STANDARD MODIFICATIONS
AND
SPECIAL PROVISIONS

To the **STATE OF ALASKA**

STANDARD
SPECIFICATIONS
FOR
HIGHWAY CONSTRUCTION
(SSHC)

2004
EDITION

SAND POINT SCHOOL LOOP ROAD

Project No. STP-0001(412)/52408

December 2010

Table of Contents

APPENDICES

SECTION 101

DEFINITIONS AND TERMS

Standard Modifications

101-1.03 DEFINITIONS.

PLANS. Delete Text of PLANS and replace with:

The Department's Contract drawings, profiles, typical cross sections, standard drawings, and supplemental drawings or reproductions showing the location, character, dimensions, and details of the work.

E32-012707

Add the following definition:

QUALIFIED PRODUCTS LIST. A list of companies and products that the Department has found conforms to the SSHC.

E36-012707

Replace the definitions of SUBGRADE with the following:

SUBGRADE. The soil or embankment upon which the pavement structure is constructed.

E22-010106

SECTION 102

BIDDING REQUIREMENTS AND CONDITIONS

Special Provisions

102-1.01 QUALIFICATION OF BIDDERS. After the last paragraph add the following paragraph:

An Electrical Administrator or a person whose Electrical Administrator's license is assigned to the Contractor must be employed by the Contractor under AS 08.40 at the time designated for bid opening.

ES08-063004
Standard Modification

102-1.04 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND WORK SITE.

Replace the second paragraph with the following:

The records of geotechnical investigations including boring logs, test results, geology data reports, soil reports, material site reports, and geotechnical reports included in a bid package or made accessible to bidders or Contractors, are for information purposes only. These records are not part of the Contract. These records indicate subsurface conditions only at specific locations and times, and only to the depths penetrated. They do not necessarily reflect variations in soil, rock, or groundwater conditions that may exist between or outside such locations. Actual conditions may differ from what is shown in the records. Material Sources referenced in these records may not contain materials of sufficient quantity or quality to meet project requirements. The accessibility of these records does not constitute approval, nor guarantee suitability of soils or sources, or the rights to use sources for this project, except as specifically provided in subsections 106-1.02.4.b Mandatory Sources and 106-1.02.4.c Designated Sources. The records shall not substitute for independent investigation, interpretation, or judgment of the bidder or Contractor. The Department is not responsible for any interpretation or conclusion drawn from its records by the bidder or Contractor.

Bidders and Contractors shall examine subsection 106-1.02 Material Sources for further information about material source development.

E23-010106

102-1.05 PREPARATION OF BID. Modify the second sentence in the third paragraph, after:

"If a bidder is a corporation, the bid must be signed by a corporate officer," add: or agent.

E18-063004

SECTION 103

AWARD AND EXECUTION OF CONTRACT

Standard Modifications

Delete Subsection 103-1.05 and replace with the following:

103-1.05 PERFORMANCE AND PAYMENT BONDS. The successful bidder shall furnish all required Performance and Payment Bonds on forms provided by the Department for the sums specified in the Contract. If no sum is specified, the successful bidder shall comply with AS 36.25.010. The Surety on each bond may be any corporation or partnership authorized to do business in the state as an insurer under AS 21.09 or two individual sureties approved by the Contracting Officer.

If individual sureties are used, two individual sureties must each provide the Department with security assets located in Alaska equal to the penal amount of each bond. Any costs incurred by the Contractor and the individual Surety are subsidiary and shall be borne by the Contractor or the individual Surety. In no event will the Department be liable for these Costs.

Individual sureties shall provide security by one, or a combination, of the following methods:

1. Escrow Account, with a federally insured financial institution, in the name of the Department. Acceptable securities include, but are not limited to, cash, treasury notes, bearer instruments having a specific value, or money market certificates.

2. Irrevocable letters of credit, with a financial institution approved by the Contracting Officer.

3. Cashier's or certified check, made payable to the State of Alaska issued by financial institutions approved by the Contracting Officer.

These bonds and security assets, as applicable, shall remain in effect for 12 months after the date of final payment or, if longer, until all obligations and liens under this Contract are satisfied, including, but not limited to, obligations under Subsection 107-1.19.

The Department may, in its discretion, notify the bonding company or Surety of any potential default or liability.

The Contractor shall substitute, within five working days, another bond or surety acceptable to the Department if an individual Surety or the Surety on any bond furnished in connection with the Contract:
1. Becomes insolvent or is declared bankrupt;
2. Loses its right to do business in any state affecting the work;
3. Ceases to meet Contract requirements;
4. Fails to furnish reports of financial condition upon request; or
5. Otherwise becomes unacceptable to the Department.

When approved by the Contracting Officer, the Contractor may replace:
1. An individual surety with a corporate surety; or
2. Posted collateral with substitute collateral.

Failure to maintain the specified bonds or to provide substitute bonds when required under this section may be grounds for withholding contract payments until substitute bonding is obtained, and may, in the Department's discretion, be grounds for declaring the Contractor in default.
E65-022209

SECTION 104

SCOPE OF WORK

Standard Modifications

104-1.01 INTENT OF CONTRACT. Add to the end of this subsection:

The Contractor is responsible for the means, methods, techniques, sequence, or procedures of construction, safety, quality control, and to perform or furnish the work in accordance with the Contract documents.

E58-072808

SECTION 105

CONTROL OF WORK

Standard Modifications

105-1.02 PLANS AND WORKING DRAWINGS. In the third paragraph delete:

"(24"x36")" and replace with: (22"x34")

105-1.03 CONFORMITY WITH PLANS AND SPECIFICATIONS. In the first sentence of the first paragraph after:

"Work performed and materials furnished shall conform to the Plans and Specifications" add: and approved Working Drawings,

In the first sentence of the second paragraph after: "All work or material not conforming to the Plans and Specifications" add: and approved Working Drawings,

E33-012707

Special Provisions

105-1.06 UTILITIES. Add the following:

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

ALASKA DIGLINE, INC.	
Locate Call Centers:	
Anchorage	278-3121
Statewide	(800) 478-3121
Call Centers will notify the following:	
Interior Telecom	

Call the following utilities and agencies directly:

City of Sand Point (water/sewer)
PO Box 249
Sand Point, AK 99661
Telephone: 383-2696
Fax: 907-383-2698
E-mail: sptcity@arctic.net

TDX Power (electric)
4300 B Street Suite 402
Anchorage, AK 99503
Telephone: 907-278-2312 or 762-8450
Fax: 907-278-2316 or 562-0387
E-mail: info@tdxpower.com

TelAlaska (telephone)
201 East 56th Ave.
Anchorage, Alaska 99518
Telephone: 907-563-2003

Contact the Central Region Maintenance & Operations Office at (907) 269-0760 to obtain the appropriate District Superintendent's phone number for this project.

Utilities Relocated by Others.

Utilities will be relocated by others concurrently with construction of this 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. For utilities being relocated, the Contractor will:

1. include utility work on the Construction Phasing Plan and Progress Schedule.

2. provide erosion, sediment, and pollution control including the stabilization of areas disturbed during utility work. Identify all utility companies performing ground disturbing activity in the Storm Water pollution Prevention Plan (SWPPP). Refer to Section 641 for further information.

3. clear and grub. Payment will be made under Section 201, Clearing and Grubbing.

4. provide traffic control and flagging. Payment will be made under Section 643, Traffic Maintenance.

5 provide Right-of-Way and/or Construction Surveying before utility relocation. Include:
- Control for utility relocation - either ROW or Centerline staking with Station information,
- Slope staking,
- Proposed utility facilities and appurtenances.

Payment will be made as follows:

a. Subsidiary to Pay Item 642(1) Construction Surveying, if the Contractor is required to provide the surveying as part of the Contract and/or,
b. Under Pay Item 642(3) Three Person Survey Party, if the Construction or Right of Way staking required by the utility is either in advance of the 2 week work plan, or not required by the Contract.

The utility shall give the Contractor, through the Engineer, 15 calendar days advance written notice for required staking.

6. provide bedding and backfill material, in accordance with Section 204, Structure Excavation for Conduits and Minor Structures, and the project typical sections.

Work done by utility owner(s) is as follows:

CR3-101110

Special Provision

CITY OF SAND POINT (WATER) owns and operates the water and sanitary sewer facilities through the project. The City's existing water line between station 173+50 Rt to 176+00 Lt. is in conflict with the proposed improvements and will require relocation. The City will relocate the line to eliminate the conflict with final grade. Allow the City ten (10) calendar days to complete the relocation.

INTERIOR TELEPHONE (ITC) owns and operates existing buried telephone facilities within the project Limits. ITC will supply locates based on the companies Tariff filed with the Regulatory Commission of Alaska (RCA). Due to Sand Point being an unmanned exchange coordination will be required to meet the required locate needs for the project. Once the facilities have been located you shall record the locations to avoid requiring duplicated locates.

The following ITC facilities will require relocation or adjustment as described below.

At station 104+65 an existing buried cable crossing will be in conflict with the proposed ditch cuts and will require relocation. The relocation will consist of a new cable placed between the existing pedestals on each side of the road crossing. Allow ITC three (3) calendar days to complete the relocation and abandon the existing crossing.

At station 133+25 Lt. the existing pedestal falls within the proposed fill slope and may require relocation or adjustment. Prior to relocation stake the proposed fill limits and determine with the utility representative and the Engineer whether replacement of the pedestal is required. If relocation is required it will consist of new cable placed through the existing conduit under the road and new pedestal installed capturing the existing cables. Allow ITC three (3) calendar days to complete the relocation and abandon the existing pedestal.

Between stations 134+30 Rt. and 136+45 Rt. the existing buried cable will be in conflict with the proposed ditch cut and will require relocation. The relocation will consist of a new cable placed between the existing pedestals at station 132+95 Rt. and 136+50 Rt. Allow ITC four (4) calendar days to complete the relocation and abandon the existing cable.

The existing road crossing at station 142+05 will be in conflict with the proposed ditch cut on the left side and will require relocation. The relocation will consist of a new cable and conduit between the existing pedestals on each side of the road crossing. TDX's existing crossing will also require relocation therefore joint trench will be utilized. Allow ITC and TDX three (3) calendar days to complete the relocations and abandon the existing crossings.

At stations 156+45 Lt. and 157+45 Lt. the existing pedestals are in conflict with the proposed fill slope and will require relocation. The relocation will consist of new cable being installed within the existing 3" PVC conduit under the road and new pedestal placed at station 157+40 Lt., new cable will extend from the new pedestal back to station 156+45 Lt. where a second new pedestal will be installed. Allow ITC four (4) calendar days to complete the relocation and abandon the existing pedestals and cable.

Between stations 173+50 Rt. and 177+70 Rt. the existing buried cable will be in conflict with the proposed road cut and will require relocation. The relocation will consist of new cable placed between a new pedestal at station 173+50 Rt. and a new pedestal to be placed outside the cut at station 177+70 Rt. From the new pedestal at station 177+70 Rt. a new cable crossing will be installed to the existing pedestal at station 178+20 Lt., replacing the existing crossing in conflict with the proposed ditch cuts. Allow ITC six (6) calendar days to complete the relocation and abandon the existing cable.

Between station 177+70 Rt. and 180+10 Rt. the existing buried cable is in conflict with the proposed ditch cut and will require relocation. The relocation will consist of a new cable placed between the new pedestal at station 177+70 Rt. and the existing pedestal at station 180+85 Rt. The existing road crossing at station 180+85 will also be in conflict with the proposed ditch cuts and will require relocation. The relocation will consist of a new cable between the existing pedestal on Rt. side to a new pedestal placed outside the ditch cut on the Lt. side. The relocation will utilize a joint trench with TDX. Allow ITC and TDX six (6) calendar days to complete the relocation and abandon the existing cable and crossing.

Between station 180+85 Rt. and 183+80 Rt. the existing buried cable is in conflict with the proposed ditch cut on the Rt. side and will require relocation. The relocation will consist of a new cable between the existing pedestal at station 180+85 Rt. and a new pedestal at station 183+80 Rt. Allow ITC four (4) calendar days to complete the relocation and abandon the existing pedestal and cable.

The existing road crossing at station 183+80 will be in conflict with the proposed ditch cuts and will require relocation. The relocation will consist of a new cable placed between the new pedestal on the Rt. side to a new pedestal placed on the Lt. side. The existing pedestal will be moved to station 185+00 Lt. to eliminate an additional conflict between the crossing and station 185+00 Lt. The cable installation along the Lt. side will utilize a joint trench with TDX. Allow ITC four (4) calendar days to complete the relocation and abandon the existing pedestal and cable.

At station 215+15 Lt. the existing pedestal falls within the proposed fill slope and may require adjustment. Prior to relocation stake the proposed fill limits to determine with the utility representative and the Engineer whether adjustment of the pedestal is required If the pedestal is found to be in conflict it will be adjusted in place to eliminate the conflict. Allow ITC two (2) calendar days to complete the adjustment.

At station 216+50 Lt. the existing pedestal falls within the proposed fill slope and will require adjustment. Prior to relocation stake the proposed fill limits to determine the extent of adjustment required. Allow ITC two (2) calendar days to complete the adjustment.

At station 218+80 Lt. the existing pedestal falls within the proposed fill slope and may require adjustment. Prior to relocation stake the proposed fill limits and determine with the utility representative and the Engineer whether adjustment of the pedestal is required. If the pedestal is found to be in conflict, it will be adjusted in place. Allow ITC two (2) calendar days to complete the relocation and abandon the existing pedestal.

Between station 220+20 Rt. and 223+10 Rt. the existing buried cable is in conflict with the proposed ditch cut and will require relocation or adjustment. The existing cable will be lowered in place to eliminate the conflict. Allow ITC two (2) calendar days to complete the lowering required.

SAND POINT GENERATING, LLC (SGE) owns and operates existing buried electrical facilities within the project Limits. The following facilities will require relocation or adjustment as described below.

At station 129+80 Lt. the existing electrical pedestal may fall within the proposed fill slope. Prior to relocation stake the proposed fill limits and determine with the utility representative and the Engineer whether adjustment of the pedestal is required. If the pedestal is in conflict it will be adjusted in place. Allow SGE two (2) calendar days to complete the required adjustment.

The existing road crossing at station 142+05 will be in conflict with the proposed ditch cut on the left side and will require relocation. The relocation will consist of new conductor from the Junction box on the left side to a new cabinet placed on the Rt. side. ITC's existing cable crossing will also require relocation therefore joint trench will be utilized. Allow SGE and ITC three (3) calendar days to complete the relocations and abandon the existing crossings.

At stations 156+45 Lt. the existing electrical pedestal is in conflict with the proposed fill slope and will require relocation. The relocation will consist of a section of cable being spliced into the secondary line and a new pedestal placed adjacent to the ROW. Allow SGE two (2) calendar days to complete the required adjustment.

The existing road crossing at station 177+70, will be in conflict with the proposed ditch cuts and will require relocation. The existing crossing at 180+85 is also in conflict as is the existing transformer on the Lt. side. The replacement will consist of a new Junction box installed into the existing circuit at station 177+65 Rt., a new circuit from the new Junction box on the right side to the existing transformer at station 180+85 Rt.. A new crossing will be installed from the transformer at station 180+85 Rt. to a new transformer to be placed on the Lt. side, services will be re-run to the new transformer. The relocation will utilize a joint trench with ITC along the Rt. side and the crossing at station 180+85. Allow SGE and ITC six (6) calendar days to complete the relocation

From station 180+85 Lt. to 185+00 Lt the existing circuit is in conflict with proposed cuts and will require relocation. The relocation will consist of a new circuit from the new transformer at 180+85 Lt. to station 185+00 where a new transformer will be installed. Allow SGE four (4) calendar days to complete the relocation.

Between station 207+20 Rt. to 207+50 Rt. the existing buried circuit will be impacted by the ditch cut, and will require relocation. The relocation will consist of a new cabinet installed at 207+20 Rt. with a new circuit installed to the existing transformer at station 208+55 Rt. Allow SGE four (4) calendar days to complete the relocation.

The existing transformers at station 216+50 Lt. and 218+95 Lt. will be in conflict with the proposed slopes and will require relocation or adjustment. The relocation will consist of a new road crossing installed from the existing junction box at station 216+50 Rt. to a new transformer at station 216+50 Lt. The existing circuit along the Lt. side will be exposed and connected into the new transformer. The transformer at station 218+95 Lt. will be adjusted by exposing the cable and shifting the transformer out to the ROW line. Allow SGE four (4) calendar days to complete the relocation.

Standard Modification

105-1.13 MAINTENANCE DURING CONSTRUCTION. Add the following at the end of this subsection:

Costs of maintenance work during construction and before the project is accepted as substantially complete shall be subsidiary to the prices bid on the various Contract items, and the Contractor will not be paid an additional amount for such work.

If in the Engineer's opinion, the Contractor at any time fails to provide adequate maintenance, the Engineer will notify the Contractor of such noncompliance. The notification will specify the areas or structures for which there is inadequate maintenance, the corrective maintenance required, and the time allowed to complete corrective maintenance. If the Contractor fails to take corrective action within the specified time, the Engineer may:

1. Suspend the work until corrective maintenance is completed;
2. Assess a traffic price adjustment against the Contract Amount when an adjustment rate is specified in the Contract; and
3. Employ others for corrective maintenance and deduct the cost from the Contract amount.

E33-012707

105-1.15 PROJECT COMPLETION. In the second paragraph, second sentence, delete:

“Subsection 621-3.04” and replace with: Subsection 618-3.06 and 621-3.04.

In the third paragraph, first sentence, delete:

“Subsection 621-3.04” and replace with: Subsection 618-3.06 and 621-3.04.

E59-072808

105-1.16 FINAL ACCEPTANCE AND RECORD RETENTION. Modify the first paragraph, Item 4. after:

“DOLWD” add: and State Department of Revenue.

E19-063004

Special Provisions

105-1.17 CLAIMS FOR ADJUSTMENT AND DISPUTES. Add the following:

Appeals to the superior court under AS 36.30.685 must be filed in the Third Judicial District.

CR93-032101

SECTION 106

CONTROL OF MATERIAL

Standard Modifications

106-1.01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. In fifth paragraph, in two places remove the text. "Approved Products List" and replace with: *Qualified Products List*

E36-012707

Special Provision

Add the following:

Buy America Provision. Comply with the requirements of 23 CFR 635.410, Buy America Requirements, and submit a completed Material Origin Certificate, Form 25D-60, before award of the Contract.

Steel and iron products, which are incorporated into the work, shall be manufactured in the United States except that minor amounts of steel and iron products of foreign manufacture may be used, provided the aggregate cost of such does not exceed one tenth of one percent (0.001) of the total contract amount, or $2500, whichever is greater. For the purposes of this paragraph, the cost is the value of the products as they are delivered to the Project including freight.

"Manufactured in the United States" means that all manufacturing processes starting with the initial mixing and melting through the final shaping, welding, and coating process must be undertaken in the United States. The definition of "manufacturing process" is smelting or any subsequent process that alters the material's physical form, shape or chemical composition. These processes include rolling, extruding, machining, bending, grinding, drilling, etc. The application of coatings, such as epoxy coating, galvanizing, painting or any other coating that protects or enhances the value of steel or iron materials shall also be considered a manufacturing process subject to the "Buy America Requirements."

Buy America does not apply to raw materials (iron ore), scrap pig iron, and processed, pelletized and reduced iron ore. It also does not apply to temporary steel items (e.g., temporary sheet piling, temporary bridges, steel scaffolding, and falsework). Further, it does not apply to materials that remain in place at the Contractor's convenience (e.g., sheet pilings, and forms).

The North American Free Trade Agreement (NAFTA) does not apply to the Buy America requirement. There is a specific exemption within NAFTA (article 1001) for grant programs such as the Federal-aid highway program.

When steel and iron products manufactured in the United States are shipped to a foreign country where non-steel or iron products are installed on or in them (e.g., electronic components in a steel cabinet), the steel and iron is considered to meet the requirements of this subsection.

Take whatever steps are necessary to ensure that manufacturing processes for each covered product comply with this provision. Non-conforming products shall be replaced at no expense to the State. Failure to comply may also subject the Contractor to default and/or debarment. False statements may result in criminal penalties prescribed under Title 18 US Code Section 1001 and 1020.

CR13-020705

Standard Modification

106-1.02 MATERIAL SOURCES.

1. a. General. Within Item a. delete text and replace with: Utilize Useable Excavation according to subsection 104-1.04 before using material sources listed in subsection 106-1.02.4. When there

is insufficient, Useable Excavation furnish additional required materials from sources of the Contractor's choice, except that the Contractor shall use a mandatory source when identified in the Contract.

4. Type of Sources. Replace the first paragraph with the following:

The Contractor shall utilize Useable Excavation according to subsection 104-1.04 before using material sources listed in this subsection. When there is insufficient Useable Excavation, the Contractor shall furnish additional required materials from sources of the Contractor's choice, except that the Contractor shall use a mandatory source when identified in the Contract.

When there is insufficient Useable Excavation, the Contractor shall supply additional required material from the following sources:

d. Available Sources. Replace the second paragraph with the following:

When the Department furnishes copies of existing boring logs, test results, or other data in its possession concerning Available Sources, the Contractor is responsible for determining the accuracy and completeness of this data, for assumptions the Contractor makes based on this data, and for exploring Available Sources to the Contractor's satisfaction.

The stockpile of material in the Old Quarry (See reference map, appendix G) may be used on this project beneath the D-1 Base Course, assuming it meets the requirements shown on the plans. This material was originally obtained from the Knoll Quarry and testing results can be found the project Geotech Report. Western Marine currently occupies the Knoll Quarry material source.

Additional material from Knoll Quarry and from the Dome Quarry may be used on this project provided it meets the requirements shown on the plans.

Refer to the Geotechnical Report School Loop Road, October 2008, for testing results of the above material sources.

e. Excluded Material Sources. Replace the paragraph with the following:

Some material sources may not be considered acceptable regardless of location or ownership. The bid documents may identify some material sources excluded from use. The Department reserves the right to exclude a material source or any portion of a material source, at any time after Contract Award that is determined by material testing to be unsuitable for use on the Project.

E24-010106

Add new Subsection 106-1.08:

106-1.08 SUBMITTAL PROCEDURE. The Contractor shall complete a Submittal Register, and shall submit to the Engineer on forms provided by the Department. The intent of the Submittal Register is to provide a blueprint for the smooth flow of specified Project document. The Contractor shall fill it out sequentially by bid Item and allow at least three spaces between bid items. The Submittal Register shall list working drawings, schedules of work, and other items required to be submitted to the Department by the Contractor including but not limited to Progress Schedule, anticipated dates of material procurement, Construction Phasing Plan, Utility Progress Schedule, Blasting Plan, Mining Plan, annual EEO reports, DBE payment documentation, and subcontracts.

The Contractor shall submit materials (product) information to the Engineer for review, as required by the Materials Certification List and the Contract.

The number of copies required for submittals may be included in the specifications for individual bid items. If the number of copies of a submittal is not otherwise specified, three copies shall be required.

On each sheet submitted to the Department, including working drawings, catalog cuts, manufacturer's certifications, etc., space shall be provided for Contractor and Department review stamps.

Each copy of each submittal shall include a Submittal Summary sheet. The Contractor may use forms provided by the Department of a similar form of the Contractor's choice as approved by the Department. The Contractor shall sign submittals and submit them to the Engineer. The Department will review submittals within 30 days after they are received. The Department will return submittals to the Contractor as either: approved, conditionally approved with the conditions listed, or rejected with the reasons listed. The Contractor may resubmit a rejected submittal to the Engineer with more information or corrections. The Department will review resubmittals within 30 days after they are received.

The Contractor shall not order material or use working drawings that have not been approved by the Department. The Contractor shall be responsible for timely submittals. Failure by the Department to review submittals within the time given may be the basis for a request for extension of Contract time but not for additional compensation.

Payment for a specific Contract Item will not be made until the Department has received the Submittal Register for all items and approved all required submittals for that specific Contract Item.

When material invoices, freight bills, and mill certificates are submitted, they shall provide sufficient information for the Engineer to identify the date, company and location of invoice (bill, certificate); Project name and number where material will be incorporated, manufacturer, product number, quantity and cost.

Add the following Subsection 106-1.09:

106-1.09 RESERVED.

E34-012707

SECTION 107

LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Special Provisions

107-1.02 PERMITS, LICENSES, AND TAXES. Add the following:

Obtain a written statement from the State Historic Preservation Officer stating that material disposal, extraction, stockpiling, or staging, on or off project site, is not expected to impact cultural resources. The State Historic Preservation Officer is with the Department of Natural Resources in Anchorage, and may be contacted at (907) 269-8715. If cultural resources are discovered during construction activities, stop work at that site and notify the Engineer.

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

Provide the Engineer a copy of permits or clearances received before using sites outside the project limits. Additionally, provide the Engineer a written statement that permits or clearances have been obtained. Also, provide a written statement to the Engineer listing agencies or offices contacted that responded that no additional action is required.

Add the following:

The Department has received the following permits on the Contractor's behalf:

1. The project falls within the Corps of Engineers Nationwide Permit #14.
   - Provide information to comply with the US Environmental Protection Agency National Pollutant Discharge Elimination System (NPDES) General Permit for Alaska to discharge storm water from the construction site. Refer to Section 641, Erosion, Sediment, and Pollution Control for requirements for this permit.

2. The project is located within the Aleutians East Coastal Zone. A Coastal Project Questionnaire and Consistency Evaluation has been completed and forwarded to the Alaska Department of Natural Resources (ADNR), Division of Coastal and Ocean Management (DCOM). The DCOM has found that the project as proposed is consistent with the Alaska Coastal Management Program and does not require additional State review for consistency at this time.

3. Consultation with the ADNR, State Historic Preservation Office (SHPO) has been completed. As a result of identification and evaluation of historic properties in the Area of Potential Effect (APE) for the Sand Point School Loop Road rehabilitation project, the City of Sand Point, and FHWA recommended a finding of **no historic properties affected**.

Additional permit information can be found in Appendix A.

Provide information to comply with the Alaska Department of Environmental Conservation (ADEC) Alaska Pollutant Discharge Elimination System (APDES) General Permit for Alaska to discharge storm water from the construction site. Refer to Section 641, Erosion, Sediment, and Pollution Control for requirements for this permit.
CR7-020810

Standard Modifications

107-1.05 FEDERAL AID PROVISIONS. Add the following after paragraph two:

Form 25D-55H Required Contract Provisions for Federal-Aid (FHWA) Construction Contracts. The FHWA no longer requires the Contractor to fill out FHWA Form 47, Statement of Materials and Labor Used By Contractors on Highway Construction Involving Federal Funds. Section VI Records of Materials, Supplies and Labor of Form 25D-55H is no longer applicable to highway construction contracts.

Title VI Requirements. During the performance of this Contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

(1) **Compliance with Regulations:** The Contractor shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") title 49, Code of Federal Regulations, Part 21, and the Federal Highway Administration (hereinafter "FHWA") Title 23, Code of Federal Regulations, Part 200 as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this Contract.

(2) **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin, sex, age, and disability/handicap in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor shall not participate either directly or indirectly in the discrimination prohibited by 49 CFR, Section 21.5 of the regulations, including employment practices when the Contract covers a program set forth in Appendix B of the Regulations.

(3) **Solicitation for Subcontractors, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Contractor of the Contractor's obligations under this Contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin, sex, age, and disability/handicap.

(4) **Information and Reports:** The Contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the DOT&PF or the FHWA to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish this information the Contractor shall so certify to the DOT&PF, or the FHWA as appropriate, and shall set forth what efforts it has made to obtain the information.

