PART 4

SPECIAL PROVISIONS

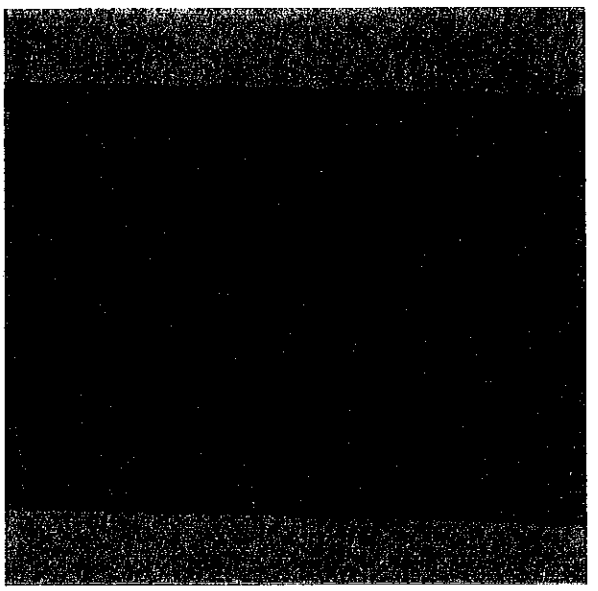
To the

ALASKA
DEPARTMENT OF TRANPORTATION
AND PUBLIC FACILITIES

STANDARD
SPECIFICATIONS
FOR
HIGHWAY CONSTRUCTION

1998
METRIC EDITION

SHIP CREEK TRAIL, PHASES III & IV
CM-0001(297)/51233
TEA-0001(336)/57363



DIVISION 100

DEFINITIONS AND TERMS

Standard Modification

Delete Division 100 of 1998 Standard Specifications for Highway Construction, except for subsection 109-1.02 Measurement of Quantities.

Add Division 100 of the 2004 Standard Specification for Highway Construction, except for subsection 109-1.02 Measurement of Quantities. (Specifications not attached, use published 2004 Standard Specification for Highway Construction book. (6/30/04)M113

SECTION 101

DEFINITIONS AND TERMS

Standard Modification

101-1.03 DEFINITIONS. Add the following:

INTERIM WORK AUTHORIZATION. A written order by the Engineer initiating changes to the Contract, within its general scope, until a subsequent Change Order is executed. (06/25/99)M68

Within Division 100 of the 2004 Standard Specification for Highway Construction make the following changes from English to metric units:

Within definition of Bridge replace: "20 feet" with: 6.1 meters

Delete definition of Station in its entirety and replace with:

STATION. (1) A distance of 1000 meters measured horizontally, usually along centerline. (6/30/04)M113

Within Item 4.c.(2)(a) delete text in its entirety and replace with: The field locate by the owner or operator of a buried utility erred by more than 615 horizontal millimeters if the utility is buried 3.0 meters deep or less, or 770 horizontal millimeters if the utility is buried deeper than 3.0 meters; (6/30/04)M113

Special Provisions

101-1.03 DEFINITIONS. Add the following definition:

NON-FROST SUSCEPTIBLE. Material that contains 6 percent or less passing the 0.075-mm screen as determined by sieve analysis performed with WAQTC FOP for AASHTO T27/T 11 on minus 75-mm material. (11/29/01)R1M98

SECTION 102

BIDDING REQUIREMENTS AND CONDITIONS

Special Provisions

102-1.11 ADDENDA REQUIREMENTS. Delete this subsection in its entirety and substitute the following: Addenda will be issued to the individual or company to whom bidding documents were issued. Addenda may be issued by any reasonable method such as hand delivery, mail, telefacsimile, telegraph, courier, and in special circumstances by phone. Addenda will be issued to the address, telefacsimile number or phone number as stated on the planholder's list unless picked up in person or included with the bid documents. It is the bidder's responsibility to insure that he has received all addenda affecting the Invitation For Bids. No claim or protest will be allowed based on the bidder's allegation that he did not receive all of the addenda for an Invitation For Bids.

All addenda shall be acknowledged on the Proposal or by telegram or telefacsimile prior to the scheduled time of bid opening. If no addenda are received by the bidder, the word "None" should be entered on the Proposal Form. (2/1/00)R171M98

SECTION 103

AWARD AND EXECUTION OF CONTRACT

Standard Modification

103-1.01 CONSIDERATION OF BIDS. Add the following after item 9.:

In addition to the circumstances described above, the Contractor may request permission from the Contracting Officer to add or replace a listed subcontractor. The request must be made in advance, in writing, specifically detailing the basis for the request, and shall include appropriate supporting documentation. The Contracting Officer will approve the request if it is determined to be in the best interest of the State. (10/28/99)M84

103-1.02 AWARD OF CONTRACT. In the third paragraph, change "practical" to "practicable". (06/25/99)M69

Add the following Subsection:

103-1.10. ESCROW OF BID DOCUMENTATION. Furnish a legible copy of bid documentation and an affidavit, as instructed in writing by the Contracting Officer. Bid documentation consists of written documentation of quantity takeoffs, construction schedules on which the bid is based, cost estimates, rates of production and progress, assumptions, calculations, quotes from subcontractors and suppliers, and other information used to prepare bid for this project.

Obtain and furnish the same level of bid documentation, for each subcontractor with a subcontract exceeding $200,000, regardless of tier.

Meet the following requirements:

1. Submitting Bid Documentation. Place bid documentation in a sealed container clearly marked "Bid Documentation" and labeled with the bidder's name and address, submission date, and project name and number. Deliver the sealed container to the Department-designated document depository for safekeeping.

2. Affidavit. Submit directly to the Contracting Officer a signed and certified affidavit attesting that:

   a) the affiant has examined the bid documentation and that it includes documents used to prepare the bid,

   b) the sealed container contains bid documentation submitted,

   c) the escrow materials were relied on to prepare the bid, and

d) should a dispute arise, the Contractor's rights to use bid preparation documentation other than those in escrow are waived.

3. Duration and Use. The bid documentation will remain in escrow, without access by either party, until one of the following occurs:

a) There is a dispute related to Change Order. With a neutral observer present, both parties will have joint access to review and copy the files.

b) The Contractor files a written claim or initiates Contract-related litigation against the Department. With a neutral observer present, both parties will have joint access to review and copy the files.

c) The Contractor completes the Contract and the Department receives an executed Contractor's Release (Form 25D-117) with no exceptions listed. Action is sufficient grounds for the Contractor to obtain the release and custody of the escrow documentation.

4. Failure to Provide Bid Documentation. Refusal or failure to provide bid documentation or affidavit renders the bid non-responsive. Failure or refusal to provide subcontractor bid documentation will result in subcontract disapproval.

5. Confidentiality of Bid Documentation. Materials held in escrow are property of the Contractor. Except as provided herein, the escrow materials cannot be released without the Contractor's approval. The original escrow materials are returned to the Contractor once any litigation is concluded, outstanding claims are resolved, and the final release is executed.

6. Cost and Escrow Instruction. The Department pays to store escrowed materials and instructs the depository regarding escrow.

7. Payment. Include within the overall Contract bid price costs to comply with this Subsection.

(02/12/02)S86

SECTION 105

CONTROL OF WORK

Standard Modification

105-1.02 PLANS AND WORKING DRAWINGS. Replace the fifth paragraph with the following:

Upon receipt of an approved copy of the shop working drawings, the Contractor shall furnish to the Engineer:

1. Enough additional copies to provide 8 approved sets of prints.
2. One set of reproducible transparencies (polyester film).
3. If requested, an electronic file in AutoCAD drawing interchange format (.DXF).

(09/30/99)M85

105-1.06 COOPERATION WITH UTILITIES. Add the following: Request locates from all the utilities having facilities in the area. Use the locate Call Center for the following utilities:

Locate Call Center	
Anchorage Area	278-3121
Statewide	800-478-3121
who will notify the following:	
****delete****	
ACS	
Alaska Fiberstar	
Alaska Railroad Corporation	
Anchorage Water & Wastewater Utility	
AT&T Alascom, Incorporated	
Digline - Boise loan to AK	
DOT Street Lights, State of Alaska	
Enstar Natural Gas, Inc.	
GCI Communications	
Municipal Light & Power	
Municipality of Anchorage	
SOA-DOT/PF Anchorage M&O	

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

There are various utility appurtenances located within the project limits. Utilities scheduled for relocation are addressed in the following utility specific sections. Cooperate with these utilities

and coordinate schedule of work to allow them access to the project for their adjustments and/or relocation.

Work around those utilities not designated for relocation in the plans and the following utility specific coordination . You shall bear the expense for any changes or additional relocation requested for Contractor convenience.

Work around all utility facilities, either existing or relocated, throughout the project unless advised by the utility that the facility is abandoned in place.

You shall bear the responsibility for any changes in contract scheduling that result in the conditions in this specification not being met. Additional coordination with the applicable utility will be required.

Schedule and coordinate the utility relocations with project construction as set forth in Section 108-1.03, Prosecution and Progress.

Right of Way and/or Construction surveying is required prior to utility relocation.

Payment will be made as follows:

1. Subsidiary to Item 642(1), Construction Surveying, if the Contractor is required to provide the surveying as part of the contract and/or
2. Under 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 Contractor's two (2) week work plan, or not required by the contract.

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

Provide the Utility Companies fifteen (15) calendar days advance written notice of the relocations described below to begin. The Utility Companies will not be required to work in more than one location at a time, and will be allowed to complete a specific section of work prior to commencing with another section.

Relocation or adjustment of underground utility appurtenances will not normally be performed when the ground is frozen. In addition, the utility companies may prohibit the Contractor, through the Engineer, from working near the utility's facilities when the ground is frozen.

Specific coordination requirements for the specific utilities are included below:
(05/31/01)R3M98
****delete****

1. **Municipal Light & Power**

   Municipal Power & Light (ML&P) facilities exist throughout the project work area. The ML&P facilities that were identified as requiring relocation under the Phase III

portion of the project have been relocated and the old facilities have been removed or abandoned.

2. Anchorage Water and Wastewater Utility

Existing AWWU facilities exist throughout the project work area. AWWU facilities requiring relocation and/or adjustment by the Contractor include the following:

Water Line Relocation

Facility	Station	Offset
Water Main	Sta. P 40+007.2 to Sta. P 40+022.8	9.7m Rt.
	Adjustment of Valve Box	
Water Service Valve	Sta. P 40+005.5	9.7m Rt.

3. Alaska Communications Systems

Alaska Communications Systems (ACS) facilities exist throughout the project work area. The ACS facilities that were identified as requiring relocation under the Phase III portion of the project have been relocated and the old facilities have been removed or abandoned.

4. ENSTAR Natural Gas Company

ENSTAR Natural Gas Company facilities exist throughout the project work area. Underground gas utilities shall be continuously supported during placement and compaction of backfill material. Geotextile fabric and/or rigid insulation shall be sufficiently separated from the utility to prevent undue stress during the compaction/settlement process. The following ENSTAR facilities have been identified as requiring relocation or replacement due to the project.

A 6-inch plastic distribution line paralleling the inside of Viking Drive ROW may require moving horizontally and/or vertically to allow the installation of two catch basins and 12 inch lateral storm drain pipes at stations 50+159 and 50+269. The 6-inch plastic gas line may need to be moved horizontally to provide adequate clearance for electrolier foundations at stations 50+308 and 50+358.

Eight hundred feet of existing 10-inch steel transmission line located within Post Road right-of-way will be abandoned in place from the gas regulator station located southwest of intersection of Post Road and Viking Drive to the junction with a 2-inch steel line located south of the intersection of Post Road and Whitney Road. To avoid a conflict with the proposed pedestrian tunnel, the abandoned 10-inch steel transmission line will be removed at that location. 1,390 feet of new 6-inch plastic

distribution line with 2-#8 cables will be installed to replace the 10-inch steel transmission line. The 6-inch plastic line will be installed from the regulator station around the west end of the pedestrian structure then return to Post Road along the north side of the pedestrian structure. The line will continue north within the Post Road right-of-way to Whitney Road. A 40 foot, 12-inch steel casing will be installed for the gas line to cross under the Alaska Rail Road on Post Road. Two existing local services lines will be rerun with plastic pipe.

270 feet of new 6-inch plastic transmission line will be installed perpendicular to Post Road starting at the junction with the existing 3-inch steel line on the East side of Post Road at Whitney. The new 6-inch plastic transmission line will tie into an existing 4-inch steel line on the south side of Whitney Road.

190 feet of new 2-inch plastic transmission line will be installed perpendicular to Whitney Road starting at the junction of the new 6-inch plastic line with the existing 4-inch steel and tying into the existing 4-inch steel line located to the north of Whitney Road. Two existing local services lines will be rerun with plastic pipe.

The relocation work addressed above is expected to require thirty (30) calendar days to complete.

105-1.07 COOPERATION BETWEEN CONTRACTORS. Add the following: **The following project will be under construction concurrently with this project:**

Project: Ship Creek Trail, Phase III
Owner: ADOT&PF
Contractor: TBA

Coordinate traffic control, construction, and material hauling operations with the prime contractor of the above project to minimize impact on the traveling public, and to minimize conflicts with the work being performed under the other contract. (02/01/00)R175M98

105-1.13 MAINTENANCE DURING CONSTRUCTION. Add the following: Inspect and clean all storm drain sumps and petroleum separator manholes during the construction season and prior to winter shutdowns. This inspection and maintenance of the storm drain system will not be paid for directly but will be subsidiary to work paid for under Sections 603 and 604. (2/1/00)R4M98

105-1.15 PROJECT COMPLETION. Delete the last paragraph and substitute the following: When all physical work and cleanup provided for under the contract is found to be complete, except for work specified under Subsection 618-3.04, Maintenance of Seeded Areas; and Subsection 621-3.04, Period of Establishment; Subsection 641-2.01, Storm Water Pollution Prevention Plan (SWPPP) Requirements and Subsection 641-3.01, Construction Requirements, a letter of project completion will be issued by the Engineer. Project completion will relieve the Contractor from further maintenance responsibilities, except under Subsections 618-3.04, and 621-3.04, 641-2.01 and 641-3.01, and will stop the count of contract time but will not relieve him of any obligations under the Contract. (02/06/02)R237M98

Standard Modification

105-1.17 CLAIMS FOR ADJUSTMENT AND DISPUTES. Delete this Subsection in its entirety and substitute the following:

Notify the Engineer as soon as you become aware of any act or occurrence which may form the basis of a claim for additional compensation or an extension of Contract time or of any dispute regarding a question of fact or interpretation of the Contract.

If the matter is not resolved by agreement within 7 days, submit any Intent to Claim, in writing, within the next 14 days.

If you believe additional compensation or time is warranted, immediately begin keeping complete, accurate, and specific daily records concerning every detail of the potential claim including actual costs incurred. Give the Engineer access to any such records and furnish the Engineer copies, if requested. Equipment costs must be based on your internal rates for ownership, depreciation, and operating expenses and not on published rental rates.

Submit any Claim to the Contracting Officer, in writing, within 90 days of the act or occurrence forming the basis of the claim. The Contracting Officer will acknowledge receipt of the Claim in writing.

You waive any right to claim if the Engineer was not notified properly or afforded the opportunity to inspect conditions or monitor actual costs.

The Claim must include all of the following:

1. The act, event, or condition the claim is based on.
2. The Contract provisions which apply to the claim and provide relief.
3. The item or items of Contract work affected and how they are affected.
4. The specific relief requested, including Contract time if applicable, and the basis upon which it was calculated.
5. A statement certifying that the claim is made in good faith, that the supporting cost and pricing data are accurate and complete to the best of your knowledge and belief, and that the amount requested accurately reflects the Contract adjustment which you believe is due.

The Claim, in order to be valid, must not only show that you suffered damages or delay but that it was caused by the act, event, or condition complained of and that the Contract provides entitlement to relief for such act, event, or condition.

The Department can make written request to you at any time for additional information relative to the Claim. Provide the Department such additional information within 30 days of receipt of such a request. Failure to furnish such information may be regarded as a waiver of the Claim.

You will be furnished the Contracting Officer's Decision within 90 days, unless additional information is requested by the Contracting Officer. The Contracting Officer's Decision is final and conclusive unless, within 14 days of receipt of the decision, you deliver a Notice of Appeal to the Appeals Officer. Procedures for appeals are covered under AS 36.30.625 and AS 36.30.630.
(03/26/01)M101

Add the following Appeals to the superior court under AS 36.30.685 must be filed in the third judicial district. (03/21/01)R93

SECTION 106

CONTROL OF MATERIAL

Special Provision

106-1.01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. Add the following:

Buy America Provision. The Contractor shall comply with the requirements of 23 CFR 635.410, Buy America Requirements, and shall submit a completed Material Origin Certificate, Form 25D-60, prior to award of the contract.

All 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 processes 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), 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 which 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.

The Contractor shall take whatever steps are necessary to ensure that all 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. (08/31/99)S13

Special Provisions

106-1.02 LOCAL MATERIAL SOURCES. Add the following under Item 2. Inspection and Acceptance.: In compliance with 30CFR46.11, have the Operator of the sand and gravel surface mine (materials source) provide *Site-specific Hazard Awareness Training* for all the Engineer's personnel (non-miners) before beginning any operations in your surface mine. Offer the training at each surface mine that will be used to supply processed aggregates. A competent person must provide the training in accordance with the Operator's written training plan as approved by the *Mine Safety and Health Administration*, and covering the following items:

a. Site specific health and safety risks.
b. Recognition and avoidance of hazards.
c. Restricted areas.
d. Warning and evacuation signals.
e. Other special safety procedures.
f. Site tour.

Upon completion of this training, the Engineer's personnel will sign a Visitor's Log Book to indicate that training was provided. (05/01/02)R262M98

Special Provisions

106-1.03 TESTING AND ACCEPTANCE. Add the following:

When the specifications refer to the following test methods, use the corresponding 'New Test Method' shown below. ATM = Alaska Test Method. AASHTO = American Association of State Highway and Transportation Officials. FOP = Field Operating Procedure. WAQTC = Western Alliance for Quality in Transportation Construction.

Test Method	New Test Method
ATM T-1	Alaska FOP for AASHTO T 87/T 88
ATM T-3	Alaska FOP for AASHTO T 205
ATM T-4	WAQTC FOP for AASHTO TP 61
ATM T-5	WAQTC FOP for AASHTO T 255/T 265
ATM T-6	ATM 203
ATM T-7	WAQTC FOP for AASHTO T 27/T 11
ATM T-8	WAQTC FOP for AASHTO T 152
ATM T-11	WAQTC FOP for AASHTO T310 and WAQTC FOP for AASHTO T 224
ATM T-18	WAQTC FOP for AASHTO T 166/T 275
ATM T-22	WAQTC TM 8
ATM T-23	ATM 405
ATM T-25	WAQTC TM 6
AASHTO T 2	WAQTC FOP for AASHTO T 2
AASHTO T 23	WAQTC FOP for AASHTO T 23

AASHTO T 27/T 11 .....WAQTC FOP for AASHTO T 27/T 11
AASHTO T 30.....WAQTC FOP for AASHTO T 30
AASHTO T 40.....WAQTC FOP for AASHTO T 40
AASHTO TP 53/T 308 ....WAQTC FOP for AASHTO T 308
AASHTO T 85.....WAQTC FOP for AASHTO T 85
AASHTO T 87/T 88 .....WAQTC FOP for AASHTO T 87/T 88
AASHTO T 89.....WAQTC FOP for AASHTO T 89
AASHTO T 90.....WAQTC FOP for AASHTO T 90
AASHTO T 99/T 180 .....WAQTC FOP for AASHTO T 99/T 180
AASHTO T 119.....WAQTC FOP for AASHTO T 119
AASHTO T 121.....WAQTC FOP for AASHTO T 121
AASHTO T 152.....WAQTC FOP for AASHTO T 152
AASHTO T 164.....WAQTC FOP for AASHTO T 164
AASHTO T 166/T 275 ....WAQTC FOP for AASHTO T 166/T 275
AASHTO T 168.....WAQTC FOP for AASHTO T 168
AASHTO T 176.....WAQTC FOP for AASHTO T 176
AASHTO T 182.....Alaska FOP for AASHTO T 182
AASHTO T 205.....Alaska FOP for AASHTO T 205
AASHTO T 209.....WAQTC FOP for AASHTO T 209
AASHTO T 224.....WAQTC FOP for AASHTO T 224
AASHTO T 248.....WAQTC FOP for AASHTO T 248
AASHTO T 255/T 265 ....WAQTC FOP for AASHTO T 255/ T 265
AASHTO T 267.....ATM 203

(07/26/01)S 87

Addendum No. 3
Attachment No. 3

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 any off project site, is not expected to impact any 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 you discover cultural resources during construction activities, stop work at that site and notify the Engineer.

Provide a wetland specialist able to conduct wetlands determinations and delineations in accordance with the Corps of Engineers 1987 Wetland Delineation Manual. The wetland specialist shall conduct the determination and delineations of any site outside the project limits or not previously permitted, impacted by your operations. These delineations will be subject to Corps of Engineers approval.

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

Add the following: The Municipality has received the following permits on your behalf and they are contained in Appendix A:

1. Department of the Army, Corps of Engineers Individual Permit Modification No. POA-1984-121-CC, expiring June 30, 2009.

2. Municipality of Anchorage Flood Hazard Permit No. 99-0008-00.

Provide all necessary 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.

A Municipality of Anchorage (MOA) Right-of-Way Use permit will be required. The Municipality will require a copy of the approved Traffic Control Plan and a copy of the Notice to Proceed from you. (05/29/02)R7M98

****DELETE****

107-1.08 RAILWAY-HIGHWAY PROVISIONS. Delete this Subsection in its entirety and substitute the following:

107-1.08-SECTION 1. DEFINITION OF TERMS

ARRC	**Alaska Railroad Corporation, P.O. Box 107500, Anchorage, AK 99510-7500.**
ARRC Property	**all lands owned or withdrawn for the use of the ARRC, including the ARRC's track right-of-way and communications pole line right-of-way.**
Chief Engineer	**the person employed by the ARRC as head of its Engineering Department or Branch, or his/her authorized representative.**
Contractor	**any agent of the Permittee, including contractors or subcontractors employed to construct, reconstruct, operate and/or maintain the Facility. The term "Contractor" shall be synonymous with the term "Permittee" when the Permittee performs the construction, reconstruction, operation and/or maintenance of the Facility with its own personnel.**
Department	**Alaska Department of Transportation and Public Facilities is managing the project.**
Facility	**any improvements owned by the Permittee which are to be placed on ARRC property in accordance with written permission executed by ARRC and Permittee.**
Roadway Worker	**any employee of a railroad, or of a contractor to a railroad, whose duties include inspection, construction, maintenance, or repair of railroad track, bridges, roadway, signal and communication systems, electric traction systems, roadway facilities, or roadway machinery on or near track or with the potential of fouling a track.**
Telecommunications Supervisor	**the person employed by the ARRC as head of its Telecommunications Department or Branch, or his/her authorized representative.**

Permittee	**the Municipality of Anchorage is the governmental agency to whom the right to enter upon ARRC Property was given in the form of a written permit or contract executed by the ARRC and Permittee.**
Trackwork	**all work on the line from the top of subgrade to the top of rail, including geotextile, when required.**
Track Materials	**all hardware, excluding signals and controllers, associated with the running of a railroad.**

107-1.08-SECTION 2. GENERAL REQUIREMENTS

2.1 All construction, reconstruction, operation, and maintenance on ARRC Property shall be performed in compliance with these specifications contained in 107-1.08, including all revisions thereto.

2.2 Failure to comply with these specifications shall result in suspension of all work on ARRC Property.

2.3 All work on or about ARRC Property shall be performed by experienced personnel in a safe and workmanlike manner in keeping with approved ARRC practices, and as specified herein. ARRC traffic and property shall be protected at all times.

2.4 The safety and continuity of the operation of the traffic of ARRC shall be of first importance and shall be at all times protected and safeguarded. The Contractor and its subcontractors shall be required to perform and arrange their work accordingly. Whenever, in the opinion of the Chief Engineer or his or her representatives, the work or its performance may affect or involve the safety of ARRC's facilities and/or operation of its railroad, the method of doing such work shall first be submitted by the Contractor to the Chief Engineer for his/her approval, without which it shall not be commenced or prosecuted. The approval of the Chief Engineer, when given, shall not be considered as a release from responsibility or liability for any damage which ARRC may suffer, or for which it may be liable, as a result of the acts or omissions of the Contractor, its subcontractors or employees.

2.5 Whenever, in the opinion of the Chief Engineer, the construction may cause a hazard to the safe operation of ARRC, ARRC may, in its discretion, place at the site of the work the required number of qualified employees to protect its operations. The providing of such employees and such other precautions as may be taken shall not relieve the Contractor and its subcontractors from liability for the payment of damages caused by their operations. ARRC shall be the sole judge of the necessity

for, and as to the number and classification of employees required. The Contractor shall reimburse ARRC for the cost and expense incurred in providing such employees.

107-1.08-SECTION 3. SAFETY REQUIREMENTS

3.1 The safety of personnel, property, rail operations, and the public is of paramount importance in the prosecution of any work on ARRC Property. The Contractor shall comply with all Federal, State and local governmental regulations (e.g. OSHA, NESC, etc.) applicable to the construction, installation, or maintenance of any Facility. As reinforcement and in furtherance of overall safety measures to be observed by Contractor (and not by way of limitation), the special safety rules set forth in this SECTION 3 shall be followed while working on ARRC Property. Further railroad safety information may be obtained from the ARRC Safety Office at 907-265-2440. Safety information is also available on the ARRC website at www.akrr.com.

3.2. ARRC flag protection is required before any activity can occur on or near a railroad operating facility such as a track, yard, bridge or shop building. For subsidiary work, such as surveying or inspection, an ARRC furnished flagman will provide a safety briefing prior to the commencement of the work For any activity involving a disturbance or potential disturbance to the track, track embankment, or any railroad facility, ARRC may require the Contractor to submit a specific Railroad Safety Plan prior to startup. Projects that involve activities that cross the tracks or are longitudinal to the tracks will require a specific Railroad Safety Plan and a one-hour ARRC provided training course for Contractor's project supervisors prior to the initiation of work on ARRC Property. Specific information on Railroad Safety Plans may be obtained from the ARRC Safety Office at 907-265-2440.

3.3 The Contractor shall arrange for ARRC flag protection when performing any work within 6 meters (20 feet) of any track. All work within 6 meters (20 feet) of the track shall cease when a train passes and all Contractor employees shall maintain a distance of at least 6 meters (20 feet) from the track until the train has safely passed. [See 107-1.08-SECTION 6.3 for definition of when train is "passing" the work site.] In addition, any work that could come within 6 meters (20 feet) of the track will cease when a train passes. For example, crane or pile driving activities shall stop when trains pass when the maximum boom and suspended load radius can come within 6 meters (20 feet) of the tracks. Pile driving shall not be done when trains are passing the work site. Vehicles and other construction equipment shall not be operated or parked closer than 6 meters (20 feet) from any track without ARRC flag protection.

3.4 In the event Contractor will be performing construction or other activities on or within 6 meters (20 feet) of a railroad track, the Contractor shall be responsible for compliance with applicable Federal Railroad Administration's Roadway

Worker Protection ("RWP") regulations (49 CFR 214, Subpart C) if its employees qualify as "Roadway Workers". Under 49 CFR 214, Subpart C, railroad contractors are responsible for the training of their employees on these regulations. All RWP related Work shall be conducted in strict compliance with the RWP safety standards set forth in 49 CFR 214, Subpart C and the Contractor will be required to submit a Railroad Safety Plan to ARRC to demonstrate compliance with said safety standards prior to beginning any RWP related Work.

3.5 In the event Contractor will be performing construction or other activities on a railroad bridge, the provisions of 49 CFR 214 regarding bridge worker safety shall apply. All bridge related work shall be conducted in strict compliance with the bridge worker safety standards set forth in 49 CFR 214 and the Contractor will be required to submit a Railroad Safety Plan to ARRC to demonstrate compliance with said safety standards prior to beginning any bridge related work.

107-1.08-SECTION 4. INSURANCE REQUIREMENTS

4.1 The Contractor shall procure and maintain at all times while performing work on ARRC Property, and be covered by the types of insurance with the minimum limits as specified in 107-1.08-SECTION 4.4.

4.2 Each policy specified in 107-1.08-SECTION 4.4 shall be: (1) endorsed to include ARRC as an additional named insured with respect to the performance of the work; (2) endorsed whereby the insurance company will notify ARRC of any material change, cancellation, non-renewal or expiration of the insurance policy in writing not less than thirty (30) days prior to the effective date; (3) endorsed with a waiver of subrogation rights in favor of ARRC; and (4) endorsed with the Alaska Suit Endorsement.

4.3 Prior to commencement of any work on ARRC Property, the Contractor shall deliver to ARRC certificate(s) of insurance showing evidence of the insurance required in 107-1.08-SECTION 4.4.

4.4 Alaska Railroad Corporation Minimum Insurance Requirements.

a. Commercial General Liability insurance with limits not less than $5,000,000/$10,000,000 Combined Single Limit for Bodily Injury and Property Damage, including coverage for Premises and Operations Liability, Products and Completed Operations Liability, Contractual Liability, and Broad Form Property Damage Liability. Coverage shall not contain any exclusions of Explosion, Collapse, Underground, or Rail Operations.

b. Automobile Liability insurance on all owned, non-owned, hired and rented vehicles with limits of liability of not less than $1,000,000

Combined Single Limit for Bodily Injury and Property Damage per each accident or loss.

c. Worker's Compensation insurance in accordance with the statutory coverage required by the State of Alaska and, where applicable, insurance in compliance with any other statutory obligations, whether State or Federal, pertaining to the compensation of injured employees assigned to the Work, including but not limited to Voluntary Compensation, Federal Longshoremen and Harbor Workers Act, and the Federal Employers Liability Act.

d. If any part of the work to be performed on ARRC Property is located within 30 meters (100 feet) of a railroad track, then the Contractor shall also obtain Railroad Protective Liability insurance (Alaska Railroad Corporation as named insured) with limits of liability of not less than $5,000,000/$10,000,000 Combined Single Limit for Bodily Injury and Property Damage per each accident or loss.

107-1.08-SECTION 5. NOTICE

5.1 A pre-construction meeting shall be held with ARRC's Chief Engineer and representatives of the Department, the Contractor and subcontractors prior to the commencement of any work on ARRC Property by the Contractor or its subcontractors. Contact Blake Adolfae at 907-265-2662 to schedule meeting. At Department's request, ARRC representatives will attend a designated time within the Department's project pre-construction meeting in order to afford Contractor and Department a convenient method of satisfying the foregoing requirement.

5.2 The Contractor shall give written notice to the Chief Engineer not less than ten (10) days in advance of the commencement of any construction, reconstruction or major maintenance activity on ARRC Property, in order that the necessary arrangements may be made for the protection of ARRC's operations. This notice shall include a description of the proposed work on ARRC Property, schedule of work, and the names of any Department, Contractor and/or subcontractor personnel who may also be working on ARRC Property.

107-1.08-SECTION 6. FLAG PROTECTION AND PROTECTION OF ARRC TRAFFIC

6.1 Whenever ARRC flag protection is required, it will be provided by ARRC at Permittee/Contractor's expense. ARRC flag protection is to insure the safe movement of trains and other rail traffic and shall be done in strict accordance with the ARRC rules on flagging. A minimum of 72 hours prior notice is required for ARRC to provide flag protection. Contact Crystal Wilson at 907-265-2490.

6.2 ARRC will, during the progress of the work, utilize as many qualified flag people as in the opinion of the ARRC may be required for the adequate protection of ARRC traffic. All expense for providing such flagpersons shall be paid by the Contractor to ARRC.

6.3 The Contractor shall arrange with ARRC to keep itself informed on the time of arrival of all trains and shall stop any of Contractor's operations which might be or cause a hazard to the safe passage of the train past the site of the work from ten (10) minutes before the expected arrival of the train until the last car of the train has safely passed, unless otherwise determined by the Railroad flagperson on site, if any.

6.4 Track outages will only be approved in exceptional cases for limited durations. See 107-1.08-SECTION 7.2.c for details.

107-1.08-SECTION 7. TRAIN DELAYS; ANTICIPATED WORK WINDOWS DURING CONSTRUCTION

7.1 All work on ARRC Property shall be conducted in such a manner as to prevent delays to trains or other rail traffic operated by ARRC. The ARRC will provide a weekly forecast of train traffic and the ARRC flagpersons will provide daily updates of anticipated train traffic. Under no circumstances, however, will the ARRC be liable in any way for delays to the Contractor's work created by any changes or deviations from anticipated train schedules.

a. ARRC Track Maintenance Work Window: Railroad section and summer work crews may need access into the work area to perform routine track maintenance work and scheduled summer major track replacement work. The routine track work is performed as necessary for the safe passage of trains. Railroad on-track equipment also travels through the project as needed. Railroad traffic has full and absolute priority over Contractor work except as may be otherwise authorized in writing by ARRC under 107-1.08-SECTION 7.1.c below.

b. Train Traffic: The track through the project is very active. The approximate number of trains in a 24-hour period is given below as an planning tool for Contractor and cannot be relied upon to assume times are available for track outage. Contractor must obtain prior approval of any period of track outage from ARRC under 107-1.08 SECTION 7.1.c below.

Summer Season - (May 6 to September 24) Approximate Daily Trains: 2 to 6 scheduled Passenger Trains; ARRC also charters passenger trains, which may run on any day; Up to 16 Freight Trains, 1 Coal Train and up to 8 Work or Switching Trains per day.

Shoulder - (April 1 to May 5 and September 25 to October 28) Approximate Daily Trains: Up to 2 scheduled Passenger Trains; ARRC also charters passenger trains, which may run on any day; Up to 16 Freight Trains, 8 Work or Switching Trains and 1 Coal Train.

Off Season - Approximate Daily Trains: Up to 2 scheduled Passenger Trains; ARRC also charters passenger trains, which may run on any day; Up to 6 Freight Trains, 1 Coal Train and 4 Work, Switching or Snow Service Trains.

c. **Tracks out of Service (Track Outages): The work shall be planned so as to minimize track service outages. Prior to a proposed track outage, the Contractor shall submit a closure plan to ARRC. The plan will describe the work to be accomplished, the equipment, manpower and other resources required, and the work schedule, specifying dates and times. Once approved by ARRC, the Contractor shall follow the plan without any variation whatsoever unless a modification is approved by the Chief Engineer. ARRC reserves the right to assume control of the work to reestablish rail service if the schedule is not met. The Contractor shall bear all costs and damages which may result from failure to meet the closure schedule, in addition to the train delay charges provided for in the contract. As indicated above, ARRC anticipates the longest outage allowed during the summer and shoulder seasons will be three (3) hours, and twelve (12) hours in the winter season.**

The ARRC will grant one (1) track outage for bridge placement.

7.2 Should any of the Contractor's or its subcontractor's actions or activities cause delays to trains or other rail or water traffic, the agreed amount of liquidated damages shall be at the following rates and shall be collected from the Contractor by ARRC.

Passenger trains each:	**$50 per minute of delay, 60-minute minimum charge.**
All other rail traffic:	**$50 per minute for each delay over five minutes, 30 minute minimum charge.**
Rail barges, or other connecting carrier vessels:	**No charge for delays of one hour or less; $1,000 per hour for each hour or any part of an hour thereafter with a minimum charge of $6,000.**

7.3 Delay time will be taken from the train sheet in ARRC's Dispatcher's Office, Anchorage (907-265-2421) for all delays and such train sheet shall be the official

document by which the length of time a train is delayed will be determined. If another crew is needed to relieve the original crew, the charge shall also apply to the second crew. If such delay causes a water carrier to miss a sailing, the liquidated damage computation of time covering the period of time to the next possible sailing time shall be in addition to the length of time determined by said train sheet.

107-1.08-SECTION 8. PROTECTION OF ARRC COMMUNICATION LINES

8.1 All work on ARRC Property shall be conducted in such a manner as to protect ARRC's communication facilities at all times from outages resulting directly or indirectly from the Contractor's or its subcontractor's operations.

