

PREFACE

March 2005

This reference book, *Fairbanks North Star Borough Standard Specifications for Local Road Maintenance 2006*, provides a compilation of provisions, insurance requirements, and technical specifications for road service area maintenance and construction contracts. Periodic revisions to our maintenance specification book improve the efficiency of contract preparation as well as execution of requested work. The revisions to the previous 2004 version include new specifications for blading and snow plowing, and minor modifications to some specification.

This book is referenced in the Fairbanks North Star Borough service area Request for Quotations (RFQ) and Invitation for Bids (IFB) procurement procedures. An electronic version is posted on the Borough's Rural Services web site.

RFQ's are processed by the Rural Services Division. Bids for RFQ's must comply with the requirements listed in the RFQ packet and must be delivered or faxed (459-1499) to our office located at 3175 Peger Road prior to the bid opening time. Each RFQ bid packet contains a cover sheet, bid schedule, service area map, street mileage list and a commission list. Maps, mileages, and commissioners are posted on the Borough's Rural Services web site. The RFQ bid packets are sent to contractors and the chairman of the service area commission.

IFB's are prepared by the Rural Services Division and processed by the General Services Department. Bids for IFB's must comply with the requirements listed in the IFB packet and delivered to the General Services Department office located on the 2nd floor of the Borough Activity Center (main office) 809 Pioneer Road. IFB's are publicly noticed in the Daily News-Miner.

Any special conditions or specific requirements for an individual service area will be referenced in the bid schedule, in the scope of work, or as special conditions. Occasionally specifications reference the *Alaska Department of Transportation and Public Facilities Standard Specifications for Highway Construction* and also the American Association of State Highway and Transportation Officials (AASHTO) standards.

Sincerely

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Rural Services Engineer/Manager
Public Works Department

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GENERAL PROVISIONS

RFQ INSTRUCTION TO BIDDERS

Any response not meeting the requirements of the bidding documents shall be considered non-responsive.

Offers made in accordance with the bidding documents must be good and firm for a period of ninety (90) days from the date of bid opening unless otherwise noted.

Bids will be received at the time and place stated in the bidding documents. It is the sole responsibility of the bidder to see that his bid is submitted on time. Any bid received after the scheduled opening time will not be considered, but will be held unopened. No responsibility will be attached to any officer for the premature opening of or failure to open a bid not properly addressed and identified.

The Fairbanks North Star Borough may accept or reject any or all bids for good cause shown, to waive minor deviations from the specifications, and to waive any informality in bids received, when such acceptance, rejection, or waiver is in the best interest of the Fairbanks North Star Borough. Informalities in bids are matters of form rather than substance evident from the bid document, or insignificant mistakes that can be waived or corrected without prejudice to other bidders; that is, the effect on price, quantity, quality, delivery, or contractual conditions is negligible, and waiver of the informality does not grant the bidder a competitive advantage.

The Fairbanks North Star Borough may cancel the bid if such cancellation is in the best interest of the Borough.

Bids that, in the sole opinion of the FNSB, are determined to be "unbalanced" or "buy-in" bids may be declared non-responsive and eliminated from further consideration.

In the case of error in the extension of prices in the bid, the unit price will govern.

If any Addenda are issued pertaining to the bidding documents and subject Addenda are not acknowledged, the bid will be considered non-responsive.

Faxed bids are acceptable for RFQ bids only. IFB bids must be hand delivered.

Each bid shall be made on the form provided by the FNSB or copy thereof and shall be signed by the bidder with signature in full.

After depositing a bid, a bidder may withdraw, modify, or correct his bid, providing the Rural Services Division receives the request for such withdrawal, modification, or correction before the time set for opening bids. The original bid, as modified by such written communication will be considered as the bid. No bidder will be permitted to withdraw his bid after the time set for opening bids.

The Contractor shall perform the duties specified in this solicitation. The Contractor understands that the Borough makes no representation that it will look exclusively to the Contractor for the type of goods or services requested. The Contractor will perform the duties under this agreement as an independent contract. The FNSB assumes no responsibility for any interpretation or representations made by any of its officers or agents unless such interpretations or representations are made by Addenda.

PURCHASE ORDER/CONTRACT

It is the intent of the FNSB to use a purchase order and the bidding documents to establish the contractual relationship between the FNSB and the low responsive, responsible bidder. The following conditions shall apply as required in Title 16.50.10.

- a) The unilateral right of the FNSB to order in writing temporary stopping of the work or delaying performance that does not alter the scope of the contract;
- b) Liquidated damages;
- c) Termination of the contract for default;
- d) Termination of the contract in whole or in part for the convenience of the FNSB;

INDEMNIFY AND HOLD HARMLESS

The bidder shall defend and indemnify the Borough, its officers, agents, and employees, against any claims, loss, or damages arising from injury to person(s), damage to property, or economic loss, arising out of, in whole or in part, the bidder's performance or non-performance of its duties under this agreement and any defects in the goods and services provided by the bidder. This duty to defend and indemnify shall include responsibility for all damages, costs, and attorney fees. This obligation shall be continuing in nature and extend beyond the term of this agreement.

END OF GENERAL PROVISIONS

SERVICE AREA SUPPLEMENTAL CONDITIONS

1. Some of the elements of the bid schedule may be subject to the provisions of Title 36 of the Alaska Statutes. Title 36 provides for the payment of prevailing rates of pay on public construction or public works as published in the current State of Alaska Department of Labor Wage and Hour Administration Pamphlet No. 600, and requires weekly submission of certified payrolls.

Public construction or public works means the on-site field surveying, erection, rehabilitation, alteration, extensions or repair, including painting or redecorating of buildings, highways or other improvements to real property under contract for the state, a political subdivision of the state, or a regional school board.

The bidder is encouraged to study the elements of bid schedule and determine the applicability of provisions of Title 36, Alaska Statutes. If you have questions regarding the applicability of Statutes to the work to be performed, please contact the Department of Labor, Wage and Hour Administration, 675 7th Ave., Fairbanks, AK 99701, or call (907) 451-2886.
2. Bidders should visit the premises to ascertain pertinent conditions, such as the area, location, accessibility, and general character of the premises. A service area map, road mileage report, and list of commissioners are attached to all IFB and RFQ bidding documents. The bidders assume the risk that actual site conditions differ from the proposed contract documents or from those ordinarily encountered.
3. The FNSB reserves the right to inspect the Contractor's equipment prior to award and to reject any bid solely on the basis of the FNSB's determination that the equipment does not meet the FNSB's needs.
4. The Contractor shall supply knowledgeable and competent operators with each piece of equipment, who are capable of doing the required work.

5. The FNSB reserves the right to increase or decrease quantities to the limits of the available funding. Payment for work done shall be at the Unit Price Bid or fractional unit for each bid item completed.
6. All work required under the Contract shall be completed in a timely manner. Failure to complete work in a timely manner shall be grounds for termination of this Contract. In case of default by the contractor, for any reason whatsoever, the FNSB may procure the goods or services from another source and hold the contractor responsible for any resulting increase in cost or other remedies under law or equity.
7. Debarment or Suspension: As per Chapter 16.60 of the FNSB Code of Ordinances, the purchasing agent is authorized to debar (for a period of not more than three years) or suspend (for a period of not more than three months) a person for cause from consideration for award of contracts. The causes for debarment include but are not limited to:
 - A. Deliberate failure without good cause to perform in accordance with the specifications or within the time limit provided in the contract, or
 - B. A recent record of failure to perform or of unsatisfactory performance in accordance with the terms of one or more contracts; provided that failure to perform or unsatisfactory performance caused by acts beyond the control of the Contractor shall not be considered to be a basis for debarment.
8. Contractor shall make all necessary efforts to protect existing privately or publicly owned facilities, equipment, improvements and landscaping; the destruction, removal or relocation of which is not contemplated under this contract. In the event that protection of any existing facilities is not possible due to construction requirements, the Contractor shall advise the service area of the problem and shall cooperate with the service area in seeking a reasonable solution to the problem. The Contractor shall not proceed with work resulting in damage to or destruction of such existing facilities until the service area has given approval to proceed in writing.
9. Contractor shall be entirely responsible for any and all damage sustained by any and all parties affected by utility outages caused by him, whether the outages are deliberate or accidental. The Contractor shall make all necessary efforts to prevent damage, and shall make all necessary efforts to promptly repair and restore facilities or equipment damaged as a result of such outages.
10. The service area will provide the necessary rights-of-way or easements for the work. Contractor shall confine his operations to the designated areas and observe all restrictions contained in any easements.
11. The service area does not anticipate that the work required herein will involve moving or excavating through utility lines or poles, sewer or water lines, culverts, mailboxes, fences, etc. However, if in the course of Contractor's work, existing privately or publicly owned facilities, equipment, improvements and landscaping, etc. suffer damage due to Contractor's operations, intentional or unintentional, Contractor shall be responsible to have such facility, equipment, improvement and landscaping restored to its previous condition, or better, and at no additional cost to the service area.
12. An independent testing laboratory selected by the service area may perform material compaction testing services. The service area will pay for all initial testing services required. When the initial tests indicate non-compliance with the contract documents, the costs of all failing initial tests associated with the non-compliance will be deducted by the service area from the earned contract sum. When the initial tests indicate non-compliance with the contract documents, all subsequent retesting occasioned by the non-compliance shall be performed by the same agency and the costs thereof will be deducted by the service area from any payments due. Inspection or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

13. All Contractors submitting a bid for this contract shall have and keep in effect an Alaska Business License. The Contractor shall be responsible for any additional licenses and/or permits required in the locality of the work. The Contractor shall further be responsible for current licenses for all subcontractors and suppliers, as required by law, during the term of the Contract and provide proof thereof upon request.
14. The Contractor shall inform the service area of his intent to start work on any bid item (with the exception of snow removal and sanding), 24 hours before beginning that work. The Contractor shall also inform the service area within 24 hours of completion, that work is complete and inspection for acceptance is requested.
15. The name or names of commissioners who have authority to call for work under this contract will be provided to the Contractor. The Contractor shall be notified in writing of any changes to the membership of the commission during the term of the contract.
16. Unless otherwise specified in the Technical Specifications and Special Conditions to the Technical Specifications, response times for work items is two weeks from notice or as negotiated with the service area commission. In the event that the contractor is unable to perform within this time frame, the commission shall have the right to independently contract with another party to perform the work.
17. Other Goods and Services:
 - A. In addition to specifications listed in the bid schedule, other work may be required to fulfill the scope of the agreement, and may be requested by the service area commission. Payment for such work shall be based on equipment time or labor costs provided in the bid schedule. The Contractor shall provide a written bid prior to the work and shall proceed only upon written notice by the commission. The Contractor shall provide such work at a fair and reasonable price, as determined by the commission. The commission shall have the right to reject any such bids and to independently contract with another party to perform the requested work.
 - B. Any goods supplied under this section by the Contractor will be charged to the service area at cost. In no case shall the total charges be greater than the written bid amount, as specified above.
 - C. After completion of the work, the Contractor shall provide to the service area commission all material invoices and receipts and a log of equipment and/or labor time for payment.