(5) **Sanctions for Noncompliance:** In the event of the Contractor's noncompliance with the nondiscrimination provisions of this Contract, the DOT&PF shall impose such contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:

   (a) withholding of payments to the Contractor under the Contract until the Contractor complies, and/or
   (b) cancellation, termination, or suspension of the Contract, in whole or in part.

(6) **Incorporation of Provisions:** The Contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

   The Contractor shall take such action with respect to any subcontract or procurement as the DOT&PF or the FHWA may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Contractor may request the DOT&PF to enter into such litigation to protect the interests of the DOT&PF, and, in addition, the Contractor may request the United states to enter into such litigation to protect the interests of the United States.

E67-101509
Special Provision

107-1.07 ARCHAEOLOGICAL OR HISTORICAL DISCOVERIES. Change the first sentence to the following:

When operations 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.

CR7-020810

Standard Modification

107-1.11 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE.

Add the following paragraphs:

7. Restoring Areas. Areas used by the Contractor, including haul routes, shall be restored to their original condition after the Contractor's operations are completed. The original condition of an area shall be determined as follows:

   Before beginning operations, the Engineer and the Contractor shall inspect each area and haul route that will be used by the Contractor and take photographs to document their condition. After construction operations are completed, the condition of each area and haul route will be compared to the earlier photographs. Before demobilization, the Contractor shall repair damages attributed to its operations. The Contractor agrees that costs associated with repairs shall be subsidiary to other items of work and will not be paid for directly.

8. Material Disposal Sites. Offsite disposal areas may be at locations of the Contractor's choice, provided the Contractor obtains from the owner of such land written permission for such dumping and a waiver of all claims against the State for any damage to such land which may result there from, together with permits required by law for such dumping. A copy of permission, waiver of claims, and permits shall be filed with the Engineer before beginning work on private property. The Contractor's selected disposal sites shall also be inspected and approved by the Engineer before use of the sites.

E35-012707

Special Provisions

Add the following:

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.

CR7-020810

Add the following:

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

Maintain a Primary Zone of a minimum 330 ft as an undisturbed habitat buffer around nesting bald eagles. If topography or vegetation does not provide an adequate screen or separation, extend this

buffer to 0.25 miles, or a sufficient distance to screen the nest from human activities. The actual distance will depend on site conditions and the individual eagle's tolerance for human activity. Within the Secondary Zone, between 330 ft and 660 ft from eagles nest tree no obtrusive facilities or major habitat modifications shall occur. If nesting occurs in sparse stands of trees, treeless areas, or where activities would occur within line-of-site of the nest, this buffer shall extend up to 0.5 miles. No blasting, logging and other noisy, disturbing activities should occur during the nesting period (March 1 – August 31) within the primary or secondary zones.

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

If nest trees are discovered within the vicinity of the project site, the U.S. Fish and Wildlife Service must be notified immediately by calling (907) 786-3503 or (907) 271 – 2772, before starting construction activities, for further site evaluation. This is an advisory. Do what is required to keep from disturbing a nesting eagle.

CR1071-081210

Add the following subsection:

107-1.21 FEDERAL AFFIRMATIVE ACTION. The Federal Equal Employment Opportunity Disadvantaged Business Enterprise and On-the-Job Training affirmative action program requirements that are applicable to this Contract are contained in the project Special Provisions and Contract Forms, and may include:

Disadvantaged Business Enterprise (DBE) Program	Section 120
Training Program	Section 645
Federal EEO Bid Conditions	Form 25A 301
EEO-1 Certification	Form 25A 304
ADOT&PF Training Program Request	Form 25A 310
Training Utilization Report	Form 25A 311
Contact Report	Form 25A 321A
DBE Subcontractable Items	Form 25A 324
DBE Utilization Report	Form 25A 325C
Summary of Good Faith Effort Documentation	Form 25A 332A
Required Contract Provisions, Federal-Aid Contracts	Form 25D 55

In addition to the sanctions provided in the above references, non-compliance with these requirements is grounds for withholding of progress payments.

S80-012202

SECTION 108

PROSECUTION AND PROGRESS

Special Provision

108-1.01 SUBLETTING OF CONTRACT. Delete paragraph four and replace with the following:

Submit the Contractor Self Certification for Subcontractors and Lower Tier Subcontractors, Form 25D-042, before the Contractor or a subcontractor sublets any portion of the Contract. The certification will be accepted by the Department in lieu of written approval of subcontracts. The Department maintains the authority to review subcontracts, require prior written approval of subcontracts, and to deny permission to sublet work. The Department may penalize the Contractor for false statements or omissions made in connection with Form 25D-042.

1. The Contractor shall ensure the following for each subcontract (agreement):

    a. The Department is furnished with one completed Contractor Self certification, Form 25D-042, and two copies of the subcontract signed by both parties and including item descriptions and prices of subcontracted work before the subcontracted work begins;

    b. The subcontractors have submitted a Bidder Registration; Form 25D-6;

    c. The required prompt payment provisions of AS 36.90.210, as well as other items listed in Form 25D-042, are included in the subcontracts;

    d. The subcontractors pay current prevailing rate of wages according to subsection 107-1.04 and file certified payrolls with the Engineer and DOLWD for work performed on the project; and

    e. Upon receipt of a request for more information regarding subcontracts, the requested information is provided to the Department within 5 calendar days.

CR57-010208

108-1.03 PROSECUTION AND PROGRESS. Delete the last sentence of the first paragraph and substitute the following:

Submit the following at the Preconstruction Conference:

Delete the last sentence of the first paragraph in No. 1. A progress schedule, and substitute the following:

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

CR261-121302

SECTION 109

MEASUREMENT AND PAYMENT

Special Provisions

109-1.02 MEASUREMENT OF QUANTITIES. Under subtitle Electronic Computerized Weighing System Item (1) add the following to the end of the first sentence:

", CD, or a USB device."

109-1.05 COMPENSATION FOR EXTRA WORK ON TIME AND MATERIALS BASIS. Under Item 3. Equipment, Item a. add the following to the second paragraph:

The rental rate area adjustment factors for this project shall be as specified on the adjustment maps for the Alaska – South Region.

CR14-043105

Standard Modification

109-1.08 FINAL PAYMENT. Add the following sentence to the first paragraph:

The Department will not process the final estimate until the Contractor completes Items 1 through 4 in the first paragraph of Subsection 105-1.16.

E11-063004

Special Provisions

Add the following Section:

SECTION 120

DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM

120-1.01 DESCRIPTION. The work consists of providing Disadvantaged Business Enterprises (DBEs), as defined in Title 49, CFR (Code of Federal Regulations), Part 26, with the opportunity to participate on an equitable basis with other contractors in the performance of contracts financed in whole, or in part, with federal funds. The Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. Carry out applicable requirements of 49 CFR Part 26 in the award and administration of USDOT assisted contracts.

120-1.02 INTERPRETATION. It is the intent of this section to implement the requirements of 49 CFR, Part 26, and the Department's federally approved DBE Program.

120-1.03 ESSENTIAL CONTRACT PROVISION. Failure to comply with the provisions of this section will be considered a material breach of contract, which may result in the termination of this contract or such other remedy as the Department deems appropriate. The Department also considers failure to comply with this section to be so serious as to justify debarment action as provided in AS 36.30.640(4).

120-1.04 DEFINITIONS AND TERMS. The following definitions will apply.

1. Broker. A DBE certified by the Department that arranges for the delivery or provision of creditable materials, supplies, equipment, transportation/hauling, insurance, bonding, etc., within its certified category, that is necessary for the completion of the project. A broker of materials certified in a supply category must be responsible for scheduling the delivery of materials and fully responsible for ensuring that the materials meet specifications before credit will be given.

2. Commercially Useful Function (CUF). The execution of the work of the Contract by a DBE carrying out its responsibilities by actually performing, managing, and supervising the work involved using its own employees and equipment. The DBE shall be responsible, with respect to materials and supplies used on the Contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, an evaluation of the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the Contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work. Other relevant factors will be considered. The determination of CUF is made by the Engineer after evaluating the way in which the work was performed during the execution of the Contract.

3. Disadvantaged Business Enterprise (DBE). An enterprise which is a for-profit small business concern

    a. that is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals;

    b. whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it; and

    c. has been certified by the Department in accordance with 49 CFR, Part 26.

4. DBE Key Employee. Permanent employees identified by the DBE owner in its certification file in the Department Civil Rights Office.

5. DBE Utilization Goal. The percent of work to be performed by certified DBEs that is established by the Department and specified in the Contract.

6. Good Faith Efforts. Efforts by the bidder or Contractor to achieve a DBE goal or other requirement of 49 CFR Part 26, by their scope, intensity, and appropriateness to the objective, that can reasonably be expected to fulfill the program requirement.

7. Manufacturer. A DBE certified by the Department in a supply category that changes the shape, form, or composition of original material in some way and then provides that altered material to the project and to the general public or the construction industry at large on a regular basis.

8. Notification. For purposes of soliciting DBE participation on a project and to count toward a Contractor's Good Faith Efforts, notification shall be by letter or fax transmission, with a return receipt requested or successful transmission report. Telephonic contact with a DBE may be allowed, however it shall be based on the ability of Civil Rights staff to independently verify this contact.

9. Regular Dealer. A DBE certified by the Department in a supply category that

    a. maintains an in-house inventory on a regular basis of the particular product provided to this project; and

    b. keeps an inventory in an amount appropriate for the type of work using that product; and

    c. offers that inventory for sale to the general public or construction industry at large (private and public sectors), not just supplied as needed on a project by project basis during the construction season, except where the product requires special or heavy equipment for delivery and the DBE possesses and operates this equipment on a regular basis throughout the construction season in order to deliver the product to the general public or construction industry at large. If the distribution equipment is rented or leased, it must be on a repetitive, seasonal basis; and may additionally

    d. fabricate (assembles large components) for use on a construction project, consistent with standard industry practice, for delivery to the project.

120-2.01 UTILIZATION GOAL. The DBE Utilization Goal for this contract is shown on Form 25A 324 (DBE Subcontractable Items) as a percentage of the total basic bid amount. A DBE may be considered creditable towards meeting the DBE Utilization Goal at time of Contract award, if the DBE is certified by the Department in a category covering the CUF to be performed at the time of listing on Form 25A 325C (DBE Utilization Report).

A bidder shall demonstrate the ability to meet the DBE Utilization Goal or perform and document all of the required Good Faith Efforts under Subsection 120-3.02 in order to be eligible for award of this Contract.

If the quantity of work of a bid item involving a DBE firm is reduced by the Department, the DBE Utilization Goal on Form 25A 325C will be reduced proportionately.

120-3.01 DETERMINATION OF COMPLIANCE.

1. Phase I - Bid. Each bidder must register with the Civil Rights Office annually in accordance with §§26.11 & 26.53(b)(2)(iv) of 49 CFR, Part 26. No contract may be awarded to a bidder that is not registered.

2. Phase II - Award. The apparent low bidder will provide the following within 15 days of receipt of notice of intent to award:

    a. **Written DBE Commitment.** Written commitments from DBEs to be used on the project. The written commitment shall contain the following information:

(1) A description of the work that each DBE will perform;
(2) The dollar amount of participation by the DBE firm;
(3) Written documentation of the bidder/offeror's commitment to use a DBE subcontractor whose participation it submits to meet a contract goal; and
(4) Written confirmation from the DBE that it is participating in the contract as provided in the prime Contractor's commitment.

b. **DBE Utilization Report.** Form 25A 325C listing the certified DBEs to be used to meet the DBE Utilization Goal.

c. **Good Faith Effort Documentation.** Summary of Good Faith Effort Documentation (Form 25A 332A and attachments) and DBE Contact Reports (Form 25A 321A) if the Contractor submits less DBE utilization on Form 25A 325C than is required to meet the DBE Utilization Goal. If accepted by the Department, this lower DBE utilization becomes the new DBE Utilization Goal. If the bidder cannot demonstrate the ability to meet the DBE Utilization Goal, and cannot document the minimum required Good Faith Efforts (as outlined in Subsection 120-3.02 below), the Contracting Officer will determine the bidder to be not responsible.

3. Phase III - Construction.

a. **Designation of DBE/EEO Officer.** At the preconstruction conference, submit, in writing, the designation of a DBE/EEO officer.

b. **DBE Creditable Work.** The CUF work items and creditable dollar amounts shown for a DBE on the DBE Utilization Report (Form 25A 325C) shall be included in any subcontract, purchase order or service agreement with that DBE.

c. **DBE Replacement.** If a DBE replacement is approved by the Engineer, replace the DBE with another DBE for the same work in order to fulfill its commitment under the DBE Utilization Goal. In the event the Contractor cannot obtain replacement DBE participation, the Engineer may adjust the DBE Utilization Goal if, in the opinion of the Engineer and the Civil Rights Office, both of the following criteria have been met:
(1) The Contractor has not committed any discriminatory practice in its exercise of good business judgment to replace a DBE.
(2) If the Contractor is unable to find replacement DBE participation and has adequately performed and documented the Good Faith Effort expended in accordance with Subsection 120-3.02.

d. **DBE Utilization Goal.** The DBE Utilization Goal will be adjusted to reflect only that amount of the DBE's work that cannot be replaced.

120-3.02 GOOD FAITH EFFORT.

1. **Good Faith Effort Criteria.** The Contracting Officer will use the following criteria to judge if the bidder, who has not met the DBE Utilization Goal, has demonstrated sufficient Good Faith Effort to be eligible for award of the contract.

Failure by the bidder to perform and document the following actions constitutes insufficient Good Faith Effort.

a. Consideration of all subcontractable items. The bidder shall, at a minimum, seek DBE participation for each of the subcontractable items upon which the DBE goal was established as identified by the Department (on Form 25A 324) prior to bid opening. It is the bidder's responsibility to make the work listed on the subcontractable items list available to DBE firms, to facilitate DBE participation.

b. If the bidder cannot achieve the DBE Utilization Goal using the list of available DBE firms based on the subcontractable items list, then the bidder may consider other items that could be subcontracted to DBEs.

c. Notification to all active DBEs listed for a given region in the Department's most current DBE Directory at least 7 calendar days prior to bid opening. The bidder must give the DBEs no less than 5 days to respond. The bidder may reject DBE quotes received after the deadline. Such a deadline for bid submission by DBEs will be consistently applied. DBEs certified to perform work items identified on Form 25A 324 must be contacted to solicit their interest in participating in the execution of work with the Contractor. Each contact with a DBE firm will be logged on a Contact Report (Form 25A 321A).

d. Non-competitive DBE quotes may be rejected by the bidder. Allegations of non-competitive DBE quotes must be documented and verifiable. A DBE quote that is more than 10 percent higher than the accepted non-DBE quote will be deemed non-competitive, provided the DBE and non-DBE subcontractor quotes are for the exact same work or service. Bidders must have a non-DBE subcontractor quote for comparison purposes. Such evidence shall be provided in support of the bidder’s allegation. Where the bidder rejects a DBE quote as being non-competitive under this condition, the work must be performed by the non-DBE subcontractor and payments received by the non-DBE subcontractor during the execution of the Contract shall be consistent with the non-DBE's accepted quote. This does not preclude increases as a result of Change documents issued by the Department.

e. Provision of assistance to DBEs who need help in obtaining information about bonding or insurance required by the bidder.

f. Provision of assistance to DBEs who need help in obtaining information about securing equipment, supplies, materials, or related assistance or services.

g. Providing prospective DBEs with adequate information about the requirements of the Contract regarding the specific item of work or service sought from the DBE.

h. Follow-up of initial notifications by contacting DBEs to determine whether or not they will be bidding. Failure to submit a bid by the project bid opening or deadline by the bidder is de facto evidence of the DBE’s lack of interest in bidding. Documentation of follow-up contacts shall be logged on the Contact Report (Form 25A 321A).

i. Items c through h will be utilized to evaluate any request from the Contractor for a reduction in the DBE Utilization Goal due to the default or decertification of a DBE and the Contractor's subsequent inability to obtain additional DBE participation.

2. **Administrative Reconsideration.** Under the provisions of 49 CFR. Part 26.53(d), if it is determined that the apparent successful bidder has failed to meet the requirements of this subsection, the bidder must indicate whether they would like an opportunity for administrative reconsideration. The bidder must exercise such an opportunity within 3 calendar days of notification it has failed to meet the requirements of this subsection. As part of this reconsideration, the bidder must provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so.

   a. The decision on reconsideration will be made by the DBE Liaison Officer.

   b. The bidder will have the opportunity to meet in person with the DBE Liaison Officer to discuss the issue of whether it met the goal or made adequate good faith efforts to do so. If a meeting is desired, the bidder must be ready, willing and able to meet with the DBE Liaison Officer within 4 days of notification that it has failed to meet the requirements of this subsection.

c. The DBE Liaison Officer will render a written decision on reconsideration and provide notification to the bidder. The written decision will explain the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so.

d. The result of the reconsideration process is not administratively appeal able to US DOT.

120-3.03 COMMERCIALLY USEFUL FUNCTION (CUF).

1. **Creditable Work.** Measurement of attainment of the DBE Utilization Goal will be based upon the actual amount of money received by the DBEs for creditable CUF work on this project as determined by the Engineer in accordance with this Section. CUF is limited to that of a:

   a. regular dealer;

   b. manufacturer;

   c. broker;

   d. subcontractor;

   e. joint-venture; or

   f. prime contractor.

2. **Determination of Commercially Useful Function.** In order for the CUF work of the DBE to be credited toward the goal, the Contractor will ensure the following requirements are met:

   a. The CUF performed by a DBE certified in a supply category will be evaluated by the Engineer to determine whether the DBE performed as either a broker, regular dealer, or manufacturer of the product provided to this project.

   b. A DBE trucking firm certified and performing work in a transportation/hauling category is restricted to credit for work performed with its own trucks and personnel certified with the CRO prior to submitting a bid to a contractor for DBE trucking. The DBE trucking firm must demonstrate that it owns all trucks (proof of title and/or registration) to be credited for work and that all operators are employed by the DBE trucking firm. A DBE trucking firm that does not certify its trucks and personnel that it employs on a job will be considered a broker of trucking services and limited to credit for a broker. (This does not affect the CUF of that same firm, when performance includes the hauling of materials for that work.)

   c. The DBE is certified in the appropriate category at the time of:
      1) the Engineer's approval of the DBE subcontract, consistent with the written DBE commitment; and
      2) the issuance of a purchase order or service agreement by the Contractor to a DBE performing as either a manufacturer, regular dealer, or broker (with a copy to the Engineer).

   d. The Contractor will receive credit for the CUF performed by DBEs as provided in this Section. Contractors are encouraged to contact the Engineer in advance of the execution of the DBE's work or provision of goods or services regarding CUF and potential DBE credit.

   e. The DBE may perform work in categories for which it is not certified, but only work performed in the DBE's certified category meeting the CUF criteria may be credited toward the DBE Utilization Goal.

   f. The work of the DBE firm must meet the following criteria when determining when CUF is being performed by the DBE:

      (1) The work performed will be necessary and useful work required for the execution of the Contract.

(2) The scope of work will be distinct and identifiable with specific contract items of work, bonding, or insurance requirements.

(3) The work will be performed, controlled, managed, and supervised by employees normally employed by and under the control of the certified DBE. The work will be performed with the DBE's own equipment. Either the DBE owner or DBE key employee will be at the work site and responsible for the work.

(4) The manner in which the work is sublet or performed will conform to standard, statewide industry practice within Alaska, as determined by the Department. The work or provision of goods or services will have a market outside of the DBE program (must also be performed by non-DBE firms within the Alaskan construction industry). Otherwise, the work or service will be deemed an unnecessary step in the contracting or purchasing process and no DBE credit will be allowed.

There will be no DBE credit for lower-tier non-DBE subcontract work.

(5) The cost of the goods and services will be reasonable and competitive with the cost of the goods and services outside the DBE program within Alaska. Materials or supplies needed as a regular course of the Contractor's operations such as fuel, maintenance, office facilities, portable bathrooms, etc. are not creditable.

The cost of materials actually incorporated into the project by a DBE subcontractor is creditable toward the DBE goal only if the DBE is responsible for ordering and scheduling the delivery of creditable materials and fully responsible for ensuring that the materials meet specifications.

(6) Subcontract work, with the exception of truck hauling, will be sublet by the same unit of measure as is contained in the Bid Schedule unless prior written approval of the Engineer is obtained.

(7) The DBE will control all business administration, accounting, billing, and payment transactions. The prime contractor will not perform the business, accounting, billing, and similar functions of the DBE. The Engineer may, in accordance with AS 36.30.420(b), inspect the offices of the DBE and audit the records of the DBE to assure compliance.

g. On a monthly basis, report on Form 25A 336 (Monthly Summary of DBE Participation) to the Department Civil Rights Office the payments made (canceled checks or bank statements that identify payor, payee, and amount of transfer) for the qualifying work, goods and services provided by DBEs.

3. **Decertification of a DBE.** Should a DBE performing a CUF become decertified during the term of the subcontract, purchase order, or service agreement for reasons beyond the control of and without the fault or negligence of the Contractor, the work remaining under the subcontract, purchase order, or service agreement may be credited toward the DBE Utilization Goal.
Should the DBE be decertified between the time of Contract award and the time of the Engineer's subcontract approval or issuance of a purchase order or service agreement, the work of the decertified firm will not be credited toward the DBE Utilization Goal. The Contractor must still meet the DBE Utilization Goal by either:

a. withdrawing the subcontract, purchase order or service agreement from the decertified DBE and expending Good Faith Effort (Subsection 120-3.02, items c through h) to replace it with one from a currently certified DBE for that same work or service through subcontractor substitution (Subsection 103-1.01); or

b. continuing with the subcontract, purchase order or service agreement with the decertified firm and expending Good Faith Effort to find other work not already subcontracted out to DBEs in an amount to meet the DBE Utilization Goal through either:
   (1) increasing the participation of other DBEs on the project;

   (1) documenting Good Faith Efforts (Subsection 120-3.02, items c through h); or

   (3) by a combination of the above.

4. **DBE Rebuttal of a Finding of No CUF.** Consistent with the provisions of 49 CFR, Part 26.55(c)(4)&(5), before the Engineer makes a final finding that no CUF has been performed by a DBE firm the Engineer will coordinate notification of the presumptive finding through the Civil Rights Office to the Contractor, who will notify the DBE firm.

   The Engineer, in cooperation with the Civil Rights Office, may determine that the firm is performing a CUF if the rebuttal information convincingly demonstrates the type of work involved and normal industry practices establishes a CUF was performed by the DBE. Under no circumstances shall the Contractor take any action against the DBE firm until the Engineer has made a final determination. The Engineer's decisions on CUF matters are not administratively appeal able to US DOT.

120-3.04 DEFAULT OF DBE. In the event that a DBE firm under contract or to whom a purchase order or similar agreement has been issued defaults on their work for whatever reason, immediately notify the Engineer of the default and the circumstances surrounding the default.

Take immediate steps, without any order or direction from the Engineer, to retain the services of other DBEs to perform the defaulted work. In the event that the Contractor cannot obtain replacement DBE participation, the Engineer may adjust the DBE Utilization Goal if, in the opinion of the Engineer, the following criteria have been met:

1. The Contractor was not at fault or negligent in the default and that the circumstances surrounding the default were beyond the control of the Contractor; and
2. The Contractor is unable to find replacement DBE participation at the same level of DBE commitment and has adequately performed and documented the Good Faith Effort expended in accordance with items c through h of subsection 120-3.02 for the defaulted work; or
3. It is too late in the project to provide any real subcontracting opportunities remaining for DBEs.

The DBE Utilization Goal will be adjusted to reflect only that amount of the defaulted DBE's work that cannot be replaced.

120-4.01 METHOD OF MEASUREMENT. The Contractor will be entitled to count toward the DBE Utilization Goal those monies actually paid to certified DBEs for CUF work performed by the DBE as determined by the Engineer. The Contractor will receive credit for the utilization of the DBEs, as follows:

1. Credit for the CUF of a DBE prime contractor is 100 percent of the monies actually paid to the DBE under the contract for creditable work and materials in accordance with 49 CFR 26.55.

2. Credit for the CUF of a subcontractor is 100 percent of the monies actually paid to the DBE under the subcontract for creditable work and materials. This shall include DBE trucking firms certified as a subcontractor and not a broker. Trucks leased from another DBE firm shall also qualify for credit and conforms to the provisions of 49 CFR 26.55(d).

3. Credit for the CUF of a manufacturer is 100 percent of the monies paid to the DBE for the creditable materials manufactured.

4. Credit for the CUF of a regular dealer of a creditable material, product, or supply is 60 percent of its value. The value will be the actual cost paid to the DBE but will not exceed the bid price for the item.

5. Credit for the CUF of a broker performed by a DBE certified in a supply category for providing a creditable material, product or supply is limited to a reasonable brokerage fee. The brokerage fee will not exceed 5 percent of the cost of the procurement contract for the creditable item.

6. Credit for the CUF of a broker performed by a DBE certified in the transportation/hauling category for arranging for the delivery of a creditable material, product or supply is limited to a reasonable brokerage fee. The brokerage fee will not exceed 5 percent of the cost of the hauling subcontract.

7. Credit for the CUF of a broker performed by a DBE certified in a bonding or insurance category for arranging for the provision of insurance or bonding is limited to a reasonable brokerage fee. The brokerage fee will not exceed 5 percent of the premium cost.

8. Credit for the CUF of a joint venture (JV) (either as the prime contractor or as a subcontractor) may not exceed the percent of the DBE's participation in the joint venture agreement, as certified for this project by the Department. The DBE joint venture partner will be responsible for performing all of the work as delineated in the certified JV agreement.

120-5.01 BASIS OF PAYMENT. Work under this item is subsidiary to other contract items and no payment will be made for meeting or exceeding the DBE Utilization Goal.

If the Contractor fails to utilize the DBEs listed on Form 25A 325C as scheduled or fails to submit required documentation to verify proof of payment or documentation requested by the Department to help in the determination of CUF, the Department will consider this to be unsatisfactory work. If the Contractor fails to utilize Good Faith Efforts to replace a DBE, regardless of fault (except for subsection 120-3.04 item 3), the Department will also consider this unsatisfactory work. Unsatisfactory work may result in disqualification of the Contractor from future bidding under subsection 102-1.13 and withholding of progress payments consistent with subsection 109-1.06.

S33-111700

SECTION 202

REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Special Provisions

202-3.05 REMOVAL OF PAVEMENT, SIDEWALKS, AND CURBS. Add the following:

Pavement removed shall be processed and re-used for embankment construction in the Aggregate Base Course bid item.

SECTION 204

STRUCTURE EXCAVATION FOR CONDUITS AND MINOR STRUCTURES

Standard Modifications

204-3.01 CONSTRUCTION REQUIREMENTS. In the first sentence of paragraph four, delete:

"bedding and"

E37-012707

Special Provisions

Add the following after the third paragraph:

Excavation, bedding, backfill, and compaction for culverts outside the roadbed may be visually inspected and approved by the Engineer.

CR204-020608

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.

CR176-012407

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.

CR176-012407

Special Provisions

Replace Section 401 with the following:

SECTION 401

HOT MIX ASPHALT AND SURFACE TREATMENTS

401-1.01 DESCRIPTION. Construct one or more layers of plant-mixed Hot Mix Asphalt (HMA) pavement on an approved surface, to the lines, grades, and depths shown in 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.
   c. Use of Reclaimed Asphalt Pavement (RAP) is not permitted in HMA, except RAP may be used in HMA, Type II, Class B.
   d. Warm Mix Asphalt (WMA) is not permitted in HMA.

MATERIALS

401-2.01 COMPOSITION OF MIXTURE - JOB MIX DESIGN (JMD). Design the JMD according to the Alaska Test Manual (ATM) 417 using the design requirements of Table 401-1.

