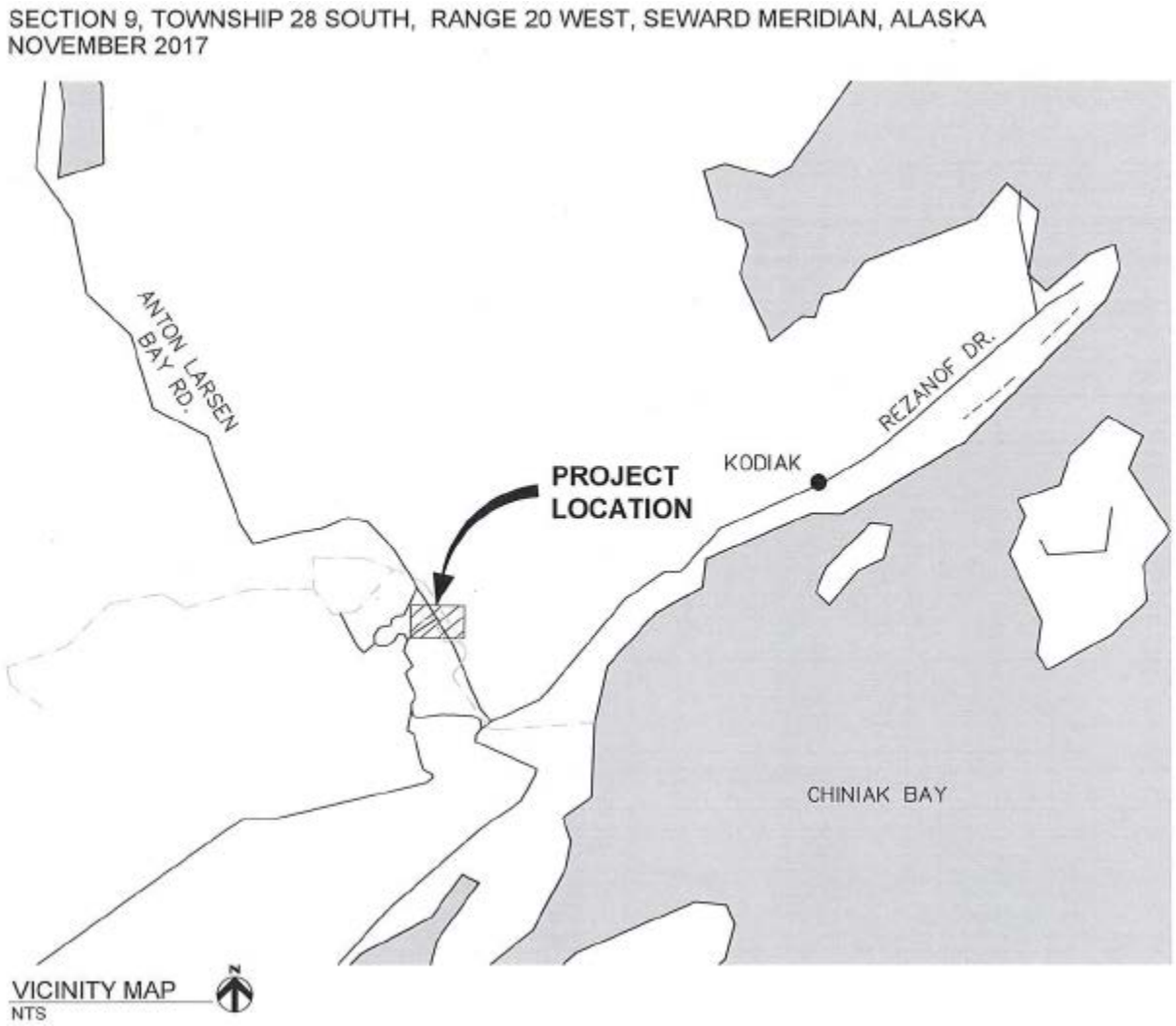
Invitation to Bid 10-001-18



Battery Creek Fish Passage

Battery Creek Road

Kodiak Soil and Water Conservation District

Department of Natural Resources

March 30, 2018

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(Federal Aid)

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

INVITATION FOR BIDS

for Construction Contract

Date _____

Battery Creek Culvert Replacement (10-001-18)

Project Name and Number

Location of Project: **Kodiak, Alaska**

Contracting Officer: Marlys Hagen, DNR Procurement Officer

Issuing Office: Kodiak Soil and Water Conservation District

State Funded ☐ Federal Aid ☒

Description of Work:

This project's purpose is to supply all labor, equipment, materials and supplies required to remove an existing culvert and install a box culvert at a location identified on Battery Creek Road at Battery Creek. The box culvert will be purchased by the Kodiak Soil and Water Conservation District and will be onsite on June 1, 2018.

The Engineer's Estimate is:

- ☐ Less than $100,000
- ☒ Between $100,000 and $250,000
- ☐ Between $250,000 and $500,000
- ☐ Between $500,000 and $1,000,000
- ☐ Between $1,000,000 and $2,500,000
- ☐ Between $2,500,000 and $5,000,000
- ☐ Greater than $5,000,000

All work shall be completed in N/A Calendar Days, or by **August 31, 2018**.
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. 7th Ave., Suite 1330; Anchorage, AK 99501 on the 20th of April 2018.

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:

Bid for Project: **Kodiak Soil and Water Conservation District** **Battery Creek Culvert Replacement** **(10-001-18)**	**ATTN:** **Marlys Hagen** **Department of Natural Resources** **550 West 7th Avenue, Suite 1330** **Anchorage, AK 99501-3571**

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) 269-8909.

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:

Bidders are advised that this project utilizes the 2017 English Edition of the Standard Specifications for Highway Construction. This document can be downloaded at: http://www.dot.state.ak.us/stwddes/dcsspecs/index.shtml#

Plans and Specifications may be requested via email from marlys.hagen@alaska.gov
For additional information contact:

Marlys Hagen
Department of Natural Resources
550 West 7th Avenue, Suite 1330
Anchorage, AK 99501-3571

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: Marlys Hagen, Department of Natural Resources

Marlys Hagen
Department of Natural Resources
550 West 7th Avenue, Suite 1330
Anchorage, AK 99501-3571
Ph: (907)269-8666 / Fax: (907)269-8909
TDD/TTY: (907) 269-8411

All questions concerning bidding procedures should be directed to:

Marlys Hagen
Department of Natural Resources
550 West 7th Avenue, Suite 1330
Anchorage, AK 99501-3571
Ph: (907)269-8666 / Fax: (907)269-8909
TDD/TTY: (907) 269-8411

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

REQUIRED DOCUMENTS

Federal-Aid 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-9)**
2. **Bid Schedule**
3. **Bid Security**
4. Any bid revisions must be submitted by the bidder prior to bid opening on the following form:

   Bid Modification (Form 25D-16)

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-5)**

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-10A)**
2. **Payment Bond (Form 25D-12)**
3. **Performance Bond (Form 25D-13)**
4. **Contractor's Questionnaire (25D-8)**
5. **Certificate of Insurance** (from carrier)
6. **EEO-1 Certification (Form 25A-304)**
7. **Signed Federal Debarment and Certification Form**
8. **Schedule**

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

FEDERAL EEO BID CONDITIONS

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246). FOR ALL NON-EXEMPT FEDERAL AND FEDERALLY-ASSISTED CONSTRUCTION CONTRACTS TO BE AWARDED IN THE STATE OF ALASKA

1. Definitions. As used in these specifications:

   a. "**Covered area**" means the geographical area described in the solicitation from which this contract resulted;

   b. "**Director**" means Director, Office of Federal Contract Compliance Programs (OFCCP), United States Department of Labor (DOL), or any persons to whom the Director delegates authority;

   c. "**Employer**" identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

   d. "**Minority**" includes:

      (1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

      (2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race);

      (3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

      (4) American Indian or Alaska Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the DOL in the covered area, either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades that have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or subcontractor's failure to make good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7(a) through 7(p) of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

Covered construction contractors performing construction work in geographical areas where they do not have a federal or federally-assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any OFCCP office or from federal procurement contracting officers.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period of an approved training program and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

   a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligations to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

   c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

   d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

   e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the DOL. The Contractor shall provide notice of these programs to the sources compiled under 7(b) above.

   f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendent, general foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and dispositions of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-used toilet, necessary changing facilities and necessary sleeping facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontractors from minority and female construction contractors and suppliers, including circulations of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations 7(a) through 7(p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any or more of its obligations under 7(a) through 7(p) of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.)

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the OFCCP. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunities. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic apprentice, trainees, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that the existing records satisfy this requirement, Contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws that establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Programs).

16. The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

17. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as set forth in item 20.

    These goals as listed in item 20 are applicable to all the Contractor's construction work (whether or not it is federal or federally-assisted) performed in the covered area.

    The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally and non-federally involved construction.

The hours on minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

18. The Contractor shall provide written notification to the Department, for all subcontracts documents as follows: the name, address and telephone number of subcontractors and their employer identification number; the estimated dollar amount of the subcontracts; estimated starting and completion dates of the subcontracts; and the geographical area in which the contract is to be performed.

    This written notification shall be required for all construction subcontracts in excess of $10,000 at any tier for construction work under the contract resulting from this project's solicitation.

19. As used in the Bid Notice, and in the contract resulting from this project's solicitation, the "covered area" is the State of Alaska.

20. Goal and Timetable

    a. The following goal and timetable for female utilization shall be included in all federal and federally-assisted construction contracts and subcontracts in excess of $10,000. The goal is applicable to the Contractor's aggregate on-site construction work force whether or not part of that work force is performing work on a federal or federally assisted construction contract or subcontract.

ALASKA GOAL AND TIMETABLE FOR **WOMEN***

Timetable	Goal **
Until Further Notice	6.9%

    b. The following goals and timetable for minority utilization shall be included in all federal or federally-assisted construction contracts and subcontracts in excess of $10,000 to be performed in Alaska. The goals are applicable to the Contractor's aggregate on-site construction work force whether or not part of that work force is performing work on a federal or federally-assisted construction contract or subcontract.

ALASKA GOALS AND TIMETABLE FOR **MINORITY UTILIZATION**

Timetable	Economic Area (EA)***	Goals **
Until Further Notice	Anchorage SMSA Area	08.7%
	Remainder of State	15.1%

***** The goal and timetable for women listed above applies to Alaska as well as nationwide.

****** The Director, from time to time, shall issue goals and timetables for minority and female utilization that shall be based on appropriate work force, demographic or other relevant data and which shall cover construction projects, or construction contracts performed in specific geographical areas. The goals shall be applicable to each construction trade in a covered Contractor's or subcontractor's entire work force which is working in the area covered by the goals and timetables, shall be published as notices in the FEDERAL REGISTER, and shall be inserted by the contracting officers and applicants, as applicable, in the Notice required by 41 CFR 60-4.2. Covered construction contractors performing construction work in geographical areas where they do not have a federal or federally-assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed.

******* Refer to the Standard Metropolitan Statistical Areas (SMSA) and Economic Areas (EA), Office of Management and Budget, 1975.

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

SUBCONTRACTOR LIST

Battery Creek Culvert Replacement (10-001-18)
Project Name and Number

The apparent low bidder shall complete this form and submit it so as to be received by the Contracting Officer prior to the close of business day on the fifth working day after receipt of written or verbal notice from the Department.

Failure to submit this form with all required information by the due date will result in the bidder being declared nonresponsive and may result in the forfeiture of the Bid Security.

Scope of work must be clearly defined. If an item of work is to be performed by more than one firm, indicate the portion or percent of work to be done by each.

Check as applicable:

☐ All Work on the above-referenced project will by accomplished without subcontracts greater than ½ of 1% of the contract amount.

OR

☐ Subcontractor List is as follows:

LIST FIRST TIER SUBCONTRACTORS ONLY

FIRM NAME, ADDRESS, PHONE NUMBER	AK BUSINESS LICENSE NO., CONTRACTOR'S REGISTRATION NO.	SCOPE OF WORK TO BE PERFORMED

CONTINUE SUBCONTRACTOR INFORMATION ON REVERSE SIDE

I hereby certify that the listed licenses and registrations were valid at the time bids were received for this project. For contracts involving Federal-aid funding, Alaska Business License and Contractor Registration will be required prior to award of subcontract.

Signature of Authorized Company Representative

Title

Company Name

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

( )

Date **Phone Number**

FIRM NAME, ADDRESS, PHONE NUMBER	AK BUSINESS LICENSE NO., CONTRACTOR'S REGISTRATION NO.	SCOPE OF WORK TO BE PERFORMED

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

CONTRACTOR'S QUESTIONNAIRE

Battery Creek Culvert Replacement (10-001-18)

Project Name and Number

A. FINANCIAL

1. Have you ever failed to complete a contract due to insufficient resources?

   ☐ NO ☐ YES If YES, explain:

   _____
   _____
   _____
   _____
   _____

2. Describe any arrangements you have made to finance this work: _____
   _____
   _____

B. EQUIPMENT

1. Describe below the equipment you have available and intend to use for this project:

ITEM	QUAN.	MAKE	MODEL	SIZE / CAPACITY	PRESENT MARKET VALUE

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

Battery Creek Culvert Replacement (10-001-18)
Project Name and Number

by

Kodiak Soil and Water Conservation District
Company Name

301 Research Court, Room 245, Kodiak, AK 99615
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 **March 30, 2018**, 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 **Battery Creek Road, Kodiak**, 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 **August 31, 2018**, unless extended in writing by the Contracting Officer.

The Undersigned proposes to furnish Payment Bond in the amount of **50%** (of the contract) and Performance Bond in the amount of **50%** (of the contract), as surety conditioned for the full, complete and faithful performance of this contract.

The Undersigned acknowledges receipt of the following addenda to the drawings and/or specifications (give number and date of each).

Addenda Number	Date Issued	Addenda Number	Date Issued	Addenda Number	Date Issued

NON-COLLUSION DECLARATION

The Undersigned declares, under penalty of perjury under the laws of the United States, that neither he nor the firm, association, or corporation of which he is a member, has, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this bid.

The Undersigned has read the foregoing and hereby agrees to the conditions stated therein by affixing his signature below:

Signature of Authorized Company Representative

Typed Name and Title

( ) **( )**

Phone Number **Fax Number**

Email Address

BID SCHEDULE

STATE OF ALASKA – DEPARTMENT OF NATURAL RESOURCES

Project Name: Battery Creek Culvert Replacement

Project Number: 10-001-18

Before preparing this bid schedule, read carefully, Section 102 of the 2017 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(3B)	Clearing and Grubbing	Lump Sum	All Required	$	$
202(1)	Removal of Structures and Obstructions	Lump Sum	All Required	$	$
202(4)	Removal of Culvert Pipe	Linear Foot	32	$	$
203(3)	Unclassified Excavation	Cubic Yard	500	$	$
203(6A)	Borrow, Type A	Ton	610	$	$

Name of Bidding Firm _____

Pay Item Number	Pay Item Description	Pay Unit	Quantity	Unit Bid Price	Amount Bid
******** CONTINUE BASIC BID ********					
301(3)	Aggregate Surface Course, Grading E-1	Ton	37	$	$
602(4)	Structural Plate Aluminum Box Culvert, Assembly and Installation	Lump Sum	1	$	$
607(5)	Reinstall Drive Gate	Each	1	$	$
611(2)	Riprap, Class IIa	Ton	160	$	$
618(2)	Seeding	Pound	8	$	$
620(1)	Topsoil (4”)	Square Yard	840	$	$
640(1)	Mobilization and Demobilization	Lump Sum	All Required	$	$
641(3)	Temporary Erosion, Sediment and Pollution Control	Lump Sum	All Required	$	$
642(1)	Construction Surveying	Lump Sum	All Required	$	$
643(2)	Traffic Maintenance	Lump Sum	All Required	$	$
672(1)	Stream Diversion & Dewatering	Lump Sum	All Required	$	$
690(10)	Waterway Bed Fill	Linear Foot	69	$	$
690(12)	Waterway Bank Revegetation and Protection	Linear Foot	112	$	$
				TOTAL BASIC BID	$

Name of Bidding Firm _____

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

CONSTRUCTION CONTRACT

Battery Creek Culvert Replacement (10-001-18)
Project Name and Number

This CONTRACT, between the STATE OF ALASKA, DEPARTMENT OF NATURAL RESOURCES, KODIAK SOIL AND WATER CONSERVATION DISTRICT, 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: **August 31, 2018** 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 ($ **550**) 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 $_____ Payment Bond, and $_____ 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

Email Address

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

Battery Creek Culvert Replacement (10-001-18)
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

Battery Creek Culvert Replacement (10-001-18)
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

Battery Creek Culvert Replacement (10-001-18)

Project Name and Number

DATE BOND EXECUTED: _____

PRINCIPAL (Legal name and business address):	TYPE OF ORGANIZATION:
	[ ] Individual [ ] Partnership [ ] Joint Venture [ ] Corporation
	STATE OF INCORPORATION:

SURETY(IES) (Name and business address):

A.	**B.**	**C.**
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)

Surety A	Name of Corporation		State of Incorporation	Liability Limit **$**
Signature(s)	**1.**	**2.**		Corporate Seal
Name(s) & Titles (Typed)	**1.**	**2.**		

Surety B	Name of Corporation		State of Incorporation	Liability Limit **$**
Signature(s)	**1.**	**2.**		Corporate Seal
Name(s) & Titles (Typed)	**1.**	**2.**		

Surety C	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.

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

BID MODIFICATION

Battery Creek Culvert Replacement (10-001-18)
Project Name and Number

Modification Number: _____

Note: All revisions shall be made to the unadjusted bid amount(s).
Changes to the adjusted bid amounts will be computed by the Department.

PAY ITEM NO.	PAY ITEM DESCRIPTION	REVISION TO UNIT BID PRICE +/-	REVISION TO BID AMOUNT +/-

TOTAL REVISION: $_____

_____
Name of Bidding Firm

_____
Responsible Party Signature **Date**

This form may be duplicated if additional pages are needed.

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES

EEO-1 CERTIFICATION

Federal-Aid Contracts

Battery Creek Culvert Replacement (10-001-18)

Project Name and Number

This certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor [41 CFR 60-1.7 (b) (1)] and must be completed by the successful Bidder and each proposed Subcontractor participating in this contract.

PLEASE CHECK APPROPRIATE BOXES

The [ ] Bidder [ ] Proposed Subcontractor hereby CERTIFIES:

PART A Bidders and proposed Subcontractors with 50 or more year-round employees and a federal contract amounting to $50,000 or more are required to submit one federal Standard Report Form 100 during each year that the two conditions exist (50 employees and a $50,000 federal contract).

The company named below (Part C) is exempt from the requirements of submitting the Standard Report Form 100 this year.

[ ] NO (go to PART B) [ ] YES (go to PART C)

Instructions and blank Standard Report Form 100's may be obtained from a local U.S. Department of Labor office, or by writing to:

The Joint Reporting Committee
P.O. Box 779
Norfolk, Virginia 23501

Telephone number: (757) 461-1213

PART B The company named below has submitted the Standard Report Form 100 this year.

[ ] NO [ ] YES

Note: Bidders and proposed Subcontractors who have not filed the required Standard Report Form 100 and are not exempt from filing requirements will not be awarded this contract or subcontract until Form 100 has been filed for the current year ending June 30.

PART C

Signature of Authorized Company Representative	**Title**
Company Name	**Company Address (Street or PO Box, City, State, Zip)**
Date	( ) **Phone Number**

Certification Regarding Debarment,

Suspension, Ineligibility and Voluntary Exclusion

Lower Tier Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 29 CFR Part 98, Section 98.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160-19211).

(BEFORE COMPLETING CERTIFICATION, READ THE INSTRUCTIONS ON THE FOLLOWING PAGE WHICH ARE AN INTEGRAL PART OF THE CERTIFICATION)

(1) The prospective recipient of Federal assistance funds certifies, by submission of this bid, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the prospective recipient of Federal assistance funds is unable to certify to any of the Statements in this certification, such prospective participant shall attach an explanation to this Proposal.

_____

Name and Title of Authorized Representative

_____

Signature Date

1. Is this company enrolled in the Federal System for Awards Management (SAM)? YES NO

2. If Yes, please provide either the DUNS Number _____ **or**

   the Cage Code _____.

3. If No, the company must be enrolled in SAM before a contract can be signed or payment made on a contract involving Federal funds. Failure to do so will result in cancellation of the contract.

Instructions for Certification

1. By signing and submitting this Proposal, the prospective recipient of Federal assistance funds is providing the certification as set out below.

2. The certification in this class is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective recipient of Federal assistance funds knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Department of Labor (DOL) may pursue available remedies, including suspension and/or debarment.

3. The prospective recipient of Federal assistance funds shall provide immediate written notice to the person to whom this Proposal is submitted if at any time the prospective recipient of Federal assistance funds learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "Proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this Proposal is submitted for assistance in obtaining a copy of those regulations.

5. The prospective recipient of Federal assistance funds agrees by submitting this Proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the DOL.

6. The prospective recipient of Federal assistance funds further agrees by submitting this Proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may but is not required to check the List of Parties Excluded from Procurement or Non-procurement Programs.

8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the DOL may pursue available remedies, including suspension and/or debarment.

KODIAK SOIL AND WATER CONSERVATION DISTRICT
BID # 10-001-18
Battery Creek Culvert Replacement
Battery Creek Road

SCOPE OF WORK

General
This project's purpose is to supply all labor, equipment, materials, and supplies required to install a box culvert at an existing culvert location identified on Battery Creek Road at Battery Creek. The new box culvert materials will be provided near the site at the start of construction. The contractor will be required to transport the culvert from the storage area to the site, assemble the culvert, and install it.

All construction shall be completed in accordance with the current Alaska Department of Transportation and Public Facilities (ADOT&PF) Standard Specifications for Highway Construction (SSHC) 2017 Edition. Project specific special provisions are provided in the following sections. The requirements contained in these specifications and special provisions are hereby made a part of this solicitation and resultant contract.

The crossing is located at a United States Coast Guard (USCG)base access road, Battery Creek Road, intersecting Anton Larsen Bay Road approximately one mile northwest of the airport in Kodiak, Alaska.

Crossing Site	Latitude	Longitude
Battery Creek at Battery Creek Road	N57°46'14.03"	W152°31'32.71"

Contractor is to provide resources to complete this project without any adjustments in the original bid amount or contract time. Estimated project magnitude is between $100,000 and $250,000.

Work shall be performed in one continuous time period. Contractor shall complete the work no more than 60 Working Days after commencing operations. Time is of the essence. All work below the ordinary high water mark will be completed byJuly31, 2018or as stipulated by the Alaska Department of Fish and Game Fish Habitat Permit.

Kodiak Soil and Water Conservation District obtained required permits, included in Section 4 Attachments (Alaska Department of Fish and Game Fish Habitat Permit, Department of Natural Resources Temporary Water Use Permit and US Army Corps of Engineers Nationwide Permit). Contractor shall submit to the Alaska Department of Transportation e-Permit system and Alaska Department of Fish and Game Fish Resource permit.

Contractor shall verify that no underground utilities are present at the site. Before any excavation begins on USCG property, the Contractor shall obtain and fully execute a USCG digging permit. The form requires a minimum of 2 weeks lead time and extensive coordination with several base agencies. The Contractor is required to furnish all locations, with detailed information and sketches regarding any proposed excavation(s). A USCG digging permit covers USCG utilities only and the contractor is required to coordinate with other local utilities and other agencies as appropriate. A separate request for each planned excavation is required; each phase of processing the form and its attachments shall be competed at least 48 hours prior to commencing work involving that phase. This form can be obtained from the USCG dig permit coordinator, Stan Skaw, stan.r.skaw@uscg.mil, 907-487-5192, or Joe Symonoski, joseph.j.symonoski@uscg.mil, 907-539-1474. In addition, the contractor shall request utility locates from the utilities having facilities in the area by using the Alaska Digline, Inc. Locate Call Center.
.

Road closures: Full closure of Battery Creek Road during construction shall be permissible. Duration of closure shall be coordinated with USCG, and not exceed 2 weeks (14 consecutive days).

Work Zone speed limit: Limit speed of vehicles associated with the construction to 25 mph within project limits.

Park within the public right-of-way. Do not block private property or USCG property.

Wash equipment prior to mobilization to ensure that the spread of invasive species is minimized.

This project is not in an area that requires transit past the Main Gate. Base Access passes are not required for work at the project site shown on the attached contract drawings. The contractor will need to access the magazine area and archery area for a maximum of 3 days during the project. This area will require and escort. Contractor shall notify the USCG joseph.j.symonoski@uscg.mil, stan.r.skaw@uscg.mil, and george.s.scherff@uscg.mil with the names of all personnel, a point of contact and the expected access dates for the magazine and archery range areas off Anton Larson Road. Notification shall occur 7 days before access is needed.

Contractor shall notify the Alaska Department of Fish and Game and the Engineer a minimum of 72 hours prior to the following construction milestones, and obtain the approval of the Engineer:

- Start of excavation.
- Diverting stream flows into the diversion channel/culvert.
- Placement of the culvert to allow for inspection of foundation materials and verification of the invert elevations prior to placement of the culvert.
- Placement of Waterway Bed Fill prior to placement of materials within the constructed culvert and channel to allow for inspection of materials.
- Rewatering of the installed culvert and stream bed (diverting stream flows back into the constructed channel and culvert).

A representative from the Alaska Department of Fish and Game shall be given the opportunity to be onsite during stream diversion and rewatering of the installed culvert to relocate trapped fish. If the Alaska Department of Fish and Game declines the opportunity to be onsite, the Contractor is responsible for relocating trapped fish in accordance with the Permits.

SECTION IV

MODIFICATIONS & SPECIAL PROVISIONS TO STANDARD SPECIFICATIONS

KODIAK SOIL AND WATER CONSERVATION DISTRICT

STANDARD MODIFICATIONS

to the

ALASKA

DEPARTMENT OF TRANSPORTATION

AND PUBLIC FACILITIES

STANDARD

SPECIFICATIONS

FOR HIGHWAY CONSTRUCTION

2017 EDITION

SECTION 105

CONTROL OF WORK

Special Provision

105-1.18 WARRANTIES. *Add the following:*

If within one year after the date of Project Completion or such longer period of time as may be prescribed by the Contract, any work is found to be defective, the Contractor shall promptly, without cost to the Department and in accordance with the Engineer's written instructions, either correct such defective work, or, if it has been rejected by the Engineer, remove it from the site and replace it with conforming work. If the Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, the Department may have the defective work corrected or the rejected work removed and replaced, an all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) will be paid by the Contractor.

SECTION 201

CLEARING AND GRUBBING

Special Provision

201-1.01DESCRIPTION. *Add the following:*

Salvage and stockpile native organic soils and vegetative mat.

201-3.01 GENERAL. *Add the following:*

Timber for Public Removal. Cut timber, with a 5 inch diameter or larger at breast height, into 8 foot lengths, de-limbed, and stacked to a height no greater than 6 feet. Place the stacks at locations approved by the Engineer. 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 Kodiak Soil and Water Conservation District will notify the public of the availability of the timber once it has been stacked. The Contractor shall dispose of the timber left by the public after a two week time period.

Mechanical loading by the public is not permitted.

The Contractor shall perform the work necessary to preserve and/or restore land monuments and property corners from damage. A land monument or property corner that is disturbed shall be restored according to Section 642 at the Contractor's expense. An undisturbed area five feet in diameter may be left around existing monuments and property corners.

Clearing and grubbing is not permitted within the migratory bird window of May 1 to July 15; except as permitted by Federal, State and local laws when approved by the Engineer. The Kodiak Soil and Water Conservation District will remove brush and trees that are potential nesting area prior to May 1. For clearing and grubbing after April 30, the contractor shall hire a qualified biologist to check for active bird nests. Active nests shall not be disturbed. The Contractor is responsible for completing clearing and grubbing as necessary to complete the project within the permitted time frame.

Salvage vegetative mats in the vicinity of the project from areas that will be disturbed for other work. If additional vegetative mat is required, harvest along Battery Creek Road in areas directed by the Owner's Representative. Take care not to damage vegetative mats to be salvaged during clearing and grubbing. Remove the mat in at least 12-inch thick sections and preserve intact as possible.

Stockpile organic soils removed during grubbing. Place stockpiled organic soils on finished slopes as topsoil prior to seeding in accordance with Section 620.

201-5.01 BASIS OF PAYMENT. *Add the following*:

The work required for cutting, de-limbing, and stacking timber for public removal and to preserve and restore land monuments and property corners will be subsidiary to pay item 201(3B) Clearing and Grubbing.

Salvaging/harvesting, stockpiling and transporting native organic soils and vegetative mat is subsidiary to Pay Item 690(12) Waterway Bank Revegetation and Protection. Refer to section 690-5.01.

Placing salvaged organic soils as topsoil on riprap mat slopes shall be subsidiary to pay item 611(2) Riprap, Class IIa.

SECTION 202

REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Special Provision

202-1.01 DESCRIPTION. *Add the following:*

Remove and salvage the existing access gate at Battery Creek Road as necessary for construction. Reinstall the salvaged gate after completion of the culvert work. If the existing access gate is damaged during removal, repair or replace the damaged sections of the gate to the approval of the USCG. Any damaged section of the removed gate that cannot be reinstalled becomes the property of the contractor.

Remove and salvage USCG signs as necessary for construction. Reinstall salvaged signs after completion of the culvert work.

202-5.01 BASIS OF PAYMENT. *Add the following:*

Removal and salvage of the access gate are subsidiary to item 202(1), Removal of Structures and Obstructions. Disposal of damaged sections that cannot be reinstalled is subsidiary.

Removal, salvage, and reinstallation of USCG signs are subsidiary to item 202(1), Removal of Structures and Obstructions.

Reinstallation of the salvaged gate, including any required repair or replacement of damaged sections, is subsidiary to item 607(5), Reinstall Drive Gate.

SECTION 203

EXCAVATION AND EMBANKMENT

Special Provision

203-3.01 GENERAL. *Add the following:* All excavation, trench excavation for installation of culverts/structures, and placement of culvert infill material shall be completed in accordance with applicable Occupational Safety & Health Administration (OSHA) requirements. Contractor is responsible for knowing all applicable OSHA requirements and maintaining safe working conditions at all times on the project site.

Contractor must prepare a confined space work plan satisfying requirements for a confined space entry permit as specified in Code of Federal Regulations 29 (29 CFR) Standard Number 1910.146. Contractor shall submit confined space work plan to the Engineer at the preconstruction meeting.

Access to permit-required confined space is restricted to Contractor personnel trained for work in confined spaces. Contractor is responsible for providing all necessary supervision and training to satisfy entry permit requirements. Contractor is responsible for providing all necessary ventilation and rescue equipment to satisfy entry permit requirements. Contractor is responsible for updating and implementing any changes to the confined space entry permits as required by conditions encountered during construction.

Inspect excavation for hazardous conditions before worker entry daily and as conditions change. Inspections are to be completed by a competent person as defined by OSHA.

Pressure wash all tracked equipment, excavation equipment, and excavation hauling equipment prior to mobilization to ensure that the spread of invasive species is minimized. Clean equipment so that no invasive species would have the chance of being spread or imported into the site. At a minimum, there should be no visible dirt on equipment.

SECTION 204

STRUCTURE EXCAVATION FOR CONDUITS AND MINOR STRUCTURES

Special Provision

204-5.01 BASIS OF PAYMENT. *Delete the third paragraph and substitute the following:* When item 204(1), Structure Excavation, does not appear in the bid schedule, structure excavation required to complete other items of work will be paid for under pay item 203(3), Unclassified Excavation.

Delete the fourth paragraph and substitute the following: Any backfill or bedding material required whose source is other than project excavation will be paid for at the contract price for pay item 203(6A), Borrow, Type A.

SECTION 602

STRUCTURAL PLATE PIPE

Special Provision

602-1.01 DESCRIPTION. *Add the following:*

Assemble and install the provided structural plate aluminum box culvert.

602-2.01 MATERIALS. *Add the following:*
The Kodiak Soil and Water Conservation District will purchase and have delivered by June 1a corrugated aluminum structural plate box culvert of the dimensions shown in the Plans. The structural plate box culvert will be aluminum meeting requirements of Subsection 707-2.04. Aluminum plate thickness shall be as required to provide structural strength at 1.4 feet cover. Variations from the culvert dimensions shown in the Plans are acceptable so long as the following conditions are met:

1. Culvert span must be at least 15 feet and no greater than 16 feet;
2. Culvert rise must be within 2 inches +/- of the culvert rise shown in the Plans;
3. Culvert end area must be at least 87 square feet; and
4. Minimum cover must be maintained given the proposed road surface elevation shown in the Plans and American Association of State Highway and Transportation Officials (AASHTO) HL-93 loading assuming a minimum soil bearing capacity of 4,000 pounds per square foot.

602-3.01 CONSTRUCTION REQUIREMENTS. *Add the following:*
Contractor is responsible for assembling and installing the structural plate box culverts shown in the Plans.
If requested by Engineer, provide Engineer access to manufacturer's installation recommendations such as pre-construction meeting or written literature.

The Engineer shall approve of the culvert foundation elevations prior to placement of the culvert in the final location as shown on the Plans. Notify the Engineer a minimum of 72 hours before scheduled placement of the culvert.

602-4.01 METHOD OF MEASUREMENT. *Add the following:*
All work associated with transporting the culvert from the storage area, assembling, and installing the structural plate box culvert is subsidiary to pay item 602(4), Structural Plate Aluminum Box Culvert, 15'-4" Span, 6'-5" Rise.

602-5.01 BASIS OF PAYMENT. *Delete the first sentence and replace with the following:*
Borrow, Type A and Aggregate Surface Course, Grading E-1 are paid for under Sections 203 and 301, accordingly.

Payment will be made under:

Pay Item	Pay Unit
602(4) Structural Plate Aluminum Box Culvert, Assembly and Installation	Lump Sum

SECTION 611

RIPRAP

Special Provision

611-2.01 MATERIALS. *Add the following:*

5. Class IIa

Size (in.)	Percent Passing
15	100%
13	85%
8	50%
4	15%

611-3.01 CONSTRUCTION REQUIREMENTS. *Add the following:*

Use riprap to construct revetment to the lines and grades shown in the Plans. Refer to Section 690 Waterway. Use borrow or salvaged organic soil to fill voids in the riprap to the satisfaction of the Engineer. Borrow or salvaged organic soil shall not prevent rock to rock contact. Leave a rough, uneven surface along top of riprap and stream bed material.

611-5.01 BASIS OF PAYMENT. *Add the following:*

Filling voids in riprap with borrow or salvaged organic soils is subsidiary to Pay Item 611(2) Riprap, Class IIa.

Payment will be made under:

Pay Item	Pay Unit
611(2) Riprap, Class IIa	Ton

SECTION 618

SEEDING

Special Provision

618-1.01 DESCRIPTION. *Delete subsection in entirety and substitute the following*: Topsoil and seed new or disturbed slopes, riprap slope protection, and other areas directed by the Engineer. Track the soil and apply seed, and water. Provide a living ground cover on slopes as soon as possible.

618-3.01 SOIL PREPARATION.

Add the following: Apply seed as detailed in subsection 618-3.03 immediately after the shaping of the slopes. Cover all slopes to be seeded with topsoil according to Section 620. Complete slope preparation as soon as topsoil is placed on the slopes.

618-3.03 APPLICATION. *Add the following*: Place the following seed mix over disturbed areas. Apply at 1 pound/1,000 square feet. Apply 4-6-4 organic fertilizer by hand at the rate of 3.0 pounds / 1,000 square feet. Apply mulch at the rate of 46 pounds / 1,000 square feet.

Name	Proportion by Weight
'Nortran' Tufted Hairgrass, *Deschampsiacaespitosa*	60%
'Arctared' Red Fescue, *Festucarubra*	25%
'Sourdough'BluejointReedgrass, *Calamagrostiscanadensis*	10%
Annual Ryegrass *Loliumperenne ssp. multiflorum*	5%

Evenly mix the seeds in a sack immediately before dispersing or adding to a hydroseeding solution, and then evenly mix the seeds into solution. Water lightly, keep top 1/8” soil moist until final acceptance of the Project is received.

Water for seeding shall be subsidiary to item 618(2). Seeding and shall be performed on seeded areas per seed supplier’s recommendations.

Contractor must provide the Engineer with seed tags provided by seed supplier showing seed purity and germination in compliance with Section 724 Seed for approval prior to applying seed to project site.

618-3.05 PERIOD OF ESTABLISHMENT. *Delete this subsection in entirety.*

618-4.01 METHOD OF MEASUREMENT. *Add the following:*

The quantity of seeding shall include all cultivation, seeding, and limestone if required.

618-5.01 BASIS OF PAYMENT. *Add the following:*

Furnishing, mobilizing, modifying, operating, and maintaining all materials and equipment necessary to install seed is subsidiary to pay item 618(2) Seeding.

SECTION 620

TOPSOIL

Special Provision

620-3.01 PLACING. *Add the following:*

Place native organic soils (salvaged from clearing and grubbing and excavation work) or topsoil meeting the requirements of Section 726 to a thickness of 4inches (or as approved by the Engineer) on all disturbed soil away from the road prism and noted for seeding according to Section 618, Seeding of these specifications. Excess salvaged vegetated mat beyond what is required by the Plans may be used in lieu of topsoil and seeding.

SECTION 642

CONSTRUCTION SURVEYING

Standard Modifications

Delete Section 642 in its entirety and substitute the following:

642-1.01 DESCRIPTION. Perform surveying and staking essential for the completion of the project and perform the necessary calculations required to accomplish the work in conformance with the Plans and specifications and standard engineering and surveying practice.

Contractor shall survey existing road profile to extent necessary to complete work shown in Plans prior to disturbing ground. Consult temporary benchmark information included in the Plans.

Furnish and install survey monuments and monument cases in conformance with the Plans or as directed.

Adjust existing monuments and monument cases to conform to the new elevations.

642–1.02 DEFINITIONS.

1. Monument: A fixed physical object marking a point on the surface of the earth, used to commence or control a survey; mark the boundaries of a parcel of land; or the centerline of right-of-way corridor. Monuments will be Primary or Secondary, as shown on the Plans.