18. Minimum Call-Out Amounts:

When the service area requests an individual item of work, the amount of work requested for that item shall not be less than the amount listed below. In the event that a lesser amount is requested, the service area commission and contractor may negotiate the unit price.

Item	Description	Minimum Amount
204	Ditch Lining	20 C.Y.
207	Machine Clearing	1 ACRE
211	Basaltic Aggregate	70 TONS.
212 & 212B	Asphalt Patching	120 S. F.
212A & 212C	Asphalt Crack Sealing	200 L. F.
213	Hand Clearing	2 HOURS
214	Borrow	50 C.Y.
216	Sanding Materials	2 TONS
218	Subbase	50 C.Y.
219	Aggregate	50 C.Y.

19. Convenience Termination:

This contract may be terminated by: (A) mutual consent of the parties, (B) for the convenience of the FNSB, provided that the FNSB notifies the Contractor in writing of its intent to terminate under this paragraph at least 10 days prior to the effective date of the termination. (C) For cause, by either party where the other party fails in any material way to perform its obligations under this contract; provided, however, that as a condition of the exercise of its right of termination under this paragraph the terminating party shall notify the other party of its intent to terminate this contract and state with reasonable specificity the grounds therefore, and the defaulting party shall have filed within 30 days of receiving the notice to cure the default. (D) Termination pursuant to this section shall not affect the parties' continuing obligations under this contract and all other portions shall continue to be in full force and effect. The FNSB shall pay the Contractor for all satisfactory work performed before notice of termination.

END OF SERVICE AREA SUPPLEMENTAL CONDITIONS

INSURANCE REQUIREMENTS

During the term of the contract, the Contractor shall obtain and maintain in force the insurance coverage specified in this section with an insurance company rated "Excellent" or "Superior" by A. M. Best Company or specifically approved by the Borough's Risk Manager.

Limits: The CONTRACTOR shall obtain insurance for not less than the following limits:

- Commercial general liability: coverage written on an occurrence basis with limits of not less than \$1,000,000 per occurrence;
- Comprehensive automobile liability: \$1,000,000 combined single limit;
- Workers' compensation: \$100,000 each accident, \$500,000 disease--policy limit, and \$100,000 disease--each employee.

Automobile Liability Insurance: All autos, or all owned, non-owned, and hired automobiles must be insured when the CONTRACTOR is using them to do work under this Agreement. If the CONTRACTOR submits insurance covering only scheduled autos, then the CONTRACTOR must assure that any additional vehicles are insured before using them in the work under this Agreement.

Workers' Compensation: Any employee of the CONTRACTOR must be covered by workers' compensation insurance during the term of the Agreement. This policy must be endorsed with a waiver of subrogation in favor of the Borough. The CONTRACTOR is not required to provide a certificate of workers' compensation insurance if the Contractor certifies in a manner acceptable to the Borough that the Contractor has no employees subject to the Act. The CONTRACTOR is not required to provide a certificate of workers' compensation covering certain employees under the following circumstances: Corporations - If the executive officer claims an exemption, then the CONTRACTOR must provide a certificate of waiver for that officer from the Alaska Department of Labor; Sole *Proprietors* - The CONTRACTOR must sign a workers' compensation release on a form provided by the BOROUGH; Partnerships - Every partner must sign a workers' compensation release on a form provided by the BOROUGH.

Alternate Coverage: A combination of primary and excess/umbrella policies may be used to fulfill the insurance requirements of this section.

Additional Insured: During the contract term, the CONTRACTOR shall add and maintain the Borough as an additional insured in the Contractor's commercial general liability policy. This policy will provide primary coverage for the Borough, and it will provide that the policy treats each additional insured as though the insurer had issued separate policies.

Certificate of Insurance: Prior to commencing any work under this Agreement, the CONTRACTOR will provide a certificate of insurance in a form acceptable to the BOROUGH showing that the CONTRACTOR has the required insurance coverage.

Cancellation: The CONTRACTOR must assure that the BOROUGH receives notice if the Contractor's insurance is going to be canceled, not renewed, or changed. The certificate of insurance must say that the insurer will notify the BOROUGH at least 30 days before the insurer cancels, refuses to renew, or materially changes the coverage.

Subcontracting: The General Contractor is responsible to the Borough to verify insurance on all subcontractors and furnish copies of it to the Borough upon request. All subcontractors must carry and show proof of the minimum limits of liability indicated above.

END OF INSURANCE REQUIREMENTS

TECHNICAL SPECIFICATIONS

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 service area 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.

In order to minimize damage to the trees that are to be left standing, trees shall be felled toward the center of the area to be cleared. Trees unavoidably 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 where the embankments are to be made to a depth less than 4 feet below subgrade. It shall also include any other areas designated on the plans or in the Special Conditions. The grubbing shall progress in such a manner that erosion will be kept to a minimum.

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

201-2.03 DISPOSAL:

All vegetation and debris removed by clearing and grubbing shall be disposed of at locations out of the right-of-way and off the project site with the written permission of the property owner on whose property the material and debris are to be placed. The Contractor shall make all necessary arrangements with such property owners for obtaining suitable disposal location and the cost involved shall be included in the unit price bid.

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 designated limits.

201-4.01 BASIS OF PAYMENT:

The accepted quantities of clearing and grubbing will be paid for at the contract unit price per acre or portion thereof.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
201	Clearing and Grubbing	Acre

END OF SECTION

SECTION 203

EXCAVATION

203-1.01 Description:

This work shall consist of the excavation and disposal of all material which is encountered within the limits of the work necessary for the construction of the project in accordance with the specifications and in reasonably close conformity with the lines, grades and typical cross sections shown on the plans or as established by the service area engineer. All excavation will be unclassified excavation as hereinafter described.

203-2.01 Unclassified Excavation:

Unclassified excavation shall involve all materials of whatever character encountered in the work.

203-3.01 Construction Requirements:

The excavation shall be finished to reasonably smooth and uniform surfaces. Excavation areas shall be kept free draining at all times as the work progresses. Excavation operations shall be conducted so that material outside the limits of slopes will not be disturbed.

Disposal areas for excavated material may be at locations of the Contractor's choice outside the right of way, with written consent of the property owner or as otherwise directed by the Service Area Engineer.

203-4.01 Method of Measurement:

Payment is specified on a cubic yard basis. The quantities of excavation for which payment will be made will be those shown in the contract for the various items, provided the project is constructed essentially to the lines and grades shown on the plans or as established by the Service Area Engineer.

Payment will not be made for excavation not actually performed or for unauthorized excavation below plan grade.

The hauling of material will not be measured for payment.

203-5.01 Basis of Payment:

The accepted quantities of excavation will be paid for at the contract price, per unit of measurement, for unclassified excavation listed below and included in the bid schedule.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
203	Unclassified Excavation	Cubic Yard

END OF SECTION

SECTION 204

DITCH LINING

204-1.01 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 Service Area Engineer.

204-201 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 Alaska T-7.

204-3.01 Construction Requirements:

Sufficient excavation shall be performed as shown on the plans and as directed by the Service Area Commission. Subbase shall be installed prior to placing the ditch lining. 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 Service Area Commission.

204-4.01 Method of Measurement:

The quantity to be paid for shall be the number of cubic yards of ditch lining placed and accepted by the service area commission. Excavation required below normal ditch grade will be considered subsidiary to this item.

204-5.01 Basis of Payment:

The quantity, determined as provided above, will be paid for at the contract price per unit of measurement that is shown on the bid schedule. Price and payment shall be full compensation for furnishing and placing all materials including all labor, equipment, tools, and incidentals necessary to complete the work described in this section.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
204	Ditch Lining	Cubic Yard

END OF SECTION

SECTION 205

DITCH CONSTRUCTION

205-1.01 Description:

This work shall consist of the excavation and disposal of all material which is encountered within the limits of the work necessary for the construction of ditches in accordance with the specifications and in reasonably close conformity with the lines, grades and typical cross sections shown on the plans or as otherwise established by the service area commission. All excavation for ditches will be unclassified excavation as hereinafter described.

205-2.01 Unclassified Excavation:

Unclassified excavation shall involve all materials of whatever character encountered in the work.

205-3.01 Construction Requirements:

The ditch construction shall be finished to reasonably smooth and uniform surfaces. Excavation areas shall be kept free draining at all times as the work progresses. Excavation operations shall be conducted so that material outside the limits of slopes will not be disturbed.

Disposal areas for excavated material may be at locations of the Contractor's choice outside the right of way, with written consent of the property owner.

205-4.01 Method of Measurement:

The quantity to be paid for shall be the number of stations of ditch construction, provided the project is constructed essentially to the lines and grades described or shown on the plans.

Station = 100 lineal feet measured along ditch bottom.

Payment will not be made for ditch construction not actually performed or unauthorized.

The hauling of material will not be measured for payment but will be considered incidental to ditch construction.

205-5.01 Basis of Payment:

The accepted quantities of ditch construction will be paid for at the contract price, per station provided above, completed and accepted by the service area commission.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
205	Ditch Construction	Station

END OF SECTION

SECTION 206

SHOULDER REPAIR

206-1.01 Description:

This work shall consist of the shoulder repair in accordance with the specifications and in reasonably close conformity with the lines, grades and typical detail shown in the bidding documents or as otherwise established by the service area commission. This work includes all mobilization, excavation, shaping, water, compaction, materials, clean up, demobilization and other work items required for shoulder repair.

206-2.01 Construction Requirements:

The areas to be repaired will be marked by the service area commission before starting any work.

The existing shoulder shall be bench cut horizontally to a sufficient depth to accommodate required road widening and establish the ditch fore slope as directed by the Service Area Engineer. The existing material directly below the asphalt pavement shall not be disturbed. The cut material shall not be spread in the ditch and may only be used on the fore slope below the bench cut if approved by the service area engineer, otherwise the cut material shall be removed and legally disposed of outside the road right-of-way by the contractor.

The bottom of the bench cut and the remaining fore slope shall be shaped to grade as directed by the Service Area Engineer and shall then be watered and compacted to 95% maximum density in accordance with AASHTO T 180, Method D or Alaska T-12.

