STANDARD MODIFICATIONS
AND
SPECIAL PROVISIONS

To the **STATE OF ALASKA**

STANDARD
SPECIFICATIONS
FOR
HIGHWAY CONSTRUCTION

2017
EDITION

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TABLE OF CONTENTS

Section **Page**

DIVISION 100 — GENERAL PROVISIONS

DIVISION 200 — EARTHWORK

DIVISION 300 — BASES

DIVISION 400 — ASPHALT PAVEMENTS AND SURFACE TREATMENTS

DIVISION 600 — MISCELLANEOUS CONSTRUCTION

DIVISION 700 — MATERIALS

Blank Page

DIVISION 100 — GENERAL PROVISIONS

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SECTION 101
DEFINITIONS AND TERMS

Standard Modification

101-1.03 DEFINITIONS.

Delete the definition for BID and replace with the following:

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

Delete the definition for DEPARTMENT and replace with the following:

DEPARTMENT.

The City of Dillingham
P.O. Box 889
Dillingham, Alaska 99576
Tel. (907) 842-5211
Attn: Cynthia Rogers, City Planner

Add the following five 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.

CITY.

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

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

FURNISH. Supply and deliver to the Project site, unload and temporarily store at the Project site, ready for unpacking, assembly, installation, and similar operations.

INSTALL. Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

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.

PROVIDE. Furnish and install, complete and ready for the intended use.

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SECTION 105
CONTROL OF WORK

105-1.05 COOPERATION BY CONTRACTOR. *Delete subsection in its entirety and replace with the following:*

The Contractor shall give the work the constant attention necessary for its progress, and shall cooperate fully with the Engineer, City staff, and other contractors in every way possible.

The Contractor shall employ, as its agent, a competent superintendent thoroughly experienced in the type of work being performed and capable of reading and thoroughly understanding the Plans and Specifications. Either the Contractor's Superintendent or an acting Superintendent with authority to represent and act for the Contractor shall be available in the City of Dillingham whenever work is occurring. The Contractor shall provide 24-hour contact information for the Superintendent. The Contractor shall ensure that the superintendent is available at all times to receive and execute Directives and other instructions from the Engineer, to supervise workers and to coordinate the work of subcontractors. The Contractor shall give the superintendent full authority to supply the resources required to complete the project in accordance with the Contract. The Contractor shall furnish superintendence regardless of the amount of work sublet.

While performing work on the project, the Contractor shall not simultaneously perform work for other projects in the vicinity without prior approval from the City of Dillingham.

105-1.14 PARTIAL COMPLETION. *Delete subsection in its entirety and replace with the following:*

The Contractor may submit a written request for partial acceptance of a substantially complete geographically separate portion of the project. The Engineer will accept the portion in writing before project completion and relieve the Contractor of further maintenance responsibility for the complete work except as listed under Subsection 621-3.04 Period of Establishment if the Engineer inspects the portion and finds that it is substantially complete to Contract requirements, and acceptance is in the best interest of the City.

Partial completion of the portion neither voids nor alters any Contract terms.

SECTION 106
CONTROL OF MATERIAL

106-1.05 CERTIFICATES OF COMPLIANCE. *Add the following after the second paragraph:*

Contractor shall provide submittals to the Engineer for any material, product, or items identified in the Plans and Specifications. Submittals include but are not limited to product data sheets, material test reports, and manufacturer's recommendations for all materials. Submittals shall be provided a minimum of 7 days prior to procurement.

SECTION 107
LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

107-1.07 ARCHAEOLOGICAL OR HISTORICAL DISCOVERIES. Add the following:

When operation encounters historic or prehistoric artifacts, burials, remains of dwelling sites, paleontological remains, (shell heaps, land or sea mammal bones or tusks, or other items of historical significance), cease operations immediately and notify the Engineer.

107-1.11 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE. Add the following:

Non-municipal Water Source. If water is required for a construction purpose from a nonmunicipal water source, obtain a Temporary Water Use Permit from the Water Resource Manager, and provide a copy to the Engineer. The Water Resource Manager is with the Department of Natural Resources in Anchorage and may be contacted at (907) 269-8645.

SECTION 108
PROSECUTION AND PROGRESS

108-1.03 PROSECUTION AND PROGRESS. *Delete section and replace with the following:* The Contractor shall meet with the Engineer and Owner for a preconstruction conference before beginning construction. The Owner will designate the location and date of the preconstruction conference. The conference may be held telephonically at the Owner's discretion.

At a minimum, the Contractor shall submit the following documents at least five working days before the preconstruction conference is held:

1. Anticipated progress schedule, in a format acceptable to the Engineer, showing the order in which the Contractor proposes to carry out the work and the contemplated dates on which the Contractor and the subcontractors will start and finish each of the notable features of the work, including phased work and scheduled periods of shutdown. The schedule shall indicate the anticipated hours of operation and any anticipated periods of multiple-shift work.

2. A list showing anticipated dates for procurement of materials and equipment, ordering of articles of special manufacture, furnishing of plans, drawings and other data required under the Contract and for other events such as inspection of structural steel fabrication.

3. A list showing all proposed subcontractors and material suppliers.

4. A Construction Phasing Plan, as required by Section 643-1.05.

5. A Storm Water Pollution Prevention Plan and a Hazardous Material Control Plan, with the line of authority and designated field representatives, as required under Section 641.

6. A letter designating the Contractor's Project Superintendent, defining that person's responsibility and authority, and providing a specimen signature.

7. A Quality Control Plan as required under Subsection 106-1.03.

The above list highlights notable documents to be submitted prior to the preconstruction conference and does not relieve the Contractor of responsibility for meeting all other submission requirements detailed within the Contract documents.

SECTION 109
MEASUREMENT AND PAYMENT

Special Provisions

109-1.02 MEASUREMENT OF QUANTITIES. Replace item, "14. Weighing Procedures" with "Weighing Procedures". "Weighing Procedures" is a subtopic under item "13. Ton (2,000 pounds)."

DIVISION 200 — EARTHWORK

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SECTION 201
CLEARING AND GRUBBING

Special Provisions

201-3.01 GENERAL. Add the following:

Perform the work necessary to preserve and/or restore land monuments and property corners from damage. Restore land monuments and/or property corners that are disturbed according to Section 642. An undisturbed area five feet in diameter may be left around existing monuments and property corners.

Add the following:

Clearing and grubbing is not permitted within the migratory bird window of May 1 to July 15; except as permitted by Federal, State and local laws when approved by the Engineer.

201-5.01 BASIS OF PAYMENT. Add the following:

The work required to preserve and restore land monuments and property corners is subsidiary to 201 Pay Items.

SECTION 202
REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Special Provisions

202-3.01 GENERAL. Add the following:

Carefully remove fences designated by the Engineer to the right-of-way limit, or to the end of the span beyond the right-of-way limit. These materials belong to the property owners, and shall be salvaged and stacked neatly in their yards. After the construction of noise barrier or fence is complete, use salvaged fencing to fill possible fencing gaps behind the property line. Use salvaged fencing according to Section 607, for reconstructed fences.

Add the following Subsection 3.09:

202-3.09 DISPOSAL OF PAVEMENT, SIDEWALKS, AND CURBS.

Pavement, sidewalk, and curb materials not used in the project, stored at a Contractor DEC approved site, provided to the local DOT Maintenance and Operations Station, or disposed of at a previously approved DEC disposal site require a DEC Solid Waste Disposal Permit.

Use disposal sites outside the project limits unless directed otherwise, in writing, by the Engineer. Obtain written consent from the property owner. Dispose of solid waste materials, pavement, sidewalk, and curb (including handling, transporting, storing and disposing) according to the Alaska Department of Environmental Conservation (DEC) Regulations.

A DEC Permitting Officer in Anchorage, contact at (907) 269-7590.

202-5.01 BASIS OF PAYMENT. Add the following:

Acquiring a solid waste disposal permit from DEC is subsidiary to 202 Pay Items.

SECTION 204
STRUCTURE EXCAVATION FOR CONDUITS AND MINOR STRUCTURES

Special Provision

204-2.01 MATERIALS. In paragraph three replace: "pavement" with "roadbed."

204-3.01 CONSTRUCTION REQUIREMENTS. Replace paragraph four with:

Native material may be utilized for conduit, pipe culvert, storm drain, manhole, inlet and other minor structure backfill outside the roadbed structure if it meets the minimum requirements of Selected Material, Type C, as specified in subsection 703-2.07. Excavation, bedding, backfill, and compaction may be visually inspected and approved by the Engineer.

DIVISION 300 — BASES

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SECTION 301
AGGREGATE BASE AND SURFACE COURSE

Special Provision

301-2.01 MATERIALS. Add the following after the first sentence:

Recycled Asphalt Material (RAM) may be substituted for aggregate base course, inch for inch, if the following conditions are met:

1. RAM shall be crushed or processed to 100 percent by weight passing the 1.5 inch sieve and 95-100 percent by weight passing the 1 inch sieve.
2. The gradation of the extracted aggregate shall meet the following:

Sieve	Percent Passing by Weight
1 inch	100
3/4 inch	70 – 100
3/8 inch	42 – 90
No. 4	28 – 78
No. 16	11 – 54
No. 50	5 – 34
No. 100	3 - 22
No. 200	2 – 12

3 The asphalt content shall be 2.5 – 5.0 percent by weight of the RAM.

301-3.01 PLACING. Add the following:

Place base course material, used for the sidewalk and pathway foundations, with equipment capable of providing a specified depth and uniform surface.

301-3.03 SHAPING AND COMPACTION. Add the following:

If recycled asphalt material is substituted for aggregate base course, the following conditions shall be met:

1. Density acceptance will be determined by control strip method ATM 412. Use a test strip with a vibratory compactor with a minimum dynamic force of 40,000 pounds. The optimum density will be determined by the Engineer using a nuclear densometer gauge to monitor the test strip. Adequate water shall be added to aid compaction.
2. After the appropriate coverage with the vibratory compactor, a minimum of 6 passes with a pneumatic tire roller shall be completed. Tires shall be inflated to 80 psi (± 5 psi) and the roller shall have a minimum operating weight per tire of 3,000 pounds.

301-5.01 BASIS OF PAYMENT. Add the following:

Recycled asphalt material substituted for aggregate base course will be paid for as Item 301(1) Aggregate Base Course, at the unit price shown in the bid schedule for that Item.

Special Provisions

Replace Section 306 with the following:

SECTION 306
ASPHALT TREATED BASE COURSE

306-1.01 DESCRIPTION. Construct a plant-mixed asphalt treated base (ATB) course on an approved foundation to the lines, grades, and depths shown in the Plans. Recycled asphalt pavement (RAP) may be used in the mix as specified herein.

306-1.02 REFERENCE.

1. Section 401, Hot Mix Asphalt and Surface Treatments.

MATERIALS

306-2.01 COMPOSITION OF MIXTURE - JOB MIX DESIGN (JMD). Design the JMD according to the Alaska Test Manual (ATM) 417 using the design requirements of Table 306-1 and as specified herein. Recycled Asphalt Pavement may be used to supplement the aggregate and asphalt binder in the ATB.

TABLE 306-1

ATB DESIGN REQUIREMENTS

DESIGN PARAMETERS	CLASS "B"
ATB (Including Asphalt Binder)	
Stability, Pounds	1200 min.
Flow, 0.01 Inch	8 - 16
Voids in Total Mix, %	3 – 5
Compaction, Number of Blows Each Side of Test Specimen	50
Asphalt Binder	
Percent Voids Filled with Asphalt Binder (VFA)	65 - 78
Asphalt Binder Content, Min. %	5.0
Dust-Asphalt Ratio*	0.6 - 1.4
Voids in the Mineral Aggregate (VMA), %, Min.	
Type II	12.0
Recycled Asphalt Pavement (RAP)	
RAP, Max. %.	25

*Dust-asphalt ratio is the percent of material passing the No. 200 sieve divided by the percent of effective asphalt binder.

The JMD will specify the Target Values (TV) for gradation, the TV for asphalt binder content, the Maximum Specific Gravity (MSG) of the ATB, the additives, and the allowable mixing temperature range.

Target values for gradation in the JMD must be within the broad band limits shown in Table 703-3. For acceptance testing, ATB mixture will have the full tolerances in Table 306-2 applied. The tolerance limits will apply even if they fall outside the broad band limits shown in Table 703-3. Tolerance limits will not be applied to the largest sieve specified.

Do not mix ATB produced from different plants for testing or production paving. ATB from different plants will be rejected.

Submit the following to the Engineer at least 15 days before the production of ATB:

1. A letter stating the location, size, and type of mixing plant, the proposed gradation for the JMD including gradations for individual virgin aggregate (aggregate) stockpiles and the RAP stockpile. Provide supporting process quality control information; including the blend ratio of each aggregate stockpile, the RAP stockpile and the RAP asphalt binder content. For mixes with RAP, provide JMD gradation with and without RAP. Provide calibration data if WAQTC FOP for AASHTO T308 is used for RAP process control.

2 Representative samples of each aggregate (coarse, intermediate, fine, blend material and mineral filler, if any) and RAP required for the proposed JMD. Furnish 100 lbs of each intermediate and/or coarse aggregate, 200 lbs of fine aggregate, 25 lbs of blend sand, and 200 lbs of RAP.

3. Three separate 1-gallon samples, minimum, of the asphalt binder proposed for use in the ATB. Include name of product, manufacturer, test results of the applicable quality requirements of Subsection 702-2.01, manufacturer's certificate of compliance according to Subsection 106-1.05, a temperature viscosity curve for the asphalt binder or manufacturer's recommended mixing and compaction temperatures, and current Material Safety Data Sheet (MSDS).

4. One sample, of at least 1/2 pint, of the anti-strip additive proposed, including name of product, manufacturer, and manufacturer's data sheet, and current MSDS.

The Engineer will evaluate the material and the proposed gradation using ATM 417 and Table 306-1 ATB Design Requirements.

The mix, the materials and proposed gradation meeting the specification requirements will become part of the Contract when approved, in writing, by the Engineer.

FAILURE TO MEET SPECIFICATION REQUIREMENTS

Submit a new JMD with changes noted and new samples in the same manner as the original JMD when:

- The results do not achieve the requirements specified in Table 306-1
- The asphalt binder source is changed
- The source of aggregate, aggregate quality, gradation, or blend ratio is changed
- The source of RAP is changed

Do not produce ATB for production paving and payment before the Engineer provides written approval of the JMD, the original or a new replacement JMD.

Payment for ATB will not be made until the new JMD is approved. Approved changes apply only to ATB produced after the submittal of changes.

The Engineer will assess a fee for each mix design subsequent to the approved Job Mix. The fee will be included under Pay Item 306(8_) ATB, Asphalt Price Adjustment, Type ___; Class__.

306-2.02 AGGREGATES. Conform to Subsection 703-2.04. Type II, Class B (IIB) total combined aggregates.

Use a minimum of three stockpiles for crushed ATB aggregate (coarse, intermediate, and fine). Place RAP, blend material and mineral filler in separate piles.

306-2.03 ASPHALT BINDER. Conform to 702-2.01. If asphalt binder is not specified use PG 52-28.

The total asphalt binder content may be a combination of the asphalt binder specified and the residual asphalt binder in the RAP.

Provide test reports for each batch of asphalt binder showing conformance to the specifications in Section 702, before delivery to the project. Require that the storage tanks used for each batch be noted on the test report, the anti-strip additives required by the mix design be added during load out for delivery to the project, and a printed weight ticket for anti-strip is included with the asphalt binder weight ticket. The location where anti-strip is added may be changed with the written approval of the Engineer.

Furnish the following documents at delivery:
1. Manufacturer's certificate of compliance (Subsection 106-1.05).
2. Conformance test reports for the batch (provide prior to delivery as noted above).
3. Batch number and storage tanks used.
4. Date and time of load out for delivery.
5. Type, grade, temperature, and quantity of asphalt binder loaded.
6. Type and percent of anti-strip added.

306-2.04 ANTI-STRIP ADDITIVES. Use anti-strip agents in the proportions determined by ATM 414 and included in the approved JMD. At least 70% of the aggregate must remain coated when tested according to ATM 414. A minimum of 0.25% by weight of asphalt binder is required.

306-2.05 PROCESS QUALITY CONTROL. Sample and test materials for quality control of the ATB according to Subsection 106-1.03. Submit to the Engineer, with the JMD, a documentation plan that will provide a complete, accurate, and clear record of the sampling and testing results. When directed by the Engineer, make adjustments to the plan and resubmit.

Submit a paving and plant control plan at the pre-paving meeting to be held a minimum of 7 days before initiating pre-paving operations. Address the sequence of operations. Outline steps to provide product consistency, to minimize segregation, to prevent premature cooling of the ATB, and to provide the mat density required by these specifications. Include a proposed quality control testing frequency for gradation, asphalt binder content, and compaction.

Failure to perform quality control forfeits the Contractor's right to a retest under Subsection 306-4.02.

Provide copies of the documented sampling and testing results no more than 24 hours from the time taken.

306-2.06 RECYCLED ASPHALT PAVEMENT (RAP). Process existing pavement removed under Subsection 202-3.05 and 3.06 so material passes the 1 1/2" sieve. Stockpile the material separately from the crushed aggregates. Perform one gradation and one asphalt binder content test for every 1000 tons of RAP or a minimum of 10 sets of tests whichever is greater.

CONSTRUCTION REQUIREMENTS

306-3.01 WEATHER LIMITATIONS. Do not place ATB on a wet surface, on an unstable/yielding roadbed, when the base material is frozen, or when weather conditions prevent proper handling or finishing of the mix. Do not place ATB unless the roadway surface temperature is 40°F or warmer.

306-3.02 EQUIPMENT, GENERAL. Use equipment in good working order and free of ATB buildup. Make equipment available for inspection and demonstration of operation a minimum of 24 hours before placement of production ATB.

306-3.03 ASPHALT MIXING PLANTS. Meet AASHTO M 156. Use an asphalt plant designed to dry aggregates, maintain accurate temperature control, and accurately proportion asphalt binder and aggregates. Calibrate the asphalt plant and furnish copies of the calibration data to the Engineer at least 4 hours before ATB production.

When using recycled asphalt pavement material, mix the RAP with the aggregate before the aggregate enters the plant thereby adding the RAP combined with the aggregate to the asphalt treated base mixture at one time.

Provide a scalping screen at the asphalt plant to prevent oversize material or debris from being incorporated into the ATB.

Provide a tap on the asphalt binder supply line just before it enters the plant (after the 3-way valve) for sampling asphalt binder.

Provide aggregate and asphalt binder sampling equipment meeting OSHA safety requirements.

306-3.04 HAULING EQUIPMENT. Costs associated with meeting the requirements of Subsection 306-3.04 are subsidiary to Section 306 Pay Items.

Vehicles/Equipment. Haul ATB in trucks with tight, clean, smooth metal beds, thinly coated with a minimum amount of paraffin oil, lime water solution, or an approved manufactured asphalt release agent. Do not use petroleum fuel as an asphalt release agent.

During ATB hauling activities, the hauling vehicle will have covers attached and available for use. Be prepared to demonstrate deployment of the cover when hauling material or empty. Illustrate the efficiency of deployment and how the materials are protected from the environment and the environment is protected from the materials. When directed by the Engineer, cover the ATB in the hauling vehicle(s).

Roadway Maintenance. Daily inspect, remove/clean, and dispose of project materials deposited on existing and new pavement surface(s) inside and outside the project area including haul routes.

The inspection plan and method of removal/cleaning and disposal shall be submitted in writing to the Engineer and approved by the Engineer 7 days before initiating paving operations. Include alternatives, options to immediately correct deficiencies in the inspection plan and methods of removal/cleaning and disposal that may be discovered as the work is being performed.

The Engineer may require the Contractor to include a vehicle/equipment cleaning station(s), to be added at the project site and or at the plant, in the basic plan or as one of the corrective alternatives/options. At a minimum, the cleaning station will include the materials and means to:

(1) Spray truck tires with an environmental degradable release agent if mix adheres to tires before dumping in front of the paving equipment.
(2) Clean off loose mix from gates, chains, and tires that might fall on the pavement of the haul route.
(3) Contain, collect and disposal of (1) and (2).

The Contractor is responsible for the inspection plan, the means, and methods used for removal/cleaning and disposal of fugitive materials/debris. The Contractor is responsible for the damage as a result of not removing these materials (to the roadway material, the users and others) and the damage to the roadway materials from the removal method(s). Approval does not change the Contractor's responsibility, nor add responsibility to the Department for this work.

Repair damage, as specified in Subsection 306-3.16 Patching Defective Areas, to the existing roadway materials (asphalt type) as a result of the fugitive materials or their removal. Use repair materials of similar type to the damaged material. Attain written approval from the Engineer for the proposed material.

306-3.05 PAVING EQUIPMENT. Use self-propelled asphalt pavers with a heated vibratory screed. Control grade and cross slope with automatic grade and slope control devices. Use an erected string line, a 30-foot minimum mobile stringline (ski), or other approved grade follower, to automatically actuate the screed or blade control system. Use grade control on either (a) both the high and low sides or (b) grade control on the high side and slope control on the low side.

Use a paver screed assembly that produces a finished surface of the required smoothness, thickness, and texture without tearing, shoving, or displacing the ATB.

Equip pavers with a receiving hopper having sufficient capacity for a uniform spreading operation and a distribution system to place the ATB uniformly in front of screed.

Prevent segregation of the coarse aggregate particles from the remainder of the ATB during paving operations. Specifically equip pavers to prevent segregation between the hopper and augers. Use means and methods approved by the paver manufacturer. Means and methods may include chain curtains, deflector plates, or other similar devices or combination of devices. When required by the Engineer, provide a Certificate of Compliance verifying use of the means and methods required to prevent segregation.

306-3.06 ROLLERS. Use both steel-wheel (static or vibratory) and pneumatic-tire rollers. Avoid crushing or fracturing of aggregate. Use rollers designed to compact ATB asphalt mixtures and reverse without backlash.

All rollers shall have an attached infrared thermometer that measures and displays the surface temperature to the operator.

Use fully skirted pneumatic-tire rollers having a minimum operating weight of 3000 pounds per tire.

306-3.07 PREPARATION OF EXISTING SURFACE. Prepare base surface conforming to the Plans and Specifications.

Before placing the hot asphalt mix, apply tack coat material (Section 702) as specified here and in Section 402. Uniformly coat contact surfaces of curbing, gutters, sawcut pavement, cold joints, manholes, and other structures with tack coat material. Allow tack coat to break before placement of ATB on these surfaces.

306-3.08 PREPARATION OF ASPHALT. Provide a continuous supply of asphalt binder to the asphalt mixing plant at a uniform temperature, within the allowable mixing temperature range.

306-3.09 PREPARATION OF AGGREGATES. Dry the aggregate so the moisture content of the ATB, sampled at the point of acceptance for asphalt binder content, does not exceed 0.5% (by total weight of mix), as determined by WAQTC FOP for AASHTO T 329.

Heat the aggregate for the ATB, and the RAP when being used in the mix, to a temperature compatible with the mix requirements specified.

Adjust the burner on the dryer to avoid damage to the aggregate and to prevent the presence of unburned fuel on the aggregate. ATB containing soot or fuel is unacceptable (Subsection 105-1.11).

306-3.10 MIXING. Combine the aggregate, asphalt binder, and additives in the mixer in the amounts required by the JMD. Mix to obtain 98% coated particles when tested according to AASHTO T 195.

306-3.11 TEMPORARY STORAGE. Silo type storage bins may be used, provided the characteristics of the ATB remain unaltered. Changes in the JMD, visible or otherwise, are cause for rejection. Changes may include: visible segregation, heat loss; and the physical characteristics of the asphalt binder, lumpiness, or stiffness of the ATB or similar.

306-3.12 PLACING AND SPREADING. Use asphalt pavers to distribute ATB. Place the ATB upon the approved surface, spread, strike off, and adjust surface irregularities. The maximum compacted lift thickness allowed is 3 inches.

During placement, the Engineer, using an infrared camera, may evaluate the ATB surface immediately behind the paver for temperature uniformity. Areas with temperature differences more than 25° F lower than the surrounding ATB may produce areas of low density. Contractor shall immediately adjust laydown procedure to maintain a temperature differential of 25° F or less. Thermal images and thermal profile data will become part of the project record and shared with the Contractor.

Use hand tools to spread, rake, and lute the ATB in areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable.

When the section of roadway being paved is open to traffic, pave adjacent traffic lanes to the same elevation within 24 hours. Place approved material against the outside pavement edge when the drop-off exceeds 2 inches.

Do not cover/place over the asphalt treated base material until the ATB material throughout that section, as defined by the Paving Plan, is placed and accepted.

Do not pave against new Portland cement concrete curbing until it has cured for at least 72 hours.

Do not place ATB over bridge deck membranes, except as directed by the Engineer.

306-3.13 COMPACTION. Compact the ATB by rolling thoroughly and uniformly. In areas not accessible to large rollers, compact with mechanical tampers or trench rollers. Prevent indentation of ATB. Do not leave rollers or other equipment standing on ATB that is not sufficiently cooled to prevent indentation.

A mat area with density lower than 92.0 % MSG is considered segregated and not in conformance with the requirements of the Contract. The work shall be deemed unacceptable by the Engineer according to Subsection 105-1.11 unless, the Engineer determines that reasonably acceptable work has been produced as permitted in Subsection 105-1.03.

The MSG of the JMD will be used for the first lot of ATB. The MSG for additional lots will be determined from the first sublot of each lot.

Acceptance testing for density will be performed according to WAQTC FOP for AASHTO T 166/T 275 using a 6 inch diameter core.

306-3.14 JOINTS. Minimize the number of joints. Do not construct longitudinal joints in the driving lanes unless approved by the Engineer in writing at the Pre-paving meeting. Place and compact the ATB to provide a continuous bond, texture, and smoothness between adjacent sections of the ATB.

Coordinate the joints in the ATB pavement layer with the layer of HMA pavement above. Offset the longitudinal joints in the HMA pavement layer above from the joint in the ATB asphalt pavement layer immediately below by at least 6 inches.

Form transverse joints by cutting back on the previous run to expose the full depth of the layer. Saw cut the joint, use a removable bulkhead or other method approved by the Engineer.

Remove to full depth improperly formed joints resulting in surface irregularities. Before removing pavement, cut a neat straight line along the pavement to be removed and the pavement to remain. Use a power saw or other method approved by the Engineer. Replace the removed asphalt with new ATB and thoroughly compact.

306-3.15 SURFACE TOLERANCE. Costs associated with meeting surface tolerances are subsidiary to the ATB Pay Items.

The Engineer will test the finished surface after final rolling at selected locations using a 10 ft straightedge. Correct variations from the testing edge, between any two contacts, of more than 1/4 inch.

306-3.16 PATCHING DEFECTIVE AREAS. Costs associated with patching defective areas are subsidiary to the ATB Pay Items.

Remove defective ATB for the full thickness of the course, do not skin patch. Cut the pavement so that edges are vertical and the sides are parallel to the direction of traffic. Coat edges with a tack coat meeting Section 402 and allow to cure. Place and compact fresh ATB to grade (Subsection 306-3.13) and surface tolerance requirements (Subsection 306-3.15).

306-4.01 METHOD OF MEASUREMENT. Section 109 and the following:

1. Asphalt Treated Base.
   a) By weighing. No deduction will be made for the weight of asphalt binder or anti stripping additive or cutting back joints.

2. Asphalt Binder. By the ton, as follows.

   Method 1:

   Percent of asphalt binder for each sublot multiplied by the total weight represented by that sublot. The same tests used for the acceptance testing of the sublot will be used for computation of the asphalt binder quantity. If no acceptance testing is required, the percent of asphalt binder is the target value for asphalt binder in the JMD.

   Method 2:

   Supplier's invoices minus waste, diversion and remnant. This procedure may be used on projects where deliveries are made in tankers and the asphalt plant is producing ATB for one project only.

   The Engineer may direct, at any time that tankers be weighed in the Engineer's presence before and after unloading. If the weight determined at the project varies more than 1% from the invoice amount, payment will be based on the weight determined at the project.

   Any remnant or diversion will be calculated based on tank stickings or weighing the remaining asphalt binder. The Engineer will determine the method. The weight of asphalt binder in waste ATB will be calculated using the target value for asphalt binder as specified in the JMD.

   Method 1 will be used for determining asphalt binder quantity unless otherwise directed in writing. The procedure initially used will be the one used for the duration of the project. No payment will be made for any asphalt binder more than 0.4% above the optimal asphalt binder content specified in the JMD.

3. ATB, Price Adjustment, Type ; Class . Determined under Subsection 306-4.03 Evaluation of Materials for Acceptance. Also included in the measurement are the fees specified in Subsections 306-2.01, 4.02, 4.03 and 5.01.

306-4.02 ACCEPTANCE SAMPLING AND TESTING. The Engineer will evaluate ATB for conformance to specifications according to Subsection 306-4.03 Evaluation of Materials for Acceptance.

ASPHALT TREATED BASE

The quantity of ATB produced and placed will be divided into lots and the lots evaluated individually for acceptance.

A lot will normally be 10,000 tons. The lot will be divided into sublots of 1000 tons; each randomly sampled and tested for asphalt binder content, density, and gradation according to this subsection.

If the project has more than 1 lot, and less than 8 additional sublots have been sampled at the time a lot is terminated, either due to completion of paving operations or the end of the construction season (winter shutdown), the material in the shortened lot will be included as part of the prior lot.

If 8 or 9 samples have been obtained at the time a lot is terminated, they will be considered as a lot and evaluation will be based on the actual number of test results (excluding outliers) in the shortened lot.

If the contract quantity is between 3,000 tons and 10,000 tons, the Contract quantity will be considered one lot. The lot will be divided into sublots of 1000 tons and randomly sampled for asphalt binder content, density, and gradation according to this subsection except that a determination for outliers will not be performed. ATB quantities of less than 600 tons remaining after dividing the Contract quantity into sublots will be included in the last sublot. ATB quantities of 600 tons or greater will be treated as an individual sublot. The lot will be evaluated according to Subsection 306-4.03 except as noted.

For Contract quantity of less than 3,000 tons, ATB will be accepted for payment based on the Engineer's approval of a JMD and the placement and compaction of the ATB to the specified depth and finished surface requirements and tolerances. The Engineer reserves the right to perform any testing required in order to determine acceptance. Remove and replace any ATB that does not conform to the approved JMD.

The Engineer will determine where samples are taken.

1. Asphalt Binder Content. Asphalt treated base mix samples taken for the determination of asphalt binder content will be taken randomly from behind the paver screed before initial compaction, or from the windrow according to WAQTC FOP for AASHTO T 168 and ATM 403, as directed by the Engineer.

   Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if applicable. At the discretion of the Engineer, asphalt binder content will be determined according to ATM 405 or WAQTC FOP for AASHTO T 308, except ATM 405 will not be used when RAP is included in the mixture.

2. Aggregate Gradation. The gradation will be determined according to WAQTC FOP for AASHTO T 30 from the aggregate remaining after the ignition oven (WAQTC FOP for AASHTO T 308) has burned off the asphalt binder.

3. Density.

The Engineer will determine and mark the location(s) where the Contractor will take each mat core sample. The location(s) for taking mat core samples will be determined using a set of random numbers and the Engineer's judgment.

Cut full depth core samples centered on the marks from the finished ATB within 24 hours after final rolling. Neatly core drill one six inch diameter sample at each marked location. Use a core extractor to remove the core - do not damage the core. Backfill and compact voids left by coring with new ATB within 24 hours.

The Engineer will immediately take possession of the samples. Density of the samples will be determined, by the Engineer, according to WAQTC FOP for AASHTO T 166/T 275.

A fee will be assessed for each failure to take core samples, backfill core sample voids, backfill core samples within the specified period, or take core samples at the location marked by the Engineer.

4. Retesting.

A retest of any sample outside the limits specified in Table 306-2 may be requested provided the quality control requirements of 306-2.05 are met. Deliver this request in writing to the Engineer within 7 days of receipt of the final test of the lot. The Engineer will mark the sample location for the density retest within a 2 foot radius of the original core. The original test results will be discarded and the retest result will be used to evaluate the material regardless of whether the retest result gives a higher or lower pay factor. Only one retest per sample is allowed. Except for the first lot, when gradation and asphalt binder content are determined from the same sample, retesting for gradation or asphalt binder from the first sublot of a lot will include retesting for the MSG; when separate samples are used, retesting for asphalt binder content will include retesting for MSG.

ASPHALT BINDER

The lot size for asphalt binder will normally be 200 tons. If a project has more than one lot and the remaining asphalt binder quantity is less than 150 tons, it will be added to the previous lot and that total quantity will be evaluated as one lot. If the remaining asphalt binder quantity is 150 tons or greater, it will be sampled, tested and evaluated as a separate lot.

If the contract quantity of asphalt binder is between 85 – 200 tons, the contract quantity will be considered as one lot and sampled, tested, and evaluated according to this subsection. Quantities of asphalt binder less than 85 tons will be accepted based on manufacturer’s certified test reports and certification of compliance.

Asphalt binder will be sampled according to WAQTC FOP for AASHTO T 40, tested for conformance to the specifications in Section 702, and evaluated in accordance with 306-4.03. Three separate samples from each lot will be taken, one for acceptance testing, one for Contractor retesting, and one held in reserve for referee testing if applicable.

306-4.03 EVALUATION OF MATERIALS FOR ACCEPTANCE. A mat area of finished surfacing that is contaminated with foreign material; is segregated (determined visually or by testing), has a lower density than specified, fails to meet surface tolerance requirements, is flushing or bleeding asphalt binder after compaction is complete, or in any other way determined to be defective is unacceptable according to Subsection 105-1.11. ATB, not meeting the specified limits noted in Table 306-2, is considered defective. Correct unacceptable work and materials according to Subsection 306-3.16 and as directed by the Engineer.

TABLE 306-2

LOWER SPECIFICATION LIMIT (LSL) & UPPER SPECIFICATION LIMIT (USL)

Measured Characteristics	LSL	USL
3/4 inch sieve	TV -6.0	TV + 6.0
1/2 inch sieve	TV -6.0	TV + 6.0
3/8 inch sieve	TV -6.0	TV + 6.0
No. 4 sieve	TV -6.0	TV + 6.0
No. 8 sieve	TV -6.0	TV + 6.0
No. 16 sieve	TV -5.0	TV + 5.0
No. 30 sieve	TV -4.0	TV + 4.0
No. 50 sieve	TV -4.0	TV + 4.0
No. 100 sieve	TV -3.0	TV + 3.0
No. 200 sieve*	TV -2.0	TV + 2.0
Asphalt %	TV -0.4	TV + 0.4
Mat Density %	92.0	100

*Tolerances for the No. 200 sieve may not exceed the broad band limits in Table 703-3.

ASPHALT BINDER

Asphalt binder will be randomly sampled and tested in accordance with Subsection 306-4.02. Provide supplier process control test results with the delivery ticket for each load of asphalt binder to the Engineer before unloading asphalt binder at the project. No payment will be made without this documentation.

306-4.04 ASPHALT MATERIAL PRICE ADJUSTMENT.

This subsection provides a price adjustment for asphalt material by:
(a) additional compensation to the Contractor or
(b) a deduction from the Contract amount.

1. This provision shall apply to asphalt material meeting the criteria of Section 702, and is included in items listed in the bid schedule of Sections 306, 307, 308, 318 and 401 through 409, except Section 402. Also included is the asphalt material in the Prelevel/Leveling Course (rut repair) HMA and Temporary HMA as part of 401, Approach HMA as included in 401 or 639 and Pathway HMA as part of 608.

2. This provision shall only apply to cost changes in asphalt material that occur between the date of bid opening and the date the asphalt material is incorporated into the project.

3. The asphalt material price adjustment will only apply when:
   a. More than a 7.5% increase or decrease in the Alaska Asphalt Material Price Index, from the date of bid opening to the date the asphalt material is incorporated into the project.

4. The Alaska Asphalt Material Price Index (AAMPI) is posted on the Department's Materials website along with the formula used to calculate the Index. The AAMPI as used in the determination of the "Asphalt Material Price Adjustment" is calculated for the first and third Friday of each month. The index applies from the beginning of the period start day 00:00 hrs, and ends 00:00 hrs the start of the next period. Other calculation and or period start/end days, including the post day (except as fall on the 1st and 3rd Friday) are not permitted.

5. Price adjustment will be cumulative and calculated with each progress payment. Use the price index in effect on the last day of the pay period, to calculate the price adjustment for asphalt material incorporated into the project during that pay period. The Department will increase or decrease payment under this Contract by the amount determined with the following asphalt material price adjustment formula:

   For an increase exceeding 7.5%, additional compensation = $[(IPP-IB)-(0.075 \times IB)] \times Q$
   For a decrease exceeding 7.5%, deduction from contract = $[(IB-IPP)-(0.075 \times IB)] \times Q$

   Where: Q = Quantity of Asphalt Material incorporated into project during the pay period, in tons
   IB = Index at Bid: the bimonthly Alaska Asphalt Material Price Index in effect on date of bid, in dollars per ton
   IPP = Index at Pay Period: the bimonthly Alaska Asphalt Material Price Index in effect on the last day of the pay period, in dollars per ton

   Method of measurement for determining Q (quantity) is the weight of asphalt material meeting the criteria of this subsection and is incorporated into the project. The quantity does not include aggregate, mineral filler, blotter material, thinning agents added after material qualification, or water for emulsified asphalt.

