials and petroleum product spills to the Project Engineer and reporting to federal, state and local agencies.

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

**641-2.03 SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN (SPCC) REQUIREMENTS.** Prepare and implement an SPCC Plan when required by 40 CFR 112; when both of the following conditions are present on the Project:

- a. Oil or petroleum products from a spill may reach navigable waters (as defined in 40 CFR 112); and
- b. Total above ground storage capacity for oil and any petroleum products is greater than 1,320 gallons (not including onboard tanks for fuel or hydraulic fluid used primarily to power the movement of a motor vehicle or ancillary onboard oil-filled operational equipment, and not including containers with a storage capacity of less than 55 gallons)

Reference the SPCC Plan in the HMCP and ESCP.

**641-2.04 MATERIALS.** Use materials suitable to withstand hydraulic, wind, and soil forces, and to control erosion and trap sediments according to the requirements of the CGP and the Specifications.

- Use the temporary seed mixture specified by special provision, or use annual rye grass if no temporary seed mix is specified.
- Use soil stabilization material as specified in Section 727.
- Use silt fences as specified in Section 729.
- Use straw that is certified as free of noxious weed by the United States Department of Agriculture, Natural Resources Conservation Service, Local Soil and Water Conservative District. Alaska Weed Free Forage Certification Program must be used when available. Hay may not be substituted for straw.
- Use a rain gauge.

**641-3.01 CONSTRUCTION REQUIREMENTS.** Comply with the requirements of the CWA.

1. Starting Construction.

- Do not begin Construction Activity until authorized by the Engineer

Post notices on the outside wall of the project office, and at publicly accessible locations near the beginning and end of the Project. Protect postings from the weather and locate so the public can read them without obstructing construction activities (for example, at an existing pullout). Include the following information in each of the postings:

- Name and phone number of Contractor

Keep the updated ESCP, HMCP and SPCC at the on-site project office. If there isn't an on-site project office, keep the information at a location suitable to the Engineer.

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

Ensure all subcontractors and utility companies operating within the Project understand and comply with the ESCP.

Install sediment controls in accordance with the ESCP and before beginning Construction Activity that may result in land disturbance.

2. During Construction.

Comply with requirements of the HMCP and SPCC, and all state and federal regulations that pertain to the handling, storage, cleanup, and disposal of petroleum products or other hazardous substances. Contain, clean up, and dispose of discharges of petroleum products and other hazardous materials. Perform fueling operations in a safe and environmentally responsible manner. Place absorbent pads under fill ports while fueling, and under equipment during maintenance or repairs. Install secondary containment under all stationary equipment that contains petroleum products.

Comply with the requirements of 18 AAC 75 and AS 46, Oil and Hazardous Substances Pollution Control. Report petroleum product spills as required by federal, state and local law, and as described in the HMCP and SPCC.

Comply with the requirements of the SWPPP. Implement temporary and permanent erosion and sediment control measures identified in the SWPPP. Keep the SWPPP current. If storm water discharges threaten water quality, take immediate action. Comply with the requirements of 18 AAC 70 State of Alaska Water Quality Standards, AS 41.14.870 Protection of Fish and Game, Section 404 of the CWA, and all other applicable federal, state, and local statutes and regulations.

Coordinate with subcontractors and utility companies doing work in the project area so BMPs, and temporary and permanent stabilization are installed, maintained, and protected from damage.

3. Maintenance of BMPs.

Maintain temporary and permanent erosion and sediment control measures in effective operating condition. Remove sediment and debris from sediment traps, silt fences, and sediment ponds before sediment or debris accumulates to 50% of the BMP's design capacity.

Implement corrective actions as soon as possible, and before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the SWPPP and alternative BMPs must be implemented as soon as possible.

4. Stabilization.

Stabilization may be accomplished using temporary or permanent measures. Initiate stabilization of disturbed soils, erodible stockpiles, disposal sites, and of erodible aggregate layers so that all of the following conditions are satisfied:

- a. As soon as practicable;
- b. As soon as necessary to avoid erosion, sedimentation, or the discharge of pollutants; and
- c. As identified in the SWPPP.

Land may be disturbed and stabilized multiple times during a project. Coordinate work to minimize the amount of disturbed soil at any one time. Do not disturb more soil than you can stabilize with the resources available.

Temporarily stabilize from wind and water erosion portions of disturbed soils, portions of stockpiles, and portions of disposal sites, that are not in active construction. Temporary stabilization measures may require a combination of measures including but not limited to vegetative cover, mulch, stabilizing emulsions, blankets, mats, soil binders, non-erodible cover, dust palliatives, or other approved methods.

#### Temporary or Permanent Seeding.

When temporary or permanent seeding is required, provide a working hydro seeding equipment located within 100 miles of the project by road; with 1,000 gallon or more tank capacity, paddle agitation of tank, and the capability to reach the seed areas with an uniform mixture of water, seed, mulch and tackifier. If the project is located in an isolated community the hydro-seeder must be located at the project.

Before applying temporary or permanent seeding, prepare the surface to be seeded to reduce erosion potential and to facilitate germination and growth of vegetative cover. Apply seed and maintain seeded areas. Reseed areas where growth of temporary vegetative cover is inadequate to stabilize disturbed ground.

Apply permanent seed according to Sections 618 and 724, within the time periods allowed by the CGP and the Contract, at locations where seeding is indicated on the plans and after land-disturbing activity is permanently ceased.

#### Stream By Pass.

When installing a culvert or other drainage structure where stream bypass is not used, install temporary or permanent stabilization concurrently or immediately after placing the culvert or drainage structure in a manner that complies with the SWPPP, applicable project permits and prevents discharge of pollutants.

Install temporary and permanent stabilization:

- a. At the culvert or drainage structure inlet and outlet; and
- b. In the areas upstream and downstream that may be disturbed by the process of installing the culvert, culvert end walls, culvert end sections, or drainage structure.

Before deactivating a stream bypass or stream diversion used for construction of a bridge, culvert, or drainage structure, install permanent stabilization:

- a. At the inlet and outlet of the culvert, drainage structure, or bridge;
- b. In the area upstream and downstream of the culvert, drainage structure, or bridge, that is disturbed during installation or construction of the culvert, drainage structure, or bridge; and
- c. Under the bridge.

**641-3.02 FAILURE TO PERFORM WORK.** The Project Engineer has authority to suspend work and withhold monies, for an incident that may endanger health or the environment. If the suspension is to protect workers, the public, or the environment from imminent harm, the Project Engineer may orally order the suspension of work. Following an oral order of suspension, the Project Engineer will promptly give written notice of suspension. In other circumstances, the Project Engineer will give the Contractor written notice of suspension before suspension of work. A notice of suspension will state the defects or reasons for a suspension, the corrective actions required to stop suspension, and the time allowed to complete corrective actions.

1. If the Contractor fails to take the corrective action within the specified time, the Project Engineer may:
  - a. Suspend the work until corrective action is completed;
  - b. Withhold monies due the Contractor until corrective action is completed;
  - c. Assess damages or equitable adjustments against the Contract Amount; and
  - d. Employ others to perform the corrective action and deduct the cost from the Contract amount.
  
2. Reasons for the Project Engineer to take action under this section include, but are not limited to, the Contractor's failure to:
  - a. Obtain appropriate permits before Construction Activities occur;
  - b. Maintain effective BMPs to control erosion, sedimentation, and pollution in accordance with the ESCP and applicable local, state, and federal requirements;
  - c. Perform duties according to the requirements of this Section 641; or
  - d. Meet requirements of permits, laws, and regulations related to erosion, sediment, or pollution control.

No additional Contract time or additional compensation will be allowed due to delays caused by the Project Engineer's suspension of work under this subsection.

**641-4.01 METHOD OF MEASUREMENT.** Section 109.

**641-5.01 BASIS OF PAYMENT.** See Subsection 641-3.04 Failure to Perform Work, for additional work and payment requirements.

The total value of this Contract will be adjusted as specified herein. Withholding will be determined by the Department and assessed under Pay Item 641(6) SWPPP Price Adjustment, as follows:

1. Fines and Penalties: A Price adjustment equal to any penalties and fines levied against the Department by local, state, or federal agencies for pollutant violations, including violations of the CWA, except when due to Department negligence. An amount equal to the anticipated penalties and fines for the violation or violations, excluding any due to negligence by the Department, will be withheld until the actual cost of the penalties and fines is known. Anticipated penalties and fines will be determined by the Project Engineer. The Contractor is also responsible for the payment of penalties and fines levied against the Contractor.
2. Failure to perform Corrective Action. By each 24 hour period following 24 hours after written notice by the Project Engineer, per occurrence, a price adjustment of \$750 will be assessed where the Contractor:
  - fails to initiate corrective action to respond to a deficiency noted by the Project Engineer.

The same deficiency remaining uncorrected will be considered an additional occurrence for each additional 24 hour period, without requiring additional written notice by the Project Engineer.

Item 641(1) Erosion, Sediment and Pollution Control Administration. At the Contract lump sum price for administration of all work under this Section. Includes, but is not limited to, ESCP and HMCP and SPCC Plan preparation and agency fees.

Work required by the HMCP and SPCC Plan including hazardous material storage, containment, removal, cleanup and disposal, are subsidiary to Pay Item 641(1) Erosion, Sediment and Pollution Control Administration.

Item 641(2) Temporary Erosion, Sediment and Pollution Control. At the contingent sum prices specified for all labor, supervision, material, equipment, and incidentals to install,

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

maintain, remove and dispose of approved temporary erosion, sedimentation, and pollution control BMPs required to implement the ESCP and SPCC Plan.

Item 641(3) ESCP Price Adjustment. Withholding according to Section 641-3.02, equal to any penalties and fines levied against the Department by local, state, or federal agencies for pollutant violations, including violations of the CWA and any other Permit, except when due to the Department's sole negligence. The Contractor is also responsible for the payment of any and all penalties and fines levied against the Department or Contractor by entities (including agencies) other than the Department.

The Department will not release performance bonds until penalties and fines, assessed according to Section 641, are paid to the Department; and all requirements, according to Subsection 103-1.05, are satisfied.

Subsidiary Items. Temporary erosion, sediment, and pollution control measures that are required outside the Project Area are subsidiary. Work required by the HMCP and SPCC Plan including hazardous material storage, containment, removal, cleanup and disposal, are subsidiary to Item 641(1) Erosion, Sediment and Pollution Control Administration.