2. Surveyor: The Contractor's Professional Land Surveyor, currently registered in the State of Alaska.

642–2.01 MATERIALS.

1. Monument Cases: Use castings meeting AASHTO M 105, Class No. 30A. Coat castings with a bituminous dam-proof coating. Use tops that bear evenly on the frames.

2. Primary Monument: A minimum 2-inch diameter nonferrous pipe at least 30 inches long, with a minimum 4-inch flange at the bottom and having magnets attached at the top and bottom. A minimum 2-3/8 inch diameter nonferrous metal cap must be permanently attached to the top. Permanently stamp every monument with the Surveyor's registration number, the point/corner identification.

3. Secondary Monument: A minimum 5/8 inch rebar with a 2-inch aluminum cap attached to the top. Permanently stamp every secondary monument with the Surveyor's registration number, the point/corner identification.

642–3.01 GENERAL. Use competent, qualified personnel and suitable equipment for the layout work required and furnish traffic control, stakes, templates, straight-edges and other devices necessary for establishing, checking and maintaining the required points, lines and grades.

The owner found existing monuments and set additional control sufficient to establish the project centerline and set at least two benchmarks per mile to enable establishment of planned elevations. The survey control for this project is shown on the Plans.

The Contractor will perform the following:

1. Staking necessary to delineate clearing and/ or grubbing limits.

2. Slope Staking.

3. Staking of signs, minor drainage structures and other appurtenances, including the necessary checking to establish the proper location and grade to best fit the conditions on site.

4. Set centerline finishing stakes (hubs)

5. All other surveying and staking necessary to complete the project.

The Contractor shall survey existing road profile and cross section to extent necessary to complete work shown in Plans prior to disturbing ground. A licensed surveyor is not required for this work; however a competent, qualified, experienced person with suitable equipment is required.

The Contractor's Surveyor shall verify bedding/invert elevations prior to placement of the primary culvert and keep written notes of the culvert invert elevations. Provide the Engineer with a copy of culvert invert elevation notes at the Engineer's request.

642-3.03 MONUMENTS. Any monuments disturbed on the project will be replaced by the Contractor's Surveyor. The Surveyor must complete and stamp a State of Alaska Land Surveyor Monument Record form for each primary and secondary monument removed, installed, relocated, or replaced. Provide the required survey information on the form in accordance with statutory requirements, including section, township, and range. Meet requirements for recording at the District Recorder's Office in which the project is located for each monument record. Deliver conforming copies of the recorded forms to the Engineer before monument removal or disturbance and after setting any final monuments requiring monument records.

Set each monument and monument case accurately to lines established at the required location and in a manner as to ensure being held firmly in place. Set existing monuments and monument cases to be adjusted to new elevations in the manner and at the elevations directed.

642-4.01 METHOD OF MEASUREMENT.

Item 642(1) Construction Surveying. No measurement of quantities will be made.

642-5.01 BASIS OF PAYMENT. Construction Surveying includes field and office work required to accomplish the work, including furnishing necessary personnel, equipment, transportation and supplies.

Traffic control devices necessary for the survey parties are considered subsidiary to Pay Item 642(1).

Survey monuments placed on bridges are subsidiary.

Payment will be made under:

Pay Item	Pay Unit
642(1) Construction Surveying	Lump Sum

SECTION 643

TRAFFIC MAINTENANCE

Standard Modifications

643-1.01 DESCRIPTION. *Add the following:*

This work consists of the necessary measures to protect and control traffic during the life of the contract including but not limited to, furnishing, erecting, maintaining, replacing, cleaning, moving and removing the traffic control devices required to ensure the safety of the traveling public and all administrative responsibilities necessary to implement this work. The Contractor shall be liable for any damage or injuries suffered by reasons of their operations or their failure to provide adequate safeguarding services.

DEFINITIONS. *Add the following:*

Temporary Construction Signs. Signing installed at the start of construction activities and located on the primary approaches to the work zone to warn drivers of upcoming construction activities and to advise drivers that they have reached the end of the construction zone. These signs may include signs setting speed limits through the construction zone and/or warning of increased penalty for excessive speed in the construction zone.

Detour. An alternate route taking drivers around a road closure or other obstacle normally delineated by specific signing notifying the driver when the detour must be taken and guiding the driver through the alternate route.

643-1.03 TRAFFIC CONTROL PLAN. *Add the following:* A Traffic Control Plan (TCP) is a drawing or Plans indicating the method or scheme for safely guiding and protecting motorists, pedestrians, bicyclists, and workers in a traffic control zone. It depicts the traffic control devices to be used, their placement and times of use.

There shall be no work within the project limits until the Contractor has implemented an approved TCP for the work proposed. The number of traffic control devices indicated on the TCP and Standard Drawings are a minimum. If unsafe conditions occur, the Engineer may require additional traffic control devices.

643-1.05 CONSTRUCTION PHASING PLAN *Delete Item 2 and substitute the following:*

2. A construction phasing plan for each phase or segment of the project. At a minimum, schedule should include mobilization, road closure and opening, stream diversions, structure placement, and streambank work.

643-3.01 GENERAL CONSTRUCTION REQUIREMENTS. *Add the following:*

Full closure of Battery Creek Road shall be permissible for the duration specified by USCG with written authorization. Request authorization to close Battery Creek Road at least two (2) weeks (14 calendar days) prior to the beginning of construction. Provide temporary signs directing traffic to the alternative USCG base access road approximately 0.2 miles north of the project site along Anton Larsen Bay Road.

643-4.01 METHOD OF MEASUREMENT. *Delete and add the following:*

Traffic Maintenance will be lump sum and shall include preparation of TCPs, and all labor, materials, traffic control devices and equipment required to implement the Traffic Control Plans as specified and as directed. Temporary Construction Signs will be subsidiary. Flagging and Pilot Car, if required by TCP, will be subsidiary.

643-5.01 BASIS OF PAYMENT. *Delete and add the following:*

Traffic Maintenance. The contract price includes all resources required to provide the Worksite Traffic Supervisor, all required TCPs and public notices, the Construction Phasing Plan, and the maintenance of all roadways, approaches, crossings, intersections and pedestrian and bicycle facilities, as required. This item also includes any Temporary Construction Signs and Traffic Control Devices required but not shown on the bid schedule.

Items required by the Contract that are not listed on the bid schedule or not included in other items are subsidiary to Item 643(2), Traffic Maintenance.

Payment will be made under:

Pay Item	Pay Unit
643(2) Traffic Maintenance	Lump Sum

SECTION 672

STREAM DIVERSION & DEWATERING

Special Provision

672-1.01 DESCRIPTION. The Work under this Section consists of performing all operations pertaining to the dewatering of Work areas or diversion of surface and subsurface water flows for excavation and backfill during construction operations.

672-1.02 GENERAL.A recommended Stream Diversion Plan has been provided in Drawings. The provided Stream Diversion Plan is intended to convey general concepts and locations are approximate. The Contractor can adjust the locations of bulk bags (Super Sacks), coffer dams, diversion channels, and related items as needed to fit field conditions. The Contractor is recommended to review this plan and submit any changes to the Engineer in writing before implementing a modified plan. Divert and dewater per Permits.

The Contractor shall notify the Alaska Department of Fish and Game (ADFG) and the Engineer before:

1. Diverting stream flows into the diversion channel.

2. Diverting stream flows into the reconstructed channel and new culvert.

Provide notification a minimum of 72 hours before diverting stream flows, or as required by permits, whichever is greater.

672-2.01 MATERIALS. Contractor shall be responsible for obtaining, mobilizing, operating, and maintaining all materials and equipment necessary to complete dewatering operations, including machinery, bulk bags, sandbags, hoses, pumping facilities, piping, temporary culverts, and the like. All materials costs are incidental to pay item 672(1) Stream Diversion & Dewatering.

672-3.01 CONSTRUCTION. Comply with construction design, installation, and operation of dewatering systems with current safety and environmental regulations. Work must be performed in dry conditions. Minimize disturbance of undisturbed ground. Engineer must approve placement of pads for dewatering equipment.

Maintain 24-hour pump operation for trench dewatering until backfill is at least 1’ above the groundwater elevation.

672-3.02 DEWATERING. Acceptance of Contractor’s Stream Diversion Plan by the Engineer does not relieve Contractor of responsibility for the exercise of reasonable precaution, prudent construction practices, overloading or misuse of existing or new structures, the adequacy and safety of such works, and potential damage or undermining of existing or completed works.

Relocate fish contained within any coffer/diversion dams, the scour pool, or the old channel before the site is completely dewatered. Place relocated fish in the closest pool upstream of the construction area. If trash pumps are used for stream diversion, the intake must be operated and maintained to prevent fish entrapment, entrainment, or injury with the use of perforated or slotted plate and woven wire with a mesh size not greater than 3/32 inch or a profile bar and wedgewire

with openings not greater than 1/16 inch. Approach velocities shall not exceed a passive velocity of 0.2 feet per second (fps) or an active velocity 0.4 fps.

Water resulting from Contractor's dewatering effort may not be pumped or otherwise diverted into creeks unless required permits, including, but not limited to, ADNR, ADEC and the U.S. Environmental Protection Agency, are obtained. Under no circumstances will the Contractor be allowed to divert water from the excavation onto roadways. Contractor is to provide a disposal site for excess water in accordance with all necessary permits.

Maintain the dewatering pumping operations to ensure return flow does not exceed State of Alaska water quality standards. Water pumped from the construction site may require additional filtration by filter fabrics, settling, or other methods to prevent turbid water from directly entering the stream. Turbid water pumped from the work site for the purpose of lowering the water table in the trench during stream channel reconstruction shall be discharged at least 100 feet from stream flows, except when performing rewatering procedures described in the next subsection.

672-3.03 REWATERING. Conduct rewatering activities to minimize sediment movement downstream of the site upon completion of in-stream work. Prior to re-diverting full stream flows to reconstructed channel (including culvert), wet the channel to wash fines into stream bed. Slowly wet the channel through use of pumps or by diverting a small portion of stream flows into the reconstructed channel. Provide means for collecting sediment and turbid water at downstream end of reconstructed channel. Capture and pump turbid water from downstream end of channel back to upstream end of channel until fines are washed into stream bed and water runs clear as determined by the Engineer. After the initial sediment pulse is removed, slowly breach the coffer/diversion dams to avoid a large pulse of water being sent through the newly constructed channel.

672-4.01 METHOD OF MEASUREMENT. Section 109.

Temporary culverts, pumps, hoses, stilling basins, sandbags, bulk bags (e.g., Super Sacks), plastic liners, temporary rock and riprap, and other materials will not be measured for payment.

672-5.01 BASIS OF PAYMENT. At the contract lump sum price for administration of all work.

All other materials, equipment and labor necessary to complete the scope of work as specified under this section and not paid for under other items on the bid schedule, including temporary culverts, pumps, hoses, stilling basins, sandbags, bulk bags (e.g., Super Sacks), plastic liners, temporary rock and riprap, are subsidiary to Item 672(1), Stream Diversion & Dewatering.

Payment will be made under:

Pay Item	Pay Unit
672(1) Stream Diversion & Dewatering	Lump Sum

SECTION 690

WATERWAY

690-1.01 DESCRIPTION. Construct a waterway bed (stream bed, river bed, creek bed, and or similar), and waterway bank (protection and revegetation), at the locations on the Plans and or as staked.

Provide a plan and schedule for the waterway bed and waterway bank construction meeting the requirements of the Contract documents (Section 107 Legal Relations and Responsibility to Public - Permits, Section 643 Traffic Maintenance- Construction Phasing Plan and similar).

690-1.02 REFERENCES.

1. Stream Bank Revegetation and Protection: A Guide for Alaska; published by Alaska Department of Fish and Game; printed copy available from the Department, and electronic copy available on the internet.

690-2.01 MATERIALS.

Clearing and Grubbing (salvage vegetative mat)	Section 201
Excavation and Embankment (waterway bed and bank)	Section 203 & 703
Ditch Lining	Section 610
Riprap	Section 611
Seeding	Section 201, 618 & 724
Top Soil	Section 620 & 726
Block Sodding (vegetative mat)	Section 623
Erosion, Sediment, and Pollution Control	Section 641
Selected Material	Section 703

Waterway Bed Fill: Salvaged existing stream bed material or fill material meeting the following gradation:

Size (in.)	Percent Passing
6	100%
4	85%-95%
2	40%-60%
#10 (0.0787”)	5% min
#200	15% max

Mixing equal parts by volume of the following materials is a recommended starting point for providing the Waterway Bed Fill gradation:

- porous backfill material,
- 6-inch minus usable excavation or Selected Material, Type C, rich in fines, and
- ditch lining material.

The Contractor is responsible for verifying the final mix meets the gradation requirements for Waterway Bed Fill, whether obtained from salvaged material or produced from mixing other materials. Adjust the Waterway Bed Fill material onsite as directed by the Engineer to meet the required gradation.

Waterway Bank Fill: Native material or Selected Material, Type C.

Salvaged Organic Soil: Salvaged topsoil, overburden material, or useable excavation high in organics and fines.

Woody Debris: Sticks, branches, roots, and slash harvested or collected in the vicinity of the project and meeting the length and diameter requirements stated in the plans. Materials may be harvested from shrubs and trees, including willow, rose, alder, dogwood, and cottonwood. Material does not include soft and herbaceous materials such as grass, cow parsnip, fireweed, ferns, etc. Additional woody debris will be provided by the Kodiak Soil and Water Conservation District and stockpiled near the site.

690-3.01 CONSTRUCTION REQUIREMENTS. Provide equipment of a size and type to efficiently complete the work with the least impact on the waterway. Submit to the Engineer a list of equipment to be used during construction for review and approval.

The Engineer shall approve Waterway Bed Fill prior to placement of material. Notify the Engineer a minimum of 72 hours before scheduled placement of Waterway Bed Fill.

The Engineer shall approve Waterway Bank limits prior to construction of banks. Notify the Engineer a minimum of 72 hours before scheduled bank construction.

690-3.02 EXCAVATION. Excavate to the dimensions shown on the Plans. Control excavated material to minimize disturbance to the channel and banks.

690-3.03 WATERWAY BED. Place waterway bed fill material in the Battery Creek channel by methods that do not cause segregation or damage. Place the fill in lifts of maximum depth of 8-inches. Fill voids by machine or hand tamping after placing each lift. Compact bed materials, each lift, by mechanical means as approved by the Engineer. Make waterway bed surface roughness similar to the natural waterway bed.

Fill all voids left during placement of fill material and bank reconstruction with Selected Material, Type C. Use water pressure, metal tamping rods, and similar hand operated equipment to force material into all surfaces. If voids are present after water compaction, add additional Selected Material, Type C and water compact as directed by the Engineer.

690-3.04 WATERWAY BANK. Tie the ends of constructed banks to the existing Battery Creek banks. Modify bank height and width as necessary to create a smooth transition from constructed bank to natural bank.

Place the bank reconstruction materials as shown on the Plans. Place the woody debris, salvaged backfill material and vegetative mat such that the top of the bank, the vegetated mat, is fairly flat and at the same elevation as the existing bank.

<u>Woody Debris Bank Construction</u>

1. Install Erosion Control measures before beginning soil-disturbing work.
2. Determine tie-in point between constructed stream bank and existing stream bank to minimize disturbance to intact stream bank.

3. Salvage/harvest and stockpile vegetative mat as possible. Additional vegetative mat shall be harvested and transplanted from areas designated by the owners representative within 1 mile of the site.
4. Excavate bench for constructed bank. If bench wall at tie-in point is not perpendicular to flow, complete the following additional steps at the tie-in location:
    a) Create planting hole at least 12 inches into bench wall using a shovel or rebar and hammer.
    b) Insert a branch into the hole. The branch should be roughly perpendicular to the wall, angled onto the bench. Trim if the branch extends more than 6 inches outside the bank line.
    c) Repeat every 6 inches along the edge of the bench until the point where the bench is at least 4 feet wide, measured perpendicular to the final bank line.
5. Place woody debris at random angles on the bench, crisscrossing individual pieces. Trim any branches that extend more than 6 inches past the final bank line.
6. Place topsoil or salvaged organic soils over woody debris. Fill all voids between woody debris. Tamp to compact.
7. Repeat the staking (if necessary), woody debris placement, and soil fill until a disorderly jumble of woody debris is created, with debris ends aligned within 6 inches of the final bank line, all void spaces filled by topsoil, and the top elevation 6 to 12 inches below the final bank elevation.
8. Top woody debris with salvaged or transplanted Vegetative Mat.

Vegetative Mat

1. Stake all areas to be planted with vegetative mats prior to installation. Notify the Engineer of the delineated areas three working days prior to installation. Install only after receiving the Engineer approval.
2. Wet the in-situ soil or woody debris/soil matrix that the vegetative mat will be placed on.
3. If the vegetative mat has lost topsoil, such that the in-place thickness of the mat will not be 12inches thick, place additional topsoil, filling voids, and increasing the effective mat thickness to 12inches.
4. Place vegetative mats tightly together, without gaps, with full contact of the root mass to the soil surface below, tamp into place.
5. In disturbed areas less than 6 feet wide, use only the width of vegetative mat necessary to extend to existing vegetation.
6. In disturbed areas more than 6 feet wide, place vegetative mat to extend at least 6 feet from edge of bank.

690-3.05 MAINTENANCE. Deep water vegetative mat immediately after planting. Deeply water again at least twice a week for two weeks, then weekly for 6 weeks or as directed by the Engineer. Deep watering shall provide water penetration throughout the entire layer, to the top of the waterway bank fill, with minimum runoff. Rain will not be considered a substitute for deep watering unless permitted by the Engineer.

690-3.06ESTABLISHMENT PERIOD Establishment periods extend for one complete growing season following acceptable planting. Employ all possible means to preserve the vegetative mat in a healthy and vigorous condition to ensure successful establishment. During this period, perform the necessary weeding to keep the area of disturbance free from invasive species. Water as frequently as necessary to keep the immediate root area moist at all times.

The engineer may, but is not required to, determine the Project is complete except for the period of establishment, and issue a letter of final acceptance. After final acceptance, work or materials due under this subsection during any remaining period of establishment are considered warranty obligations that continue to be due following final acceptance in accordance with Subsection 105-1.16

690-4.01 METHOD OF MEASUREMENT. Section 109.

690(10) Waterway Bed Fill: linear foot of the waterway
690(12) Waterway Bank Revegetation and Protection: linear foot of bank.

Measured between reference points shown on the Plans.

690-5.01 BASIS OF PAYMENT.

1. Pay Items 690(10) include the materials and all work to place and maintain the materials in place, including but not limited to, excavation, placement/backfilling, benching, compacting, filling voids and similar.

2. Pay Item 690(12) includes the materials and all work to salvage/harvest, store, transport, place and maintain organic materials in the state specified (vegetative mat, woody debris, salvaged vegetation, topsoil, watering, and similar). Watering is subsidiary.

   Waterway Bank Fill material is subsidiary to Pay Item 690(12) Waterway Bank Revegetation and Protection.

   Hauling, stockpiling, and disposal of unsuitable and surplus material are subsidiary to Section 690 Pay Items.

   Seeding is paid under Section 618.

   Water diversion is paid under Section 672.

   Payment will be made under:

Pay Item	Pay Unit
690(10) Waterway Bed Fill	Linear Foot
690(12) Waterway Bank Revegetation and Protection	Linear Foot

SECTION 703

AGGREGATES

703-2.03 AGGREGATE FOR BASE AND SURFACE COURSE. *Delete this subsection in its entirety and replace with the following:*

Aggregate surface course (E-1) shall contain material no larger than one (1) inch in diameter (1-inchminus material). Aggregate surface course (E-1) material shall be crushed stone or crushed gravel or mined pit run gravel consisting of sound, tough, durable pebbles or rock fragments of uniform quality and free from clay balls, vegetable matter, or other deleterious matters

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ITB 10-001-18

Battery Creek Culvert Replacement

March 30, 2018

UPDATED INFORMATION REGARDING DEPARTMENT-SUPPLIED PERMITS:

Attached are the following permits:

- Alaska Dept. of Fish and Game Fish Habitat Permit
- US Army Corps of Engineers Nationwide Permit
- Historic Preservation
- DNR Temporary Water Use Permit (copy of application attached – approval not yet received).

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Fish and Game

DIVISION OF HABITAT
Central Region Office

333 Raspberry Road
Anchorage, Alaska 99518-1565
Main: 907.267.2342
Fax: 907.267.2499

FISH HABITAT PERMIT FH18-II-0037

ISSUED: March 27, 2018
EXPIRES: December 31, 2020

Kodiak Soil and Water Conservation District
Attn: Ms. Blythe Brown
518 West Marine Way, Suite 206
Kodiak, AK 99615

Dear Ms. Brown:

Re: Culvert Replacement – Battery Creek
Stream No. 259-21-10120-2011
Section 9, T. 28 S., R. 20 W., S. M.
Coordinates: 57.770 N., 152.525 W.
ADF&G #20700786

Pursuant to AS 16.05.871(b), the Alaska Department of Fish and Game, Division of Habitat, has reviewed your request to replace an existing culvert located in Battery Creek. The culvert is located under the U.S. Coast Guard Magazine Road.

Project Description
You propose to replace the perched 48-inch diameter culvert with a 15-foot 4-inch wide, 6-foot 5-inch high aluminum arch culvert. The 49.5-foot long culvert will be on a 0.6% slope and embedded 2 feet deep (Sheets C2 and C3). To aid fish passage, the culvert will be backfilled to a depth of about 3 feet with class II riprap configured into rock clusters as well as specified culvert lining material of similar gradation to the native streambed material designed to remain stable at high flows. A meandering 3-foot wide low-flow channel will be constructed in the streambed material inside the culvert (Sheets C4 and C5). To reduce scour, class II riprap and material of similar gradation to the native streambed material will be placed 4 feet downstream of the culvert outlet. The rip rap mix for the culvert backfill and the scour protection apron will be mixed with sufficient fines to seal the voids and reduce sub-surface flow.

The work area will be isolated from Battery Creek by installing a temporary coffer dam around the work area and diverting the creek through a temporary 48-inch diameter culvert (Sheet C7). If groundwater is present in the isolated work area during the culvert replacement, water will be pumped from the worksite. Diverted water will be discharged into upland vegetation to remove sediment. Fish will be removed from the work area and returned to Battery Creek in accordance with a valid Aquatic Resource permit.

The streambanks upstream and downstream of the new culvert will be reconstructed with woody debris, compacted salvaged native material, and vegetative mats. (Sheets C5 and C6). All areas remaining disturbed during construction will be stabilized upon completion of the project with native seed. It is anticipated the culvert replacement will require up to 14 days to complete.

Anadromous Fish Act
Battery Creek has been specified as being important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). Battery Creek is known to support coho and pink salmon.

In accordance with AS 16.05.871(d), project approval is hereby given subject to the project description above and the following stipulations:

1. No fuel shall be stored, no vehicles shall be fueled or serviced, and vehicles leaking fuel, hydraulic fluids, or other pollutants shall not be operated below the ordinary high water line of Battery Creek.

2. In-water work in the flowing channel of Battery Creek is prohibited July 31 - October 31 unless otherwise authorized by the Division of Habitat.

3. Work areas shall be isolated from the flowing waters of the creek at all times during construction. The stream reach downstream of the culvert installation shall be supplied with a constant flow of clean water sufficient to support the aquatic life in the stream and maintain fish passage.

4. The new culvert shall be designed, installed, and maintained to accommodate the efficient passage and movement of fish, both upstream and downstream, for the life of the project.

5. If pumping water from Battery Creek is required during the project for dewatering or diversion, a properly sized and screened structure must surround the water intake structure. The screen mesh shall not exceed 0.1 inches (2.4 millimeter) and the water velocity at the screen surface shall not exceed 0.5 feet per second. The intake screen shall be periodically inspected during operations to ensure that the screening has not collapsed between the water intake and screen surface, that there are no openings in the mesh or gaps between the mesh and frame of the intake structure greater than 0.1 inches, and that the screen has not become blocked by debris.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. For any activity that significantly deviates from the approved plan, you shall notify the Division of Habitat and obtain written approval in the form of a permit amendment before beginning the activity. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the Division of Habitat. Therefore, it is recommended you consult the Division of Habitat immediately when a deviation from the approved plan is being considered.

For the purpose of inspecting or monitoring compliance with any condition of this permit, you shall give an authorized representative of the state free and unobstructed access, at safe and reasonable times, to the permit site. You shall furnish whatever assistance and information as the authorized representative reasonably requires for monitoring and inspection purposes.

This letter constitutes a permit issued under the authority of AS 16.05.871 and must be retained on site during project activities. Please be advised that this determination applies only to activities regulated by the Division of Habitat; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other permits; state, federal, or local. You are still required to comply with all other applicable laws.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The department reserves the right to require mitigation measures to correct disruption to fish and game created by the project and which was a direct result of the failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

This permit decision may be appealed in accordance with the provisions of AS 44.62.330-630.

Any questions or concerns about this permit may be directed to Habitat Biologist Will Frost at 267-2813 or emailed to william.frost@alaska.gov.

Sincerely,

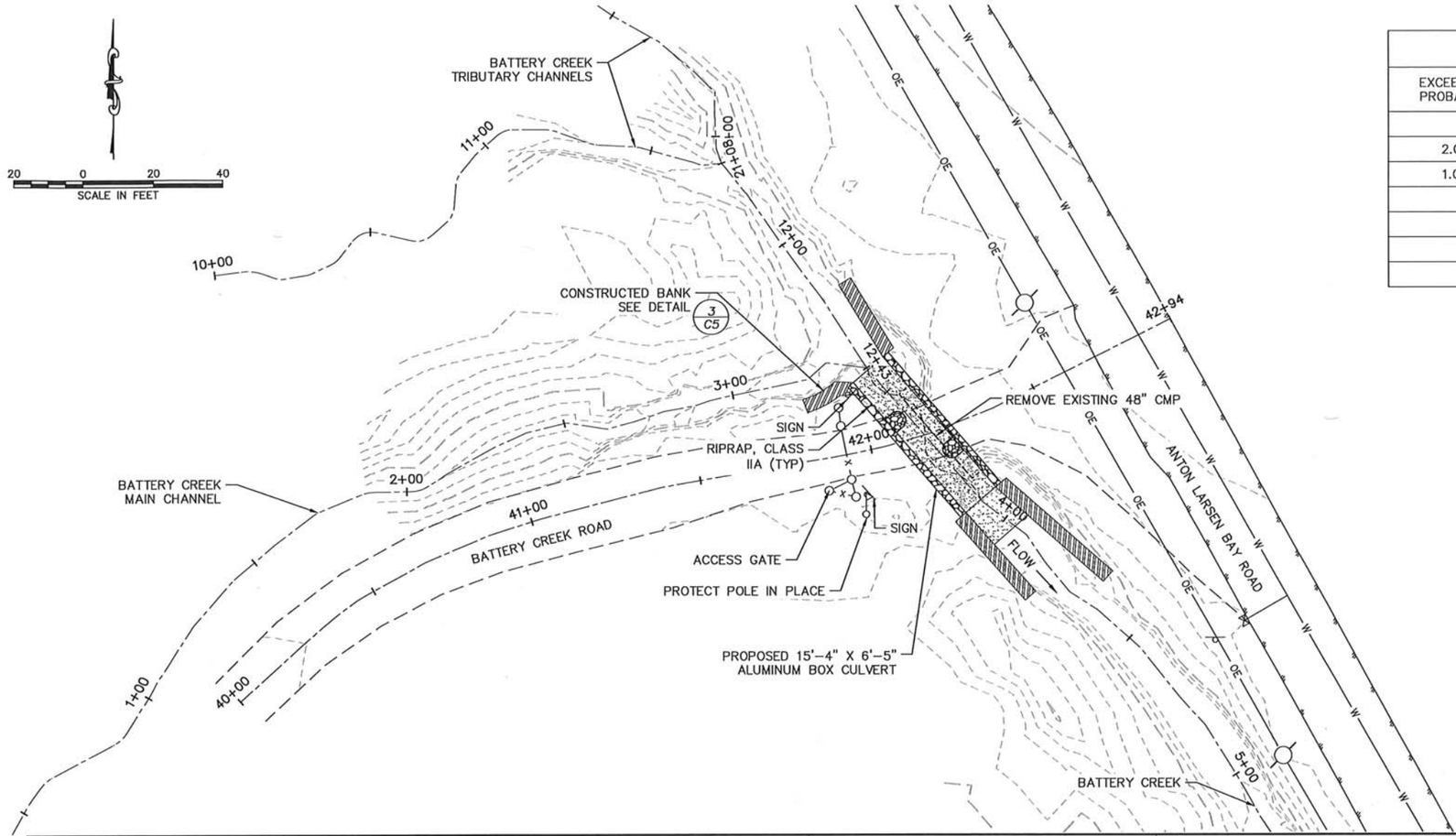
Sam Cotten, Commissioner

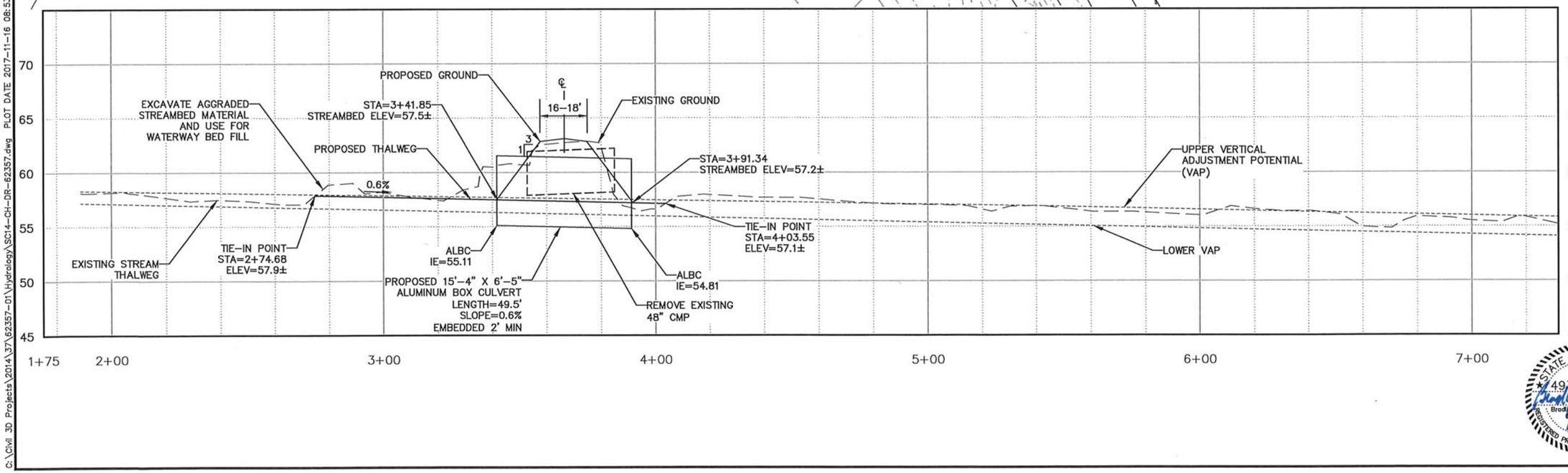
By: Ronald Benkert
Regional Supervisor
Central Region Office

encl: Sheets C2 through C7

cc: AWT, Kodiak

ecc: N. Svoboda, ADF&G
T. Hansen, ADF&G
T. Polum, ADF&G
G. O'Doherty, ADF&G
A. Ott, ADF&G
K. Schaberg, ADF&G
R. Green, ADOT&PF
C. Larson, ADNR
J. Rypkema, ADEC
M. Slife, KIB
USACE, Regulatory Branch





HYDROLOGIC & HYDRAULIC SUMMARY					
EXCEEDANCE PROBABILITY	RETURN PERIOD	DESIGN DISCHARGE	DESIGN HIGH WATER ELEVATION	REGULATORY FLOOD	HW/D
	(YEAR)	(CFS)	(FT)		
2.00%	50	184	60.8	N/A	0.82
1.00%	100	217	61.2	N/A	0.91
DRAINAGE AREA = 0.54 SQUARE MILES					
ANTICIPATED ADDITIONAL BACKWATER = 0 FEET					
Q = 248 CFS AT HW/D = 1.0					
ROADWAY OVERTOPPING Q = 374.5 CFS					

CULVERT SUMMARY SCHEDULE	
SIZE	15'-4" X 6'-5"
LENGTH	49.5'
SLOPE	0.60%
CORRUGATION	9" X 2.5"
MATERIAL	ALUMINUM
LOADING	HL-93
MIN/MAX COVER	1.4'/5.0'
EMBEDMENT	2' MIN

NOTES:

1. REMOVE AND REPLACE ACCESS GATE AND SIGNS AS NECESSARY FOR CONSTRUCTION.

REVISIONS

REV	DATE	DESCRIPTION	BY

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BATTERY CREEK FISH PASSAGE
BATTERY CREEK ROAD
STREAM PLAN & PROFILE

KODIAK, ALASKA

PROJECT 1137.62357.01
DATE NOVEMBER 2017

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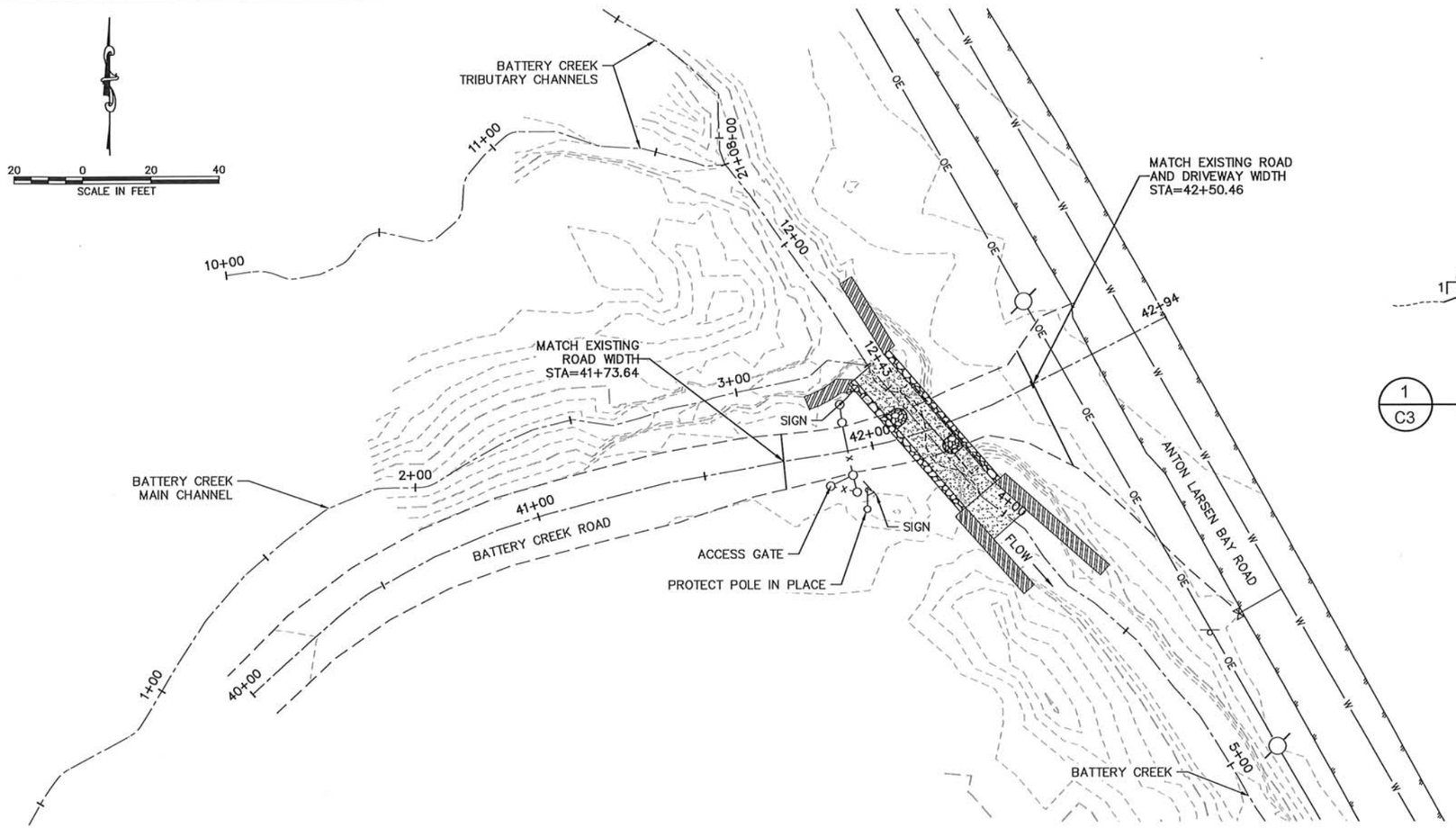
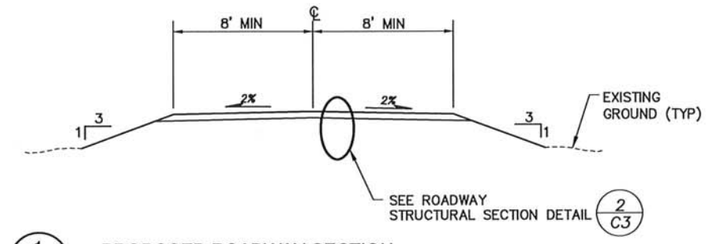
SHEET
C2 OF C9

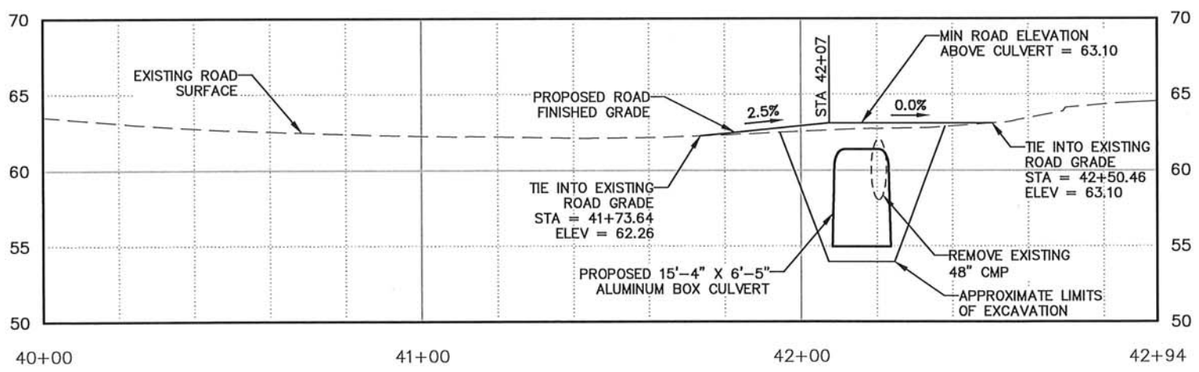
STATE OF ALASKA
49TH
Bradley M. Melsek
11098
11/17/17
REGISTERED PROFESSIONAL ENGINEER

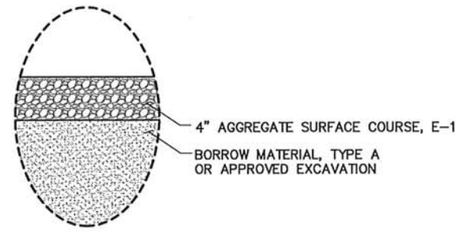
C:\Civil 3D Projects\2014\37\62357-01\Hydrology\SC14-CH-DR-62357.dwg PLOT DATE 2017-11-16 08:53 SAVED DATE 2017-11-14 11:51 USER: hrobuck





1/C3 PROPOSED ROADWAY SECTION
NTS





2/C3 ROADWAY STRUCTURAL SECTION
NTS

NOTES:

1. RAISE ROAD ELEVATION ABOVE PROPOSED CULVERT TO PROVIDE A MINIMUM OF 1.4 FEET OF COVER USING AGGREGATE SURFACE COURSE, E-1.