Brown's Hill 1½" minus material (for material requirements see Section 211 of the F.N.S.B. Standard Specification for Local Road Maintenance) shall then be placed, watered and compacted to 98% maximum density in accordance with AASHTO T 180, Method D or Alaska T-12. This material shall be placed in two 6" lifts with the bottom lift being compacted to 98% prior to placing and compacting the top 6" lift. Both the top and fore slope of this material shall be compacted.

Any damages to the existing asphalt surface shall be the Contractor's responsibility and shall be repaired according to specification "Section 212 Asphalt Patching" of the F.N.S.B. Standard Specification for Local Road Maintenance at the contractors cost.

206-3.01 Method of Measurement:

The quantity of shoulder repair to be paid for shall be the number of stations or portions thereof completed and accepted by the service area commission, provided the work is constructed essentially to the lines and grades described or shown on the shoulder repair detail or as established by the service area commission. Measurement for pay will be taken at the top of the completed outside road shoulder.

The hauling and placing of material shall not be measured for payment and shall be included in the unit price of shoulder repair.

1 Station = 100 lineal feet measured along the top of the completed outside road shoulder.

Payment will not be made for shoulder repair not actually performed or unauthorized.

206-4.01 Basis of Payment:

The accepted quantities of shoulder repair will be paid for at the contract price, per station, completed and accepted by the service area commission.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
206	Shoulder Repair	Station

END OF SECTION

SECTION 207

MACHINE CLEARING

207-1.01 Description:

This work shall consist of machine cutting trees and brush from designated areas as directed by the service area commission.

207-2.01 Construction Requirements:

The service area commission will designate the limits of work and denote any trees, shrubs, plants, and other objects to remain. The Contractor shall leave undisturbed all things thus designated to remain.

All machine clearing shall be accomplished with machine cutting and chopping equipment such as a hydro axe, boom mounted hydro axe, brush hog, etc. Stumps shall be cut off not more than 6" above the ground. No burning of vegetation shall be allowed.

The Contractor shall provide a safe operation. Signs and flagmen shall be utilized to protect the public of dangerous conditions and/or the road may be closed as required to provide a safe and efficient operation.

All debris that falls within the roadway shoulders or on private property during the clearing operation shall be cleared to other areas within the right-of-way as directed by the service area commission.

207-3.01 Method of Measurement:

Machine clearing will be paid for by the acre (43,560 SF). Unit costs shall include all equipment, labor, fuel, travel, safety precautions, signage, clean up, etc. to complete the work.

207.4.01 Basis of Payment:

The accepted quantities of machine clearing will be paid for at the contract unit prices per acre or portion thereof, completed and accepted by the service area commission. NOTE: DUE TO VARYING VEGETATION AND TERRAIN, INCLUDING SPECIES, DENSITY, AND TREE SIZE, WE STRONGLY ADVISE THE CONTRACTOR TO CONTACT THE SERVICE AREA COMMISSIONERS AND TO INSPECT THE WORK SITE PRIOR TO BIDDING THIS WORK.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
207	Machine Clearing	Acre

END OF SECTION

SECTION 208

BLADING ROADBED

208-1.01 Description:

This work shall consist of blading the surface of an existing road to remove potholes and washboarding, and re-establish an adequate crown and superelevation as directed by the service area commission.

208-2.01 Construction Requirements:

Equipment The contractor's equipment must be a motor grader of adequate size and quality and properly maintained to perform the requirements of this specification. Worn cutting edges and uneven tire pressure are not acceptable. Contractors are encouraged to use a cab-mounted slopometer to establish required crowns and superelevations.

Response time 72 hours from commissioner call-out unless otherwise directed.

Cutting The entire road surface, edge to edge, shall be cut in second gear 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.

Lay back The lay back operation shall be performed in first gear. Windrowed material shall be spread uniformly across both lanes to provide a normal 4% centerline crown. Windrowed material shall not be bladed over the road shoulder into the ditch.

Shape The final road shape shall have a well-defined centerline located in the middle of the road. The roadway edges shall be parallel with equal width lanes. Edge windrows or working berms are not allowed. Super elevated curve sections shall not exceed 6% and shall be uniformly transitioned from normal crown to fully superelevated over a distance of 100 feet.

No surface material shall be bladed beyond the road shoulder.

208-3.01 Method of Measurement:

Blading roadbed will be measured by the mile and shall include as many passes as are necessary to provide a smooth, properly shaped road surface.

208-4.01 Basis of Payment:

The accepted quantities of blading roadbed will be paid for at the contract unit price per mile, or fraction thereof, completed and accepted by the service area.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
208	Blading Roadbed	Mile

END OF SECTION

SECTION 208A, B, and C

SECTION 208A BLADING ROADBED WITH COMPACTION

**SECTION 208B BLADING ROADBED WITH WATER 15,000 GAL/MILE
AND COMPACTION**

**SECTION 208C BLADING ROADBED WITH WATER 30,000 GAL/MILE
AND COMPACTION**

Section 208A Blading Roadbed With Compaction

The road commission may order this item during times when the road moisture content is considered adequate to achieve an acceptable finished product.

This bid item specification is the same as Specification 208 with the following revisions:

208-2.01 Construction Requirements:

Response time shall be 48 hours after receiving call-out notice from the commission and completion time is 96 hours after receiving call-out notice.

Within one hour of blading, the entire bladed area shall be compacted with a smooth drum vibratory soil compactor (minimum of 12,000 pounds and 60 inch wide drum). Multiple compactor passes may be required. Compaction shall continue until a uniform, smooth, well-compacted road surface is achieved and acceptable to the road commission.

Section 208B Blading Roadbed With Water 15,000 gal/mile and Compaction

The road commission may order this item during times when the road moisture content is considered less than adequate to achieve an acceptable finished product. This specification is intended for use on short sections of roadway containing a moderately deformed surface or when dry conditions exist.

This bid item specification is the same as Specification 208 with the following revisions:

208-2.01 Construction Requirements:

Response time shall be 48 hours after receiving call-out notice from the commission. The completion time is 96 hours after receiving call-out notice.

Prior to blading the roadbed, the entire road surface shall be watered to moisten the surface material. The minimum water application rate shall be 15,000 gallons per mile unless otherwise directed by the commission. The water is intended to ease cutting, enhance mixing and assist compaction.

Within one hour of blading, the entire bladed area shall be compacted with a smooth drum vibratory soil compactor (minimum of 12,000 pounds and 60 inch wide drum). Multiple compactor passes may be required. Compaction shall continue until a uniform, smooth, well-compacted road surface is achieved and acceptable to the road commission.

Section 208C Blading Roadbed With Water 30,000 gal/mile and Compaction

The road commission may order this item during times when the road moisture content is considered less than adequate to achieve an acceptable finished product. This specification is intended for use on short sections of roadway with heavily deformed surfaces or when very dry conditions exist.

This bid item specification is the same as Specification 208 with the following revisions:

208-2.01 Construction Requirements:

Response time shall be 48 hours after receiving call-out notice from the commission. The completion time is 96 hours after receiving call-out notice.

Prior to blading the roadbed, the entire road surface shall be watered to moisten the surface material. The minimum water application rate shall be 30,000 gallons per mile unless otherwise directed by the commission. The water will ease cutting, enhance mixing and assist compaction.

Within one hour of blading, the entire bladed area shall be compacted with a smooth drum vibratory soil compactor (minimum of 12,000 pounds and 60 inch wide drum). Multiple compactor passes may be required. Compaction shall continue until a uniform, smooth, well-compacted road surface is achieved and acceptable to the road commission.

208-4.01 Basis of Payment:

The accepted quantities of blading roadbed will be paid for at the contract unit price per mile, or fraction thereof, for the Pay Item requested, completed and accepted by the service area.

Payment will be made under:

Pay Item No.	Pay Item	Pay Unit
208A	SECTION 208A BLADING ROADBED WITH COMPACTION	Mile
208B	SECTION 208B BLADING ROADBED WITH WATER 15,000 GAL/MILE AND COMPACTION	Mile
208C	SECTION 208C BLADING ROADBED WITH WATER 30,000 GAL/MILE AND COMPACTION	Mile

END OF SECTION

SECTION 209

RECONDITIONING DITCHES

209-1.01 Description:

This work shall consist of cleaning and reconditioning roadside ditches to provide positive drainage.

209-2.01 Construction Requirements:

Ditches designated by the commission shall be cleaned of all organics, sloughing, and other material that prevents flow. The ditch is defined as the flow channel below a level line extended from the shoulder of the road to the opposite (back) slope of the ditch. The Contractor shall dispose of all waste material and debris generated during the reconditioning legally, out of the right-of-way with the written permission of the property owner on whose property the materials and debris are placed. Waste material shall not be stockpiled on the road surface or bladed against the back slope of the ditch. Waste material shall not be bladed across the road surface.

Reconditioning will be paid for by the mile. **(NOTE: This is ditch length and not road length).** Unit costs per mile shall include all necessary excavation and hauling of waste material to accomplish reconditioning.

209-4.01 Basis of Payment:

The accepted quantities of reconditioning ditches will be paid for at the contract unit price per mile, or portion thereof, completed and accepted by the service area commission.

Payment will be made under:

<u>Pay Item No</u>	<u>Pay Item</u>	<u>Pay Unit</u>
209	Reconditioning Ditches	Mile

END OF SECTION

SECTION 210

RECONDITIONING ROADBED

210-1.01 Description:

This work shall consist of reconditioning the surface of an existing road and shaping the road shoulders.

210-2.01 Construction Requirements:

The existing roadbed shall be scarified to minimum depth of 3 inches. The loose material shall then be mixed to a uniform consistency and shaped to provide a 4% crown with superelevations on curves (see specification 208 for shaping requirements) as determined by the service area commission, and compacted to not less than 95% maximum density. Maximum densities will be determined by AASHTO T-180, Method D, or Alaska T-12. In-place field densities will be determined by Alaska T-3, or T-11.

210-3.01 Method of Measurement:

Reconditioning roadbed will be measured by the mile and shall include all reconditioning of shoulders if required, the scarification of the existing roadbed, the shaping of the road surface, and the compaction of the roadbed.

Water required for compaction shall not be measured for payment but shall be considered incidental to the reconditioning work.

210-4.01 Basis of Payment:

The accepted quantities of reconditioning roadbed will be paid for at the contract unit price per mile, or portion thereof, completed and accepted by the service area.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
210	Reconditioning Roadbed	Mile

END OF SECTION

SECTION 211

BASALTIC AGGREGATE (Brown's Hill or equal)

211-1.01 Description:

This work shall consist of furnishing and placing one or more courses of basaltic aggregate, on a prepared surface as directed by the service area commission or its representative.

