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The following Subsections have been revised since April 1, 2006. Current revisions are noted by an * before the date on this index.

**SUPPLEMENTAL SPECIFICATIONS TO MONTANA
STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
2006 EDITION**

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MONTANA SUPPLEMENTAL SPECIFICATIONS

The following are supplementary or amendatory to the 2006 Edition of the Standard Specifications for Road and Bridge Construction insofar as they apply to this contract.

101.01 GENERAL (DUAL UNITS) Page 1 3-1-07

Add the following paragraph after the first paragraph:

The Standard Specifications are written in dual units with English units first, followed by Metric units in parenthesis. The contract will be in one of the two units. All submittals and documentation provided to the Department must be in English or Metric units as shown in the contract.

101.03 DEFINITIONS (AQUATIC RESOURCES) Page 2 2-23-12

Add the following definition:

AQUATIC RESOURCES

Aquatic resources may include, but are not limited to, wetlands, springs, streams (perennial, ephemeral, and intermittent drainages), rivers, lakes, ponds, reservoirs, agricultural irrigation systems, and associated riparian areas.

101.03 DEFINITIONS (BID DOCUMENTS) Page 2 11-17-11

Rescind and replace the following definition:

BID DOCUMENTS

Any writings, working papers, computer printouts, computer generated and/or computer stored information, electronically stored information, charts, schedules of any kind (e.g., CPM, bar chart, etc.), and any data compilations, computerized or not, used by the Bidder to determine the bid submitted for a contract. "Bid Documents" includes, but is not limited to, Bidder equipment internal rates for ownership, Bidder overhead rates, labor rates, cost coding, equipment and manpower loading of activities, efficiency or productivity factors, scheduling calculations, review or analysis of the site of the work, analysis of how the work should be performed, arithmetic extension, worksheets used to prepare the bid (identifying by name and edition any software programs used to prepare them), and all quotations to the extent that these items were used in formulating and preparing the amount of the bid. "Bid Documents" also includes identification of all manuals used by the Bidder in preparing the bid for this contract, referenced by title, author, edition, date, and page or section number. The term does not include bid documents provided by the Owner (e.g., plans, specifications, etc.) for use by the Bidder in preparation of the bid proposal. Convert electronic information into paper copies for submittal purposes.

101.03 DEFINITIONS (BOARD OF CONTRACT APPEALS) Page 3 2-10-11

Change the title to the following:

CLAIMS REVIEW BOARD

101.03 DEFINITIONS (CALENDAR DATE OF COMPLETION) Page 3 4-12-12

Change the title to the following:

COMPLETION DATE

101.03 DEFINITIONS (CONTRACT TIME) Page 4 4-12-12

Rescind and replace the following definition:

CONTRACT TIME

The number of working days, calendar days, or the fixed completion date allowed for completing the contract, including authorized time extensions.

101.03 DEFINITIONS (CONTRACTOR) Page 4 10-8-09

Change the title to the following:

CONTRACTOR OR PRIME CONTRACTOR

Add the following sentence at the end of the first paragraph:

When used in the specifications, Prime Contractor has the same meaning as Contractor.

101.03 DEFINITIONS (HOLIDAYS) Page 5 4-12-12

Add the following sentence at the end of the first paragraph:

All holidays are defined as No Work Days, unless approved by the Engineer.

101.03 DEFINITIONS (NO WORK DAYS) Page 6 4-12-12

Add the following definition:

NO WORK DAYS

Do not work on holidays, Sundays, or during the winter shutdown, unless approved by the Engineer. Work performed during this time will be assessed against the contract time. Travelway maintenance, stormwater BMP maintenance, and providing protection for the public are exempt and may be accomplished on No Work Days without assessment of contract time. Do not work after 12:00 noon on Friday, or on Saturday and Sunday prior to Memorial Day (last Monday in May) and Labor Day (first Monday in September). Do not work after 12:00 noon on Friday, or on Saturday or Sunday prior to Independence Day (July 4) when July 4 is on a Saturday, Sunday, or Monday.

101.03 DEFINITIONS (OFF-HIGHWAY VEHICLE) Page 6 2-11-10

Add the following definition:

OFF-HIGHWAY VEHICLE

A vehicle that exceeds legal weight limits, or cannot be legally registered or licensed to operate on public roadways.

101.03 DEFINITIONS (JOINT VENTURE) Page 6 10-8-09

Add the following definition:

JOINT VENTURE

An agreement between two or more persons or entities to be jointly and severally responsible for the performance of a contract.