Work under other pay items. Work that is paid for directly or indirectly under other pay items will not be measured and paid for under Section 641. This work includes but is not limited to:

- a. Dewatering;
- b. Shoring;
- c. Bailing;
- d. Permanent seeding;
- e. Installation and removal of temporary work pads;
- f. Temporary accesses;
- g. Temporary drainage pipes and structures;
- h. Diversion channels;
- i. Settling impoundment; and
- j. Filtration.

Permanent erosion, sediment and pollution control measures will be measured and paid for under other Contract items, when shown on the bid schedule.

Work at the Contractor's Expense. Temporary erosion, sediment, and pollution control measures that are required due to carelessness, negligence, or failure to install temporary or permanent controls as scheduled or ordered by the Project Engineer, or for the Contractor's convenience, are at the Contractor's expense.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
641(1) Erosion, Sediment, and Pollution Control Administration	Lump Sum
641(2) Temporary Erosion, Sediment, and Pollution Control Administration	Contingent Sum
641(3) ESCP Price Adjustment	Contingent Sum

(10/20/11)PARKS-Special Provision

SPECIAL PROVISIONS  
Project Number 78050-3  
DSP: Byers Lake  
Bridge Replacement Rebid

## SECTION 709

### REINFORCING STEEL AND WIRE ROPE

Delete Subsection 709-2.02 and replace with the following:

#### **709-2.02 WIRE ROPE OR WIRE CABLE.**

Wire rope shall be Galvanized Structural Bridge Rope conforming to the requirements of ASTM A603 with a minimum of a Class A coating with Class A coating on the inner wires.



Add the following Subsection:

**716-4.01 METHOD OF MEASUREMENT.**

Item 716(2) Serrated Safety Grating is a lump sum item and will not be measured directly for payment. The approved schedule of values and Engineer's approval shall constitute method of measurement.

Add the following Subsection:

**716-5.01 BASIS OF PAYMENT.** Item 716(2) Serrated Safety Grating will be paid for at the contract lump sum price. Payment shall be full compensation for all the labor, equipment, material, and incidentals necessary to complete the work under this Section.

Payment will be made under:

Pay Item	Pay Unit
716(2) Serrated Safety Grating	Lump Sum

(10/10/16) PARKS- Special Provisions



# APPENDIX A

## PERMITS

<b>PERMIT DESCRIPTION</b>	<b>ISSUE DATE</b>	<b>EXPIRE DATE</b>
State Historic Preservation Office "No Historic Properties Affected" Letter of Concurrence	<b>05/20/15</b>	<b>N/A</b>



5-20-2015

31302R Division of Parks



THE STATE of ALASKA

GOVERNOR BILL WALKER

Department of Natural Resources  
DIVISION OF PARKS AND OUTDOOR RECREATION  
DESIGN AND CONSTRUCTION

550 West 7<sup>th</sup> Avenue, Suite 1340  
Anchorage, AK 99501-3565  
Main: 907.269.8731  
Fax: 907.269.8917

May 19, 2015

RECEIVED

MAY 20 2015

OHA

Ms. Judith Bittner  
State Historic Preservation Officer  
Alaska Office of History and Archaeology  
550 W. 7th Avenue, Suite 1310  
Anchorage, AK 99501-3565

Re: Finding of No Historic Properties Affected pursuant to AS 41.35.070

Dear Ms. Bittner:

The Alaska Department of Natural Resources – Division of Parks and Outdoor Recreation Design and Construction (ADNR-DPOR D&C) is proposing to replace a suspension bridge within Denali State Park (Section 30, Township 31 North, Range 4 West, Seward Meridian; USGS Quad Talkeetna C-1; Sheet 1). The bridge is near Byers Lake Campground, located near Milepost 147 of the Parks Highway.

The Area of Potential Effect (APE) includes the location of the bridge as well as the area required to perform the work (Sheet 2). The current suspension bridge was built in the 1960's and is no longer safe or serviceable. A new suspension bridge, designed to meet current standards, will be constructed in the same location. An excavator, bulldozer, bobcat, and ATV's are likely to be used for the construction of this project. The Alaska Heritage Resources Survey (AHRS) was reviewed on May 19, 2015 for known cultural or historical resources that may be affected by the proposed project. There were no AHRS sites identified within the APE.

ADNR-DPOR D&C concludes the Denali State Park Byers Lake Bridge Replacement project will not affect known historical sites and there will be "No Historic Properties Affected" by this project.

Please direct your concurrence or comments to me at the address above, by telephone at 907-269-8506 or by e-mail at [chester.fehrmann@alaska.gov](mailto:chester.fehrmann@alaska.gov).

Sincerely,

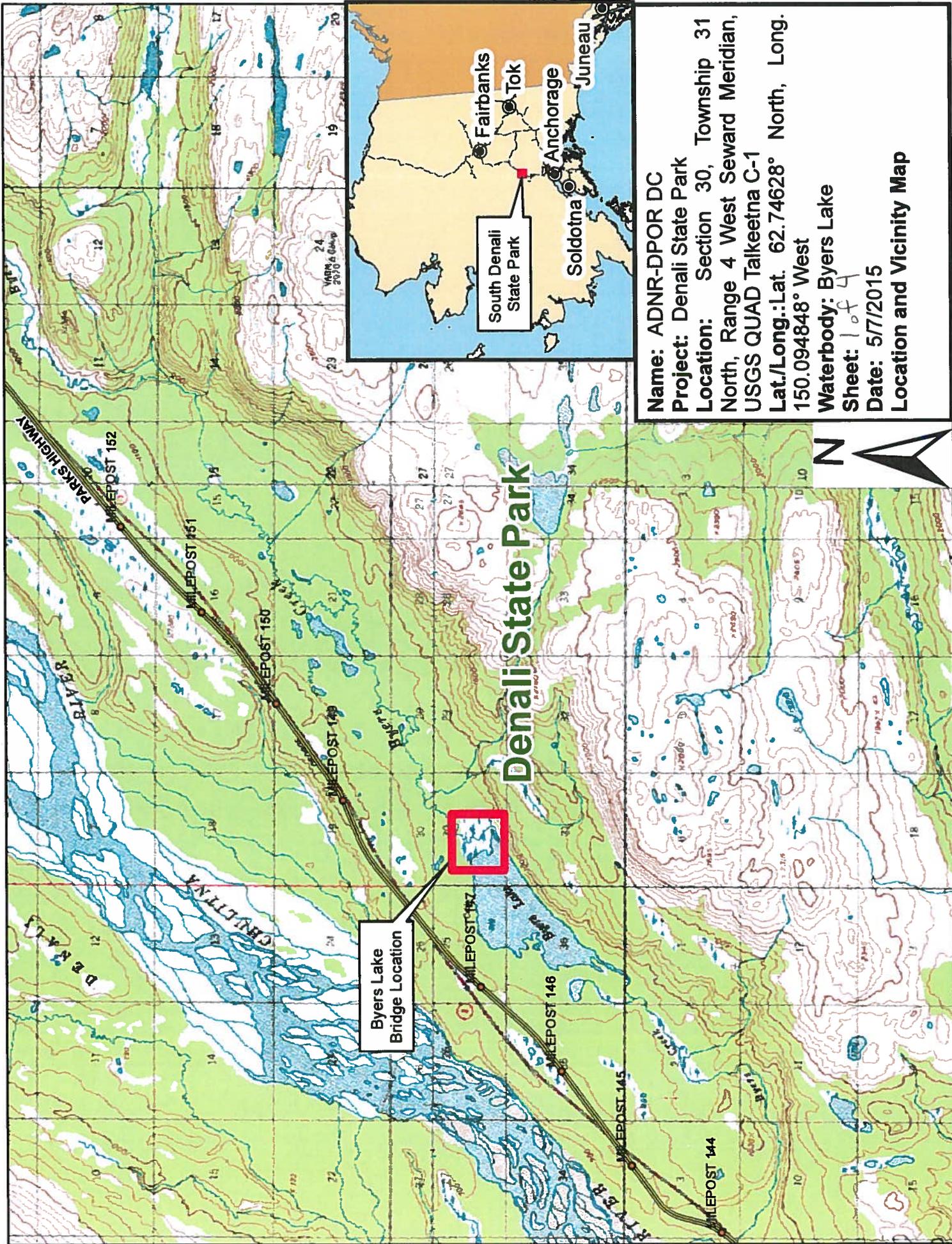
Chet Fehrmann  
Environmental Impact Analyst  
ADNR-DPOR D&C

**No Historic Properties Affected** *SE*  
**Alaska State Historic Preservation Officer**  
Date: 5-20-2015 File No.: *31302R-Parks* 2015 00988  
*36 CFR 800.13 / A S 41.35.070(d)*

Enclosures

- Sheet 1. Location and Vicinity Map
- Sheet 2. Bridge Site
- Sheet 3. Site Plan and APE
- Sheet 4. Typical Abutment Details

2015-00988



Name: ADNDR-DPOR DC

Project: Denali State Park

Location: Section 30, Township 31 North, Range 4 West Seward Meridian, USGS QUAD Talkeetna C-1