211-2.01 Aggregate:

The aggregate shall conform to the following requirements for the grading type indicated in the bid schedule:

Aggregate shall be crushed basaltic stone conforming to the quality requirements of AASHTO M 147. Alaska T-1 shall be substituted for AASHTO test method T-88. The parent rock from which the aggregate is derived shall have a minimum degradation value of 50 when tested in accordance with Alaska Test Method T-13.

A minimum of eighty percent (80%) by weight of particles retained on the No. 4 sieve shall have at least two fractured faces. Percent fracture shall be determined by Alaska T-4.

The aggregate material shall conform to the following grading requirements for the grading type indicated in the bid schedule.

AGGREGATE PERCENT PASSING BY WEIGHT

<u>Sieve Designation</u>	<u>D-1 Percent Passing by Weight</u>	<u>1 1/2" MINUS Percent Passing by Weight</u>
1 1/2 inch	---	100
1 inch	100	70-85
3/4	70-100	60-75
3/8	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

The Contractor shall provide the service area commission with all required tests of his stockpile to verify that the material meets the requirements set forth in this section prior to hauling material.

211-3.01 Placing:

The maximum compacted thickness of any one layer shall not exceed 4 inches, unless special compacting equipment is used. When vibratory or other approved types of special compacting equipment are used, the compacted depth of a single layer of the base course may be increased to 6 inches upon written approval.

During placement of the aggregate material on the roadway, the roadway surface shall be adequately drained at all times.

211-3.02 Mixing:

After the aggregate has been placed, the material shall be mixed at moisture content approximately equal to optimum by means of motor graders and other approved equipment until the mixture is uniform throughout.

211-3.03 Shaping and Compaction:

Compaction of each layer shall continue until a density of not less than 98 percent of the maximum density, determined in accordance with AASHTO T 180, Method D or Alaska T-12, has been achieved. Field densities shall be determined by Alaska T-3, or T-11. The surface of each layer shall be maintained during the compaction operations in such manner that a uniform texture is produced and the aggregates firmly keyed. Water shall be uniformly applied over the material during compaction in the amount necessary for proper compaction.

The surface will be tested using a 10-foot straightedge at selected locations. The variance of the surface from the testing edge of the straightedge between two contacts with the surface shall not exceed 3/8 inch.

211-4.01 Method of Measurement:

Basaltic aggregate will be measured by the ton based on material weight tickets. The Contractor shall notify a service area commissioner 24 hours prior to the beginning of hauling operations. Water needed for compaction will be considered incidental to this item. When requested in writing by the Contractor, alternative methods of determining tonnage may be submitted for determination by the service area engineer.

211-5.01 Basis of Payment:

The accepted quantity of basaltic aggregate of the size, type, and grading specified will be paid for at the contract price per unit of measurement, complete, in place and accepted by the service area commission.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
211	Basaltic Aggregate	Ton

END OF SECTION

SECTION 212

ASPHALT PATCHING

212-1.01 Description:

This work shall consist of all mobilization, excavation, backfill, grading, compaction, batched hot asphalt concrete pavement, site clean-up, demobilization and other work items required for patching asphalt road surfaces.

212-2.01 Materials:

The asphalt concrete pavement aggregate shall meet the gradation requirements for asphalt concrete Type III aggregate as follows:

<u>Sieve</u> <u>Designation</u>	<u>% Passing</u> <u>By Weight</u>
1/2 inch	100
3/8 inch	75-93
No. 4	55-80
No. 10	40-66
No. 40	14-30
No. 200	3-10

The asphalt cement shall be AC-5 and 6.0% ($\pm 0.5\%$ tolerance) by weight of the dry aggregate. The Contractor shall provide receipts from the batching plant for asphalt used that clearly states the type of asphalt provided.

212-3.01 Construction Requirements:

Prior to patching, the outline of the pothole to be patched shall be marked by a service area representative. The outline of the pothole shall be cut to a rectangular shape. The pavement shall be cut with a pavement breaker (jackhammer), making vertical sides around the pothole. All debris shall be cleaned from the hole. The pothole shall be backfilled with well graded 2" minus gravel material two inches below the asphalt surface and compacted to not less than 95% of maximum density.

A tack coat shall be sprayed on all surfaces of the cleaned and compacted pothole. MC-30 prime coat shall be used at an application rate of 0.10 gallon per square yard.

Asphalt pavement shall be placed hot and screeded. The surface of the asphalt patch shall be level with or no more than 1/4 inch above the level of the surrounding adjacent pavement following compaction.

Asphalt patches shall be compacted using a vibrating plate or vibrating roller compactor to not less than 95% of maximum density. A non-vibrating steel wheel roller weighing at least 8,000 pounds may be used for large potholes.

Maximum densities will be determined by AASHTO T-180, Method D, or Alaska T-12. In-place field densities will be determined by Alaska T-3 or T-11. An independent laboratory may be chosen and hired by the service area.

212-4.01 Method of Measurement:

Asphalt patching shall be measured to determine square footage.

212-5.01 Basis of Payment:

The accepted quantities of asphalt patching will be paid for at the contract unit price per square foot completed and accepted by the service area commission.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
212	Asphalt Patching	Square Foot

END OF SECTION

SECTION 212A

ASPHALT CRACK SEALING

212A-1.01 Description:

This work shall consist of sealing longitudinal, reflection, shrinkage and transverse cracks in asphalt pavements.

212A-2.01 Construction Requirements:

Prior to sealing cracks in asphalt pavement, a service area representative shall mark the cracks to be sealed. Cracks greater in width than 1-½ inches shall not be sealed, but will be patched under Section 212, Asphalt Patching.

Before filling cracks with asphalt emulsion, the crack shall be cleaned of all loose or foreign material by blowing with air and/or sweeping. The crack shall be filled with emulsified asphalt by pouring the crack full. The filled crack shall be screeded with a hand squeegee to fill all voids and strike off the surface. The surface shall then be sprinkled with a light dusting of dry sand to prevent the traffic from picking up the asphalt. Emulsion grades MS-2, MS-2H, HFMS-2, HFMS-2H, SS-1, SS-1h, CMS-2, CMS-2h, CSS-1, and CSS-1h may be used for crack filling.

212A-3.01 Method of Measurement:

Crack sealing will be paid for by the lineal foot of crack sealed. Unit costs shall include all equipment, materials, fuel, labor, and travel time in one unit price.

212A-4.01 Basis of Payment:

The accepted quantities of asphalt crack sealing will be paid for at the contract unit price per lineal foot completed and accepted by the service area.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
212A	Asphalt Crack Sealing	Lineal Foot

END OF SECTION

SECTION 212B

ASPHALT SKIN PATCHING

212B-1.01 Description:

This work shall consist of all mobilization, crack and surface cleaning, tack coat, batched hot asphalt concrete pavement, shaping and compacting, site clean-up, demobilization and other work items required for skin patching asphalt road surfaces.

212B-2.01 Materials:

The hot mix asphalt concrete pavement aggregate shall meet the gradation requirements for asphalt concrete Type III aggregate as follows:

<u>Sieve Designation</u>	<u>% Passing By Weight</u>
1/2 inch	100
3/8 inch	75-93
No. 4	55-80
No. 10	40-66
No. 40	14-30
No. 200	3-10

The asphalt cement shall be AC-5 and 6.0% (±0.5% tolerance) by weight of the dry aggregate. The Contractor shall provide receipts from the batching plant for asphalt used that clearly states the type of asphalt provided.

212B-3.01 Construction Requirements:

Prior to skin patching, the cracks shall be marked by a service area representative. All loose debris shall be cleaned from the crack and surface to be covered by blowing with a high-pressure compressed air lance or high-pressure hot compressed air lance. The standard air compressor used shall have line filters to remove water and oil from pressurized air that prevents the asphalt from adhering to the pavement. Immediately prior to tack coating, all crack surfaces and areas to be covered shall be dry.

Tack coat shall be sprayed on all surfaces to be covered. CSS-1 OR AC 2.5 asphalt tack coat shall be used at an application rate of 0.10 gallon per square yard.

Asphalt concrete pavement shall be placed hot. The surface of the asphalt shall be raked and feathered so that after compaction the skin patch is no more than 1/4 inch above the level of the adjacent pavement.

Immediately after the asphalt mixture has been spread, struck-off and surface irregularities adjusted, it shall be thoroughly and uniformly compacted using a vibrating plate or vibrating roller compactor to not less than 95% of maximum density. Compaction shall be completed before the temperature of the mixture has fallen below 180° F. Maximum densities will be determined by ATM T-18 or ASTM D 2950. An independent laboratory may be chosen and hired by the service area.

212B-4.01 Method of Measurement:

Asphalt skin patching shall be measured to determine square footage.

212B-5.01 Basis of Payment:

The accepted quantities of asphalt skin patching will be paid for at the contract unit price per square foot completed and accepted by the service area commission.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
212B	Asphalt Skin Patching	Square Foot

END OF SECTION

SECTION 212C

ASPHALT CRACK SEALING (MODIFIED)

212C-1.01 Description:

This work shall consist of sealing longitudinal, reflective, block, and transverse cracks in asphalt pavements.

212C-2.01 Construction Requirements:

Prior to sealing cracks in asphalt pavement, a service area representative shall mark the cracks to be sealed. Cracks less than 1/4" wide shall not be sealed. Cracks greater than 1-1/2" wide shall not be sealed, but will be patched under Section 212, Asphalt Patching or under Section 212B, Asphalt Skin Patching at the direction of the service area commission.

Before filling cracks with crack sealant, the crack shall be cleaned of all loose or foreign material by blowing with a high pressure compressed air lance or high pressure hot compressed air lance. The standard air compressor used shall have line filters to remove water and oil from pressurized air that will prevent the sealant from adhering to the pavement. Immediately prior to filling cracks, all surfaces of the crack shall be dry. The crack shall be filled according to the sealant manufacturer's recommendations. The filled crack shall be screeded with a hand squeegee to fill all voids and provide a thin 1 to 1-1/2-inch wide overband without forming a ridge. The surface shall then be sprinkled with a light dusting of dry sand to prevent the traffic from picking up the sealant.

The crack sealant shall conform to ASTM D3405 or ASTM D1190 or their equivalent. The following sealants are acceptable: "Flex 270" manufactured by Koch Materials Company, Northumberland, PA 1-800-521-9593 or "Stretch 229" manufactured by Deery American Corp., P.O. Box 4099, Grand Junction, CO. 81502, phone 1-800-227-4059

212C-3.01 Method of Measurement:

Crack sealing will be paid for by the lineal foot of crack sealed. Unit costs shall include all equipment, materials, fuel, labor, and travel time in one unit price.

