



# Fairbanks North Star Borough

## Rural Services Division

# Standard Specifications

For  
Local Road Maintenance

**2010**  
Revision A



Revised April 2010

# STANDARD SPECIFICATIONS FOR LOCAL ROAD MAINTENANCE 2010

## REVISION A

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**SECTION 101**

**DEFINITIONS & TERMS**

**101-1.01 GENERAL.** The terms and definitions listed apply to these Specifications. If a term is not defined, the ordinary, technical, or trade meaning will apply, within the context in which the term is used.

**101-2.01 ACRONYMS.** Acronyms used in this Contract include the following:

<b>ASDS</b>	<i>Alaska Sign Design Specifications</i>
<b>ASTM</b>	<i>American Society for Testing &amp; Materials</i>
<b>ATM</b>	<i>Alaska Test Method Manual</i>
<b>ATMS</b>	<i>Alaska Traffic Manual Supplement</i>
<b>DEC</b>	<i>Alaska Department of Environmental Conservation</i>
<b>DOLWD</b>	<i>Alaska Department of Labor and Workforce Development</i>
<b>DOT&amp;PF</b>	<i>Alaska Department of Transportation and Public Facilities</i>
<b>FNSB</b>	<i>Fairbanks North Star Borough</i>
<b>MUTCD</b>	<i>Manual of Uniform Traffic Control Devices used with the Alaska Traffic Manual Supplement</i>
<b>PO</b>	<i>Purchase Order</i>
<b>RS</b>	<i>Rural Services Division of Borough</i>
<b>R-O-W</b>	<i>Right of Way</i>
<b>RSA</b>	<i>Road Service Area, or other special service area managed by RS</i>
<b>SSHC</b>	<i>DOT&amp;PF Standard Specifications for Highway Construction, 2004 Edition</i>
<b>SWPPP</b>	<i>Storm Water Pollution Prevention Plan</i>
<b>WO</b>	<i>Work Order</i>

**101-3.01 DEFINITIONS.**

**AUTHORITY.** For this Contract, Authority is the Engineer. In the event of an emergency, Authority may be the State Troopers, local law enforcement, National Guard, or other Federal law enforcement official.

**BOROUGH.** The Fairbanks North Star Borough, FNSB.

**CHANGE ORDER.** Documentation of an agreement by the Borough and the Contractor of a Contract change.

**COMMISSION.** Refers to the RSA Commission and can include a Commissioner authorized to act on behalf of the entire Commission.

**CONTRACT.** The written agreement between the Borough and the Contractor concerning the work.

**CONTRACTOR.** The awarded firm or individual who signed the agreement with the Borough.

## **SECTION 101**

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**DEFICIENCY.** Refers to work that does not meet specification or other Contract requirements.

**EXEMPT WORK.** Routine maintenance work that is exempt from the requirements of AS 36.05.010.

**ENGINEER.** FNSB Rural Services Engineer/Manager or designated staff member.

**PREVAILING WAGE.** Wages subject to the provisions of AS 36.05.010.

**PURCHASE ORDER.** A Borough form used to document the amount of money encumbered by the Commission for funding RSA Maintenance. The amount of the purchase order cannot be exceeded without Borough approval.

**R-O-W.** The boundary of a public road. For this contract, all work is contained within the right of way.

**ROUTINE MAINTENANCE WORK.** Section 800 work found in the bid items that when performed continually and as needed protects the road from damage and ultimately, replacement.

**SURVEYOR.** A Professional Land Surveyor with current registration in the State of Alaska.

**WORK ORDER.** Refers to a process of ordering work with written documentation on a form provided by RS. The form is REQUIRED for work items not covered under the Contract. A work order form may also be used by the Commission to document routine maintenance work from the Contractor.

END OF SECTION

**SECTION 102**

**WAGE RATES, REGULATIONS, AND LABOR STANDARDS**

**102-1.01. DESCRIPTION.** Pay items in Division 800 Maintenance are exempt from the provisions of AS 36.05.010. All other work pay items are subject to provisions of AS 36.05.010, also called Prevailing Wage work.

**102-2.01. PREVAILING WAGES.** Before the Contractor starts work on Prevailing Wage pay items, the Contractor shall provide the Engineer a copy of the notice of work filed to the DOLWD. During the work, the Contractor shall provide a copy of all certified payrolls submitted to DOLWD. When work is completed, provide the Engineer a copy of the notice of completion filed with DOLWD.

**102.3.01. REQUIREMENTS.**

1. The Contractor, and any subcontractors, regardless of tier, shall pay all employees unconditionally and not less than once a week.
2. The wages paid by the Contractor, and any subcontractors, regardless of tier, may not be less than those stated in the advertised specifications, regardless of the contractual relationship between the Contractor or any subcontractors and laborers, mechanics or field surveyors;
3. The scale of wages to be paid shall be posted by the Contractor in a prominent and easily accessible place at the site of the work.
4. The Contractor and any subcontractors, regardless of tier, shall comply with all applicable provisions of Title 36 of the Alaska Statutes including AS 36.90.210 and all other applicable Federal, State and Local laws.
5. The Contractor and each subcontractor, regardless of tier shall, before the Friday of every second week, file with the Department of Labor & Workforce Development a sworn affidavit for the previous reporting period, setting out in detail the number of persons employed, wages paid, job classification of each employee, hours worked each day and week, and other information on a form provided by the Department of Labor & Workforce Development. The Contractor and all subcontractors shall also submit a copy of the certified payroll and transmittal letter to the agency noted above and to the Engineer.
6. The Borough shall withhold so much of the accrued payments as is necessary to pay to laborers, mechanics, or field surveyors employed by the Contractor or subcontractors the difference between:
  - A. the rates of wages required by the contract to be paid laborers, mechanics or field surveyors on the work and
  - B. the rates of wages in fact received by laborers, mechanics or field surveyors.
7. In the event, the Contractor or any subcontractor, regardless of tier, is found to have paid any laborer, mechanic, or field surveyor a rate of wages less than the rate of wages required by the contract to be paid or any other violation of this Article, the Borough may, at its option, consider the violation to constitute a substantial violation of the Contract Documents.

END OF SECTION

SECTION 103

WORK RESPONSIBILITIES

**103-1.01 DESCRIPTION.** This section describes work responsibilities of the Borough, the Contractor and the Commission for this Contract.

**103-2.01 CHANGES.** Changes to the Contract and specifications must be in writing and can only be made by the Engineer.

**103-3.01 CONTRACTOR'S RESPONSIBILITIES.**

1. Equipment. Provide adequate equipment meeting industry safety standards for the work within the time specified. The Contractor shall provide a management plan, if requested, outlining the Contractor's plan for ensuring timely response for all work included in the Contract. The management plan shall describe how the Contractor will provide the necessary service required, how many pieces of equipment will be available for RSA work, how many operators are available, and how the work is tracked. The Engineer may inquire about other specific information when requesting the maintenance plan.
2. Labor. Provide competent journeymen operators and laborers to perform the work. Any personnel performing on the job training requires the presence of a qualified Superintendent. The Contractor cannot charge additional time or money for personnel in training.
3. Work Response Time. The Contractor is responsible for responding to all RSA maintenance calls within the time noted in the specification. If there is no response time in the specification, the contractor shall respond within 7 days. If the Commission agrees, the work may be scheduled for a later time.
4. Communications. The following are minimum requirements for communications:
  - A. The Contractor shall be available to the Engineer by telephone 24 hours a day, 7 days a week for emergencies.
  - B. The Contractor shall maintain facilities for facsimile (FAX) communication with the Engineer 24 hours a day, 7 days a week.
  - C. Operators of equipment used in the performance of work under this Contract must be accessible to the Contractor's field superintendent at all times during work.
  - D. The Contractor shall supply an office number for RSA Commissioners to call for routine maintenance. Provide means for returning Commission or Rural Service communications within 4 hours between the hours of 8:00 AM and 5:00 PM Monday through Friday. If a communication is received after hours, the Contractor will reply prior to noon of the next working day. Refusing to communicate with the Commission and the Engineer is considered a deficiency.
  - E. The Contractor shall provide information to Commission if crews cannot respond within the specified response time and provide an expected time.
  - F. The Contractor shall provide the Engineer with a cell phone number; in areas with no cell phone service available, the Contractor shall have a communication plan in these areas for emergency contact. If the Contractor does not supply the Engineer with this plan, any issues arising from lack of adequate communication shall be considered a deficiency.
  - G. The Contractor shall inform the Engineer of planned absence dates, and provide the name and phone numbers of the contact person responsible for response during those dates.

## SECTION 103

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5. Work Obstructions. Immediately report any encroachments within the right of way that will impede work operations to the Commission.
6. Work without a Purchase Order. In accordance with the Contract, the Contractor shall not be compensated for:
  - A. Work performed without a P.O. in place
  - B. Performing work without having adequate funding available on an existing P.O.
7. Safety. The Contractor shall provide a copy of the written safety plan for operations when requested by the Engineer. The Contractor and employees shall always proceed with work in a safe, professional manner, using equipment in the manner in which it was intended. Inform the Commission when called for the work if there are any safety concerns.
8. Completion of Work. The Contractor shall leave the RSA with a neat, professional looking final product and in accordance with all the Specifications that apply to this Contract.