306-5.01 BASIS OF PAYMENT.

Except where specified as individual Pay Items the work and materials associated with:
Asphalt binder, anti-stripping additives, surface tolerance corrections, patching defective areas; removal and disposal of rejected ATB, and the hauling equipment are subsidiary to the Asphalt Treated Base Pay Items.

Item 306(8) ATB, Price Adjustment, Type ___ ; Class __ : is the sum of the price adjustments for each material lot and for fees assessed the Contractor including:

- Each mix design subsequent to the approved Job Mix Design (Subsection 306-2.01) will result in a fee of $2500.00 each.
- Failure to cut core samples within the specified period will result in a fee of $100.00 per sample per day (Subsection 306-4.02).
- Failure to backfill voids left by sampling within the specified period will result in a fee of $100 per hole per day (Subsection 306-4.02).
- Contractor retesting, referee sample testing and Contractor requested testing for visually inspected and rejected asphalt treated base failing to meet specifications will result in a fee being assessed for all costs associated with the test (Subsection 306-4.02, 4.03).

Item 306(15). Asphalt Material Price Adjustment.

For each Section as included in Subsection 306-4.04 Asphalt Material Price Adjustment, item 1, the "Asphalt Material Price Adjustment" is paid under the asphalt material Pay Item for the Section with the greatest quantity as determined by the estimate of quantities included in the Plans at the time of the bid opening.

- When more than one "Asphalt Material Price Adjustment" Pay Item is included in the Plans or bid schedule the asphalt material price adjustment, for each Section's asphalt material, is paid under the Pay Item with the greatest quantity.

- When more than one asphalt material is included in the project and only one "Asphalt Material Price Adjustment" Pay Item is included in the Plans or bid schedule, the asphalt material price adjustment, for each Section's asphalt material, is paid under the one Pay Item regardless of the quantity.

- When the Pay Item "Asphalt Material Price Adjustment," is not included, for any section, no payment will be made.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
306(1)	ATB	Ton
306(2)	Asphalt Binder, Grade PG 52-34	Ton
306(15)	Asphalt Material Price Adjustment	Contingent Sum

DIVISION 400 — ASPHALT PAVEMENTS AND SURFACE TREATMENTS

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Special Provision

Replace Section 401 with the following:

SECTION 401
HOT MIX ASPHALT PAVEMENT

401-1.01 DESCRIPTION. Construct one or more courses of plant-produced Hot Mix Asphalt (HMA) pavement on an approved surface, to the lines, grades, and depths shown on the Plans.

1. In this Section, HMA refers to Type I, II, III, and IV.
   a. Temporary Asphalt Pavement: HMA, Type II, Class B, minimum.
   b. Preleveling/Leveling Course: HMA, Type IV, Class B.

MATERIALS

401-2.01 ASPHALT BINDER. Conform to Subsection 702-2.01. If binder performance grade is not specified, use PG 52-28.

Provide test reports for each batch of asphalt binder showing conformance to the specifications in Section 702 before delivery to the project. Require that the storage tanks used for each batch be noted on the test report, the anti-strip additives required by the mix design be added during load out for delivery to the project, and a printed weight ticket for anti-strip is included with the asphalt binder weight ticket. The location where anti-strip is added may be changed with the written approval of the Engineer.

Furnish the following documents at delivery:
1. Manufacturer's certificate of compliance (Subsection 106-1.05).
2. Conformance test reports for the batch (provide prior to delivery as noted above).
3. Batch number and storage tanks used.
4. Date and time of load out for delivery.
5. Type, grade, temperature, and quantity of asphalt binder loaded.
6. Type and percent of liquid anti-strip added.

Asphalt binder may be conditionally accepted at the source if a manufacturer's certification of compliance is provided, according to Subsection 106-1.05, and the applicable requirements of Section 702 are met.

401-2.02 LIQUID ANTI-STRIP ADDITIVE. Use anti-strip agents in the proportions determined by ATM 414 and included in the approved Job Mix Design (JMD). At least 70% of the aggregate must remain coated when tested according to ATM 414. A minimum of 0.30% by weight of asphalt binder is required.

401-2.03 JOINT ADHESIVE. Conform to Subsection 702-2.05.

401-2.04 JOINT SEALANT. Conform to Subsection 702-2.06.

401-2.05 WARM MIX ASPHALT. Conform to Subsection 702-2.07.

401-2.06 ASPHALT RELEASE AGENT. Conform to Subsection 702-2.08.

401-2.07 AGGREGATES. Conform to Subsection 703-2.04. Use a minimum of three stockpiles of crushed aggregate (coarse, intermediate, and fine). Place blend material, if any, in a fourth pile.

401-2.08 RECYCLED ASPHALT PAVEMENT. Recycled asphalt pavement (RAP) may be used in the production of HMA. The RAP may be from pavements removed under the Contract, or from an existing stockpile. Conform to Subsection 703-2.16

401-2.09 JOB MIX DESIGN. Provide target values for gradation that satisfy both the broad band gradation limits shown in Table 703-4 and the requirements of Table 401-1, for the Type and Class of HMA specified.

TABLE 401-1
HMA MARSHALL Design Requirements

DESIGN PARAMETER	CLASS "A"	CLASS "B"
HMA (Including Asphalt Binder)		
Stability, Pounds	1800 Min.	1200 Min.
Flow, 0.01 Inch	8 – 14	8 - 16
Voids in Total Mix (VTM), %	3.0 – 5.0	3.0 – 5.0
Compaction, Number of Blows Each Side of Test Specimen	75	50
Asphalt Binder		
Voids Filled with Asphalt (VFA), %	65 - 75	65 - 78
Asphalt Content, Min. % @ 4% VTM	5.0	5.0
Dust-Asphalt Ratio*	0.6 - 1.4	0.6 - 1.4
Voids in the Mineral Aggregate (VMA), %, Min.		
Type I	12.0	11.0
Type II	13.0	12.0
Type III, IV	14.0	13.0
Liquid Anti-Strip Additive**,%, Min.	0.30	0.30
RAP, %, Max.	15.0	25.0

*Dust-Asphalt ratio is the percent of material passing the No. 200 sieve divided by the percent of effective asphalt binder (calculated by weight).
** By Weight of Asphalt Binder

The approved JMD will specify the Target Values (TV) for gradation, the TV for asphalt binder content, the Maximum Specific Gravity (MSG) of the HMA, the additives, and the recommended mixing temperature range.

Submit the following to the Engineer at least 15 days before the production of HMA:

1. A letter stating the location, size, and type of mixing plant. The letter shall state whether or not WMA and/or RAP will be used. The letter shall include the proposed gradation for the JMD, gradations for individual stockpiles, and the blend ratio of each aggregate stockpile.

2. Representative samples of each aggregate (coarse, intermediate, fine, blend material and mineral filler, if any) in the proposed mix design. Furnish a total of 500 pounds of material in the proportional amounts in the proposed JMD.

3. Five separate 1-gallon samples of the asphalt binder proposed for use in the HMA. Include name of product, manufacturer, test results of the applicable quality requirements of Subsection 702-2.01, manufacturer's certificate of compliance according to Subsection 106-1.05, a temperature- viscosity curve for the asphalt binder or manufacturer's recommended mixing and compaction temperatures, and current Material Safety Data Sheet.

4. One sample, minimum 1/2 pint, of the anti-strip additive proposed, including name of product, manufacturer, and manufacturer's data sheet, and current Material Safety Data Sheet.

5. Testing results per Subsection 106-1.03.1 for each aggregate type proposed for use.

6. If applicable, a letter stating the WMA technology (Subsection 702-2.07) to be used, location where additive will be introduced and manufacturer's recommended usage rate for each type of HMA. Supply a minimum of 2-pint samples for each proposed additive.

7. If applicable, representative samples of any RAP proposed for use. Furnish a minimum of 200-pound sample of proposed RAP.

The Engineer will evaluate the material and the proposed gradation using ATM 417 and the requirements of Table 401-1 for the appropriate Type and Class of HMA specified, and establish the approved JMD which will become a part of the Contract.

Anti-strip evaluation (ATM 414) of HMA mix designs that include RAP will be completed without the inclusion of the RAP.

Obtain an approved JMD prior to shipment of aggregates to an asphalt plant site or producing HMA for payment.

Contractor Mix Design. If a bid item for JMD appears in the contract, or if the Engineer approves a request from the Contractor to perform the JMD at no cost to the Department, provide a JMD following the requirements specified in this section. Submit the JMD to the Engineer at least 15 working days before HMA production. Submit samples to the Engineer upon request for JMD verification testing.

All Contractor-furnished JMDs must be sealed by a professional Engineer registered in the State of Alaska. The Professional Engineer shall certify that the JMD was performed according to the specified procedures, and meets all project specifications.

Changes. Submit a new JMD with changes noted and new samples in the same manner as the original JMD submittal when:

a. The results of the JMD evaluation do not achieve the requirements specified in Table 401-1
b. The asphalt binder source is changed
c. The source of aggregate, aggregate quality or gradation is changed
d. The results of a Test Strip do not meet the requirements of the specification – the Engineer may require a new JMD.

Do not produce HMA for production paving and payment before the Engineer provides written approval of the JMD; the original, or a replacement JMD.

The Engineer has the option to require further verification of the JMD under 401-2.10 Process Quality Control. If a Test Strip(s) is required, do not produce HMA for production paving and payment before the Engineer provides written approval of the Test Strip construction, construction process, materials, and the JMD, Subsection 401-2.10.

Payment for HMA will not be made until the new JMD and the Test Strip, when required, is approved.

Approved changes apply only to HMA produced after the submittal of changes.

The Engineer will assess a fee for each mix design subsequent to the approved Job Mix Design, per Subsection 401-5.01.

401-2.10 PROCESS QUALITY CONTROL. Sample and test materials for quality control of the HMA according to Subsection 106-1.03. Submit to the Engineer at the "Pre-Paving Meeting," Subsection 401-3.01, the JMD and a documentation plan that provides a complete, accurate, and clear record of the sampling and testing results.

Failure to perform quality control forfeits the Contractor's right to a retest under Subsection 401-4.02

Provide copies of the documented sampling and testing results no more than 24 hours from the time taken.

Supplemental Process Quality Control:

The Engineer has the option to require supplemental process quality controls including additional sampling and testing. Include the supplemental process quality controls in the documentation plan.

When directed by the Engineer: provide “Density Profiles” and or “Test Strips.”

1. Density Profiles. Provide density profile testing, with a nuclear density gauge, of the mat and longitudinal joints. Include the frequency of the test groups, configuration of the test groups for mat density and joint density individually or combined. Indicate the number of tests in a test group intended to confirm the density of the mat and joints.

   Locations that may require testing include: all lanes on bridge decks, adjacent to longitudinal joints, areas where segregation is visible, thermal segregation potential exists, where mat density is lower than the minimum (considered segregated), and the paver starts/stops. The Engineer will identify these and other areas that require density testing.

2. Test Strips. Construct test strips (ATM 412) using the approved job mix HMA a minimum of 5 working days prior to planned production paving, except use the proposed JMD when the test strip is being constructed to help evaluate the JMD as part of the mix performance analysis. Submit a proposed test strip location to the Engineer for coordination, and approval; include in the process control documentation plan. The Engineer's approval and written authorization of the location, date, and time, is required before construction of a test strip.

   Establish roller patterns and the number of passes required to assure that proper placement and compaction is achieved. The test strip shall include no less than 300 tons and no more than 1000 tons, except as may be authorized, in writing, by the Engineer. The full complement of the paving train shall be on site to receive instructions from the Engineer as needed to complete the mix performance analysis. Make the equipment available for inspection as required by Subsection 401-3.04. Provide an onsite process control representative with authority to modify mix components as instructed by the Engineer.

   Failed Test Strip: the Engineer may direct the Contractor to remove and dispose of test strips not meeting specification requirements. Contractor, construct a new test strip or return the surface materials and grade to their original condition as directed by the Engineer.

   Only after the Engineer approves the test strip may HMA be produced for production paving and payment.

   Refer to Subsection 401-5.01 for payment of test strips.

CONSTRUCTION REQUIREMENTS

401-3.01 PRE-PAVING MEETING. Meet with the Engineer for a pre-paving meeting in the presence of the project superintendent and paving foreman at least (5) working days before beginning paving operations. Submit a paving plan and pavement inspection plan at the meeting. When directed by the Engineer, make adjustments to the plan and resubmit.

1. Paving Plan. Include the following:

   a. Sequence of operations

   b. List of equipment that will be used for production, transport, pick-up (if applicable), laydown, and compaction

   c. Summary of plant modifications (if applicable) for production of WMA

   d. Procedures to produce consistent HMA

   e. Procedures to minimize material and thermal segregation

   f. Procedures to minimize premature cooling

   g. Procedures to achieve HMA density

h. Procedures for joint construction including corrective action for joints that do not meet surface tolerance requirements

i. Quality control testing methods, frequencies and sample locations for gradation, asphalt binder content, and density, and

J. Any other information or procedures necessary to provide completed HMA construction that meets the Contract Requirements

2. Pavement Inspection Plan. Include the following:

a. Process for daily inspections

b. Means and methods to remove and dispose of project materials

401-3.02 CONTRACTOR QUALITY CONTROL. Perform quality control (QC) of HMA materials in accordance with Subsection 106-1.03.

401-3.03 WEATHER LIMITATIONS. Place HMA on a stable/non-yielding roadbed. Do not place HMA when the base material is wet or frozen, or when weather conditions prevent proper handling or finishing of the mix. Do not place HMA when the roadway surface temperature is colder than 40° F.

401-3.04 EQUIPMENT, GENERAL. Use equipment in good working order and free of HMA buildup. Make all equipment available for inspection and demonstration of operation a minimum of 24 hours before placement of HMA and test strip HMA.

401-3.05 ASPHALT MIXING PLANT. Meet AASHTO M 156. Use an HMA plant capable of producing at least 150 tons of HMA per hour noted on posted DEC air quality permit, designed to dry aggregates, maintain consistent and accurate temperature control, and accurately proportion asphalt binder and aggregates. Calibrate the HMA plant and furnish copies of the calibration data to the Engineer at least 24 hours before HMA production.

Provide a scalping screen at the asphalt plant to prevent oversize material or debris from being incorporated into the HMA.

Provide a tap on the asphalt binder supply line just before it enters the plant (after the 3-way valve) for sampling asphalt binder. Provide aggregate and asphalt binder sampling locations meeting OSHA safety requirements.

You may use belt conveyor scales to proportion plant blends and mixtures if the scales meet the general requirements for weighing equipment and are calibrated according to the manufacturer's instructions.
If WMA is approved by the Engineer, modify the mixing plant as required by the manufacturer and WMA additive manufacturer.

401-3.06 HAULING EQUIPMENT. Haul HMA in trucks with tight, clean, smooth metal beds. Keep beds free of petroleum oils, solvents, or other materials that would adversely affect the mixture. Apply a thin coat of approved asphalt release agent to beds as necessary to prevent mixture adherence. Provide trucks with covers attached and available for use.

When directed by the Engineer, cover the HMA in the hauling vehicle(s).

Do not haul HMA on barges.

401-3.07 ASPHALT PAVERS. Use self-propelled asphalt pavers with heated vibratory screed assemblies to spread and finish HMA to the specified section widths and thicknesses without introducing thermal or material segregation.

Equip the paver with a receiving hopper having sufficient capacity for a uniform spreading operation and a distribution system to place the HMA uniformly in front of screed. Use a screed assembly that produces a finished surface of the required smoothness, thickness, and texture without tearing, shoving, or displacing the HMA. Heat and vibrate screed extensions. Place auger extensions within 20 inches of the screed extensions or per written manufacturer's recommendations.

Equip the paver with a means of preventing segregation of the coarse aggregate particles from the remainder of the HMA when carried from the paver hopper back to the augers.

Equip the paver with automatic screed controls capable of operating from a reference line or a ski from either or both sides of the paver.

The use of a "Layton Box" or equivalent towed paver is allowed on bike paths, sidewalks, and driveways.

401-3.08 ROLLERS. Use both steel-wheel (static or vibratory) and pneumatic-tire rollers. Use rollers designed to compact HMA and capable of reversing without shoving or tearing the mixture. Select rollers that will not crush the aggregate or displace the HMA. Equip vibratory rollers with separate vibration and propulsion controls.

Equip the rollers with an infrared thermometer that measures and displays the surface temperature to the operator. Infrared thermometer may be hand-held or fixed to the roller.

Utilize a pneumatic roller in the complement of rollers to compact the leveling course. Use fully skirted pneumatic-tire roller having a minimum operating weight of 3000 pounds per tire.

401-3.09 RESERVED.

401-3.10 PREPARATION OF EXISTING SURFACE. Prepare existing surfaces according to the Contract. Prior to placing HMA, clean existing surfaces of loose material and uniformly coat contact surfaces of curbing, gutters, manholes and other structures with tack coat material meeting Section 402. Treat cold joint surfaces according to 401-3.17. Allow tack coat to break before placement of HMA on these surfaces. Do not apply the tack coat material until the Engineer approves the existing surface including, not limited to; the existing paved surface, the milled surface, and a prior layer of HMA pavement.

Before applying tack coat to an existing paved surface, clean and patch the surface. Remove irregularities to provide a reasonably smooth and uniform surface. Remove and replace unstable areas with HMA. Clean the edges of existing pavements, which are to be adjacent to new pavement, to permit the adhesion of asphalt materials. Clean loose material from cracks. Fill the cleaned cracks, wider than 1 inch, with HMA tamped in place. Wash and/or sweep the paved surface clean and free of loose materials.

Preparation of a milled surface:

1. Prelevel remaining ruts, pavement delaminations, and depressions having a depth greater than 1/2 inch with an approved HMA.

2. Notify the Engineer of pavement areas that appear thin or unstable. Where milling operation creates thin or unstable pavement areas, or where it breaks through existing pavement, remove thin and unstable pavement, and 2 inches of existing base material, compact and replace with an approved HMA.

401-3.11 PREPARATION OF ASPHALT. Provide a continuous supply of asphalt binder to the asphalt mixing plant at a uniform temperature, within the recommended mixing temperature range.

401-3.12 PREPARATION OF AGGREGATES. Dry the aggregate so the moisture content of the HMA, sampled at the point of acceptance for asphalt binder content, does not exceed 0.5% (by total weight of mix), as determined by ATM 407.

Heat the aggregate for the HMA to a temperature compatible with the mix requirements specified.

Adjust the burner on the dryer to avoid damage to the aggregate and to prevent the presence of unburned fuel on the aggregate. HMA containing soot or fuel is unacceptable per Subsection 105-1.11.

401-3.13 MIXING. Combine the aggregate, asphalt binder, and additives in the mixer in the amounts required by the JMD. Mix to obtain at least 98% coated particles when tested according to AASHTO T195.

For batch plants, put the dry aggregate in motion before addition of asphalt binder.

Mix the HMA within the temperature range determined by the JMD.

Upon the Engineer's request, provide daily burner charts showing start/stop times and temperatures.

401-3.14 TEMPORARY STORAGE OF HMA. Silo type storage bins may be used, provided the characteristics of the HMA remain unaltered.

Signs of visible segregation, heat loss, changes from the JMD, change in the characteristics of asphalt binder, lumpiness, and stiffness of the mixture, are causes for rejection.

Do not store HMA on barges.

401-3.15 PLACING AND SPREADING. Use asphalt pavers to distribute HMA, including leveling course and temporary HMA. Place the HMA upon the approved surface, spread, strike off, and adjust surface irregularities. The maximum compacted lift thickness allowed is 3 inches.

When multiple lifts are specified in the Contract, do not place the final lift until all lower lifts throughout that section, are placed and accepted.

Do not place HMA abutting curb and gutter until curb and gutter are installed, except as approved by the Engineer.

Do not pave against new Portland cement concrete curbing until it has cured for at least 72 hours.

When practicable, adjust elevation of metal fixtures before paving the final lift, so they will be between 1/4 and 1/2 inch below the top surface of the final lift. Metal fixtures include, but are not limited to manholes, valve boxes, monument cases, hand holes, and drains.

When the section of roadway being paved is open to traffic, pave adjacent traffic lanes to the same elevation within 24 hours. Place approved material against the outside pavement edge when the drop off exceeds 2 inches.

Use hand tools to spread, rake, and lute the HMA in areas where irregularities or unavoidable obstacles make mechanical spreading and finishing equipment impracticable.

Place HMA over bridge deck membranes according to Section 508 and the membrane manufacturer's recommendations.

Do not mix HMA produced from different plants for testing or paving.

401-3.16 COMPACTION. Thoroughly and uniformly, compact the HMA by rolling. In areas not accessible to large rollers, compact with mechanical tampers or trench rollers.

Prevent indentation in the mat, do not leave rollers or other equipment standing on HMA that has not sufficiently cooled.

The Lower Specification Limit for density is 92.0% of the Maximum Specific Gravity (MSG) as determined by ATM 409. The MSG from the approved JMD is used for the first lot of each type of HMA. The MSG for additional lots is determined from the first sublot of each lot.

401-3.17 JOINTS. Place and compact the HMA to provide a continuous bond, texture, and smoothness between adjacent sections of the HMA.

Minimize the number of joints. Do not construct longitudinal joints in the driving lanes unless approved by the Engineer in writing at the pre-paving meeting. Offset the longitudinal joints in one layer from the joint in the layer immediately below by at least 6 inches. Align the joints of the top layer at the centerline or lane lines. Where preformed marking tape striping is required, offset the longitudinal joint in the top layer not more than 6 inches from the edge of the stripe.

Form transverse joints by saw-cutting back on the previous run to expose the full depth of the course or by using a removable bulkhead. Skew transverse joints 15 to 25 degrees.

For all joints below the top lift, uniformly coat joint surfaces with tack coat material meeting Section 402.

Uniformly coat the joint face of all top lift joints with a joint adhesive. Follow joint adhesive manufacturer's recommendations for temperatures and application method. Remove joint adhesive applied to the top of pavement surface. If infrared joint heaters are used and passing joint densities are achieved in each of the first three joint densities taken, then joint adhesive is not required.

The Lower Specification Limit for top lift longitudinal joint density is 91.0% of the MSG of the panel completing the joint. MSG will be determined according to ATM 409. Top lift longitudinal joints will be evaluated for acceptance according to Subsection 401-4.03.

For top lift panels that have a longitudinal joint density less than 91.0% of the MSG, seal the surface of the longitudinal joints with joint sealant. Apply joint sealant according to the manufacturer's recommendations while the HMA is clean, free of moisture and prior to final traffic marking. Place the sealant at a maximum application rate of 0.15 gallons per square yard, and at least 12 inches wide centered on the longitudinal joint. After surface sealing, inlay by grinding pavement striping into the sealed HMA. Use grooving equipment that grinds a dry cut to groove the width, length, and thickness of the striping within the specified striping tolerances.

Correct improperly formed joints that result in surface irregularities according to a corrective action plan.

Complete all hot lapped joints while the mat temperature is over 230°F as measured by the Engineer, within 3 inches of the joint. Tack coat and joint adhesive are not required for hot lapped joints. Hot lapped joints will receive the full Longitudinal Joint Density Price Adjustment incentive without testing for joint density.

401-3.18 SURFACE REQUIREMENTS AND TOLERANCE. The finished surface of all HMA paving must match dimensions shown in the Contract for horizontal alignment and width, profile grade and elevation, crown slope, and pavement thickness. Water must drain across the puddles, humps, depressions, and roller marks. The surface must not exhibit raveling, cracking, tearing, asphalt bleeding, or aggregate segregation. Leave no foreign material, uncoated aggregate, or oversize aggregate on the HMA surface.

The Engineer will test the finished surface after final rolling at selected locations using a 10-foot straightedge. The Engineer will identify pavement areas that deviate more than 3/16-inch from the straightedge, including joints, as defective work. Perform corrective work by removing and replacing, grinding, cold milling or infrared heating such areas as required. Do not surface patch. After the Contractor performs corrective work, the Engineer will retest the area.

Perform corrective Actions according to one of the following or by a method approved by the Engineer:

1. Diamond Grinding. If the required pavement thickness is not decreased by more the 1/4-inch grind to the required surface tolerance and cross section. Remove and dispose of all waste materials. Apply joint sealant and sand to exposed aggregates per the manufacturer's recommendations.

2. Overlaying. Mill or sawcut the existing pavement to provide a vertical transverse joint face to match the overlay to the existing pavement. Apply tack coat on the mill surface and joint adhesive to all vertical joints and overlay the full width of the underlying pavement surface. Use the same approved HMA for overlays. Place a minimum overlay thickness of 2.0-inches.

3. Mill and Fill. Mill the existing pavement to provide a vertical transverse joint face. Apply tack coat to the milled surface and joint adhesive to all vertical joints prior to inlaying new HMA to match the existing pavement. Use the same approved HMA. Place a minimum thickness of 2.0-inches.

401-3.19 REPAIRING DEFECTIVE AREAS. Remove HMA that is contaminated with foreign material, is segregated (determined visually or by testing), flushing, or bleeding asphalt. Remove and dispose defective HMA for the full thickness of the course. Cut the pavement so that edges are vertical and the sides are parallel to the direction of traffic. Coat edges with a tack coat according to Section 402. Place and compact fresh HMA so that compaction, grade, and smoothness requirements are met.

401-3.20 ROADWAY MAINTENANCE. Inspect daily according to pavement inspection plan. Remove, and dispose of project materials incorrectly deposited on existing and new pavement surfaces(s) inside and outside the project area including haul routes.
The Contractor is responsible for damage caused by not removing these materials and any damage to the roadway from the removal method(s).

Repair damage to the existing roadway that results from fugitive materials or their removal.

401-4.01 METHOD OF MEASUREMENT. Section 109 and the following:

1. Hot Mix Asphalt.

   a. By weight. No deduction is made for the weight of asphalt binder or anti stripping additive or cutting back joints. If the use of WMA is approved by the Engineer, WMA additives will not be measured and are considered subsidiary to the HMA pay item.

   b. By the final HMA surface area.

2. Asphalt Binder. By weight, as follows:

   Method 1 will be used for determining asphalt binder quantity unless otherwise directed in writing. The procedure initially used will be the one used for the duration of the project. No payment is made for any asphalt binder more than 0.4% above the optimum asphalt binder content specified in the JMD.

   Method 1: Percent of asphalt binder for each sublot multiplied by the total HMA weight represented by that sublot. The Engineer will use either ATM 405 or ATM 406 to determine the percent of asphalt binder. The same test method used for the acceptance testing of the sublot will be used for computation of the asphalt binder quantity. In the absence of testing, the percent of asphalt binder is the target value for asphalt binder in the JMD.

   Method 2: Supplier's invoices minus waste, diversion, and remnant. This procedure is an Engineer's option for projects where deliveries are made in tankers and the asphalt plant is producing HMA for one project only.

   The Engineer may direct, at any time that tankers are weighed in the Engineer's presence before and after unloading. If the weight determined at the project varies more than 1% from the invoice amount, payment is based on the weight determined at the project.

   Any remnant or diversion will be calculated based on tank stickings or weighing the remaining asphalt binder. The Engineer will determine the method. The weight of asphalt binder in waste HMA is calculated using the target value for asphalt binder as specified in the JMD.

3. Job Mix Design. When specified, a Contractor furnished JMD is measured as one according to the HMA class and type.

4. Temporary Pavement. By weight, without deduction for the weight of asphalt binder or anti-strip additive.

5. Leveling Course. By Lane-Station (12 foot width) or by weighing without deduction for the weight of asphalt binder or anti-strip additive.

6. HMA Price Adjustment. Calculated by quality level analysis under Subsection 401-4.03.1.

7. Longitudinal Joint Density Price Adjustment. By the linear foot of top lift longitudinal joint under Subsection 401-4.03.2.

8. Joint Adhesive. By the linear foot of longitudinal and transverse joint.

9. Pavement Smoothness Price Adjustment. Calculated from inertial profiler data using FHWA's ProVAL software under Subsection 401-4.03.3.

10. Asphalt Material Price Adjustment. Determined under Subsection 401-4.04.

11. Liquid Anti-Strip Additive. Based on the number of tons of asphalt binder containing required additive.

12. Crack Repair. From end to end of the crack repaired according to 401-3.10, measured horizontally along the centerline of the crack.

13. Prelevel for Ruts, Delaminations, and Depressions. By the surface area where prelevel is placed according to 401-3.10(1), measured according to Section 109.

14. Repair Unstable Pavement. By the surface area of pavement repaired according to 401-3.10(2), measured according to Section 109.

401-4.02 ACCEPTANCE SAMPLING AND TESTING. The bid quantity of each type of HMA produced and placed will be divided into lots and the lots evaluated individually for acceptance.

A lot is normally 5,000 tons. The lot is divided into sublots of 500 tons, each randomly sampled and tested for asphalt binder content, density, and gradation according to this Subsection. The lot is evaluated for price adjustment according to Subsection 401-4.03.1. Seasonal startup or a new JMD requires starting a new lot.

If less than 8 sublots have been placed at the time a lot is terminated, the material in the shortened lot will be included as part of the prior lot. The price adjustment computed for the prior lot will include the samples from the shortened lot. If there is no prior lot, and there are at least 3 sublots, the material in the shortened lot will be considered as a lot and the price adjustment will be based on the actual number of test results in the shortened lot. If there are less than 3 sublots, the HMA will be accepted for payment based on the Engineer's approval of the JMD, and placement and compaction of the HMA to the specified depth, finished surface requirements and tolerances. The Engineer reserves the right to perform any testing required in order to determine acceptance.

If 8 or 9 sublots have been placed at the time a lot is terminated, they will be considered as a lot and the price adjustment will be based on the actual number of test results in the shortened lot.

If the bid quantity is between 1,500 to 4,999 tons, the quantity is considered one lot. The lot is divided into sublots of 500 tons, each randomly sampled and tested for asphalt binder content, density, and gradation according to this Subsection. The lot is evaluated for price adjustment according to Subsection 401-4.03.1.

For bid quantity less than 1,500 tons, HMA will be accepted for payment based on the Engineer's approval of the JMD, and placement and compaction of the HMA to the specified depth, finished surface requirements, and tolerances. The Engineer reserves the right to perform any testing required in order to determine acceptance.

Sampling and testing include the following:

1. Asphalt Binder Content. HMA samples shall be taken randomly by the Contractor in the presence of the Engineer from behind the paver screed before initial compaction, or will be taken randomly by the Engineer from the windrow, according to ATM 402 or ATM 403, at the discretion of the Engineer. The location (behind the paver screed or windrow) will be determined at the pre-paving meeting. Random sampling locations will be determined by the Engineer.

   Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if requested. Asphalt binder content will be determined according to ATM 405 or ATM 406, at the discretion of the Engineer.

2. Aggregate Gradation. Aggregates tested for gradation acceptance will have the full tolerances from Table 401-2 applied.

   a. Drum Mix Plants. Samples will be taken from the combined aggregate cold feed conveyor via a diverter device, from the stopped conveyor belt or from the same location as samples for determination of asphalt binder content, at the discretion of the Engineer. Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if requested. The aggregate gradation for samples from the conveyer system will be determined according to ATM 304. For HMA samples, the gradation will be determined according to ATM 408 from the aggregate remaining after the ignition oven (ATM 406) has burned off the asphalt binder. Locate diverter devices for obtaining aggregate samples from drum mix plants on the conveyor system delivering combined aggregates into the drum. Divert aggregate from the full width of the conveyor system and maintain the diverter device to provide a representative sample of aggregate incorporated into the HMA.

   b. Batch Plants. Samples will be taken from dry batched aggregates according to ATM 301 or from the same location as samples for determination of asphalt binder content, at the discretion of the Engineer. Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if requested. The aggregate gradation for dry batch samples will be determined according to ATM 304. For HMA samples, the gradation will be determined according to ATM 408 from the aggregate remaining after the ignition oven (ATM 406) has burned off the asphalt binder.

3. Density. The Engineer will determine and mark the location(s) where the Contractor takes each core sample.

   a. Mat Cores: The location(s) for taking core samples is determined using a set of random numbers (independent of asphalt binder and aggregate sampling set of random numbers) and the Engineer's judgment. Take no mat cores within 1 foot of a joint or edge. Core samples are not taken on bridge decks.

      Longitudinal Joint Cores: The Engineer will mark the location(s) to take the core sample, centered on the visible surface joint, and adjacent to the mat core sample taken in the panel completing the joint.

   b. Take core samples according to ATM 413 in the presence of the Engineer. Cut full depth core samples, centered on the marks and as noted above, from the finished HMA within 24 hours after final rolling. Neatly core drill one six-inch diameter sample at each marked location. Use a core extractor to remove the core - do not damage the core. The Engineer will immediately take possession of the samples. Backfill and compact voids left by coring with new HMA within 24 hours. The Engineer will determine density of samples according to ATM 410.

4. Retest. When test results have failed to meet specifications, retest of acceptance test results for asphalt binder content, gradation, and density may be requested provided the quality control requirements of Subsection 401-3.02 are met. Deliver this request in writing to the Engineer within 7 days of receipt of the final test of the lot. The Engineer will mark the sample location for the density retest within a 2-foot radius of the original core. The original test results are discarded and the retest result is used in the price adjustment calculation regardless of whether the retest result gives a higher or lower pay factor. Only one retest per sample is allowed. When gradation and asphalt binder content are determined from the same sample, a request for a retest of either gradation or asphalt binder content results in a retest of both. Both gradation and asphalt binder content retest results are used in the price adjustment calculation. Retesting will be performed by the Department's regional laboratory.

5. Asphalt Binder Grade. The lot size for asphalt binder is 200 tons. If a project has more than one lot and the remaining asphalt binder quantity is less than 150 tons, it is added to the previous lot and that total quantity will be evaluated as one lot. If the remaining asphalt binder quantity is 150 tons or greater, it is sampled, tested and evaluated as a separate lot.

   If the bid quantity of asphalt binder is between 85 – 200 tons, the bid quantity is considered as one lot and sampled, tested, and evaluated according to this subsection. Quantities of asphalt binder less than 85 tons will be accepted based on manufacturer's certified test reports and certification of compliance.

   Sample asphalt binder at the plant from the supply line in the presence of the Engineer according to ATM 401. The Engineer will take immediate possession of the samples. Take three samples from each lot, one for acceptance testing, one for Contractor requested retesting, and one held in reserve for referee testing if requested. Meet Subsection 702 requirements for asphalt binder quality.

6. Asphalt Binder Grade Retest. Replace with the following:

   Asphalt Binder Grade Retest. The assigned test value (ATV) will be determined using ASTM D3244. Testing will be by AASHTO accredited independent laboratories. Each test will be completed by a different laboratory.

   Retest. Submit a written request, for a retest, no more than 7 days from receiving notice of the failed acceptance test. In the request, identify the retest laboratory. The Engineer will send the second sample (retest sample) to the laboratory. Provide the retest results to the Engineer. Contractor pays for the retest costs.

   If the average of the combined test results ([acceptance + retest]/2) passes the specification requirement, the average value becomes the ATV. If this ATV fails the specification requirement, the Engineer or Contractor may request the third sample (referee sample) be tested.

   Referee Test. The Engineer will send the third sample (referee sample) to an agreed upon laboratory. The average of the combined test results ([acceptance + retest + referee]/3) equals the ATV. If the ATV fails to meet specifications, the Contractor pays for the referee test.

401-4.03 EVALUATION OF MATERIALS FOR ACCEPTANCE. The following methods are applied to each type of HMA with Price Adjustment Pay Items in the Contract. These methods describe how price adjustments are determined based on the quality of the HMA binder longitudinal joint density and pavement smoothness.

The Engineer may reject material which appears to be defective based on visual inspection. If a test of rejected material is requested, a minimum of two samples are collected from the rejected material and tested. If all test results are within specification limits, payment for the material is made.

1. HMA Price Adjustment. Acceptance test results for HMA asphalt binder content, gradation and mat density are used in HMA price adjustment. These test results for a lot are analyzed collectively and statistically by the Quality Level Analysis (QLA) method as specified in Subsection 106-1.03.3 to determine the total estimated percentage of the lot that is within specification limits. The values for

percent passing the #200 sieve, asphalt binder content and density test results are reported to the nearest 0.1 percent. All other sieves used in QLA are reported to the nearest whole number.

The HMA price adjustment is based on the lower of two pay factors. The first factor is a composite pay factor (CPF) for HMA that includes gradation and asphalt binder content. The second is the density pay factor (DPF).