TABLE 401-1

HMA DESIGN REQUIREMENTS

DESIGN PARAMETERS	CLASS "A"	CLASS "B"
HMA (Including Asphalt Cement)		
Stability, Pounds	1800 Min.	1200 min.
Flow, 0.01 Inch	8 – 14	8 - 16
Voids in Total Mix, %	3 - 5	3 – 5
Compaction, Number of Blows Each Side of Test Specimen	75	50
Asphalt Cement		
Percent Voids Filled with Asphalt Cement (VFA)	65 - 75	65 - 78
Asphalt Cement 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

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

The JMD will specify the Target Values (TV) for gradation, the TV for asphalt cement content, the Maximum Specific Gravity (MSG) of the HMA, 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 the Type of HMA specified. For acceptance testing, HMA mixture will have the full tolerances in Table 401-2 applied. The tolerance limits will apply even if they fall outside the broad band limits shown in Table 703-3, except the tolerance limit of the No. 200 sieve is restricted by the broad band limits. Tolerance limits will not be applied to the largest sieve specified.

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

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 proposed gradation for the JMD, gradations for individual stockpiles with supporting process quality control information, and the blend ratio of each aggregate stockpile. The proposed gradation must meet the requirements of Table 703-3 for each Type of HMA specified in the Contract.

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

3. Five separate 1-gallon samples of the asphalt cement 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 cement or manufacturer's recommended mixing and compaction temperatures, and current Material Safety Data Sheet.

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 Material Safety Data Sheet.

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

The Engineer has the option to require further verification of the JMD. Evaluation of the JMD may be included in the Process Quality Controls, Supplemental Process Quality Controls, Subsection 401-2.05, Test Strip construction.

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 401-1
- The asphalt cement source is changed
- The source of aggregate, aggregate quality, gradation, or blend ratio is changed
- 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 new replacement JMD. 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, the materials, and the JMD, Subsection 401-2.05.

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 asses a fee for each mix design subsequent to the approved Job Mix Design. The fee will be included under Item 401(6) Asphalt Price Adjustment – Quality.

401-2.02 AGGREGATES. Conform to Subsection 703-2.04.

Use a minimum of three stockpiles for crushed HMA aggregate (coarse, intermediate, and fine). Place blend material or mineral filler, if any, in a separate pile.

401-2.03 ASPHALT CEMENT. Conform to 702-2.01. If not specified, use PG 52-28.

Provide test reports for each batch of asphalt cement 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 cement 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 cement loaded.
6. Type and percent of anti-strip added.

401-2.04 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 cement is required.

401-2.05 PROCESS QUALITY CONTROL. Sample and test materials for quality control of the HMA 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 5 working days before initiating paving operations. Address the sequence of operations and joint construction. Outline steps to provide product consistency, to minimize segregation, to prevent premature cooling of the HMA and to provide the mat and longitudinal density required by these specifications. Include a proposed quality control testing frequency for gradation, asphalt cement content, and compaction.

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 hrs 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 Engineers 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 will 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 401-3.02. Provide an onsite process control representative with authority to modify mix components as instructed by the Engineer.

Payment for Test Strips: Subsection 401-5.01 Basis of Payment and as noted here.

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. Price adjustments will not be included for quality, unit price, or other.
b. Failed. 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. The materials, construction of, removal and disposal of a failed test strip will be at the Contractor's expense.

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

CR401-101110

Special Provision

401-2.06 COMPETENT PAVING PERSONNEL. The Contractor shall employ an asphalt production expert and a paving expert who shall each have a minimum of ten (10) years of experience in their specialty, and with working in adverse, remote, rural conditions. They shall have been in responsible charge for at least five (5) years previously of similar roadway paving operations successfully completed which included an asphalt plant that ran at a capacity of at least 2,000 tons per day. They both shall be intimately familiar with the pavement mix proposed for this project.

The asphalt production expert shall be in overall charge of the aggregate crushing, blending and production of the asphalt mix at the asphalt mixing plant; and the paving expert shall be in overall charge of the trucking, dumping, laydown and compaction operations on the grade.

At least fifteen (15) calendar days before the pre-paving meeting, the Contractor shall submit the resumes of the two experts, which shall include a list of at least three (3) references that were the owner's representative for large roadway paving spreads within at least the past five (5) years, and who will verify that the expert was in responsible charge of all aspects of their operation, and will provide a verbal recommendation of the expert's finished product of "acceptable" or better.

The experts shall have complete control of the Contractor's paving operations, and shall remain on the job from start of aggregate stockpiling until completion of the final mainline paving. The paving expert shall have the authority to delay the paving operation until weather conditions are optimal. The independent quality control manager shall inform the paving expert directly of the testing results and of any needed changes, which the expert shall implement immediately.

Special Provision

CONSTRUCTION REQUIREMENTS

401-3.01 WEATHER LIMITATIONS. Do not place the HMA 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 HMA unless the roadway surface temperature is a minimum of 40° F and warmer.

401-3.02 EQUIPMENT, GENERAL. Use equipment in good working order and free of HMA buildup. Make equipment available for inspection and demonstration of operation a minimum of 24 hours before placement of production HMA, except when a test strip is required, 24 hrs before placement of the test strip HMA.

401-3.03 ASPHALT MIXING PLANT. Meet AASHTO M 156. Use an asphalt plant designed to dry aggregates, maintain accurate temperature control, and accurately proportion asphalt cement and aggregates. Calibrate the asphalt plant and furnish copies of the calibration data to the Engineer at least 4 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 cement supply line just before it enters the plant (after the 3-way valve) for sampling asphalt cement.

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

401-3.04 HAULING EQUIPMENT. Costs associated with Subsection 401-3.04 are subsidiary to Section 401 Pay Items.

Vehicles/Equipment. Haul HMA 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 HMA 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 HMA in the hauling vehicle(s).

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

The inspection plan and method of removal/clean and disposal shall be submitted in writing to the Engineer and approved by the Engineer 5 days before initiating paving operations. Include alternatives, options to immediately correct deficiencies in the inspection plan and methods of removal/clean 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 paver.
(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/clean 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 and 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 to the existing roadway materials (asphalt type) as a result of the fugitive materials or their removal as specified in Subsection 401-3.16 Patching Defective Areas.

401-3.05 ASPHALT PAVERS. Use self-propelled pavers equipped 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 paver screed 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.

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.

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. Use means and methods approved by the paver manufacturer. Means and methods may consist of chain curtains, deflector plates, or other similar devices or combination of devices. When required by the Engineer, provide a Certificate of Compliance that verifies the means and methods required to prevent segregation are being used.

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

401-3.06 ROLLERS. Use both steel-wheel (static or vibratory) and pneumatic-tire rollers. Avoid crushing or fracturing of aggregate. Use rollers designed to compact HMA mixtures and reverse without backlash.

Use pneumatic rollers to compact the prelevel/leveling course.

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.

401-3.07 PREPARATION OF EXISTING SURFACE. Prepare existing surfaces conforming to the Plans and Specifications. Before applying tack coat to an existing paved surface, clean loose material from cracks for the depth of the cracks. Fill the cleaned cracks, wider than 1 inch, with an approved HMA tamped in place. Wash and or sweep the paved surface clean and free of loose materials.

Preparation of a milled surface:

- Prelevel remaining ruts, pavement delaminations, or depressions having a depth greater than 1/2-inch with HMA, Type IV. Compact the prelevel/leveling course using pneumatic-tire rollers. The Engineer's approval of the material and material installation is required. The Engineer will inspect the material and material installation. Correct material and material installations identified by the Engineer as required by the Engineer for approval. Density testing is not required for the leveling course (prelevel) material, material installation.

- Where the planing equipment breaks through existing pavement, remove 2 inches of existing base material depth and replace with HMA, Type II, Class B.

  During the planing operation, notify the Engineer of pavement areas that may be thin or unstable.

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 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 HMA on these surfaces.

401-3.08 PREPARATION OF ASPHALT. Provide a continuous supply of asphalt cement to the asphalt mixing plant at a uniform temperature, within the allowable mixing temperature range.

401-3.09 PREPARATION OF AGGREGATES. Dry the aggregate so the moisture content of the HMA, sampled at the point of acceptance for asphalt cement 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 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 (Subsection 105-1.11).

401-3.10 MIXING. Combine the aggregate, asphalt cement, and additives in the mixer in the amounts required by the JMD. Mix to obtain 98% coated particles when tested according to AASHTO T195.

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

401-3.11 TEMPORARY STORAGE. Silo type storage bins may be used, provided the characteristics of the HMA 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 cement, lumpiness, or stiffness of the HMA or similar.

401-3.12 PLACING AND SPREADING. Use asphalt pavers to distribute HMA, including leveling (preleveling) 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.

During placement, the Engineer, using an infrared camera, may evaluate the HMA surface immediately behind the paver for temperature uniformity. Areas with temperature differences more than 25^{o} F lower than the surrounding HMA may produce areas of low density. Contractor shall immediately adjust laydown procedure to maintain a temperature differential of 25^{o} 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 HMA 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.

When multiple lifts are specified in the Contract, do not place the final lift until lower lifts throughout that section, as defined by the Paving Plan, are placed and accepted.

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

Do not place the final lift until curb and gutter, all types, are installed complete, except as approved by the Engineer.

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

401-3.13 COMPACTION. Thoroughly and uniformly, compact the HMA by rolling. In areas not accessible to large rollers, compact with mechanical tampers or trench rollers. Do not leave rollers or other equipment standing on HMA that has not sufficiently cooled to prevent indentation.

A mat area with density lower than 92% 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 density TV is 95% of the MSG, as determined by WAQTC FOP for AASHTO T 209. The MSG of the JMD will be used for the first lot of each Type of HMA. 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. (Acceptance testing for density of leveling course or temporary pavement is not required).

When directed by the Engineer, provide density profiles of the mat and longitudinal joints with a nuclear density gauge. Deliver the results of density tests to the Engineer at the time of the testing, in writing in the format detailed in the Quality Control Plan Subsection 401-2.05.

401-3.14 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 HMA to provide a continuous bond, texture, and smoothness between adjacent sections of the HMA.

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 HMA and thoroughly compact.

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.

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.

On the final lift, before paving against the longitudinal joint (completing the joint) uniformly coat the surface below the final lift with tack coat material conforming to Section 702. Coat the vertical edge of pavement (including milled edges) with Crafco Pavement Joint Adhesive No. 34524, Deery Cold Joint Adhesive, or approved equal. Apply a 1/8 inch thick band of joint adhesive over the cold mat according to manufacturer's recommendations.

The Engineer shall evaluate the difference in elevation of the final surface of adjacent mats each side of the longitudinal joint, at the joint, with a straight edge and by requiring the Contractor to flood the joint surface with water. The Engineer will determine where and how often to evaluate the joint. All differences in the surface elevations greater than 1/8 inch or that pond water shall be repaired at no cost to the Department. Heat the HMA pavement to be repaired with an infrared heater (310° F max) and roll flat or add HMA until the joint differential is within tolerance.

For the top layer of HMA, the minimum specification limit for longitudinal joint density is 91% of the MSG of the panel completing the joint. Cut one 6 inch diameter core centered on the longitudinal joint at each location the panel completing the joint is cored for acceptance density testing. Density will be determined according to WAQTC FOP for AASHTO T 166/T 275.

For areas that fail to achieve the prescribed joint density seal the surface of the longitudinal joints with Asphalt Systems GSB-78 or approved equal, while the HMA is clean, free of moisture, and before traffic marking. Longitudinal joint sealing shall be according to the manufacturer's recommendations and a maximum application rate of 0.15 gallons per square yard. Apply the sealant at least 12 inches wide centered on the longitudinal joint.

Hot lapped joints formed by paving in echelon must be completed while the mat temperature is over 150°F. These joints do not need to be tacked and will not be measured or evaluated for joint density.

Longitudinal joints will be evaluated for acceptance according to Subsection 401-4.03.

401-3.15 SURFACE TOLERANCE. The Engineer will test the finished surface after final rolling at selected locations using a 10 foot straightedge. Correct variations from the testing edge, between any two contacts of more than 1/4 inch.

Costs associated with meeting surface tolerances are subsidiary to the HMA pay item.

401-3.16 PATCHING DEFECTIVE AREAS. Remove HMA that is contaminated with foreign material, is segregated (determined visually or by testing), flushing, or bleeding asphalt after compaction is completed or is in any way determined to be defective. Do not skin patch. Remove defective HMA for the full thickness of the course. Cut the pavement so that edges are vertical, 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 HMA according to Subsection 401-3.13 to grade, and smoothness requirements.

Costs associated with patching defective areas are subsidiary to the HMA Pay Item.

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

1. Hot Mix Asphalt.
   a) By weighing. No deduction will be made for the weight of asphalt cement or anti stripping additive or cutting back joints.
   b) By the final HMA surface.

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

   Method 1:

   Percent of asphalt cement for each sublot multiplied by the total weight represented by that sublot. ATM 405 or WAQTC FOP for AASHTO T 308 will determine the percent of asphalt cement. The same tests used for the acceptance testing of the sublot will be used for computation of the asphalt cement quantity. If no acceptance testing is required, the percent of asphalt cement is the target value for asphalt cement 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 HMA 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 cement. The Engineer will determine the method. The weight of asphalt cement in waste HMA will be calculated using the target value for asphalt cement as specified in the JMD.

   Method 1 will be used for determining asphalt cement 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 cement more than 0.4% above the optimum asphalt cement content specified in the JMD.

3. Job Mix Design. When specified, Contractor furnished JMD(s) will be measured as one according to the HMA Class and Type.

4. Temporary Pavement. By weighing. No deduction will be made for the weight of asphalt cement or anti-stripping additive.

5. Preleveling/Leveling Course. By weight or Lane-Station (12 foot width). No deduction will be made for the weight of asphalt cement or anti stripping additive.

6. Asphalt Price Adjustment – Quality. Calculated by quality level analysis under Subsection 401-4.03. Also included in the measurement are the fees and deductions specified in Subsection 401-2.01 and Subsection 401-4.02.

   Asphalt Price Adjustment – Quality, does not apply to, and measurements will not be made for: 1) Leveling Course/Prelevel (rut repair) HMA, 2) Temporary HMA, 3) Approach HMA.

7. Longitudinal Joint and Joint Adhesive. By the linear foot of longitudinal joint.

401-4.02 ACCEPTANCE SAMPLING AND TESTING. The total price adjustment is the sum of the individual lot price adjustments as determined in Subsection 401-4.03 Evaluation of Materials for Acceptance, and is included in Item 401(6) Asphalt Price Adjustment-Quality. Penalties assessed are also included in Item 401(6).

A mat area of finished surfacing that is visibly segregated, has a lower density than specified (Subsection 401-3.13), fails to meet surface tolerance requirements, or is flushing asphalt cement is considered unacceptable according to Subsection 105-1.11.

HOT MIX ASPHALT

The quantity of each class and Type of HMA produced and placed will be divided into lots and the lots evaluated individually for acceptance.

A lot will normally be 5,000 tons. The lot will be divided into sublots of 500 tons; each randomly sampled and tested for asphalt cement 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. The price adjustment computed, according to Subsection 401-4.03, for the prior lot will include the samples from the shortened lot.

If 8 or 9 samples have been obtained 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 (excluding outliers) in the shortened lot.

If the contract quantity is between 1,500 tons and 5,000 tons, the Contract quantity will be considered one lot. The lot will be divided into sublots of 500 tons and randomly sampled for asphalt cement content, density, and gradation according to this subsection except that a determination for outliers will not be performed. HMA quantities of less than 300 tons remaining after dividing the Contract quantity into sublots will be included in the last sublot. HMA quantities of 300 tons or greater will be treated as an individual sublot. The lot will be evaluated for price adjustment according to Subsection 401-4.03 except as noted.

For Contract quantity of less than 1,500 tons (also for approaches and temporary pavement), HMA will be accepted for payment based on the Engineer's approval of a JMD and the placement and compaction of the HMA 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 HMA that does not conform to the approved JMD.

Samples collected at the plant from dry batched aggregates, the conveyor system, or the asphalt cement supply line shall be taken by the Contractor in the presence of the Engineer. The Engineer will take immediate possession of the samples.

The Engineer will determine where samples are taken.

1. Asphalt Cement Content. Hot mix samples taken for the determination of asphalt cement content will be taken randomly from behind the screed before initial compaction, or from the windrow according to WAQTC FOP for AASHTO T 168 and ATM 403, as directed by the Engineer. HMA samples taken for the determination of both asphalt cement content and gradation will be taken randomly from behind the screed before initial compaction or from the windrow according to WAQTC FOP for AASHTO T 168 and ATM 403.

   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 cement content will be determined according to ATM 405 or WAQTC FOP for AASHTO T 308.

2. Aggregate Gradation.

   a. Drum Mix Plants. Samples taken for the determination of aggregate gradation from drum mix plants will be from the combined aggregate cold feed conveyor via a diverter device or from the stopped conveyor belt according to WAQTC FOP for AASHTO T2 or from the same location as samples for the determination of asphalt cement content. 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. Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if applicable. The aggregate gradation for samples from the conveyor system will be determined according to WAQTC FOP for AASHTO T 27/T 11. For HMA samples, 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 cement.

b. Batch Plants. Samples taken for the determination of aggregate gradation from batch plants will be from the same location as samples for the determination of asphalt cement content, or from dry batched aggregates according to WAQTC FOP for AASHTO T 2. Two separate samples will be taken, one for acceptance testing and one held in reserve for retesting if applicable. Dry batched aggregate gradations will be determined according to WAQTC FOP for AASHTO T 27/T 11. For HMA samples, the aggregate 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 cement.

3. Density.

a. Acceptance Testing.

The Engineer will determine and mark the location(s) where the Contractor will take each core sample. Core samples will not be taken at bridge decks or the milled edge of existing pavement.

1) Mat Cores: The location(s) for taking core samples will be determined using a set of random numbers and the Engineer's judgment.

2) 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. Take joint core samples 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. Backfill and compact voids left by coring with new HMA within 24 hrs.

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 penalty will be assessed for each failure to take core samples or backfill core sample voids 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 401-2 may be requested provided the quality control requirements of 401-2.05 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 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. Except for the first lot, gradation and asphalt cement content are determined from the same sample, retesting for gradation or asphalt cement from the first sublot of a lot will include retesting for the MSG; when separate samples are used, retesting for asphalt cement content will include retesting for MSG.

ASPHALT CEMENT

The lot size for asphalt cement will normally be 200 tons. If a project has more than one lot and the remaining asphalt cement quantity is less than 150 tons, it will be added to the previous lot and that total

quantity will be evaluated for price adjustment as one lot. If the remaining asphalt cement quantity is 150 tons or greater, it will be sampled, tested and evaluated as a separate lot.

If the contract quantity of asphalt cement 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 cement less than 85 tons will be accepted based on manufacturer's certified test reports and certification of compliance.

Asphalt cement will be sampled according to WAQTC FOP for AASHTO T 40, tested for conformance to the specifications in Section 702, and evaluated for price adjustment in accordance with 401-4.03. Asphalt cement pay reduction factors for each sample will be determined from Table 401-4. 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.

401-4.03 EVALUATION OF MATERIALS FOR ACCEPTANCE.

Price adjustments in this subsection are addressed under Item 401(6) Asphalt Price Adjustment-Quality.

HOT MIX ASPHALT

The total Hot Mix Asphalt price adjustment is the sum of all price adjustments for each lot.

The following method of price adjustment will be applied to each Type of HMA when the contract quantity equals or exceeds 1,500 tons, except as specified in Subsection 401-4.02.

Acceptance test results for a lot will be analyzed collectively and statistically by the Quality Level Analysis method as specified in Subsection 106-1.03 to determine the total estimated percent of the lot that is within specification limits.

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

A lot containing HMA with less than a 1.00 pay factor will be accepted at an adjusted price, provided the pay factor is at least 0.75 and there are no isolated defects identified by the Engineer. A lot containing HMA that fails to obtain at least a 0.75 pay factor will be considered unacceptable and rejected under Subsection 105-1.11.

The Engineer will reject HMA that appears to be defective based on visual inspection. A minimum of two samples will be collected from the rejected HMA and tested if requested. If test results are within specification limits, payment will be made for the HMA. If any of the test results fail to meet specifications, no payment will be made and the cost of the testing will be subtracted as a price adjustment. Costs associated with removal and disposal of the rejected HMA are subsidiary to the Hot Mix Asphalt Pay Item.

Outlier Test. Before computing the price adjustment, the validity of the test results will be determined by SP-7, the Standard Practice for Determination of Outlier Test Results. Outlier test results will not be included in the price adjustment calculations.

When gradation and asphalt cement content are determined from the same sample, if any size on the gradations test or the asphalt cement content is an outlier, then the gradation test results and the asphalt cement content results for that sublot will not be included in the price adjustment. The density test result for that sublot will be included in the price adjustment provided it is not an outlier.

When gradation and asphalt cement content are determined from separate samples, if any sieve size on the gradation test is an outlier, then the gradation test results for that sample will not be included in the price adjustment. The asphalt cement content and density test results for that sublot will be included in the price adjustment provided neither is an outlier. If the asphalt cement content test result is an outlier, it will not be included in the price adjustment but the gradation and density test results for the sublot will be included provided neither is an outlier. If the density test result is an outlier, it will not be included in the

price adjustment but the gradation and asphalt cement content test results will be included provided neither is an outlier.

Quality Level Analysis. Pay factors are computed as follows:

1. Outliers (determined by SP-7), and any test results on material not incorporated into the work, are eliminated from the quality level analysis.

   The arithmetic mean ($\bar{x}$) of the remaining test results is determined:

   $$\bar{x} \quad \frac{\sum x}{n}$$

   Where: $\sum$ = summation of
   x = individual test value to x_n
   n = total number of test values

   ($\bar{x}$) is rounded to the nearest tenth for density and sieve sizes except the No. 200 sieve.
   ($\bar{x}$) is rounded to the nearest hundredth for asphalt cement content and the No. 200 sieve.

2. The sample standard deviation (s) after the outliers have been excluded, is computed:

   $$s = \sqrt{\frac{n\sum(x^2) - (\sum x)^2}{n(n-1)}}$$

   Where: $\sum(x^2)$ = sum of the squares of individual test values.
   $(\sum x)^2$ = square of the sum of the individual test values.

   The sample standard deviation (s) is rounded to the nearest hundredth for density and all sieve sizes except the No. 200 sieve. The sample standard deviation (s) is rounded to the nearest 0.001 for asphalt cement content and the No. 200 sieve.

   If the computed sample standard deviation (s) is <0.001, then use s = 0.20 for density and all sieves except the No. 200. Use s = 0.020 for asphalt cement content and the No. 200 sieve.

3. The USL and LSL are computed. For aggregate gradation and asphalt cement content, the Specification Limits (USL and LSL) are equal to the Target Value (TV) plus and minus the allowable tolerances in Table 401-2. The TV is the specified value in the approved JMD. Specification tolerance limits for the largest sieve specified will be plus 0 and minus 1 when performing Percent Within Limits (PWL) calculations. The TV for density is 95% of the MSG, the LSL is 92% of MSG, and the USL is 98%.

TABLE 401-2

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	98

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

4. The Upper Quality Index (Q_U) is computed:

$$Q_U = \frac{USL - \bar{x}}{S}$$

Where: USL = Upper Specification Limit
Q_U is rounded to the nearest hundredth.

5. The Lower Quality Index (Q_L) is computed:

$$Q_L = \frac{\bar{x} - LSL}{S}$$

Where: LSL = Lower Specification Limit
Q_L is rounded to the nearest hundredth.

6. P_U (percent within the upper specification limit which corresponds to a given Q_U) is determined. See Subsection 106-1.03.

7. P_L (percent within the lower specification limit which corresponds to a given Q_L) is determined. See Subsection 106-1.03.

8. The Quality Level (the total percent within specification limits) is determined for aggregate gradation, asphalt cement content, and density.

Quality Level = $(P_L + P_U) - 100$

9. Using the Quality Levels from Step 8, the lot Pay Factor (PF) is determined for Density (DPF) and gradation and asphalt cement content pay factors from Table 106-2. The maximum pay factor for the largest sieve size specification for gradation is 1.00.

10. The Composite Pay Factor (CPF) for the lot is determined using the following formula:

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

The CPF is rounded to the nearest hundredth.

Table 401-3 gives the weight factor (f), for each sieve size and asphalt cement content.

TABLE 401-3
WEIGHT FACTORS

Sieve Size	Type I Factor "f"	Type II Factor "f"	Type III Factor "f"
1 inch sieve	4	-	-
3/4 inch sieve	4	4	-
1/2 inch sieve	4	5	4
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 Cement Content, %	40	40	40

The price adjustment will be based on either the CPF or DPF, whichever is the lowest value. The price adjustment for each individual lot will be calculated as follows:

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

*CPF or DPF, whichever is lower.

PAB = Price Adjustment Base = $ 180 per ton

ASPHALT CEMENT

The total asphalt cement price adjustment is the sum of all price adjustments for each lot.

Asphalt cement will be randomly sampled and tested in accordance with Subsection 401-4.02. Asphalt cement pay reduction factors for each sample will be determined from Table 401-4.

Table 401-4
ASPHALT CEMENT PAY REDUCTION FACTORS
(Use the single, highest pay reduction factor)

Test	Spec	Pay Reduction Factor (PRF)								
		0.00	**0.04**	**0.05**	**0.06**	**0.07**	**0.08**	**0.10**	**0.25**	**Reject or Engr Eval**
Tests On Original Binder										
Viscosity	< 3 Pa-s	≤ 3		> 3						
Dynamic Shear	> 1.00 kPa	> 1.00		0.88-0.99				0.71-0.89	0.50-0.70	< 0.50
Toughness	> 110 in-lbs	> 93.5	90.0-93.4	85.0-89.9	80.0-84.9	75.0-79.9	70.0-74.9			< 70.0
Tenacity	> 75 in-lbs	> 63.8	61.0-63.7	58.0-60.9	55.0-57.9	52.0-54.9	48.0-51.9			< 48.0
Tests On RTFO										
Mass Loss	< 1.00 %	< 1.00		1.001-1.092				1.093-1.184	1.185-1.276	> 1.276
Dynamic Shear	> 2.20 kPa	> 2.20		1.816-2.199				1.432-1.815	1.048-1.431	< 1.048
Test On PAV										
Dynamic Shear	< 5000 kPa	< 5000		5001-5289				5290-5578	5579-5867	> 5867
Creep Stiffness, S	< 300 MPa	< 300		301-338				339-388	389-450	> 450
Creep Stiffness, m-value	> 0.300	> 0.300		0.287-0.299				0.274-0.286	0.261-0.273	< 0.261

Asphalt Cement Price Adjustment = *5 x PAB x Qty x PRF* (for each sample)
PAB = Price Adjustment Base
Qty = Quantity of asphalt cement represented by asphalt cement sample
PRF = Pay Reduction Factor from Table 401-4

Asphalt Cement Appeal Procedure. Once notified of a failing test result of an asphalt cement sample, the Contractor has 21 days to issue a written appeal. The appeal must be accompanied by all of the Contactor's quality control test results and a test result of Contactor's sample of this lot tested by an AASHTO accredited asphalt laboratory (accredited in the test procedure in question). The Engineer will review these test results using ASTM D3244 to determine a test value upon which to base a price reduction.

If the Contractor challenges this value, then the referee sample held by the Engineer will be sent to a mutually agreed upon independent AASHTO accredited laboratory for testing. This test result will be incorporated into the ASTM D3244 procedure to determine a test value upon which to base a price reduction. If this final value incurs a price adjustment, the Contractor shall pay the cost of testing the referee sample.