### 103-4.01 COMMISSION AUTHORITY.

1. The Commission, on behalf of the mayor, has the authority to perform the following for this Contract (FNSB Code, Title 14.01.151):
  - A. Request routine maintenance work.
  - B. Request work by work order.
2. The Commission **cannot**:
  - A. Make Contract changes or order work not covered by the Contract.
  - B. Order the Contractor to make changes to grades, profiles, drainage or changes that require oversight of a Registered Engineer under Alaska State Law.
  - C. Request any work that exceeds the amount of funding authorized by the current P.O.

### 103-5.01 BOROUGH RESPONSIBILITIES.

The Engineer and staff provide the following support for Contracts:

1. Issue routine maintenance Contracts and contract renewals
2. Issue Contract changes
3. Engineering and technical support for Contractors and Commissions
4. Conflict resolution
5. Review and processing of invoices
6. Maintenance of SA maps & mileage changes
7. Inspection when required
8. Review of work orders greater than \$10,000
9. Provide the Commissioner's names to the Contractor

END OF SECTION

## SECTION 104

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### SECTION 104

#### SCOPE OF WORK

**104-1.01 DESCRIPTION OF WORK.** The work consists of providing all labor, materials and equipment necessary to perform year-round routine road maintenance and repair services in accordance with the requirements of the Contract documents.

**104-2.01 ROADS APPROVED FOR MAINTENANCE.** The Contract provides a mileage list of all RSA roads covered by the contract. The Contractor is NOT authorized to perform any Section 800 Maintenance work for any roads listed with mileage as "0". The Contractor will be notified of any changes in approved service area road mileage.

**104-3.01 REFUSAL OF WORK.** THE CONTRACTOR CANNOT REFUSE ANY ROUTINE MAINTENANCE WORK UNDER THIS CONTRACT. Refusing or delaying maintenance without communication is considered grounds for termination of the Contract.

**104-4.01 EMERGENCY SITUATIONS.** In the event of an emergency or natural disaster, continue to perform work under this Contract unless ordered by authorities to cease.

**104-5.01 SPECIFICATIONS:** The Contractor is responsible for understanding and abiding by the specifications. Contact the Engineer if the specifications cannot be followed as written. If a change is required, the Engineer will determine if a price change is necessary, and if so will start the negotiation process.

**104-6.01 UTILITIES.** In RSA's with underground utilities present, the Contractor is responsible for calling for locates before digging. Damage due to excavation or other work near utilities by the Contractor is the responsibility of the Contractor. The Contractor shall protect all existing driveway culverts and drainage structures, and make repairs to damages at his own cost.

**104-7.01 EXISTING SURVEY MONUMENTS.** This Contract applies only to work within the road boundaries adjacent to private property. The Contractor must preserve all survey monuments for property lines and road alignment monuments, established benchmarks, and survey control points. If the Contractor disturbs any survey monuments, the Contractor shall be required to hire a Professional Surveyor to re-establish the monuments at his expense.

The Contractor shall call the Engineer to determine the R-O-W if necessary to perform the work.

**104-8.01 SEASONAL WEIGHT RESTRICTIONS.** It is the Contractor's responsibility to keep informed of and compliant with seasonal weight restrictions for RSA and DOT&PF roads.

**104-9.01 ENVIRONMENTAL.** The Contractor is required to comply with Alaska DEC regulations concerning spills while performing work in the RSA. Provide adequate spill pads in work vehicles for containment of accidental spills during work by equipment. Equipment used in the RSA shall operate without excessive fluid leaks.

**104-10.01 EROSION AND SEDIMENT CONTROLS.** The contractor is required to use Best Management Practices to mitigate erosion problems for all RSA work. The Contractor shall be responsible for cleaning ditches, culverts, and asphalt surfaces impacted by erosion or vehicle tracking.

**104-11.01 DAMAGES TO PROPERTY.** The Contractor is responsible for damage to property in the course of work. The Contractor is advised to document existing damages in the RSA prior to each work effort.

END OF SECTION

**SECTION 105**

**WORK QUALITY**

**105-1.01 DESCRIPTION.** Work quality, timeliness of response to RSA calls, completing all work in a professional manner, are performance measures of this contract. This section addresses expectations and deficient work.

**105-2.01 CLEANUP.** All clean-up work, berms, and crew-generated trash shall be removed from the RSA. Obtain all permits required by law for such disposal and dispose of legally.

**105-3.01 TESTING.** Normal routine maintenance activities will not require testing. Repairs requiring new material acquisition are subject to testing per the Specifications and Section 107.

**105-4.01 MATERIALS.** The Contractor shall provide evidence of meeting the specifications if requested by the Engineer. Material not meeting the specifications will be removed and replaced with the specified material at the Contractor's expense.

**105-5.01 RESPONSE TIME.** The Contractor must meet the requirements of the specifications for response times. If the Contractor cannot meet the times specified, the Contractor must communicate with the Commission and give a reasonable estimate of when the work will be performed. Unreasonable estimates or not responding by actions or communication is considered non-responsive. In the case of non-responsiveness, another contractor may be hired to perform the work, and any costs greater than the unit bid prices may be billed to the Contractor.

**105-6.01 WORK DEFICIENCIES.** Any work by the Contractor that does not meet the Contract requirements will be considered a deficiency by the Engineer. If the work does not meet the requirements of the specification of any work item, and is observed by the Commission, the Commission will notify the Contractor. The Contractor shall correct the deficiency within 48 hours. If the deficiency is safety related and creates a hazard to the public, the Contractor must respond immediately or another contractor may be hired to perform the work, and any costs greater than the unit bid prices may be billed to the Contractor.

**105-7.01 REPEATED OR SERIOUS DEFICIENCIES.** When the Contractor has multiple deficiencies, or refuses to correct a deficiency, a Letter of Non-Compliance will be given to the Contractor. A schedule for making corrections will be specified. In the event the Contractor does not correct Non-Compliance problems as scheduled, another contractor may be called in to correct the problems, and any costs greater than the unit bid prices may be billed to the Contractor.

**105-8.01 NON PERFORMANCE.** After three (3) letters of Non-Compliance are issued without correction within a 12-month period, the Engineer shall forward documentation to the Chief Procurement Officer for consideration of debarment from future contracts.

END OF SECTION

**SECTION 106**

**WORK ORDERS**

**106-1.01 DESCRIPTION.** Use Work Orders to document work requests, and provide written quotes for work necessary to maintain safe and drivable roads. A work order is not required for Routine Maintenance Work.

**106-2.01 MATERIALS.** The Contractor shall supply the Engineer with material specifications, testing results, product data sheets and warranty information when requested.

**106-3.01 WORK ORDER REQUIREMENTS.**

1. This specification is not intended to replace the contract unit prices for routine maintenance work covered by other specifications.
2. Work Orders document how the work is ordered by the Commission.
3. The following procedure applies to Work Order quotes UNDER \$10,000.00:
  - A. The Commission will provide the Contractor with the WO form. The form will provide the specification pay item number of the work required, the locations of the work limits, and the date the work is requested to be completed.
  - B. The Contractor shall provide a quote including a breakdown of materials, labor, equipment, all other items required to estimate the cost of work, and proposed work schedule.
  - C. The Contractor shall respond with a signed quote to the Commission within 5 working days.
  - D. If the quote is accepted by the Commission, a Commissioner will sign and return a copy of the WO to the Contractor.
  - E. WO's signed by the Contractor and then the Commission provide authorization to proceed with the work. Without this authorization, the work will not be paid for under this Contract.
  - F. Quotes may be rejected at the discretion of the Commission and the Engineer.
4. For WO Quotes for \$10,000 or GREATER:
  - A. The Commission shall provide the WO, signed and accepted by both Commission and Contractor to the Engineer for written approval.
  - B. The Engineer will provide copies of the approved WO to the Contractor as authorization to proceed with the work.
  - C. Without this approval, the work is not authorized and will not be paid for under this contract.
  - D. If the WO is not approved, the Engineer will notify the Commission and the Contractor.

END OF SECTION

**SECTION 107**

**MATERIALS & TESTING**

**107-1.01 DESCRIPTION.** Provides for testing and quality assurance requirements for work requiring new materials.

**107-2.01 SUPPLY AND SOURCE.** The Contractor shall supply materials that are new and meet the Contract or WO requirements, unless specified otherwise.

**107-3.01 SUBSTITUTIONS.** The Contractor shall request a substitution of material from the Engineer. The Contractor will furnish information on the purposed substitution that certifies the following:

1. Conformance to the performance specifications, testing, quality or dimensional requirements.
2. Suitability for the use intended in the Contract work.

