

SPECIAL PROVISIONS

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Project No. 0002432/NFHWHY00366
Kivalina Evacuation and School Site Access Road
Kivalina Lagoon to Kisimigjuqtuq Hill, Change Order #2

**SECTION 104
SCOPE OF WORK**

11/30/12 (H5)

Add the following subsection:

104-1.07 FROZEN GROUND. Frozen areas, ice lenses, and saturated soils may be encountered on this project and related material sources. Specific locations and specific content of frozen areas, ice lenses, and saturated soils are not defined. Any such area that may be encountered by the Contractor in the performance of the contract work will not be considered unforeseeable within the terms of the contract such as to entitle the Contractor to any adjustment in contract price or contract time. Reference is made to Subsection 203-3.03 of these Specifications.

**SECTION 106
CONTROL OF MATERIAL**

04/30/17 (N2)

106-1.02 MATERIALS SOURCES.

1. General. Add the following subparagraph:

- j. If pre-existing, naturally occurring, hazardous material is encountered in any Material Source under Department ownership, management, or permit; the Department will pay in accordance with Section 109-1.05 for the proper handling and disposal of the hazardous material. Avoid excavation activity in the vicinity of the hazardous material. The Department will not be liable for any delays or impacts to the production of any materials items due to encountering the hazardous material. Contractor shall adhere to Subsection 107-1.11(6). Nothing in this subsection relieves the Contractor of any statutory liability.

**SECTION 203
EXCAVATION AND EMBANKMENT**

01/20/15 (N8)

203-3.01 GENERAL. Add the following to the eighth paragraph: Disposal in wetlands is prohibited, except as described in Subsection 107-1.11.

Add the following after the eighth paragraph: The Contractor shall certify in writing to the Engineer that all permits and clearances relating to all waste disposal sites selected by the Contractor have been obtained prior to any clearing or ground disturbance in the disposal site.

203-3.03 EMBANKMENT CONSTRUCTION. Delete the eleventh and twelfth paragraphs and substitute the following: Place rock embankment in lifts not thinner than the thickness of the largest rocks for full width of the embankment and compact as specified before the next layer is placed. Rock is considered usable material, regardless of size. Restrict maximum rock dimension to 2 feet when placing within 4 feet from finish grade. Distribute spalls and finer rock and earthen fragments to level and smooth each lift. Dump rock and earthen material on the lift being constructed and distribute by blading or dozing to fill voids and to form a dense, well-compacted embankment.

Delete the thirteenth paragraph and substitute the following: Construct to top of subgrade so it will not vary more than 0.25 ft when tested using a 10 ft straightedge nor vary more than 0.25 ft from the established grade. Construct finish grade so it will not vary more than 0.10 ft when tested using a 10 ft straightedge nor vary more than 0.10 ft from the established grade.

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01/20/15 (N11)

Delete the fourteenth paragraph and substitute the following: When embankments are to be constructed across wet or swampy ground, which will not support the weight of heavy hauling and spreading equipment, the Contractor shall choose such methods of embankment construction and use such hauling and spreading equipment as will least disturb the soft foundation. When soft foundations are encountered, and when approved by the Engineer, the lower part of the fill may be constructed by dumping and spreading successive vehicle loads in a uniformly distributed layer of a thickness not greater than that necessary to support the vehicle while placing subsequent layers, after which the remainder of the embankment shall be constructed in layers and compacted as specified.

It is not the policy of the State to allow an increase in the planned depth of embankment material over soft, wet, or swampy ground for the sole purpose of providing support for heavy hauling and spreading equipment, unless the Contractor proves to the satisfaction of the Engineer that the planned depth is inadequate to support light hauling vehicles. If use of smaller hauling vehicles or different methods of embankment construction than originally contemplated are necessary to comply with the foregoing, such shall not be the basis for a claim for extra compensation. The contract unit price for the various pay items involved shall be full compensation for all labor, materials, and equipment necessary to perform the work outlined herein.

Apply calcium chloride to finished grade per Section 624.

Add the following subsection:

203-3.06 TEMPORARY ACCESS. Construct and maintain temporary access features including temporary access to water/ice sources, temporary lagoon crossings, and snow removal as needed to support completion of other contract work. Contractor is responsible for the design, route selection and suitability of temporary access features. Contractor is solely responsible for acquiring necessary permits, clearances, and land use permissions associated with temporary access features.

203-4.01 METHOD OF MEASUREMENT. Delete subparagraph 1 and substitute the following:

1. Items 203(1) through 203(4) and 203(8). The volume measured in original position. Stockpiled material remaining in the pit and not incorporated into the project will be deducted from the volume for payment using a conversion factor of 0.67, which assumes a swell of 50% from original position to the stockpile.

Add the following:

9. Item 203(5) shall be calculated by the following:

Volume of Rock Excavation, minus the volume of selected material modified, riprap, structural fill, and armor rock multiplied by their respective conversion factor in subsection 203-4.02.

10. Item 203.2006.0000 By neatline.

01/20/15 (N12)

Add the following: Borrow will not be weighed or used while free moisture is observed draining from the haul vehicle at the scale location.

203-4.02 CONVERSION FACTORS.

Conversion factors are intended for use in calculating the volume of 203(5), Borrow Type B for payment, per section 203-4.01.

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Item Description	Conversion Factor In-place to original position (Bank)	Conversion Factor Stockpiled material to original position (Bank)
Borrow, Type B	0.74 (35% swell)	0.67 (50% swell)
Selected Material Modified, Type B	0.83 (20% swell)	0.67 (50% swell)
Structural Fill	0.83 (20% swell)	0.67 (50% swell)
Riprap Class I	0.83 (20% swell)	0.67 (50% swell)
Riprap Class II	0.72 (40% swell)	0.67 (50% swell)
Armor Rock (RipRap, Class III)	0.72 (40% swell)	0.67 (50% swell)

203-5.01 BASIS OF PAYMENT. *Add the following:*

Item 203.2036.0000 - Temporary Access includes all work required to procure permits, investigate and determine the suitability of route(s), construct temporary access to water/ice sources, temporary lagoon crossings, and snow removal as needed to support completion of other contract work.

Item 203(2), Rock excavation includes all work required to excavate material, and does not include work required to sort, stockpile, or place the material.

Selected Material Modified, and Borrow items include all work required to sort, stockpile, and place material, and does not include work required to excavate the material. Application of calcium chloride is included in the price for Selected Material Modified.

Price for Selected Material Modified, Borrow and Rock Excavation assumes the material is produced at K-Hill. If material is produced from a source other than K-Hill, the price may be modified as mutually agreed by the Contractor and Engineer.

Add the following pay items:

Pay Item	Pay Unit
203.2036.0000 Temporary Access	Lump Sum
203.2006.0000 Selected Material Modified, Type B	Cubic Yard

**SECTION 204
AGGREGATES**

204-2.01 MATERIALS. *Delete the first paragraph and substitute the following:* Use Selected Material, Type B (Subsection 703-2.07) smaller than 4" for bedding material, and for backfill material to 12 inches above the pipe, except as modified by the Plans.

204-3.01 CONSTRUCTION REQUIREMENTS. *Delete the third paragraph and substitute the following:* Place bedding and backfill in uniform layers not more than 1 foot deep, and compact to meet Subsection 203-3.04. Ponding or jetting is not permitted.

**SECTION 205
EXCAVATION AND FILL FOR MAJOR STRUCTURES**

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205-4.01 METHOD OF MEASUREMENT. *Delete subparagraph 2 and substitute the following:*

2. Structural Fill. By the actual volume of material accepted in final position.

205-5.01 BASIS OF PAYMENT. *Add the following:* Price for structural fill includes all work required to sort, stockpile, and place material. Price assumes the material is produced at K-Hill and excavation is subsidiary to Item 203(2) Rock Excavation. If material is produced from a source other than K-Hill, the price may be modified as mutually agreed by the Contractor and Engineer.

SECTION 501 CONCRETE FOR STRUCTURES

501-2.01 MATERIALS.

4. Anchors and Inserts *Add the following:*

Carriage Bolts

ASTM 307 Galvanized

501-3.13 PRECAST CONCRETE MEMBERS.

1. Shop Drawings. *Add the following:* If precast concrete pile cap beams are approved, meet the requirements of NCHRP Report 681 (Development of a Precast Bent Cap System for Seismic Regions, 2011).
4. Erection. *Add the following:* Do not place load on any precast panel until all leveling screws are in contact with the steel girders. Do not place grout until all precast deck panels are installed and approved by the Engineer. Erect precast deck panels so the top surface matches the roadway grade.

SECTION 503 REINFORCING STEEL

503-3.05 SPLICING.

2. Electric Resistance Butt Welded Joints.

c. Testing/Inspection. *Delete in its entirety and substitute the following:*

Perform job control tests using a testing laboratory with experience with ASTM A370 and California Test Method 670. A job control test consists of the fabrication, under the same conditions used to produce the splice, and the physical testing of 4 sample splices for each lot of splices. An authorized Department representative will designate when samples for job control tests are to be fabricated and will determine the limits of the lot represented by each job control test.

A lot of shop produced resistance welded butt joints is defined as no more than 150 splices of the same type of welds used for each combination of bar size and bar deformation pattern that is used in the work.

The Engineer or the Engineer's authorized representative shall witness the job control tests performed by the testing laboratory. Give the Engineer at least 7 working days' notice before beginning control tests.

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Identify sample splices with tamper proof and weatherproof markings prior to shipment to the testing laboratory.

The sample shall consist of a resistance welded butt splice bar and a control bar that are identified and marked as a set. The same reinforcing bar (hoop) may be used to provide the test weld and control bar.

Test each sample to failure in accordance with ASTM A706, ASTM A370 and California Test Method 670. Determine the ultimate tensile strength for all control bars by testing the bars to failure.

The production lot will be rejected if:

- (1) a sample fails within one bar diameter of the splice at less than 95 percent of the ultimate tensile strength of the associated control bar
- (2) necking of the bar prior to rupture, as defined in California Test Method 670, is not observed
- (3) a sample does not meet the mechanical requirements of ASTM A706 Grade 60

4. Mechanical Butt Splices.

- c. Qualifications and Submittals. *Delete in its entirety and substitute the following:* A splice will be considered qualified if the splice can develop a minimum tensile strength of 80000 psi, based on the nominal bar area, and the bars within the splice do not exceed a total slip shown in Table 503-3, when tested according to the relevant material ASTM, ASTM A370 and California Test Method 670.

**TABLE 503-3
TOTAL SLIP LENGTH**

Reinforcing Bar No.	Total Slip (inch)
4	0.020
5	0.020
6	0.020
7	0.028
8	0.028
9	0.028
10	0.036
11	0.036
14	0.048
18	0.060

Submit the following information:

- (1) the manufacturer's name;
- (2) the name of the product or assembly;
- (3) the lot, heat, or batch number that identifies the splice;
- (4) the bar grade and size number to be spliced by the material;
- (5) a complete description of the splice and installation procedure; and,

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(6) test results indicating the splice, used according to the manufacturer's procedures, complies with the minimum tensile strength requirements and the total slip requirements.

- d. Testing/Inspection. Delete in its entirety and substitute the following: Perform job control tests consisting of the fabrication, under conditions used to produce the splice, and tensile testing of 6 sample splices for each lot of splices. The Engineer will designate when samples for job control tests are to be fabricated and will determine the limits of the lot represented by each job control test.

A lot of mechanical butt joints is defined as no more than 150 splices of the same type of mechanical butt splice used for each combination of bar size and bar deformation pattern that is used in the work.

Make splice samples using the same splice materials, position, equipment, and following the same procedures as used to make splices in the work. Make splice samples at least 5 feet long with the splice at mid-length. Shorter sample splice bars may be used if approved by the Engineer.

Perform job control tests in the presence of the Engineer. Splices tested in the absence of the Engineer may be rejected. Notify the Engineer, in writing, at least 7 working days prior to performing testing.

Identify sample splices with weatherproof markings prior to shipment to the testing laboratory. Test each sample according to the relevant material ASTM, ASTM A370 and California Test Method 670. Tensile test each sample until partial or total fracture of the parent bar material, mechanical splice material, or bar-to-splice connection.

All splices in the lot represented by a test will be considered to meet the tensile strength requirements when the minimum individual tensile strength of the sampled splices is not less than 80000 psi, based on the nominal bar area.

5. Mechanical Lap Splices.

- b. Qualifications. Delete in its entirety and substitute the following: A splice will be considered qualified if the splice can develop a minimum tensile strength of 75000 psi, based on the nominal bar area, when tested according to the relevant material ASTM, ASTM A370 and California Test Method 670.

Submit the following information:

- (1) the manufacturer's name;
- (2) the name of the product or assembly;
- (3) the lot, heat, or batch number that identifies the splice;
- (4) the bar grade and size number to be spliced by the material;
- (5) a complete description of the splice and installation procedure; and,
- (6) test results indicating the splice, used according to the manufacturer's procedures, complies with the minimum tensile strength requirements.

- c. Testing/Inspection. Delete in its entirety and substitute the following: Perform job control tests consisting of the fabrication, under conditions used to produce the splice, and tensile testing of 6 sample splices for each lot of splices. The Engineer will designate when samples for job control

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tests are to be fabricated and will determine the limits of the lot represented by each job control test.

A lot of mechanical butt joints is defined as no more than 150 splices of the same type of mechanical butt splice used for each combination of bar size and bar deformation pattern that is used in the work.

Make splice samples using the same splice materials, position, equipment, and following the same procedures as used to make splices in the work. Make splice samples at least 5 feet long with the splice at mid-length. Shorter sample splice bars may be used if approved by the Engineer.

Perform job control tests in the presence of the Engineer. Splices tested in the absence of the Engineer may be rejected. Notify the Engineer, in writing, at least 7 working days prior to performing testing.

Identify sample splices with weatherproof markings prior to shipment to the testing laboratory.

Test each sample according to the relevant material ASTM, ASTM A370 and California Test Method 670. Tensile test each sample until partial or total fracture of the parent bar material, mechanical splice material, or bar-to-splice connection.

All splices in the lot represented by a test will be considered to meet the tensile strength requirements when the minimum individual tensile strength of the sampled splices is not less than 75000 psi, based on the nominal bar area.

503-3.06 HEADED BAR REINFORCING STEEL. *Delete this subsection in its entirety and substitute the following:* Use headed bar reinforcing steel consisting of deformed reinforcing steel bars with a head attached to one or both ends. Attachment can be accomplished through welding or forging of heads onto the bar ends, by internal threads in the head mating to threads on the bar end or by a separate threaded nut to secure the head to the bar. Heads may be forge formed, machined from bar stock, or cut from plate.