LONGITUDINAL JOINT DENSITY

Longitudinal joint density price adjustments apply when HMA quantities equal or greater than 1,500 tons. A longitudinal joint density price adjustment for the top layer will be based on the average of all the joint densities on a project and determined as follows:

1. If project average joint density is less than 91% MSG, apply the following disincentive:
   a. Longitudinal joint density price adjustment equal to $3.00 per lineal foot is deducted.

   Sections of longitudinal joint represented by cores with less than 91% density shall be surface sealed according to Subsection 401-3.14.

2. If project average joint density is greater than 92% MSG, apply the following incentive:
   a. Longitudinal joint density price adjustment equal to $1.50 per linear foot is added.

401-4.04 ASPHALT MATERIAL PRICE ADJUSTMENT – UNIT PRICE.

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 500 tons of asphalt material in the bid schedule of Sections described in Item 1; and
   b. 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 – Unit Price" 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 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
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.

401-5.01 BASIS OF PAYMENT.

Except where specified as individual Pay Items:
Asphalt cement, anti-stripping additives, tack coat, crack sealing, surface sealing of longitudinal joints, surface tolerance corrections, patching defective areas and the work and materials associated with Subsection 401-3.04 Hauling Equipment are subsidiary to the associated Hot Mix Asphalt Pay Items.

Item 401(1F) Hot Mix Asphalt, Preleveling/Leveling Course, Type IV: Asphalt Cement, anti-stripping additives are subsidiary.

Item 401(3) Hot Mix Asphalt, Temporary, Type II, Class B: Asphalt cement, anti-stripping additives, removal and disposal are subsidiary.

Item 401(6) Asphalt Price Adjustment – Quality: is the sum of the price adjustments for each material lot (excluding the Preleveling/Leveling Course (rut repair) HMA, Temporary HMA and Approach HMA) and for deductions and fees assessed.

Deductions and fees assessed:
- Each mix design subsequent to the approved Job Mix Design (Subsection 401-2.01) for each Type and Class of Hot Mix Asphalt specified will result in a fee of $2500.00 each.
- Failure to cut core samples within the specified period will result in a deduction of $100.00 per sample per day (Subsection 401-4.02).
- Failure to backfill voids left by sampling within the specified period will result in a deduction of $100 per hole per day (Subsection 401-4.02).

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
401(1_)	Hot Mix Asphalt, Type __; Class __	Ton
401(1F)	Hot Mix Asphalt, Preleveling/Leveling Course, Type IV; Class B	Lane-Station
401(2)	Asphalt Cement, Grade PG 52-28	Ton
401(3)	Hot Mix Asphalt, Temporary, Type II; Class B	Ton
401(4)	Hot Mix Asphalt, Type __; Class __	Square Yard
401(6)	Asphalt Price Adjustment - Quality	Contingent Sum
401(8)	Hot Mix Asphalt, Approach, Type __; Class __	Ton
401(9)	Longitudinal Joint Adhesive	Linear Foot
401(10)	Asphalt Material Price Adjustment – Unit Price	Contingent Sum

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SECTION 603

CULVERTS AND STORM DRAINS

Special Provisions

603-1.01 DESCRIPTION. Add the following:

This work shall also consist of installing culvert marker posts.

603-2.01 MATERIALS. Delete the second paragraph and substitute the following:

When Item 603(17-xx), Pipe, is listed in the bid schedule, furnish either Corrugated Steel Pipe (CSP) or Reinforced Concrete Pipe. Corrugated Polyethylene Pipe is not allowed. End Sections for Metal Pipe must be of the same material as the pipe.

Culvert extensions must be of the same material at the pipe that is being extended.

Add the following:

Culvert marker posts shall meet the requirements of subsection 730-2.05, Flexible Delineator Posts. The color shall be blue with no other markings. The 2.5 inch by 6 foot post shall be rectangular in cross section with reinforcing ribs capable of a minimum bending radius of 9 inches.

Add the following subsection:

603-3.06 CULVERT MARKER POSTS. Culvert marker posts shall be installed 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 by the Engineer. Forty two inches of post shall remain above the ground after driving.

603-4.01 METHOD OF MEASUREMENT. Add the following:

Culvert marker posts will not be measured for payment.

603-5.01 BASIS OF PAYMENT. Add the following:

Culvert marker posts will not be paid for directly, but will be subsidiary to pipe items.

Removal of existing pipe when necessary is subsidiary.

SECTION 606

GUARDRAIL

Special Provisions

Delete Subsection 606-2.01 and replace with the following:

606-2.01 MATERIALS. Use materials that conform to the following:

Concrete, Class A or W
(or an approved, pre-mixed, sacked concrete) ..... Subsection 501-3.01
Wire Cable ..... Subsection 709-2.02
Metal Beam Rail ..... Subsection 710-2.04
Guardrail Posts and Blocks ..... Subsection 710-2.06
Guardrail Hardware ..... Subsection 710-2.07
Guardrail Terminals ..... Subsection 710-2.11

Terminal Markers - Flexible (marker). The marker includes the pole/post/rod (pole), reflective and retroreflective sheeting and mounting hardware.

The marker materials shall be durable, resistant to impact from (snow and vehicle), vandals, ultraviolet light, moisture, ozone, and hydrocarbons.

When the pole is loaded, the marker shall bend/flex, remain flexible and oriented as installed continuing to function as designed without permanent displacement along the length of the member. The flexibility may be in the primary vertical element, a connecting device between the vertical element and connection to the support member (spring or other) or a combination.

Provide a connection sufficient to transfer the loads from the pole to the supporting member without reducing the strength, flexibility, or durability of either. The connection shall not negatively impact the performance of the guardrail. Provide approval of the connection from the marker manufacturer and support member manufacturer (if proprietary).

- Design Loads:
  - Impact load from snow thrown by snowplows
  - Weight of snow covering the pole as a result of snow thrown from snowplows
  - Wind loads (100 mph, 3 sec gust)

- Service Temperature Range: -40˚ F to +140˚ F.

- Pole:
  1. Material:
     - Steel, or
     - Stainless Steel, or
     - Other Poles:
       (a) Continuous glass fiber and marble reinforced thermosetting composite, or
       (b) Engineered plastic alloy, or
       (c) Fiberglass Reinforced Polyester (FRP)
       (d) High-Impact Polyolefins
  2. Dimensions
     - Top of Pole: 60 inches to 84 inches above top of guardrail
     - Width/Diameter: minimum = 1 1/4 inches, maximum = 2 inches (steel/stainless steel may not be greater than 5/8 inch diameter)
     - Thickness: as required by design

3. Visibility:
   - Daytime: Pole - color orange
     a. Steel and Stainless Steel Poles: Applied permanent finish.
     b. Other Poles: Color pigment ultraviolet stabilized and solid through the cross section from end to end.
   - Nighttime: Added retroreflective sheeting - color white
     a. Approximately 12 square inches visible from the traveled way before and after the marker. Applied to a flag attached to the pole or as banding applied directly to the pole. (A flag is required when using steel/stainless steel poles.)
     b. Place top edge of flag/banding 1 inch from top of pole.
        (1) Flag: Single retroreflective sheet each face
        (2) Banding: Two bands completely around marker, 4 inches between bands

- Hardware and Fasteners:
  - Steel, and/or
  - Stainless Steel, or
  - Aluminum alloy (hardware only)

Manufacturers of flexible markers (snowpoles):

Manufacturer	Model	Type	Contact
Nordic Fiberglass, Inc.	FF2	Steel Pole w/ Flag	Ph: (218) 745-5095
PEXCO	Model 3639	High-Impact Polyolefins	Ph: (404) 564-8560
New Century Northwest, LLC	NCN2549	Engineered Plastic Alloy	Ph: (541) 485-5566
Carsonite Composites, LLC	SNFB	Continuous glass fiber and marble reinforced thermosetting composite	Ph: (800) 648-7916

Submit manufacturer's specifications to the Engineer for review and approval before ordering markers.

Guardrail Reflector Assembly Brackets..... Section 730

Fabricate from aluminum alloy or galvanized steel.

Retroreflective Sheeting ..... AASHTO M 268, Type VIII or IX

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CONSTRUCTION REQUIREMENTS

606-3.01 GENERAL. Replace the second paragraph with the following:

At locations where public traffic is adjacent to guardrail work, have all materials on site, including crashworthy terminals that are required to completely install a segment of guardrail before beginning work on the segment.

Start guardrail installation at the "upstream" end (the end adjacent traffic will encounter first) by either installing a crashworthy terminal, connecting to an existing barrier or shielding the end with a truck mounted attenuator (TMA) meeting NCHRP 350, Test Level 3. Continue installation in the direction of traffic. Exception: if the guardrail run will connect to existing barrier, buried in the backslope, or guardrail, existing or new bridge railing, or other existing structure at the "downstream" end, guardrail installation may be started at the point of connection. The exception allows for starting at the downstream end, a temporary crash cushion or TMA is required at all incomplete upstream guardrail ends.

Do not leave posts installed for guardrail within the clear zone for more than 48 hours before installing the rail.

If guardrail runs are not completed within 10 calendar days after beginning installation, install temporary crash cushions meeting NCHRP 350 or MASH test Level 3 at all non-crashworthy guardrail ends within the clear zone. Apply Traffic Price Adjustment if the Contractor does not comply with the crash cushion requirement.

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606-3.02 POSTS. Delete the first two numbered items and replace with:

1. Exclusive of end treatments, use one type of post in each run of guardrail.

Replace 3.a. with:

a. The underlying material is no larger than six inches; and

Replace No. 4. with:

4. Backfill and compact around posts with material as specified in the typical section to firmly support the post laterally and vertically. Compact under and around posts to the Engineer's satisfaction.

CR6064-110410

606-3.03 BEAM RAIL. In the first paragraph, second sentence, replace "150 feet" with "100 feet"

CR6065-110410

606-3.05 TERMINAL SECTIONS. Delete the second paragraph.

Replace the fourth paragraph with the following:

Attach flexible markers, in a vertical position, to the terminal end directly to the backside of the rail face, the face away from the traveled way, or the first post of each parallel guardrail terminal. Attach flexible markers to the "P.T." post of the Controlled Release Terminals. Provide an additional marker where the flare begins for guardrail terminal widening. Provide two markers at the end of each run of guardrail; coordinate the locations with the Engineer.

The connection shall not negatively impact the performance of the guardrail as noted in 606-2.01.

CR6062-110410

606-3.06 REMOVAL AND RECONSTRUCTION OF GUARDRAIL. Add the following:

Guardrail removed and to be replaced with new guardrail shall have the entire new run installed within 14 calendar days after removal.

Guardrail located within 50 feet of bridge ends shall have the new guardrail installed by the end of the shift in which the existing guardrail is removed.

CR6066-110410

Add the following Subsection 606-3.09 Flexible Markers:

606-3.09 FLEXIBLE MARKERS. For each slotted rail terminal, a flexible marker shall be attached to the extreme piece of rail. The flexible markers shall be attached using hardware and attachment methods recommended by the manufacturer.

CR6062-110410

Add the following Subsection 606-3.10 Length of Need Verification.

606-3.10 LENGTH OF NEED VERIFICATION. After shaping the slopes and staking the proposed guardrail locations, notify the Engineer to field verify the beginning and ends. The Engineer will approve the staked location of the guardrail before installation. The Engineer may determine additional guardrail is necessary and the Contractor shall comply without delay.

CR6068-110410

606-5.01 BASIS OF PAYMENT. Add the following:

Payment for temporary crash cushions or TMA installed to protect motorists from guardrail installations that have not been completed within 10 calendar days of beginning installation is subsidiary to other items.

2. Terminal Sections. Replace a. with the following:

   a. Parallel Guardrail Terminal. The contract price includes rail elements, posts, blocks, pipe sleeves, cable assemblies, guardrail extruders, terminal markers, and all associated hardware required for a complete installation.

   Delete b.

   c. Controlled Release Terminals (CRT).

   Replace "object markers" with "terminal markers"

   Add d.:

   d. Buried in Backslope Guardrail Terminal. The contract price includes rail elements, posts, blocks, concrete, rebar, anchors, and all associated hardware required for a complete installation.

Payment will be made under:

Delete Pay Item 606(10) Slotted Rail Terminal and 606(11) Extruder Terminals.

Add Pay Item 606(13) Parallel Guardrail Terminal:

Pay Item No.	Pay Item	Pay Unit
606(13)	Parallel Guardrail Terminal	Each

CR6061-110410

SECTION 610

DITCH LINING

Special Provisions

610-5.01 BASIS OF PAYMENT. Add the following:

Geotextile is subsidiary.

Pay Item No.	Pay Item	Pay Unit
610(4)	Ditch Lining	Square Yard

SECTION 618

SEEDING

Special Provisions

618-1.01 DESCRIPTION. Add the following: Topsoil and seed new or disturbed slopes and other areas directed by the Engineer. Track the soil and apply seed, mulch, fertilizer, and water. Provide a living ground cover on slopes as soon as possible.

618-2.01 MATERIALS. Add the following to the list of material specifications:

Mulch	subsection 727-2.01

CONSTRUCTION REQUIREMENTS

618-3.01 SOIL PREPARATION. Add the following: Apply seed as detailed in subsection 618-3.03 immediately after the shaping of the slopes. Cover all slopes to be seeded with topsoil according to Section 620. Complete slope preparation as soon as topsoil is placed on the slopes.

Standard Modification

Delete the fourth paragraph and replace with the following: Roughen the surface to be seeded by grooving the soil 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 rakes;
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.

Rounding the top and bottom of slopes to facilitate tracking or raking and to create a pleasant appearance is acceptable, but disrupting drainage flow lines is not.

618-3.02 SEEDING SEASONS. Add the following: Seed disturbed areas that require seeding within 14 days of the permanent cessation of ground disturbing activities in that area.

Seed between May 15 and August 15, or obtain written approval from the Engineer to seed at a different date.

Special Provisions

618-3.03 APPLICATION. Add the following: Apply seed, mulch, and fertilizer as follows per msf. Apply seed and mulch in one application if using the hydraulic method. Apply fertilizer with the hydraulic method.

Component	Ingredients	Application Rate (per MSF)
Seed	Slender Wheatgrass (Wainwright) Red Fescue (Arctared) Annual Ryegrass (Lolium)	0.50 lbs. 0.40 lbs. 0.10 lbs. Total = 1.00 lbs
Soil Stabilizer Slope ≤ 3:1 Slope >3:1	 Mulch Mulch with tackifier	 46 lbs. 45-58 lbs.
Fertilizer	20-20-10	12.0 lbs.

Do not remove the required tags from the seed bags.

Upon the Engineer's approval, Nortran Tufted Hairgrass may be used as a substitute for Slender Wheatgrass (Wainwright) if Slender Wheatgrass (Wainwright) is commercially unavailable. If this substitution is made, apply at the same application rate.

(01/27/07)R52

Standard Modification

Delete the first three sentences and replace with: Apply seed mix, fertilizer, and mulch (if required) at the rate specified in the Special Provisions. If no seed mix, seed mix application rate, or fertilizer rate are specified in the special provisions, use the recommendations of the Alaska Department of Natural Resources (ADNR) and the Revegetation Manual for Alaska.

Do not seed areas of bedrock, plant beds, and areas indicated on the plans as "no seeding."

Water and fertilizer required for application are subsidiary to the Seeding bid item.

Delete Subsection 618-3.04 in its entirety, and add the following new subsections:

618-3.04 MAINTENANCE AND WATERING. Protect seeded areas against traffic by approved warning signs or barricades. Repair surfaces gullied or otherwise damaged following seeding. Maintain seeded areas in a satisfactory condition until final acceptance of work.

Water and maintain seeded areas. Water applied by this subsection is subsidiary. If, in the opinion of the Engineer, too much water is being applied, reduce amount of water as directed.

Reseed areas not showing evidence of satisfactory growth within 3 weeks of seeding. Bare patches of soil more than 10 square feet in area must be reseeded. Erosion gullies over 4 inches deep must be filled and reseeded. Fill the entire erosion gully to surrounding grade, including the portions less than 4 inches deep.

Contact ADNR for advice or corrective measures, when seeded areas are not showing evidence of satisfactory growth. The Contractor is responsible for retracking, reseeding, refertilizing, and remulching areas that do not show satisfactory growth, and those actions are subsidiary.

618-3.05 ACCEPTANCE. During final inspection, the Engineer will perform a visual inspection of seeding to determine final stabilization. During the visual inspection, each station and each side of the road will be considered a separate area. The Engineer will accept seeding that has become a vegetative matt with 70% cover density in the inspection area.

Reseed areas that are not acceptable to the Engineer.

618-3.06 PERIOD OF ESTABLISHMENT. Establishment periods extend for one complete growing season following acceptable seeding. Employ all possible means to preserve/maintain the new vegetative matt in a healthy and vigorous condition to ensure successful establishment. Reseed areas that do not meet the specifications. Watering and reseeding after the final inspection are subsidiary.

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

618-4.01 METHOD OF MEASUREMENT.

After Seeding by the Pound, delete text and replace with: By the weight of dry seed acceptably seeded and maintained.

618-5.01 BASIS OF PAYMENT. Delete paragraphs beginning: "Seeding by the Acre" and "Seeding by the Pound" and replace with:

Seeding by the Acre. Payment is for established vegetative matt. Soil preparation, fertilizer, and water required for hydraulic method are subsidiary.

Seeding by the Pound. Payment is for established vegetative matt. Soil preparation, fertilizer, and water required for hydraulic method are subsidiary.

Add new pay description:

Water for Seeding. Water applied for growth of vegetative matt, including maintenance and water for hydraulic seeding, fertilizing, or mulching are subsidiary. Water after project completion is subsidiary.

E42-012707

Delete Section 639 in its entirety and substitute the following:

SECTION 639

DRIVEWAYS

Special Provisions

639-1.01 DESCRIPTION. Construct approaches, residential or commercial driveways at the locations shown in the Plans.

639-2.01 MATERIALS. Use materials that conform to the standards for the main roadway.

639-3.01 CONSTRUCTION. Construct driveways and approaches to match existing, or to the dimensions shown on the Plans. Driveway culverts may be salvaged and reused when possible.

639-4.01 METHOD OF MEASUREMENT. By the number of driveways and approaches constructed as shown on the Plans or as directed. Pavement and culvert removal and excavation required beyond the limits of the adjacent mainline will be subsidiary.

639-5.01 BASIS OF PAYMENT. At the contract unit price shown in the bid schedule. The contract unit price for driveways and approaches shall be full compensation for furnishing equipment and labor necessary to complete the work as specified.

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

Native material meeting the minimum requirements of Selected Material, Type C will not be paid for directly, but will be considered subsidiary to 639 items. (05/09/02)R58

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

(05/09/02)R58

SECTION 640

MOBILIZATION AND DEMOBILIZATION

Standard Modification

640-1.01 DESCRIPTION. Add the following:

6. Comply with the Alaska Department of Labor and Workforce Development (DOLWD) requirements for Worker Meals and Lodging, or Per Diem; as described in their July 25, 2005 memo WHPL #197 (A2) and the State Laborer's and Mechanic's Minimum Rates of Pay (current issue).

   Ensure subcontractors comply with the DOLWD requirements.

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

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

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

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

Add the following:

4. Progress payments for Worker Meals and Lodging, or Per Diem will be computed as equivalent to the percentage, rounded to the nearest whole percent, of the original contract amount earned.

640-5.01 BASIS OF PAYMENT. Add the following pay item:

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
640(4)	Worker Meals and Lodging, or Per Diem	Lump Sum

E27(1/01/06)

Delete Section 641 in its entirety and substitute 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 Construction General Permit.

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

Alaska Certified Erosion and Sediment Control Lead (AK-CESCL). A person who has completed training, testing, and other requirements of and has received certification as an AK-CESCL from an AK-CESCL Training Program. 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 (ADEC). The state agency authorized by EPA to administer the Clean Water Act's National Pollutant Discharge Elimination System.

Alaska Pollutant Discharge Elimination System (APDES). Administered by ADEC.

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.

Certified Professional in Erosion and Sediment Control (CPESC). Individual having training, expertise, and experience in controlling erosion and sedimentation as provided and certified by EnviroCert International, Inc.

Clean Water Act (CWA). Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.).

Consent Decree. A decree entered by the United States District Court for the District of Alaska on September 21, 2010, regarding implementation of the CGP by the Operators at Department of Transportation and Public Facilities Construction Projects, with stipulated penalties for non-compliance.

This document is available online at:
http://www.dot.state.ak.us/stwddes/desenviron/resources/stormwater.shtml

Construction Activity. Physical activity and support activity by the Contractor, subcontractor or utility company at the Project; that may result in erosion, sedimentation, or a discharge of pollutants in storm water. Construction Activity includes, but is not limited to, soil disturbing activities (e.g. clearing, grading, excavating); and construction materials or equipment storage or maintenance (e.g. material piles, borrow area, concrete truck washdown, fueling); and other industrial storm water directly related to the construction process (e.g. concrete or asphalt batch plants).

Construction General Permit (CGP). Authorizes storm water discharges from construction activities where those discharges enter surface waters of the United States or a municipal separate storm water system leading to surface waters of the United States subject to the conditions set forth in the permit.

Electronic Notice of Intent (eNOI & NOI). Submitted to ADEC, to apply to obtain coverage under the CGP. Make submittals in electronic form; provide paper copy only where specified herein or requested.

Electronic Notice of Termination (eNOT & NOT). Submitted to ADEC, to end coverage under the CGP. Make submittals in electronic form; provide paper copy only where specified herein or requested.

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. As 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.

Operator(s). The party or co-parties associated with a regulated activity that has responsibility to obtain storm water permit coverage. "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.

Project Zone. The physical area provided by the Department for Construction. The Project Zone includes project staging and equipment areas, areas of utility work associated with the project, and material and disposal sites; when those areas and sites are provided by the Department.

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; or 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, which 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, and other applicable federal, state, and local laws and regulations related to hazardous materials.

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.

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.

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 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.

Utility Spill Response Coordinator. The Utility's representative with authority and responsibility for coordinating the utility's activities in compliance with 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 108-1.03.5 use the Contractor submission and Department review deadlines identified in this section.

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.

1. SWPPP. Submit three hard copies of the SWPPP to the Project Engineer (Engineer) for approval. Deliver these documents to the Engineer at least 21 calendar days before beginning Construction Activity. Organize and bind the SWPPP and related documents for submittal according to the requirements of 641-2.01.2.

   The Department will review the SWPPP submittals within 14 calendar days after they are received. Submittals will be returned to the Contractor, and marked as either requiring revisions or as approved by the Department. The 14 day review period will restart when the contractor submits to the Engineer the revised SWPPP. Upon the Engineers' approval, also provide an electronic copy on CD or Portable Document Format (.pdf) of the complete SWPPP and related documents.

   Sign and certify the Department-approved SWPPP.

2. HMCP. 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. SPCC 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 calendar days before beginning Construction Activity. The Department reserves the right to review the SPCC Plan and require modifications.

4. CGP Coverage. Following Department approval of the SWPPP and prior to beginning Construction Activity, submit an eNOI with the required fee to ADEC for coverage under the Construction General Permit (CGP). Submit a copy of the eNOI to the Engineer when the eNOI is submitted to ADEC.

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

   The Engineer will provide the Contractor with a copy of the Department's eNOI. Include the Department's eNOI in the SWPPP.

5. Ending CGP Coverage. Within 30 days after the Engineer has determined that Final Stabilization has been established in the Project Zone, submit an eNOT to ADEC and submit a copy of this eNOT to the Engineer. The Department will then submit an eNOT to ADEC and a copy to the Contractor.

6. ADEC SWPPP Review. When CGP, Part 5.13 requires ADEC SWPPP review:
   a. Transmit a copy of the Department-approved SWPPP to ADEC using delivery receipt confirmation;
   b. Transmit a copy of the delivery receipt confirmation to the Engineer within seven (7) calendar days of receiving the confirmation;
   c. Include a copy of delivery receipt confirmation in the SWPPP;

7. Local Government SWPPP Review. When CGP, Part 5.13 requires local government review:
   a. Transmit a copy of the Department-approved SWPPP to local government, with the required fee using delivery receipt confirmation;
   b. Transmit a copy of the delivery receipt confirmation to the Engineer within seven (7) calendar days of receiving the confirmation;
   c. Transmit a copy of any comments by the local government to the Engineer within seven (7) days of receipt;
   d. Amend the SWPPP as necessary to address local government comments and transmit SWPPP Amendments to the Engineer within seven (7) days of receipt of the comments; and
   e. Include a copy of local government SWPPP review letter in the SWPPP.

641-1.04 PERSONNEL QUALIFICATIONS. The SWPPP Preparer must meet at least one of the following qualifications:

- Current certification as a Certified Professional in Erosion and Sediment Control (CPESC)
- Current certification as AK-CESCL, and at least three years experience in erosion and sediment control (provide documentation including project names, project timelines, and work responsibilities demonstrating the experience requirement)
- Professional Engineer registered in the State of Alaska with current certification as AK-CESCL

The Superintendent must meet all the following qualifications:

- Current certification as AK-CESCL
- Duly authorized representative, as defined in the CGP, Appendix F, Part 1.12.3

The SWPPP Manager must hold current certification as AK-CESCL.

The Department accepts people holding any of the following certificates as equivalent to AK-CESCL, if the certificates are current according to the sponsoring organization's policies and in no case more than three years old:

- CPESC, Certified Professional in Erosion and Sediment Control
- CISEC, Certified Inspector in Sediment and Erosion Control
- CESCL, Washington Department of Ecology Certified Erosion and Sediment Control Lead (Through Nov. 30, 2011 only. Will not be accepted as an equivalent substitution after Nov. 30, 2011)

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 F, Part 1.12.2. 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 F, Part 1.12.3, for the SWPPP. Inspection reports and other reports required by the CGP. The Engineer will provide the Department's delegation Form 25D-107, which the Contractor must include in the SWPPP.

3. Subcontractor Certification. Subcontractors must certify that they have read and will abide by the CGP and the conditions of the project SWPPP.

641-1.06 RESERVED.

641-1.07 RESPONSIBILITY FOR SWPPP PERMIT COVERAGE.

1. The Department and the Contractor are jointly responsible for permitting and permit compliance within the Project Zone, including concurrent utility relocation activities as outlined in Section 105-1.06.

2. The Contractor is responsible for permitting and permit compliance outside the Project Zone. The Contractor has sole responsibility for compliance with ADEC and other applicable federal, state, and local requirements, and for securing all necessary clearances, rights, and permits. Areas where the Contractor has sole responsibility for compliance shall not be incorporated or covered under the Project SWPPP, but will require a separate SWPPP and eNOI as part of a larger project. If the area must be covered by the industrial storm water permit, note that there is a 30-day waiting period for the eNOI to become active. Document the name of each operator, and the locations of these areas in the Project SWPPP.

3. An entity that owns or operates, a commercial plant (as defined in 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 a permit and is complying with their permit. Section 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. In areas outside the Project Zone; and
   b. For commercial plants, commercial material sources, and commercial disposal sites.

5. 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 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 SWPPP REQUIREMENTS.

1. SWPPP Preparer and Pre-Construction Site Visit.

   The SWPPP shall be prepared by a SWPPP preparer that is qualified according to the requirements of this specification. The SWPPP shall include the SWPPP Preparer's name, qualifications (including the expiration date of any certifications), title and company name.

   The SWPPP Preparer must conduct a pre-construction inspection at the Project site before Construction Activity begins. The SWPPP Preparer must be accompanied by the Contractor and Engineer.

   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 ESCP as a starting point for developing the SWPPP. The approved SWPPP replaces the ESCP.