**107-4.01 TESTING AND ACCEPTANCE.** Materials may be inspected and tested by the Engineer at any time before, during, or after they are incorporated into the work. All testing will be performed in accordance with the specifications, if testing is ordered by the Commission or Engineer, responsibility for paying for tests are:

1. FAILING TESTS. All failing tests shall be paid for by the Contractor. The Contractor shall be responsible for the cost of retesting until passing tests results are provided.
2. PASSING TESTS. The cost will be paid for by the RSA.

**107-5.01 REMOVAL OF UNACCEPTABLE MATERIALS.** Unauthorized substitutions or materials that fail to meet Specifications may be rejected by the Engineer. Any rejected material will be removed and replaced with the Specified materials at no additional cost to the RSA.

END OF SECTION

**SECTION 108**

**WORK AREA MANAGEMENT**

**108-1.01 DESCRIPTION.** This Section establishes Contractor responsibilities for traffic control, public safety, and protection of new facilities.

**108-2.01 MATERIALS.** All traffic control devices and signs shall comply with the Alaska Traffic Manual Supplement (ATMS) to the Manual of Uniform Traffic Control Devices (MUTCD).

**108-3.01 MINIMUM REQUIREMENTS.**

1. Work Area Safety. Protect the work area and control traffic at all times. Furnish, erect, maintain, replace, clean, move and remove the traffic control devices required to insure the safety of the traveling public and all administrative responsibilities necessary to implement this work.
2. Protection of Work. Provide barricades and other protective means to prevent damage to newly installed maintenance items. Work damaged without protective measures will be replaced by the Contractor.
3. Night Illumination. Provide appropriate flashing beacons, area lighting and visible warning signs for all unfinished work in the R-O-W.
4. The Contractor shall be solely responsible for public and worker safety while performing work.
5. Provide access for emergency response vehicles at all times.
6. Traffic control personnel shall be properly certified and carry evidence of such.

**108-4.01 CLOSURES.**

1. Road closures may be considered if:
  - A. There are alternate routes available.
  - B. The closure will be less than 8 hours long.
  - C. The Contractor notifies emergency providers, bus companies, residents affected by the closure and the Engineer 24 hours in advance.
  - D. All traffic control meets the requirements of the MUTCD Part 6 and the ATMS.
2. Lane Closures may be considered if:
  - A. The Contractor meets the traffic control requirements of the MUTCD part 6 and the ATMS.
  - B. Both lanes are open to traffic at the end of the work shift.

END OF SECTION

**SECTION 109**

**PAYMENT REQUIREMENTS**

**109-1.01 DESCRIPTION.** The Borough will pay the Contractor for work accomplished by the Contractor and approved by the Commission and the Engineer. The amounts paid shall be for the quantities of work accepted by the Commission or the Engineer at the Contract Unit Price.

**109-2.01 INVOICES.** The Contractor shall submit all invoices promptly, and no later than 30 days from the day the work was performed. Submit the original invoice with attachments to RS, and a copy of the invoice to the Commission at the address indicated on the PO. Late invoices are considered a deficiency.

Invoices must include the following information:

1. For routine maintenance items of work (specifications in the 800 series):
  - A. Name of Contractor, address, telephone and fax numbers.
  - B. Invoice number and date.
  - C. P.O. number.
  - D. Service Area name.
  - E. Which roads were maintained and dates of work.
  - F. Bid Item number, unit price, units completed, extended price.
  - G. Provide a copy of WO (if issued).
2. For prevailing wage work, include the same information as listed above on the invoice, in addition to:
  - A. Provide a copy of the WO signed by both the Commission or Engineer and the Contractor with the invoice.
  - B. The amount of the invoice cannot exceed the amount of the quote given on the WO.
  - C. If materials not included on the bid form were used for the work, provide the purchasing invoice for the material.
  - D. If any work was subcontracted, provide an invoice from the subcontractor.
  - E. Prevailing wage work requires copies of certified payrolls, copies of the Notice of Work, and Notice of Completion sent to DOLWD prior to final payment.

The Contractor shall keep logs of maintenance performed, including road name; hours worked; type of work performed, and date of work. Upon the Engineer's request within 15 days of receipt by RS of the invoice, the Contractor shall provide such documentation as; employees signed time cards, Contractor's daily logs, metered equipment hours, and field notes on work progress.

**109-3.01 MEASUREMENT AND PAYMENT.** Measurement of unit price items will follow the requirements in SSHC Section 109-1.02. A change to the method of measurement in the Contract requires a signed Change Order.

END OF SECTION

## SECTION 201

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### SECTION 201

#### CLEARING AND GRUBBING

**201-1.01 DESCRIPTION.** This work shall consist of clearing, grubbing, removing and disposing of all vegetation and debris within the designated areas of the project as shown in the plans, described in the scope of work or as directed by the Engineer.

#### CONSTRUCTION REQUIREMENTS

**201-2.01 CLEARING.** Clearing shall consist of cutting and disposing of all trees, down timber, stubs, brush, bushes and debris from all areas designated. Trees falling outside the specified limits shall be removed and disposed of. The trees and brush in areas designated for clearing only shall be cut to a height of not more than 6 inches above surrounding ground unless otherwise specified.

**201-2.02 GRUBBING.** Grubbing shall consist of removing and disposing of all stumps, roots, moss, grass, turf, debris, or other objectionable material within excavation limits, and within fill limits and depth as designated on the plans. The grubbing shall progress in such a manner that erosion will be kept to a minimum. The Contractor shall provide a SWPPP in accordance with Borough, State and Federal law if the disturbed area is greater than 1 acre.

Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with materials specified in the plans and specifications. All backfill materials shall be compacted in accordance with the specifications.

**201-2.03 DISPOSAL.** All vegetation and debris removed by clearing and grubbing shall be disposed of legally outside of the R-O-W.

**201-3.01 METHOD OF MEASUREMENT.** The work to be paid for will be the number of acres and fractions thereof, acceptably cleared and grubbed within the limits designated on the plans.

**201-4.01 BASIS OF PAYMENT.** The accepted quantities of machine clearing, hand clearing and grubbing will be paid for at the contract price per unit of measurement, completed and accepted.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
201(1)	Machine Clearing	Hour
201(2)	Hand Clearing	Man-Hour
201(3)	Grubbing	Acre

END OF SECTION

## SECTION 203

## EXCAVATION &amp; EMBANKMENT

**203-1.01 DESCRIPTION.** Excavate, haul, place, and compact or dispose of specified materials necessary to construct the project. Conform to the lines, grades, depths, and typical cross sections shown on the plans or as established.

**203-2.01 MATERIALS.** Excavation: Waste excavation is all muck, organic materials, unsuitable rock, silt, clay materials which cannot be used as a structural or embankment foundation, as determined by the Contract or the onsite Engineer. Excavation that meets the specifications for other material used on the project requires prior approval by the Engineer.

1. Borrow. Material meeting the requirements of Selected Material, Section 703-2.07 SSHC:

Select Type	Sieve No.	Percent Passing by Weight	Plasticity Index
Type A	No.4	20-55%	≤ 6
	No. 200	0-6% determined on the minus 3-inch portion of sample	
Type B	No. 200	0-10% determined on the minus 3-inch portion of the sample	≤ 6
Type C		See SSHC Subsections 203-3.04 or 203-3.05	

**203-3.01 CONSTRUCTION REQUIREMENTS.**

1. Excavation. The excavation shall be finished to reasonably smooth and uniform surfaces. Excavation areas shall be kept free draining at all times while the work progresses. Excavation operations shall be conducted so that material outside the limits of slopes will not be disturbed. See Section 104 for erosion and sediment control requirements.

Obtain all permits required by law for such disposal. Furnish a copy of such permission, waiver of claims, and permits to the Engineer before commencing work. Otherwise, material shall be hauled out of the RSA and disposed of legally.

2. Ditch Construction. For establishing a new ditch for water storage or drainage. Follow the same requirements as Excavation, and add:

The ditch back slope must be inside the Borough road right of way. Check property corners, underground utilities and structures added to the right of way that may need relocation, such as mail and newspaper boxes prior to excavation. Property corners damaged by the Contractor's work shall be re-established at the Contractor's expense. Any conflicts with existing conditions shall be resolved with the Engineer before work commences. Follow ditch bottom grade lines as shown on the plans, or at the direction of the Engineer.

3. Borrow. Build embankment; bring the material up in lifts limited to 6" in depth or no greater than the largest rock size of the material. Bench slopes greater than 4:1. Form benches wide enough to permit placement and compaction operations. Compact each lift to 95% of the optimum density.

## SECTION 203

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**203-4.01 METHOD OF MEASUREMENT.** The accepted quantities of excavation, ditch construction or borrow will be paid for at the contract price, per unit of measurement, completed and accepted.