8.2 Should any of the Contractor's or its subcontractor's operations cause outages to said communications facilities, the agreed amount of liquidated damages shall be at the following rates and shall be collected from the Contractor:

Open wire communication circuits: $1.00 per minute per circuit

Communication cable: $1.00 per minute per cable

8.3 A minimum charge of $250.00 will be made for each outage plus the total repair costs. The outage time shall be that as established by ARRC's Test Board, Anchorage.

8.4 There shall be no equipment operated or excavation made within 4.6 meters (15 feet) of any ARRC communication pole guy, anchor, or other communications apparatus unless authorized in advance by the Telecommunications Supervisor.

107-1.08-SECTION 9. ROAD CROSSINGS

9.1 Whenever automatic railroad crossing signals are in the work area, these signals must remain in operating condition at all times. If, as a result of the Contractor's or subcontractor's activities the signals become inoperable, the crossing shall be continuously flag protected until the signals are again operable. See 107-1.08-SECTION 6 for flagging specifications.

9.2 When regular railroad crossings are used as haul routes inside or outside the work area, flagpersons shall be provided by the Contractor for said crossings in all situations at the discretion of the ARRC.

9.3 Temporary road crossings may be installed provided the Contractor has acquired from ARRC a temporary road crossing permit for said crossing. If a requested crossing is not shown on the project plans as approved by ARRC, then it will be at ARRC's sole discretion whether to allow the crossing.

9.4 The temporary road crossing shall be constructed to the length and the

standards specified in the temporary road crossing permit. All protective signs required by ARRC shall be provided and properly maintained by the Contractor. The temporary road crossing shall be installed under ARRC flag protection in accordance with 107-1.08-SECTION 6 of these specifications.

9.5 The flange ways of all road crossings used by the Contractor or its subcontractor as haul routes or temporary road crossings shall be kept clean and free of gravel at all times and shall otherwise be maintained to the satisfaction of the Chief Engineer.

9.6 When a temporary road crossing is in use, ARRC flag protection shall be provided at all times. See 107-1.08-SECTION 6 for specifications.

9.7 When a temporary or private road crossing is not in use, the Contractor shall provide suitable barricades (gates with padlocks, posts driven into the ground, etc.) to prevent vehicular access to the crossing.

9.8 When not in use during the winter season, the temporary road crossing shall be removed. Upon completion of the work or termination of the crossing permit, the temporary crossing shall be removed and the area restored to its original condition.

9.9 The Contractor agrees that all others using the private road crossing, except ARRC and its employees, shall be considered agents of the Contractor.

9.10 Sight Triangles at road crossings shall be maintained by Contractor free of vegetation and other obstructions to vision in accordance with the table entitled "Sight Triangle Distance" attached and as otherwise established and revised from time to time by ARRC.

9.11 Temporary public road crossings must be included in a traffic control plan submitted by the Contractor to the Department for review and approval prior to constructing the crossing.

107-1.08-SECTION 10. POWER AND COMMUNICATION LINES

10.1 All power and communication lines shall be designed and constructed in accordance with the current edition of the National Electric Safety Code (NESC).

10.2 Underground power and communication lines shall be installed in accordance with 107-1.08-SECTION 11 of these specifications. Whenever an underground power or communication line crosses underneath a track, a casing pipe shall be installed for carrying such lines.

10.3 The minimum clearance above the top of rail of ARRC track shall be in accordance with the handbook referenced in 107-1.08-SECTION 11.1, plus 0.15

meter (6") to allow for future grade raises.

10.4 The minimum clearance above ARRC communication lines shall be in accordance with the handbook referenced in 107-1.08-SECTION 11.1.

10.5 Additional lines may not be added, or the characteristics of the line(s) changed without the prior written approval of ARRC's Chief Engineer.

10.6 Wires shall be strung across ARRC tracks only when ARRC flag protection is provided in accordance with 107-1.08-SECTION 6 of these specifications.

10.7 No wires shall be strung across ARRC's communications lines without first receiving prior written approval from ARRC's Telecommunication Supervisor, and such work must be accomplished only at a time and in a manner prescribed by said Telecommunication Supervisor.

107-1.08-SECTION 11. UNDERGROUND UTILITIES

11.1 All underground utilities, including culverts, pipelines, and underground power and communication lines, on ARRC Property shall conform to the current American Railway Engineering Association (AREA) / American Railroad Engineering and Maintenance-of-way Association (AREMA) Specifications.

11.2 Unless the Chief Engineer authorizes another method in advance and in writing, all underground utilities shall be installed under tracks and roads by boring, jacking or tunneling.

11.3 Boring, jacking or tunneling shall be done under ARRC tracks only when ARRC flag protection is provided in accordance with 107-1.08-SECTION 6 of these specifications.

11.4 The proposed plan for boring, jacking or tunneling shall be approved by the Chief Engineer prior to commencing the operation.

11.5 All boring, jacking or tunneling headings shall be continuously protected against any loss of ground material by shoring and/or cribbing as necessary.

107-1.08-SECTION 12. OPEN TRENCHING

12.1 Only when authorized in advance and in writing by ARRC shall any portion of the track be removed to allow trenching for installation of the Facility.

12.2 If allowed to open trench, the track may be removed from service only at the time authorized by the Chief Engineer and shall be restored to service within the time period specified by the Chief Engineer. Should the track not be restored to service within the time period specified, the agreed amount of liquidated damages

shall be at the rate specified in the written authorization allowing the open trenching or the liquidated damages in accordance with 107-1.08-SECTION 7 of these specifications, whichever is greater, and shall be collected from the Contractor.

12.3 All track work shall be accomplished by qualified track persons.

12.4 Only that portion of the track structure necessary to excavate, stockpile and install the Facility shall be removed. All track material removed shall be handled, stockpiled and relayed in a manner to avoid damage. Any material that is damaged shall be replaced by the Contractor at its own expense.

12.5 The backfill of the trench under the track and in the road bed prism shall be of the same type of material as taken out, except the top 0.6 meters (2 feet) shall be clean pit run gravel. Backfilling and compaction shall be in 0.3 meter (one foot) lifts with a compaction of 95% of maximum density in the area affecting the road bed prism.

12.6 The ballast used in replacing the track shall be equal in depth and quality as that which was removed. The track shall be relayed and brought to original grade in accordance with standard ARRC practices. The track shall be resurfaced as often as necessary for a period of 12 months after completion of construction to remove any settlement that may have occurred.

107-1.08-SECTION 13. EXCAVATIONS

13.1 Unless authorized in advance and in writing by ARRC, the top of any excavation shall not be within 6 meters (20 feet) of the centerline of any track, nor shall any excavation exceed 3.5 meters (10 feet) in depth regardless of its proximity to track.

13.2 No water shall be allowed to stand in open excavations in the track area.

13.3 Bridging and shoring shall be adequate to safely carry ARRC traffic and the decision of the Chief Engineer pertaining to same shall be final.

13.4 All open excavations shall be continuously protected by flags, flares, barricades or watchpersons, as directed by ARRC.

13.5 No excavation shall be left open more than three days, unless authorized by the Chief Engineer.

13.6 ARRC embankments and cut slopes shall not be disturbed any more than necessary to accommodate the construction and shall be left in a stabilized condition.

13.7 ARRC ditches, culverts and roadways shall be kept clean and free of rock, gravel, construction debris and equipment at all times.

107-1.08-SECTION 14. ARRC INSPECTIONS

14.1 ARRC may furnish an inspector during the periods of construction on ARRC Property. The ARRC inspector will inspect the removal and replacement of tracks, excavation, backfill, necessary bridging for tracks, shoring, flagging, lighting, clearances, etc., when necessary. The ARRC inspector will work directly with the representatives of the Department and Contractor and the decision of the ARRC inspector in matters pertaining to ARRC operations and safety shall be final. In the event more than one shift is worked, an ARRC inspector will be required for each shift. Presence or absence of an ARRC inspector shall not relieve the Contractor of liability for damage done to property of ARRC, or the property of ARRC lessees or permittees having installations on ARRC Property. All ARRC cost and expense for furnishing said inspector(s) shall be collected from the Permittee/Contractor.

107-1.08-SECTION 15. USE OF EXPLOSIVES

15.1 The use of explosives shall be done in compliance with all applicable Federal, State and local laws and ordinances regarding same.

15.2 No blasting of any kind will be permitted unless the Contractor thoroughly safeguards the movement of trains and other rail traffic and personnel in the area where such blasting is being conducted. Before blasting, ARRC flag protection in accordance with 107-1.08-SECTION 6 of these specifications shall be provided on each side of the blast area by the Contractor. This flag protection shall not be removed until the track is inspected for damage from the blast.

107-1.08-SECTION 16. SNOW REMOVAL

16.1 Snow removal operations shall be conducted in such a manner as to not place snow (1) upon the tracks of ARRC; (2) where it interferes with the normal operation of the automatic crossing signals; or (3) where it impairs the visibility of either highway or rail traffic at the crossing.

16.2 Snow removal operations shall be conducted in accordance with 107-1.08-SECTION 3 of these specifications.

107-1.08-SECTION 17. CLEAN-UP

17.1 At all times, all work and activities on ARRC Property shall be accomplished in such a manner as to keep the ARRC Property in a neat, orderly and safe condition satisfactory to ARRC.

17.2 Upon completion of Contractor's work, all equipment and unused materials shall be removed and the ARRC Property shall be left in a neat and clean condition satisfactory to ARRC.

17.3 Should the Contractor or its subcontractor fail to comply with 107-1.08-SECTIONS 17.1 and 17.2 above, ARRC may perform the required clean-up. All ARRC costs and expenses for performing this work shall be collected from the Contractor. (08/14/02)R268

107-1.11 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE. Add the following: If you require water for any construction purpose from a non-municipal 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) 269-8624. (05/29/02)R7M98

Standard Modification

Within Division 100 of the 2004 Standard Specification for Highway Construction make the following changes from English to metric units:

Within Items 3.d. replace: "100 feet" with: 30 meters. (6/30/04)M113

Special Provisions

107-1.16 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICE. Add the following before the last paragraph: When construction activities meet any of the following conditions, advise the appropriate owning Utility(s) in writing at least 24 hours in advance of work.

1. Operations anticipated being within 3 m of an overhead electrical line.

2. Operations anticipated to be within 0.9 m of an underground electrical line according to locates provided by the owning Utility.

3. Operations requiring use of equipment that is capable of coming within 3 m of an overhead electrical line.

The notice shall indicate the location and duration of the work.

Provide an attendant whose sole responsibility is to perform as a safety observer while equipment is operating such that any part is capable of reaching within 4.6 m of an overhead line.

Provide a safety observer for overhead electrical facilities, or a cable watch for buried electrical facilities, will be subsidiary to the item(s) of work being performed requiring these services. (7/30/99)R170M98

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 25A301
EEO-1 Certification	Form 25A304
DBE Subcontractable Items	Form 25A324
ADOT&PF Training Program Request	Form 25A310
Training Utilization Report	Form 25A311
Contact Report	Form 25A321A
DBE Utilization Report	Form 25A325C
Summary of Good Faith Effort Documentation	Form 25A332A
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.

In addition to the reports required in the above references, the Contractor shall submit a copy of Form CC-257 to the Department by the 15th of each month of the current construction season, reflecting the composition of the previous month's workforce. This information must also be made available, upon request, to the US Department of Labor, OFCCP. (08/13/98)S80

SECTION 108

PROSECUTION AND PROGRESS

Standard Modification

108-1.01 SUBLETTING OF CONTRACT. Delete the last paragraph under Item 4. and add the following to Item 5.:

The Contractor shall ensure that the required prompt payment provisions of AS 36.90.210 are included in all subcontracts.
(10/28/99)M70

Special Provisions

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 item 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 in which the work will be carried out and the contemplated dates on which the Contractor and subcontractors will start and finish each of the salient features of the work, including any scheduled periods of shutdown. Indicate any anticipated periods of multiple-shift work in the CPM Schedule. If revisions to the proposed CPM Schedule are required, make them promptly. Promptly submit a revised CPM Schedule if there are substantial changes to your schedule, or upon request of the Engineer.
(12/13/02)R261M98

Add the following under item no. 1: Use the schedule for coordination and monitoring of all work under the contract including all activity of subcontractors, manufacturers, suppliers, utility companies and review activity of the Department. (4/22/99)R250M98

Delete Item 5 of the first paragraph and substitute the following:

5. The submittals identified under Subsection 641-1.03, Submittals.
(01/31/02)R160M98

Add Item
8. The Contractor shall, every two weeks during construction, submit a work plan detailing his proposed operations for the forthcoming two weeks. This plan shall detail the following:

a. work activities,

b. manpower involved by trade,

c. work hours,

d. equipment involved,

e. the location of the work to be performed, and

f. updated impacts to the CMP.

Work schedules and two week work plans will not be paid for directly, but will be subsidiary to the contract. Failure to submit work schedules and two week work plans as specified will result in partial withholding of progress payments in accordance with subsection 109-1.06, Progress Payments.

****DELETE****

SECTION 109

MEASUREMENT AND PAYMENT

Standard Modifications

109-1.05 COMPENSATION FOR EXTRA WORK. Under item 1. Labor:

Delete "(supported by proof of rates)".

Delete paragraph d., and substitute the following:

d. plus Workers' Compensation at 8% of a. The actual net rate will be used only when it exceeds 10% and when proof of rates are submitted within 30 days of the completion of the extra work.

(5/31/00)M90

Under item 3, Equipment, change the first sentence to read ..."Rental Rate Blue Book for Construction Equipment", published by Primedia, 1735 Technology Drive, Suite 410, San Jose, CA, 95110-1313.

Under item 3, Equipment, 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. (1/27/00)R14

1. Labor. Replace subparagraphs e. and f., with the following:

e. plus either subsistence and travel allowances, or prorated camp costs
f. plus 35% of the sum of a, c, d, and e.

Delete item 5. and substitute the following:

5. Work by a Subcontractor. The Contractor will receive a 5% markup on the total time and materials work defined in 1 through 4 above which is performed by an approved subcontractor or owner-operator. This markup will be for administrative expenses incurred in connection with the work. No percentage will be paid on work covered under bid items in the original Contract. No percentage over the amount covered above will be paid if the work is done by a lower tier subcontractor.

(02/08/01)M71

109-1.06 PROGRESS PAYMENTS. Add the following: Failure to submit schedules in accordance with Subsection 108-1.03, Prosecution and Progress will result in withholding an amount equal to 5 percent of the total amount earned from all subsequent progress payments. The Engineer, upon receipt of current schedules from the Contractor, will release this amount.

Failure to comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for Alaska, as indicated under Section 641, Erosion, Sediment, and Pollution Control, will result in withholding an amount equal to 5 percent of the total amount earned from all subsequent progress payments. This amount will be released by the Engineer upon satisfactory completion of the requirements of the permit.
(02/04/02)R137A

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. (6/30/04)M113

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. The Contractor shall 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 ADOT&PF 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 25A324 (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 25A325C (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 25A325C 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 25A325C 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 25A332A and attachments) and DBE Contact Reports (Form 25A321A) if the Contractor submits less DBE utilization on Form 25A325C 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 can not 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, the Contractor shall 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 25A325C) 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, the Contractor shall replace the DBE with another DBE for the same work in order to fulfill its commitment under the DBE Utilization Goal. 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 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 judgement 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 can not 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 all of 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 25A324) 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 can not 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 five 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 25A324 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 25A321A).

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 10.0% 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 25A321A).

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. Such an opportunity must be exercised by the bidder 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 appealable 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 that all of 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 effect 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) All 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, the Contractor shall report on Form 25A336 (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;
   2) 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 appealable 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, the Contractor shall immediately notify the Engineer of the default and the circumstances surrounding the default.

The Contractor shall 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% 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% 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% 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% 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% 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% 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% 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 25A325C 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. (11/17/00)S33

SECTION 202

REMOVAL OF STRUCTURES AND OBSTRUCTIONS

202-3.01 GENERAL. Add the following: Carefully remove all fences designated by the Engineer to the right-of-way limit, or to the end of the span beyond the right-of-way limit. These materials belong to the property owners, and shall be salvaged and stacked neatly in their yards. After construction of any fence is complete, use salvaged fencing to fill possible fencing gaps behind the property line. Use salvaged fencing in accordance with Section 607, for reconstructed fences. (2/2/00)R17M98

202-3.03 REMOVAL OF BRIDGES, CULVERTS AND OTHER DRAINAGE STRUCTURES. Add the following after the second paragraph: Remove, dispose or salvage sanitary sewer manholes designated for removal by the plans or as directed by the Engineer.

Remove manhole frame and cover, dustpan, adjusting rings and cone section or reducing slab for existing sanitary sewer manholes designated for removal by the Plans or by the Engineer. Plug all conduits intersecting the manhole and fill the remaining barrel sections of the abandoned manholes with material meeting the requirements of selected material, Type C and compact it to the satisfaction of the Engineer.

Carefully remove and deliver salvaged materials to a site directed by the Engineer. Provide a disposal site for non-salvageable materials.

All existing manhole frames, covers, dustpans, adjusting rings, cone sections and reducing slabs removed but not reinstalled under these Special Provisions shall become the property of the Contractor. Materials may be reused if they are undamaged, of satisfactory quality and approved by the Engineer. No materials are reused for reinstalled until they have been thoroughly cleaned by the Contractor and inspected by the Engineer. (2/2/00)R18M98

202-3.05 REMOVAL OF PAVEMENT, SIDEWALKS AND CURBS. Add the following: Pavement removed may be used for embankment construction if it is not exposed at the completed embankment surface. The maximum allowable dimension of the broken asphalt pieces is 150 mm.

All A.C. pavement that is designated for removal shall be kept free from objectionable material (concrete, steel, etc.).

If not using the removed A.C. pavement in the embankment, it shall be disposed of at the Kloep Maintenance Station, 5701 Northwood Street. Contractor shall coordinate exact location and time of delivery with the Street Maintenance Dispatch Center (343-8277). If the removed pavement material under this Section contains objectionable material, as identified by the Engineer, then Contractor shall obtain a solid waste disposal permit from DEC or use a site previously approved by DEC for disposal of removed asphalt. A DEC permitting officer in Anchorage may be contacted at 269-7590.

****DELETE****

202-5.01 BASIS OF PAYMENT.
Add the following:

Item 202(13). Payment for the actual amount of fence taken down, disposed or delivered to the owner, regardless of the type or height.

Delete Item 202(6) Removal of Manholes.

Add the following pay items:

Pay Item	Pay Unit
202(6A) Removal of Storm Drain Manholes	Each
202(13) Removal of Fence	Meter

(2/2/00)R18M98

SECTION 203

EXCAVATION AND EMBANKMENT

Special Provisions

203-1.01 DESCRIPTION. Add the following to the first paragraph:
Work under this section also includes performing all operations pertaining to the dewatering of Work areas or diversion of surface and subsurface water flows for excavation and backfill during construction operations, including dewatering of trenches during utility relocations.

203-2.01 MATERIALS. Add the following:
Contractor shall be responsible for the Dewatering Plan preparation, selection of materials and equipment, mobilization, operation, maintenance, removal of pumping facilities, piping, etc., used in dewatering operations.

CONSTRUCTION REQUIREMENTS

203-3.01 GENERAL. Add the following:
Dewatering. All construction requirements for design, installation, and operation of dewatering systems shall comply with current safety and environmental regulations.

Water resulting from Contractor's dewatering effort may not be pumped or otherwise diverted into existing storm drains unless required permits, including, but not limited to, the Alaska Department of Environmental Conservation and Environmental Protection Agency, are obtained by Contractor. Under no circumstances will Contractor be allowed to divert water from the excavation onto roadways. Contractor shall provide disposal site for excess water and shall be responsible for securing all necessary permits and approvals. Contractor shall provide copies of permits and approvals to the Engineer prior to any dewatering activity.

Trench dewatering shall be required to protect adjacent utilities and property and to successfully install the new utility lines. Contractor shall dispose all water from trench dewatering in accordance with an ADEC-approved dewatering plan. All ground water shall be screened to prevent debris from entering creeks, lakes, ponds, wetland areas, and drainage systems. When dewatering is required during the course of construction, Contractor shall submit an ADEC-approved dewatering plan and permit prior to any dewatering activity.

Acceptance of Contractor's Dewatering Plan by the Engineer shall not relieve Contractor of responsibility for the exercise of reasonable precaution, sound engineering judgment, prudent construction practices, overloading or misuse of existing or new structures, the adequacy and safety of such Works, and potential damage or undermining of existing or completed Works.

Special Provisions

203-3.02 EMBANKMENT CONSTRUCTION.

On page 88, delete the first sentence of the second paragraph, and substitute the following: Place roadway embankment of earth materials in horizontal layers not exceeding 200 mm in thickness measured before compaction. Each layer of classified material shall have its joint offset from the joint below, longitudinally by 300 mm and transversely by 3 m.

Add the following: Where the Plans call for placement of selected material and excavation is required, the existing material may be left in place at the Engineer's discretion if tests determine that it will meet the appropriate selected material requirements. Any reduction in excavation or Borrow quantities as a result of this condition shall not constitute a basis for adjustment in contract unit prices except as provided for in Section 104 Scope of Work.

The surface of Selected Material, Type D, shall be compacted by coverage of the Contractor's placement equipment to provide a smooth and firm slope. The surface of Selected Material, Type D shall be free of surface irregularities, rutting, slope breaks or unconsolidated material. (03/14/02)R23M98

Add the following: All references to "roadway" shall also refer to "pathway".

203-3.03 CONSTRUCTION OF EMBANKMENTS WITH MOISTURE AND DENSITY CONTROL. Delete this Subsection in its entirety and substitute the following: Construct embankments with moisture and density control from specified materials placed and compacted at approximately their optimum moisture content. Dry or moisten material as required.

Compact embankment material to not less than 95% of the maximum dry density as determined by WAQTC FOP for AASHTO T 99/T 180/WAQTC TM 9, or ATM T-12. The Engineer will determine in-place field densities using WAQTC FOP for AASHTO T 310 and WAQTC FOP for AASHTO T 224.

The Engineer will determine the maximum dry density of free-draining, non-plastic, cohesionless materials with less than 10% by weight passing the 0.075-mm sieve using ATM T-12. (For some materials it may be necessary to perform both ATM T-12 and WAQTC FOP for AASHTO T 99/T 180/WAQTC TM 9, in which case the highest maximum dry density is used.) For materials with greater than 80% by weight passing the 4.75 mm sieve, WAQTC FOP for AASHTO T 99/T 180/WAQTC TM 9, Method A with the plus 4.75 mm material removed and treated as oversize will be used. WAQTC FOP for AASHTO T 99/T 180/WAQTC TM 9, Method D will be used for materials with greater than 60% by weight passing the 19.0 mm sieve with the plus 19.0 mm material removed and treated as oversize.

WAQTC FOP for AASHTO T 99/T 180/WAQTC TM 9 will be performed in accordance with Note 7 (the 12 hour stand time may be waived if the sample has not been dried to less than four percentage points below the optimum moisture content) and modified so that the moisture content of each trial is determined from the complete specimen and reported to the nearest 0.1%. Section 13 is modified to include: 13.1.6 Bulk Specific Gravity of the oversize material; 13.1.7 Apparent Specific Gravity of the tested material minus the oversize; and 13.1.8 Zero Air Voids Curve calculated and plotted in accordance with ASTM D 1557, Sections 11.2 and 11.5. (03/14/02)R193M98

Add the following: Compact all embankment within 6 meters of a bridge abutment full width to not less than 100 percent of the maximum density. All material used within this zone shall be graded to pass the 75-millimeter sieve. (2/1/00)R113M

Special Provisions

Add the following subsections:

203-3.07 WATER SAMPLING. Before beginning work around Ship Creek near northern abutment of Bridge #1, the Contractor will retain an independent test laboratory to collect water samples at the locations directed by the Engineer. Test samples, or store for future testing at the Engineer's option, for color, turbidity, and suspended solids, according to the appropriate current EPA test methods. Transmit the results in writing directly to the Engineer. Disposing of samples not tested by project completion is optional.

Take and test samples, during construction, at intervals as directed by the Engineer (i.e.: hourly, daily, or weekly) depending on the adjacent operation. Obtain and test final samples after completion of the work. (06/21/04)R149USC04

203-3.08 CONTAMINATED MATERIAL TESTING. This work shall consist of testing soils for contaminants. Each truckload of soil imported from a suspected site or other locations at the direction of the Engineer shall be examined for contamination. Contractor will develop a work plan for this project and submit it to Alaska Department of Environmental Conservation for review and approval approximately 60 days prior to construction. The work plan will include a corrective action plan and sampling plan for known contamination near the northern abutment of Bridge #1 in accordance with Alaska Administrative Code Title 18 Chapter 75.

According to subsection 203-3.09, Excavation of Contaminated Material, the Contractor shall retain an independent test laboratory to conduct the following tests:

1. Field Tests

    a. Organic Vapor Analyzer (OVA) Analysis
    b. Visual Analysis (Petroleum Odor)

2. Laboratory Tests

    a. Volatile Aromatic Hydrocarbons
    b. Total Petroleum Hydrocarbons

The Contractor shall verbally give the test results to the Engineer immediately. The Contractor shall transmit the test results in writing directly to the Engineer.

The Contractor shall obtain the services of a hazardous waste professional to conduct field testing using an organic vapor analyzer (OVA) or equivalent equipped with a photoionizing detector (PID), or other approved DEC instrument. The Contractor shall submit the name of the

hazardous waste professional to the Engineer at the preconstruction conference. The hazardous waste professional shall be available at all times hauling is in progress to conduct the required field tests.

The hazardous waste professional shall sample and test according to standard DEC approved testing procedures. If an OVA response indicates the presence of contamination, the soils will have failed the test and will be designated as contaminated. If no response is observed, the soil will be examined for odor. If a petroleum odor is detected, the soils will fail the test and will be designated as contaminated. If no petroleum odor is detected, the soil will be considered to have passed field criteria.

The hazardous waste professional shall be responsible for ensuring soils exhibiting an OVA response that indicate the presence of contamination, or soils exhibiting characteristics of fuel contamination (i.e. odor, sheen, or stain), are identified to the Engineer.

Contaminated material will not be accepted for borrow and shall be immediately removed from the site.

The OVA will be calibrated at the beginning and end of each day and after every 4 hours of use. (06/21/04)R149USC04

203-3.09 EXCAVATION OF CONTAMINATED MATERIAL. This work shall consist of removing and disposing of fuel contaminated soils encountered during the excavation. Disposal of fuel contaminated soils shall be at a location approved by the Engineer.

1. Determining Limits of Contaminated Soil. The exact limits of potential contaminated soil within the excavation cannot be determined until the material is exposed. Once exposed, the soil shall be tested according to subsection 203-3.08, Contaminated Material Testing. Testing will verify the contamination levels in the soils and determine if the soils can be disposed of as unclassified excavation or if they will require special handling. Soils that have a response from photoionizing detector or equivalent instrument of 1 part per million or more above background are considered to be "contaminated" and will require special handling and shall be disposed of according to this subsection.

2. Worker Health and Safety. Before excavation of soils identified as contaminated, the Contractor shall assure the personnel working in the area of potential contamination have received the State of Alaska, Department of Labor, Health and Safety Training. The Contractor shall provide the Engineer a list of the personnel and subcontractors that will be working within the area identified as being potentially contaminated.

   The Contractor shall notify personnel and subcontractors, before beginning work at the site, they will be working in an area identified as being potentially contaminated with petroleum fuel.

3. Contaminated Soil Removal and Segregation. In the event the Contractor must stockpile contaminated soil, a liner, cover and temporary fencing will be required. The size and location of the liner shall be as approved by the Engineer. The Contractor shall cover and secure the stockpile at the end of each workday. The Contractor shall be responsible for removal of the stockpile liner, safety fence, and cover once the fuel contaminated soil is removed.

   The method of disposal shall be according to Department of Environmental Conservation guidelines for reducing BTEX or TPH in soils. Additional testing required at the disposal site shall be done according to subsection 203-3.08, Contaminated Material Testing, unless otherwise directed by the Engineer.

   Before the Contractor backfills the excavation, random samples from the excavation (bottom and sides) shall be taken for confirmation testing. Backfill within the limits of planned excavation shall meet the requirements for the item of work involved. Backfill outside plan excavation limits shall meet the requirements of Select Material, Type C or better.

4. Responsibility. With respect to preexisting hazardous substances or contaminated materials in the project area, nothing in this contract is intended to impose upon the Contractor, or to require the Contractor to assume, the status under state or federal environmental law of a facility owner or operator, or an owner or generator of those preexisting hazardous substances or contaminated materials. The Contractor is advised, however, the Contractor shall assume the responsibility to obtain administrative approvals and to coordinate the activities with the Alaska Department of Environmental Conservation and/or any federal agency having jurisdiction, to carefully abide by the applicable laws, regulations, and the terms of administrative approvals, and to otherwise use environmentally sound management practices that the Contractor does not, as a result of its own actions, become a facility owner or operator, or an owner or generator of hazardous substances by reason of an unpermitted release of hazardous substances. (06/21/04)R149USC04

203-4.01 METHOD OF MEASUREMENT. Add the following: No measurement shall be made for pathway linear grading.

Add the following:
Dewatering will not be measured for payment. Pay unit will be Lump Sum.

Add the following:
Providing a hazardous waste professional to test for contaminated soils will not be measured for payment. Testing soils to determine contamination will be measured for payment under Item 203(29) Contaminated Material Testing.

Item 203(28) Contaminated Soil Special Handling, will be measured for payment on a time and materials basis according to subsection 109-1.05, Compensation for Extra Work on Time and

Materials Basis. Backfilling within the plan excavation limits will not be measured for payment but will be subsidiary to the respective items of work. Backfilling outside plan excavation limits will measured for payment as embankment construction. (06/21/04)R149USC04

203-5.01 BASIS OF PAYMENT. Add the following: Grading and placement of material used within 6 meters of bridge abutments will not be paid for directly, but will be subsidiary to Item 203(6A) Borrow, Type A. (2/1/00)R113M98

Add the following:
Payment for authorized water sampling and contaminated material testing will be made on the receipts for authorized tests plus 15 percent, and shall be considered full compensation for the labor, equipment, and materials required to obtain samples and have tests performed. A change order will not be required to initiate water sampling or contaminated material testing.

Excavating and disposing of fuel contaminated soil will be paid under Item 203(28) Contaminated Soil Special Handling. The Contractor will be paid on a time and materials basis for authorized Work according to subsection 109-1.05. Backfilling within plan excavation limits will be paid for under the items of work involved at the prices bid for that work. Backfilling outside plan excavation limits will be paid for as embankment construction according to this Section.

No separate payment will be made for providing the hazardous waste professional; this will be subsidiary to Item 203(29) Contaminated Material Testing. (06/21/04)R149USC04

Add the following pay items:

Pay Item	Pay Unit
203(19) Dewatering	Lump Sum
203(28) Fuel Contaminated Soil Special Handling	Contingent Sum
203(29) Contaminated Material Testing	Contingent Sum
203(30) Water Sampling	Contingent Sum

SECTION 205

EXCAVATION, BACKFILL AND FOUNDATION FILL FOR STRUCTURES

Special Provisions

205-1.01 DESCRIPTION. Delete the last paragraph and substitute the following:
Foundation fill includes furnishing, placing, and compacting of materials to replace unsuitable materials as indicated on the plans.

CONSTRUCTION REQUIREMENTS

205-3.03 BACKFILL. Add the following: All backfill placed within 0.3 m of a structural unit shall be graded to pass the 75 mm sieve.

SECTION 301

AGGREGATE BASE AND SURFACE COURSE

Special Provisions

301-2.01 MATERIALS. Delete the second sentence of the first paragraph and substitute the following: The gradation of base course material shall conform to the requirements for Grading D-1. (10/1/91)R116

Add the following after the first paragraph: At the Contractor's option, recycled asphalt material (RAM) may be substituted for aggregate base course, millimeter for millimeter, if the following conditions are met:

1. RAM shall be crushed or processed to 100 percent by weight passing the 37.5 mm sieve and 95-100 percent by weight passing the 25 mm sieve.

2. The gradation of the extracted aggregate shall meet the following:

Sieve	Percent Passing by Weight
25 mm	100
19 mm	70-100
9.5 mm	42-90
4.75 mm	28-78
1.18 mm	11-54
0.300 mm	5-34
0.150 mm	3-22
0.075 mm	2-12

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

(2/28/01)R176M98

301-3.01 PLACING. Add the following: Base course material used for the pathway foundation shall be placed with a "Layton box" or similar equipment capable of providing a specified depth with a uniform surface. (9/1/89)R26

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 based upon a roller pattern. The roller pattern shall be determined by a test strip using a vibratory compactor with a minimum dynamic force of 178,000 newtons. 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 550 kPa (±34 kPa), and the roller shall have a minimum operating weight per tire of 1360 kg.

301-5.01 BASIS OF PAYMENT. Add the following: If recycled asphalt material is substituted for aggregate base course, it will be paid for as Item 301(1), Aggregate Base Course at the unit price shown on the bid schedule for that item. (2/28/01)R176M98

SECTION 401

ASPHALT CONCRETE PAVEMENT

Special Provisions

401-2.01 COMPOSITION OF MIXTURE - JOB MIX DESIGN. Delete the last sentence of the second paragraph on page 114 and substitute the following: Tolerances will not be applied to the largest sieve specified.

401-2.03 ASPHALT MATERIALS. Change the last sentence of the first paragraph to read: When not specified, the grade of the asphalt cement shall be PG 52-28.

Delete the second paragraph and substitute the following.
Each batch of asphalt cement shall be tested for conformance to specifications in Section 702 prior to shipping. Storage tanks used for the batch shall be noted on the test report. Anti-strip additives required by the mix design shall be added to the asphalt cement during load out for delivery to the project. A printed weight ticket of antistrip shall be included with the asphalt cement delivery ticket. The location where antistrip is added may be changed with the approval of the Engineer.

Shipping documents shall include the following:

1. Manufacturers certificate of compliance, Subsection 106-1.05
2. Conformance test results of the batch, Section 702.
3. Manufacturer shall also certify:

    a. Date and Time of loading
    b. Batch number and storage tank
    c. Type, grade, temperature, and quantity of materials loaded
    d. Type and percent of anti-strip added.

401-3.09 PREPARATION OF AGGREGATES. In the first paragraph, delete AASHTO T-110 and substitute the following: WAQTC TM 6.

401-3.14 JOINTS. Delete the first paragraph and substitute the following: Construct the minimum number of joints to ensure a continuous bond, texture, and smoothness between adjacent sections of the pavement. The minimum specification limit for longitudinal joint density will be 91% of the MSG of the panel completing the joint. Cut one 150 mm diameter core centered on the longitudinal joint at each location the mat is cored for acceptance density testing in the panel completing the joint. Density will be determined according to WAQTC FOP for AASHTO T 166/T 275.

Delete the last paragraph.

401-3.16 PATCHING DEFECTIVE AREAS. Add the following: All costs associated with the patching of defective areas shall be borne by the Contractor.

401-4.01 METHOD OF MEASUREMENT. Under Asphalt Cement, 1., add to the end of the second sentence: "... ,or WAQTC FOP for AASHTO T 308."

Add the following paragraph to this subsection: Longitudinal joints. By the meter. The distance measured will be in both directions from a longitudinal joint core location to a point equidistant to the next longitudinal joint core.

401-4.02 ACCEPTANCE SAMPLING AND TESTING. Delete the third, fourth, fifth, and sixth full paragraphs on page 122, and substitute the following: Samples taken for the determination of asphalt cement content will be taken from the windrow, at the end of the auger, or from behind the screed prior to compaction. Asphalt cement content will be determined in accordance with ATM 405, or WAQTC FOP for AASHTO T 308 with the exception that the moisture content will be determined in accordance with WAQTC TM 6.

Samples taken for the determination of aggregate gradation from drum mix plants will be from the combined aggregate cold feed conveyor via a sampling device, the stopped conveyor belt, or from asphalt concrete mixture samples taken from the same location as samples for the determination of asphalt cement content. The aggregate gradation for samples from the conveyor system will be determined in accordance with WAQTC FOP for AASHTO T 27/T 11. For asphalt concrete mixture 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.

Maintain cold feed conveyor sampling devices diverting aggregate from the full width of the conveyor system to provide a representative sample of the aggregate incorporated into the asphalt concrete mixture.