A lot containing material with less than a 1.00 pay factor is accepted at an adjusted price, provided that pay factor is at least 0.80 and there are no isolated defects identified by the Engineer. A lot containing material that fails to obtain the minimum pay factor is considered unacceptable and rejected under Subsection 105-1.11.

HMA pay factors are computed as follows:

a. All statistical Quality Level Analysis (QLA) is computed using the Engineer's Price Adjustment programs.

b. The USL and LSL are equal to the Target Value (TV) plus and minus the allowable tolerances in Table 401-2, or as shown below. The TV is the specification value shown in the approved Job Mix Design.

TABLE 401-2
HMA LOWER SPECIFICATION LIMIT (LSL) & UPPER SPECIFICATION LIMIT (USL)

Measured Characteristics	LSL	USL
¾" or largest sieve size	99	100
½ inch sieve or first sieve retaining aggregate	TV-6	TV+6
3/8 inch sieve	TV-6	TV+6
No. 4 sieve	TV-6	TV+6
No. 8 sieve	TV-6	TV+6
No. 16 sieve	TV-5	TV+5
No. 30 sieve	TV-4	TV+4
No. 50 sieve	TV-4	TV+4
No. 100 sieve	TV-3	TV+3
No. 200 sieve	TV-2.0	TV+2.0
Asphalt Binder Content, %	TV-0.4	TV+0.4
Mat Density, %	92.0	100.0

c. The percent within limits (PWL), Quality Levels and characteristic pay factors (PFs) are determined by the Engineer for each Lot in accordance with Subsection 106-1.03.3. The Composite Pay Factor (CPF) for the lot is determined from gradation and asphalt binder content (ac) acceptance test results using the following example formula:

$$CPF = \frac{[f_{3/4\ inch}\ (PF_{3/4\ inch}) + f_{1/2\ inch}\ (PF_{1/2\ inch}) + \ldots . f_{ac}\ (PF_{ac})]}{\Sigma f}$$

Table 401-3 gives the weight factor (f) for each test property considered.

TABLE 401-3
WEIGHT FACTORS

Property	Type I Factor "f"	Type II Factor "f"	Type III Factor "f"
1 inch sieve	4	-	-
¾ inch sieve	4	4	-
½ inch sieve	4	5	4

Property	Type I Factor "f"	Type II Factor "f"	Type III Factor "f"
3/8 inch sieve	4	5	5
No. 4 sieve	4	4	5
No. 8 sieve	4	4	5
No. 16 sieve	4	4	5
No. 30 sieve	4	5	6
No. 50 sieve	4	5	6
No. 100 sieve	4	4	4
No. 200 sieve	20	20	20
Asphalt Content, %	40	40	40

The Density Pay Factor (DPF) is computed using HMA mat core compaction acceptance test results.

The CPF and DPF are rounded to the nearest 0.001. The price adjustment for each individual lot is calculated as follows:

HMA Price Adjustment = [(CPF or DPF)* -1.00] x (tons in lot) x (PAB)

* CPF or DPF, whichever is lower

PAB = Price Adjustment Base = $110.00 per ton.

The HMA Price Adjustment is the sum of the price adjustments for each lot and paid for under Item 401(8_).

2. Longitudinal Joint Density Price Adjustment. Longitudinal joint density price adjustment will be based on the project average of all top lift cold joint densities and determined as follows:

   a. Disincentive. Project average top lift joint density less than 91.0% MSG:

      Deduct $3.00 per lineal foot.

   b. Incentive. Project average top lift joint density greater than:

      92.0% MSG. Add $0.50 per lineal foot
      93.0% MSG. Add $1.00 per lineal foot
      94.0% MSG. Add $1.50 per lineal foot

   The longitudinal Joint Density Price Adjustment is the total price adjustment paid for under Item 401(9).

3. Pavement Smoothness Price Adjustment. Not applicable to this project.

4. Asphalt Binder Price Adjustment. A lot quantity of asphalt binder, with a pay factor less than 1.0, is accepted or rejected per Table 401-3.01-1 Asphalt Binder Pay Factors.

TABLE 401-4.03-1
ASPHALT BINDER PAY FACTORS

Pay Factor			1.01	1.00	0.95	0.90	0.75	Reject
RTFO (Rolling Thin Film Oven)								
DSR[(a.1)]	All Grades	G*/Sinδ, kPa^{-1}	≥ 2.69	2.68–2.20	2.19–1.96	1.95–1.43	1.42–1.10	< 1.10
MSCR[(a.2)]	PG 52-40V	$J_{NR\ 3.2}$	≤ 0.39	0.40–0.50	0.51–0.59	0.60–0.69	0.70–1.00	> 1.00
		% $Rec_{3.2}$	≥ 86	85–75	74–68	67–60	59–55	< 55
	PG 58-34E	$J_{NR\ 3.2}$	≤ 0.19	0.20–0.25	0.26–0.29	0.30–0.39	0.40–0.50	> 0.50
		% $Rec_{3.2}$	≥ 90	89–85	84–80	79–75	74–70	< 70
	PG 64-40E	$J_{NR\ 3.2}$	< 0.05	0.05–0.10	0.11–0.15	0.16–0.20	0.21–0.25	> 0.25
		% $Rec_{3.2}$	≥ 97	96–95	94–91	90–85	84 – 80	< 80
PAV (Pressurized Aging Vessel)								
DS[(a.3)]	PG 64-40E & All Other Grades	G*Sinδ, kPa	≤ 4711	4712–5000	5001–5289	5290–5578	5579–5867	> 5867
	PG 52-40V, PG 58-34E	G*Sinδ, kPa	≤ 5700	5701–6000	6001–6300	6301–6600	6601 – 7000	> 7000
CS[(a.4 & 5)]	All Grades[(a.4)]	BBR, *S*, MPa	≤ 247	248–300	301–338	339–388	389–449	≥ 450
	All Grades[(a.5)]	BBR, *m*	≥ 0.320	0.319–0.300	0.299–0.294	0.293–0.278	0.277–0.261	< 0.261

Creep Stiffness (CS) Dynamic Shear (DS) Multiple Stress Creep Recovery (MSCR)

a. Asphalt Binder Pay Adjustment = (Lowest Pay Factor – 1) x (tons in lot) x PAB x 5

Select the lowest pay factor from:

RTFO (test the binder residue at the performance grade temperature)
(1) DS, All Grades, G*/Sinδ, kPa^{-1}
(2) MSCR: PG, Select the highest pay factor corresponding to, either $J_{NR\ 3.2}$ or % $Rec_{3.2}$ values

PAV
(3) DS, PG, G*Sinδ, kPa
(4) CS, All Grades, BBR, *S* MPa
(5) CS, All Grades, BBR, *m*

b. If three consecutive acceptance samples are out of specification, stop HMA production immediately and submit a corrective action plan to the Engineer for approval.

The Asphalt Binder Price Adjustment is the sum of the price adjustments for each lot and paid for under Item 401(21).

401-4.04 ASPHALT MATERIAL PRICE ADJUSTMENT. Asphalt Material Price Adjustment. This subsection provides a price adjustment for asphalt material by: (1) additional compensation to the contractor or (2) a deduction from the contract amount.

1. This provision shall apply:

a. To asphalt material meeting the criteria of Section 702, and is included in items listed in the bid schedule of Sections 306, 307, 308, 401 thru 408, 520, 608 and 609.

b. To cost changes in asphalt material that occur between the date of bid opening and the date on the certified bill of lading from the asphalt material refiner/producer.

c. When there is more than a seven and one half percent (7.5%) increase or decrease in the Alaska Asphalt Material Price Index, AAMPI, from the date of bid opening to the date on the certified bill of lading from the asphalt refiner/producer.

2. Provide the certified bill of lading from the asphalt material refiner/producer.

3. The AAMPI is calculated bimonthly on the first and third Friday of each month, and will remain in effect from the day of calculation until the next bimonthly calculation. The AAMPI is posted on the Department's Statewide Materials website at and calculated according to the formula posted there. http://www.dot.state.ak.us/stwddes/desmaterials/aprice_index.shtml

4. Price adjustment will be cumulative and calculated with each progress payment. Use the AAMPI in effect on the date of the certified bill of lading from the asphalt material refiner/producer, to calculate the price adjustment for asphalt material The Department will increase or decrease payment under this contract by the amount determined with the following asphalt material price adjustment formula:

   For an increase exceeding 7.5%, additional compensation = [(IPP – IB) – (0.075 x IB)] x Q

   For a decrease exceeding 7.5%, deduction from contract = [(IB – IPP) – (0.075 x IB)] x Q
   Where:

   Q = Quantity of Asphalt Material incorporated into project during the pay period, in tons as measured by the Engineer

   IB = Index at Bid: the Bi-monthly AAMPI in effect on date of bid, in dollars per ton

   IPP = Index at Pay Period: The bi-monthly AAMPI in effect on the date shown on the certified bill of lading from the asphalt refiner/producer, in dollars per ton

5. Method of measurement for determining Q (quantity) is the weight of asphalt material that meets the criteria of this subsection and is incorporated into the project. The quantity does not include aggregate, mineral filler, blotter material, thinning agents added after material qualification, or water for emulsified asphalt. The quantity for emulsified asphalts will be based on the asphalt residue material only and will be calculated using the percent residue from testing, or if not tested, from the manufacturer's certificate of compliance.

401-5.01 BASIS OF PAYMENT.

The following items, unless included as individual Pay Items, are subsidiary to the Section 401 Hot Mix Asphalt Pavement related Pay Items as included in the bid schedule:

- Asphalt binder
- Liquid anti-strip additives
- Tack coat
- Crack sealing
- Crack repair
- Joint adhesive
- Surface sealing of longitudinal joints
- Surface tolerance corrections
- Patching defective areas
- Prelevel for ruts, delaminations, and depressions
- Repair unstable pavement
- Job mix design
- Density profiles, Subsection 401-2.10 Process Quality Control
- Repair work and materials when planing equipment breaks through existing pavement – Subsection 401-3.10 Preparation of Existing Surface
- Work and materials associated with Subsection 401-3.06 Hauling Equipment
- Work and materials associated with Subsection 401-3.20 Roadway Maintenance

Test Strips: Subsection 401-2.10 Process Quality Control.

a. Approved. Test strip construction and material, approved by the Engineer in writing, as meeting the specification requirements will be paid for at the Contract unit prices for HMA and asphalt binder as included in the Bid Schedule. Price adjustments 401(8_), 401(9), 401(10) and 401(21) do not apply.

b. Failed. The materials, construction of, removal and disposal of a failed test strip will be at the Contractor's expense.

Item 401(5) HMA, Temporary, Type __; Class __. Removal and disposal of temporary HMA is subsidiary.

The following price adjustment Pay Items, unless included as individual Pay Items in the bid schedule, are payed under 401(8_) HMA Price Adjustment, Type __; Class __ :

401(8_) HMA Price Adjustment, Type __; Class __,
401(9) Longitudinal Joint Density Price Adjustment,
401(10) Pavement Smoothness Price Adjustment, Method __.
401(21) Asphalt Binder Price Adjustment

Item 401(8_) HMA Price Adjustment, Type __; Class __, is the sum of the price adjustments for each material lot, and for deductions and fees assessed. Deductions and fees assessed include:

- Each mix design subsequent to the approved JMD for each type and class of HMA specified will result in a fee of $6000.
- Failure to cut core samples within the specified period will result in a deduction of $100 per sample per day.
- Failure to backfill voids left by sampling within the specified period will result in a deduction of $100 per hole per day.
- If an asphalt binder referee test is requested and the ATV confirms the asphalt binder does not meet Contract requirements, a fee of $500 will be assessed.

Item 401(8_) HMA Price Adjustment, Type__; Class__, does not apply to the following:

- HMA contract quantity is less than 1500 tons.
- HMA leveling course and rut repair.
- Temporary HMA.
- Driveway and approach HMA.

Item 401(15) Asphalt Material Price Adjustment.

For each Section as included in Subsection 401-4.04 Asphalt Material Price Adjustment, item 1.a, the "Asphalt Material Price Adjustment" is paid under the asphalt material Pay Item for the Section with the greatest quantity as determined by the estimate of quantities included in the Plans at the time of the bid opening.

- When more than one "Asphalt Material Price Adjustment" Pay Item is included in the Plans or bid schedule the asphalt material price adjustment, for each Section's asphalt material, is paid under the Pay Item with the greatest quantity.

- When more than one asphalt material is included in the project and only one "Asphalt Material Price Adjustment" Pay Item is included in the Plans or bid schedule, the asphalt material price adjustment, for each Section's asphalt material, is paid under the one Pay Item regardless of the quantity.

- When the Pay Item "Asphalt Material Price Adjustment," is not included, for any section, no payment will be made.

Item 401(16) Crack Repair. Cleaning loose material from cracks, asphalt binder, and HMA to fill cracks are subsidiary.

Item 401(17) Prelevel for Ruts, Delaminations, and Depressions. Cleaning loose material, asphalt binder, and HMA are subsidiary.

Item 401(18) Repair Unstable Pavement. Removal of pavement and base course, asphalt binder, and HMA are subsidiary.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
401(1)	HMA, Type II; Class A	Ton
401(4)	Asphalt Binder, Grade PG 52-34	Ton

DIVISION 600 — MISCELLANEOUS CONSTRUCTION

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Special Provisions

Replace section 603 with the following:

SECTION 603
CULVERTS AND STORM DRAINS

603-1.01 DESCRIPTION. Construct or reconstruct culvert and storm drain pipe. Install culvert marker posts, and strap plastic culvert ends.

603-1.02 REFERENCES.

ASTM D3953	Standard Specification for Strapping, Flat Steel and Seals
ASTM D4675	Standard Guide for Selection and Use of Flat Strapping Materials

603-2.01 MATERIALS. Use materials that conform to the following:

Bedding and Backfill	Subsection 204-2.01
Joint Mortar	Subsection 705-2.04
Flexible Watertight Gaskets	Subsection 705-2.05
Non-reinforced Concrete Pipe	Subsection 706-2.01
Reinforced Concrete Pipe	Subsection 706-2.02
Corrugated High Density Polyethylene (HDPE) Pipe	Subsection 706-2.07
INSERTA TEE	Subsection 706-2.07
Corrugated Steel Pipe and Pipe Arches	Subsection 707-2.01
Corrugated Aluminum Pipe	Subsection 707-2.03
Galvanize	Subsection 716-2.07
Culvert Marker Posts (Flexible Delineator Posts)	Subsection 730-2.05

Item 603(17-xx), Pipe, listed in the bid schedule, furnish either Corrugated Steel Pipe (CSP), Corrugated Aluminum Pipe, Reinforced Concrete Pipe, or Corrugated Dual Wall HDPE (plastic) Pipe. Select pipe for each installation that meets or exceeds the requirements shown on the Plans for height of cover.

For steel and plastic pipe, match the end section material to the pipe material.

Separate dissimilar materials with an electrical insulating material. The insulating material must be at least 1/16 inch thick and approved by the Engineer.

Culvert marker post is 6-foot tall by 2.5 inches wide with reinforcing ribs, capable of a 9-inch minimum bending radius, and blue with no marking.

Culvert marker Strap and Seals according to ASTM D3953. .625 inch x .02 inch, dry Type 1 regular-duty (magnetic, ferritic), galvanized Finish B (hot-dipped Grade 2 moderate coating, .18 oz./ft^2 surface or .0002 inch thick minimum. Push type seals, Style III (overlap), regular duty, galvanized Finish B (hot-dipped coating) by 1.75-inch minimum length and matched to strapping width.

CONSTRUCTION REQUIREMENTS

603-3.01. GENERAL. Excavate, bed, and backfill according to the requirements of Subsections 204-2.01 and 204-3.01, and the Plans.

603-3.02. LAYING PIPE. Begin the pipe laying at the downstream end of the pipe. Keep the lower segment of the pipe in contact with the bedding throughout its full length. Place bell or groove ends of rigid pipe and outside circumferential laps of flexible pipe facing upstream.

Lay paved or partially lined pipe so that the longitudinal centerline of the paved segment coincides with the flow line. Install elliptical conduit and circular conduit reinforced with other than a full circular cage or cages so the orientation of a vertical plane through the longitudinal axis of the conduit does not vary more than 5 degrees from the design orientation.

Repair damaged metallic coating on metal pipe according to AASHTO M36.

603-3.03 JOINING PIPE. Make joints watertight between new sections of pipe and joints between new and existing sections of pipe of similar and dissimilar materials. The watertight joint will include a seal (gasket) and provide zero leakage of water infiltration and exfiltration when laboratory tested for a pressure of 25-ft head.

1. Use either bell and spigot or tongue and groove joints. Join pipe sections with the ends fully entered and the inner surfaces reasonably flush and even.

   Use one or more of the following joint materials, or any other if approved:

   a. Portland cement mortar

   b. Portland cement grout

   c. Rubber gaskets

   d. Coupling bands

   e. Preformed plastic sealing compound

   Make mortar joints using an excess of mortar to form a bead around the outside of the pipe.

   For grouted joints, use molds or runners to retain the poured grout. Install rubber ring gaskets to form a flexible, watertight seal.

   When using portland cement mixtures, protect the completed joints against rapid drying using suitable covering material.

2. Metal Pipe. Join metal pipe firmly using one of the following types of coupling bands. Use bands that are no more than two nominal sheet thicknesses lighter than the pipe joined, and in no case more than 0.052 inches lighter.

   a. Primary Band. Furnish and install corrugated bands so that the band corrugations match and conform to the corrugations of the pipe. Conform to the following guidelines:

      (1) The gap between the pipes joined is in the center of the band and is no wider than one corrugation width.

      (2) Band for 12-inch through 30-inch diameter pipe are at least 12 inches wide.

      (3) Bands for pipe with diameters greater than 30 inches are at least 22 inches wide.

   b. Secondary Band. Use this band only where it is not physically possible to use primary bands, such as on field-cut pipe ends, joining new pipe to existing pipe, etc. Furnish and install deformed metal sheet bands (dimple bands) so that the projections match and are the same depth as the pipe corrugations. Form these projections in circumferential rows with one projection for each corrugation of the helical pipe.

      Conform to the following guidelines:

      (1) The gap between the pipes joined is in the center of the band and is no wider than 2 inches.

      (2) Bands for 12-inch diameter pipe are at least 12 inches wide and have one circumferential row of projections for each pipe end joined.

      (3) Bands for pipe with diameters greater than 12 inches are at least 24 inches wide and have two circumferential rows of projections for each pipe end joined.

(4) Furnish and install these bands with a gasket that resists infiltration and leakage.

3. Plastic Pipe. Use push-on or mechanical joints. Ensure that the plastic pipe couplings' corrugation matches the pipe corrugation and that their width is not less than one-half the nominal pipe diameter.

   Use INSERTA TEE connection or approved equal for joining new sections corrugated polyethylene pipe into the existing pipe side walls.

Furnish all bolted connections on coupling bands with cut washers placed between the nut and the angle bracket or use nuts with integral washers.

Take up any pipe that is out of alignment, unduly settled, or damaged and re-lay or replace it.

603-3.04 CULVERT MARKER.

a. Marker Post. Install a culvert marker on the approach side of storm drain outfalls 30 inches and smaller, field inlets not in paved parking lots, all end sections to cross culverts, or as directed. Drive to maintain forty-two inches of post above the ground after driving, and

b. Marker Strap. In addition to marker posts, install marker strap around the plastic pipe ends.

   Position the strap in the valley of the first annular ring from the top end of the culvert. From the vertical centerline of the culvert, at the top, overlap the strap and extend the ends to approximately 30 degrees each side of the centerline. Place the strap loosely without twists in the valley, without compressing the pipe, and tight enough to keep the strap from moving out of the valley without deforming the pipe or pipe corrugation. Seal the strap at three locations, one at each of the ends, and one at the top of the culvert. Extend the strap ends beyond the end seals approximately 1/2-inch. Double crimp the seal, two pairs of crimps minimum each seal.

   Repair the strap galvanizing where abraded and at cut ends according to ASTM A780. Prepare the surface with power tools per SSPC-SP11, hand tools per SSPC-SP2, and as required by the paint manufacturer. Apply paint, Type – paint containing zinc dust, to the prepared surfaces and allow enough time for curing as required by the manufacturer's printed instructions.

603-4.01 METHOD OF MEASUREMENT. Section 109, and as follows:

1. Culvert Pipe. The length of pipe, measured in place, along the invert.

2. Pipes for Storm Drains. The length of pipe, measured in place, along the invert, from center to center of structures. The length through the inlets, catch basins, and manholes is included in the measured length.

603-5.01 BASIS OF PAYMENT. Branch connections and elbows are subsidiary to the pipe unless included as a separate Pay Item.

Coupling bands, seals (gaskets), and other items necessary for the proper joining of the sections are subsidiary.

Culvert markers are subsidiary to the pipe.

Excavation, bedding, and backfill paid under Section 204.

Corrugated polyethylene pipe, tee connection, bands and other items required for the drain basin connection is subsidiary to Pay Item 604(10).

SECTION 604
MANHOLES AND INLETS

Special Provisions

604-1.01 DESCRIPTION. Add the following:

Sanitary Sewer and Storm Drain Facilities – Condition Inspections and Item Replacement

Sanitary Sewer Facilities:

Coordinate with the Engineer; and participate in a pre-construction condition inspection, and a post-construction condition inspection of the sanitary sewer facilities.

Storm Drain Facilities:

Coordinate with the Engineer and participate in a pre-construction condition inspection of the storm drain facilities.

The pre-construction inspections may identify additional items, manhole metal frames, covers, lids, catch basin inlets and grates, to be repaired and or replaced. Make repairs and or replace additional facility items as directed by the Engineer.

604-2.01 MATERIALS. Add the following:

Nyloplast Drain Basin	Subsection 712-2.23

604-3.01 CONSTRUCTION REQUIREMENTS. Add the following:

Sanitary Sewer and Storm Drain Facilities – Condition Inspections and Item Replacement

Contractor to furnish the required traffic control, including personnel to assist, while performing inspections.

The Contractor forfeits all right to assert pre-existing damage if the Contractor fails to participate in the inspections.

Make repairs and install the replacement facility items as shown in the Plans.

Sanitary Sewer Facilities:

During inspections the Owner's Representative, the Engineer and the Contractor will observe each facility's location and condition. The Engineer will indicate the additional facility items to be replaced.

Provide 3 days advance written notice prior to scheduling a pre-construction inspection of the facilities. Conduct this inspection before pavement removal begins.

Contractor shall furnish the sanitary sewer manhole frames and covers.

Salvage the replaced manhole frames and covers. Coordinate with, and deliver to Department the salvaged materials.

Provide written notice to Engineer and the Department scheduling a post-construction inspection of the facilities, after the paving operations are complete and 3 days in advance of the inspection.

Provide the Engineer a copy of the written notices.

Storm Drain Facilities:

Contact the Engineer, a minimum of 15 days in advance, to schedule a pre-construction inspection of the storm drain facilities. Conduct this inspection before pavement removal begins.

During inspections the Engineer and Contractor will observe each facility's location and condition. The Engineer will indicate the additional facility items to be replaced.

Contractor furnishes the storm drain manhole frames and lids; and catch basin inlets and grates.

Dispose of storm drain materials and sanitary sewer materials not wanted by the Department, according to the Federal, State and local regulations.

Add the following subsection:

604-3.02 DRAIN BASIN AND CONNECTION.

Install drain basin, connection, dome grate, and other required materials as shown on the Plans. Excavate the area according to the requirements for Section 204.

604-4.01 METHOD OF MEASUREMENT. Replace this subsection with the following:

Section 109 and by the number of units installed and accepted.

604-5.01 BASIS OF PAYMENT. Add the following:

Pay Item 604(10) includes full lump sum payment compensation for furnishing and installation of the dome grate, drain basin, corrugated polyethylene pipe, connection tee, and other appurtenances. Bedding and backfill is subsidiary. Excavation for this item is paid under Pay Item 203(3).

Add the following:

Pay Item 604(13B) includes full compensation for labor, equipment, and incidental materials for installation, complete-in-place after final paving as accepted by the Engineer, including but not limited to:

- inspections
- removal and disposal of existing manhole metal frame and cover/lid; and catch basin inlets and grates
- repairs and installing the replacement materials
- adjusting the facility item down prior to the planing operation
- adjusting the facility item up prior to the paving operation

Repairs to facilities damaged or rendered inoperable, after the pre-construction inspection and before the final inspection, are the responsibility of the Contractor and no additional payment will be made.

All traffic control required for the inspections will be paid under the 643 Pay Items.

Except as being paid under Pay Item 604(13B), existing manholes being adjusted by raising or lowering the frame or ring casting 12" or less – comply with Subsection 604-3.01, paragraph beginning, "adjust existing manhole or inlet …" The corresponding Pay Item for this adjustment is 604(4) Adjust Existing Manhole.

Add the following Pay Items:

Pay Item No.	Pay Item	Pay Unit
604(10)	Drain Basin and Connection	Lump Sum
604(13B)	Remove and Replace Storm Drain Manhole Frame, Inlet and Grate	Each

SECTION 607
FENCES

607-3.01 CONSTRUCTION REQUIREMENTS. Add the following:

Align reconstructed fence to the lines and grades shown on the Plans, or as directed by the Engineer.

607-5.01 BASIS OF PAYMENT. Add the following:

Work related to removal of fence prior to reconstruction of fence is subsidiary.

Remove and replace Pay Item 607(4) with the following:

Pay Item No.	Pay Item	Pay Unit
607(4)	Reconstructed Fence	Lump Sum

SECTION 608
SIDEWALKS

Special Provisions

608-3.03 CURB RAMPS. Add the following: Measure curb ramp slopes with a 24-inch electronic level. Calibrate and operate the level according to the manufacturer's instructions.

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Replace section 610 with the following:

SECTION 610
DITCH LINING

610-1.01 DESCRIPTION. Construct ditch lining at the locations on the Plans or as staked.

610-2.01. MATERIALS. Use crushed stones that are angular, hard, sound, and durable with at least one face resulting from fracture.

1. Angular— stones, the particles of which possess well-defined edges formed at the intersection of roughly planar faces.
2. Rounded – stones, the particles of which possess rounded water-worn edges that is hard, durable, and free of sand clay or other foreign substances.
3. Hardness—resistance of a material to indentation or scratching. AASHTO T96, not more than 50% wear at 500 revolutions.
4. Soundness—measure of aggregates durability when exposed to the elements, AASHTO T104.
5. Gradation—ATM 304:
    a. maximum of 6 inches in greatest dimension
    b. not more than 50% by weight passing a 3-inch sieve,
    c. not more than 5% passing a 1-inch sieve
6. Breadth and Width—at least 1/3 of the length

610-3.01 CONSTRUCTION REQUIREMENTS. Place and spread ditch lining materials so that the finished face is uniform. Place angular stones on slopes 1.5:1 and flatter. Use of rounded stones is permitted on slopes 3:1 and flatter.

610-4.01 METHOD OF MEASUREMENT. Section 109.

610-5.01 BASIS OF PAYMENT. Excavation required below normal ditch grade is subsidiary.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
610(2)	Ditch Lining	Ton

Special Provisions

Replace section 615 with the following:

SECTION 615
STANDARD SIGNS

615-1.01 DESCRIPTION. Furnish and install standard signs and delineators. Remove and relocate or remove and dispose of existing signs and markers, as specified.

615-2.01 MATERIALS. Use materials that conform to the following Subsections:

Sheet Aluminum	730-2.01
High Density Overlaid Plywood	730-2.02
Retroreflective Sheeting, ASTM D4956	730-2.03
Sign Posts	730-2.04
Delineator Posts	730-2.05
Acrylic Prismatic Reflectors	730-2.06

1. Shop Drawings. Submit shop drawings, for all signs that must meet the ASDS letter width and spacing charts, for approval before fabrication. Submit 4 sets of collated shop drawings prepared according to Subsection 105-1.02. Show the following on each sign drawing:

   a. Dimensions of all horizontal and vertical characters and spaces

   b. Overall dimensions

   c. Sign material and sheeting material type

   d. Panel thickness

   e. Legend and letter series

   f. Whether the sign will be framed

2. Sign Fabrication. Use ASTM D4956 Type IV retroreflective sheeting (for lettering, symbols, borders, and background) on sheet aluminum panels for all signs except the following:

   a. Orange Background Signs. Use Type IX fluorescent orange reflective sheeting placed on sheet aluminum panels, except:
      (1) For temporary installations, the reflective sheeting place on aluminum, plastic, or plywood sheet panels.
      (2) For flexible signs, (Roll-Up Signs) use fluorescent reflective sheeting Type VI or better (based on durability and reflectivity, as determined by the Engineer). Roll-Up Sign – 3M Series RS 24, Reflexite Marathon Orange, or approved equal.

   b. Railroad Crossbucks and Vertical Crossbuck Supports: Use white ASTM D4956 Type VIII or Type IX retroreflective sheeting for background of sign and all strips.

   c. Non-Illuminated Overhead Signs with White Legends on Green Backgrounds: Use ASTM D4956 Type IX retroreflective sheeting for legends and background. Create the legend in one of the following ways:

      (1) Cut border and legend from white ASTM D4956 Type IX retroreflective sheeting and adhere them to a green ASTM D4956 Type IX background, or

      (2) Cut stencil of border and legend out of green transparent acrylic film and use transparent adhesive to overlay the film on a white ASTM D4956 Type IX retroreflective background.

   d. Fluorescent Yellow-Green School Area Signs: Use ASTM D4956 Type VIII or Type IX retroreflective sheeting for background.

Use a manufacturer-recommended clear coat on all screened signs.

Use sign layouts (including characters, symbols, corner radii, and borders) that conform to the ASDS.

3. Sign Posts and Bases. Use sign posts and bases of the types specified. The structural aspects of design and materials for sign supports must comply with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals. Do not splice sign posts.

   Use Class A concrete for steel-reinforced slip base and breakaway base foundations meeting the requirements of Section 501. Concrete for other sign foundations may be Class W.

4. Delineators. Use delineator assemblies that conform to the requirements shown on the Plans. Fabricate flexible delineators using ASTM 4956 Type III, IV, or V Retroreflective Sheeting.

5. Reflective Sheeting Warranty. Supply manufacturer's warranty for reflective sheeting, including retention of fluorescent yellow-green (measured in accordance with ASTM E2301) for ten years according to the following criteria:

   a. Minimum Fluorescent Luminance Factor Y_F: 20%

   b. Minimum Total Luminance Factor Y_T: 35%

   The warranty shall stipulate that: If the sheeting fails to meet the minimum fluorescence values within the first 7 years from the date of fabrication, the manufacturer shall, at the manufacturer's expense, restore the sign surface to its original effectiveness. If the reflective sheeting fails to meet the minimum fluorescence values within the 8th through 10th year from the date of fabrication, the manufacturer shall, at the manufacturer's expense, provide enough new replacement sign sheeting to the Department to restore the sign surface to its original effectiveness.

615-3.01 CONSTRUCTION REQUIREMENTS.

1. Place wooden posts in excavated holes to the depth shown on the Standard Drawings.

2. Backfill the space around the posts in the holes to finish ground with selected earth or sand, free of rocks or deleterious material. Place backfill in layers approximately 6 to 12 inches thick and thoroughly compact it.

3. Dispose of surplus excavated material neatly along the adjacent roadway as directed.

4. Install flexible delineator posts according to the manufacturer's recommendations.

5. Attach sign panels to posts, electroliers, traffic signal standards, bridge rails, piers, and abutments using the types and sizes of fastening hardware shown on the Plans.

6. If using existing signs and mileposts that are removed and relocated, ensure they conform to the details shown on the Plans or as directed.

7. Sign Salvage:

   Notify the Engineer 5 working days prior to beginning sign salvage activities. The Engineer will physically identify those signs to salvage.

   a. Property of the Contractor. When 615-3.01 7a does not identify a State Maintenance and Operations Station; the signs salvaged (sign panels, posts, and hardware) are the property of the Contractor.

      Remove project signs and/or parts designated for salvage, off the project site.

   Dispose of foundations from salvaged existing signs in a manner approved of by the Engineer (remove and dispose, abandoned in place, or otherwise). If abandoned in place, remove the tops of the foundations, reinforcing steel, anchor bolts, and conduits to a depth of not less than 12 inches below roadway subgrade or unimproved ground, whichever applies. All signs and posts at a single installation considered as one unit.

Dispose of sign salvage not wanted by the Contractor, not used in the project, and not accepted by the Local Maintenance and Operations Station as required by Federal, State, and Municipal environmental regulations.

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 that impair serviceability or detract from general appearance or color match.

   b. Finished signs must be clean and have no chatter marks, burrs, sharp edges, loose rivets, delaminated reflective sheeting, or aluminum marks. Do not make repairs to the face sheet.

9. Install the various breakaway assemblies according to the manufacturer's written instructions.

10. Secure the anchors in templates and install them according to the manufacturer's written instructions.

11. Finish the foundation according to these tolerances:

   a. Do not use more than two shims per coupling.

   b. Do not use more than three shims to plumb each post.

12. Remove and replace all foundations requiring more than three shims to plumb a post without extra compensation.

13. Construct the top of any foundation located on a slope so that the finished slope passes through the top center of the foundation. Grade the area 24 inches up and down slope of the foundation edge so that no portion of the foundation projects above the surrounding slope and water will drain away from the foundation.

14. Attach a label to the back of all standard signs in the lower right corner. Make the label at least 15 square inches and show the year the sign was purchased from the manufacturer. Show the last two digits of the year in clear and bold numbers. Make the label from ASTM D4956 Type I or brighter retroreflective sheeting. Use background and legend colors meeting Table 615-1.

TABLE 615-1

DECAL COLORS

YEAR	BACKGROUND COLOR	LEGEND COLOR
XXX1	Yellow	Black
XXX2	Red	White
XXX3	Blue	White
XXX4	Green	White
XXX5	Brown	White
XXX6	Orange	Black
XXX7	Black	White
XXX8	White	Black
XXX9	Purple	White
XXX0	Strong Yellow-Green	Black

Central values and tolerance limits for each color, as referenced in the MUTCD, are available from the Federal Highway Administration, (HHS-30), 400 7th St. SW, Washington, D.C. 20590

615-3.02 SIGN PLACEMENT AND INSTALLATION. The location and type of installation will be as shown on the Plans. Sign locations are approximate and subject to field adjustment by the Engineer.

Do not allow the top of the embedded steel tube to extend more than 2 inches above the surrounding ground and concrete foundation.

On all signs, install 2-inch diameter wind washers, colored to match the sign face, between the fastener head and the sign. Use rust-resistant washers fabricated from a material equal in strength to the sign blank.

Mount signs on mast arms level.

Bring existing signs that are to remain, into conformance with Standard Drawing S-05. Keep existing signs in service until they are no longer needed.

615-4.01 METHOD OF MEASUREMENT.

Standard Signs and Object Markers. By the total area of legend-bearing sign panel erected in place. No deductions in quantity for corner rounding will be made. Nominal dimensions for sign sizes indicated on the Plans will be used to calculate sign pay quantities. Octagons and round signs will be measured as rectangles. Only one side of each double-faced sign will be measured for payment.

Removal and Relocation. By each, complete in place.

Delineators. By each, complete in place. A single delineator consists of one post equipped with three reflectors.

Salvage Sign. By each complete sign delivered in acceptable condition.

615-5.01 BASIS OF PAYMENT. Sign posts, bases, and mounting hardware are subsidiary.

When Items 615(2), 615(3), or 615(6) do not appear on the bid schedule, this work is subsidiary.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
615(1)	Standard Sign	Square Foot
615(2)	Remove and Relocate Existing Sign	Each
615(6)	Salvage Sign	Each

Replace Section 618 with the following:

SECTION 618
SEEDING

618-1.01 DESCRIPTION. Establish a healthy living perennial stand of grass or other vegetative living groundcover by seeding. Maintain the living cover for the term of the Contract.

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

Water	Subsection 712-2.01
Seed	Section 724 (Grass Seed)
Fertilizer	Section 725
Topsoil	Section 726
Soil Stabilization	Section 619
Soil Stabilization Material	Section 727

TABLE 618-1
GRASS SEED MIX, SOIL STABILIZER, AND FERTILIZER APPLICATION RATES

Materials	Ingredients	Application Rate (per MSF)
Grass Seed Mix [a, b]	Nortan – Tufted Hairgrass Arctred – Red Fescue Wainwright - Slender Wheatgrass Annual Ryegrass	0.60 lbs. 0.45 lbs. 0.37 lbs. 0.08 lbs. Total = 1.50 lbs.
Soil Stabilizer		
Slope ≤ 3:1	Mulch	46 lbs.
Slope >3:1	Mulch with tackifier	45-58 lbs.
Fertilizer	20-20-10	12 lbs.

a. Do not remove the tags from seed bags.
b. Submit an alternate seed mix when the specified seed is not commercially available. Provide a letter confirming the specified seed is not available. Include an agronomist certified seed mix design, including application rate, suited to the project site.