**203-5.01 BASIS OF PAYMENT.** Removal and disposal of excavation are subsidiary to this work.

Payment will be made under:

<b>Pay Item No.</b>	<b>Pay Item</b>	<b>Pay Unit</b>
203(1)	Excavation	Cubic Yard
203 (2)	Excavation	Lump Sum
203(3)	Ditch Construction	L.F.
203(4)	Ditch Construction	Mile
203(5A)	Borrow Less than 50 cy	Cubic Yard
203(5B)	Borrow 50 cy or more	Cubic Yard
203(6)	Borrow	Ton
203(7A)	Borrow Less than 50 cy	CY-Measured in Place
203(7B)	Borrow 50 cy or more	CY-Measured in Place

END OF SECTION

**SECTION 203**

**SECTION 301**

**AGGREGATE BASE AND SURFACE COURSE**

**301-1.01 DESCRIPTION.** Construct an aggregate base course or aggregate surface course on a reconditioned roadbed, as approved by the Engineer.

**301-2.01 MATERIAL REQUIREMENTS.**

1. Basaltic Aggregate. Meeting the grading in the table below, as determined by ATM WAQTC FOP for AASHTO T 27/T 11, sieve analysis of Aggregates and Soils.

Sieve	¾" Minus, % Passing by weight	1 ½" Minus % Passing by weight
1 ½ inch	-----	100
1 inch	100	70-85
¾ inch	70-100	60-75
3/8 inch	50-80	45-60
No. 4*	35-65	30-45
No. 8	20-50	22-37
No. 40	8-30	10-25
No. 200**	4-15	5-12

\*A minimum of 70% by weight shall have at least one (1) fractured face, as determined by ATM WAQTC FOP for AASHTO TP 61.

\*\*AASHTO M 147 recommends a min. of 8% for surfacing.

2. Crushed Aggregate. Meeting the grading shown in the table below, as determined by ATM WAQTC FOP for AASHTO 27/T 11, sieve analysis of aggregates and soils.

SIEVE	GRADATION			
	BASE COURSE		SURFACE COURSE	
	C-1	D-1	E-1	F-1
1-1/2 in.	100			
1 in.	70-100	100	100	100
3/4-in.	60-90	70-100	70-100	85-100
3/8-in.	45-75	50-80	50-85	60-100
No. 4	30-60	35-65	35-65	50-80
No. 8	22-52	20-50	20-50	40-70
No. 50	8-30	8-30	15-30	25-45
No. 200	0-6	0-6	8-15	8-20

## SECTION 203

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Crushed aggregate materials must also meet the following requirements unless otherwise noted:

Property	Surface Material	Test Method
L.A. Wear, %	45 maximum	AASHTO T-96
Degradation Value	45 minimum	ATM 313
Fracture, %	70, minimum, one face	WAQTC FOP AASHTO TP 61
Liquid Limit	35 maximum	WAQTC FOP AASHTO T 89
Plastic Limit	10 maximum	WAQTC FOP AASHTO T 90
Sodium Sulfite Loss	9 maximum, 5 cycles	AASHTO T 104

3. Crushed Asphalt Base Course. Reclaimed asphalt, with a minimum asphalt content of 4%, crushed or processed so that 100% by weight passes the 2-inch sieve and 95-100% by weight passes the 1-1/2-inch sieve.

### 301-3.01 GENERAL REQUIREMENTS.

1. Placing. Place the material in layers not exceeding 6 inches in depth.
2. Mixing. Mix the aggregate, adding water as needed to provide the optimum moisture content for compaction.
3. Shaping. Crown road to 4%, unless noted otherwise.
4. Compaction. Shape and grade the material to the required grade. Water or aerate as necessary to obtain the optimum moisture content for compaction. Each layer shall be compacted to 98% of the maximum density. Density for aggregates shall be determined by WAQTC FOP for AASHTO T 310 and T 224 when requested by the service area. The Contractor shall coordinate testing in place density with the Commission or Engineer. For all aggregates except for Crushed Asphalt Base Course, the maximum density and optimum moisture will be determined by ATM 212. The in place density for Crushed Asphalt Base Course shall be determined by ATM 412. Check for smoothness with a 10-foot straight edge and remediate any surface deviations of more than 1".

**301-4.01 METHOD OF MEASUREMENT.** Completed work shall be paid for by the contract unit price. The Contractor shall provide an invoice from the aggregate supplier that shows the date, time, weight <sup>1</sup> or measured quantity <sup>2</sup>, material type, material source and supplier name printed clearly on the invoice.

<sup>1</sup> If weighed, invoice shall show the gross, tare and net weights.

<sup>2</sup> If by CY, the Engineer shall measure the quantity in place.

**SECTION 203**

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**301-5.01 BASIS OF PAYMENT.** The accepted quantity of aggregate will be paid for at the contract price per unit complete, in place and accepted. Water required for compaction is incidental to this item.

<b>Pay Item No.</b>	<b>Pay Item</b>	<b>Pay Unit</b>
301(1A)	Basaltic Aggregate, 3/4-Inch minus- Less than 70 Tons	Ton
301(1B)	Basaltic Aggregate, 3/4-Inch minus- 70 Tons or more	Ton
301(2A)	Basaltic Aggregate, 1-1/2" minus Less than 70 Tons	Ton
301(2B)	Basaltic Aggregate, 1-1/2" minus 70 Tons or more	Ton
301(3A-__)	Crushed Aggregate, Grading __ Less than 70 Tons	Ton
301(3B-__)	Crushed Aggregate, Grading __ - 70 Tons or more	Ton
301(4-__)	Crushed Aggregate, Grading__	CY
301(5)	Crushed Asphalt Base Course	Ton

END OF SECTION

**SECTION 303**

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**SECTION 303**

**RECONDITIONING**

**303-1.01 DESCRIPTION.** This specification shall be used prior to adding any new aggregate to existing gravel roads. Re-grade the surface of an existing road, re-establish the crown, clean and grade the ditches to original grade lines, and shape shoulders to the original road width.

**303-2.01 MATERIAL REQUIREMENTS.** None.

**303-3.01 CONSTRUCTION REQUIREMENTS.**

1. Recondition Road. Scarify the existing surface to the bottom of the deepest pothole or deep enough to recover material for re-establishing the crown. Recover surface material bladed off the shoulder when possible. Recovered material shall be free of mud and excessive vegetation. Any large cobbles must be bladed aside and disposed of as waste. Pulverize loose material to 2" or smaller. Shape surface to a 4% crown on straight road sections, and super elevate curves as indicated on plans or by the Engineer. Shape shoulders to create uniform lines parallel to the centerline, to the original road width or as specified. Provide water as necessary during dry periods to achieve 95% compaction. The finished surface shall be smooth, uniform and thoroughly compacted. Maintain the surface until application of the surface course.
2. Recondition Ditches. Clean and grade ditches as shown on plans. Shape shoulders, and remove ditch wastes. Minimize contamination of the surface course.

**303-4.01 METHOD OF MEASUREMENT.** Recondition Road in accordance with the specifications, will be paid for by the mile, per two-lane road. Recondition Ditches, in accordance with the specifications, will be paid for by the mile, one side of the road only. Watering, compacting, surface maintenance, and waste haul is incidental to these items.

**303-5.01 BASIS OF PAYMENT.** The accepted quantities of reconditioning will be paid for at the contract unit price, completed and accepted.

Payment will be made under:

<b>Item No.</b>	<b>Pay Item</b>	<b>Pay Unit</b>
303(1)	Recondition Road	Mile
303(2)	Recondition Ditch	Mile

END OF SECTION

## SECTION 304

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### SECTION 304

#### SUBBASE

**304-1.01 DESCRIPTION.** This work shall consist of furnishing, placing, and compacting subbase material on road embankments or in other locations.

**304-2.01 MATERIALS.** Meet the gradation and testing requirements in SSHC Section 703-2.09. The use of mine tailings meeting the gradation requirements shall be pre-approved by the Engineer.

#### REQUIREMENTS FOR GRADING FOR SUBBASE

Percent Passing by Weight

SIEVE	Grading A	Grading B	Grading C	Grading D	Grading E
4- in.	100	----	----	----	----
2-in.	85-100	100		----	----
1-in.	----	----	100	----	----
¾-in.	----	----	----	100	----
No. 4	20-55	20-55	40-75	45-80	----
No. 16	----	----	20-43	23-50	----
No. 200	10 Max	0-6	4-10	4-12	0-6

**304-3.01 CONSTRUCTION REQUIREMENTS.** The maximum compacted thickness of any one layer shall not exceed 8 inches. During placement of the subbase material on the roadway, the roadway surface shall be adequately drained at all times. Shape subbase surface to a 4% minimum crown on straight road sections, and super elevate curves as indicated on plans or by the Engineer. Shape shoulders to create uniform lines parallel to the centerline, to the original road width or as specified. Provide water as necessary during dry periods to achieve 95% compaction. The finished surface shall be smooth, uniform and thoroughly compacted. Maintain the surface until application of the surface course if specified.

Field densities shall be determined by WAQTC FOP for AASHTO T 310 and T 224 when requested. Maximum density and optimum moisture shall be determined by ATM 212.

**304-4.01 METHOD OF MEASUREMENT.** Subbase will be measured by the ton. The Contractor shall provide weight tickets with invoice for payment. Use of CY measure is limited to projects with engineering oversight.