REVISIONS

REV	DATE	DESCRIPTION	BY

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BATTERY CREEK FISH PASSAGE
BATTERY CREEK ROAD
ROADWAY PLAN & PROFILE
KODIAK, ALASKA

PROJECT 1137.62357.01
DATE NOVEMBER 2017

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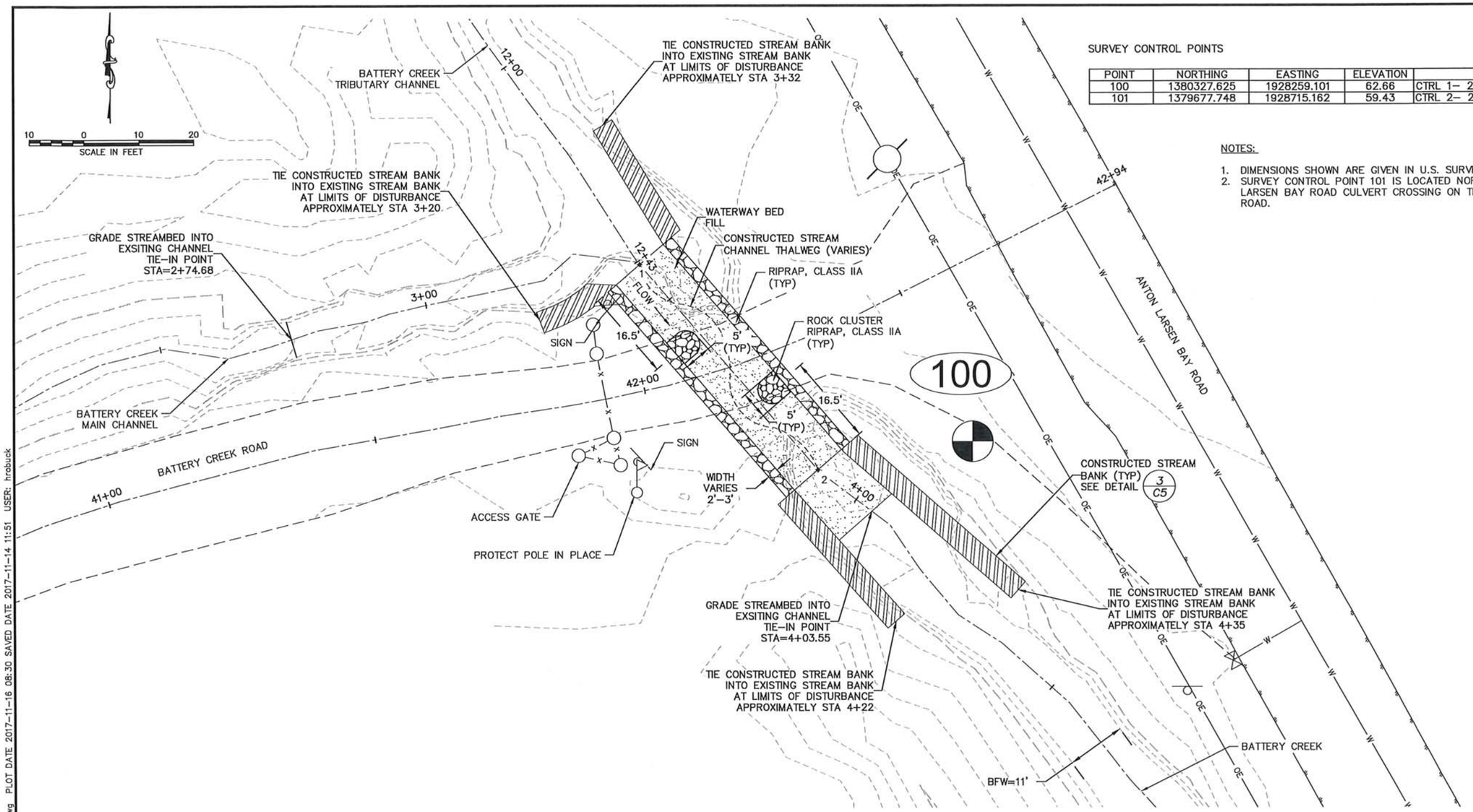
SHEET
C3 OF C9

STATE OF ALASKA 49TH
Bradley M. Meloch
CE/11098
REGISTERED PROFESSIONAL ENGINEER

C:\Civil 3D Projects\2014\37\62357-01\Hydrology\SC14-CH-DR-62357.dwg PLOT DATE 2017-11-16 08:30 SAVED DATE 2017-11-14 11:51 USER: hrobuck



1/C4 STREAM SIMULATION DETAIL - PLAN VIEW
1"=20'

SURVEY CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	1380327.625	1928259.101	62.66	CTRL 1– 2" ALUMINUM CAP 1638S 2016
101	1379677.748	1928715.162	59.43	CTRL 2– 2" ALUMINUM CAP 1638S 2016

NOTES:

1. DIMENSIONS SHOWN ARE GIVEN IN U.S. SURVEY FEET.
2. SURVEY CONTROL POINT 101 IS LOCATED NORTH OF THE ANTON LARSEN BAY ROAD CULVERT CROSSING ON THE NORTH SIDE OF THE ROAD.

NOTES:

1. PROTECT EXISTING STREAM BANKS IN PLACE. RECONSTRUCT STREAM BANKS DAMAGED DURING CONSTRUCTION WITH VEGETATIVE MAT. MINIMIZE DISTURBANCE TO EXISTING STREAM BANKS.
2. TIE CONSTRUCTED STREAM BANKS INTO EXISTING STREAM BANK AT LOCATIONS SHOWN OR AS DIRECTED BY ENGINEER.

CULVERT COORDINATE TABLE

POINT #	NORTHING	EASTING	ELEVATION	SIZE	DESCRIPTION
1	1380359.94	1928198.51	55.11	15'–4" X 6'–5"	INLET IE
2	1380322.48	1928230.87	54.81	15'–4" X 6'–5"	OUTLET IE

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BATTERY CREEK FISH PASSAGE
BATTERY CREEK ROAD
STREAM DESIGN DETAILS
KODIAK, ALASKA

PROJECT 1137.62357.01
DATE NOVEMBER 2017

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SHEET
C4 OF C9

STATE OF ALASKA 49TH
Bradley M. Melock
CE 11098
REGISTERED PROFESSIONAL ENGINEER
11/17/17

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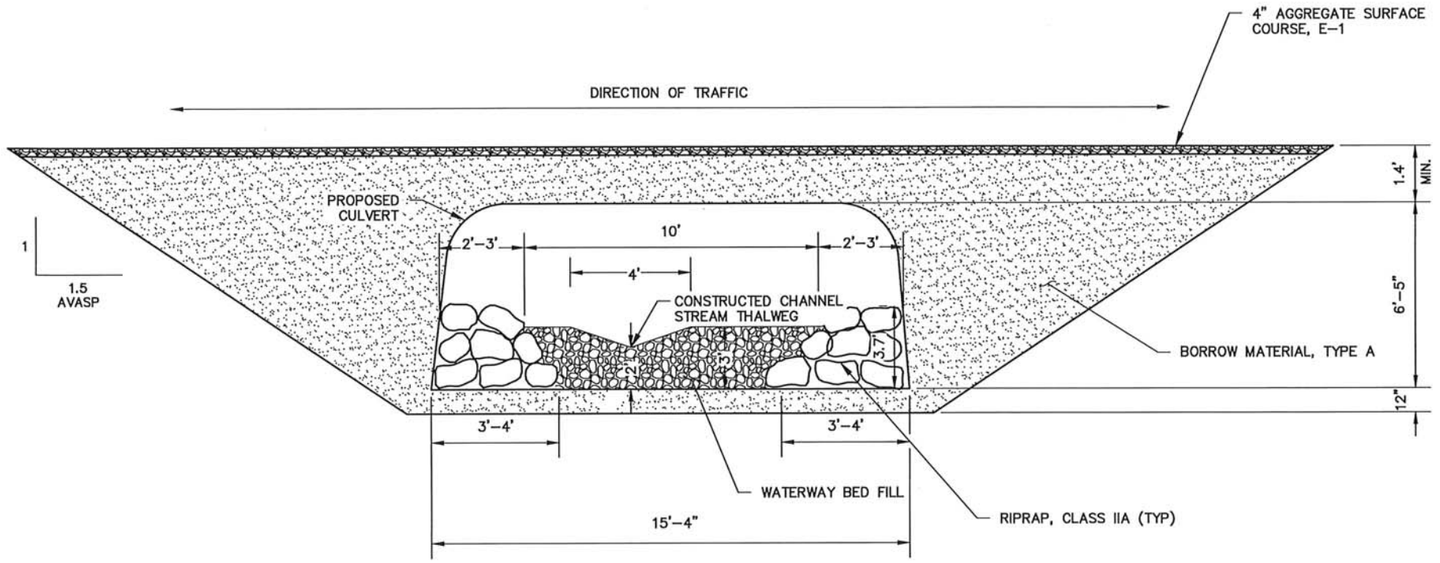
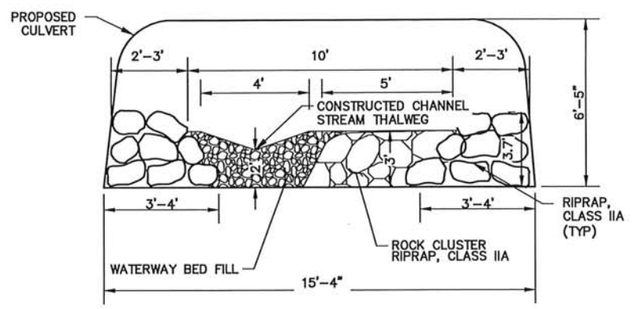
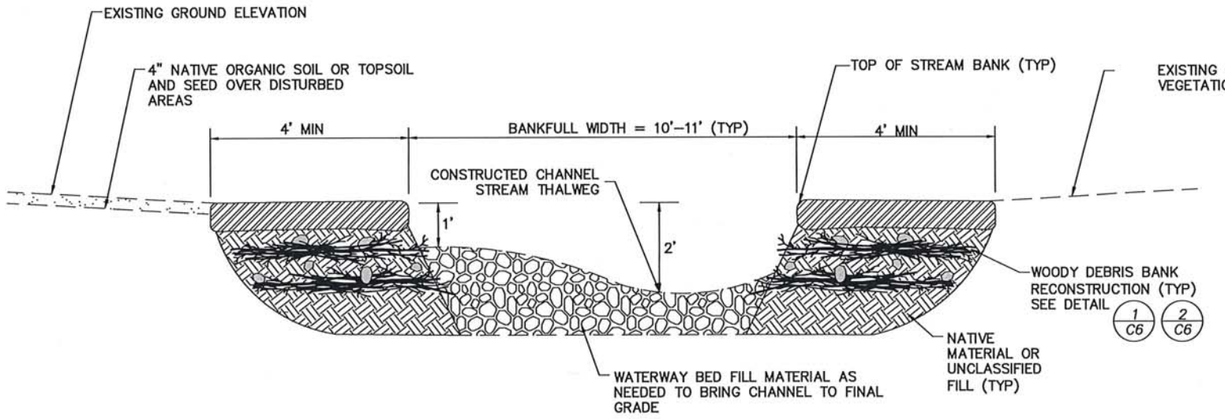


1 C5 TYPICAL CULVERT CROSS-SECTION BETWEEN ROCK CLUSTERS
NTS



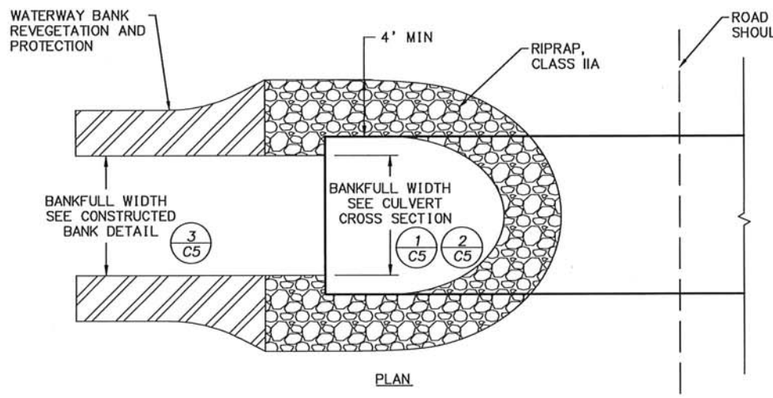
2 C5 TYPICAL CULVERT CROSS-SECTION AT ROCK CLUSTERS
NTS



3 C5 CONSTRUCTED BANK
NTS

NOTES:

1. SALVAGED VEGETATIVE MAT MUST HAVE A MINIMUM THICKNESS OF 12 INCHES AND BE SOURCED FROM THE DISTURBANCE AREA OR THE LOCAL AREA.
2. CONSTRUCTED CHANNEL BED TO HAVE MINIMUM THICKNESS OF 2 FEET. USE ONLY DEPTH OF MATERIAL NECESSARY WHEN PLACING INFILL MATERIAL ON INSITU NATIVE BED MATERIAL TO BRING CHANNEL UP TO GRADE. REFER TO SECTION 690 FOR WATERWAY BED FILL GRADATION.
3. CONSTRUCT 12 INCH DEEP, 4 FOOT WIDE LOW FLOW THALWEG. MEANDER THALWEG ALONG LENGTH OF CONSTRUCTED CHANNEL.



4 C5 RIPRAP SLOPE PROTECTION SECTION
NTS

NOTES:

1. FILL VOIDS IN RIPRAP WITH BORROW OR SALVAGED ORGANIC SOIL.

REVISIONS

REV	DATE	DESCRIPTION	BY

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BATTERY CREEK FISH PASSAGE
BATTERY CREEK ROAD
STREAM SECTIONS AND DETAILS
KODIAK, ALASKA

PROJECT 1137.62357.01
DATE NOVEMBER 2017

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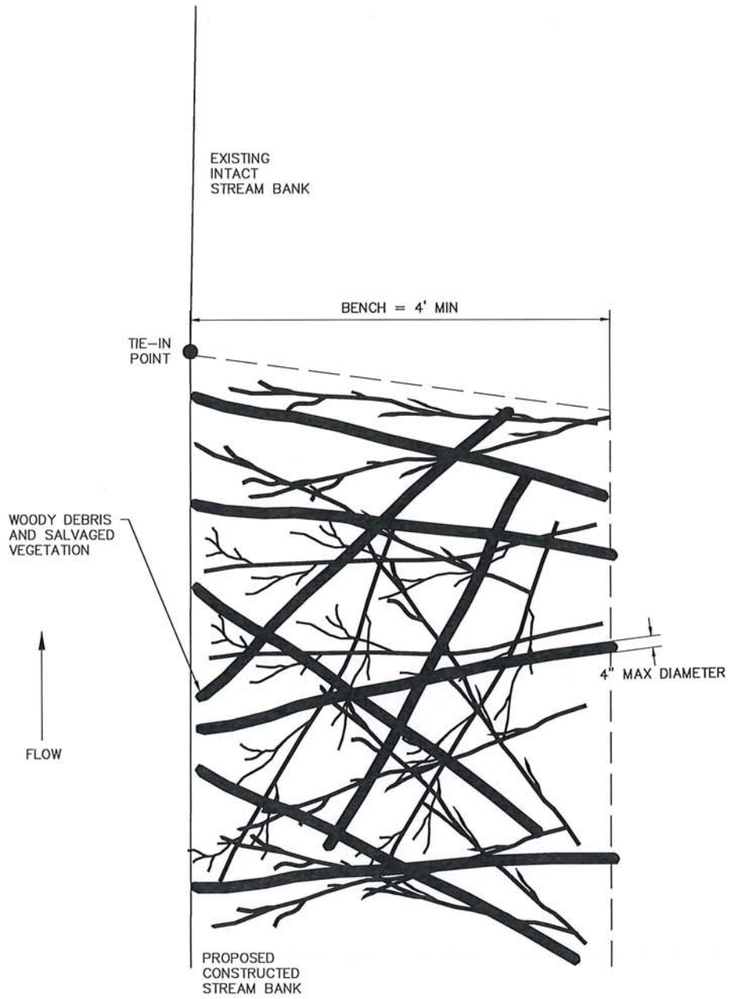
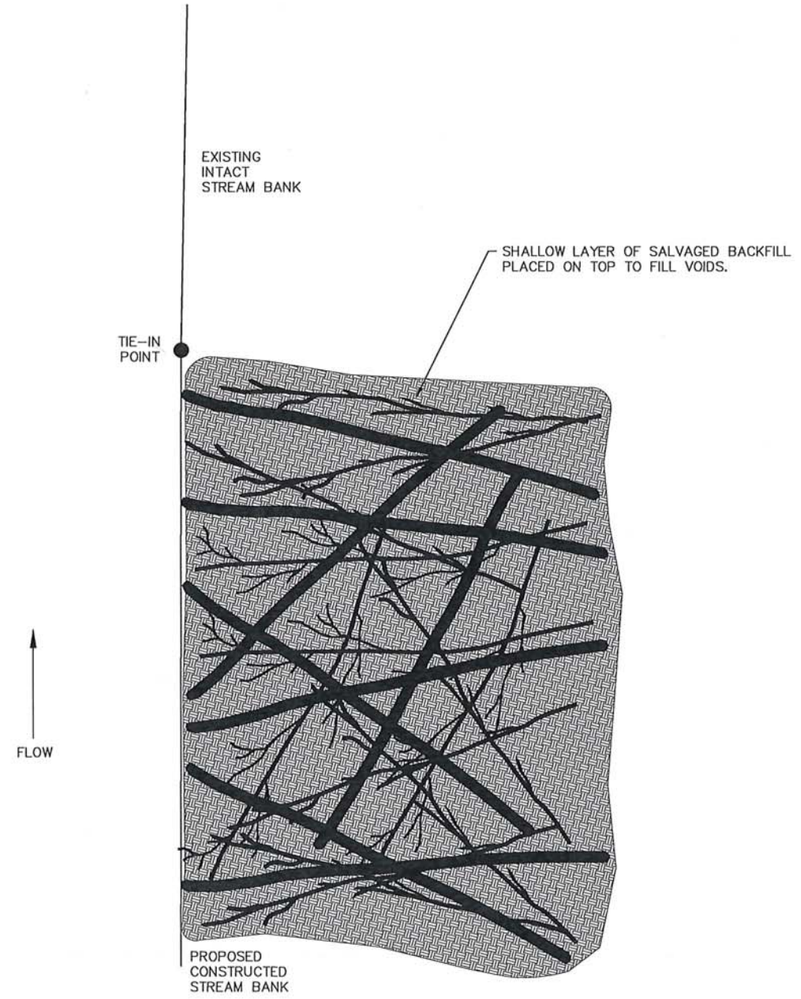
SHEET
C5 OF C9

STATE OF ALASKA 49TH
Bradley M. Melock
CE 10098
REGISTERED PROFESSIONAL ENGINEER
11-20-17

C:\Civil 3D Projects\2014\37\62357-01\Hydrology\SC14-CH-DT-62357.dwg PLOT DATE 2017-11-20 09:02 SAVED DATE 2017-11-16 10:04 USER: hrabuck



1 / C6 WOODY DEBRIS BANK RECONSTRUCTION



2 / C6 WOODY DEBRIS BANK RECONSTRUCTION

NOTES:

WOODY DEBRIS BANK RECONSTRUCTION CONSISTS OF CRISS–CROSSED WOODY DEBRIS AND SALVAGED IN–SITU SOIL, TOPPED WITH VEGETATIVE MAT.

WOODY DEBRIS CONSTRUCTION SEQUENCE

1. DETERMINE CONSTRUCTED STREAM BANK AND EXISTING STREAM BANK TIE–IN POINT.
2. EXCAVATE 4 FOOT MINIMUM WIDTH BENCH, 6 INCHES BELOW STREAM THALWEG ELEVATION. DO NOT DISTURB EXISTING INTACT EXISTING STREAMBANKS OUTSIDE OF TIE–IN POINT.
3. PLACE WOODY DEBRIS ON BENCH AT RANDOM ANGLES. DO NOT PLACE PARALLEL TO FLOW. PLACE ENDS AT INTENDED BANK LINE.
4. ADD SALVAGED NATIVE MATERIAL TO FILL VOIDS. TAMP TO COMPACT.
5. REPEAT STEPS 3–4 UNTIL 6" TO 12" BELOW FINAL TOP OF BANK ELEVATION.
6. TOP WOODY DEBRIS WITH VEGETATIVE MAT.

STATE OF ALASKA 49TH
Bradley M. Melock
CE 11098
REGISTERED PROFESSIONAL ENGINEER
11/16/17

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BATTERY CREEK FISH PASSAGE
BATTERY CREEK ROAD
BANK RECONSTRUCTION DETAILS
KODIAK, ALASKA

PROJECT 1137.62357.01
DATE NOVEMBER 2017

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SHEET
C6 OF C9

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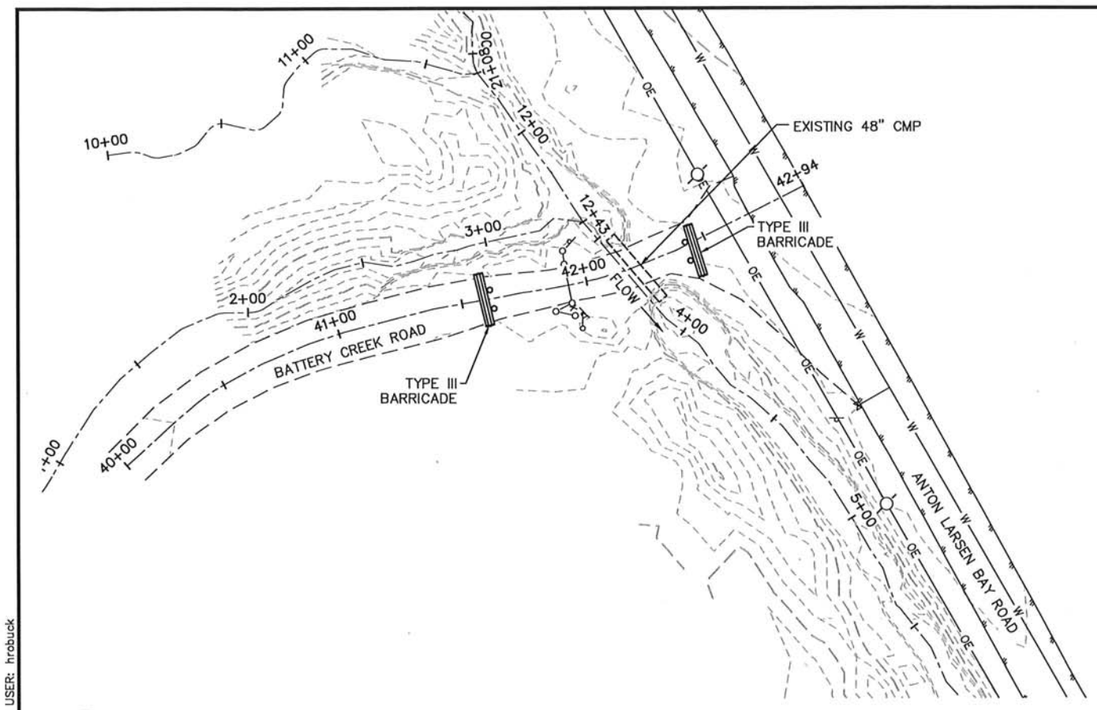
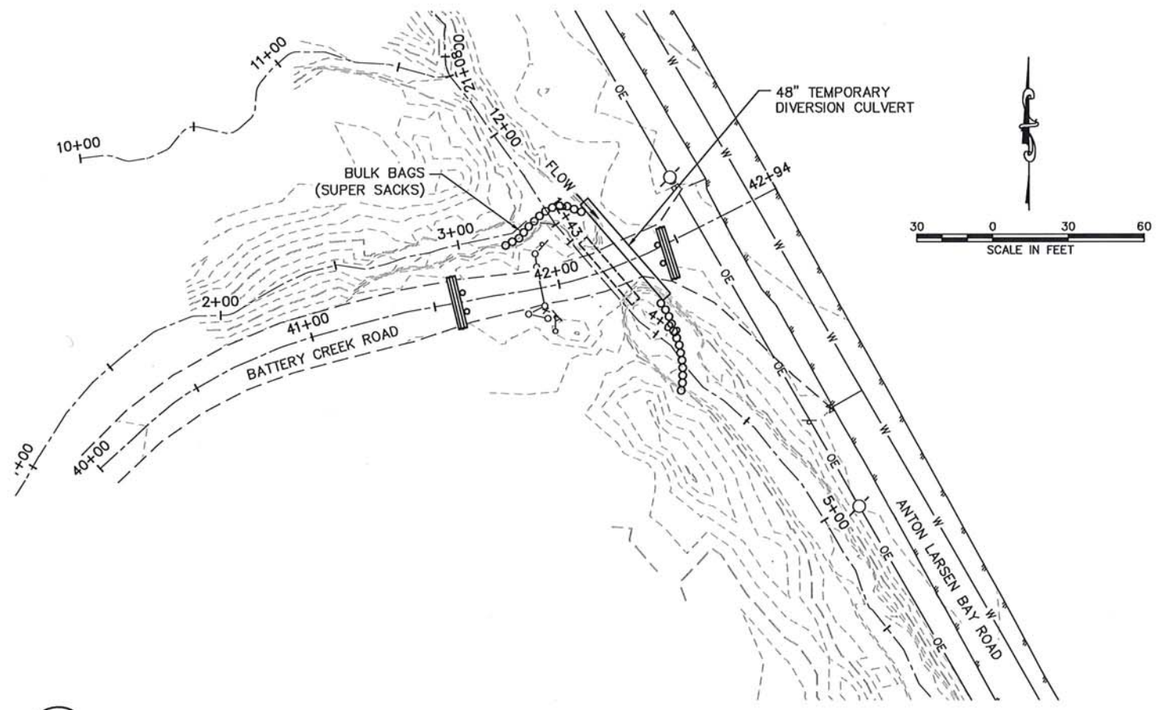


1/C7 STEP 1
1" = 30'



2/C7 STEP 2
1" = 30'

STEP 1

- MAINTAIN BATTERY CREEK FLOW THROUGH EXISTING 48" CMP.
- PLACE BARRICADES AND TRAFFIC CONTROL SIGNS AS SHOWN ON C9 TRAFFIC CONTROL PLAN.

DEWATERING NOTES:

1. DEWATER TRENCH AND WORK AREA WITH PUMP HOSE IF REQUIRED.
2. ALL DISCHARGE POINTS REQUIRE PERMANENT OR TEMPORARY VELOCITY CONTROLS.
3. PROVIDE FOR SEDIMENT REMOVAL FOR ALL DEWATERING ACTIVITY PRIOR TO DISCHARGE FROM THE PROJECT INTO ANY WATER OF THE U.S.
4. DEWATERING DISCHARGE POINT MUST BE LOCATED AT LEAST 100' FROM STREAM.

STEP 2

- EXCAVATE ROADWAY TO INSTALL 48" TEMPORARY DIVERSION CULVERT.
- BACKFILL ROAD AS NECESSARY OVER 48" CULVERT BEFORE MOVING EQUIPMENT OVER CULVERT.
- USE BULK BAGS (SUPER SACKS) TO DIVERT CREEK FLOW THROUGH THE 48" CULVERT.

DIVERSION NOTES:

TEMPORARY DIKES OR BERMS MAY BE USED TO ISOLATE THE WORK AREA FROM WATERS OF THE SURROUNDING AREA. THIS WORK MAY REQUIRE A DIVERSION OF STREAM WATER. THE DESIGNERS RECOGNIZE THAT DIFFERENT CONTRATORS WILL HAVE VARIOUS APPROACHES FOR CONTROLLING WATER AND CONSTRUCTION SEQUENCING. THIS DIVERSION PLAN HAS BEEN DEVELOPED TO CHECK FOR CONSTRUCTABILITY AND AS A STARTING POINT FOR A CONTRACTOR-GENERATED PLAN. MODIFICATIONS TO THIS PLAN DO NOT REQUIRE APPROVAL AS LONG AS THEY COMPLY WITH ALL PERMITS.

STATE OF ALASKA 49TH
Bradley M. Meloche
CE 11098
REGISTERED PROFESSIONAL ENGINEER
11/17/17

REVISIONS

REV	DATE	DESCRIPTION	BY

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BATTERY CREEK FISH PASSAGE
BATTERY CREEK ROAD
STREAM DIVERSION PLAN
KODIAK, ALASKA

PROJECT 1137.62357.01
DATE NOVEMBER 2017

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SHEET
C7 OF C9

C:\Civil 3D Projects\2014\37\62357-01\Hydrology\SC14-CH-DR-62357.dwg PLOT DATE 2017-11-17 13:24 SAVED DATE 2017-11-16 10:07 USER: hrobuck

Subject: [Non-DoD Source] Kodiak Battery Creek Culvert Replacement Permit 4345 application
From: "Heath, Amanda L CIV USARMY CEPOA (US)" <Amanda.L.Heath@usace.army.mil>
Date: 2/21/2018 1:25 PM
To: "kari@kodiaksoilandwater.org" <kari@kodiaksoilandwater.org>

Kari,

It would appear the proposed project would qualify for a non-notifying Nationwide 3(a). This activity does not require notification to the U.S. Army Corps of Engineers, Regulatory Division (Corps), provided your project adheres to the terms and conditions of the NWP and the applicable regional and general conditions. This information can be found at: www.poa.usace.army.mil/Missions/Regulatory/Permits/Nationwide-Permits/. The project is authorized by this NWP, and you may proceed with the project. Reconsideration of this verification may be required if you alter the method, scope, or location of the project work. You should contact the Corps if you make changes to your project.

Nothing in this letter excuses you from compliance with other Federal, State, or local statutes, ordinances, or regulations.

Thank you,
~Amanda

Amanda L. Heath
Acting Chief, Southeast Section
U.S. Army Corps of Engineers (Alaska District)
(907) 753-5582 (desk)
(907) 753-2712 (main)
Amanda.L.Heath@usace.army.mil

-----Original Message-----
From: Kari Linkenhoker [mailto:kari@kodiaksoilandwater.org]
Sent: Friday, February 16, 2018 10:40 AM
To: CEPOA-RD-KFO, POA <CEPOA-RD-Kenai@usace.army.mil>; Blythe Brown <blythe.brown@kodiaksoilandwater.org>
Subject: [Non-DoD Source] Kodiak Battery Creek Culvert Replacement Permit 4345 application

I have attached an application and plan drawings for the Buskin Watershed Culvert Replacement project at Battery Creek. The plan proposes a culvert replacement to improve fish passage. We would like to complete this project this summer. Please let me know if you need any additional information.

Thank you,

Kari

--
Kari Linkenhoker, Programs Assistant
Kodiak Soil and Water Conservation District
518 West Marine Way, Suite 206
Kodiak, Alaska 99615
Office phone: 907-486-5574

E-mail: kari@kodiaksoilandwater.org

United States Department of the Interior

FISH AND WILDLIFE SERVICE

1011 E. Tudor Rd.
Anchorage, Alaska 99503

IN REPLY REFER TO:
2018-002

Memorandum

To: Fish Passage Engineer, Fisheries and Ecological Services, Habitat Restoration

From: Regional Historic Preservation Officer, 02/13/2018

Subject: Buskin Watershed Habitat Enhancement, Culverts 20700786 and 20703440

In order to improve fish passage, the Kodiak Soil and Water Conservation District (KSWCD) proposes the following: 1.) Replace culvert 20700786, located on Battery Creek Road, located within Section 9, Township 28 South, Range 20 West, Seward Meridian, Alaska, and; 2.) Replace failing culvert 20703440 at the outlet of Genivieve Lake (aka, Boy Scout Lake), construct a new stream channel in a gully that was likely the location of the original channel, construct a new single span pedestrian bridge over the new stream channel to maintain recreational access within the footprint of the existing trail system at the lake, and remove contemporary debris from the stream channel, located within Section 11, Township 28 South, Range 20 West, Seward Meridian, Alaska.

The U.S. Fish and Wildlife Service (Service), Fisheries and Ecological Services, Habitat Restoration, is a funding sponsor and cooperator with KSWCD for the proposed project. As such, the Service is the federal agency responsible for compliance with Section 106 of the National Historic Preservation Act. Service funding for the project constitutes a federal undertaking and requires the Service to consider the impacts of the proposed project to historic properties.

After discussion of the proposed undertaking with Heather Hanson, Fish Passage Engineer, U.S. Fish and Wildlife Service (Service), Fisheries and Ecological Services, Habitat Restoration, I have established an Area of Potential Effect (APE) consisting of 100 feet surrounding the footprints of each of the two proposed project action areas.

An examination of the Alaska Heritage Resources Survey (AHRS) database indicates no recorded prehistoric or historic resources within either project location APE. Likewise, there are no features or structures associated with the Kodiak Naval Operating Base National Historic Landmark within the APE of the two proposed project locations. Furthermore, as evidenced by project area photographs provided by KSWCD, both proposed project locations have been heavily disturbed by modern road construction.

Based on the information provided by the KSWCD and Service Habitat Restoration, examination of the AHRS, and consideration of inspections conducted by Patrick Saltonstall, Archaeologist, Alutiiq Museum, on behalf of KSWCD, there is low likelihood for previously undiscovered cultural resources within the proposed project locations.

In accordance with 36 CFR 800, implementing regulations for consideration of historic properties pursuant to Section 106 of the National Historic Preservation Act, on behalf of the Service I find that the proposed undertaking would cause no effect to historic properties. Unless otherwise requested by an affected external stakeholder (such as the U.S. Coast Guard or the Alaska Department of Transportation), no further cultural resources investigation is required for this specific proposed project.

If you have any questions, need further assistance, or if the scope and scale of the project changes, please contact me at (907) 789-3399, or edward_decleva@fws.gov.

Edward J. DeCleva

We are now accepting payments online for case agreements and mining claims bills! To make a payment by credit card or from your bank account, click here.

Results - Case File Abstract

Summary

File: TWUA A2018-18

Customer: 000056370 KODIAK SOIL & WATER CONSERVATION DISTRICT
518 W. MARINE WAY SUITE 206
KODIAK AK 99615

Case Type: 802 TEMP WATER USE AUTH **DNR Unit:** 800 WATER

File Location: WANC WATER MGT-ANCHORAGE

Case Status: 11 APPLICATION **Status Date:** 02/14/2018

Total Acres: 0.000 **Date Initiated:** 02/14/2018

Office of Primary Responsibility: WANC WATER MGT-ANCHORAGE

Last Transaction Date: 02/14/2018 **Case Subtype:** TSUR SURFACE

Last Transaction: ADDTEXT CHANGE LEGAL TEXT

Land Records

Meridian: S **Township:** 028S **Range:** 020W **Section:** 09 **Section Acres:** 0

Case Actions

02-14-2018 **PERMIT APPLICATION RECEIVED**	
	INSTALLATION OF FISH PASSAGE CULVERT FOR BATTERY CR AT BATTERY CR ROAD KODIAK ISLAND. DIVERSION OF CREEK AND DEWATERING OF WORK SITE

Legal Description

TWUA A2018-18

Diversion of Battery Creek and potential dewatering of the work site (if needed) during the Battery Creek Fish Passage upgrades at the Battery Creek Road culvert on Kodiak Island. Any needed dewatering will be discharged to the uplands at least 100' from the stream.

Legal Description: Battery Creek and work site in Section 9 of Township 28 South, Range 20 West, Seward Meridian.

DOWL

April 10, 2017
W.O. 1137.62357.01
Report No. 5794

Mrs. Blythe Brown
Kodiak Soil and Water Conservation District
518 W Marine Way
Kodiak, Alaska 99615

Subject: **Subsurface Exploration**
Battery Creek Fish Passages, Kodiak, Alaska

Dear Mrs. Brown:
The attached report presents the results of our subsurface exploration for the proposed Battery Creek Fish Passages project in Kodiak, Alaska. This report includes the logs of eight test borings drilled during the current exploration, the results of laboratory tests, soil bearing capacities, and recommendations regarding earthwork.

If you have any questions regarding this report or its use, or if we may provide additional services, please call.