CONSTRUCTION REQUIREMENTS

618-3.01 SURFACE PREPARATION. Remove ruts, holes, humps and other irregularities from the surface. Clear stones four inches in diameter and larger, weeds, plant growth, sticks, stumps, and other debris that will interfere with the application of stabilization material, topsoil, the seeding operation, growth of vegetative groundcover, and subsequent maintenance of the cover.

Smooth the slopes for a uniform appearance and round the top and bottom of the slopes to facilitate tracking or raking. Do not disrupt drainage flow lines.

Evenly place stabilization material and or topsoil when specified.

Prepare the surface material by grooving the material in a uniform pattern that is perpendicular to the fall of the slope. Use one or more of the following grooving methods with associated equipment before the application of seed:

1. Manual raking with landscaping rake;

2. Mechanical track walking with track equipment; or

3. Mechanical raking with a scarifying slope board. Form one-inch wide grooves spaced no more than six inches apart.

618-3.02 SEEDING SEASON. Seed disturbed areas after permanent cessation of ground disturbing activities in that area, within the period specified in the Alaska Department of Environmental Conservation (ADEC) Alaska Pollutant Discharge Elimination System (APDES) Construction General Permit (CGP) for Alaska, Section 4.5 Soil Stabilization, and Section 641 Erosion, Sediment, and Pollution Control.

Do not seed during windy conditions, when climatic conditions or ground conditions would hinder placement or proper growth.

Seed between May 15 and August 15.

618-3.03 APPLICATION. Seed, seeding, reseeding includes the application of seed, fertilizer, and stabilization material.

If the seed mix, fertilizer and stabilization material are not included in the Plans or Specifications, including their application rates, use the recommendations of the ADNR and the Revegetation Manual for Alaska.

Do not seed areas of bedrock and plant beds.

Use any of the following methods:

1. Hydraulic Method

   Apply seed and stabilization material in one application when using the hydraulic method. Apply fertilizer with the hydraulic method. Include the fertilizer with the seed and stabilization material or apply separately.

   a. Furnish and place a slurry made of seed, fertilizer, water, and other materials.

   b. Use hydraulic seeding equipment that will maintain a continuous agitation and apply a homogeneous mixture through a spray nozzle. The pump must produce enough pressure to maintain a continuous, nonfluctuating spray that will reach the extremities of the seeding area with the pump unit located on the roadbed. Provide enough hose to reach areas not practical to seed from the nozzle unit situated on the roadbed.

   c. If mulch material is required, it may be added to the water slurry in the hydraulic seeder after adding the proportionate amounts of seed and fertilizer. Add seed to the slurry mixture no more than 30 minutes before application.

   d. Mix the slurry and apply it evenly.

2. Dry Methods

   a. Use mechanical spreaders, seed drills, landscape seeders, aircraft, cultipacker seeders, fertilizer spreaders, or other approved mechanical spreading equipment.

   b. Spread fertilizer separately at the specified rate.

618-3.04 MAINTENANCE. Maintenance includes but is not limited to the following:

1. Protecting seeded areas against traffic by approved warning signs or barricades and against erosion.

2. Repairing surfaces gullied or otherwise damaged following seeding. Fill erosion gullies 4 inches deep and greater filling the gully to surrounding grade including the portions less than 4 inches deep. Apply and prepare the stabilization material and or topsoil for seeding. Seed repaired area. Refer to

Subsections 618-3.01 & 3.03.

3. Reseeding areas not showing evidence of satisfactory growth within 3 weeks of seeding and after repairs are complete. Reseed bare patches of soil more than 10 square feet in area. Contact ADNR for advice or corrective measures, when seeded areas are not showing evidence of satisfactory growth.

4. Watering seeded areas for healthy growth of vegetative cover. Adjust the amount of water when directed.

618-3.05 ACCEPTANCE. The vegetative groundcover will be inspected considering each station and each side of the road a separate area. Acceptance of the cover requires a minimum of 70% cover density in the inspection area, gullies repaired and reseeded, and no bare patches of soil more than 10 square feet in area.

Repair/reseed areas that are not accepted.

618-3.06 PERIOD OF ESTABLISHMENT. For each area accepted, the establishment period extends one complete growing season following the date of Project Completion, Subsection 105-1.15. Employ all possible means to preserve/maintain the new vegetative groundcover in a healthy and vigorous condition to ensure successful establishment. Maintain the vegetative cover, according to Subsection 618-3.04, to not less than the requirements for acceptance, Subsection 618-3.05.

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

Seeding by the Acre. By the area of ground surface acceptably seeded and maintained.

Seeding by the Pound. By the weight of dry seed acceptably seeded and maintained.

Water for Seeding. If weighed, a conversion factor of 8.34 pounds per gallon will be used to convert weights to gallons.

M Gal equals 1000 gallons.

618-5.01 BASIS OF PAYMENT.

1. Pay Items 618(1) and (2) Seeding. Payment is for healthy established vegetative groundcover through the establishment period.

   a. The initial surface preparation, seed, fertilizer, mulch when applied hydraulically, their application, and the water for hydraulic application are subsidiary.

   b. Maintenance fill, stabilization material, topsoil, surface preparation, seed, fertilizer, mulch when applied hydraulically, and the water required for hydraulic application are subsidiary.

2. Pay Item 618(3) Water for Seeding. Payment is for water applied for growth of vegetative groundcover through the establishment period. Water for hydraulic application of materials is subsidiary to Pay Items 618(1) and (2).

Except for maintenance, stabilization material is paid under Section 619 and topsoil under Section 620.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
618(2)	Seeding	Pound

Special Provision

Replace Section 619 with the following:

SECTION 619
SOIL STABILIZATION

619-1.01 DESCRIPTION. Furnish, install, and maintain materials to stabilize the soil. Control erosion, sediment, and pollution.

619-1.02 RELATED SECTIONS, REFERENCE ORGANIZATIONS, AND STANDARD DOCUMENTS.

1. Alaska Department of Transportation and Public Facilities (ADOT&PF):

   Standard Specifications for Highway Construction, 2017 Edition.
   - Seeding ..... Section 618
   - Topsoil ..... Section 620
   - Planting Trees and Shrubs ..... Section 621
   - Silt Fence ..... Section 633
   - Erosion, Sediment, and Pollution Control ..... Section 641
   - Soil Stabilization Material ..... Section 727

2. American Association of State Highway and Transportation Officials (AASHTO):

   Standard Practice for:
   - Compost for Erosion/Sediment Control (Filter Berms and Filter Socks) ..... R 51
   - Compost for Erosion/Sediment Control (Compost Blankets) ..... R 52

3. United States Composting Council (USCC):
   - Testing Methods for the Examination of Compost and Composting (TMECC)
   - Seal of Testing Assurance Program (STA) documents

4. Erosion Control Technology Council (ECTC)
   - Hydraulic Erosion Control Products (HECPs) Specification Chart
     Table 1, Performance Chart for Standard HECPs
   - Rolled Erosion Control Products (RECPs) Specification Chart
     Table 1, Rolled Erosion Control - Temporary
     Table 2, Rolled Erosion Control - Permanent

5. National Transportation Product Evaluation Program (NTPEP)
   - Testing and Evaluation of Products Materials and/or Devices

6. Texas DOT/Texas Transportation Institute (TTI) Hydraulics and Erosion Control Laboratory

619-1.03 SUBMITTALS. Submit stabilization and erosion, sediment and pollution control performance testing results with certifications for each material, Section 619-2.01 Materials. Submit a sample of each material to the Engineer 7 days before the scheduled installation.

1) Test compost, all applications, no more than 90 days before installation.
2) At a minimum, certificate will include the name of the manufacturer, product name, style number or similar, chemical composition of the material, the fibers, netting, yarn and similar and the weed free status of the material.
3) Organic materials shall be accompanied with all applicable health certificates and permits.
4) Furnish a Material Safety Data Sheet (MSDS) that demonstrates the product is not harmful to plants, animals, and aquatic life.

619-2.01 MATERIALS. Select stabilization materials, individually or a combination of, matched to the project applications/conditions (sheet flow, concentrated flow, slope, length of slope, access, etc.) providing performance and functional longevity meeting the most restrictive requirements of the Construction General Permit (CGP), the approved Stormwater Pollution Prevention Plan (SWPPP) and Section 641 Erosion, Sediment and Pollution Control.

1) Mulch ..... Subsection 727-2.01
   - Dry Erosion Control, Stabilization Products
   - Hydraulic Erosion Control Products (HECPs)
2) Matting ..... Subsection 727-2.02
   - Rolled Erosion Control Products (RECPs)
3) Sediment Retention Fiber Rolls (SRFRs) ..... Subsection 727-2.03
   - Filter Socks
   - Compost Socks
   - Coir Logs
4) Compost ..... Subsection 727-2.04
5) Tackifier ..... Subsection 727-2.05
6) Soil Binders (Polyacrylamide (PAM)) ..... Subsection 727-2.06
7) Geotextile-Encased Check Dams and Sediment Barriers ..... Subsection 727-2.07
8) Sandbag ..... Subsection 727-2.08
9) Manufactured Inlet Protection System ..... Subsection 727-2.09
10) Clear Plastic Covering ..... Subsection 727-2.10
11) Staples ..... Subsection 727-2.11
12) Other stabilization materials submitted to and approved by the Engineer.

Include on the packaging the manufacturer's name, the content, the air dry-weight and the guaranteed chemical analysis of the contents. Ship and deliver to the site in the original, unopened containers.

CONSTRUCTION REQUIREMENTS

619-3.01 GENERAL. Stabilization may include individual or a combination of materials, including but not limited to temporary seeding, mulch, tackifier, staples, matting, stabilizing emulsions, soil binders, dustless sweeping, dust palliatives, and others.

1. Material Storage and Protection. Store materials elevated off the ground and covered protecting them from construction and or damage from the environment including but not limited to:
   - Precipitation
   - Extended ultraviolet radiant including sunlight
   - Chemicals that are strong acids or other
   - Flames and welding sparks
   - Excess temperatures
   - Other environmental conditions that may damage the materials

2. Fabrication.
   a. Sandbags. Sand bags shall measure 15 inches by 30 inches. Place approximately 1.0 cubic foot of select Material, Type B, in each sandbag sack. Close the open end of the sandbag as recommended by the fabric manufacturer.

619-3.02 SURFACE PREPARATION. Clear all areas to be stabilized of stones 4 inches in diameter and larger and of weeds, plant growth, sticks, stumps, and other debris or irregularities that might interfere with the stabilization operation, growth of cover (where vegetative cover is part of the stabilization operation) or subsequent maintenance of the vegetative-covered area(s).

Smooth the surface of the area(s) to be stabilized; make the areas reasonably free of ruts, holes, and humps; trackwalk if required by the manufacturer; apply the stabilization material to each area.

If specified, apply topsoil to the area to be stabilized before application of the stabilizing material. Section 618 and 620.

619-3.03 APPLICATION. Apply stabilization material, including rate of application, according to the specifications. If not specified, apply according to the manufacturer's requirements. Where manufacturer requirements conflict with the specification, except where the Engineer directs otherwise, apply the material according to the requirements of the manufacturer.

If seeding is specified, except where seed is included in the stabilization material, complete the application of stabilization materials within 24 hours after seed is placed.

Do not use vehicles or equipment which cause rutting or displacement of the subgrade or topsoil.

1. Temporary Seeding. Annual Ryegrass per Subsection 724-2.02, Table 724-1. Apply at a rate of 1/2 lb/1000 sq. ft., minimum, on level ground to a maximum of 1 1/2 lb/1000 sq. ft., maximum, on sloping ground and highly erodible soils. Prepare surface and place seed as noted under Subsection 619-3.02 Surface Preparation and Section 618 Seeding. Confirm application of temporary seeding with the Engineer.

2. Tacking Agents - Tackifiers. Apply tacking agents according to the manufacturer's installation instructions matched to the application providing functional longevity, erosion control effectiveness, and vegetative establishment.

3. Soil Binders. Apply soil binders according to the manufacturer's installation instructions.

   a. Using Polyacrylamide (PAM) and PAM with Short-Term Mulch:
   Apply PAM on bare soils.

   Apply PAM and PAM with short-term mulch only where sediment control is in place and complete.

   Do not apply PAM and PAM with short-term mulch on saturated ground during rainfall.

   b. Using Moderate-Term Mulch:
   Apply moderate-term mulch according to manufacturer's installation instructions. If the curing period to achieve maximum performance is greater than the time period before precipitation is predicted, or the soil is saturated, do not apply the moderate-term mulch except as approved by the Engineer.

   c. Using Long-Term Mulch:
   Apply long-term mulch according to the manufactures installation instructions.

4. Erosion Control Blankets (ECBs). Select blankets, as specified by the manufacturer, to match the slope; and installed according to the manufacturer's instructions rolled out on well prepared soils to assure intimate contact and anchored with staples, stakes and or anchor trenches. Temporary erosion control blankets with 60 percent or greater open area may be installed prior to seeding. Place blankets with less than 60 percent open area immediately after the seeding operation.

   Staple matting/ECBs as recommended by the manufacturer for the application.

5. Compost Blankets. Construct compost blankets according to latest AASHTO R 52 and as specified. Use coarse compost and place over bare soil a blanket of 2 inch minimum thickness, except as otherwise specified. Apply material either by hand spreading and or pneumatically. Compost will have no free water visible or produce dust when handled. Place compost before seeding or mix seed with compost.

6. Check Dams. Place check dams as soon as possible and practicable or when and where if directed by the Engineer. Place the check dams perpendicular to channels and construct of a height sufficient to maximize detention while keeping the water in the channel. Place and install check dams according to the Plans and anchor to maintain in effective position.

   a. Sandbag. Place the initial row in tight contact with the ditchline for the length of the dam. Place each following row centered across the joint between the bags of the lift/row below.

7. Stabilized Construction Entrance.
Temporary stabilized construction entrance shall be constructed according to the Plans, prior to beginning any clearing, grubbing, earthwork, or excavation.

When the stabilized entrance no longer prevents track out of sediment or debris, the Contractor shall either rehabilitate the existing entrance to original condition, or construct a new entrance.

When the Plans require a tire wash in conjunction with the stabilized entrance, the Contractor shall include details for the tire wash and the method for containing and treating the sediment-laden runoff as part of the SWPPP. All vehicles leaving the site shall stop and wash sediment from their tires.

8. Sediment Control Barriers. Sediment control barriers shall be installed according to the Plans or manufacturer's recommendations in the areas of clearing, grubbing, earthwork, or drainage prior to starting those activities.

   a. Sandbag. Place the initial row in tight contact with the surface perpendicular to the slope. Place each following row centered across the joint between the bags of the lift/row below.

   b. Sediment Retention Fiber Rolls.

   c. Silt Fence.

   d. Compost Berm. Construct compost berms according to latest AASHTO R 51. Use coarse compost.

9. Turf Reinforcement Mats. According to manufacturers installation instructions.

619-3.04 MAINTENANCE. Maintain stabilized areas in a satisfactory condition for the term of the Contract. Inspect as required by the CGP, approved SWPPP, and Section 641 Erosion, Sediment and Pollution Control and correct any deficiencies immediately. Remove and dispose of temporary measures, including trapped sediment and contaminants, off project at approved locations. Materials manufactured as degradable may be left in place when approved by the Engineer.

Maintenance includes but is not limited to:

   a. Protecting stabilized areas against traffic by approved warning signs or barricades.

   b. Repairing surfaces gullied or otherwise damaged following application of stabilization material(s).

   Where seeding is included as a part of the soil stabilization:

   c. Reseeding, as required by Section 618 Seeding. Reapply the stabilization materials correcting the problems of the initial application.

   d. Watering, where vegetative growth is part of the soil stabilization, according to Section 618 Seeding.

The Engineer will perform inspection of the stabilization as required in the CGP, Section 641, and the SWPPP. Make repairs as required by same and as directed.

619-4.01 METHOD OF MEASUREMENT. Section 109, measured on the slope of the ground surface.

619-5.01 BASIS OF PAYMENT. Water, maintenance, repair, removal, and disposal of temporary stabilization materials are subsidiary.

Seeding is paid under Section 618 Pay Items, topsoil under Section 620 Pay Items, silt fence under Section 633 Pay Items and temporary erosion, sediment, and pollution control under 641 Pay Items.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
619(1)	Mulching	Square Yard
619(2)	Matting	Square Yard
619(3)	Compost	Square Yard
619(4)	Turf Reinforcement Mat	Square Yard
619(5)	Sediment Retention Fiber Rolls (SRFRs)	Linear Foot
619(6)	Check Dam and Sediment Barrier - Geotextile	Linear Foot
619(8)	Compost Berm	Linear Foot
619(9)	Sandbags	Each
619(10)	Manufactured Inlet Protection System	Each
619(11)	Sandbag Inlet Protection System	Each

Replace Section 630 with the following:

SECTION 630
GEOTEXTILE FOR EMBANKMENT AND ROADWAY SEPARATION, STABILIZATION AND REINFORCEMENT

630-1.01 DESCRIPTION. Prepare ground surface, and furnish and place geotextiles for separation, stabilization, and/or reinforcement as shown on the Plans.

630-2.01 MATERIALS. Use materials that conform to the following:

Geotextiles and Sewn Seam Strength Subsection 729-2.01

Sewing Thread. Use high strength polypropylene, or polyester. Do not use nylon thread. Use thread of contrasting color to that of the geotextile itself.

630-3.01 CONSTRUCTION.

1. Surface Preparation. Prepare ground surface by removing stumps, brush, boulders, and sharp objects. Fill holes and large ruts, as directed by the Engineer, with material shown on the Plans or as approved by the Engineer.

2. Geotextile Placement. Unroll geotextile directly onto the prepared surface. Stretch geotextile to remove any creases, folds or wrinkles. Do not drag the geotextile through mud or over sharp objects that could damage the geotextile. Do not expose geotextiles to sunlight for longer than 14 days after removal of protective covering. Do not allow geotextiles to get wet prior to installation.

   a. Separation and Stabilization. Lay geotextile for embankment separation and stabilization parallel to roadway centerline. On horizontal curves, place in segment lengths not exceeding those listed in Table 630-1, with butt ends cut to match and sewn or overlapped. On tangents, straighten the geotextile and sew or overlap butt ends. Shingle overlaps in the same direction as fill placement. Prevent overlapped edges from lifting during construction.

   b. Reinforcement. Lay the machine direction of the geotextile, for embankment reinforcement, perpendicular to the roadway centerline or as shown on the Plans. Join segments by sewing or an approved bonding or attachment process. Shingle overlaps in the same direction as fill placement if seams are not sewn. Prevent overlapped edges from lifting during construction.

TABLE 630-1
GEOTEXTILE PLACEMENT ON CURVES

Degree of Curve	Maximum Segment Length (ft.)
1	125
2	90
3	75
4	65
5	55
6	50

3. Joining. Join adjacent geotextiles for separation or stabilization by overlapping or sewing. Join adjacent geotextiles for reinforcement by sewing or as shown on the Plans. Other attachment methods may be used if approved by the Engineer.

a. Sew seams with a Butterfly or J-Seam. Use a double-thread chain stitch (lock stitch). Bring adjacent sections of geotextile together and fold so that the stitching penetrates four layers of geotextile for the full seam length. Make the stitching line 1 1/4-inches (± 1/4-inch) from the folded edge of the seam and at least 1/2-inch from the free edge of the geotextile. Sew seams so that they face upward and can be easily inspected by the Engineer. Illustrations showing correct stitch formation and seam configurations are provided in Figure 1-2 (page 1-28) of the FHWA publication, *Geosynthetic Design & Construction Guidelines,* FHWA-NHI-07-092, August 2008.

b. Overlap geotextile sections by a minimum of 3-feet at all longitudinal and transverse joints. Place the beginning of each new roll beneath the end of the previous roll to prevent the advancing fill from lifting the geotextile. Shingle in the direction of construction.

4. Material Placing and Spreading. Place embankment material closely following fabric laydown to avoid fabric displacement and exposure. During placing and spreading of material, maintain a minimum depth of 12-inches of cover material; or a minimum depth equal to the separation distance between multiple layers of geotextile as shown on the Plans when this separation distance is less than 12-inches; at all times between the geotextile and the wheels or tracks of construction equipment. Limit the size and weight of construction equipment to reduce rutting in the initial lift above the geotextile to not greater than 3-inches deep to prevent overstressing the geotextile.

   Spread the material in the direction of the upper overlapped geotextile. Maintain proper overlap and geotextile continuity. If sewn or bonded seams are used, place the cover material and spread in only one direction for the entire length of the geotextile. On weak subgrades limit height of dumped cover material to prevent localized subgrade and/or geotextile failure. Do not drop stones or frozen material larger than 1-foot in diameter directly onto the geotextile from a height of more than 1-foot.

   Compact using a smooth drum roller or in a manner approved the Engineer. Do not allow construction equipment to make sudden stops and starts on the cover material. Do not allow turning of vehicles on the initial lift of cover material above the geotextile. Fill any ruts over 3-inches deep occurring during construction with additional material shown on the Plans; do not grade adjacent material into rut. Compact rut fill material to the specified density.

5. Geotextile Repair. Should the geotextile be torn, punctured, or the overlaps or sewn joints disturbed – as evidenced by visible geotextile damage, subgrade pumping, intrusion, or embankment distortion – remove the backfill around and under (if required by the Engineer) the damaged or displaced area and repair or replace the damaged area. Make repairs to the damaged area with a patch of the same type and class of geotextile originally placed. Make patches overlap by a minimum of 3-feet or sew patches to the existing geotextile, as specified for joining of the same type and class of geotextile, unless otherwise directed by the Engineer.

   a. Separation and Stabilization. Overlay torn area with geotextile with a minimum 3-feet overlap around the edges of the torn or damaged area or sew and bond according to Subsection 630-3.01.3.a. Ensure the patch remains in place when cover material is placed over the affected area.

   b. Reinforcement. Sew according to Subsection 630-3.01.3.a unless joining by overlap is shown on the Plans. Ensure the patch remains in place when cover material is placed over the affected area.

630-4.01 METHOD OF MEASUREMENT. Measure geotextile by the square yard of ground surface covered. No allowance will be made for overlap, whether at joints or patches.

630-5.01 BASIS OF PAYMENT. Payment will be at the Contract unit price. Repair and replacement costs for damaged geotextile are subsidiary to the Section 630 Pay Items.

Material used to fill ruts and holes will be paid for at the unit price for the type of material used.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
630(1)	Geotextile, Separation, Class 3	Square Yard
630(2)	Geotextile, Stabilization, Class 1	Square Yard
630(3A)	Geotextile, Reinforcement – Type 1	Square Yard
630(3B)	Geotextile, Reinforcement – Type 2	Square Yard

Replace Section 639 with the following:

SECTION 639
DRIVEWAYS

639-1.01 DESCRIPTION. Construct driveways and approaches.

639-2.01 MATERIALS. Reserved.

639-3.01 CONSTRUCTION. Reserved.

639-4.01 METHOD OF MEASUREMENT. By the number of driveways and approaches constructed.

639-5.01 BASIS OF PAYMENT. The Contract unit price for driveways and approaches is for furnishing equipment and labor.

Pavement removal and excavation required constructing driveways and approaches is subsidiary to the driveway and approach pay items.

Materials required to construct driveways and approaches will be paid for separately under the respective items listed in the bid schedule.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
639(1)	Residence Driveway	Each
639(2)	Commercial Driveway	Each
639(3)	Public Approach	Each
639(4)	Driveway	Each
639(6)	Approach	Each

Special Provision

Replace Section 641 with the following:

SECTION 641
EROSION, SEDIMENT, AND POLLUTION CONTROL

641-1.01 DESCRIPTION. Provide project administration and Work relating to control of erosion, sedimentation, and discharge of pollutants, according to this section and applicable local, state, and federal requirements, including the APDES Construction General Permit. The state APDES program is administered by DEC. Section 301(a) of the Clean Water Act (CWA) and 18 AAC 83.015 provide that the discharge of pollutants to water of the U.S. is unlawful except as allowed by the CGP.

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

ACTIVE TREATMENT SYSTEM (ATS) OPERATOR. The Contractor's qualified representative who is responsible for maintaining and operating an active treatment system (as defined in the CGP) for storm water runoff.

ALASKA CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (AK-CESCL). A person who has completed training, testing, and other requirements of, and is currently certified as, an AK-CESCL from an AK-CESCL Training Program (a program developed under a Memorandum of Understanding between the Department and others). The Department recognizes AK-CESCLs as "qualified personnel" required by the CGP. An AK-CESCL must be recertified every three years.

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION (DEC). The state agency authorized by EPA to administer the Clean Water Act's National Pollutant Discharge Elimination System.

ALASKA POLLUTANT DISCHARGE ELIMINATION SYSTEM (APDES). A system administered by DEC that issues and tracks permits for storm water discharges.

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

CLEAN WATER ACT (CWA). Federal Water Pollution Control Amendments of 1972, as amended (33 U.S.C. 1251 et seq.).

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

CONSTRUCTION GENERAL PERMIT (CGP). The permit authorizing storm water discharges from Construction Activities, issued and enforced by DEC. It authorizes stormwater discharges provided permit conditions and water quality standards are met.

CORPS OF ENGINEERS PERMIT (COE PERMIT). A U.S. Army Corps of Engineers Permit for construction in waters of the US. Such permit may be issued under Section 10 of the Rivers and Harbors Act of 1899, or Section 404 of the Clean Water Act.

ELECTRONIC NOTICE OF INTENT (ENOI). The electronic Notice of Intent submitted to DEC, to obtain coverage under the CGP.

ELECTRONIC NOTICE OF TERMINATION (ENOT). The electronic Notice of Termination submitted to DEC, to end coverage under the CGP.

ENVIRONMENTAL PROTECTION AGENCY (EPA). A federal agency charged to protect human health and the environment.

ERODIBLE STOCKPILE. Any material storage area or stockpile consisting of mineral aggregate, organic material, or a combination thereof, with greater than 5% passing the #200 sieve, and any material storage where wind or water transports sediments or other pollutants from the stockpile. Erodible stockpile also includes any material storage area or stockpile where the Engineer determines there is potential for wind or water transport of sediments or other pollutants away from the stockpile.

EROSION AND SEDIMENT CONTROL PLAN (ESCP). The Department's project specific document that illustrates measures to control erosion and sediment on the project. The ESCP provides bidders with the basis for cost estimating and guidance for developing an acceptable Storm Water Pollutant Prevention Plan (SWPPP).

FINAL STABILIZATION. Is defined in this section as it is defined in the CGP.

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

INSPECTION. An inspection required by the CGP or the SWPPP, usually performed together by the Contractor's SWPPP Manager and Department's Stormwater Inspector.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT. A DEC storm water discharge permit issued to certain local governments and other public bodies, for operation of storm water conveyances and drainage systems. See CGP for further definition.

MULTI-SECTOR GENERAL PERMIT (MSGP). The Alaska Pollutant Discharge Elimination System General Permit for storm water discharges associated with industrial activity.

LOW-ERODIBLE STOCKPILE. Any material stockpile identified in the CGP definition for Final Stabilization Section 1.b, and includes: riprap, gabion backfill, porous backfill, railroad ballast, and sub-ballast, ditch lining, or fill material with low erodibility. The stockpile shall not have a gradation of more than 5% passing the #200 sieve unless approved by an Engineer. There shall be no possibility of sediment transport due to water or wind erosion.

OPERATOR(S). The party or co-parties associated with a regulated activity that has responsibility to obtain permit coverage under the CGP. "Operator" for the purpose of the CGP and in the context of storm water associated with construction activity, means any party associated with a construction project that meets either of the following two criteria:

1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or

2. The party has day to day operational control of those activities at a project which are necessary to ensure compliance with a SWPPP for the site or other permit conditions (e.g. they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

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

PROJECT ZONE. The physical area provided by the Department for Construction. The Project Zone includes the area of highway or facility under construction, project staging and equipment areas, and material and disposal sites; when those areas, routes and sites, are provided by the Contract.

Material sites, material processing sites, disposal sites, haul routes, staging and equipment storage areas; that are furnished by the Contractor or a commercial operator, are not included in the Project Zone.

RECORDS. Any record, report, information, document, or photograph required to be created or maintained pursuant to the requirements of the CGP, the CGP storm water requirements of the Clean Water Act; and applicable local, state, and federal laws and regulations regarding document preservation.

SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN (SPCC PLAN). The Contractor's detailed plan for petroleum spill prevention and control measures that meet the requirements of 40 CFR 112.

SPILL RESPONSE FIELD REPRESENTATIVE. The Contractor's representative with authority and responsibility for managing, implementing, and executing the HMCP and SPCC Plan.

STORM EVENT. A rainfall event that produces 0.5 inch or more of precipitation in 24 hours and that is separated from the previous storm event by at least 3 days of less than 0.1 inch of rain per day.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP). The Contractor's detailed project specific plan to minimize erosion and contain sediment within the Project Zone, and to prevent discharge of pollutants that exceed applicable water quality standards. The SWPPP includes, but is not limited to, amendments, records of activities, inspection schedules, and reports, qualifications of key personnel, and all other documentation, required by the CGP and this specification, and other applicable local, state, and federal laws and regulations.

STORM WATER POLLUTION PREVENTION PLAN TWO (SWPPP2). The Contractor's detailed project specific plan to comply with CGP or MSGP requirements, for Contractor construction-related activities outside the Project Zone.

SUBCONTRACTOR SPILL RESPONSE COORDINATOR. The subcontractor's representative with authority and responsibility for coordinating the subcontractor's activities in compliance with the HMCP and SPCC Plan.

SUBCONTRACTOR SWPPP COORDINATOR. The subcontractor's representative with authority to direct the subcontractor's work, and who is responsible for coordination with the Superintendent and SWPPP Manager, and for the subcontractor's compliance with the SWPPP.

SUPERINTENDENT. The Contractor's duly authorized representative in responsible charge of the work. The Superintendent has responsibility and authority for the overall operation of the Project and for Contractor furnished sites and facilities directly related to the Project.

SWPPP AMENDMENT. A revision or document that adds to, deletes from, or modifies the SWPPP.

SWPPP MANAGER. The Contractor's qualified representative who conducts Inspections, updates SWPPP records, and has authority to suspend work and to implement corrective actions required for CGP compliance.

SWPPP PREPARER. The Contractor's qualified representative who is responsible for developing the initial SWPPP.

TEMPORARY STABILIZATION. Protecting soils from erosion and sediment loss by rainfall, snow melt, runoff, or wind with a temporary vegetative and/or non-vegetative protection cover. Temporary stabilization may include a combination of seeding, geotextiles, mulches, surface tackifiers, rolled erosion control products, low-erodible gravel or paving, or the mentioned BMPs combined together with trackwalking.

UTILITY SPILL RESPONSE COORDINATOR. The Utility's representative with authority and responsibility for coordinating the Utility's activities in compliance with the HMCP and SPCC Plan.

UTILITY SWPPP COORDINATOR. The Utility's representative with authority to direct the Utility's work, and who is responsible for coordination with the Superintendent and SWPPP Manager, and for the Utility's compliance with the SWPPP.

641-1.03 PLAN AND PERMIT SUBMITTALS. For plans listed in Subsection 108-1.03.5 (SWPPP and HMCP), use the Contractor submission and Department review deadlines identified in Subsection 641-1.03.

Partial and incomplete submittals will not be accepted for review. Any submittal that is re-submitted or revised after submission, but before the review is completed, will restart the submittal review timeline. No additional Contract time or additional compensation will be allowed due to delays caused by partial or incomplete submittals, or required re-submittals.

1. Storm Water Pollution Prevention Plan. Submit an electronic copy and three hard copies of the SWPPP to the Engineer for approval. Deliver these documents to the Engineer at least 21 days before beginning Construction Activity. Organize and bind the SWPPP and related documents for submittal according to the requirements of Subsection 641-2.01.2.

   The Department will review the SWPPP submittals within 14 days after they are received. Submittals will be returned to the Contractor, and marked as either "rejected" with reasons listed or as "approved" by the Department. When the submittal is rejected, the Contractor must revise and resubmit the SWPPP. The 14-day review period will restart when the contractor submits an electronic copy and three hard copies of the revised SWPPP to the Engineer for approval.

   After the SWPPP is approved by the Department, the Contractor must sign and certify the approved SWPPP using Form 25D-111. See Item 4 for further SWPPP submittal requirements.

2. Hazardous Material Control Plan. The HMCP template can be found at the following webpage: http://www.dot.state.ak.us/stwddes/dcsconst/pop_constforms.shtml. Submit an electronic copy and three hard copies of the HMCP, as an appendix to the SWPPP, to the Engineer for approval. The HMCP submittal and review timeline, and signature requirements are the same as the SWPPP.

3. Spill Prevention, Control, and Countermeasure Plan. When a SPCC Plan is required under Subsection 641-2.03, submit an electronic copy and three signed hard copies of the SPCC Plan to the Engineer. Deliver these documents to the Engineer at least 21 days before beginning Construction Activity. The Department reserves the right to review the SPCC Plan and require modifications.

4. CGP Coverage. The Contractor is responsible for permitting of Contractor and subcontractor Construction Activities related to the Project. Do not use the SWPPP for Construction Activities outside the Project Zone where the Department is not an operator. Use a SWPPP2 for Construction Activities outside the Project Zone.

   After Department approval of the SWPPP and prior to beginning Construction Activity, submit an eNOI with the required fee to DEC for coverage under the Construction General Permit (CGP). Submit a copy of the signed eNOI and DEC's written acknowledgement (by letter or other document), to the Engineer as soon as practicable and no later than three days after filing eNOI or receiving a written response.

   Do not begin Construction Activity until the conditions listed in Subsection 641-3.01.1 are completed.

   The Department will submit an eNOI to DEC for Construction Activities inside the Project Zone. The Engineer will provide the Contractor with a copy of the Department's eNOI and DEC's written acknowledgment (by letter or other document), for inclusion in the SWPPP.

Before Construction Activities occur, transmit to the Engineer an electronic copy of the approved and certified SWPPP, with signed Delegations of Signature Authorities on forms 25D-107 and 25D-108, SWPPP Certifications on forms 25D-111 and 25D-109, both permittee's signed eNOIs and DEC's written acknowledgement.

5. Ending CGP Coverage. Submit an eNOT to DEC within 30 days after the Engineer has determined the conditions listed in Subsection 641-3.01.6 have been met. Submit a copy of the signed eNOT and DEC's acknowledgement letter to the Department within three days of filing the eNOT or receiving a written response.

6. DEC SWPPP Review. When CGP Part 2.1.3, requires DEC SWPPP review:
   a. Transmit a copy of the Department-approved SWPPP to DEC using delivery receipt confirmation;

   b. Transmit a copy of the delivery receipt confirmation to the Engineer within seven (7) days of receiving the confirmation; and

   c. Retain a copy of delivery receipt confirmation in the SWPPP.

7. Local Government SWPPP Review. When local government or the CGP Part 2.1.4, requires local government review:

   a. Transmit a copy of the Department-approved SWPPP and other information as required to local government, with the required fee. Use delivery receipt confirmation;

   b. Transmit a copy of the delivery receipt confirmation to the Engineer within seven days of receiving the confirmation;

   c. Transmit a copy of any comments by the local government to the Engineer within seven days of receipt;

   d. Amend the SWPPP as necessary to address local government comments and transmit SWPPP Amendments to the Engineer within seven days of receipt of the comments;

   e. Include a copy of local government SWPPP review letter in the SWPPP; and

   f. File a notification with local government that the project is ending.

8. Modifying Contractor's eNOI. When required by the CGP Part 2.7, modify your eNOI to update or correct information within 30 calendar days of the change. Reasons for modification include a change in start or end dates, change in Owner/Operator address and contact information, change in site information, any changes in number of acres to be disturbed, change in decision to use or not use treatment chemicals, or change in location of SWPPP records.

   The Contractor must submit an eNOT and then submit a new eNOI instead of an eNOI modification when: the operator has changed.

641-1.04 PERSONNEL QUALIFICATIONS. Provide documentation in the SWPPP that the individuals serving in these positions meet the personnel qualifications.

1. The SWPPP Preparer.

   a. Total disturbed acreage, 20 acres or less, meet at least one of the following qualifications:

      (1). Current certification as a Certified Professional in Erosion and Sediment Control (CPESC);

      (2). Current certification as AK-CESCL, and at least two years' experience in erosion and sediment control, as a SWPPP Manager or SWPPP writer, or equivalent. Provide documentation including project names, project timelines, and work responsibilities demonstrating the experience requirement; or

(3). Professional Engineer registered in the State of Alaska with current certification as AK-CESCL.

b. Total disturbed acreage greater than 20 acres, meet a. above, and complete a SWPPP Preparation course.

2. The Superintendent must meet the following qualifications:

a. Current certification as AK-CESCL; and

b. Duly authorized representative, as defined in the CGP, Appendix A, Part 1.12.3.

3. The SWPPP Manager must have current certification as AK-CESCL and must meet the CGP experience, training, and authority requirements identified for the Storm Water Lead and Storm Water Inspector positions.