**SECTION 304**

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**304-5.01 BASIS OF PAYMENT.** The accepted quantities of subbase of the size, type, and grading specified will be paid for at the contract price per unit of measurement, complete, in-place and accepted.

Payment will be made under:

<b>Item No.</b>	<b>Pay Item</b>	<b>Pay Unit</b>
304(1-__)	Subbase, Grading __	Ton
304(2-__)	Subbase, Grading __	CY

END OF SECTION

**SECTION 401****SECTION 401****ASPHALT PAVEMENT REPAIR**

**401-1.01 DESCRIPTION.** Provide plant-mixed hot asphalt concrete and crack sealant for repairs and patching existing asphaltic surfaces.

**401-2.01 MATERIALS.** Asphalt: Meet the requirements in the table below for the Job Mix Design performed using ATM 417:

<b>DESIGN PARAMETERS</b>	<b>CLASS "A"</b>	<b>CLASS "B"</b>	<b>CLASS "C"</b>
Stability, pounds	1800 min.	1200 min.	750 min.
Flow, 0.01 inch	8-14	8-16	8-18
Voids in Total Mix, %	3-5	3-5	2-5
Compaction, number of blows each Side of test specimens	75	50	35
Percent Voids Filled with Asphalt (VFA)	65-75	65-78	70-80
Dust-asphalt ratio*	0.6-1.4	0.6-1.4	N/A
Voids in the mineral Aggregate (VMA), %, min.			
Type I	12.0	11.0	N/A
Type II	13.0	12.0	N/A
Type III	14.0	13.0	N/A

\*Dust –asphalt ratio is the percent of material passing the No. 22 sieve divided by the percent of effective asphalt (calculated by weight of mix).

**Asphalt Surface Repair:**

1. Asphalt Patching. Use asphalt cement grade PG 52-28 containing 6% (+/- .5% tolerance) asphalt cement by weight of the dry aggregate. Asphalt surface maintenance work requires the use of a tack coat meeting the requirements in SSHC, *Section 702, Asphalt Materials*. Asphalt concrete pavement aggregate shall meet the gradation requirements for Asphalt Concrete Type III aggregate.
2. Skin Patching. Shall meet the requirements of Asphalt Patching.
3. Crack sealing. Hot poured, meeting the requirements of D6690 Type IV for cold temperature climates. Submit material data/spec sheet with invoice for payment.

## SECTION 401

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4. Crack filling. Hot poured, meeting the requirements of Crafcro ROADSAVER 522. Submit material data/spec sheet with invoice for payment.
5. Blotting material. Sand shall be 100% passing the #8 sieve; other blotting materials shall be submitted for approval by the Engineer.

**401-2.02 AGGREGATES.** Use gradation requirements for Asphalt Concrete Type III aggregate as follows:

Sieve Designation	% Passing By Weight
½ inch	100
3/8 inch	80-90
No. 4	44-81
No. 8	40-66
No. 16	16-59
No. 30	9-49
No. 50	6-36
No. 100	4-22
No. 200	3-7

Asphalt aggregates will meet the requirements of SSHC 703-2.04 *Aggregate for Asphalt Concrete Pavement*.

**401-2.03 ANTI-STRIP ADDITIVES.** Use anti-strip agents in the proportions determined by ATM 414 and included in the mix design. At least 70% of the aggregate must remain coated when tested according to ATM 414.

**401-3.01 CONSTRUCTION REQUIREMENTS.** For Asphalt Pavement, follow the construction requirements in SSHC Section 401, subsections 3.01 thru 3.16.

**For All Repair Items.** All repair work requires surface sweeping and removal of loose aggregate prior to repairing the surface with asphalt products. The Contractor is responsible for removing all debris from the service area. The Contractor shall submit a copy of the manufacturer's recommended installation procedures. All work must be protected until material is cooled or cured, per the manufacturer's instructions, as applicable. Over spray of tack coat shall be covered with blotter material. Any tracking of material shall be cleaned up by the Contractor.

## SECTION 401

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1. Asphalt Patching. Compact the underlying material, adding water and D-1 as needed. The asphalt patch shall be a minimum of 2" thickness; if the existing asphalt is thicker than 2", match the existing thickness. There will be no standing water present prior to application of tack. Tack coat shall be applied to all asphalt edges. Over fill the hole slightly and compact thoroughly. Batch tickets that clearly indicate the type of asphalt cement and the percentage used in that batch shall be turned in to Rural Services with the invoice for payment. After compaction the patch shall be slightly overfilled, but no more than 3/8". Check for smoothness with a 10-foot straight edge, and remediate any surface deviations of more than 3/8".
2. Skin Patching. Sweep existing asphalt and apply tack coat to the entire area to be patched. Apply asphalt to treated area and compact thoroughly. Check for smoothness with a 10-foot straight edge, and remediate any surface deviations of more than 3/8".
3. Crack sealing. All crack sealing shall be performed in accordance with the manufacturers recommendations.
4. Crack filling. Crack filling shall be performed in accordance with the manufacturers recommendations.
5. Saw Cutting. Saw cutting pavement edges, if required, will be specified in the Work Order. Saw cutting is not required for asphalt patching of potholes.

Testing requirements for Asphalt Pavement. Asphalt content will be determined by ATM 405.

Density testing and thickness determination by core samples will be taken at least 24 hours after final rolling. Each six-inch diameter core sample will be taken at random locations determined by the Engineer. The location of each core will be documented by the tester and all core samples must be taken in the presence of the Engineer. In the absence of construction staking, the sampler shall use swing ties from permanent fixtures, and provide a sketch of locations and measuring.

Testing for gradations shall conform to SSHC subsection 703-2.04.

**401-4.01 METHOD OF MEASUREMENT.** Asphalt Pavement and repair items shall be paid for at the contract unit price, completed and accepted. The costs of D-1, compaction, water, tack coat, anti-strip additives, and removal of waste/excess material, including sweeping loose aggregate, are included in the unit price for the pay item.

**401-5.01 BASIS OF PAYMENT.** The accepted quantities of Asphalt Pavement and Repairs items shall be paid for at the contract unit price, completed and accepted.

Item No.	Pay Item	Unit
401(1-__)	_ - inch Asphalt Concrete	Square Foot
401(2)	Asphalt Patching	Square Foot
401(3)	Skin Patch	Square Foot
401(4)	Crack Sealing	Lineal Foot
401(5)	Crack Filling	Lineal Foot
401(6)	Saw Cutting	Lineal Foot

END OF SECTION

**SECTION 603**

**CULVERT & STORM DRAINS**

**603-1.01 DESCRIPTION.** This work is for replacing existing culvert(s) and/or repairing damaged culverts, hereinafter referred to as "pipe". Prior to start of this work, ditches shall be cleaned and restored per Section 835 Drainage System Maintenance including all necessary excavation, backfill and imported backfill material.

**603-2.01 MATERIALS.**

Pipe. Corrugated steel pipe, and coupling bands, shall conform to the requirements of AASHTO M36 and ASHTO M303 for required sectional dimensions and gages.

<b>PIPE DIAMETER</b>	<b>MINIMUM COVER AMOUNT</b>	<b>GAGE (THICKNESS)</b>
12-Inch to 48-Inch	12-inches	16 (0.064")

Gages and depth of burial ranges for larger pipe can be found in the DOT&PF Standard Drawings under Pipe and Arch Tables (D-04.21). Use of plastic or aluminum pipe requires approval by the Engineer.

Coatings.

1. Use zinc coated steel meeting AASHTO M 218
2. Aluminum-coated steel meeting AASHTO M 274
3. Aluminum-zinc alloy coated steel meeting AASHTO M 289

Coupling Bands.

1. Type A. Coupling bands shall be a minimum of 12" wide for pipe up to 30" in diameter and a minimum of 22" for diameters greater than 30". Coupling corrugations gage shall match those of the pipe.
2. Type B. (Dimple bands) Coupling bands shall be a minimum of 12" for 12" diameter pipe and a minimum of 24" for pipe diameters greater than 12". 12" wide bands shall have at least one circumferential row of projection for each pipe end being joined. 24" wide bands shall have at least two (2) circumferential rows of projection for each pipe end being joined. Type B bands require a gasket that is resistant to infiltration and leakage.

Note: Connection of dissimilar metal culverts requires a minimum of 1/16<sup>th</sup> inch thick insulating material between the coupling bands for corrosion protection. Material requires approval prior to use from the Engineer.

All bolted connections on coupling bands shall be furnished with cut-washers placed between the nut and the angle bracket, or nuts with integral washers of materials compatible with the bands.

## SECTION 603

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**603-3.01 EXCAVATION AND BACKFILL.** Corrugated pipe shall be installed so that the top of the pipe is a minimum of 12 inches below the road surface or as indicated on the plans. For hilly terrain, culvert replacement shall have a gradient that follows the original ground line, but in no case shall be less than 1.5 percent. For level terrain, pipe may be laid flat if used for equalizing water. Use selected material, Type A for 6" below the pipe, backfilling and compacting until a minimum of 6 inches above the pipe. The remaining backfill material shall match the layers of the surrounding materials. When the existing excavated material is not suitable for backfill, as determined by the Engineer, imported backfill material shall meet the following sieve requirements:

<u>Sieve Designation</u>	<u>% Passing by Weight</u>
2 inch	100
No 4	30-70
No 200	10 max

Compact material around the pipe in layers 6 inches in depth, to a density of not less than 95% of the maximum density as determined by AASHTO T 99. In-place field densities will be determined by AASHTO T 310.