Sincerely,
DOWL

Paul E. Pribyl
Geologist

Reviewed by:
DOWL

4-10-17

STATE OF ALASKA 49TH
JEREMIAH ERIK HOLLAND
CE 12636
REGISTERED PROFESSIONAL ENGINEER

Jeremiah E. Holland, P.E.
Senior Geotechnical Engineer

Attachment(s): As stated

c:

DOWL

INSPIRATION • INNOVATION • INTEGRITY

FINAL
Battery Creek Fish Passages
Kodiak, Alaska

Subsurface Exploration

April 2017

FINAL

SUBSURFACE EXPLORATION

BATTERY CREEK FISH PASSAGES

KODIAK, ALASKA

Prepared for:

Kodiak Soil and Water Conservation District
518 W. Marine Way, Suite 206
Kodiak, Alaska 99615

Prepared by:

DOWL
4041 B Street
Anchorage, Alaska 99503
(907) 562-2000

W.O. 1137.62357.01
Area 2
Report No. 5794

April 2017

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

The Kodiak Soil and Water Conservation District (KSWCD) plans to enhance flood and fish passage at four culverts within the Buskin River Drainage (BRD). These four locations have been identified within the Alaska Department of Fish and Game's (ADF&G) Fish Passage Inventory Database (FPID) as having the potential to impede fish movement and improvement of the crossings would increase fish habitat within the BRD. The four locations discussed within this report are:

- United States Coast Guard (USCG) Access Road at Battery Creek (FPID No. 20700786)
- Anton Larson Bay Road at Battery Creek (FPID No. 20700785)
- Tom Stiles Road at Unnamed Creek (FPID No. 20700877)
- Old Military Road at Boy Scout Lake Outlet Creek (FPID No. 20703440)

Site locations are shown on the Vicinity Map located in Appendix A. The purpose of this geotechnical engineering report is to support the design and construction of the proposed fish passages. This report presents the results of our field exploration, laboratory soil testing program, geotechnical engineering recommendations, and construction considerations.

1.1 Scope of Work

DOWL submitted a proposal dated November 16, 2016, for geotechnical engineering services including subsurface exploration consisting of drilling and sampling test borings, laboratory testing, engineering analysis, report preparation, and geotechnical engineering recommendations.

In brief, the scope included:

- 2 test borings to depths of 20 to 30 feet at each location with rock coring if hard bedrock was encountered within 20 feet;
- Perform various laboratory soils testing;
- Analyze the geotechnical aspects of the planned development with respect to the site soils and groundwater; and
- Prepare a report of findings and recommendations.

Our proposal was accepted and we received Notice-to-Proceed on November 22, 2016.

2.0 FIELD EXPLORATION AND LABORATORY TESTING

2.1 Field Exploration

The test boring exploration for the Battery Creek Fish Passages project was conducted on December 5 through 9, 2016. Eight test borings were drilled, sampled, and logged to depths of 20 to 27 feet with one boring on each side of the culvert and one boring on the upstream and downstream side (where able) at each location.

The test borings were located in the field by measuring from existing features with a fiberglass measuring tape and are only as accurate as the method implies. The locations of the test borings are shown on the Test Boring Location Maps, located in Appendix A.

The test borings were drilled using a Geoprobe 6712D track-mounted drill rig fitted with continuous-flight, hollow-stem auger. The rig is owned and operated by Discovery Drilling. The drilling was supervised and the samples logged by a geologist with our firm.

Grab samples were obtained at the surface where each test boring was drilled. Disturbed samples were obtained at depths of 2.5, 5, 7.5 and 10 feet and then at 5-foot intervals thereafter using a modified split-spoon sampler.

The modified penetration test was performed in the test borings by driving a 2.5-inch inside-diameter, split-spoon sampler a distance of 18 inches ahead of the auger with a 300-pound hammer falling 30 inches. The penetration resistance (N) value shown on the test boring logs indicates the number of blows required to drive the sampler the last 12 inches. The results are an indication of the relative density or consistency of the subsoil. The N-values shown in the logs are raw data from the field and have not been adjusted for sampling equipment type or overburden pressure.

Soil samples recovered during drilling were visual-manually classified in general accordance with ASTM D2488 and sealed in plastic bags to preserve the natural water content. The samples were then transported to DOWL's Anchorage laboratory in accordance with ASTM D4220, for further testing.

A slotted PVC standpipe was installed in two of the test borings and the depth to the groundwater was measured several days after drilling to allow the water levels to stabilize.

No environmental testing or monitoring was conducted as a part of this investigation.

2.2 Laboratory Testing

Laboratory tests were performed on selected samples to measure soil index properties to provide a basis for estimating engineering properties. Soil index testing included moisture contents, grain size analyses, and Atterberg Limits tests were performed on selected samples. The natural water content of nearly all the recovered samples was measured. Soil samples will be stored until March 2017, after which time they will be discarded unless other arrangements are made.

Moisture Content. The natural moisture content of most recovered samples was determined in accordance with ASTM D2216; except, due to limited sample sizes, some tests may have been performed on samples smaller than the minimum test size required by the standard. The water contents are reported on the graphic test boring logs, Appendix B.

Particle Size Distribution Tests. Seven particle-size distribution tests were performed on selected soil samples in accordance with ASTM D6913. Six of these tests included frost classification. These tests consisted of mechanical sieving and the results are presented graphically in Appendix C.

Limited Mechanical Analysis. Eight limited mechanical analyses were performed on selected soil samples to supplement visual manual classification in the field and laboratory. This test is performed in general accordance with ASTM D1140 to determine the amount of material finer than the No. 200 sieve, however, the coarse fraction is passed through the No. 4 sieve. Particles retained on the No. 4 sieve are reported as percent gravel. Particles passing the No. 4 sieve and retained on the No. 200 sieve are reported as percent sand. Particles passing the No. 200 sieve are reported as percent silt or clay. The results of the testing are shown in Table C-1 in Appendix C.

Atterberg Limits. Three Atterberg Limits tests were performed in accordance with ASTM D4318, multipoint method A. The liquid limit, plastic limit, and plasticity index numbers obtained from the test are used to classify the soil fines as silts or clays. In addition, the limits can be used to estimate strength and settlement characteristics of soils. The results of the plasticity index tests are presented on the test boring logs in Appendix B.

3.0 USCG ACCESS ROAD AT BATTERY CREEK

3.1 Location

The site is located at the crossing of Battery Creek and the USCG road adjacent to Anton Larsen Bay Road. The crossing has been identified as No. 20700786 within ADF&G's FPID. Test Boring 1 was conducted to a depth of 21.5 feet on the upstream-east side of the culvert and Test Boring 2 was conducted to a depth of 26.5 feet on the downstream-west side of the culvert.

3.2 Subsurface Description

The subsurface conditions were generally consistent within the two borings. Fill was encountered to a depth of approximately 2 feet in Test Boring 2 which was conducted within the road. Underlying the fill and where the fill is not present, peat interbedded with ash was encountered to a depth of approximately 4 feet. Beneath the peat and ash, medium dense to dense well graded gravel with sand (GW-GM) and silty gravel and sand (GM) was encountered to depths of 15 to 18 feet. Cobbles and boulders were encountered within the gravel layer (classified as GW-GM and GM). Below these depths, soft, nonplastic silt (ML) was observed to bottom of the exploration depths. Groundwater was encountered at approximately 5 feet during drilling.

3.3 Engineering Analysis and Recommendations

Culvert option: The fish passage structure could be founded on the well graded gravel with silt and sand (GW-GM) encountered approximately 4 feet below the ground surface to 12 to 15 feet below the ground surface or properly compacted structural fill with an allowable bearing pressure of 4000 psf. Due to the density and coarseness of the gravel material, running sand conditions are unlikely during excavation. With proper compaction, the well graded gravel with silt and sand material is suitable for reuse as structural fill.

4.0 ANTON LARSEN BAY ROAD AT BATTERY CREEK

4.1 Location

The site is located at the crossing of Battery Creek and Anton Larsen Bay Road. The crossing has been identified as No. 20700785 within ADF&G's FPID. Test Boring 3 was conducted to a depth of 22.5 feet on the downstream-north side of the culvert and Test Boring 4 was conducted to a depth of 27.5 feet on the upstream-south side of the culvert.

4.2 Subsurface Description

The subsurface conditions were generally consistent within the two borings with the exception that an ash, peat and silt interval was encountered between depths of 7.5 to 11 feet in Test Boring 3 which appears to have been removed and replaced with fill at the location of Test Boring 4.

The road embankment fill is composed of well graded gravel with silt and sand (GW-GM) and silty gravel with sand (GM) to depths of 7.5 feet and approximately 9 feet in Test Borings 3 and 4, respectively. In Test Boring 3 the fill is underlain by interbedded ash with peat and sandy silt to a depth of 11 feet. Silty gravel with sand (GM) underlies the silt to a depth of approximately 12 feet. Similarly in Test Boring 4, gravel with silt and sand (GP-GM) is present beneath the fill to a depth of approximately 13 feet. Underlying the gravel in both borings is poorly graded sand with silt and gravel (SP-SM) of alluvial origin overlying bedrock. Bedrock was encountered at a depth of 20.5 feet and 25.5 feet in Test Borings 3 and 4, respectively. Groundwater was measured at 7.2 feet in Test Boring 4.

4.3 Engineering Analysis and Recommendations

Bridge option: If a bridge is selected, peat and ash must be over excavated below the structures foundation extending 1:1 (horizontal:vertical) from the edge of the footing and replaced with structural fill. If the bridge is founded on footings bearing on structural fill and the bottom of footing is backfilled with at least 2 feet of compacted structural fill, a maximum allowable soil bearing pressure of 3000 pounds per square foot (psf) may be applied. If the bridge support is not covered by compacted fill, such as on a timber sill above a channel, a maximum allowable soil bearing pressure of 1000 psf may be used. Based on bridge concepts used on previous projects of a similar natures, abutment slopes should not be steeper than 1.5:1 (horizontal: vertical) with the edge of sill no closer than 2.5 feet from the slope. With proper compaction, the existing road embankment material is suitable for reuse as structural fill. A geotechnical engineer should review selected bridge and abutment designs to verify conformance with the site conditions and parameters.

Culvert option: If a culvert or bottomless culvert on footings is used, ash and peat should be overexcavated from beneath the culvert and/or footings. The fish passage structure could be founded below the water table on the silty gravel with sand (GM), poorly graded gravel with silt and sand (GP-GM), or properly compacted structural fill with an allowable bearing pressure of 4000 psf. Excavations exceeding approximately 12 feet in depth may encounter a running sand condition in the poorly graded sand with silt and gravel (SP-SM).

5.0 TOM STILES ROAD AT UNNAMED CREEK

5.1 Location

The site is located at the crossing of an unnamed creek and Tom Stiles Road. The crossing has been identified as No. 20700877 within ADF&G's FPID. Test Boring 5 was conducted to a depth of 26.5 feet on the upstream-east side of the culvert and Test Boring 6 was conducted to a depth of 26.5 feet on the upstream-west side of the culvert. Subsurface utilities located within the road embankment on the downstream side of the crossing prevented a test boring from being conducted there.

5.2 Subsurface Description

The subsurface conditions were generally consistent within the two borings. Fill classifying as poorly graded sand with silt and gravel (SP-SM), well graded gravel with silt and sand (GP-GM), and silty gravel with sand (GM) was encountered to a depth of approximately 10 feet. The fill is underlain by peat and ash to depth of about 12 feet, beyond which silty gravel with sand (GM) and silty sand with gravel (SM) was encountered to the bottom of the exploration. Groundwater was measured at a depth of 10.2 feet within Test Boring 6.

5.3 Engineering Analysis and Recommendations

Bridge option: If a bridge is selected, depending on the total loads and allowable settlement of the bridge design, the peat and ash may need to be over excavated below the structures foundation extending 1:1 (horizontal:vertical) from the edge of the footing and replaced with structural fill. A geotechnical engineer working with the bridge designer's structural engineer should evaluate the range of foundation options as the design develops. It is feasible for a bridge founded on footings covered by at least 2 feet of properly compacted fill to obtain a maximum allowable soil bearing pressure of 3000 pounds per square foot (psf), however, depending on the configuration and total loads, settlement must be evaluated if the peat and ash is not removed. If the bridge support is not covered by compacted fill, such as on a timber sill above a channel, a maximum allowable soil bearing pressure of 1000 psf may be used. Based on bridge designs used on previous projects of a similar nature, abutment slopes composed of structural fill or shot rock should not be steeper than 1.5:1 (horizontal: vertical) with the edge of sill no closer than 2.5 feet from the slope. With proper compaction, the existing road embankment material is suitable for reuse as backfill. A geotechnical engineer should review selected bridge and abutment designs to verify conformance with the site conditions and parameters.

Culvert option: If a culvert or bottomless culvert on footings is used, ash and peat should be removed from beneath the culvert and/or footings. The fish passage structure could be founded below the water table on the silty gravel with sand (GM) or properly compacted fill with an allowable bearing capacity of 4000 psf. A running sand condition is unlikely at this site.

6.0 OLD MILITARY ROAD AT BOY SCOUT LAKE OUTLET CREEK

6.1 Location

The site is located at the crossing of Boy Scout Lake Outlet and an Old Military Road. The commonly recognized name for the lake which drains through the crossing is Genivieve Lake. The crossing has been identified as No. 20703440 within ADF&G's FPID. The old military road is now closed to vehicular traffic to the public. Large boulders near the beginning of the path block vehicular access but the path is frequented by pedestrian traffic. The road prism acts as a dam for the lake. Several design options are being considered for this location including potentially using a sheet pile weir to maintain the lake level, creating a new diversion channel, and plugging or removing the existing culverts; a pedestrian bridge is being considered under one design option.

Test Boring 7 was conducted to a depth of approximately 20.2 feet on the pedestrian path adjacent to the existing informational sign. Test Boring 8 was conducted to a depth of approximately 19.2 feet on the path approximately 2-feet north of the existing culverts. Both test borings encountered bedrock at their respective termination depths.

6.2 Subsurface Description

Test Boring 7 encountered fill classifying as poorly graded sand with silt (SP-SM) and gravel to silty gravel with sand (GM) to a depth of approximately 4.5 feet. The fill is underlain by very soft peat containing ash to a depth of 8.5 feet. The peat grades into very soft to firm, nonplastic silt (ML) which extends to a depth of approximately 15 feet, after which silty sand with gravel (SM) is present over bedrock. Bedrock was encountered at approximately 19.5 feet and augur refusal occurred at approximately 20.2 feet. Groundwater was encountered at about 6 feet while drilling.

Test Boring 8 encountered medium dense fill classifying as poorly graded sand with silt and gravel (SP-SM) to depth of approximately 4.5 feet. The medium dense fill is underlain by very loose fill classifying as silty sand with gravel (SM) to poorly graded sand with silt gravel (SP-SM) to a depth of approximately 10 feet. Beneath the very loose fill is loose to dense silty gravel with sand (GM) and silty sand with gravel (SM) overlying bedrock at a depth of approximately 19 feet. Groundwater was encountered at about 7 feet while drilling.

6.3 Engineering Analysis and Recommendations

Road Embankment/Dam: The existing road embankment/dam contains very loose fill material adjacent to the existing culvert. The fill encountered at depths of approximately 7.5 to 10 feet is very loose and contains a low percentage of fines and likely seeps water through the embankment. The embankment would likely need reconstructed or modified to include an impervious barrier in order to fully divert the outflow to another location.

Pedestrian Bridge Option: The location of the proposed pedestrian bridge is in the vicinity of Test Boring 7. The existing fill overlies very soft peat and highly erodible silt which are design challenges. As the bridge and channel concepts are developed, a geotechnical engineer should be consulted for feasibility and foundation design. Feasible foundation options to support a

pedestrian bridge include removal and replacement of the peat with structural fill, end bearing piles founded on the bedrock, and perhaps the most economical option is helical piers. A geotechnical engineer working with the bridge designer's structural engineer should evaluate the range of foundation options as the design develops.

Culvert Option: A closed bottom culvert is recommended. The soils encountered in Test Boring 7 are suitable to support a closed bottom culvert once the peat between depths of approximately 5 to 8 feet is removed. Excavation should be conducted with a smooth-bucket excavator and care should be taken during excavation to limit disturbance to the underlying silt layer, as once it is disturbed it would be practically impossible to re-compact. Depending on the desired elevation of the culvert, it could bear directly on the silt with sand layer or if it needs to be at a higher elevation, the peat could be replaced with fill and the culvert could be installed on the fill. Placing a separation geotextile above the silt would make compaction of any overlying fill much easier. Depending on the final design and acceptable levels of settlement or movement, consolidation of the silt would need to be evaluated as replacing the peat with fill would create additional loads that the silt layer hasn't been subjected to and some consolidation would be expected.

Sheet Pile Weir: A sheet pile weir to control the lake level is feasible at this location. Bedrock was not encountered at depths of 19 and 20 feet, providing adequate depth of granular material in which the sheet piles could be installed and restrained. Driving the piles until refusal on bedrock and then cutting the top of the sheet piles to their final elevation would prevent any future settlement or movement and result in the best long-term performance.

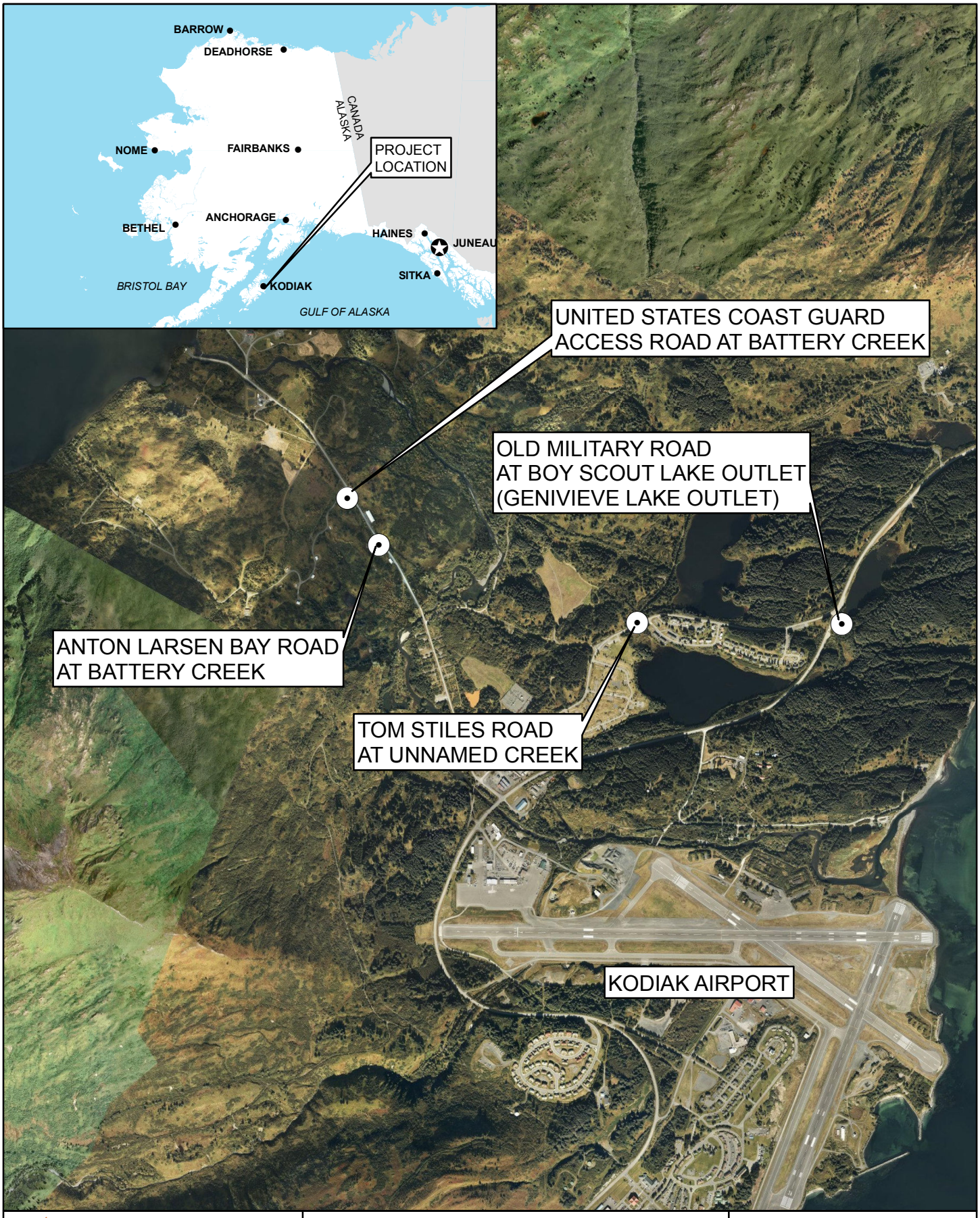
7.0 LIMITATIONS

This report has been prepared for the use of Kodiak Soil and Water Conservation District in design of the Battery Creek Fish Passages in Kodiak, Alaska. Changes to the design, layout, or location of the facilities should be provided to the project geotechnical engineer for review. Significant changes may alter the conclusions and recommendations presented in this report.

Ground conditions between borings may be different than inferred and changes may occur over time. Without additional subsurface exploration, variations in the ground conditions may be encountered during construction. It is important to communicate unanticipated soil conditions to the project geotechnical engineer to evaluate if the conditions may influence the conclusions and recommendations. No warranty is expressed or implied by this report or the recommendations. The geotechnical field program and recommendations followed the standard of care expected of professionals performing similar work in the State of Alaska.

APPENDIX A

Vicinity Map and Test Boring Location Maps

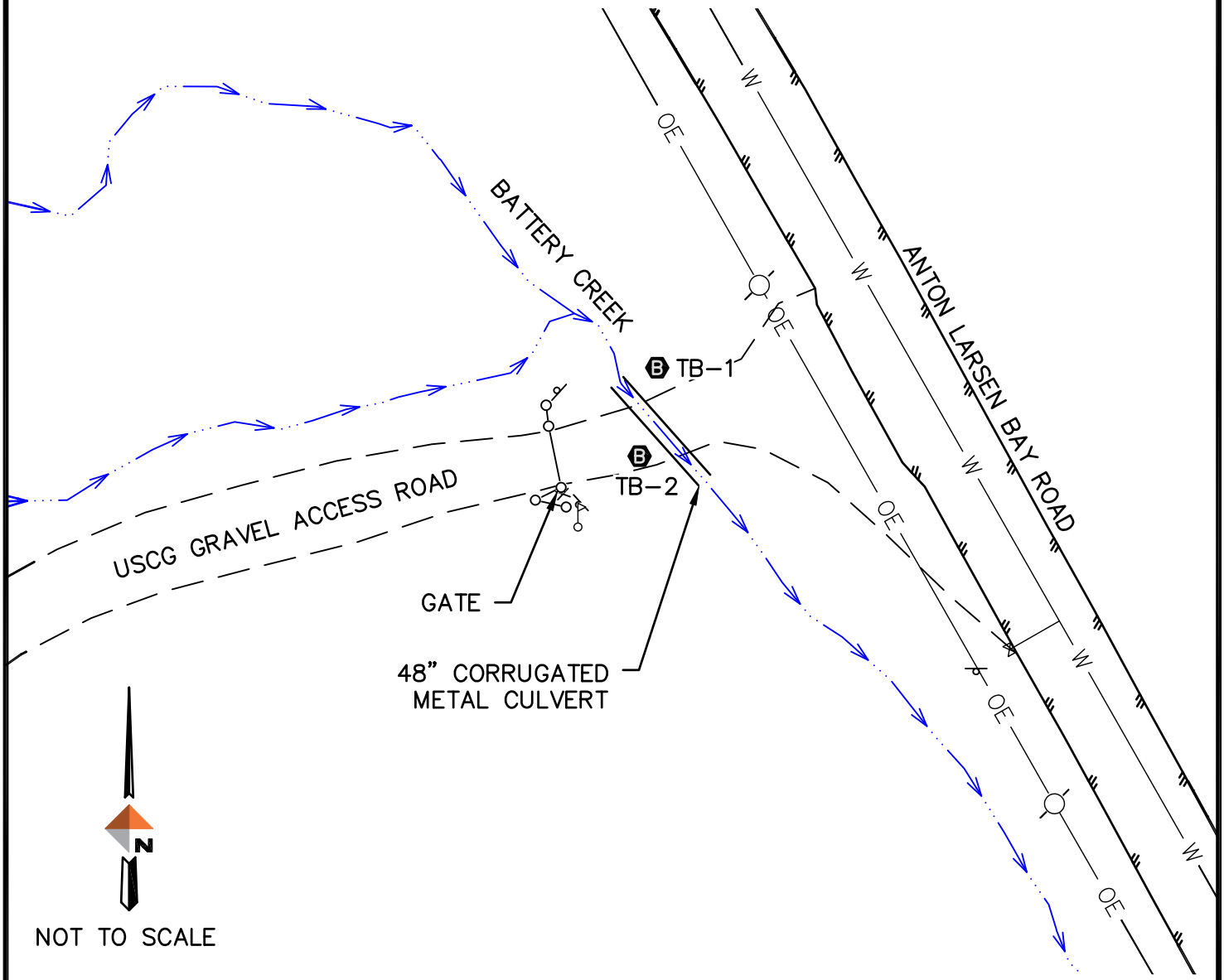


DOWL

BATTERY CREEK FISH PASSAGES
VICINITY MAP
KODIAK, ALASKA

PROJECT 1137.62357.01
DATE 01/20/2017

FIGURE A-1



DOWL
WWW.DOWL.COM

BATTERY CREEK FISH PASSAGE
USCG Access Road at Battery Creek
ADF&G FPID No. 20700786
Kodiak, Alaska

PROJECT	1137.62357
DATE	01/20/2017

FIGURE A-2

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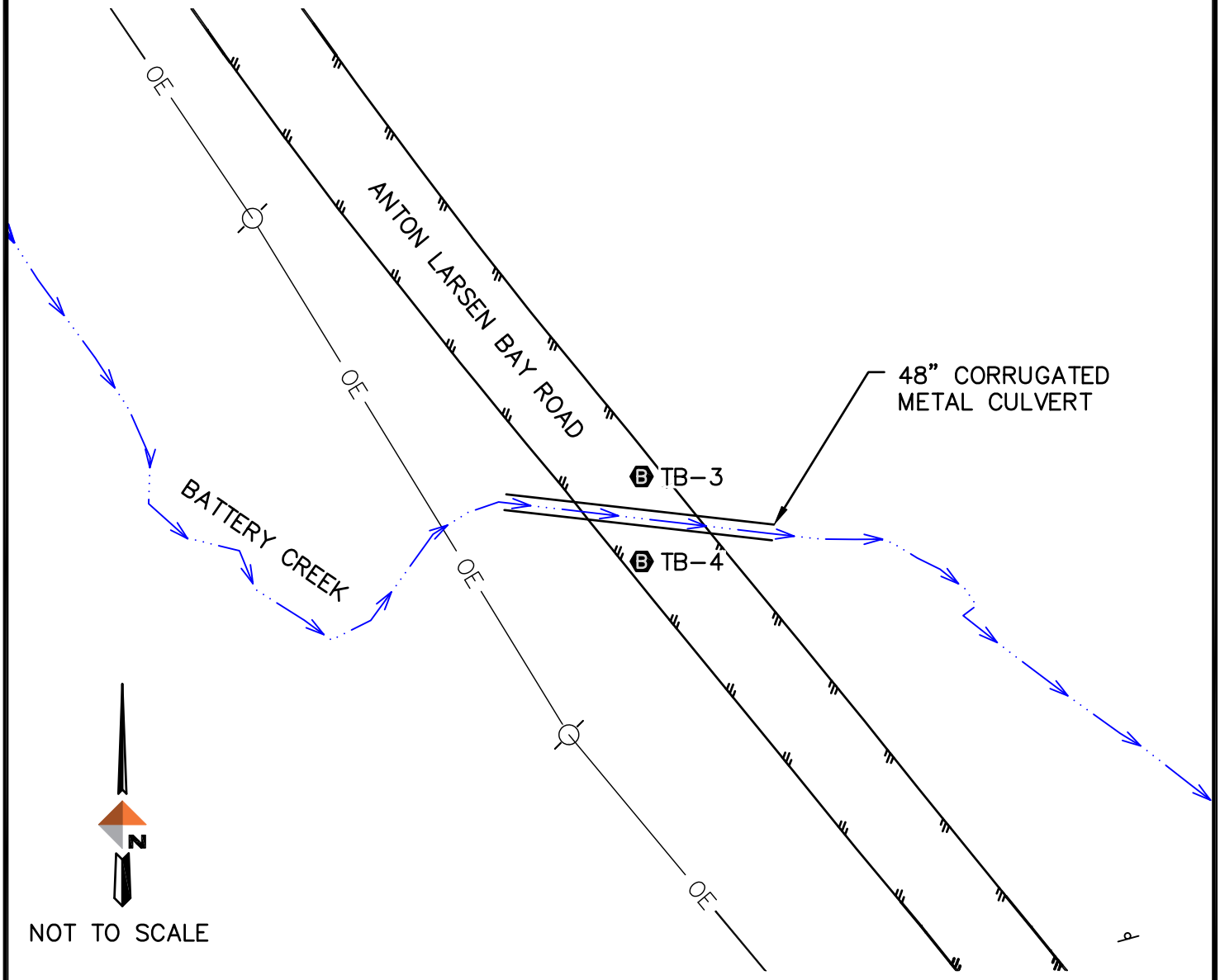

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BATTERY CREEK FISH PASSAGE
Anton Larsen Bay Road at Battery Creek
ADF&G FPID No. 20700785
Kodiak, Alaska

PROJECT	1137.62357
DATE	01/20/2017

FIGURE A-3

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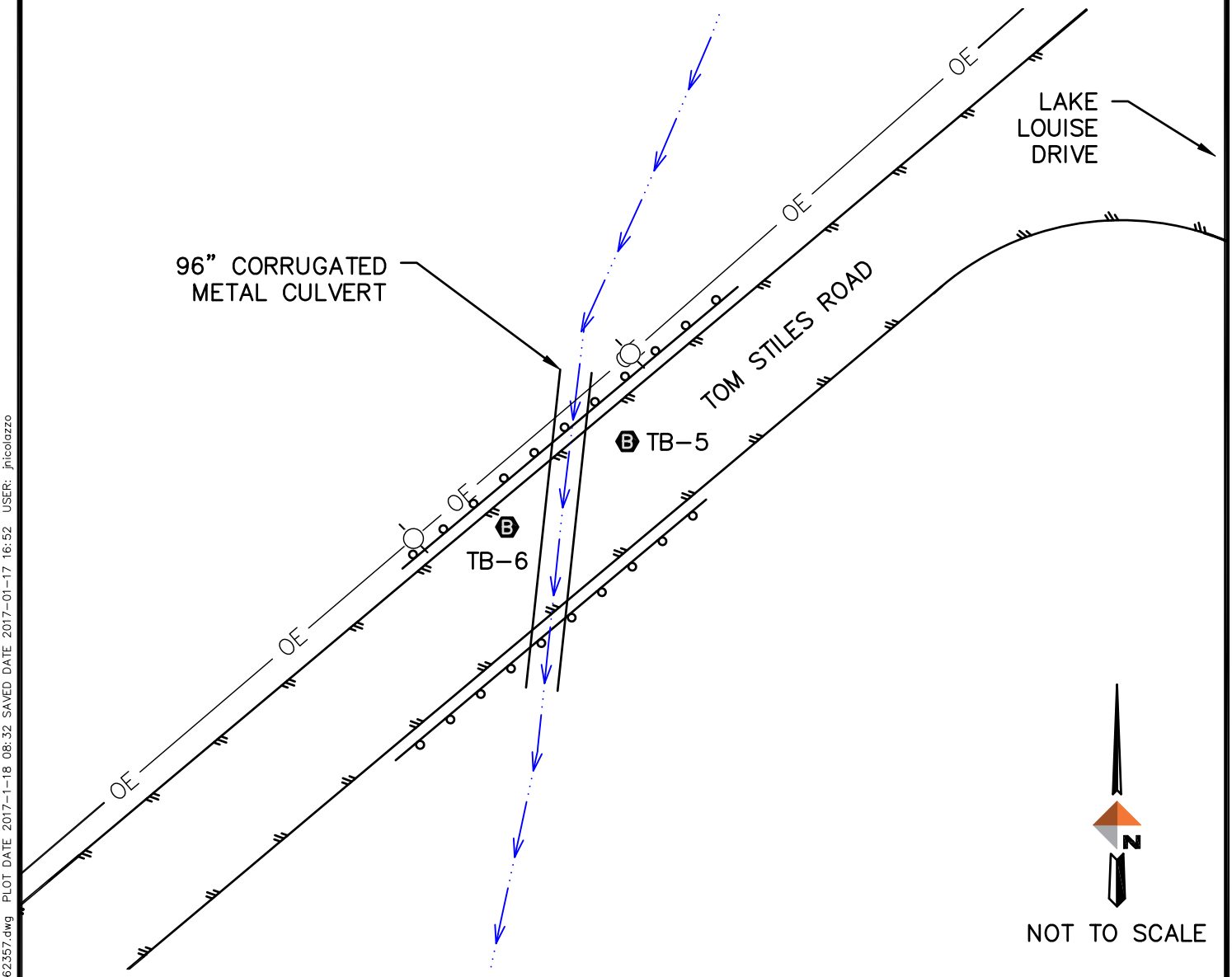

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BATTERY CREEK FISH PASSAGE
Tom Stiles Road at Unnamed Creek
ADF&G FPID No. 20700877
Kodiak, Alaska

PROJECT	1137.62357
DATE	01/20/2017

FIGURE A-4

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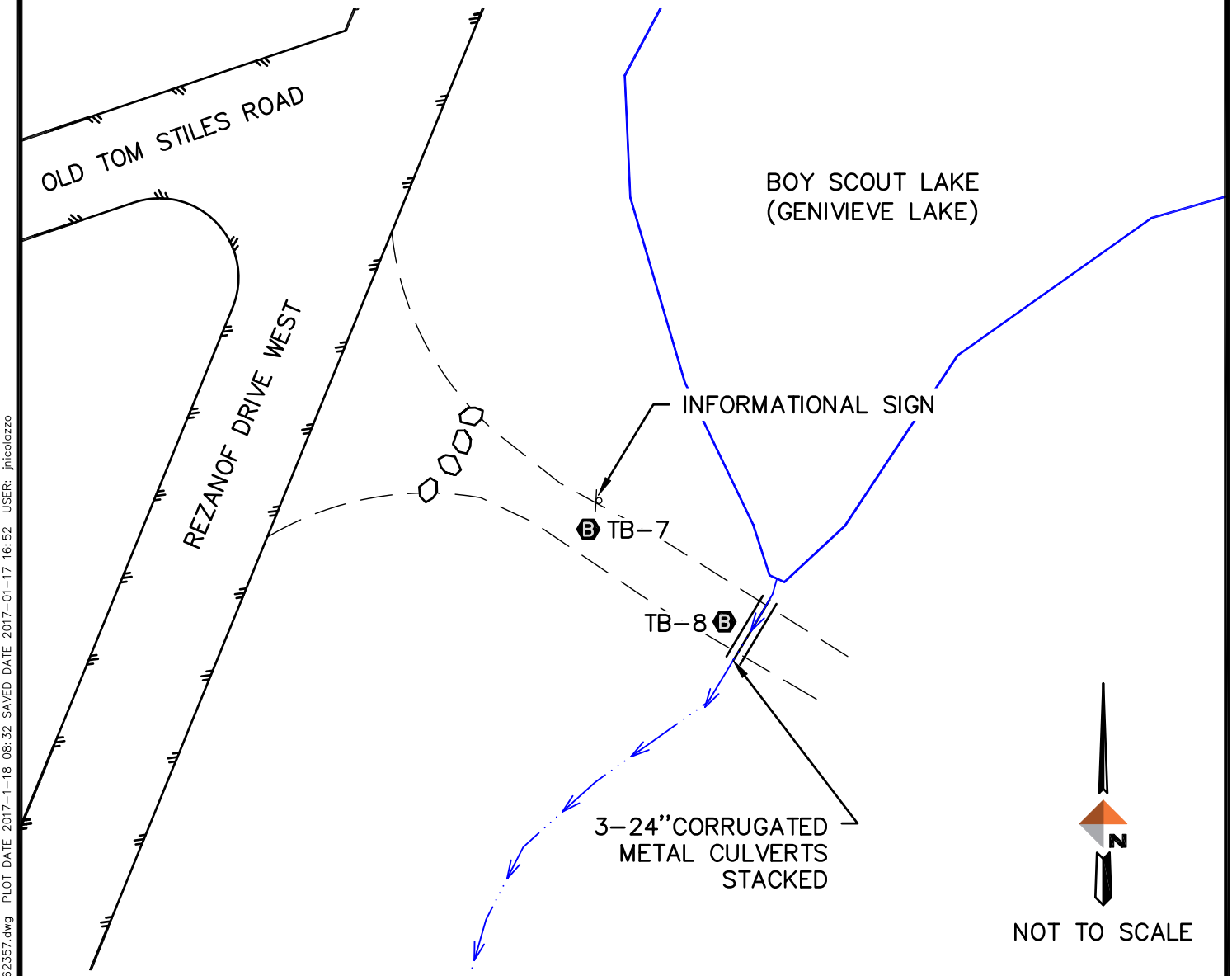

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BATTERY CREEK FISH PASSAGE
Old Military Road at Boy Scout Lake
ADF&G FPID No. 20703440
Kodiak, Alaska