Perform production control tests consisting of the installation, using the same procedure as used in the work, and tensile testing of 3 sample headed bar assemblies for each lot of heads.

A production lot of headed bar reinforcing steel is defined as no more than 150 headed bar assemblies of the same bar size, with heads of the same size and type, and manufactured by the same method, produced from bar material of a single heat number and head material of a single heat number. For bars having heads on both ends, the bar will be counted as 2 reinforcing steel bars for the purposes of establishing and testing production lots.

Test each sample according to ASTM A970.

All headed bar assemblies in the lot represented by a test will be considered to meet the tensile strength requirements when the minimum individual tensile strength of the sampled headed bar assemblies meets the tensile strength requirements of ASTM A970. Failure of one or more sample headed bar assemblies will result in the rejection of the entire lot.

Provide the test reports to the Engineer for approval prior to placing concrete.

SECTION 504 STRUCTURAL STEEL

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504-3.01 FABRICATION.

4. Bolt Holes. *Delete in its entirety and substitute the following:* Drill bolt holes. Make finished bolt holes 1/16 inch larger than the nominal diameter of the bolt. Ensure holes are clean cut without burrs or ragged edges. Material with poorly matched holes will be rejected.

When material forming parts of a member is composed of not more than 5 thicknesses of metal, and whenever the thickness of the metal is not greater than 3/4 inch for structural carbon steel or 5/8 inch for alloy steel drill the holes to full size.

When there are more than 5 thicknesses or when any of the main material is thicker than 3/4 inch in carbon steel, or 5/8 inch in alloy steel, or when required under paragraph 7 below, subpunch or subdrill the holes 3/16 inch smaller. After assembling, ream them to size or drill them from the solid to full size.

Ream holes cylindrical and perpendicular to the member. Direct reamers mechanically, where practicable.

Ream and drill using twist drills. Assemble connecting parts requiring reamed or drilled holes and securely hold them while reaming or drilling them. Match mark them before disassembling.

Subpunch (or subdrill if required) holes for field connections and field splices of continuous beams while assembled in the shop. Obtain approval of the assembly, including camber, alignment, and accuracy of holes and milled joints before beginning reaming.

When partial assembly is permitted ream holes for web member connections with steel templates.

Ream or drill the full size of the field connection through templates after carefully locating the templates as to position and angle and firmly bolting them. Use exact duplicate templates used to ream matching members or the opposite faces of one member. Accurately locate templates for connections that duplicate so that like members are duplicates and require no matchmarking.

Accurately subpunch or subdrill holes so that after assembling (before reaming), a cylindrical pin 1/8 inch smaller in diameter than the nominal size of the punched hole may be entered perpendicular to the face of the member, without drifting, in at least 75 percent of the contiguous holes in the same plane. If the requirement is not fulfilled, the badly punched pieces will be rejected. If any hole will not pass a pin 3/16 inch smaller in diameter than the nominal size of the punched hole, the material will be rejected.

Ream or drill holes so that 85 percent of the holes in any contiguous group after being reamed or drilled show no offset greater than 1/32 inch between adjacent thicknesses of metal.

Provide in steel templates hardened steel bushings in holes accurately dimensioned from the center lines of the connection as inscribed on the template. Use the center lines to locate accurately the template from the milled or scribed ends of the members.

SECTION 505 PILING

505-1.02 DEFINITIONS. *Add the following:*

FROZEN GROUND. Seasonal or perennially frozen soil below the natural freezing point.

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WAVE EQUATION ANALYSIS. Delete in its entirety and substitute the following: A numerical method of analysis for the behavior of driven piles that predicts the pile capacity versus blow count relationship (bearing graph) and pile driving stress. Wave equation analysis is performed using a commercially available wave equation analysis program (WEAP) with a version dated 2010 or later.

505-3.01 PILE DRIVING EQUIPMENT.

2 Pile Driving Plan. Add the following:

f. Alternate methods of pile installation through frozen ground while advancing the piles to the estimated pile tip elevation.

3. Wave Equation Analysis. Add the following to the first paragraph: The Wave Equation Analysis should consider advancing piles through frozen ground and the effects on driveability. The Wave Equation Analysis should be stamped by a Professional Engineer registered in the State of Alaska.

505-3.02 PILE TESTING AND PILE DRIVING CRITERIA. Delete this subsection in its entirety.

505-3.03 DRIVING PILES. Delete the first sentence and substitute the following: Drive all piles to the minimum penetration specified in the Contract documents.

Add the following:

6. Frozen Ground. Use alternate methods to drive through frozen ground. Obtain written approval from the Engineer before employing any alternative methods of pile advancement. If predrilling is used, the maximum predrilling diameter should be no greater than 90 percent of the pile diameter and predrilling should not be used within three feet of the estimated pile tip elevation.

After exhausting all practicable means to obtain the minimum penetration, but without success, the Engineer will evaluate the structural adequacy of the bridge at a lesser penetration. This review will be based on the resistance of the pile during driving. If the Engineer finds the structure to be adequate, the pile will be accepted at the lesser pile penetration.

**SECTION 516
EXPANSION JOINTS AND BEARINGS**

516-3.03 WATERSTOPS. Delete this subsection in its entirety and substitute the following: Furnish and install a waterstop sealant system where specified on the Plans. Maximize continuity using full-length segments of waterstop strip tape for straight portions of joints.

Furnish a waterstop that is capable of accommodating joint movement equal to half the bearing pad height or as shown on the Plans.

Follow the manufacturer's instructions for waterstop adhesive and strip application.

Blast clean concrete surfaces to receive waterstops to the manufacturer's specification. Surfaces must be clean and dry according to manufacturer's instructions when the adhesive is applied.

Thermally bond overlapping waterstop segments according to manufacturer's instructions. Overlap segments as per the manufacturer, but no less than 2 inches.

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Do not damage waterstop when backfilling adjacent to the system and structure. Remove and replace damaged waterstops at no additional cost to the Department.

**SECTION 603
CULVERTS AND STORMDRAINS**

01/20/15 (N21)

603-3.03 JOINING PIPE. Delete numbered subparagraphs 2.a.2) & 3) and substitute the following:

- (2) Bands shall have a minimum width of 22 inches.

Delete numbered subparagraphs 2.b.2), 3) and 4) and substitute the following:

- (2) Bands shall have a minimum width of 22 inches and shall have two circumferential rows of projections for each pipe end being joined.
- (3) Furnish and install these bands with a gasket that resists infiltration and leakage.

Delete Section 611 in its entirety and substitute the following:

**SECTION 611
RIPRAP AND ARMOR ROCK**

611-1.01 DESCRIPTION. This work shall consist of furnishing all plant, labor, equipment and materials, and performing all operations concerning the sorting, stockpiling, acceptance testing prior to placement, and placement of rock for bridge abutment protection, culvert aprons, and causeway armoring in conformance with the plans and specifications.

611-2.01 MATERIALS. Conform to the following quality and gradation requirements. Submit a quarrying, blasting and processing plan to the Engineer for the rock material types listed in the specification. Do not place materials prior to acceptance.

Provide rock materials in accordance with the gradation specified below. Rock material shall not be elongated or tabular. The minimum dimension of each individual stone shall be at least one-third of the rock's maximum dimension. The face of individual rocks shall be roughly angular, not rounded, in shape. Provide rock that conforms to the specified rock size requirements after processing. Conduct loading, placement or stockpiling operations in a manner that minimizes breakage.

Rock materials shall be of the weight and gradations specified. All rock shall be uniformly graded between the limits specified as determined by relative size or weight to the extent possible. The types of rock are classified by their application and median weight. Gradation shall be based on percent smaller by rock count as shown in Table 611-1.

**TABLE 611-1
ABUTMENT AND CAUSEWAY PROTECTION
MATERIAL CLASSIFICATION SCHEDULE**

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ROCK MATERIAL TYPE	WEIGHT (LBS.)	NOMINAL DIAMETER. (INCHES)	PERCENT SMALLER (BY ROCK COUNT)
RipRap, Class I	85	10	100
	50	8	50 to 100
	25	6	0 to 50
RipRap, Class II	1320	24	95 to 100
	165	12	50 to 100
	25	6	0 to 50
Armor Rock (RipRap, Class III)	5400	38	100
	1200	24	50 to 100
	50	8	0 to 15
Nominal Diameter shown is for informational purposes only and shall not be used for calculation of weight.			

CONSTRUCTION REQUIREMENTS

611-3.01 GENERAL. Stockpile material in lifts not exceeding 7.5 feet with the final height of the stockpile not exceeding 15 feet. Any method of stockpiling that causes segregation within the stockpile or excessive breakage is not permitted. Do not stockpile material in wetlands.

All rock materials shall be placed uniformly within the slope lines and grades shown on the drawings or as directed by these specifications. Rock shall be placed by equipment suitable for handling material of the sizes specified. All rock shall be placed beginning at the bottom of the section. The rock shall be placed to produce a dense mass of rock with maximum interlocking and minimum voids.

Place rock material in a manner that produces a well-keyed mass of stone, with each individual stone having at least three points of contact with adjacent stones. Ensure that finished surfaces of all layers are free from pockets of single-sized rocks. Placement of small rock to choke the spaces between large rocks or for leveling the surface is not permitted. Breaking of individual pieces in place by blasting or mechanical methods is not permitted.

611-3.02 SORTING. Provide a level, compact area large enough to place and sort stone at approved location(s). Place the loads specified in this area and assist the Engineer as needed to sort and measure the stones in the load to determine if the stone is within specifications. Provide the equipment needed to assist in this sorting. Stockpile each class of stone separately to prevent mixing of different stone gradations.

611-3.03 PROTECTION OF WORK.

1. Incomplete Work. The Contractor shall be responsible for monitoring weather reports and tides and taking preventative action against climatic conditions which may damage the structure. Abutment/causeway exposed prior to placement of permanent rock protection shall be at the Contractor's risk. In the event that an unprotected portion of the abutment/causeway is damaged, the damaged portion shall be replaced or reshaped, as approved by the Engineer, at no additional cost to the Department. The Contractor shall advise the Engineer of situations arising that may result in a possible interruption of the work.

Material used for temporary protection of exposed abutment/causeway areas shall be property of the Contractor and shall be removed upon completion of its use. Minimum temporary protection

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shall be determined by the Contractor subject to approval by the Engineer. Temporary protection material may be incorporated into the required permanent construction if it meets the specified requirements. No payment will be made for temporary protection unless, and until, it is specifically incorporated in the final construction.

2. Completed Work. The Contractor shall make all necessary repairs to work damaged prior to the final inspection and acceptance by the Engineer. No additional payment shall be made for such repairs.

611-3.02 PLACEMENT.

1. General. Prior to material placement, the Contractor shall establish clear and understandable construction control for the workers. The minimum control shall delineate the horizontal limits of all rock classes, both toe and shoulder lines. Unless specified in writing, the limits of the in-place rock shall follow the slope lines and grades indicated on the drawings within tolerances specified below for each type of rock.
2. RipRap, Class I and II. Place in a manner that avoids displacing underlying materials. Placement by methods likely to cause segregation, such as end dumping, side dumping or pushing into position with earth-moving equipment, are not permitted. Obtain the desired distribution of various sizes of rock throughout the mass by selective loading and by controlled placement of successive loads during placement. Ensure that placed rock is graded uniformly avoiding pockets of single sized stones.

Final shaping shall be accomplished as the material is placed. A tolerance of zero to plus six (6) inches from the slope lines and grades, as shown on the drawings, measured perpendicular to the theoretical surface, will be allowed. The extreme limits of tolerance shall not be continuous over an area greater than 500 square feet of slope surface.

3. Armor Rock (RipRap, Class III). Place in a manner that avoids displacing underlying materials. The rocks shall be placed with maximum contact and interlocking with adjacent rocks. To the extent possible, all rocks, when placed, shall be stable, keyed, and interlocked, to obtain the desired distribution of various sizes of rock throughout the mass by selective loading and by controlled placement of successive loads during placement. Re-handling of individual rocks after initial placement may be required to achieve the above requirements. Proposed construction equipment shall be able to re-pick and re-place a rock, if necessary, to place in its final position. Ensure that placed rock is graded uniformly avoiding pockets of single-sized stones.

Final shaping shall be accomplished as the material is placed. A tolerance of plus twelve (12) to minus six (6) inches from the slope lines and grades, as shown on the drawings, measured perpendicular to the theoretical surface, will be allowed. The extreme limits of tolerance shall not be continuous over an area greater than 500 square feet of slope surface.

4. Unacceptable Materials. Material that is out of grade, broken, has visible cracks, or is otherwise out of conformance with these specifications, shall be rejected, removed and replaced with new rocks at no cost to the Department.

611-3.03 QUALITY CONTROL. Establish and maintain quality control for stone to assure compliance with contract requirements and to maintain records of its quality control for all operations. Produce stone of the gradation specified, verifying gradations at the production site according to Section 611-2.01 prior to hauling from the production site.

Tests to verify the acceptability of stones delivered to the project site will be by visual inspection and measurement. The Engineer may reject materials not found to meet the specified requirements at any time during the performance of the contract, at the source or project site.

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- a. Test stone material for gradation and shape to assure compliance with the specifications. Conduct tests at the production site before transporting materials to the project site. Place materials that do not meet the specified requirements in a separate area to assure they do not get mixed in with acceptable materials. Perform tests at uniform intervals throughout the project to meet testing frequency requirements.
- b. Before sorting and stockpiling rock for delivery to the project site, meet with the Engineer, or designee, at the production site and select stones that meet the required gradation and shape. Set aside stones at the production site as reference samples. Select reference samples representing the minimum and maximum gradations for each stone classification and clearly mark and retain until completion of the project.

Testing frequency for this project is shown below, and is to be carried out by the Contractor or as directed by the Engineer.

<u>STONE</u>	<u>TYPE OF TEST</u>	<u>NO. OF TESTS</u>
RipRap, Class I	Visual Inspection Measurement	10% of Stones As requested
Armor Rock (RipRap, Class III)	Visual Inspection Measurement	10% of Stones As requested

Failing tests do not count toward the number of tests required. Increase testing frequency as necessary to maintain quality control during production.

1. **Visual Inspections.** Perform a visual check of the rock material at the production site for elongation, cracks, deterioration, and other defects visible to the naked eye, on at least $\frac{2}{3}$ of the surface area of the stone. Do not transport stones with cracks that are detrimental to stone longevity to the placement site.
2. **Measurement.** Measure rocks on three mutually perpendicular axes and compute weight using the specified bulk specific gravity, saturated surface dry (SSD). Record computed weights and measurements daily and provide signed copies to the Engineer before the start of the next work shift. Select rocks for measurement that represent all sizes specified in order to verify conformance with specified shape and grading limits.