212C-4.01 Basis of Payment:

The accepted quantities of crack sealing will be paid for at the contract unit price per lineal foot completed and accepted by the service area.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
212C	Asphalt Crack Sealing (Modified)	Lineal Foot

END OF SECTION

SECTION 213

HAND CLEARING

213-1.01 Description:

This work shall consist of cutting trees and brush and, if requested, clearing cut material to disposal sites.

213-2.01 Construction Requirements:

The service area commission will designate the limits of work and denote trees, shrubs, plants, and other objects to remain. No equipment on wheels or tracks shall be used unless approved by the service area commission. Stumps shall be cut flush with the ground.

Selected trees, as designated by the service area commission, shall be cut, bucked into 4 foot lengths and stacked neatly beyond the ditch and fully outside the road embankment, or, if requested, removed and disposed of in an acceptable manner. Selective tree removal may include leaning or dangerous trees and snags.

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.

Intersection and road sight distance shall not be compromised during or after the hand clearing operation.

213-3.01 Method of Measurement:

Hand clearing will be paid for by the man-hour on site and working. Unit costs shall include all transportation to and from the site, equipment, labor, fuel, travel, etc. to complete the requested hand clearing on a man-hour basis on site and working.

213-4.01 Basis of Payment:

The accepted quantities of hand clearing will be paid for at the contract unit price per man-hour or portion thereof, completed and accepted by the service area.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
213	Hand clearing	Man-Hour

END OF SECTION

SECTION 214

BORROW

214-1.01 Description:

This work shall consist of furnishing and placing one or more courses of borrow material as directed by the service area commission.

214-2.01 Materials:

Borrow shall be earth, sand, gravel, rock or combinations thereof, and shall contain no muck, peat, frozen material, roots, sod, or other deleterious matter; have a plasticity index of not greater than 6 as determined by AASHTO T-90; and have not more than 10% minus 200 material as determined by Alaska Test Method T-7. The minus 200 material shall be determined on the minus 3-inch material. Material shall have a minimum degradation value of 35 when tested in accordance with Alaska Test Method T-13. All rocks shall be smaller than 6 inches.

214-3.01 General Construction Requirements:

The embankments for the roadway, intersections and entrances shall be finished to reasonable smooth and uniform surfaces.

214-3.02 Embankment Construction:

Embankment construction shall consist of constructing roadway embankments, including preparation of the areas upon which they are to be placed; and the placing and compacting of embankment material in holes, pits and other depressions within the roadway area.

Roadway embankment of earth materials shall be placed in horizontal layers not exceeding 8 inches (loose measurements) for the full width of the embankment, except as required for traffic, and shall be compacted as specified before the next layer is placed. Spreading equipment shall be used on each lift to obtain uniform thickness prior to compacting. As the compaction of each layer progresses, continuous leveling and manipulating will be required to assure uniform density. Water shall be added or removed, if necessary, in order to obtain the required density. Compaction equipment shall be routed uniformly over the entire surface of each layer.

214-3.03 Construction of Embankment with Moisture and Density Control:

All embankments shall be constructed with moisture and density control and shall be constructed with approved materials placed and compacted at approximately their optimum moisture content. Embankment materials may require drying or uniform moistening prior to compaction in order to bring moisture in the material to approximately optimum content.

All embankment shall be compacted to not less than 95% of the maximum density. Maximum densities will be determined by AASHTO T 180, Method D, or Alaska T-12. In-place field densities will be determined by Alaska T-3 or T-11.

214-4.01 Method of Measurement:

All borrow shall be measured by the cubic yard based on truck count. All hauling vehicles will be measured and counted by service area personnel to determine hauled volume. Borrow pay volume will be calculated by multiplying hauled volume and corresponding vehicle count. The Contractor shall notify the service area commission 24 hours prior to the beginning of hauling operations to allow for a truck counter. When requested in writing by the Contractor, the service area engineer may approve alternate methods of determining cubic yardage. Water needed for compaction will be considered incidental to this item.

214-5.01 Basis of Payment:

The accepted quantities of borrow shall be paid for at the contract unit price per cubic yard, delivered, spread, compacted, completed and accepted by the service area.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
214	Borrow	Cubic Yard

END OF SECTION

SECTION 215

SNOW PLOWING

215-1.01 Description:

This work consists of plowing snow from roadway surfaces.

215-2.01 Plowing Requirements:

The roadway surface shall be cleared of snow from roadway shoulder to roadway shoulder each time it is plowed. During snow plowing operations the Contractor is responsible for all damages he causes to the roadway surface and damages to any facilities located in or along the roadway. The cleared width shall not be allowed to narrow as consecutive plowings occur. Within the limits of the snow accumulation referenced below, when the Contractor is required to move snow berms back to maintain roadway width, this work shall be considered incidental the snow plowing requirements.

Where roadways are on sloping terrain and one side of the roadway has a cutbank, all snow shall be plowed to the downhill side of the roadway.

The entrance to all driveways, side roads, AKDOT designated multi-use paths, and service area commissioner designated trail crossings shall be cleared of snow berms.

Snow berms shall be winged back at road intersection radii to a maximum height of 30 inches measured from roadway centerline to minimize sight distance impairment.

All snow plowing shall commence within 12 hours from the time the Contractor is called out by the service area unless otherwise arranged with the service area commission. The service area commission shall provide to the contractor the name(s) of person(s) with authority to call out for snow plowing.

215-3.01 Method of Measurement:

Snow plowing will be measured by the mile and shall include as many passes as necessary to remove snow according to the Plowing Requirements. The Contractor shall be called out to plow snow by the designated service area commissioner before 12 inches of fresh snow has accumulated. Fresh snow is defined as snow less than one week old. (See also Hardpack Removal Spec. 217-3.01). This method shall be used only when the total snowfall accumulation for the winter (September 1 through April 30) is 80 inches or less, as measured for Fairbanks by the National Weather Service.

The contractor and commission shall negotiate snow plowing at the hourly rate and follow procedures described in the Other Goods and Services Section whenever either of the following conditions occur:

- A. The contractor claims 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.
- B. The total snowfall accumulation is more than 80 inches, as measured by the National Weather Service for Fairbanks.

215-4.01 Basis of Payment:

Snow plowing will be paid for at the contract unit price per mile, or portion thereof, completed and accepted by the service area.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
215	Snow Plowing	Mile

END OF SECTION

SECTION 215G

SNOW PLOWING WITH GRADER

215G-1.01 Description:

This work consists of plowing snow from roadway surfaces with a motor grader.

215G-2.01 Plowing Requirements:

All snow plowing in this service area shall be accomplished with a motor grader (Cat 12G, Champion 740 series or equal). Final clean up at intersections and driveways may be completed with truck plows, loaders, or other equipment. Sufficient cutting edge down pressure shall be exerted to remove all washboard and ruts from the hardpack surface each time the road is plowed. The roadway surface shall be cleared of snow from roadway shoulder to roadway shoulder each time it is plowed. During snow removal operations the Contractor is responsible for all damages causes to the roadway surface and damages to any facilities located in or along the roadway. The cleared width shall not be allowed to narrow as consecutive plowings occur. Within the limits of the snow accumulation referenced below, when the Contractor is required to move snow berms back to maintain roadway width, this work shall be considered incidental the snow plowing requirements. Where roadways are on sloping terrain and one side of the roadway has a cutbank, all snow shall be plowed to the downhill side of the roadway.

The entrance to all driveways, side roads, AKDOT designated multi-use paths, and service area commissioner designated trail crossings shall be cleared of snow berms.

Snow berms shall be winged back at road intersection radii to a maximum height of 30 inches measured from roadway centerline to minimize sight distance impairment.

All snow plowing shall commence within 12 hours from the time the Contractor is called out by the service area unless otherwise arranged with the service area commission. The service area commission shall provide to the contractor the name(s) of person(s) with authority to call out for snow plowing.

215G-3.01 Method of Measurement:

Snow plowing will be measured by the mile and shall include as many passes as necessary to remove snow according to the Plowing Requirements. The Contractor shall be called out to plow snow by the designated service area commissioner before 12 inches of fresh snow has accumulated. Fresh snow is defined as snow less than one week old. (See also Hardpack Removal Spec. 217-3.01). This method shall be used only when the total snowfall accumulation for the winter (September 1 through April 30) is 80 inches or less, as measured for Fairbanks by the National Weather Service.

The contractor and commission shall negotiate snow plowing at the hourly rate and follow procedures described in the Other Goods and Services Section whenever either of the following conditions occur:

- A. The contractor claims 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.
- B. The total snowfall accumulation is more than 80 inches, as measured by the National Weather Service for Fairbanks.

215G-4.01 Basis of Payment:

Snow plowing will be paid for at the contract unit price per mile, or portion thereof, completed and accepted by the service area.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
215G	Snow Plowing with Grader	Mile

END OF SECTION

SECTION 215T

SNOW PLOWING WITH TRUCK PLOW

215T-1.01 Description:

This work consists of plowing snow from roadway surfaces.

215T-2.01 Plowing Requirements:

All snow plowing in this service area shall be accomplished with a with a FORD LTS 9000 truck with plow, UNIMOG plow truck, Oshkosh plow truck or equal. Entrances to side roads and driveways do not require clean up as long as the plowed snow is cast off the roadway and a snow berm is not created.

The roadway surface shall be cleared of snow from roadway shoulder to roadway shoulder each time it is plowed. During snow removal operations the Contractor is responsible for all damages causes to the roadway surface and damages to any facilities located in or along the roadway. The cleared width shall not be allowed to narrow as consecutive plowings occur.

All snow plowing shall commence within 12 hours from the time the Contractor is called out by the service area unless otherwise arranged with the service area commission. The service area commission shall provide to the contractor the name(s) of person(s) with authority to call out for snow plowing.

215T-3.01 Method of Measurement:

Snow plowing will be measured by the mile and shall include as many passes as necessary to remove snow according to the Plowing Requirements.

215T-4.01 Basis of Payment:

Snow plowing will be paid for at the contract unit price per mile, or portion thereof, completed and accepted by the service area.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
215T	Snow Plowing with Truck Plow	Mile

END OF SECTION

SECTION 216

SANDING OF ROADWAYS

216-1.01 Description:

This work shall consist of sanding roadways and road intersections.

216-2.01 Materials:

Sanding material shall be crushed stone or crushed gravel and shall consist of sound, tough, durable pebbles or rock fragments of uniform quality and have a minimum 90% fracture on one face for 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	0-2

This material is commonly known as “E-chips” as detailed in the Alaska DOT/PF Standard Specifications for Highway Construction.