PROJECT	1137.62357
DATE	01/20/2017

FIGURE A-5

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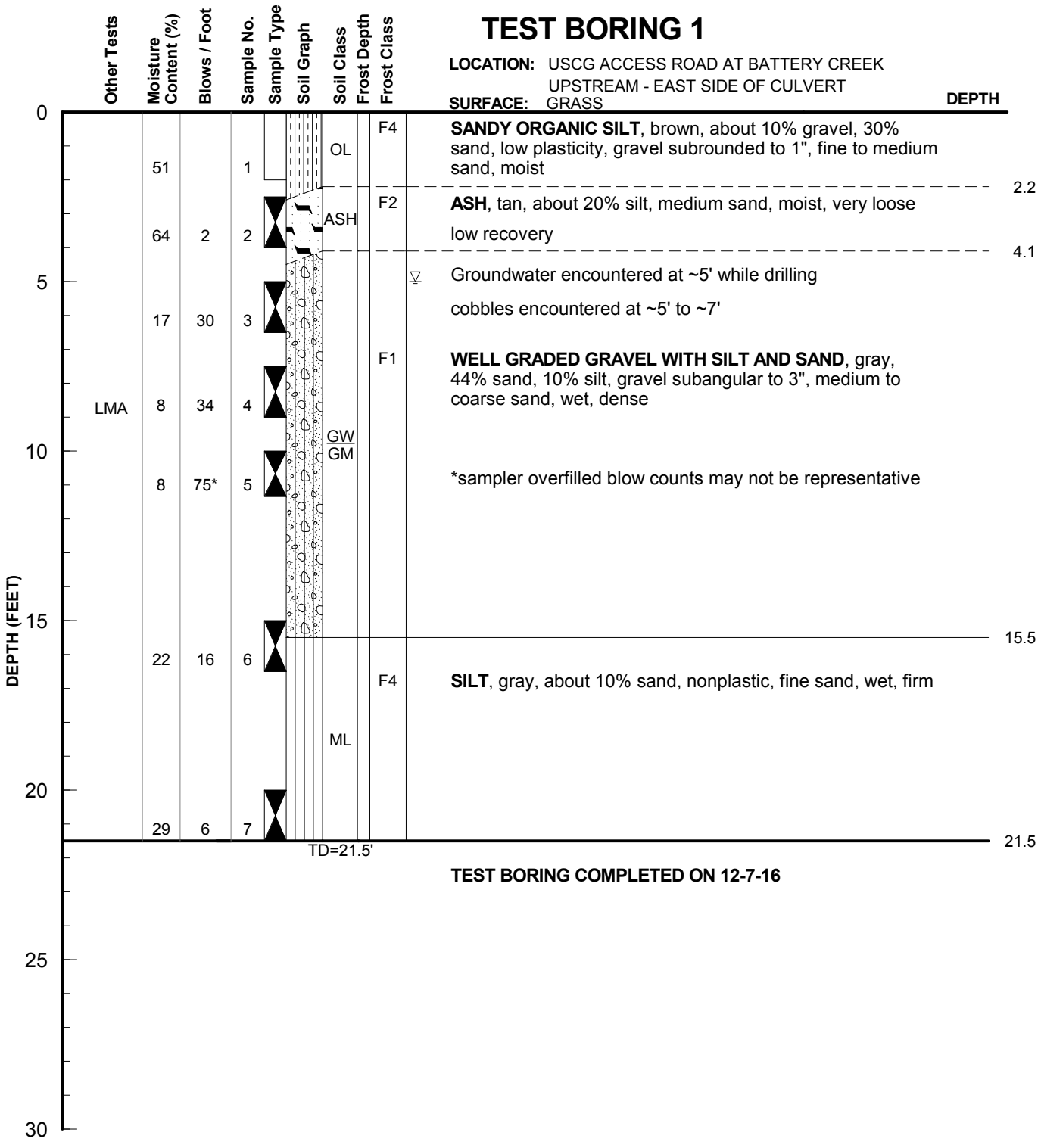
APPENDIX B

Test Boring Logs and Descriptive Guide

TEST BORING 1

LOCATION: USCG ACCESS ROAD AT BATTERY CREEK
UPSTREAM - EAST SIDE OF CULVERT
SURFACE: GRASS



TEST BORING COMPLETED ON 12-7-16

KEY
LMA = Limited Mechanical Analysis
TD = Total Depth
□ = Grab Sample
◪ = SPT Sample
▨ = Shelby Tube - pushed
⊤ = Direct Push Sample
⧓ = 2.5" I.D. Spoon Sample
340# weight, 30" fall

DRILLING CO.: Discovery Drilling
EQUIPMENT: Geoprobe 6712
OPERATOR: Clifford G. Cormier
METHOD: 4 in. OD hollow-stem auger
FIELD NO.: 5

CLIENT: Kodiak Soil & Water Con. Dist.
PROJECT: Battery Creek Fish Passages
LOGGED BY: Paul E. Pribyl
TEST BORING COMPLETED: 12-7-16
W.O. 1137.62357.01

DOWL

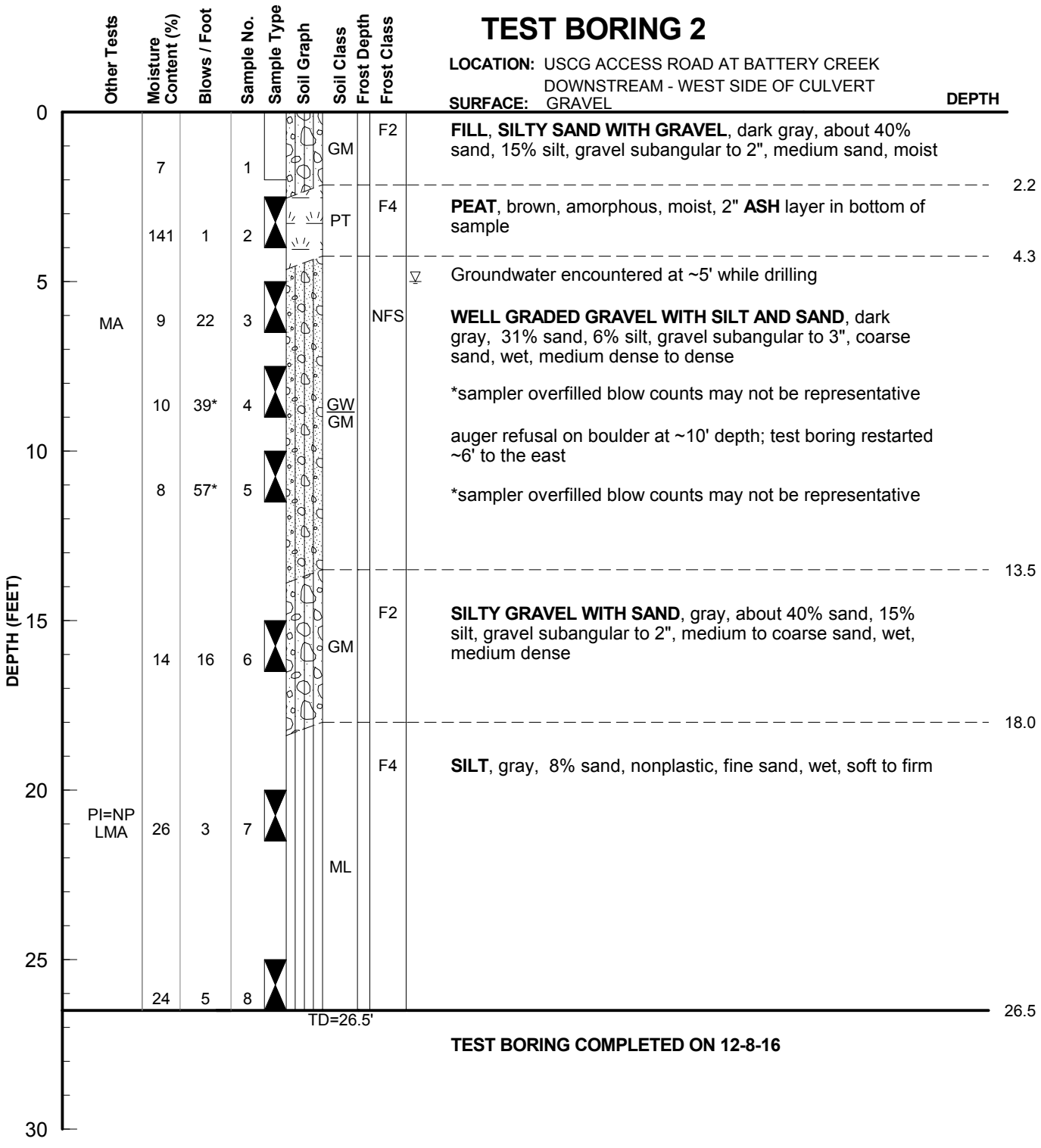
LOG OF TEST BORING 1

FIGURE B-1

LOG OF EXPLORATION 62357.GPJ BLANK2.GDT 1/17/17

TEST BORING 2

LOCATION: USCG ACCESS ROAD AT BATTERY CREEK DOWNSTREAM - WEST SIDE OF CULVERT
SURFACE: GRAVEL



TEST BORING COMPLETED ON 12-8-16

KEY
MA = Mechanical Analysis
PI = Plasticity Index
LL = Liquid Limit
LMA = Limited Mechanical Analysis
TD = Total Depth
□ = Grab Sample
◪ = SPT Sample
▨ = Shelby Tube - pushed
⊤ = Direct Push Sample
⧓ = 2.5" I.D. Spoon Sample 340# weight, 30" fall

DRILLING CO.: Discovery Drilling
EQUIPMENT: Geoprobe 6712
OPERATOR: Clifford G. Cormier
METHOD: 4 in. OD hollow-stem auger
FIELD NO.: 6

CLIENT: Kodiak Soil & Water Con. Dist.
PROJECT: Battery Creek Fish Passages
LOGGED BY: Paul E. Pribyl
TEST BORING COMPLETED: 12-8-16
W.O. 1137.62357.01

DOWL

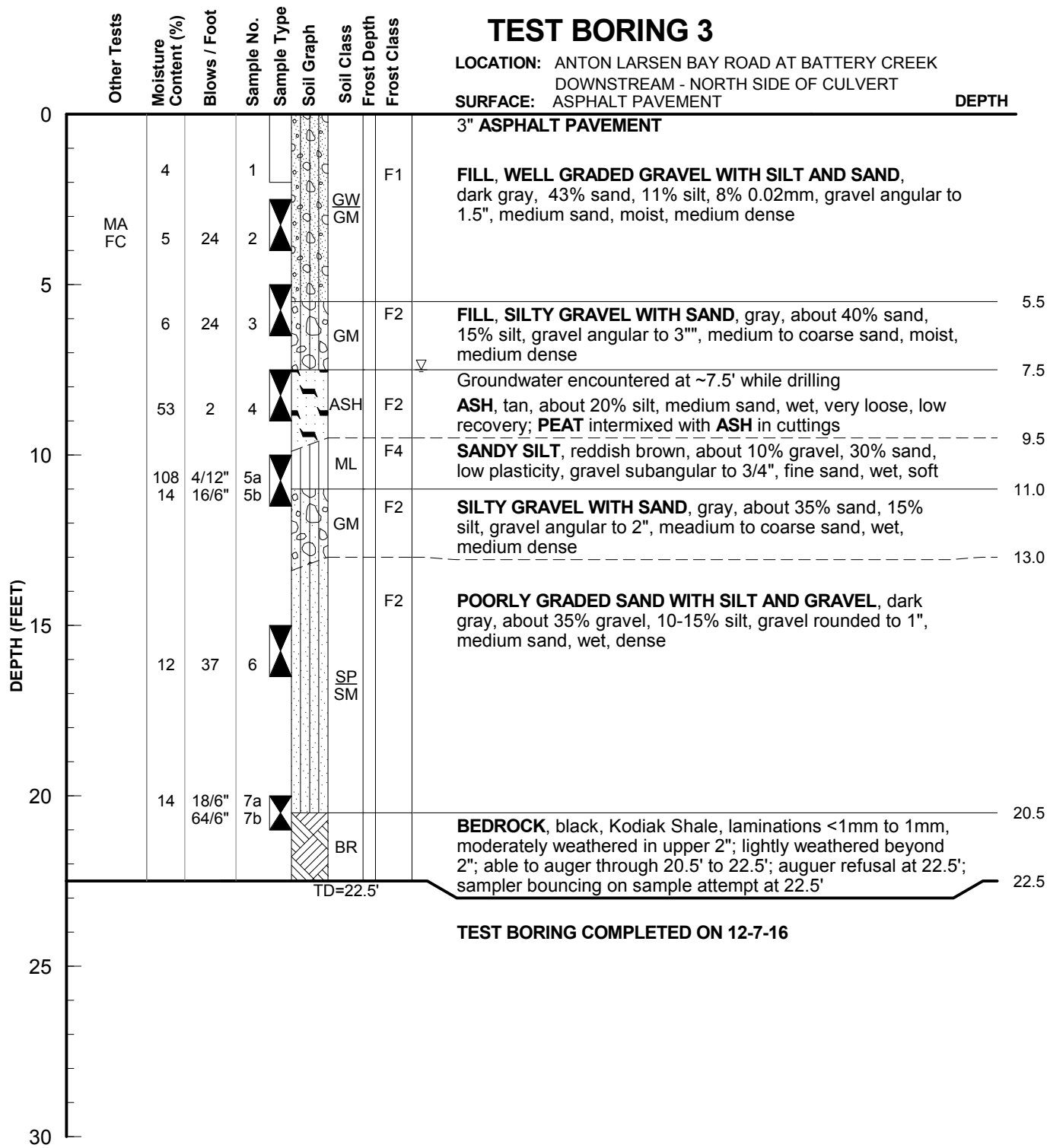
LOG OF TEST BORING 2

FIGURE B-2

LOG OF EXPLORATION 62357.GPJ BLANK2.GDT 1/17/17

TEST BORING 3

LOCATION: ANTON LARSEN BAY ROAD AT BATTERY CREEK
DOWNSTREAM - NORTH SIDE OF CULVERT
SURFACE: ASPHALT PAVEMENT



TEST BORING COMPLETED ON 12-7-16

KEY
MA = Mechanical Analysis
FC = Frost Classification
TD = Total Depth
□ = Grab Sample
◪ = SPT Sample
▨ = Shelby Tube - pushed
⊡ = Direct Push Sample
⧓ = 2.5" I.D. Spoon Sample
340# weight, 30" fall

DRILLING CO.: Discovery Drilling
EQUIPMENT: Geoprobe 6712
OPERATOR: Clifford G. Cormier
METHOD: 4 in. OD hollow-stem auger
FIELD NO.: 3

CLIENT: Kodiak Soil & Water Con. Dist.
PROJECT: Battery Creek Fish Passages
LOGGED BY: Paul E. Pribyl
TEST BORING COMPLETED: 12-7-16
W.O. 1137.62357.01

DOWL

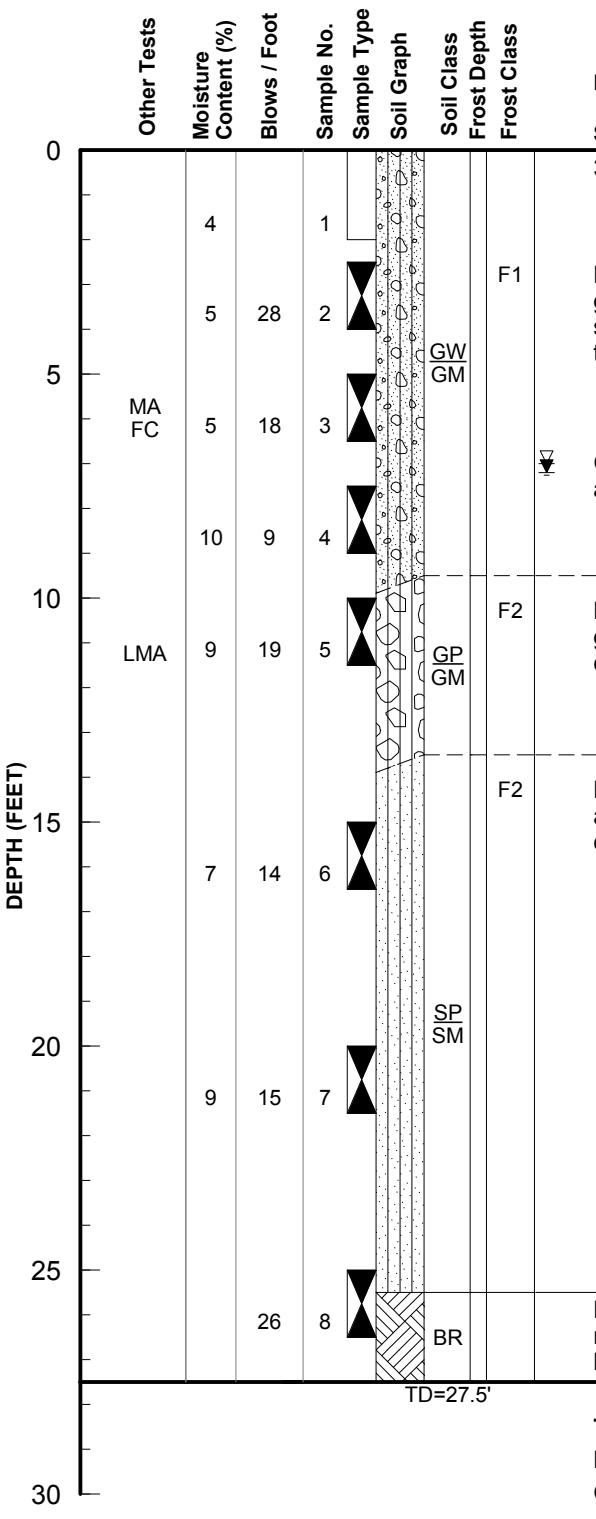
LOG OF TEST BORING 3

FIGURE B-3

LOG OF EXPLORATION 62357.GPJ BLANK2.GDT 1/17/17

TEST BORING 4

LOCATION: ANTON LARSEN BAY ROAD AT BATTERY CREEK
UPSTREAM - SOUTH SIDE OF CULVERT
SURFACE: ASPHALT PAVEMENT



DEPTH

3" **ASPHALT PAVEMENT**

FILL, **WELL GRADED GRAVEL WITH SILT AND SAND**, gray, 44% sand, 9% silt, 6% 0.02mm, gravel angular to subangular to 3", medium sand, moist to wet, medium dense to loose

Groundwater encountered at ~7' while drilling and measured at 7.2' on 12-9-16

9.5

POORLY GRADED GRAVEL WITH SILT AND SAND, dark gray, 44% sand, 7% silt, gravel subrounded to 2", medium to coarse sand, wet, medium dense

13.5

POORLY GRADED SAND WITH SILT AND GRAVEL, gray, about 35% gravel, 10% silt, gravel rounded to 1", medium to coarse sand, wet, medium dense

25.5

BEDROCK, black, Kodiak Shale, laminations <1mm to 1mm, moderately weathered, auger refusal at 27.5'; sampler bouncing at 27.5' with no recovery on sampling attempt

27.5

TD=27.5'

TEST BORING COMPLETED ON 12-7-16
PVC STANDPIPE INSTALLED TO 27'
GROUNDWATER MEASURED AT 7.2' ON 12-9-16

KEY
MA = Mechanical Analysis
FC = Frost Classification
LMA = Limited Mechanical Analysis
TD = Total Depth
= Groundwater After Drilling
= Grab Sample
= SPT Sample
= Shelby Tube - pushed
= Direct Push Sample
= 2.5" I.D. Spoon Sample
340# weight, 30" fall

DRILLING CO.: Discovery Drilling
EQUIPMENT: Geoprobe 6712
OPERATOR: Clifford G. Cormier
METHOD: 4 in. OD hollow-stem auger
FIELD NO.: 4

CLIENT: Kodiak Soil & Water Con. Dist.
PROJECT: Battery Creek Fish Passages
LOGGED BY: Paul E. Pribyl
TEST BORING COMPLETED: 12-7-16
W.O. 1137.62357.01

DOWL

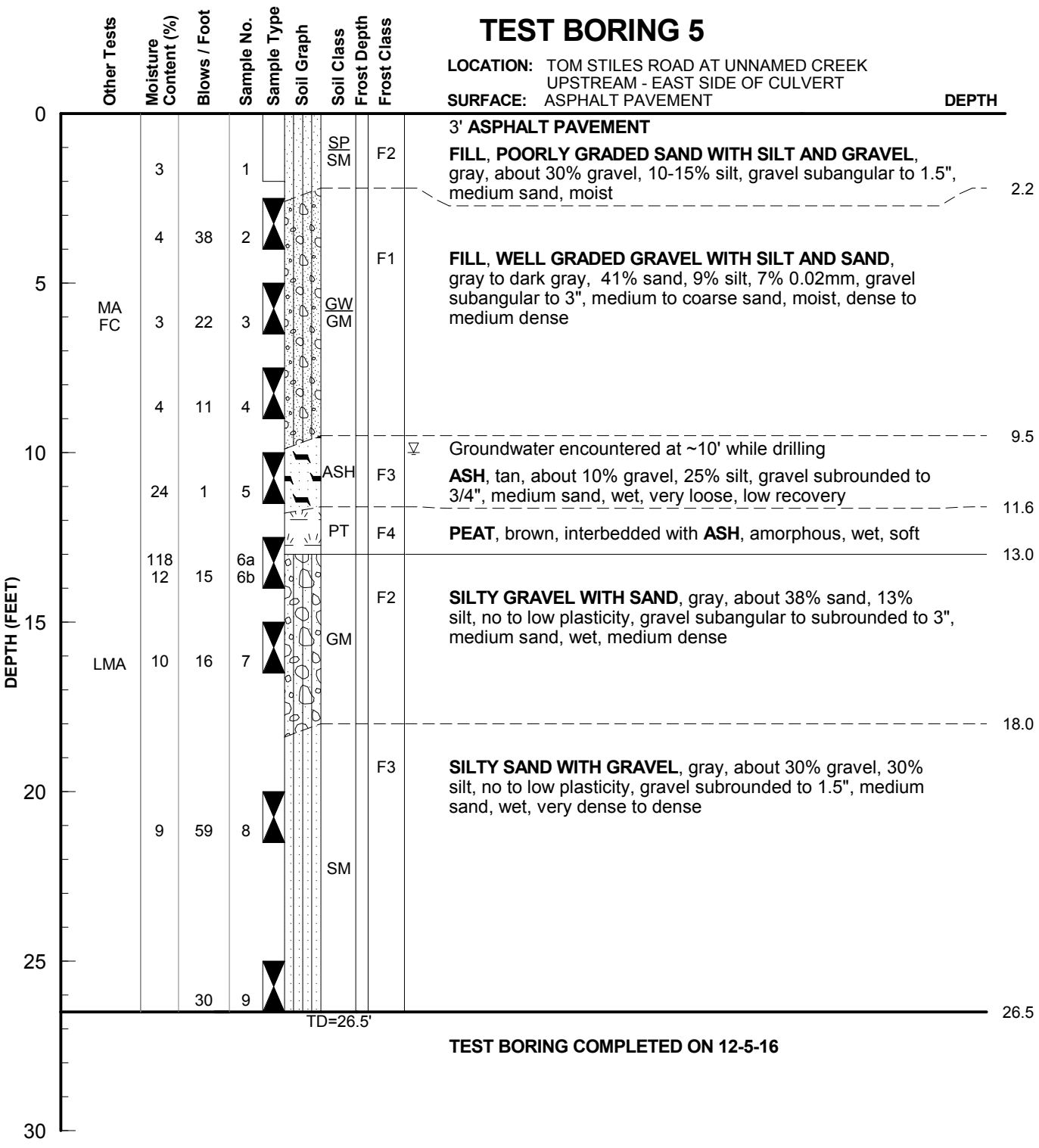
LOG OF TEST BORING 4

FIGURE B-4

LOG OF EXPLORATION 62357.GPJ BLANK2.GDT 1/17/17

TEST BORING 5

LOCATION: TOM STILES ROAD AT UNNAMED CREEK
UPSTREAM - EAST SIDE OF CULVERT
SURFACE: ASPHALT PAVEMENT



KEY
MA = Mechanical Analysis
FC = Frost Classification
LMA = Limited Mechanical Analysis
TD = Total Depth
□ = Grab Sample
◪ = SPT Sample
▨ = Shelby Tube - pushed
⊤ = Direct Push Sample
⧓ = 2.5" I.D. Spoon Sample
340# weight, 30" fall

DRILLING CO.: Discovery Drilling
EQUIPMENT: Geoprobe 6712
OPERATOR: Clifford G. Cormier
METHOD: 4 in. OD hollow-stem auger
FIELD NO.: 1

CLIENT: Kodiak Soil & Water Con. Dist.
PROJECT: Battery Creek Fish Passages
LOGGED BY: Paul E. Pribyl
TEST BORING COMPLETED: 12-5-16
W.O. 1137.62357.01

DOWL

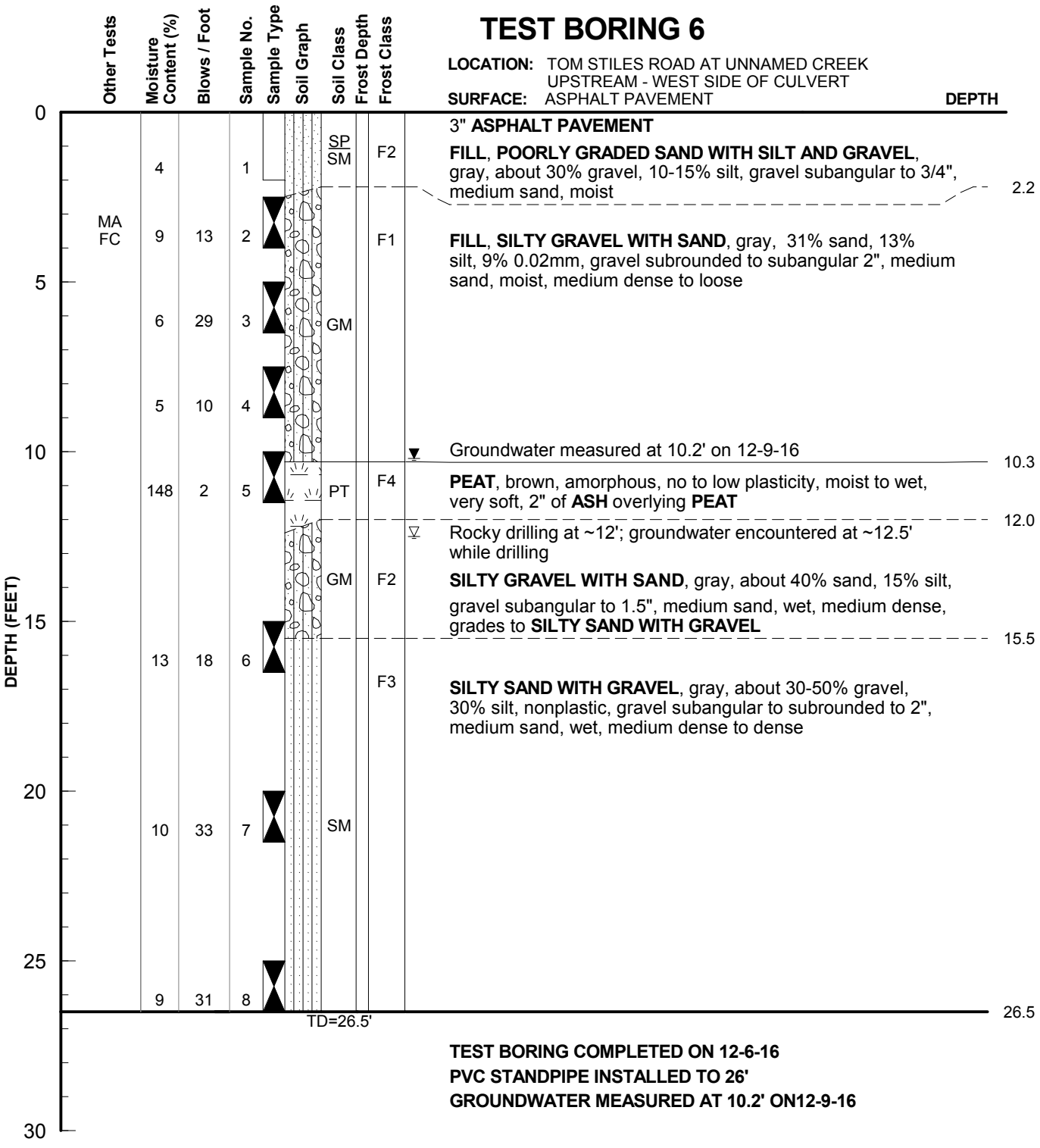
LOG OF TEST BORING 5

FIGURE B-5

LOG OF EXPLORATION 62357.GPJ BLANK2.GDT 1/17/17

TEST BORING 6

LOCATION: TOM STILES ROAD AT UNNAMED CREEK
UPSTREAM - WEST SIDE OF CULVERT
SURFACE: ASPHALT PAVEMENT



TEST BORING COMPLETED ON 12-6-16
PVC STANDPIPE INSTALLED TO 26'
GROUNDWATER MEASURED AT 10.2' ON12-9-16

KEY
MA = Mechanical Analysis
FC = Frost Classification
TD = Total Depth
= Groundwater After Drilling
= Grab Sample
= SPT Sample
= Shelby Tube - pushed
= Direct Push Sample
= 2.5" I.D. Spoon Sample
340# weight, 30" fall

DRILLING CO.: Discovery Drilling
EQUIPMENT: Geoprobe 6712
OPERATOR: Clifford G. Cormier
METHOD: 4 in. OD hollow-stem auger
FIELD NO.: 2

CLIENT: Kodiak Soil & Water Con. Dist.
PROJECT: Battery Creek Fish Passages
LOGGED BY: Paul E. Pribyl
TEST BORING COMPLETED: 12-6-16
W.O. 1137.62357.01

DOWL

LOG OF TEST BORING 6

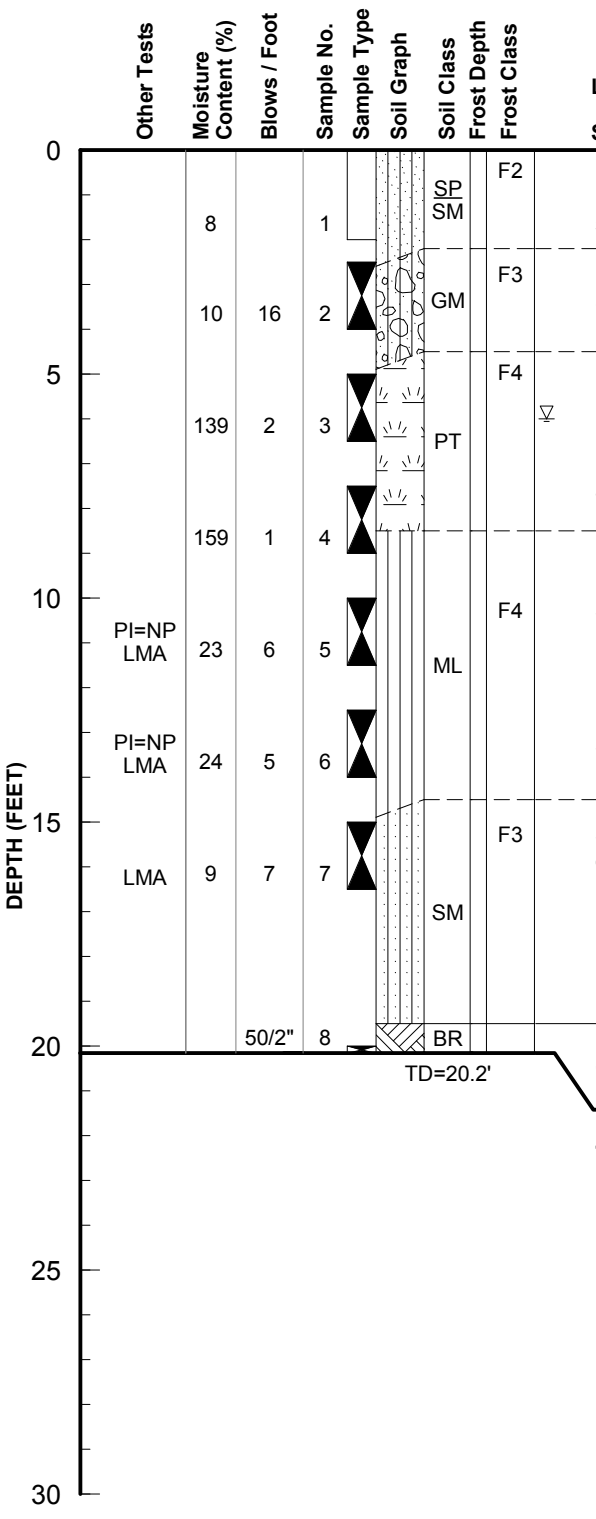
FIGURE B-6

LOG OF EXPLORATION 62357.GPJ BLANK2.GDT 1/17/17

TEST BORING 7

LOCATION: OLD MILITARY ROAD AT BOY SCOUT LAKE OUTLET CREEK NEAR INFORMATION SIGN ON THE TRAIL

SURFACE: GRAVEL



DEPTH	
	FILL, **POORLY GRADED SAND WITH SILT AND GRAVEL**, brownish gray, about 20% gravel, 10-15% silt, gravel subangular to 1.5", medium sand, moist
2.2	
	FILL, **SILTY GRAVEL WITH SAND**, gray, about 30% sand, 30% silt, gravel subangular to 3", medium sand, moist, medium dense
4.5	
	PEAT, brown, fibrous, moist to wet, very soft
	Groundwater encountered at ~6" while drilling
	amorphous, contains 1" **ASH** layer and grades to **SILT**
8.5	
	SILT WITH SAND, mottled gray/brown to gray, 10% gravel, 10% sand, nonplastic, fine sand, wet, very soft to firm, **ORGANICS** as roots in upper 2"
	SILT,12% sand, fine sand as laminations
14.5	
	SILTY SAND WITH GRAVEL, gray, 30% gravel, 27% silt, gravel subangular to 1", medium to coarse sand, wet, loose
	rocky drilling at 19.5'
19.5	
20.2	**BEDROCK**, dark gray to black, Kodiak Shale, laminations ~1mm, lightly weathered; able to auger through 19.5' to 20', refusal at 20', sampler refusal after 2"

TD=20.2'

TEST BORING COMPLETED ON 12-9-16

KEY

PI = Plasticity Index
LL = Liquid Limit
LMA = Limited Mechanical Analysis
TD = Total Depth
□ = Grab Sample
◪ = SPT Sample
▨ = Shelby Tube - pushed
⊤ = Direct Push Sample
⧓ = 2.5" I.D. Spoon Sample 340# weight, 30" fall

DRILLING CO.: Discovery Drilling
EQUIPMENT: Geoprobe 6712
OPERATOR: Clifford G. Cormier
METHOD: 4 in. OD hollow-stem auger
FIELD NO.: 7

CLIENT: Kodiak Soil & Water Con. Dist.
PROJECT: Battery Creek Fish Passages
LOGGED BY: Paul E. Pribyl
TEST BORING COMPLETED: 12-9-16
W.O. 1137.62357.01

DOWL

LOG OF TEST BORING 7

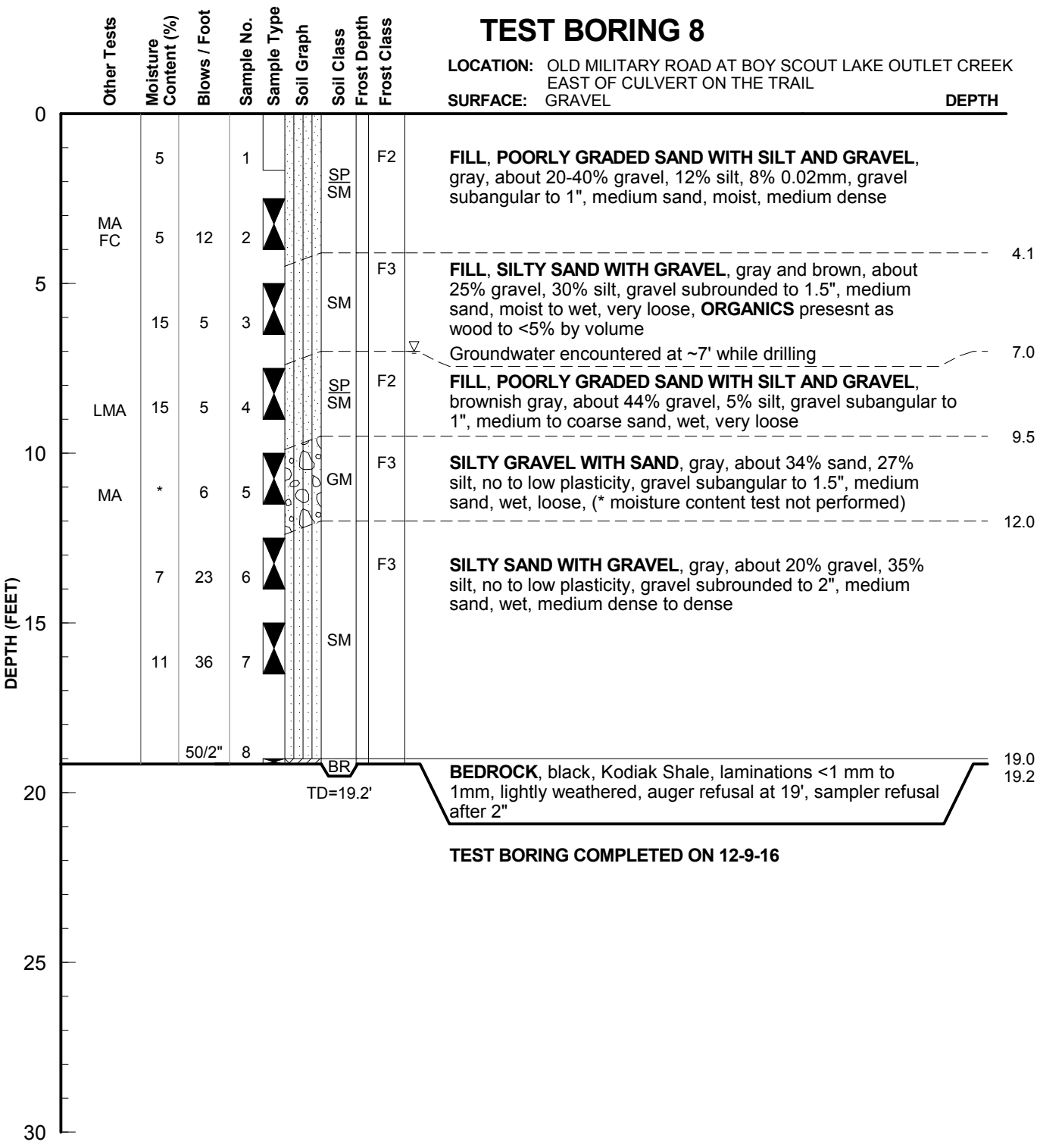
FIGURE B-7

LOG OF EXPLORATION 62357.GPJ BLANK2.GDT 1/17/17

TEST BORING 8

LOCATION: OLD MILITARY ROAD AT BOY SCOUT LAKE OUTLET CREEK EAST OF CULVERT ON THE TRAIL

SURFACE: GRAVEL



FILL, **POORLY GRADED SAND WITH SILT AND GRAVEL**, gray, about 20-40% gravel, 12% silt, 8% 0.02mm, gravel subangular to 1", medium sand, moist, medium dense

FILL, **SILTY SAND WITH GRAVEL**, gray and brown, about 25% gravel, 30% silt, gravel subrounded to 1.5", medium sand, moist to wet, very loose, **ORGANICS** presesnt as wood to <5% by volume

Groundwater encountered at ~7' while drilling

FILL, **POORLY GRADED SAND WITH SILT AND GRAVEL**, brownish gray, about 44% gravel, 5% silt, gravel subangular to 1", medium to coarse sand, wet, very loose

SILTY GRAVEL WITH SAND, gray, about 34% sand, 27% silt, no to low plasticity, gravel subangular to 1.5", medium sand, wet, loose, (* moisture content test not performed)

SILTY SAND WITH GRAVEL, gray, about 20% gravel, 35% silt, no to low plasticity, gravel subrounded to 2", medium sand, wet, medium dense to dense

BEDROCK, black, Kodiak Shale, laminations <1 mm to 1mm, lightly weathered, auger refusal at 19', sampler refusal after 2"

TEST BORING COMPLETED ON 12-9-16

KEY

MA = Mechanical Analysis
FC = Frost Classification
LMA = Limited Mechanical Analysis
TD = Total Depth
□ = Grab Sample
◪ = SPT Sample
▨ = Shelby Tube - pushed
⊤ = Direct Push Sample
⊠ = 2.5" I.D. Spoon Sample 340# weight, 30" fall

DRILLING CO.: Discovery Drilling
EQUIPMENT: Geoprobe 6712
OPERATOR: Clifford G. Cormier
METHOD: 4 in. OD hollow-stem auger
FIELD NO.: 8

CLIENT: Kodiak Soil & Water Con. Dist.
PROJECT: Battery Creek Fish Passages
LOGGED BY: Paul E. Pribyl
TEST BORING COMPLETED: 12-9-16
W.O. 1137.62357.01

DOWL

LOG OF TEST BORING 8

FIGURE B-8

LOG OF EXPLORATION 62357.GPJ BLANK2.GDT 1/17/17

TEST BORING LOG - DESCRIPTIVE GUIDE

Soil Descriptions - The soil is classified visually in the field based on drill action, auger cuttings, and sample information. The recovered soil samples are classified visually again in the laboratory. The soil description on the boring log is based on an interpretation of the field and laboratory visual classifications, along with the results of laboratory particle-size distribution analyses and Atterberg Limits tests which may have been performed.