101.03 DEFINITIONS (ROADSIDE DEVELOPMENT)

Page 8

1-12-12

Rescind part (B) and replace with the following:

B. The rehabilitation and protection against erosion of areas disturbed by construction through seeding, sodding, mulching, composting, and the placing of other ground covers; and suitable plantings; and

Add the following paragraph at the end of ROADSIDE DEVELOPMENT:

Unless specified different in the contract, the following are the roadside areas:

- Area 1. Areas with slopes of 3:1 and flatter.
- Area 2. Areas with slopes steeper than 3:1.
- Area 3. A 15.0 foot (4.5 meter) wide strip adjacent and parallel to the finished pavement, along both roadsides.

101.03 DEFINITIONS (WINTER SHUTDOWN)

Page 10

4-12-12

Add the following definition:

WINTER SHUTDOWN

All calendar days from November 16 through April 15, inclusive.

101.03 DEFINITIONS (WORKING DAY)

Page 10

4-12-12

Rescind and replace the following definition:

WORKING DAY

All days are considered working days except Saturdays, Sundays, holidays, days on which the Contractor is specifically required by the contract to suspend construction operations, and all days during the winter shutdown with no construction activities. Work performed during this time with the Engineer's approval will be assessed against the contract time. Working days will be charged during No Work Days for each day construction activities occur that have any impact on the traveling public, exclusive of approved detours or emergency and maintenance repairs to the project, when the time requirements under Subsection 104.05.2 are met.

102.06 EXAMINATION OF DOCUMENTS AND SITE OF WORK

Page 12

1-12-12

Rescind the third paragraph (that begins with "Immediately submit...") and replace with the following:

Immediately submit any request for an explanation of the meaning or interpretation of the bid package to the Department's Q & A Forum found at <http://www.mdt.mt.gov>.

Within the seventh paragraph, rescind the second sentence (that begins with "Upon discovery...") and replace with the following:

Upon discovery, immediately submit the discovery to the Department's Q & A Forum found at <http://www.mdt.mt.gov> if an error, omission, or ambiguity exists and why it appears erroneous, omitted, or ambiguous.

102.07 BIDDING REQUIREMENTS

Page 13

10-1-06

Add the following paragraph at the end of 102.07 (C) (2) Proposal Guarantee:

An electronic bid bond may be filed in lieu of completing the paper Bid Bond area of the Proposal Bid form. Submit on the most current Department-provided hard copy Electronic Bid Bond Form CPB_102_07.

102.08 REJECTION OF BID PROPOSALS

Page 14

5-1-08

Delete the last sentence under part E that reads "(See Subsection 102.10 (B) (6))."

102.08 REJECTION OF BID PROPOSALS

Page 14

10-1-06

Delete 102.08 (A) starting with "Failure to complete" and replace with the following:

A. Failure to complete the appropriate bid bond form, or Proposal, provided by the Department, by all specified persons, including notaries, in the correct blocks.

Delete 102.08 (G) starting with "Bidder fails to ..." and replace with the following:

G. Bidder fails to properly complete and sign, by original signatures, on the most current Department-furnished Proposal and appropriate bid bond form. Stamped signatures are not authorized.

102.10 DELIVERY AND PUBLIC OPENING OF PROPOSALS

Page 15

2-10-11

Delete item 102.10(B)(4). (that begins with "Joint Venture Bids"...)

102.11 WITHDRAWAL OF PROPOSALS

Page 15

4-12-12

Rescind Subsection 102.11 and replace with the following:

Submit withdrawal requests to the Department in writing before the time set for opening bid proposals. A bidder may withdraw any proposal in person or through an authorized agent before any bid proposal on that project is read.

If a bidder discovers a material (factual, not judgmental) mistake in its bid after the bids have been opened, the bidder understands and agrees that it may either perform the contract as originally bid or request permission from the Transportation Commission to withdraw its bid.

The request must be received by the Contract Plans Bureau no later than 4:30 p.m. two business days after the day of the bid opening (not counting the day of the opening). The notice must be by a notarized affidavit, under penalty of false swearing, signed by the bidder and accompanied by all worksheets used in the preparation of the bid, requesting relief from forfeiture of the bid bond and the responsibilities of award. The affidavit must describe the specific error(s), how they were made and who made them, and must certify that the worksheets provided are those that were used in preparing the erroneous bid.