Provide quality test results meeting the following requirements. K-Hill is anticipated to produce all rock material. If K-Hill cannot meet quality specifications, quality specifications may be modified as approved by the Engineer.

All rock shall meet the quality test requirements provided in Table 611-2.

**TABLE 611-2
QUALITY TEST REQUIREMENTS**

PROPERTY	TEST PROCEDURE	LIMITS
Specific Gravity (SSD)	AASHTO T-85	Min. 2.63
Soundness (Sodium Sulfate)	ASTM C-88	Max. Loss 5%

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Abrasion (LA) (Qualitative Test)	ASTM C-535	Max. Loss 10% after 200 revs and 50% after 1000 revs
Degradation	ATM T-313	Min. 40
Absorption	ASTM C-127	Max. 2%

611-4.01 METHOD OF MEASUREMENT. Section 109, by neat line volume. No payment will be made for material placed in excess of the specified tolerances.

611-5.01 BASIS OF PAYMENT. Payment includes sorting, stockpiling, hauling and placing riprap and armor stone.

Price assumes the material is produced at K-Hill and excavation is subsidiary to Item 203(2) Rock Excavation. If material is produced from a source other than K-Hill, the price may be modified as mutually agreed by the Contractor and Engineer.

Payment will be made under:

Pay Item	Pay Unit
611.0001.0001 Riprap, Class I	Cubic Yard
611.0001.0002 Riprap, Class II	Cubic Yard
611.2001.0000 Armor Rock	Cubic Yard

Delete Section 613 in its entirety and substitute the following:
01/20/15 (N25)

**SECTION 613
MONUMENTS AND MARKERS**

613-1.01 DESCRIPTION. This work consists of furnishing and installing culvert marker posts in conformance with the plans and specifications or as directed.

613-2.01 MATERIALS. Steel mounting supports shall conform to the requirements of ASTM A 36. Steel mounting supports and fasteners for culvert marker posts shall be galvanized in accordance with AASHTO M 232.

Culvert marker posts shall be Carsonite CIB-380 flexible markers, or approved equal.

613-3.01 CONSTRUCTION REQUIREMENTS. Culvert marker posts shall be installed as detailed on the plans.

613-4.01 METHOD OF MEASUREMENT. The quantities paid for shall be the actual number of culvert marker posts furnished, installed, and accepted.

If Item 613(2) does not appear on the bid schedule all costs associated with providing and installing culvert marker posts shall be considered subsidiary to culvert installation and will not be measured or paid for separately.

613-5.01 BASIS OF PAYMENT. Culvert marker posts shall be paid for at the contract price, per unit of measurement, for the pay item shown in the bid schedule.

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Payment will be made under:

Pay Item	Pay Unit
613(2) Culvert Marker Post	Each

**SECTION 615
STANDARD SIGNS**

04/30/17 (N26)

615-2.01 MATERIALS.

4. Delineators. Add the following: Delineators shall be of flexible design. The following flexible delineators are approved for use:

Carsonite: Road Marker
Carsonite: Curve Flex
Safe-Hit Corp: Flexible Guide Post

The Contractor may submit an alternate for consideration by the Engineer.

615-3.01 CONSTRUCTION REQUIREMENTS. Add the following to numbered paragraph 4: The delineators shall be located uniformly 4 feet to 8 feet from the outside shoulder edge unless noted otherwise on the Plans. The reflector shall be 3" x 12" yellow or white reflective sheeting (one or two sides) meeting the requirements of Subsection 730-2.03, the Plans, and Standard Drawing T-05.10. The reflector shall be mounted so that the top of the reflector is 4 feet above the surface of the shoulder.

01/20/15 (N27)

615-3.01 CONSTRUCTION REQUIREMENTS. Delete numbered subparagraph 8 in its entirety and substitute the following:

8. All materials and finished signs are subject to inspection and acceptance in place.
- a. Surfaces exposed to weathering must be free of defects in the coating.
 - b. Finished signs must be clean and have no chatter marks, burrs, sharp edges, loose rivets, delaminated reflective sheeting, oxidation, corrosion, other blemishes, aluminum marks, or unapproved coatings. Do not make repairs to the face sheet.
 - c. Replace any finished sign not meeting a. and b. with a replacement sign at no cost to the Department.

11/01/16 (N68)

615-5.01 BASIS OF PAYMENT. Delete the first sentence and substitute the following: Sign posts, bases, mounting hardware and all traffic control devices necessary for removal, installation, reconstruction, or maintenance of 615 Pay Items are subsidiary.

Delete Section 618 in its entirety and substitute the following:

01/20/15 (N30)

**SECTION 618
SEEDING**

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618-1.01 DESCRIPTION. It is the intent of this work that a uniform living vegetative cover be established according to the Plans and Specifications. This work consists of soil preparation, seeding, fertilizing, mulching, and establishing, and maintaining vegetated areas.

618-2.01 MATERIALS. Use materials that conform to the following:

Seed	Section 724
Fertilizer	Section 725
Mulch	Subsection 727-2.01
Water	Subsection 712-2.01

CONSTRUCTION REQUIREMENTS

618-3.01 SOIL PREPARATION. Clear all areas to be seeded of stones 4" and larger in diameter and of all weeds, plant growth, sticks, stumps and other debris or irregularities which may interfere with the seeding, establishment, and maintenance of the vegetated areas.

Prior to the application of seed, prepare slopes using one or more of the following methods, or as approved by the Engineer:

1. Manual Raking – Requires manual labor with landscaping rakes to produce a uniform pattern of grooves perpendicular to the fall of the slope.
2. Mechanical Raking - Requires the use of a scarifying slope board to produce grooves with an approximate width and depth of 1", and no more than 6" apart. The resultant indentations shall leave a uniform pattern of grooves perpendicular to the fall of the slope.
3. Mechanical Track Walking - Requires operating tracked equipment in such a manner as to leave a uniform pattern of grooves perpendicular to the fall of the slope.

618-3.02 SEEDING SEASON. Perform seeding after the ground is free of snow and no sooner than May 15 and no later than August 15. Perform seeding when wind conditions, climatic conditions, and soil conditions will not hinder seeding and establishment.

618-3.03 APPLICATION METHOD. Use the Hydraulic Method. You must obtain the Engineer's permission to use the Mechanical Method.

Hydraulic Method:

1. Seeding by the hydraulic method consists of furnishing and placing a slurry of dye, seed, fertilizer, trace mulch, water, and a second application of mulch.
2. Do not place seed in the slurry prior to 30 minutes before application.
3. Add the proportionate amount of seed to the water slurry in the hydraulic seeder after the proportionate amounts of trace mulch and fertilizer have been added.
4. Apply the slurry mixture in a manner that results in an even distribution of all materials. Apply seed, fertilizer, and trace mulch together in one application.
5. Hydraulic seeding equipment must maintain continuous slurry agitation so that a homogeneous, uniform mixture is applied through a spray nozzle, for the complete tank load. The pump must be capable of producing sufficient pressure to maintain a continuous, nonfluctuating spray capable of reaching the extremities of the seeding area with the pump & nozzle unit located on the roadbed. Provide sufficient hose to reach areas not practical to seed from the pump & nozzle unit situated on the road bed.
6. A second application of mulch shall be applied within 24-hours after seeding. Mulch shall be furnished and evenly applied at the rates required for temporary stabilization per the manufacturer's recommendations and according to Subsection 727-2.01. Mulch sprayed on signs or sign structures shall be removed the same day.

Mechanical Method:

1. Use mechanical spreaders, seed drills or other approved mechanical seeding equipment when seed and

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fertilizer are to be applied in dry form.

2. Water seeding area both prior to and after the application of fertilizer.
3. Spread fertilizer separately from seed.
4. An application of mulch shall be applied within 24-hours after seeding. Mulch shall be furnished and evenly applied at the rates required for temporary stabilization per the manufacturer's recommendations and according to Subsection 727-2.01. Mulch sprayed on signs or sign structures shall be removed the same day.

618-3.04 APPLICATION RATE. Apply seed, fertilizer, and trace mulch at the rates specified in the table below:

MATERIALS	TYPE	APPLICATION RATE PER 1,000 SQUARE FEET
Seed*	'Nortran' Tufted Hairgrass	0.5 lb
	'Arctared' Red Fescue	0.25 lb
	'Tundra' Glaucous Bluegrass	0.2 lb
	Annual Ryegrass	0.05 lb
	Total	1 lb
Fertilizer	20-20-10	10 lb
Trace mulch**	See Subsection 727-2.01	20 lb

* Do not remove the required tags from the seed containers.

** Trace mulch application rate may be adjusted according to the manufacturer's recommendations when approved by the Engineer. Trace mulch is not required for mechanical seeding.

618-3.05 MAINTENANCE. Protect seeded areas against erosion and sedimentation. Protect seeded areas against traffic by approved warning signs or barricades. Water seeded areas, in a non-erosive manner, as required to establish a uniform living perennial vegetative cover. Be responsible for identifying, retracking, reseeding, refertilizing and remulching gullied or otherwise damaged areas. The second application of mulch shall be maintained so it properly performs its temporary stabilization function until final stabilization is achieved. Rescarify, reseed, refertilize and remulch unproductive areas as directed by the Engineer.

618-3.06 PERIOD OF ESTABLISHMENT. The establishment period extends until a uniform (e.g. evenly distributed, without large bare areas) perennial living vegetative cover with a density of 70 percent of the native background vegetative cover is established.

618-3.07 ACCEPTANCE. The Engineer will accept seeding when a uniform (e.g. evenly distributed, without large bare areas) perennial living vegetative cover with a density of 70 percent of the native background vegetative cover is established.

618-4.01 METHOD OF MEASUREMENT. Section 109 and as follows:

Watering seeded areas per Subsection 618-3.05 will not be measured directly for payment and is subsidiary, except when Pay Item 618(3) is listed on the Bid Schedule.

Identifying, retracking, reseeding, refertilizing and remulching gullied or otherwise damaged areas will not be measured directly for payment and is subsidiary.

Seeding by the Acre. By the area of ground surface acceptably seeded and maintained. Soil preparation, seed, fertilizer, all mulch, dye, and water required for seed and fertilizer application will not be measured directly for payment and is subsidiary.

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Seeding by the Pound. By the dry weight of seed acceptably seeded and maintained. Soil preparation, fertilizer, all mulch, dye, and water required for seed and fertilizer application will not be measured directly for payment and is subsidiary.

Water for Seeding. By the M Gal. (1,000 gallons) acceptably placed. Use a conversion factor of 8.34 pounds per gallon, if measured by weight.

618-5.01 BASIS OF PAYMENT. The accepted quantity will be paid for at the contract price, per unit of measurement, for the pay items listed below that appear on the bid schedule.

Payment will be made under:

Pay Item	Pay Unit
618 (1) Seeding	Acre
618 (2) Seeding	Pound
618 (3) Water for Seeding	M Gal.

**SECTION 624
CALCIUM CHLORIDE FOR DUST CONTROL**

624-3.01 CONSTRUCTION REQUIREMENTS. *Delete the third sentence.*

Delete Section 640 in its entirety and substitute the following:

**SECTION 640
MOBILIZATION AND DEMOBILIZATION**

640-1.01 DESCRIPTION. Perform all work and operations necessary, including:

1. move personnel, equipment, supplies, and incidentals to the project site;
2. establish offices, buildings, and other facilities, except as provided under Section 644;
3. perform other work and operations and pay costs incurred, before beginning construction;
4. Complete similar demobilization activities;
5. Furnish required submittals such as as-builts, certificates, payrolls, civil rights reports, and equipment warranties. Furnish a full list of mobilized items to the Engineer that are included and not included in this contract.
6. Comply with the Alaska Department of Labor and Workforce Development (DOLWD) requirements for Worker Meals and Lodging, or Per Diem; as described in memo WHPL #197 and the State Laborer's and Mechanic's Minimum Rates of Pay (current issue). On Federal-aid projects, PL 109-59, 119 STAT. 1233, Sec. 1409(c) also applies.

Ensure subcontractors comply with the Federal and State DOLWD requirements.

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

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

7. Mobilization. As requested, Contractor shall provide a Mobilization list identifying all equipment and materials mobilized to Kivalina. The list shall include the number of units of each individual item of material/equipment, a description of each individual item, and the original location from which each individual item was shipped from. Contractor shall update and furnish a digital copy of the Mobilization list upon receiving NTP, and as requested.
8. Demobilization. Demobilization activities will be initiated at a mutually agreed upon date, by Directive.

640-2.01 MATERIALS. Mobilize materials and prepare submittals for such materials as specified in the bid schedule.

640-3.01 CONSTRUCTION REQUIREMENTS. None.

640-4.01 METHOD OF MEASUREMENT.

1. Mobilization. When you earn 4 percent of this change order contract amount from other bid items: 40 percent of the amount bid for mobilization, or 4 percent of the original contract amount, whichever is less, will be paid. When you earn a total of 8 percent of this change order amount from other bid items: An additional 40 percent of the amount bid for mobilization, or an additional 4 percent of the original contract amount, whichever is less, will be paid. The remaining balance of the amount bid for Mobilization will be paid after all submittals required under the Contract are received and approved.
2. Demobilization. Demobilization activities will be initiated at a mutually agreed upon date, by Directive. Payment for Demobilization activities shall be by Contingent Sum. Specific Demobilization activities, basis of payment and Agreed Price will be negotiated between the Department and Contractor through an open book estimating process. Contractor shall provide to the Department a quote from at least three different vendors.
3. Worker Meals and Lodging, or Per Diem. Progress payments for Worker Meals and Lodging, or Per Diem, will be computed as equivalent to the percentage, rounded to the nearest whole percent of the original contract amount earned.

640-5.01 BASIS OF PAYMENT. Payment will be made under:

Pay Item	Pay Unit
640.0001.0000 Mobilization	Lump Sum
640.2002.0000 Demobilization	Contingent Sum
640.0004.0000 Worker Meals and Lodging, or Per Diem	Lump Sum

SECTION 642 CONSTRUCTION SURVEYING AND MONUMENTS

01/20/15 (N34)

642-3.01 GENERAL. Delete the fifth paragraph and substitute the following: Follow the Department's Construction Surveying Requirements, or if GPS survey is approved by the Engineer, use the Alaska Survey Manual GPS Surveys 2010 (rev. 8/15/10).