The soil classification is based on ASTM Designation D2487 "Standard Test Method for Classification of Soils for Engineering Purposes" and ASTM D2488 "Standard Practice for Description and Identification of Soils (Visual - Manual Procedure)". The soil frost classification is based on the system developed by the U.S. Army Corps of Engineers and is performed in accordance with the Departments of the Army and Air Force Publication TM 5-822-5 "Pavement Design for Roads, Streets, Walks, and Open Storage Areas". Outlines of these classification procedures are presented on the following pages.

The soil color is the subjective interpretation of the individual logging the test boring.

The plasticity of the minus No. 40 fraction of the soil is described and the fine-grained soils are identified from manual tests using the following table as a guide:

Soil Symbol	Dry Strength	Dilatancy	Toughness
ML	none to low	slow to rapid	low or thread cannot be formed
CL	medium to high	none to slow	medium
MH	low to medium	none to slow	low to medium
CH	high to very high	none	high

Plasticity Description	Criteria
Nonplastic	A 1/8" (3.2mm) thread cannot be rolled at any water content.
Low	A thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

Laboratory Atterberg Limits tests usually are performed on a few of the plastic soils and results are reported on the test boring log. These laboratory tests are performed in accordance with ASTM D4318 "Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils."

The shape of the gravel particles is described based on this guide:

Angular: particles have sharp edges and relatively plane sides with unpolished surfaces.

Subangular: particles are similar to angular but have somewhat rounded edges.

Subrounded:	particles exhibit nearly plane sides but have well-rounded corners and edges.
Rounded:	particles have smoothly curved sides and no edges.

The size of gravel and sand particles is described using this guide:

	Gravel	Sand
Coarse:	Passes 3" (75 mm) sieve, retained on 3/4" (19 mm) sieve	Passes No. 4 sieve, retained on No. 10 sieve
Medium:	N/A	Passes No. 10 sieve, retained on No. 40 sieve
Fine:	Passes 3/4" (19 mm) sieve, retained on No. 4 sieve	Passes No. 40 sieve, retained on No. 200 sieve

The soil moisture is described as:

dry:	powdery, dusty, no visible moisture.
damp:	enough moisture to affect the color of the soil; moist.
wet:	water in pores but not dripping; capillary zone above water table.
saturated:	dripping wet, contains significant free water, or sampled below water table.

The subjective estimate of the density of coarse-grained soils is based on the observed drill action and on drive sample data. The guide below is used for sands with minor amounts of fine gravel; however, blowcounts can be affected strongly by gravel content, thermal state, drilling procedures, condition of equipment and performance of the test.

Standard Penetration Resistance N (blows / foot) or N (blows / 300 mm)	Soil Density
0 - 5	Very loose
6 - 10	Loose
11 - 30	Medium dense
31 - 50	Dense
More than 50	Very dense

An estimate of the consistency of fine-grained soils is based on the observed drill action and on drive sample data. The guide below is used:

Standard Penetration Resistance N (blows / foot) or N (blows / 300 mm)	Soil Consistency
0 - 2	Very soft
3 - 4	Soft
5 - 8	Firm
9 - 15	Stiff
15 - 30	Very stiff
More than 30	Hard

Soil Layer Boundaries - Generally, there is a gradual transition from one soil type to another in a natural soil deposit, and it is difficult to determine accurately the boundaries of the soil layers.

- A *diagonal line* between soil layers on the graphic boring log indicates the general region of transition from one soil layer to another.
- A *dashed diagonal line* indicates the soil boundary was detected only by a change in the recovered samples and the actual boundary may be anywhere between the indicated sample depths.
- A *horizontal line* between soil layers indicates a relatively distinct transition between soil types was observed in the recovered samples and / or by a distinct change in drill action.

Sample Interval - The sample interval is shown graphically on the test boring log and generally is accurate to about 0.5 foot (0.15 meter).

Frost Depth and Soil Temperatures - If frozen ground is encountered during drilling, the interval of frozen soil is shown graphically on the test boring log. Generally, the temperature of a few soil samples is measured and shown on the boring log. These sample temperatures only give a qualitative indication of the *in situ* soil temperatures. The temperature of samples can be influenced significantly by the ambient air temperature and friction during drilling and sampling.

Soil Moisture Content - Generally, laboratory soil moisture content tests are performed on all recovered samples. Only about 30 grams of the minus No. 4 material typically is used for the moisture content test, so results reported on the log may not reflect accurately the *in situ* moisture content of gravelly soils.

Soil Density - The soil density shown on the test boring logs generally is determined by measuring the wet weight, moisture content, and physical dimensions of relatively undisturbed specimens.

Ground Water - The depth to ground water observed during drilling generally is shown on the test boring log. The depth to ground water observed during drilling can differ significantly from the depth to the actual ground water table, particularly in fine-grained soils. When more accurate water level measurements are desired, we typically install perforated PVC pipe in a boring to monitor the ground water level.

Penetration Resistance, N - Standard penetration tests (SPT) are performed in accordance with ASTM Designation D1586 "Standard Method for Penetration Test and Split-Barrel Sampling of Soils." A modified penetration test using a 2.5-inch (63.5 mm) I.D. split spoon driven with a 340-pound (154.2 kg) hammer falling 30 inches (.76 m) is performed to obtain larger samples, particularly in gravelly soils. The boring log key describes the graphic symbols used to differentiate between sample types.

Undisturbed Samples - Undisturbed Shelby tube samples are obtained in accordance with ASTM Designation D1587, "Standard Practice for Thin-Walled Tube Sampling of Soils." Generally, 3-inch (76.2 mm) O.D. Shelby tubes are used. Relatively undisturbed liner samples are obtained in accordance with ASTM Designation D3550, "Standard Practice for Ring-Lined Barrel Sampling of Soils," except a thick-walled cutting shoe is used. Typically, the sampler is driven using a 340-pound (154.2 kg) weight falling 30 inches (.76 m). The typical brass liner has an I.D. of 2.4 inches (91 mm).

Grab Samples - Grab samples are obtained from the auger flights. The sample depth and interval indicated on the test boring log should be considered a rough approximation. The grab samples may not be representative of *in situ* soils, particularly in layered soil deposits.

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES
ASTM DESIGNATION: D2487
Based on the Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification: Group Symbol	Soil Classification: Group Name[B]
Coarse-Grained Soils	Gravels	Clean Gravels	$Cu \geq 4$ and $1 \leq Cc \leq 3$[E]	GW	Well-graded gravel[F]
More than 50% retained on #200 sieve	More than 50% of coarse fraction retained on #4 sieve	Less than 5% fines[C]	$Cu < 4$ and/or $1 > Cc > 3$[E]	GP	Poorly graded gravel[F]
		Gravel with Fines	Fines classify as ML or MH	GM	Silty gravel [F,G,H]
		More than 12% fines[C]	Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands	Clean Sands	$Cu \geq 6$ and $1 \leq Cc \leq 3$[E]	SW	Well-graded sand[I]
	50% or more of coarse fraction passes #4 sieve	Less than 5% fines[D]	$Cu < 6$ and/or $1 > Cc > 3$[E]	SP	Poorly graded sand[I]
		Sands with Fines	Fines classify as ML or MH	SM	Silty Sand [G,H,I]
		More than 12% fines[D]	Fines classify as CL or CH	SC	Clayey Sand [G,H,I]
Fine-Grained Soils	Silts and Clays	Inorganic	PI > 7 and plots on or above "A" line[J]	CL	Lean Clay [K,L,M]
50% or more passes the #200 sieve	Liquid limit less than 50		PI < 4 or plots below "A" Line[J]	ML	Silt[K,L,M]
		Organic	Liquid limit - oven dried <0.75	OL	Organic Clay [K,L,M,N]
			Liquid limit - not dried	OL	Organic silt [K,L,M,O]
	Silts and Clays	Inorganic	PI plots on or above "A" line	CH	Fat clay [K,L,M]
	Liquid limit 50 or more		PI plots below "A" line	MH	Elastic silt [K,L,M]
		Organic	Liquid limit - oven dried <0.75	OH	Organic clay[K,L,M,P]
			Liquid limit - not dried	OH	Organic clay[K,L,M,Q]
Highly organic soils		Primarily organic matter,	dark in color, and organic odor	PT	Peat

A Based on the material passing the 3-in. (75mm) sieve.

B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

C Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay

D Sands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay

E $Cu = \frac{D_{60}}{D_{10}}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

F If soil contains $\geq$ 15% sand, add "with sand" to group name.

G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

H If fines are organic, add "with organic fines" to group name.

I If soil contains $\geq$ 15% gravel, add "with gravel" to group name.

J If Atterberg Limits plot in hatched area, soil is a CL-ML, silty clay.

K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel", whichever is predominant.

L If soil contains $\geq$ 30% plus No. 200, predominantly sand, add "sandy" to group name.

M If soil contains $\geq$30% plus No. 200, predominantly gravel, add "gravelly" to group name.

N PI $\geq$ 4 and plots on or above "A" line.

O PI < 4 or plots below "A" line.

P PI plots on or above "A" line.

Q PI plots below "A" line.

DESCRIPTION OF FROZEN SOILS (Visual-Manual Procedure) ASTM Designation: D4083

Part I Description of Soil Phase	Classify Soil Phase by ASTM D2487 or D2488				
Part II Description of Frozen Soil	Segregated ice is not visible by eye	N	Poorly bonded or friable	N_f	Identify by visual examination. To determine presence of excess ice, use procedures under Note 2 and hand magnifying lens as necessary. For soils not fully saturated, estimate degree of ice saturation; medium, low. Note presence of crystals or of ice coatings around larger particles.
			No excess ice	N_b	
			Well-bonded	N_{bn}	
			Excess ice	N_{be}	
	Segregated ice is visible by eye (ice 1-inch (25 mm) or less in thickness)	V	Individual ice crystal or inclusions	V_x	For ice phase, record the following when applicable: Location — Structure Orientation — Color Thickness — Size Length — Shape Spacing — Hardness Pattern of arrangement
			Ice coatings on particles	V_c	
			Random or irregularly oriented ice formations	V_r	
			Stratified or distinctly oriented ice formations	V_s	
			Uniformly distributed ice	V_u	Estimate volume of visible segregated ice present as percentage of total sample volume.
Part III Description of Substantial Ice	Ice (greater than 1-inch (25 mm) in thickness)	ICE	Ice with soil inclusions	ICE + Soil Type	Designate material as ICE (Note 3) and use descriptive terms as follows, usually one item from each group, where applicable: **Hardness**: HARD; SOFT; [of mass, not individual crystals] **Structure** (Note 4): CLEAR; CLOUDY; POROUS; CANDLED; GRANULAR; STRATIFIED **Color** (Examples): COLORLESS; GRAY; BLUE **Admixtures** (Examples): CONTAINS FEW THIN SILT INCLUSIONS
			Ice without soil inclusions	ICE	

Note 1: Frozen soils in the N group may, on close examination, indicate presence of ice within the voids of the material by crystalline reflections or by a sheen on fractured or trimmed surfaces. The impression received by the unaided eye, however, is that none of the frozen water occupies space in excess of the original voids in the soil. The opposite is true of frozen soils in the V group.

Note 2: When visual methods may be inadequate, a simple field test to aid in evaluation of the volume of excess ice can be made by placing some frozen soil in a small jar, allowing it to melt, and observing the quantity of supernatant water as a percentage of total volume.

Note 3: Where special forms of ice such as hoarfrost can be distinguished, more explicit description should be given.

Note 4: Observer should be careful to avoid being misled by surface scratches or frost coating on the ice.

DEFINITIONS

1) Ice coatings on Particles - discernible layers of ice found on or below the larger soil particles in a frozen soil mass.
2) Ice Crystal - a very small individual ice particle visible in the face of a soil mass. Crystals may be present alone or in combination with other ice formations.
3) Clear Ice - ice that is transparent and contains only a moderate number of air bubbles.
4) Cloudy Ice - ice that is translucent or relatively opaque due to the content of air or for other reasons, but which is essentially sound and impervious.
5) Porous Ice - ice that contains numerous voids, usually interconnected and usually resulting from melting at air bubbles or along crystal interfaces from presence of salt or other materials in the water, or from the freezing of saturated snow. Though porous, the mass retains its structural unity.
6) Candled Ice - ice that has rotted or otherwise formed into long columnar crystals, very loosely bonded together.
7) Granular Ice - ice that is composed of coarse, more or less equidimensional crystals weakly bonded together.
8) Ice Lenses - lenticular ice formations in soil occurring essentially parallel to each other, generally normal to the direction of heat loss, and commonly in repeated layers.
9) Ice Segregation - the growth of ice within soil in excess of the amount that may be produced by the in-place conversion of the original void moisture to ice. Ice segregation occurs most often as distinct lenses, layers, veins, and masses, commonly, but not always, oriented normal to the direction of heat loss.
10) Well-Bonded - a condition in which the soil particles are strongly held together by the ice so that the frozen soil possesses relatively high resistance to chipping or breaking.
11) Poorly-Bonded - a condition in which the soil particles are weakly held together by the ice so that the frozen soil has poor resistance to chipping and breaking.
12) Thaw Stable - the characteristics of frozen soils that, upon thawing, do not show loss of strength in comparison to normal, long-time thawed values nor produce detrimental settlement.

FROST DESIGN SOIL CLASSIFICATION[1]

Frost[2] Group	Kind of Soil	Percentage Finer than 0.02 mm by Weight	Typical Soil Types Under Unified Soil Classification System
NFS[3]	(a) Gravels Crushed stone Crushed rock	0 to 1.5	GW and GP
	(b) Sands	0 to 3	SW and SP
PFS[4] (MOA NFS)	(a) Gravels Crushed stone Crushed rock	1.5 to 3	GW and GP
(MOA F2)	(b) Sands	3 to 10	SW and SP
S1 (MOA F1)	Gravelly soils	3 to 6	GW, GP, GW-GM, and GP-GM
S2 (MOA F2)	Sandy soils	3 to 6	SW, SP, SW-SM, and SP-SM
F1	Gravelly soils	6 to 10	GM, GW-GM, and GP-GM
F2	(a) Gravelly soils	10 to 20	GM, GW-GM, and GP-GM
	(b) Sands	6 to 15	SM, SW-SM, and SP-SM
F3	(a) Gravelly soils	Over 20	GM and GC
	(b) Sands, except very fine silty sands	Over 15	SM and SC
	(c) Clays, P1>12		CL and CH
F4	(a) All silts		ML and MH
	(b) Very fine silty sands	Over 15	SM
	(c) Clays, P1<12		CL and CL-ML
	(d) Varved clays and other fine-grained, banded sediments		CL and ML CL, ML, and SM CL, CH, and ML CL, CH, ML and SM

1

[1] Departments of the Army and Air Force Publication TM 5-822-5/AFM 88-7, "Pavement Design for Roads, Streets, Walks, and Open Storage Areas", Table 18-2.
[2] Corps of Engineers Frost groups directly correspond to the Municipality of Anchorage soil frost classification groups, except as noted.
[3] Non Frost-Susceptible.
[4] Possibly frost-susceptible, but requires laboratory test to determine frost design soil classification.

APPENDIX C

Laboratory Test Results

Table C-1: Limited and Full Mechanical Analysis Test Results

Test Boring No.	Sample No.	Depth (ft)	Gravel (%)	Sand (%)	Silt (%)	Group Name
1	4	7.5-9	46	44	10	GRAVEL with Silt and Sand
2*	3	5-6.5	63	31	6	GRAVEL with Silt and Sand
2	7	20-21.5	0	8	92	SILT
3*	2	2.5-4	46	43	11	GRAVEL with Silt and Sand
4*	3	5-6.5	47	44	9	GRAVEL with Silt and Sand
4	5	10-11.5	49	44	7	GRAVEL with Silt and Sand
5*	3	5-6.5	50	41	9	GRAVEL with Silt and Sand
5	7	15-16.5	49	38	13	Silty GRAVEL with Sand
6*	2	2.5-4	44	43	13	Silty GRAVEL with Sand
7	5	10-11.5	10	10	80	SILT with Sand
7	6	12.5-14	0	12	88	SILT
7	7	15-16.5	30	43	27	Silty SAND with Gravel
8*	2	2.5-4	43	45	12	SAND with Silt and Gravel
8	4	7.5-9	44	51	5	SAND with Silt and Gravel
8*	5	10-11.5	49	24	27	Silty GRAVEL with Sand

** indicates a Full Mechanical Analysis was performed.*

DOWL

Client: Kodiak Soil and Water
Project: Battery Creek Fish Passage
Work Order: D62357

Particle Size Distribution

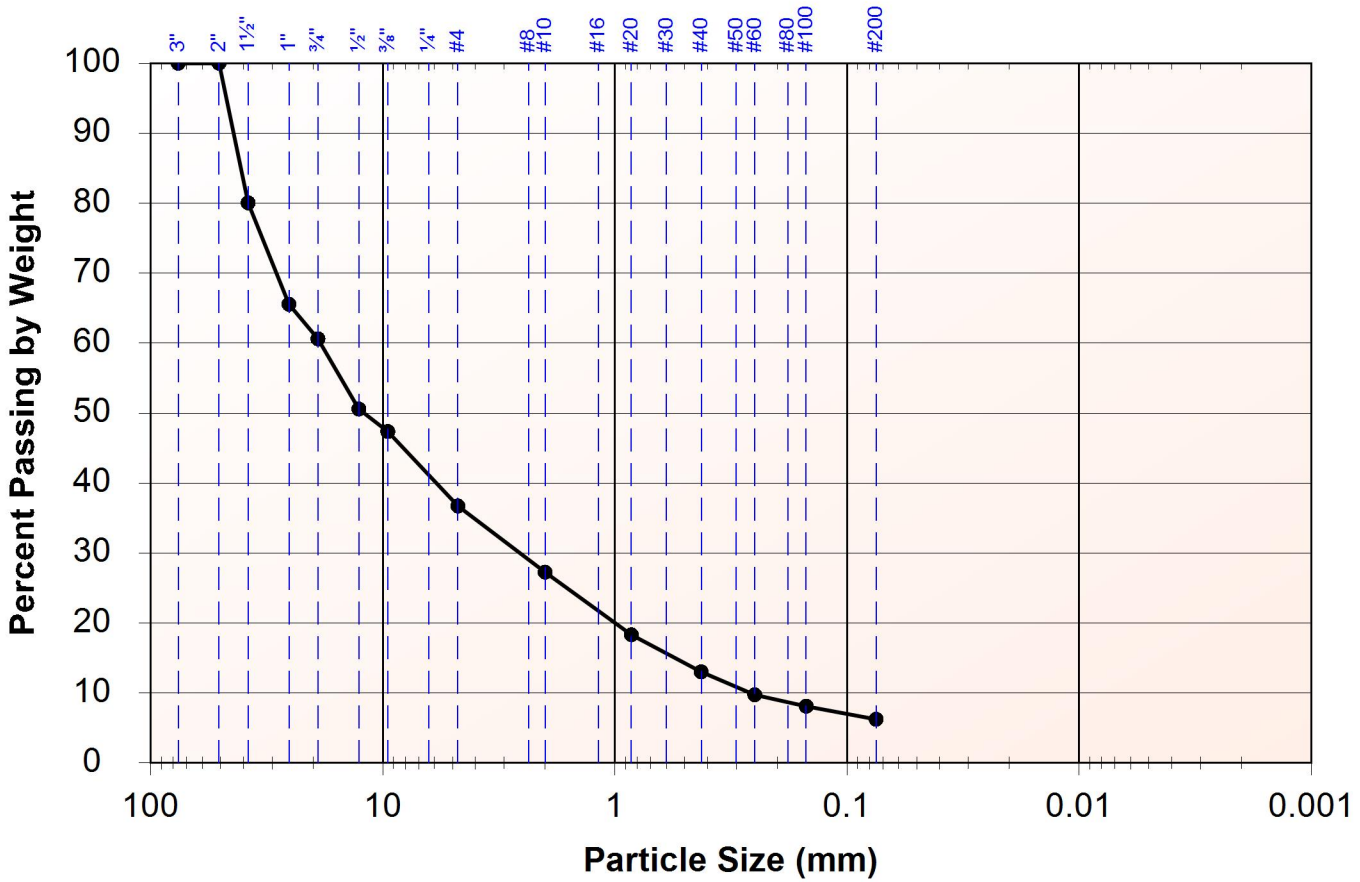
ASTM D422

Location: Test Boring 2
Sample 3
Depth 5'-6.5'

Lab Number	2016-1198
Received	12/15/2016
Reported	12/29/2016

Engineering Classification: **Well Graded Gravel with Silt and Sand, GW-GM**

Frost Classification: **NFS**



Size	Passing	Specification
3"	100%	
2"	100%	
1½"	80%	
1"	66%	
¾"	61%	
½"	51%	
⅜"	47%	
#4	37%	
Total Weight of Sample 1450.7g		
#10	27%	
#20	18%	
#40	13%	
#60	10%	
#100	8%	
#200	6.2%	
Total Weight of Fine Fraction 405.3g		

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DOWL

Client: Kodiak Soil and Water
Project: Battery Creek Fish Passage
Work Order: D62357

Particle Size Distribution

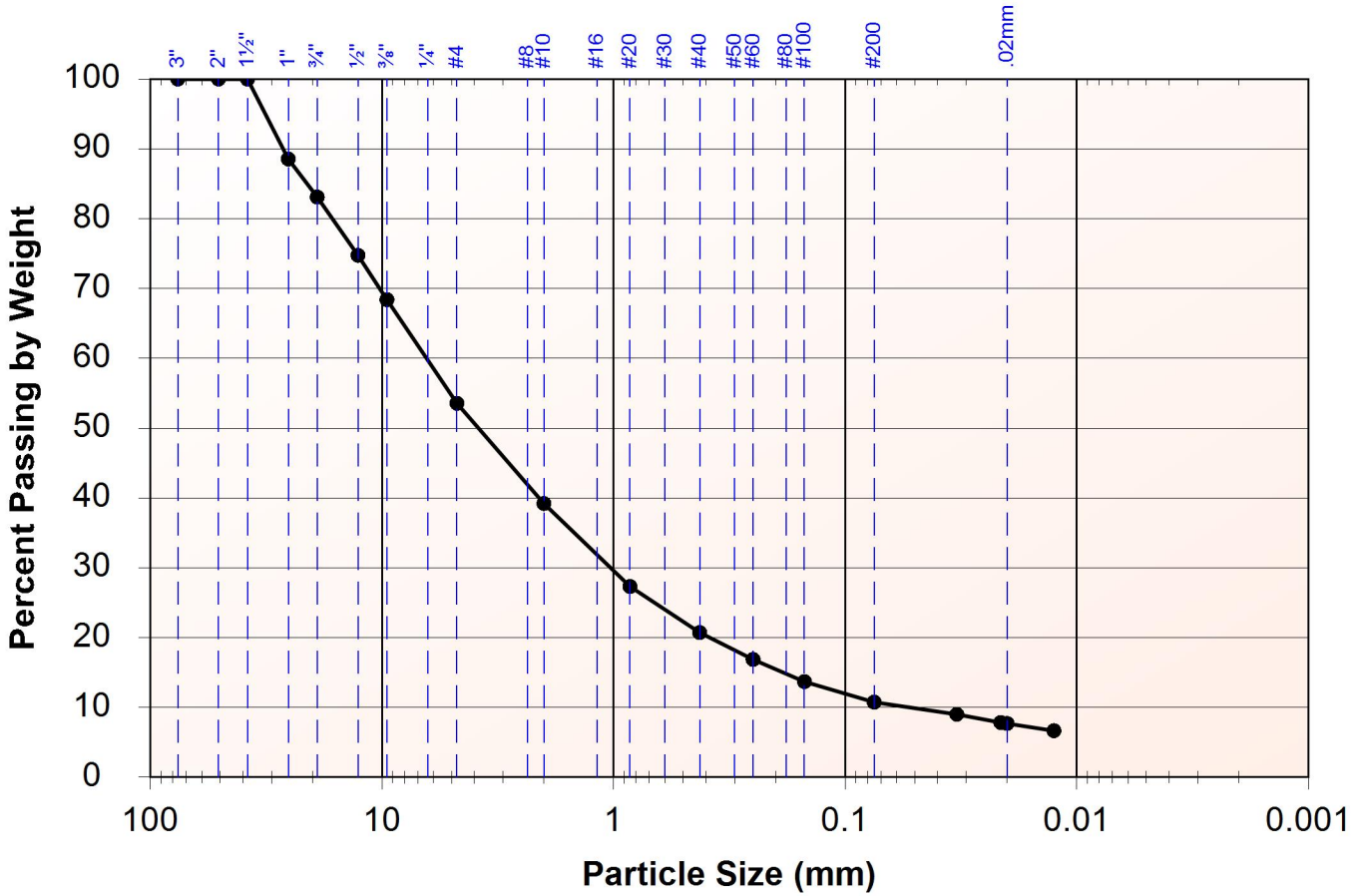
ASTM D422

Location: Test Boring 3
Sample 2
Depth 2.5'-4'

Lab Number	2016-1200
Received	12/15/2016
Reported	12/29/2016

Engineering Classification: **Well Graded Gravel with Silt and Sand, GW-GM**

Frost Classification: **F1**



Size	Passing	Specification
3"	100%	
2"	100%	
1½"	100%	
1"	89%	
¾"	83%	
½"	75%	
⅜"	68%	
#4	54%	
Total Weight of Sample 2395.4g		
#10	39%	
#20	27%	
#40	21%	
#60	17%	
#100	14%	
#200	10.8%	
Total Weight of Fine Fraction 343.2g		
0.02 mm	7.7%	

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DOWL

Client: Kodiak Soil and Water
Project: Battery Creek Fish Passage
Work Order: D62357

Particle Size Distribution

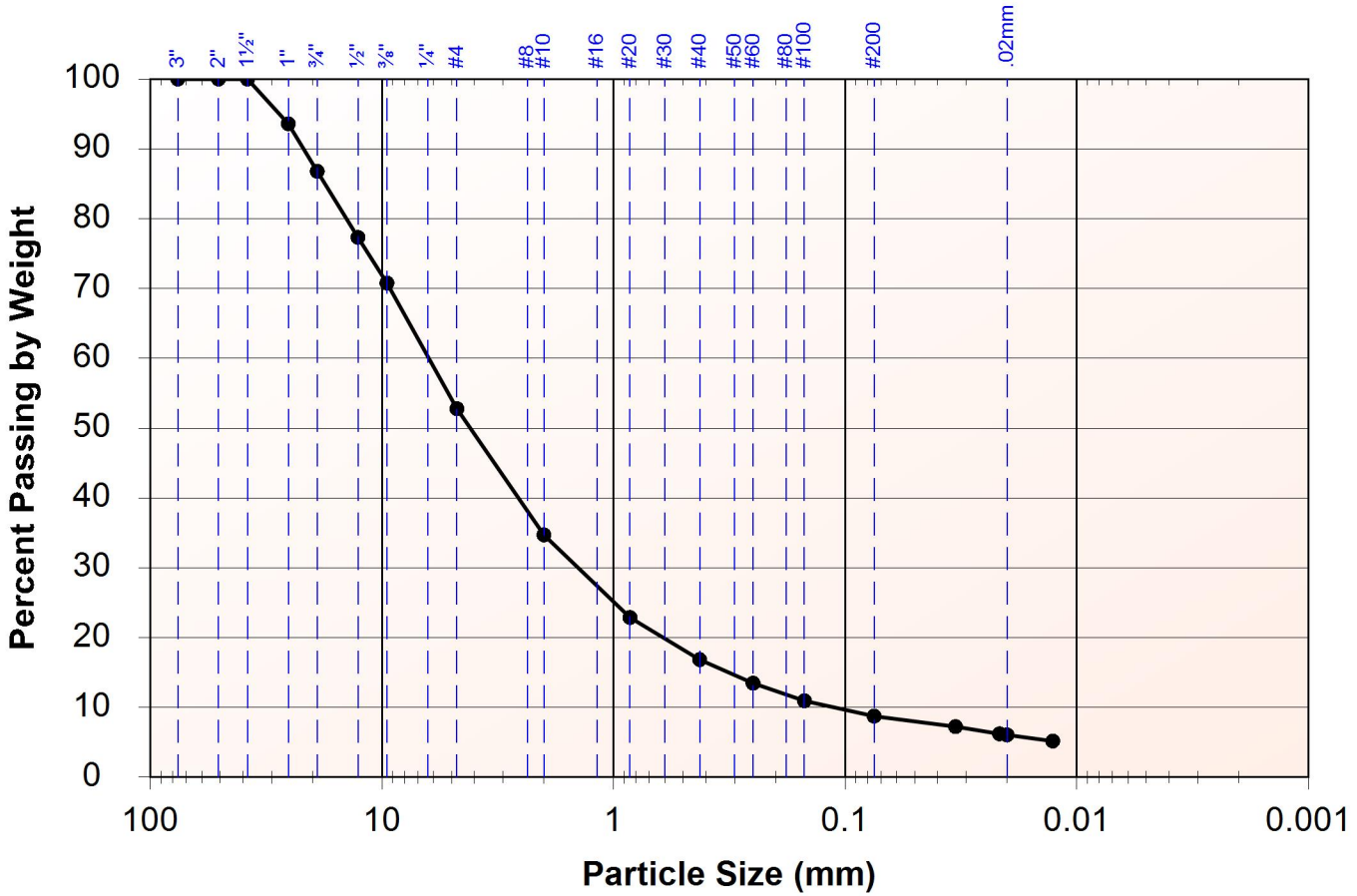
ASTM D422

Location: Test Boring 4
Sample 3
Depth 5'-6.5'

Lab Number	2016-1201
Received	12/15/2016
Reported	12/29/2016

Engineering Classification: **Well Graded Gravel with Silt and Sand, GW-GM**

Frost Classification: **F1**



Size	Passing	Specification
3"	100%	
2"	100%	
1½"	100%	
1"	94%	
¾"	87%	
½"	77%	
⅜"	71%	
#4	53%	
Total Weight of Sample 2298.7g		
#10	35%	
#20	23%	
#40	17%	
#60	13%	
#100	11%	
#200	8.8%	
Total Weight of Fine Fraction 342.8g		
0.02 mm	6.1%	

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DOWL

Client: Kodiak Soil and Water
Project: Battery Creek Fish Passage
Work Order: D62357

Particle Size Distribution

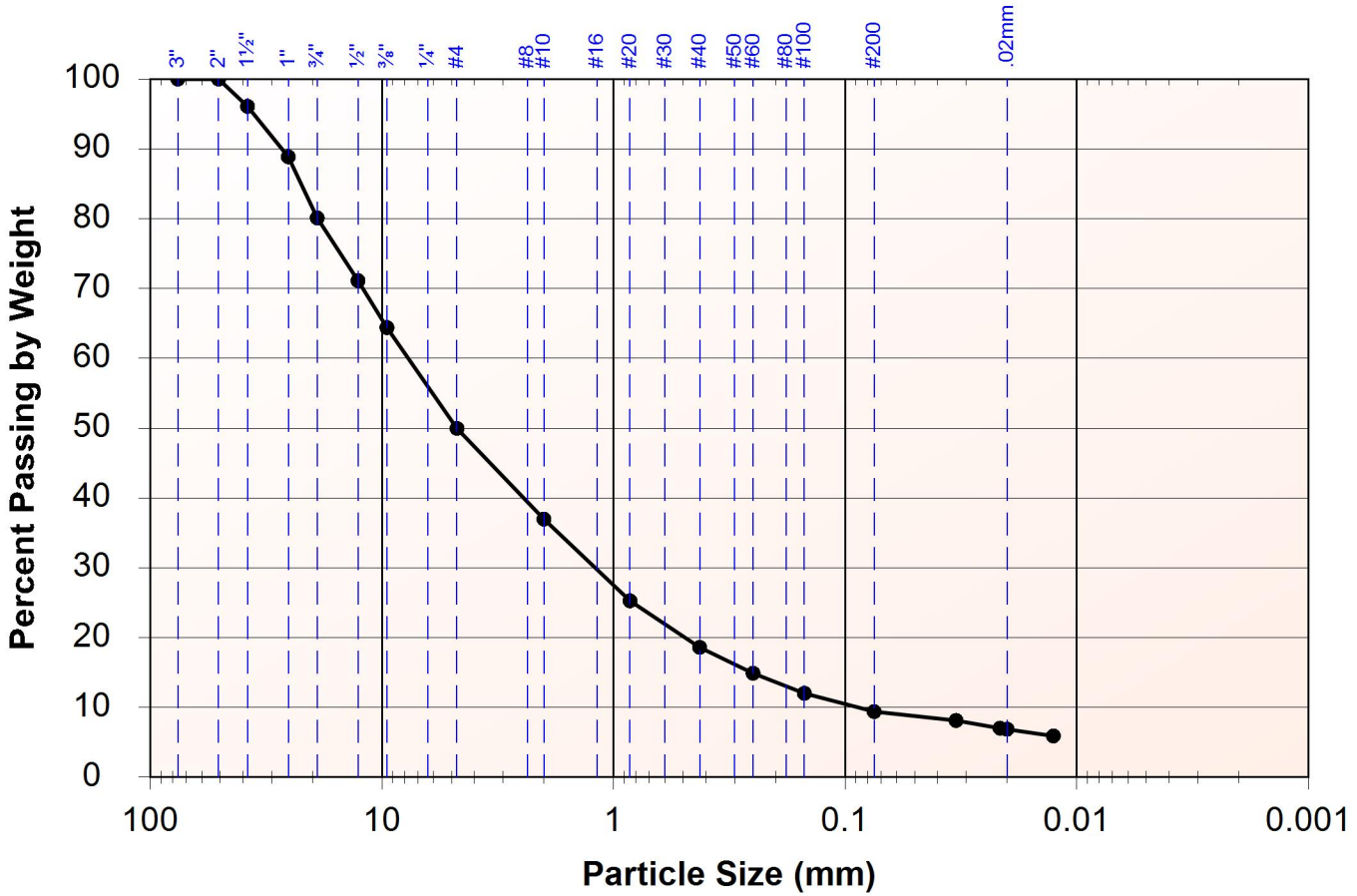
ASTM D422

Location: Test Boring 5
Sample 3
Depth 5'-6.5'

Lab Number	2016-1203
Received	12/15/2016
Reported	12/29/2016

Engineering Classification: **Well Graded Gravel with Silt and Sand, GW-GM**

Frost Classification: **F1**



Size	Passing	Specification
3"	100%	
2"	100%	
1½"	96%	
1"	89%	
¾"	80%	
½"	71%	
⅜"	64%	
#4	50%	
Total Weight of Sample 2081.6g		
#10	37%	
#20	25%	
#40	19%	
#60	15%	
#100	12%	
#200	9.4%	
Total Weight of Fine Fraction 283.1g		
0.02 mm	6.9%	

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DOWL

Client: Kodiak Soil and Water
Project: Battery Creek Fish Passage
Work Order: D62357