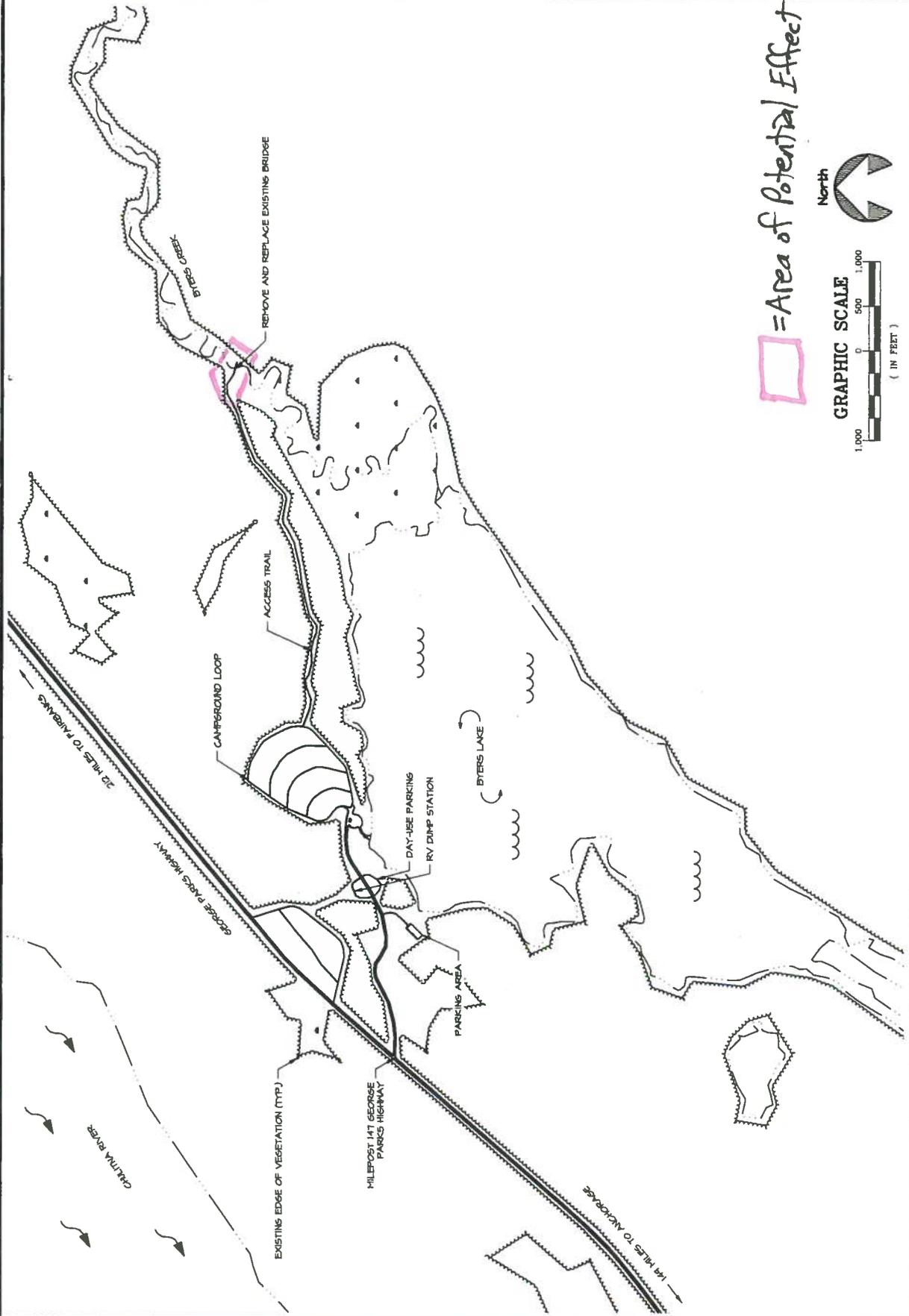
Lat./Long.: Lat. 62.74628° North, Long. 150.094848° West

Waterbody: Byers Lake

Sheet: 1 of 4

Date: 5/7/2015

Location and Vicinity Map

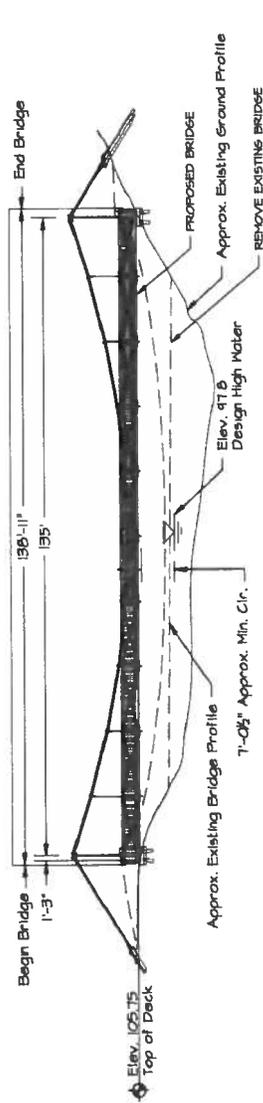


= Area of Potential Effect

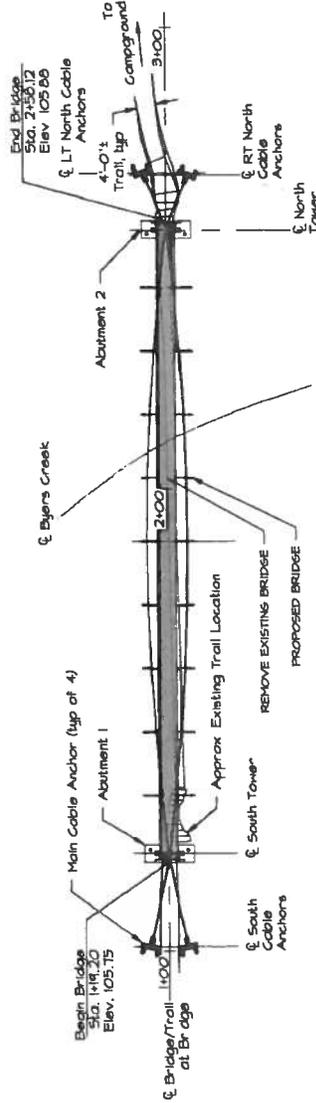


North



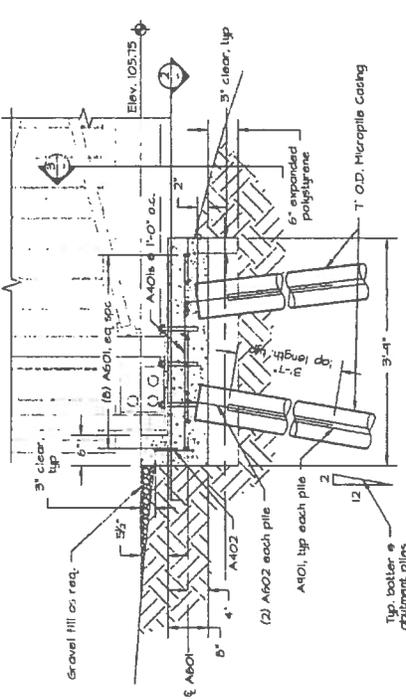


2 Bridge Profile  
 Scale: 1" = 30'

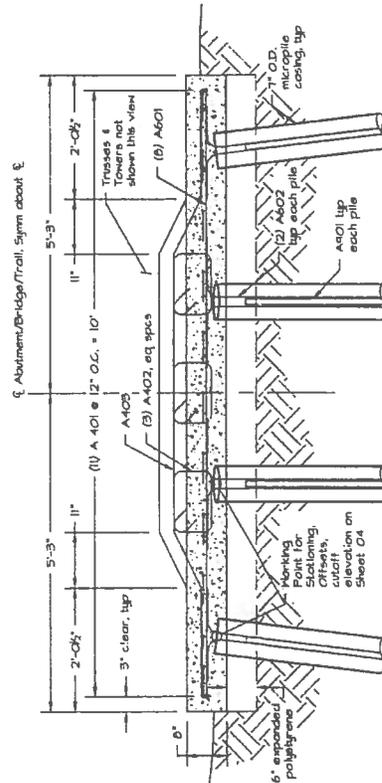


3 Bridge Plan  
 Scale: 1" = 30'

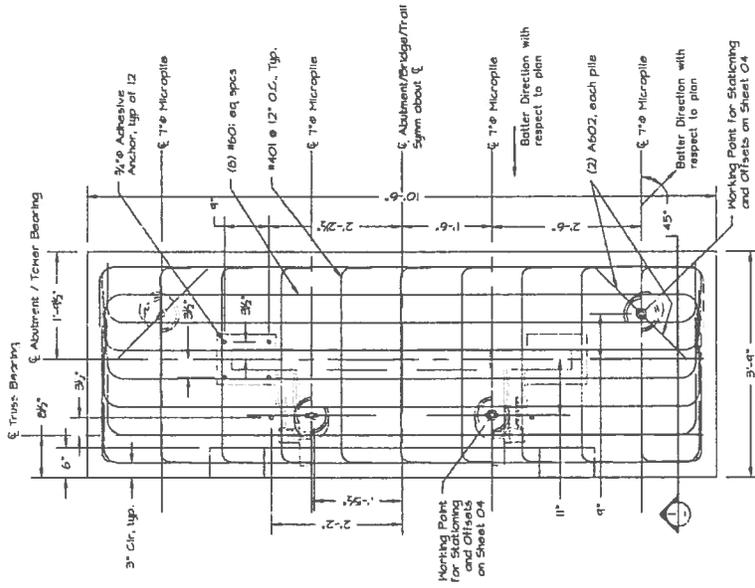
Note 1: O.H. @ 5m.



1 Abutment Profile  
Scale: 1/2" = 1'-0"



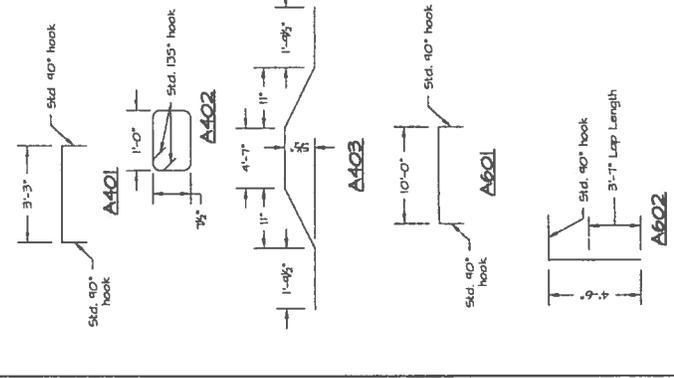
3 Abutment Section  
Scale: 1/2" = 1'-0"



2 Abutment Plan View  
Scale: 1/2" = 1'-0"

**REINFORCING STEEL - ONE ABUTMENT**

MARK	SIZE	NO.	LENGTH	TYPE
A401	4	II	4'-7"	Bent
A402	4	5	4'-0"	Bent
A403	4	I	10'-3"	Bent
A501	6	D	12'-0"	Bent
A502	6	D	5'-5"	Bent
A404	4	4	Varies - B	Bent



A. Length does not include length of lap splices. Minimum lap length for #4 bar is 1'-0". Minimum lap length for #6 bar is 3'-7". Minimize number of splices required to the maximum extent possible.  
B. 1/2" less than the depth of the Micropile. See Sheet 04.



Do not scale any critical dimensions to derive critical dimension if missing. Request clarification from the Engineer of Record.  
Plans Developed By: Giesse Technical Services, Inc.



# **APPENDIX B**

## **SPECIAL REPORTS**

1. "Geotechnical Report for Byers Lake Bridge Design, Mile 147 Parks Highway", Hattenburg Dilley & Linnell Engineering Consultants, August 3, 2016

Note that this report does not serve as substitution for the requirements of Subsection 102-1.04. Contractors are highly encouraged to conduct an examination of the work site as per Subsection 102-1.04 Examination of Plans, Specifications, Special Provisions, and Work Site.