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Add the following to the last sentence in the second to the last paragraph: or the Alaska Survey Manual GPS Surveys 2010 (rev. 8/15/10).

Delete numbered paragraph 4 of the second paragraph in its entirety and substitute the following: Department's Construction Surveying Requirements or the Alaska Survey Manual GPS Surveys 2010 (rev. 8/15/10).

01/20/15 (N35)

642-3.01 GENERAL. Add the following: Stake all environmental permit boundaries, including but not limited to Corps of Engineers permit boundaries and temporary work zone boundaries, with green colored stakes. Stake according to the permit and frequently enough that you can construct the project without risk of violating the permit conditions, but in no case set stakes further apart than 200 feet or as deemed necessary by the Engineer.

07/10/15 (N36)

642-3.02 CROSS SECTION SURVEYS. Delete the first paragraph and substitute the following: A lump sum Schedule of Values describing the required deliverables must be agreed upon prior to beginning work under this special provision.

1. Cross-Section Sheets. Prior to starting any work under Division 200, 300, or 400, submit Cross-Section Sheets to the Engineer. The Contractor shall allow a minimum of 96 hours, from the time the Cross-Section Sheets are submitted to the Engineer, for profile grade adjustments to be made by the Engineer.
 - a. Provide right angle cross-sections to the construction centerline. Cross-sections may be taken using conventional survey methods, or GPS methods, and/or may be extrapolated from a DTM. Conform to the Alaska Survey Manual GPS Surveys 2010 (rev. 8/15/10).
 - b. Provide cross-sections on station, at 100-foot intervals on tangents and 50-foot intervals on curves, and at cross culverts with a diameter equal to or greater than four feet, and at the B.O.P. / E.O.P., and at all horizontal P.C.s and P.T.s.
 - c. Show on every cross-section the:
 - (1) construction centerline
 - (2) existing ground, annotate the elevation of the existing ground at the construction centerline
 - (3) proposed typical section, annotate the elevation of the proposed finished ground at the construction centerline
 - (4) slope stakes, annotate each slope stake offset and elevation
 - (5) section's station
 - (6) section's end area for each type of Division 200, 300, or 400 material or work that appears in the bid schedule. Show each point, annotated with offset and elevation, that was used to compute the end areas.
 - d. Provide Cross-Section Sheets on 22" x 34" sheets at a readable scale, as approved by the Engineer. Provide digital copies of the Cross-Section Sheets in an electronic format approved by the Engineer.
 - e. Provide a summary of quantities with running totals for each type of Division 200, 300, or 400 material or work that appears in the bid schedule and on the Cross-Section Sheets.

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2. Profile Sheets. Prior to starting any work under Division 200, 300, or 400, submit Profile Sheets to the Engineer. The Contractor shall allow a minimum of 96 hours, from the time the Profile Sheets are submitted to the Engineer, for profile grade adjustments to be made by the Engineer.
- a. Provide a profile of the existing and proposed ground. The profile may be taken using conventional survey methods, or GPS methods, and/or may be extrapolated from a DTM. Conform to the Alaska Survey Manual GPS Surveys 2010 (rev. 8/15/10).
 - b. Show on profile sheets the:
 - (1) construction centerline profile of the existing ground
 - (2) construction centerline profile of the proposed finished ground
 - (3) B.O.P. and E.O.P., annotate station and elevation for the B.O.P. and E.O.P.
 - (4) all proposed vertical P.C.s and P.T.s, annotate station and elevation for the proposed vertical P.C.s and P.T.s. Annotate vertical curve lengths and Rates of Vertical Curvature (K).
 - (5) Annotate grades between vertical curves
 - c. Provide Profile Sheets on 22" x 34" sheets at a readable scale, as approved by the Engineer. Provide digital copies of the Profile Sheets in an electronic format approved by the Engineer.

01/20/15 (N38)

642-4.01 METHOD OF MEASUREMENT.

Item 642(3A) Three Person Survey Party. *Delete in its entirety and substitute the following:* Contingent sum work will be measured according to subsections 101-1.03 and 109-1.02 or 109-1.05. This item, when appearing on the Bid Schedule, will be used only for additional or unanticipated work made necessary by changes in the Contract.

Add the following:

Item 642(103) Cross Sections. The lump sum payment for item 642(103) shall be permanently reduced for substandard surveying work, illegible or incomplete surveying work, and/or untimely surveying work. Timely is defined as at least 96 hours prior to starting any work under Division 200, 300, or 400.

The lump sum payment for item 642(103) shall be permanently reduced for failure to provide deliverables conforming to this specification as defined in the agreed upon Schedule of Values. Should the value of the impacts from non-conforming deliverables exceed the value bid for item 642(103), then the Department shall permanently reduce the value of other contract items by the corresponding amount.

Ten percent (10%) of the value earned in the progress period shall be withheld on the progress payments until the Cross-Section Sheets and Profile Sheets are delivered to and accepted by the Engineer.

All work and materials required to stake environmental permit boundaries will not be measured for payment, rather is subsidiary to other items of work.

642-5.01 BASIS OF PAYMENT. *Add the following pay item:*

Pay Item	Pay Unit
642(103) Cross Sections	Lump Sum

Delete Section 644 in its entirety and substitute the following:

SECTION 644

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SERVICES TO BE FURNISHED BY THE CONTRACTOR

644-1.01 DESCRIPTION. Furnish and maintain facilities and services specified in the Contract for the Department's project administrative personnel to use during the project. Services include heat, electrical power (NEC compliant), water and any others required to operate the facilities. All furnished facilities remain the property of the contractor when the work is completed.

The Engineer may delete any 644 Items, by Directive within five working days after the Preconstruction Conference. If any 644 Items are deleted within the specified period, Subsection 109-1.09, Eliminated Items, shall not apply to the deleted 644 Items.

644-2.01 FIELD OFFICE. Furnish and maintain a suitable office for the Engineer to use during construction. Make the Field Office available for occupancy 2 weeks before commencing work on the project through one week after Project Completion. The Field Office shall be within one half of one mile from the project.

1. Submit office proposal to the Engineer prior to procurement or transporting office to the project. The Engineer will approve the office general condition, location, access, features, and physical layout prior to beginning any office setup work. If this office is part of your building, completely partition it from the rest of the structure and provide a separate outside door equipped with a lock.
2. Provide at least the following minimum requirements, or as approved by the Engineer:
 - a. Floor space of at least 400 ft²
 - b. Window area of at least 50 ft²
 - c. Lockable outside door(s)
 - d. 4 each plastic folding tables, 8 ft. long
 - e. Shelf space of at least 24 linear feet
 - f. Adequate heating and cooling devices, and fuel or power to run the devices, to maintain an office temperature between 65° and 75°F.
 - g. Adequate ventilation
 - h. Continuous supply of drinking water from an approved source or commercial supplier
 - i. Sanitary facilities to be provided at project camp
 - j. Janitorial services at least weekly
 - k. Provide electrical service as indicated in 644-2.09, #1 Field Office
 - l. Internet Service and Phone:

Furnish and install a high speed internet service and three telephones, with all necessary ancillary equipment.

The internet system shall have a send and receive capability supporting 6.0 Mbps download speed or higher and 3 Mbps upload speed at all times. The internet system shall have a minimum monthly data usage of 10 GB. Include a wireless router and an appropriately sized battery backup for the internet system. The system shall be for the exclusive use of the Engineer.

The telephone system shall consist of commercially available telephones with the necessary equipment for each line. Provide one telephone that includes a built in digital answering machine.

Internet and telephone service shall be supplied and operational no more than two weeks after the field office has been set up on site. Service plans shall be provided and remain in effect for the duration of the use of the field office.
 - m. One multifunction Color Printer/Scanner/Copier meeting the following requirements:

New or like-new condition
Printing/copying at least 32 ppm
Scan speed of 40 ppm at 400 DPI in color, at a minimum
Print/Scan/Copy 8.5" X 11" and 11" X 17" in color, at a minimum

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Supports network scanning (FTP and SMB Support)
Supports network printing (PCL and Postscript)
Network card included
Automatic Document Feeder
Furnish ink and toner and perform repairs and maintenance as necessary.
The Printer/Scanner/Copier remains property of the Contractor upon completion of the contract.

- n. Make the field office accessible according to the requirements of *Americans with Disabilities Act Accessibility Guidelines* (ADAAG). Provide at least one designated handicap parking space.
 - o. One AED (Automated External Defibrillator), with carrying case and properly marked wall cabinet. Provide training on how to use the AED.
 - p. One combination Smoke and Carbon Monoxide Detector minimum. Provide combination Smoke and Carbon Monoxide Detectors in any location requested by the Engineer.
 - q. One 25 Person Trauma First Aid Kit.
 - r. 2 mobile hotspots with month-to-month data plans. Include car charger and 5 gigabytes of data usage per month.
3. Provide electrical power to the Department's portable concrete compressive strength lab if there are any bridge items in the bid schedule as identified in 644-2.09, #9.
 4. Provide electrical power to the Department's portable nuclear storage trailer as identified in 644-2.09, #8.
 5. Provide the following to the Department's portable asphalt lab if there are any asphaltic materials in the bid schedule and item 644(2) Field Laboratory does not appear in the bid schedule.
 - a. electrical service as identified in 644-2.09, #4 Asphalt Laboratory.
 - b. internet service as specified for the Field Laboratory.

All long distance calls made by State personnel will be paid by the State. Installation and maintenance fees, local calls, connection fees and internet service provider fees, and all other fees shall be paid by the Contractor. Paper used by the copier/scanner/printer will be paid by the State.

644-2.02 FIELD LABORATORY. Furnish and maintain a field laboratory for the Engineer to use exclusively throughout the contract. Provide a completely functional installation 2 weeks before commencing construction work through one week after Project Completion.

1. Grade and compact a site for the lab acceptable to the Engineer. Locate and level the structure on this site. If subsequent ground movement causes an unlevel or unstable condition, re-level or re-locate the facility as directed.
2. Provide a weatherproof structure suitable to field test construction materials, with the following minimum functional requirements:
 - a. Floor space of 300 ft²
 - b. Two 10-ft² windows that open and lock
 - c. Lockable door(s)
 - d. Work bench(es), 2-1/2 X 16 feet total, 3 feet high
 - e. Shelf space, 1 X 16 feet
 - f. One 18-inch deep sink with attached industrial faucet with hand sprayer attachment and approved drain
 - g. A gravity-fed 250-gallon tank or pressurized constant water supply of acceptable quality
 - h. electrical service as indicated in 644-2.09, #2 Field Laboratory
 - i. Heating equipment suitable to maintain a uniform room temperature of 65° to 75°F
 - j. Storage cabinet, 3 ft X 3 ft X 3 ft, lockable, securely fixed to an inside wall with a hinged door opening outward
 - k. Office desk and 2 chairs

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- l. One combination Smoke and Carbon Monoxide Detector minimum. Provide Combination Smoke and Carbon Monoxide Detectors at any location requested by the Engineer.
- m. One 25 person Trauma First Aid Kit.
- n. Internet Service and Phone:

Furnish and install a high speed internet service and a telephone, with all necessary ancillary equipment.

The internet system shall have a send and receive capability supporting 1.0 Mbps download speed or higher and 0.5 Mbps upload speed at all times. The internet system shall have a minimum monthly data usage of 10 GB. Include a wireless router and an appropriately sized battery backup for the internet system. The system shall be separate from the internet system of the contractor for exclusive use of the Department.

The telephone system shall consist of commercially available telephones with the necessary equipment for each line. Provide one telephone that includes a built in digital answering machine.

Internet and telephone service shall be supplied and operational no more than two weeks after the field laboratory has been set up on site. Service plans shall be provided and remain in effect for the duration of the use of the field laboratory.

- 3. If the lab is a mobile unit mounted on axles and wheels, block the structure under the frame so that the wheels do not touch the ground and the blocking rests firmly on the prepared site.
- 4. Provide a separate weatherproof shed within 20 feet of the main lab structure with the following minimum functional requirements:
 - a. Floor 8 ft X 12 ft, ceiling height 8 ft
 - b. Door 4 ft wide and window 5 ft² that opens, both lockable
 - c. electrical service as identified in 644-2.09, #3 Field Laboratory Out Building
 - d. Work table 3 ft X 1-1/2 ft X 3 ft high, capable of supporting 250 pounds and affixed to an inside wall as directed
 - e. Concrete-slab floor, 8 ft X 8 ft X 4 inches thick, cast-in-place or pre-cast. Install anchor bolts in the floor to accommodate the mounting pattern of the Gilson sieving machine at a location as directed.
 - (1) Comply with 1. above for slab foundation requirements.
 - (2) Found the slab directly on the prepared site.
- 5. For all types of installations, if the entryway is located higher than a single 7-inch rise, provide the following:
 - a. Stairway, 3 feet wide X 11-inch tread X 7-inch rise
 - b. Landing, 4 ft X 4 ft centered on the entryway
 - c. Handrail(s) firmly affixed to the stairway
- 6. Provide the following lab equipment and services:
 - a. Propane necessary for the lab operation, including two 100-lb tanks, regulators, hoses, fittings, and incidentals for a functional system
 - b. Specialized sampling equipment such as belt templates or belt sampling devices as required
 - c. Fuel and power necessary to continuously operate the facilities
 - d. Provide and maintain a Hydraulic Clamping Testing Screen for performing aggregate particle size determinations down to six fractions. The unit must be capable of processing batch sizes of up to one cubic foot or greater. The unit must run on 115v/60hz power. Include a door enclosure, pan drawer, and screen sizes 2", 1 1/2", 1", 3/4", 1/2", 3/8", 1/4", #4.
 - e. Provide and maintain a multi-deck industrial oven with an eight, 18"x26" pan capacity. The oven must be propane powered and capable of supplying 90,000 BTU's. Equip the oven with a 150-500 degree Fahrenheit low holding thermostat.
- 7. Provide the following to the Department's portable asphalt lab if there are any asphaltic materials in the bid schedule.
 - a. electrical service as identified in 644-2.09, #4 Asphalt Laboratory.
 - b. internet service as specified for the Field Laboratory.

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644-2.03 CURING SHED. Furnish and maintain a suitable weather tight shed for curing concrete test cylinders, with a suitable tank(s) for curing concrete test cylinders.

Provide a tank(s) large enough to contain at least 6 each 4" X 8" test cylinders from each pour that you propose to make during any 28-day period. Use a tank(s) at least 18 inches high, insulated, and constructed of heavy duty plastic or non-corrosive metal. Construct a lid to provide access to the tank(s). Provide suitable heating to maintain the temperature in the tank between 70° and 77°F at all times when curing the test cylinders. In addition, provide suitable thermometers in the shed and tank(s) to check the temperature.