The Department will make its recommendation to the Commission, who will review the request to determine if a mistake occurred, was material and factual, and whether the bid should be allowed to be withdrawn. If the Commission does not concur in the error or determines that the error has not been sufficiently proven, it may award the contract. If the bidder refuses to execute the contract as it was bid, the bid bond will be forfeited as stated under Section 18-1-204 MCA.

102.15 VENUE

Page 16

2-19-09

Rescind 102.15 and replace with the following:

In the event of any dispute concerning a project, whether over its advertisement, bidding, award, execution, or claim, any litigation filed by or against the Department has venue only in Lewis and Clark County.

102.17 PUBLIC WORKS CONTRACTS

Page 16

12-18-08

Add the following Subsection:

102.17 PUBLIC WORKS CONTRACT

Department projects under these specifications are public works contracts. Projects under these specifications require Contractors to provide all resources necessary to complete the project, fully complying with its plans and specifications. They are not "sales", nor are they sales of "goods", as those terms are used in Montana's Uniform Commercial Code (UCC). The UCC, particularly its Chapter 2, does not apply to these projects, and the contractor concurs with that by submitting its bid.

103.02 AWARD OF CONTRACT Page 17 11-17-11

Rescind the second paragraph (that begins with "If the contract ") and replace with the following:

If the contract is not awarded within 45 calendar days, all bid proposals are void. The Commission can extend the 45-day time period.

103.05 RELEASE OF PROPOSAL GUARANTY Page 17 12-1-11

Rescind Subsection 103.05 and replace with the following:

All proposal guaranties will be void immediately following opening and checking of the proposals. The successful bidder's proposal guaranty will be void after a satisfactory contract bond has been furnished and the contract has been executed.

103.07 EXECUTION AND APPROVAL OF CONTRACT Page 17 2-10-11

Delete item C. (That begins with "A copy of...")

Rescind and replace Item A. (That begins with "The signed contract") and replace with the following:

- A. The signed contract; and

103.07 EXECUTION AND APPROVAL OF CONTRACT Page 17 8-1-06

Rescind part D under the third paragraph and replace with the following:

- D. Possessing a current special fuel user permit issued under 15-70-302 MCA, or a letter stating that no special fuel will be used.

103.08 FAILURE TO EXECUTE CONTRACT Page 18 5-24-12

Rescind and replace Subsection 103.08 with the following:

Upon failure to execute the contract and file acceptable bonds within 20 calendar days after receipt of the contract, under Section 18-1-204 MCA, the award will be canceled and the proposal guaranty forfeited. Award may then be made to the next lowest responsive, responsible and qualified bidder, or the work may be re-advertised. If, due to circumstances entirely beyond the control of the bidder, the bidder is unable to file acceptable bonds and insurance policies within the time specified above, the commission at its sole discretion may waive cancellation of the award and forfeiture of the proposal guaranty.

103.09 BID DOCUMENTS Page 18 11-17-11

Rescind and replace Subsection 103.09 with the following:

103.09 BID DOCUMENTS

103.09.1 General

The following requirements apply when submission of bid documents is required by the contract. The Department agrees to safeguard the bid documents, and all information contained therein, against disclosure to the fullest extent permitted by law.

103.09.2 Bid Documentation Inventory Affidavit and Escrow Agreement

Use the most current Department Form CSB103_09A "Bid Documentation Inventory Affidavit" with the bid documentation. Follow all directions for the bid documentation listed on Form CSB103_09A.

Use the most current Department Form CSB103_09B "Escrow Agreement" when completing the bid documents escrow procedure. Follow all directions for the escrow procedure listed on Form CSB103_09B. Modified

versions of the "Escrow Agreement" provided by the escrow agent may be used with written approval by the Construction Engineering Services Engineer.

The forms must be signed by an authorized agent for the bidder. These forms are available at the following web page: <http://www.mdt.mt.gov/publications/forms.shtml#contract>

103.09.3 Escrow of Bid Documents

Once identified as the apparent low bidder on a contract requiring submission of bid documents, submit all bid documents to an approved escrow agent located in Helena, Montana. Convert electronically formatted information into paper copies. Include these paper copies as part of the bid documentation. Provide written notification including copies of the Bid Documentation Inventory Affidavit and the Escrow Agreement to the Contract Plans Bureau within seven business days, including the day of bid opening. The copy of the Escrow Agreement submitted to the Contract Plans Bureau must contain signatures from the Escrow Agent and representative of the bidder. The Department will review the documents and return a copy of the Escrow Agreement with a signature of a Department representative to the Escrow Agent.