216-3.01 Sanding Requirements:

A mechanical spreader shall be used to spread the sanding materials. Sanding materials shall be spread in a uniform layer that covers the entire width of the roadway, shoulder to shoulder, and the entire area of an intersection unless otherwise directed by the service area commission. The service area commission shall designate in writing to the Contractor the names of persons with authority to call out for sanding. All sanding shall commence within 12 hours of the Contractor being called out by the service area commission.

216-4.01 Method of Measurement:

Sanding will be measured by the ton. Sanding material, hauling, spreading, and labor shall be considered incidental to this pay item. If requested by the commission, the Contractor will provide a weight ticket for the number of tons of sanding material spread on the roadway for each payment invoice. When requested in writing by the Contractor, the service area engineer may approve alternate methods of determining tonnage.

216-5.01 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 by the service area.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
216	Sanding of Roadways	Ton

END OF SECTION

SECTION 217

HARDPACK REMOVAL

217-1.01 Description:

This work consists of removing hardpack snow from roadway surfaces.

217-2.01 Requirements:

The roadway surface shall be cleared of all snow, hardpack snow, and snow berms from roadway shoulder to roadway shoulder. The Contractor shall be responsible for all damages caused by the Contractor to the roadway surface and damages to any facilities located in or along the roadway. If the Contractor has to push snow berms back during winter to maintain roadway width, this work shall not be paid for. Where roadways are on sloping terrain and one side of the roadway has a cutbank, all hardpack shall be plowed to the downhill side of the roadway.

The entrance to all driveways, side roads, AKDOT designated multi-use paths, and service area commissioner designated trail crossings shall be cleared of snow berms. Hardpack in driveways shall be tapered back from the road shoulder to provide a smooth transition.

Snow berms shall be winged back at road intersection radii to a maximum height of 30 inches measured from roadway centerline.

All hardpack removal shall commence within 48 hours from time the Contractor is called out by the service area. The service area shall designate in writing to the Contractor the names of persons with authority to call out for hardpack removal.

217-3.01 Method of Measurement:

Hardpack removal will be measured by the mile and shall conform to the Requirements (217-2.01). The contractor shall be called out to remove hardpack by the designated service area commissioner before conditions exceed 4 inches of hard packed snow. The depth of hard packed snow shall be determined by measuring the hardpack depth on the centerline of the road, in the wheel tracks on either traveled lane, and on either shoulder, then adding these three measurements together and taking the mean to be the depth of hardpack in this spot. These measurements shall be taken in at least six places in the service area with the average of all places being the hardpack depth described in the call-out conditions above. This method applies when the total snowfall accumulation for the winter (September 1 through April 30) is 80 inches or less as measured for Fairbanks by the National Weather Service.

The contractor and commission shall negotiate hardpack removal at the hourly rate and follow the procedures described in the Other Goods and Services Section whenever either of the following conditions occurs:

- A. The contractor claims more than four inches of hard-packed snow has accumulated and the commission verifies the accumulation.
- B. The total snowfall accumulation is more than 80 inches as measured for Fairbanks by the National Weather Service.

217-4.01 Basis of Payment:

Hardpack removal will be paid for at the contract unit price per mile, or portion thereof, completed and accepted by the service area commission.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
217	Hardpack Removal	Mile

END OF SECTION

SECTION 218A

ROAD MIX

218A-1.01 Description:

This work shall consist of furnishing, placing, and compacting Road Mix surfacing material on road embankments or in other locations as directed by the service area commission.

218A-2.01 Road Mix:

Road Mix shall meet the following requirements:

Road Mix shall contain no muck, frozen material roots, sod or other deleterious matter. It shall have a liquid limit not greater than 25 and plasticity index not greater than 6 as determined by AASHTO T 89 and T 90.

GRADING REQUIREMENTS

<u>Sieve Designation</u>	<u>Percent Passing by Weight</u>
1 inch	100
3/4 inch	70-100
3/8 inch	45-75
No. 4	30-60
No. 8	20-50
No. 40	10-30
No. 200	5-12

Road Mix shall meet the quality requirements of AASHTO M 147 except that Alaska T-1 will be substituted for AASHTO T 88.

Road Mix shall consist of crushed or broken material, of which at least 70 percent by weight of particles retained on the No. 4 sieve shall have at least one broken face as determined by ATM T-4 (ATM T-4 shall be modified to allow for naturally broken faces in lieu of crushed fractured faces.)

Road Mix shall have a minimum degradation value of 35 when tested in accordance with Alaska Test Method T-13.

Note: It is anticipated that alluvial material will not conform to these specifications.

The contractor shall provide the service area commission required tests of his stockpile to verify that the material meets the requirements set forth in this section prior to hauling material.

218A-3.01 Placing:

The maximum compacted thickness of any one layer shall not exceed 6 inches, unless special compacting equipment is utilized. When vibratory or other approved types of special compacting equipment are used, the compacted depth of a single layer may be increased to 8 inches upon written approval by the service area engineer.

During placement of the Road Mix material on the roadway, the roadway surface shall be adequately drained at all times.

218A-3.02 Mixing:

After the Road Mix has been placed, the material shall be mixed at moisture content approximately equal to optimum by means of motor graders and other approved equipment until the mixture is uniform throughout.

218A-3.03 Shaping and Compaction:

Compaction of each layer shall continue until a density of not less than 98 percent of the maximum density, determined in accordance with AASHTO T 180, Method D or Alaska T-12, has been achieved. Field densities shall be determined by Alaska T-3, or T-11. The surface of each layer shall be maintained during the compaction operations in such a manner that a uniform texture is produced and the Road Mix firmly keyed. Water shall be uniformly applied over the materials during compaction in the amount necessary for proper compaction.

218A-4.01 Method of Measurement:

Road Mix will be measured by the cubic yard based on truck count. All hauling vehicles will be measured and counted by service area personnel to determine the hauled volume. Road Mix pay volume will be calculated by multiplying hauled volume and vehicle count. The Contractor shall notify the service area commissioner 24 hours prior to the beginning of hauling operations to allow for a truck counter. Water needed for compaction will be considered incidental to this item. When requested in writing by the Contractor, alternative methods of determining cubic yardage may be approved by the service area engineer.

218A-5.01 Basis of Payment:

The accepted quantity of Road Mix will be paid for at the contract price per unit of measurement, complete, in place and accepted by the service area commission.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
218A	Road Mix	Cubic Yard

END OF SECTION

SECTION 218B

SUBBASE

218B-1.01 Description:

This work shall consist of furnishing, placing, and compacting subbase material in road embankments or in other locations as directed by the service area commission.

218B-2.01 Materials

Subbase shall meet the following requirements for the grading type specified:

Subbase shall contain no muck, frozen material roots, sod or other deleterious matter. It shall have a liquid limit not greater than 25 and plasticity index not greater than 6 as determined by AASHTO T 89 and T 90. Subbase grading type shall be as specified in the bid schedule and as determined by ATM F7.

REQUIREMENTS FOR GRADING FOR SUBBASE
Percent Passing by Weight

Sieve Designation	Grading				
	A	B	C	D	E
4 inch	100	--	--	--	--
2 inch	85-100	100	--	--	--
1.5 inch	--	--	100	--	--
.75 inch	--	--	--	100	--
No. 4	30-70	30-70	40-75	45-80	--
No. 40	--	--	5-40	30-65	--
No 200 *	10 max	10	5-12	4-12	0-6

* Gradation shall be determined on that portion of the 3-inch screen

Subbase shall meet the quality requirements of AASHTO M 147 except that Alaska T-1 will be substituted for AASHTO T 88.

Subbase shall have a minimum degradation value of 35 when tested in accordance with Alaska Test Method T-13.

The Contractor shall provide the service area commission required tests of his stockpile to verify that the material meets the requirements set forth in this section prior to hauling material.

218B-3.01 Placing:

The maximum compacted thickness of any one layer shall not exceed 6 inches, unless special compacting equipment is utilized. When vibratory or other approved types of special compacting equipment are used, the compacted depth of a single layer of the base course may be increased to 8 inches upon written approval by the service area engineer.

During placement of the subbase material on the roadway, the roadway surface shall be adequately drained at all times.

218B-3.02 Mixing:

After subbase has been placed, the material shall be mixed at moisture content approximately equal to optimum by means of motor graders and other approved equipment until the mixture is uniform throughout.

218B-3.03 Shaping and Compaction:

Compaction of each layer shall continue until a density of not less than 95 percent of the maximum density, determined in accordance with AASHTO T 180, Method D or Alaska T-12, has been achieved. Field densities shall be determined by Alaska T-3, or T-11. The surface of each layer shall be maintained during the compaction operations in such a manner that a uniform texture is produced and the subbase firmly keyed. Water shall be uniformly applied over the base materials during compaction in the amount necessary for proper compaction.

218B-4.01 Method of Measurement:

Subbase will be measured by the cubic yard based on truck count. All hauling vehicles will be measured and counted by service area personnel to determine the hauled volume. Subbase pay volume will be calculated by multiplying hauled volume and vehicle count. The Contractor shall notify the service area commissioner 24 hours prior to the beginning of hauling operations to allow for a truck counter. Water needed for compaction will be considered incidental to this item. When requested in writing by the Contractor, alternative methods of determining cubic yardage may be approved by the service area engineer.

21B-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 by the service area commission.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
218B	Subbase	Cubic Yard

END OF SECTION

SECTION 219

AGGREGATE

219-1.01 Description:

This work shall consist of furnishing and placing one or more courses of aggregate on a prepared surface in conformance with the service area commission.

219-2.01 Aggregate:

The aggregate shall conform to the following requirements:

Aggregate shall be crushed stone or crushed gravel conforming to the quality requirements of AASHTO M 147. Alaska T-1 shall be substituted for AASHTO test method T-88. Aggregates shall have a minimum degradation value of 35 when tested in accordance with Alaska Test Method T-13.

A minimum of seventy percent (70%) by weight of particles retained on the No. 4 sieve shall have at least one fractured face. Percent fracture shall be determined by Alaska T-4.

Gradations shall conform to the following requirements:

AGGREGATE PERCENT PASSING BY WEIGHT

<u>Sieve Designation</u>	<u>Percent Passing by Weight Grading</u>
1 inch	100
3/4	70-100
3/8	50-80
No. 4	35-65
No. 8	20-50
No. 40	8-30
No. 200	8-15

The Contractor shall provide the service area commission with all required tests of his stockpile to verify that the material meets the requirements set forth in this section prior to hauling material.