Develop the SWPPP according to the EPA's SWPPP Template for Authorized States with additional information as required.

When using the EPA's SWPPP template:

- In Section 3 (Good Housekeeping), add a subsection to describe dedicated asphalt plants and/or dedicated concrete plants, give their locations and identify the BMPs that will be used to minimize pollutants from them. If there are no dedicated asphalt or concrete plants, then state that in the SWPPP.

- Include the following appendices:

    - Appendix A – General Location Map
    - Appendix B – Site Maps
    - Appendix C – Construction General Permit
    - Appendix D – NOI(s) and Acknowledgement Letter from State
    - Appendix E – Inspection Reports
    - Appendix F – Corrective Action Log
    - Appendix G – SWPPP Amendment Log
    - Appendix H – Subcontractor Certifications/Agreements
    - Appendix I – Grading and Stabilization Activities Log
    - Appendix J – Training Log
    - Appendix K – Delegation of Authority
    - Appendix L – Additional Information (i.e. Department acquired permits, Contractor acquired permits)

- Add appendices for:

    - Appendix M – Endangered Species Act and historic preservation documents
        - Use the documents obtained by the Department, see SWPPP Considerations and Contents below
    - Appendix N – HMCP
    - Appendix O – BMP Descriptions/Drawings
    - Appendix P – SWPPP Preparer's Site Visit
    - Appendix Q – Personnel qualification & training certifications for:
        - Superintendent
        - SWPPP Preparer
        - SWPPP Manager
        - Department Engineer and Storm Water Inspector
        - Qualified personnel must be described in a list with names and dates in positions
    - Appendix R – Rainfall logs
    - Appendix S – Correspondence with ADEC and local government including:
        - ADEC delivery receipt of SWPPP
        - ADEC SWPPP review letter
        - ADEC non-domestic wastewater plan review non-objection letter when required (use the letter obtained by the Department)

- Local SWPPP review letter when required
- Appendix T – NOT forms

- Use the following Department forms for recording information in the SWPPP:

  - SWPPP Amendment Log.....(25D-114)
  - SWPPP Certification for Contractor.....(25D-111)
  - SWPPP Construction Site Inspection Report.....(25D-100 Parts 1&2)
  - SWPPP Corrective Action Log.....(25D-112)
  - SWPPP Daily Record of Rainfall.....(25D-115)
  - SWPPP Delegation of Signature Authority – Contractor.....(25D-108)
  - SWPPP Grading and Stabilization Activities Log.....(25D-110)
  - SWPPP Pre-Construction Site Visit.....(25D-106)
  - SWPPP Subcontractor Certification.....(25D-105)
  - SWPPP Training Log.....(25D-125)
  - SWPPP Delegation of Signature Authority – DOT&PF.....(25D-107)
  - SWPPP Certification for DOT&PF.....(25D-109)
  - SWPPP Delayed Action Item Report.....(25D-113)

  Department forms are updated annually and available on the Internet at:

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

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

3. SWPPP Considerations and Contents.

The SWPPP must provide erosion and sediment control measures for all Construction Activity. The SWPPP must consider the activities of the Contractor and all subcontractors and utility companies performing work for the Project. 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, and identify the areas:

a. Over which each operator has operational control; and
b. Where the Department and Contractor are co-operators.

The SWPPP must identify specific areas where potential erosion, sedimentation, or pollution may occur. The potential for wind erosion and erosion at drainage structures must be addressed. Include in the "Stabilize Soils" section of the SWPPP, a description of how you will minimize the amount of disturbed and un-stabilized ground in the fall season and how you will stabilize areas when it is close to or past the seasonal time of snow cover or frozen conditions. Include a plan for complete temporary stabilization for seasonal suspension of work and final stabilization. Refer to CGP, Appendix A, for definitions of Final Stabilization.

Describe BMPs in the SWPPP and in SWPPP Amendments, including source controls, sediment controls, discharge points, and all temporary and permanent stabilization measures. Describe the design, placement, installation, and maintenance of each BMP, using words and drawings as appropriate. Provide a citation to the BMP Manual or publication used as a source for the BMP, including the title of the BMP Manual or publication, the author (individual or agency), and date of publication. If no published source was used to select or design a BMP, then the SWPPP or SWPPP amendment must state that "No published BMP manual was used for this design." Include a drawing and description when designing a BMP.

Describe the sequence and timing of activities that disturb soils and of BMP implementation and removal. Phase earth disturbing activities to minimize un-stabilized areas, and to achieve temporary or final stabilization quickly. Whenever practicable construct un-stabilized areas directly into final stabilization.

Identify the inspection schedule in the SWPPP. Inspections shall be conducted at least once every seven days during construction.

The SWPPP must cite and incorporate applicable requirements of the Project permits, environmental commitments, 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.

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 grading 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 641-3.03 for more information.

4. Recording Personnel and Contact Information in the SWPPP.

Include in the SWPPP copies of the AK-CESCL cards 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 the names of the replacement personnel, the date of the replacement, and for temporary personnel 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 and Utility SWPPP Coordinators.

The Department will provide Records of AK-CESCL cards for the Engineer and the SWPPP Inspectors, and names and dates they are acting in that position. Include the Department's Records in the SWPPP.

641-2.02 HMCP REQUIREMENTS. Prepare the HMCP for prevention of pollution from storage, use, containment, cleanup, and disposal of all hazardous material, including petroleum products related to construction activities and equipment. Include the HMCP as an appendix to the 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 Spill Response Coordinator for each subcontractor or utility. The Superintendent and Contractor's Spill Response Field Representative must have 24 hour contact information for each Subcontractor and Utility Spill Response Coordinators.

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

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

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.

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 18 AAC 75 and AS 46, Oil and Hazardous Substances Pollution Control. Include contact information for reporting hazardous materials and petroleum product spills to the Engineer and reporting to federal, state, and local agencies.

641-2.03 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:

- Oil or petroleum products from a spill may reach navigable waters (as defined in 40 CFR 112); and

- 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 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 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.

The Superintendent and SWPPP Manager shall be knowledgeable in the requirements of this section, 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 to suspend 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 an Oregon Scientific RGR126 Wireless Rain Gauge with Temperature, or Taylor 2751 Digital Wireless Rain Gauge with Thermometer, or approved equivalent.

641-3.01 CONSTRUCTION REQUIREMENTS.

Comply with the requirements of the SWPPP and CGP.

1. Before Construction Activity may Begin.

- The SWPPP Preparer, Contractor, and Engineer must visit the Project, the visit must be documented in the SWPPP, and the SWPPP must be developed (or amended) with findings from the visit
- The SWPPP must be approved by the Engineer
- The Contractor must be authorized to begin construction activity by the Engineer
- Submit Department approved SWPPP to ADEC
- 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 ADEC website

Post notices containing the following information:

- Copy of all eNOIs related to this project
- Name and phone number of SWPPP Manager
- Where the SWPPP is located

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 and locate so the public can read them without obstructing construction activities (for example, at an existing pullout). Do not use retro-reflective signs for the SWPPP posting. Do not locate SWPPP signs in locations where the signs may be confused with traffic control signs or devices.

Install an outdoor rain gauge in an approved and readily accessible location on the Project.

Install sediment controls and other BMPs that must be placed prior to the initiation of Construction Activity.

2. During Construction.

Include SWPPP Subcontractor Certifications as an appendix to the SWPPP. Coordinate with subcontractors and utility companies doing work in the Project Zone so BMPs, including temporary and permanent stabilization are installed, maintained, and protected from damage.

Provide on-going training to employees, utilities, and subcontractors, on control measures at the site and applicable storm water pollution prevention procedures. 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.

Place absorbent pads or other suitable containment under fill ports while fueling and under equipment during maintenance or repairs. Install secondary containment under all stationary equipment that contains petroleum products.

Keep the SWPPP current (refer to 641-2.01.3, SWPPP Considerations and Contents).

3. Pollutant and Hazardous Materials Reporting Requirements.

If there has been an incident of non-compliance with the CGP that may endanger health or the environment, immediately report the incident to ADEC according to the CGP, Appendix F. Notify the Engineer immediately and to the extent possible coordinate reports to ADEC with the Engineer. The report must include:

- A description of the noncompliance and its causes
- The exact dates and times of noncompliance
- If not yet corrected the anticipated time the project will be brought back into compliance
- The corrective action taken or planned to reduce, eliminate and prevent reoccurrence

Report spills of petroleum products or other hazardous materials to the Engineer and 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 corrective action:

- If an incident of non-compliance with the SWPPP, or CGP is identified
- If an Inspection identifies the SWPPP or any part of the SWPPP is ineffective in preventing erosion, sedimentation or the discharge of pollutants
- If the Engineer determines the SWPPP or any part of the SWPPP is ineffective in preventing the erosion, sedimentation, or the discharge of pollutants
- If any BMP is damaged, undercut, or unable to effectively perform the intended function
- Before sediment or debris fills any BMP (including sediment traps, ponds and silt fences) to 50% of its design storage capacity (or manufacturer's specifications, whichever is lower)
- Whenever there is a change in conditions, design, construction, operation, or maintenance that could result in erosion, sedimentation, or the discharge of pollutants

Implement corrective actions so that all of the following time requirements are satisfied:

- Corrective action is completed as soon as possible
- Corrective action is completed before the next storm event
- Corrective action is completed in time to protect water quality
- Corrective action is completed no later than the end of the day, six calendar days following the day of an Inspection identifying the need for corrective action

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 alternative BMPs as soon as possible.

5. Stabilization.

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

- As soon as practicable
- As soon as necessary to avoid erosion, sedimentation, or the discharge of pollutants
- As identified in the SWPPP
- No later than 14 days after the temporary or permanent cessation of land-disturbing activities on a portion of the site, according to the CGP

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

The Contractor is responsible for control measures associated with stockpiles.

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.

6. Ending SWPPP Activities and SWPPP Maintenance.

The Engineer will determine SWPPP activities have ended when all of the following requirements are met:

- Land disturbing activities have ceased
- Final Stabilization has been achieved (including at Department furnished material sources, disposal sites, staging areas, equipment areas, etc.)
- Temporary BMPs have been removed

Submit eNOT after written notice from the Engineer and according to Subsection 641-1.03.5.

The Department will provide a copy of its eNOT to the contractor for inclusion in the SWPPP.

7. Transmit final SWPPP.

Transmit one copy of the final SWPPP, including all amendments and appendixes, to the Engineer when the project eNOTs are filed. Transmittal must be both electronic and hard copy.

641-3.02 SWPPP DOCUMENTS, LOCATION ON-SITE AND RECORD RETENTION. Keep the approved 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 approved by the Engineer. 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 ADEC 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 ADEC has determined all issues related to the investigation are settled.

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, SWPPP Amendment Log, SWPPP Grading and Stabilization Logs, and SWPPP Daily Record of Rainfall forms.

1. Inspection during Construction.

Inspections shall be conducted at least once every seven (7) days.

Following a storm event of 1/2" or greater rainfall in a 24 hour period recorded at the project site rain gauge, the responsible parties should conduct an informal inspection of the Project to ensure all BMP's are working properly and perform any necessary corrective actions as soon as possible.

Inspections required by the CGP and SWPPP must be performed by the Contractor SWPPP Manager and the Department SWPPP Inspector jointly, unless impracticable. For this paragraph, "impracticable" means when both inspectors must fly to a remote area in the winter or when one inspector is sick or unable to travel to the site due to weather. 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. Complete all fields included on the Inspection report form; do not leave any field blank.

Unless otherwise directed or approved by the Engineer, insert as the date each corrective action will be completed by the date that is (1) six calendar days after the date of the Inspection, or (2) a date that complies with the time requirements listed in 641-3.01.4, whichever is sooner. The Superintendent must provide the report to the Engineer the same day.

Prior to the Engineer certifying the report, submit electronic copies of the SWPPP Inspection Report, Working Site Maps/Plan Sheets, SWPPP Amendment Log, SWPPP Amendments since the last Inspection, SWPPP Corrective Action Log, SWPPP Grading and Stabilization Logs, and SWPPP Daily Record of Rainfall forms as directed by the Engineer for Quality Assurance review.

Quality Assurance has two (2) working days to review the reports. As directed by the Engineer, correct all items and complete certification with the signature of the Superintendent within one (1) working day. The Engineer will review and certify the report and return the original to the Contractor within one (1) working day.

If subsequent corrections to the dually signed Inspection report are needed, document the corrections in a supplement that addresses only the omitted or erroneous portions of the original Inspection report. The Superintendent and the Engineer must both sign and certify the supplement.

3. Inspection before Seasonal Suspension of Work.

Conduct an Inspection before seasonal suspension of work to confirm BMPs are installed, functioning and Project Zone is 100% temporarily stabilized, 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.

Inspection frequency during winter work or seasonal suspension of work may be reduced to at least one Inspection every month if approved by the Engineer and either of the following requirements is met:

- The entire site is temporarily stabilized, or
- Runoff is unlikely due to winter conditions (e.g. the site is covered with snow, ice or the ground is frozen, and water flow or seepage is not likely to occur)

The Engineer may waive winter monthly Inspection requirements until one month before thawing conditions are expected to result in a discharge, if all the following requirements are met:

- Frozen conditions are anticipated to continue for more than one month
- Land disturbance activities have been suspended

Historical weather information is available at:
http://www.wrcc.dri.edu/summary/climsmak.html

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 Seasonal Thaw.

Construction Activities within the Project Zone must be stabilized with appropriate BMPs prior to seasonal thaw. Seasonal thaw is the annual (first) recurrence of snow and ice melting after a prolonged period of freezing conditions.

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 amendments to the SWPPP and updates to the SWPPP Amendment Log.

SWPPP Amendments must be approved by the Engineer.

Amendments must occur:

- 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
- If an Inspection identifies that any portion of the SWPPP is ineffective in preventing erosion, sedimentation, or the discharge of pollutants
- Whenever an Inspection identifies a problem that requires additional or modified BMPs
- Whenever a BMP is added, removed, or modified
- If the Inspection frequency is modified (note beginning and ending dates)
- When there is a change in personnel who are named in the SWPPP, according to 641-2.01.4

Amend the SWPPP narrative as soon as practicable after any change or modification, but in no case, later than seven (7) calendar days following identification of the need for an amendment. Every SWPPP Amendment must be 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 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. Drawings.

Document planned SWPPP activities such as installation and removal of BMPs, by making notes in the SWPPP drawings. Include the date and the recording person's initials by these notes.

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.

Modification or replacement of a BMP, installation of a new BMP, or overdue maintenance (after a sediment trap exceeds 50% of design capacity) is a corrective action and must be documented on the Corrective Action Log.

After each Inspection report has been signed and certified, update the corrective action log to include all corrective actions noted on the inspection report.

After the corrective action has been accomplished, note the action taken, and 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 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 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.

641-3.04 RESERVED.

TABLE 641-2, RESERVED.

641-3.05 NON-COMPLIANCE. The Engineer has authority to suspend work and withhold monies, for an incident of non-compliance with the CGP or SWPPP. If the suspension is to protect workers, the public, or the environment from imminent harm, the Engineer may orally order the suspension of work. Following an oral order of suspension, the Engineer will promptly give written notice of suspension. In other circumstances, the Engineer will give the Contractor written notice of suspension before suspension of work. A notice of suspension will state the defects or reasons for a suspension, the corrective actions required to stop suspension, and the time allowed to complete corrective actions. If the Contractor fails to take the corrective action within the specified time, the Engineer may:

1. Suspend the work until corrective action is completed;
2. Withhold monies due the Contractor until corrective action is completed;
3. Assess Price Adjustments against the Contract Amount;
4. Employ others to perform the corrective action and deduct the cost from the Contract amount.

Reasons for the Engineer to take action under this section include but are not limited to failure to:

- Meet requirements of the CGP, SWPPP, or other permits, laws, and regulations related to erosion, sediment, or pollution control and perform the duties according to the requirements of Section 641 including but not limited to:

  - Perform SWPPP Administration
  - Perform timely Inspections
  - Update the SWPPP
  - Transmit SWPPP, Inspection reports, and other SWPPP forms that are updated weekly to the Engineer
  - Maintain effective BMPs to control erosion, sedimentation, and pollution in accordance with the SWPPP, the CGP, and applicable local, state, and federal requirements

Price Adjustments depend on the non-compliance issue, and range from $750 to $5,000 per occurrence with additional Price Adjustments for each day until compliance is achieved.

Price Adjustment for an incident of non-compliance that results in violation, as determined by the Engineer, will be withheld from the pay estimate pending billing from the Department to the Contractor. These are Liquidated Damages which represent violation penalties or fines assessed to the Department by Regulatory Agencies. After separate payment is received by the Department from the Contractor satisfying violation penalties, the equal amount of Price Adjustment withheld will be released in the next pay estimate.

Regulatory agencies may separately penalize or fine the Contractor and/or the Department for much higher amounts for Permit violations (for example federal penalties may be up to $37,500 per day per violation and state penalties may be up to $100,000 per violation). The Contractor is responsible for the payment of any and all penalties and fines levied against the Department or Contractor by other entities (including agencies).

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

641-4.01 METHOD OF MEASUREMENT. Section 109, 618, 619, 633, 690, and as follows:

Items 641(2) and 641(5) will be measured as specified in the Contract or Directive authorizing the work.

Items 641(6) will be measured and deductions determined by the Department.

641-5.01 BASIS OF PAYMENT. See Section 641-3.05 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 Manager, 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.

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

The SWPPP Manager and rain/temperature gauge are subsidiary to Pay Item 641(1).

Item 641(2) Temporary Erosion, Sediment, and Pollution Control. At the contingent sum prices 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. Prices for this item will be for time and materials according to Section 109-1.05, or by mutual agreement between the Engineer and Contractor.

Item 641(3) Temporary Erosion, Sediment, and Pollution Control. At the contract lump sum price for all labor, supervision, material, equipment, and incidentals to install, maintain, remove, and dispose of temporary erosion, sedimentation, and pollution control BMPs identified in the SWPPP and SPCC Plan.

Item 641(5) Temporary Erosion, Sediment, and Pollution Control by Directive. At the contingent sum prices specified in the Directive using time and materials to authorize the work, for all labor, supervision, materials, equipment, and incidentals to install, maintain, remove and dispose of temporary erosion, sedimentation, and pollution control BMPs. Prices for this item will be for time and materials according to Section 109-1.05, or by mutual agreement between the Engineer and Contractor. All additional Erosion, Sediment, and Pollution Control Administration necessary due to this item will not be paid for separately but will be subsidiary to other bid items.

Item 641(6) SWPPP Price Adjustment. Withholding according to Section 641-3.05 and Liquidated Damages equal to any penalties and fines levied against the Department by local, state or federal agencies for pollutant violations, including violations of the CWA, CGP, and any other Permit, except when due to the Department's sole negligence. The Contractor is also responsible for the payment of any and all penalties and fines levied against the Department or Contractor by entities (including agencies) other than the Department.

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:

- Dewatering
- Shoring
- Bailing
- Permanent seeding
- Installation and removal of temporary work pads
- Temporary accesses
- Temporary drainage pipes and structures
- Diversion channels
- Settling impoundment
- 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 directed 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(3)	Temporary Erosion, Sediment, and Pollution Control	Lump Sum
641(5)	Temporary Erosion, Sediment, and Pollution Control by Directive	Contingent Sum
641(6)	SWPPP Price Adjustment	Contingent Sum

CR641-120810

SECTION 642

CONSTRUCTION SURVEYING AND MONUMENTS

Standard Modifications

642-3.04 OFFICE ENGINEERING. Delete third sentence and replace with:

Perform the work by, or under the responsible charge of, a person registered in the State of Alaska as a Professional Land Surveyor or a Professional Engineer.

E53-050107

SECTION 643

TRAFFIC MAINTENANCE

Special Provisions

643-1.01 DESCRIPTION. Add the following:

Additional work:

- Illuminate construction activities listed in Table 643-3, Night Work Illumination Level, and Area of Coverage, during hours of night work on roads open to the public inside the project limits.

ES14-031506

643-1.02 DEFINITIONS. Add the following paragraphs after paragraph titled "Construction Phasing Plan":

Balloon Light: Light surrounding's by a balloon-like enclosure kept inflated by pressurized air or helium, and producing uniform light through 360 horizontal degrees. The top half of the balloon enclosure shall be constructed of an opaque material.

Night Work: Work occurring between sunset and sunrise on all days.

ES14-031506

Special Provisions

643-1.03 TRAFFIC CONTROL PLAN. Replace the last paragraph with the following:

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.

Add the following:

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.

CR6431-022510

643-1.04 WORKSITE SUPERVISOR.

1. Qualifications. Replace with the following:

   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, your proposed operations, and certified as one of the following:

   a. Traffic Control Supervisor, American Traffic Safety Services Association (ATSSA)

   b. Work Zone Safety Specialist, International Municipal Signal Association (IMSA)

Certify according to Form 25D-124 that the Worksite Traffic Supervisor is competent and capable, and has the authority to perform the duties and responsibilities in accordance with this Section.

Worksite Traffic Supervisors shall maintain current certification and be able to show their certification anytime they are on the project.

CR6432-110410

2. Duties. Add the following:

I. Supervise lighting of Night Work.

ES14-031506

Standard Modifications

Add No. 3. Authority:

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.

643-2.01 MATERIALS.

4. Portable Concrete Barriers. Add the following:

Use reflective sheeting that meets AASHTO M 268 Type III, IV or V.

10. Temporary Crash Cushions. Replace with the following:

Temporary Crash Cushions. Must have FHWA Acceptance letter for National Cooperative Highway Research Program (NCHRP) 350 or Manual for Assessing Safety Hardware (MASH), Test Level 3. Use reflective sheeting that meets AASHTO M 268 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 are considered nonredirective and may only be used when the forecasted temperature during their use is above 32 degrees Fahrenheit.

CR6432-110410

12. Portable Changeable Message Board Sign. Replace with the following:

Portable Changeable Message Board Sign. 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 either in the attachment plug or 12 inches or less from the plug.

CR6431-110410

13. Plastic Safety Fence. Replace a., b., and c. with the following:

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.

16. Flagger Paddles. Replace the last sentence with the following:

Use reflective sheeting that meets AASHTO M 268 Type VIII or IX. Use background colors of fluorescent orange on one side and red on the other side.

Add No. 17:

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. The TMA shall comply with NCHRP 350 or MASH, Test Level 3 requirements.

CR6432-110410

Add No. 18:

18. Flexible Markers. Refer to Subsection 606-2.01 Materials.

CR6431-110410

643-2.02 CRASHWORTHINESS. Submit documentation, by the method indicated, that the following devices comply with the requirements of National Cooperative Highway Research Program (NCHRP) Report 350 or Manual for Assessing Safety Hardware (MASH), Test Level 3 on the given schedule.

Submit documentation of compliance to the Engineer before installing devices on the project.

Work Zone Traffic Control Device Compliance with NCHRP 350 or MASH		
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	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 concrete barriers	FHWA acceptance letter specifying the Test Level required in the Plans or Specifications.

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 within the weight and height limitations.

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.
	Lo Density Plastic	77 lb.	36 in.
Delineators	Plastic or Fiberglass	N/A	48 in.

E77-100410

643-3.01 GENERAL CONSTRUCTION REQUIREMENTS. Add the following:

Immediately notify the Engineer of any traffic related accident that occurs within the project limits as soon as you, an employee, or a subcontractor becomes aware of the accident.

E90-100410

Add the following:

Where construction activity encroaches onto the safe route in a traffic control zone, station a flagger at the encroachment to assist pedestrians and bicyclists past the construction activity.

Maintain business access(s) during flagging operations.

643-3.02 ROADWAY CHARACTERISTICS DURING CONSTRUCTION. Add the following:

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. The surface shall be maintained to the engineers satisfaction.

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.

CR6431-110410

Standard Modification

Replace Subsection 643-3.03 PUBLIC NOTICE with the following:

643-3.03 PUBLIC NOTICE. Make sure the Worksite Traffic Supervisor gives a minimum of 3 days notice before major changes, delays, lane restrictions, or road closures to local officials and transportation organizations, including but not necessarily limited to:

- Local Police Department
- Local Fire Department
- Local Government Traffic Engineer
- School and Transit Authorities
- Local Emergency Medical Services
- Local Media (newspapers, radio, television)

- U.S. Postal Service

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. Tell them to use these numbers to alert you when emergency vehicles must pass through the project. When notified of emergencies, use all equipment and make every necessary effort to expedite rapid passage.

Additional notices may be given through the Navigator System for selected projects. Check the special provisions for those requirements.

E78-100410

643-3.04 TRAFFIC CONTROL DEVICES. Replace paragraphs 6 and 7 with the following:

Use only traffic control devices that meet the requirements of the "Acceptable" category in the American Traffic Safety Services Association (ATSSA) "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.

CR6432-110410

Replace paragraph 8 with the following:

Items paid under this Section remain the Contractor’s property unless stated otherwise. Remove them after completing the project.

1. Embankments. Add the following:

   Close trenches and excavations at the end of each continuous work shift, except as indicated by the Engineer.

3. Fixed Objects. Add the following:

   Remove obstructions greater than 4 inches above the nominal foreslope grade at the end of each continuous work shift.

4. Flagging. Replace with the following:

   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 (International Municipal Signal Association)
b. Flagger Certification by ATSSA (American Traffic Safety Services Association)
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 posts 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, such as parked vehicles, so that flaggers can be seen easily.

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 you flag 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.

6. Street Sweeping and Power Brooming. Replace with the following:

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 643-4, 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 be caught through a vacuum system.
b. Vacuum Sweeper: Sweeper that creates a vacuum at the paved surface sucking dirt, dust, and debris into the 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.

CR6431-110410

Add No. 9:

9. Truck Mounted Attenuator (TMA). TMAs are mounted on the rear of work vehicles. TMA 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. TMA 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 MUTCD. Do not use a damaged attenuator in the work. Replace at your expense, an attenuator damaged from an impact during work.

Add No. 10:

10. Parallel Guardrail Terminal. The price listed in the Traffic Control Rate Schedule, Table 643-4, will be full compensation for the purchase, installation, maintenance during construction, removal, and salvaging the Parallel Guardrail Terminal unit(s). Deliver the salvaged unit(s) to the nearest ADOT & PF Maintenance & Operations yard or as directed by the Engineer.

CR6432-110410

643-3.05 AUTHORITY OF THE ENGINEER. Replace the first sentence with:

When existing conditions adversely affect the public's safety or convenience, the Contractor will receive an oral notice. A written notice will follow the oral notice according to Subsection 105-1.01, Authority of the Engineer.

Add the following after the second sentence:

In no case shall this time exceed 24 hours.

CR6431-110410

643-3.06 TRAFFIC PRICE ADJUSTMENT. Add the following in the 2nd paragraph after the 2nd sentence:

Temporary crash cushions required to protect motorists from incomplete guardrail installations, as described in Section 606-5.01 is also an unauthorized lane reduction.

CR6432-110410

Add the following after the 3rd paragraph:

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 643-1, Adjustment Rates, for the time the roadway or pedestrian facility is in an unacceptable condition.

Replace Table 643-1 with the following:

TABLE 643-1
ADJUSTMENT RATES

Published ADT	Dollars/Minute of Delay/Lane
0 – 5,000	$ 30
5,000 +	$ 40

643-3.08 CONSTRUCTION SEQUENCING. Replace the last sentence with:

Lane restrictions, if allowed, shall be conducted so that no more than a 10 minute accumulated stopped delay, 40 vehicles, or 1/4 mile (1320 feet) of traffic is 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, will be allowed for motorists, except school buses. If a queue of traffic develops at a stop, the entire queue must be emptied to include the last car that entered the queue at the time the queue was released.