4. ATS operator must have current certification as AK-CESCL, and be knowledgeable in the principles and practices of treatment systems in general, and the operation of the project-specific ATS. The ATS operator must have at least three months field experience with ATS, or completion of an ATS manufacturer's training course, or completion of system operator certification course.

5. The Department accepts people having any of the following certificates as equivalent to AK-CESCL, if the certificates are current according to the sponsoring organization's policies:

a. CPESC, Certified Professional in Erosion and Sediment Control; or

b. CISEC, Certified Inspector in Sediment and Erosion Control.

641-1.05 SIGNATURE/CERTIFICATION REQUIREMENTS AND DELEGATIONS.

1. eNOI and eNOT. The eNOI and eNOT must be signed and certified by a responsible corporate officer according to CGP Appendix A, Part 1.12. Signature and certification authority for the eNOI and eNOT cannot be delegated.

2. Delegation of Signature Authority for Other SWPPP Documents and Reports. Use Form 25D-108 to delegate signature authority and certification authority to the Superintendent position, according to CGP Appendix A, Part 1.12.3, for the SWPPP, Inspection Reports and other reports required by the CGP. The Superintendent position is responsible for signing and certifying the SWPPP, Inspection Reports, and other reports required by the CGP, except the eNOI and eNOT.

   The Engineer will provide the Department's delegation on Form 25D-107, which the Contractor must include in the SWPPP.

3. Subcontractor Certification. Subcontractors must certify on Form 25D-105, that they have read and will abide by the CGP and the conditions of the project SWPPP.

4. Signatures and Initials. Handwrite signatures or initials on CGP documents and SWPPP forms, wherever a signature or initial is required.

641-1.06 RESPONSIBILITY FOR STORM WATER PERMIT COVERAGE.

1. The Department and the Contractor are jointly responsible for permitting and permit compliance within the Project Zone.

2. The Contractor is responsible for permitting and permit compliance outside the Project Zone. The Contractor has sole responsibility for compliance with DEC, COE, and other applicable federal, state, and local requirements, and for securing all necessary clearances, rights, and permits. Subsection 107-1.02 describes the requirement to obtain permits, and to provide permit documents to the Engineer.

3. An entity that owns or operates, a commercial plant (as defined in Subsection 108-1.01.3) or material source or disposal site outside the Project Zone, is responsible for permitting and permit compliance. The Contractor has sole responsibility to verify that the entity has appropriate permit coverage.

   Subsection 107-1.02 describes the requirement to obtain permits, and to provide permit documents to the Engineer.

4. The Department is not responsible for permitting or permit compliance, and is not liable for fines resulting from noncompliance with permit conditions:

   a. For areas outside the Project Zone;

   b. For Construction Activity and Support Activities outside the Project Zone; and

   c. For commercial plants, commercial material sources, and commercial disposal sites.

641-1.07 UTILITY.

Relocation Coverage. A Utility company is not an Operator when utility relocation is performed concurrently with the Project, as outlined in Section 105-1.06. The Department maintains operational control over the Utility's plans and specifications for coordination with project construction elements, and the Contractor has day-to-day control over the various utility construction activities that occur in support of the Project. A Utility company is considered a subcontractor for concurrent relocation.

After the Contractor has an active NOI for the Project, a Utility Company performing advance relocation work under a separate SWPPP no longer has Operator status and files the NOT for the Utility Company's SWPPP covering only the completed utility work. Remaining utility relocation work is included in and performed under the Project SWPPP.

641-2.01 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS.

1. SWPPP Preparer and Pre-Construction Site Visit.

   Use a SWPPP Preparer to develop the SWPPP and associated documents, according to the requirements of the CGP and COE permit. The SWPPP Preparer must put their name, qualifications (including the expiration date of any certifications), title and company name in the SWPPP.

   The SWPPP Preparer must conduct a pre-construction inspection at the Project site before construction activity begins. If the SWPPP Preparer is not a Contractor employee, the SWPPP Preparer must visit the site accompanied by the Contractor. Give the Department at least seven days advance notice of the site visit, so that the Department may participate.

   During the pre-construction inspection, the SWPPP Preparer must identify, or if a draft of the SWPPP has already been prepared verify that the SWPPP fully addresses and describes:

   a. Opportunities to phase construction activities;

   b. Appropriate BMPs and their sequencing; and

   c. Sediment controls that must be installed prior to beginning Construction Activities.

   Document the SWPPP Preparer's pre-construction inspection in the SWPPP on Form 25D-106, SWPPP Pre-Construction Site Visit, including the names of attendees and the date.

2. Developing the SWPPP.

   Use the Department's project ESCP, Environmental commitments, and other Contract documents as a starting point for developing the SWPPP. The approved SWPPP replaces the ESCP.

Develop the SWPPP with sections and appendices, according to the current DOT&PF SWPPP template. Include information required by the Contract and described in the CGP Part 5.0.

a. Obtain the following forms after they have been completed by the Department and include them in the SWPPP:

(1) SWPPP Delegation of Signature Authority – DOT&PF (25D-107)

(2) SWPPP Certification for DOT&PF (25D-109)

(3) SWPPP Delayed Action Item Report (25D-113), if needed

b. Use the following Department forms for recording information in the SWPPP:

(1) SWPPP Amendment Log (25D-114)

(2) SWPPP Certification for Contractor (25D-111)

(3) SWPPP Construction Site Inspection Report (25D-100)

(4) SWPPP Corrective Action Log (25D-112)

(5) SWPPP Daily Record of Rainfall (25D-115)

(6) SWPPP Delegation of Signature Authority – Contractor (25D-108)

(7) SWPPP Grading and Stabilization Activities Log (25D-110)

(8) SWPPP Pre-Construction Site Visit (25D-106)

(9) SWPPP Project Staff Tracking (25D-127)

(10) SWPPP Subcontractor Certification (25D-105)

(11) SWPPP Training Log (25D-125)

(12) SWPPP Noncompliance (25D-143)

SWPPP Template forms and instructions are available online at:

http://www.dot.state.ak.us/stwddes/dcsconst/pop_constforms.shtml

Compile the SWPPP in three ring binders with tabbed and labeled dividers for each section and appendix.

3. SWPPP Considerations and Contents.

a. The SWPPP must provide erosion and sediment control measures for all Construction Activity within the Project Zone. Construction activity outside the Project Zone must have permit coverage, using a separate SWPPP2, and separate Contractor Inspections.

b. The SWPPP must consider the activities of the Contractor and all subcontractors and utility companies performing work in the Project Zone. The SWPPP must describe the roles and responsibilities of the Contractor, subcontractors, utility companies, and the Department with regard to implementation of the SWPPP. The SWPPP must identify all operators for the Project, including utility companies performing Construction Activity, and identify the areas:

(1) Over which each operator has operational control; and

(2) Where the Department and Contractor are co-operators.

c. For work outside the Project Zone the SWPPP must identify the entity that has stormwater permit coverage, the operator, and the areas that are:

(1) Dedicated to the Project and where the Department is not an operator; and

(2) Not dedicated to the project, but used for the project.

d. Account for the Contractor's construction methods and phasing. Identify the amount of mean annual precipitation.

e. Comply with the CGP Part 1.4.3 Authorized Non-Storm Water Discharges. List locations where authorized non-storm water will be used, including the types of water that will be used on-site.

f. Include the Department's Antidegradation Analysis in the SWPPP if storm water from the Project Zone discharges into receiving water that is considered a high quality water and that constitutes an outstanding national resource, according to CGP Part 2.1.6.

g. There are special requirements in the CGP Part 3.2, for storm water discharges into an impaired water body, and they may include monitoring of storm water discharges. For Projects meeting the permit criteria, the Contractor shall implement a monitoring plan approved by the Department for the storm water within the Project Zone, and shall provide the required information and reports for inclusion in the SWPPP. The Contractor is responsible for monitoring and reporting outside the Project Zone.

h. Preserve natural topsoil unless infeasible. Delineate the site according to CGP Part 4.2.1. Use stakes, flags, or silt fence, etc. to identifying areas where land disturbing activities will occur and areas that will be left undisturbed. Minimize the amount of soil exposed during Construction activity according to CGP Part 4.2.2.

i. Comply with CGP Part 4.4, and the DEC General Permit for Excavation Dewatering (AKG002000), requirements for dewatering for trenches and excavations.

j. The SWPPP must identify specific areas where potential erosion, sedimentation, or pollution may occur. The potential for wind erosion must be addressed. The potential for erosion at drainage structures must be addressed.

k. Describe methods and time limits, to initiate temporary or final soil stabilization, CGP 4.5.1.1.. Begin stabilization no later than the end of the next work day, following the day when the earth-disturbing activities have permanently ceased on any portion of the site or temporarily ceased on any portion of the site and will not resume for a period exceeding:

(1) Seven days for areas with mean annual precipitation 40 inches or greater; or
(2) Fourteen days for areas with mean annual precipitation less than 40 inches.

Time allotted to complete temporary and final stabilization, 641-2.01, 3l.

l. Within seven days of initiating final stabilization, CGP 4.5.1.4, either complete final stabilization or continue maintenance of work until final stabilization is complete. Complete temporary stabilization within 14 days of initiating stabilization, CGP 4.5.1.2.

m. Include in the "Stabilize Soils" section of the SWPPP, a description of how you will minimize the amount of disturbed and unstabilized ground in the fall season. Identify anticipated dates of fall freeze-up and spring thaw. Describe how you will stabilize areas when it is close to or past the seasonal time of snow cover or frozen conditions, and before the first seasonal thaw. Include a plan for final stabilization.

n. Plans for Active Treatment Systems must be submitted to DEC for review at least 14 days prior to their use and the Operator of the ATS identified in the SWPPP. Any use of treatment chemicals must be identified on the NOI, documented in the SWPPP, and meet with the requirements in the CGP Part 4.6.

o. The SWPPP must provide designated areas for equipment and wheel washing, equipment fueling and maintenance, chemical storage, staging or material storage, waste or disposal sites, concrete washouts, paint and stucco washouts, and sanitary toilets. These activities must be done in designated areas that are located, to the extent practicable, away from drain inlets, conveyance channels, and waters of the US. No discharges are allowed from concrete washout, paint and stucco washout; or from release oils, curing compounds, fuels, oils, soaps, and solvents. Equipment and wheel washing water that doesn't contain detergent may be discharged on-site if it is treated before discharge.

p. Design temporary BMPs for a 2 year 24 hour precipitation amount. Describe BMPs in the SWPPP and in SWPPP Amendments, including source controls, sediment controls, discharge points, and temporary and final stabilization measures. Describe the design, placement, installation, and maintenance of each BMP, using words, and drawings as appropriate. Describe the design capacity of sediment basins (including sediment ponds and traps). Provide a citation to the BMP Manual or publication used as a source for the BMP, including the manufacturer's or BMP manual specifications for installation CGP Part 5.3.6.2. If no published source was used to select or design a BMP, then the SWPPP or SWPPP amendment must state that "No BMP manual or publication was used for this design."

q. Describe the sequence and timing of activities that disturb soils and of BMP implementation and removal. Phase earth-disturbing activities to minimize unstabilized areas, and to achieve temporary or final stabilization quickly. Whenever practicable incorporate final stabilization work into excavation, embankment, and grading activities.

r. Provide a legible site map or set of maps in the SWPPP, showing the entire site and identifying boundaries of the property where construction and earth-disturbing activities will occur, as described in the CGP Part 5.3.5.

s. Identify the inspection frequency in the SWPPP:

(1) Inspect once every seven (7) days regardless of the precipitation amount.

t. Linear Project Inspections, described in CGP Part 6.5, are not applicable to this contract.

u. The SWPPP must cite and incorporate applicable requirements of the Project permits, environmental commitments, COE permit, and commitments related to historic preservation. Make additional consultations or obtain permits as necessary for Contractor specific activities which were not included in the Department's permitting and consultation.

v. The SWPPP is a dynamic document. Keep the SWPPP current by noting installation, modification, and removal of BMPs, and by using amendments, SWPPP amendment logs, Inspection Reports, corrective action logs, records of land disturbance and stabilization, and any other records necessary to document storm water pollution prevention activities and to satisfy the requirements of the CGP and this specification. See Subsection 641-3.03 for more information.

4. Recording Personnel and Contact Information in the SWPPP.

Identify the SWPPP Manager as the Storm Water Lead and Storm Water Inspector positions in the SWPPP. Document the SWPPP Manager's responsibilities in Section 2.0 Storm Water Contacts, of the SWPPP template and:

a. Identify that the SWPPP Manager does not have authority to sign inspection reports (unless the SWPPP Manager is also the designated project Superintendent).

b. Identify that the SWPPP Manager cannot prepare the SWPPP unless the SWPPP Manager meets the Contract requirements for the SWPPP Preparer.

Include in the SWPPP, proof of AK-CESCL or equivalent certifications for the Superintendent and SWPPP Manager, and for any acting Superintendent and acting SWPPP Managers. If the Superintendent or SWPPP Manager is replaced permanently or temporarily, by an acting Superintendent or acting SWPPP Manager, record in the SWPPP (use form 25D-127) the names of the replacement personnel, the date of the replacement. For temporary personnel record their beginning and ending dates.

Provide 24-hour contact information for the Superintendent and SWPPP Manager. The Superintendent and SWPPP Manager must have 24-hour contact information for all Subcontractor SWPPP Coordinators and Utility SWPPP Coordinators.

Include in the SWPPP, proof of AK-CESCL, or equivalent certifications of ATS operators. Record the names of ATS operators and their beginning and ending dates, on Form 25D-127.

The Department will provide proof of AK-CESCL, or equivalent certifications for the Project Engineer, Storm Water Inspectors, and Monitoring Person (if applicable), and names and dates they are acting in that position. Include the Department's staff certifications in the Appendix E. Include the Department's staff names, dates acting, and assignments, in Section 2.0 of the SWPPP.

641-2.02 HAZARDOUS MATERIAL CONTROL PLAN (HMCP) REQUIREMENTS. Prepare the HMCP using the DOT&PF template located at the following DOT&PF link; (http://www.dot.state.ak.us/stwddes/dcsconst/pop_constforms.shtml) for prevention of pollution from storage, use, containment, cleanup, and disposal of all hazardous material, including petroleum products related to construction activities and equipment. Include the HMCP as an appendix to the SWPPP. Compile Material Safety Data Sheets in one location and reference that location in the HMCP.

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

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

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

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

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

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

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

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

1. Oil or petroleum products from a spill may reach navigable waters (as defined in 40 CFR 112); and

2. Total above ground storage capacity for oil and any petroleum products is greater than 1,320 gallons (not including onboard tanks for fuel or hydraulic fluid used primarily to power the movement of a motor vehicle or ancillary onboard oil-filled operational equipment, and not including containers with a storage capacity of less than 55 gallons)

Reference the SPCC Plan in the HMCP and SWPPP.

641-2.04 RESPONSIBILITY AND AUTHORITY OF THE SUPERINTENDENT AND SWPPP MANAGER.

The Superintendent is responsible for the overall operation of the Project and all Contractor furnished sites and facilities directly related to the Project. The Superintendent shall sign and certify the SWPPP, Inspection Reports, and other reports required by the CGP, except the NOI and NOT. The Superintendent may not delegate the task or responsibility of signing and certifying the SWPPP submitted under Subsection 641-1.03.1, Inspection Reports, and other reports required by the CGP.

The Superintendent may assign certain duties to the SWPPP Manager, those duties may include:

1. Ensuring Contractor's and subcontractor's compliance with the SWPPP and CGP;

2. Ensuring the control of erosion, sedimentation, or discharge of pollutants;

3. Directing and overseeing installation, maintenance, and removal of BMPs;

4. Performing Inspections; and

5. Updating the SWPPP including adding amendments and forms.

When Bid Item 641(7) is part of the Contract, the SWPPP Manager must be available at all times to administer SWPPP requirements, and be physically present within the Project Zone or the project office, for at least eight hours per day when construction activities are occurring.

The Superintendent and SWPPP Manager shall be knowledgeable in the requirements of this Section 641, the SWPPP, CGP, BMPs, HMCP, SPCC Plan, environmental permits, environmental commitments, and historic preservation commitments.

The Superintendent and SWPPP Manager shall have the Contractor's complete authority and be responsible for suspending construction activities that do not conform to the SWPPP or CGP.

641-2.05 MATERIALS. Use materials suitable to withstand hydraulic, wind, and soil forces, and to control erosion and trap sediments according to the requirements of the CGP and the Specifications.

Use the temporary seed mixture specified by special provision, or use annual rye grass if no temporary seed mix is specified.

Use soil stabilization material as specified in Section 727.

Use silt fences as specified in Section 729.

Use straw that is certified as free of noxious weed by the United States Department of Agriculture, Natural Resources Conservation Service, Local Soil, and Water Conservative District. Alaska Weed Free Forage Certification Program must be used when available. Hay may not be substituted for straw.

Use Oregon Scientific RGR126 wireless rain gauge with temperature, or Taylor 2751 Digital Wireless Rain Gauge with Thermometer, or approved equivalent.

641-2.06 CONTRACTOR REQUIREMENTS. Contractor, be familiar with the requirements of the CGP.

641-3.01 CONSTRUCTION REQUIREMENTS. Comply with the SWPPP and the requirements of the CGP Part 5.0.

1. Before Construction Activity may Begin.

The following actions must be completed before Construction Activity begins:

a. The SWPPP Preparer must visit the Project, the visit must be documented in the SWPPP Form (25D-106), and the SWPPP must be developed (or amended) with findings from the visit;

b. The SWPPP must be approved by the Engineer on Form 25D-109;

c. The Contractor must be authorized to begin by the Engineer;

d. The Project eNOIs for the Department and for the Contractor, as well as any other eNOIs if there are additional operators, must be listed as Active Status on the DEC website;

e. The Department approved SWPPP must be submitted to DEC and Local Government (when required); and

f. The Contractor has transmitted to the Engineer an electronic copy of the approved SWPPP.

g. The Delegation of Authority (Forms 25D-108 and 25D-107) for both the Contractor and DOT&PF Engineer are signed.

h. Begin winter construction activity according to CGP Part 4.12.2, provided actions a, c, and g are completed. If winter construction activities may extend beyond spring thaw, the following actions must be completed before spring thaw:

(1) Actions a through g, listed above, and

(2) Appropriate control measures to minimize erosion and sediment runoff during spring thaw and summer rainfall are installed.

j. Post notices.

Include the following information:

(1) Copy of all eNOIs related to this project;

(2) Location of the SWPPP.

Post notices on the outside wall of the Contractor's project office, and near the main entrances of the construction project. Protect postings from the weather. Locate postings so the public can safely read them without obstructing construction activities or the traveling public (for example, at an existing pullout). Do not use retroreflective signs for the SWPPP posting. Do not locate SWPPP signs in locations where the signs may be confused with traffic control signs or devices. Update the notices if the listed information changes.

k. Install an outdoor rain gauge, per manufacturer's guidance, in a readily accessible location on the Project. Projects may utilize the nearest National Weather Service (NWS) precipitation gauge station, if within 20 miles of the project, to determine rainfall amounts during storm events.

l. Delineate the site for both land disturbing activities and areas that will be left undisturbed.

m. Install sediment controls and other BMPs that must be placed prior to the initiation of Construction Activity.

2. During Construction.

Before subcontractors or utility companies begin soil-disturbing activities, provide to them copies of applicable portions of the SWPPP, and require them to sign a SWPPP Subcontractor Certification, Form 25D-105. Include SWPPP Subcontractor Certifications as an appendix to the SWPPP. Ensure subcontractors and utility companies understand and comply with the SWPPP and the CGP. Inform subcontractors and utility companies of SWPPP amendments that affect them in a timely manner. Coordinate with subcontractors and utility companies doing work in the Project Zone so BMPs, including temporary and final stabilization are installed, maintained, and protected from damage.

Provide on-going training to employees and subcontractors, on control measures at the site and applicable storm water pollution prevention procedures. Training must be specific to the installation, maintenance, protection, and removal of control measures CGP 4.14. Training must be given at a frequency that will be adequate to ensure proper implementation and protection of control measures, and no less frequently than once a month during construction activity. Document on the SWPPP Training Log. Form 25D-125, the dates, and attendees to these trainings. Include the SWPPP Training Log as an appendix to the SWPPP.

Notify the Engineer immediately if the actions of any utility company or subcontractor do not comply with the SWPPP and the CGP.

Comply with Subsection 107-1.11 Protection and Restoration of Property and Landscape. Concrete washout must be fully contained.

Comply with CGP Part 4.8.2 for fueling and maintenance activities. Place absorbent pads or other suitable containment under fill ports while fueling, under equipment during maintenance or repairs, and under leaky equipment.

Comply with requirements of the HMCP and SPCC Plan, and all local, state, and federal regulations that pertain to the handling, storage, containment, cleanup, and disposal of petroleum products or other hazardous materials.

Keep the SWPPP and HMCP current (refer to Subsection 641-2.01.3, SWPPP Considerations and Contents)

3. Pollutant and Hazardous Materials Reporting Requirements.

If an incident of non-compliance occurs that may endanger health or the environment a report must be made, CGP, Appendix A, Part 3.4:

a. Orally immediately report the incident to the Engineer,

b. Orally within 24 hours after the permittee becomes aware of the incident, report to DEC, and

c. In writing within five days after the permittee becomes aware of the circumstances complete the written noncompliance report on Form 25D-143, and file the written report with the DEC. Coordinate the report with the Engineer. Include in the report:

(1) A description of the noncompliance and its causes;

(2) The exact dates and times of noncompliance;

(3) If not yet corrected the anticipated time the project will be brought back into compliance; and

(4) The corrective action taken or planned to reduce, eliminate and prevent reoccurrence.

Notify the Engineer and COE regulatory Program immediately if there is incident of noncompliance with COE Permits.

Report spills of petroleum products or other hazardous materials to the Engineer and other agencies as required by law. Use the HMCP and SPCC Plan (if available) for contact information to report spills to regulatory agencies.

4. Corrective Action and Maintenance of BMPs.

Implement maintenance as required by the CGP, SWPPP, and manufacturer's specifications, whichever is more restrictive.

a. Implement corrective action:

(1) If an incident of noncompliance with the SWPPP, or CGP is identified;

(2) If an Inspection or the Engineer identifies the SWPPP or any part of the SWPPP is ineffective in preventing erosion, sedimentation or the discharge of pollutants;

(3) If a required BMP was not installed according to the SWPPP schedule or phasing, or was installed incorrectly, or was not installed according to the CGP Part 4.0;

(4) If a BMP is not operating as intended, has not been maintained in an effective operation condition, or is unable to effectively perform the intended function;

(5) If sediment accumulates more than one-third of the distance of the above-ground height of the silt fence;

(6) If sediment accumulates to more than one-half retention height for an inlet, check dam, berm, wattle, or other control measures;

(7) If a prohibited discharge of pollutants, as specified in CGP Part 4.7, is occurring or will occur; or

(8) If there is accumulation of sediment or other pollutants, that is in or near any storm water conveyance channels, or that may enter a discharge point or storm sewer system. If there is accumulation of sediment or other pollutants that is being tracked outside the project zone.

b. Implement corrective actions so that they comply with the following time requirements:

(1) For conditions that are easily remedied (i.e. removal of tracked sediment, maintenance of control measure, or spill clean-up), initiate corrective action within 24 hours and complete as soon as possible;

(2) If a discharge occurs during a local 2-year, 24-hour storm event, initiate a corrective action a day after the storm event ends;

(3) If installation of a new control measure is needed or an existing control measure requires redesign and reconstruction or replacement to make it operational, the corrective action must be completed within seven calendar days from the time discovered.

(4) For all other conditions initiate corrective actions so both of the following requirements are met:

(a) Corrective action is completed in time to protect water quality; and

(b) Corrective action is completed no later than the Complete-by-Date that was entered in an Inspection Report (see Subsection 641-3.03.2 for more information).

If a corrective action is not implemented within the time requirements of this section, document the situation in the SWPPP, notify the Engineer, and implement corrective action as soon as possible.

If a corrective action could affect a subcontractor, notify the subcontractor within three days of taking the corrective action. Require in your written subcontract, that subcontractors must notify the Contractor within 24 hours of becoming aware of a condition that requires a corrective action.

5. Stabilization.

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

(1) Not later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased (CGP 4.5.1.1 Note:).

(2) As soon as necessary to avoid erosion, sedimentation, or the discharge of pollutants; and

(3) As identified in the SWPPP.

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

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

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

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

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

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

(1) At the culvert or drainage structure inlet and outlet; and

(2) In the areas upstream and downstream that may be disturbed by the process of installing the culvert, culvert end walls, culvert end sections, or drainage structure.

h. Before deactivating a stream bypass or stream diversion used for construction of a bridge, culvert, or drainage structure, install final or temporary stabilization when approved by the Engineer:

(1) At the inlet and outlet of the culvert, drainage structure, or bridge;

(2) In the area upstream and downstream of the culvert, drainage structure, or bridge, that is disturbed during installation or construction of the culvert, drainage structure, or bridge; and

(3) Under the bridge.

Within seven days of initiating final stabilization, either complete final stabilization or continue maintenance of work until final stabilization is complete, CGP 4.5.1.4,

Complete temporary stabilization within 14 days of initiating stabilization, CGP 4.5.1.2

6. Ending CGP Coverage and BMP Maintenance in the Project Zone.

a. The Engineer will determine the date that all the following conditions for ending CGP coverage have been met within the Project Zone:

(1) Land disturbing activities have ceased;

(2) Final Stabilization has been achieved on all portions of the Project Zone, according to the CGP PART 4.5.2 (including at Department furnished material sources, disposal sites, staging areas, equipment areas, etc.); and

(3) Temporary BMPs have been removed.

b. After the Engineer has determined the conditions for ending CGP coverage have been met, the Department will:

(1) Send written notice to the Contractor with the date that the conditions were met;

(2) Submit an eNOT to DEC; and

(3) Provide a copy of the eNOT and DEC's acknowledgement letter to the Contractor.

The Contractor is responsible for ending permit coverage within the Project Zone, by submitting an eNOT to DEC within 30 days of meeting the conditions for ending CGP coverage. The Contractor is responsible for BMP maintenance and SWPPP updates until permit coverage is ended.

If the Contractor's CGP eNOI acreage includes Support Activities and any other areas where the Department is not an Operator, the Contractor may not be able to file an eNOT at the same time as the Department. In this case, the Contractor must amend the SWPPP and separate SWPPP2(s), to indicate the Department's CGP coverage has ended, and the Department is no longer an Operator within the Project Zone.

The Contractor must indicate in the SWPPP the areas that have reached Final Stabilization, and the dates land disturbing activities ended and Final Stabilization was achieved. The Contractor must submit an eNOT to DEC, and insert copies of the Department's and the Contractor's eNOTs with DEC's acknowledgement letters in the appendix of the SWPPP.

The Contractor must submit a copy of each signed eNOT and DEC's acknowledgement letter to the Department within three days of filing the eNOT or receiving a written response.

The Contractor is responsible for coordinating local government inspections of work and ending permit coverage with local government. See Subsection 641-1.03.5 for more information.

7. Transmit final SWPPP.

Transmit one copy of the final SWPPP, including all amendments, appendices, and maps, to the Engineer; when the project eNOTs are filed, or within 30 days of the Department's eNOT being filed, whichever is sooner. Transmittal must be by both electronic and hard copy.

641-3.02 SWPPP DOCUMENTS, LOCATION ON-SITE, AVAILABILITY, AND RECORD RETENTION.

The SWPPP and related documents maintained by the Contractor are the Record for demonstrating compliance with the CGP. Copies of SWPPP documents transmitted to the Engineer under the requirements of this specification are informational and do not relieve the Contractor's responsibility to maintain complete records as required by the CGP and this specification.

Keep the SWPPP, HMCP, and SPCC Plan at the on-site project office. If there is not an on-site project office, keep the documents at a locally available location that meets CGP requirements and is approved by the Engineer. Records may be moved to another office for record retention after the eNOTs are filed. Records may be moved to another office during winter shutdown. Update on-site postings if records are relocated during winter shutdown. Provide the Department with copies of all Records.

Retain Records and a copy of the SWPPP, for at least three years after the date of eNOT. If EPA or DEC inspects the project, issues a Notice of Violation (NOV), or begins investigation for a potential NOV before the retention period expires, retain the SWPPP and all Records related to the SWPPP and CGP until at least three years after EPA and/or DEC has determined all issues related to the investigation are settled.

The SWPPP and related documents must be made available for review and copy, to the Department and other regulatory agencies that request them. See CGP Parts 5.10, 6.6 and 9.5.

641-3.03 SWPPP INSPECTIONS, AMENDMENTS, REPORTS, AND LOGS. Perform Inspections, prepare Inspection Reports, and prepare SWPPP Amendments in compliance with the SWPPP and the CGP. Update SWPPP Corrective Action Log Form 25D-112, SWPPP Amendment Log Form 25D-114, SWPPP Grading and Stabilization Activities Log Form 25D-110, SWPPP Project Staff Tracking Form 25D-127, and SWPPP Daily Record of Rainfall Form 25D-115. For active projects, update the Records daily.

1. Inspection during Construction.

Conduct Inspections according to the schedule and requirements of the SWPPP and CGP.

Inspections required by the CGP and SWPPP must be performed by the Contractor's SWPPP Manager and the Department's Storm Water Inspector jointly, unless approved by the Engineer, when:

a. One of the inspectors is not on site, access is only by air, and weather delayed or canceled flights;

b. One of the inspectors is sick;

c. The project is on a reduced frequency inspection schedule with no staff on site, the only access to the site is by air, and it is economical to send only one inspector; or

d. When the Engineer determines a safety concern which makes joint inspection impracticable.

When this is the case, the Operator who conducts the Inspection must provide a copy of the Inspection Report to the other Operator within three days of the Inspection date and document the date of the report transmittal.

2. Inspection Reports.

Use only the DOT&PF SWPPP Construction Site Inspection Report, Form 25D-100 to record Inspections. Changes or revisions to Form 25D-100 are not permitted; except for adding or deleting data fields that list: Location of Discharge Points, and Site Specific BMPs. Complete all fields included on the Inspection Report form; do not leave any field blank.

Insert a Complete-by-Date for each corrective action listed that complies with:

a. Section 641-3.01 (4), and

b. The CGP.

Provide a copy of the completed, unsigned Inspection Report to the Engineer by the end of the next business day following the inspection.

The Superintendent must review, correct errors, and sign and certify the Inspection Report, within three days of the date of Inspection. The Engineer may coordinate with the Superintendent to review and correct any errors or omissions before the Superintendent signs the report. Corrections are limited to adding missing information or correcting entries to match field notes and conditions present at the time the Inspection was performed. Deliver the signed and certified Inspection Report to the Engineer on the same day the Superintendent signs it.

The Engineer will sign and certify the Inspection Report and will return the original to the Contractor within three working days.

The Engineer may make corrections after the Superintendent has signed and certified the Inspection Report. The Engineer will initial and date each correction. If the Engineer makes corrections, the Superintendent must recertify the Inspection Report by entering a new signature and date in the white space below the original signature and date lines. Send a copy of the recertified Inspection Report to the Engineer on the day it is recertified.

If subsequent corrections to the certified Inspection Report are needed, document the corrections in an amendment memo that addresses only the omitted or erroneous portions of the original Inspection Report. The Superintendent and the Engineer must both sign and certify the amendment memo. The issuance of a amendment memo does not relieve the Contractor of liquidated damages that may have been incurred as a result of the error on the original certified inspection report.

3. Inspection before Seasonal Suspension of Work.

Conduct an Inspection before seasonal suspension of work to confirm BMPs are installed and functioning according to the requirements of the SWPPP and CGP.

4. Reduced Inspection Frequencies.

Conduct Inspections according to the inspection schedule indicated in the approved SWPPP. Any change in inspection frequency must be approved by the Engineer, and beginning and ending dates documented as an amendment to the SWPPP.

If the Engineer approves and the entire site is stabilized, the frequency of inspections may be reduced to at least one inspection every 30 days. At actively staffed sites, inspect within two business days of the end of a storm event that, results in a discharge from the site.

When work is suspended due to fall freeze-up, the Engineer may suspend inspection requirements after fourteen days of freezing conditions if:

a. Soil disturbing activities are suspended; and

b. Soil stabilizing activities are suspended.

Inspections must resume according to the normal inspection schedule identified in the SWPPP, at least 21 days before anticipated spring thaw. See CGP Part 6.2.3.

The Engineer may waive requirements for updating the Grading and Stabilization Activities Log and Daily Record of Rainfall during seasonal suspension of work. If so, resume collecting and recording weather data on the Daily Record of Rainfall form one month before thawing conditions are expected to result in runoff. Resume recording land disturbance and stabilization activities on the Grading and Stabilization Activities Log when Construction Activity resumes.

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:

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

b. 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.

6. Inspection before Project Completion.

Conduct Inspection to ensure Final Stabilization is complete throughout the Project, and temporary BMPs that are required to be removed are removed. Temporary BMPs that are biodegradable and are specifically designed and installed with the intent of remaining in place until they degrade, may remain in place after project completion.

7. Items and Areas to Inspect.

Conduct Inspections of the areas required by the CGP and SWPPP.

8. SWPPP Amendments and SWPPP Amendment Log.

The Superintendent and the SWPPP Manager are the only persons authorized to amend the SWPPP and update the SWPPP Amendment Log Form 25D-114. The Superintendent or the SWPPP Manager must sign and date amendments to the SWPPP and updates to the SWPPP Amendment Log.

SWPPP Amendments must be approved by the Engineer.

Amendments must occur:

a. Whenever there is a change in design, construction operation, or maintenance at the construction site that has or could cause erosion, sedimentation or the discharge of pollutants that has not been previously addressed in the SWPPP;

b. If an Inspection identifies, that any portion of the SWPPP is ineffective in preventing erosion, sedimentation, or the discharge of pollutants;

c. Whenever an Inspection identifies a problem that requires additional or modified BMPs

d. Whenever a BMP is modified during construction or a BMP not shown in the original SWPPP is added;

e. If the Inspection frequency is modified (note beginning and ending dates); or

f. When there is a change in personnel who are named in the SWPPP, according to Subsection 641-2.01.4.

Amend the SWPPP narrative as soon as practicable after any change or modification, but in no case, later than seven days following identification of the need for an amendment. Every SWPPP Amendment must be signed and dated. Cross-reference the amendment number with the Corrective Action Log or SWPPP page number, as applicable. When a BMP is modified or added, describe the BMP according to Subsection 641-2.01.3.

Keep the SWPPP Amendment Log current. Prior to performing each scheduled Inspection, submit to the Engineer a copy of the pages of the Amendment Log that contain new entries since the last submittal. Include copies of any documents amending the SWPPP.

Keep the SWPPP Amendment Log as an appendix to the SWPPP.

9. Site Maps.

Document installation, routine maintenance, and removal of BMPs by making notes on the SWPPP Site Maps. Include the date and the recording person's initials by these notes. Identify areas where Construction Activities begin, areas where Construction Activities temporarily or permanently cease, and areas that are temporarily or permanently stabilized.

10. Corrective Action Log.

The Superintendent and SWPPP Manager are the only persons authorized to make entries on the SWPPP Corrective Action Log, Form 25D-112. Document the need for corrective action within 24 hours of either:

a. Identification during an inspection; or

b. Discovery by the Department or Contractor's staff, a subcontractor, or a regulatory agency inspector.

Modification or replacement of a BMP, installation of a new BMP not shown in the original SWPPP, overdue BMP maintenance, or other reasons listed as corrective actions in 641-3.01.4 must be documented on the Corrective Action Log.

Within 24 hours of discovery, update the Corrective Action Log Form 25D-112, with the date of discovery and proposed corrective action. If discovered during an inspection, update log with inspection date and proposed corrective actions noted on the Inspection Report. If discovered outside of an inspection, update the log with the date of discovery, the proposed corrective action, and the date the corrective action was completed.

After the corrective action has been accomplished, note in the Corrective Action Log the action taken and if a SWPPP amendment was needed. Date and initial the entry.

Keep the Corrective Action Log current and submit a copy to the Engineer prior to performing each scheduled SWPPP Inspection.

Keep the Corrective Action Log as an appendix to the SWPPP.

11. Grading and Stabilization Activities Log.

The Superintendent and SWPPP Manager are the only persons authorized to date and initial entries on the SWPPP Grading and Stabilization Activities Log, Form 25D-110. Use the SWPPP Grading and Stabilization Activities Log, to record land disturbance and stabilization activities.

Keep the Grading and Stabilization Activities Log current and submit a copy to the Engineer prior to performing each scheduled SWPPP Inspection. Keep the Grading and Stabilization Activities Log organized and completed to demonstrate compliance with the CGP Part 4.5.

Keep the Grading and Stabilization Activities Log as an appendix to the SWPPP.