## REVISED GEOTECHNICAL REPORT

For

Byers Lake Bridge Design  
Mile 147 Parks Highway, Alaska

Prepared By:  
Doug P. Simon, P.E.  
Geotechnical Services Manager

**HDL** ENGINEERING  
Consultants

3335 Arctic Blvd., Ste. 100  
Anchorage, AK 99503  
Phone: 907.564.2120  
Fax: 907.564.2122

August 3, 2016

# **REVISED GEOTECHNICAL REPORT**

**For**

**Byers Lake Bridge Design**

Prepared for:

**Giessel Technical Services, Inc.**

HDL Project Number 14-118

Prepared By:

Doug P. Simon, P.E.  
Geotechnical Services Manager

HDL Engineering Consultants, LLC  
3335 Arctic Boulevard, Suite 100  
Anchorage, AK 99503  
Phone: 907.564.2120  
Fax: 907.564.2122  
AELC831

August 3, 2016

**TABLE OF CONTENTS**

<b>1.0</b>	<b>PURPOSE AND SCOPE</b> .....	<b>1</b>
<b>2.0</b>	<b>PROJECT AND SITE DESCRIPTION</b> .....	<b>1</b>
<b>3.0</b>	<b>LOCAL CONDITIONS</b> .....	<b>3</b>
3.1	<b>GENERAL GEOLOGY</b> .....	<b>3</b>
3.2	<b>SEISMICITY</b> .....	<b>3</b>
3.3	<b>CLIMATOLOGY</b> .....	<b>4</b>
<b>4.0</b>	<b>SUBSURFACE EVALUATION</b> .....	<b>4</b>
<b>5.0</b>	<b>LABORATORY TESTING</b> .....	<b>6</b>
<b>6.0</b>	<b>SUBSURFACE CONDITIONS</b> .....	<b>6</b>
6.1	<b>ORGANICS</b> .....	<b>6</b>
6.2	<b>SAND AND SILT</b> .....	<b>6</b>
6.3	<b>TILL</b> .....	<b>6</b>
6.4	<b>GROUNDWATER</b> .....	<b>7</b>
<b>7.0</b>	<b>ENGINEERING RECOMMENDATIONS AND ANALYSIS</b> .....	<b>7</b>
7.1	<b>FOUNDATION TYPE</b> .....	<b>7</b>
7.2	<b>EXPECTED SUBSURFACE CONDITIONS</b> .....	<b>7</b>
7.3	<b>FROST ANALYSIS</b> .....	<b>8</b>
7.4	<b>ESTIMATED MICROPILE BOND LENGTH</b> .....	<b>8</b>
7.5	<b>MICROPILE HORIZONTAL RESISTANCE</b> .....	<b>8</b>
7.6	<b>SHALLOW FOUNDATION BEARING CAPACITY</b> .....	<b>9</b>
7.7	<b>CONSTRUCTION CONSIDERATIONS</b> .....	<b>9</b>
<b>8.0</b>	<b>CLOSURE AND LIMITATIONS</b> .....	<b>10</b>

**LIST OF FIGURES**

Figure 1	Vicinity Map
Figure 2	Borehole Location Map

**LIST OF APPENDICIES**

Appendix A	Figure A1	Unified Soil Classification System
	Figure A2	Frost Design Soil Classification
	Figure A3	Boring Logs

**REVISED GEOTECHNICAL REPORT**  
**BYERS LAKE BRIDGE DESIGN**  
**MILE 147, PARKS HIGHWAY, ALASKA**

**1.0 PURPOSE AND SCOPE**

This report summarizes the results of the subsurface exploration and laboratory testing for the proposed Byers Lake Bridge Design project located at approximately Mile Post 147 of the Parks Highway, north of Trappers Creek, Alaska. This report was revised to include the results of additional subsurface explorations and analysis performed. Included in this report is a description of the project, results of the subsurface explorations, and geotechnical recommendations for the proposed bridge foundations. The subsurface evaluation was performed in general accordance with the procedures outlined in the “Alaska Geotechnical Procedures Manual” (Department of Transportation and Public Facilities).

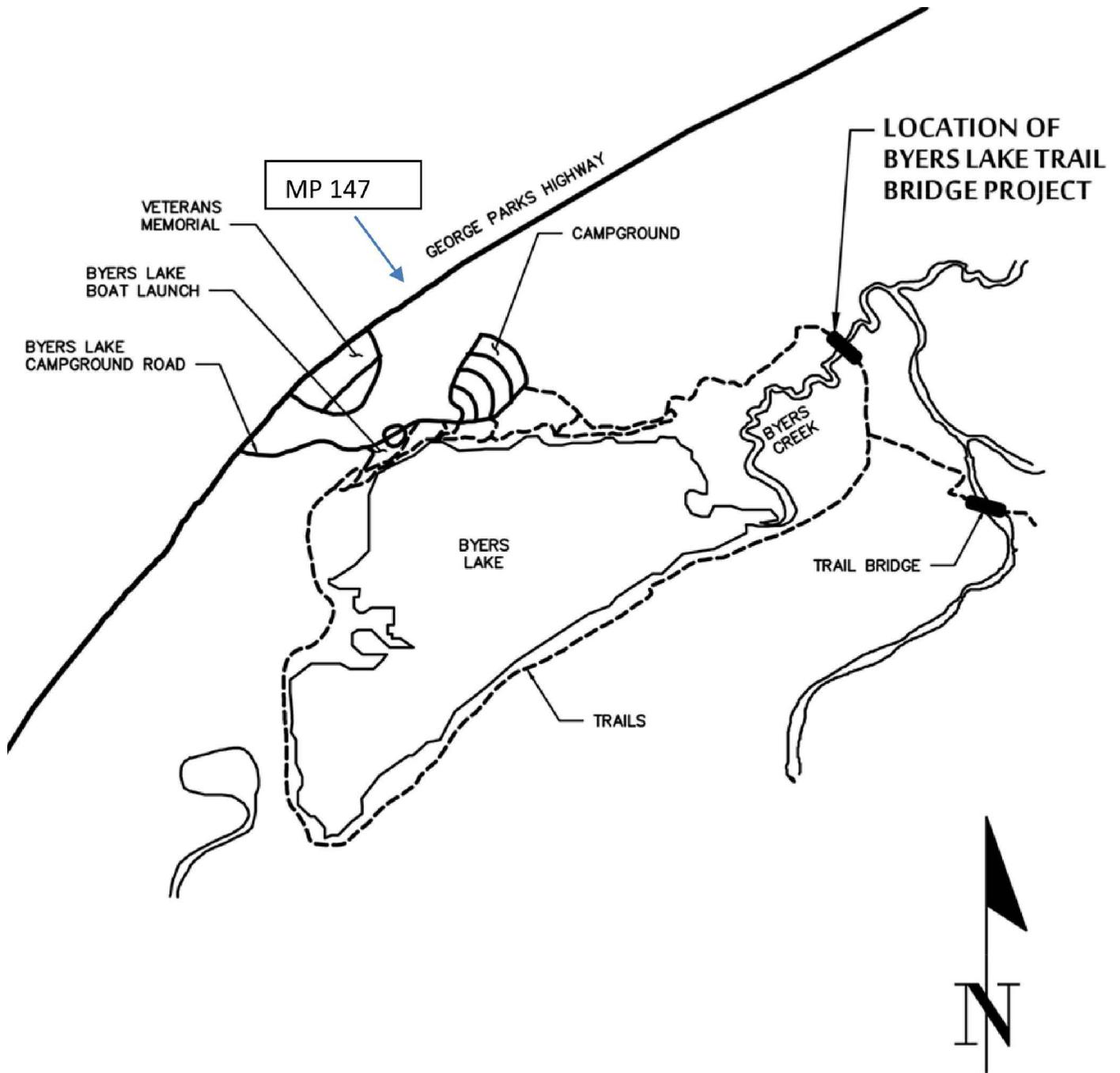
This report has been prepared by HDL Engineering Consultants, LLC (HDL) for Giessel Technical Services, Inc (GTS). The purpose of the subsurface explorations and laboratory tests were to evaluate the soil and groundwater conditions at the site in general accordance with requirements established in the request for proposal.

**2.0 PROJECT AND SITE DESCRIPTION**

The proposed project consists of a pedestrian suspension bridge over Byers Creek at the Byers Lake Campground. The location of the project is shown on the Locus Map provided as Figure 1. The project was the subject of a capstone design project by University of Alaska – Anchorage (UAA) students. The result of the capstone project was a 35% design that provided conceptual recommendations for the bridge and foundations. The recommended foundations were micropiles but no geotechnical evaluation was conducted to support the proposed design.

Based on information provided by GTS, the micropile tower foundations will have a maximum factored axial compression load of approximately 45 kips. The maximum factored horizontal shear load is expected to be 3.3 kips with a corresponding axial compression load of 15 kips. The maximum factored tension load on the cable anchor piles is 35 kips assuming an anchor angle of 30 degrees from horizontal. Based on the topographic information provided by GTS, the north and south abutments will be located approximately eight (8) feet and four (4) feet above the banks of the creek, respectively.

H:\jobs\14-118 Byers Lake Bridge (GTS)\CAD\Drawings\14-118\_00\_FIG-1, 1=1, 12/10/14 at 11:03 by jkk  
LAYOUT: Layout1



NOTE:

TAKEN FROM UNIVERSITY OF ALASKA, ANCHORAGE "FINAL REPORT BYERS LAKE TRAIL BRIDGE" REPORT FROM SPRING 2014.

The project and subsurface descriptions presented herein are based on our current understanding of the project as of the date of this document. Deviation from the proposed structure type, foundation, or location, as outlined within this report may require further evaluation of subsurface conditions.

### **3.0 LOCAL CONDITIONS**

#### **3.1 General Geology**

The project area is located in the Broad Pass Depression and is bounded to the south by the Fog Lakes Upland of the Talkeetna Mountain Physiographic Division (Wahrhaftig, 1965)<sup>1</sup>. The Broad Pass Depression is generally characterized as 1,000-2,500 feet in elevation and five (5) miles wide, and is a trough with a glaciated floor that opens to the east into a broad glaciated lowland with rolling morainal topography and central outwash flats. The bounding mountain walls of the trough are several thousand feet high. Long, narrow, drumlin-like hills on the floor of the trough trend parallel to its axis, and the main streams in the trough are incised in rock-walled gorges a few hundred feet deep. The trough opens to the south into the Cook Inlet-Susitna Lowland. To the south and east of the project area is the Fog Lakes Upland of the Talkeetna Mountains, which is generally described as a northeast-trending area of broad rolling summits, 3,000-4,500 feet in elevation, which has a glacially sculpted, mammillated surface in its southwestern part but is unglaciated in the northeastern part.