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. The dry batched aggregate gradation will be determined according to WAQTC FOP for AASHTO T 27/T 11. For asphalt concrete mixture samples, the gradation will be determined according to WAQTC FOP for AASHTO T 30 from aggregate remaining after the ignition oven (WAQTC FOP for AASHTO T 308) has burned off the asphalt cement.

Within 24 hours of final rolling, neatly cut core samples with a core drill at the randomly selected locations marked by the Engineer. Use a core extractor to prevent damage to the core while removing. Do not cut core samples from bridge decks. One 150 mm diameter core is required for acceptance density testing only. Acceptance density testing will be according to WAQTC FOP for AASHTO T 166/T 275.

Failure to cut core samples for acceptance testing within the specified period will result in a deduction of $100.00 per sample per day. The accrued amount will be subtracted under Item 401(6), Asphalt Price Adjustment.

Backfill and compact all voids left by sampling with new asphalt concrete mixture within 24 hours of sampling. Failure to backfill voids left by sampling in the specified period will result in a deduction of $100.00 per hole per day. The accrued amount will be subtracted under Item 401(6), Asphalt Price Adjustment.

401-4.03 EVALUATION OF MATERIALS FOR ACCEPTANCE. Add the following: The longitudinal joint density price adjustment will apply when Asphalt Concrete Pavement quantities are equal to or greater than 900 megagrams.

Add the following under item 3.: The tolerances for the largest sieve specified will be plus 0% and minus 1%.

401-5.01 BASIS OF PAYMENT. Add the following to the first paragraph, No payment shall be made for asphalt cement, and asphalt concrete mix made with this cement, if tests of the asphalt cement sampled during production are out of specification.

Add the following: Longitudinal joint densities less than 91 percent of MSG, as defined in Subsection 401-3.14, will be measured in accordance with Subsection 401-4.01 and assessed a price adjustment of $1.00 per meter. The accrued amount will be subtracted under Item 401(6), Asphalt Price Adjustment.

(10/24/02)R199M98

Addendum No. 3
Attachment No. 5

SECTION 402

TACK COAT

Special Provisions

402 -4.01 METHOD OF MEASUREMENT. Delete subsection 402-4.01 and replace with the following:
Ste-1 Asphalt for Tack Coat will not be measured for payment but will be considered a subsidiary obligation to item 401(1) Asphalt Concrete, Type II, Blass B. No separate payment will be made.

402 -5.01 BASIS OF PAYMENT. Delete subsection 402-5.01 and replace with the following:
No payment shall be made for STE-1 Asphalt for Tack Coat.

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SECTION 501

STRUCTURAL CONCRETE

Special Provisions

501-1.01 DESCRIPTION. Add the following: This work shall also consist of construction of eight bridge abutments for Bridges 1,2,3A, and 3B, cast-in-place concrete retaining walls, half concrete barrier integral with retaining walls, tunnel structure, and headwall as shown on the plans.

Excavation and backfill required for the structures shall be in accordance with Section 205.

501-2.01 MATERIALS. Add the following: Reinforcing steel shall conform to the requirements of Section 503.

Insulation Board shall conform to the requirements of Section 635.

Epoxy used to bond stainless steel bolts to concrete shall be Hilti HY150 or equal as approved by the Engineer.

Materials for dampproofing shall be of the type shown on the plans, and material for geotextile wall drains shall conform to the requirements of Section 729.

Concrete surface treatments shall conform to the requirements of Section 510. (7/5/95)R36M

501-3.01 PROPORTIONING. Under 1. Determining Proportions and Batch Weights., delete the first sentence and substitute the following: Submit a mix design developed in accordance with ACI 211 and ACI 301, Section 4 to the Engineer for approval. (7/6/99)R37M98

501-3.09 BACKFILLING AND OPENING TO TRAFFIC. Add the following: After stripping the forms, the back of the cast-in-place concrete walls shall be mopped with hot liquid asphalt, and after drying, geotextile drain shall be placed against the wall.

501-4.01 METHOD OF MEASUREMENT. Delete the fourth paragraph.

Delete the second to last paragraph and replace with the following:
For Phase III construction, the quantity of reinforcing steel will be paid for separately under Item 503(1). The quantities of other contract items included in the completed and accepted structure will be measured for payment as prescribed for the items involved.

For Phase IV construction, the quantities of reinforcing steel and other contract items included in the completed and accepted structure will be measured for payment as prescribed for the items involved.

Add the following: The quantity of concrete required for bridge abutments, cast-in-place concrete retaining walls, half concrete barrier integral with retaining walls, tunnel structure, and

headwall to be paid for will be the actual volume accepted in place in the finished structure, not to exceed the limits shown on the plans or ordered in writing.

501-5.01 BASIS OF PAYMENT. Add the following: **Payment for Item 501(4) Class A Concrete will be full compensation for all labor, equipment and materials required for Phase III construction of bridge abutments complete and in place. Temporary shoring, hot liquid asphalt, geotextile drain and porous backfill required for these structures will not be paid for separately, but will be subsidiary to Item 501(4) Class A Concrete. For Phase III construction, reinforcing steel shall be paid for separately under item 503(1).**

Payment for Item 501(4) Class A Concrete will be full compensation for all labor, equipment and materials required for **Phase IV** construction of the retaining walls, half concrete barrier integral with retaining walls, tunnel structure, and headwall complete and in place. Temporary shoring, reinforcing steel, hot liquid asphalt, geotextile drain and porous backfill required for these structures will not be paid for separately, but will be subsidiary to Item 501(4) Class A Concrete.

Graffiti protection for the retaining walls will be paid for under Section 510.

Insulation board will be paid for under Section 635.

SECTION 503

REINFORCING STEEL

Special Provisions

503-1.01 DESCRIPTION. Add the following:
This work also consists of furnishing and placing epoxy coated reinforcing steel for Phase IV tunnel construction as detailed on the plans.

503-2.01 MATERIALS. Delete subsection 503-2.01 and replace with the following:

Use reinforcing steel that conforms to Subsection 709-2.01. Use Grade 420 reinforcing steel.

503-3.05 SPLICING. Delete this subsection in its entirety and substitute the following: Unless otherwise shown specifically on the plans, all splices and splice locations for reinforcing steel shall be submitted to the Engineer for approval. Any proposed splices for bars in the pier cap shall be made by one of the following approved methods.

Mechanical Butt Splicing. Mechanical butt splicing shall be done using an exothermic process whereby molten filler metal, contained by a high strength steel sleeve of larger inside diameter than the bars, is introduced into the annular space between the bars and the sleeve and also between the ends of the bars. Upon cooling and hardening of the filler metal the splice shall be capable of transferring at least 90 percent of the specified ultimate tensile strength of one bar to the other by the mechanical strengths of the splice components. The splice shall not depend upon fusion of the filler metal with the bars nor shall the bars be heated to their melting point during the splicing process. The degree of heat required to effect the splice shall not decrease the structural properties of the bars nor significantly effect the original hardness of the bars.

All splicing shall be done in strict accordance with the recommendations of the manufacturer, utilizing the manufacturer's standard jigs, clamps, ignition devices, and other required accessories, and shall be done prior to the time the reinforcing bars are placed in the forms.

As a condition of approval, the process and the operators shall be prequalified prior to performing any construction splices. For process qualification, the Contractor shall submit 3 test splices prepared by the manufacturer, or as noted below.

For operator qualification, the Contractor shall submit 3 test splices prepared by each operator he intends to employ in making construction splices. Operator qualification splices shall be prepared on the site under the same conditions as the construction splices, in the presence of the Engineer and the 3 splices shall be prepared consecutively. An operator and the process may be qualified by the same set of splices, provided the splices are prepared as specified above for operator qualification.

The test samples shall be a minimum of 36-inches in length with the splice assembly positioned near the midpoint of the sample, using splice materials, methods and bars representative of the construction splicing. Test splices for process qualification shall be submitted to the Engineer at

least one month prior to the time of placing bars is anticipated, and test splices for operator qualification shall be submitted for testing at least one week prior to the time construction splicing is anticipated. All test splices shall bear the operator's identification mark.

The test specimens shall be tensioned to 40,000 psi and relaxed to 3,000 psi. The elongation of the specimens shall then be checked and shall be not more than 0.030-inches measured between gauge points set on the bars at each end of the splice sleeves.

The elongation shall be measured in at least three locations approximately equidistant apart around the bar, and the value used will be the average of the measurements.

In addition to the above requirements, the test specimens shall develop a minimum strength of 80,000 psi.

Should any test splice for process qualification fail the above test, the set consisting of the three splices will be determined to be unacceptable and a second set of test splices shall be prepared and submitted for testing, as specified above. Subsequent failure of any test splice in the second set shall be cause for rejection of the process.

No operator will be considered qualified to perform construction splicing unless each splice in the set of test splices prepared by that operator successfully satisfies the testing requirements.

In addition, the Contractor shall submit to the Engineer for approval, copies of the splice manufacturer's literature and recommendations.

Reinforcing bars spliced by mechanical butt splices shall not deviate from the layout line by more than 1/4-inch over a 3-1/2 foot length of bar. All construction splices shall bear the operator's identification mark, and shall be made in strict accordance with the procedures which have been qualified by testing. Any splice which is made in any manner deviating from the qualified procedures shall be cut out and replaced. No concrete shall be placed around spliced bars until such splices have been approved by the Engineer.

The Contractor shall be responsible for providing adequate bar lengths to provide all test splices in addition to the lengths required on the plans.

Splices in adjacent bars shall be staggered. In no case will the Contractor be permitted to splice more than 30 percent of the bars within any vertical three foot column section, or any three foot horizontal footing or cap section.

Threaded Coupler Bolt Splicing. Threaded coupler bolt splicing shall be done using couplers of the tapered thread type, capable of providing a full positive connection which develops in tension or compression at least 125 percent of the specified yield strength of ASTM A-615 grade 60 reinforcing steel.

At least three test splices shall be made from bars rolled from each individual heat. Each and every splice shall provide the minimum specified strength. Failure of any test splice will result in rejection of the system.

All manufacturers' recommendations shall be completely and rigidly followed in the installation of threaded couplers. The coupler manufacturer shall provide a representative who is knowledgeable with the process to advise the Engineer and assist the Contractor in directing the work. The representative shall be on site and available throughout the splicing process until all splices are encased in concrete.

Threads shall be cut with an approved bar threader to ensure proper taper and thread engagement. Threads shall be undamaged and clean when installing the splice. Damaged threads shall be rejected and the bar replaced or the thread area removed and the threads recut.

The bars and the couplers shall be assembled using an approved inspection wrench, set to the proper torque setting for the size of bars being spliced. All splices shall be re-checked with the inspection wrench just prior to final form closure and placement of concrete, and extreme care shall be taken so that vibration or impact or any other factor does not loosen the couplers.

Cold Forged Butt Splicing. Cold forged mechanical splices shall use bar couplers of the appropriate size and shape swaged to the reinforcing bars by octagonal or other dies.

All splicing shall be done in strict accordance with the recommendations of the manufacturer, utilizing the manufacturer's standard jigs, clamps, presses, and other accessories.

As a condition of approval, the process shall be prequalified prior to performing any construction splices. For process qualification, the manufacturer shall prepare three test splices for each size of bar to be spliced. These splices shall be tested by an independent agency, and the results of the tests shall be submitted to the Engineer at least one month prior to the time that field splicing is anticipated. The test samples shall be approximately 36 inches in length with the splice assembly located near the midpoint of the sample, and shall be prepared using splice materials, methods, and bars representative of the construction splicing.

The test splices shall be tensioned to a stress of 3,000 psi in the bars, and the distance between gage points set on the reinforcing bars at each end of the splice sleeves measured. The bars shall then be tensioned to 40,000 psi, held at 40,000 psi for 120 seconds, and detensioned to 3,000 psi. The distance between gage points shall again be measured. The measurements shall be made at three locations approximately equidistant apart around the bar, and the value used shall be the average of the three measurements. The difference in the final and initial measurements shall not be more than +0.003 inches for splices to be located all in one plane, and +0.03 inches for splices that are to be staggered as specified below.

In addition, the splices shall develop a minimum strength of 90,000 psi in the bars for splices located all in one plane, and 80,000 psi in the bars for splices that are to be staggered as specified below.

Should any splice for process qualification fail the above tests, the set consisting of three splices will be determined to be unacceptable and a second set of test splices shall be prepared and tested as specified above. Subsequent failure of any test splice in the second set shall be cause for rejection of the process.

If the test specimens fail the requirements for splices all in one plane, but pass the requirements for staggered splices, then the construction splices shall be staggered, with splices in adjacent bars separated by at least 24 inches, and not more than 30 percent of the bars spliced within any vertical three foot column section or any three foot horizontal section for the footing or cap bars.

Operators shall be prequalified by satisfactorily completing a training course conducted by a representative of the splice manufacturer, at a location at or near the construction site. The course shall consist of at least three hours of instruction and practice, using the equipment and processes to be used for the production field splicing. No production splices shall be made by individuals who have not satisfactorily completed this course. An outline of the course shall be submitted to the Engineer for approval prior to conducting the class, and the Engineer shall monitor the course to insure that adequate expertise is achieved.

The instructor, or other knowledgeable representative, shall remain on the site to advise the Engineer and assist the Contractor until all splices are encased in concrete.

Reinforcing bars spliced by cold formed butt splices shall not deviate from the layout line by more than 1/4-inch over a four-foot length of bar. All construction splices shall bear the operator's identification mark, and shall be made in strict accordance with the procedures which have been qualified by testing. Any splice which is made in any manner deviating from the qualified procedure shall be cut out and replaced. No concrete shall be placed around bars until such splices have been approved by the Engineer.
(3/3/97)R148

503-5.01 BASIS OF PAYMENT. Add the following: If epoxy coating the reinforcing steel is required, it will be a subsidiary obligation and no separate payment will be made. (2/8/96)R38

Addendum No. 3
Attachment No. 6

SECTION 504

STEEL STRUCTURES

Special Provisions

504-1.01 DESCRIPTION. Add the following after the first paragraph: This work includes designing, furnishing, erecting and finishing prefabricated steel bridge and support attachments.

Design the prefabricated steel bridge in accordance with the latest edition of the "AASHTO Guide Specification for Design of Pedestrian Bridges". Dimensions of bridge shall conform to plans, otherwise all changes in plans to be approved by Engineer. **Bridge color shall match bridges installed under Phase II Ship Creek Trail.**

Conform to the "AASHTO LRFD Bridge Design Specifications" for pedestrian railing geometry and load requirements.

Conform to the following additional requirements:

1. Qualified Suppliers

    a. Qualified bridge suppliers must have at least 5 years experience fabricating these type structures.

2. Alternate Design

    a. The contractor may submit alternate steel or concrete bridge designs to engineer for approval. The bridge designs must meet the requirements of this section. The engineer reserves the right to refuse the alternate design.

3. General Features of Design

    a. Truss Type

        i. Bridges shall have geometry as shown on plans, otherwise all changes to be approved by Engineer.

    b. Member Components

        i. All members of the vertical trusses (top and bottom chords, verticals, and diagonals) shall fabricated from square and/or rectangular structural steel tubing. Other structural members and bracing shall be fabricated from structural steel shapes or square and rectangular structural steel tubing.

        ii. To provide lateral support for the top flange of open shape stringers (w-shapes or channels), a minimum of one stiffener shall be provided in each stringer at every floor beam location.

c. Camber

i. The bridge shall have a vertical camber dimension at mid-span equal to 100% of the full dead load deflection plus 1% of the full length of the bridge.

d. Elevation Difference

i. The bridge abutments shall be constructed to the elevation shown on the drawings.

4. Engineering

a. Structural design of the bridge structure(s) shall be performed by or under the direct supervision of a Licensed Professional Engineer registered in the State of Alaska and done in accordance with recognized engineering practices and principles.

b. Design Loads

i. Shall be in accordance with the current AASHTO Standard Specifications for highway bridges and the Guide Specifications for design of Pedestrian Bridges.

5. Governing Design Codes/References

a. Structural members and connections shall be designed in accordance with recognized engineering practices and principles as follows:

b. Structural Steel

i. American Institute of Steel Construction (AISC). "Manual of Steel Construction"

ii. American Association of State Highway and Transportation officials (AASHTO). "Standard Specifications for Highway Bridges." "Guide Specifications for Design of Pedestrian Bridges."

6. Dead Load Limitations: Assumed weight of bridge and components is 2.4kPa. Engineer shall be notified if dead load exceeds this amount for verification of foundation capacity.

Modify manufacturer's standard drawings to reflect the exact requirements and conditions unique to this project. Clearly specify relevant information such as member sizes, geometry, bearing reactions, design loads, material properties and other design information on the drawings. A licensed Professional Civil Engineer registered in the State of Alaska must stamp drawings.

504-2.01 MATERIALS. Add the following:

9. Construct prefabricated steel bridge from materials as follows:

   a. Steel

      i. Bridges shall be fabricated for high strength, low alloy, atmospheric corrosion resistant ASTM A847 cold-formed welded square and rectangular tubing and/or ASTM A588, or ASTM A242, ASTM A606 plate and structural steel shapes (Fy = 344.7 Mpa). The minimum corrosion index of atmospheric corrosion resistant steel, as determined in accordance with ASTM G101, shall be 5.8.
      ii. ASTM A572 and ASTM A500 steel may be used by the approval of the Engineer.

   b. Decking

      i. Wood decking shall meet the requirements of Section 712-2.16.
      ii. Substitutions may be used if approved by the Engineer.

504-3.01 FABRICATION. Add the following:

9. Prefabricated Steel Bridge

   a. Bridge Decking Attachment

      i. Wood decking shall be attached per the specifications and the manufacturers recommendations.

   b. Handrail/Guardrail System

      i. The bridge shall be designed to accommodate manufacturer's standard handrail/guardrail system as shown on the drawings.

   c. Secure a nameplate to the structure indicating the bridge manufacturer's name, maximum load limits, and year of installation.

   d. Welding

      i. Welding and weld procedure shall conform to the provisions of ANSI/AWS D1.1 "Structural Welding Code", 2002 Edition.

   e. Submittals

      i. Submittal Drawings

         1. Schematic drawings and diagrams shall be submitted for their review after receipt of order. Submittal drawings shall be unique drawings, prepared to

illustrate the specific portion of the general notes shall be clearly specified on the drawings. Drawings shall have cross referenced details and sheet numbers. All drawings shall be signed and sealed by a Professional Engineer who is licensed in accordance with Paragraph 1.01.

ii. Structural Calculations

1. Structural calculations for the bridge superstructure shall be submitted by the bridge manufacturer and reviewed by the approving engineer. All calculations shall be signed and sealed by a Professional Engineer who is licensed in accordance with Paragraph 1.01. The calculations shall include all design information necessary to determine the structural adequacy of the bridge. The calculations shall include the following:

2. All AISC capacity checks for axial, bending and shear forces in the critical member of each truss member type (i.e. top chord, bottom chord, floor beam, vertical, etc.).

3. Checks for the critical connection failure modes for each truss member type (i.e. vertical, diagonal, floor beam, etc.). Special attention shall be given to all welded tube on tube connections.

4. All bolted splice connections.

5. Main truss deflection checks.

6. U-Frame stiffness checks (used to determine K factors for out-of -plane buckling of the top chord) for all half through or "pony" truss bridges.

7. Deck design and connections.

8. NOTE: The analysis and design of triangulated truss bridges shall account for moments induced in members due to joint fixity where applicable. Moments due to both truss deflection and joint eccentricity must be considered.

9. Vibration check per AASHTO Guide Specifications for Pedestrian Bridges.

f. Quality Certification

i. Bridge(s) shall be fabricated by a fabricator who is currently certified by the American Institute of Steel Construction to have the personnel, organization, experience, capability, and commitment to produce fabricated structural steel for the category "Simple Steel Bridges" as set forth in the AISC Certification Program. Quality control shall be in accordance with procedures outlined for AISC certification.

g. Finishing

i. Blast Cleaning

1. All exposed surfaces of steel shall be blast cleaned in accordance with Steel Structures Painting Council Surface Preparation Specifications No. 7 Brush-Off Blast Cleaning, SSPC-SP7 latest edition.

ii. Bridges may be shop painted or field painted. Field painting shall be in accordance with Section 513.

504-3.02 ERECTION.

2. Handling and Storing Materials.

Add the following: Propose a location for the storage of the prefabricated steel bridge for approval of the Engineer. Notify the Engineer 48 hours in advance of bridge delivery.

4. Method and Equipment.

Add the following: Follow the recommended lifting and erection procedure of the prefabricated steel bridge manufacturer. Provide a copy of the manufacturer's lifting and erection instructions to the Engineer prior to installation. Notify the Engineer 48 hours in advance of the bridge erection.

8. Setting Shoes and Bearings.

Add the following: Verify the abutment geometry for conformance to the specified tolerances prior to bridge installation.

Prefabricated steel bridges shall conform to the following:

Bridge bearings shall consist of a steel setting or slide plate placed on the abutment or grout pad. The bridge bearing plate which is welded to the bridge structure shall bear on this setting plate. One end of the bridge will be fixed by fully tightening the nuts on the anchor bolts at that end. The opposite end will have finger tight only nuts to allow movement under thermal expansion or contraction.

Bridges in excess of 30 meters in length or bridges with dead load reactions of 67 kilonewtons or more (at each bearing location) shall have teflon on teflon or stainless steel on teflon slide bearings placed between the bridge bearing plate and the setting plate. The top slide plate shall be large enough to cover the lower teflon slide surface at both temperature extremes.

504-4.01 METHOD OF MEASUREMENT. Add the following:

3. Prefabricated Steel Bridge. By each unit completed in place and accepted by the Engineer.

504-5.01 BASIS OF PAYMENT. Add the following:

3. Prefabricated Steel Bridge. At the contract unit price shown on the bid schedule, for work, including design, fabrication, erection and painting.

Add the following pay items:

Pay Item	Pay Unit
504(9A) Prefabricated Steel Bridge (76 meters)	Each
504(9B) Prefabricated Steel Bridge (32 meters)	Each
504(9C) Prefabricated Steel Bridge (54 meters)	Each
504(9D) Prefabricated Steel Bridge (61 meters)	Each

SECTION 505

PILING

Special Provisions

505-3.03 Pile Bearing Values. Delete the first paragraph of this section and substitute the following: Drive all piles, except piles for lighting standards, to the required ultimate bearing capacity. The required ultimate bearing capacity is shown on the drawings. The weight of pile is not included in the values and must be subtracted from what is shown on the drawings. Pile bearing values are based on geotechnical report from Phukan Consulting Engineers. For lighting standards, install piles of sufficient length to cut the pile at the required cut-off elevation and to provide the minimum installed length shown on the plans.

505-3.05 Minimum Penetration Add the following: For lighting standards, install piles of sufficient length to cut the pile at the required cut-off elevation and to provide the minimum installed length shown on the plans. Calculate installed length by subtracting the length of pile cut off from the length of pile furnished before installation. Furnish, at your expense, increased pile lengths to provide for fresh heading and to suit your method of installation. Sites for the lighting standard foundations can contain subsurface soils that consist of very dense sandy gravel with cobbles and boulders.

505-3.06 Cast-in-Place Concrete Piles. Delete Section 505-3.06.

505-3.07 Extensions, Splices, and Build-Ups. Delete the third paragraph and subtitute the following: Make splices as shown on the drawings.

Delete Item 2. Shell or Pipe for Cast-in-Place Piles.

Add the following: Splicing steel sheet piles is not allowed.

505-3.08 Timber Pile Bents. Delete Section 505-3.08.

505-3.09 Driving Piles. Add the following: In many cases, you may need to pre-bore, spud, use a larger pile-driving hammer, and excavate inside the pile, in addition to normal pile driving techniques. Sites for the lighting standard foundations can contain subsurface soils that consist of very dense sandy gravel with cobbles and boulders.

Submit a pile-driving plan to the Engineer, for approval, at least 14 calendar days before driving the first steel pipe pile. At a minimum, the pile-driving plan shall consist of the

a.) pile driving hammer, or hammers, to be used,
b.) alternate techniques planned for pile installation, and
c.) equipment used for the pile driving operation.

When you can not achieve the minimum installed length shown on the contract plans, install the pile tip to an elevation established by the Engineer.

Delete the fifth paragraph in its entirety

Delete the eight paragraph and substitute the following: Use premanufactured steel conical tips. Submit shop drawings for approval.

Add the following: Be advised that in many cases to install the steel pipe piles, you may need to pre-bore, spud, use a larger pile-driving hammer, and excavate inside the pile, in addition to normal pile driving techniques. Submit a pile-driving plan to the Engineer, for approval, at least 14 calendar days prior to driving the first steel pipe pile. At a minimum, the pile-driving plan shall consist of the a.) pile driving hammer, or hammers, to be used, b.) alternate techniques planned for pile installation, and c.) equipment used for the pile driving operation.

Add the following: When you can not achieve the minimum installed length shown on the contract plans, install the pile tip to an elevation established by the Engineer.

Add the following: To allow for consolidation to take place, closed cell abutment shall be constructed a minimum of four (4) months prior to the paving of the pathway and the placement of the bridge.

Add the following subsection:

505-3.15 WELDING.

All welding and inspection shall conform to the requirements of the latest edition of the American Welding Society (AWS) Structural Welding Code, D1.1.

1. Qualification of Process, Procedures and Joint Details. For each joint to be used in construction, the joint details, electrode classification or grade, electrode diameter, voltage, amperage, order and relative position of passes, number and thickness of layers and other pertinent information shall be clearly presented in the welding procedure(s) submitted by the Contractor for the approval of the Engineer.

   Requirement for procedures qualification is waived if the Contractor's welding procedure is in accordance with all requirements of the welding procedures specification contained within the AWS Structural Welding Code, D1.1.

2. Welders, Certification and Testing. All welders and welding operators shall be certified in conformance with the AWS Structural Welding Code, D1.1. Welders or welding operators lacking current AWS Structural Welding Code D1.1 certification will not be permitted to perform welding on this project.

3. Inspection of Shop Work and Records. Welds, including joint preparation, fit-up and alignment, will be completely (100 percent of the weld) inspected visually and radiographed in conformance with AWS Structural Welding Code, D1.1. Ten percent of the length, as determined by the Engineer, of each weld will be radiographic tested. If a rejectable defect is found, then 100 percent of the length of the weld in that piece will be

radiographically tested.

The Engineer will examine and approve satisfactory welds, disapprove or reject unsatisfactory welds, approve satisfactory methods proposed by the Contractor for repairing disapproved welds, and inspect the preparation and rewelding of disapproved welds. Copies of all the welding fabrication documentation, including the weld testing results, will be forwarded to the Engineer.

4. Obligation of Contractor. It shall be the Contractor's responsibility to comply with all requests of the Engineer to correct improper workmanship and to remove and replace, or correct as instructed, all welds found defective or deficient by visual inspection or by nondestructive testing.

5. Visual Inspection. All welds shall be completely visually inspected. A weld shall be acceptable by visual inspection if it shows that:

   a. the weld has no cracks,
   b. thorough fusion exists between adjacent layers of weld metal and between weld metal and base metal,
   c. all craters are filled to the full cross section, and,
   d. the completed weld conforms to all of the provisions of the AWS Structural Welding Code, D1.1.

6. Nondestructive Testing. The method of nondestructive testing will be radiographic testing in conformance with AWS Structural Welding Code, D1.1. Fillet welds are not subject to nondestructive testing. All pile splices shall be nondestructive tested.

7. Destructive Testing. The location, method and extent of mandatory destructive testing to be performed (if any) will be indicated on the contract drawings. All other welds will normally be inspected by visual methods and nondestructive testing; however, the Engineer may require destructive testing of any weld that in his opinion does not meet the criteria for radiographic acceptance.

   The cost associated with destructive testing of questionable welds will be borne by the Department for welds meeting radiographic acceptance criteria and by the Contractor for welds not meeting radiographic acceptance criteria. The cost of destructive testing of welds designated for destructive testing on the contract drawings will be borne by the Contractor.

   The Contractor is responsible for removing any weld specimen for destructive testing and repairing the weld afterwards.

8. Preparation of the Weld. The edges of the parts to be joined by welding shall be prepared by accurately cutting, grinding or machining to shape as indicated on the contract drawings and will be visually inspected prior to welding by the Engineer.

9. Backing. Backing rings or strips shall be utilized on all field butt welded joints welded from one side unless otherwise shown on the contract drawings or approved by the Engineer. Open root joints are permissible where the joint is inaccessible from both sides.

10. Cleaning. Each completed bead shall be thoroughly cleaned of all slag, or other foreign matter, before proceeding with the next bead. Hand clipping, power driven wire brushed, needle scalers, or grinders shall be used.

Full compensation for welding, weld inspection, weld testing, including all necessary tools, equipment, scaffolding and other support facilities required to perform welding, welding inspection, including the cost of radiographic testing will be subsidiary to the price bid for the piling items of the contract and no separate payment will be made.
(1/31/96)R146

505-4.01 Method of Measurement.

Add the following to numbered paragraph 2:

Do not measure piles for lighting standards for payment. Consider all costs of furnishing and installing piles for lighting standards a subsidiary obligation of Item 660(3), Highway Lighting System Complete.

Add the following Section:

SECTION 511

MECHANICALLY STABILIZED EARTH RETAINING WALLS

Special Provisions

511-1.01 DESCRIPTION. Construct the Mechanically Stabilized Earth (MSE) Retaining Walls at the locations shown on the Plans and as provided in these specifications. Constructing the MSE retaining walls shall consist of precast concrete facing panels connected to a metallic strip or grid reinforcement. The following list of acceptable MSE systems has been selected from the Alaska DOT/PF'S current list of prequalified MSE systems. The following are acceptable MSE systems that the Contractor may construct:

"Reinforced Earth" of the Reinforced Earth Company
20381 Lake Forest Dr. #B2
Lake Forest, CA 92630
Phone: (949) 587-3060

"Retained Earth" of the VSL Corporation
1077 Dell Ave.
Campbell, CA 95008
Phone: (408)866-5000

"Reinforced Soil Embankment" of Hilfiker Walls
3900 Broadway
Eureka, CA 95501
Phone: (707)443-5091

Only one MSE wall system shall be selected for installation on this project. The Department will not allow use of multiple systems.

Submit complete working drawings for the selected wall system in accordance with the provisions in Subsection 105-1.02. Additional geotechnical borings and analysis may be necessary to prepare MSE wall design. Verify the existing ground elevations at the site before preparing the final working drawings. Said working drawings shall contain all information required for the proper construction of the system and any required revisions or additions to drainage or other facilities. Supplement the working drawings with calculations for the particular installation. Said working drawings and calculations shall demonstrate the internal stability as well as the external stability of the MSE wall. An Engineer who is registered as a Civil Engineer in the State of Alaska shall sign and seal the drawings and calculations. Submit a complete set of working drawings and calculations to the Engineer. Allow the Engineer 3 weeks to review the working drawings and calculations.

MSE wall system dimensions may vary slightly from, but shall not be less than those of the Mechanically Stabilized Earth Wall shown on the Plans.

Use the minimum height and length for any system that will effectively retain the earth behind the structure for the loading conditions, contours, profile, or slope lines shown on the Plans or on the approved working drawings. In addition, if the Plans show limiting parameters for the systems, the system selected shall conform to those parameters.

The construction of the MSE wall system shall conform to the details on the approved working drawings and to the details of the pre-qualified system on file with the State.

511-2.01 MATERIALS. Materials furnished for the MSE retaining walls shall conform to the following:

GENERAL. Make your own arrangements to purchase and/or manufacture the face elements, reinforcing-mesh, grid or strips, attachment devices, joint filler, and all other necessary components from sources listed in these specifications and as shown on the contract Plans. Use only materials conforming to the Plans, specifications or from sources listed in the contract documents unless you receive written consent from the Engineer.

A. Concrete Face Panels. Fabricate panels in conformance with Section 501, with the following exceptions and additions:

1. The Portland cement concrete shall conform to Class A with a 27 MPa compressive strength at 28 days.

2. Do not strip the forms from the units until the concrete reaches a minimum compressive strength of 7 MPa. Ship the units after reaching a minimum compressive strength of 23 MPa. The Engineer will not accept panels with hairline cracks in them.

3. Concrete Finish and Tolerances: The concrete surface of the front face shall have a smooth faced finish surface. Screed the rear face of the panel to eliminate open pockets of aggregate and surface distortions in excess of 6 mm. The panels shall be cast on a flat surface. Do not contact or attach the embeds, tie strip guide, or other galvanized devices to the face panel reinforcement steel.

4. Angle Points: Changes in the wall alignment shall be accomplished using prefabricated angled corner panels or special columns of the same texture and size as the flat panels, such that a continuous panel is traversing the angle point without a break in the normal horizontal and vertical joint pattern unless directed otherwise by the Engineer. Bevel panels or field outs that disrupt the normal joint pattern and/or result in a single vertical line are not permissible.

5. Marking: Clearly scribe the date of manufacture, the production lot number, and the piece mark, on the unexposed face of each panel.

6. Handling, Storage and Shipping: Handle, store, and ship all panels in such a manner as to protect them from chipping, discoloration, cracks, fractures, and excessive bending stresses. Support panels in storage on firm blocking to protect the panel connection devices and the exposed exterior finish.

7. Reinforcing steel for the concrete panels shall conform to AASHTO M 31.

8. Tolerances: Manufacture all panels within the following tolerances.

   a. Panel Dimensions: Position of panel strap connection devices within 1 inch. All other dimensions within 5 mm.

   b. Panel Squareness: Squareness as determined by the difference between the two diagonals, shall not exceed 13 mm.

   c. Panel Surface Finish: Surface defects on smooth formed surfaces measured on a length of 1.5 meters shall not exceed 3 mm. Surface defects on the textured-finished surfaces measured over a length of 1.5 meters shall not exceed 8 mm.

9. Testing:

   Compressive Strength: Production lots shall determine the acceptance of concrete panels with respect to compressive strength. A single compressive strength sample will represent a production lot of a group of panels. A production lot will consist of either 10 panels or a single day's production, whichever is less.

   During the production of the concrete panels, the manufacturer will randomly sample the concrete in accordance with WAQTC TM 2. A single compressive strength sample, consisting of a minimum of four cylinders, will be randomly selected for every production lot.

   Perform compression tests on a standard 150 mm by 300 mm test specimen in accordance with WAQTC FOP for AASHTO T 23. Conduct compressive strength testing in accordance with AASHTO T-22.

   For every compressive strength sample, cure a minimum of two cylinders in accordance with WAQTC FOP for AASHTO T 23 and test at 28 days. The average compressive strength of these cylinders, when tested in accordance with AASHTO T-22, will provide a compressive strength test result that will determine the compressive strength of the production lot.

   If the compressive strength test result is greater than or equal to 27 MPa the Engineer will accept the production lot. If the compressive test result is less than 27 MPa, then the acceptance of the production lot will be based on its meeting the following acceptance criteria in their entirety:

(a) Ninety percent of the compressive strength test results for the overall production shall exceed 28 MPa.

(b) The average of any six consecutive compressive test results shall exceed 29 MPa.

(c) No individual compressive strength test result shall fall below 25 MPa.

Air Content: Perform air content tests in accordance with WAQTC FOP for AASHTO T 152 or AASHTO T-196. Take air content samples at the beginning of each day's production and take compressive samples at the same time to insure compliance.

Slump Test: Perform the slump test in accordance with WAQTC FOP for AASHTO T-119. Determine the slump at the beginning of each day's production and take the compressive samples at the same time.

Rejection: Rejection of units shall be because of failure to meet any of the requirements specified above. In addition, any of the following defects shall be sufficient cause for rejection.

(a) Faulty casting causing defects.

(b) Defects indicating honeycombed or open texture concrete.

(c) Cracked or severely chipped panels.

(d) Unreasonable color variation on front face of panels.

B. Soil Reinforcing and Attachment Devices. Carefully inspect all reinforcing and attachment devices to insure that devices are true to size and free from defects that may impair strength and durability. The metallic strip or grid shall meet the requirements of AASHTO Standard Specifications for Highway Bridges, latest Edition, and per the MSE wall suppliers design recommendations.

C. Joint Materials: Bearing pads, joint filler, and joint cover materials shall be according to the MSE wall supplier's recommendations.