Obtain the local school bus schedule and coordinate work efforts to ensure the school buses are not delayed through the construction zone. This plan shall be submitted, as a TCP, to the Engineer for approval before the implementation of the school bus coordination plan.

643-3.09 INTERIM PAVEMENT MARKING. In the second paragraph, delete the words:

"or cover them with black removable preformed marking tape."

Replace the first sentence in the last paragraph with the following:

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.

CR6431-110410

Add the following new subsection:

643-3.10 LIGHTING OF NIGHT WORK. Illuminate the night work areas specified in Table 643-3, Night Work Illumination Level, and Area of Coverage, to the light levels specified.

Table 643-3 does not provide a comprehensive list of operations that require lighting. Provide lighting for other operations when necessary.

TABLE 643-3
NIGHT WORK ILLUMINATION LEVEL AND AREA OF COVERAGE

Type of Work/Equipment	Lighting Configuration
Paving, Milling, Striping, Pavement Marking Removal, Rumble Strip Installation	At least two machine mounted balloon lights with a cumulative wattage of at least 4000 watts. Provide additional lights or wattage if necessary to provide complete coverage.
Rolling, Pavement Sweeping	At least four sealed beam halogen lamps in the front and four in the back. Each should be at least 55 watts.
Flagging	Two balloon lights of at least 2000 watts each located within 30 feet of the normal flagger location. Locate one on the right side of the road beyond the flagger and the other on the left side of the road in front of the flagger.

Truck Crossings (meaning where haul vehicles cross or enter a road): 1) Roads with ADTs over 10,000 2) That are controlled by portable signals or flaggers	Two Balloon lights of at least 2000 watts each located on the main road, one on the far right side of the intersection, the other on the near left. Locate lights within 30 feet of the edges of the side street. If there is a flagger at the crossing, locate the lights to also meet the requirements for flagging.

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 achieve this goal.

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.

If the Contractor fails to provide the lighting equipment specified in Table 643-3 or provides lighting that creates unacceptable glare at any time, the Contractor shall cease the operations that require illumination until the condition is corrected.

Lighting equipment shall be in good operating condition and in compliance 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 do not interfere with the equipment operator or overhead structures. Connect fixtures securely in a manner that minimizes vibrations.

Ensure ground, trailer, and equipment mounted light towers are sturdy and freestanding without the aid of guy wires. Towers shall be capable of being moved to keep pace with the construction operation. Position 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 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 machines uniformly.

Furnish each side of nonstreet 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 do not eliminate the need for the Contractor to provide lighting meeting the requirements of Table 643-3.

Provide sufficient fuel, spare lamps, spare generators, and qualified personnel to ensure that 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 failure of the lighting system, discontinue the operation until the required level and quality of illumination is restored.

Maintain a supply of at least 20 emergency flares for use in the event of emergency or unanticipated situations. Comply with local noise ordinances.

Provide NCHRP 350-compliant breakaway bases for post mounted electroliers located within the clear zone.

ES14-031506

Standard Modifications

Add the following new subsection:

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.

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 bottoms at all times.

5. Outer Raingear. Wear raingear tops and bottoms conforming to requirements in 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 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 Pay Items.

E90-100410

Special Provisions

643-4.01 METHOD OF MEASUREMENT.

2. Traffic Control Device Items. Replace the second sentence with the following:

Special Construction signs are measured by the total area of legend bearing sign panel, as determined under Subsection 615-4.01 and compensation for a 24 hour period shall be made under Construction Signs in the Traffic Control Rate Schedule, Table 643-4.

CR6431-110410

Standard Modification

Add No. 16:

16. Steel F Shape Barrier. Shall be measured and paid for by the linear foot.

E81-100410

Add No. 17:

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.

643-5.01 BASIS OF PAYMENT.

7. Flagging and Pilot Car. Add the following:

The Engineer will pay for Item 643(15) Flagging on a contingent sum basis at the rate of $48.00/hour. The Engineer does not require a change order/directive for the flagging Pay Item. Flagging associated with Change Order work will be paid at the prices according to Subsection 109-1.05 Compensation for Extra Work.

11. Traffic Control. Add the following:

The Engineer does not require a change order/directive for Pay Item 643(25), Traffic Control.

CR6431-110410

Standard Modification

Add No. 16:

16. Steel F Shaped Barrier. The contract price includes all resources required to provide, install, maintain, move, and remove each barrier.

E82-100410

Add No. 17:

17. Work Zone Illumination. Payment for work zone illumination is subsidiary to other items.

ES14-031506

Add No. 18:

18. High Visibility Garments. Payment for high visibility garments for workers is subsidiary to other Pay Items.

Add No. 19:

19. Pavement Breaks. Temporary hot mix asphalt at pavement breaks, as noted in Subsection 643-3.02 is subsidiary to Pay Item 401(1B).

TABLE 643-4
TRAFFIC CONTROL RATE SCHEDULE

Traffic Control Device	Pay Unit	Unit Rate
Construction Signs	Each/Day	$5.00
Special Construction Signs	Square Foot	$24.00
Type II Barricade	Each/Day	$3.00
Type III Barricade	Each/Day	$10.00
Traffic Cone or Tubular Marker	Each/Day	$1.00
Drums	Each/Day	$3.00
Sequential Arrow Panel	Each/Day	$55.00
Portable Concrete Barrier	Each	$60.00
Temporary Crash Cushion / Parallel Guardrail Terminal	Each	$5000.00
Pilot Car	Hour	$65.00

Watering	M-Gallon	$20.00
Street Sweeping: Regenerative Sweeper, Vacuum Sweeper, Mechanical Broom Sweeper, Power Broom	Hour	$150.00
Plastic Safety Fence	Foot	$0.75
Portable Changeable Message Board Sign	Calendar Day	$150.00
Temporary Sidewalk Surfacing	Square Foot	$1.15
Flexible Markers	Each	$50.00
Removal of Pavement Markings	Foot	$1.25
Temporary Guardrail	Foot	$21.00

Replace Pay Item 643(15) with the following:

Pay Item No.	Pay Item	Pay Unit
643(15)	Flagging	Contingent Sum

CR6431-110410

Standard Modification

Add Pay Item 643(29):

Pay Item No.	Pay Item	Pay Unit
643(29)	Steel F Shaped Barrier	Linear Foot

E82-100410

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. A minimum of 1000 square feet of floor area. The office area shall be divided so that it contains an office room separated by a closable door. 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 16 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. Weekly janitorial service consisting of emptying trash receptacles, vacuuming office area, and cleaning restrooms and counter areas.
11. Provide on mobilization and one demobilization of the Engineer's office equipment and furniture.

CR644FOCOM-071009

Standard Modifications

644-2.02 FIELD LABORATORY. Add the following to the end of the second sentence of the first paragraph:

through one week after Project Completion.

E44-012707

Replace 2.g. with the following:

g. 500 gallon capacity tank with a pressure pump or a commercial pressurized system.

Replace 6.a. with the following:

a. Supply 240 volt, 60 hertz power, a 100 pound propane bottle, and a 500 gallon capacity water tank with a pressure pump or a commercial pressurized system for a State provided portable asphalt lab at a location designated by the Engineer.

Add the following:

7. Provide one mobilization and one demobilization of the Engineer's laboratory equipment from Anchorage.

CR644LAB-071009

644-2.05 VEHICLES. Delete the second and third paragraphs and substitute the following:

Pickup(LT)/Sport Utility Vehicle (SUV): Furnish full-size, four-wheel drive vehicles, either pickup/light truck(s) with crew cabs or sport utility vehicle(s). Provide vehicles in good condition. 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.

CR644LTSUV-071009

Standard Modification

Add the following new subsection:

644-2.06 NUCLEAR TESTING EQUIPMENT STORAGE SHED. Design, furnish and maintain a weatherproof, heated, and ventilated nuclear densometer/testing equipment storage shed for the Engineer to use exclusively throughout the Contract. Install the building at least 15 feet from an occupied area at a location approved by the Engineer. Install the shed before beginning of construction activities and maintain it until one week after project completion. Provide sufficient floor area for the nuclear testing equipment and a portable electric heater to maintain a minimum room temperature of 50 °F in freezing weather. Design the building with enough floor area to provide sufficient clearance between the equipment, heater, and combustibles. Provide a commercial grade metal clad exterior entrance door of 3'-0" minimum width by 6'-8" height with dead-bolt lockset. Hang the door so that hinge pins are not accessible from the exterior. Provide the Engineer with 2 keys to control access. Provide a 5/16" x 10 foot long welded steel security chain securely attached inside the structure with tamperproof hardware for the Engineer to secure the testing equipment. Provide 120 volt, 60 cycle power, an interior light, and a wall receptacle for the heater. Secure the structure to the ground with tamperproof anchors to resist wind loads and prevent unauthorized movement of the building. The nuclear testing equipment storage shed remains the property of the Contractor. Remove the shed from the site following project completion.

Add the following new subsection:

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

Deliver an empty and clean container to the Regional Materials Laboratory, or location acceptable to the Engineer, three weeks before transporting to the project site. Allow 7 days for the Department to load the container. Transport the loaded container to the project site. Set up container at a location approved by the Engineer before commencing construction work.

1. Provide electrical service and other facilities as follows:
   a. Electrical current, 120V (ac), 60 cycle on a 24 hour a day basis.

b. Wiring system to support a 20 amp user load demand.
c. 2 GFI protected outlets conveniently spaced on the interior walls.
d. Four 100 watt incandescent or eight 40 watt fluorescent lights located for maximum illumination.
e. Provide a stairway with railing, built to meet the International Building Code, if there is more than 12-inch difference in floor entry and existing ground elevation.

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

E44-012707

Add the following subsection:

Special Provisions

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)

644-3.01 METHOD OF MEASUREMENT.

Delete the third paragraph and substitute the following:

Vehicle. For each vehicle provided. If a replacement vehicle is necessary, no additional measurement will be made.

CR644UTV-070910

Standard Modification

Add the following Pay Items:

Nuclear Testing Equipment Storage Shed. By the number of storage sheds specified, to including components, installation and accepted as completed units and ready for equipment storage.

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

E44-012707

644-4.01 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.

CR644LAB-071009

Add the following:

Pay Item 644(8):

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.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
644(8)	Vehicle (LT/SUV)	Each

CR644LTSUV-071009

Add the following:

Pay Item 644(10) Engineering Communications. Usage services including long distance calls made by State personnel and the Internet service provider will be paid 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(10)	Engineering Communications	Contingent Sum

CR644FOCOM-071009

Add the following items:

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

1. A percentage of the lump sum amount, to be determined by the Engineer, will be paid as full compensation for furnishing the facility at the site.

2. The balance of the lump sum amount will be prorated over the anticipated active construction period with a portion included as part of each interim payment, for maintenance, repairs, providing all utilities, and for removing it from the site. If anticipated construction period changes, the final increment will be held until final payment.

Nuclear Testing Equipment Storage Shed. At the Contract unit price to include labor, materials, tools, equipment and supplies required to furnish and install the shed before beginning construction, to maintain it for the duration of the project and to remove the shed and electrical service after project completion. Electrical service and utility costs are subsidiary to this item.

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

Add to Pay Items:

Pay Item No.	Pay Item	Pay Unit
644(15)	Nuclear Testing Equipment Storage Shed	Each
644(16)	Storage Container	Each

E44-012707

Special Provision

Add the following Section:

SECTION 645

TRAINING PROGRAM

645-1.01 DESCRIPTION. This Training Special Provision implements 23CFR230, Subpart A, Appendix B.

As part of the Equal Employment Opportunity Affirmative Action Program, provide on-the-job training aimed at developing full journey status in the type of trade or job classification involved. The number of individuals to be trained and the number of hours of training to be provided under this contract will be as shown on the bid schedule.

645-2.01 OBJECTIVE. Training and upgrading of minorities and women toward journey status is the primary objective of this program. Enroll minorities and/or women, where possible, and document good faith efforts prior to the hire of non-minority males in order to demonstrate compliance with this Training Special Provision. Specific good faith efforts required under this Section for the recruitment and employment of minorities and women are found in the Federal EEO Bid Conditions, Form 25A-301, items 7.b, 7.c, 7.d, 7.e, 7.i, 7.j, and 7.l, located in the "yellow pages" of this document.

645-3.01 GENERAL. Determine the distribution of the required number of apprentices/trainees and the required number of hours of training among the various work classifications based upon the type of work to be performed, the size of the workforce in each trade or job classification, and the shortage of minority and female journey workers within a reasonable area of recruitment.

Training will be provided in the skilled construction crafts unless the Contractor can establish before contract award that training in the skilled classifications is not possible on a project; if so, the Department may then approve training either in lower level management positions such as office engineers, estimators, and timekeepers, where the training is oriented toward construction applications, or in the unskilled classifications, provided that significant and meaningful training can be provided. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Credit for offsite training hours indicted above may only be made to the Contractor where the apprentices/trainees are concurrently employed on the project and one or more of the following occurs: contribute to the cost of the training, provide the instruction to the apprentice/trainee, or pay the apprentice's/trainee's wages during the offsite training period.

Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

Prior to award of the contract, submit Form 25A-311, Training Utilization Report, indicating the training program to be used, the number of apprentices/trainees to be trained in each selected classification, the number of hours of training to be provided, and the anticipated starting time for training in each of the classifications.

Training must begin within 2 weeks of the anticipated start date(s); unless otherwise authorized by a Directive. Such authorization will be made only after submission of documentation by the Contractor, and approval by the Engineer, of efforts made in good faith which substantiate the necessity for a change.

Contractors may use a training program approved by the U.S. Department of Labor, Bureau of Apprenticeship & Training (USDOL/BAT), or one developed by the Contractor and approved prior to contract award by the Alaska Department of Transportation and Public Facilities (ADOT&PF) Training Program Representative, using Form 25A-310.

The minimum length and type of training for each classification will be established in the training program selected by the Contractor. Training program approval by the Department for use under this Section is on a project by project basis.

It is expected that each apprentice/trainee will begin training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist or until training has been completed. It is not required that apprentices/trainees be continuously employed for the duration of the contract.

If, in the Contractor's judgment, an apprentice/trainee becomes proficient enough to qualify as a journey worker before the end of the prescribed training period and the Contractor employs that individual as a journey worker in that classification for as long as work in that area remains, the individual's training program will be considered completed and the balance of training hours required for that apprentice/trainee shall be waived.

Furnish each ADOT&PF training program trainee a copy of the program (Form 25A-310) to be followed during training on the project, and with a written certification showing the type and length of training completed on the project. Existing USDOL/BAT apprentices should already have a copy of their program. No employee shall be employed for credit as an apprentice/trainee in a classification in which that employee has previously worked at journey status or has previously completed a training course leading to journey status.

Periodically review the training and promotion potential of minority and women employees and shall encourage eligible employees to apply for such training and promotion.

Provide for the maintenance of records and the furnishing of periodic reports documenting the progress of each apprentice/trainee. Submit Form 25A-313 by the 15th of each month and provide each ADOT&PF trainee written evaluation reports for each unit of training provided as established on Form 25A-310.

645-3.02 WAGES. Trainees in ADOT&PF approved training programs will be paid prevailing Davis-Bacon fringe benefits plus at least 60 (but less than 100) percent of the appropriate minimum journey rate specified in the contract for the first half of the training period, at least 75 (but less than 100) percent for the third quarter of the training period, and at least 90 (but less than 100) percent for the last quarter of the training period. Trainee wages shall be identified on Form 25A-310. Apprentices in USDOL/BAT training programs shall be paid in accordance with their approved program. Beginning wages of each trainee/apprentice enrolled in a Section 645 Training Program on the project shall be identified on Form 25A-312.

645-3.03 SUBCONTRACTS. In the event a portion of the work is subcontracted, the Engineer shall determine how many, if any, of the apprentices/trainees are to be trained by the subcontractor. Any such subcontracts shall include this Section 645, Form 25A-311 and Form 25A-310, where appropriate. However, the responsibility for meeting these training requirements remains with the Contractor; compliance or non-compliance with these provisions rests with the Contractor and sanctions and/or damages, if any, shall be applied to the Contractor according to Subsection 645-5.01, Basis of Payment.

645-4.01 METHOD OF MEASUREMENT. The Contractor will be credited for each approved apprentice/trainee employed on the project and reimbursed on the basis of hours worked, as listed in the certified payrolls. There shall be no credit for training provided under this Section before the Contractor's submittal and approval by the Engineer of Form 25A-312 for each apprentice/trainee trained under this Section. Upon completion of each individual training program, no further measurement for payment shall be made.

645-5.01 BASIS OF PAYMENT. Payment will be made at the contract unit price for each hour of training credited. Where a trainee or apprentice, at the Contractor's discretion, graduates early and is employed as a journey worker according to the provisions of Subsection 645-3.01, the Contractor will receive payment only for those hours of training actually provided.

This payment will be made regardless of other training program funds the Contractor may receive, unless such other funding sources specifically prohibits the Contractor from receiving other reimbursement.

Payment for training in excess of the number of hours specified on the approved Form 25A-311, may be made only when approved by the Engineer through Change Order.

Noncompliance with these specifications shall result in the withholding of progress payments until good faith efforts documentation has been submitted and acceptable remedial action has been taken.

Payment will be at the end of the project following the completion of training programs approved for the project. No payment or partial payment will be made if the Contractor fails to do the following and where such failure indicates a lack of good faith in meeting these requirements:

1. provide the required hours of training (as shown on the approved Form 25A-311),

2. train the required number of trainees/apprentices in each training program (as shown on the approved Form 25A-311), or

3. hire the apprentice/trainee as a journey worker in that classification upon completion of the training program for as long as work in that area remains.

Failure to provide the required training damages the effectiveness and integrity of this affirmative action program and thwarts the Department's federal mandate to bring women and minorities into the construction industry. Although precise damages to the program are impractical to calculate, they are at a minimum, equivalent to the loss to the individuals who were the intended beneficiaries of the program. Therefore, where the Contractor has failed, by the end of the project, to provide the required number of hours of training and has failed to submit acceptable good faith efforts documentation which establishes why the Contractor was unable to do so, the Contractor will be assessed an amount equal to the following damages to be ducted from the final progress payment:

Number of hours of training not provided, times the journey worker hourly scale plus benefits. The journey worker scale is that for the classification identified in the approved programs.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
645(1)	Training Program, 1 Trainee/Apprentice	Labor Hour

S16-102991

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 Item 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 weekly or as deemed necessary by the Engineer.

CR261-121302

SECTION 660

SIGNALS AND LIGHTING

Special Provisions

660-1.02 DEFINITIONS. Revise the first sentence to read:

Use the definitions in NEMA TS 2-2003 V02.06, *Traffic Controller Assemblies With NTCIP Requirements*, Section 1, Definitions, along with the following:

Under No. 2. Luminaire. Revise the second sentence to read:

Luminaires consist of hood (including socket, lamp, and ballast), reflector, and glass globe or refractor.

CR660-081210

Standard Modification

660-2.01 MATERIALS. Under No. 1.b. change title by removing: Materials Not on the "Approved Products List:" and replace with: Materials on the "Qualified Products List:"

E36-012707

660-2.01 MATERIALS. Add the following:

Anchor Bolts: Section 740-2.02

1. Equipment List(s) and Drawings. Delete No. a. in its entirety and the last sentence in No. d. and substitute the following:

   a. Materials on the *Qualified Products List*: The Qualified Products List does not apply to the 660 items. Provide catalog cuts of materials to the Engineer for review and approval.

   d. Materials Not Requiring Certification: Only submit these materials for review and approval if they are included on the Materials Certification List (MCL).

2. As-Built Plans. Add the following: Place 1 copy of the controller cabinet diagram, detector assignment sheet and the intersection and phase diagram as reviewed by the Engineer in clear plastic envelopes and attach to the inside of each controller cabinet.

CONSTRUCTION REQUIREMENTS

660-3.01 GENERAL. Delete items 3 through 8 in their entirety and substitute the following:

3. Excavating and Backfilling. Complete excavation and backfill required to install the signal and lighting components embedded in the roadway as shown in the Plans, including foundations, conduits, junction boxes, and loop detectors before final lift paving. Provide traffic control to complete this work according to the requirements of Section 643. Place excavated materials where it will not interfere with surface drainage.

   Support and protect conduits and utilities scheduled to remain in service when encountering them during excavation.

   Excavate trenches wide enough to install the number of conduits specified and to compact the bedding and backfill materials according to these specifications.

   To install conduits, excavate trenches deep enough to allow for 6 inches of bedding material, the depth of the largest conduit, and the minimum burial depth specified between the top of the conduit and finished grade of the ground above the conduit. Keep the longitudinal profile of trench bottoms free of irregularities that would prevent the assembled conduit run from continuously contacting the top of the bedding material.

   When conditions allow HDPE conduit to be installed by a plowed technique, restoring the area disturbed from the process, shall be accomplished according to Subsection 203-3.03. Density testing

may be waived and compactive effort substituted at the discretion of the Engineer. This work is subsidiary to conduit installation. Use Selected Material, Type A for backfill.

Dispose of, according to Subsection 203-3.01, excavated materials that remain after completing backfill work and excavated material not meeting the requirements of Selected Material, Type C, as defined in Subsection 703-2.07. Disposal of this material is subsidiary to the 660 Pay Items.

Dewater foundation and conduit excavations immediately before and during embedding and backfilling operations. Backfill excavations with materials that meet the following requirements:

a. Backfill foundations with material that meets the requirements of Selected Material, Type A that passes through a 3 inch sieve.

b. Within the limits of the typical section, embed conduits and backfill trenches using material that meets the requirements of the lift where it is located, reusing excavated materials if it meets the requirements of the applicable lift.

c. In other locations, embed conduits and backfill trenches using material that meets the requirements of Selected Material, Type C, reusing excavated materials if it meets this requirement.

d. Import, when ordered, embedment and backfill materials that satisfy the preceding materials requirements.

Embed conduit(s) between two 6 inch lifts of material cleaned free of rocks exceeding a 1 inch maximum dimension. Grade and compact the first lift to provide a surface that continuously contacts the assembled conduit run.

Within 6 feet of paved surfaces and around foundations, backfill in uniform layers no more than 6 inches deep and compact each layer according to Subsection 203-3.04. In other locations, compaction may be as approved by the Engineer.

4. Welding. Complete welding according to Subsection 504-3.01.8. Welding and approved shop drawings.

Submit shop drawings of the proposed work with the welding plans for approval. The shop drawings shall include material specifications, component dimensions, the types of welds that will be made, and the proposed type and extent of weld inspection.

Repair the holes that were used to mount equipment, in reused poles and mast arms by welding in disks flush with the adjoining surface. For the disk material, use steel that matches the ASTM designation, grade, and thickness of the steel used to fabricate each pole. Cut disks that match the dimensions of the hole being repaired from pieces of steel plate bent to match the pole's radius at the hole. Grind the welds smooth and flush with the adjoining pole and disk surfaces. Repair the damaged finish according to Subsection 660-3.01.8.

5. Removing and Replacing Improvements. The Contractor shall complete the following work at the Contractor's expense.

   a. Remove improvements that block completion of the work detailed in the Plans as specified herein.

   b. Reconstruct with new materials the nonreusable improvements the Contractor removed to complete the work.

   c. Replace with new materials the reusable items damaged by the Contractor, that are specified for reuse.

   d. Reconstruct with new materials improvements damaged or removed by the Contractor not conflicting with the work and not scheduled for removal.

Nonreusable improvements consist of cast in place items, including: asphalt concrete pavement, sidewalks, curb and gutter, lawns, and traffic markings. Reusable improvements include the items that were made before installation. Crushed aggregate base material may not be used as backfill in the base course if excavation depth exceeds the thickness of the base course.

Complete reconstruction work, including materials, according to the applicable sections of the Alaska SSHC, and leave the work in a satisfactory and serviceable condition. In completing the reconstruction work, match the alignments, widths, thicknesses, shapes, sizes, cross sections, and finishes of the existing improvements.

If removing a portion of sidewalk or curb and gutter, remove an entire segment between the weakened plane contraction joints or between an expansion joint and a weakened plane contraction joint.

Before removing a segment of Portland or asphalt cement concrete material, cut completely through the material with a saw along the outline of the area to be removed. Make cuts neat and true and prevent shatter outside the area removed.

To replace lawns, leave the top of the backfilled excavation low enough to install 4 inches of compacted topsoil. Match the top of the topsoil with the bottom of the vegetative mat. Apply seed and keep the seeded areas watered according to Section 618.

Remove, keep alive, and replant trees, shrubs, and plants according to Section 621. Replace the trees, shrubs, and plants that do not survive with plants of like size and type.

6. Salvaging and Reusing Electrical Equipment. When the Plans include existing electrical equipment scheduled for removal or relocation, remove, and store the equipment listed in the following paragraph without damaging it. Deliver removed equipment not scheduled for reuse to the local District Maintenance Station or place specified in the Plans or Special Provisions. Notify the district superintendent or person specified by telephone one week before planned delivery date.

   Salvage the controller assemblies, signal heads, mounting brackets, luminaires, lighting standards, signal posts and poles, mast arms, optical detectors, load centers, light emitting diode optical units, and the lids of junction boxes scheduled for removal and other materials scheduled for relocation. The Contractor shall replace at the Contractor's expense salvaged equipment damaged or destroyed before or during delivery or reinstallation.

   Controller assemblies and load centers include the cabinet and equipment contained in the cabinet before Contract award.

   Remove from the highway right-of-way materials associated with the equipment removed or relocated and not scheduled for reuse, including conduits, junction boxes, conductors, and foundations. Raze the tops of foundations abandoned in place according to Subsection 660-3.02. Fill the holes left by removing junction boxes and foundations with Selected Material, Type A and compact as directed.

   With approval, after removing conductors, buried conduits that do not interfere with other construction may be abandoned in place. The Department may require a credit for this waiver. Remove the ends of abandoned conduits from the junction boxes that will remain in service.

   Within 15 days of the Notice to Proceed, complete an inventory of the materials that will be salvaged in the presence of the Engineer. Note the location and condition of the materials. When material specified for reuse is found in an unserviceable condition, the Engineer will determine whether to repair it or replace it with new material that will be paid for as extra work under Subsection 109-1.05. Retain a copy of the inventory and give the original documents to the Engineer.

   When the Plans specify reinstalling existing equipment at new locations and installing State furnished equipment, complete the following work at the Contractor's expense.

   a. For poles, install new foundations, furnishing the new nuts, bolts, washers, and conduits needed to complete the installations.

   b. For lighting poles, install new illumination tap wires and fused disconnect kits.

   c. For luminaires, clean the luminaires inside and out and install new lamps of the same wattage.

   d. For signal heads, furnish and install the mounting brackets needed to complete the relocation, and clean the signal heads inside and out.

   e. For poles and undisturbed poles from which the Plans specify removing equipment, repair the holes that were made to mount equipment according to Subsection 660-3.01.4 Welding and repair the finishes according to Subsection 660-3.01.8 Repairing Damaged Finishes.

When ordered, the Engineer will pay for repairing existing damaged finishes on existing equipment according to Subsection 660-3.01.8 as extra work.

If deciding to use new equipment rather than reusing the equipment specified, notify the Engineer of the change and include a submittal according to Subsection 660-2.01.1.

Deliver the salvaged materials undamaged to the local DOT & PF Maintenance and Operations Yard.

Contact the local state Electrician one week before planned delivery.

7. Field Tests. Electrical circuits must pass the following tests before the Engineer will accept the work for payment. Perform these tests in the presence of the Engineer, and document the results of each test on a per circuit basis. Retain a copy of test results and give the original documents to the Engineer. Furnish equipment needed to perform these tests.