The bedrock of the Broad Pass Depression as published in the Physiographic Divisions of Alaska, 1965, consists of patches of poorly consolidated Tertiary coal-bearing rocks in fault contact with older rocks of the surrounding mountains. Most of the bedrock consists of highly deformed, slightly metamorphosed Paleozoic and Mesozoic rocks that are also exposed in the surrounding mountains. Ground moraines mantle the lowland areas.

A review of the existing topographic mapping in the area and field observations of the nearby vicinity indicate that the northern bridge abutment is situated on a bedrock ridge or drumlin-like feature and the southern abutment appears to be located on morainal remnants. Localized mammillated surface features are present; however, detailed mapping of the area is beyond the extent of this report.

#### **3.2 Seismicity**

The project is located in a region of moderate seismicity and large-scale earthquakes may cause ground ruptures in some areas. Based on the Alaska Earthquake Information Database, there were 123 events above Richter Magnitude 4 in the region from 1898 through 2013, of which 2 exceeded Richter Magnitude 6.0<sup>1</sup>. The United States Geologic Survey (USGS) Seismic Design Maps website search indicated a Peak Ground Acceleration (PGA) of 0.446g in the area.

---

<sup>1</sup>Wahrhaftig, Clyde, *Physiographic Divisions of Alaska*, Geological Survey Professional Paper 482, 1965

### 3.3 *Climatology*

The project is located in Alaska's Interior, along the Parks Highway, approximately 14 miles north of Trapper Creek. The average minimum temperatures recorded for Trapper Creek in December are approximately 7.6°F, while the warmest month, June, records average temperatures of approximately 79.2°F. Temperatures have been recorded as low as -28 °F in winter and as high as 97 °F in summer<sup>2</sup>. Annual precipitation averages 30 inches of rain and 112 inches of snowfall.

## 4.0 SUBSURFACE EVALUATION

The soil conditions along the slope of the north abutment were observed during a site visit prior to drilling in November of 2014. The soils observed were generally granular with varying amounts of fines. In addition, boulders up to approximately three (3) feet in diameter were observed along the cross slope of the drumlin.

One (1) soil boring, designated BH-01, was advanced to a depth of 10.5 feet below existing ground surface (bgs) in November of 2014 near the proposed tower foundation for the north abutment. Due to the layer of ice that fell the previous night and the limited mobility of the drill rig, the boring was located along a flat area below and to the east of the proposed abutment. Eight (8) additional borings, designated BH-02 through BH-09, were augered to depths of up to 6.5 feet with hand tools in June of 2016. The approximate boring locations are shown on the Borehole Location Map provided as Figure 2.

Boring BH-01 was drilled by GeoTek Alaska of Anchorage, Alaska working as a subcontractor to HDL. The borings were advanced using a Geoprobe® 6620, track mounted drill rig with a 3-¼" inside diameter (I.D.) hollow stem auger. Split-spoon sampling was conducted in accordance with the Standard Penetration Test (SPT) Procedure as outlined in the ASTM International (ASTM) designation D1586. Split-spoons were advanced into the bottom of the boring with blows from a 140-pound hammer free-falling 30 inches onto the drill rod. The number of blows required to advance the sampler the bottom 12 inches of an 18-inch sample is termed the Penetration Resistance, designated as the "N-value", which was recorded for each sample depth. The values give a measure of the relative density (compactness) or consistency (stiffness) of cohesionless and cohesive soils, respectively. A dynamic cone penetrometer was used to evaluate the relative strength of soils in boring BH-02.

An experienced HDL engineer was present during drilling to locate the boring, observe drilling action, collect samples, log subsurface conditions, and observe groundwater depths, where encountered. Upon completion, the boring was backfilled with native material to approximately match existing grade.

---

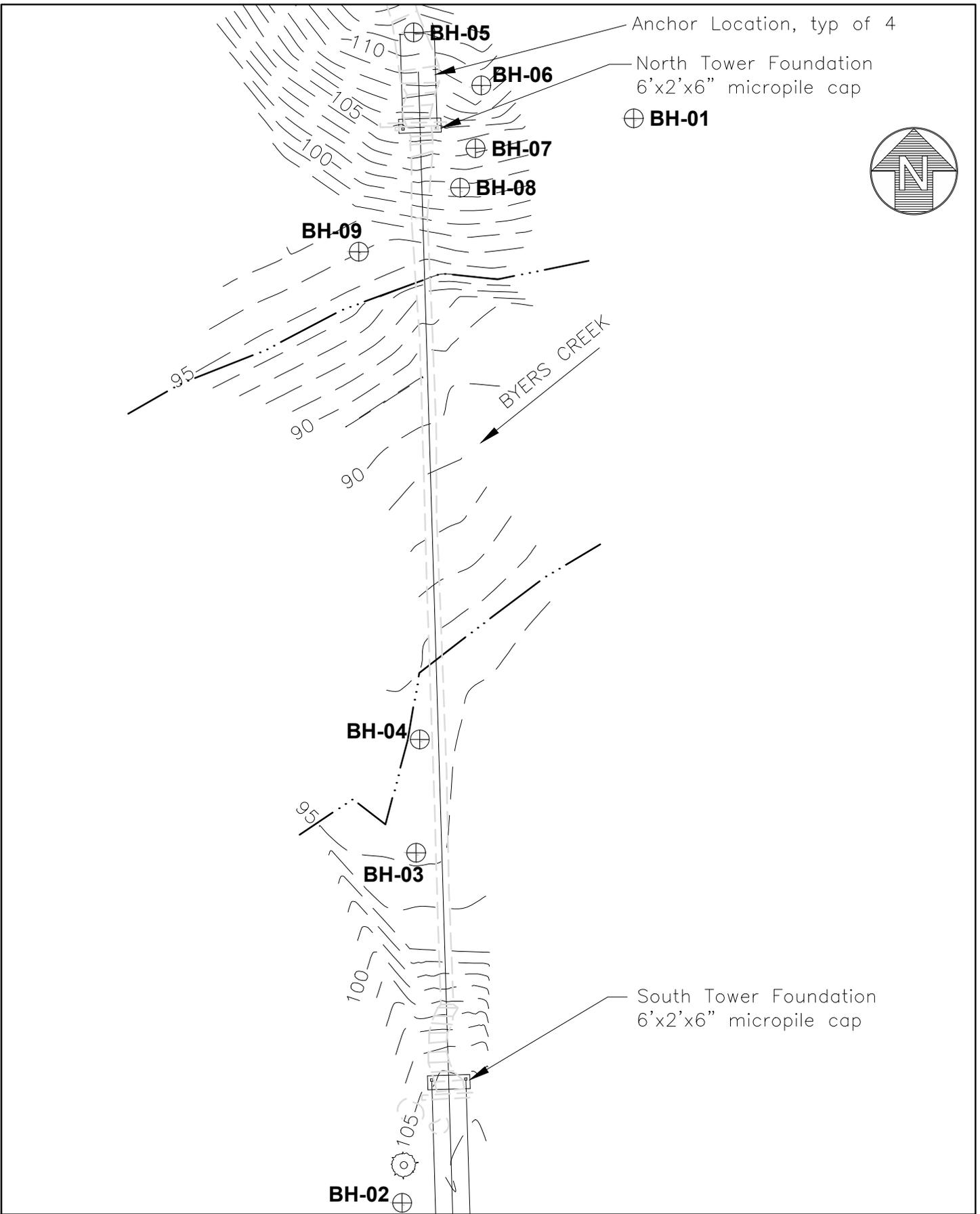
<sup>2</sup>Alaska Community Information Database.

<http://commerce.alaska.gov/cra/DCRAExternal/community/Details/6b548bb4-6717-4f40-91f8-5d3160871555>

<sup>3</sup> Alaska Community Information Database. <http://commerce.alaska.gov/cra/DCRAExternal/community/>

H:\jobs\14-118\_Byers Lake Bridge (GTS)\CAD\Drawings\14-118\_00\_FIG-2, 1=1, 12/10/14 at 11:05 by jkk  
LAYOUT: Figure-2

XREF: BASE MAP, BUYER\_LAKE\_CONTOUR, TITLE BLOCK



GIESSEL TECHNICAL SERVICES, INC.  
EAGLE RIVER, ALASKA

Figure 2  
**BYERS LAKE BRIDGE DESIGN**  
**BOREHOLE LOCATION MAP**

The recovered soils were classified in the field in general accordance with ASTM D2488. Samples were collected and delivered to HDL's laboratory for further testing.

## **5.0 LABORATORY TESTING**

Laboratory testing of the soil samples was conducted at HDL's American Association of State Highway and Transportation Officials (AASHTO) Materials Reference Laboratory (AMRL) accredited and United States Army Corps of Engineers (USACE) validated laboratory. Select laboratory tests were performed on samples recovered from the boring to confirm or modify field classifications in accordance with the Unified Soil Classification System as summarized in Appendix A, Figure A1. As appropriate, the samples were also classified for frost design characteristics based on the results of laboratory tests in accordance with the USACE System as presented in Figure A2.

Moisture content tests were performed on four (5) samples in accordance with ASTM D2216. The results of the moisture content tests are provided on the attached boring logs. One (1) grain size distribution test was performed in accordance with ASTM D422. The results of the grain size distribution test are provided in Appendix A.

## **6.0 SUBSURFACE CONDITIONS**

Seven of the borings encountered auger refusal. At boring BH-01, auger refusal was encountered at a depth of 10.5-feet bgs. The boring was offset ten (10) feet and re-drilled with auger refusal again being encountered at a depth of 10.5-feet bgs. It appears the subsurface conditions generally consist of a shallow layer of soil underlain by what we interpret to be bedrock. The subsurface conditions are further described below, and detailed information can be found on the boring logs.

### **6.1 Organics**

A layer of organics was encountered at the surface of borings BH-01, and BH-07 through BH-09. The thickness of the topsoil ranged from 0.5-feet to 2.5-feet and averaged 1.1-feet.

### **6.2 Sand and Silt**

Sand and silt were encountered at the ground surface or underlying the topsoil in borings BH-01, BH-03, BH-04, and BH-09. The sand and silt was present to depths ranging from 4.5-feet to 8-feet. In boring BH-09, the sand was present to the boring termination depth. N-values in the silt layer were two (2) blows per foot (bpf). The moisture content of the silt varied between 40.4 percent and 45.5 percent. Based on visual observations, the sand and silt layers had high fines contents and would typically be considered highly frost susceptible (F4).