The pipe outlet shall be constructed to prevent erosion of the embankment.

**603-3.02 CULVERT MODIFICATIONS.** Damaged pipe sections scheduled for repair or cut to fit the slope shall be cut by either sawing or torch cutting. All slag shall be removed and the end section ground reasonably smooth after torch cutting. Krylon Industrial Quality Cold Galvanized Spray, or an approved equivalent, shall be sprayed on galvanized pipe after cutting per manufacturer's instructions. Care shall be taken during the cutting operation to leave the remaining end square so that the joint will be reasonably flush and even.

**603-3.03 JOINING PIPE.** Corrugated pipe shall be firmly joined by coupling bands. Unless specified otherwise, the Contractor shall have the option of furnishing any one of the following types of coupling bands:

1. Corrugated bands furnished and installed such that band corrugations match those of the pipe. Such bands shall be not less than manufacturers recommended width and installed such that the gap between adjoining sections of pipe does not exceed three (3) inches.
2. Deformed steel sheet bands (dimple bands) furnished and installed such that the projections fit within the pipe corrugations. Such bands shall be not less than manufacturers recommended width and installed such that the gap between adjoining sections of pipe does not exceed three (3) inches.
3. If helically corrugated pipe with at least two annular corrugations rolled into each end is furnished, a band specifically designed to couple this pipe may be used. This band width shall be as recommended by the manufacturer, shall have a continuous annular corrugation on each side that matches the second corrugation of the pipe installed and shall be drawn together by at least two 1/2 inch bolts through the use of a bar and strap suitably welded to the band. These bands shall be furnished with two threaded steel tightening rods with a suitable connecting fitting. The tightening rods shall circumscribe the pipe in the band grooves and be securely tightened to furnish greater joint integrity.
4. Any other band that provides equal structural integrity and has been approved in writing by the Engineer.

All bolted connections on coupling bands shall be furnished with cut-washers placed between the nut and the angle bracket, or nuts with integral washers.

## SECTION 603

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**603-4.01 METHOD OF MEASUREMENT.** Corrugated pipe will be measured by the linear foot. Coupling bands will be measured by the number of units installed. Imported backfill material required for backfill shall not be measured for payment but shall be considered subsidiary to culvert installation and repairs.

**603-5.01 BASIS OF PAYMENT.** All equipment, labor and imported backfill required for culvert installation and repair shall be included in the unit price for corrugated pipe.

The quantities shall be paid for at the contract price per unit of measurement, completed and accepted. Numerical suffixes shall be the pipe diameter in inches.

Payment will be made under:

ITEM NO	PAY ITEM	PAY UNIT
603(1-___)	___ Inch Pipe	Linear Foot
603(2-___)	___ Inch Coupling Band	Each

END OF SECTION

## SECTION 610

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### SECTION 610

#### DITCH LINING

**610-1.01 DESCRIPTION.** This work shall consist of furnishing and placing ditch lining material and performing required excavation in accordance with these specifications at the locations and in reasonably close conformance with the plans or as directed by the Engineer.

**610-2.01 MATERIALS.** All stones shall be sound and durable and have a maximum size of 8 inches in greatest dimension. No more than 50% by weight of material shall pass a 3-inch sieve as determined by WAQTC FOP for AASHTO T 27\T 11.

**610-3.01 CONSTRUCTION REQUIREMENTS.** Sufficient excavation shall be performed as shown on the plans and as directed by the Engineer. Ditch lining materials shall be placed and spread so that the finished surface shall be reasonably uniform and in conformance with the lines and slope shown on the plans, or as directed by the Engineer.

**610-4.01 METHOD OF MEASUREMENT.** The ditch lining quantities shall be paid for at the contract unit price, completed and accepted. Provide weight tickets or verification of cubic yard measure with invoice for payment. Excavation and waste haul will be considered subsidiary to this item.

**610-5.01 BASIS OF PAYMENT.** Payment will be made under:

Item No.	Pay Item	Pay Unit
610(1)	Ditch Lining	Cubic Yard
610(2)	Ditch Lining	Ton

END OF SECTION

**SECTION 615**

**SIGN INSTALLATION**

**615-1.01 DESCRIPTION.** This work consists of all materials and labor required to install or replace existing signs and posts.

**615-2.01 MATERIALS.**

1. Sign Panels. Sign panel material shall be 5052H38 Aluminum or equal 0.125" thick, and shall meet the requirements of SSHC Section 730, Sign Materials, 730-2.01 Sheet Aluminum. Sign sizing shall be "Minimum" as dimensioned in the ASDS, unless preapproved by the Engineer.
2. Retroreflective Sheeting. Shall use ASTM Type IV High Intensity Prismatic Sheeting or equal on sheet aluminum.
3. Sign Posts and Bases. Shall be 2" perforated tube, minimum thickness of 12 gauge, cold-rolled carbon steel, and meets the requirements of ASTM A 653 and ASTM A 924. Zinc coating of the posts and bases to meet the coating designation G90. Post and base perforations shall be continuous the length of the metal with 7/16 diameter holes on one inch centers. Bases shall be 2-1/4" perforated steel matching the posts.
4. Sign and Post Hardware. Use 3/8" diameter conforming to aluminum alloy 6061-T6 with washers for signs for sign-to-post attachment and 3/8" diameter bolts, nuts and flat washers of galvanized steel, or as recommended by the post manufacturer.
5. Culvert Markers. Durable plastic material or other material approved by the Engineer. Plastic material must be resistant to ultraviolet light, ozone, hydrocarbon damage and remain flexible at a temperature of minus 40° F. Provide posts with reflectors that are capable of being self-erecting and remain serviceable after repeated impacts by vehicles and equipment. Reflector must meet the requirements of AASHTO M 290.

Type A. Tubular plastic or fiberglass.

Type B. Flexible plastic strips.

**615-3.01 GENERAL REQUIREMENTS.**

1. Sign Panels: Mount signs with rivets, following the DOT&PF Standard Drawings: S-00.10 for light signs, S-05.01 for sign height, sign offset, and orientation of the sign facing the direction of travel.
2. Sign Posts and Bases: See the DOT&PF Standard Drawing S-30.03 for detailed drawings. Use chart for 2" perforated steel tube (pst) for embedment depth without concrete.
3. Culvert Markers: Install culvert markers on the approach side of the culverts, field inlets, or end sections to cross culverts. Install following manufacturer's recommendations, leaving a 42-inch length above ground.

**615-4.01 METHOD OF MEASUREMENT.**

1. Sign Installation shall be paid for by square foot, installed.
2. Sign Post installation shall be per post, installed.
3. Culvert Markers shall be paid for per post, installed.

## SECTION 615

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4. Post digging, concrete if specified for base, and hardware required for installation is subsidiary to the items of work.

**615-5.01 BASIS OF PAYMENT.** The Contractor shall submit a copy of the invoice from the sign manufacturer with certifications verifying conformance to the specifications and quantity before payment is made. The quantities shall be paid for at the contract price per unit of measurement, completed and accepted.

Item No.	Pay Item	Pay Unit
615(1)	Sign Installation	Square Foot
615(2)	Sign Post Installation	Each
615(3-__)	Culvert Markers, type__	Each

END OF SECTION

**SECTION 630**

**GEOTEXTILE**

**630-1.01 DESCRIPTION.** Prepare surfaces, and furnish and place geotextiles for embankment separation and/or stabilization as shown on the plans or directed by the Engineer.

**630-2.01 MATERIALS.** Geotextiles and sewing thread:

Separation. Meet AASHTO M 288 for Separation, except provide a minimum permittivity of  $0.05 \text{ sec}^{-1}$

Stabilization. Meet AASHTO M 288 for Stabilization, except provide a minimum permittivity of  $0.08 \text{ sec}^{-1}$

Other geotextile materials require pre-approval by the Engineer.