D. Backfill Materials: All backfill materials used in the structure volume shall be free from organic or otherwise deleterious materials and shall conform to the following gradation limits as determined by WAQTC FOP for AASHTO T 27/T 11. Plasticity Index (P. I.) shall not exceed 6 as determined by WAQTC FOP for AASHTO T-89 and T-90.

SIEVE SIZE	PERCENT BY WEIGHT PASSING
150 mm	100
75 mm	75-100
4.75 mm	35-65
0.425 mm	0-50
0.075 mm	0-6

1. Soundness. The materials shall be free of shale or other soft, poor durability particles. The material shall have a sodium sulfate soundness loss of less than 30 percent after four cycles, as determined in accordance with AASHTO T-104.

2. Electrochemical Requirements. The backfill materials shall meet the following criteria:

REQUIREMENT	VALUE	TEST METHOD
Resistivity	3,000 ohm centimeters min.	Arizona DOT 236a
pH	5-10	Arizona DOT 236a
Chlorides	50 ppm max.	AASHTO 291
Sulfates	100 ppm max.	California DOT 417

The State shall perform corrosion tests. Notify the Engineer of the MSE backfill source at least 60 days prior to wall construction for corrosion testing of the backfill materials.

E. Concrete Leveling Pad. The concrete leveling pad shall conform to Section 501. The concrete for the pad shall be placed at least 24 hours prior to erecting the face panels.

F. Acceptance of Material. Furnish the Engineer with a Certificate of Compliance certifying that all materials, excluding backfill, comply with the applicable contract specifications. Furnish the Engineer with a copy of all test results performed by the Contractor necessary to assure contract compliance.

Acceptance will be based on the Certificate of Compliance, accompanying test reports, and visual inspection by the Engineer. The Engineer may require additional testing.

CONSTRUCTION REQUIREMENTS

511-3.01 EXCAVATION AND FOUNDATION. Excavation and preparation of the foundation shall be in conformance with Section 205, Excavation, Backfill and Foundation Fill for Structures.

Foundation Preparation. Grade the foundation for the structure level for a width equal to or exceeding the length of reinforcement elements plus 0.3 meters or as shown on the Plans. Prior to wall construction, compact the foundation with two passes of a vibratory drum compactor, except where constructed on rock. Remove any foundation soils found to be unsuitable and replace with backfill as per Section 205.

At each panel foundation level, provide a cast-in-place nonreinforced concrete leveling pad of the type shown on the Plans or approved working drawings. Cure the footing a minimum of 24 hours before placement of wall panels.

511-3.02 WALL ERECTION. A field representative from the proprietary wall system shall be available during the erection of the wall. The Services of the representative shall be at no additional cost to the State.

Precast concrete panels shall be placed so that their final position is vertical, or battered as shown in the Plans. Handle panels for erection by means of lifting devices connected to the upper edge of the panel or as per the MSE wall suppliers recommendations. Panels shall be placed in successive horizontal lifts in the sequence shown on the working drawings as backfill placement proceeds. As backfill material is placed behind the panels, maintain the panels in a vertical position by means of temporary wedges or bracing according to the wall supplier's recommendation. For structures with precast facing panels, concrete vertical tolerances and horizontal alignment tolerances shall not exceed 19 mm when measured with a 3-meter straight edge. During construction, the maximum allowable offset in any panel joint shall be 19 mm. The overall vertical tolerance of the wall (top to bottom) shall not exceed 13 mm per 3 meters of wall height. The plumb and tolerances of each panel row at the face shall be checked prior to erection of the next panel row. Should any panels be out of tolerance, remove the fill, and panels reset to their proper tolerances. Horizontal, vertical and slope joint openings between panels shall be uniform and no larger than 31 mm and no smaller than 13 mm.

Reinforcement elements shall be placed normal to the face of the wall, unless otherwise shown on the Plans. Prior to placement of the reinforcing elements, backfill shall be compacted in accordance with Section 205.

Backfill Placement. Backfill placement shall closely follow erection of each course of panels. Backfill shall be placed in such a manner as to avoid any damage or disturbances of the wall materials or misalignment of the facing panels. Remove and replace any wall materials that become damaged during backfill placement at the Contractor's expense. Correct any

misalignment or distortion of the wall facing panels due to placement of backfill outside the limits of this specification.

Backfill shall be compacted to 95 percent of the maximum density as determined by ATM T-12. Where spread footings support bridge or other structural loads, the top 1.5 meters below the bottom of the footing elevation shall be compacted to 98 percent as determined by ATM T-12. The maximum lift thickness after compaction shall not exceed 200 mm. Decrease this lift thickness, if necessary to obtain the specified density. The Engineer will determine field density using ALASKA FOP for AASHTO T 205 or WAQTC TM 7 AND WAQTC FOP for AASHTO T 224.

Use a lightweight mechanical tamper, roller, or vibratory system with at least three passes to achieve compaction within 1 meter of the back face of the wall facing.

The Engineer shall take a minimum of one density test at each level of soil reinforcement material.

Slope the last level of backfill away from the wall facing to permit rapid water runoff away from the wall face at the end of operations each day. Do not allow surface runoff from adjacent areas to enter the wall construction site.

To allow for consolidation to take place, walls are to be constructed a minimum of four (4) months prior to the paving of the pathway and the placement of the bridge.

511-4.01 METHOD OF MEASUREMENT. Measure Mechanically Stabilized Earth Retaining Walls by the square meter of wall face measured along the face of the wall. Regardless of the type of system actually constructed, the square meter area for payment will be based on the height and length of each section of mechanically stabilized earth retaining wall constructed as shown on the Plans. The height of each section is the difference in elevation on the outer face from the bottom of the lowermost face panel to the top of the uppermost face panel, based on the approved working drawings.

Measure tapered wall sections using the average height resulting from the height measured at each end of the tapered section.

511-5.01 BASIS OF PAYMENT. The contract price paid per square meter of MSE wall face for MSE Retaining Walls shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work involved in constructing the earth retaining structure; including bar reinforcing steel, excavation, leveling pad, face panels, coping, and all parts of or appurtenances to the earth reinforcement system, complete in place, as shown on the Plans, as provided in the Standard Specifications, Standard Modifications and these Special Provisions, and as directed by the Engineer. Backfill is paid for under Section 203.
(10/17/02)R90m98

Payment will be made under:

Pay Item	Pay Unit
511(1) Mechanically Stabilized Earth Retaining Wall	Square Meter

SECTION 513

FIELD PAINTING OF STEEL STRUCTURES

Special Provisions

513-1.01 DESCRIPTION. Add the following:
This work also consists of painting field welds as shown on the plans or directed by the Engineer.

513-5.01 BASIS OF PAYMENT. Delete this subsection in its entirety and replace with the following:

No separate payment shall be made for field painting of steel structures or welds. Field painting will be subsidiary.

Add the following Section:

SECTION 514

CONCRETE SURFACE TREATMENTS

Special Provisions

514-1.01 DESCRIPTION. This work consists of providing aesthetic fascia on all cast-in-place concrete walls and tunnel walls **(for clarity: all four approach walls with vertical faces adjacent to trail and the inside of the tunnel will receive aesthetic fascia)**, and providing graffiti protection on all cast-in-place concrete walls, tunnel walls, tunnel ceiling, and mechanically stabilized earth retaining walls. Use form liners on all cast-in-place concrete retaining walls. Install graffiti protection on all walls and surfaces designated on the Plans.

514-2.01 MATERIALS. Reinforcing steel shall meet the requirements of Subsection 709-2.01 Reinforcing Steel.

Provide standard reusable, non-porous form liners conforming to the following requirements:

Concrete Pattern: ****DELETE**** Contractor shall provide a textured and patterned finish to vertical cast-in-place concrete retaining wall and tunnel wall surfaces. Surface shall be formed to provide a staggered board pattern with coarse wood grain texture finish. Finish shall provide random offset of individual boards with variations of between 6mm and 19mm. Board texture shall provide distinctly visible wood grain finish. This pattern shall match Symons Form Liner Grape Stake 1202 (2" board width) pattern or approved equal. Contractor shall provide one meter by one meter sample of the proposed finished surface for Engineer's approval. The approved panel shall be used for comparison and acceptance of all other textured vertical concrete.

Use a two-step graffiti protection system designed specifically for this use. The system shall consist of a single component clear acrylic base coat covered by a clear urethane finish coat. This material is not a sealer or vapor barrier and no appreciable discoloration is allowed.

Trained personnel shall apply the material according to the manufacturer's recommendations.

514-3.01 AESTHETIC FASCIA. Use form liners on all retaining wall forms which have exposed surfaces. The wall dimensions and concrete quantities provided on the Plans are minimum and do not include allowances for the thickness of the form liners and must be accounted for by the Contractor.

The liners will cover the majority of the form with a minimum of 50mm and a maximum of 300mm between the edge of liner and the finished top of the wall, pathway or original ground grade at the bottom, and edge or expansion joints of the wall on the sides. The Engineer shall approve the liner placement on the form prior to the concrete pour.

514-3.02 GRAFFITI PROTECTION. Let all concrete surfaces set at least 28 days before applying any coatings. Apply the base coat with a roller or sprayer in accordance with the manufacturer's recommendations. Apply two coats of the finish coat after the base coat has cured for 72 hours. Apply appropriate masking as required.

514-4.01 METHOD OF MEASUREMENT. Measure aesthetic fascia and graffiti protection by the square meter of surface area designated by the Engineer.

514-5.01 BASIS OF PAYMENT. Payment for retaining wall treatments will be full compensation for all labor, equipment and materials, including reinforcing steel, required to complete the walls in accordance with the plans and specifications. (2/28/01)R41

Payment will be made under:

Pay Item	Pay Unit
514(1) Aesthetic Fascia	Square Meter
514(2) Graffiti Protection	Square Meter

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. (09/10/02)R42M

This work shall also consist of installing end sections for culverts as specified on plans.

603-2.01 MATERIALS. Delete the second paragraph and substitute the following: When Item 603(17), Pipe, is listed in the bid schedule, furnish either Corrugated Steel Pipe (CSP), Reinforced Concrete Pipe, or Corrugated Polyethylene Pipe. End Sections for Metal Pipe must be of the same material as the pipe.

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 65 mm by 1800 mm post shall be rectangular in cross-section with reinforcing ribs capable of a minimum bending radius of 230 mm. (09/10/02)R42M

In the second paragraph, delete "(900 mm maximum diameter)".

In the fourth paragraph, delete the last sentence.

Add the following: High flow pipe shall have a Manning's n value of 0.015.

603-3.03 JOINING PIPE.

2. Metal Pipe. Replace the second sentence with the following: "Use bands that are no more than two nominal sheet thicknesses lighter than the pipe being joined, and in no case lighter than 1.3 mm." (02/08/01)M95

Special Provisions

Add the following Subsection:

603-3.06 CULVERT MARKER POSTS. Culvert marker posts shall be installed on the approach side of storm drain outfalls 750 mm and smaller, field inlets not in paved parking lots, all end sections to cross culverts, or as directed by the Engineer. 1070 mm of post shall remain above the ground after driving. (09/10/02)R42M

603-4.01 METHOD OF MEASUREMENT. Add the following: Culvert marker posts will not be measured for payment. ****DELETE****

For Phase III construction, end sections will be measured for payment under item 603(20).

For Phase IV construction, end sections 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.

For Phase III construction, end sections will be paid for under item 603(20).

For Phase IV construction, end sections will not be paid for directly, but will be subsidiary to pipe items.

(09/10/02)R42M

SECTION 604

MANHOLES AND INLETS

Special Provisions

604-1.01 DESCRIPTION. Add the following: This work shall also consist of furnishing and installing monitoring well manholes over existing monitoring wells.

604-3.01 CONSTRUCTION REQUIREMENTS. Add the following after the third sentence: Any proposed access manhole that falls within a concrete sidewalk or asphalt pathway must have a lid with a rough cobbled grit surface, or be specifically designed to hold a minimum of 25 mm concrete or asphalt, as applicable.

Under the heading "Reconstruct existing manhole by using one or more of the following methods," add the following:

1. Salvage existing frame and grate, remove and dispose of the existing reducing slab and adjustment rings and install a new cover slab (reducing slab without an access hole). Salvaged frame and grate shall be delivered to the local DOT maintenance station. Do not deliver salvaged materials until they have been inspected and approved by the Engineer. Replace all frames and grates damaged during salvaging or delivery with new frames and grates at no additional cost to the Department.

   Remove and dispose of frames and grates designated for removal and not selected for salvage.

Add the following: When installing new pipe in an existing manhole, cleanly cut a hole by approved means at the invert elevation given on the plans and 50 mm larger than the outside diameter of the new pipe. Then, grout joint with non-shrinking cement mortar.

All curb inlet structures shall have a 75 mm formed hole approximately .6 m below the top of casting on the project centerline side to provide for direct drainage during subgrade construction to avoid embankment saturation. Keep the openings functional. This may require temporary dikes, RMC extensions, etc., as necessary. Fill these holes with grout upon final paving.

Cast standard drainage structure steps during structure pour or install them before concrete hardens.

604-4.01 METHOD OF MEASUREMENT. Add the following: Frames, grates and lids will not be measured for payment.

604-5.01 BASIS OF PAYMENT. Add the following: Frames, grates and lids are subsidiary to the drainage structure. (9/1/00)R43M98

Grading and fill around the monitoring well manholes will be subsidiary.

Delete Item 604(1) Storm Sewer Manhole and add the following new pay items:

Pay Item	Pay Unit
604(1A) Storm Drain Manhole, Type 1	Each
604(5A) Inlet, Catch Basin	Each
604(30) Monitoring Well Manhole	Each

SECTION 606

GUARDRAIL

Special Provisions

606-1.01 DESCRIPTION. Add the following: This work shall also include furnishing and installing connections between guardrail and concrete barrier as shown on the plans.

Standard Modifications

606-2.01 MATERIALS. *Delete Flexible Markers in its entirety and substitute the following:*

Flexible Markers. Use flexible markers with an over all length of 1,800 mm. The marker shaft shall have a coil spring at the bottom and a flag at the top. The shaft and spring shall be one piece and made from galvanized spring steel. The flexible marker shall have an orange HDPE flag that provides approximately 129 cm^2 of surface area. Use stainless or galvanized steel attaching hardware. The following is an example of an acceptable flexible marker:

Model:	FF2
Manufacture:	Nordic Fiberglass, Inc. P.O. Box 27 Highway 75 South Warren, MN 56762
Phone:	(218) 745-5095
Fax:	(218) 745-4990
E-mail:	www.nordicfiberglass.com

If using another brand, submit specifications to the Engineer for approval prior to ordering the markers. (03/14/00)M88

606-3.01 GENERAL. Add the following: Treat field cuts to timber posts and blocks according to AWPA standard M 4. (10/19/98)M67

606-3.02 POSTS. Delete the first two numbered items in this Subsection and substitute the following:

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

606-3.05 TERMINAL SECTIONS. Delete the fourth paragraph (flexible markers) in its entirety and substitute the following:

Attach flexible markers, in a vertical position, to the last post of each guardrail terminal using two pipe bracket holders spaced 300 mm apart. Attach to wooden guardrail posts with wood screws and to steel guardrail posts with hex bolts. (03/14/00)M88

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 7 calendar days after removal.

Guardrail located within 15 meters of bridge ends shall have the new guardrail installed by the end of the shift in which the existing guardrail is removed.

606-3.07 REMOVAL AND DISPOSAL OF GUARDRAIL. Delete the last sentence and substitute the following: Notify the Engineer, five (5) days prior to removing guard rail for disposal. At that time, the Engineer will physically identify portions of guardrail to be salvaged. All guardrail and associated hardware so designated will be delivered to the Municipality of Anchorage Maintenance Yard located in Anchorage. All remaining items removed become the property of the Contractor.
(9/8/00)R259M98

606-3.09 FLEXIBLE MARKERS. Add the following Subsection: 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.

606-3.10 LENGTH OF NEED VERIFICATION. Add the following Subsection: After shaping the slopes and staking all 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 that additional guardrail is necessary, and comply without delay. (10/17/02)R45aM98

606-4.01 METHOD OF MEASUREMENT. Terminal Sections. Add the following:
4. Concrete shoulder barrier terminal will be measured by the meter and paid for under item 614(1) Concrete Barrier.

Delete the second to the last paragraph and substitute the following:

Guardrail/Barrier Connection. Per each, installed in place. Each connection includes all brackets, beam sections, transition pieces, and all posts and associated hardware required to connect the guardrail section to a concrete barrier according to the Plans.

606-5.01 BASIS OF PAYMENT.

Add the following pay item:

Pay Item	Pay Unit
606(13) Guardrail/Barrier Connection	Each

SECTION 607

FENCES

Special Provisions.

607-1.01 DESCRIPTION. Add the following: The work under this section includes but is not limited to all labor, materials, transportation, testing, maintenance, and service necessary to furnish and install the ornamental fence, ornamental fence gate, and throw fence as shown on the Plans and specified herein. The work under this section also includes but is not limited to all labor, materials, transportation, testing, maintenance, and service necessary to furnish and install the wood/chain link fence on top of retaining walls, on top of tunnel structure, and at other locations as shown on the Plans and specified herein.

Add the following to the third paragraph: Where indicated on the plans, privacy slats shall be installed in the chain link fence.

607-1.02 SUBMITTALS. Add the following:

The following submittals for the ornamental fence, ornamental fence gate, wood/chain link fence and throw fence shall be provided by the Contractor for the Engineer's review and approval. The Contractor will not be allowed to begin fence construction until all submittal requirements are satisfied and found acceptable to the engineer. Changes or deviations from the approved submittals must be re-submitted for approval. No adjustments in contract time will be allowed due to incomplete submittals. At least 15 working days prior to initiating the work, the Contractor shall submit to the Engineer:

1. Shop drawings of ornamental fence panels, throw fence panels, wood/chain link fence panels, gates, and posts clearly showing all materials, finishes, connections, joining methods, location of installation and field measurements for construction of fence. Approved shop drawings shall become the basis for acceptance of work.

2. After shop drawing approval, Contractor shall provide a full size sample panel that will serve as the basis of quality control for metal fabrication. This panel shall be unfinished and available for review at an Anchorage location. All subsequent panels shall meet the fabrication standard established by the approved sample.

3. Contractor shall furnish color chip for the specified RAL color for approval by the Engineer.

607-2.01 MATERIALS. Add the following:

Concrete	Section 501
Powder Coating	Section 622, as modified
Structural Steel	Section 716
Bridge railing	Section 722, as modified

Fence frame size shall match dimension shown on plans. Steel shall conform to ASTM Specification A36, and shall be clean new stock, free from rust and pitting. Tube steel shall conform to ASTM A500.

607-2.02 CONTRACTOR QUALIFICATIONS. Add the following:

Qualifications for Contractors constructing the ornamental fence and throw fence shall include the following:

1. Not less than five years of continuous experience in the fabrication of similar products.

2. All welding shall be performed by welders certified by the American Welding Society (AWS).

3. Comply with "Code for Welding in Building Construction" of the American Welding Society, latest edition.

607-2.04 PRODUCT DELIVERY AND STORAGE. Add the following: All steel fabrications and material shall be stored on skids above the ground. The storage area shall be kept clean and properly drained. Keep all materials dry during delivery. Protect exposure to weather and contact with damp or wet surfaces.

Standard Modification.

607-3.01 CONSTRUCTION REQUIREMENTS. In the ninth paragraph, change "minimum" to "maximum". (06/25/99)M73

Special Provisions.

607-3.01 CONSTRUCTION REQUIREMENTS. Add the following to the last paragraph: Install new posts and foundations for reconstructed fences.

Add the following: Ornamental and throw fence panels shall be assembled in shop or factory. Welds shall be neat and clean made by the gas metal arc method. All flush welds shall be ground smooth. Holes for attachment shall be predrilled prior to painting.

Contractor shall layout fences in accordance with the Plans and approved Shop drawings. Contractor shall investigate site for any grade changes, surface irregularities, and obstructions prior to installation and modify panels as necessary to accommodate grade changes. Discrepancies between Plans and field conditions shall be addressed to the Engineer to approve proposed modifications.

All steel posts shall be plumb and level erected and evenly spaced with allowable tolerances for panel installation. Footings and other components shall be installed to provide a continuous top

surface at uniform height above the trail or to change grade and follow side slope grade where fence diverts from trail (down or up side slopes).

Finish: Ornamental fence and ornamental fence gate shall have an electrostatically applied dry powder coat finish. See subsection 622-2.22 for finish requirements. The custom color shall be RAL #4007 except the top rail which shall be black.

Polyester powder coating application shall be prepared through a five-step process to provide an acceptable finish:

a. Rinsing and cleaning with clear water
b. Phosphate treating to etch surfaces
c. Re-rinsing with clear water
d. Oven drying surfaces prior to powder coating
e. Application of polyester powder by the electrostatic spray process to a thickness of 2.5 mils. The metal shall be oven heated at 232°C for 14 minutes.

Privacy slats shall be dark green

607-3.02 CLEANUP. Add the following: Any abrasions to factory coatings and finishes shall be thoroughly cleaned. Powder coated surfaces shall be reprimed and touched up with paint of the same color and quality used in the factory. Drop clothes shall be laid under and around items to protect ground surfaces. Excess materials and rubbish shall be removed from job site and disposed of off-site upon completion of Work. The work area shall be clean and left in an acceptable condition.

607-4.01 METHOD OF MEASUREMENT. Add the following:

Privacy slats will not be measured for separately, but will be subsidiary.

607(7A) Ornamental Fence. By the meter at the base of the fence parallel to the ground, not including gates.

607(7B) Ornamental Fence Gate. As a complete unit.

607(7C) Wood/Chain Link Fence. By the meter at the base of the fence parallel to the ground.

607(15) Throw Fence. By the meter at the base of the fence parallel to the ground.

607-5.01 BASIS OF PAYMENT. Add the following: Posts and concrete required will not be measured for payment but will be subsidiary to the fence item.

Privacy slats are subsidiary.

Add the following pay items:

Pay Item	Pay Unit
607(3-1829) Chain Link Fence, 1829 mm High	Meter
607(3-2438) Chain Link Fence, 2438 mm High	Meter
607(3-3048) Chain Link Fence, 3048 mm High	Meter
607(7A) Ornamental Fence	Meter
607(7B) Ornamental Fence Gate	Each
607(7C) Wood/Chain Link Fence	Meter
607(15) Throw Fence	Meter

SECTION 608

SIDEWALKS

Special Provisions

608-1.01 DESCRIPTION. Add the following: This work also consists of constructing asphalt pathway(s) and median(s) and installing composite detectable warning tiles in conformance with the plans.

608-2.01 MATERIALS. Delete paragraph number 2 and substitute the following:

2. Asphalt Sidewalk and Asphalt Pathway

Asphalt Cement, PG52-28	Subsection 702-2.01
Aggregate, Type II or III	Subsection 703-2.04
Mix Design Requirements (ATM T-17)	
Marshall Stability, N, min.	4450
Percent Voids, Total Mix	2-5
Compaction, Blows/side	50

Add following Subsections:

608-3.04 ASPHALT PATHWAY. Construct asphalt pathway in accordance with subsection 608-3.02 Asphalt Sidewalks.

608-3.05 ASPHALT PATHWAYS AND MEDIANS. Construct asphalt pathways and medians in accordance with subsection 608-3.02, Asphalt Sidewalk. (06/11/02)R256M98

608-4.01 METHOD OF MEASUREMENT. In both the first and second paragraphs, after "finished surface" insert ", including ramps". (06/25/99)M 74

Add the following:

Asphalt Pathway. By the megagram of asphalt concrete in accordance with Section 109, Measurement and Payment. Asphalt cement will not be measured for payment.

Asphalt Pathways and Medians. By the megagram of asphalt concrete in accordance with Section 109, Measurement and Payment. Asphalt cement will not be measured for payment. Additional asphalt pavement used for matching existing surfaces such as paved parking lots behind a new sidewalk/pathway will be measured and paid under this Section.

608-5.01 BASIS OF PAYMENT. Add the following:

Asphalt cement for Asphalt Pathway and Asphalt Pathways and Medians will not be paid for separately, but will be subsidiary to their respective pay items.

Embankment and bed course materials will be furnished, placed and paid under Sections 203 and 301, respectively. (2/1/00)R47M98

The composite detectable warning tiles are subsidiary to item 608(7) Asphalt Pathway.

Add the following pay items:

Pay Item	Pay Unit
608(7) Asphalt Pathway	Megagram

SECTION 609

CURBING

Special Provisions

609-3.02 CAST-IN-PLACE CONCRETE CURBING. Add the following to the fifth paragraph: Concrete placed by the extrusion or slip-form process shall have a slump of less than 50 mm. (2/1/00)R202M98

Standard Modification

609-4.01 METHOD OF MEASUREMENT. In the first paragraph, after "drainage structures" insert "or ramps". (06/25/99)M75

Special Provisions

Delete the second paragraph. (06/11/02)R256M98

SECTION 614

CONCRETE BARRIER

Special Provisions

609-3.01 CONSTRUCTION REQUIREMENTS. Delete the first sentence and add the following: Concrete barriers shall be cast-in-place as shown on the plans. Alternative methods must be approved by the Engineer. Use cast-in-place Concrete Barrier that conforms to the lines, dimensions, and requirements shown on the Plans.

Expansion joints shall be provided every 23 meters and contraction joints shall be provided every 4 meters.

A 23 linear meter test section of concrete barrier shall be constructed according to these specifications and approved by the Engineer before construction of the concrete barrier may begin.

609-4.01 METHOD OF MEASUREMENT. Add the following: Payment for Item 614(1) Concrete Barrier will include all concrete, reinforcing, dowels, grease, joint fillers, and incidentals required to construct the barriers and concrete barrier terminals as shown on the plans.

SECTION 615

STANDARD SIGNS

Special Provisions

615-2.01 MATERIALS. Under item 1. delete the first sentence and substitute the following: Unless Shop Drawings have been provided in the Contract, submit all signs that require the use of the Alaska Sign Design Specifications (ASDS), the Department of Transportation and Public Facilities - Sign Face Fabrication Requirements, and the Alaska Traffic Manual, letter width and spacing charts for approval before fabrication.

615-3.01 CONSTRUCTION REQUIREMENTS. Delete item 7 and substitute the following:

7. Notify the Engineer five (5) days prior to beginning sign salvage activities. At that time, the Engineer will physically identify those signs to be salvaged. For each sign so designated, disconnect sign post from panel. The panels shall then be grouped together in a manner to preclude damage. Posts shall also be grouped together as with hardware in a workmanlike manner. Deliver sign panels, posts and hardware to the State Maintenance Yard located in Anchorage. Do not deliver salvaged materials until they have been inspected and approved by the Engineer. Replace all panels, posts and hardware damaged during salvaging or delivery with new panels, posts and hardware at no additional cost to the Department.

   Remove and dispose of project signs and/or parts designated for removal and not selected for salvage.

   Dispose of foundations from salvaged existing signs in a manner approved of by the Engineer (remove and dispose, abandoned in place, or otherwise dispose). If foundations are abandoned in place, the tops of the foundations, reinforcing steel, anchor bolts, and conduits shall be removed to a depth of not less than 300 millimeters below roadway subgrade or unimproved ground, whichever applies. All signs and posts at a single installation shall be considered as one unit.

615-3.02 SIGN PLACEMENT AND INSTALLATION. Add the following: Do not remove existing signs without authorization from the Engineer.

615-4.01 METHOD OF MEASUREMENT. Add the following to the second paragraph: Concrete used for sign bases is considered subsidiary to other work under this section.

615-5.01 BASIS OF PAYMENT. Add the following: No separate payment for keeping existing signs in service until they are no longer needed, or temporary relocation of existing signs will be made. This work is subsidiary to Item 615(1), Standard Sign.

No separate payment for removal of existing sign post foundations, or work required to abandon them in place will be made, but shall be subsidiary to Item 615(1), Standard Sign.

No separate payment for salvaging activities detailed in subsection 615-3.01 will be made. This work will be subsidiary to Item 615(1), Standard Sign. (05/16/01)R50M98

SECTION 618

SEEDING

Special Provisions

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

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

Mulch subsection 727-2.01

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. Prepare slopes for seed by "walking" a dozer transversely up and down the slopes, or by grading with a scarifying slope board, as determined by the Engineer. The resultant indentations shall be perpendicular to the fall of the slope. Complete slope preparation as soon as topsoil is placed on the slopes. Rounding the top and bottom of the slopes is acceptable to facilitate tracking and to create a pleasing appearance, but do not disrupt drainage flow lines.

618-3.02 SEEDING SEASONS. Add the following: All seeding shall be performed between May 15 and August 15.

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

Seed Mix	Component	Ingredients	Application Rate (per ha)
Type A	Seed	Slender Wheatgrass (Wainwright) Red Fescue (Arctared) Annual Ryegrass (Lolium)	24.5 kg 19.5 kg 5.0 kg Total = 49.0 kg
	Soil Stabilizer Slope ≤ 3:1 Slope >3:1 – 2:1	 Mulch Mulch with tackifier	 2240 kg 2800 kg
	Fertilizer	20-20-10	586 kg

The Contractor shall 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.

618-4.01 METHOD OF MEASUREMENT. Add the following: The amounts of fertilizer, mulch and water for application used in this work, including any required reseeding, are subsidiary to other 618 items.

618-5.01 BASIS OF PAYMENT. The work described under subsection 618-3.01 Soil Preparation is subsidiary to seeding.

Water required for the hydraulic method of application is subsidiary to seeding.
(03/05/02)R52M98

Payment will be made under:

Pay Item	Pay Unit
618(2A) Seeding, Type A	Kilogram
618(3) Water for Seeding	Kiloliter

SECTION 619

SOIL STABILIZATION

Special Provisions

619-1.01 DESCRIPTION. Add the following: This work also includes the furnishing, application and maintenance of hydraulically applied soil stabilization matting.

619-2.01 MATERIALS. Add the following to the first paragraph:

Hydro Matting	727-2.04

Add the following: On 1V:2H (or flatter) cut or fill slopes, apply topsoil and hydroseed as specified in Section 618, Seeding and Section 620, Topsoil. If the topsoil and seed cannot be placed by August 30, trackwalk the slopes and cover with plastic sheeting until the next growing season. After May 15 the following year, remove the plastic sheeting and apply the topsoil and hydroseed.

On 1V:1.5H cut or fill slopes 3 meters or less in length, hydro matting is required. If the hydraulically applied soil stabilization matting can be placed by August 30, it shall be placed on top of the topsoil that contains seed and fertilizer as specified in Section 618, Seeding. If the hydro matting cannot be placed before August 30, it shall be placed without topsoil and seed. Apply the topsoil and hydroseed as specified in Section 618, Seeding and Section 620, Topsoil on top of the hydro matting during the next growing season (after May 1). It shall be applied at the rate of 3,360 kg/ha or in accordance with the manufacturer's written recommendations and application parameters. The slopes shall be stabilized as the faces are exposed, as practical, in accordance with the NPDES Storm Water Pollution Prevention Plan.

Slopes with lateral seeps shall be allowed to dry before treating with hydro matting. Treatment of such areas may be deferred until the end of slope finishing unless there is a risk of a major failure. In such event, the Engineer will direct repairs to be made by redressing and hydro matting, by rock buttressing, or by other means in accordance with Section 641.

On 1V:1.5H cut or fill slopes 3 meters or more in length, matting is required. If the matting can be placed by August 30; first apply the topsoil and seed and then secure the matting on top. If the matting cannot be applied within the growing season (before August 30), apply the topsoil and trackwalk the slopes. Place the matting over the trackwalked slope. Apply the seed on top of the matting the following year, after May 1.

619-3.03 MAINTENANCE. Add the following: Hydraulically applied soil stabilization matting shall be maintained and repaired in accordance with the manufacturer's written recommendations and subsection 618-3.04, Plant & Establishment and Maintenance, or as directed by the Engineer.

619-4.01 METHOD OF MEASUREMENT. Add the following: The unit price for Item 619(3), Hydro Matting, shall include seed and fertilizer at application rates specified in Section 618.

Mulch will not be measured separately for payment.

619-5.01 BASIS OF PAYMENT. Add the following: There shall be no adjustment to price in the event that weather, soil conditions or other conditions preclude the use of hydro matting. (2/18/03)R223M

Payment will be made under:

Pay Item	Pay Unit
619(3) Hydro Matting	Square Meter

SECTION 620

TOPSOIL

620-2.01 MATERIALS. Delete this subsection in its entirety and substitute the following: Topsoil shall conform to the requirements of Section 726. Class of topsoil shall be as shown on the plans.

620-3.01 PLACING. Add the following: For areas that are receiving hydromatting after August 30, topsoil shall not be applied until the next growing season after May 1 the following year.

620-4.01 METHOD OF MEASUREMENT. Add the following: Limestone, if required, will not be measured for payment, but will be subsidiary to Item 620(1A) Topsoil, Class A. (9/11/96)R53

620-5.01 BASIS OF PAYMENT.
Payment will be made under:

Pay Item	Pay Unit
620(1A) Topsoil, Class A	Square Meter

Delete this Section in its entirety and substitute the following:

SECTION 621

PLANTING TREES AND SHRUB

Special Provisions

621-1.01 DESCRIPTION. The Work under this Section includes furnishing and installing trees, shrubs, mulch, vinyl edging, and performing maintenance work during the plant establishment period (PEP).

MATERIALS

621-2.01 PLANT STOCK. All plant materials used shall be true to type, name, and size in conformity with the following standards:

American Standard for Nursery Stock, ANSI 260.1-1996 or later. (Published by the American Association of Nurserymen, Inc. 230 Southern Building Washington, D.C. 20005).

Sunset New Western Garden Book, Lane Publishing Co., Menlo Park, CA., 1979.

Trees of North America, Thomas S. Elias, Van Nostrand Reinhold Co., New York 1980.

The term "planting areas" as used in this Section, shall mean all areas to be planted with trees and shrubs.

1. Plant List. A complete list of plants, including a schedule of quantities, sizes, and other requirements is shown on the plans or in the specifications for this project. No substitute shall be accepted, except with the written permission of the Engineer. The Contractor shall submit all substitution requests within 30 days of receiving the Notice-to-Proceed. Caliper is defined as the diameter of a tree, 150 millimeters above the ground line as it is to be planted.

2. Quality. All plants shall be typical of their species or variety. All plants shall have normal, well-developed branches and vigorous root systems. They shall be sound, healthy, vigorous, free from defects, disfiguring knots, abrasions of the bark, sun scald injuries, plant diseases, insect eggs, borers and all other forms of infection. Trees and shrubs shall not be bare root. Plants which have been held in storage will be rejected if they show signs of growth or decline during storage. All plants shall be from an area with a "northern" climate, such as Alaska, Canada, Idaho, Montana, etc.

3. Size and Grading Standards. Size and grading standards shall conform to those of the American Association of Nurserymen unless otherwise specified. Rootball must conform to the American Standard for Nursery Stock specifications. A plant shall be dimensioned

as it stands in its natural position. Stock furnished shall be a fair average between the minimum and maximum sizes specified. Large plants which have been cut back to the specified sizes will not be accepted.

4. Preparation of Plants. Balled and burlapped plants shall have a solid ball of earth of minimum specified size held in place securely by burlap and stout rope. Root ball shall be full of actively growing and healthy roots. Oversize or exceptionally heavy plants are acceptable if the size of the ball or spread of the roots is proportionately increased to the satisfaction of the Engineer. Broken, loose, or manufactured balls will be rejected.

5. Delivery. All plants shall be packed, transported, and handled with utmost care to insure adequate protection against injury and desiccation. Plants coming from out-of-state certified growers and/or suppliers shall be certified by State and Federal authorities to be free from disease and infestation. Any inspection certificates required by law to this effect shall accompany each shipment invoiced or order of stock, and on arrival, the certificate shall be filed with the Engineer. Each bundle of like plants, or each plant if not bundled, shall be labeled with scientific name and size.

6. Water. Water is to be supplied by the Contractor unless other arrangements are made with the Engineer prior to commencement of Work.

7. Quantities. Discrepancies between the quantity shown on the plant list and those required by the plans shall not entitle the Contractor to claim any additional compensation nor relieve him of the obligation to complete the Work shown on the plans and in the specifications for this project.