   Replace or repair at the Contractor's expense, and in an approved manner, faulty materials and work revealed by these tests. After making repairs, repeat tests on the repaired circuit and continue this process until circuits have passed required tests. The Department reserves the right to have the Contractor retest circuits, and to use the retest results to accept or reject individual circuits.

   a. Grounds. Before completing the circuitry and functional tests, physically examine conduits ends, junction box lids, load centers, and the foundations for signal posts and poles, lighting poles, and controller cabinets to ensure the grounding system required by Subsections 660-3.06 and 661-3.01 has been installed and splices and connections are mechanically firm.

   b. Continuity. Test each loop detector circuit for continuity at the roadside junction box before splicing the loop detector to the lead-in cable. Each loop detector must have a resistance less than 0.5 ohms.

      After splicing the loop detectors to the lead-in cables, test each pair at the controller or detector cabinet. Each pair must have a value less than 5 ohms for single pair lead-in cables and 10 ohms for multipair lead-in cables. The continuity test ohm reading at the cabinet must be greater than the ohm reading measured for the loop detector at the junction box.

   c. Insulation Resistance (megohm) Test. Complete this test to verify the integrity of each conductor's insulation after pulling the conductors and cables into position and before terminating the conductors. At 500 VDC, each conductor's insulation shall measure a minimum resistance of 100 megohms or the minimum specified by the manufacturer. With single conductors, complete the test between each conductor and ground. In each multiconductor cable, complete the test between conductors and between each conductor and ground.

      After splicing the loops to the shielded pairs in the lead-in cables, measure each pair in the lead-in cables at the controller or detector cabinet between one conductor and the cabinet ground rod.

   d. Inductance Test. Measure each detector loop and lead-in cable system at the controller or detector cabinet. The inductance must be in the range of 50 to 500 microhenries.

   e. Circuit. Energize every signal indication circuit with lamps installed before installing the load switches.

   f. Functional. Perform the following tests on each signal and lighting system after the component circuits have satisfactorily passed the tests for continuity, grounding, insulation integrity, and circuitry.
      (1) For each new traffic signal system, complete at least 24 hours of flashing operation, followed by not less than 5 days of continuous, satisfactory operation. The Engineer may decide to omit the flashing portion of the test for modified signal systems and for new signals that replaced existing signals that remained in operation during the construction phase.

      If the Engineer omits flashing operation and the system performs unsatisfactorily, correct the condition and repeat the test until the system runs for five days with continuous, satisfactory operation.

      Begin the signal functional tests between 9:00 a.m. and 2:00 p.m. on any day, except a Saturday, Sunday, a legal holiday, or the day before the legal holiday.

Before each system turn on, aim signal faces according to Subsection 660-3.08 and ensure equipment specified in the Plans is installed and operable, including: pedestrian signals and push buttons; signal backplates and visors; vehicle detectors; highway lighting; and regulatory, warning, and guide signs.

(2) Perform the functional test for each highway lighting system and sign illumination system until the systems burn continuously 5 days without the photocell, followed by a 5 day operational test using the photocell.

(3) Perform the functional test for each flashing beacon system for not less than 5 days of continuous, satisfactory operation.

(4) Perform a continuous 5 day burning test on each pedestrian overpass and underpass lighting system before final acceptance.

A shut down of the electrical system due to a power interruption does not constitute discontinuity of the functional test if the system functions normally when power is returned.

8. Repairing Damaged Finishes. Examine new, reused, and State furnished equipment for damage to its finish before putting the equipment into service. Repair the damaged finishes found according to the following:

a. Galvanized. Repair damaged areas more than 12 inches away from welds and slip fit areas, by applying minimum 7.8 mils of zinc based alloy applied according to ASTM A780.

If the damaged areas are within 12 inches of welds and slip fit areas, make the repair by applying a minimum 7.8 mils of zinc rich paint applied according to ASTM A780.

b. Painted. Repair damage to painted finishes according to the following

(1) Wash the equipment with a stiff bristle brush using a solution containing two tablespoons of heavy duty detergent powder per gallon of water. After rinsing, wire brush surfaces to remove poorly bonded paint, rust, scale, corrosion, grease, or dirt. Remove dust or residue remaining after wire brushing before priming.

(2) Factory or shop cleaning methods may be used for metals if equal to the methods specified herein.

(3) Immediately after cleaning, coat bare metal with pretreatment, vinyl wash primer, followed by 2 prime coats of zinc chromate primer for metal.

(4) Give signal equipment, excluding standards, a spot finishing coat on newly primed areas, followed by 1 finishing coat over the entire surface.

(5) Give nongalvanized standards 2 spot finish coats on newly primed areas.

Paint coats may be applied either by hand brushing or by approved spraying machines. Perform the work in a neat and workmanlike manner. The Engineer reserves the right to require the use of brushes for the application of paint, should the work done by the paint spraying machine prove unacceptable.

Add the following new No. 9:

9. Regulation and Code. Complete work according to the standards of the NEC, the NESC, and local safety codes as adopted and amended by the Authority Having Jurisdiction.

660-3.02 FOUNDATIONS. Under No. 1. Cast-in-Place Foundations. Add the following to the first paragraph: Locate the tops of traffic signal post and pole foundations flush with the adjacent finished walkway, shoulder, or surrounding ground.

1. Cast-in-Place Foundations.

f. Revise the second sentence to read: Before placing the form or reinforcing steel cage, remove loose material to ensure the foundation rests on firm, undisturbed ground.

i. In the second sentence delete "prior to grouting." and substitute "before attaching the skirt."

j. In the first sentence delete "concrete pile caps" and add, "foundations." Add the following to the end of the paragraph: Protect foundation anchor bolts from damage before installing controller cabinets. The Engineer must approve the method used for protection. This work does not relieve the Contractor of responsibility specified under Subsection 107-1.15.

Replace k with the following:

k. Furnish anchor bolts that conform to ASTM F1554, the grade and supplementary Charpy V-Notch requirements listed in the Plans. Furnish each anchor bolt with three nuts and two washers.

Install the bottoms of the bottom leveling nuts in a level plane within 1 inch of the top of foundations. Adjust nuts until their tops form a level plane. Install one washer on top of leveling nuts and, after setting the pole on these washers, install one washer under top nuts.

Bring leveling nuts (bottom nuts) to full bearing on the bottom of the base plate.

Generously lubricate the bearing surface and internal threads of top nuts with beeswax. Tighten top nuts to a "snug" condition. Use a click type torque wrench to apply 600 foot-pounds of torque to the "snug" top nuts.

After the top nuts are tightened to the correct torque, use a hydraulic wrench to rotate top nuts an additional one sixth (60°) turn, while preventing the leveling nuts from turning.

Add l.

l. Attach a #4 AWG, bare, copper wire as a grounding electrode conductor to the #4 spiral bar in the reinforcing steel cage. Use an irreversible compression connector to make the attachment. Protect the attachment during concrete placement. In foundations that lack reinforcing steel cages, install 21 feet of coiled #4 AWG, bare, copper wire as the grounding electrode. Route the conductor to protrude near the top, center of the foundations. Slide a minimum 6 inch long, PVC or HDPE, protective sleeve over the conductor. Allow 1 inch of the sleeve and 24 inches of conductor to protrude from the foundations.

2. Pile Foundations. Add the following new subparagraph:

g. Use no more than one splice per foundation. Locate the splice at least 10 feet from the top of pile.

3. All Foundations.

d. Replace the last sentence with the following: Backfill the resulting hole with Selected Material, Type A and compact material as directed by the Engineer.

Replace Subsection 660-3.03 with the following:

660-3.03 CONDUIT. Electrical conductors shall be installed in conduit, except for overhead wiring, wiring inside poles, and when otherwise specified. Use rigid metal conduits (RMC) and fittings for raceways, including bored casings, except when the Plans specify using polyethylene conduits. Install conduits of the sizes specified along the routes detailed on the Plans. When routing is not shown, route conduits as directed by the Engineer.

1. Install conduits at least 30 inches below the finished grade of the ground above the conduit, except conduits that will be sealed under a minimum 4 inch thick Portland cement concrete sidewalk may be installed a minimum of 18 inches below the top back of curb or surface above the conduit, whichever is lower.
2. Install conduits that cross unpaved areas and paved roadways that will be overlaid in excavated trenches. Excavate, bed conduits, and backfill trenches according to Subsection 660-3.01.3, Excavating and Backfilling.
3. Install conduit(s) under paved roadways and approaches that will not be overlaid by boring or drilling methods. Jacking conduits into position is allowed. However, if subsurface conditions prevent the successful completion of the work, install the conduit(s) by boring or drilling methods without additional compensation.
4. If encountering obstructions during jacking or drilling operations obtain approval and cut small holes in the pavement to clear the obstruction. Locate the bottom inside face of the bore pit no closer than the catch point of a 11/4 to 1 slope (a horizontal to vertical ratio) from the edge of pavement. Do not leave these pits unattended until installing an approved means of protection.

5. Sweep both rigid metal and polyethylene conduits through the open bottom of junction boxes by installing 90 degree rigid metal elbows on the ends of conduit runs. To each elbow, install a nipple that terminates 5 to 12 inches above the bottom edge of each junction box.
6. Install the tails of loop detectors without elbows through the walls of junction boxes at elevations that ensure the loops drain into the box. Extend the ends a minimum of 2 inches beyond the inside wall of the box.
7. Drill a 3/8 inch drain hole in the bottom of the lower straight section of elbows and in the bottom of conduits at the low points of conduit runs. Smooth the edges of the drilled holes on the inside of elbows to prevent scraping the conductors. Cover the holes with a wrap of approved filter cloth secured with 2 self clinching nylon cable ties.
8. Keep conduits clean. Install grounding bushings and approved plastic insert type plugs on the ends of conduit runs before backfilling around the conduit ends.
9. At the low points of conduit runs, install sumps containing a minimum 2 cubic feet of coarse concrete aggregate material that conforms to Subsection 703-2.02. Compact the aggregate sumps as directed to prevent settlement of the trench backfill.
10. Install conduits that must cross existing facilities such as storm drain pipes, duct systems, and other underground utilities at the minimum depths specified, going under the facilities if necessary. Install additional drains and aggregate sumps at the low spots, if any.
11. Position conduits in trenches, junction boxes, and foundations to provide clearances of at least 21/2 inches around 2 inch conduits and at least 2 inches around conduits larger than 2 inches.
12. Fabricate rigid metal conduits less than 10 feet long from standard lengths of conduit. Cut conduits squarely to ensure the threading die starts squarely on the conduit. Cut the same number of threads as found on the factory threaded ends. Ream the inside of conduit ends cut in the shop or field to remove burrs and sharp edges. Do not use slip joints or pieces of running thread pipe.
13. Coat drilled holes, shop and field cut threads, and the areas with damaged zinc coating with zinc rich paint.
14. When standard couplings cannot be used to join conduit components, use approved threaded unions.
15. Bury a continuous strip of 4 mils thick, 6 inch wide polyethylene marker tape above underground conduit runs. Install the tape 9 inches (± 3 inches) below finished grade, using two strips side by side to mark road crossings. Furnish tapes with a black legend on a red background.
16. When the Plans specify using polyethylene conduit, install RMC in structures and foundations, between type 2 and 3 load centers and the nearest junction box, and on the surfaces of poles and other structures.
17. In foundations, install 90 degree elbows and conduits of the size and quantity shown on the Plans. Extend the conduits a maximum of 2 inches above the top of the foundations for posts and poles with breakaway bases and 4 inches above the top of foundations for fixed base structures.
18. Seal conduits leading to electrical equipment mounted on soffits, walls, and other locations below the grade of the serving junction box with an approved duct sealing compound.
19. Install expansion fittings in conduits that cross expansion joints.
20. Install a polypropylene pull rope with a minimum 200 pound tensile strength in future use or spare conduits, and reinstall the plugs. Double back pull rope, at least two feet, into both ends of each conduit.
21. The Contractor may install conduits larger than the sizes specified. If used, it must be for the entire length of the run. Reducing couplings or bushings are not allowed. Complete work associated with installing conduits larger than specified without extra compensation.
22. Clean existing conduits that will remain in service using a heavy duty air compressor that delivers at least 125 cubic feet of air per minute at a pressure of 110 pounds per square inch. Clean the conduits before pulling in new cables and after removing cables to be removed or replaced as follows:

a. When the conduits contain cables that will remain in service, leave the cables in place during the cleaning, and

b. Ream empty conduits with a mandrel or cylindrical wire brush before blowing them out with compressed air.

23. When modifying existing conduit runs, complete the work as required for new installations using the same sizes and types of conduit. When extending existing conduits, add no more than a 90 degree horizontal bend to the extension.

24. When installing a junction box in a continuous run of existing conduit, remove a length of conduit in each conduit run and complete the work of installing the conduits, elbows, and nipples as required for a new installation.

25. When adjusting existing junction boxes to a new grade, remove cables and replace the nipples as required to provide the clearances specified for new installations.

26. Remove the ends of abandoned conduits from junction boxes that will remain in service.

27. When Plans call for connecting polyethylene conduit to RMC use a UL listed electrofusion coupler rated for direct bury application. The coupler must be rated for same wall thickness as the adjoining conduits. Thread the ends of the RMC with the same number of threads as found on the factory threaded ends of RMC. Ream the inside of conduit ends cut in the shop or field to remove burrs and sharp edges.

Replace subsection 660-3.04 with the following:

660-3.04 JUNCTION BOXES. Install precast reinforced concrete junction boxes of the types specified. For junction boxes that contain traffic signal conductors, furnish cast iron lids with the word TRAFFIC inscribed into them. For junction boxes that contain lighting conductors exclusively, furnish cast iron lids with the word LIGHTING inscribed into them.

Junction Box Location

When shown, install junction boxes at the station and offset locations specified. When lateral locations are not specified, install junction boxes 8 feet from the face of curb or edge of pavement. If the 8 feet offset falls:

1. In a pedestrian facility separated less than 7 feet from the roadway face of curb or edge of pavement, increase the offset and install the junction boxes on the backside of the facility. When lacking the right of way to install junction boxes outside the pathway, install at locations as directed, avoiding curb ramps, curb ramp landings, and the middle of walkways.

2. In a pedestrian facility separated at least 7 feet from the roadway face of curb or edge of pavement, reduce the offset and install the junction box next to the facility.

3. Outside the right of way, install the boxes just inside the right of way line.

4. In a raised median, install junction boxes near the center of the median.

5. In a ditch bottom or area that collects drainage, install the junction boxes at locations as directed.

6. Behind guardrails that shield slopes steeper than 3:1 (a horizontal to vertical ratio), install junction boxes between posts and at least 5 feet back from the face of rail.

7. On top of underground utilities or storm drains, install the junction boxes at locations as directed.

Longitudinally, install junction boxes adjacent to the loop detectors or pole they serve, except avoid installing Type 1A junction boxes in driveways and in locations subject to use by heavy trucks. When shown near the ends of medians, install junction boxes at least 10 feet from the median end. When the offsets for electroliers and flashing beacon posts place them near the junction boxes that serve them, install the junction boxes on the side of the electroliers and posts downstream of traffic flow. When installing copper signal interconnect cable use minimum size Type II junction boxes.

Four (4) Limitations

Limit the distance between adjacent junction boxes to the following dimensions:

1. 400 feet for conduits that contain signal interconnect cable only.
2. 300 feet for conduits, that exclusively contains two loop lead-in cables.
3. 300 feet for conduits that contain a single cable other than signal interconnect.
4. 190 feet for conduits, that contains more than one cable.

If the preceding limitations require installing additional junction boxes not shown on the Plans, the Engineer will pay for them as extra work; otherwise, installing additional junction boxes will be at the Contractor's expense.

After grading the roadside, vertically adjust those junction boxes that do not conform to the following criteria. In unpaved areas that will not be seeded, in areas adjacent to pedestrian facilities, and in paved medians, install the tops of junction boxes 1 inch below finished grade. In seeded areas, install the tops of junction boxes to 2 inches below the seeded surface.

Bond junction box lids to an equipment grounding conductor according to Subsection 660-3.06. Attach the jumpers to the lids with brass or stainless steel hardware.

Install a stone drain under each junction box. Drains shall consist of coarse aggregate for concrete that conforms to Subsection 703-2.02. Minimum drain dimensions include an 18" depth and a length and width equal to those of the junction box it drains. Compact the aggregate material as directed to prevent junction box settlement.

In every new and reused junction box, install an electronic marker. Conform markers to the American Public Works Association Standards including but not limited to:

- Color - red
- Material - high-density polyethylene
- Shape - round (ball like)
- Size - 4 to 5 inches in diameter
- Configuration - encapsulating an antenna tuned to the appropriate frequency for locating power
- Responsive range - up to 5 feet away from the locator device
- Environmental conditions - including extremes in temperature at the installation site
- Contain no internal power source

Acceptable marker manufacturers include:

- 3M, Dynatel EMS ball marker model no. 1402-XR
- Tempo (a Textron Company), Omni Marker
- Substituted, equivalent approved equal device

660-3.05 WIRING. Delete the second paragraph in its entirety and substitute the following:

Conditions.

Do not pull conductors into conduits until the following conditions are met:

- The prescribed clearances around conduit ends are provided,
- Crushed rock sumps are installed under junction boxes,
- Conduit ends protrude above the bottom of junction boxes within the prescribed range,
- New conduits are free of material that became lodged in them during the completion of the work,
- Reused conduits are cleaned according to Subsection 660-3.03,
- Junction boxes are set to grade, and
- Grounding bushings are installed on the ends of metallic conduits.

Delete subparagraph 11 and 12 and replace with the following:

11. Encapsulate illumination cable splices in rigid 2 piece plastic molds filled with an insulating and sealing epoxy resin. Furnish molds large enough to complete the splices and encase the cable jackets in the epoxy resin. Furnish molds rated for 600 VAC operation, feature fill, and vent funnels

for epoxy resin. Fill the splice mold bodies with epoxy resin that is resistant to weather, aromatic and straight chain solvents, and that will not sustain combustion.

When approved by the Engineer, one splice may be used in the following cases:

a. An in-line splice may be used when a planned cable run exceeds the length available from the manufacturer on a single spool of cable.

b. In a run of 1,000 linear feet or more.

When a cable is spliced, it shall occur within an appropriately sized junction box or in the base of an electrolier designed for said splice.

12. Encapsulate loop lead-in and telemetry cable splices in rigid, transparent, PVC molds filled with reenterable polyurethane electrical insulating and sealing compound. Furnish splice kits rated for 1000 VAC operation and direct burial.

    Provide reusable four piece molds that are held together with stainless steel hose clamps. Two pieces form a cylinder and two flexible end caps seal the ends and allow the conductor entry. Use molds with dimensions suitable for the splice made, encase the cable jackets, and have fill and vent funnels.

    Insert a loose woven polyester web that allows a full 1/4 inch of insulating compound to flow between the splice and the inside of the mold. Fill the PVC molds with reenterable polyurethane electrical insulating and sealing compound that cures transparent, is nontoxic, is noncorrosive to copper, and does not support fungi or mold growth.

Add the following No. 18, 19, and 20:

18. Retrofit reused poles with new tap wires, fused disconnect kits, and fuses.

19. Whenever conductors cannot be terminated as specified in the Plans in circuit breakers due to size, splice a piece of #8 AWG power conductor onto the end of each conductor using an overlap type, irreversible compression connector. Insulate the splice with heat shrink tubing. Complete the splice in the space between the top of the load center foundation and the bottom of the cabinet. Limit the length of the #8 AWG conductors to 5 feet.

20. Spare lighting conductors shall be capped in the pole bases and load centers by cutting the wire flush with the end of the insulation and bending the conductor back against itself and securing with three layers of electrical tape to prevent any possibility of making contact with ground or current carrying conductors.

Replace Subsection 660-3.06 with the following:

660-3.06 BONDING AND GROUNDING. Bond and ground branch circuits according to the NEC and the following requirements: Make noncurrent carrying but electrically conductive components, including: metal conduits, junction box lids, cabinets, transformer cases, and metal posts and poles, mechanically and electrically secure to an equipment grounding conductor. Make fixtures mounted on metal poles, including signal components and luminaires, mechanically and electrically secure to the pole.

Install grounding bushings with insulated throats on the ends of metallic conduits.

Install a bare stranded copper wire for the equipment grounding conductor in conduits, except those conduits installed for future use. Install size #8 AWG grounding conductors, except in those conduits that contain circuit conductors larger than #8 AWG. In this case, install a wire equal in size to the largest circuit conductor. Attach the grounding conductors to the grounding bushings, leaving 12 inches of slack between each bushing. Connect grounding conductors together using irreversible compression type connectors to form a fully interconnected and continuous grounding system.

Retrofit existing spare conduits that will contain new cables exclusively with new grounding bushings. When the Plans require installation or removal of conductors from existing conduits, retrofit with new grounding conductors sized according to the preceding paragraph.

Bond junction box lids to the grounding conductor using copper braid with a cross sectional area equal to a #8 AWG and eyelet spaced at 6 inch intervals. Connect bonding jumpers to the grounding conductors

using irreversible compression type connectors. Replace missing or damaged conduit and junction box lid bonding jumpers.

Join the equipment grounding conductors from the conduits to the #4 AWG grounding electrode conductor using irreversible compression connectors at Portland cement concrete foundations. For pile foundations, attach the equipment grounding conductor from the conduit to the pile cap adapter with a listed mechanical grounding connector.

When installing signal poles, signal posts, and lighting standards with frangible coupling bases, run a 5 feet long grounding conductor from the grounding bushing on the conduit to the grounding lug located in the handhole of each pole.

Bond slip base type standards and pedestals by using 2 conductors from the conduit, one attached with a ground rod clamp to an anchor bolt and the other connected to the grounding lug located in the handhole of each pole.

Ground one side of the secondary circuit of a transformer.

Install a 3/4 inch by 10 feet copper clad ground rod inside each controller cabinet foundation and a 6 AWG bare stranded copper wire for the grounding electrode conductor.

When routing a new conduit into an existing junction box or replacing an existing junction box, new and existing conduits shall have the grounding improved to current specifications.

Replace Subsection 660-3.08 with the following:

660-3.08 SIGNAL AND LIGHTING INSTALLATION REQUIREMENTS. Install signal and lighting equipment according to the details shown on the Plans and the following:

Apply antiseizing compound to the following fasteners: frangible couplings, mechanical grounding connectors, bolts that secure handhole covers and signal mounting hardware to poles and mast arms. Remove the fasteners from luminaire mounting brackets, fused disconnect kits, grounding bushings, and signal faces that secure the visors, and apply antiseizing compound to these fasteners before completing the installation.

Before passing conductors through the holes made in posts, poles, and mast arms for wireways, remove the burrs and sharp edges from the inside and outside of these holes.

Until each traffic signal and/or flashing beacon goes into operation, keep the vehicular and pedestrian signal faces covered with beige colored canvas shirts sized to fit the signal faces shown in the Plans. Each signal shirt shall feature elasticized openings that fit over the visors and at least two straps to secure it to the signal. Provide shirts with a legend that reads "out of service" and a center section that allows an operator to see the indications during system tests.

When not shown in the Plans, determine the shaft lengths of lighting and signal poles and signal mast arm connector plate locations to provide the plan mounting heights of luminaires and traffic signal heads.

Furnish work to install foundations for relocated poles, including: conduit, excavation, reinforcing steel, class A concrete, anchor bolts, nuts, and washers.

1. Electrolier Installation. Before installing electroliers, check the socket position of each luminaire to verify it matches the position indicated in the instructions for the light distribution type shown on the Plans.

   Install electroliers with mast arms with a slight rake by plumbing the side of the pole opposite the mast arm. After the pole has been plumbed, level the luminaire as recommended by the manufacturer.

   Install electroliers without mast arms with the centerline of the pole plumb.

3. Fiberglass Pole Installation. Place the poles in the ground to at least 6 feet deep.

   After setting each pole in the ground, backfill the space around the pole with selected earth or sand, free of rocks 4 inches and larger, or deleterious material. Place the material in layers approximately 4 inches thick and thoroughly compact them with mechanical tampers.

Furnish poles that provide a minimum vertical clearance of 21 feet between the pavement and low point of overhead conductor.

4. Wood Pole Installation. Place the poles in the ground to at least 6 feet deep.

   After setting each pole in the ground, backfill the space around the pole with selected earth or sand, free of rocks 4 inches and larger, or deleterious material. Place the material in layers approximately 4 inches thick and thoroughly compact them with mechanical tampers.

   Furnish poles that provide a minimum vertical clearance of 21 feet between the pavement and low point of overhead conductor.

Replace Subsection 660-3.09 with the following:

660-3.09 MAINTAINING EXISTING AND TEMPORARY ELECTRICAL SYSTEMS. This work consists of protecting and maintaining the existing and temporary electrical systems during the life of the Contract. The work includes: locating, repairing, replacing, adjusting, realigning, cleaning, and relocating components of traffic signals, lighting systems, and flashing beacons to keep them wholly operational and positioned according to the following specifications.

If existing lighting systems are not kept fully operational as specified herein, the Engineer will reduce the payments under Pay Item 660(22) Illumination Price Adjustment.

Furnish the Engineer with the name and phone number of the person who will maintain the existing and temporary electrical facilities at the Preconstruction Conference. Make this person available at times until the date of Acceptance for Traffic and Maintenance and provide labor, materials, and equipment this person may need to complete repairs ordered by the Engineer.

When beginning work, the Engineer will notify the Contractor and the local maintenance agencies in writing of the transfer of maintenance responsibilities, providing an effective date and time. Maintenance does not include replacing defective equipment or repairing equipment damaged before the transfer of maintenance responsibility. Therefore, before starting work on the project, inventory the condition of the existing equipment with the Engineer and document the damaged and defective equipment. If beginning work before providing the Engineer with an inventory, the Contractor waives the right to claim extra compensation when the Engineer later finds damaged or defective equipment.

Keep components of the existing and temporary electrical systems operational during the progress of the work, except when the Engineer allows shutdowns to alter or remove the systems. The Engineer will consider these systems operational when no damaged or defective equipment is found in service, components are clean, located, and aligned as specified herein, and photoelectric controls operate the lighting systems. The State will pay for electricity used to operate the systems, if the public benefits from their operation. Furnish replacement equipment compatible with equipment used in the Central Region.

Begin work to repair, replace, adjust, realign, clean, and/or relocate components of an affected system within one hour when ordered by the Engineer. If work is not complete, the Engineer may have outside forces complete the repairs and deduct the amount billed from monies due the Contractor.

Locate existing conduit runs, buried cables, junction boxes, and underground utilities before starting work that may damage these facilities or interfere with these systems.

Where roadways remain open to traffic and the work includes modifying the existing lighting systems, energize the modified circuit by sunset on the same day the Contractor retires the original circuit.

Relocate or replace signal poles, lighting standards, sign poles, flashing beacon poles, load centers, and controller cabinets whenever reducing clearance from the traveled way to less than 15.0 feet.

When no longer required, salvage original and Department provided equipment according to the Plans and No. 6. Salvaging or Reusing Electrical Equipment, found in Subsection 660-3.01. Remove other materials used in the temporary systems from the project.

660-5.01 BASIS OF PAYMENT.

Payment Includes labor, equipment, and materials required to provide fully functional traffic signals and lighting systems, permanent and temporary, using new equipment. Remanufactured or rebuilt equipment will not be permitted.