**630-3.01 CONSTRUCTION.**

1. Surface Preparation. Prepare surface by removing stumps, brush, boulders and sharp objects. Fill holes and large ruts with material shown on the Plans or as approved by the Engineer.
2. Geotextile Placement. Unroll geotextile directly onto the prepared surface. Stretch geotextile to remove any creases or wrinkles. Do not expose geotextiles to the elements for longer than 5 days after removal of protective covering.
  - A. Separation. Lay geotextile for embankment separation parallel to roadway centerline. On horizontal curves, place in segment lengths not exceeding those listed in Table 360-1 Section 729, Geotextile, SSHC, with butt ends cut to match and sewn or overlapped. On tangents, straighten the geotextile and sew or overlap butt ends.
  - B. Stabilization. Lay geotextile for embankment stabilization perpendicular to the roadway centerline.
3. Joining. Join geotextile for embankment separation by sewing or overlapping. Join geotextile for stabilization by sewing or a bonding or attachment process as recommended by the manufacturer and approved by the Engineer.
  - A. Sew seams with a butterfly or J-seam. Use a double-thread chain stitch, or lock stitch. Bring adjacent section of geotextile together and fold so that the stitching penetrates four layers of geotextile for the full seam length. Make the stitching line 1-1/4 inches from the folded edge of the seam and at least 1/2 inch from the free edge of the geotextile.
  - B. Overlapped sections must overlap a minimum of 3-feet.
4. Material Placing and Spreading. During placing and spreading, maintain a minimum depth of 12 inches of cover material at all times between the fabric and the wheels or tracks of the construction equipment.

Spread the material in the direction of the fabric overlap. Maintain proper overlap and fabric continuity. If sewn or bonded seams are used, place the cover material and spread in only one direction for the entire length of the geotextile. On weak sub-grade spread the cover material simultaneously with dumping to minimize the potential of a localized sub-grade failure.

Compact using a smooth drum roller. Do not allow construction equipment to make sudden stops, starts or turns on the cover material.

## SECTION 630

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### 5. Geotextile Repair.

- A. Separation. Overlay torn area with geotextile with a minimum 3-foot overlap around the edges of the torn area. Ensure that the patch remains in place when material is placed over the affected area.
- B. Stabilization. Sew or bond according to Subsection 630-3.01.3.

**630-4.01 METHOD OF MEASUREMENT.** By multiplying, the plan neat line width by the measured length in final position parallel to installation centerline along the ground surface. No allowance will be made for overlap, whether at joints or patches.

**630-5.01 BASIS OF PAYMENT.** Payment will be made at the contract unit price per square yard. This price shall be full compensation for furnishing all materials, preparation, delivering and laying the fabric and for all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under:

Item No.	Pay Item	Pay Unit
630(1)	Geotextile for Separation	Square Yard
630(2)	Geotextile for Stabilization	Square Yard

END OF SECTION

**SECTION 803**

**SNOW REMOVAL**

**803-1.01 DESCRIPTION.** Remove snow from roadway surfaces.

**803-2.01 MATERIALS.** None.

**803-3.01 SNOW REMOVAL REQUIREMENTS.**

1. GENERAL REQUIREMENTS

- A. Inform the Commission of structures, vehicles or other items that interfere with proper snow removal operations.
- B. Remove snow the full width of roadway, shoulder to shoulder, each time the snow is plowed.
- C. Within the limits of the snow accumulation referenced below, when the Contractor is required to move snow berms beyond the shoulder to maintain roadway width, work shall be considered incidental to snow removal requirements.
- D. Leave a smooth driving surface with every snow removal.
- E. Respond to snow removal call out within 12 hours for clearing collector roads or roads designated for first response in the Special Conditions.
- F. Remove berms from driveways, side roads, multi-use paths and trail crossings during the snow removal work.
- G. Keep all marked culvert inlets and outlets clear from snow berms.
- H. The Contractor may come back within 36 hours to perform cul-de-sac plowing, winging for shoulder definition (if required), and for sight distance maintenance at intersections and driveways.
- I. Maintain sight distance by keeping berms below 30" high at all intersections, for at least 30 feet in any direction.

2. Gravel roads, Chip Seals, or RAP Surface. Prevent hard pack accumulation on successive plowings and maintain a minimum 2% crown after each snow removal. Do not remove existing surfacing material.

3. Asphalt Pavement Surface. Remove snow to asphalt unless stated otherwise in the RSA special conditions. Do not damage asphalt.

4. Snow Removal with Grader. Meet all the Snow Removal General Requirements. Remove all washboards and ruts each time the road is plowed.

5. Snow Removal with Plow Truck. Meet all the Snow Removal General Requirements. Driveways and intersections require no extra clean up as long as the plowed snow is cast off the roadway and a snow berm is not created.

6. Hardpack Removal. Meet applicable Snow Removal General Requirements. Clear the road surface and fore slopes of all snow 1' beyond the shoulder. Remove hardpack snow and berms to the downhill side of the road on sidehills. The Contractor shall be responsible for all damages to road surfacing and crown caused by removal operations and for damage to any facilities located in or along the roadway. All hardpack removal shall commence within 48 hours from time the Contractor is called out by the Commission.

## SECTION 803

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7. Snow Hauling: Remove snow and hardpack snow from designated areas of the RSA by truck. Contractor is responsible for all permits and securing access to snow dumpsites located outside of the RSA. Snow hauling shall commence within 48 hours from the time the Contractor is called out by the Commission. The contractor shall notify the Commission at least 16 hours prior to commencing hauling to allow for a truck counter.

**803-4.01 METHOD OF MEASUREMENT.** Snow removal items will be measured by the mile and shall include as many passes as necessary to remove snow according to the removal requirements. The Contractor shall be called out to plow snow by the Commission before 12 inches of fresh snow has accumulated. Fresh snow is defined as snow less than one week old.

The Contractor and Commission shall negotiate snow removal following procedures described in Section 106 Work Orders if more than 12 inches of fresh snow has accumulated and the depth of fresh snow is 12 inches according to snowfall records kept by the National Weather Service for Fairbanks.

Hardpack Removal will be measured by the mile and shall conform to this specification. The Contractor shall be called out to remove hardpack by the Commission before conditions exceed three (3) inches of hard packed snow.

The Contractor and Commission shall negotiate hardpack removal following the procedures described in Section 106 Work Orders if the Contractor claims more than three (3) inches of hard-packed snow has accumulated and the Commission verifies the accumulation. If the Commission and the Contractor disagree, the Engineer will be called to make a determination before the hard pack removal commences by measuring the snow thickness at each shoulder, wheel tracks on both lanes of traffic, and at centerline. The Engineer will take these measurements at a minimum of six (6) locations to provide an average depth of snowpack.

Snow Hauling will be measured by the 12 cubic yard truck load and shall include all costs associated with hauling such as equipment, labor, loading, travel, dumping, etc. Trucks shall be heap-loaded with a minimum of 12 cubic yards of snow and/or hardpack snow. Prior to snow hauling, any variance in the truck hauling capacity shall be negotiated with the Commission.

**803-5.01 BASIS OF PAYMENT.** Snow Removal and Hardpack Removal will be paid for at the Contract unit price per mile, or portion thereof, completed and accepted. Snow Hauling will be paid for at the Contract unit price per load, completed and accepted.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
803(1A)	Snow Removal less than 80" of Accumulation	Mile
803(1B)	Snow Removal more than 80" of Accumulation	Mile
803(2A)	Snow Removal w/ Grader less than 80" of Accumulation	Mile
803(2B)	Snow Removal w/ Grader more than 80" of Accumulation	Mile
803(3A)	Snow Removal w/ Plow Truck less than 80" of Accumulation	Mile
803(3B)	Snow Removal w/ Plow Truck more than 80" of Accumulation	Mile
803(4)	Hardpack Removal	Mile
803(5)	Snow Hauling	Load

END OF SECTION

**SECTION 804**

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**SECTION 804**

**SANDING OF ROADWAYS**

**804-1.01 DESCRIPTION.** This work shall consist of sanding roadways and road intersections.

**804-2.01 MATERIALS.** Provide crushed stone or crushed gravel meeting the gradation requirements, a minimum fracture on one face for 90% of the material retained on the #8 sieve.

The sanding material shall meet the gradation requirements listed below:

<u>Sieve Designation</u>	<u>% Passing By Weight</u>
½ inch	100
3/8 inch	90-100
No. 4	10-30
No. 8	0-8
No. 200	0-1

This material is commonly known as “E-Chips” as detailed in SSHC Section 703-2.05.

**804-3.01 SANDING REQUIREMENTS.** Response time is 4 hours from the time of Commission call-out, unless otherwise directed.

1. Use a mechanical spreader that distributes a uniform layer. Spread material from shoulder to shoulder. Make as many passes as needed for complete coverage.
2. Provide sand for service areas with sanding boxes.

**804-4.01 METHOD OF MEASUREMENT.** Sanding of roadways will be measured by the ton. Sanding material, hauling, spreading, and labor shall be considered incidental to this pay item. Providing sand for service area sanding boxes will be measured by the ton and loaded into the boxes.

**804-5.01 BASIS OF PAYMENT.** The accepted quantities of sanding materials spread on the roadway will be paid for at the contract unit price per ton, completed and accepted.

Payment will be made under:

<b>Pay Item No.</b>	<b>Pay Item</b>	<b>Pay Unit</b>
804(1)	Sanding for Roadways	Ton
804(2)	Sand for Sanding Box	Ton

END OF SECTION

**SECTION 805**

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**SECTION 805**

**STREET SWEEPING**

**805-1.01 DESCRIPTION.** Sweep and dispose of loose aggregate and debris from all asphalt roads.

**805-2.01 EQUIPMENT REQUIREMENTS.** Use a self-propelled broom or broom/vacuum with debris storage, with water spray capabilities for dust control. Equipment must be road compliant for the State of Alaska with operating industry standard safety features.