Provide a supply of calcium hydroxide (high-calcium hydrated lime) sufficient to maintain a fully saturated water bath in the tank(s). Provide a source of potable water.

Provide one combination smoke alarm and carbon monoxide detector.

Provide electrical service as identified in 644-2.09, #5 Curing Shed

644-2.04 MEALS AND LODGING. When Items 644(4) and 644(5) appear in the bid schedule, furnish, and maintain suitable boarding facilities, at or near the project, for State employees. State employees include Department employees assigned to the project and other personnel authorized by the Engineer. The Special Provisions will list an estimated number of state employees.

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

Boarding Facilities may include a Contractor Camp or the use of roadhouses, homes, or lodges located near the project, providing the accommodations conform with Contract requirements and the applicable requirements of State employee labor union agreements.

Provide as a minimum, the following facilities:

1. Meals
 - a. Three well balanced meals per day per person
 - b. Food, drinks, and bottled water for employees to pack a mid-shift lunch
2. Kitchen and Dining Area
 - a. Kitchen capable of preparing meals so that all portions are served at one time
 - b. Separate dining area with 50 sq-ft per person based on full capacity
3. Lodging (room and bedding)
 - a. Heated, well ventilated housing of 60 sq-ft of floor area for each person with twin size bed frame, box spring, mattress, mattress pad, sheets, pillow, and a heavy blanket or comforter.
 - b. A weekly change of sheets
 - c. Lockable room door with keys
 - d. Lockable storage space in the room of 35 cubic feet for each person
4. Common area (reading/recreation area)
 - a. A common area with furnishings at a rate of 10 square feet per person based on full capacity
 - b. Satellite TV access or equal with a minimum of 30 channels
 - c. Furnishings to include adequate couches, easy chairs, and padded folding chairs
5. Sanitary facilities and services
 - a. Toilets, showers, and sinks at a rate of 1 each per 10 persons
 - b. Separate bathroom units for males and females at a rate specified above

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- c. Clothes washers and dryers at a rate of 1 each per 30 persons
 - d. Adequate hand soap, toilet paper, paper towels, bath towels, and wash cloths
 - e. Clean bathrooms and empty garbage daily
 - f. Vacuum rooms, launder towels and sheets, and do other cleaning as required
6. Safety facilities
- a. First aid facilities
 - b. Emergency response plan
 - c. Emergency evacuation plan
 - d. Fire alarms, smoke alarms, and fire extinguishers according to "Occupational safety & Health Administration, U.S. Department of Labor"
7. Other facilities and services required by codes, regulations, and labor union agreements

Make boarding facilities available for use by State employees starting 2 weeks before commencing work on the project through one week after project completion.

Require state employees to sign a meal and/or lodging sheet to document receipt of each meal and each night's lodging.

644-2.05 VEHICLES. Furnish and maintain vehicles in good condition that are less than three years old and with less than 36,000 miles on the odometer for the exclusive use of the Department throughout the project.

Maintain the vehicles in satisfactory running condition throughout the duration of the contract. Provide insurance, fuel, fluids, lubricants, tire repair/replacement, and windshield repair/replacements as needed. If a vehicle is down for more than 24 hours, provide a replacement Vehicle of the same type at no additional cost. The Department is responsible for damage to any vehicle caused by its own negligent operation. The Department will provide non-owned auto liability insurance providing third party liability coverage for any accident during the Department's operation and use. The Engineer will approve the vehicles prior to transporting them to the project site. In addition to use on the project, all of the vehicles will be allowed to make round trips to the Department's regional headquarters. Remove all vehicles from the project at the end of the Contract.

Provide the specified number of the following vehicle types:

1. **LT/SUV.** Provide full-size four-wheel drive pickups or sport utility vehicles. Provide vehicles from two weeks before commencing work to one week after Project Completion. Maintain the vehicles in satisfactory running condition throughout the duration of the contract. Provide insurance, fuel, fluids, lubricants, tire repair/replacement, and windshield repair/replacements as needed. If a vehicle is down for more than 24 hours, provide a replacement Vehicle of the same type at no additional cost. Equip each truck as follows:
 - a. Four wheel drive
 - b. V-8 engine
 - c. Automatic transmission
 - d. Power steering
 - e. Air conditioning
 - f. Fire extinguisher & basic first aid kit
 - g. Jack and lug wrench
 - h. Load range D tires in good condition
 - i. Two full size load range D spare tires in good condition mounted on rims
 - j. 2 sets of keys
 - k. CB Radio with 48" Antenna
 - l. 3 each AKDOT&PF magnetic stickers. Plans available at <http://dot.alaska.gov/documents/DOT-SOA-Construction-Magnets-Specs.pdf>

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2. **Snow Machine.** Provide Snow Machines as follows:

- a. Minimum 500 cc fan-cooled engine
- b. Sled hitch
- c. 2 sets of keys

3. **ATV.** Provide Side-by-Side ATVs as follows:

- a) Four wheel drive
- b) 31 HP minimum Engine
- c) Cargo bed
- d) 2 sets of keys
- e) CB Radio securely attached in the cab.

<u>Number of Vehicles</u>	<u>Type</u>
3	Truck
1	Snow Machine
2	ATV

644-2.06 NUCLEAR TESTING EQUIPMENT STORAGE SHED. Design, furnish and maintain a weatherproof, heated, and ventilated nuclear densometer/testing equipment storage shed for the Engineer to use exclusively throughout the contract. Install the building at least 15-feet from an occupied area at a location approved by the Engineer. Install the shed at least one week before the commencement of construction activities and maintain it until one week after Project Completion. Provide sufficient floor area for the nuclear testing equipment and a portable electric heater to maintain a minimum room temperature of 50°F. Design the building with enough floor area to provide sufficient clearance between the equipment, heater, and combustibles. Provide a commercial grade metal-clad exterior entrance door of 3'-0" min width by 6'-8" height with dead-bolt lockset. Hang the door so that hinge pins are not accessible from the exterior. Provide the Engineer with 2 keys to control access. Provide a 5/16" X 10 foot long welded steel security chain securely attached inside the structure with tamperproof hardware for the Engineer to secure the testing equipment. Provide electrical service as identified in 644-2.09, #7 Nuclear Testing Equipment Storage Shed. Secure the structure to the ground with tamperproof anchors to resist wind loads and prevent unauthorized movement of the building. The Nuclear Testing Equipment Storage Shed remains the property of the Contractor. Remove the shed from the site following project completion. The Nuclear Testing Equipment Storage Shed must be windowless.

644-2.07 STORAGE CONTAINER. Furnish, transport and maintain a weathertight, lockable, steel enclosed 20 foot long X 8 foot wide X 8 foot high wooden floored container for the storage of the Department's materials, supplies and testing equipment (but not nuclear equipment). Provide twenty equally spaced fastening points on the interior walls that are capable of securing the Department's contents. Door opening dimensions of the storage container shall be greater than 60 square feet. Supply necessary equipment to lift and move container with minimal disturbance to the Department's contents. The container shall not be moved by skidding or hook lift. The Contractor shall be listed as the shipper on all documents listing and acknowledging receipt of the Department's goods for shipment.

Deliver an empty and clean container to the Regional Materials Laboratory, or location acceptable to the Engineer, three weeks prior to transporting to the project site. Allow 7 days for the Department to load the container. Transport the loaded container to the project site. Set up container at a location approved by the Engineer at least one week before the commencement of construction activities and maintain it until one week after Project Completion.

1. Provide electrical service and other facilities as follows:

- a. Provide a stairway with railing, built to meet the International Building Code, if there is more than 12-inch difference in floor entry and existing ground elevation.
- b. Provide electrical service as identified in 644-2.09, #6 Storage Container.

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Return the container to the Regional Materials Laboratory, or location acceptable to the Engineer, upon project completion. Allow 7 days for the Department to unload the container. The storage container remains your property after you complete the work.

644-2.08 FIELD COMMUNICATIONS. Furnish and maintain a satellite communications system that includes internet and phone for the Engineer to use exclusively throughout the contract. Provide a completely functional installation 2 weeks before commencing construction work through one week after Project Completion.

Two weeks prior to procuring the field office, submit to the Engineer the proposed communications system consisting of phone and internet service. Obtain the Engineer's approval of the communications system prior to procuring the system.

Furnish and install the approved high speed internet service and three telephones, with all necessary ancillary equipment. Provide internet and phone jacks in the field office and field laboratories in locations identified by the Engineer. Furnish one mobile satellite phone in addition to the phone system in the field office.

The internet system shall have a send and receive capability supporting 6.0 Mbps download speed or higher and 3 Mbps or higher upload speed at all times. Include a wireless router and an appropriately sized battery backup for the internet system. The system shall be separate from the internet system of the contractor.

The telephone system shall consist of commercially available telephones with the necessary equipment for each line. Provide one telephone that includes a built in digital answering machine.

Internet and telephone service shall be supplied and operational no more than two weeks after the field office has been set up on site. Service plans shall be provided and remain in effect for the duration of the use of the field office.

When Item 644(105), Field Communications appears in the bid schedule, internet and telephone service will be measured and paid under 644(105), and are not subsidiary to 644(1) and 644(2).

644-2.09 ELECTRICAL POWER. Furnish and maintain a constant source of power to the facilities specified in the contract for the Department's use during the project. Provide a completely functional installation 2 weeks before commencing construction work through 2 weeks after Project Completion.

1. FIELD OFFICE. Provide electrical services as follows:
 - a. Heating/Cooling adequate to maintain temperatures between 65° to 75°F
 - b. Electrical current: 120/240 VAC, 60 cycle on 24 hour basis
 - c. Wiring system to support a 40 amp user load demand with two 20-amp circuits
 - d. Eight conveniently spaced outlets on the interior wall, consistent with local codes
 - e. Eight 100-watt incandescent or sixteen 40-watt florescent

2. FIELD LABORATORY. Provide electrical services as follows:
 - a. Heating/Cooling adequate to maintain temperatures between 65° to 75°F
 - b. Electrical current: 120/240 VAC, 60 cycle on 24 hour basis
 - c. Wiring system to support a 40 amp user load demand with two 20-amp circuits, GFI Protected
 - d. Six conveniently spaced outlets on the interior wall, consistent with local codes
 - e. Four 100-wat incandescent or eight 40-watt florescent
 - f. Exhaust fan: 5 cfs

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3. FIELD LABORATORY OUT BUILDING. Provide electrical services as follows:
 - a. Heating/Cooling adequate to maintain temperatures between 65° to 75°F
 - b. Electrical current: 120/240 VAC, 60 cycle on 24 hour basis
 - c. Wiring system to support a 20-amp user load demand, GFI Protected
 - d. Three conveniently spaced outlets on the interior wall, consistent with local codes
 - e. Two 100-watt incandescent or four 40-watt florescent
 - f. Exhaust fan: 5 cfs
4. ASPHALT LABORATORY. Provide electrical services as follows:
 - a. Electrical current: 120/240 VAC, 60 cycle on 24 hour basis
 - b. 100-amp service
5. CURING SHED. Provide electrical services as follows:
 - a. Heating/Cooling adequate to maintain temperatures between 70° to 77°F
 - b. Two 100-watt incandescent or four 40-watt florescent
6. STORAGE CONTAINER. Provide electrical services as follows:
 - a. Electrical current: 120/240 VAC, 60 cycle on 24 hour basis
 - b. Wiring system to support a 20-amp user load demand, GFI Protected
 - c. Two conveniently spaced outlets on the interior wall, consistent with local codes
 - d. Four 100-watt incandescent or eight 40-watt florescent
7. NUCLEAR TESTING EQUIPMENT STORAGE SHED. Provide electrical services as follows:
 - a. Heating/Cooling adequate to maintain minimum temperatures of 50°F
 - b. Electrical current: 120/240 VAC, 60 cycle on 24 hour basis
 - c. Two 100-watt incandescent or four 40-watt florescent
 - d. Wiring system to support a 20-amp user load demand
8. NUCLEAR TESTING EQUIPMENT STORAGE SHED (STATE PROVIDED). Provide electrical services as follows:
 - a. Electrical current, 120/240 VAC, 60-cycle on 24-hour basis
 - b. Wiring system to support a 20-amp user load demand
9. PORTABLE CONCRETE COMPRESSIVE LABORATORY. Provide electrical services as follows:
 - a. Electrical current: 120/240 VAC, 60 cycle on 24 hour basis
 - b. Wiring system to support a 20-amp user load demand

If 644(15), Nuclear Testing Equipment Storage Shed is deleted the electrical power requirement are still required per 644-2.09, #8.

If the contract contains bridge items that require concrete or grout provide electrical power to the Department's Portable Concrete Compressive Laboratory per 644-2.09, #9.

644-3.01 METHOD OF MEASUREMENT. Section 109 and as follows:

Storage Container. By the number of storage containers specified, to include all components, installed and accepted as completed units and ready for materials and equipment storage.

Meals. EACH, by the number of man-days.

Lodging. EACH, by the number of man-days.

644-4.01 BASIS OF PAYMENT.

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Vehicles. Includes all resources, including fuel, oil, maintenance, and insurance to furnish the specified number of fully operational vehicles, including Trucks, Snow machines, and ATVs, for the duration specified in the contract.

Lump Sum Items. Payment for lump sum items will be made as follows:

1. A percentage of the lump sum amount, to be determined by the Engineer, will be paid as full compensation for furnishing the facility at the site.
2. The balance of the lump sum amount will be prorated over the anticipated active construction period with a portion included as part of each interim payment, for maintenance, repairs, providing all utilities, and for removing it from the site. If anticipated construction period changes, the final increment will be held until final payment.

Storage Container. At the contract unit price to include all labor, materials, tools, equipment and supplies required to deliver the storage shed to the regional office for loading, to deliver it to the project office, to install it before commencement of construction, to maintain it for the duration of the project, to remove the shed and electrical service after project completion, to deliver it to the regional office for unloading, and to remove the storage shed. Electrical service and utility costs are subsidiary to this item.

Field Communications. Installation and maintenance of equipment and monthly invoice costs will be paid for by Contingent sum under Item 644(105), Field Communications. Provide invoices from vendor for installation, maintenance, and monthly subscription costs.