Subsidiary to each Pay Item including but not limited to (Except when included as a separate Pay Item):

(1) General construction requirements,
(2) Bonding and grounding,
(3) Bored Casings,
(4) Completing tests,
(5) Conductors,
(6) Conduit,
(7) Dewatering excavations,
(8) Excavation, trenches in rock or soil, bedding, backfill for foundations, conduits, components,
(9) Foundations including concrete to complete foundations,
(10) J-boxes including adjustment to final grade,
(11) Labeling conductors,
(12) Maintaining temporary and existing electrical systems,
(13) Minor routing changes directed by the Engineer
(14) Preparing as-builts
(15) Removal and disposal of existing/new unused foundations, conduit, conductors, and J-boxes,
(16) Removing, repairing and replacing improvements
(17) Removal of signs and reinstallations required to install foundations, conduits, and J-boxes,
(18) Repairing damage to finishes on new equipment
(19) Salvaging reusable equipment and materials and delivering to the local Maintenance and Operations station including but not limited to existing signal structure
(20) Wiring,

660 Pay Items do not include: roadway planing, roadway paving, drainage structures, erosion, sediment and pollution control, signing, striping and pavement markings, traffic control, and components of the traffic signal communication system.

Pay Item 660(3) Highway Lighting System Complete.

1. Lighting structures.

Add the following Pay Items:

Pay Item No.	Pay Item	Pay Unit
660(3)	Highway Lighting System Complete	Lump sum

CR660-081210

SECTION 703

AGGREGATES

Special Provisions

703-2.03 AGGREGATE FOR BASE.

Delete Table 703-2 and substitute the following:

TABLE 703-2
AGGREGATE FOR UNTREATED BASE
(Percent Passing By Weight)

Sieve Designation	Grading C-1	Grading D-1	Grading E-1
1 ½ inch	100	-	-
1 inch	70-100	100	100
3/4 inch	60-90	70-100	70-100
3/8 inch	45-75	50-79	50-85
No. 4	30-60	35-58	35-65
No. 8	22-52	20-47	23-50
No. 30	10-33	10-26	13-31
No. 50	6-23	6-19	10-26
No. 200	0-6	0-6	8-15

Replace Subsection 703-2.04 with the following:

703-2.04 AGGREGATE FOR HOT MIX ASPHALT PAVEMENT. 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, V and R mixtures.

Coarse Aggregate. Aggregate retained on the No. 4 Sieve.

Meet the following requirements:

Description	Specification	Type IIA	Type I, IIB, III	Type IV	Type V, R
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 %	WAQTC FOP for AASHTO TP 61	90, 2 face	80, 1 face	90, 2 face	98, 2 face
Flat-Elongated Pieces, max %	ATM 306				
1:5		8	8	8	8
1:3		20	-	-	20
Absorption, max. %	AASHTO T 85	2.0	2.0	2.0	2.0

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 IV, V, and R mixes:

- do not blend back natural sand
- shall be non-plastic as determined by WAQTC FOP for AASHTO T 90
- shall have a minimum uncompacted void content (Fine Aggregate Angularity) determined by AASHTO T 304, Method A, of 45%

TABLE 703-3
BROAD BAND GRADATIONS FOR HOT MIX ASPHALT PAVEMENT AGGREGATE
(Percent Passing by Weight)

Sieve	Gradation					
	Type I	**Type II**	**Type III**	**Type IV**	**Type V**	**Type R**
1 inch	100	-	-	-	-	-
3/4 inch	80-90	100	-	-	100	100
1/2 inch	60-84	75-90	100	100	65-90	70-100
3/8 inch	48-78	60-84	80-90	80-95	55-80	50-70
No. 4	28-63	33-70	44-81	55-70	40-60	30-42
No. 8	14-55	19-56	26-70	35-50	≤ 45	20-32
No. 16	9-44	10-44	16-59	20-40	≤ 35	15-25
No. 30	6-34	7-34	9-49	15-30	≤ 25	10-20
No. 50	5-24	5-24	6-36	10-24	≤ 20	7-15
No. 100	4-16	4-16	4-22	5-15	≤ 12	5-12
No. 200	3-8	3-8	3-8	4-8	3-8	4-10

Note:
1. No tolerance is allowed beyond the Broad Band Limits of the No. 200 Sieve.
2. For Type R, the mix design gradation JMD shall provide a minimum of 8% difference of percent passing the No. 4 and the No. 8 sieve.

CR7031-101110

Special Provision

703-2.07 SELECTED MATERIAL. Replace table under 1. Type A with the following:

Sieve	Percent Passing by Weight
No. 4	15-55%
No. 200	0-6%, determined on the minus 3” portion of sample

SECTION 710

FENCE AND GUARDRAIL

Standard Modification

Delete Subsection 710-2.04 METAL BEAM RAIL and replace with the following:

710-2.04 METAL BEAM RAIL. Meet AASHTO M 180-00, Class A, Type II. Galvanize the rail per ASTM A653 after factory roll formed and punched.

E83-100410

Delete Subsection 710-2.06 GUARDRAIL POSTS AND BLOCKS and replace with the following:

710-2.06 GUARDRAIL POSTS AND BLOCKS. Furnish posts and blocks, as specified, meeting the following requirements.

1. Wood Posts and Blocks. Use timber with a stress grade of 1200 psi or more. Testing must meet the standards of the West Coast Lumber Inspection Bureau. Use timber for posts and blocks that is either rough sawn (unplaned) or S4S with nominal dimensions indicated. Allowable size tolerance of rough sawn blocks in the direction of the bolt holes is ± 1/4 inch. Only one combination of post and block finish may be used for any one continuous length of guardrail. Treat all timber to meet Section 714.

2. Steel Posts and Blocks. Meet the section and length specified or shown on the Plans. Use copper bearing steel when so specified. Use steel meeting the requirements of ASTM A 36 and galvanized per ASTM A 123.

3. Synthetic Blocks. Product made from alternate materials may be used if accepted by the FHWA for use on the National Highway System.

E84-100410

Delete Subsection 710-2.11 GUARDRAIL TERMINALS and replace with the following:

710-2.11 GUARDRAIL TERMINALS. Meet coating requirements of AASHTO M 180, Class A, Type II. Galvanize after fabrication. Fabrication includes forming, cutting, shearing, punching, drilling, bending, welding, and riveting. Provide one of the following terminal types, as shown on the plans, for single-rail W-beam guardrail. Provide terminals that pass NCHRP 350 or MASH Test Level 3 and meet the following requirements:

1. Controlled Release Terminal. Meet the requirements of Standard Drawing G-25.

Special Provision

2. Parallel Terminal.

   a. Requirements:
      (1) Crashworthiness: Provide terminals that pass NCHRP 350 or Mash Test Level 3.
      (2) Length: 37.5 feet.
      (3) End Offset: 0 to 1.5 feet (25:1 or flatter straight taper) offset end as shown on the plans.
      (4) Posts: Use posts that are:
         (a) Steel post with hinge or
         (b) Yielding or breakaway steel post in steel tube

Standard Modificaion

b. Acceptable models include the following or approved equivalent:
   (1) Sequential Kinking Terminal (SKT) manufactured by Road Systems, Inc., 3616 Old Howard County Airport, Big Spring, Texas 79720, Telephone (432) 263-2435.
   (2) Extruder Terminal (ET-Plus) manufactured by Trinity Highway Products, L.L.C., 950 West 400 South, Centerville, Utah 84014, Telephone (801) 292-4461.

c. Install AASHTO M 268, Type III, IV, or V retro-reflective sheeting (2.0 square feet, minimum) on the end section of parallel terminals consisting of yellow and black bars sloping 45 degrees downward toward the traffic side of the terminal.

3. Buried in Backslope Terminal. Meet the requirements of Standard Drawing G-15.

E85-100410

SECTION 724

SEED

724-2-02. MATERIALS. Delete Table 724-1 and substitute with the following:

TABLE 724-1
SEED REQUIREMENTS

Species	Sproutable Seed*, %, Min.
Arctared Red Fescue	78
Egan American Sloughgrass	67
Norcoast Bering Hairgrass	71
Nortran Tufted Hairgrass	71
Wainwright Slender Wheatgrass	88
Alyeska Polargrass	71
Bluejoint	71
Tilesy Sagebrush	71
Tundra Glaucous Bluegrass	76
Gruening Alpine Bluegrass	72
Nugget Kentucky Bluegrass	76
Beach Wildrye	70
Annual Ryegrass	76
Perennial Ryegrass	76

* Sproutable Seed is the mathematical product of Germination and Purity.

(01/27/07)R52

Delete this Section, except for Table 726-1 and substitute the following:

SECTION 726

TOPSOIL

Special Provisions

726-2.01 TOPSOIL. Furnish topsoil that is representative of the existing, natural organic blanket of the project area. Perform a quality test, as defined by ATM 203, on the soil to determine the organic content of the soil. Supply the results to the Engineer.

Soil with an organic content of 5 percent or more may be reused and spread on the finished slopes where topsoil is noted on the plans. Remove roots, stumps, unnatural material, and rocks greater than 3 inch in diameter from the organic material before it is graded onto the finished slope.

Soil with an organic content of less than 5 percent cannot be used as topsoil for the project. In this case, furnish topsoil consisting of a natural friable surface soil without admixtures of undesirable subsoil, refuse, or foreign materials having an organic content of 5 percent or more, as determined by ATM 203. The material shall be reasonably free from roots, clods, hard clay, rocks greater than 3 inches in diameter, noxious weeds, tall grass, brush, sticks, stubble or other litter, and shall be free draining and nontoxic. Notify the Engineer of the location topsoil is to be furnished at least 30 calendar days before delivery of topsoil to the project from that location. The Engineer will inspect the topsoil and its sources before approval will be granted for its use. (11/27/07)R208

SECTION 740

SIGNALS AND LIGHTING MATERIALS

Special Provisions

Replace Subsection 740-2.02 with the following:

740-2.02 SIGNAL AND LIGHTING POLES.

1. Design. Design and fabricate highway lighting structures to conform to the 1994 Edition of AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals with interim revisions and the highway lighting sheets in the Plans. Use a wind speed of 100 mph with a gust factor of 1.3. Design each electrolier to support a sign with an area of 16 square feet with its centroid located 14 ft above the pole base.

   Design and fabricate traffic signal structures to the 2001 Edition of AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals with interim revisions and Central Region Traffic Signal Details. Design must meet Fatigue Category III, with galloping using a basic wind speed of 100 mph and Central Region standard loads.

   A registered professional engineer shall design the structures and provide stamped shop drawings and calculations. Submit the stamped drawings and calculations for each pole to the Engineer for approval. Design for the complete-in-place structure including the supported hardware.

   a. In the stamped calculations, indicate the edition of Standard Specifications to which the poles are being designed and provide the input data used to design each pole and mast arm, including: design wind speed, cross section shape, yield strengths of the component materials, dimensions of the pole components, and a summary of the loads used.

   b. On the stamped shop drawings, provide design wind speed and the details for building the poles and mast arms, including: materials specifications, slip fit joint dimensions, pole component dimensions, welds that will be made, and the welding inspection that will be done.

   Submit the mill certifications for the steel items (piles, plates, bolts, and other related items) to the Engineer for approval.

2. Fabrication. Fabricate signal and lighting structures from tapered steel tubes with a round or 16 sided cross section. Orient handholes located near the base of poles to face downstream of traffic flow.

   Provide traffic signal poles, lighting poles, and signal mast arms in lengths evenly divisible by 5 feet.

   Furnish poles and mast arms up to 40 feet long in one piece. Poles and mast arms longer than 40 feet may be furnished in one piece or in two segments with a slip type field splice. For slip type joints, provide a minimum overlap of two and one half (2.5) feet or the overlap specified in the Plans, whichever is greater. In mast arms, locate these splices at least one foot away from the Plan location of signal heads and signs. In signal poles, locate the edge of the female section at least 6 inches above the top of the signal mast arm connection.

   Fabricate tubes with walls up to 1/2 inch thick from the prequalified base metals listed in AWS D1.1. Fabricate elements greater than 1/2 inch thick from steel that conforms to AASHTO M270 and meets the Fracture Critical Impact Test requirements for Zone 3. The Department will not accept structures that use laminated steel elements.

   Fabricate the cross section of each tube from no more than 2 pieces of steel. When using 2 pieces, place the longitudinal welded seams directly opposite one another. Place the welded seams on adjacent sections to form continuous straight seams from the base to the top of the pole.

   When tenons are needed to install traffic signals and luminaires, make them from two inch nominal schedule 40 pipe that conform to ASTM A 53 Grade B.

Fabricate breakaway signal poles in accordance with the Pole Sheet in the Plans. Fabricate signal poles 10 to 15 feet long from 7 gage (US Standard) sheet steel. Fabricate each post with a minimum inside diameter at the base plate as shown in the Plans. Use 4 inch diameter by 4 inch Schedule 40, ASTM A53, Grade B pipe as a post-top adapter.

The Department does not allow holes made for lifting purposes in the ends of tubular segments, except in the free ends of luminaire mast arms. To add lift points, weld them to the tube opposite the longitudinal seam weld on the outside of female segments and on the inside of male segments. Before shipment, remove lift points added to the outside of the tubes, grind the area smooth with the base metal, and hot stick repair the finish according to Subsection 660-3.01.8.a. Lift points added to the inside of tubes in place may be left in place.

Hot-dip galvanize lighting and signal structures to meet AASHTO M 111 and these specifications. Galvanizing kettles will be large enough to completely submerge each element, the mast arm, and the pole. Submerge the complete/whole element in the galvanizing process. An element galvanized in sections will not be accepted. Galvanize bolts and fasteners to meet AASHTO M 232.

After the poles and mast arms are galvanized, remove all excess zinc from all drip lines and points and the surfaces of all tube ends that form slip type joints to provide a smooth finish.

The Department will reject poles and mast arms that are:
(1). Not fabricated according to these specifications or the approved shop drawings,
(2) Bowed with sweeps exceeding 3/4 inch throughout the length of the pole, mast arm, or segment, if furnishing a 2 piece pole or mast arm,
(3) Out of round. Sections are out of round when the diameters of round members or the dimension across the flats of multisided members exceed 2 percent of the dimension specified on the shop drawings.

Fabricate pile cap adapters from Grade X42 steel line pipe that conforms to API 5L and from steel plate that conforms to ASTM A 709 Grade 50. Attach the anchor plate to the pile section with a complete joint penetration (CJP) weld. Fabricate the anchor plate to match the base plate of the lighting standard.

3. Welding. Perform welding to conform to Subsection 504-3.01.8. Welding and the 2001 Edition of AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals with interim revisions, the Central Region Traffic Signal Details, and the following:

   a. Make welds continuous. Grind exposed welds flush with the base metal at slip fit joints for the length of the slip fit joint plus one half the diameter of the female section.

   b. On steels 5/16 of an inch thick and thicker, inspect 100 Percent of CJP welds by either radiography (RT) or ultrasound (UT).

   c. Inspect a random 25 percent of PJP and fillet welds by magnetic particle (MT). If a defect is found, inspect 100% of the PJP and fillet welds made to fill the order. In steels less than 1/8 inch thick, complete the tests according to AWS D1.1.

   d. Only visually inspect welds made on luminaire mast arms.

4. Anchor Rods & Bolts. Furnish 2 inch diameter (nominal) anchor rods for signal poles that meet ASTM F1554 Grade 105, are 96 inch minimum length and conform to Supplemental Requirements; S2, Permanent Manufacturer's Identification, S3, Permanent Grade Identification and S-5 Charpy Impact Requirements. Hot dip galvanize according to AASHTO M232. Use nuts that conform to AASHTO Specification M292 of the grade, surface finish, and style for 2 inch diameter anchor rods. Washers shall conform to AASHTO M293.

5. Miscellaneous. Finish the edges of poles and mast arms to conform to the following requirements. Before hot dip galvanizing, neatly round the following features to the radius specified.

   a. On holes through which electrical conductors pass, provide a 1/16 inch radius on both the entrance and exit edges,

b. On pole base plates, provide a 1/8 inch radius on edges along which plate thickness is measured and a smooth finish on all other exposed edges,

c. On the ends of tubes that form slip type joints, complete the following tasks on the two surfaces that contact one another. First, provide 1/16 inch radii on the inside and outside edges of the female and male segments, respectively. Then for the length of the joint plus one half the diameter of the female section grind down welds until they feature a radius concentric with the mating surface and remove material protruding from the two surfaces.

Provide caps to cover the free ends of poles and mast arms.

Identify critical information for poles and arms with visible permanent aluminum tags that contain the information shown in Table 740-1. The measurements shown are for illustration purposes only. Use tags large enough to include required information using 1/4 inch high text, 3/8 inch of space between successive lines of text, and at least 3/8 inch of space between the edges of the tag and the text. Secure the tags with two 1/8 inch blind rivets at the base of poles and the underside of mast arms. If furnishing a two piece signal mast arm with slip type joint, mark both pieces with the same message. Provide the holes for the blind rivets before galvanizing.

TABLE 740-1

POLE MARKINGS

Note:
Italic type indicates additional Tag Markings if poles have 2 luminaire or 2 signal mast arms.

POLES (Including Mast Arms)	**MEASUREMENTS**	**TAG MARKINGS**
Signal Poles		
a) Signal mast arm length	45 ft./55 ft.	SMA 45/*SMA 55*
b) Luminaire mast arm length	22 ft./18 ft.	LMA 22/*LMA 18*
c) Pole height	36 ft.	PH 36
d) Intersection number (if more than one) -pole number		1 - P 4
e) Sum of signal mast arm moments about centerline of signal pole		SM 4000/*SM 3200*
f) Design wind speed	100 mph	DWS 100
Light Poles		
a) Luminaire mast arm length	15 ft./15 ft.	LMA 15*/LMA 15*
b) Pole height	37 ft.	PH 37
Signal Mast Arm		
a) Mast arm length	40 ft.	SMA 40
b) Intersection number (if more than one) -pole number		1 - P 4
c) Sum of signal mast arm moments about centerline of signal pole		SM 3740
d) Design wind speed	100 mph	DWS 100
Luminaire Mast Arm		
a) Mast arm length	18 ft.	LMA 18
b) Pole number (if unique arm design)		P 4

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740-2.05 CONDUCTORS. Replace Table 740-2 with the following:

TABLE 740-2
CONDUCTOR TERMINATION TABLE

CONDUCTORS PER CABLE	CIRCUIT	WIRE COLOR	AWG. NO.	BAND LEGEND
7	Vehicle Red	Red	14	Head No.
	Vehicle Yellow	Orange		
	Vehicle Green	Green		
	Common Neutral	White		
	Spare	White/Black		
	Spare	Black		
	Spare	Blue		
7	Vehicle Red Arrow	Red	14	Head No.
	Vehicle Yellow Arrow	Orange		
	Vehicle Green Arrow	Green		
	Common Neutral	White		
	Spare	White/Black		
	Spare	Black		
	Spare	Blue		
7	Vehicle Red	Red	14	Head No.
	Vehicle Yellow	Orange		
	Vehicle Green	Green		
	Common Neutral	White		
	Spare	White/Black		
	Vehicle Yellow Arrow	Black		
	Vehicle Green Arrow	Blue		
4	Pedestrian Don't Walk	Red	14	Head No.
	Pedestrian Walk	Green		
	Common Neutral	White		
	Spare	Black		
4	Pedestrian Pushbutton	Black	14	Head No.
	Neutral	White		
	Spare	Red		
	Spare	Green		
5	Photo Electric Control	Black	14	PEC
	Load to Contactor	Red		
	Neutral	White		
	Spare	Orange		
	Spare	Green		

TABLE 740-2
CONDUCTOR TERMINATION TABLE
(Continued)

CONDUCTORS PER CABLE	CIRCUIT	WIRE COLOR	AWG NO.	BAND LEGEND
3	Flashing Beacon	Black	14	Head No.
	Neutral	White		
	Spare	Red		
3	Preemption	Orange	20	"PRE"
	Neutral	Blue		
	Spare	Yellow		
3	Preemption Confirmation	Black	14	"PRECON"
	Neutral	White		
	Spare	Red		
3	Highway Luminaire	Black	8 or 6	Circuit No.
	Highway Luminaire	Red		Circuit No.
	Highway Luminaire Spare	White		
3	Service to Controller	Black	6 or 4	"SIG"
	Neutral	White		No Band
	Spare	Red		No Band
3	Sign Luminaire	Black	8	SIGN
	Sign Luminaire	Red		SIGN
	Sign Spare	White		

Replace Subsection 740-2.06 with the following:

740-2.06 ELECTRICAL CONDUIT AND FITTINGS. Unless specified otherwise, use rigid metal conduit and fittings for raceways. Furnish galvanized rigid type conduit and elbows conforming to UL Standard 6 and are manufactured of mild steel according to ANSI C80.1. Furnish third party certified fittings designed for rigid metal conduit.

For loop detectors, use Schedule 80 polyvinyl chloride (PVC) conduit that conforms to UL Standard 651. Use PVC fittings meeting NEMA TC 3.

When polyethylene conduits are specified in the Plans, use a smooth wall, schedule 40, high-density polyethylene (HDPE) pipe that conforms to UL Standard 651 B and NEMA TC-7-2000.

Furnish insulated throat grounding bushings made of malleable iron or steel with a mechanically galvanized or zinc plated finish. Grounding lugs shall either be an integral part of the bushing or consist of an attached tin plated copper saddle. Grounding lugs shall feature a stainless steel screw, the centerline of which falls within 20 degrees of conduit centerline. The bushings furnished shall also feature a stainless steel or brass mounting screw that locks the bushing onto the conduit end.

Furnish conduit outlet bodies and their covers with a hot dip galvanized finish and stainless steel screws. For loop detectors, furnish Type X bodies and, for photoelectric control installation, furnish Types C and LB conduit bodies.

When Myers hubs are specified, furnish rain tight, grounding type hubs made of malleable iron with a hot dip or mechanically galvanized finish.

At expansion joints, provide watertight expansion fittings capable of the following movements without damaging the conduits attached to it or the conductors that pass through it. The movements include: axial expansion or contraction to 3/4 inch, angular misalignments in any direction to 30 degrees, and parallel misalignment of the conduits to 3/4 inch. The fittings shall also include a braided copper bonding jumper equal to an 8 AWG conductor, bushings to prevent scraping the conductors, and a smooth inner sleeve that maintains a constant diameter regardless of conduit alignment.

Replace Subsection 740-2.12 with the following:

740-2.12 STANDARD AUXILIARY EQUIPMENT.

Provide equipment meeting the requirements of Section 6 of the NEMA Standard Publication TS 2-2003 V02.06, Traffic Controller Assemblies with NTCIP Requirements (NEMA TS-2).

1. Three Circuit Solid State Load Switches. Use load switches conforming to NEMA TS-2, Section 6.2 Three Circuit Solid State Load Switches and as a minimum include Light Emitting Diode indicators on the DC input circuitry. The load switch must have three independent switching circuits, each being an individually replaceable solid state module.
2. Solid State Flasher. Use a NEMA Type III flasher unit that conforms to NEMA TS-2, Section 6.3 Solid State Flashers.
3. Malfunction Management Unit (MMU). Provide Type 16 MMU to be fully compliant with the requirements of NEMA TS-2, Section 4. In addition, the MMU shall have a full intersection LCD back lighted signal on the front panel and shall be downward compatible with TS-1 CMUs.
4. Flash Transfer Relay. Use flash transfer relays that meet the requirements of NEMA TS-2, Section 6.4 Flash Transfer Relays.

Replace Subsection 740-2.18 with the following:

740-2.18 ROADWAY LUMINAIRES. Furnish luminaires that conform to the following specifications and provide the light distributions specified. When luminaire performance criteria are specified, luminaires shall also:

- Meet or exceed the minimum initial light levels indicated.
- Provide light distribution uniformity ratios and veiling luminance ratios equal to or less than the maximums indicated.

When luminaire performance criteria are specified, submit the following information for each luminaire type and light distribution type specified: luminaire specifications, the lumen output of the lamps that will be furnished, and current electronic photometric data to the Engineer for approval. Furnish the photometric data in Illuminating Engineering Society (I.E.S.) format. The Engineer will use software that calculates light levels and uniformity ratios according to the American National Standard Practice for Roadway Lighting, A.N.S.I./I.E.S. RP-8 to verify each luminaire provides the light levels, uniformities, and veiling luminance ratios specified.

When cut off distributions are specified, furnish luminaires with flat glass lenses and a full cutoff light distribution as defined in the American National Standard Practice for Roadway Lighting, A.N.S.I./I.E.S. RP-8, dated 2000.

Furnish each luminaire with a high pressure sodium lamp of the wattage specified and matching ballast with an input voltage equal to circuit voltage. Furnish lamps that feature a rated life of 24,000 hours based on 10 hours per start and ballasts that conform to Subsection 740-2.21.

1. Luminaries General

   Install luminaires that feature:

   a. Corrosion resistant enclosures with gray paint finish and space for the ballast.
   b. Third party certification for use in wet locations.
   c. Glass lenses, unless polycarbonate resin refractors are specified.
   d. Terminal blocks for attaching the illumination tap conductors.

e. Aluminum reflectors with an ALZAK or ALGLAS finish.

f. Optical components free of substances that affect photometric performance, paint.

g. Housings cast with no provision for a photoelectric control receptacle.

h. Airtight reflector and lens units that breathe through activated charcoal filters and include elastomer gaskets to seal the gap between the two components. Gasket material must withstand the temperatures involved and be securely held in place.

i. i. Plug in starting aids in fixtures with lamps through 400 watts.

2. Luminaries – Cobrahead and Offset

Each cobrahead or offset luminaire shall also include:

a. An easily removed hinged door used exclusively for mounting the ballast.

b. A second door that frames the lens, hinges on the house side, and fastens on the street side with an automatic type latch.

c. A four bolt mounting brackets that fit 2 inch nominal diameter standard pipe and feature a center pivot for leveling the luminaire.

Offset luminaires shall also include knuckle style pole top adapters that are sized to fit 2 inch nominal diameter standard pipe and feature a wire way meeting NEC requirements for installing three size 10 AWG conductors between the pole and the terminal block located in the luminaire.

3. LED Luminaire

LED Luminaires shall be UL listed for wet locations and enclosure classified IP66 per IEC 529. The fixture shall be resistant to corrosion, ultraviolet degradation and abrasion. Nickel-chrome plated wire guard shall be used for providing anti-fouling protection from leaf/debris and animals nesting to assure cool LED operation.

The luminaire shall have five years warranty on the LED's and the driver. Average delivered lumens over 50,000 hours should be a minimum of 85% of initial delivered lumens.

The LEDs shall operate over the temperature range of -40 °F to +165 °F. The LEDs shall be wired in series parallel strings. The failure of many one LED, and its associated string of LEDs, shall not cause the loss of more than 20% of the light output of the complete LED module.

5. Lenses

When polycarbonate resin lenses are specified, the fabricator shall furnish certified lenses conforming to the following criteria:

a. The lenses are molded in a single piece from virgin polycarbonate resin.

b. The lenses are free from cracks, blisters, burns, and flow lines, and furnished with the natural molded surface.

c. The lenses are of uniform density throughout and free from air, gas, or moisture pockets, and uncured areas.

d. The lenses are transparent with a clear bluish tint, produced from ultraviolet stabilized resin to reduce the effects of ultraviolet radiation on their color properties.

e. The resins used meet the requirements for the self extinguishing classification of ASTM D 635 and feature a minimum impact strength, Izod notched of 12 foot pounds per inch when tested according to ASTM D 256, Method A, using a 1/8 inch by 1/2 inch bar molded according to ASTM recommended practice.

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APPENDIX A

PERMITS (ENVIRONMENTAL DOCUMENTS)

APPENDIX B

PERMITS (ROW EASEMENTS)

APPENDIX C

EROSION SEDIMENT CONTROL PLAN

APPENDIX D

CONSTRUCTION SURVEYING REQUIREMENTS

APPENDIX E

UTILITY SAFETY REQUIREMENTS

APPENDIX F

MATERIAL CERTIFICATION LIST

APPENDIX G

MATERIALS AND STAGING INFORMATION