**805-3.01 MAINTENANCE REQUIREMENTS.** Sweep the roads and gutters until free of aggregate and debris. If catch basins and grates are located in the gutter, the Contractor shall use care to not damage the grating or deposit debris inside of the catch basin.

All sweepings shall be disposed of legally and outside the RSA boundaries.

**805-4.01 METHOD OF MEASUREMENT.** The accepted quantities for sweeping and debris removal will be paid for at the Contract unit price, per mile, completed and accepted.

**805-5.01 BASIS OF PAYMENT.** Water for dust control, and debris removal and disposal shall be included in the unit price.

<b>Item No.</b>	<b>Pay Item</b>	<b>Pay Unit</b>
805	Sweeping	Mile

END OF SECTION

SECTION 811

AGGREGATE SURFACE MAINTENANCE

**811-1.01 DESCRIPTION.** This work shall consist of blading, compacting and watering the surface of an existing road to remove potholes and wash boarding, and re-establish crown and super elevation.

**811-2.01 EQUIPMENT REQUIREMENTS.** The following equipment is required for work items:

1. Provide a properly maintained motor grader of adequate size and quality to provide slope control, the ability to mix and smooth the surface material thoroughly, and cut the surface deep enough to remove all ruts, potholes and washboards.
2. For the items that require compaction, provide equipment weighing a minimum of 12,000 pounds and capable of providing a smooth, uniform compacted road surface.
3. For the items that require watering, provide a water truck with a spray bar capable of providing uniform surface coverage. Water shall be applied at a rate that soaks into the surface immediately. The application rate is too fast if the surface is flooded and excess water flows into ditches.

**811-3.01 MAINTENANCE REQUIREMENTS.** Response time is 48 hours from Commission call-out unless otherwise directed. The completion time is 96 hours after receiving call-out notice.

The standard gravel roadway section for straight road segments consists of a 4% crown. On curves, super elevation sections shall be no greater than 6%, with a 100-foot transition from normal crown to full super and 100 feet from full super back to normal crown.

1. Blade and Compact Road Surface. This specification is for use immediately after a rainstorm that saturates the roadbed thoroughly or during light rain.
  - A. Cutting. The entire road surface, edge to edge, shall be cut to sufficient depth to remove all potholes and washboards. A minimum of four cutting passes are required, two in each lane. Cut material shall be windrowed to the center of the roadway.
  - B. Lay back. Windrowed material shall be spread uniformly across both lanes to provide a normal 4% centerline crown.
  - C. Shaping. The final road shape shall have a well-defined centerline crown located in the middle of the road. The roadway edges shall be parallel to the centerline. Lanes of travel shall be of equal width. No material shall be left on the road edge or in berms. Surface material bladed beyond the road shoulder shall be reclaimed or replaced at the Contractor's expense.
  - D. Within one hour of blading, the entire bladed area shall be thoroughly compacted. Compaction shall continue until a uniform, smooth, well-compacted road surface is achieved.
2. Blade and Compact Road with Water. This item is for use during times when the road's surface produces dust from passing vehicles. This specification is intended for use when the road material lacks enough moisture for proper compaction.

## SECTION 811

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This bid item specification is the same as Blade and Compact Road Surface with the following revisions:

Prior to blading the roadbed, the entire road surface shall be watered to moisten the surface material. Water will be applied as needed to ensure surface compaction.

3. Blade Road. Meet the requirements of Blade and Compact Road Surface, with the exception of the compaction requirement.

**811-4.01 METHOD OF MEASUREMENT.** Blade and Compact Road will be measured by the mile and shall include as many passes as are necessary to provide a smooth, properly shaped, uniformly compacted road surface. Water supplied for Blade and Compact Road with Water shall include the cost of providing water

**811-5.01 BASIS OF PAYMENT.** The accepted quantities of Aggregate Surface Maintenance will be paid for at the contract unit price per mile, or fraction thereof, completed and accepted.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
811(1)	BLADE AND COMPACT ROAD	Mile
811(2)	BLADE AND COMPACT ROAD WITH WATER	Mile
811(3)	BLADE ROAD	Mile

END OF SECTION

**SECTION 835**

**DRAINAGE SYSTEM MAINTENANCE**

**835-1.01 DESCRIPTION.** This work shall consist of ditch drain line restoration, culvert cleaning, culvert repair, cleaning and repair of catch basins, thawing frozen culverts and catch basins.

**835-2.01 MATERIALS.**

1. Clean Ditches. None.
2. Thawing. None.
3. Flushing with water. Water.
4. Pumping. None.

**835-3.01 MAINTENANCE REQUIREMENTS.**

1. Clean Ditches. Ditches designated shall be cleaned of all organics, sloughing, and other material that prevents flow. The ditch bottom shall be graded smooth and shall meet the invert elevations of culverts. The Contractor shall dispose of all waste material and debris generated during ditch cleaning outside of the service area and in accordance with Borough code.
2. Thaw Drainage Structures. Requires specialized equipment and an operator with experience for this work. The equipment shall be a fully self-contained steam truck with a 30 H.P. boiler. Response time is 4 hours after receiving notice from the Commission.
3. Water for Flushing. Requires specialized equipment and an operator with experience for this work. The equipment shall be a fully self-contained 3500-gallon (minimum) vacuum pump truck, and appropriate hoses for the work.
4. Pumping. Requires a min. 4" trash pump with an experienced operator. Provide 100' of discharge hoses. Response time is 4 hours after receiving notice from the Commission.

**835-4.01 METHOD OF MEASUREMENT:**

1. Cleaning Ditches. Includes all equipment and labor to clean, re-grade and waste removal, and is paid for by the mile for the ditch on one side of the road.
2. Thaw Drainage Structures. Hourly, includes all labor, equipment and materials required. Hourly rate is for onsite work only, 2 hours minimum for each call out.
3. Flush Drainage Structures. Hourly, includes all labor, equipment, water and materials required. Hourly rate is for onsite work only, 2 hours minimum for each call out.
4. Pumping. Hourly, includes all labor, equipment, and materials required. Hourly rate is for onsite work only, 2 hours minimum for each call out.

**835-5.01 BASIS OF PAYMENT.** The accepted quantities for items of Drainage System Maintenance will be paid for at the contract unit price as indicated or portion thereof, completed and accepted by the Commission.

Payment will be made under:

**SECTION 835**

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<b>Pay Item No.</b>	<b>Pay Item</b>	<b>Pay Unit</b>
835(1)	Clean Ditches	Mile
835(2)	Thaw Drainage Structures	Hour
835(3)	Flush Drainage Structures	Hour
835(4)	Pumping	Hour

**END OF SECTION**

**SECTION 845**

**ROADWAY VEGETATION MAINTENANCE**

**845-1.01 DESCRIPTION.** This work shall consist of cutting trees and brush from designated areas within the road right-of-way.

**845-2.01 MAINTENANCE REQUIREMENTS.** The Commission will designate the limits of work and flag any trees, shrubs, and plants to REMAIN. The Contractor shall be responsible for damage to existing mailboxes, utility appurtenances within the road right-of-way, trees, shrubs, and plants flagged to remain, and for damage to private property.

The Contractor shall provide a safe operation and manage his work area. Protect the public from dangerous conditions.

1. Machine Clearing. All machine clearing shall be accomplished with machine cutting and chopping equipment such as a hydro axe, boom mounted hydro axe or brush hog. Remaining stumps shall be less than 6" above the ground. No burning of vegetation shall be allowed. All debris that falls within the roadway shoulders or on private property during the clearing operation shall be removed to other areas within the right-of-way as directed by the Commission.
2. Hand Clearing. No equipment on wheels or tracks shall be used for this work unless approved by the Commission. Stumps shall be cut flush with the ground. Selected trees, as designated by the Commission, shall be cut into 4-foot lengths and stacked neatly beyond the ditch and fully outside the road embankment. Selective tree removal may include leaning and dangerous trees or snags.
3. Debris removal and disposal. If requested, the cut trees and brush shall be removed by the Contractor and disposed of at locations outside the road right-of-way. Contractor shall make all necessary arrangements for obtaining suitable disposal locations.

**845-3.01 METHOD OF MEASUREMENT.**

1. Machine clearing will be paid for by the hour. Unit costs shall include all equipment, labor, fuel, travel, safety precautions, signage, clean up, etc. to complete the work.
2. Hand clearing will be paid for by the man-hour on site and working. All costs of the work including materials, equipment and transportation shall be included in the unit price for this item.

**845.4.01 BASIS OF PAYMENT.** The accepted quantities of Roadway Vegetation Maintenance will be paid for at the contract unit price as indicated or portion thereof, completed and accepted.

<b>Pay Item No.</b>	<b>Pay Item</b>	<b>Pay Unit</b>
845(1)	Machine Clearing	Hour
845(2)	Hand Clearing	Man-hour
845(3)	Debris removal and disposal	Hour

**END OF SECTION**