Particle Size Distribution

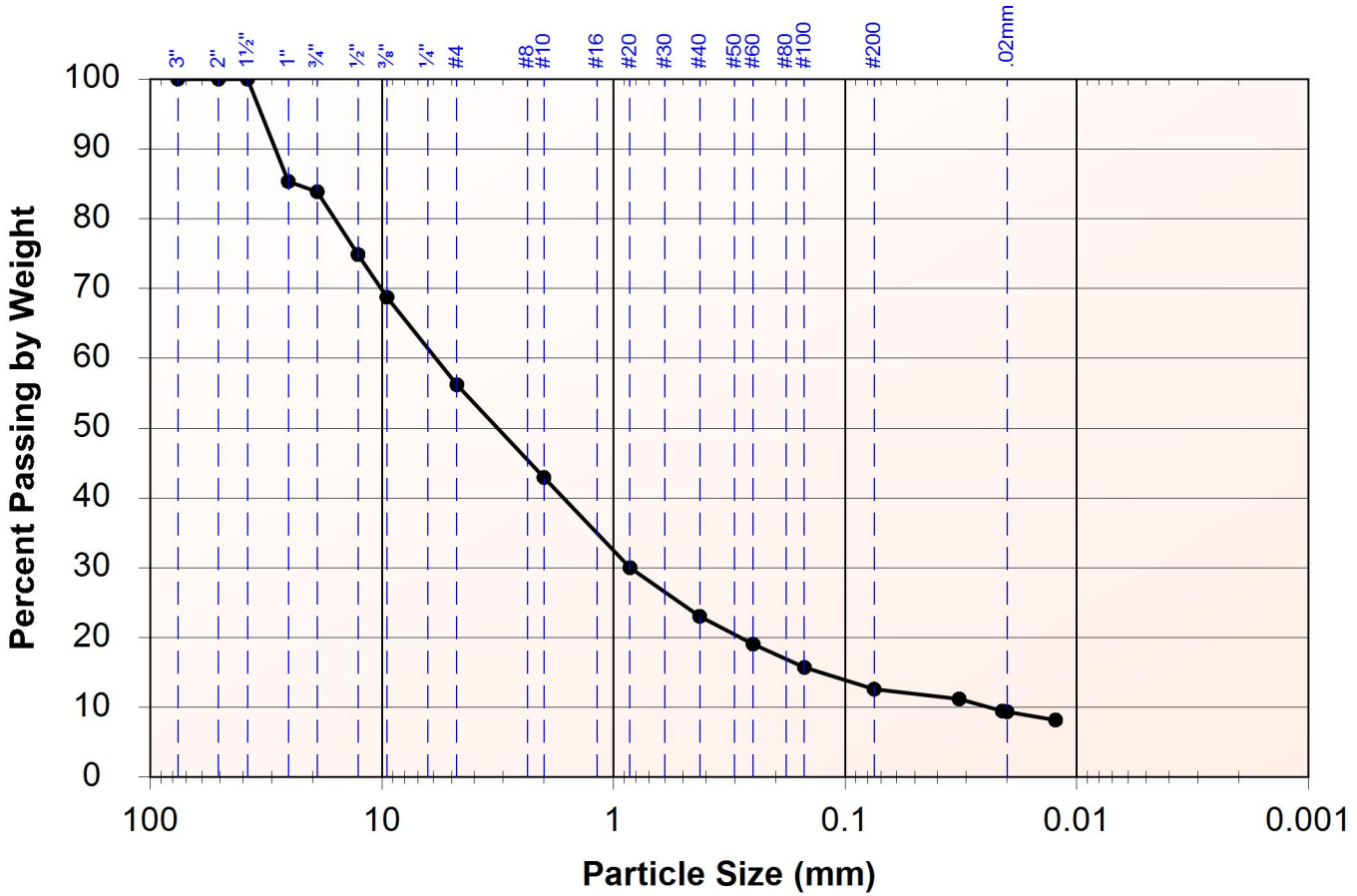
ASTM D422

Location: Test Boring 6
Sample 2
Depth 2.5'-4'

Lab Number	2016-1205
Received	12/15/2016
Reported	12/29/2016

Engineering Classification: **Silty Gravel with Sand, GM**

Frost Classification: **F1**



Size	Passing	Specification
3"	100%	
2"	100%	
1½"	100%	
1"	85%	
¾"	84%	
½"	75%	
⅜"	69%	
#4	56%	
Total Weight of Sample 2124.3g		
#10	43%	
#20	30%	
#40	23%	
#60	19%	
#100	16%	
#200	12.6%	
Total Weight of Fine Fraction 327.5g		
0.02 mm	9.4%	

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DOWL

Client: Kodiak Soil and Water
Project: Battery Creek Fish Passage
Work Order: D62357

Particle Size Distribution

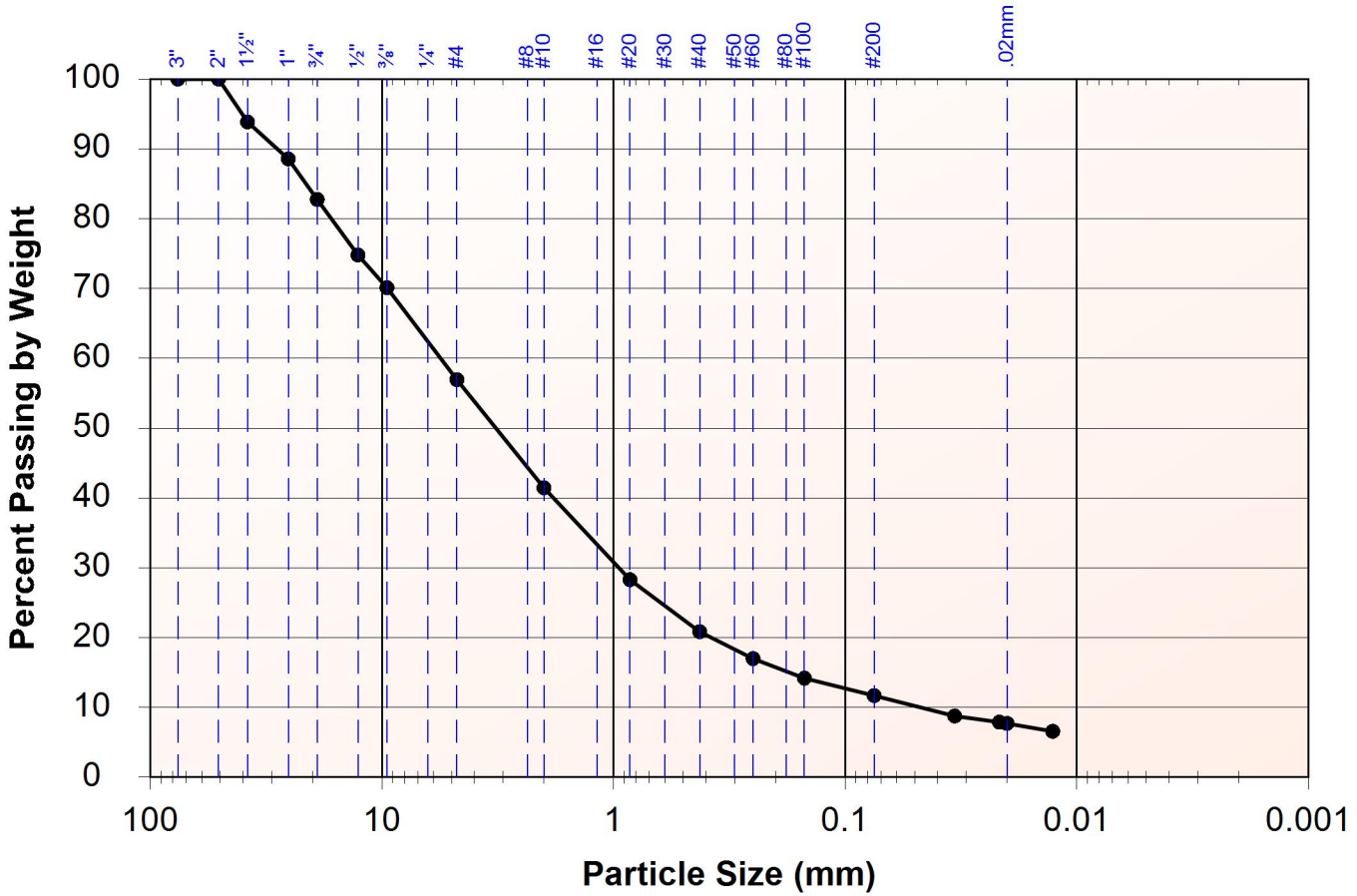
ASTM D422

Location: Test Boring 8
Sample 2
Depth 2.5'-4'

Lab Number	2016-1209
Received	12/15/2016
Reported	12/29/2016

Engineering Classification: **Poorly Graded Sand with Silt and Gravel, SP-SM**

Frost Classification: **F2**



Size	Passing	Specification
3"	100%	
2"	100%	
1½"	94%	
1"	89%	
¾"	83%	
½"	75%	
⅜"	70%	
#4	57%	
Total Weight of Sample 1901.9g		
#10	41%	
#20	28%	
#40	21%	
#60	17%	
#100	14%	
#200	11.7%	
Total Weight of Fine Fraction 397.8g		
0.02 mm	7.7%	

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DOWL

Client: Kodiak Soil and Water
Project: Battery Creek Fish Passage
Work Order: D62357

Particle Size Distribution

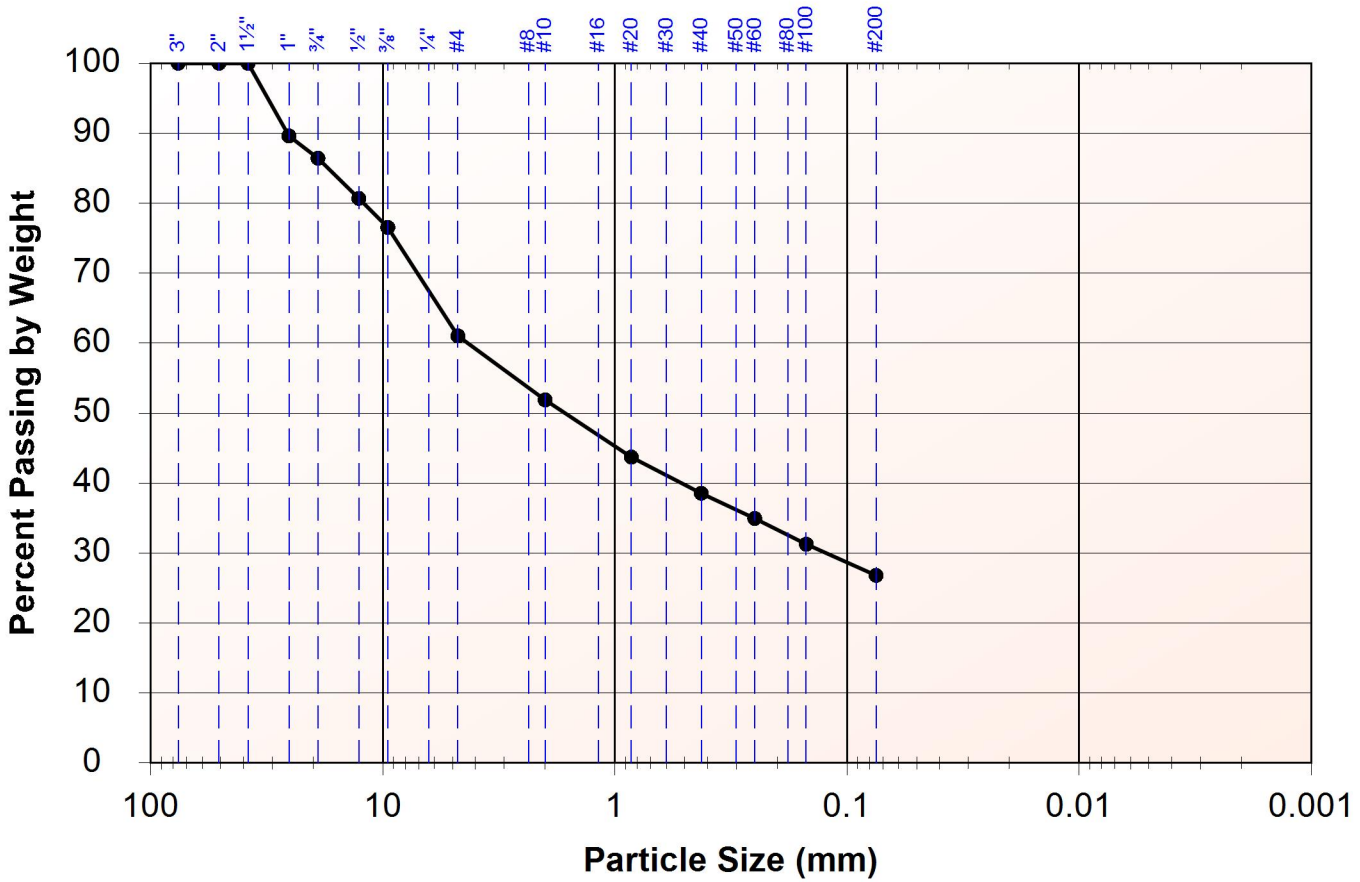
ASTM D422

Location: Test Boring 8
Sample 5
Depth 10'-11.5'

Lab Number	2016-1211
Received	12/15/2016
Reported	12/29/2016

Engineering Classification: **Silty Gravel with Sand, GM**

Frost Classification: **Not Measured**



Size	Passing	Specification
3"	100%	
2"	100%	
1½"	100%	
1"	90%	
¾"	86%	
½"	81%	
⅜"	77%	
#4	61%	
Total Weight of Sample 1199.6g		
#10	52%	
#20	44%	
#40	39%	
#60	35%	
#100	31%	
#200	26.8%	
Total Weight of Fine Fraction 302.3g		

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Contract Drawings For

BATTERY CREEK FISH PASSAGE
BATTERY CREEK ROAD
KODIAK SOIL AND WATER CONSERVATION DISTRICT

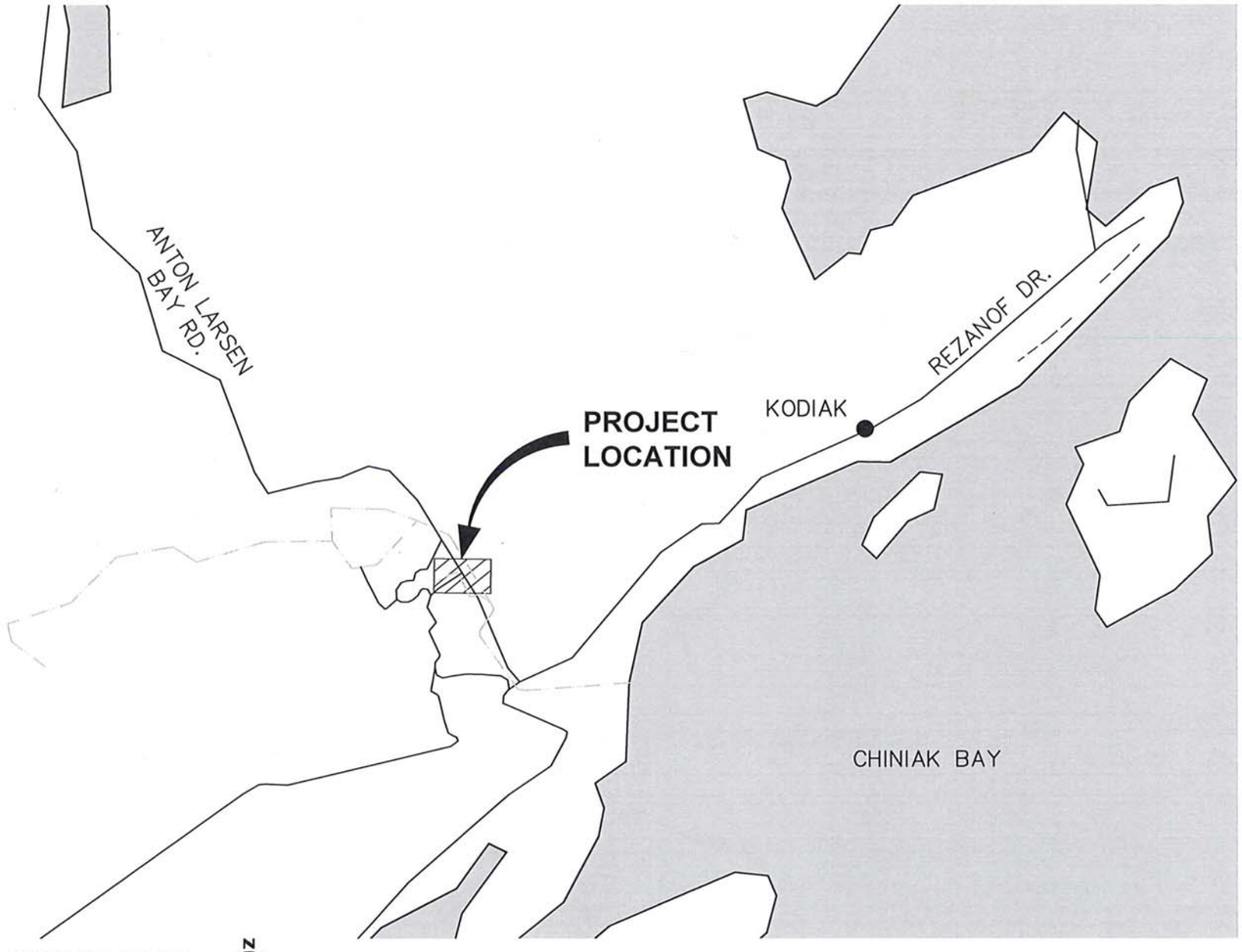
SECTION 9, TOWNSHIP 28 SOUTH, RANGE 20 WEST, SEWARD MERIDIAN, ALASKA
NOVEMBER 2017

LOCATION MAP

LEGEND

EXISTING	DESCRIPTION
	APPROXIMATE RIGHT-OF-WAY
	CONTROL POINT
	ORDINARY HIGH WATER
	EXISTING CULVERT
	EDGE OF PAVEMENT
	EDGE OF GRAVEL/SHOULDER
	EDGE OF VEGETATION
	EXISTING THALWEG
	TOP OF BANK
	TOE OF SLOPE
—OE—OE—	OVERHEAD ELECTRICAL
	PROPOSED CULVERT
—W—W—	WATER LINE
	WATERWAY BED FILL
	WATERWAY BANK REVEGETATION AND PROTECTION
	RIPRAP

ABBREVIATIONS	
ALBC	ALUMINUM BOX CULVERT
ALCAP	ALUMINUM CAP
BFW	BANKFULL WIDTH
CFS	CUBIC FEET PER SECOND
CAP	CORRUGATED ALUMINUM PIPE
CMP	CORRUGATED METAL PIPE
ELEV	ELEVATION
HW/D	HEADWATER TO DEPTH RATIO
IE	INVERT ELEVATION
MIN	MINIMUM
NTS	NOT TO SCALE
Q	FLOW
STA	STATION
TYP	TYPICAL
VAP	VERTICAL ADJUSTMENT POTENTIAL



VICINITY MAP
NTS

GENERAL NOTES

1. SURVEY INFORMATION WAS PROVIDED BY WILLMAN LAND SURVEYING. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL SITE FEATURES. IF THE CONTRACTOR SHOULD ENCOUNTER CONDITIONS OTHER THAN THOSE SHOWN ON THE PLANS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE.
2. PLANS MAY NOT SHOW ALL EXISTING UTILITIES ON SITE. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES AND SHALL EXERCISE CAUTION DURING CONSTRUCTION.
4. COORDINATE CONSTRUCTION STAGING AND MOBILIZATION AREAS AND ACTIVITIES WITH OWNER'S REPRESENTATIVE.
5. EXERCISE CAUTION AND OBSERVE ALL APPLICABLE OSHA REQUIREMENTS FOR WORKING IN CONFINED AREAS.
6. STATIONING IS ALONG CENTERLINE OF STREAM OR ROADWAY.
7. VERIFY ELEVATIONS OF ALL PROPOSED STRUCTURES PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES FROM PLANS IMMEDIATELY TO OWNER'S REPRESENTATIVE.
8. CULVERT DESIGN LOAD: AASHTO LOADING HL-93, MINIMUM SOIL BEARING CAPACITY: 4000 PSF.
9. EXCAVATION AND COMPACTION:
   A. REMOVE ALL ORGANIC OR OVER SATURATED SOFT MATERIAL, WHICH CANNOT BE COMPACTED.
   B. BACKFILL SHALL BE PLACED AND COMPACTED WITH CARE AND SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY ON BOTH SIDES OF PIPE. MATERIAL TO BE COMPACTED TO 95% MAXIMUM DENSITY.
10. CULVERT INSTALLATION:
    A. CULVERT JOINTS SHOULD NOT LEAK.
    B. CULVERT INFILL MATERIAL SHALL BE INSTALLED IN PIPE ACCORDING TO PLANS. MANUAL INSTALLATION IS REQUIRED.
11. ALL VEGETATION IN THE AREAS NOT AFFECTED BY WORK SHALL BE PRESERVED AND PROTECTED BY THE CONTRACTOR. RESEED ALL DISTURBED AREAS.
12. ACCESS TO THE UNITED STATES COAST GUARD (USCG) FACILITIES WILL BE MAINTAINED BY AN ALTERNATIVE ACCESS 0.2 MILES NORTH ALONG ANTON LARSEN BAY ROAD. BATTERY CREEK ROAD MAY BE CLOSED FOR UP TO 2 WEEKS (14 CONSECUTIVE DAYS).

DRAWING INDEX

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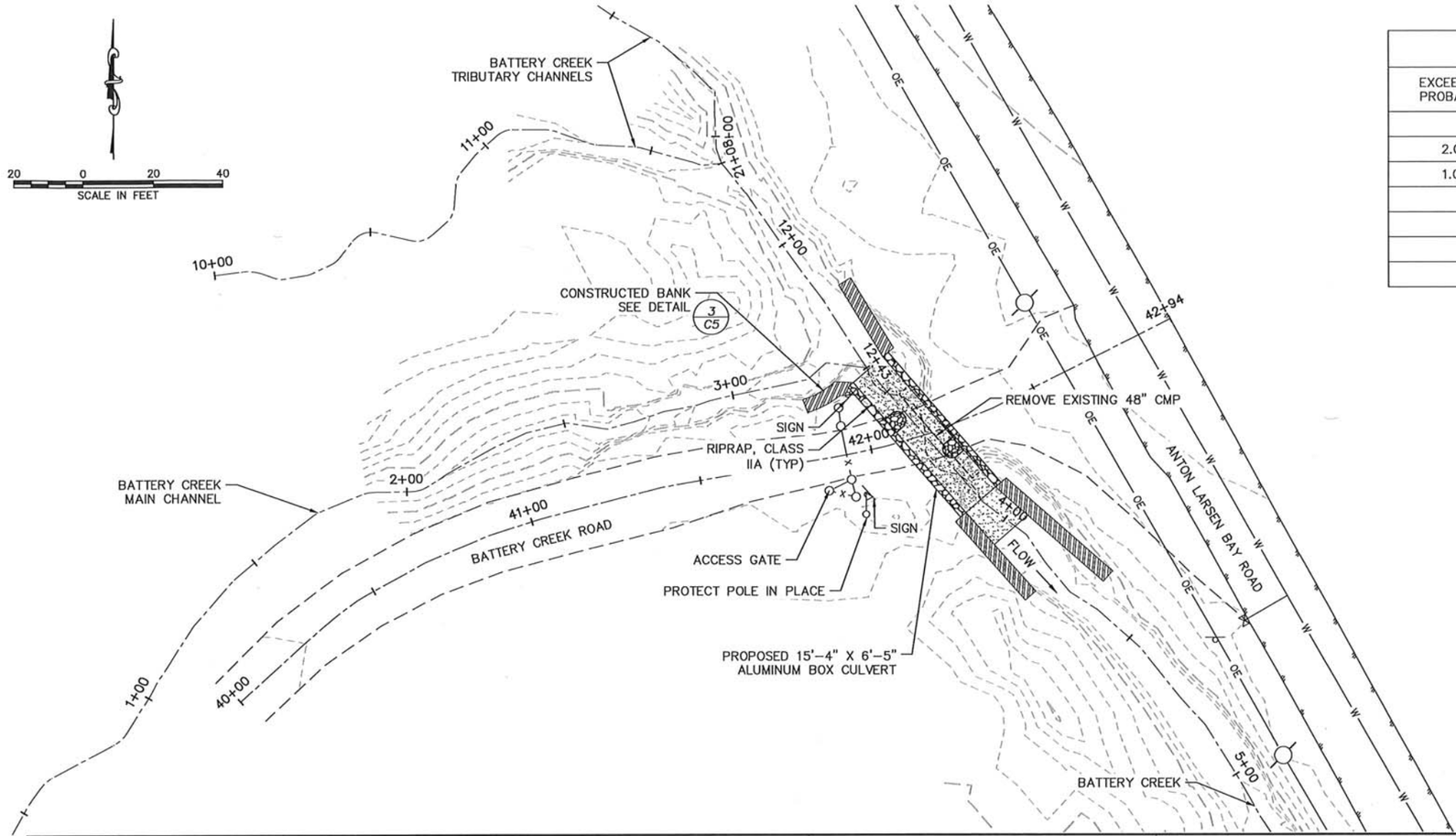

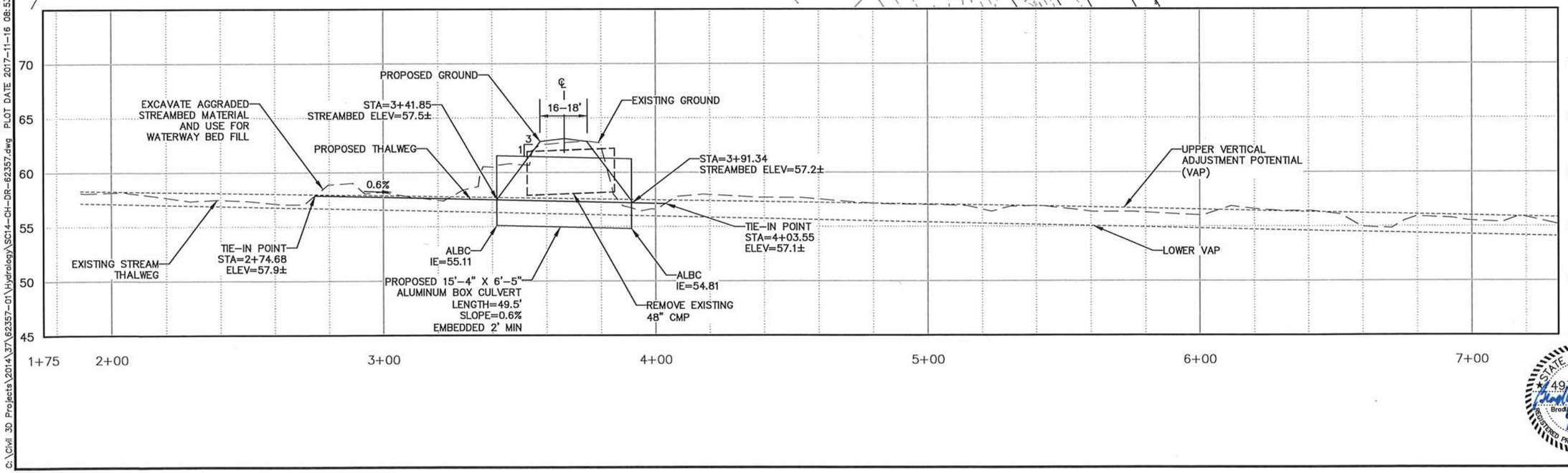

HYDROLOGIC & HYDRAULIC SUMMARY					
EXCEEDANCE PROBABILITY	RETURN PERIOD	DESIGN DISCHARGE	DESIGN HIGH WATER ELEVATION	REGULATORY FLOOD	HW/D
	(YEAR)	(CFS)	(FT)		
2.00%	50	184	60.8	N/A	0.82
1.00%	100	217	61.2	N/A	0.91
DRAINAGE AREA = 0.54 SQUARE MILES					
ANTICIPATED ADDITIONAL BACKWATER = 0 FEET					
Q = 248 CFS AT HW/D = 1.0					
ROADWAY OVERTOPPING Q = 374.5 CFS					

CULVERT SUMMARY SCHEDULE	
SIZE	15'-4" X 6'-5"
LENGTH	49.5'
SLOPE	0.60%
CORRUGATION	9" X 2.5"
MATERIAL	ALUMINUM
LOADING	HL-93
MIN/MAX COVER	1.4'/5.0'
EMBEDMENT	2' MIN

NOTES:

1. REMOVE AND REPLACE ACCESS GATE AND SIGNS AS NECESSARY FOR CONSTRUCTION.

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BATTERY CREEK FISH PASSAGE
BATTERY CREEK ROAD
STREAM PLAN & PROFILE

KODIAK, ALASKA

PROJECT 1137.62357.01
DATE NOVEMBER 2017

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SHEET
C2 OF C9

STATE OF ALASKA
49TH
Bradley M. Melsek
11098
11/17/17
REGISTERED PROFESSIONAL ENGINEER

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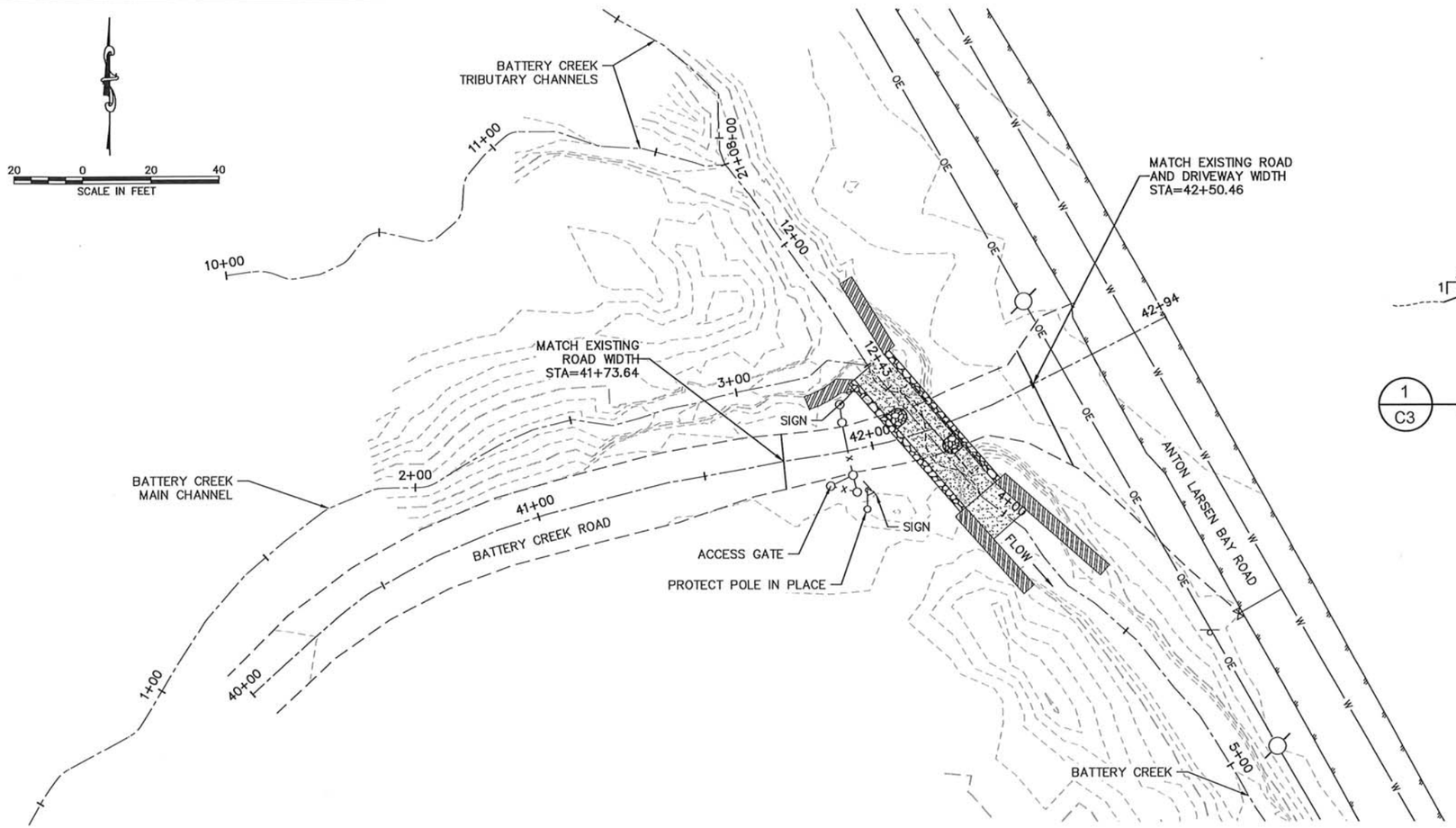

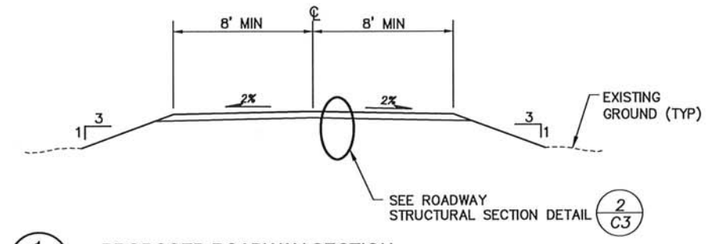

1/C3 PROPOSED ROADWAY SECTION
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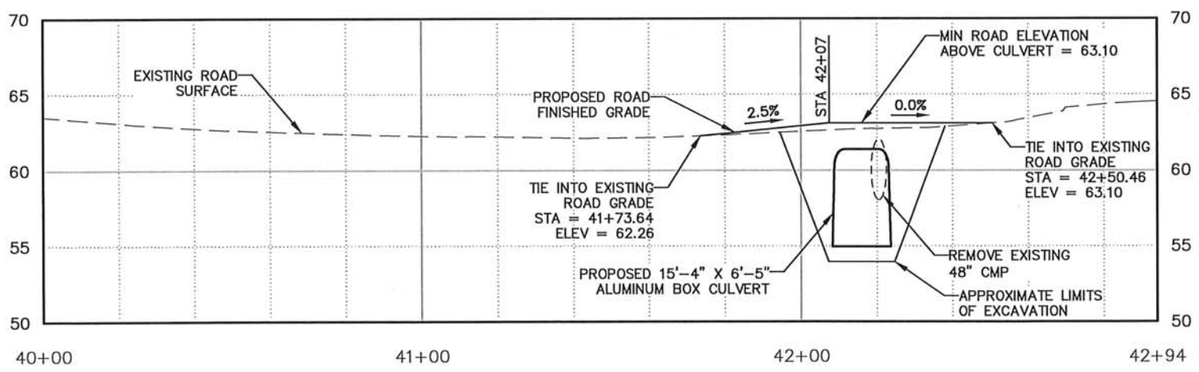

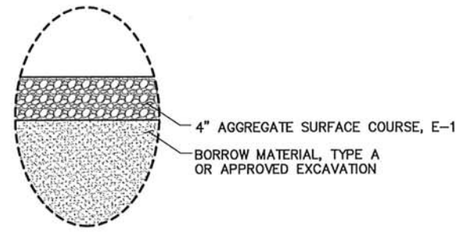

2/C3 ROADWAY STRUCTURAL SECTION
NTS

NOTES:

1. RAISE ROAD ELEVATION ABOVE PROPOSED CULVERT TO PROVIDE A MINIMUM OF 1.4 FEET OF COVER USING AGGREGATE SURFACE COURSE, E-1.

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BATTERY CREEK ROAD
ROADWAY PLAN & PROFILE
KODIAK, ALASKA

PROJECT 1137.62357.01
DATE NOVEMBER 2017

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C3 OF C9

STATE OF ALASKA 49TH
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CE/11098
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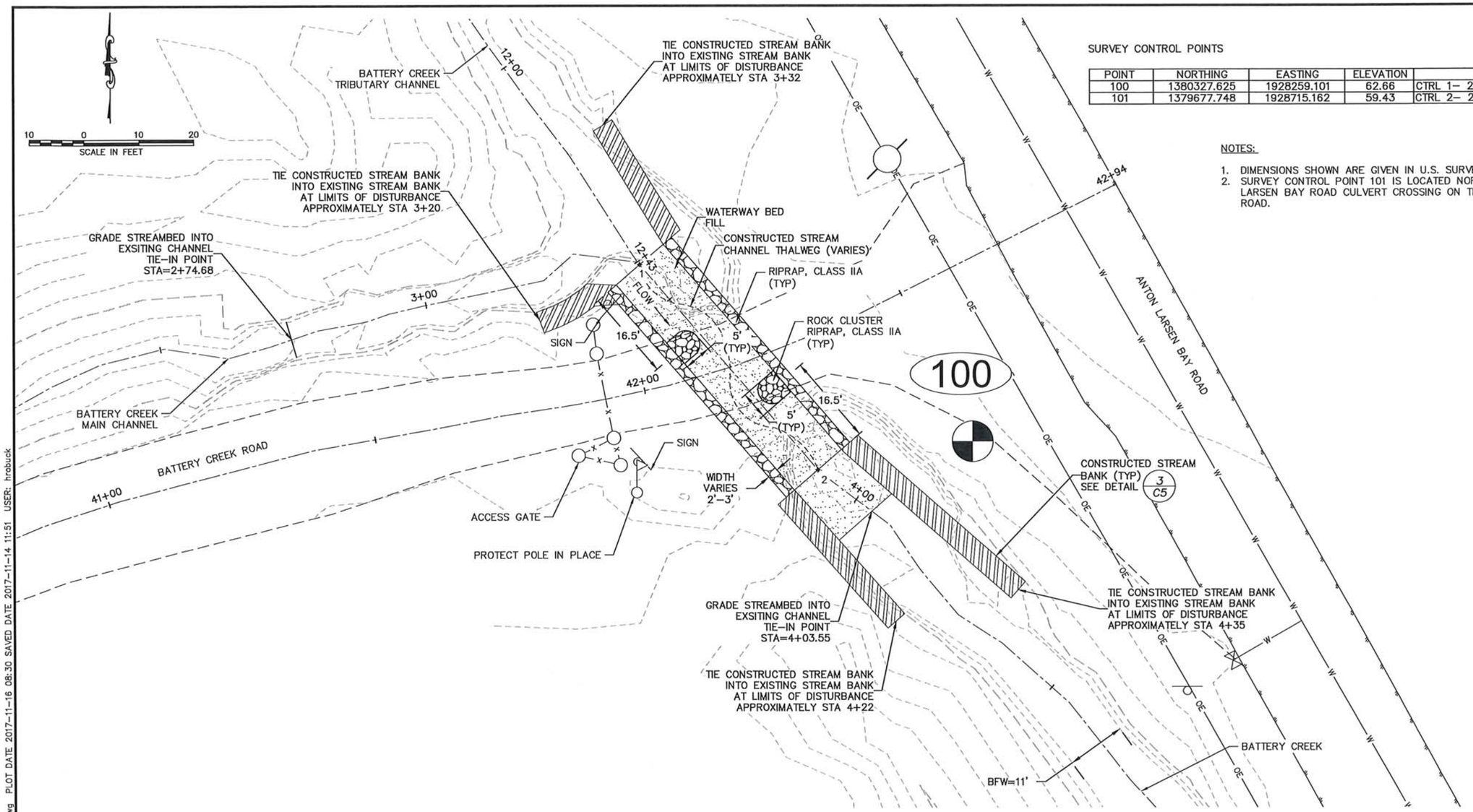

1/C4 STREAM SIMULATION DETAIL - PLAN VIEW
1"=20'

SURVEY CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	1380327.625	1928259.101	62.66	CTRL 1– 2" ALUMINUM CAP 1638S 2016
101	1379677.748	1928715.162	59.43	CTRL 2– 2" ALUMINUM CAP 1638S 2016

NOTES:

1. DIMENSIONS SHOWN ARE GIVEN IN U.S. SURVEY FEET.
2. SURVEY CONTROL POINT 101 IS LOCATED NORTH OF THE ANTON LARSEN BAY ROAD CULVERT CROSSING ON THE NORTH SIDE OF THE ROAD.