8. Inspection.

   a. All planting stock shall be available for inspection in the nursery. Furnish complete and detailed information concerning the source of the supply for all plant materials not less than 10 days in advance of digging operations.

   b. Final inspection and acceptance for size of ball or roots, color, absence of defects, and for other requirements will be made at the planting site by the Engineer prior to placing the plants in their permanent positions.

   c. Plant material installed prior to acceptance by the Engineer will be removed, inspected and reinstalled if found acceptable. If found to be unacceptable, Contractor shall furnish new material, allow inspection, and then install at no additional cost.

621-2.02 FERTILIZER. Use fertilizer that meets Section 725. Meet the chemical proportions specified in these Special Provisions.

621-2.03 LIMESTONE. Use limestone that meets Subsection 712-2.03.

621-2.04 BARK MULCH. Mulch for planting beds shall be derived from Douglas Fir or Spruce species. It shall be ground so that a minimum of 95 percent of the material will pass through a 32mm sieve and no more than 50 percent, by loose volume, will pass through a 6mm sieve. The mulch shall not contain resin, tannin, or other compounds in quantities that would be detrimental to plant life. **The mulch shall be applied at a depth as shown on the plans, to an area as follows: for bed plantings, to the entire area; for individual trees and shrubs, to the drip line of plant or to an area three (3) times the rootball diameter, whichever is greater.**

621-2.05 BACKFILL MIX (Planting Mix as shown on the drawings). Use backfill mix that meets the definition of topsoil in Section 726.

621-2.06 STAKES. Stakes shall be #15 rebar, or a similar material fit for the purpose intended.

CONSTRUCTION REQUIREMENTS

621-3.01 SOIL PREPARATION. All areas to be planted with trees or shrubs shall be tilled to a depth of 150 mm and cleared of stones 50 mm in diameter and larger, and of all weeds, plant growth, stumps and other debris or irregularities which might interfere with the planting operation, growth of plants or subsequent maintenance of plants.

Topsoil shall then be uniformly installed in all areas to be planted with trees or shrubs to a minimum compacted depth of 150 mm. The surface of the topsoil shall be smoothed out prior to planting. Any material deleterious to plant growth, or subsequent maintenance of planting areas shall be removed.

621-3.02 TEMPORARY STORAGE. Where temporary storage or heeling-in of plants is required, provide and prepare a suitable heeling-in ground or a well-ventilated and cool storage shed, located near the planting site, before shipping planting stock.

All acceptable planting stock, if not planted within 24 hours shall be heeled-in and properly stored.

Balled and burlapped plants which are not planted immediately, shall be temporarily stored in a protected area with balls 150mm apart and voids filled with moist mulch up to and including the top of the ball.

621-3.03 PLANTING.

1. Plant Season. All plants shall be planted before August 15. Trees and shrubs shall be fully leafed-out prior to planting.

2. Layout. Planting shall be located where it is shown on the plans except where obstructions overhead or below ground are encountered or where changes have been made in construction. Prior to the excavation of planting areas of plant pits, the

Contractor shall ascertain the location of all utilities so that proper precautions may be taken not to disturb or damage any subsurface improvements. Should obstructions be found, the Contractor shall promptly notify the Engineer who will arrange to relocate the plant material. Necessary adjustments shall be approved by the Engineer.

3. Setting Plants.

a. No planting holes shall be dug until the proposed locations have been staked on the ground by the Contractor, and until such locations have been approved by the Engineer. Each plant shall be planted in an individual hole as specified for trees and shrubs. All holes shall be dug with angled sides and crowned bottoms, or as otherwise directed.

b. Plants shall be set plumb on lightly tamped backfill mix and at such level that the root collar will bear the same relation to the planting site as it bore to the ground from which it was grown.

c. No filling will be permitted around trunks or stems. All ropes, wire, staves, etc., shall be removed from hole before filling in. Wire basket from the tree ball shall be cut off the root ball. Burlap shall be properly cut and laid back from the top of the ball or removed completely per the details in the plans. When hole depth is specified, it shall be understood as meaning depth below finish grade. A layer of topsoil 150 millimeters thick shall be applied on the bottom of each hole and then lightly tamped.

4. Backfilling and Planting Pits and Planting Beds.

a. Backfill Mix shall conform to the requirements of Section 726. Topsoil backfill shall be prepared for planting by mixing with 0.142 cubic meters (5 cubic feet) of compost material to 0.765 cubic meters (1 cubic yard) of topsoil backfill mix. Compost material shall be as manufactured by Dean Environmental Recycling, Inc., Anchorage, AK, (907) 243-8577 or approved equal.

b. Compost products shall contain composted plant waste material derived from the aerobic decomposition of recycled plant waste. The composted plant waste shall have a moisture content that has no visible free water or dust produced when handling the material.

c. Backfill mix shall be prepared for planting by mixing in a water retention additive such as Awuasorb, or equal, at the manufacturers recommended application rate.

d. Planting pits and beds shall be backfilled carefully to fill all voids and to avoid breaking root ball or bruising roots. Tamp backfill firm to prevent settlement. When pit is nearly filled, water thoroughly and allow water to soak away. If settling of the backfill occurs after watering, add more backfill to bring to finish grade.

5. Trees.

   a. All trees shall be balled and burlapped or in a container. Handling of balled and burlapped trees by trunks is expressly forbidden. Any adjustments of trees shall be by holding of root ball to transport or adjust trees. Topsoil shall be made firm under the root ball or spread of roots by tamping. Topsoil shall be backfilled in layers of not over 225 millimeters in depth and each layer watered sufficiently to settle before the next layer is put in place. Enough topsoil shall be used to bring the surface to finish grade when settled. A slight "saucer," with a minimum of a 75 mm height, shall be formed around each tree to hold additional water.

   b. All tree planting areas shall be uniformly mulched with a minimum 75 millimeters compacted depth fine ground bark mulch.

1. Staking and Guying.

   a. Contractor shall submit complete staking procedures, including a plan of which trees will be staked, to the Engineer for approval prior to any staking. Staking shall be in accordance with the most recent State of Alaska, Division of Forestry, Urban and Community Forestry program recommended guidelines for staking plans.

   b. Contractor shall be responsible for monitoring stakes and for prompt replacement of broken or damaged stakes. Stakes shall be removed one year after installation.

2. Shrubs.

   a. All shrubs shall be balled and burlapped or in a container. All shrubs shall be planted in holes at least 300 millimeters greater in diameter than the spread of their rootballs. The depth of the holes shall be at least 150 millimeters greater than the rootball depth. Topsoil shall be made firm under the root spread by tamping. Topsoil shall be backfilled in layers of not over 225 millimeters in depth and each layer watered sufficiently to settle before the next layer is put in place. Enough topsoil shall be used to bring the surface to finish grade when settled. A slight "saucer," with a minimum of a 75 millimeter height, shall be formed around each shrub to hold additional water.

   b. All shrub planting areas shall be uniformly mulched with a minimum 75 millimeters compacted depth fine ground bark mulch.

3. Fertilizer Application. Newly planted trees and shrubs shall not be fertilized during the season they are planted.

4. Watering. Thoroughly water each plant immediately following planting. Under no condition shall plants not be watered in the same day as planting. Contractor shall follow the approved watering schedule and watering procedure throughout the duration of the

planting and the PEP of Contract and will assume full responsibility for plant failure as a direct result of not following the watering schedule.

5. Pruning and Repair. All plants shall be neatly pruned and/or clipped to remove dead or diseased limbs in a manner that preserves the natural character of the plants, and to the satisfaction of the Engineer. No plants shall be pruned or clipped prior to delivery except with the permission of the Engineer. Broken or badly bruised branches shall be removed with a clean cut. All pruning shall be done with sharp tools in accordance with standard nursery practice. All accidental damage to trees and shrubs occurring during the course of planting operations, which isn't so great as to necessitate removal of a branch or replacement of a plant, shall promptly be treated as required in accordance with recognized horticultural practices and the instructions of the Engineer.

6. Certified Arborist. Contractor shall retain the services of an arborist certified by the International Society of Arborculturists or American Association of Nurserymen whose experience and qualifications are acceptable to the Engineer. The arborist's resume shall be submitted at least 10 calendar days before delivery of plant material. The certified arborist shall inspect plants for health and vigor prior to installation, to assure the requirements of Section 621-2.01 for plant stock, including the materials are disease free, free of wounds, broken branches, double leaders, co-dominat trunks, or other defects. Plants that do not meet the standards will be rejected prior to installation. The certified arborist shall also be responsible for the following

   a. Inspect the tree planting process to assure that planting techniques meet the specifications of the Contract documents and match standard industry practices.

   b. Inspect the plantings after installation is complete to assure that they are ready to be accepted by the Engineer and ready for the maintenance schedule to begin.

   c. Inspect the plantings at least twice during the growing season each year during the Plant Establishment Period for any needed maintenance, such as watering, pruning, or removal of dead, dying, or untreatable diseased trees.

7. Maintenance.

   a. The Contractor shall prepare and submit a maintenance schedule to the Engineer 30 days prior to the acceptance inspection. The Engineer shall review and approve the maintenance schedule. The Contractor will assume the responsibility of maintenance including watering, fertilizing, spraying, weeding, cultivating, trimming, and repairing and protecting upon completion of planting and during the PEP.

   b. Maintenance will begin immediately after each item is planted and continue through the PEP. The Contractor shall:

1) Maintain plants in a healthy growing condition by watering, pruning, spraying, weeding and other necessary maintenance operations.
2) Inspect plants at least once a week and perform maintenance promptly as per the Engineer-approved schedule.

8. Inspection and Guarantee

The Contractor shall be responsible for resetting of any plants to an upright position or to proper grade, and for the removal and replacement of any dead plant material. An acceptance inspection for the planting phase shall be conducted at the completion of all planting. Upon completion of the acceptance inspection, the Contractor shall commence the PEP.

621-3.04 PERIOD OF ESTABLISHMENT. Furnish all labor, materials, equipment, supervision, traffic control, transportation and secure all necessary permits and licenses required to maintain the installed landscape in an attractive, healthy and growing condition for two (2) years. The Contractor shall supply a maintenance schedule approved by the Engineer, thirty (30) days prior to the acceptance inspection when all landscape items have been installed and approved. The plant establishment period applies to all planting beds, trees and shrubs.

1. Work Force. The Contractor shall have on his staff, supervisory personnel experienced in landscape maintenance, preferably with an education in Ornamental Horticulture. The Work Force is to be experienced and familiar with maintaining plant materials in sub-Arctic conditions.

2. Materials. All materials used shall conform to bid specifications. In the event a "restricted use" (dangerous) chemical is to be applied, appropriate permits and certification must be obtained by the Contractor from the State of Alaska, Department of Environmental Conservation and the Municipality of Anchorage. Proof of certification shall be transmitted to the Engineer prior to application of the above chemicals.

3. Repair and Replacement of Damaged Improvements. Plant repair shall occur after plant materials have been damaged, such as broken branches from ice, snow, wind, and equipment. Repair shall include pruning, treating wounds and guying and staking as necessary. Where the Engineer determines plants cannot be repaired they shall be replaced. The Contractor shall repair and replace dead or damaged improvements within 14 days of receiving written notice by the Engineer. No additional payment will be made unless the dead or damaged improvements were caused by a third party. Payment will be made at the unit price for the item replaced. When an improvement is repaired, payment will be the prorated portion repaired. Unit prices shall remain in effect during the entire PEP.

4. Watering. A proposed watering schedule shall be submitted to the Engineer thirty (30) days prior to final acceptance of plant materials. The Contractor shall deep water all trees and shrubs during the active growing season (rain will not be considered a substitute for deep watering unless permitted by the Engineer) to provide water

penetration throughout the root zone to depth of planting pits. Deep water shall be done at the following schedule:

Deep water all trees at least twice a week during the first 45 days of the PEP. If these 45 days extend past September 31, the deep watering is to cease on that date and resume on May 1.

Trees shall then be deep watered at least once a week through the end of the PEP.

Watering is not required between October 15 to May 1st during two-year PEP. All evergreen plants shall be deep watered just prior to freeze-up in order to minimize over-wintering desiccation.

If at any time during the two-year PEP weather conditions (such as extended period with no rain or continuous drying winds) cause plant root zone to dry out, the Engineer may direct the Contractor to deep water all trees. This supplemental watering is to be done immediately and at no additional cost to the Department.

Water applications shall be applied at a rate that will provide moisture penetration throughout the entire root ball with a minimum of run-off.

5. Pruning. Trees shall be pruned to select and develop permanent scaffold branches that are smaller in diameter than the trunk or branch to which they are attached; which have radial orientation so as to not overlay one another; to reduce toppling and wind damage by thinning out crowns; to maintain a natural appearance, or intended shape, and to balance the crown with the roots. Under no circumstances will stripping of lower branches ("raising up") of young trees be permitted. Lower branches shall be retained in a "tipped back" of pinched condition with as much foliage as possible to promote caliper trunk growth. The primary pruning of deciduous trees is to be done during the dormant season. Damaged trees or those that constitute health or safety hazards shall be pruned at any time of the year as required.

6. Fertilization. All necessary applications shall be completed prior to June 15 of the same year by the Contractor.

   a. Trees shall be fertilized in May of each year of the PEP. Fertilizer shall be placed by the broadcast method, or as recommended by the manufacturer. The application rate shall be 500 grams per 25 millimeter of caliper, using 8-32-16.

   b. Shrubs shall be fertilized in May of each year of the PEP. A complete fertilizer shall be broadcast at the minimum rate of 7.0 kilograms per 1000 square meters, using 8-32-16. Leaves of the plants should be dry at the time of application and the fertilizer shall be thoroughly watered into the ground to allow its penetration to the plants' root zone.

c. At the end of the period of establishment, the Contractor shall apply 8-32-16 fertilizer at the rate of 500 grams per 25 millimeter of caliper for each tree and at a rate of 2 kilograms per 90 square meters for planting beds.

d. The Contractor shall notify the Engineer in writing 48 hours prior to applying the fertilizer. The Contractor shall also furnish to the Engineer a schedule of time and location of fertilizer application.

7. Diseases and Pests. A State of Alaska approved pesticide or insecticide shall be applied as necessary to maintain plant materials in a healthy and growing condition and prevent moose damage. The Contractor shall apply for and receive a "permit to apply pesticide" from the State of Alaska, Department of Environmental Conservation and the Municipality of Anchorage. Copies of the permits shall be supplied to the Engineer.

   Protect coniferous trees during the winter from excessive desiccation. Apply, by spraying, an anti-desiccant or anti-defoliant in the fall of each year of the PEP.

8. Other Maintenance Requirements. The Contractor shall maintain the planting beds and grass areas in a weed-free condition. Weed removal shall be a routine maintenance activity. Weeds include grasses and other undesirable plants within planting beds.

9. Cleanup. The Contractor shall keep the project site clean and free of excess equipment, materials and rubbish incidental to his work at all times. Cleanup will be one of the conditions to be met prior to all phases of planting acceptance.

621-4.01 METHOD OF MEASUREMENT. The quantity to be paid for shall be the actual number of plants alive and healthy at the time of final inspection.

Topsoil for all tree and shrub areas shall be subsidiary to the cost of each individual tree or shrub and shall not be measured separately.

Water for maintenance will not be measured separately, but will be subsidiary.

Fine ground bark mulch applied to all tree and shrub areas shall be subsidiary to the cost of each individual tree or shrub and shall not be measured separately.

Plant establishment period will not be measured for payment, but will subsidiary.

621-5.01 BASIS OF PAYMENT. The accepted quantity above will be paid for at the contract price, per unit of measurement, for the pay items listed below and appearing in the bid schedule, including excavation, topsoil, backfill, mulch, staking, arborist review, fertilizing and disposal of all unsuitable and surplus material, complete in place. Payment for trees and shrubs will include payment for the two-year plant establishment period (PEP).

The accepted quantity of trees and shrubs planted will be paid for at 70% of the contract price, per unit of measurement, for the pay items when they are acceptably planted. Payment of the

remaining 30% of the contract price will be made in partial payment as follows: 40% will be made in two equal payments over the first year of the plant establishment period and the remaining 60% will be made in two equal payments over the second year of the plant establishment period. If damaged trees and shrubs are not repaired or replaced as required within 14 days of written notice, the Engineer may replace or have replaced the damaged items and deduct the cost of said repair or replacement work from the remaining payments. The cost of said repair or replacement work will be based on paid receipts plus 10% administrative markup. If trees and shrubs are not watered in accordance with the approved watering schedule, the Engineer may have the watering done and deduct the cost of the watering from the remaining payments. The cost of said watering will be based on paid receipts plus 10% administrative markup.

Payment will be made under:

Pay Item	Pay Unit
621 (1A) Tree (Saskatoon Amelanchier, 1220-1520 mm Height)	Each
621 (1B) Tree (Birch, 3048-3658mm Height)	Each
621 (1C) Tree (Colorado Spruce 1520-1829 Height)	Each
621 (1D) Tree (Quaking Aspen 3048-3658mm Height)	Each
621 (1E) Tree (Armur Chokecherry 3048-3658mm Height)	Each
621 (1F) Tree (European Mountain Ash 3048-3658mm Height)	Each
621 (2A) Shrub (Potentilla 381-457mm Height)	Each
621 (2B) Shrub (Alaska Spirea 381-457mm Height)	Each
621 (2C) Shrub (Rugosa Rose 381-457mm Height)	Each
621 (2D) Shrub (Raspberry 381-457mm Height)	Each
621 (2E) Shrub (Redtwig Dogwood 381-457mm Height)	Each
621 (2F) Shrub (Nootka Rose 381-457mm Height)	Each

SECTION 622

REST AREA FACILITIES

Special Provisions

622-1.01 DESCRIPTION. Add the following: This work shall also consist of the following site furnishings in conformance with the plans:

1. Steel benches
2. Litter Barrel
3. Steel interpretive sign frame and support
4. Trail entrance sign
5. Location Map
6. Location Map Pylon

MATERIALS

Add the following subsections:

622-2.13 STEEL BENCHES. Steel benches shall be model number RB-28, 1800 mm (6-foot) length with 13 mm x 50 mm (1/2" x 2") solid steel bar construction for legs and 6 mm x 38 mm (1/4" x 1-1/2") seat members, as manufactured by Victor Stanley Inc., and distributed by Division 10 Products, Anchorage, AK (907) 345-1633 or approved equal. Metal shall have an electrostatically applied dry powder coat finish; color RAL #4007. Approved equal shall be constructed of metal and powder coated with a matching color. Steel benches shall be placed on a concrete pad, to be 152 mm deep, 960 mm wide, and 2145 mm long. The concrete pad shall be flush with the asphalt pavement and installed with 152mm x 152mm No. 10/10 welded wire mesh. Expansion bolts shall be as recommended by the manufacturer.

622-2.14 LITTER BARRELS. Steel litter barrels shall be model number S-42 with 10 mm (3/8") solid steel bar construction, 121-liter (32-gallon) capacity, with S-2 spun steel dome, as manufactured by Victor Stanley Inc., and distributed by Wildwood Playgrounds, Portland, OR (800) 875-7529 or approved equal. Metal shall have an electrostatically applied dry powder coat finish; color BLACK. Approved equal shall be constructed of metal and powder coated with a matching color. Litter barrels shall be placed on a concrete pad flush with the asphalt pavement, to be 152 mm deep, and 610 mm square. The concrete pad shall be installed with 152mm x 152mm No. 10/10 welded wire mesh. All hardware and fasteners recommended by the manufacturer shall be furnished and installed for mounting the litter barrel onto the concrete pad.

622-2.15 STEEL INTERPRETIVE SIGN FRAME AND SUPPORTS. Steel interpretive sign frame and supports shall be as shown on plans. Frame size shall match dimension shown on plans. Steel shall conform to ASTM Specification A36, and shall be clean new stock, free from rust and pitting. Tube steel shall conform to ASTM A500. Steel shall have an electrostatically applied dry powder coat finish. See subsection 622-2.22 for finish requirements. The color shall be black.

622-2.16 TRAIL ENTRANCE SIGNS. Trail signs shall be 2 mm thick extruded aluminum alloy 6063-T5 in accordance with Fed. Spec. QQ-A-200/9. -Aluminum sign face finish shall be silk screen or decal finish. Sign colors, lettering and design shall be as per camera-ready copy furnished by Owner.

622-2.17 LOCATION MAPS FOR PYLON. Substrate for location signs shall be 0.080 aluminum, alloy 5058 H38, treated with chromate conversion coating conforming to ASTM B 449 as described in Section 730. Facing for location shall be premium cast vinyl, treated by the manufacturer for a minimum effective performance lifespan of 5 years in vertical exposure.

Lettering and artwork for location maps signs to be produced using one or more of the following methods deemed most suitable for crisp and efficient reproduction of original artwork:

f. Cut vinyl: computer-driven automated plotters, preferred method for all vector-based graphics and text over 19 mm in height.
g. Digital Printing: computer-driven digital imaging device used to fine-detail graphics and small text directly to premium cast vinyl substrate. To be rated by the manufacturer for a minimum performance lifespan of 5 years in vertical exposure.
h. Screen printing: image transfer to premium cast vinyl using vinyl specific inks and a 230 mesh screen (typical). Inks must adhere to premium cast vinyl substrate and be rated by the manufacturer for a minimum performance lifespan of 5 years in vertical exposure.

Digital files for location map signs (including all graphics and text) will be provided by the Department's Representative in Adobe Illustrator format (.ai).

622-2.20 LOCATION MAP PYLON. Pylons shall be rough sawn Structural Lumber, No. 2 Grade or Better, pressure treated for in-ground contact with active ingredient of minimum 9.617 kilograms per cubic meter alkaline copper quat treatment. Finish color shall be Russet Brown oil stain.

622-2.22 FINISH. Metal finishes shall comply with NAAMM Metal Finishes Manual for recommendations relative to application and designations of finishes.

Finish for interpretive sign frame shall be polyester powder coating, semi-gloss texture as available from Anchorage Custom Powder Coating, 6151 Burlwood Street, Anchorage, Alaska, 99507. Powder coating shall meet the following:

Powder Properties:

Specific Gravity	1.65
Coverage	58.55 Sq. Ft. /Lb. @ 2 mils
Particle Size	35-50 microns avg.
Storage	Below 80 degrees F., dry
Shelf Life	Minimum of 1 year
Cure Schedule	10 minutes @ 350 degrees F.

Cured Film Properties:

Test Method	Range	
Gloss @ 60 Degrees	D523	10% +/- 5%
Direct Impact	D2794	100 in. lbs.
Indirect Impact	D2794	100 in. lbs.
Pencil Hardness	D3363	2H
Cross Hatch Adhesion	D3359B	4B
Flexibility (Conical Mandrell)	D1737/D522	100%

Chemical and Corrosion Exposure Tests:

Salt Spray Resistance	1000 hours (ASTM Method B117) with <3 millimeter creep from scribe
Humidity Resistance	1000 hours (ASTM Method D2247) no loss of adhesion or blistering
Chemical Resistance	Good to excellent resistance to most solvents, oils, acids, and alkalies.
Overbake Resistance	Slight yellowing is evident, especially in white and pastel colors

Substrate of steel interpretive sign frame shall be treated with a minimum 5 stage process, using zinc phosphate, as recommended by the manufacturer.

All components shall be oven dried prior to the exterior color finish. Components shall have an electrostatically applied polyester dry powder coating and be oven cured at temperatures in excess of 350 degrees F and tested in accordance with ASTM B-117. Provide finish of 2 mils thickness in the dry state.

CONSTRUCTION REQUIREMENTS

622-3.01 GENERAL. Add the following: All site furnishing amenities as specified shall be located approximately as shown on the plans. Minor location adjustments to conform to existing topographic and construction conditions may be required. All locations and adjustments shall be approved by the Engineer.

Pre-assemble all site furnishings in shop to the greatest extent possible. Assemble items in accordance with the applicable manufacturer's standards and instructions. All fasteners and accessory items shall be as recommended by the manufacturer unless shown as otherwise on the drawings.

Install in accordance with the manufacturers recommendations, as shown on the plans, and as approved by the Engineer. Items shall fit properly, securely, square, plumb, level, sturdy, and in stable condition. Where items are to be imbedded, top of concrete footing shall be below bottom of paving level. Where items are installed on concrete pads, top of concrete pad shall be flush with paving.

622-4.01 METHOD OF MEASUREMENT. Add the following:

622(6A) Steel Interpretive Sign Frame and Support. Measured by each unit installed and accepted. Excavation, backfill, concrete footings, mounting hardware and incidental work required to complete work per the plans will not be measured for payment but will be subsidiary.

622(14) Litter Barrel. Measured by each unit installed and accepted. Excavation, backfill, concrete pad, mounting hardware and incidental work required to complete work per the plans will not be measured for payment but will be subsidiary.

622(15) Steel Bench. Measured by each unit installed and accepted. Excavation, backfill, concrete pad, mounting hardware and incidental work required to complete work per the plans will not be measured for payment but will be subsidiary.

622(19) Location Map Pylon. Measured by each unit installed and accepted. Excavation, backfill, mounting hardware and incidental work required to complete work per the plans will not be measured for payment but will be subsidiary.

Trail entrance signs and trail location maps will not be measured for payment but will be subsidiary to Item 622(19).

622-5.01 BASIS OF PAYMENT. Delete the first paragraph in its entirety and replace with the following: The accepted quantity above will be paid for at the contract price, per unit of measurement, for the pay items listed below and appearing in the bid schedule, including any excavation, backfill, and disposal of all unsuitable and surplus material, complete in place.

Trail entrance signs and trail location maps are subsidiary to item 622(19) Location Map Pylon and no separate payment shall be made.

Add the following pay items:

Pay Item	Pay Unit
622(6A) Steel Interpretive Sign Frame and Support	Each
622(14) Litter Barrel	Each
622(15) Steel Bench	Each
622(19) Location Map Pylon	Each

SECTION 625

PIPE HAND RAIL

Special Provisions

625-1.01 DESCRIPTION. Add the following: This work shall also consist of furnishing all new materials and erecting the following pipe hand rails and bollards in conformance with the plans:

"Pipe Hand Rail, Type B" shall consist of 762 mm height hand rail, with 73 mm diameter, horizontal, top, middle and bottom, steel pipe railings and 73 mm steel vertical posts. Steel shall have an electrostatically applied dry powder coat finish. See subsection 622-2.22 for finish requirements. The custom color shall be black.

"Pipe Hand Rail, Type C" shall consist of 1066 mm height hand rail, with 73 mm diameter, horizontal, top, middle and bottom, steel pipe railings and 73 mm steel vertical posts. Steel shall have an electrostatically applied dry powder coat finish. See subsection 622-2.22 for finish requirements. The custom color shall be black.

"Pipe Hand Rail, Type D" shall consist of 300 mm height hand rail, with 73 mm diameter steel pipe railings and 73 mm steel vertical posts installed in conjunction with the concrete barrier. Steel shall have an electrostatically applied dry powder coat finish. See subsection 622-2.22 for finish requirements. The custom color shall be black.

Bollards shall consist of:

a. Removable Steel Bollards shall be as shown on plans. Frame size shall match dimension shown on plans. Steel shall conform to ASTM Specification A36, and shall be clean new stock, free from rust and pitting. Tube steel shall conform to ASTM A500. Steel shall have an electrostatically applied dry powder coat finish. See subsection 622-2.22 for finish requirements. The custom color shall be RAL #4007.

b. Fixed wooden bollards shall be rough sawn Structural Lumber, No. 2 Grade or Better, pressure treated for in-ground contact with active ingredient of minimum 9.617 kilograms per cubic meter alkaline copper quat treatment. Finish color shall be Russet Brown oil stain.

625-3.01 CONSTRUCTION REQUIREMENTS. Add the following:

All hand rail posts shall be embedded in concrete as detailed.

All bollards shall be embedded in concrete, as detailed.

All steel shall be galvanized in accordance with AASHTO M 111 or M 232 after fabrication.

Add the following subsection:

625-3.02 REMOVABLE STEEL BOLLARDS. Install bollard base plates flush with top of paved trail. All bollards shall be set plumb, level and true to line. All welds shall be 5 mm fillet welds. Grind all edges smooth.

Padlocks for removable bollards shall be American Lock, WWE Series 3560 to be purchased from Action Locksmith, 243 W. 5th Avenue, Anchorage. Telephone: (907) 279-7050. Cores are to be keyed to Municipality of Anchorage cores matched to a 645 key. Installation of the cores must be authorized by Michael Swenson with MOA, phone 343-8270.

625-4.01 METHOD OF MEASUREMENT. Add the following:

Pipe Hand Rail, Type B. By the meter along the slope, from end to end of the hand rail, complete in place. Concrete foundations will not be measured for payment but will be subsidiary.

Pipe Hand Rail, Type C. By the meter along the slope, from end to end of the hand rail, complete in place. Concrete foundations will not be measured for payment but will be subsidiary.

Pipe Hand Rail, Type D. By the meter along the slope, from end to end of the hand rail, complete in place.

Removable Steel Bollard. Measured by each unit installed and accepted. Hardware, fittings, concrete foundations and steel reinforcement will not be measured for payment but will be subsidiary.

Fixed Wooden Bollard. Measured by each unit installed and accepted. Excavation, backfill, concrete footings, and incidental work required to complete work per the plans will not be measured for payment but will be subsidiary.

625-5.01 BASIS OF PAYMENT. Delete the first paragraph in its entirety and replace with the following: The accepted quantity above will be paid for at the contract price per unit of measurement, for the pay items listed below and appearing in the bid schedule.

Padlocks for removable bollards are subsidiary to Item 625(2) Removable Steel Bollard and no separate payment shall be made.

Add the following pay items:

Pay Item	Pay Unit
625(1B) Pipe Hand Rail, Type B	Meter
625(1C) Pipe Hand Rail, Type C	Meter
625(1D) Pipe Hand Rail, Type D	Meter
625(2) Removable Steel Bollard	Each
625(3) Fixed Wooden Bollard	Each

SECTION 627

WATER SYSTEM

627-1.01 DESCRIPTION. Add the following: This work shall consist of rerouting the existing water main beneath the tunnel structure, as shown on the plans.

For purposes of these Special Provisions, AWWU shall mean the Anchorage Water and Wastewater **Utility**, Engineering Division, phone (907) 564-2765. This work shall include the installation, testing, flushing, and chlorination or hand cleaning of water systems for acceptance by the Water Utility. **Governing Design Code/Reference for this work is 2004 AWWU Design and Construction Practices Manual.** The Contractor shall also provide as-builts in accordance with the conditions prescribed herein.

In conjunction with working around and/or adjusting the Water Utility water valves, the Contractor shall exercise due care. Prior to commencement of work by the Contractor, the Water Utility shall check and correct deficiencies, which may exist in any valve or valve box. The Engineer and Contractor shall witness the condition and location of each valve or valve box. Failure to participate in the inspection by the Contractor will result in his forfeiting all rights to deny damages at a later date during the course of the work. Notice that the Contractor is ready for the above inspection shall be made by phone contact to AWWU. AWWU contact is Brian Baus at (907) 564-2765. Notice shall be submitted giving at least three working days notice. The Contractor shall furnish a written copy of the notice to the Engineer.

It shall be the Contractors responsibility to protect and maintain all valves and valve boxes in an operable condition during all phases of construction. If at any time after the inspection as outlined above the Water Utility finds a valve or valve box damaged or rendered inoperable by the Contractor, the Contractor shall repair them at his own expense.

Arctic Insulated Ductile Iron Water Conduit shall consist of a three-component assembly as follows:

1. Carrier Pipe: 255 millimeters Ductile Iron Water Conduit Class 52

2. Insulation: Urethane Foam

3. Outer Jacket: 460 millimeters Corrugated Steel Pipe, 1.16 millimeters

The insulation and outer jacket shall extend to the ends of the carrier pipe less that length needed for couplings to adjoining conduit segments.

627-2.01 MATERIALS. Add the following:

7. Urethane Insulation - The concentric annular space between the carrier pipe and outer jacket shall be uniformly filled with formed in place, low density rigid closed cell urethane foam with a nominal thickness of 90 millimeters.

The urethane foam shall exhibit the following properties:

Property	ASTM Designation	Value
Max. K-factor	ASTM C177	18.7 W-mm hr-sm-"K
Core Density Range	ASTM D1622	40 - 55 kg/m5
Min. Compressive Strength	ASTM D1621	240 kPa
Min. Closed Cell Content	ASTM D2856	90 percent
Max. Water Absorption	ASTM D2842	2.4 Pa

Exposed urethane foam faces shall be coated with a flexible waterproof coating which is suitable for direct application over the foam without causing degradation.

8. Outer jacket shall meet the requirements specified for Corrugated Steel Pipe in Section 707.

CONSTRUCTION REQUIREMENTS

627-3.01 GENERAL. Add the following before the first paragraph: The Water Utility, through the Engineer, reserves the right to suspend the water system installation at any time that the Contractor fails to meet the requirements set forth herein until such time as the Contractor makes the necessary corrections. Suspensions of work will not entitle the Contractor to an extension of time for the completion of the project, and will not entitle him to extra payment for costs incurred.

The Contractor shall furnish to the Engineer complete installation drawings for the project prior to fabrication. All restrained joint areas shall be detailed to include fittings, piping and deflection points. The Contractor shall provide design calculations, prepared and sealed by a licensed professional engineer, registered in the State of Alaska, for all restrained joint areas to assure adequacy, ability to resist longitudinal forces and compliance with the Contract Documents.

If construction or excavation requires the removal of any existing privately owned facilities on the provided water easements, the Contractor shall be responsible for coordinating with the owner and for reestablishing lawns, driveways, parking lots, etc., at unit bid prices, where applicable. Any restorative work will be completed as soon as practicable after the installation, but in no case shall the period of time exceed 2 weeks.

Add the following to the third sentence of the third paragraph: "or so proper alignment and/or grade may be determined before the pipe sections are laid in the trench and backfilled."

Delete the fifth, sixth and seventh paragraphs and substitute the following: Prior to removing or disrupting service to fire hydrants, the Contractor shall contact the Anchorage Fire Department, Chief Dispatcher at 267-4950 and Deputy Fire Chief at 267-4935 at least 48 hours in advance of any construction.

The Contractor shall notify all affected property owners, the Engineer, the Anchorage Fire Department and the Water Utility 72 hours prior to interruption of the Water Utility's water service. Additionally, the Water Utility shall be notified 72 hours prior to an interruption of their water service. The Contractor shall provide temporary service to all those property owners with disrupted water service if the interruption exceeds 12 hours.

The Contractor may shut down the water supply for one 5-hour period to perform the final tie in to the existing system. The Contractor shall notify the Water Utility 30 days prior to the anticipated date of system shutdowns and again 72 hours prior to the exact date of shutdown. If, for any reason the system shutdown exceeds 5 hours, the Contractor shall provide for an alternate water supply to the Subdivision with sufficient pressure to provide fire protection flows throughout the Subdivision. If required, this work shall not entitle the Contractor to extra payment for the costs incurred.

The Contractor shall provide any necessary fittings, valves, temporary connections or appurtenances necessary in order to maintain the water distribution system. Any costs involved in service changeovers and providing temporary water service shall be subsidiary. The Contractor shall be responsible for all damages incidental to interruption of service that may be due to his operations.

Prior to water system installation, the Contractor shall submit to the Engineer a detailed plan for the installation of the new water systems and for removal/abandonment of existing water systems that are to be removed or abandoned for review prior to commencement of work. The plan shall be of sufficient detail to clearly indicate the proposed work sequence, schedules, and disruption of water service.

Add the following:

Disconnect Water Service. In the course of construction, the Contractor might encounter water service pipe requiring disconnection from mains. The Contractor shall disconnect the existing water services by excavating to the main at the locations noted on the plans, closing the corporation stop and installing a plug in the valve body after the house service is disconnected. This item of work shall include all materials, excavation, disconnection, backfill with native materials, and mechanical compaction for completed services in-place.

Rights In and Use of Materials Found on the Work Site. Unless specifically addressed otherwise in these special provisions, all existing water valves, tees, bends, and conduit (including ductile

iron pipe) removed but not reinstalled, and declared "salvageable materials" shall become the property of the Contractor.

Final Acceptance. The Contractor shall, upon completion of all work involved, notify the Engineer in writing of completion and request a pre-final inspection of the project. This inspection will be performed in the presence of the Engineer, the Water Utility, and the Contractor. Copies of a list of deficiencies, if any, indicated by this inspection will be furnished to the Contractor for remedial action. When all corrective action has been completed, the Contractor shall notify the Engineer, and an acceptance inspection will be performed.