12. Daily Record of Rainfall.

Use SWPPP Daily Record of Rainfall, Form 25D-115, to record weather conditions at the Project. Update the form daily and include the initials of the person recording each day's entry. Submit a copy to the Engineer prior to performing each scheduled Inspection. Keep the Daily Record of Rainfall as an appendix to the SWPPP.

13. Staff Tracking Log.

Use the SWPPP Project Staff Tracking, Form 25D-127, to keep staff records current. Include Records of the AK-CESCL or equivalent qualifications for the Superintendent, SWPPP Manager, ATS operator, any acting Superintendent and acting SWPPP Managers, and beginning and end dates for temporary personnel assignments related to administration of the CGP or Section 641. Update the SWPPP Staff Tracking Log within 24 hours of any changes in personnel, qualifications, or other staffing items related to administration of the CGP or Section 641.

641-3.04 FAILURE TO PERFORM WORK. The Engineer has authority to suspend work and withhold monies, for an incident of non-compliance with the CGP, or SWPPP, that may endanger health or the environment or for failure to perform work related to Section 641.

1. **Non-compliance.**

a. **Incidents of Non-compliance.** Failure to:

(1) Obtain appropriate permits before Construction Activities occur;

(2) Perform SWPPP Administration;

(3) Perform timely Inspections;

(4) Update the SWPPP;

(5) Transmit updated SWPPP, Inspection Reports, and other updated SWPPP forms to the Engineer;

(6) Maintain effective BMPs to control erosion, sedimentation, and pollution in accordance with the SWPPP, the CGP, and applicable local, state, and federal requirements;

(7) Perform duties according to the requirements of Section 641; or

(8) Meet requirements of the CGP, SWPPP, or other permits, laws, and regulations related to erosion, sediment, or pollution control.

b. **Notice of non-compliance**, either oral or written will include:

(1) Reason/defects

(2) Corrective actions required

(3) Time allowed for completing the corrective action

c. **Levels of Non-compliance and Response** correspond with harm to the workers, the public or the environment and whether the harm is:

(1) **Not-imminent**, the Engineer will either orally or in writing, or both, provide notice to the Contractor indicating the incident of non-compliance.

Contractor's that take corrective action and complete the action to the satisfaction of the Engineer, within the time specified, may return to the status of compliance, and avoid elevating the response to imminent.
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(2) **Imminent**, the Engineer will orally provide notice to the Contractor of non-compliance and promptly provide written notice to suspend work until corrective action is completed.

Additional actions, taken against the Contract whether the level of non-compliance is Not-imminent or Imminent, may include:

(a) Withholding monies until corrective action is completed

(b) Assessing damages or equitable adjustments

(c) Employing others to perform the corrective action and deduct the cost

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

641-3.05 ACCESS TO WORK.

The Project, including any related off-site areas or support activities, must be made available for inspection, or sampling and monitoring, by the Department and other regulatory agencies. See CGP Part 6.6.

641-4.01 METHOD OF MEASUREMENT.

Section 109 and as follows:

Item 641(1), and 641(7), are lump sum.

Item 641(2), measured on a contingent sum basis as specified by the Directive authorizing the work.

Item 641(6), measured on a contingent sum basis with withholding determined by the Department.

TABLE 641-1 BMP VALUES - RESERVED

Liquidated Damages assessed according to Table 641-2 are not an adjustment to the Contract amount. These damages charges are related to Contract performance but are billed by the Department to the Contractor, independent of the Contract amount. An amount equal to the Liquidated Damages may be withheld for unsatisfactory performance, from payment due under the Contract, until the Contractor remits payment for billed Liquidated Damages.

TABLE 641-2- VERSION C
EROSION, SEDIMENT AND POLLUTION CONTROL – LIQUIDATED DAMAGES

Code	Specification Section Number and Description	Deductible Amount in Dollars	Cumulative Deductible Amounts in Dollars
A	641-1.04 Failure to have a qualified (AK-CESCL or equivalent) SWPPP Manager	Calculated in Code B or F	
B	Failure to meet SWPPP requirements of: (1) 641-2.01.1 Name of SWPPP Preparer (2) Not Applicable (3) 641-3.03.8 Sign and Date SWPPP amendments with qualified person 641-2.01.4 SWPPP Include approving person's name and AK-CESCL expiration date (4) 641-3.02 Records maintained at project and made available for review	$750 per omission	
C	Not applicable.		
D	641-3.03.5 Failure to stabilize a Project prior to Fall Freeze-up	$5,000 per Project per year	
E	641-2.01.1. Failure to conduct pre-construction inspections before Construction Activities on all projects greater than 1 acre.	$2,000 per Project	
F*	641-3.03. Failure to conduct and record CGP Inspections 641-3.03.1 Personnel conducting Inspections and Frequency 641-3.03.2 Inspection Reports, use Form 25D-100, completed with all required information	$750 per Inspection	Additional $750 for every additional 7 day period without completing the required inspection.
G	641-3.01.4 Corrective action, failure to timely accomplish BMP maintenance and/or repairs. In effect until BMP maintenance and/or repairs is completed.	$500 per Project per day	
H	641-3.01.3 Failure to provide to the Engineer and DEC a timely oral noncompliance report of violations or for a deficient oral noncompliance report	$750 for the first day the report is late or deficient	Additional $750 for every 14 day period without the required information
I	641-3.01.3 Failure to provide to the Engineer and DEC a timely written noncompliance report, use Form 25D-143, of violations or for a deficient written noncompliance report	$750 for the first day the report is late or deficient	Additional $750 for every 14 day period without the required information
J	641-3.04 Failure to comply with the requirements of the CGP, approved SWPPP, and Section 641, except as listed above	$750 per occurrence for the first day of noncompliance	Additional $750 for every day the deficiency remains uncorrected

***CODE F**. Liquidated Damages according to Code F will not be billed for typographic errors and minor data entry errors, except the liquidated damages will be billed for these errors when:

- the Contractor has previously been notified and subsequent inspection reports repeat the same or similar error,
- multiple inspection reports are submitted after the submission due date and the same or similar errors are repeated on multiple overdue reports,
- an error in recording the inspector's AK-CESCL certification date results in an inspector performing the inspection during a period when their certification was lapse or was otherwise invalid

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

Item 641(1) Erosion, Sediment and Pollution Control Administration. At the Contract lump sum price for administration of all work under this Section. Includes, but is not limited to, SWPPP and HMCP and SPCC Plan preparation, agency fees for SWPPP reviews, SWPPP amendments, pre-construction Inspections, Inspections, monitoring, reporting, and Record keeping or copying Records related to the SWPPP and required by the CGP, and Record retention.

Item 641(2) Temporary Erosion, Sediment and Pollution Control. At the contingent sum prices specified for all labor, supervision, material, equipment, and incidentals to install, maintain, remove, and dispose of approved temporary erosion, sedimentation, and pollution control BMPs required to implement the SWPPP and SPCC Plan.

Item 641(6) Withholding. The Engineer may withhold an amount equal to Liquidated Damages, assessed according to Section 641, from payment due the Contractor. Liquidated Damages for violations of the Contract, CWA, and CGP are determined by the Engineer according to Table 641-2. The Engineer may withhold payment due the Contractors until the Contractor pays the Liquidated Damages to the Department.

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

Item 641(7) SWPPP Manager. At the Contract lump sum price for a SWPPP Manager that conforms to this specification. When Item 641(7) appears in the Bid Schedule, the SWPPP Manager must be a different person than the superintendent, and must be physically present during construction activity with duties and authority as described in Subsection 641-2.04. When Item 641(7) does not appear in the Bid Schedule, the SWPPP Manager is subsidiary to Item 641(1).

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

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

1. Dewatering;
2. Shoring;
3. Bailing;
4. Permanent seeding;
5. Installation and removal of temporary work pads;
6. Temporary accesses;
7. Temporary drainage pipes and structures;
8. Diversion channels;
9. Settling impoundment; and
10. Filtration.

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

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

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
641(1)	Erosion, Sediment and pollution Control Administration	Lump Sum
641(2)	Temporary Erosion, Sediment and Pollution Control	Contingent Sum
641(6)	Withholding	Contingent Sum
641(7)	SWPPP Manager	Lump Sum

Replace Section 643 with the following:

SECTION 643
TRAFFIC MAINTENANCE

643-1.01 DESCRIPTION. Protect and control traffic during the contract. Furnish, erect, maintain, replace, clean, move, and remove the traffic control devices required to ensure the traveling public's safety. Perform all administrative responsibilities necessary to implement this work.

Maintain all roadways and pedestrian and bicycle facilities affected by the work in a smooth and traversable condition. Construct and maintain approaches, crossings, intersections, and other necessary features throughout the project for the life of the contract.

Illuminate construction activities listed in Table 643-4 during hours of night work on roads open to the public within project limits.

643-1.02 DEFINITIONS.

ATM. When used in this Section, ATM stands for the *Alaska Traffic Manual*, which is the MUTCD with Alaska Supplement.

BALLOON LIGHT. Light surrounding by a balloon-like enclosure kept inflated by pressurized air or helium, and producing uniform light through 360 horizontal degrees.

CONSTRUCTION PHASING PLAN. A plan for each phase of the project showing how to accommodate traffic. Show the sequence of work by segment or phase, if required.

FIXED OBJECTS. Private vehicles, parked flagger vehicles, idle construction equipment, construction material stockpiles, culvert ends, individual trees, power poles, utility poles and appurtenances, and other items deemed by the Engineer to present a hazard to motorists, pedestrians, or bicyclists traveling through the work zone.

NIGHT WORK. Work occurring between sunset and sunrise on all days except the "No Lighting Required" period shown in the Table 643-1 below:

TABLE 643-1
PROJECT LOCATIONS – NIGHT TIME ILLUMINATION EXCLUSION

Latitude	**No Lighting Required**		**Nearby**
(degrees)	**Start**	**End**	**Cities**
South of 61	Lighting Required All Year		Everything South of Hope
61	June 11	July 1	Anchorage, Valdez, Girdwood
62	June 2	July 13	Wasilla, Palmer, Glennallen, Talkeetna
63	May 27	July 17	Cantwell, Paxson, McGrath
64	May 22	July 21	Tok, Delta, Nome
65	May 18	July 25	Fairbanks
66	May 14	July 29	Circle City
67	May 10	August 2	Coldfoot, Kotzebue
68	May 7	August 6	Galbraith Lake
69	May 3	August 9	Happy Valley
70	April 30	August 12	Deadhorse
71	April 27	August 15	Barrow

72	April 24	August 19	

TRAFFIC. The movement of vehicles, pedestrians, and bicyclists through road construction, maintenance operations, utility work, or similar operations.

TRAFFIC CONTROL PLAN (TCP). A drawing or drawings indicating the method or scheme for safely guiding and protecting motorists, pedestrians, bicyclists, and workers in a traffic control zone. The TCP depicts the traffic control devices and their placement and times of use.

TRAFFIC CONTROL ZONE. A portion of a road construction project, maintenance operation, utility work or similar operation that affects traffic and requires traffic control to safely guide and protect motorists, pedestrians, bicyclists, or workers.

643-1.03 TRAFFIC CONTROL PLAN. Implement an approved TCP before beginning work within the project limits.

The TCP includes, but is not limited to, signs, barricades, traffic cones, plastic safety fence, sequential arrow panels, portable changeable message board signs, special signs, warning lights, portable concrete barriers, crash cushions, flaggers, pilot cars, interim pavement markings, temporary lighting, temporary roadways and all other items required to direct traffic through or around the traffic control zone according to these Specifications and the ATM. Address in the TCPs placement of traffic control devices, including location, spacing, size, mounting height and type. Include code designation, size, and legend per the ATM and the Alaska Sign Design Specification (ASDS). Include longitudinal buffer space for the posted speed limit, according to Table 6C-2 of the ATM unless project conditions or geometric features prohibit including all or a portion of the buffer length.

When a TCP is included in the Plans, use it, modify it, or design an alternative TCP. When a TCP is omitted from the Plans, provide one according to this Section and the ATM.

Submit new or modified TCPs to the Engineer for approval. All TCPs must include the following information:

1. Project name and number.

2. A designated TCP number and name on each page.

3. For TCPs more than one page, each page must be numbered.

4. The posted speed limit for each roadway.

5. Existing striping width, lane width, and road surfacing.

6. Construction lane widths, striping layout, and temporary pavement marker layout.

7. Provisions for Pedestrian, Bicycle, and ADA travel through the work zone.

8. Dates and times the TCP will be in effect and why it is being used.

9. The Worksite Traffic Supervisor’s signature certifying that all TCPs conform to the ATM and the Contract.

10. The Project Superintendent’s signature confirming the TCP is compatible with the work plan.

11. The name(s) of the Worksite Traffic Supervisor, his/her alternate and their 24-hour telephone number(s).

12. Signs to be used and the ASDS designation number and size.

13. Location and spacing of all devices and signs.

14. A plan to address any possible slopes, drop offs, paving joints, or similar temporary features that may occur during use of the TCP.

15. For TCPs proposed to be used at night, note how the requirements will be met for the required lighting and retroreflective material.

TCPs submitted for approval without all the required information will be rejected. Allow 7 days for review of each TCP submittal. All required modifications to a TCP require a new submission and an additional 7 days for review.

A minor revision to a previously approved TCP during construction requires 48 hours for review and approval by the Engineer.

The TCPs, Plans, and Standard Drawings show the minimum required number of traffic control devices. If unsafe conditions occur, the Engineer may require additional traffic control devices.

A waiver may be requested, in writing, of regulation 17 AAC 25 regarding oversize and overweight vehicle movements inside the project limits. If the waiver is approved, movements of oversize and overweight vehicles in or near traffic inside the project limits will be done according to the provisions of an approved Traffic Control Plan. Maintain a minimum 12-foot lateral separation between the nonstreet legal vehicles and the motoring public. The Traffic Control Plan shall specify the traffic control devices required for these operations.

Road Closures and Major Traffic Sequencing (events). Submit a written request to the Engineer for review and approval of each proposed event and event date. Allow 7 days for the Engineer to review any proposed event or subsequent changes/corrections. The proposed event date will be no less than 14 days from the date of written approval.

643-1.04 WORKSITE TRAFFIC SUPERVISOR. Provide a Worksite Traffic Supervisor responsible for maintaining 24-hour traffic operations.

1. Qualifications. The Worksite Traffic Supervisor shall be knowledgeable and experienced regarding the requirements of the ATM and the implementation of those requirements. The Worksite Traffic Supervisor shall be familiar with the Plans, the Specifications, proposed operations, and certified as one of the following:

   a. Traffic Control Supervisor, American Traffic Safety Services Association (ATSSA)

   b. Work Zone Temporary Traffic Control Technician, or Work Zone Safety Specialist, International Municipal Signal Association (IMSA)

   Certify according to Form 25D-124 that the Worksite Traffic Supervisor has a minimum 4000 hours of temporary traffic control work experience, is competent and capable, and has the authority to perform the duties and responsibilities in accordance with this section.

   - Temporary traffic control work experience shall demonstrate an understanding of concepts, techniques, and practices in the installation and maintenance of traffic control devices, and skill in reading, interpreting, implementing, and modifying TCPs.
   - Temporary traffic control work experience includes: flagging; installing traffic control devices in accordance with TCPs; monitoring traffic control devices and TCP performance; and recognizing and reporting deficiencies in traffic control devices and TCPs for correction.

- Temporary traffic control work experience is gained while serving as a Worksite Traffic Supervisor-in-training, temporary traffic control support personnel, and Flagger.

- Four thousand hours of experience serving solely as a Flagger does not satisfy these requirements.

Worksite Traffic Supervisors shall maintain current certification and be able to show their certification anytime they are on the project.

2. Duties.

   a. Prepare the TCPs and public notices and coordinate traffic control operations between the Project Superintendent and the Engineer.

   b. Physically inspect the condition and position of all traffic control devices used on the project at least twice each day and at approximately 12-hour intervals. Ensure that traffic control devices work properly, are clean and visible, and conform to the approved TCP. Complete and sign a detailed written report of each inspection within 24 hours. Use Traffic Control Daily Review Form 25D-104.

   c. Supervise the repair or replacement of damaged or missing traffic control devices.

   d. Review and anticipate traffic control needs. Make available proper traffic control devices necessary for safe and efficient traffic movement.

   e. Review work areas, equipment storage, and traffic-safety material handling and storage.

   f. Hold traffic safety meetings with superintendents, foremen, subcontractors, and others as appropriate before beginning construction, prior to implementing a new TCP, and as directed. Invite the Engineer to these meetings.

   g. Supervise all traffic control workers, flaggers, and pilot car drivers.

   h. Certify that all flaggers are certified as required by Subsection 643-3.04.4. Submit a copy of all flagger certifications to the Engineer.

   i Supervise lighting for night work.

3. Authority. The Worksite Traffic Supervisor shall have the Contractor's authority to stop work and implement immediate corrective action to unsafe traffic control, in locations where unsafe traffic control is present.

643-1.05 CONSTRUCTION PHASING PLAN. Submit a Construction Phasing Plan for approval no less than 5 working days prior to the preconstruction conference. Include the following:

1. Form 25D-124 designating the Worksite Traffic Supervisor, providing the 24-hour telephone number, and certifying minimum 4,000 hours of work experience as described in 643-1.04 Worksite Traffic Supervisor.

2. A construction-phasing plan for each phase or segment of the project.

3. TCPs for the first phase of the project. Show permanent and temporary traffic control measures, including the times each TCP will be used.

Submit any changes to the Engineer for approval 7 days before proposed implementation.

643-1.06 TRAFFIC MAINTENANCE SETUP. When shown on the bid schedule, Traffic Maintenance Setup items are site specific and are detailed as individual TCPs on the plan sheets. They depict the method or scheme required to route traffic safely and efficiently when any of the following restrictions occur:

1. Lane Closure. The closure of one or more lanes on a roadway.

2. Detour. The redirection of traffic through or around a traffic control zone.

3. Road Closure. The closure of a roadway with or without a specified detour route.

4. One Lane Road. A two-way roadway reduced to a single-lane roadway with flaggers, pilot cars, traffic signals, stop signs, or yield signs.

643-2.01 MATERIALS. Provide traffic control devices meeting the following requirements:

1. Signs. Use signs, including sign supports that conform to Section 615, the ATM, and ASDS.

    a. Construction Signs: Regulatory, guide, or construction warning signs designated in the ASDS.

    b. Permanent Construction Signs: As designated on the Plans or an approved TCP.

    c. Special Construction Signs: All other signs are Special Construction Signs. Neatly mark the size of each sign on its back in 3-inch black numerals.

2. Portable Sign Supports. Use wind-resistant sign supports with no external ballasting. Use sign supports that can vertically support a 48 X 48 inch traffic control sign at the height above the adjacent roadway surface required by the ATM.

3. Barricades and Vertical Panels. Use barricades and vertical panel supports that conform to the ATM. Use Type III Barricades at least 8 feet long. Use retroreflective sheeting that meets ASTM D4956 Type II or III.

4. Portable Concrete Barriers. Use portable concrete barriers that conform to the Contract. For each direction of traffic, equip each 12.5-foot section of barrier with at least two side-mounted retroreflective tabs placed approximately 6 to 8 feet apart, or a continuous 4-inch wide horizontal retroreflective stripe mounted 6 inches below the top of the barrier. Use yellow tabs or stripe when barriers are placed at centerline. Use white tabs or stripe when barriers are placed on the roadway shoulder. Use retroreflective sheeting that meets ASTM D4956 Type III, IV or V.

5. Warning Lights. Use Type A (low intensity flashing), Type B (high intensity flashing) or Type C (steady burn) warning lights that conform to the ATM.

6. Drums. Use plastic drums that conform to the requirements of the ATM. Use retroreflective sheeting that meets ASTM D4956 Type II or III.

7. Traffic Cones and Tubular Markers. Use reflectorized traffic cones and tubular markers that conform to the requirements of the ATM. Use traffic cones and tubular markers at least 28 inches high. Use retroreflective sheeting that meets ASTM D4956 Type II or III.

8. Interim Pavement Markings. Apply markings according to Section 670 and the manufacturer's recommendations. Use either:

    a. Paint meeting Subsection 708-2.03 with glass beads meeting Subsection 712-2.08,

    b. Preformed Marking Tape (removable or non-removable) meeting Subsection 712-2.14, or

    c. Temporary Raised Pavement Markers meeting Subsection 712-2.15 or 712-2.16, as appropriate.

9. High-Level Warning Devices. Use high-level warning devices that conform to the ATM.

10. Temporary Crash Cushions. Use retroreflective sheeting that meets ASTM D4956 Type III, IV or V. Application of crash cushion must be appropriate for the intended use and be installed per manufacturer's recommendation. Temporary crash cushions used as rail or barrier end treatments must be redirective. Temporary crash cushions that are barrels or barricade filled with sand or water may only be used when the forecasted temperature during their use is above 32 degrees Fahrenheit.

11. Sequential Arrow Panels. Use Type A (24 X 48 inch), Type B (30 X 60 inch) or Type C (48 X 96 inch) panels that conform to the ATM.

12. Portable Changeable Message Board Signs. Use new truck or trailer mounted portable changeable message board signs with self-contained power supply for the sign and with:

    a. Message sign panel large enough to display 3 lines of 18-inch high characters

    b. Eight character display per message module

    c. Fully programmable message module

    d. Remote control cellular, wireless radio frequency (RF), landline

    e. Waterproof, lockable cover for the controller keyboard

    f. Capacity for electric/hydraulic sign raising or lowering

    g. Radar over speed detection

    h. Variable flash and sequence rates

    i. Light emitting diode (LED) display, using Institute of Transportation Engineers (ITE) amber/yellow

    j. The capacity for a minimum of 150 pre-programmed messages

    k. Battery-Pack Operation Duration: minimum of 55 hours under full load

    l. Power chords shall comply with the National Electrical Code (NEC) Article 600.10 Portable and Mobile Signs, paragraph 600.10(c) (2) ground fault circuit interrupter (GFCI). The chord will have integral GFCI protection located in either the attachment plug or 12 inches or less from the plug.

13. Plastic Safety Fence. Use 4-foot high construction orange fence manufactured by one of the following companies, or an approved equal:

    a. "Safety Fence" by Jackson Safety, Inc., Manufacturing and Distribution Center, 5801 Safety Drive NE, Belmont, Michigan, 49306. Phone (800) 428-8185.

    b. "Flexible Safety Fencing" by Carsonite Composites, LLC, 19845 U.S. Highway 76, Newberry, South Carolina, 29108. Phone (800) 648-7916.

    c. "Reflective Fencing" by Plastic Safety Systems, Inc., 2444 Baldwin Road, Cleveland, Ohio 44104. Phone (800) 662-6338.

14. Temporary Sidewalk Surfacing. Provide temporary sidewalk surfacing as required by an approved TCP and the following:

    a. Use plywood at least 1/2-inch thick for areas continuously supported by subgrade. Use plywood at least 1 inch thick for areas that are not continuously supported.

    b. Do not use unsupported 1-inch plywood longer than 30 inches.

c. Use plywood with regular surfaces. Do not overlap plywood joints higher than 1/2-inch. Bevel overlap joints so the maximum slope of the overlapping edge is 2 horizontal to 1 vertical.

d. Fasten so wind and traffic will not displace temporary surfacing.

15. Temporary Guardrail. Use temporary guardrail that meets Section 606, except that posts may require placement under special conditions, such as in frozen ground.

16. Flagger Paddles. Use flagger paddles with 24 inches wide by 24 inches high sign panels, 8 inch Series C lettering (see ASDS for definition of Series C), and otherwise conform to the ATM. Use retroreflective sheeting that meets ASTM D4956 Type VIII or IX. Use background colors of fluorescent orange on one side and red on the other side.

17. Truck Mounted Attenuator, TMA. The TMA shall be mounted on a vehicle with a minimum weight of 15,000 pounds and a maximum weight per the manufacturer's recommendations.

18. Portable Steel Barriers. Use portable steel barriers that conform to the contract. For each direction of traffic, equip each section of barrier with side-mounted retroreflective tabs placed approximately 6 to 8 feet apart, or a continuous 4-inch wide horizontal retroreflective stripe mounted 6 inches below the top of the barrier. Use yellow tabs or stripe when barriers are placed at centerline. Use white tabs or stripe when barriers are placed on the roadway shoulder. Use retroreflective sheeting that meets ASTM D4956 Type III, IV, or V.

19. Flexible Markers. Refer to Subsection 606-2.01 Materials.

643-2.02 CRASHWORTHINESS. Submit documentation, by the method indicated on table 643-2, that the following devices comply with Test Level 3 requirements of National Cooperative Highway Research Program (NCHRP) Report 350 or the Manual for Assessing Safety Hardware (MASH). Submit documentation of compliance to the Engineer before installing devices on the project.

TABLE 643-2
WORK ZONE TRAFFIC CONTROL DEVICE AND
BARRIER CRASH TESTING COMPLIANCE

Category	Devices	Method of Documentation
1	Cones, candles, drums w/o attachments, delineators	Manufacturer's Certification for devices exceeding height and weight limits
2	Barricades, portable sign supports, drums w/lights, other devices weighing less than 100 pounds but not included in category 1	FHWA acceptance letter indicating acceptance at Test Level 3 (when no test level is specified in the letter; it is implied that the tests were run for Test Level 3),
3	Truck mounted attenuators, redirective and nondirective temporary crash cushions, bridge railing, bridge and guardrail transitions, and guardrail and barrier end treatments.	FHWA acceptance letter indicating acceptance at Test Level 3 (when no test level is specified in the letter; it is implied that the tests were run for Test Level 3),
	Portable steel barriers	FHWA acceptance letter indicating acceptance at Test Level 3 unless otherwise required in the contract.

Category 1 devices that exceed the following weights and heights require certification that they meet the evaluation criteria of NCHRP Report 350 or MASH, Test Level 3. This certification may be a one-page affidavit signed by the vendor. Documentation supporting the certification (crash tests and/or engineering analysis) must be kept on file by the certifying organization. No certification is required for devices less than or equal to both the weight and height on the schedule below:

Device	Composition	Weight	Height
Cones	Rubber	20 lb.	36 in.
	Plastic	20 lb.	48 in.
Candles	Rubber	13 lb.	36 in.
	Plastic	13 lb.	36 in.
Drums	Hi Density Plastic	77 lb.	36 in.
	Low Density Plastic	77 lb.	36 in.
Delineators	Plastic or Fiberglass	N/A	48 in.

643-3.01 GENERAL CONSTRUCTION REQUIREMENTS. Keep the work, and portions of the project affected by the work, in good condition to accommodate traffic safely. Provide and maintain traffic control devices and services inside and outside the project limits, day and night, to guide traffic safely.

Unless otherwise provided in this Section, keep all roadways, business accesses, and pedestrian facilities within the project limits open to traffic. Obtain the Engineer's approval before temporarily closing residential, commercial, or street approaches. Provide access through the project for emergency vehicles and school and transit buses. Properly sign and/or flag all locations where the traveling public is redirected or stopped. Organize construction operations so the total of all construction related stoppages experienced by a vehicle traveling through the project does not exceed 20 minutes except when indicated otherwise in the Contract.

Stop equipment at all points of intersection with the traveling public unless an approved TCP shows otherwise.

Continue to operate all illumination and signalization according to the requirements of Subsection 660-3.09. When moving approach lanes, realign signal heads as necessary according to the ATM. Coordinate any modifications to existing traffic signals with the agency that maintains and operates them. Operate flood lighting at night according to the ATM. Adjust flood lighting so that it does not shine into oncoming traffic.

Provide and maintain safe routes for pedestrians and bicyclists through or around traffic control zones at all times, except when regulations prohibit pedestrians or bicyclists. Station a flagger, where construction activity encroaches onto the safe route in a traffic control zone, to assist pedestrians, and bicyclists past the construction activity.

Maintain business access(s) during flagging operations.

Immediately notify the Engineer of any traffic related accident that occurs within the project limits as soon as an employee or a subcontractor becomes aware of the accident.

643-3.02 ROADWAY CHARACTERISTICS DURING CONSTRUCTION. Obtain an approved TCP before reducing existing roadway lane and shoulder widths and before starting construction. Maintain a clear area with at least 2 feet between the edge of traveled way and the work area. Use barricades, traffic cones, or drums to delineate this area. Place traffic control devices on the work side of the clear area. Space them according to the ATM.

Where specified in the Plans, Specifications, Special Provisions, and or the TCP: traffic may be maintained on a continuous gravel surface.

1. Specified Gravel Surface. Traffic may be maintained on a continuous gravel surface where specified:

   a. N/A Highway: N/A weeks.

   b. BOP to Station N/A : No time restriction.

   c. Station N/A to Station N/A (or EOP).

   d. Other project roadways: 1000 ft/5000 … ft, no time restriction.

2. Gravel Surface Not Specified.

   a. Through traffic shall not traverse more than two gravel sections of roadway in any given period.

   b. Pavement Break(s) for Culvert or Utility Work: Patch pavement breaks(s), with hot mix asphalt, not more than 48 hours after removing the existing pavement.

   c. When approved by the Engineer.

If maintaining traffic on an unpaved surface, provide a smooth and even surface that public traffic can use at all times. Properly crown the roadbed surface for drainage. Before beginning other grading operations, place sufficient fill at culverts and bridges to permit traffic to cross smoothly and unimpeded. Use part-width construction techniques when routing traffic through roadway cuts or over embankments under construction. Excavate the material or place it in layers. Alternate the construction activities from one side to the other. Route the traffic over the side opposite the one under construction.

Detour traffic when the Plans or an approved TCP allows. Maintain detour routes so that traffic can proceed safely. When detours are no longer required, obliterate the detour. Topsoil and seed appropriate areas.

If two-way traffic cannot be maintained on the existing roadway or detour, use half-width construction or a road closure if it is shown on an approved TCP. Make sure the TCP indicates closure duration and conditions. Schedule the roadway closures to avoid delaying school buses, and peak-hour traffic. For road closures, post closure-start and road-reopen times at the closure site, within view of waiting traffic.

Pave lanes next to the median first. Pave lanes next to exit and entrance ramps last. Place temporary 12:1 sloped wedge of asphalt concrete against the abrupt pavement edge on lanes next to exit and entrance ramps. Do not open the roadway to traffic until slope wedges are in place.

643-3.03 PUBLIC NOTICE. Give notice at least 3 days before major changes, delays, lane restrictions, or road closures to local officials and transportation organizations, including but not necessarily limited to:

- Alaska Trucking Association
- Alaska State Troopers
- Division of Measurement Standards
- Local Police Department
- Local Fire Department
- Local Government Traffic Engineer
- School and Transit Authorities
- Local Emergency Medical Services
- Local Media (newspapers, radio, television)
- Railroads (where applicable)
- U.S. Postal Service
- Major Tour Operators

Provide local traffic enforcement and maintenance agencies 24-hour notice before shutting down a traffic signal system. Provide notice as required by utility companies before repairing or replacing a utility.

Provide the Alaska State Troopers, local police and fire department with the radio frequencies used on the project and the 24-hour telephone numbers of the Worksite Traffic Supervisor and the Project Superintendent. These telephone numbers are used to alert construction employees when emergency vehicles must pass through the project. When notified of emergencies make every necessary effort to expedite rapid passage.

Additional notices may be given through the Navigator or 511 System for selected projects. Check the special provisions for those requirements.

643-3.04 TRAFFIC CONTROL DEVICES. Before starting construction, erect permanent and temporary traffic control devices required by the approved TCPs. The Engineer will determine advisory speeds when necessary.

For lane closures on multilane roadways, use sequential arrow panels. During hours of darkness when required by the approved TCP, use flashing warning lights to mark obstructions or hazards and steady-burn lights for channelization.

Use only one type of traffic control device in a continuous line of delineating devices, unless otherwise noted on an approved TCP. Use drums or Type II barricades for lane drop tapers.

During non-working hours and after completing a particular construction operation, remove all unnecessary traffic control devices. Store all unused traffic control devices in a designated storage area which does not present a nuisance or visual distraction to traffic. If sign panels are post mounted and cannot be readily removed, cover them entirely with either metal or plywood sheeting. Completely cover signal heads with durable material that that fully blocks the view of signal head and will not be damaged or removed by weather.

Keep signs, drums, barricades, and other devices clean at all times.

Use only traffic control devices that meet the requirements of the “Acceptable” category in ATSSA (American Traffic Safety Services Association) “Quality Guidelines for Temporary Traffic Control Devices” and meet crashworthiness requirements per Section 643-2.02.

Immediately replace any devices provided under this Section that are lost, stolen, destroyed, inoperable or deemed unacceptable while used on the project. Stock repair parts for each Temporary Crash Cushion used on the project. Repair damaged crash cushions within 24 hours.

Maintain pre-existing roadside safety hardware at an equivalent or better level than existed prior to project implementation until the progress of construction necessitates removing the hardware. All existing hazards that are currently protected with roadside safety hardware or new hazards which result from project improvements shall be protected or delineated as required in the plans, specifications, and approved TCPs until permanent roadside safety hardware is installed. All temporary roadside safety hardware shall meet NCHRP 350 or MASH Test Level 3 unless otherwise noted.

All items paid under this Section remain the property of the Contractor, unless noted otherwise in the contract. Remove them after completing the project.

1. Embankments. Close trenches and excavations at the end of each continuous work shift, except as indicated by the Engineer.

   Install portable concrete or steel barrier, plastic drums, barricades, tubular markers, plastic safety fence, and cones as specified on the Plans or TCPs to delineate open trenches, ditches, other excavations, and hazardous areas when they exist along the roadway for more than one continuous work shift.

2. Adjacent Travel Lane Paving. When paving lifts are 2 inches or greater and you cannot finish paving adjacent travel lanes or paved shoulders to the same elevation before the end of the paving shift, install: W8-11 (Uneven Lanes), W8-9 (Low Shoulder), W8-17 (Shoulder Drop-Off), W14-3 (No Passing Zone), R4-1 (Do Not Pass), R4-2 (Pass with Care), and W8-1 (Bump) signs as appropriate. Place additional signs every 1500 feet if the section is longer than 1/2 mile.

3. Fixed Objects And Construction Vehicles And Equipment Working On Or Next To The Traveled Way. Do not park equipment in medians. Locate fixed objects at least 30 feet from the edge of traveled way. Fixed objects that exist prior to construction activity are not subject to this requirement unless the proposed temporary traffic routing moves the edge of traveled way closer to the pre-existing fixed object. Vehicles and other objects within parking lots in urban environments are considered preexisting fixed objects regardless of whether they are or are not present continuously throughout the day.

   When worksite restrictions, land features, right of way limitations, environmental restrictions, construction phasing, or other construction conditions allow no practicable location meeting the preceding requirements, the Engineer may approve alternate locations for fixed objects. Alternate locations shall be as far as practicable from the edge of traveled way. When the alternate location provides 15 feet or more separation from the edge of traveled way, the Engineer may verbally approve the alternate location. When the alternate location provides less than 15 feet separation, written approval is required.

   When the Engineer determines a fixed object or fixed objects present unacceptable hazard, use drums, or Type II barricades with flashing warning lights, or use portable concrete or steel barriers, or temporary crash cushion to delineate or shield the hazard, as approved by the Engineer.

   Remove obstructions greater than 4 inches above the nominal foreslope grade at the end of each continuous work shift.

4. Flagging. Furnish trained and competent flaggers and all necessary equipment, including lighting of the flagging position during nighttime operations, to control traffic through the traffic control zone. The Engineer will approve each flagging operation before it begins and direct adjustments as conditions change.

   Flaggers must be certified as one of the following:

   a. Flagging Level I Certification by IMSA

   b. Flagger Certification by ATSSA

   c. Traffic Control Supervisor, ATSSA

   d. Work Zone Safety Specialist, IMSA

   e. ATSSA Flagging Instructor

   Flaggers shall maintain current flagger certification. Flaggers must be able to show their flagger certification anytime they are on the project.

   Flaggers must maintain their assigned flagging location at all times, unless another qualified flagger relieves them, or the approved traffic control plan terminates the flagging requirements. Remove, fully cover, or lay down flagger signs when no flagger is present. Keep the flaggers' area free of encumbrances. Keep the flagger's vehicle well off the roadway and away from the flagging location so the flagger can be easily seen.

   Provide approved equipment for two-way radio communications between flaggers when flaggers are not in plain, unobstructed view of each other.

Obtain the Engineer's written approval before flagging signalized intersections. When flagging a signalized intersection, either turn off and cover the traffic signal or place it in the All-Red Flash mode. Coordinate changing traffic signal modes and turning off or turning on traffic signals with the agency responsible for signal maintenance and operation and the Engineer. Get their written approval in advance. Only uniformed police officers are permitted to direct traffic in an intersection with an operating traffic signal.

5. Pilot Cars. You may use pilot cars when part of an approved TCP, if the Engineer determines one-way traffic is necessary, or if the route through the traffic control zone is particularly hazardous, involved, or frequently altered to preclude adequate signing, Do not use pilot cars to avoid localized traffic control at several locations. Pilot car operators may not control Automated Flagger Assistance Devices while operating a pilot car.