Payment will be made under:

Pay Item	Pay Unit
644.0001.0000 Field Office	Lump Sum
644.0002.0000 Field Laboratory	Lump Sum
644.0003.0000 Curing Shed	Lump Sum
644.0004.0000 Meal	Each
644.0005.0000 Lodging	Each
644.2007.0000 Vehicle (LT/SUV)	Each
644.0008.0000 Vehicle (ATV)	Each
644.2009.0000 Vehicle (Snow Machine)	Each
644.0015.0000 Nuclear Testing Equipment Storage Shed	Each
644.0016.0000 Storage Container	Each
644.2002.0000 Field Communications	Contingent Sum

Add the following:

**SECTION 657
PRICE ADJUSTMENT**

657-1.01 DESCRIPTION. This section provides various price adjustments for (1) additional compensation to the Contractor and (2) a deduction from the contract amount.

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657-2.01 MATERIALS. None

657-3.01 CONSTRUCTION REQUIREMENTS. None.

657-4.01 METHOD OF MEASUREMENT. Price adjustments shall be calculated and paid at a mutually agreed upon interval. The Department will increase or decrease payment under this contract by the amount determined by the following provisions:

Fuel Price Adjustment. A fuel price adjustment shall be made to adjust from assumed fuel price to actual fuel price consumed during the period of each progress payment. This adjustment may be additional compensation or a deduction from the contract amount, according to the formula:

$$\text{Change in compensation} = (\text{FP} - \text{AFP}) \times \text{V}$$

AFP = Fuel price assumed in original contract price, in dollars per gallon FOB delivered to Kivalina. Assumed Fuel price is \$3.15/gallon

FP = Actual average fuel price consumed during the pay period, in dollars per gallon delivered to Kivalina

V = Volume of Fuel consumed during the pay period, in gallons, except that V shall not exceed a value of 355,000 gallons in the calculation for change in compensation.

Contractor shall provide a weekly summary of Fuel consumption, including quantity (V) and price (FP), with invoices provided as backup. Frequency of updates may be modified as mutually agreed upon. Handling of fuel after delivery is subsidiary to other contract items.

657-5.01 Basis of Payment. Payment shall be made under:

Pay Item	Pay Unit
657.2000.0000 Fuel Price Adjustment	Contingent Sum

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**SECTION 701
HYDRAULIC CEMENT AND SUPPLEMENTARY CEMENTITIOUS MATERIALS**

701-2.08 POST-TENSIONED GROUT. *RESERVED*

**SECTION 703
AGGREGATES**

703-2.07 SELECTED MATERIAL. *Delete this subsection in its entirety and substitute the following:* Meet the following requirements for the type specified. Obtain the Engineer's approval for the intended purpose, prior to use on the project.

1. Type A. Aggregate containing no muck, frozen material, roots, sod, or other deleterious matter and with a plasticity index not greater than 6 as tested by ATM 204 and ATM 205. As tested by ATM 304, 20-60% by weight must pass the No. 4 Sieve, and 0-6% by weight (determined on the minus 3-inch portion of the sample) must pass the No. 200 Sieve.
2. Type B. Earth, sand, gravel, rock or combinations thereof, containing no muck, frozen material, roots, sod, or other deleterious matter, and is compactable under the provisions of Subsections 203-3.04 or 203-3.05.
3. Modified Type B. Crushed rock or gravel, sand, and earth no larger than 1" diameter, containing no muck, frozen material, roots, sod, or other deleterious matter, and is compactable under the provisions of Subsections 203-3.04 or 203-3.05.
4. Type C. Earth, sand, gravel, rock, or combinations thereof containing no muck, peat, frozen materials, roots, sod, or other deleterious matter and is compactable under the provisions of Subsections 203-3.04 or 203-3.05.

12/08/15 (N63)

703-2.09 SUBBASE. *Add the following:*

Subbase, Grading F. Aggregate containing no muck, frozen material, roots, sod or other deleterious matter and with a plasticity index not greater than 6 as tested by ATM 204 and ATM 205. Table 703-8 and the first paragraph of Subsection 703-2.09 do not apply to Grading F. Meet the following gradation as tested by ATM 304:

<u>Sieve</u>	<u>Percent Passing by Weight</u>
2 in	100%
No. 4	15-65%
No. 200	0-6%

703-2.13 STRUCTURAL FILL. *Delete this subsection in its entirety and substitute the following:* Earth, sand, gravel, rock or combinations thereof no larger than 4", containing no muck, frozen material, roots, sod, or other deleterious matter, and is compactable under the provisions of Subsections 203-3.04 or 203-3.05.

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**SECTION 707
METAL PIPE**

04/30/17 (N48)

707-2.01 CORRUGATED STEEL PIPE, PIPE ARCHES, AND UNDERDRAINS. *Add the following:* All seams on pipes manufactured with helical corrugations shall have a continuous weld extending from end to end of each length of pipe in conformance with AASHTO M 36. Seams shall be welded in such a manner that they develop 90% of the average ultimate strength of the base metal. A test shall be performed by an independent lab in accordance with AASHTO T 241 Section 4 during the year in which the pipe is fabricated. The Supplier shall maintain quality control test results and provide them upon request. A copy of the test results containing the information specified in Section 4.6 of AASHTO T 241 shall be furnished to the Engineer.

A Supplier of welded helically corrugated pipe which qualifies for inclusion in the current publication of the Department's QUALIFIED PRODUCTS LIST is not required to perform the test.

01/20/15 (N49)

707-2.03 CORRUGATED ALUMINUM ALLOY CULVERT PIPE AND UNDERDRAINS. *Delete the first sentence and substitute the following:* This pipe shall conform to the requirements of AASHTO M 196 except that helical corrugations shall not be allowed.

**SECTION 711
CONCRETE CURING MATERIALS AND ADMIXTURES**

04/30/17 (N71)

711-2.03 FLY ASH. *Delete this subsection.*

711-2.04 MICROSILICA ADMIXTURE. *Delete this subsection.*

711-2.04 MICROSILICA ADMIXTURE. *RESERVED*

**SECTION 714
PRESERVATIVES FOR TIMBER**

04/30/17 (N72)

714-2.01 PRESERVATIVES. *Delete numbered paragraph one and substitute the following:*

1. Timber. Use the preservatives and treatment processes of AASHTO M133 and *Best Management Practices for the Use of Treated Wood in Aquatic Environments* (BMPs), published by the Western Wood Preservers Institute, 601 Main Street, Suite 405, Vancouver, WA 98660 (Phone:800-279-9663). Use Ammoniacal Copper Zinc Arsenate (ACZA) or Chromated Copper Arsenate (CCA) as preservatives.

Delete Section 715 in its entirety and substitute the following:

**SECTION 715
STEEL FOR PILES**

715-2.01 SCOPE. Steel used for Structural Steel Piling and Sheet Piling.

715-2.02 GENERAL REQUIREMENTS. Furnish steel piles of the dimensions, weights, cross-sections, and grades specified. Satisfy the impact test requirements of Subsection 716-2.02. Meet the following:

1. Structural Steel HP Piling. Furnish HP shape piles meeting ASTM A709, Grade 50T3.

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2. Structural Steel Pipe Piling. Furnish pipe piles meeting one of the following:

- a. American Petroleum Institute (API) 5L X52 PSL2 with one longitudinal seam.
- b. ASTM A709, Grade 50T3 with one longitudinal seam fabricated and monogrammed according to API 2B.
- c. ASTM A709, Grade 50T3 fabricated according to the following:
 - (1) General. Fabricate single seam helical weld pipe piling from coiled skelp. Use skelp material that does not contain repair welds. Use skelp having a width not less than 0.8 times the outside diameter of the pipe and not greater than 3.0 times the outside diameter of the pipe. Form pipe when the steel temperature is below 400°F. Locate junctions of skelp end welds and the helical seam welds at distances greater than 1.0 times the outside diameter of the pipe from the pipe ends and at distances greater than 5.0 times the outside diameter of the pipe from other junctions of skelp end welds and helical seam welds.
 - (2) Welding. Use complete joint penetration welds produced by the automatic submerged-arc welding process, the automatic gas metal-arc welding process, or a combination of both processes. Perform welding according to Section 504.
 - (3) Welding Inspection. Perform welding inspection according to AWS D1.1. Provide 100% visual inspection of welds on the inside and outside surfaces of the pipe.
 - (4) Non-Destructive Examination. Randomly examine 10% of the total length of helical seam welds and skelp end welds. Examine welds by performing one of the following tests:
 - (a) Radiographic testing according to the requirements of AWS D1.1 Section 6, Part E with Subsection 6.12.3 of AWS D1.1.
 - (b) Ultrasonic testing according to the requirements of AWS D1.1 Section 6, Part F with Subsection 6.13.3.1 of AWS D1.1.

If more than 10% of the weld lengths examined are defective, examine a second random sample of 25% of the total length of welds. If more than 10% of the weld length examined in the second sample are defective, examine 100% of the total length of welds.

Repair all weld defects in accordance with AWS D1.1.

- (5) Destructive Examination. Perform destructive examination on specimens from finished pipe of each specified outside diameter, wall thickness, steel type, heat, and grade. Examine specimens at a frequency of at least one set of tests for each lot representing 2000 linear feet of finished pipe or once per week during each production run, whichever occurs first. Do not use specimens containing repaired welds.
 - (a) Tensile Tests. Meet the specified tensile requirements for yield strength, tensile strength, and elongation. Perform tension tests according to ASTM A370 using one base metal specimen and two weld specimens taken at 90° to the length of the weld with the weld across the center of the sample. For base metal specimen, determine and report yield point, yield strength, tensile strength, and elongation. For weld test specimens, determine and report tensile strength.

Each lot of pipe will be considered to meet the tensile requirements if the base metal test results meet the specified yield strength, tensile strength, and elongation and the weld test results meet the specified tensile strength result.

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- (b) Bend Tests. Perform transverse side bend tests according to ASTM E190. Each lot of pipe will be considered to meet the bend test requirements if no cracks occur in the specimen.
- (6) Tolerances. Meet the following tolerances:
- (a) Roundness. Limit the difference between the major and minor outside diameter to 1% of the specified outside diameter of the pipe or 1/4 inch, whichever is less.
- (b) Circumference. Limit the outside circumference to 1% of the nominal outside circumference of the pipe or 1/2 inch, whichever is less.
- (c) Straightness. Do not deviate from a straight line parallel to centerline of the pile more than 1/8 inch per 10 feet of length, but not to exceed 3/8 inch in any 40-foot length.
- (d) Length. $\pm 1\text{-}1/2$ inch per 10 feet of length.
- (7) Defects. The Engineer may reject piles containing surface defects. The depth of the surface defect will be measured as the gap between the lowest point of the defect and a prolongation of the original contour of the pipe. Use of piles containing surface defects may be authorized according to the following requirements based on the depth of the surface defect:
- (a) If the surface defect is not greater than 5% of the wall thickness in depth, the defect need not be repaired.
- (b) If the surface defect is deeper than 5%, but not greater than 7%, of the specified wall thickness, grind smooth the surface defect. Remove abrupt changes in contour, but do not reduce the thickness in the ground area more than 7% of the specified wall thickness.
- (c) If the surface defect is deeper than 7%, but not greater than 20%, of the specified wall thickness, repair the defect by welding according to Section 504.
- (d) If the surface defect is deeper than 20% of the specified wall thickness, repairs will not be permitted and the pile will be rejected.
3. Pile Tip Reinforcing. Use pile tip reinforcement conforming to the requirements of ASTM A27 Grade 65-35 or ASTM A148 Grade 90-60. Make each pile tip in one piece of cast steel. Weld tip reinforcing to the piles in conformance with the manufacturer's written directions.
4. Structural Steel Sheet Piling. Furnish sheet piles meeting AASHTO M 202. Provide piling and connectors of the same ASTM designation and grade shown on the Plans. Do not mix piling of different grades.

715-2.03 CERTIFICATION. Furnish a certified test report from the manufacturer or an independent testing laboratory containing a list of dimensional, chemical, metallurgical, electrical, physical, and other required test results of the specified material certifying that the product or assembly has passed all specified tests. Include the following:

1. the project name and number;
2. the manufacturer's name;
3. the name of the product or assembly;
4. a complete description of the material;
5. country of origin;
6. the lot, heat, or batch number that identifies the material;

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7. all required test results for the specified material from the same lot, heat, or batch defined in Subsection 715-2.03.6; and,
8. a statement, signed by a person having legal authority to act for the manufacturer or the independent testing laboratory, that the test results show that the product or assembly to be incorporated into the project has been sampled and tested and the samples have passed all specified tests.

For pipe manufactured to API 5L, submit an inspection certificate with test results according to API 5L 10.1.3.

715-2.04 MARKING. Mark all pipe and sheet piling using dot peen, die stamp or other low stress engraving process that is legible after coating or galvanizing. Mark the exterior and interior faces of one end of the piling with the lot number, heat number, batch number, or other appropriate identification that matches the accompanying certified test report.

Also mark helical welded pipe piles with the fabricator's name, measured major diameter, measured minor diameter, and nominal wall thickness on the exterior face at both ends.

SECTION 716 STRUCTURAL STEEL

716-2.03 FASTENERS. Delete item 1 and substitute the following:

1. High Strength Bolts ASTM F3125, Grade A325 or F1852

716-2.07 GALVANIZING. Delete this subsection in its entirety and substitute the following: Hot-dip galvanize structural steel shapes, plates, bars and their products according to AASHTO M 111. Galvanize tubes and piles on inside and outside surfaces.

Hot-dip galvanize steel poles, mast arms, pedestals, and posts, according to AASHTO M 111. Submerge each component in the galvanizing kettle in one dip. Use only the dry kettle method of fluxing for high tower poles.

Hot-dip galvanize all anchor bolts, nuts, washers, tie-rods, clamps, and other miscellaneous ferrous parts in conformance with AASHTO M 232. After galvanizing, ensure that the bolt threads accept galvanized standard nuts without requiring tools or causing removal of protective coatings.

Galvanize rigid metal conduit in conformance with AASHTO M 232.

In lieu of hot-dip galvanizing, main steel bridge members may be spray-metalized. For main steel bridge members, apply 10 mils zinc galvanizing by the spray-metalizing process according to Steel Structures Painting Council's coating system guide SSPC-CS 23.00. Prepare surfaces before galvanizing according to Steel Structures Painting Council's surface preparation guide SSPC-SP 5, White Metal Blast Cleaning.