627-3.02 INSTALLATION OF CONDUIT. Add the following to the second paragraph: However, at a sufficient distance prior to encountering a known obstacle or tying into an existing pipe, the Contractor shall expose and verify the exact location of the obstacle or pipe so proper alignment and/or grade may be determined before the pipe sections are laid in the trench and backfilled. The costs incurred for removal and realignment of backfilled conduit sections due to improper verification methods shall be borne by the Contractor.

Delete the eighth paragraph and substitute the following: Deflections from a straight line or grade, as required by vertical curves, horizontal curves, or offsets shall not exceed 80 percent (4 degrees) of the manufacturer's recommended maximum deflection. If the alignment requires deflection in excess of the above limitations, the Contractor shall furnish special bends to provide angular deflections within the limits allowable. Wherever possible, the Contractor shall achieve the desired deflection by taking advantage of reduced deflections over multiple joints. Shorter lengths of pipe, bevels, or fabricated specials shall form Short-radius curves and closures.

A maximum 60-millimeter deviation from design alignment and elevation will be allowed. Both line and grade shall be checked and recorded in a field book for each piece of conduit and appurtenance installed. All adjustments to line and grade shall be done by scraping away or filling the earth under the body of the pipe and not by blocking or wedging up.

The Contractor shall have survey instruments such as transit and level for transferring alignment and grades from offset hubs. He shall also have in his employ a person who is qualified to use such instruments and who shall have the responsibility of placing and maintaining such construction guides. The Contractor shall furnish to the Engineer a copy of the surveyor's record notes for the newly-installed conduit and appurtenances. The practice of placing backfill over a section of conduit to provide a platform for the instruments shall be subject to the approval of the Engineer.

Conduit that has the grade or joint disturbed after laying shall be taken up and relaid. Water shall be kept out of the trench until the jointing is completed.

Add the following:

Conduit Joints. Conduit that has the grade or joint disturbed after lying shall be taken up and re-laid. Water shall be kept out of the trench until the jointing is completed.

The Contractor has the option of using either mechanical or push-on joints for conduit installed in trenches, except in those areas where restrained joints are required. All joints shall conform to the requirements of AWWA C-600.

The Contractor will be required to use mechanical joints on all fire hydrant leads. The Engineer may check any or all mechanical joints to assure proper torque as specified by the manufacturer.

Two electrical continuity straps shall be installed on each side joint for pipes less than 305 millimeters in diameter. Straps are to be welded to a clean, dry surface. All welds and uncoated surfaces shall be coated with a coal tar pitch to the satisfaction of the Engineer.

Conduit Wrap. The outside of all ductile iron and cast iron pipe, fittings, valves and other appurtenances used in water line construction shall be encased with 1 layer of 8-mil thick polyethylene film. The polyethylene encasement shall be installed using any the following three methods:

Method A

1. Cut polyethylene tube to a length approximately 0.6 meters longer than the length of the pipe section. Slip the tube around the pipe, centering it to provide a 0.3 meter overlap on each adjacent pipe section and bunch it accordion-fashion lengthwise until it clears the pipe.

2. Lower the pipe into the trench and make up the pipe joint with the preceding section of pipe. A shallow bell hole must be made at the joints to facilitate installation of the polyethylene tube.

3. After assembling the pipe joint and testing the bonded joint, make the overlap of the polyethylene tube. Pull the bunched polyethylene from the preceding length of pipe, slip it over the end of the new length of pipe, and secure in place. Then slip the end of the polyethylene from the new pipe section over the end of the first wrap until it overlaps the joint at the end of the preceding length of pipe. Secure the overlap in place. Take up the slack width to make a snug, but not tight fit along the barrel of the pipe, securing the fold at quarter points.

4. Repair any rips, punctures, or other damage to the polyethylene with adhesive tape or with a short length of polyethylene tube cut open, wrapped around the pipe, and secured in place. Proceed with installation of the next section of pipe in the same manner.

Method B

1. Cut polyethylene tube to length approximately 0.3 meters than that of the pipe section. Slip the tube around the pipe, centering it to provide 150 millimeters of bare pipe at each end. Take up the slack width at the top of the pipe to make a snug, but not tight, fit along

the barrel of the pipe, securing the fold at quarter points; secure the ends as described in Method A.

2. Before making up a joint, slip a 1 meter length of polyethylene tube over the end of the preceding pipe section, bunching it accordion-fashion lengthwise. After completing the joint, pull the 1 meter length of polyethylene over the joint, overlapping the polyethylene previously installed on each adjacent section of pipe by at least 0.3 meter; make each end snug and secure as described in Method A.

3. Repair any rips, punctures, or other damage to the polyethylene with adhesive tape or with a short length of polyethylene tube cut open, wrapped around the pipe, and secured in place. Proceed with installation of the next section of pipe in the same manner.

Method C

1. Cut polyethylene sheet to a length approximately 0.6 meters longer than that of the pipe section. Center the cut length to provide a 0.3 meter overlap on each adjacent pipe section, bunching it until it clears the pipe ends. Wrap the polyethylene around the pipe so that it circumferentially overlaps the top quadrant of the pipe. Secure the cut edge of polyethylene sheet at intervals of approximately 1 meter.

2. Lower the wrapped pipe into the trench and make up the pipe joint with the preceding section of pipe. A shallow bell hole must be made at joints to facilitate installation of the polyethylene. After completing the joint, make the overlap and secure the ends as described in Method A.

3. Repair any rips, punctures, or other damage to the polyethylene with adhesive tape or with a short length of polyethylene tube cut open, wrapped around the pipe, and secured in place. Proceed with installation of the next section of pipe in the same manner.

Relocate Existing Water Main. Where an existing water main crosses the location of the proposed sanitary sewer at an elevation to interfere with the construction of the sewer, the water main shall be raised or lowered sufficiently to permit 18 inches minimum clearance from the sewer. The Contractor may employ either of the following methods for raising or lowering a water main. He may raise or lower lengths of the water main as necessary on either side of the proposed sewer to allow the main to pass under or over the sewer, providing the deflection at any joint does not exceed one-half of the pipe manufacturer's recommendations, or the water main may be raised or lowered using a pipe bends not to exceed 22 degrees. In special cases only, and when approved by the Engineer in advance, 45 degrees bends may be used. The method of lowering and materials to be used shall be approved by the Engineer prior to commencing work. The Contractor shall give 48 hours notice to the Engineer, prior to any planned water shut-off.

Water lines 50 millimeters in diameter and smaller shall not be construed as water mains. Any necessary lowering of water lines 50 millimeters and smaller shall be included under the conditions set forth in these Special Provisions for the moving and relocation of utilities occupying space within the area of construction. With the approval of the Engineer, the

Contractor may lower water lines 50 millimeters in diameter and smaller, but separate payment shall not be made for such lowering. The cost shall be included under Section 204 Structure Excavation for Conduits and Minor Structures.

627-3.04. VALVES. Add the following: Valves shall be installed where shown on the plans. Valves shall have the interiors cleaned of all foreign matter before installation. If the valve is at the end of the line, it shall be plugged prior to backfilling. The valve shall be inspected by the Water Utility's representative, in the open and closed positions to ascertain that all parts are in good working condition.

627-3.05. VALVE BOXES. Delete the first paragraph and substitute the following: Valve boxes shall be installed over the valves as shown on the plans, with base section centered over the operating nut of the valve and resting on well compacted backfill. Top section shall be so set as to allow equal movement above and below finished grade, final elevation to be 6 millimeters below finished grade of pavement unless otherwise directed. Top of base section shall be approximately on line with nut at top of valve stem, and the entire assembly shall be plumb.

Add the following after the second paragraph: In areas where running sand is encountered, provisions shall be made to restrict sand from entering the bottom section of the valve box.

The Contractor shall expose all valve boxes for pre-final and final inspection. After final inspection of the valves located in unpaved areas, sawdust shall be poured directly over the valve box lid and covered with gravel to facilitate location in the future.

627-3.06 TESTING WATER SYSTEM. Delete in its entirety and substitute the following: The Contractor shall notify the Engineer in writing 48 hours in advance (two working days) prior to any test. The Water Utility and the Engineer shall be present during all tests. Two hours notice in advance of the scheduled time shall be given to the Engineer if the test is to be postponed or cancelled.

1. Swabbing. All newly-laid water conduits, except the 760-millimeter line, shall be swabbed in accordance with ANSI/AWWA C651-99. A detailed plan for cleaning of the lines shall be submitted to the Engineer for review and approval prior to commencement of work.

   All flushing of newly-installed conduit shall be accomplished between the hours of 1:00 AM and 6:00 AM, unless otherwise authorized by the controlling Water Utility. Flushing shall be considered incidental to this work and no separate payment will be made.

2. Hydrostatic Testing. A hydrostatic test shall be conducted on all newly-constructed water conduit, fire hydrant leads and stub-outs after "open-bore" flushing in the presence of the Engineer and the Water Utility in accordance with the requirements of AWWA C-600 unless hereinafter modified. The Contractor may use a pressure test and if a pressure test fails the contractor may use a leakage test.

The Contractor shall furnish all necessary assistance, equipment, labor, materials and supplies (except the test pressure gauge) necessary to complete the test to the satisfaction of the Water Utility. The Contractor shall suitably valve off or plug the outlet to the existing or previously-tested water main at his expense, prior to making the required hydrostatic test.

Prior to testing, all air shall be expelled from the conduit. If permanent air vents are not located at all high points, the Contractor shall, at his expense, install corporation cocks at such points so the air can be expelled as the conduit is slowly filled with water.

Where any section is provided with poured-in-place concrete thrust blocks for fittings or hydrants, the hydrostatic test shall not be made until at least 7 days after installation of the thrust blocks unless otherwise approved by the Engineer.

No hydrostatic test section shall exceed 300 meters unless approved by the Water Utility in writing. All main line valves, fire hydrant auxiliary valves, fire hydrant main valves and plugs shall be tested. All intermediate valves within the section being tested will be fully closed and reopened as directed by the Engineer during the actual test. Only static pressure will be allowed on the opposite side of the end valves of the section being tested.

All hydrostatic testing will be performed through test copper. Use of fire hydrants and service connections for testing will not be allowed.

The hydrostatic pressure shall be a minimum of 1035 kPa, and the duration of each hydrostatic pressure test shall be 30 minutes. After the required test pressure has been reached, the pumping will be terminated. If the pressure remains constant for 30 minutes without the aid of a pump, that section of the conduit will not be subjected to any further hydrostatic tests.

If a hydrostatic pressure test fails on any section, the Contractor has the option to perform a leakage test on that section. The Water Utility will furnish the test gauge and measuring device, and the Contractor shall furnish all other necessary assistance, equipment, labor, material and supplies to conduct the test.

Leakage for a newly-installed conduit is determined by the following formula:

$$L=(0.0010)\frac{ND(P)^{.05}}{}$$

where: L = Allowable leakage in Liters per hour

N = Summation of mechanical and push-on joints in length of pipe tested

D = Diameter of conduit in millimeters

P = Test pressure in kiloPascals

The duration of each leakage test shall be 2 hours and during the test, the conduit shall be subjected to the constant test pressure as defined above. The test pump shall be valved to insure that constant test pressure is maintained throughout the test and all excess water will be returned to a storage tank. If the pressure decreases below the required test pressure during the 2 hour period, the preceding portion of that test shall be declared void.

Cracked or defective conduit, gaskets, mechanical joints, fittings, valves or hydrants discovered as a consequence of the hydrostatic tests shall be removed and replaced with sound material at the Contractor's expense. The test shall then be repeated until the results are satisfactory.

In the instance where connection is made to presently installed water conduit a new valve shall be installed on the connection. The Contractor shall suitably seal off the outlet leading to the presently installed conduit prior to making the field tests.

3. Continuity Tests. The Contractor shall perform electrical conductivity tests on all mains less than 305 millimeters in the presence of the Engineer and the Water Utility. The Contractor shall maintain a circuit of 600 amperes DC current for a period of 15 minutes. Return current shall be at least 90 percent of the input current. All equipment necessary to maintain the circuit shall be supplied by the Contractor.

All continuity tests will be through wires brought to the surface or through 20 millimeter, minimum, copper pipe connected to the main. The use of fire hydrants and valves, as substitutes for wires will not be accepted. All wires brought to the surface to complete the continuity test shall be removed to a depth of 0.6 meters below finished street grade upon completion of the tests.

627-3.08 AS-BUILT PLANS AND WORKING DRAWINGS. Add the following subsection: A complete and accurately dimensioned record of all deviations, deletions, additions and alterations from and to the contract plans and specifications shall be maintained by the Contractor to indicate the work as actually installed. This as-built information shall be recorded

on a print of the plans affected and on the applicable pages of the specifications with supplementary notes. This record set of plans and specifications shall be kept by the Contractor showing record conditions of all conduit and appurtenances installed. Conduit and appurtenances shall be referenced by stationing, showing design line and grade, and as-built line and grade.

When each water system is completed, the Contractor shall certify the accuracy of the construction survey notes and of each revision on the plans and in the specifications by written signature endorsement, and deliver them to the Engineer prior to final acceptance of the system by the Water Utility. As-built mylar drawings shall be delivered to AWWU after construction is complete.

627-4.01 METHOD OF MEASUREMENT. Delete subparagraphs 1 and 5 in their entirety and substitute the following:

1. Water Conduit. Measurement for water conduit with appurtenances will be per meter of horizontal distance of the various sizes and classes furnished and installed as set forth in the Bid Schedule. Measurement will be from station to station as staked in the field and as shown on the plans, except where the grade exceeds 25 percent, in which case measurement will be by actual conduit length. Fittings, tees, reducers, crosses, bends, couplings, etc., for water conduit shall be included in the meter cost of the water main.

5. Valves, Valve Boxes and Markers. The quantity to be paid will be the actual number of valves, including boxes and marker posts, of each class and size furnished, installed, and accepted.

Add the following:

6. Arctic Insulated Ductile Iron Pipe Water Conduit. The quantity to be paid will be per linear foot along the length of conduit from center to center of adjoining fittings.

627-5.01 BASIS OF PAYMENT. Delete the second paragraph and add the following: The unit bid prices will include all necessary excavation to plan grade, and backfill of native materials outside the normal lines of the roadway structural section. Any excavation of unsuitable material below plan grade shall be paid under Item 203(3) Unclassified Excavation. Backfill to replace unsuitable material will be paid in accordance with Section 203.

Add the following pay items:

Pay Item	Pay Unit
627(11) 300 millimeter Arctic Insulated, Ductile Iron Water Conduit, Class 52	Meter

(2/9/95)R56M

Add the following Section:

SECTION 634

GEOGRID FOR BASE REINFORCEMENT

634-1.01 DESCRIPTION.
Furnish and install integrally formed biaxial geogrid at locations shown on the Plans.

634-2.01 MATERIALS.
Geogrid to be Tensar Biaxial Geogrid BX1100 or equivalent as approved by the Engineer.

CONSTRUCTION REQUIREMENTS

634-3.01 CONSTRUCTION.
Manufacturers specifications for installation and construction shall be followed.

634-3.02 WEATHER LIMITATIONS. Do not expose geogrid to the elements for longer than 14 days after removal of protective covering.

634-3.03 SURFACE PREPARATION.

1. Soft Ground (CBR 1-3). Prepare surface by removal of stumps, brush, boulders, and sharp objects. Fill holes and large ruts with material shown on the Plans or as approved.

2. Firm Ground (CBR >3). Compact and finish subgrade or subbase prior to placement of the geogrid.

634-3.04 GEOGRID PLACEMENT. Unroll geogrid directly onto the prepared surface.

1. Soft Ground. Overlap geogrid panels a minimum of 600 millimeters at all joints, in the direction that fill will be placed. Tie panels together securely with cable ties or hog rings at 6 meter intervals.

2. Firm Ground. Overlap geogrid panels at all joints a minimum of 300 millimeters, in the direction that fill will be placed. Tie panels together securely with manufacturer-recommended pins or bars. Hand-tension geogrid and stake to the ground at the edges, overlaps, and in the center of each roll, at 9 meter intervals.

634-3.05 PLACING AND SPREADING COVER MATERIAL. Do not operate equipment on the unprotected geogrid. Spread fill material in the direction of the fabric overlap.

1. Soft Ground. Back dump material onto the geogrid. Spread material ahead with a low ground pressure dozer to the depth permitted.

2. Firm Ground. Maintain a minimum depth of 6 inches of cover material at all times between the fabric and the wheels or tracks of the construction equipment.

Compact using a smooth drum roller. Do not allow construction equipment to make sudden stops, starts, or turns on the cover material.

634-3.06 GEOGRID REPAIR. Overlay torn area with geogrid with a minimum 1 meter overlap around the edges of the torn area and secure as recommended by the geogrid manufacturer.

634-4.01 METHOD OF MEASUREMENT.
Measurement will be by the square meter of ground surface acceptably covered by geogrid as shown on the Plans or as approved. Overlapping of geogrid will be subsidiary.

634-5.01 BASIS OF PAYMENT. Add the following pay item:

Pay Item	Pay Unit
634(1) Geogrid, Base Reinforcement	Square Meter

SECTION 635

INSULATION BOARD

Special Provisions

639-2.01 MATERIALS.
Insulation Boards. Delete last sentence in this paragraph and substitute the following: Minimum R-Value shall be 5.0 per 25 mm thickness.

639-4.01 METHOD OF MEASUREMENT. Delete this subsection in its entirety and substitute the following: By the square meter of insulation board in its final position, including transition, regardless of thickness or number of layers, complete and accepted.

Sand blanket material is subsidiary.

639-5.01 BASIS OF PAYMENT. Add the following pay item:

Pay Item	Pay Unit
635(2) Insulation Board	Square Meter

Delete this Section in its entirety and substitute the following:

SECTION 639

DRIVEWAYS

Special Provisions

639-1.01 DESCRIPTION. Construct approaches 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 approaches to the dimensions shown on the Plans.

639-4.01 METHOD OF MEASUREMENT. By the number of approaches constructed as shown on the Plans or as directed. Pavement 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 approaches shall be full compensation for furnishing equipment and labor necessary to complete the work as specified.

Materials required to construct 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)R58M98

Add the following pay item:

Pay Item	Pay Unit
639(6) Approach	Each

SECTION 640

MOBILIZATION AND DEMOBILIZATION

Standard Modification

640-2.01 METHOD OF MEASUREMENT. Delete items 3. and 4. and substitute the following:

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

(06/25/99)M77

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

SECTION 641

EROSION, SEDIMENT, AND POLLUTION CONTROL

Standard Modification

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

641-1.02 DEFINITIONS.

1. BMP (Best Management Practices). A wide range of project management practices, schedules, activities, or prohibition of practices, that when used alone or in combination, prevent or reduce erosion, sedimentation, and/or pollution of adjacent water bodies and wetlands. BMPs include temporary or permanent structural and nonstructural devices and practices. The Department describes common BMPs in its *Alaska Storm Water Pollution Prevention Plan Guide, January 14, 2005.*

2. ESCP (Erosion and Sediment Control Plan). The general plan for control of project related erosion and sedimentation. The ESCP normally consists of a general narrative and a map or site plan. It is developed by the Department and included in the project plans and specifications. It serves as a resource for bid estimation and a framework from which the Contractor develops the project SWPPP. The ESCP has been included in Appendix B.

3. Final Stabilization. A point in time when all ground disturbing activities are complete and permanent erosion and sediment controls are established and functional. The stabilized site is protected from erosive forces of raindrop impact and water flow. Typically, all unpaved areas except graveled shoulders, crushed aggregate base course, or other areas not covered by permanent structures are protected by either a uniform blanket of perennial vegetation (at least 70 percent cover density) or equivalent permanent stabilization measures such as riprap, gabions, or geotextiles.

4. HMCP (Hazardous Material Control Plan). The Contractor's detailed plan for prevention of pollution that stems from the use, containment, cleanup, and disposal of hazardous material, including petroleum products generated by construction activities and equipment.

5. NOI. Notice of Intent to commence ground-disturbing activities under the NPDES General Permit. Use EPA Form 3510-9 (Revised 6/03).

6. NOT. Notice of Termination of coverage under the NPDES General Permit. Use EPA Form 3510-13 (Revised 6/03).

7. NPDES General Permit. The Storm Water General Permit for Large and Small Construction Activities, issued by the Environmental Protection Agency (EPA) under the National

Pollutant Discharge Elimination System (NPDES). It requires an approved SWPPP and NOIs listed as active status by the EPA prior to ground disturbing activities for the project.

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

9. SWPPP (Storm Water Pollution Prevention Plan). The Contractor's plan for erosion and sediment control and storm water management under the NPDES General Permit. The SWPPP is developed by the Contractor and describes site specific controls and management of issues identified for the project. The approved SWPPP must contain a copy of the Contractor's signed NOI.

641-1.03 SUBMITTALS. For projects that disturb 0.4 hectares or more of ground submit three copies each of the SWPPP and HMCP to the Engineer for approval. Submit one copy of the SPCC Plan (if required under subsection 641-2.03) to the Engineer. Sign submittals. Deliver these documents to the Engineer no less than 5 calendar days before the preconstruction conference.

The Department will review the SWPPP and HMCP submittals within 14 calendar days. Submittals will be returned as either requiring modification unless approved by the Department. Besides a copy of the Contractor's NOI, the approved SWPPP must contain a certification and be signed by an authorized representative according to the Standard Permit Conditions of the NPDES General Permit Part 8, Appendix G. Written notification from the Department that the SWPPP has been approved before submitting the original NOI to EPA. NOIs can be submitted by Certified mail or through EPA's electronic NOI system (eNOI).

For regular U.S. Mail delivery:

EPA Storm Water Notice Processing Center
Mail Code 4203M
U.S. EPA
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

For Overnight/Express mail delivery:

EPA Storm Water Notice Processing Center
Room 7420
U.S. EPA
1201 Constitutional Avenue, NW
Washington, D.C. 20004

For electronic mail, the Contractor must register online with EPA at: *http://cfpub.epa.gov/npdes/stormwater/enoi.cfm*. This website has instructions and guidance on how to set up and use the eNOI system.

Whether submitting the NOI electronically or by mail, do not begin ground disturbing activities until the Engineer has issued a written statement that the EPA has listed the Contractor's NOI and the Department's NOI as active.

The Department will submit the approved SWPPP to ADEC that will include both the Contractor and Department NOIs.

The active status NOIs, approved SWPPP, approved HMCP, and submitted SPCC Plan (when required) become the basis of the work required for the project's erosion, sediment, and pollution control.

Once the Department has determined the site has achieved final stabilization, the Engineer will provide written notification that the NOT may be submitted to EPA with a copy to the Engineer. The Department will transmit the Department's NOT to the EPA.

641-2.01 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS. For projects that disturb 0.4 hectares or more of ground, prepare a Storm Water Pollution Prevention Plan. Use the Department's ESCP to develop a SWPPP based on scheduling, equipment, and use of alternative BMPs. Follow the format presented in the *Alaska Storm Water Pollution Prevention Plan Guide, January 14, 2005.* The plan must consider first preventing erosion, then minimizing erosion, and finally trapping sediment before it enters waterways.

The plan must address site specific controls and management plan for the construction site as well as for material sites, waste disposal sites, haul roads, and other affected areas, public or private. The plan must also incorporate the requirements of the project permits.

Specify the line of authority and designate field representative for implementing SWPPP compliance. Designate one representative for each subcontractor performing earth disturbing activities or who install and maintain erosion and sediment control measures.

641-2.02 HAZARDOUS MATERIAL CONTROL PLAN (HMCP) REQUIREMENTS. Prepare a HMCP for the handling, storage, cleanup, and disposal of petroleum products and other hazardous substances. (See 40 CFR 117 and 302 for listing of hazardous materials.)

List and give the location of hazardous materials, including office materials, to be used and/or stored on site, and their estimated quantities. Detail plans for storing these materials as well as disposing of waste petroleum products and other hazardous materials generated by the project.

Identify the locations where storage, fueling, and maintenance activities will take place, describe the maintenance activities, and list controls to prevent the accidental spillage of oil, petroleum products, and other hazardous materials.

Detail procedures for containment and cleanup of hazardous substances, including a list of the types and quantities of equipment and materials available on site to be used.

Detail plans for the prevention, containment, cleanup, and disposal of soil and water contaminated by accidental spills. Detail plans for dealing with unexpected contaminated soil and water encountered during construction.

Specify the line of authority and designate field representative for spill response and one representative for each subcontractor.

641-2.03 SPILL PREVENTION, CONTROL AND COUNTERMEASURE (SPCC) PLAN REQUIREMENTS. Prepare and implement a SPCC Plan that is certified by a licensed Professional Engineer, when required by 40 CFR 112, including:

1. When oil spills may reach navigable waters; and
2. Total above ground oil storage capacity is greater than 4,996 liters.

Comply with 40 CFR 112 and address the following issues in the SPCC Plan:

1. Operating procedures that prevent oil spills;
2. Control measures installed to prevent a spill from reaching navigable waters; and
3. Countermeasures to contain, clean up, and mitigate the effects of an oil spill.

641-3.01 CONSTRUCTION REQUIREMENTS. Do not begin ground disturbing work until the Engineer provides written notice that both the Contractor and the Department's NOIs have been listed as active and that ground disturbing work can begin.

Post at the construction site:

1. NPDES Permit number, if available, and a copy of the NOI,
2. Name and phone number of the local contact person, and
3. Location of a SWPPP available for viewing by the public.

Comply with requirements of the approved HMCP, the submitted SPCC Plan, and state and federal regulations that pertain to the handling, storage, cleanup, and disposal of petroleum products or other hazardous substances. Contain, clean up, and dispose of discharges of petroleum products and/or other materials hazardous to the land, air, water, and organic life forms. Perform fueling operations in a safe and environmentally responsible manner. Comply with the requirements of 18 AAC 75 and AS 46, Oil and Hazardous Substances Pollution Control. Report oil spills as required by federal, state and local law, and as described in the SPCC Plan.

Comply with requirements of the NPDES General Permit, implement temporary and permanent erosion and sediment control measures identified in the SWPPP, and ensure the SWPPP remains current. Maintain temporary and permanent erosion and sediment control measures in effective operating condition.

Perform inspections and prepare inspection reports in compliance with the project SWPPP and the NPDES General Permit.

1. Joint Inspections. Before starting construction, conduct a joint on site inspection with the Engineer and the Contractor's field representative to discuss the implementation of the SWPPP.

   Conduct the following additional joint on site inspections with the Engineer:

   a. During construction, inspect the following at least once every 7 days and within 24 hours of the end of a storm exceeding 12.5 mm in 24 hours (as recorded at or near the project site):
      (1) Disturbed areas that have not been finally stabilized.

(2) Areas used for storage of erodible materials that are exposed to precipitation.
(3) Sediment and erosion control measures.
(4) Locations where vehicles enter or exit the site.

b. Before winter shutdown, to ensure that the site has been adequately stabilized and devices are functional.

c. At project completion, to ensure final stabilization of the project.

2. Winter Inspections. During winter shutdown, conduct inspections at least once every month and within 24 hours of a storm resulting in rainfall of 12.5 mm or greater. The Engineer may waive monthly inspection requirements until one month before thawing conditions are expected to result in a discharge, if all of the following requirements are met:
   a. Below freezing conditions are anticipated to continue for more than one month.
   b. Land disturbance activities have been suspended.
   c. The beginning and ending dates of the waiver period are documented in the SWPPP.

3. Inspection Reports. Prepare and submit, within 3 working days of each inspection, a report on state Form 25D-100, with the following information:
   a. A summary of the scope of the inspection.
   b. Name(s) of personnel making the inspection.
   c. The date of the inspection.
   d. Observations relating to the implementation of the SWPPP.
   e. Any actions taken as the result of the inspection.
   f. Incidents of non-compliance.

   Where a report does not identify incidents of non compliance, certify that the facility is in compliance with the SWPPP and NPDES General Permit. The Contractor and the Engineer will sign the report according to the Standard Permit Conditions of the NPDES General Permit, Part 8, Appendix G. Include reports as an appendix to the SWPPP.

   Retain copies of the SWPPP and other records required by the NPDES General Permit, for at least 3 years from the date of final stabilization.

   If unanticipated or emergency conditions threaten water quality, take immediate suitable action to preclude erosion and pollution.

   Submit amendments to the SWPPP to correct problems identified as a result of any:
   1. Storm or other circumstance that threatens water quality, and
   2. Inspection that identifies existing or potential problems.

Submit SWPPP amendments to the Engineer within seven days following the storm or inspection. Detail additional emergency measures required and taken, to include additional or

modified measures. If modifications to existing measures are necessary, complete implementation within seven days.

Stabilize areas disturbed after the seeding deadline within seven days of the temporary or permanent cessation of ground disturbing activities.

Submit a signed NOT to EPA and a copy to the Engineer:

1. When the Engineer has acknowledged in written form that the project site (including material sources, disposal sites, etc.) has been finally stabilized and storm water discharges from construction activities authorized by this permit have ceased, or

2. When the construction activity operator (as defined in the NPDES General Permit) has changed and the Engineer provides written notification that the Contractor's responsibilities with respect to compliance with the NPDES GP on the project have ceased.

If coordination of temporary or permanent stabilization measures with the earthwork operations fails to effectively control erosion and prevent water pollution, the Engineer may suspend earthwork operations and withhold monies due on current estimates for earthwork items until aspects of the work are coordinated in a satisfactory manner.

If the following is not completed:
1. Work required by the approved SWPPP,
2. Respond to inspection recommendations and/or deficiencies in the SWPPP, or
3. Implementation of erosion and sedimentation controls identified by the Engineer, the Engineer may, after giving written notice, proceed to perform such work and deduct the cost thereof, including project engineering costs, from progress payments.

641-4.01 METHOD OF MEASUREMENT. Section 109 and as follows:

Items 641(2) and (4) will be measured as specified in the Contract or directive authorizing the work.

641-5.01 BASIS OF PAYMENT. The Bid Schedule will include either Items 641(1) and (2) or Items 641(1), (3), and (4).

1. Item 641(1) Erosion and Pollution Control Administration. At the contract lump sum price for administration of work under this Section. Includes, but is not limited to, plan preparation, plan amendments and updates, inspections, monitoring, reporting, and record keeping.

2. Item 641(2) Temporary Erosion and Pollution Control. At the prices specified in the contract to install and maintain temporary erosion, sedimentation, and pollution control measures.

3. Item 641(3) Temporary Erosion and Pollution Control. At the lump sum price shown on the bid schedule to install and maintain temporary erosion, sedimentation, and pollution control measures under the original approved SWPPP and HMCP.

4. Item 641(4) Temporary Erosion and Pollution Control Amendments. At the prices specified in the directive for extra, additional, or unanticipated work to install and maintain temporary erosion, sedimentation, and pollution control measures. Work paid under this item will be shown as amendments to the original approved SWPPP or HMCP.

Temporary erosion and pollution control measures that are required at Contractor furnished sites are subsidiary.

Perform temporary erosion and pollution control measures that are required due to negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or ordered by the Engineer, or for the Contractor's convenience, at the Contractor's expense.

Permanent erosion and pollution control measures will be measured and paid for under other contract items, when shown on the bid schedule. (02/19/04)M111

Payment will be made under:

Pay Item	Pay Unit
641(1) Erosion and Pollution Control Administration	Lump Sum
641(2) Temporary Erosion and Pollution Control	Contingent Sum

SECTION 642

CONSTRUCTION SURVEYING AND MONUMENTS

Special Provisions

642-3.01 GENERAL. Delete the seventh paragraph. (3/31/00)R252M98

Delete item number 10 after the heading "Perform the following:" and substitute the following:

10. Necessary cross sections at retaining wall locations. Cross section data shall be taken at 7.5 meter intervals and given to the Engineer 10 days prior to ordering retaining wall materials. At that time, the Engineer will verify the plan quantity and make any necessary adjustments to the wall size, design or configuration.

11. All other surveying and staking necessary to complete the project. (5/8/00)R255M98

Add the following after item 10: Prior to any work on the project, stake and reference the construction centerline. Reference the existing centerline at 30 meters on tangents, and 15-meter intervals on curves from the beginning and ending of superelevation changes when the roadway is no longer at normal crown. Also stake the beginning and ending of tapers of the edge of pavement. The reference stake shall be a minimum of 25-mm by 50-mm by 0.6 meters and be offset 1.2 to 2.4 meters from the shoulder on the right side of the roadway. They shall show the offset distance to centerline and the station from the beginning of the project. Ensure the stakes are visible from the roadway by clearing as necessary. Maintain staking until the final roadway striping is completed.

Install a reference sign every 150 meters. These reference signs shall meet the following requirements:

1. mounted a minimum of 1.5 meters above the shoulder,

2. located a minimum of 3 meters from the edge of shoulder,

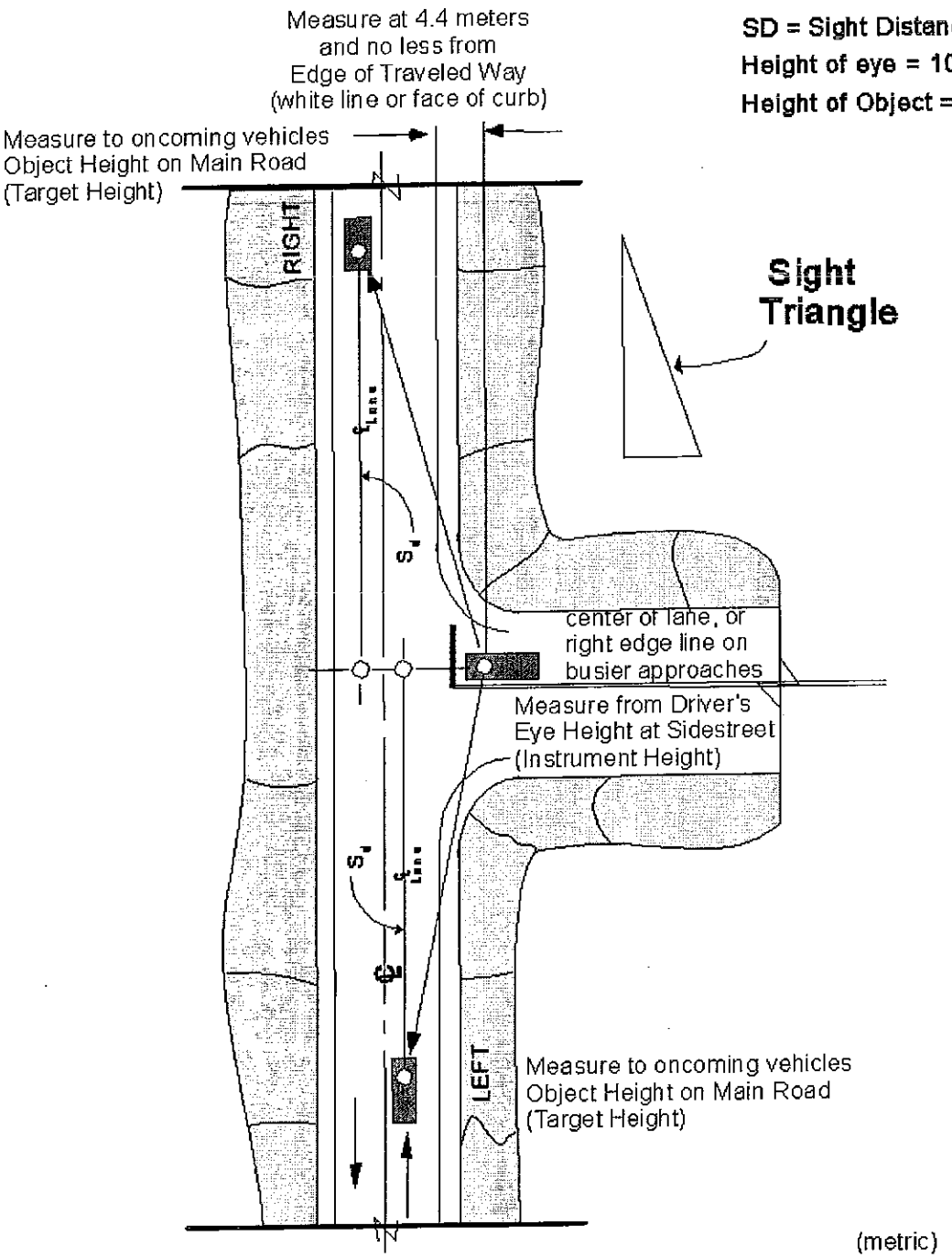
3. marked with the station from the beginning of the project, in 6 inch high black lettering on an orange background.