### **6.3 Till**

Till that was predominantly sand and gravel was encountered in borings BH-01, BH-02, and BH-05 through BH-08. The till was observed to the depth of refusal in borings BH-01

and BH-05 through BH-07. The till was present to the termination depth of 6.5-feet in boring BH-02. The measured N-value within the till ranged from 39 to 52 bpf indicating the till was dense to very dense. The measured moisture content of the till was between 16.5 percent and 17.2 percent. Based on visual estimates, the till appeared to be moderately to highly frost susceptible (F2 to F4) with a fines contents up to approximately 20-percent.

#### **6.4 Groundwater**

Groundwater was encountered in borings BH-01, BH-03, BH-04, and BH-09 at a depths of approximately 1.0-foot to 2.5-feet bgs during drilling. Groundwater levels fluctuate depending on the season, temperatures, and infiltration; therefore, groundwater levels during construction may be higher or lower than those observed.

### **7.0 ENGINEERING RECOMMENDATIONS AND ANALYSIS**

The following sections summarize the analysis conducted and provide recommendations for the bridge foundations. The analysis was conducted in general accordance with the procedures outlined in the AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges and by reference, the LRFD Bridge Design Specifications, 7<sup>th</sup> Edition (LRFD).

#### **7.1 Foundation Type**

In addition to the options considered in the UAA report, HDL considered an alternative foundation utilizing helical piers. However, due to the likely presence of large cobbles and boulders within the till layers and bedrock, the option was dismissed due to potential refusal prior to obtaining the necessary nominal resistance. Therefore, we recommend battered micropiles be used to support the proposed bridge at the abutments and for the cable anchors. The micropiles at the abutment should be battered 80 degrees from horizontal while the micropiles at the cable anchors should be battered 30 degrees from horizontal. Type A micropiles may be used and should be 7.0-inches in diameter. The micropiles should be cased a minimum of 1.0-foot into bedrock or to a depth of 10-feet bgs, whichever occurs first. Type A micropiles consist of placing sand-cement mortar or neat cement grout in the pile under a gravity head. We recommend the center-to-center spacing of the piles should be a minimum of five (5) times the diameter to avoid group effects.

#### **7.2 Expected Subsurface Conditions**

The subsurface conditions were reviewed for design of the micropile bond zone analysis. In general, the subsurface conditions consisted of a thin layer of sand and silt or till underlain by competent material that resulted in auger refusal. The augers may have encountered refusal due to large cobbles and boulders, as exposed in the face of the existing slopes. However, the relatively consistent elevation of refusal in the borings along the creek bottom and the persistent refusal of borings along the slope near the north abutment have been interpreted to infer the presence of shallow bedrock.

When developing the parameters for geotechnical resistance, we have assumed the micropiles will bond to material providing the equivalent resistance of weak rock below the sand and silt or till overburden. This results in an estimated Grout-to-Ground bond resistance value of 10.8 kip per square feet (ksf). The actual subsurface conditions should be evaluated during construction by HDL to verify that the design assumptions are valid. If differing soil conditions or bedrock is encountered, the Grout-to-Ground resistance may need to be altered the required micropile length adjusted.

### 7.3 Frost Analysis

The anticipated depth of frost penetration was estimated utilizing the BERG2 Micro-Computer Estimation of Freeze and Thaw Depths and Thaw Consolidation computer program. Based on the anticipated design and mean freezing and thawing indices consistent with conditions of the local climate regime, the anticipated depth of frost penetration is approximately 10.0-feet bgs; therefore, the minimum micropile length shall take into consideration the additional footage to provide adequate resistance below the calculated frost depth unless bedrock is encountered at shallower depths.

### 7.4 Estimated Micropile Bond Length

The minimum micropile bond length was estimated using the assumed soil conditions as discussed in Section 7.2 above. In order to resist the design loads provided by GTS, a minimum bond length of 5-feet and 4-feet is required at the abutment and the cable anchors, respectively. If conditions encountered during construction differ from that assumed, HDL should be contacted to evaluate whether the bond length needs to be modified.

### 7.5 Micropile Horizontal Resistance

We anticipated approximately 0.5 inches of deflection at the head of the abutment micropiles in response to the maximum factored load combination. The expected deflection assumes that the micropile heads are fixed.

The design parameters are summarized in Table 1, below.

**Table 1 – Summary of Design Parameters**

Parameter	Abutments	Cable-Anchors
Foundation	Battered Micropiles (4 each)	Battered Micropiles (2 each)
Micropile size	7.0-inch O.D., 0.5-inch wall thickness	
Micropile Class	Type A	Type A
Bearing Layer	Weak Rock	Weak Rock
Estimated Bond Resistance (ksf)	10.8	10.8
Preliminary Bond Length (ft)	5	4
Phi Factor	0.55	0.55
Nominal Axial Resistance (kip)	44	54
Horizontal Deflection (in)	0.5	NA

### **7.6 Shallow Foundation Bearing Capacity**

We understand that shallow foundations may be used on a temporary basis for pile testing or structure support. The nominal bearing resistance is a function of the foundation geometry, foundation depth, depth to groundwater, subsurface conditions, and other factors. Based on typical foundation dimensions and a depth to groundwater of 1-foot or more, a nominal bearing resistance of 5.5 ksf or greater would be likely for foundations bearing on till. The actual nominal bearing resistance should be developed in accordance with LRFD procedures using an effective friction angle of 24 degrees for the silt and 34 degrees for the till. A resistance factor of 0.45 should be used to develop the factored resistance.

### **7.7 Construction Considerations**

The proposed bridge is in a remote area that is typically inaccessible by equipment. HDL understands that construction is planned for frozen conditions to allow equipment to utilize the lake and/or creek for mobilization to the project site.

The north abutment will be constructed above the creek bank on a steep slope of the adjacent ridge. Access to the foundation locations will be difficult during winter conditions and tree clearing should be expected. In addition, glacial erratics may be encountered within the anticipated depth of the micropiles and the depth to bedrock may be greater than presented herein. The contractor should be prepared to install micropiles through the conditions that may be encountered.

In accordance with LRFD requirements, a tension load test is recommended at each abutment prior to drilling of the cable anchor micropiles. The micropile load test shall be in accordance with ASTM D3689 procedures for the Quick Load Test Method.

The load tests may be performed on a sacrificial pile installed between the abutment piles and the abutment piles may be used for support during the load tests. The test piles should have a bonded length with the bedrock between 2-feet and 3-feet long. The actual bonded length should be measured and provided to HDL.

Additionally, a geotechnical engineer or engineering geologist from HDL should evaluate conditions during drilling and grouting activities. The micropile bond length and overall length may be adjusted in the field with approval from HDL based on the conditions encountered.

## 8.0 CLOSURE AND LIMITATIONS

The analysis and conclusions contained in this report are based on site conditions as they exist in the borings and further assume that the exploratory borings are representative of the subsurface conditions throughout the site, that is, that the subsurface conditions everywhere do not significantly deviate from those encountered in the borings. If, during construction, subsurface conditions differ from those discussed within this report, advise us at once so we can review these conditions.

If substantial time has elapsed between submission of this report and the start of work at the site, or if conditions have changed because of natural causes or construction operations at or adjacent to the site, we recommend that this report be reviewed to determine the applicability of the conclusions considering the time lapse or changed conditions.

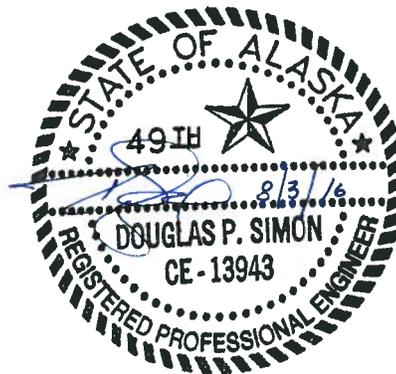
Unanticipated soil conditions are commonly encountered. Such unexpected conditions frequently require additional expenditure to attain a properly constructed project. Therefore, some contingency fund is recommended to accommodate such potential extra costs.

Prepared by:

HDL Engineering Consultants, LLC



Doug P. Simon, P.E.  
Geotechnical Services Manager

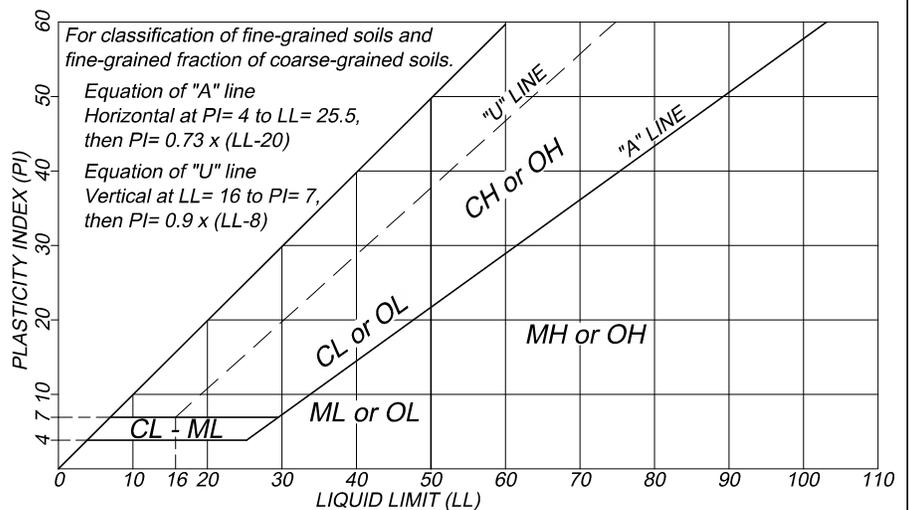


## **APPENDIX A**

Figure A1	Unified Soil Classification System
Figure A2	Frost Design Soil Classification
Figure A3	Boring Logs