An approved escrow agent includes any business such as a banking institution or other bonded storage facility which provides a deposit box, vault, or other secure accommodation. Place the bid documents and completed Bid Documentation Inventory Affidavit in the container provided by the escrow agent. Clearly label the face of the container "Bid Documents" and include the bidder's name, the date of submittal, the contract name, and the contract number.

If the apparent low bidder, for whatever reason, is not awarded the contract, the apparent second low bidder will be told that it has seven business days from the date of its verbal notification (followed immediately in writing) to comply with the above requirements.

103.09.4 Bid Responsiveness

The copies of the Bid Documentation Inventory Affidavit and Escrow Agreement submitted as part of the escrow notification will be reviewed for completeness and responsiveness. If the forms are incomplete or are not submitted, the bid will be considered non-responsive. The second low, responsive responsible bid will then be reviewed and the bidder will be required to meet the above requirements.

103.09.5 Release of Bid Documents to the Department

The bid documents in escrow are and will remain the property of the Contractor unless a Certified Claim is filed by the Contractor or litigation or arbitration is initiated under the contract. In the event that the Contractor submits a Certified Claim or litigation or arbitration is initiated under the contract; the bid documents included in the escrow become the property of the Department for its use, specifically including use in preparing for and conducting of all claims, disputes, arbitration or litigation. Failure to submit all bid documents as defined in Subsection 101.03 and the Bid Documentation Inventory Affidavit as required, or failure to include the items indicated by the Bidder on the Bid Documentation Inventory Affidavit in the documents that are placed in escrow, will be a material breach of the contract, is a failure to comply with a condition precedent to filing a claim or lawsuit, acts as a total and final waiver of all claims or disputes involving matters that would have been included (e.g., claims of delay, changed site conditions, loss of productivity, etc.), and subjects the Contractor to action under ARM 18.3.101 et seq.

Upon the Department's receipt of the bid documents, the Contractor will be notified and must have a representative present during the opening, unless the representation is waived. Failure to appear at the date and time designated for the opening will be considered a waiver.

103.09.6 Release of Bid Documents to the Contractor

Except as provided for in Subsection 103.09.5, the bid documents will remain in the storage location during the life of the contract. After a certificate of completion has been issued for the contract, the Department will notify the escrow agent and the Contractor that the bid documents may be released. It is the Contractor's responsibility to obtain necessary signatures and retrieve the bid documents from the Escrow Agency.

103.09.7 Method of Measurement and Basis of Payment

Escrow of Bid Documents is measured and paid as lump sum. Payment will be made on the first progress estimate. Payment at the contract unit price is full compensation for all resources necessary to complete the item of work under the contract.

104.02.3 SIGNIFICANT CHANGES IN THE CHARACTER OF WORK Page 22 4-8-10

Delete the first sentence of the second paragraph (that begins with “If the alterations ...”) and replace with the following:

If the alterations or changes in quantities significantly change the character of the work under the contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding anticipated profit on unperformed work, will be made to the contract

Delete the first sentence of paragraph four (that begins with “The term ...”) and replace with the following:

The term “significant change” applies when one or more of the following circumstances is met:

104.02.4 CHANGE ORDERS Page 22 11-1-07

Rescind Part C. in the first paragraph (that begins with “Contract time ...”) and replace Part C. with the following:

C. Contract time adjustments per Subsection 108.07.05.

104.05.1 GENERAL (MAINTENANCE OF THE WORK) Page 23 3-22-12

Rescind the first paragraph (that begins “Perform maintenance work...”) and replace with the following:

Perform maintenance work on completed and uncompleted parts of the project until approval under Subsection 105.15.2.

Rescind the third paragraph (that begins “Maintenance work performed...”) and replace with the following:

Maintenance work performed before approval under Subsection 105.15.2 is incidental to other contract items.

104.05.2 FAILURE TO PROPERLY MAINTAIN ROADWAY OR STRUCTURE Page 23 3-1-07

Rescind Subsection 104.05.2 and replace with the following:

The Project Manager will immediately notify the Contractor if it fails to maintain the project. Failure to begin to remedy unsatisfactory maintenance within 4 hours of notification may result in:

- The Department performing the required repair. The cost of the repair will be deducted from monies due or to become due to the Contractor, or otherwise be billed to the Contractor.
- Contract time being charged. Contract time will be charged starting on the day of the Department’s initial notification and will continue until the repairs are made and the Project Manager approves the repairs.