Compute design centerline profile to best fit the existing centerline profile and exiting guardrail requirements detailed in Subsection 606-3.11. Prepare existing top of pavement cross-sections for horizontal curves and transitions with design superelevated pavement plotted on each section. The Engineer may require adjustments to the roadway grades. This shall not be considered extra work. Provide this profile information to the Engineer (electronically in Excel format) immediately upon its completion, along with checked computations on all level loops, but in no case later than seven (7) calendar days before slope staking or blue topping.

642-3.01 GENERAL. Add the following items after item 10:

11. Measure and document the actual intersection sight distance triangles at all public intersections and driveways. Measure this after all paving, guardrail, and other work affecting intersection sight distance has been completed. List the actual sight distance available up to 195 meters. Note locations with greater than 195 meters of sight distance as "195'+". Measure sight distance triangles as shown in the following figure by setting up an instrument at the driver's eye location. Provide the results in a table format as shown. Include remarks in a "notes" column, relating any minor obstacles or observations which may assist in improving sight distance. Certify and record the results on standard "letter" sized paper and provide two copies to the Engineer at least two (2) weeks prior to submitting shop drawings for permanent signing. The Engineer will forward one (1) copy to the Regional Traffic Engineer. The Regional Traffic Engineer's office will take up to two (2) weeks to review and require any additional warning signs for intersections or driveways as needed. (02/18/04)R269M98

INTERSECTION SIGHT DISTANCE SURVEYING



Intersection Sight Distance Survey Table

ROAD NAME:_____
Stationing FROM:_____ DATE:_____
TO:_____ Surveyor:_____

Public Approach or Estimated Driveway Station	Posted Speed Limit (Main Rd)	Sight Distance Back (Left)	Sight Distance Ahead (Right)	Remarks

Other Notes:

1.
2.
3.

Accepted By: _____ Date: _____
DOT/PF Project Engineer

Intersection Warning Signing
Review Checked By:_____ Date: _____
DOT/PF Regional Traffic Engineer

Special Provisions

642-3.02 CROSS-SECTION SURVEYS Under the heading "The following shall be required of the Contractor:," delete item 1, and substitute the following:

1. Field Books (level, Cross-Section, Slope Stake, etc.). Hardbound "Rite-in-the-Rain" or similar weather resistant books. Field books become the property of the Department upon completion of the work.

(3/31/00)R252M98

642-3.03 MONUMENTS. Delete the second sentence of the first paragraph and substitute the following: Reference property markers/corners, monuments or accessories which may be disturbed or buried during construction. Prepare and record Monument Record Forms in the appropriate Recorder's Office before disturbing monuments. Monument Record Forms may be obtained from the Engineer. Reestablish monuments in their original position before the completion of the Project. Then, prepare and file a Monument Record Form for each reestablished monument.

642-4.01 METHOD OF MEASUREMENT. Add the following: Clearing required for stake visibility shall not be measured. Maintenance of stakes will not be measured.

Item 642(15) Intersection Sight Distance Measurement. By each intersection measured, only after the certified and recorded results have been accepted by the Engineer.

642-5.01 BASIS OF PAYMENT. Add the following after the first paragraph: Where the bid item for Reference Existing Monument does not appear in the bid schedule, work necessary to reference existing monuments and prepare and file Monument Record Forms is subsidiary to Item 642(1), Construction Surveying. Five (5) percent of the contract lump sum bid price for Item 642(1) will be withheld until the Monument Record Forms are prepared and recorded in the local Recorder's Office. Where the bid item for Reference Existing Monument does appear in the bid schedule, work associated with preparing and recording the Monument Record Forms is subsidiary to Item 642(9), Reference Existing Monument. Payment of Item 642(9) will not be processed until the Monument Record Forms are prepared and recorded in the local Recorder's Office.

Clearing required for stake visibility is subsidiary to Item 642(1) and no separate payment shall be made. (02/18/04)R269M98

Add the following pay item:

Pay Item	Pay Unit
642(15) Intersection Sight Distance Measurement	Each

SECTION 643

TRAFFIC MAINTENANCE

Special Provisions

643-1.03 TRAFFIC CONTROL PLAN. Replace the last paragraph with the following: You may request a waiver of regulation 17 AAC 25 regarding oversize and overweight vehicle movements within this project in writing. If the waiver is approved, all movements of oversize and overweight vehicles in or near traffic within the project limits will be done in accordance with the provisions of an approved Traffic Control Plan. Maintain a minimum 3.6 meter lateral separation between the non street legal vehicles and the motoring public. The Traffic Control plan shall specify the traffic control devices required for these operations. (07/02/03)R222M98

Standard Modifications

643–1.04 WORKSITE TRAFFIC SUPERVISOR. Item 1. Qualifications, delete the last paragraph and replace it with the following:

Renew certification no less frequently than every 4 years, and be able to show their certification anytime they are on the project.

Delete Item 2.b. and replace it with the following:
b. Physically inspect the condition and position of all traffic control devices used on the project at least once each day and once each night. Ensure that traffic control devices work properly, are clean and visible, and conform to the approved TCP. Complete and sign a detailed written report of each inspection on the form provided by the Engineer within 24 hours.

Delete item 2.h. and replace it with the following:

h. Certify that all flaggers are certified as required by Subsection 643-3.04.4. Submit a copy of all flagger certifications to the Engineer. (07/03/03)M108

643-2.01 MATERIALS. *Delete this Subsection in its entirety and substitute the following:* Provide traffic control devices conforming to the following requirements:

1. Signs. Use signs, including sign supports, that conform to Section 615, the ATM and ASDS.

    a. Construction Signs: Use regulatory, guide, or construction warning signs designated in the ASDS.

    b. Permanent Construction Signs: As designated on the Plans or on an approved TCP.

c. Special Construction Signs: All other signs are Special Construction Signs. Clearly and neatly mark the size of each sign on the back in 75-mm black numerals.

2. Portable Sign Supports. Use wind-resistant sign supports with no external ballasting. Use sign supports that can vertically support a 1.2 m X 1.2 m traffic control sign at the height above the adjacent roadway surface required by the ATM.

3. Barricades and Vertical Panels. Use barricades and vertical panel supports that conform to the ATM. Use Type III Barricades at least 2.4 m long. Use reflective sheeting that meets AASHTO M 268 Type II or III.

4. Portable Concrete Barriers. Use portable concrete barriers that conform to the Plans. For each direction of traffic, equip barriers with at least two side-mounted retroreflective reflectors or a continuous longitudinal stripe of preformed retroreflective pavement marking tape mounted 150 mm below the top of each barrier section. Use yellow reflectors or tape if you use barriers at centerline. Use white reflectors or tape if you use barriers on the roadway shoulder.

5. Warning Lights. Use Type A (low intensity flashing), Type B (high intensity flashing) or Type C (steady burn) warning lights that conform to the ATM.

6. Drums. Use plastic drums that conform to the requirements of the ATM. Use reflective sheeting that meets AASHTO M 268 Type II or III.

7. Traffic Cones and Tubular Markers. Use reflectorized traffic cones and tubular markers that conform to the requirements of the ATM. Use traffic cones and tubular markers at least 710 mm high. Use reflective sheeting that meets AASHTO M 268 Type II or III.

8. Interim Pavement Markings. Apply markings according to Section 670 and the manufacturer's recommendations. Use either:

   a. Paint conforming to Subsection 708-2.03 with glass beads conforming to Subsection 712-2.08,

   b. Preformed marking tape (removable or non-removable) conforming to Subsection 712-2.14, or

   c. Temporary raised pavement markers conforming to Subsection 712-2.15 or 712-2.16, as appropriate.

9. High-Level Warning Devices. Use high-level warning devices that conform to the ATM.

10. Temporary Crash Cushions. Use approved temporary crash cushions conforming to the ATM. Use reflective sheeting that meets AASHTO M 268 Type II or III. Do not use

permanent crash cushions as temporary crash cushions. Use sand or water filled crash cushions only when the forecasted temperature during their use is above 5 °C.

11. Sequential Arrow Panels. Use Type A (610 X 1220 mm), Type B (762 X 1524 mm) or Type C (1220 X 2438 mm) panels that conform to the ATM.

12. Portable Changeable Message Board Signs. Use truck or trailer mounted portable changeable message board signs with a self contained power supply for the sign and with the following features:

    a. Message sign panel large enough to display 3 lines of 229 mm high characters.

    b. Eight character display per message line.

    c. Fully programmable message module.

    d. The capacity to create, preview, and display new messages and message sequences.

    e. A waterproof, lockable cover for the controller keyboard.

    f. An operator's manual, a service manual, and a wiring diagram.

    g. Quick release attachments on the display panel cover.

    h. Variable flash and sequence rates.

    i. Manual and automatic dimming capabilities on lamp bulb matrix models.

    j. Locate the bottom of the sign panel at least 2.1 m above the pavement.

    k. Operate with a battery pack a minimum of 2 hours under full load.

13. Plastic Safety Fence. Use 1.2-m high construction orange fence manufactured by one of the following companies, or an approved equal:

    a. "Safety Fence" by Services and Materials Company, Inc., 2200 South "J" Street, Elwood, Indiana, 46036. Phone (800) 428-8185.

    b. "Flexible Safety Fencing" by Carsonite, 1301 Hot Springs Road, Carson City, Nevada, 89706. Phone (800) 648-7974.

    c. "Warning Barrier Fence" by Plastic Safety Systems, Inc. P.O. Box 20140, Cleveland, Ohio, 44120. Phone (800) 662-6338.

14. Temporary Sidewalk Surfacing. Provide temporary sidewalk surfacing as required by an approved TCP and the following:

    a. Use plywood at least 12 mm thick for areas continuously supported by subgrade. Use plywood at least 25 mm thick for areas that are not continuously supported.

    b. Do not use unsupported 25-mm plywood longer than 750 mm.

c. Use plywood with regular surfaces. Do not overlap plywood joints higher than 25 mm.

d. Use a method that will withstand 40 km/h wind velocities to hold temporary surfacing in place.

15. Temporary Guardrail. Use temporary guardrail that meets Section 606, except that posts may require placement under special conditions, such as in frozen ground.

16. Flagger Paddles. Use flagger paddles with 600 mm wide by 600 mm high sign panels, 200 mm Series C lettering (see ASDS for definition of Series C), and otherwise conform to the ATM. Use reflective sheeting that meets AASHTO M 268 Type II or III.

17. Flexible Markers. Refer to Subsection 606-2.01 Materials. (07/02/03)R222M98

Add the following Subsection:

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 (Test Level 3) on the given schedule.

Work Zone Traffic Control Device Compliance with NCHRP 350				
Category	**Devices**	**Compliance Required for New Devices***	**Full Compliance Required****	**Method of Documentation**
1	Cones, candles, drums w/o attachments, delineators	10/1/98	1/1/02	Manufacturer's Certification for devices exceeding height and weight limits
2	Barricades, portable sign supports, drums w/lights, other devices weighing less than 45 kg but not included in category 1.	10/1/00	1/1/04	FHWA approval letter
3	Truck mounted attenuators and portable crash cushions.	10/1/98	1/1/02	FHWA approval letter
	Portable concrete barriers	10/1/02	1/1/08	FHWA approval letter

* All devices purchased after this date.
** All devices used after this date.

Category 1 devices that exceed the following weights and heights require certification that they meet the evaluation criteria of NCHRP Report 350, 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	9 kg	920 mm	
	Plastic	9 kg	1220 mm	
Candles	Rubber	6 kg	920 mm	
	Plastic	6 kg	920 mm	
Drums	Hi Density Plastic		35 kg	920 mm
	Lo Density Plastic		35 kg	920 mm
Delineators	Plastic or Fiberglass		N/A	1220 mm

Category 2 and the listed **category 3** devices may be documented by submitting an official letter from the Federal Highway Administration stating that the device meets NCHRP 350 Test Level 3 requirements. FHWA acceptance letters for many devices may be found on the FHWA's web site (http://www.fhwa.dot.gov/), under FHWA Programs, Safety, NCHRP Report 350 - Roadside Hardware.

Submit documentation of compliance to the Engineer before using devices on the project. (09/29/00)M91

Special Provisions

643-3.01 GENERAL CONSTRUCTION REQUIREMENTS. Add the following: Whenever 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. (07/02/03)R222M98

Special Provisions

643-3.04 TRAFFIC CONTROL DEVICES. Delete the sixth paragraph and replace it with the following:

Use only traffic control devices that meet the requirements of the "Acceptable" category in ATTSA "Quality Standards for Work Zone Traffic Control Devices".

Item 4. Flagging, delete the sixth paragraph and replace it with the following:
Renew flagger training and certification no less frequently than every 4 years. Flaggers must be able to show their flagger certification anytime they are on the project. (07/03/03)M108

Delete the first sentence of the eighth paragraph and substitute the following: All items paid under this Section shall remain your property unless stated otherwise.

Add the following to 1. Embankments.: Close all trenches and excavations at the end of each continuous work shift.

Add the following to 3. Fixed Objects.: Remove all obstructions greater than 100 mm above the nominal foreslope grade at the end of each continuous work shift

Delete item 4.b. and replace with the following: Flagger certification by ATSSA. (08/02/04)R222USC04

Delete item 6 and replace with the following:

6. Street Sweeping. Keep free of loose material all 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 using a street sweeper that can collect materials rather than eject them to the shoulder of the road.

7. Power Brooming. Use a power broom capable of ejecting all loose material to the shoulder of the road. Remove all loose material from all pave portions of the roadway and haul routes open to the public. This includes sections of roadway off the project where the Contractor's operations have deposited loose material.

Change items 7 and 8 to 8 and 9 respectively.

Add the following:

10. ET-2000 LET. The price listed in the Traffic Control Rate Schedule will be full compensation for the purchase, installation, maintenance during construction, removal and salvaging the ET-2000 LET unit(s). Deliver the salvaged unit(s) to the nearest DOT&PF Maintenance and Operations' district office, or as directed by the Engineer.

643-3.05 AUTHORITY OF THE ENGINEER. Add the following after the second sentence: In no case shall this time exceed 24 hours.

643-3.06 TRAFFIC PRICE ADJUSTMENT. Add the following: Traffic Price Adjustment will also apply to unacceptable driving conditions, such as severe bumps, "washboarding," potholes, excessive dust or mud, or dirty or out of place traffic control devices. The Engineer will make the sole determination as to whether the roadway or pedestrian facility is acceptable for full unimpeded use by the public. 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, for the time that the roadway or pedestrian facility is in an unacceptable condition.

Delete Table 643-1 and substitute the following:

TABLE 643-1
ADJUSTMENT RATES

Published ADT	Dollars/Minute of Delay/Lane
0-9,999	$30
10,000+	$40

643-3.08 CONSTRUCTION SEQUENCING. Delete the last sentence and substitute the following: Unless otherwise determined by the Engineer and on an approved Traffic Control Plan (TCP), do not restrict traffic during the times listed below.

1. Friday from 1200 hours to Sunday 2300 hours

2. Around any holiday:

   a. If a holiday falls on Sunday, Monday or Tuesday, the above stipulations apply from 1200 on the Friday before the holiday to 0300 on the day after the holiday.

   b. If a holiday falls on Wednesday, the above stipulations apply from 1200 on the Tuesday before the holiday to 0300 on the Thursday after the holiday.

   c. If a holiday falls on Thursday, Friday or Saturday, the above stipulations apply from 1200 on the day before the holiday to 0300 on the Monday after the holiday.

3. During the Alaska State Fair (August 25, 2005 - September 5, 2005)

Lane restrictions, if allowed shall be conducted so that no more than a 10 minute accumulated stopped delay, 40 vehicles, or 0.4 kilometers of traffic is detained, whichever occurs first, before releasing the detained motorists. During paving operations a 20 minute stopped delay, 80 vehicles, or 0.8 kilometers of traffic detained, will be allowed for all 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. Make every effort not to delay school buses through the construction work zone.

Closures

The Contractor will be allowed to close the intersection of Post Road and Viking Drive for a maximum of 45 days to complete all work. Closures extending beyond this 45 day window will be subject to full Traffic Price Adjustment.

The dates of closure shall be closely coordinated with item 643(31) Public Informational Program due to special procedures involved with detouring traffic. Due to weight restrictions on the Reeve Boulevard Bridge, vehicles that are permitted as overweight or over length by AK DOT shall be detoured across Ship Creek by use of North C Street. All other vehicles may use the detour route across Ship Creek via the Reeve Boulevard Bridge.

Unless otherwise determined by the Engineer and on an approved Traffic Control Plan (TCP), work can take place 24 hours per day, given sufficient illumination exists.

643-3.09 INTERIM PAVEMENT MARKINGS. 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: Apply final pavement markings according to Subsection 670-3.01 CONSTRUCTION REQUIREMENTS of these Special Provisions.

Add the following Subsection:

643-3.10 PUBLIC INFORMATIONAL PROGRAM. Provide a Public Information (PI) professional to accomplish the work outlined in this subsection. The PI person shall have a minimum of five (5) years demonstrated professional experience in performing similar informational campaigns involving multi-media, ie: television, radio, newspaper and public presentations. The person shall be responsible for aspects of this service including coordination; public interaction; preparing graphics; developing mailing lists; supplying updated information; and labor, equipment, postage, and materials to provide this service. Logos, reports, software, visual aids, graphics and work products developed for this Project shall become the property of the Department, and delivered to the Engineer at the end of the work. The PI professional's office shall be equipped with a facsimile machine.

This professional shall be responsible for the following tasks for the PI Program:

1. Mail-outs. Design and distribute three informational mail-outs/flyers each construction season, which will be approved by the Engineer. The mail-outs shall contain most or the following:

    a. a brief description and map of the Project,
    b. the Contractor's anticipated construction schedule,
    c. a narrative of the possible delays to the traveling public through the Project,
    d. detailed traffic information such as intersection, lane and/or sidewalk closures, their corresponding detours, and their effective dates,
    e. locations of temporary bus stops,
    f. a description of possible impacts to abutting property accessing the Project,
    g. a listing of locations where current Project information may be obtained,
    h. date and times of Open House meeting as required by the Engineer,
    i. the Contractor's 24-hour message number and office telephone number, and
    j. the Engineer's Project office telephone number, e-mail address, and the web site address containing Project updates, schedules and general narrative information.

    The last mail-out shall also contain a questionnaire to aid in preparing the final Report required under item 5 below.

    The mail-outs shall be sent to addresses within one city block on either side of the Project corridor, and shall be addressed to both the owner of record and the current tenant. It shall be distributed at the following times:

a. two (2) weeks before construction begins,
b. at the approximate one-third point of construction season, and
c. at the approximate two-thirds point of construction season.

2. Weekly Notices. Write and submit weekly Public *Information Notices* identifying road closures, restrictions to traffic, and detours. Areas of potential traffic delay shall be emphasized and alternative routes noted. Coordinate this effort with the Engineer and the Department's *NAVIGATOR Informational Program.* Telephone numbers for further information, and the date and time for the next scheduled public open house meeting shall be provided. The Engineer will approve the Notices. Hand carry or fax the Notices to the local news broadcasting media, emergency services, public service organizations and the major retailers near the Project corridor.

Notices shall also be distributed to the following local officials and transportation organizations, including but not necessarily limited to:

Alaska Carriers Association
Alaska Trucking Association
Alaska State Troopers
Anchorage Police Department
Anchorage Fire Department
Anchorage School District
People Mover Transit Authorities
Local Emergency Medical Services
US Postal Service
State of Alaska Division of Measurement Standards & Commercial Vehicle Enforcement

The Notices shall be submitted at the following times:

a. one (1) week before to the beginning of construction,
b. on Wednesday of each week during construction, and
c. before major change or disruption to traffic or local access.

Additionally, the PI professional shall notify business and residents that front the Project or scheduled road closures or of driveway, curb or sidewalk reconstruction, or any other work affecting them. Property owners within the work segment shall receive the Notices a minimum of one (1) week before beginning the work within their segment. Lastly, provide daily information to those media who do non-paid public service road reports or announcements, and/or "Eye-in-the-Sky" commuter road reporting.

3. Public Open House Meetings. Prepare presentations for the Engineer's *Open House Meetings,* and for of each of the Community Councils that represent areas affected the this Project. The Community Council meetings attended shall be the last regularly

scheduled meetings before beginning construction. Presentation size graphics shall be used to help explain the Project to the general public.

The PI professional shall be the Contractor's representative and spokesman, able to speak for him. The PI professional shall be available to attend additional public meetings, up to five (5), as requested by the Engineer.

4. Other Agency Coordination. Coordinate with the Anchorage *People Mover* Transit Department (907-343-8294) to take advantage of programs which will help decrease traffic through this Project, such as Park-and-Ride with express bus service, Ride Share, and the car pooling program. Also coordinate major detours and closures with emergency service providers (police, fire, and ambulance), Anchorage School District bus operators, postal service, and the *People Mover.*

5. Final Report. Before Project completion, submit a Report evaluating the Public Informational Program as detailed under this Subsection. The Report shall include an outline of the program, an analysis of the program's effectiveness, and suggestions on how to improve the program's effectiveness, economy, and usefulness on future projects.

6. Project Progress Meetings. Attend scheduled or special Project meetings between the Contractor and the Engineer at the field office.

7. Web Page. Generate an INTERNET web site for the Project containing Project updates, schedules and general narrative information. Add links to the Department's *NAVIGATOR* Home Page (www.dot.state.ak.us/navigator.html). Update the site weekly. (05/01/03)R102M98

Standard Modifications

Add the following new Subsection:

643-3.11 HIGH VISIBILITY CLOTHING. Ensure all workers within project limits wear an outer visible surface or layer that complies with the following requirements:

1. Tops. Wear fluorescent vests, jackets, or coverall tops conforming to Class 2 at all times. Class 2 requires at least 0.50 square meters of conforming fluorescent red-orange background material and at least 0.13 square meters of conforming retroreflective striping. Retroreflective striping shall be fluorescent yellow-green combined-performance material.

The vest, jacket, or coverall top shall have two over the shoulder combined-performance retroreflective stripes, and at least one 360-degree horizontal combined-performance retroreflective stripe around the torso. Jackets and coverall tops shall have two horizontal combined-performance retroreflective bands on each sleeve; one above and one below the elbow.

2. Bottoms. Wear fluorescent red-orange Class E pants or coverall bottoms during nighttime work (sunset to sunrise). Flaggers shall wear fluorescent red-orange Class E pants or Class E coverall bottoms at all times. Furnish each garment with two 50-millimeter wide combined-performance fluorescent yellow-green retroreflective horizontal stripes on each leg.

3. Raingear. Raingear tops and bottoms, when worn as the outer visible surface or layer, shall conform to the requirements listed above in (1) Tops and (2) Bottoms.

4. Exceptions. When workers are inside an enclosed compartment of a vehicle, they are not required to wear high visibility clothing.

5. Standard. All high visibility garments shall conform to the requirements of ANSI 107-1999 as well as this specification. Class 2 and Class E garment requirements are defined in that standard. All retroreflective material must also qualify as combined-performance fluorescent material.

6. Labeling. All garments shall be labeled in conformance with Section 10.2 of ANSI-107-1999.

7. Condition. Furnish and maintain all vests, jackets, coveralls, rain gear, hard hats, and other apparel in a neat, clean, and presentable condition.

643-4.01 METHOD OF MEASUREMENT. Page 376, under item 6 "Interim Pavement Markings," delete the second paragraph.

Add the following: 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. All work will be subsidiary to Item 643(1) or 643(2), Traffic Maintenance.

Providing mail-outs, notices, displays for open house and public meetings, and providing weekly notices with updates will not be measured for payment. (05/01/03)R102M98

Add the following: Payment for high visibility clothing for workers is subsidiary to other items. (12/02/03) M109

643-5.01 BASIS OF PAYMENT. Add the following:

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

TRAFFIC CONTROL RATE SCHEDULE

Traffic Control Device	Pay Unit	Unit Rate
Construction Signs	Each/Day	$ 5.00
Special Construction Sign	Square Meter	$215.00
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 / ET 2000 LET	Each	$3,000
Pilot Car	Hour	$65.00
Watering	Kiloliter	$5.25
Street Sweeping	Hour	$150.00
Power Broom	Hour	$75.00
Plastic Safety Fence	Meter	$8.00
Portable Changeable Message Board Sign	Calendar Day	$150.00
Temporary Sidewalk Surfacing	Square Meter	$12.50
Flexible Markers	Each	$50.00
Removal of Pavement Markings	Meter	$4.00
Temporary Guardrail	Meter	$70.00
Interim Pavement Markings		
Painted Markings	Meter	$0.90
Removable Preformed Markings	Meter	$2.13
Temporary Raised Pavement Markings	Meter	$0.24
Word or Symbol Markings	Each	$40.00

Payment for Item 643(15), the Engineer will pay Flagging on a contingent sum basis at the rate of $38.00/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 agreed to in the Change Order, or on a time and materials basis in accordance with Subsection 109-1.05. (07/02/03)R222M98

Add the following: Payment for Item 643(31) will be made on a contingent sum basis for work completed and accepted by the Engineer. (05/01/03)R102M98

Delete Item 643(15) and substitute the following:

Payment will be made under:

Pay Item	Pay Unit
643(15) Flagging	Contingent Sum
643(25) Traffic Control	Contingent Sum
643(31) Public Informational Program	Contingent Sum

SECTION 644

SERVICES TO BE FURNISHED BY THE CONTRACTOR

Standard Modification

644-2.01 FIELD OFFICE. In the third paragraph, change "the final inspection" to "project completion".

Special Provisions.

Delete this subsection in its entirety and substitute the following: Furnish and maintain a suitable office for the Engineer, available for occupancy from two weeks prior to commencing 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 100 square meters 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 15 square meters 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 six (6) electrical outlets.

4. A minimum of 9 square meters 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. Three (3) telephone service lines available at the office location.

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 1600 meters of the project.

10. The Engineer's office shall be accessible by disabled individuals from the designated handicap parking space in accordance with the requirements of Americans with Disabilities Act Accessibility Guidelines (ADAAG).

11. Weekly janitorial service consisting of emptying trash receptacles, vacuuming office area and cleaning restrooms and counter areas.

12. Provide one mobilization and one demobilization of the Engineer's office equipment and furniture.

Special Provisions.

644-2.02 FIELD LABORATORY. Delete sub-item g on page 380 and substitute the following:

g. 1900 liter capacity tank with a pressure pump or a commercial pressurized system.

Add the following:

7. Supply 240 volt, 60 hertz power, a 45 kilogram propane bottle, and a 1900 liter 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.

8. Provide one mobilization and one demobilization of the Engineer's laboratory equipment.
(9/28/00)R63M98

644-2.05 VEHICLES. Replace the first sentence of the second paragraph with the following:
Provide full-size four-wheel drive pickups or sport utility vehicles.

Standard Modifications

644-4.01 BASIS OF PAYMENT. In the last full paragraph, beginning with "Furnishing the following is subsidiary", after "platform scales," insert " scale operators, ".
(06/25/99)M81

Special Provisions

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 Item 644(2) Field Laboratory.
(9/28/00)R63M98

Add the following Section:

SECTION 645

TRAINING PROGRAM

Special Provisions

645-1.01 DESCRIPTION. This Training Special Provision implements 23 CFR 230, Subpart A, Appendix B.

As part of the Equal Employment Opportunity Affirmative Action Program, the Contractor shall 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. The Contractor shall 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 25A301, items 7.b, 7.c, 7.d, 7.e, 7.I, 7.j, and 7.1, located in the "green pages" of this document.

645-3.01 GENERAL. The Contractor shall 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 prior to 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 indicated above may only be made to the Contractor where the apprentices/trainees are concurrently employed on the project and the Contractor does one or more of the following: contributes to the cost of the training, provides the instruction to the apprentice/trainee, or pays 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, the Contractor shall submit Form 25A311, 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 25A310.

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 judgment of the Contractor, 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.

The Contractor shall furnish each ADOT&PF training program trainee a copy of the program (Form 25A310) 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.

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

The Contractor shall provide for the maintenance of records and the furnishing of periodic reports documenting the progress of each apprentice/trainee. The Contractor must submit Form 25A313 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 25A310.

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 25A310. 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 25A312.

645-3.03 SUBCONTRACTS. In the event the Contractor subcontracts a portion of the work, he 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 25A311 and Form 25A310, 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 in accordance with 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 prior to the Contractor's submittal and approval by the Engineer of Form 25A312 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 discretion of the Contractor, graduates early and is employed as a journey worker in accordance with 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 any other training program funds the Contractor may receive, unless such other funding sources specifically prohibit the Contractor from receiving other reimbursement.

Payment for training in excess of the number of hours specified on the approved Form 25A311, may be made only when approved by the Engineer through Change Order.

Non-compliance 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 all training programs approved for the project. No payment or partial payment will be made to the Contractor if he fails to do any of 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 25A311),

2. train the required number of trainees/apprentices in each training program (as shown on the approved Form 25A311), 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 he was unable to do so, the Contractor will be assessed an amount equal to the following damages to be deducted 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	Pay Unit
645(1) Training Program, 2 Trainee/Apprentice	Labor Hour

(10/29/91)S16

SECTION 646

CPM SCHEDULING

Special Provisions

646-2.01 SUBMITTAL OF SCHEDULE Delete this Subsection in its entirety and replace 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. If revisions are required, make them promptly. The finalized CPM Schedule must be completed and accepted prior to commencement of any work on the Project.

646-3.01 REQUIREMENTS AND USE OF SCHEDULE Delete item 2. 60-Day Preliminary Schedule.

Delete the first sentence of item 3. Schedule Updates. and substitute the following: Hold job site progress meetings with the Engineer for the purpose of updating the CPM Schedule. Meet with the Engineer monthly, or as deemed necessary by the Engineer.
(12/13/02)R261M98

Add the following Section:

SECTION 647

EQUIPMENT RENTAL

Special Provisions

647-1.01 DESCRIPTION. This item consists of furnishing construction equipment, operated, fueled and maintained, on a rental basis for use in construction of extra or unanticipated work at the direction of the Engineer. Construction equipment is defined as that equipment actually used for performing the items of work specified and shall not include support equipment such as, but not limited to, hand tools, power tools, electric power generators, welders, small air compressors and other shop equipment needed for maintenance of the construction equipment.

The work is to be accomplished under the direction of the Engineer, and the Contractor's operations shall at all times be in accordance with the Engineer's instructions. These instructions by the Engineer shall be to the Contractor's supervisory personnel only, not to the operators or laborers. In no case shall these instructions by the Engineer be construed as making the Department liable for the Contractor's responsibility to prosecute the work in the safest and most expeditious manner.

647-2.01 EQUIPMENT FURNISHED. In the performance of this work, furnish, operate, maintain, service, and repair equipment of the numbers, kinds, sizes, and capacities set forth on the Bid Schedule or as directed by the Engineer. The operation of all equipment shall be by skilled, experienced operators familiar with the equipment.

The kinds, sizes, capacities, and other requirements set forth shall be understood to be minimum requirements. The number of pieces of each equipment to be furnished and used shall be as the Engineer considers necessary for economical and expeditious performance of the work. The equipment shall be used only at such times and places as the Engineer may direct.

All equipment shall be in first-class working condition and capable of full output and production. The minimum ratings of various types of equipment shall be as manufactured and based on manufacturer's specifications. Alterations will not be considered acceptable in achieving the minimum rating. Equipment shall be replaced at any time when, in the opinion of the Engineer, their condition is below that normal for efficient output and production.

All equipment shall be fully operated, which shall be understood to include the operators, oilers, tenders, fuel, oil, air hose, lubrication, repairs, maintenance, insurance, and all incidental items and expenses.

647-2.02 EQUIPMENT OPERATORS AND SUPERVISION PERSONNEL. Equipment operators shall be competent and experienced and shall be capable of operating the equipment to its capacity. All personnel furnished by the Contractor shall be, and shall remain during the work hereunder, employees solely of the Contractor.

Furnish, without direct compensation, a job superintendent or Contractor's representative together with such other personnel as are needed for Union, State, or Federal requirements and in servicing, maintaining, repairing and caring for the equipment, tools, supplies, and materials provided by the Contractor and involved in the performance of the work. Also, furnish, without direct compensation, such transportation as may be appropriate for the personnel.

647-3.01 CONSTRUCTION REQUIREMENTS. The performance of the work shall be in accordance with the instructions of the Engineer, and with recognized standards and efficient methods.

Furnish equipment, tools, labor, and materials in the kinds, number, and at times directed by the Engineer and shall commence, continue, and stop any of the several operations involved in the work only as directed by the Engineer.

Normally, the work is to be done when weather conditions are reasonably favorable, six (6) days per week, Mondays through Saturdays, holidays excepted.

The Engineer will begin recording time for payment each shift when the equipment begins work on the project. The serial number and brief description of each item of equipment listing in the bid schedule and the number of hours, or fractions thereof to the nearest one-quarter hour, during which equipment is actively engaged in construction of the project shall be recorded by the Engineer Each day's activity will be recorded on a separate sheet or sheets, which shall be verified and signed by the Contractor's representative at the end of each shift, and a copy will be provided to the Contractor's representative.

647-4.01 METHOD OF MEASUREMENT. The number of hours of equipment operation to be paid for shall be the actual number of hours each fully operated specified unit of equipment, or each fully operated specified combination of units of equipment, is actually engaged in the performance of the specified work on the designated areas in accordance with the instruction of the Engineer. The pay time will not include idle periods, and no payment will be made for time used in oiling, servicing, or repairing of equipment, or in making changeovers of parts to the equipment. Travel time to or from the project, will not be authorized for payment.

647-5.01 BASIS OF PAYMENT. Payment for Item 647(1), Wide Pad Dozer, 48 kW Minimum will be paid on a contingent sum basis at the rate of $125/hour on a per hour basis at the rate shown on the bid schedule. This shall be full compensation for furnishing, operating, maintaining, servicing and repairing the equipment, and for all incidental costs related to the equipment. Furnishing and operating of equipment of heavier type, larger capacity, or higher wattage than specified will not entitle the Contractor to any extra compensation.

Payment will be made under:

Pay Item	Pay Unit
647(1) Wide Pad Dozer, 48 kW Minimum	Contingent Sum

(11/12/98)R15M98

SECTION 660

SIGNALS AND LIGHTING

Special Provisions

660-1.03 EQUIPMENT LIST(S) AND DRAWINGS. Delete item number 1 that follows the first paragraph, and add the following: The Approved Products List does not apply to the 660 items. Provide catalog cuts of all materials to the Engineer for review and approval.

Add the following to the last paragraph. The Engineer will deliver one copy each to MOA Street Light Maintenance; MOA Project Management and Engineering; MOA Parks and Beautification; and attach the appropriate sheets of the last set in clear plastic envelopes to the inside of each load center.

660-1.05 MAINTAINING EXISTING AND TEMPORARY ELECTRICAL SYSTEMS. Delete this subsection in its entirety and substitute the following: This work consists of protecting and maintaining the existing and temporary electrical systems during the life of the contract. The work includes: repairing, replacing, adjusting, realigning, cleaning, and relocating components of lighting systems to keep them wholly operational and positioned in accordance with the following specifications.

At the Pre-construction Conference, furnish the Engineer with the name and phone number of the person who will maintain the existing and temporary electrical facilities. Make this person available at all times until the date of Acceptance for Traffic and Maintenance and provide all labor, materials, and equipment this person may need to complete repairs ordered by the Engineer.

When you begin work, the Engineer will notify you 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 damage before transferring maintenance responsibility. Therefore, before starting work on the project, you should inventory the condition of the existing equipment and document all damaged and defective equipment, which the Engineer will inspect with you. If you begin work before providing the Engineer with an inventory, you waive the right to claim extra compensation when the Engineer later finds damaged or defective equipment.

Keep all components of the existing and temporary electrical systems fully 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 fully operational when he finds no damaged or defective equipment in service, and photoelectric controls operate the lighting systems. The State will pay for all electricity used to operate the systems, if the public benefits from their operation. Furnish replacement equipment compatible with equipment used by the Municipality of Anchorage.