   Organize construction operations so the total of all stoppages experienced by a vehicle traveling through a project does not exceed 20 minutes. However, this does not imply that you may allow 20 minutes in all cases. Coordinate multiple pilot-car operations within a project or adjoining projects to minimize inconvenience to the traveling public. Two or more pilot cars may be used to provide two-way traffic through the traffic control zone to reduce the waiting period. The flagger or pilot car operator must record each pilot car's departure time in a bound field book furnished by the Engineer. Whenever practical, the flagger should tell the motorist the reason for and approximate length of the delay. Make every reasonable effort to yield right-of-way to the public and prevent excessive delay.

   Use an automobile or pickup as the pilot car, with the company logo prominently displayed. Equip the pilot car with a two-way radio for contact with flaggers and other pilot cars. Mount a G20-4 sign (Pilot Car Follow Me) on the rear at least 5 feet above the driving surface. Use high intensity flashing strobe lights, oscillating beacons, or rotating beacons on all Pilot Cars. Vehicle hazard warning lights may supplement but are not permitted to be used instead of high intensity flashing strobe lights, oscillating beacons, or rotating beacons. Identify the last vehicle in the column.

   When pilot car operations are approved, establish all required pilot car traffic control devices before beginning work. Continue pilot car operations until no longer necessary and an approved TCP is in place for operations without pilot car, including all required traffic control devices.

6. Street Sweeping and Power Brooming. Keep free of loose material paved portions of the roadway and haul routes open to the public, including sections of roadway off the project where the Contractor's operations have deposited loose material. Use equipment for brooming and sweeping as recommended by the manufacturer and the following:

   Dirt, dust and construction materials, mobilized as a result of power brooming and or sweeping, shall not be pushed, ejected, thrown or drift beyond the lesser of, 2 feet from the equipment perimeter or the edge of the paved surface.

   All equipment shall operate to typical industry standards. Maintain equipment to operate as designed by the manufacturer. Equipment will employ safety equipment, warning lights, and other as required by the Specifications and these Special Provisions.

   Sweeper and Broom Options: Table 643-5, Traffic Control Rate Schedule, Street Sweeping

   a. Regenerative Sweeper: Sweeper that blows a stream of air at the paved surface, causing fine particles to rise, and then caught through a vacuum system.
   b. Vacuum Sweeper: Sweeper that creates a vacuum at the paved, surface sucking dirt, dust, and debris into a collection system.
   c. Mechanical Broom Sweeper: Sweeper designed to pick up and collect larger size road debris, stones and litter, etc. In addition to the requirements noted in these Specifications, use of a mechanical broom sweeper requires the Engineer to approve the sweeper for the intended use.

d. Power Broom: Power brooming that wets, pushes and or ejects loose material directly into an attached collection/pickup container may be used when approved by the Engineer. The added moisture will be contained to the paved roadway surface.

   Dry Power Brooming is not permitted. Power brooming without direct/immediate means of collection/pickup is not permitted.

7. Watering. Furnish, haul, and place water for dust control and pavement flushing, as directed. Use water trucks that can provide a high-pressure water stream to flush the pavement and a light-water spray to control dust. If the flushing operations contaminate or fill adjacent catch basins, clean and restore them to their original condition. This requirement includes sections of roadway off the project where flushing is required. The Engineer will control water application.

   Obtain an Alaska Department of Natural Resources permit for water removal before taking water from a lake, stream, or other natural water body. Comply with the Alaska Department of Fish and Game screening requirements for all water removal operations.

8. Portable Changeable Message Board Signs. Furnish Changeable Message Signs when approved on a TCP. Display only messages approved on the TCP. Follow application guidelines in the ATM.

9. Truck Mounted Attenuator (TMA.) TMAs are mounted on the rear of work vehicles. Impact attenuators are defined by NCHRP 350 or MASH as a category 3 device. TMAs shall be mounted on a vehicle with a minimum weight of 15,000 pounds and a maximum weight in accordance with the manufacturer's recommendations. TMAs shall have an adjustable height so that it can be placed at the correct elevation during usage and to a safe height for transporting. Approach ends of TMAs shall have impact attenuator markings in accordance with the ATM. Do not use a damaged attenuator in the work. Replace any damaged TMA at your expense.

10. Traffic Control Vehicles. Use high intensity flashing strobe lights, oscillating beacons, or rotating beacons on the Work Zone Supervisor's vehicle and on vehicles being used to transport and set-up traffic control devices. Vehicle hazard warning lights may supplement but are not permitted to be used instead of high intensity flashing strobe lights, oscillating beacons, or rotating beacons.

643-3.05 AUTHORITY OF THE ENGINEER. When existing conditions adversely affect the public's safety or convenience, the Contractor will receive an oral notice, and then a written notice according to Subsection 105-1.01, Authority of the Engineer. The notice will state the defect(s), the corrective action(s) required, and the time required to complete the corrective action(s). In no case shall this time exceed 24 hours. If corrective action(s) are not completed within the specified time, the Engineer may immediately suspend work on the offending operations until the defect(s) are corrected. The Engineer may require outside forces to correct unsafe conditions. The cost of work by outside forces will be deducted from any monies due under the terms of this Contract.

643-3.06 TRAFFIC PRICE ADJUSTMENT. A Traffic Price Adjustment, under Item 643(23), will be assessed for unauthorized lane closures or reductions. Unauthorized lane reductions will be assessed as one full lane closure, for each lane reduced without authorization.

Authorized lane closures and/or lane reductions are those shown in the Contract, an approved TCP, or authorized in writing.

Unauthorized lane reductions include unacceptable roadway, pedestrian walkway or route, and bicycle route or pathway surfaces, such as severe bumps, ruts, washboarding, potholes, excessive dust or mud, and non-conforming or out of place traffic control devices. Failure to install temporary crash cushions or barriers, when required according to the Contract or TCP, is also considered an unauthorized lane reduction. The Engineer will make the sole determination whether unauthorized lane reductions or closures are present.

Failure to maintain an acceptable infrastructure or traffic control plan will result in a price adjustment equal to 100 percent of the applicable rate shown in Table 643-3, Adjustment Rates, for the time the roadway or pedestrian facility is in an unacceptable condition.

The rates are liquidated damages which represent highway user costs, based on Average Daily Traffic (ADT). The Engineer will use the rate shown for the current ADT for this project, as published in the Regional Traffic Volume Report prepared by the Department's Planning Section. Adjustment rates for unauthorized reduction or closure of each lane of pedestrian walkways or route, and bicycle route or pathway, are the same as for one full roadway lane closure.

TABLE 643-3
ADJUSTMENT RATES

Published ADT	Dollars/Minute of Delay/Lane
0 – 5,000	$30
5,000 +	$40

643-3.07 MAINTENANCE OF TRAFFIC DURING SUSPENSION OF WORK. Approximately one month before work is suspended for the season, schedule a preliminary meeting with the Engineer and Maintenance & Operations to outline the anticipated roadway condition and the work expected to be completed before shutdown. Schedule a field review with the Department for winter maintenance acceptance. At the field review, the Engineer will prepare a punch list for implementation before acceptance.

To be relieved of winter maintenance responsibility, leave all roads with a smooth and even surface for public use at all times. If existing pavement has been removed prior to winter suspension of work, the Contractor shall install a minimum of six inches of Aggregate Base Course, Grading D-1 as a temporary surface. Shape and compact temporary surface material according to Subsection 301-3.03. Temporary surface material shall be removed following restart of work in the following season. Temporary surface material shall be removed prior to constructing earthwork and pavement materials for final structural section.

Properly crown the roadbed surface for drainage and install adequate safety facilities. Make sure all illumination and signals, including vehicle detectors, are in good working order.

After the project is accepted for winter maintenance and until ordered to resume construction operations, the Department is responsible for maintaining the facility. The Department will accept maintenance responsibility only for portions of the work that are open to the public, as determined by the Engineer. The Department will not accept maintenance responsibility for incomplete work adjacent to accepted roads. The contractor is responsible for maintaining all other portions of the work. The Engineer will issue a letter of “Acceptance for Winter Maintenance” that lists all portions of the work that the Department will maintain during a seasonal work suspension. The contractor retains all contractually required maintenance responsibilities until receipt of this letter.

If the contractor suspends work due to unfavorable weather (other than seasonal) or due to failure to correct unsafe conditions, carry out Contract provisions, or carry out the Engineer’s orders. All costs for traffic maintenance during the suspended period will be borne by the Contractor.

When work is resumed, replace or renew any work or materials lost or damaged during temporary use. If the Department caused damage during winter suspension, payment will be made for repairs by unit pay item or in accord with Subsection 109-1.05, Compensation for Extra Work. When the Engineer directs, remove any work or materials used in the temporary maintenance. Complete the project as though work has been continuous.

643-3.08 CONSTRUCTION SEQUENCING. The construction sequencing detailed in these provisions, the Special Provisions, and the Plans is suggested only. The Contractor may propose alternative construction sequencing.

Throughout the project, maintain the existing roadway, pedestrian walkway, or route, and bicycle route or pathway configuration (such as the number of lanes and their respective widths) except for restrictions to traffic allowed in the Special Provisions or on the Plans, and addressed through approved TCPs. A

restriction to traffic is any roadway surface condition, work operation, or traffic control setup that reduces the number of lanes or impedes traffic. Obtain an approved TCP before restricting traffic.

Unless otherwise determined by the Engineer and on an approved Traffic Control Plan (TCP), do not restrict traffic during the times listed below:

1. Monday through Friday: 0530 hrs to 0800 hrs and 1630 hrs to 1900 hrs.

2. Around any Holiday:

   a. If a holiday falls on Sunday, Monday, or Tuesday, the above stipulations apply from 1200 hrs on the Friday before the holiday to 0300 hrs. on the day after the holiday.

   b. If a holiday falls on Wednesday, the above stipulations apply from 1200 hrs on the Tuesday before the holiday to 0300 hrs. on the Thursday after the holiday.

   c. If a holiday falls on Thursday, Friday, or Saturday, the above stipulations apply from 1200 hrs on the day before the holiday to 0300 hrs. on the Monday after the holiday.

Lane restrictions, if allowed, conducted so that no more than a 10 minute accumulated stopped delay, 40 vehicles, or 1/4 mile (1320 feet) of traffic detained, whichever occurs first, before releasing the detained motorists. During paving operations, a 20 minute stopped delay, 80 vehicles, or 1/2 mile (2640 feet) of traffic detained, allowed for motorists, except school buses. If a queue of traffic develops at a stop, empty the entire queue to include the last car that entered the queue at the time the queue was released.

Lane restrictions, if allowed shall be conducted so that no more than a 5 minute accumulated stopped delay, 20 vehicles, or 1/8 mile (660 feet) of traffic is detained, whichever occurs first, before releasing the detained motorists. During paving operations, a 10 minute stopped delay, 40 vehicles, or 1/4 mile (1320 feet) of traffic detained, allowed for motorists, except school buses. If a queue of traffic develops at a stop, empty the entire queue to include the last car that entered the queue at the time the queue was released.

Do not delay the school busses through the construction zone; obtain the local school bus schedule and coordinate work efforts. Submit the plan, as a TCP, to the Engineer for approval before the implementation of the school bus coordination plan.

643-3.09 INTERIM PAVEMENT MARKINGS. Place permanent or interim pavement markings according to this Subsection, details shown on the Plans, approved TCPs, and Parts III and VI of the ATM before opening existing paved roadways, temporary paved roadways, detours, interim paving lifts, and roadways with seal coats and surface treatments for more than one continuous work shift. This work may include restriping the existing roadway before beginning construction, before seasonal suspension, and/or after seasonal suspension.

Remove conflicting pavement markings according to Subsection 670-3.04, Paint Removal.

Mark existing roadway sections that will be opened to traffic during the winter. Mark over the existing lines and markings, unless shown otherwise on the Plans or an approved TCP.

Maintain all interim pavement markings for their intended life including reapplication when necessary. There will be no compensation to upgrade interim pavement markings required for work operations lasting up to 2 weeks.

Use only temporary raised pavement markers as interim pavement markings on final pavement surfaces. Completely remove and dispose of them when placing the final markings. Completely remove any residual adhesive that might misguide motorists. Place final pavement markings on finished pavement surfaces and interim pavement surfaces before suspending work for the winter.

Stage the construction to avoid routing traffic over conflicting markings, for more than one continuous work shift. If traffic is routed over conflicting markings during a work shift, delineate the roadway with a complement of warning signs, channelizing devices, and flaggers as required by the ATM.

Use only temporary raised pavement markers meeting Subsection 712-2.16 as interim markings on seal coat and surface treatment pavements. Install the markers according to the manufacturer's instructions before applying the asphalt surface material and cover coat. Remove the vinyl protective covers after applying the asphalt pavement.

On multicourse surface treatments, install the temporary raised pavement markers after applying the full width of the first layer of cover coat. Install the markers on each day's completed surface before removing the pilot car operations and allowing unescorted traffic on the surface treatment.

Apply final pavement markings according to Subsection 670-3.01, Construction Requirements, of these Special Provisions.

Do not place final pavement markings until traffic has traveled over the seal coat or surface treatment for at least 15 days and no more than 21 days, as directed by the Engineer.

643-3.10 LIGHTING FOR NIGHT WORK. Illuminate the night work areas according to Table 643-4.

Table 643-4 does not provide a comprehensive list of operations that require lighting. Provide lighting for other operations when necessary.

Use balloon lighting as the main light sources. Do not use floodlights without prior approval by the Engineer. When approved, install floodlighting in a manner that minimizes glare for motorists, workers, and residents living along the roadway. Locate, aim, louver, and/or shield light sources to minimize glare.

The Engineer shall be the sole judge of when glare is unacceptable, either for traffic or for adjoining residences. When notified of unacceptable glare, modify the lighting system to eliminate it.

TABLE 643-4
NIGHT WORK ILLUMINATION EQUIPMENT AND LOCATION REQUIREMENTS

Type of Work or Equipment	Lighting Configuration
Paving, Milling, Striping, Pavement Marking Removal, Rumble Strip Installation	At least one machine-mounted balloon light of at least 2000 watts. Provide additional lights or wattage if necessary to provide complete coverage.
Rolling, pavement sweeping	At least 4 sealed beam halogen lamps in the front and four in the back. Each should be at least 55 watts.
Flagging	One balloon light of at least 2000 watts, located within 30 feet of the flagger location. Locate so the flagger and the flagging location are illuminated. Provide additional lights or wattage if necessary to provide complete coverage of the flagging location.
Truck Crossings where haul vehicles cross or enter a road with more than 10,000 ADT, or where the haul vehicle crossing or entering location is controlled by portable traffic signals or flaggers	At least one balloon light of at least 2000 watts, located on the main road on the far right side of the intersection. Locate light within 30 feet of the edge of the side street. If there is a flagger at the crossing, locate the lights or lights so the lighting requirements for Flagging are also satisfied.

If the Contractor fails to provide required lighting equipment or provides lighting that creates unacceptable glare, the Contractor shall cease all construction activities that require illumination, including flagging operations, until the condition or conditions are corrected.

Use lighting equipment in good operating condition and that complies with applicable OSHA, NEC, and NEMA codes.

Provide suitable brackets and hardware to mount lighting fixtures and generators on machines and equipment. Design mountings so lights can be aimed and positioned as necessary to reduce glare. Locate mounting brackets and fixtures so they don't interfere with the equipment operator or overhead structures. Connect fixtures securely in a manner that minimizes vibration.

Ensure ground, trailer, and equipment-mounted light towers or poles are sturdy and freestanding without the aid of guy wires. Towers shall be capable of being moved as necessary to keep pace with the construction operation. Position the ground and trailer-mounted towers and trailers, to minimize the risk of being impacted by traffic on the roadway, or by construction traffic, or equipment.

Raise trailer or equipment mounted lights to maximum height, except do not exceed the clearance required for overhead objects such as overhead signals, overhead signs, trees, aerial utilities, or bridges. Aim and adjust lights to provide the required light levels. Provide uniform illumination on the hopper, auger, and screed areas of pavers. Illuminate the operator's controls on all machines uniformly.

Furnish each side of non-street legal equipment with a minimum of 75 square inches high intensity retroreflective sheeting in each corner, so at least 150 square inches of sheeting is visible from each direction. Provide red sheeting on the rear of the equipment and yellow sheeting elsewhere.

Existing street and highway lighting and conventional vehicle headlights may supplement but do not relieve the Contract requirement to provide lighting for night work, according to the requirements of Table 643-4.

Provide sufficient fuel, spare lamps, spare generators, and qualified personnel to ensure that all required lights operate continuously during nighttime operations. Ensure generators have fuel tanks of sufficient capacity to permit operation of the lighting system for a minimum of 12 hours. In the event of any failure of the lighting system, discontinue the operation that requires illumination until the required level and quality of illumination is restored.

Maintain a supply of at least twenty emergency flares for use in the event of emergency or unanticipated situations. Comply with local noise ordinances.

Install all post-mounted electroliers located within the clear zone, on NCHRP 350 or MASH compliant breakaway bases.

643-3.11 HIGH VISIBILITY GARMENTS. Ensure all workers within project limits wear outer garments that are highly visible and comply with the following requirements:

1. Standards. Use high visibility garments conforming to the requirements of ANSI/ISEA 107-2004, Class 2 for tops or Class E for bottoms, and Level 2 retroreflective material.

2. Labeling. Use garments labeled in conformance with Section 11.2 of ANSI/ISEA 107-2004 or ANSI/ISEA 107-2010.

3. Tops. Wear high visibility vests, jackets, or coverall tops at all times.

4. Bottoms. Wear high visibility pants or coverall bottoms during nighttime work (sunset to sunrise). Worksite traffic supervisors, employees assigned to traffic control duties, and flaggers wear high visibility pants or coverall bottom at all times.

5. Outer Raingear. Wear raingear tops and bottoms conforming to the requirements of this Subsection 643-3.11.

6. Exceptions. When workers are inside an enclosed compartment of a vehicle, they are not required to wear high visibility garments.

7. Condition. Furnish and maintain all vests, jackets, coveralls, rain gear, hard hats, and other apparel in a neat, clean, and presentable condition. Maintain retroreflective material to Level 2 standards.

Payment for high visibility garments for workers is subsidiary to other traffic contract items.

643-4.01 METHOD OF MEASUREMENT. Section 109 and as follows: Quantities will not be measured during winter suspension of work.

1. Traffic Maintenance. Calendar Day: Every day shown on the calendar, beginning and ending at midnight. Measurement begins on the day following receipt of the Notice to Proceed or on the first day of work at the project site, whichever is later, and ends on the date of project completion.

2. Traffic Control Device Items. By the number of units of each bid item shown on the bid schedule (or the Traffic Control Rate Schedule, if item 643(25), Traffic Control, is included) that are installed, accepted, and operational. Incomplete or unsatisfactory devices will not be measured. Special Construction Signs are measured by the total area of legend-bearing sign panel, as determined under Subsection 615-4.01. Compensation for a 24-hour period shall be made under Construction Signs in the Traffic Control Rate Schedule, Table 643-5. Items measured by the day are for each item per 24-hour period.

3. Traffic Maintenance Setup Items. By each lane closure or one-lane road in place per hour. By each detour or road closure in place per 24-hour period.

4. Portable Concrete Barrier. By each nominal 12.5-foot section placed according to the approved TCPs, for the initial placement and for each subsequent relocation when moved more than 10 feet in any direction. Each transition piece (sloping end) will be measured as a single section.

5. Temporary Crash Cushion. By each acceptable installation.

6. Interim Pavement Marking. By the single-stripe station. A single stripe is a marking or a temporary raised pavement marker 4 inches wide. Wider striping is measured in multiples of 4 inches. Centerline gaps are not deducted from measurements.

7. Flagging and Pilot Car. By the number of approved hours, supported by certified payroll.

8. Street Sweeping. By the number of operated hours, supported by certified payroll and approved by the Engineer.

9. Watering. By the 1,000 gallons (M-Gallon) of water applied. The Engineer may specify measurement by weight or volume. If by weight, convert to gallons at 8.34 pounds per gallon. If by volume, convert to gallons at 7.48 gallons per cubic foot.

10. Traffic Price Adjustment. By each minute that any lane of traffic is not open to full use by the traveling public, measured to the nearest minute. The Engineer will determine whether the roadway is opened to full use.

11. Traffic Control. By the units specified in the Special Provisions.

12. Portable Changeable Message Board Sign. By the 24-hour period for each sign, as shown on an approved TCP and displaying an approved message.

13. Plastic Safety Fence. By the linear foot, as placed, to protect or channelize pedestrian traffic as shown on an approved TCP. Any adjustment in configuration of the fence at the same location that does not result in an increased amount of fence is not measured. Opening and closing the fence to gain access to and from the worksite is not measured.

14. Temporary Sidewalk Surfacing. By the square yard as shown on an approved TCP.

15. Temporary Guardrail. By the linear foot, including end treatments, as shown on an approved TCP.

16. Portable Steel Barrier. By the linear foot placed according to the manufacturer's recommendation and approved TCPs, for the initial placement, and for each subsequent relocation when moved more than 10 feet in any direction.

17. Hotline Road Report. No measurement required to provide a 24-hour toll free (1-800 ###-####) "Hotline Road Report" telephone with a prerecorded message, and weekly notices with daily updates. Work will be subsidiary to Pay Item 643(1) or 643(2), Traffic Maintenance.

18. Temporary roadway surfacing for winter maintenance shutdown shall not be measured for additional payment.

643-5.01 BASIS OF PAYMENT.

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

   Items required by the Contract that are not listed on the bid schedule or not included in other items are subsidiary to Item 643(1) or 643(2) Traffic Maintenance, except the following:

   Traffic Price Adjustment
   Traffic Maintenance Setup

2. Traffic Control Device Items. The contract price includes all resources required to provide, install, maintain, move, and remove the specified devices. Warning lights, high-level warning devices, vertical panels, and sign supports required for traffic control devices are subsidiary.

3. Traffic Maintenance Setup Items. Each setup consists of all traffic control devices, flaggers, pilot cars, and subsidiary items necessary to implement the TCP shown on the Plans. Warning lights, high-level warning devices, vertical panels, and sign supports required for traffic control devices are subsidiary. Construction and obliteration of temporary roadways, when required on the Plans or approved TCP under a traffic maintenance setup item, is paid for under their respective roadway pay items.

   When topsoil or seeding is required for detours, payment will be made under Sections 620 and/or 618.

4. Portable Concrete Barrier. The contract price includes all resources required to provide, install, maintain, and remove each barrier section.

5. Temporary Crash Cushion. The contract price includes all resources required to provide, install, maintain, repair, and remove each crash cushion.

6. Interim Pavement Marking. The contract price includes all resources required to provide, install, maintain, and remove the specified markings. Installation of word and symbol markings are subsidiary. The No-Passing Zone signing, described in Subsection 643-3.04, is subsidiary.

7. Flagging and Pilot Car. The contract price includes all required labor, vehicles, radios, flagger paddles and pilot car signs, and transportation to and from the worksite.

   The Engineer will pay for Item 643(15A) Flagging on a contingent sum basis at the rate of $58.00/hour. The Engineer does not require a change order/directive for the flagging Pay Item.

Flagging associated with Change Order work paid at the prices according to Subsection 109-1.05 Compensation for Extra Work.

8. Street Sweeping. The contract price includes all resources required to keep the roadway free of loose material.

9. Watering. The contract price includes all resources required to provide watering, as directed.

10. Traffic Price Adjustment. If Item 643(23), Traffic Price Adjustment, is shown on the bid schedule, the total value of this contract will be adjusted, for unauthorized lane reductions or closures, at the rates listed in Table 643-3.

11. Traffic Control. Payment for Item 643(25), Traffic Control, will be made at the unit rate value contained in the Traffic Control Rate Schedule shown in the Special Provisions for the accepted units of traffic control devices. The Engineer does not require a change order/directive for Pay Item 643(25), Traffic Control.

12. Portable Changeable Message Board Sign. The contract price includes all resources required to furnish, move, and operate the sign.

    Two Portable Changeable Message Board Signs used for Permanent Construction Signing paid for under Item 643(3) Permanent Construction Signs. Additional portable changeable message board signs will be paid for under 643(25), Traffic Control.

13. Plastic Safety Fence. The contract price includes all resources required to install, maintain, and remove the fence.

14. Temporary Sidewalk Surfacing. The contract price includes all resources required to construct, maintain, and remove the surfacing.

15. Temporary Guardrail. The contract price includes all resources required to construct, maintain, and remove the guardrail.

16. Portable Steel Barrier. The contract price includes all resources required to provide, install, maintain, move, and remove each barrier.

17. Lighting for Night Work. Payment for illuminating night work areas and any required adjustments to work zone illumination is subsidiary to other items.

18. Pavement Breaks. Temporary hot mix asphalt at pavement breaks, as noted in Subsection 643-3.02.2. Gravel Surface Not Specified is subsidiary to Pay Item 401(1).

19. Temporary Pavement Markings. Except where specified as an individual Pay Item (Interim Pavement Markings) temporary pavement markings are subsidiary to Section 670 Pay Items. Refer to Section 670 Traffic Markings, for further information.

20. Temporary Crash Cushion / Redirective. The price listed in the Traffic Control Rate Schedule, Table 643-5, will be full compensation for the purchase, installation, maintenance during construction, removal, and salvaging the Temporary Crash Cushion / Redirective unit(s). Deliver the salvaged unit(s) to the nearest ADOT & PF Maintenance & Operations Station or as directed by the Engineer.

21. Temporary roadway surfacing installation is subsidiary to the work of Section 643.

Traffic control devices, barriers, and crash cushions required to delineate or shield fixed objects will not be measured or paid for separately, but will be subsidiary

Traffic control devices, barriers, and crash cushions required to delineate or shield guardrail posts or non-crashworthy ends will not be measured or paid for separately, but will be subsidiary, when required for failure to meet completion timelines in subsection 606-3.01.

TABLE 643-5
TRAFFIC CONTROL RATE SCHEDULE

Traffic Control Device	Pay Unit	Unit Rate
Construction Signs	Each/Day	$6.50
Special Construction Signs	Square Foot	$28.00
Type II Barricade	Each/Day	$3.30
Type III Barricade	Each/Day	$11.00
Traffic Cone or Tubular Marker	Each/Day	$1.10
Drums	Each/Day	$3.30
Sequential Arrow Panel	Each/Day	$36.00
Portable Concrete or Steel F Shape Barrier (12.5 foot long or $8/foot for other lengths)	Each	$100.00
Temporary Crash Cushion / Sand or Water Filled Barrels or Barrier (all required per end)	Each	$4325.00
Temporary Crash Cushion / Redirective	Each	$9230.00
Pilot Car	Hour	$71.00
Watering	M-Gallon	$28.50
Street Sweeping: Regenerative Sweeper, Vacuum Sweeper, Mechanical or Power Broom with Vacuum	Hour	$214.00
40,000 GVW Truck with Crash Attenuator	Hour	$162.00
Plastic Safety Fence	Lineal Foot	$1.00
Portable Changeable Message Board Sign	Calendar Day	$130.00
Temporary Sidewalk Surfacing	Square Foot	$2.00
Flexible Markers (Flat Whip, Reflective)	Each	$60.00
Temporary Guardrail	Lineal Foot	$25.00

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
643(1)	Traffic Maintenance	Calendar Day
643(2)	Traffic Maintenance	Lump Sum
643(3)	Permanent Construction Signs	Lump Sum
643(4)	Construction Sign	Day
643(5)	Type II Barricade	Day
643(6)	Type III Barricade	Day
643(7)	Traffic Cone/Tubular Marker	Day
643(8)	Plastic Safety Fence	Linear Foot
643(9)	Drum	Day
643(10)	Sequential Arrow Panel, Type C	Day
643(11)	Special Construction Signs	Square Foot
643(12)	Portable Concrete Barrier	Each
643(13)	Temporary Crash Cushion	Each
643(14)	Interim Pavement Marking	Station
643(15)	Flagging	Hour
643(15A)	Flagging	Contingent Sum
643(16)	Pilot Car	Hour
643(17)	Street Sweeping	Hour
643(18)	Watering	M-Gallon
643(19)	Lane Closure	Hour
643(20)	Detour	Day
643(21)	Road Closure	Day
643(22)	One Lane Road	Hour
643(23)	Traffic Price Adjustment	Contingent Sum
643(24)	Portable Changeable Message Board Sign	Day
643(25)	Traffic Control	Contingent Sum
643(26)	Temporary Sidewalk Surfacing	Square Yard
643(27)	Temporary Guardrail	Linear Foot
643(28)	Power Brooming (Retired)	Hour
643(29)	Steel F Shaped Barrier (Retired)	Linear Foot
643(30)	Portable Steel Barrier	Linear Foot

SECTION 644
SERVICES TO BE FURNISHED BY THE CONTRACTOR

Special Provisions

644-2.01 FIELD OFFICE. Delete this subsection in its entirety and substitute the following:

Furnish and maintain a suitable office for the Engineer, available for occupancy from 2 weeks before beginning work, through 30 days after issuance of the notice of project completion as defined in Subsection 105-1.15. The following office requirements shall be met:

1. The office room shall have a minimum of 160 square feet of floor area.
2. A thermostatically controlled interior heating system with necessary fuel.
3. Adequate electrical lighting and 120 volt, 60 hertz power, with a minimum of 6 electrical outlets.
4. A minimum of 100 square feet of window area and adequate ventilation.
5. Adequate parking for a minimum of 5 vehicles, with one handicap parking space meeting the requirements of Americans with Disabilities Act Accessibility Guidelines (ADAAG).
6. Attached indoor plumbing with sanitary lavatory facilities and potable drinking water provided.
7. Provide engineering communication services to the field office, Subsection 644-2.08.
8. If a part of the Contractor's building, it shall be completely partitioned off from the balance of the structure and provided with a separate outside door equipped with a lock.
9. Located within 3 miles of the project.
10. Provide one mobilization and one demobilization of the Engineer's office equipment and furniture.

644-2.05 VEHICLES. Delete the second and third paragraphs and substitute the following:

Pickup (LT) /Sport Utility Vehicle (SUV): Furnish one (1) full-size, four-wheel drive vehicle, either pickup/light truck with crew cabs or sport utility vehicle. Provide vehicle less than three model years old, in good condition, and with less than 36,000 miles on the odometer. Furnish all fuels, maintenance and parts, and insurance during the Department's operation and use.

Equip each vehicle with lightbars wired into the vehicle's electrical system with a dash mounted switch easily accessible to the vehicle operator. Provide Code 3; Model 6005H (formerly PE 6200 LE) lightbars, or approved equal. Approved equal equipment shall have the following characteristics:

- (4) 55 watt rotators with amber filters
- 1200 flashes per minute
- (2) diamond mirrors
- 55 inches in length

If you are working after October 1, provide four studded snow tires mounted on each vehicle.

You are responsible for normal wear and tear, and any other incidental damage including broken windshields, occurring during the Department's operation and use. The Department is responsible for damage to any vehicle caused by its own negligent operation.

Add the following subsection:

644-2.08 ENGINEERING COMMUNICATION. Engineering Communications, minimum service includes:
a. Three phone/facsimile lines (different phone numbers for each line)
b. High speed internet service with modem (DSL or Cable)

644-5.01 BASIS OF PAYMENT. Add the following:

Electricity, propane, and water supplied for the State provided portable asphalt lab will not be paid for separately, but will be subsidiary to Pay Item 644(2) Field Laboratory.

Pay Item 644(8) Vehicle (LT/SUV):

1. A percentage of the Contract unit price, to be determined by the Engineer, will be paid as full compensation for furnishing the vehicle at the site.

2. The balance of the Contract unit price will be prorated over the anticipated active construction period with a portion included as part of each interim payment, for maintenance, repairs, and fuel and, at the end of the project, for removing it from the site. If anticipated construction period changes, the final increment will be held until final payment.

Pay Item 644(10) Engineering Communications. Usage services including long distance calls made by State personnel and the Internet service provider will be reimbursed by the State. Payment for communication usage services shall be based on paid receipts to the service provider plus 15%.

Connection fees (initial connection) local calls, providing equipment and disconnection are subsidiary to Pay Item 644(1) Field Office and as such are paid by the Contractor.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
644(8)	Vehicle (LT/SUV)	Each
644(10)	Engineering Communications	Contingent Sum

SECTION 646
CPM SCHEDULING

Special Provisions

646-2.01 SUBMITTAL OF SCHEDULE. Replace this Subsection with the following:

Submit a detailed initial CPM Schedule at the preconstruction conference for the Engineer's acceptance as set forth below.

The construction schedule for the entire Project shall not exceed the specified contract time. Allow the Engineer 14 days to review the initial CPM Schedule. Revise promptly. The finalized CPM Schedule must be completed and accepted before beginning work on the Project.

646-3.01 REQUIREMENTS AND USE OF SCHEDULE. Delete No. 2.

2. 60-Day Preliminary Schedule.

Delete the first sentence of No. 3. Schedule Updates. and substitute the following:

Hold job site progress meetings with the Engineer for the purpose of updating the CPM Schedule. Meet with the Engineer monthly or as deemed necessary by the Engineer.

Replace Section 651 with the following:

SECTION 651
CONTROL OF WORK – SUPPLEMENTAL REQUIREMENTS

651-1.01 DESCRIPTION. Supplemental requirements for Section 105, Control of Work.

651-1.02 RELATED SECTIONS. Section 105, Control of Work

651-1.03 UTILITIES. Request locates from the utilities having facilities in the area. Use the Alaska Digline, Inc. "Locate Call Center" for the following utilities.

ALASKA DIGLINE, INC.
Locate Call Centers: Anchorage 278-3121 Statewide (800) 478-3121
City of Dillingham – Public Works Nushagak Electric and Telephone Cooperative

Call the following utilities and agencies directly:

City of Dillingham – Public Works	(907) 842-4598
Nushagak Electric and Telephone Cooperative	(907) 842-5251

Utilities Relocated by Others.

Utility work is not anticipated for this project, however; if utility work is added to the project the Contractor will give the Utility, through the Engineer, 15 calendar days advance written notice regarding the dates when the utility owner is required to begin and end operations.

651-1.04 COOPERATION BETWEEN CONTRACTORS. The following projects may be under construction concurrently with this project.

Project Name:	**Project No.:**
Dillingham Downtown Streets Rehabilitation	Z571800000
City of Dillingham, 2019 Water System Improvements	21103.01

Coordinate traffic control, construction, and material hauling operations with the prime contractor of the above projects to minimize impact on the traveling public, and to minimize conflicts with the work being performed under the other contracts.

Replace Section 652 with the following:

SECTION 652
PROSECUTION AND PROGRESS – SUPPLEMENTAL REQUIREMENTS

652-1.01 DESCRIPTION. Supplemental requirements for Section 108. Prosecution and Progress.

652-1.02 RELATED SECTIONS. Section 108, Prosecution and Progress.

652-1.03 PROSECUTION AND PROGRESS. In Subsection 108-1.03:

- Replace the last sentence in the 1st paragraph with: "Submit the following at the Preconstruction Conference:"

- Replace the last sentence in No. 1 with: "A Critical Path Method (CPM) Schedule is required, in a format acceptable to the Engineer, showing the order the work will be carried out and the contemplated dates the Contractor, subcontractors and utilities will start and finish each of the salient features of the work, including scheduled periods of shutdown. Indicate anticipated periods of multiple shift work in the CPM Schedule. Revise to the proposed CPM Schedule promptly. Promptly submit a revised CPM Schedule if there are substantial changes to the schedule, or upon request of the Engineer."

SECTION 670
TRAFFIC MARKINGS

Special Provisions

670-1.01 DESCRIPTION. Add the following:

Furnish, locate and install Pavement Markings as shown on the Plans and as directed.

Pavement Marking Type: Methyl Methacrylate (MMA)

670-2.01 MATERIALS. Replace the material reference,

"Methyl Methacrylate Markings Subsection 712-2.17",

with,

Methyl Methacrylate Pavement Markings Subsection 712-2.17

Methyl Methacrylate Pavement Markings are a combination of methyl methacrylate, glass beads and anti-skid aggregate.

Replace the last sentence with the following:

Submit a single certification from the manufacturer of the marking material, for each material combination, certifying the combination of marking material, glass beads and anti-skid aggregate, as furnished, provides the durability, retroreflectivity, and skid resistance specified.