CONSTRUCTION REQUIREMENTS

219-3.01 Placing:

The maximum compacted thickness of any one layer shall not exceed 6 inches, unless special compacting equipment is utilized. When vibratory or other approved types of special compacting equipment are used, the compacted depth of a single layer of the base course may be increased to 8 inches upon written approval. During placement of the aggregate material on the roadway, the roadway surface shall be adequately drained at all times.

219-3.02 Mixing:

After the aggregate has been placed, the material shall be mixed at moisture content approximately equal to optimum by means of motor graders and other approved equipment until the mixture is uniform throughout.

219-3.03 Shaping and Compaction:

Compaction of each layer shall continue until a density of not less than 98 percent of the maximum density, determined in accordance with AASHTO T 180, Method D or Alaska T-12, has been achieved. Field densities shall be determined by Alaska T-3, or T-11. The surface of each layer shall be maintained during the compaction operations in such manner that a uniform texture is produced and the aggregates firmly keyed. Water shall be uniformly applied over the base materials during compaction in the amount necessary for proper compaction.

The surface will be tested using a 10-foot straightedge at selected locations. The variance of the surface from the testing edge of the straightedge between two contacts with the surface shall not exceed 3/8 inch.

219-4.01 Method of Measurement:

Aggregate will be measured by the cubic yard based on truck count. All hauling vehicles will be measured and counted by service area personnel to determine the hauled volume. Aggregate pay volume will be calculated by multiplying hauled volume and vehicle count. The Contractor shall notify the service area commission 24 hours prior to the beginning of hauling operations to allow for a truck counter. Water needed for compaction will be considered incidental to this item. When requested in writing by the Contractor, the service area engineer may approve alternative methods of determining cubic yardage.

219-5.01 Basis of Payment:

The accepted quantity of aggregate will be paid for at the contract price per cubic yard, complete, in-place and accepted by the service area commission.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
219	Aggregate	Cubic Yard

END OF SECTION

SECTION 220

SIGNS

220-1.01 Description:

This work consists of furnishing and installing signs and posts. The sign location and type will be as shown on the plans or as designated by the service area commission.

220-2.01 Materials:

(1) All signs shall be constructed from aluminum sheets, with reflective materials and having appropriate symbols. These shall meet the standards as set forth in the current Alaska Department of Transportation and Public Facilities manual, Standard Specifications for Highway Construction.

(2) All new posts installed shall be 2 inches by 2 inches perforated steel tube posts, which conform to ADOT&PF manual; Standard Specifications for Highway Construction 1988 subsection 730-2.04.2.

220-3.01 Construction Requirements:

All sign locations shall conform to ADOT&PF, Standard Drawings, "POST MOUNTED SIGN OFFSET AND HEIGHT", sheet S-05.01" or as directed by the service area commission. Post embedment shall conform to Standard Drawings, "Light Sign Structure Post Embedment, sheet S-30.03".

220-4.01 Method of Measurement:

Signs shall be paid for by the square foot and/or fraction thereof installed. The face dimensions of the sign shall be measured to determine square footage. Posts shall be paid for by the linear foot of post installed. Sleeves and miscellaneous hardware shall be considered incidental to 220 (2) Posts.

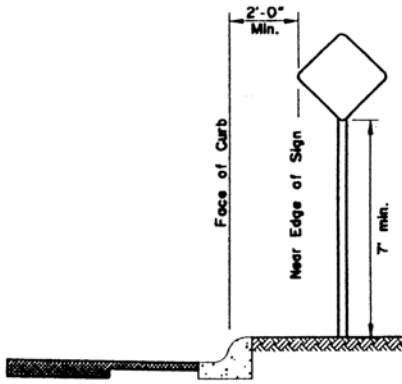
220-5.01 Basis of Payment:

The accepted quantities of signs and posts will be paid for at the contract unit price per square foot for signs and per linear foot for posts completed and accepted by the service area.

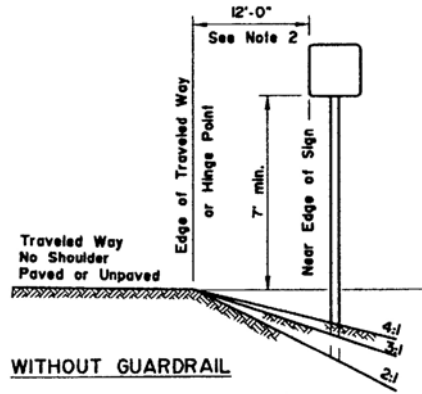
Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Items</u>	<u>Pay Unit</u>
220 (1)	Signs	Square Foot
220 (2)	Posts	Linear Foot

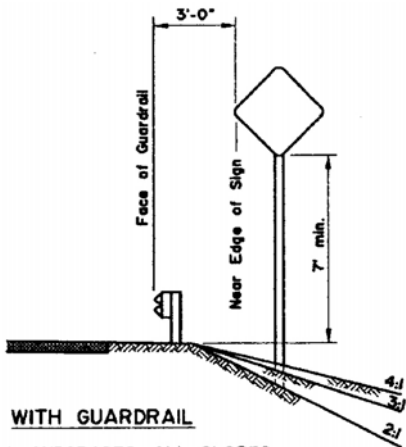
END OF SECTION



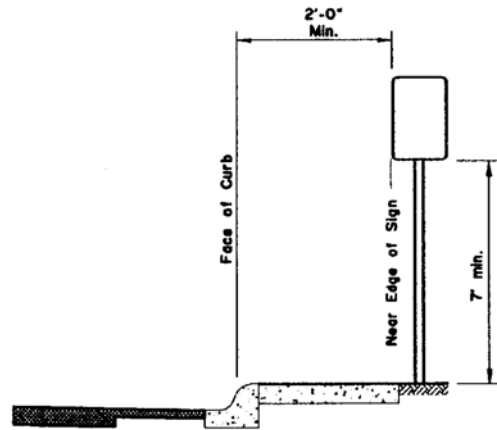
CURB WITHOUT SIDEWALK



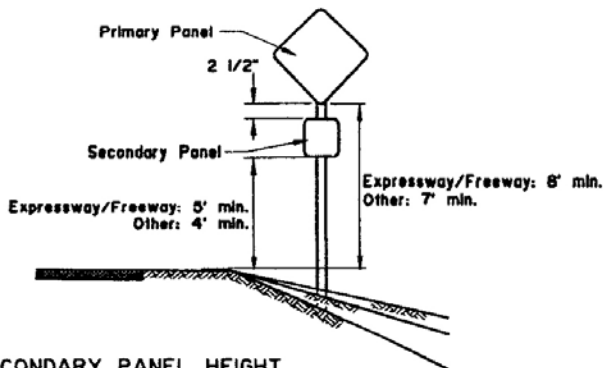
WITHOUT GUARDRAIL
SUBGRADES 24' TO 28', ALL SLOPES



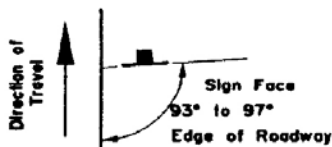
WITH GUARDRAIL
ALL SUBGRADES, ALL SLOPES



CURB WITH SIDEWALK WITHOUT PARKWAY



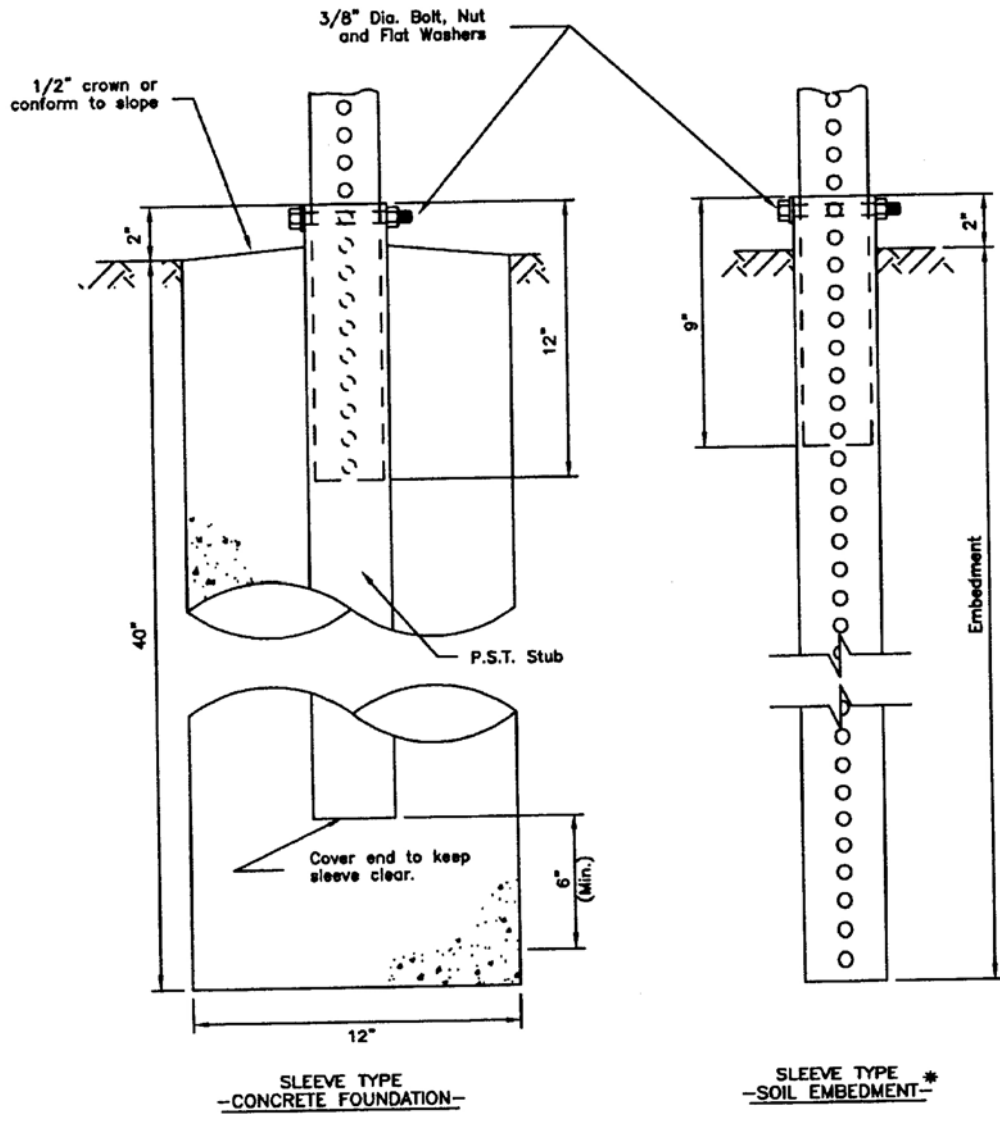
SECONDARY PANEL HEIGHT
ALL TWO PANEL MOUNTING



SIGN POSITIONING

General Notes

1. Unless shown otherwise on the plans, the standard sign offset is 12'. The minimum is 6'.
2. If signs extend over sidewalks, the minimum vertical clearance is 7'-0".
3. Add 6" to mounting height on unpaved roads.
4. If signs extend over bike paths, the minimum vertical clearance is 8'-0".
5. When signs are placed 30' or more from the edge of traveled way, mount them with the bottom of the sign at least 5' above the road surface of the near edge of the road.
6. When multiple hinged sign supports are used, mount hinges at least 7' above the ground.