Repair damaged coatings according to ASTM A780 Annex A1 or Annex A3, except as described herein. Clean the damaged area according to SSPC-SP 2, Hand Tool Cleaning for repairs meeting Annex A1 and SSPC-SP 5, White Metal Blast Cleaning for repairs meeting Annex A3. Extend the cleaned area 1/2 inch to 3/4 inch into the undamaged section of the coating. Keep the cleaned area dry and free of rust and soiling. Within 24 hours of cleaning, coat the cleaned section with zinc to a thickness of not less than 10 mils when using the method in Annex A3 and not less than 3 mils when using the method in Annex A1. Taper the thickness of the repair coating to match the original coating thickness at the edges of the cleaned section. Where zinc coating is to be metallized in accordance with Annex A3, use zinc wire containing not less than 99.98 percent zinc.

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**SECTION 722
BRIDGE RAILING**

722-2.01 BRIDGE RAILING. Delete "High strength bolts, nuts and washers" and substitute the following:

High strength bolts, nuts and washers ASTM F3125, Grade A325 or ASTM A449, Type 1

Delete Section 723 in its entirety and substitute the following:

**SECTION 723
WATERSTOPS**

723-2.01 MATERIALS.

1. Strip Tape. Use waterproofing joint sealing system that complies with the requirements in Table 723-1.

**TABLE 723-1
WATERPROOFING STRIP TAPE REQUIREMENTS**

Quality characteristic	Test method	Requirement
Tensile strength (min, psi)	ASTM D412	1,500
Ultimate elongation (min, percent)	ASTM D412	500
Tear strength (min, lb/in, maintained to -40 °F)	ASTM D624, Die C	50
Peel Strength (7 days)	ASTM D903	No loss of adhesion

2. Adhesive. Use a high-modulus, high-strength, structural, epoxy paste adhesive that meets the waterstop sealant system manufacturer's requirements
3. Obtain the Engineer's approval to use water stops of materials other than those specified.

Delete Section 724 in its entirety and substitute the following:
04/15/16 (N51)

**SECTION 724
SEED**

724-2.01 DESCRIPTION. This specification provides the requirements for grass seed, used to provide a living vegetative cover.

724-2.02 MATERIALS. Grasses of the type specified shall meet the applicable requirements as outlined by the State of Alaska Department of Natural Resources, Division of Agriculture, "Seed Regulations," latest edition. Seed shall meet or exceed the percentages of purity and germination as specified in Table 724-1. Grass seed shall be furnished in standard containers on which shall be shown the following information:

- (1) the common accepted name of the specie (kind) and cultivar (variety) of the seed;
- (2) the country or state where the seed was grown;

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- (3) the total percentage by weight of pure seed;
- (4) the total percentage by weight of all weed seed;
- (5) the total percentage by weight of inert matter;
- (6) the total percentage by weight of other crop seed;
- (7) the name and approximate number per pound of each kind of restricted noxious weed seed;
- (8) the percentage of germination of the seed, together with the month and year the seed was tested;
- (9) the percentage of hard seed, if any is present;
- (10) the name and address of the person labeling the seed or selling, offering, or exposing the seed for sale within the state; and
- (11) the lot number or other lot identification.

If furnished as a premixed seed, the containers shall state that the seed is a mixture; the name of the species and cultivars of seed; and total percentage by weight of each species of seed present in order of predominance; and the information listed above: (4), (5), (7), (8), (10) and (11).

Seed which contains any prohibited noxious weeds as listed in the Alaska Department of Natural Resources Division of Agriculture's Prohibited and Restricted Noxious Weeds list shall be rejected. The Prohibited and Restricted Noxious Weeds list is located at the following URL:

<http://plants.alaska.gov/invasives/noxious-weeds.htm>.

Seed containing more than the maximum allowable tolerance of restricted noxious weeds shall be rejected. Restricted noxious weeds, with their maximum allowable tolerances are listed in the Alaska Department of Natural Resources Division of Agriculture's Prohibited and Restricted Noxious Weeds list. The Prohibited and Restricted Noxious Weeds list is located at the following URL:

<http://plants.alaska.gov/invasives/noxious-weeds.htm>.

The Contractor shall furnish to the Engineer duplicate copies of a statement signed by the vendor certifying that each lot of seed has been tested by a recognized seed testing laboratory. Seed that has not been tested within nine (9) months shall be rejected. The Contractor shall not remove tags from the seed containers. Seed containers that do not have tags shall be rejected. Discrepancies in the lot numbers listed on the statement to the lot numbers indicated on the tags of the seed containers shall be grounds for rejection. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be accepted. The Contractor shall immediately remove rejected seed from the project premises.

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TABLE 724-1
SEEDING REQUIREMENTS

SPECIES (KIND)	CULTIVAR (VARIETY)	PERCENT PURITY	PERCENT GERMINATION	PURE LIVE SEED (PERCENT PURITY X PERCENT GERMINATION)
American Sloughgrass	Egan	90	80	72
Annual Ryegrass	---	85	80	68
Alpine Bluegrass	Gruening	90	90	81
Beach Wildrye	Benson, Reeve	95	40	38
Bering Hairgrass	Norcoast	95	75	71
Bluejoint	Sourdough	95	75	71
Brome	Manchar, Polar	90	80	72
Glaucous Bluegrass	Tundra	95	80	76
Kentucky Bluegrass	Merion, Nugget, Park	95	80	76
Perennial Ryegrass	---	85	80	68
Polargrass	Alyeska, Kenai	95	75	71
Red Fescue	Arctared, Boreal, Pennlawn	98	80	78
Timothy	Climax, Engmo	95	90	85
Tufted Hairgrass	Nortran	95	75	71
Wheatgrass	Wainwright	95	85	81

**SECTION 725
FERTILIZER**

01/20/15 (N52)

725-2.02 MATERIALS. *Add the following:* Fertilizer which has become wet, moldy or otherwise damaged in transit or storage will not be accepted. The Contractor shall immediately remove rejected fertilizer from the project premises.

**SECTION 727
SOIL STABILIZATION MATERIAL**

8/02/2018 (N54)

727-2.01 MULCH. *Delete this subsection in its entirety and substitute the following:* All mulch, excluding trace mulch, shall provide 100% ground coverage. Apply mulch at the manufacturer's recommended application rate and increase as needed to achieve 100% ground coverage. All mulch, including trace mulch, shall meet one of the following:

1. Wood Cellulose Fiber or Natural Wood Fiber. Fiber shall be produced from natural or recycled (pulp) fiber, such as wood chips or similar wood materials, or from newsprint, corrugated cardboard, or a

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combination of these processed materials. Fiber shall not contain any rock, metal, or plastic. Fiber shall be treated with a green dye nontoxic to plant and animal life to facilitate inspection of the placement of the material. Fiber shall be manufactured in such a manner that after addition and agitation in slurry tanks with water, the fibers in the material will become uniformly suspended to form a homogenous slurry. When hydraulically sprayed on the ground, the material shall allow the absorption and percolation of moisture. The organic matter content shall be at least 90 percent on an oven-dry basis. The moisture content shall be no more than 15 percent as determined by oven dried weight. Each package of the cellulose fiber shall be marked by the manufacturer to show the dried weight. Product must be nontoxic to plant and animal life.

Wood Cellulose Fiber or Natural Wood Fiber may be used to stabilize slopes flatter than 4H:1V. On slopes 4H:1V or steeper Wood Cellulose Fiber or Natural Wood Fiber may be used if an approved tackifier is used, in addition to Wood Cellulose Fiber or Natural Wood Fiber, according to the Manufacturer's recommendations. Wood Cellulose Fiber or Natural Wood Fiber may not be used after August 1.

2. Wood Strand. Wood Strand shall be a blend of loose, long, thin wood pieces derived from native conifer or deciduous trees with high length to width ratio. A minimum of 95-percent of the wood strands shall have lengths between 2 and 10 inches, with a width and thickness between 1/16 and 3/8 inches. Wood Strand shall not contain resin, tannin, or other compounds in quantities that are detrimental to plant life. Sawdust or wood shavings shall not be used as Wood Strand. Wood Strand may be used on slopes flatter than 4H:1V. Wood Strand may not be used after August 1.
3. Straw. All straw material shall be in an air dried condition, free of noxious weeds, seeds, and other materials detrimental to plant life. Hay is not acceptable. Straw shall be suitable for spreading with mulch blower equipment. Straw may be used on slopes flatter than 4H:1V. Straw may not be used after August 1.
4. Bonded Fiber Matrix (BFM). The BFM shall be a hydraulically-applied blanket/mulch/covering composed of long strand, thermally processed wood fibers and crosslinked, hydro-colloid tackifier. The BFM may require a 24-48 hour curing period to achieve maximum performance. Once cured, the BFM shall form an intimate bond with the soil surface to create a continuous, absorbent, flexible erosion resistant blanket that allows for rapid germination and accelerated plant growth. BFM may be used to stabilize slopes between 2H:1V and 4H:1V. BFM may be used after August 1.
5. Fiber Reinforced Matrix (FRM). The FRM shall be a hydraulically-applied, flexible erosion control blanket/mulch/covering composed of long strand, thermally processed wood fibers, crimped, interlocking fibers and performance enhancing additives. The FRM shall require no curing period and upon application shall form an intimate bond with the soil surface to create a continuous, porous, absorbent and erosion resistant blanket that allows for rapid germination and accelerated plant growth. FRM may be used to stabilize slopes 2H:1V and steeper. FRM may be used after August 1.

A list of pre-approved products can be found in Table 1.

Table 1. Pre-Approved Mulch Products List

Product Name	Product Type	Manufacturer
Astro-Mulch	Wood Cellulose Fiber	Thermo-Kool Inc. Wasilla, AK
Fibermulch	Wood Cellulose Fiber	Thermo-Guard Insulation, Spokane, WA
NaturesOwn High Density Paper Hydroseeding Mulch	Wood Cellulose Fiber	Hamilton Manufacturing, Inc., Twin Falls, ID

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Hydro-Spray	Wood Cellulose Fiber	National Fiber, Belchertown, MA
EcoFibre	Natural Wood Fiber	Profile Products LLC, Buffalo Grove, IL
EcoFibre plus Tack	Natural Wood Fiber	Profile Products LLC, Buffalo Grove, IL
Terra Novo Wood Fiber Plus Tackifier	Natural Wood Fiber	Terra-Novo Inc. Bakersfield, CA
Conwed Fiber 1000	Natural Wood Fiber	Profile Products LLC, Buffalo Grove, IL
Rainier Fiber plus Tack	Natural Wood Fiber	Fiber Marketing International, Spokane, WA
Terra Wood with Tack	Natural Wood Fiber	Profile Products LLC, Buffalo Grove, IL
Excel Fibermulch II	Natural Wood Fiber	American Excelsior Co., Rice Lake, WI
Mat-Fiber Plus	Natural Wood Fiber	Mat, Inc., Floodwood, MN
Mat-Fiber	Natural Wood Fiber	Mat, Inc., Floodwood, MN
EcoAegis	Bonded Fiber Matrix (BFM)	Profile Products LLC, Buffalo Grove, IL
ProMatrix Engineered Fiber Matrix	Bonded Fiber Matrix (BFM)	Profile Products LLC, Buffalo Grove, IL
Verdyol Virgin BFM	Bonded Fiber Matrix (BFM)	Erosion Control Blankets, Manitoba, Canada
Rainier Fiber Bonded Fiber Matrix	Bonded Fiber Matrix (BFM)	Fiber Marketing International, Spokane, WA
Profile Hydro-Blanket BFM	Bonded Fiber Matrix (BFM)	Profile Products LLC, Buffalo Grove, IL
Soil Guard	Bonded Fiber Matrix (BFM)	Mat, Inc., Floodwood, MN
Flexterra FGM	Fiber Reinforced Matrix (FRM)	Profile Products LLC, Buffalo Grove, IL
Flex Guard	Fiber Reinforced Matrix (FRM)	Mat, Inc., Floodwood, MN
Hydra CX	Fiber Reinforced Matrix (FRM)	Tensar North American Green Poseyville, IN

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State of Alaska, Standard Specifications
for Highway Construction, Dated 2017 are
modified as follows:

STANDARD MODIFICATIONS

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**SECTION 101
DEFINITIONS AND TERMS**

07/01/18 (HSM18-1)

101-1.03 DEFINITIONS. Delete the definition for "BID" and substitute the following:

BID (OR PROPOSAL). The bidder's offer, on the prescribed forms, to perform the specified work at the prices quoted.

Add the following definitions:

BID FORMS. Department-furnished forms that a bidder must complete and submit when making a bid in response to an advertised project. Bid forms may include a bid schedule, certification forms, acknowledgment forms, and other documents.

DIGITAL SIGNATURE. An electronic signature that conforms to the Uniform Electronic Transactions Act, AS 09.80.010 et seq.

ELECTRONIC BID. A bid that a bidder (i) prepares on the Department's bid forms accessed through the Department's approved online bidding service and (ii) submits to the Department through use of that bidding service's online submittal process.

ELECTRONIC MAIL (EMAIL). A system for sending messages from one person to another via telecommunications links between computers or terminals using dedicated software.

MANUAL BID. A bid that a bidder (i) prepares on the Department's bid forms accessed either through the Department's approved online bidding service or obtained from the Department's Regional Contracts Office and (ii) submits to the Department in physical paper form by hand delivery, U.S. Mail, or courier service.

**SECTION 102
BIDDING REQUIREMENTS AND CONDITIONS**

07/01/18 (HSM18-1)

102-1.05 PREPARATION OF BID. Delete this subsection in its entirety and substitute the following: A bidder shall prepare its bid using either the Department approved bid preparation software or the Department provided bid forms or legible copies of the Department's forms. All entries shall be legible and in ink or type.

Bidders shall:

1. Enter all prices required on the Bid Schedule, in figures;
2. Enter a unit price for each contract item for which a quantity is given;
3. Enter the products of the respective unit prices and quantities in the column provided;
4. Enter lump sum prices for lump sum contract items in the column(s) provided; and
5. Enter the total amount of all contract items for the basic bid and, when specified, any alternates.

When a bid item contains a choice to be made by the bidder, the bidder shall indicate a choice according to the Specifications for that item. No further choice is permitted.

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The bid must be signed in ink or by a digital signature by the person or persons authorized to sign the Contract for the bidder. If a bidder is a corporation, the bid must be signed by a corporate officer or agent with authority to bind the corporation. If a bidder is a partnership, a partner must sign. If the bidder is a joint venture, each principal member must sign. If a bidder is a sole proprietorship, the owner must sign. Each person signing the bid must initial any changes made to entries on the bid forms.

A bidder submitting an electronic bid agrees that its digital signature constitutes a binding signature.

The bidder shall make no claim against the Department in the event it is unable to submit its bid through approved online bidding service and/or approved online bidding service is unable to submit the bid(s) to the Department. The Department reserves the right to postpone the public bid opening in the event of technical problems.