670-3.01 CONSTRUCTION REQUIREMENTS. Delete No. 4 and substitute the following:

4. Methyl Methacrylate Pavement Markings (MMA).

   a. General. 15 days before starting work meet with the Engineer for a prestriping meeting. At this meeting, do the following:
      (1) Furnish a striping schedule showing areas and timing of work, placing materials and the Traffic Control Plans to be used.
      (2) Discuss placement of materials, potential problems.
      (3) Discuss work plan at off ramps, on ramps and intersections.
      (4) Discuss material handling procedures.
      (5) Provide copies of the manufacturer's installation instructions and copies of the Material Safety Data Sheets.

   b. Manufacturer's Representative. Provide the services of a manufacturer's representative (the "Manufacturer's Representative"). Ensure the Manufacturer's Representative observes the application of the pavement marking materials. Cooperate with the Manufacturer's Representative and the Engineer to ensure that the materials are placed according to these Specifications and the manufacturer's recommended procedures.

   c. Manufacturer Certified Installers. Install pavement markings using only striping installers certified by the marking materials manufacturer for the specific striping material and method. Submit these certifications to the Engineer at the Preconstruction Conference.

   d. Preparation. Prepare the roadway surface to receive pavement markings according to these Specifications and the manufacturer's recommendations. Clean and dry the roadway surface. Completely remove contaminants such as dirt, loose asphalt, curing agents, surface oils, or existing road marking materials before applying pavement marking material.

e. Equipment.

(1) Grooving Equipment.
Use grooving equipment that produces a dry cut. Use vacuum shrouded equipment or other equally effective containment procedures.

(2) Marking Equipment.
(a) Longitudinal Marking: Use truck mounted application equipment capable of installing a double centerline and a single shoulder line in a single pass. Use automatic bead applicators that place a uniform layer of beads on the lines. Hand units are not permitted.
(b) Other Markings: Use manual or automatic application equipment. Use stencils or extruders to form sharply defined markings.

f. Application. Apply marking material according to these Specifications and the manufacturer's recommendations. Use equipment designed and capable of properly mixing at the place and time of application and approved by the manufacturer for the type of product being installed.

Anti-skid Aggregate. During marking material application, anti-skid aggregate will be evenly distributed and visible throughout the top 20 mils of the marking material mixture, and after the application, in the surface of the cured material.

SURFACE APPLIED

Marking thickness will be measured from the pavement surface.

(1) Longitudinal Markings. Apply markings for lane lines, edge lines, and centerlines to yield a thickness of 60 mils.

(2) Other Markings.
(a) Transverse and Symbol Markings:
Apply marking for symbols, arrows, stop bars, railroad symbols, and cross walks to yield a thickness of 60 mils.
(b) Gore Markings:
Apply diagonal gore markings to yield a thickness of 60 mils.

INLAID

Groove the area(s) designated in the Plans. Install markings in the same work shift as the grooving operation. Markings will be measured flush with the pavement surface.

(1) Longitudinal Markings. Groove the pavement to a depth of 125 mils. Apply markings for lane lines, edge lines, and centerlines to yield a thickness of 125 mils.

(2) Other Markings.
(a) Transverse and Symbol Markings:
Groove the area for inlaid markings to a depth of 125 mils. Apply marking for symbols, arrows, stop bars, railroad symbols, and cross walks to yield a thickness of 125 mils.
(b) Roundabouts:
As designated on the plans, groove the area for inlaid markings in roundabouts to a depth of 500 mils. Apply markings to yield a thickness of 500 mils.
(c) Gore Markings:
Diagonal gore markings will not be inlaid unless shown in the Plans.

g. Disposal of Waste. Waste material(s) are the Contractor's property. This includes grindings and removed marking material. Do not dispose of or store waste material(s) on State property. Dispose of waste material(s) according to applicable Federal, State, and local regulations.

h. Sampling. On the form provided by the Engineer, record the following readings and locations where they were taken using project stationing, and submit them to the Engineer with 24 hours for evaluation. Thickness of material and depth of slot are measured from the surface of the pavement.

SURFACE APPLIED

(1) For surface applied longitudinal applications, measure the thickness of the lines (above the pavement surface) at the time of application, every 500 feet.

(2) For surface applied other markings measure the thickness in three locations for each marking.

INLAID

(1) For inlay longitudinal applications, record the depth of the slot every 500 feet during the grinding operation.

(2) For inlay other markings measure the thickness in three locations for each marking.

Inspect the markings initially, and again two weeks after placement, to ensure the material has cured properly. Remove soft spots or abnormally darkened areas and replace with material meeting specifications.

The Engineer may elect to use the Contractor's readings or perform additional sampling.

Add the following:

Refer to the Survey Field Books identifying the no passing zones (see Subsection 642-3.01)

670-3.04 PAVEMENT MARKING REMOVAL. Add the following:

Coordinate removal work with construction activity. Remove pavement markings the same day permanent markings are applied, unless otherwise directed. Use vacuum shrouded equipment or other equally effective containment procedures.

Replace Subsection 3.06 with the following:

670-3.06 TOLERANCE FOR LANE STRIPING.

1. Length of Stripe. ± 2 inches.
2. Width of Stripe. ± 1/8 inch.
3. Lane Width. ± 4 inches from the width shown on the Plans.
4. Stripes on Tangent. Do not vary more than 1 inch laterally within a distance of 100 feet when using the edge of the stripe as a reference.
5. Stripes on Curves. Uniform in alignment with no apparent deviations from the true curvature.
6. All Stripes. Keep the center of the stripe within planned alignment.
7. Double Stripes. ± 1/4 inch.
8. Thickness of Surface Applied. Minimum specified to a maximum of + 30 mils.
9. Depth of Inlay Slot. Minimum specified to a maximum of + 40 mils.

10. Thickness of Inlaid Marking Material. Fill inlay area completely from the bottom of the inlay to the surface of the pavement.

If it is determined that the material is being placed too thin, the beads are not properly placed, the anti-skid aggregate is not visible, or otherwise not to specification, make immediate adjustments to correct the problem.

Pavement markings applied by any method will be unacceptable if:

1. Marking is not straight or wide enough.
2. Thickness of line is not uniform.
3. Thickness of line is less than specified.
4. Material is uncured.
5. Material blackens or is inconsistent in color.
6. Inlay slot is not the specified depth.
7. Inlay slot is not filled to the specified depth.
8. Edge of the markings is not clear cut and free of overspray.
9. Reflective elements are not properly embedded.
10. Retroreflectivity of the markings is less than specified.
11. Anti-skid aggregate is not visible in the marking material during application and the dried surface.
12. Markings exhibit poor adhesion.
13. Color is not as specified.

Perform repairs using equipment similar to the equipment initially used to place the materials. Do not perform repairs in a “patch work” manner. If more than one repair is required in a single 500 foot section, grind and repair the entire section.

670-4.01 METHOD OF MEASUREMENT. Add the following:

Thickness will be measured from the top of the marking to the top of the pavement surface. Marking material placed in a depression left by pavement line removal will not be included in measuring the thickness of the line.

Delete No. 2.

Delete No. 3 and replace with the following:

3. Each. Pavement markings using letters, numbers, and arrows will be measured on a unit basis with each separate word or symbol constituting a unit. Railroad Markings will be measured by the complete unit shown for each lane of travel.

Add the following No. 4:

4. Foot Basis. Longitudinal pavement markings, transverse, and gore markings, surface applied or inlaid will be measured by the linear foot of 4 inch wide line. Wider striping will be measured in multiples of 4 inches.

670-5.01 BASIS OF PAYMENT. Add the following:

For all phases of construction: There will be no separate payment for:

- Over-runs of material caused by the variation of the gradation of the asphalt
- Additional material required to achieve the thickness specified on open graded pavement

All work and materials associated with pavement markings are subsidiary to 670 items, including but not limited to:

- Milling for installation of the inlaid pavement markings including the removal of millings
- Temporary pavement markings and removal of conflicting markings, including repair of the roadway surface, milled surface or otherwise
- Traffic Control required for the installation of permanent and temporary pavement markings, removal of conflicting markings, and repairs

Replace Item 670(10) with the following:

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
670(10)	MMA Pavement Markings	Lump Sum

Add the following Section 685:

SECTION 685
SITE PRE-CLEANING AND INSPECTION

685-1.01 DESCRIPTION. Clean and remove existing gravel, dirt, and other fugitive materials from the roadway and sidewalks prior to start of work. Allow the Engineer to inspect the existing roadway and sidewalks following completion of site pre-cleaning.

685-2.01 MATERIALS. Reserved.

685-3.01 CONSTRUCTION REQUIREMENTS. Provide notice to the Engineer 7 days prior to beginning pre-cleaning work. Provide an anticipated schedule to complete pre-cleaning.

Provide equipment adequate to complete surface cleaning of the existing roadway, sidewalks, and other facility features.

Clean and expose all roadway, sidewalk, and storm drain features to allow the Engineer to perform an inspection of the existing facility. Provide notice to the Engineer upon completion of pre-cleaning. Allow the Engineer 5 days to inspect the facility following completion of pre-cleaning.

Following inspection of the existing facility, the Engineer reserves the right to modify the Contract Pay Item quantities to address deficiencies discovered during inspection. Adjustment of Pay Item quantities will be addressed according to their respective requirements in the Contract Documents.

Dispose of collected materials off-site. Before beginning pre-cleaning work, provide the Engineer a certificate, signed by the Owner or Owner's Representative, identify the disposal site. Dispose of all collected materials in accordance with Federal, State, and Local regulations.

Roadways, sidewalks, utilities, or other existing facility features damaged by the pre-cleaning operation require the Engineer to be immediately notified. The Contractor is responsible for the repairs and associated costs of all areas of damage which have not previously been specified for demolition and reconstruction. Submit a repair plan to the Engineer for approval not less than 7 days prior to beginning repair work. Contact and coordinate repairs for damaged utilities with the utility owner.

685-4.01 METHOD OF MEASUREMENT. Section 109.

685-5.01 BASIS OF PAYMENT.

Modifications to Contract Pay Item quantities will be paid for separately under the respective pay items listed on the bid schedule. Compensation for altered quantities as a result of inspection by the Engineer will be in accordance with Section 109-1.04.

Disposal of collected materials during pre-cleaning is subsidiary.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
685(1)	Site Pre-cleaning	Lump Sum

DIVISION 700 — MATERIALS

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SECTION 702
ASPHALT MATERIALS

Special Provision

702-2.01 ASPHALT BINDER. Add the following:

Meet AASHTO M 320 Performance-Graded Asphalt Binder and AASHTO M332 Performance-Graded Asphalt Binder Using MSCR Test Specification; except, as included in Table 702-2.01-1 Performance-Graded Asphalt Binder – Exceptions.

TABLE 702-2.01-1
PERFORMANCE-GRADED ASPHALT BINDER - EXCEPTIONS

Performance Grade	Viscosity AASHTO T 316	Multiple Stress Creep Recovery MSCR, AASHTO T 350			Dynamic Shear PAV, AASHTO T 315	Direct Tension AASHTO T 314	Elastic Recovery AASHTO T 301
		$J_{NR3.2}$ kPa^{-1}	J_{NR} Diff	% $Recovery_{3.2}$	G*Sinδ, kPa		
AASHTO M320 Performance-Graded Asphalt Binder							
PG 52-28	None	—	—	—	None	Delete	None
PG 52-40	None	—	—	—	None	Delete	None
PG 52-40ER	None	—	—	—	None	Delete	50% min.
PG 58-34ER	None	—	—	—	None	Delete	60% min.
PG 64-40ER	None	—	—	—	None	Delete	60% min.
AASHTO M332 Performance-Graded Asphalt Binder Using MSCR Test Specification							
PG52-40V	None	0.50 max.	Delete	75 min.	None	Delete	None
PG58-34E	None	0.25 max.	Delete	85 min.	None	Delete	None
PG 64-40E	1 Pa•s max.	0.10 max.	Delete	95 min.	5000 max. @ 4°C	Delete	None

CR702.3-100118

702-2.03 EMULSIFIED ASPHALT.

2. Special Tack Emulsion, STE-1.

TESTS ON RESIDUE

Replace the first line: Penetration @ 77 °F 100-200,
with: Penetration @ 77 °F 100-250

SECTION 703
AGGREGATES

Special Provisions

Replace Subsection 703-2.04 with the following:

703-2.04 AGGREGATE FOR HOT MIX ASPHALT. Process and crush aggregate that is free from clay balls, organic matter, other deleterious material, and not coated with dirt or other finely divided mineral matter. Aggregate used must consist of sound, tough, durable rock of uniform quality.

Remove all natural fines passing a No. 4 sieve before crushing aggregates for Type IV, and VH mixes.

Coarse Aggregate. Aggregate retained on the No. 4 Sieve.

Meet Table 703-3 requirements:

TABLE 703-3
COARSE AGGREGATE QUALITY FOR HMA

Description	Specification	Type II, Class A	Type I; Type II, Class B; Type III	Type IV	Type VH
LA Wear, % max.	AASHTO T 96	45	45	45	45
Degradation Value, min.	ATM 313	30	30	30	30
Sodium Sulfate Loss, % max. (5 cycles)	AASHTO T 104	9	9	9	9
Fracture, % min.	ATM 305	90, 2 face	80, 1 face	90, 2 face	98, 2 face
Flat-Elongated Pieces, % max.	ATM 306				
1:5		8	8	8	8
Absorption, % max.	ATM 308	2.0	2.0	2.0	2.0
Nordic Abrasion, % max.	ATM 312	-	-	-	8 [a]

a. Hard Aggregate that meets the Nordic Abrasion values specified may be obtained from, but not limited to, the following sources:

- MS 52-068-2, located at MP 217 on the Parks Highway near Cantwell
- Alaska Lime Co, Jim Caswell, located at MP 216.5 on the Parks Highway near Cantwell
- CalPortland plants located in Dupont Washington
- Jack Cewe Ltd located in Coquitlam British Columbia, Canada

Fine Aggregate. Aggregate passing the No. 4 sieve.

Aggregate shall meet the quality requirements of AASHTO M 29, including S1.1, Sulfate Soundness.

Aggregate for Type II, Class A mix shall not contain more than 10% natural fines (blend sand and mineral filler) added to the crushed aggregate, and shall not exhibit rut depth larger than 1/4-inch, as determined by ATM 419.

Fine aggregate for Type IV and VH mixes:

- do not blend back natural sand
- shall be non-plastic as determined by ATM 205
- shall have a minimum uncompacted void content (Fine Aggregate Angularity) determined by AASHTO T 304, Method A, of 45%

TABLE 703-4
BROAD BAND GRADATIONS FOR HOT MIX ASPHALT AGGREGATE
Percent Passing by Weight

SIEVE	GRADATION				
	Type I	**Type II**	**Type III**	**Type IV**	**Type VH**
1 inch	100	-	-	-	-
3/4 inch	80-90	100	-	-	100
1/2 inch	60-84	77-99	100	100	65-90
3/8 inch	48-78	68-88	80-90	80-95	55-80
No. 4	28-63	48-68	44-81	55-70	40-60
No. 8	14-55	33-53	26-70	35-50	≤ 45
No. 16	9-44	20-40	16-59	20-40	≤ 35
No. 30	6-34	14-30	9-49	15-30	≤ 25
No. 50	5-24	9-21	6-36	10-24	≤ 20
No. 100	4-16	6-16	4-22	5-15	≤ 12
No. 200	4-7	3-6	4-7	4-7	4-7

703-2.07 SELECTED MATERIAL.

Replace 1. with the following:

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. Meet the following gradation as tested by ATM 304:

Sieve Percent Passing by Weight

No. 4 20-55%
No. 200 0-6%, determined on the minus 3-inch portion of the sample

703-2.13 STRUCTURAL FILL. Replace Table 703-12 with the following:

TABLE 703-12
AGGREGATE GRADATION FOR STRUCTURAL FILL

SIEVE	PERCENT PASSING BY WEIGHT
3-inch	100
3/4-inch	75-100
No. 4	20-55
No. 200	0-6

Replace Subsection 703-2.16 with the following:

703-2.16 RECYCLED ASPHALT PAVEMENT (RAP). RAP shall be free of contamination and deleterious materials. RAP maximum particle size shall not exceed 1.5-inch.

SECTION 705
JOINT MATERIAL

Special Provisions

Replace Subsection 705-2.05 with the following:

705-2.05 FLEXIBLE WATERTIGHT GASKETS. Ring gaskets (seals):

1. Joining rigid concrete (cast-in-place and precast) pipes, manholes, box sections and other structures:

a. ASTM C443 Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
b. ASTM C990 Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed flexible Joint Sealants (Butyl Rubber Sealant)
c. ASTM C1628 Specification for Joints for Concrete Gravity Flow Sewer Pipe, Using Rubber Gaskets
d. ASTM C1619 Specification for Elastomeric Seals for Joining Concrete Structures

Class B (oil resistant performance)

2. Joining flexible metal pipe (steel and aluminum):

a. ASTM C443 Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
b. ASTM C1619 Specification for Elastomeric Seals for Joining Concrete Structures

Class B (oil resistant performance)

c. ASTM D1056 Specification for Flexible Cellular Materials-Sponge or Expanded Rubber

(1) Type 2-Closed cell rubber
(2) Class B-Oil resistance with low mass change
(3) Grade 3-Compression-deflection range from 9 to 13 psi

Use continuous flat gaskets with thickness 1/2-inch greater than the nominal depth of the corrugation for bands with projections or flat bands and 3/8-inch for corrugated bands.

3. Joining plastic pipe:

a. ASTM D3212 Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
b. ASTM F477 Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe

Not less than 50% by volume oil resistant polymer

SECTION 712
MISCELLANEOUS

Special Provisions

712-2.17 METHYL METHACRYLATE PAVEMENT MARKINGS. Replace No. 1. Quality Requirements: with the following:

1. Quality Requirements: Use a marking material formulated for the application type specified. Use a marking material manufactured from new materials and free from dirt and other foreign material. Use a methyl methacrylate based resin system for part "A". Use benzoyl peroxide system for part "B".

   Extruded or stenciled application: Material formulated for extruded or direct stenciled application with factory intermix beads, and anti-skid aggregate and the application of additional surface applied beads.

   Submit a manufacturer certification for both the methyl methacrylate material, glass beads and anti-skid aggregate to ensure that the materials furnished conform to these Specifications.

2. Performance Properties: Add the following:

   I. Color: Yellow, PR-1 Chart, 33538 Federal Yellow. White, minimum daylight reflectance of 84.

712-2.18 GLASS BEADS FOR METHYL METHACRYLATE PAVEMENT MARKINGS. Replace the bead table with the following:

Use the type and quantity of beads specified in writing by the marking material manufacturer required to satisfy the specified performance requirements. The written certification will note the bead coating is compatible with the marking material binder.

1. Bead Manufacturer and Type.

   a. Swarco, Megalux-Beads or
   b. Approved equal beads

   Approved Equal Beads. Equal beads will demonstrate:
   (1) Bead coatings compatible with marking materials. Marking Material Manufacturer will certify compatibility.
   (2) Lasting retro reflectivity.

Add the following subsection:

712-2.22 ENGINEERED SURFACE DRAINAGE PRODUCTS.

Conform to the specifications of Nyloplast® Drain Basin or approved equal. Pipe stock used for the main body and pipe stubs of the drain basin shall conform to ASTM D1784 cell class 12454. Flexible elastomeric seals shall conform to ASTM F477. Joint tightness shall conform to ASTM D323 for joints for drain and sewer plastic pipe using flexible elastomeric seals.

Special Provisions

Replace Section 727 with the following:

SECTION 727
SOIL STABILIZATION MATERIAL

727-2.00 GENERAL. Free of noxious weeds, seeds, chemical printing ink, germination and growth inhibitors, herbicide residue, chlorine bleach, (except where specified: rock, metal, plastics) and other deleterious materials and not harmful to plants, animals and aquatic life. Wood cellulose "paper" fiber, wood chips, sawdust, and hay are not permitted as stabilization materials.

727-2.01 MULCH. Flexible blanket/covering, temporary degradable (bio/photo) form of erosion control. Use one of the following:

Dry Erosion Control, Stabilization Products. Hand applied or spread with mulch blower equipment.

1. Straw. Use straw, in an air-dried condition, from oats, wheat, rye, or other approved grain crops that are free from noxious weeds, seeds, mold, or other materials detrimental to plant life. Straw material shall be certified weed-free straw using North American Weed Management Association (NAWMA) Standards. In-lieu of certified weed-free straw provide documentation that the material is steam or heat treated to kill seeds or provide U.S. or state's department of agriculture laboratory test reports, dated within 90 days prior to the date of application showing that there are no viable seeds in the straw.

2. Shredded Bark Mulch. Shredded bark and wood with the following characteristics:
   a. Not containing resin, tannin, or other compounds in quantities harmful to plant life.
   b. Maximum length of individual pieces is 2 inches with 75% passing through a 1 inch sieve.
   c. Will form a uniform ground cover/mat, have moisture absorption, retention, and percolation properties, not be susceptible to spreading by wind or rain providing a good growth medium.
   d. May contain up to 50% shredded wood material.
   e. Shredded wood material aged 1 year minimum prior to use.

Hydraulic Erosion Control Products (HECPs) Applied hydraulically.

A fiber mulch matrix: biodegradable and composed of wood, straw, coconut and other fibers natural and man-made. When applied, create a continuous, porous, absorbent high water holding, flexible blanket/mat/mulch/covering making intimate contact with, and adhering to sloped soil surface; permitting water infiltration; resists erosion and promotes rapid germination and accelerated plant growth. The fibers may be thermally processed, and cross-linked with a hydro-colloidal or linear anionic tackifier (curing period 24-48 hours) or mechanically-bonded (no curing period). When agitated in slurry tanks with water the fibers will become uniformly suspended, without clumping to form homogeneous slurry.

The HECPs shall be delivered premixed by the manufacturer. The HECP will contain only the materials provided in the sealed containers from the manufacturer. No added components are permitted after the manufacturer seals the product container, before application, during application or otherwise. Submit documentation dated within 3 years of application, from an independent accredited laboratory as approved by the Engineer, showing that the product's testing performance meets the requirements for the slope(s) to be protected on the project, according to the National Transportation Product Evaluation Program (NTPEP), Erosion Control Technology Council (ECTC) and or the Texas DOT/Texas Transportation Institute (TTI) Laboratory.

If the HECP contains cotton or straw provide documentation that the material is certified weed free using NAWMA Standards. In-lieu of certified weed-free straw, provide documentation that the material is steam or heat treated to kill seeds or provide U.S. or state's department of agriculture laboratory test reports, dated within 90 days prior to the date of application showing that there are no viable seeds in the straw.

The HECP shall contain a dye to facilitate placement and inspection of the material.

1. Wood Strand, Fiber.
   A blend of angular, loose, long thin wood pieces with a high length to width ratio and that are frayed. Minimum 95% of strands between 2 inches and 10 inches, at least 50% of the length shall have a width thickness between 1/16 and 1/8 inch. No single strand shall have a width or thickness greater than 1/2 inch. Processed wood fiber with the following characteristics:
   a. Will remain in uniform suspension in water under agitation and will blend with grass seed, fertilizer and other additives to form homogeneous slurry.
   b. Will form a blotter-like uniform ground cover on application, have moisture absorption, retention and percolation properties, the ability to cover, and hold grass seed in contact with soil, and not create a hard crust upon drying providing a good growth medium.

2. Dried Peat Moss. Partially decomposed fibrous or cellular stems and leaves of any of several species of Sphagnum mosses with the following characteristics:
   a. Chopped or shredded to allow distribution through normal hydraulic type seeding equipment and capable of being suspended in water to form part of a homogeneous slurry.
   b. Free from woody substances and mineral matter such as sulfur or iron and with a pH value of between 4.0 and 6.5.
   c. Furnished in an air dry condition and containing less than 35% moisture by weight. Have a water holding capacity of not less than 800% by weight on an oven dry basis.

3. Fiber Matrix (FM) Mulch - Types.
   a. Stabilized Mulch Matrices (SMMs)
   b. Bonded Fiber Matrices (BFMs)
   c. Mechanical Bonded Fiber Matrix (MBFM)
   d. Polymer Stabilized Fiber Matrix (PSFM)
   e. Fiber Reinforced Matrices (FRMs)
      - Flexible Growth Medium (FGM)
      - Extended-Term Flexible Growth Medium (ET-FGM)

727-2.02 MATTING. Fiber mulches, mulch matrices, nets and turf reinforcement mats manufactured from wood fibers, straw, jute, coir, polyolefins, PVC, nylon and others creating dimensionally stable nets, meshes, geotextiles and blankets; creating a continuous, porous, absorbent, flexible blanket/mat/mulch/covering making intimate contact with and adhering to sloped soil surface, resisting erosion and promoting rapid germination and accelerated plant growth.

Rolled Erosion Control Products (RECPs) (Temporary Degradable and Permanent Erosion Control)
Use RECPs that bear the Quality and Date Oversight and Review (QDOR) Seal from the ECTC. Independent test results from the NTPEP, that the mulch, when tested according to ASTM 6459 Standard Test Method for Determination of Rolled Erosion Control Products (RECP), Performance in Protecting Hillslopes from Rainfall-Induced Erosion, meets the performance requirement using the Revised Universal Soil Loss Equation (RUSL).

Functional Longevity.

1. Temporary Degradable.

   a. Duration.

      1) Short-Term RECPs. (RECPs 3 - 12 months)
         C_{Factor} = .15 maximum
         Test Soil Type = Sandy Loam
         (National Resources Conservation Service (NCRS) Soil Texture Triangle)

      2) Moderate (Extended) -Term RECPs. (RECPs 24 months)
         C_{Factor} = .05 maximum
         Test Soil Type = Sandy Loam (NCRS Soil Texture Triangle)

3) Long-Term RECPs. (RECPs 36 months)
C_{Factor} = .01 maximum
Test Soil Type = Sandy Loam (NCRS Soil Texture Triangle)

b. Product types.

1) Mulch-Control Nets (MCNs). Planar woven natural fiber or extruded geosynthetic mesh used to anchor loose fiber matting/mulches.

2) Erosion Control Blankets (ECBs). Processed natural and/or polymer fibers, yarns or twines mechanically, structurally, or chemically bound together to form a continuous matrix with a minimum weight of 8 oz/yd^2 and a limiting shear stress of 0.45 lb/ft^2.

3) Netless. Fibers mechanically interlocked and/or chemically adhered together.

4) Single-net and Double-net. Fibers mechanically bound together by single or double netting.

5) Open Weave Textiles (OWTs). Fibers woven into a continuous matrix.

c. Materials.

1) Burlap. Standard weave with a weight of 3.5 to 10 oz/yd^2.

2) Jute Mesh Fabric. Cloth of a uniform, open, plain weave of undyed and unbleached single jute yarn. Use yarn that is loosely twisted and not varying in thickness more than one-half its normal diameter. Furnish jute mesh in rolled strips meeting the following requirements:
   a) Width: 45 to 48 inches, $\pm$ 1 inch
   b) 78 warp-ends per width of cloth (minimum)
   c) 41 weft-ends per yard (minimum)
   d) Weight: 20 ounces per linear yard, $\pm$ 5%

3) Woven Paper or Sisal Mesh Netting. Woven from twisted yarns available in rolls 45 to 48 inches wide. Mesh may vary from closed to open weave, ranging from 1/8 to 1/4 inch openings. Shrinkage after wetting may not exceed 20% of the surface area.

4) Knitted Straw Mat. Commercially manufactured ECB. Use photodegradable netting and biodegradable thread. Use straw, in an air-dried condition, from oats, wheat, rye, or other approved grain crops that are free from noxious weeds, seeds, mold, or other materials detrimental to plant life. ECB may contain coconut or fiber to reinforce the straw. Straw material shall be certified weed-free straw using NAWMA Standards. In-lieu of certified weed-free straw, provide documentation that the material is steam or heat treated to kill seeds or provide U.S. or state's department of agriculture laboratory test reports, dated within 90 days prior to the date of application showing that there are no viable seeds in the straw.

5) Woven/Curled Wood blanket. Machine produced mat of curled wood shavings with a minimum of 80% 6-inch or longer fibers, with consistent thickness and the fibers evenly distributed over the entire area of the blanket. Smolder resistant without the use of chemical additives. Cover the top side of the blanket with biodegradable extruded plastic mesh.

6) Coconut (Coir Fiber). Machine produced mat, ECB of consistent thickness and coir fiber evenly distributed over the area of the mat. Use bio/photo degradable netting and thread.

2. Permanent.

   a. Product Types and Materials.

      1) Turf Reinforcement Mats (TRMs). A rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh, and/or other elements, processed into a permanent, three-dimensional matrix of sufficient thickness with a minimum weight of 8 oz/yd^2 and a minimum limiting shear stress of 1.5 lb/ft^2. TRMs (may be supplemented with degradable components) shall impart immediate erosion protection, enhance vegetation establishment during and after maturation and permanent vegetation reinforcement providing long-term functionality.

727-2.03 SEDIMENT RETENTION FIBER ROLLS (SRFRs). Fiber rolls also referred to as wattles. Manufacture of photodegradable or biodegradable fabric netting without preservative treatment, evenly woven, free of crusted material, cuts, and tears. Manufacture stakes of photodegradable or biodegradable material (wood stakes, except as approved by the Engineer).

1. Filter Sock (Wattle)
   a. Fabric netting.
   b. Filled with wood fiber, straw, flax, rice, coconut fiber material.
   c. Minimum diameter 5 inches.

2. Compost Sock.
   a. Extra Heavy weight fabric netting with a minimum strand width of 5 mils.
   b. Filled with coarse compost.
   c. Minimum diameter 8 inches.

3. Coir Log.
   a. Woven wrap bristle coir twine netting.
   b. Filled with 100% coconut (coir) fiber uniformly compacted.
   c. Segments maximum length 20 foot, diameter as suited to the application and a density of 7 lbs/pcf or greater.
   d. Coir twine strength equal to 80 lb minimum weaved to a 2 inch x 2 inch opening pattern.
   e. Ties made of hemp rope by 1/4 inch diameter.

727-2.04 COMPOST. Suitable for serving as a soil amendment or an erosion control material. Sanitized, mature compost meeting local, state, and Federal quality requirements tested and certified by the U.S. Composting Council (USCC) under the Seal of Testing Assurance (STA) Program. Biosolids compost must meet the Standards for Class A biosolids outlined in 40 Code of Federal Regulations (CFR) Part 503. Additionally, meet the requirements of the AASHTO specifications:

1. Compost Blankets. Standard Practice for Compost for Erosion/Sediment Control (Compost Blankets) R 52.

2. Compost Filter Berms and Filter Socks. Standard Practice for Compost for Erosion/Sediment Control (Filter Berms and Filter socks) R 51.

727-2.05 TACKIFIER. Tackifier, viscous overspray, generally composed of dry powered vegetable gums derived from guar gum, psyllium and sodium alginase; asphaltic emulsions; petroleum distillates; co-polymer emulsions; and lignosulfonates and used to anchor soil, compost, seed, the mulch fibers to one another, and the ground. Contain no growth or germination inhibiting materials nor significantly reduce infiltration rates. Tackifier shall hydrate in water and readily blend with other slurry material. Tackifier options include:

1. Type A. Organic tackifier with certification of plant sources; or

2. Type B. Synthetic tackifier with certification confirming product is not harmful to plants, animals, or aquatic life.

727-2.06 POLYACRYLAMIDE (PAM). Use as a tie-down for soil, compost, seed and as a flocculent. Polyacrylamide (PAM) products shall meet the requirements of American National Standards Institute (ANSI)/National Sanitation Foundation International (NSF) Standard 60 for drinking water treatment, be anionic (not cationic), linear and not cross-linked with an average molecular weight greater than 5 Mg/mole, minimum 30 percent charge density; contain at least 80% active ingredients and a moisture content not exceeding 10% by weight.

Deliver PAM in a dry granular powder or liquid form.

727-2.07 GEOTEXTILE-ENCASED CHECK DAM AND SEDIMENT BARRIER. Urethane foam core encased in geotextile material (silt fence material Section 633), minimum 8 inches height by minimum base width of 16 inches by minimum 7 foot length. Overhang the geotextile 6 inch minimum each end with apron type ties by 24 inches each side of the foam core.

727-2.08 SANDBAG.

1. Sandbag Sack Fabric. Fabric shall be a nonwoven, needle punched design meeting the Minimum Average Roll Values (MARV) verified in accordance with ASTM D4759.

2. Seam Thread. Similar durability to the sandbag sack fabric.

3. Sandbag Fill Material.
   a. Selected Material 703-2.07 Type B

4. Cinch Ties. Plastic ties or equivalent tie recommended by the sandbag manufacturer.

727-2.09 MANUFACTURED INLET PROTECTION SYSTEM.

1. Manufacturers:
   a. Ultra Tech International – Ultra-DrainGuard
   b. Bowhead Environmental and Safety - StreamGuard Exert II Sediment Insert
   c. Enpac - Catch Basin Insert, Oil and Sediment or
   d. Approved equal.

727-2.10 CLEAR PLASTIC COVERING. A clear plastic covering meeting the requirements of the National Institute of Standards and Technology (NIST) voluntary Product Standard PS 17 - 69 for polyethylene sheeting having a minimum thickness of 6 mils.

727-2.11 STAPLES. U-shaped staples for anchoring matting, approximately 6 inches long and 1 inch wide. Machine-made: No. 11 gage or heavier steel wire. Hand-made: 12-inch lengths of No. 9 gage or heavier steel wire.

Special Provision

Replace Section 729 with the following:

SECTION 729
GEOSYNTHETICS

729-2.01 GEOTEXTILE FOR SUBSURFACE DRAINAGE, SEPARATION, STABILIZATION, EROSION CONTROL AND EMBANKMENT REINFORCEMENT.

1. Subsurface Drainage. Meet AASHTO M 288 for Subsurface Drainage, except provide a minimum permittivity of 0.5 sec^{-1}, and meet Class 2 Strength Property Requirements.
2. Separation. Meet AASHTO M 288 for Separation, except provide a minimum permittivity of 0.50 sec^{-1}, and meet Class 3 Strength Property Requirements.
3. Stabilization. Meet AASHTO M 288 for Stabilization, except provide a minimum permittivity of 0.50 sec^{-1}, and meet Class 1 Strength Property Requirements.
4. Erosion Control. Meets AASHTO M 288 for Permanent Erosion Control and meet Class 1 Strength Property Requirements.
5. Reinforcement. Meet the requirements in Table 729-1 for Type 1 or Type 2.

Package, label, handle and store geotextile materials according to ASTM D 4873.

TABLE 729-1
GEOTEXTILE REINFORCEMENT PROPERTIES

Property	Test Method	Units	Requirement [a]	
			Type 1	Type 2
Grab Tensile	ASTM D 4632	lb.	200/200	400/400
Grab Elongation	ASTM D 4632	% (MD)	10	10
Wide Width Tensile	ASTM D 4595	lb./in. (ultimate)	200/200	400/400
Wide Width Tensile	ASTM D 4595	lb./in. (@ 5% strain)	100/100	200/200
Seam Breaking Strength	ASTM D 4632	lb./in.	180	360
Puncture	ASTM D 6241	lb.	500	1500
Trapezoidal Tear	ASTM D 4533	lb.	100	150
AOS	ASTM D 4751	U.S. sieve size	#30 [b]	#30 [b]
Permittivity	ASTM D 4491	sec^{-1}	0.20	0.20
Flow Rate	ASTM D 4491	gal./min./ft^2	10	10

a. Minimum Average Roll Values (MARV) in machine-direction (MD) and cross-machine direction (XD) unless otherwise specified.
b. Maximum average roll value

729-2.02 RESERVED.

729-2.03 PAVING FABRIC. Meet AASHTO M 288 for Paving Fabric.

729-2.04 SILT FENCE. Meet AASHTO M 288 for Temporary Silt Fence.

729-2.05 GEOGRID FOR EMBANKMENT AND ROADWAY STABILIZATION AND REINFORCEMENT. Provide geogrid consisting of a regular network of connected polymer tensile elements with aperture geometry sufficient to provide significant mechanical interlock with the surrounding material. Provide dimensionally stable geogrid that is able to retain its geometry during construction. Provide geogrid structure that resists ultraviolet degradation and all forms of chemical and biological degradation encountered in the material in which it is buried.

Package, label, handle, and store geogrid material according to ASTM D 4873.

1. Stabilization. Provide geogrid that meets the survivability requirements in Table 729-2 and meets the physical requirements in Table 729-3.
2. Reinforcement. Provide geogrid that meets the survivability requirements in Table 729-2.

TABLE 729-2
GEOGRID SURVIVABILITY REQUIREMENTS

Property	Test Method	Units	Requirement	
			Class 1	Class 2
Ultimate Multi –Rib Tensile Strength [a]	ASTM D 6637	lb./ft.	1230	820
Junction Strength [a]	ASTM D 7737	lb.	25	25
Ultraviolet Stability (Retained Strength)	ASTM D 4355	%	50% after 500 hours of exposure	

a. Minimum Average Roll Values (MARV) in any rib direction.

TABLE 729-3
Geogrid Physical Requirements

Property	Test Method	Units	Requirement
2% Tensile Strength [a]	ASTM D 6637	lb./ft.	≥ 400
5% Tensile Strength [a]	ASTM D 6637	lb./ft.	≥ 800
Percent Open Area	COE, CW-02215	%	50 – 80
Aperture Size [b]	Direct measure	in.	0.5 – 3.0

a. Minimum Average Roll Values (MARV) in machine-direction (MD) and cross-machine direction (XD).
b. Measured as the spacing between parallel ribs.

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