PERFORATED STEEL TUBES (P.S.T.) (12 ga. - .105" Wall Thickness)		
POST SIZE (inch)	Embedment Depth	No. of P.S.T.s permitted within 7 ft path
1 1/2" x 1 1/2"	3'-0"	2
1 3/4" x 1 3/4"	3'-0"	2
2" x 2"	3'-6"	2
2 1/4" x 2 1/4"	4'-0"	1
2 1/2" x 2 1/2"	4'-6"	1

* Use 3"x3"x3/16" Stub for 2 1/2"x2 1/2" PST Applications.

PERFORATED STEEL TUBE (PST) POSTS

General Notes

1. Refer to Standard Drawing "Sheet Aluminum sign and Framing" for light sign details.
2. See plans for type of post, size and embedment type.
3. To maintain crashworthiness, install no more than the number of P.S.T.s or wood posts specified in the tables within 7' of each other.
4. Use larger posts than shown on this sheet, with hinges, for multiple support signs where the supports are separated by more than 7 feet.

SECTION 308

CRUSHED RECYCLED ASPHALT PAVEMENT

308-1.01 Description

This work shall consist of furnishing and placing crushed recycled asphalt pavement on an approved surface as directed by the service area commission.

308-2.01 Materials

The crushed recycled asphalt pavement shall be produced by crushing asphalt pavement which is free of any deleterious material and which contains at least 3.0 percent asphalt oil when measured in accordance with the ASTM T-26. The crushed material shall be 100 percent 3/4 inch minus. Material will be rejected that is not loose and free of chunks larger than 3/4 inch.

308-3.01 Placing

The maximum compacted thickness of any one layer shall not exceed 6 inches, unless special compacting equipment is utilized. When vibratory or other approved types of special compacting equipment are used, the compacted depth of a single layer may be increased to 8 inches upon written approval. The roadway surface shall be adequately drained at all times, during placement, shaping, and compaction of the material.

308-3.03 Shaping and Compaction

The material shall be spread and shaped to the required grade and section and uniformly watered or aerated as necessary to provide the approximate optimum moisture content for compaction. Compaction of each layer shall continue until a density of not less than 95% of the maximum density, determined in accordance with AASHTO T 180, Method D or ATM T-12, has been achieved. Field densities shall be determined by ATM T-3, or T-11. The surface of each layer shall be maintained during the compaction operations in such manner that a uniform texture is produced and the aggregates firmly keyed.

308-4.01 Method of Measurement:

Recycled asphalt will be measured by the cubic yard based on truck count. All hauling vehicles will be measured and counted by service area personnel to determine the hauled volume. Recycled asphalt pay volume will be calculated by multiplying hauled volume and vehicle count. The Contractor shall notify a service area commissioner 24 hours prior to the beginning of hauling operations to allow for a truck counter. Water needed for compaction will be considered a subsidiary obligation. When requested in writing by the Contractor, the service area engineer may approve alternative methods of determining cubic yardage.

308-5.01 Basis of Payment:

The accepted quantity of recycled asphalt will be paid for at the contract price per cubic yard, complete, in place and accepted by the service area commission.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
308	Crushed Recycled Asphalt Pavement	Cubic Yard

END OF SECTION

SECTION 603

CULVERT INSTALLATION AND REPAIR

603-1.01 Description:

This item shall consist of installing new culvert(s) and/or repairing damaged culvert, hereinafter referred to as "pipe", including all necessary excavation, backfill and imported backfill material.

603-2.01 Materials:

Corrugated steel pipe, and coupling bands, shall conform to the requirements of AASHTO M36 and ASHTO M218 for required sectional dimensions and gages.

When the existing excavated material is not suitable for backfill, as determined by the service area commission, imported backfill material shall meet the following sieve requirements:

<u>Sieve</u> <u>Designation</u>	<u>% Passing</u> <u>By Weight</u>
2 inch	100
No 4	30-70
No 200	3-10

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. New culvert installation shall have a gradient that follows the original ground line, but in no case shall be less than 1.5 percent. Pipe bedding shall consist of a minimum of 6 inches of suitable material or imported backfill. The pipe outlet shall be constructed to prevent erosion of the embankment.

Backfill material shall be placed in uniform layers of not more than 6 inches in depth and compacted to a density of not less than 95% of the maximum density as determined by AASHTO T-180, Method D, or Alaska T-12. In-place field densities will be determined by Alaska T-3 or T-11. An independent testing laboratory may be chosen and hired by the service area. Ponding or jetting of material shall not be permitted.

603-3.02 Removal of Damaged Culvert:

Damaged pipe sections scheduled for repair may be removed 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 manufacturers 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:

- A. 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.
- B. 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.

- C. 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.
- D. Any other band that provides equal structural integrity and has been approved in writing by the service area 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.

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 incidental 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 by the service area commission, for each of the particular pay items listed below:

Numerical suffixes shall be the pipe diameter in inches.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
603(1-12)	12 Inch Pipe	Linear Foot
603(2-12)	12 Inch Coupling Band	Each
603(1-18)	18 Inch Pipe	Linear Foot
603(2-18)	18 Inch Coupling Band	Each
603(1-24)	24 Inch Pipe	Linear Foot
603(2-24)	24 Inch Coupling Band	Each
603(1-30)	30 Inch Pipe	Linear Foot
603(2-30)	30 Inch Coupling Band	Each
603(1-36)	36 Inch Pipe	Linear Foot
603(2-36)	36 Inch Coupling Band	Each
603(1-48)	48 Inch Pipe	Linear Foot
603(2-48)	48 Inch Coupling Band	Each

END OF SECTION

SECTION 613

CULVERT MARKERS

613-1.01 Description:

This work consists of furnishing and installing culvert markers as directed by the service area commission.

613-2.01 Materials:

Reinforcing steel shall conform to AASHTO M31 Grade 60. Size shall be ¾ inch diameter (#6 bar).

Safety caps shall be mushroom shape plastic, highly visible (orange preferred), and shall conform to the requirements of pertinent OSHA requirements.

Paint for culvert marker posts (the top 12 inches shall be painted) shall be exterior grade semi-gloss enamel, as approved by the service area engineer.

613-3.01 Construction Requirements:

For culvert markers located adjacent culverts, the markers shall extend 5 feet above top of culvert.

Minimum driven bury depth shall be 2 feet. Offset culvert markers shall extend 5 feet above ground level and shall be driven 2 feet below ground or as directed by the service area commission. Where culvert ends are close to the road shoulder offset culvert markers are advisable to minimize conflict with snow removal and brush cutting operations.

613-4.01 Method of Measurement:

The quantities to be paid for shall be the actual number of culvert markers furnished, placed and accepted by the service area commission.

613-5.01 Basis of Payment:

Culvert markers will be paid for at the contract price, per unit of measurement, for the pay item shown in the bid schedule.

Payment will be made under:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
613	Culvert Markers	Each

END OF SECTION

SECTION 630

GEOTEXTILE

630-1.01 Description.

Prepare surfaces, furnish and place geotextile for embankment reinforcement as directed by the service area commission.

630-2.01 Materials.

Geotextile material shall conform to the following requirements:

<u>Property</u>	<u>Test method</u>	<u>Required value</u>
Grab Tensile Strength	ASTM D 4632	200 lbs.
Grab Tensile Elongation	ASTM D 4632	15%
Mullen Burst	ASTM D 3786	400 p.s.i.
Trapezoid Tear	ASTM D 4533	75 lbs.
Puncture Strength	ASTM D 4833	90 lbs
Water Permeability	ASTM D 4491	.05 sec ⁻¹

Approved geotextile materials are "Contech C200 Woven Geotextile" and "Amoco 2002 Woven Geotextile" or any equal approved by the FNSB Rural Services Engineer.

630-3.01 Construction:

- A. Surface Preparation. Before placing the fabric (geotextile), the surface on which fabric is to be placed shall be prepared by removal of all stumps, boulders and other sharp objects. All holes and large ruts shall be filled with material as approved by the service area commission. Material used to fill ruts and holes shall be paid for at the unit price for the type material used as approved by the commission.

- B. Geotextile Placement. Fabric shall be unrolled directly onto the prepared surface. Do not expose geotextile to the elements for longer than 5 days after removal of the protective covering. Fabric shall be joined with adjacent pieces of fabric by sewing or overlapping. If fabric is sewn, the fabric shall have all seams sewn by butterfly or J-seams and shall develop a minimum of 85% of the specified strength. Seams shall be sewn with a double-thread chain-lock stitch. High-strength polyester, polypropylene or Kevlar thread shall be used. The seam shall be 1-1/2" (+ or - 1/4") from the outside edge of the geotextile. Should overlapping of adjacent sections of fabric be used, the sections shall be overlapped a minimum of 3 feet or as shown on the plans.

- C. Material Placing and Spreading. Following placement of the fabric on the prepared surface, road embankment material shall be end dumped on the previously spread fabric or ground adjacent to the fabric by a dozer or other machinery. A minimum depth of 1 foot shall be maintained at all times between the fabric and the wheels or tracks of the construction equipment. At no time shall equipment operate on the unprotected fabric. The material shall be spread in the direction of the fabric overlap. Special care shall be given to maintain a proper overlap and fabric continuity.

- D. Fabric Repair. If the fabric should be torn for any reason, the aggregate material shall be cleared from the fabric. The torn area shall be overlain with fabric with a minimum three-foot overlap around the edges of the torn area. Care should be taken that the patch remains in place when material is placed over the affected area.

630-4.01 Method of Measurement:

The amount of geotextile to be paid for shall be the number of square yards of ground surface covered by fabric as approved by the service area commission. Overlapping of fabric will be considered as subsidiary.

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:

<u>Pay Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
630	Geotextile	Square Yard

END OF SECTION