# UNIFIED SOIL CLASSIFICATION SYSTEM

<i>Criteria for Assigning Group Symbols and Names</i>			<i>Soil Classification Generalized Group Descriptions</i>		
<b>COARSE-GRAINED SOILS</b> More than 50% retained on No. 200 sieve	<b>GRAVELS</b> 50% or more of coarse fraction retained on No. 4 sieve	<i>CLEAN GRAVELS</i> Less than 5% fines	<b>GW</b>	<i>Well-graded Gravels</i>	
			<b>GP</b>	<i>Poorly-graded Gravels</i>	
		<i>GRAVELS with fines</i> More than 12% fines	<b>GM</b>	<i>Gravel &amp; Silt Mixtures</i>	
			<b>GC</b>	<i>Gravel &amp; Clay Mixtures</i>	
	<b>SANDS</b> More than 50% of coarse fraction passes No. 4 sieve	<i>CLEAN SANDS</i> Less than 5% fines	<b>SW</b>	<i>Well-graded Sands</i>	
			<b>SP</b>	<i>Poorly Graded Sands</i>	
<i>SANDS with FINES</i> More than 12% fines		<b>SM</b>	<i>Sand &amp; Silt Mixtures</i>		
		<b>SC</b>	<i>Sand &amp; Clay Mixtures</i>		
<b>FINE-GRAINED SOILS</b> 50% or more passes the No. 200 sieve	<b>SILTS AND CLAYS</b> Liquid limit 50% or less	<i>INORGANIC</i>	<b>ML</b>	<i>Non-plastic &amp; Low Plasticity Silts</i>	
			<b>CL</b>	<i>Low-plasticity Clays</i>	
		<i>ORGANIC</i>	<b>OL</b>	<i>Non-plastic and Low Plasticity Organic Clays Non-plastic and Low Plasticity Organic Silts</i>	
				<b>CH</b>	<i>High-plasticity Clays</i>
	<b>SILTS AND CLAYS</b> Liquid limit greater than 50%	<i>INORGANIC</i>	<b>MH</b>	<i>High-plasticity Silts</i>	
			<i>ORGANIC</i>	<b>OH</b>	<i>High plasticity Organic Clays High Plasticity Organic Silts</i>
<b>PT</b>	<i>Peat</i>				
<b>HIGHLY ORGANIC SOILS</b>	<i>Primarily organic matter, dark in color, and organic odor</i>				



H:\jobs\14-118 Byers Lake Bridge (GTS)\CAD\Drawings\14-118\_00\_FIG1, 1=1, 12/11/14 at 08:49 by jkk LAYOUT: Layout1

**FROST DESIGN SOIL CLASSIFICATION**  
(Modeled after U.S. Army Corps of Engineers Standards)

<i>GROUP</i>	<i>KIND OF SOIL</i>	<i>P200</i>	<i>TYPICAL SOILS</i>
<i>NFS</i>	<i>Sand or Gravel</i>	<i>0 to 6</i>	<i>SW, SP GW, GP</i>
<i>F1</i>	<i>Gravelly Soils</i>	<i>6 to 10</i>	<i>GM, GW-GM, GP-GM</i>
<i>F2</i>	<i>Gravelly Soils Sands</i>	<i>10-20 6-15</i>	<i>GM, GW-GM, GP-GM SW, SP, SM, SW-SM, SP-SM</i>
<i>F3</i>	<i>Gravelly Soils  Sands, except very fine silty sands  Clays PI &gt; 12</i>	<i>Over 20  Over 15</i>	<i>GM, GC  SM, SC CL, CH  CL, CH</i>
<i>F4</i>	<i>All Silts  Very fine silty sands  Clays, PI &lt; 12  Varved clays and other fine-grained, banded sediments</i>	<i>Over 15</i>	<i>ML, MH  SM  CL, CL-ML  CL and ML CL, ML, and SM; CL, CH, and ML; CL, CH, ML, and SM</i>

*P200 = percent passing the number 200 sieve*

H:\jobs\14-118 Byers Lake Bridge (GTS)\CAD\Drawings\14-118\_00\_FIGA2, 1=1, 12/09/14 at 10:02 by jkk  
LAYOUT: Layout1

PROJECT NUMBER : 14-118  
 PROJECT : Byers Lake Bridge Replacement  
 CLIENT : Giessel Technical Services, Inc.

Station / Location: N. Side Byers Creek  
 Lat/Long:  
 Elevation:

Equipment Type: 6620 DT  
 Drilling Method: Hollow-Stem Auger  
 Field Crew: GeoTek Alaska

Total Depth: 10.5 feet  
 Date: 11/17/2014  
 Geologist: V. Pate

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data			SUBSURFACE MATERIAL		
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date		Symbol	
0									2.5		11/17/14	▽	Organic, gravelly, silty SAND w/ cobbles	0.0
2.5													SILT, some sand; fine; tan, wet, very loose Moisture =45.5%	2.5
3	SS	1	1		2									
4			1											
5			2										SILT, some sand; fine; tan, wet, very loose Moisture =40.4%	5.0
6	SS	2	1		2									
7			1											
8			6										SILT, trace sand; fine; brown, wet Moisture =40.8%	7.5
8.1	SS	3	21		39								Poorly-graded SAND, fine; little silt, gray, wet, dense Moisture =16.5%	8.1
9			18											
9.0			6										Well-graded SAND, fine to coarse; some gravel, fine; gray, wet, very dense	9.0
10	SS	4	17		52								Moisture =17.2%	10.0
10.5			35											10.5
													Notes: Refusal penetration at 10.5ft bgs. Moved rig and attempted to drill beyond 10.5ft and could not.	10.5

A USCS LOG OF TEST HOLE 14-118\_LOGS.GPJ\_HDL MODIFIED.GDT 8/3/16

Figure A3

PROJECT NUMBER : 14-118  
 PROJECT : Byers Lake Bridge Replacement  
 CLIENT : Giessel Technical Services, Inc.

Station / Location: S. Side Byers Creek  
 Lat/Long:  
 Elevation:

Equipment Type: Hand Tools  
 Drilling Method: Hand Auger  
 Field Crew: HDL

Total Depth: 6.5 feet  
 Date: 6/2/2016  
 Geologist: D. Simon

Depth (Feet)	Sample Data						USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data		
	Sample Type	Number	Blow Count	Sample Recovery	N-Value	Depth in (ft.)				Time	Date	Symbol
0									SUBSURFACE MATERIAL			
0.0									Well-graded SAND, fine to coarse; with gravel, fine to coarse; trace to little silt, brown, moist			
1												
2												
3									1 PR = 7, Moisture =26.1% P200 =13.8%, Sa =47.2%, Gr =29.0%			
4	GRAB	1										
5												
6												
6.5								BOH 6.5	Notes: End of boring at 6.5 feet.			

A USCS LOG OF TEST HOLE\_14-118\_LOGS.GPJ\_HDL\_MODIFIED.GDT\_8/3/16

Figure A4

# LOG OF BORING

**HOLE # BH-03**

**PROJECT NUMBER :** 14-118  
**PROJECT :** Byers Lake Bridge Replacement  
**CLIENT :** Giessel Technical Services, Inc.

Station / Location: *S. Side Byers Creek*  
 Lat/Long:  
 Elevation:

Equipment Type: *Hand Tools*  
 Drilling Method: *Hand Auger*  
 Field Crew: *HDL*

Total Depth: *4.5 feet*  
 Date: *6/2/2016*  
 Geologist: *D. Simon*

Depth (Feet)	Sample Data						USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data		SUBSURFACE MATERIAL
	Sample Type	Number	Blow Count	Sample Recovery	N-Value	Depth in (ft.)				Time	Date	
0									1	1.0		
1									6/2/16	6/2/16		
2									▽	▼		
3												
4												
4.5												

Poorly-graded SAND, fine to medium; some silt, brown, wet

Notes:  
Auger refusal at 4.5 feet.

A USCS LOG OF TEST HOLE 14-118\_LOGS.GPJ HDL MODIFIED.GDT 8/3/16

Figure A5

# LOG OF BORING

**HOLE # BH-04**

**PROJECT NUMBER :** 14-118  
**PROJECT :** Byers Lake Bridge Replacement  
**CLIENT :** Giessel Technical Services, Inc.

Station / Location: *S. Side Byers Creek*  
 Lat/Long:  
 Elevation:

Equipment Type: *Hand Tools*  
 Drilling Method: *Hand Auger*  
 Field Crew: *HDL*

Total Depth: *6.0 feet*  
 Date: *6/2/2016*  
 Geologist: *D. Simon*

Depth (Feet)	Sample Data						USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data	
	Sample Type	Number	Blow Count	Sample Recovery	N-Value	Depth in (ft.)				Time	
0									1	1.0	
1									6/2/16	6/2/16	
2									▽	▼	
3									SUBSURFACE MATERIAL		
4									Poorly-graded SAND, fine to medium; some silt, brown, wet		
5										0.0	
6									Notes: Auger refusal at 6.0 feet.		
								BOH 6		6.0	

A USCS LOG OF TEST HOLE 14-118\_LOGS.GPJ HDL MODIFIED.GDT 8/3/16

Figure A6

# LOG OF BORING

**HOLE # BH-05**

*PROJECT NUMBER : 14-118*  
*PROJECT : Byers Lake Bridge Replacement*  
*CLIENT : Giessel Technical Services, Inc.*

Station / Location: *N. Side Byers Creek*  
 Lat/Long:  
 Elevation:

Equipment Type: *Hand Tools*  
 Drilling Method: *Hand Auger*  
 Field Crew: *HDL*

Total Depth: *2.0 feet*  
 Date: *6/2/2016*  
 Geologist: *D. Simon*

Depth (Feet)	Sample Data						USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data		
	Sample Type	Number	Blow Count	Sample Recovery	N-Value	Depth in (ft.)				Time	Date	Symbol
0									SUBSURFACE MATERIAL			
0.0									Well-graded SAND, fine to coarse; with gravel, fine to coarse; trace to little silt, brown, moist			
1												
2								BOH 2	Notes: Auger Refusal at 2.0 feet.			
2.0												

A USCS LOG OF TEST HOLE\_14-118\_LOGS.GPJ\_HDL\_MODIFIED.GDT\_8/3/16

Figure A7

# LOG OF BORING

**HOLE # BH-06**

PROJECT NUMBER : 14-118  
 PROJECT : Byers Lake Bridge Replacement  
 CLIENT : Giessel Technical Services, Inc.

Station / Location: N. Side Byers Creek  
 Lat/Long:  
 Elevation:

Equipment Type: Hand Tools  
 Drilling Method: Hand Auger  
 Field Crew: HDL

Total Depth: 3.5 feet  
 Date: 6/2/2016  
 Geologist: D. Simon

Depth (Feet)	Sample Data						USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data		
	Sample Type	Number	Blow Count	Sample Recovery	N-Value	Depth in (ft.)				Time	Date	Symbol
0									SUBSURFACE MATERIAL			
0.0									Well-graded SAND, fine to coarse; with gravel, fine to coarse; trace to little silt, brown, moist			
1												
2												
3												
3.5								BOH 3.5	Notes: Auger Refusal at 3.5 feet.			