NOTES:

1. PROTECT EXISTING STREAM BANKS IN PLACE. RECONSTRUCT STREAM BANKS DAMAGED DURING CONSTRUCTION WITH VEGETATIVE MAT. MINIMIZE DISTURBANCE TO EXISTING STREAM BANKS.
2. TIE CONSTRUCTED STREAM BANKS INTO EXISTING STREAM BANK AT LOCATIONS SHOWN OR AS DIRECTED BY ENGINEER.

CULVERT COORDINATE TABLE

POINT #	NORTHING	EASTING	ELEVATION	SIZE	DESCRIPTION
1	1380359.94	1928198.51	55.11	15'–4" X 6'–5"	INLET IE
2	1380322.48	1928230.87	54.81	15'–4" X 6'–5"	OUTLET IE

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BATTERY CREEK FISH PASSAGE
BATTERY CREEK ROAD
STREAM DESIGN DETAILS
KODIAK, ALASKA

PROJECT 1137.62357.01
DATE NOVEMBER 2017

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11/17/17

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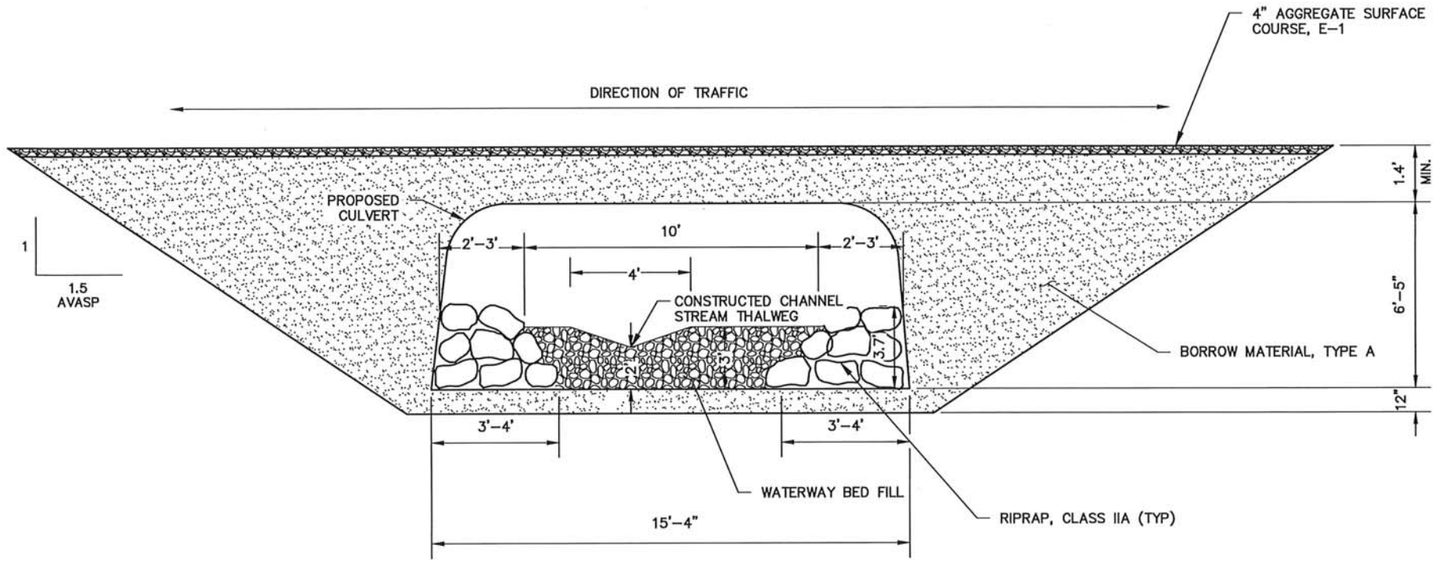

1 C5 TYPICAL CULVERT CROSS-SECTION BETWEEN ROCK CLUSTERS
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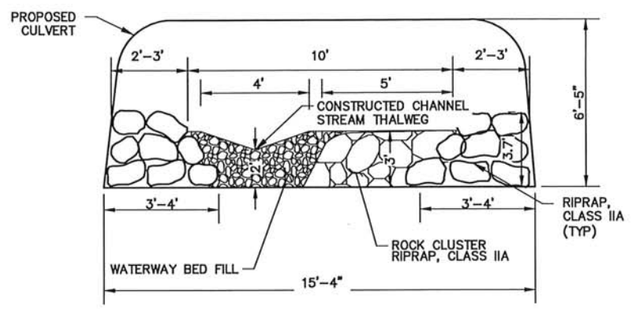

2 C5 TYPICAL CULVERT CROSS-SECTION AT ROCK CLUSTERS
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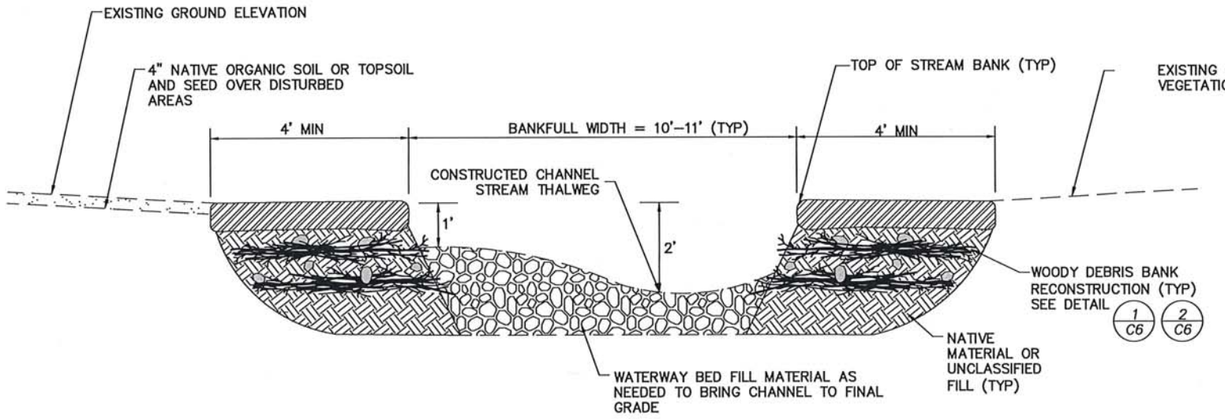
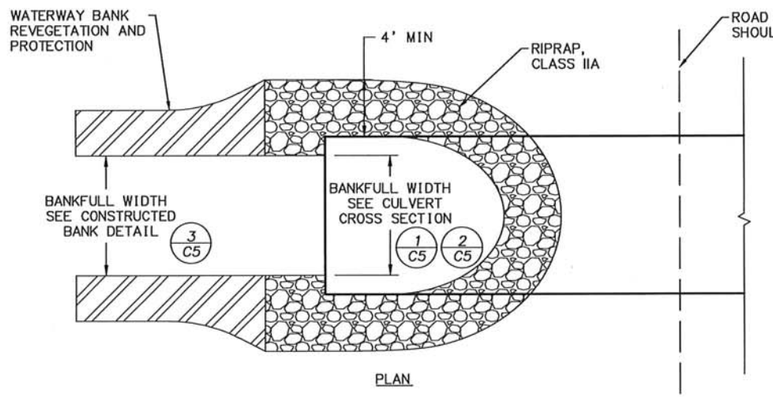


3 C5 CONSTRUCTED BANK
NTS

NOTES:

1. SALVAGED VEGETATIVE MAT MUST HAVE A MINIMUM THICKNESS OF 12 INCHES AND BE SOURCED FROM THE DISTURBANCE AREA OR THE LOCAL AREA.
2. CONSTRUCTED CHANNEL BED TO HAVE MINIMUM THICKNESS OF 2 FEET. USE ONLY DEPTH OF MATERIAL NECESSARY WHEN PLACING INFILL MATERIAL ON INSITU NATIVE BED MATERIAL TO BRING CHANNEL UP TO GRADE. REFER TO SECTION 690 FOR WATERWAY BED FILL GRADATION.
3. CONSTRUCT 12 INCH DEEP, 4 FOOT WIDE LOW FLOW THALWEG. MEANDER THALWEG ALONG LENGTH OF CONSTRUCTED CHANNEL.



4 C5 RIPRAP SLOPE PROTECTION SECTION
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NOTES:

1. FILL VOIDS IN RIPRAP WITH BORROW OR SALVAGED ORGANIC SOIL.

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BATTERY CREEK ROAD
STREAM SECTIONS AND DETAILS
KODIAK, ALASKA

PROJECT 1137.62357.01
DATE NOVEMBER 2017

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SHEET
C5 OF C9

STATE OF ALASKA 49TH
Bradley M. Melock
CE 10098
REGISTERED PROFESSIONAL ENGINEER
11-20-17

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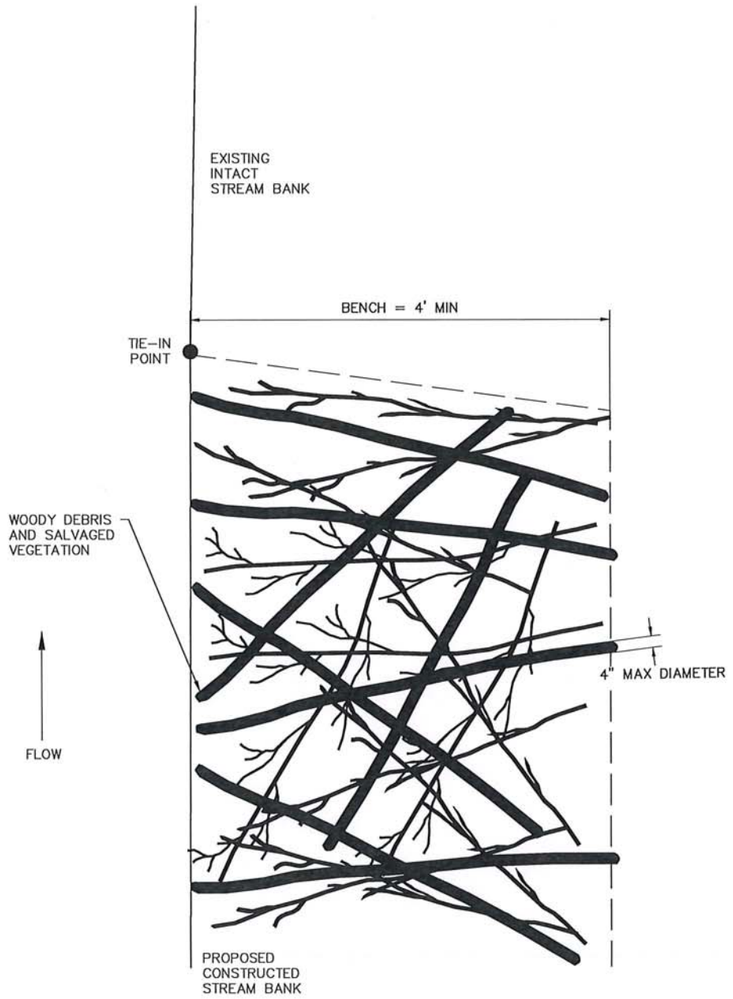
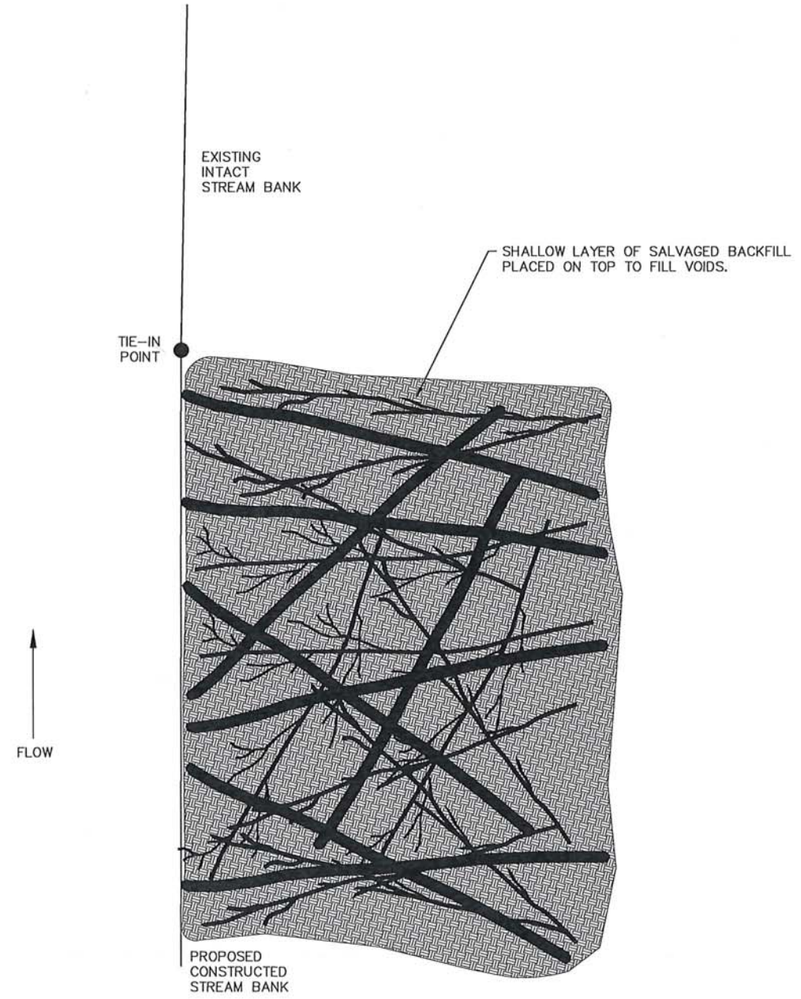


1 / C6 WOODY DEBRIS BANK RECONSTRUCTION



2 / C6 WOODY DEBRIS BANK RECONSTRUCTION

NOTES:

WOODY DEBRIS BANK RECONSTRUCTION CONSISTS OF CRISS–CROSSED WOODY DEBRIS AND SALVAGED IN–SITU SOIL, TOPPED WITH VEGETATIVE MAT.

WOODY DEBRIS CONSTRUCTION SEQUENCE

1. DETERMINE CONSTRUCTED STREAM BANK AND EXISTING STREAM BANK TIE–IN POINT.
2. EXCAVATE 4 FOOT MINIMUM WIDTH BENCH, 6 INCHES BELOW STREAM THALWEG ELEVATION. DO NOT DISTURB EXISTING INTACT EXISTING STREAMBANKS OUTSIDE OF TIE–IN POINT.
3. PLACE WOODY DEBRIS ON BENCH AT RANDOM ANGLES. DO NOT PLACE PARALLEL TO FLOW. PLACE ENDS AT INTENDED BANK LINE.
4. ADD SALVAGED NATIVE MATERIAL TO FILL VOIDS. TAMP TO COMPACT.
5. REPEAT STEPS 3–4 UNTIL 6" TO 12" BELOW FINAL TOP OF BANK ELEVATION.
6. TOP WOODY DEBRIS WITH VEGETATIVE MAT.

STATE OF ALASKA 49TH
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BATTERY CREEK ROAD
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KODIAK, ALASKA

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C6 OF C9

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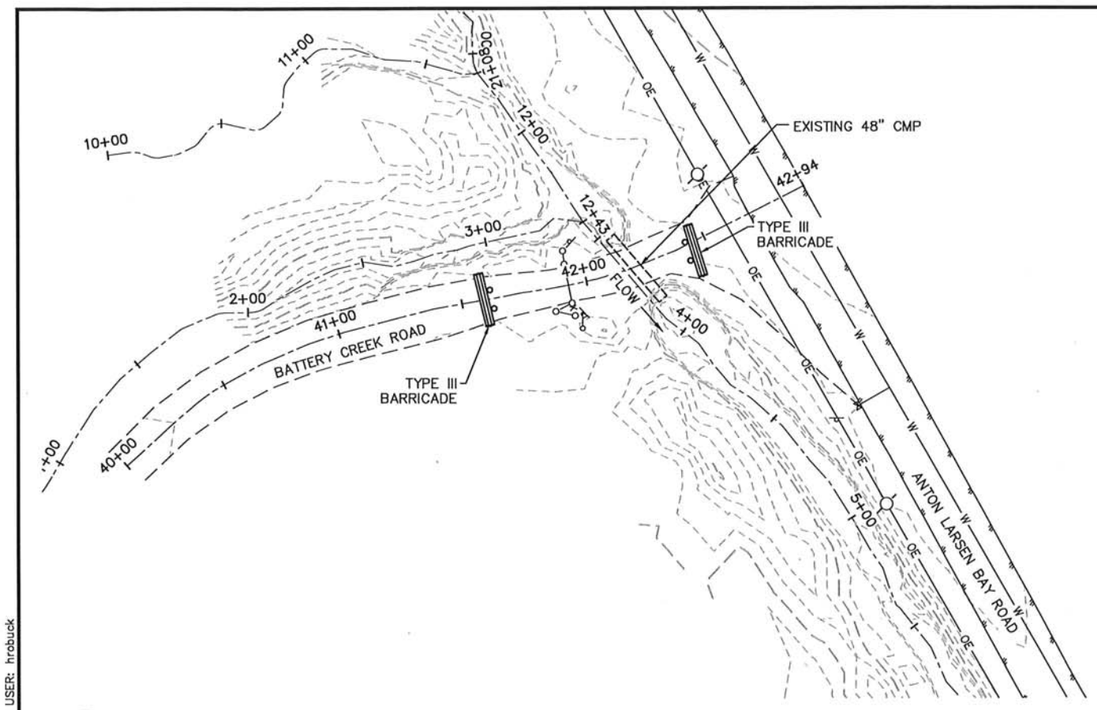
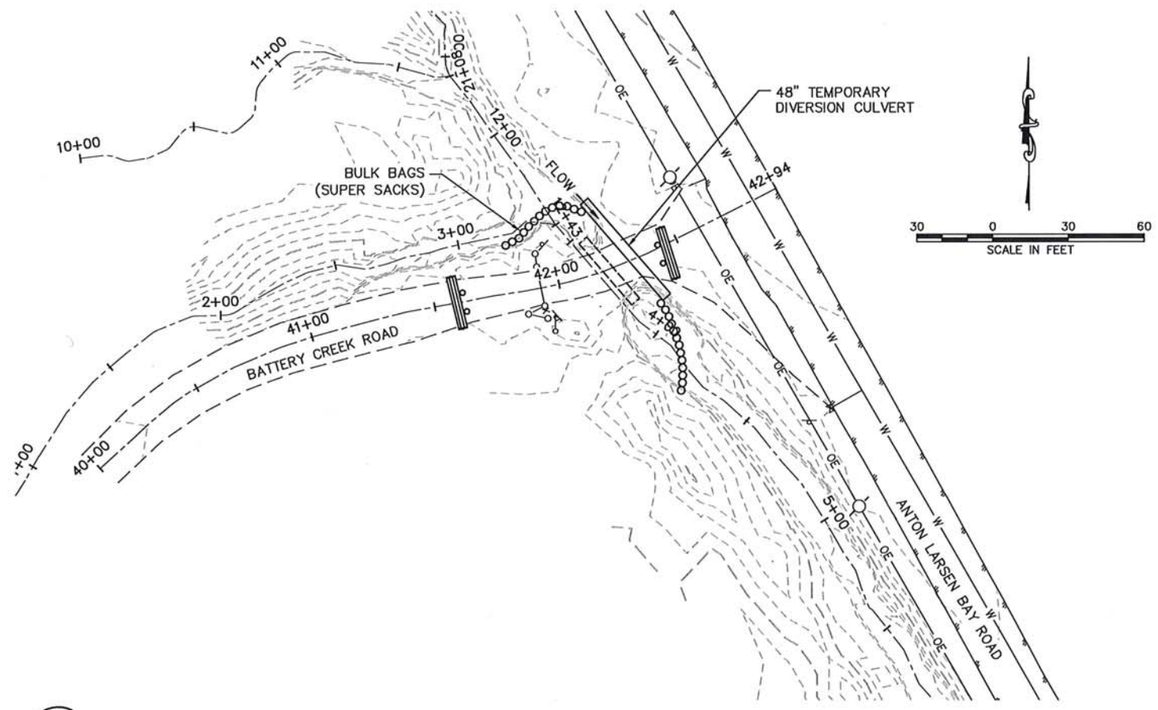


1/C7 STEP 1
1" = 30'



2/C7 STEP 2
1" = 30'

STEP 1

- MAINTAIN BATTERY CREEK FLOW THROUGH EXISTING 48" CMP.
- PLACE BARRICADES AND TRAFFIC CONTROL SIGNS AS SHOWN ON C9 TRAFFIC CONTROL PLAN.

DEWATERING NOTES:

1. DEWATER TRENCH AND WORK AREA WITH PUMP HOSE IF REQUIRED.
2. ALL DISCHARGE POINTS REQUIRE PERMANENT OR TEMPORARY VELOCITY CONTROLS.
3. PROVIDE FOR SEDIMENT REMOVAL FOR ALL DEWATERING ACTIVITY PRIOR TO DISCHARGE FROM THE PROJECT INTO ANY WATER OF THE U.S.
4. DEWATERING DISCHARGE POINT MUST BE LOCATED AT LEAST 100' FROM STREAM.

STEP 2

- EXCAVATE ROADWAY TO INSTALL 48" TEMPORARY DIVERSION CULVERT.
- BACKFILL ROAD AS NECESSARY OVER 48" CULVERT BEFORE MOVING EQUIPMENT OVER CULVERT.
- USE BULK BAGS (SUPER SACKS) TO DIVERT CREEK FLOW THROUGH THE 48" CULVERT.

DIVERSION NOTES:

TEMPORARY DIKES OR BERMS MAY BE USED TO ISOLATE THE WORK AREA FROM WATERS OF THE SURROUNDING AREA. THIS WORK MAY REQUIRE A DIVERSION OF STREAM WATER. THE DESIGNERS RECOGNIZE THAT DIFFERENT CONTRATORS WILL HAVE VARIOUS APPROACHES FOR CONTROLLING WATER AND CONSTRUCTION SEQUENCING. THIS DIVERSION PLAN HAS BEEN DEVELOPED TO CHECK FOR CONSTRUCTABILITY AND AS A STARTING POINT FOR A CONTRACTOR-GENERATED PLAN. MODIFICATIONS TO THIS PLAN DO NOT REQUIRE APPROVAL AS LONG AS THEY COMPLY WITH ALL PERMITS.

STATE OF ALASKA 49TH
Bradley M. Meloche
CE 11098
REGISTERED PROFESSIONAL ENGINEER
11/17/17

REVISIONS

REV	DATE	DESCRIPTION	BY

DOWL
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BATTERY CREEK FISH PASSAGE
BATTERY CREEK ROAD
STREAM DIVERSION PLAN
KODIAK, ALASKA

PROJECT 1137.62357.01
DATE NOVEMBER 2017

© DOWL 2017

SHEET
C7 OF C9

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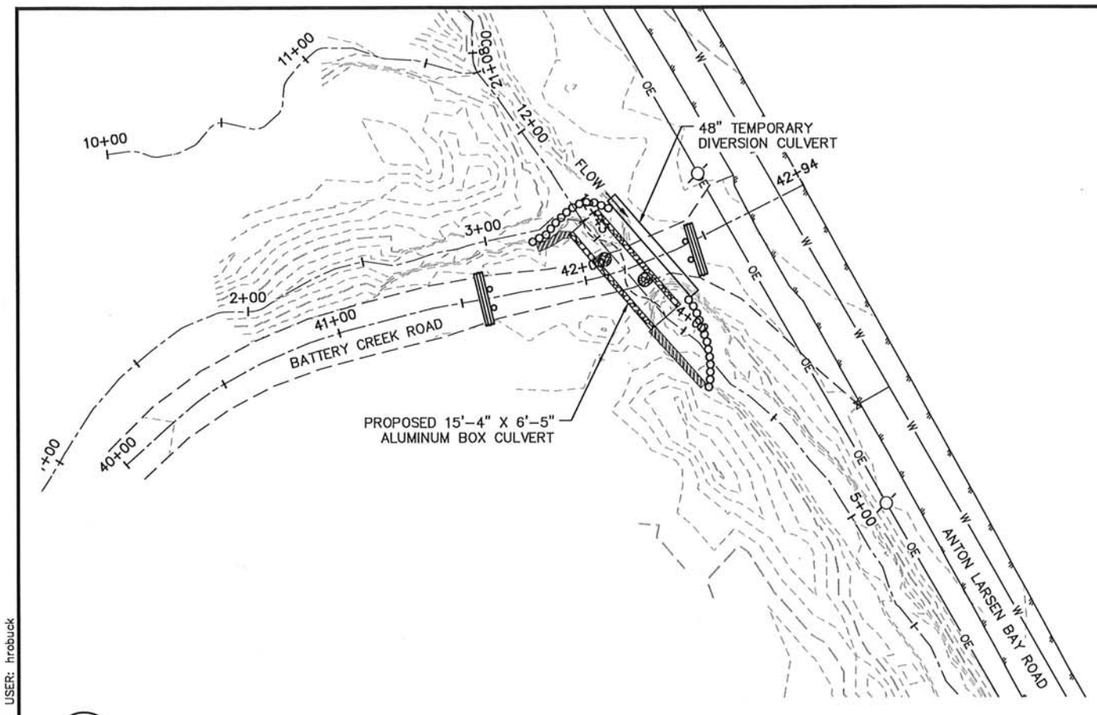
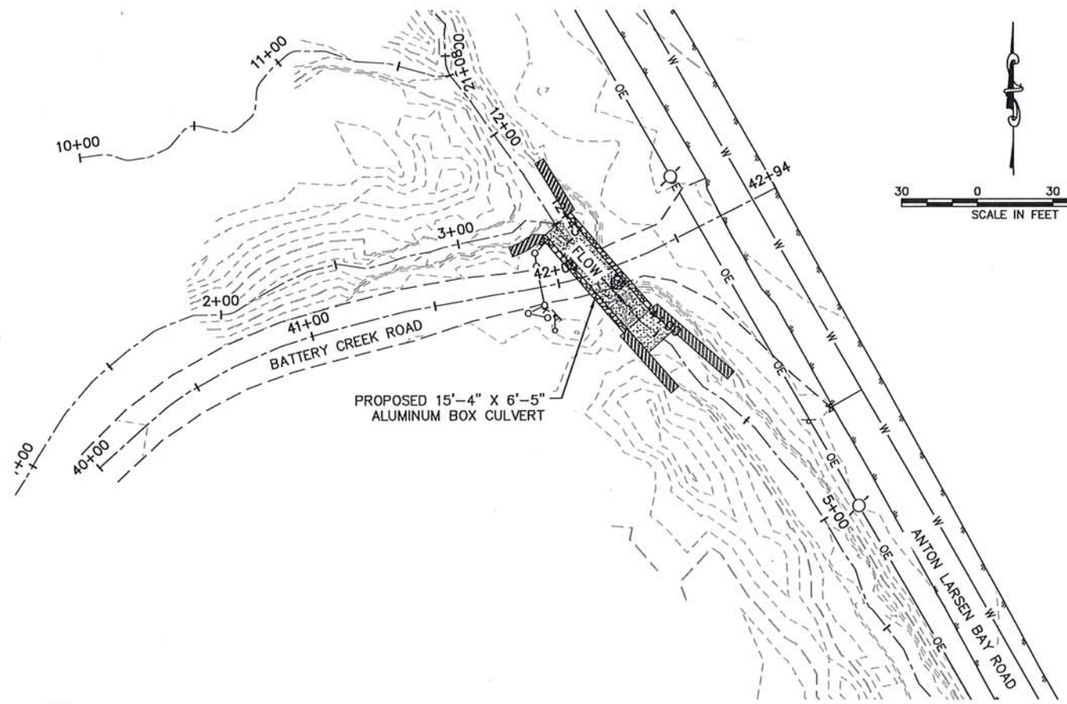


1 / C8 STEP 3
1" = 30'

STEP 3

- REMOVE ACCESS GATE AND SIGNS.
- EXCAVATE ROADWAY TO REMOVE EXISTING 48" CMP CULVERT AND CONSTRUCT THE NEW 15'-4" X 6'-5" ALUMINUM BOX CULVERT.
- INFILL CULVERT AND RECONSTRUCT CREEK CHANNEL AS SHOWN IN PLANS.
- RECONSTRUCT STREAM BANKS AS SHOWN IN THE PLANS.



30 0 30 60
SCALE IN FEET

2 / C8 STEP 4
1" = 30'

STEP 4

- DIVERT CREEK FLOW THROUGH THE NEW 15'-4" X 6'-5" ALUMINUM BOX CULVERT.
- REMOVE 48" TEMPORARY DIVERSION CULVERT.
- RECONSTRUCT STREAM BANKS AS SHOWN IN THE PLANS. ISOLATE WORK AREA WITH BULK BAGS OR SIMILAR AS NECESSARY.
- RECONSTRUCT BATTERY CREEK ROAD OVER THE NEWLY INSTALLED CULVERT. REPLACE ACCESS GATE AND SIGNS.
- STABILIZE AND REVEGETATE ALL REMAINING DISTURBED AREAS.
- RETURN VEHICULAR TRAFFIC TO BATTERY CREEK ROAD.

REVISIONS		
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BATTERY CREEK FISH PASSAGE
BATTERY CREEK ROAD
STREAM DIVERSION PLAN
KODIAK, ALASKA

STATE OF ALASKA
49TH
Bradley M. Melock
CE-11098
REGISTERED PROFESSIONAL ENGINEER

PROJECT 1137.62357.01
DATE NOVEMBER 2017

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SHEET
C8 OF C9

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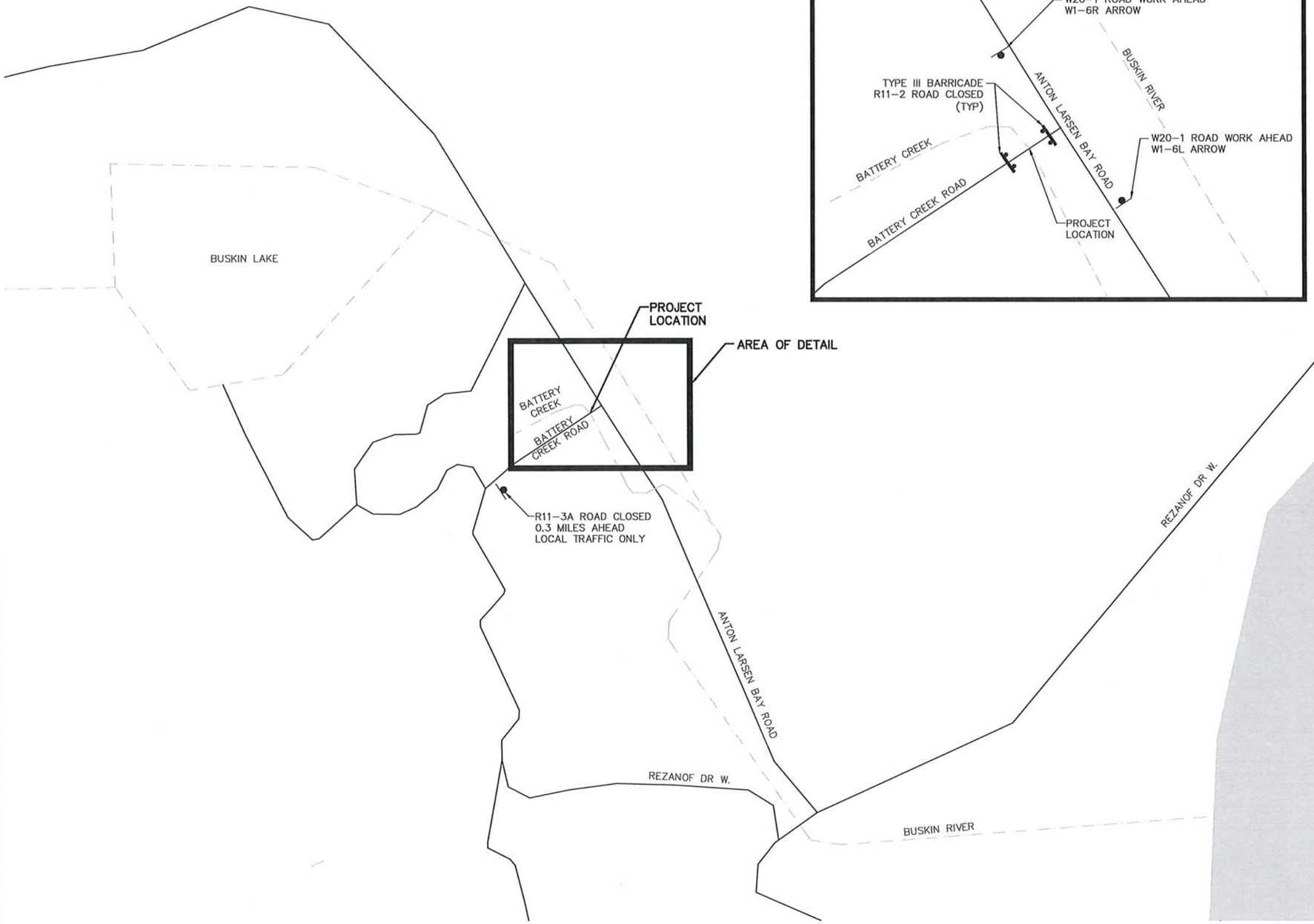

NOTES:

1. THIS TRAFFIC CONTROL PLAN IS PROVIDED FOR GUIDANCE ONLY. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLAN TO USCG FOR REVIEW AT LEAST 14 DAYS PRIOR TO ROAD CLOSURE.
   SUBMIT TO:
   STAN SKAW
   (907) 487-5192
2. MOUNT SIGNS ON TEMPORARY POSTS OR ATTACH TO EXISTING POSTS/POLES, IF AVAILABLE.

REVISIONS

REV	DATE	DESCRIPTION	BY

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BATTERY CREEK FISH PASSAGE
BATTERY CREEK ROAD
DETOUR PLAN

KODIAK, ALASKA

PROJECT 1137.62357.01
DATE NOVEMBER 2017

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SHEET
C9 OF C9

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MATERIALS CERTIFICATION LIST

PROJECT NAME: BATTERY CREEK FISH PASSAGE @ BATTERY CREEK ROAD

DESCRIPTION	CONSTRUCTION PROJECT ENGINEER	DESIGN ENGINEER OF RECORD	MANUFACTURER/REMARKS
203 EXCAVATION AND EMBANKMENT			
Aggregate Type E-1 Materials Analysis			
Borrow, Type A Materials Analysis			
611 RIPRAP			
Riprap Class IIA Materials Analysis			
618 SEEDING			
Seed Mix Certification			
Fertilizer			
620 TOPSOIL			
Topsoil Materials Analysis			
623 BLOCK SODDING			
623 Vegetated Mat Salvage and Replanting, Work Plan			
640 MOBILIZATION AND DEMOBILIZATION			
Record As-Built Drawings			
641 EROSION, SEDIMENT AND POLLUTION CONTROL			
Storm Water Pollution Prevention Plan (SWPPP)			
eNOI (if required)			
eNOT and Final SWPPP (if required)			
SWPPP Inspection Reports			
642 CONSTRUCTION SURVEYING			
Survey Personnel Qualifications & Equipment List			
Survey Field Notes			
646 CMP SCHEDULING			
Project Schedule			
643 TRAFFIC MAINTENANCE			
Traffic Control Plan			
Construction Phasing Plan			
Traffic Control Supervisor and Flagger Certifications			
672 STREAM DIVERSION AND DEWATERING			
Stream Diversion and Dewatering Plan			
690 WATERWAY			
Waterway bed and bank construction plan			
Stream Bed Material Analysis			

Federal Wage Rates
Davis Bacon Act

Can be found at: https://www.wdol.gov/dba.aspx

State of Alaska
Department of Labor & Workforce Development
Laborers' & Mechanics' Minimum Rates of Pay
(Pamphlet No. 600)

can be found at: http://www.labor.state.ak.us/lss/lssforms.htm