Begin repair work on all systems within one hour of notification by the Engineer. If you do not complete the repairs, the Engineer may have outside forces complete the repairs and deduct the amount billed from any monies due you.

Locate existing conduit runs, buried cables, junction boxes, and all underground utilities before starting work that may damage these facilities or interfere with these systems.

Where roadways and pathways remain open to traffic and the work includes modifying the existing lighting systems, energize the modified circuit by sunset on the same day you retire the original circuit.

When no longer required, salvage all original, MOA, and Department provided equipment in accordance with the plans and subsection 660-3.21, Salvaging or Reusing Electrical Equipment, and remove all other materials used in the temporary systems from the project.

660-2.01 EXCAVATING AND BACKFILLING. Add the following to the first paragraph: Excavate trenches for installing rigid metal conduit to a depth 150 mm below the bottom of the rigid metal conduit.

In the fourth paragraph, change "Subsection 204-3.01" to "Section 204."

Add the following after the fourth paragraph: Backfill the first 150 mm lift with material free of rocks exceeding a 25 mm maximum dimension. Embed conduits between two 150 mm lifts of material that are free of rocks exceeding a 25 mm maximum dimension.

660-2.03 FOUNDATIONS. Delete the Pile Foundations section and substitute the following:

Pile Foundations. Install all light pole foundations according to the following requirements

1. Materials. Furnish pipe piles that feature the diameter and minimum length and wall thickness as shown on the Plans. Furnish piles made of material that conforms to ASTM A36/A36M-97, except the mill certificates shall indicate a minimum 290 MPa yield strength.

   Furnish pile caps fabricated from 50 mm thick steel plate that conforms to ASTM A36/A36M-97, except the mill certificates shall indicate a minimum 290 MPa yield strength.

   Use the number and size of bolts, nuts, and washers as shown on the Optional Pile detail sheet included in the Plans.

2. Fabrication Requirements. Fabricate the pile cap to match the base plate shown on the approved light pole shop drawings. Attach the pile cap to the pipe pile with a full penetration seam weld. The Department will not accept socket type joints that are attached to the pile with two fillet welds.

3. Construction Requirements. Install the steel pipe piles open ended according to Section 505.

Complete all welding shown on the Plans and as specified herein according to the Structural Welding Code -Steel, AWS D1.1-2000. At least 30 calendar days before you begin welding, submit a welding plan and mill certification reports for the pipe piles and pile caps to the Engineer for approval. Do not begin welding until the Engineer has returned these items approved in writing. The welding plan shall consist of the following:

i. Welding Procedure Specification (WPS),
ii. Procedure Qualification Record (PQR),
iii. Welder Performance Qualification Record (WPQR),
iv. Visual Inspection Form,
v. Report of Nondestructive Examination (NDE) of Welds, and
vi. The name of the Contractor's Quality Control (QC) manager with documentation of qualifications.

Furnish all Quality Control inspection necessary to ensure the materials meet the requirements of the contract documents and workmanship meets the requirements of AWS D1.1.

a. Visually inspect (VT) the entire length of each weld.
b. Inspect all full penetration welds by ultrasonic NDE (UT) as shown on the Plans.

Correct all deficiencies in materials and workmanship revealed by QC and Quality Assurance (QA) inspections according to AWS D1.1 without additional compensation.

Furnish all completed QC inspection documents to the Quality Assurance representative designated by the State.

When called for in the plans, install the frangible couplings according to the manufacturer's written installation instructions.

660-2.04 POLES, STEEL PEDESTALS AND POSTS. Add the following: Furnish back-up calculations stamped by a registered professional engineer.

The Contractor shall order all poles within 14 calendar days after receiving Notice to Proceed and submit a copy of the order form to the Engineer.

Type A Electrolier

The poles for the Type A Electroliers shall be one-piece 102mm round high-tensile carbon steel shaft sealed by a rolled and flattened vertical weld seam and welded over and in 168mm high-tensile carbon-steel pole base. A 102mm x 229mm maintenance opening, complete with cover

and copper ground lug, is centered 533mm from the ground. The poles shall feature a joint and base cover that can be mechanically fastened to the base with stainless steel screws.

Finish: "Hot Dip" galvanizing with polyester powder coat textured finish. Exterior finish shall be durable UV-resistant per ASTM G7 and salt-spray resistant in accordance with ASTM B117 and ASTM D2247 testing procedures. See Subsection 660-2.15 Painting, for additional information.

Type B Electrolier

The poles for the Type B Electroliers shall be one-piece, round, non-tapered high-tensile carbon steel. The shaft material shall have a minimum yield strength of 42,000 psi. The poles shall be as detailed in the plans and as specified. The handhole shall have a minimum opening of 63mm x 127mm. A ground lug shall be provided at the handhole. The poles shall feature a two piece galvanized steel base cover, finished to match pole.

Finish: "Hot Dip" galvanizing with polyester powder coat textured finish. Exterior finish shall be durable UV-resistant per ASTM G7 and salt-spray resistant in accordance with ASTM B117 and ASTM D2247 testing procedures. See Subsection 660-2.15 Painting, for additional information.

Type C Electrolier

The poles for the Type C Electroliers shall be as detailed in the plans and as specified.

Finish: Shall match steel bridge structure.

Type E Electrolier

The poles for the Type E Electroliers shall be as detailed in the plans and as specified.

Finish: "Hot Dip" galvanizing.

660-2.05 CONDUIT. Add the following: The Engineer will only allow trenching to install conduits across roadways and pathways scheduled to be paved or overlaid. After you pave the final asphalt course, however, the Engineer will not allow trenching.

660-2.06 JUNCTION BOXES. Delete the second paragraph and substitute the following: Only use pre-cast reinforced concrete junction boxes conforming to the sizes and details shown on the plans. All junction box lids shall be cast iron.

660-2.08 CONDUCTORS. Delete the first paragraph of item 2 "Power Conductors and Cables" and add the following:" Use power conductors and cables manufactured according to ICEA publication S-66-524 and NEMA Publication No. WC7, and which are UL listed and labeled for direct burial and resistance to sunlight. Furnish conductors insulated with chemically cross-linked polyethylene UL listed and labeled as type XHHW-2. Use cables rated for 600 volts AC operation.

Furnish cables consisting of three #8 AWG conductors with conductor insulation colored black, white, and red. Furnish cables with three conductors larger than #8 AWG with conductor insulation colored black, white, and red, or with all black conductor insulation with printed numbers identifying each conductor per ICEA method 4.

Delete subparagraph "d" of item 2. Power Conductors and Cables and add the following: Furnish highway and sign illumination cables with #8 AWG conductors with a low density, high molecular weight polyethylene jacket.

The integral bare ground conductor shall not be utilized as the bare copper grounding conductor required under subsection 660-2.11 and where noted in the plans. The integral ground is for future use.

660-2.09 WIRING. Delete the first paragraph and add the following: Install illumination cables without splices, except when adding an electrolier to the midst of a circuit. In addition, do not splice conductors within poles and luminaires.

Crimp spade type terminals onto all conductors that attach to terminal blocks.

Delete the first two sentences of paragraph numbered 7 and add the following: To add an electrolier to a circuit, splice a piece of illumination cable (a tap) into the cable that forms the circuit in the junction box adjacent to the electrolier. Terminate the two current-carrying tap conductors in the line side half of the fused splice connector. Pull the tap back into the junction box to position the fused splice connector in the space between the foundation and the base plate of each pole. When a circuit branches, complete the splice in a junction box at the location shown in the Plans.

Add the following: Furnish splice kits rated for 1000 volts AC operation and direct burial.

Provide molds that are re-useable and come in four pieces 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 6 mm of insulating compound to flow between the splice and the inside of the mold. Fill the PVC molds with re-enterable polyurethane electrical insulating and sealing compound that cures transparent, is nontoxic, is non-corrosive to copper, and does not support fungi or mold growth.

Delete paragraph numbered 14. and add the following: Label the cables used in illumination systems with the following legends:

1. For the cables listed in Table 660-1, use the legends included in the same Table.

Furnish the type of identification tags listed below that feature hand written legends. Write the legends specified neatly and legibly, using a black marking pen recommended by the tag

manufacturer. Replace at no expense to the State all identification tags the Engineer deems illegible.

1. To label illumination and feeder cables, use cable tags made of nylon reinforced vinyl impervious to the elements and which will not tear. Provide tags with a 100 mm by 44 mm minimum size that attach flag style at one corner to a single strap. Furnish red tags for labeling lighting and feeder cables.

660-2.11 BONDING AND GROUNDING. Add the following after the second paragraph: All hardware, including grounding bushings, ground rods, and ground rod clamps shall be UL listed. Furnish threaded type grounding bushings that are made of malleable iron or steel and feature a mechanically or hot dip galvanized finish. Bushings shall also feature an insulated throat, a tin-plated copper saddle for attaching the grounding conductors, and stainless steel set screws.

Where wire is pulled and reinstalled in existing conduits, a bare No. 8 AWG copper wire shall also be installed. Where conduits are installed for future conductors, the above mentioned copper wire may be omitted.

660-2.15 PAINTING. Under 1. New Equipment, Add the following:

a. Type A and Type B luminaires shall be factory textured finished with a minimum of 100 microns coating of electrostatically applied polyester powder. Color shall match new luminaire poles.

b. Type A Electrolier luminaire poles, luminaire arms, plant support arms, banner brackets, base cover, hand hole cover, and connecting hardware shall be factory coated with a minimum of 100 microns coating of an electrostatically applied powder-coat finish over hot dip galvanizing.

Color: The color shall match the existing luminaires recently installed by the Ship Creek Trail, Phase 1 and 2 projects

Anchor bolts, washers, and nuts shall meet the requirements of Section 660-2.15 Galvanizing.

g. Type B Electrolier luminaire poles, luminaire arms, base cover, hand hole cover, and viewable connecting hardware shall be factory coated with a minimum of 100 microns coating of an electrostatically applied powder-coat finish over hot dip galvanizing.

Color: Fuller-O'Brien Piney Woods, Matte Finish (G117G).

Anchor bolts, washers, and nuts shall meet the requirements of Section 660-2.14 Galvanizing.

h. Tunnel luminaire face plates shall be factory coated with a fade and abrasion resistant, electrostatically applied, thermally cured textured polyester powder coat that is applied after anodizing.

Color: Natural Aluminum.

i. Type C luminaire color shall match steel bridge structure. Field welds will be painted in accordance with Section 513.

The Contractor shall paint damaged surfaces in accordance with the Manufacturers' recommendations. The Manufacturer shall provide touchup paint that matches the specified color.

660-3.16 LUMINAIRES. Add the following: Furnish high-pressure sodium lamps with a rated life of 24,000 hours based on 10 hours per start. See Electrolier Summary and Illumination Details for lamp size.

The luminaire manufacturer shall furnish light fixtures free of substances (such as paint) that affect luminaire photometric performance.

Type A Electrolier Luminaire

The Type A Electrolier light fixtures shall be the following. Lack of description of specific manufacturer's hardware shall not be construed as variance from the detail. See Subsection 660-2.15 Painting for finish. Furnish lamps with the fixture.

The fixture shall be the configuration shown on plans, with banner arms, support detailing, and plant basket arms shown. Fixture shall be 100HPS, 240V, height as shown on the drawings.

The ballast shall be rated 240 volts ±10% and be of the Regulator (Lag Type) - Magnetic Regulator design. The ballast shall be suitable for operating a 100 watt high pressure sodium lamp, ANSI Lamp Type S-54 and be fully integrated in the fixture head. The luminaire shall feature a one-piece, seamless, polycarbonate globe capable of being mounted under a ballast housing. The globe shall be protected by an aluminum guard with a spun aluminum deflector. The luminaire's globe shall be secured to the ballast housing by a quarter- turn mechanism for tool-less access to lamp and ballast. The luminaire shall be capable of being mounted to the pole by a standard arm assembly. Complete luminaire assembly shall have the same finish as specified for the pole. The lamp shall be ANSI Code #S54-SB-100.

Fixture shall match those installed under the Phase 1 and 2 Ship Creek Trail projects, and shall be the following or approved equal:

Lumec CAND1-PCC, RR3 optical system, CR1 mounting at top and bottom of mounting arm, SM8 pole providing mounting height shown on drawings, surface mounted, standard base cover, banner arm adapted from CR1 mounting per plans, with PSD16 double plant

hanging arms shown on plans as manufactured by Thomas Lighting, 640 Cure-Boivin, Boisbriand, Quebec, Canada, J7G 2A7, Tel: (514) 430-7040.

Type B and C Electrolier Luminaire

The Type B and C Electrolier light fixtures shall be the following. Lack of description of specific manufacturer's hardware shall not be construed as variance from the detail. See Subsection 660-2.15 Painting for finish. Furnish lamps with the fixture.

Type B and C Electroliers. Fixture shall be the configuration shown on plans. See plans for shaft length, lamp size, and voltage requirements.

Fixture shall be the following or approved equal:

Mount the ballast within the body of the fixture. The ballast shall be capable of providing reliable lamp starting down to –20° F. See Plans for input voltage.

The optical system shall use a homogeneous sheet aluminum, electrostatically brightened, anodized, and sealed. The lens shall be optically clear, heat and impact resistant tempered flat glass. The optical chamber shall be sealed using a hollow section, high compliance, and memory retentive extruded silicone rubber. Fixture shall be UL listed for wet, damp, and dry locations. The housing shall be one piece, seamless aluminum with integral rolled circumferential reveals.

Mount the fixture as detailed on the drawings.

The luminaire shall be Gardco Lighting Model CA 17 as manufactured by Gardco Lighting, 2661 Alvarado Street, San Leandro, CA 94577, Tel: (800) 227-0758. The Contractor may substitute fixtures having similar construction, electrical, and light distribution characteristics, if approved.

Type E Electrolier Luminaire

The Type E Electrolier light fixtures shall be the following. Lack of description of specific manufacturer's hardware shall not be construed as variance from the detail. See Subsection 660-2.15 Painting for finish. Furnish lamps with the fixture.

Type E Electroliers. Fixture shall be the configuration shown on plans. See plans for shaft length, lamp size, and voltage requirements.

Fixture shall be the following or approved equal:

Mount the ballast within the body of the fixture. The ballast shall be capable of providing reliable lamp starting down to –40° F.

The optical system shall have no light above 90° (full cut-off), use a flat glass lens. The optical chamber shall use a charcoal filter between the lens and housing.

Mount the fixture as detailed on the drawings.

The Type E luminaire shall be GE Model MDCL-250-S-5-M-1-F-MC3-2 as manufactured by GE Lighting Systems, Hendersonville, NC 28793-4506, Tel: (828) 693-2000. The Contractor may substitute fixtures having similar construction, electrical, and light distribution characteristics, if approved.

Tunnel Luminaires

The Bridge and Tunnel light fixtures shall be the following: Lack of description of specific manufacturer's hardware shall not be construed as variance from the detail. See Subsection 660-2.15 Painting for finish. Furnish lamps with the fixture.

Mount the ballast within the body of the fixture. The ballast shall be capable of providing reliable lamp starting down to –20° F. See Plans for input voltage.

The faceplate shall be vandal resistant one-piece die cast aluminum that can be secured to the fixture housing with tamper resistant screws. Provide a self-compensating single piece silicone gasket between faceplate and housing. Fixture shall be UL listed for wet locations. The housing shall be vandal and corrosion resistant die cast aluminum construction and be suitable for concrete pour applications.

Mount the fixture as detailed on the drawings and as recommended by the manufacturer.

The Tunnel luminaire shall be Gardco Lighting Model 942-C-50HPS-LV-120-BLP as manufactured by Gardco Lighting, 2661 Alvarado Street, San Leandro, CA 94577, Tel: (800) 227-0758. The Contractor may substitute fixtures having similar construction, electrical, and light distribution characteristics, if approved.

Submit shop drawings for approval.

Furnish luminaires that provide the uniformity specified (or better) in the arrangements listed on the plans. Use a lighting program that calculates illumination levels according to the American National Standard Practice for Roadway Lighting, A.N.S.I./I.E.S RP-8, dated 1983. Furnish the Engineer with the manufacturer's current electronic photometric data in Illuminating Engineering Society (I.E.S.) format to verify illumination levels and uniformity ratios. If electronic data is unavailable, derive the illumination level at the dimmest point by straight-line interpolation between the isolux lines on the manufacturer's current published photometric data charts. To calculate the uniformity ratio, divide the average illumination level by the illumination at the dimmest point.

Luminaire Type Definitions:

MC-3: Mast-arm or Bracket Mounted Luminaire with Medium Full Cutoff, Type 3 lateral light distribution as defined by the Illuminating Engineering Society (I.E.S.).

MN-3: Post top or Post top-arm Mounted Luminaire with Medium Non-cutoff, Type 3 lateral light distribution as defined by the Illuminating Engineering Society (I.E.S.). Similar optical system designation include Lumec RR3

660-5.01 BASIS OF PAYMENT. Add the following: The lump sum prices paid for the items included in the Contract includes full compensation for all work involved in furnishing and installing, assembling, modifying, and removing the components of the systems shown on the plans. This includes: completing all excavation to install foundations, conduits, and junction boxes, backfilling and compacting trenches, removing and replacing improvements, installing sumps under junction boxes, and pulling conductors. The lump sum prices paid also include full compensation for all work specified in the Standard Specifications and Special Provisions. This includes: getting all materials approved; preparing as-built plans, maintaining the electrical systems, adjusting junction boxes to grade, making all splices, labeling all conductors, completing all tests, and delivering salvaged electrical equipment.

Type E Electroliers will be measured and paid for under Item 660(3), Highway Lighting System Complete.

Type **A,** B**, and C** Electroliers will be measured and paid for under Item 660(3C), Trail Lighting System Complete.

Tunnel light fixtures will be measured and paid for under Item 660(12), Underpass Lighting System Complete.

Add the following pay items:

Pay Item	Pay Unit
660(3C) Trail Lighting System Complete	Lump Sum

SECTION 670
TRAFFIC MARKINGS

Special Provisions

670-3.01 CONSTRUCTION REQUIREMENTS. Delete Item 4 in its entirety and substitute the following:

4. Methyl Methacrylate Pavement Markings. Apply Methyl Methacrylate markings with truck-mounted equipment designed and capable of properly mixing at the point and time of application according to the manufacturer's recommendations. Provide the manufacturer's installation instructions for the Methyl Methacrylate markings at least 15 days prior to application. Retain a copy of the instructions for use on the project.

A manufacturer's representative shall be present on the first day of striping and any additional days as required by the Engineer.

Supply and use a Methyl Methacrylate application monitoring system (MMAMS) that calculates flow throughout the high pressure airless pumps. The MMAMS shall measure the combined A and B Methyl Methacrylate components and show the total volume applied on a digital readout display. The digital readout shall display two (2) decimal places and be located on the operator control panel. The digital readout display shall be selectable to show output volume in gallons or liters.

Perform a film test strip at the beginning of each striping shift and when there is a change in asphalt type. In addition, measure out one (1) liter of Methyl Methacrylate for field verification of the MMAMS accuracy. Additional film test strips and MMAMS accuracy samples may be required at the Engineer's discretion.

Apply glass beads as specified in Subsection 712-2.18. Use a minimum drop on rate of 1 lb/yd^2 (580 g/m^2) for transverse type markings. Apply glass beads for Type V sprayed material by double bead gun, one gun directly in front of the spray unit and another directly behind.

Remove contaminants such as curing agents, surface oils or existing pavement marking materials prior to applying the new pavement markings. Then, thoroughly clean and dry the roadway surface immediately prior to applying Methyl Methacrylate pavement markings.

Apply Methyl Methacrylate pavement markings as shown in the following table. The table shows final design thickness. The maximum allowable yield thickness per single-pass of Longitudinal Type markings (non-inlaid) is 60 mils (1.5 mm).

METHYL METHACRYLATE PAVEMENT MARKING YIELD THICKNESS TABLE

Marking Type	Non-Inlaid Markings[1]
Longitudinal Type[2] (Center and Edge lines)	90 mils (2.3 mm)
Transverse Type (Cross Walks, Stop Bars, "Only"s, Arrows and Tracking Lines)	120 mils (3.0 mm)
Neutral Area (Diagonals, Chevrons)	60 mils (1.5 mm)

1. Measure Type V spray without glass beads. Tolerance is ±4 mils (±0.1 mm). Measure the thickness utilizing a wet film thickness gauge. Collect a sample on a 6" x 12" (150 mm x 300 mm) flat sheet of 80 mils (2 mm) thick aluminum placed in the path of the striping guns.

2. Install Non-Inlaid Longitudinal Type markings at a maximum yield thickness of 60 mils (1.5 mm) per application pass.

Non-Inlaid Markings

New asphalt pavement: Apply interim non-inlaid Longitudinal and Transverse Type markings at 30 mils (0.75 mm).

Unless directed otherwise by the Engineer, apply the final 60 mils (1.5 mm) of the Longitudinal Type markings once the asphalt has cured for the duration listed below.

Stone Mastic Asphalt Concrete	30 days
All others	15 days

Apply the final Transverse and Neutral Area markings as shown in the application table at this time. Multiple application passes are required for Transverse Type markings.

Existing asphalt pavement: Apply markings according to the Yield Thickness Table. Longitudinal Type markings will require multiple application passes.

670-3.04 PAINT REMOVAL. Change the title of this Subsection to "Pavement Markings Removal".

Replace the first sentence of the second paragraph with the following: Remove pavement markings to the fullest extent possible by a method that does not materially damage the surface or texture of the pavement. Painting over existing striping does not meet the removal requirement. Do not use any method utilizing burning with an open flame for removing pavement markings on the final paving lift.

670-3.06 TOLERENCES FOR LINE STRIPING. Replace criteria number two with the following:

2. Width of Stripe. The width shall not vary more than ¼" (6 mm) in width for any 50' (15 m) longitudinal run from the width shown in the Plans.

670-4.01 METHOD OF MEASUREMENT. Add the following after Item 4:

5. Lump Sum Basis: The Methyl Methacrylate material used to form the pavement markings accepted by the Engineer will be measured in lump sum.

670-5.01 BASIS OF PAYMENT. Add the following to the second paragraph:

All costs associated with the MMAMS are subsidiary to Item 670(10). No separate payment shall be made for furnishing and maintaining the MMAMS.

SECTION 702

ASPHALT MATERIALS

Special Provisions

702-2.01 ASPHALT CEMENTS. Add the following: Performance Graded Asphalt Binder shall conform to the requirements of AASHTO MP1 and the additional properties defined by AASHTO T-53 and ASTM D5801 assigned to each grade.

		Performance Graded Asphalt Cement		
Property	Standard	PG 52-28	PG 58-28	PG 64-28
Softening Point	AASHTO T-53	(none)	49°C	52°C
Toughness (min)	ASTM D5801	(none)	12.4 N-m	12.4 N-m
Tenacity (min)	ASTM D5801	(none)	8.5 N-m	8.5 N-m

(9/18/00)R244M98

SECTION 703

AGGREGATES

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
37.5 mm	100		
25 mm	70-100	100	100
19 mm	60-90	70-100	70-100
9.5 mm	45-75	50-79	50-85
4.75 mm	30-60	35-58	35-65
2.36 mm	22-52	20-47	23-50
0.600 mm	10-33	10-26	13-31
0.300 mm	6-23	6-19	10-26
0.075 mm	0-6	0-6	8-15

(2/28/00)R117M98

Standard Modifications

703-2.04 AGGREGATE FOR ASPHALT CONCRETE PAVEMENT. Under Blended Aggregate, delete the last sentence and substitute: "Ensure that the fraction actually retained between any two consecutive sieves larger than the 0.150 mm is not less than 2% of the total."

703-2.07 SELECTED MATERIAL. Replace the last sentence in both items 1. and 2. with the following: The percent passing the 0.075 mm sieve will be determined on minus 75 mm material. (06/25/99)M82

703-2.07 SELECTED MATERIAL. Add the following:

4. Selected material, type D, shall consist of earth, sand, gravel or rock materials obtained from the excavation, and shall contain no wood, concrete or other debris.

(2/22/00)R89M98

SECTION 706

CONCRETE AND PLASTIC PIPE

Standard Modifications

706-2.06 PLASTIC PIPE FOR SANITARY SEWERS. Replace "Type S" with "Type S or Type D".

706-2.07 CORRUGATED POLYETHYLENE PIPE. Replace "Type S" with "Type S or Type D".

(02/08/01)M97

SECTION 712

MISCELLANEOUS

712-2.06 FRAMES, GRATES, COVERS AND LADDER RUNGS. Add the following:

Ductile iron castings	ASTM A536 for grade 60-401.

(2/22/00)R78M98

712-2.14 PREFORMED PAVEMENT MARKINGS. Add the following to paragraph A. under Item 1., General Requirements: The preformed ribbon shall consist of one solid piece of required width and length. In solid stripe areas, the tape length shall, where possible, be a minimum of 30 meters. (7/15/96)R79M

Special Provisions

712-2.17 METHYL METHACRYLATE PAVEMENT MARKINGS. Add the following Subsection:

2. Performance Properties: Add the following:

k. Adhesion: To Portland Cement, minimum 2000 psi, to asphalt, dependent on tensile failure of the substrate.

(12/04/02)R246

Add the following Subsection:

712-2.19 WOOD DECKING. Shall be visually graded and stamped per WWPA standard grading rules and have a moisture content of 19% maximum after treatment. Plank species shall be Douglas Fir, No. 2 or better with a minimum Fb = 9650 KPa. Planks shall be treated with Chromated Copper Arsenate (CCA).

The planks shall be fastened to the structure with (2) galvanized 13-mm diameter carriage bolts made from A307 material per plank at each support. The planks shall have a maximum 6-mm gap between each adjacent plank. Planks are to be drilled prior to installation of bolts. Use galvanized mild plate washers at all nuts bearing on wood. Submit shop drawings for approval.

SECTION 715

STEEL FOR PILES

715-2.02 GENERAL REQUIREMENTS. Delete Item 1 in its entirety and replace with the following: Meet the requirements of API LX 60 for steel bearing piles. Do not use steel manufactured by the acid-Bessemer process. Steel piles when placed in the leads shall not exceed the camber and sweep permitted by mill tolerance. Piles bent or otherwise injured will be rejected.

SECTION 716

STRUCTURAL STEEL

716-2.02 General Requirements. Delete Item 2 and replace with the following:

2.	Structural Steel	ASTM A 992M	
	HSS Structural Steel	Bridge 2-3	API LX 60

Delete Item 7 and replace with the following:

7. Filler Metal for Applicable Arc-Welding Electrodes		AWS Specifications
	Hydrogen Electrodes	Use 482.6 MPa Low

SECTION 724

SEED

Special Provisions

724-2-02. MATERIALS. Delete this subsection in its entirety and substitute the following:

Meet applicable requirements of the State of Alaska Seed Regulations, 11 AAC 34, Article 1 and Article 4.

Furnish "certified seed" or 4 signed copies of a report certifying that each lot of seed has been tested by an approved laboratory within 9 months of date of application. Include: name and address of laboratory, date of test, lot number for each kind of seed, and results of test as to name, percentages of purity and germination, and percentage of weed content for each kind of seed furnished.

Meet or exceed the percentages of sproutable seed specified in Table 724-1.

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.

(03/05/02)R52M98

SECTION 726

TOPSOIL

Special Provisions

726-2.01 TOPSOIL. Delete this subsection in its entirety and substitute the following:

Topsoil furnished by the Contractor shall consist of a natural friable surface soil without admixtures of undesirable subsoil, refuse, or foreign materials. It shall be shredded and free from roots, hard clay, gravel, larger than 25 mm in any dimension, noxious weeds, tall grass, brush, sticks, stubble, or other liter, and shall have indicated by a healthy growth of crops, grasses, trees, or other vegetation that it is free-draining and non-toxic. Topsoil to contain not more than 10% gravel by dry weight of total sample. For the purposes of this specification gravel is defined per ASTM D-422 modified to include only material passing 1-inch and retained on the No. 4 sieve.

Topsoil Testing and Amendments

Topsoil shall conform to the following requirements, as tested using the procedures included in ASTM D-422, ASTM D2974 and ATM 203.

Specific topsoil amendment and fertilizer specification including micronutrients for the plant types and seeding specified on the Plans shall be as per a certified soils laboratory recommendations from two (2) representative topsoil samples furnished by the Contractor to the approved Soils Laboratory. The Soils Testing Laboratory and their topsoil test recommendations shall be reviewed and approved by the Engineer prior to its use. All soils testing, amendments, and fertilizer shall be paid by the Contractor.

Approved topsoil amendments and fertilizer shall be thoroughly incorporated into the topsoil off-site.

Topsoil Mix

Organic Material	15-25% by dry weight of total sample (Organic matter is to be determined by loss-on-ignition of oven dried material in accordance with ASTMD-2974)
Silt	25% to 45% by dry weight
Sand	35% to 55% by dry weight

Limestone & Fertilizer: Fertilizer shall be of standard commercial types supplied separately or in mixtures, and furnished in moisture proof containers. Each container shall be marked with the

weight and the manufacturer's guaranteed analysis of the contents showing the percentage for each ingredient contained therein.

The proportion of chemical ingredients furnished shall be a mixture such as to provide the total available nitrogen, phosphoric, and potassium as required by the soil analysis recommendations or as specified in the Special Provisions.

Tolerances of the chemical ingredient shall be plus or minus 2%. No cyanamid compounds or hydrated lime will be permitted in mixed fertilizers.

Limestone shall contain not less than 85 percent of calcium and magnesium carbonates. Agricultural ground limestone suitable for application by a fertilizer spreader shall conform to the following gradation:

SIEVE DESIGNATION	MINIMUM PER CENT PASSING, BY WEIGHT
2 mm	100
850 µm	90
150 µm	50

The Contractor may use pelletized limestone, subject to approval by the Engineer.

Sufficient fertilizer and limestone shall be applied to the topsoil such that the total natural and applied chemical constituents are within the following ranges:

Nitrogen	21-35 PPM
Phosporic Acid	11-20 PPM
Potassium	76-150 PPM
Limestone	Sufficient to attain a Ph of 6.0 to 7.0

The Contractor shall furnish soil analysis test reports verifying that the above conditions are met. Fertilizer and limestone shall be applied at the rates indicated by the soil tests and worked into the topsoil to a uniform depth of two inches.

Organic material for incorporation into topsoil, shall be partially decomposed peat moss. Organic material shall be from a source above the water table. Peat moss may require chopping or shredding to insure thorough mixing with the topsoil.

SECTION 727

SOIL STABILIZATION MATERIAL

Special Provisions

727-2.01 MULCH. Delete numbered item 1. in its entirety and substitute the following:

1. Virgin/Recycled Wood Fiber, Recycled Paper ("wood cellulose") Mulch The mulch shall meet the following requirements:

   a. Contains no growth or germination inhibiting factors.

   b. Will remain in uniform suspension in water under agitation and will blend with grass seed, fertilizer and other additives to form a homogeneous slurry.

   c. Mulch can be applied uniformly on the soil surface.

   d. Will not create a hard crust upon drying and have moisture absorption and retention properties and the ability to hold grass seed in contact with the soil.

   e. Dyed a suitable color to facilitate inspection of its placement.

   Ship the mulch material in packages of uniform weight (plus or minus 5%) and bear the name of the manufacturer and the air-dry weight content.

   Use a commercial tackifier on all areas steeper than 3:1. Use the amount recommended by the manufacturer.

(8/19/99)R206M98

Add the following:

3. Bark Mulch. Mulch for planting beds shall be derived from Douglas Fir or Spruce species. It shall be ground so that a minimum of 95 percent of the material will pass through a 32mm sieve and no more than 50 percent, by loose volume, will pass through a 6mm sieve. The mulch shall not contain resin, tannin, or other compounds in quantities that would be detrimental to plant life.

Add the following:

727-2.02 MATTING. Delete the subsection in its entirety and substitute the following:

Knitted Straw Mat. Commercially manufactured erosion control blanket. Netting shall be photodegradable and the thread shall be biodegradable. Straw shall be from oats, wheat, rye or other approved grain crops that are free from noxious weeds, mold or other objectionable

material. May contain coconut or fiber to reinforce the straw. Follow the manufacturer's published recommendations.

Add the following subsection:

727-2.04 HYDRO MATTING. Hydro matting shall be a hydraulically applied system of long strand fibers joined together by a high-strength adhesive to create a continuous three dimensional blanket that adheres to the soil surface to form a bonded fiber matrix. The system shall be applied to the soil as a viscous mixture, which upon drying, creates a high strength, porous and erosion resistant mat. Upon drying, the matrix shall not inhibit the germination and growth of plants beneath the layer. The matrix shall retain its form despite rewetting.
(2/18/03)R223M

SECTION 729

GEOTEXTILES

Standard Modifications

729-2.01 EMBANKMENT SEPARATION AND REINFORCEMENT.

1. Separation. Replace "(medium survivability)" with "(Class 3)".

2. Reinforcement. Replace "Separation (high survivability)" with "Stabilization".

729-2.02 SUBSURFACE DRAINAGE AND EROSION CONTROL.

2. Erosion Control. Replace "Erosion Control" with "Permanent Erosion Control".

729-2.04 SEDIMENT CONTROL. Replace the first sentence with "Meet AASHTO M 288 for Temporary Silt Fence".
(02/08/01)M98

Special Provisions

Add the following subsection:

729-2.05 GEOGRID. Biaxial polymer grid, specifically fabricated for use as a soil reinforcement, having high tensile strength, modulus, and stiffness in both principal directions. Use a single-layered, integrally-formed grid structure. Use either extruded or punched and drawn polypropylene or high density polyethylene. Geogrid must be UV-stabilized, chemically inert, and meet the physical requirements in Table 729-1.

Package, label, handle, and store geogrid material according to ASTM D 4873.

TABLE 729-1
GEOGRID PHYSICAL REQUIREMENTS

PROPERTY	REQUIREMENT	TEST METHOD
Average Aperture Size, MD[1] XD[2]	 0.8-2.0 in. 0.8-2.0 in.	I.D Calipered Maximum Inside Dimension
Installation Damage Resistance	80%[3]	Sample per D5818 Test per D6637
Rib Thickness, min. (Nominal)	40 mils	Rib Thickness Calipered Minimum
Tensile Strength, min. At 2% Strain At 5% Strain	MD & XD 400 lb/ft 800 lb/ft	ASTM D6637
Junction Strength, min.	90%[4]	GRI GG-GG2

[1] MD: Machine Direction which is along roll length.
[2] XD: Cross machine direction which is across roll width.
[3] 80% relative to pre-installation Tensile Strength values. Perform Test install using GP or GW Class soil.
[4] 90% relative to Ultimate Tensile Strength as determined by ASTM D6637

SECTION 730

SIGN MATERIALS

Standard Modification

730-2.04 SIGN POSTS. In item 2. Perforated Steel Posts., paragraph a., first sentence, replace "ASTM A 446" with "ASTM A 653 and ASTM A 924".

(06/25/99)M83

Special Provisions

Under item 1., Metal Pipe Posts, add the following to paragraph a.: Posts conforming to ASTM A53 shall be either Type E grade B, or Type S grade B.

Add the following:

6. Structural Tubing and W Shape Beams.

   a. Structural tubing shall conform to either ASTM A500, grade B, or ASTM A501. The tubing shall be square and of the dimensions called for in the plans with 5 millimeter thick walls. 11 millimeter diameter holes shall be drilled as required to permit mounting of the sign.

   b. W shape beams shall conform to ASTM A36.

   c. Structural tubing and W shape beams shall be hot dip galvanized in accordance with 1.b. of this subsection. Damaged and abraded tubes and beams shall be repaired in accordance with 1.c. of this subsection.

7. Square Non-Perforated Steel Tubes.

   a. Fabricate from 4.75 mm thick cold-rolled carbon steel sheets, commercial quality, to meet ASTM A 500, Grade B. Form posts into a steel tube, roll to size, and weld in the corner. Furnish with 11 mm diameter holes drilled or punched as necessary to permit mounting of the sign.

   b. Hot dip galvanize to meet AASHTO M 111 after fabrication. When cutting metal posts after hot dip galvanizing, minimize damage to the zinc coating and protect all exposed surfaces by treating the exposed area.

   c. Repair galvanized surfaces that are abraded or damaged at any time after the application of the zinc coating to meet the applicable provisions of AASHTO M36.

(08/04/03)R81M98