A USCS LOG OF TEST HOLE 14-118\_LOGS.GPJ HDL MODIFIED.GDT 8/3/16

Figure A8

# LOG OF BORING

**HOLE # BH-07**

**PROJECT NUMBER :** 14-118  
**PROJECT :** Byers Lake Bridge Replacement  
**CLIENT :** Giessel Technical Services, Inc.

Station / Location: *N. Side Byers Creek*  
 Lat/Long:  
 Elevation:

Equipment Type: *Hand Tools*  
 Drilling Method: *Hand Auger*  
 Field Crew: *HDL*

Total Depth: *2.0 feet*  
 Date: *6/2/2016*  
 Geologist: *D. Simon*

Depth (Feet)	Sample Data						USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data			SUBSURFACE MATERIAL
	Sample Type	Number	Blow Count	Sample Recovery	N-Value	Depth in (ft.)				Time	Date	Symbol	
0												Organic Topsoil	0.0
1												Well-graded SAND, fine to coarse; with gravel, fine to coarse; trace to little silt, brown, moist	0.5
2												Notes: Auger Refusal at 2.0 feet	2.0

A USCS LOG OF TEST HOLE\_14-118\_LOGS.GPJ\_HDL\_MODIFIED.GDT\_8/3/16

Figure A9

PROJECT NUMBER : 14-118  
 PROJECT : Byers Lake Bridge Replacement  
 CLIENT : Giessel Technical Services, Inc.

Station / Location: N. Side Byers Creek  
 Lat/Long:  
 Elevation:

Equipment Type: Hand Tools  
 Drilling Method: Hand Auger  
 Field Crew: HDL

Total Depth: 3.0 feet  
 Date: 6/2/2016  
 Geologist: D. Simon

Depth (Feet)	Sample Data						USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data		
	Sample Type	Number	Blow Count	Sample Recovery	N-Value	Depth in (ft.)				Time	Date	Symbol
0									SUBSURFACE MATERIAL			
0.0									Organic Topsoil			
0.5									Well-graded SAND, fine to coarse; with gravel, fine to coarse; trace to little silt, brown, moist			
1												
2												
3												
3.0									Notes: Auger Refusal at 3.0 feet			

A USCS LOG OF TEST HOLE 14-118\_LOGS.GPJ HDL MODIFIED.GDT 8/3/16

Figure A10

PROJECT NUMBER : 14-118  
 PROJECT : Byers Lake Bridge Replacement  
 CLIENT : Giessel Technical Services, Inc.

Station / Location: N. Side Byers Creek  
 Lat/Long:  
 Elevation:

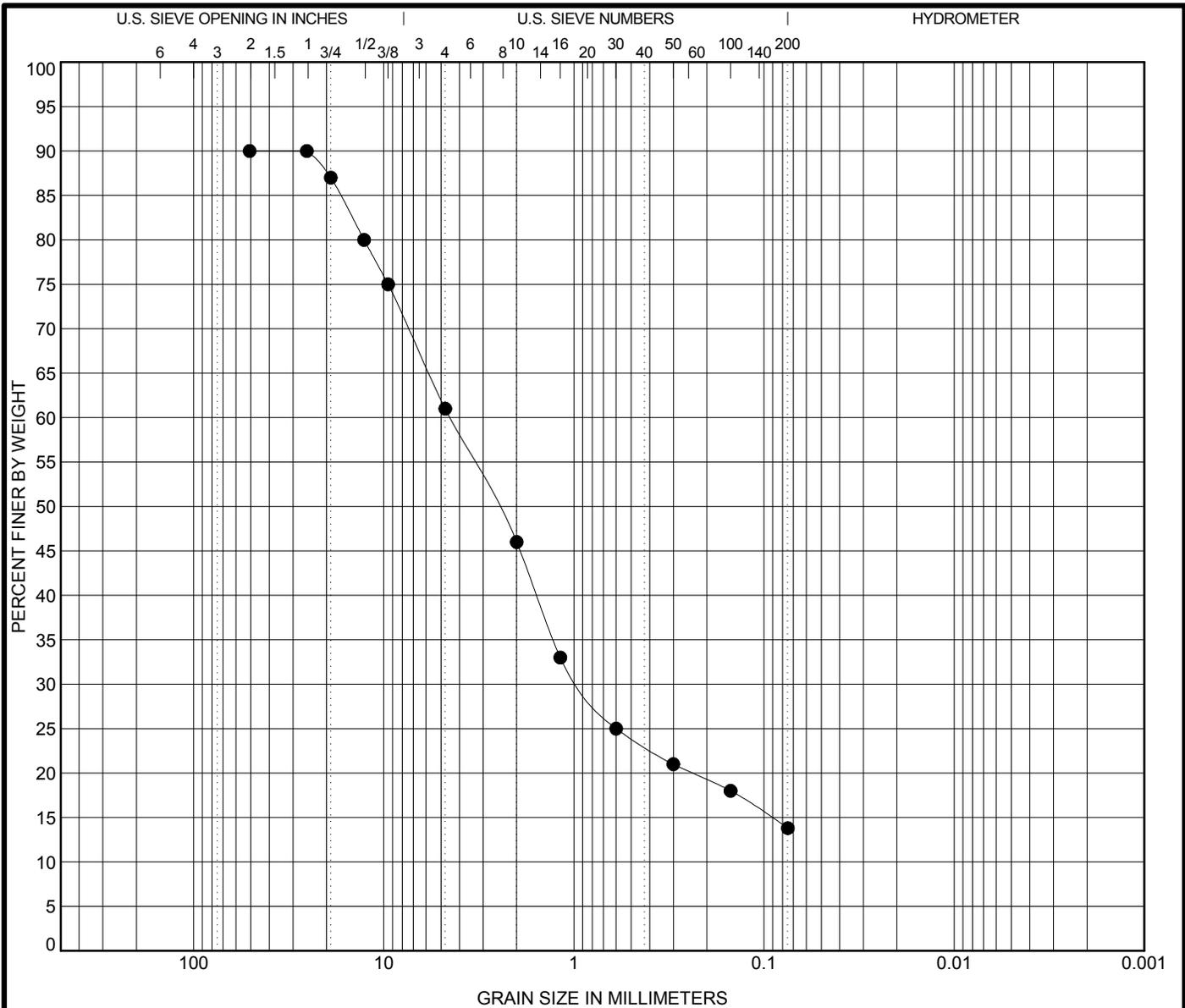
Equipment Type: Hand Tools  
 Drilling Method: Hand Auger  
 Field Crew: HDL

Total Depth: 6.5 feet  
 Date: 6/2/2016  
 Geologist: D. Simon

Depth (Feet)	Sample Data						USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data	
	Sample Type	Number	Blow Count	Sample Recovery	N-Value	Depth in (ft.)				Time	
0									1	1.0	
1									6/2/16	6/2/16	
									▽	▼	
SUBSURFACE MATERIAL											
0											
1											
2											
3											
4											
5											
6											
6.5											
								BOH 6.5	Notes: End of boring at 6.5 feet.		

A USCS LOG OF TEST HOLE 14-118\_LOGS.GPJ HDL MODIFIED.GDT 8/3/16

Figure A11



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification					LL	PL	PI	Cc	Cu
● BH-02 DEPTH 3.0										

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● BH-02 DEPTH 3.0	50.8	4.484	0.916		29.0	47.2	13.8	

**HDL ENGINEERING**  
**Consultants**  
 3335 Arctic Blvd Ste 100  
 Anchorage, AK 99503  
 Telephone: 907-564-2120  
 Fax: 907-564-2122

**GRAIN SIZE DISTRIBUTION**  
 Project: Byers Lake Bridge Replacement  
 Client: Giessel Technical Services, Inc.  
 Project Number: 14-118

U.S. GRAIN SIZE 14-118 LOGS.GPJ HDL MODIFIED.GDT 8/2/16



**APPENDIX C  
MASTER MATERIAL CERTIFICATION  
LIST (MCL)**



# MASTER MATERIALS CERTIFICATION LIST

Specification	Construction			Design			Statewide	Certificate Location	Manufacturer/Remarks
2015	Approved Products List	Project Engineer	QA/ Materials Engineer	Design Engineer	Bridge Engineer	Traffic Design Engineer	State Materials Engineer	e.g. Binder #	

**Project Name** DSP: Byers Lake, Bridge Replacement Rebid

**Project Number** 78050-3

**Project Engineer Signature**  

**501 STRUCTURAL CONCRETE**

Prepackaged Dry-Combined Materials	ACI Publication 301 Section 4.3.1.3								
Blended Hydraulic Cement Grout	701								
Expanded Polystyrene	ASTM C578 Type XII or Type X								

**503 REINFORCING STEEL**

Reinforcing Steel	709-2.01								
-------------------	----------	--	--	--	--	--	--	--	--

**504 STEEL STRUCTURES**

Galvanized Structural Bridge Rope	709-2.02								
Structural Steel	716								
Bolts	716								
Steel Pins & Rollers	718								

**505 PILING**

Structural Steel Piles	715								
Bar Reinforcement	709-2.01								
Centralizers	709-2.01								
Cement (Non-Shrink Grout)	ASTM C1107								

**507 BRIDGE RAILING**

Steel Railing	722								
---------------	-----	--	--	--	--	--	--	--	--

Specification	Construction			Design			Statewide	Certificate Location e.g. Binder #	Manufacturer/ Remarks
	Approved Products List	Project Engineer	QA/ Materials Engineer	Design Engineer	Bridge Engineer	Traffic Design Engineer	State Materials Engineer		

**641 EROSION, SEDIMENT, AND POLLUTION CONTROL**

BMP Materials

641-2.05									
----------	--	--	--	--	--	--	--	--	--

**716 HIGH TENSILE STRENGTH BOLTS**

High Strength Bolts for Structural Steel Joints

Nuts for ASTM A325 Bolts

Hardened Steel Washers

Serrated Safety Grating

716-2.03									
716-2.03									
716-2.03									
716-2.09									

# **APPENDIX D**

## **Erosion and Sediment Control Plan**

The Alaska Department of Natural Resources (ADNR) Division of Parks and Outdoor Recreation (DPOR) Design and Construction Section (D&C) has created this Erosion and Sediment Control Plan (ESCP). This ESCP shall be amended by the Contractor to incorporate the projects material source sites, HMCP, SPCC, and any other modification the contractor determines is necessary.

The Contractor shall use the attached ESCP to meet Alaska Department of Environmental Conservation requirements for construction.