For multiple-project bid openings, the bidder may limit the total dollar amount or number of projects to be accepted by completing and attaching the following statement with its bid for at least one of the projects. The Department will then determine which of the low bids it will accept, up to the total indicated.

"We wish to disqualify all of our successful bids at this bid opening which exceed the total of \$_____ or ____ contracts and hereby authorize the Department to determine which bids to disqualify, based on this limit."

102-1.06 NONRESPONSIVE BIDS. Delete this subsection in its entirety and substitute the following:

1. A bid shall be rejected as nonresponsive if it:
 - a. Is not properly signed by an authorized representative of the bidder and in a legally binding manner;
 - b. Contains unauthorized additions, conditional or alternative bids, or other irregularities that make the bid incomplete, indefinite, or ambiguous;
 - c. Includes a reservation of the right to accept or reject any award, or to enter into a contract pursuant to an award, except for an award limitation under Subsection 102-1.05;
 - d. Fails to include an acceptable bid guaranty with the bid;
 - e. Is materially unbalanced; or
 - f. Fails to meet any other material requirement of the Invitation To Bid.
2. A bid may be rejected as nonresponsive, in the Department's discretion, if it:
 - a. Is not typed or completed in ink;
 - b. Fails to include an acknowledgement of receipt of each addendum by assigned number and date of issue; or
 - c. Is missing a bid price for any pay item, except when alternate pay items are authorized.

102-1.07 BID GUARANTY. Delete this subsection in its entirety and substitute the following: Bids shall be accompanied by a bid guaranty in the amount specified on the Invitation To Bid. The guaranty shall be unconditionally payable to the State of Alaska and shall be in the form of an acceptable paper Bid Bond (Form 25D-14), an electronic bid bond acceptable to the Department and verified through its online bidding service, a certified check, a cashier's check, or a money order.

The surety of a Bid Bond may be any corporation or partnership authorized to do business in Alaska as an insurer under AS 21.09. A legible power of attorney shall be included with each paper Bid Bond (Form 25D-14).

An individual surety will not be accepted as a bid guaranty.

102-1.08 DELIVERY OF BIDS. Delete this subsection in its entirety and substitute the following: Bids shall be submitted electronically through the online bidding service, or shall be submitted in a sealed envelope. When bids are submitted in a sealed envelope, the envelope shall clearly indicate its contents and the designated address, as specified on the Invitation to Bid. Bids for other work may not be included in the envelope. In the event of a bid delay, electronic bidders that have already submitted their bid prior to the bid delay must resubmit their bid utilizing all Bid Forms EBSX Files or their bid will not be received.

The Department will not accept a bid submitted by email or fax unless specifically called for in the Invitation To Bid.

102-1.09 WITHDRAWAL OR REVISION OF BIDS. Delete the subsection in its entirety and substitute the following: Manual Bids may be withdrawn or revised in writing delivered by mail, fax, or email , provided that the designated office receives the withdrawal or revision before the deadline stated in the in the Invitation To Bid. Withdraw requests must be signed and submitted by the bidder's duly appointed representative who is legally authorized to bind the bidder. Revisions shall include both the modification of the unit bid price and the total modification of each item modified but shall not reveal the amount of the total original or revised bids.

Electronic Bids may be withdrawn or resubmitted through the online bidding service. Revisions to electronic bids delivered by mail, fax, or email will not be permitted. If electronic bid withdrawal is unsuccessful, electronic bids may be withdrawn in writing delivered by mail, fax, or email provided that the designated office receives the withdrawal before the deadline stated in the Invitation To Bid. Written withdrawal requests must be signed and submitted by the bidder's duly appointed representative who is legally authorized to bind the bidder.

102-1.11 ADDENDA REQUIREMENTS. Delete this subsection in its entirety and substitute the following: The Department will issue addenda if it determines, in its discretion, that clarifications or changes to the Contract documents or bid opening date are needed. The Department may send addenda by any reasonable method such as fax, email, or may post the addenda on its website or online bidding service. Unless picked up in person or included with the bid documents, addenda or notice that an addendum has been issued will be addressed to the individual or company to whom bidding documents were issued and sent to the email address or fax number on the plan holders' list. Notwithstanding the Department's efforts to distribute addenda, bidders are responsible for ensuring that they have received all addenda affecting the Invitation To Bid. Bidders must acknowledge all addenda on the Bid Forms, by fax, or by email before the deadline stated in the Invitation to Bid.

102-1.12 RECEIPT AND OPENING OF BIDS. Delete this subsection in its entirety and substitute the following: The Department will only consider bids, revisions, and withdrawals received before the deadline stated in the Invitation To Bid.

The Department will assemble, open, and publicly announce bids at the time and place indicated in the Invitation to Bid, or as soon thereafter as practicable. The Department is not responsible for prematurely opening or failing to open bids that are improperly addressed or identified.

Add the following subsection:

102-1.14 ELECTRONIC MAIL. Within its submitted bid, a bidder must include a current electronic mail (email) address of bidder's representative who possesses authority to receive, process, and respond to Department emails regarding the advertised project.

The Department may send notices and information to a bidder by using the furnished email address of the bidder's authorized representative.

A bidder shall notify the Department if the bidder requests the Department to send email notices or information to an address different from the email address initially provided in its bid forms. The bidder shall notify the Department of such change by sending a request in writing to the Contract's point of contact identified on the Invitation to Bid that is signed by a representative who is authorized and empowered to legally bind the bidder.

Delivery of an email sent by the Department is complete upon receipt in the addressee's email account. An email sent after 4:30 pm shall be deemed to have occurred at the opening of business on the next working day.

If needed, the Department may demonstrate proof of email delivery by affidavit or certification that includes the following:

1. The date and time that the Department sent the email message;
2. The email address from which the Department sent the message;
3. The name and email address to which the Department sent the message;
4. A statement that the Department sent the email message and that the person signing the affidavit or certification believes the transmission to have been complete and without error; and
5. An attached copy of the subject email.

**SECTION 103
AWARD AND EXECUTION OF CONTRACT**

07/01/18 (HSM18-1)

103-1.01 CONSIDERATION OF BIDS. Delete this subsection in its entirety and substitute the following: After the bids are opened and read, the bids will be mathematically checked and compared on the basis of the sum of the products of the bid schedule quantities and the unit bid prices. The unit bid prices govern if there is an error in extending the unit bid prices, or in totaling the extensions, or if an extension is missing. The results of the bid comparisons will be made available to the public as soon as practicable.

Until the Award, the Department may reject any or all bids, waive minor informalities or advertise for new bids without liability to any bidder if the Department, in its discretion, determines that to do so is in the best interests of the State.

A bidder may request withdrawal of a bid after opening and before the Award only in accordance with AS 36.30.160(b) and State procurement regulations. Submit the request to the Contracting Officer.

An interested party, as defined in AS 36.30.699, may protest a proposed Award of contract as per AS 36.30.560 and AS 36.30.565. Submit the protest to the Contracting Officer.

WHOLLY STATE-FUNDED PROJECTS. On wholly state-funded projects, determination of the low bidder will include bidder preferences as required under AS 36.30.321, according to subsections 1-3 below. Alaska Bidder Preference, Alaska Veteran Preference, and Alaska Product Preference are not applicable on projects with federal funding.

1. Alaska Bidder Preference: A bidder claiming this preference shall provide with their bid an Alaska Bidder Preference Certification, certifying they qualify as an Alaska bidder eligible for Alaska Bidder Preference according to AS 36.30.

If the bidder qualifies as an Alaska bidder, a five percent (5%) preference will be applied to the price of the bid. "Alaska bidder" means a person who:

- a. holds a current Alaska business license;
 - b. submits a bid for goods, services, or construction under the name as appearing on the person's current Alaska business license;
 - c. has maintained a place of business within the state staffed by the bidder or an employee of the bidder for a period of six months immediately preceding the date of the bid;
 - d. is incorporated or qualified to do business under the laws of the state, is a sole proprietorship and the proprietor is a resident of the state, is a limited liability company organized under AS 10.50 and all members are residents of the state, or is a partnership under former AS 32.05, AS 32.06, or AS 32.11 and all partners are residents of the state; and
 - e. If a joint venture, is composed entirely of ventures that qualify under (a) through (d), above.
2. Alaska Veteran Preference: A bidder claiming this preference shall provide an Alaska Veteran Preference Certification, certifying they qualify as an Alaska bidder eligible for Alaska Veteran preference according to AS 36.30.

If a bidder qualifies as an Alaska bidder and is a qualifying entity, an Alaska Veteran Preference of 5 percent shall be applied to the bid price. The preference may not exceed \$5,000 (AS 36.30.321). A "qualifying entity" means a:

- a. sole proprietorship owned by an Alaska veteran;
- b. partnership under AS 32.06 or AS 32.11 if a majority of the partners are Alaska veterans;
- c. limited liability company organized under AS 10.50 if a majority of the members are Alaska veterans; or
- d. corporation that is wholly owned by individuals, and a majority of the individuals are Alaska veterans.

A preference under this section is in addition to any other preference for which the bidder qualifies.

To qualify for this preference, the bidder must add value by the bidder itself actually performing, controlling, managing and supervising a significant part of the services provided or the bidder must have sold supplies of the general nature solicited to other state agencies, governments, or the general public.

An Alaska veteran is a resident of Alaska who:

- (1) served in the Armed forces of the United States, including a reserve unit of the United States armed forces; or the Alaska Territorial Guard, the Alaska Army National Guard, the Alaska Air National Guard, or the Alaska Naval Militia; and
 - (2) was separated from service under a condition that was not dishonorable.
3. Alaska Product Preference: A bidder claiming this preference shall complete and sign the Alaska Product Preference Worksheet, according to the worksheet instructions, and submit the completed worksheet with their bid.

Except for timber, lumber and manufactured lumber products used in the construction project under AS 36.30.322(b), an Alaska products preference will be given as required under AS 36.30.326 - 36.30.332 when the bidder designates the use of Alaska products.

If the successful bidder/contractor proposes to use an Alaska product and does not do so, a penalty will be assessed against the successful bidder/contractor according to AS 36.30.330(a).

Each Alaska product declared on the Alaska Product Preference Worksheet must have an "Approval" date on the Alaska Product Preference Program List, that is on or before the bid opening date for this contract, and that does not expire before the bid opening date for this contract.

103-1.03 AWARD OF CONTRACT. Delete this subsection in its entirety and substitute the following: The Department will award the Contract to the lowest responsible and responsive bidder unless it rejects all bids. The Department will notify all bidders in writing via email, fax, or U.S. Mail of its intent to award.

The Department will notify the successful bidder in writing of its intent to award the Contract and request that certain required documents, including the Contract Form, bonds, and insurance be submitted within the time specified. The successful bidder's refusal to sign the Contract and provide the requested documents within the time specified may result in cancellation of the notice of intent to award and forfeiture of the bid security.

If an award is made, it will be made as soon as practicable and usually within 40 days after bid opening. Award may be delayed due to bid irregularities or a bid protest, or if the award date is extended by mutual consent. Bids shall be valid for 120 days after bid opening, and may be extended by mutual consent.

SECTION 109 MEASUREMENT AND PAYMENT

07/01/18 (HSM18-1)

109-1.01 GENERAL. Add the following after the second paragraph: Pay item numbers in the Bid Schedule are cross-referenced to the pay item numbers in all other contract documents. The cross-reference for pay item numbers is included in the Estimate of Quantities table on the Plans.

**SECTION 120
DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM**

12/22/17 (SM-3)

120-1.01 DESCRIPTION. Delete the second paragraph in its entirety and substitute the following: The Department, in coordination with the Federal Highway Administration (FHWA), adopted a Race-Neutral DBE Program with an overall DBE Utilization Goal of 8.83 percent for Alaska's FHWA Federal-Aid program. Although the Race-Neutral program does not establish or require individual project DBE Utilization Goals, 49 CFR establishes the Bidder is responsible to make a portion of the work available to DBEs and to select those portions of the work or material needs consistent with the available DBEs to facilitate DBE participation.

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

04/30/17 (SM-2)

641-3.03 SWPPP INSPECTIONS, AMENDMENTS, REPORTS, AND LOGS. Delete subparagraph 5. Stabilization before Seasonal Thaw and substitute the following:

5. Stabilization before Fall Freeze up and Spring Thaw. Construction Activities within the Project Zone must be stabilized with appropriate BMPs prior to the anticipated date of fall freeze up, in accordance with the CGP, Section 4.12.

Exceptions to stabilization prior to anticipated date of fall freeze up include:

When stabilization activities are precluded by snow cover or frozen ground conditions prior to the anticipated date of fall freeze up, or

When winter construction activity is authorized by the Engineer and conducted according to the contract.

Construction Activities within the Project Zone must be stabilized with appropriate BMPs prior to spring thaw, as defined in the CGP.

**SECTION 710
FENCE AND GUARDRAIL**

07/01/18 (HSM18-2)

710-2.11 GUARDRAIL TERMINALS. Delete this subsection in its entirety and substitute the following: W-beam shall meet requirements of AASHTO M 180, Class A, Type II. Galvanize after fabrication.

Components made from rolled pressed and forged shapes, castings, plates, bars, and strips shall meet the coating requirements of AASHTO M 111. Galvanize after fabrication.

All hardware or fasteners supplied shall meet the coating requirements of AASHTO M 232.

Provide one of the following terminal types, as shown on the plans, for single-rail W-beam guardrail. Design requirements: 31-inch top of rail height, 8-inch blockouts, W6 x 8.5 steel posts, 12ft-6in W-beam panels, and mid-span splice connection to run of rail.

1. Parallel Terminal.
 - a. Provide terminals meeting the following:
 - (1) Crashworthiness: MASH-compliant Test Level 3 terminals
 - (2) Length: 50 feet nominal effective length.
 - (3) End Offset: 0 to 2 feet (25:1 or flatter straight taper) Offset end as shown on the Plans.
2. Buried in Backslope Terminal: Provide MASH-compliant Test Level 3 terminals.

**SECTION 730
SIGN MATERIALS**

12/22/17 (SM-6)

730-2.05 FLEXIBLE DELINEATOR POSTS. Delete this subsection in its entirety and substitute the following: Durable fiberglass composite, polymer, or plastic material meeting the dimensions and colors shown on the Plans. Resistant to ultraviolet light, ozone and hydrocarbon damage and remain flexible at a temperature of minus 40 °F. Provide posts with reflectors that are capable of self-erecting and remaining serviceable after 5 head-on impacts at 55 mph and 10 impacts at 35 mph with an automobile at an air temperature of plus 40 °F.