104.05.4 MAINTENANCE FOR TRAFFIC DURING WORK SUSPENSIONS Page 24 3-1-07

Rescind Subsection 104.05.4 and replace with the following:

- A. Temporary Suspension. Make passable and open to traffic all portions of the project, connections, and temporary roadways before temporary work suspensions. Maintain parts of the project, connections, temporary roadways, and detours under traffic at Contractor expense during work suspensions.
- B. Winter Suspension. Be responsible for all traffic control and maintenance during winter weather shutdowns, including the time between November 16th and April 15th. Be responsible for all snow removal, sanding, and de-icing for all roadways not completed through the first lift of plant mix surfacing. Furnish all necessary supervision, personnel, and equipment to maintain the road in a safe condition and at the highest level of service to traffic.

The Department is not responsible for any repairs or maintenance to the project that results from snow plowing, sanding, and de-icing on any roadway not completed through top lift of plant mix surfacing.

The Contractor may request that the Department furnish all resources to perform snowplowing, sanding, and de-icing during winter suspension. This work would be detailed in a written agreement. Be responsible

for all maintenance, traffic control, or other work not detailed in the agreement. Reimburse the Department, under an accounts receivable, for all Department plowing, sanding, and de-icing expenses according to the terms of the signed agreement.

Attend a meeting scheduled by the Department to review the project to develop the agreement details prior to the winter suspension.

Inspect the project at least once every 14 calendar days. Submit form CSB104_05_4 to the Project Manager within three days of the inspection.

Failure to maintain the project under these requirements will invoke Subsection 104.05.2.

Repair or replace all work and materials lost or damaged due to temporary use of the project. Maintenance work for acts of God or acts of the public enemy, or that are outside the Contractor's control during work suspensions is paid for at contract unit prices or as extra work.

104.06 RIGHTS IN AND USE OF MATERIALS FOUND ON THE WORK

Page 24

2-10-11

Rescind and replace Subsection 104.06 with the following:

104.06 MATERIAL AND PROPERTY RIGHTS

104.06.1 Rights in and Use of Materials Found on the Project

Apply for and obtain the Engineer's written approval prior to using excavated materials for other contract items. Designate in the request which contract item the second payment is for. Only one item will be eligible for payment when more than one field measurement by the Department would be required. Replace the removed material with acceptable material at Contractor expense.

Do not excavate or remove material from within the right-of-way that is outside the grading limits without written permission.

104.06.2 Use of Department Property

Do not use Department property outside the project limits for contractor operations, such as staging, without Department approval. Submit an Encroachment Permit to the MDT Maintenance Division for approval. The Encroachment Permit request form is available from the Department's website or the Project Manager. Be responsible for all requirements within the Encroachment Permit and obtain associated environmental permits prior to the use of the property.

Restore the property in accordance with the contract and Encroachment Permit requirements no later than the Encroachment Permit end date. Obtain seed blend mix designs and allowed seeding time frames from the Project Manager for any re-vegetation required to the area. Repair damaged areas in a timely manner.

The Department will revoke the use of Department property if the requirements of the contract or the Encroachment Permit are not being met. The use of Department property outside the project limits, including any required restoration or repair work is not measured for payment. Contractor failure to fulfill the encroachment requirements is cause for the Department to perform or have corrective actions performed and deduct those costs from monies due or that may become due the Contractor.

104.08 VALUE ENGINEERING PROPOSALS

Page 25

1-12-12

Rescind the seventh paragraph (that begins with "The Department's cost of ...") and replace with the following:

Costs incurred by the Department during a Preliminary Review will not be charged to the Contractor. If the proposal is advanced to the Detailed Review stage, costs incurred by the Department during the Detailed Review stage will be shared equally by the Department and the Contractor. The submittal of a formal proposal constitutes the Department's authority to deduct these costs from any monies due or that may become due to the Contractor under the contract. The Department costs for researching and defending claims related to an accepted VE Proposal will not be shared equally. These costs will be deducted from progress payments.

105.02 CONTRACTOR FURNISHED DRAWINGS AND SUBMITTALS

Page 27

1-12-12

Rescind the third paragraph (that begins with "The Department has 20 working days ...") and fourth paragraph (that begins with "Working drawings, falsework plans...") and replace with the following paragraphs:

The Department has 20 working days to review the submittals before returning them to the Contractor. The Department has 20 working days to review drawings returned for correction and that are re-submitted for review. The Department will consider extending contract time should the Department review exceed the 20 working day review time limit and the delay can be shown to affect the Contractor's operation based on the current schedule.

The Department will perform an engineering review of the first submittal at no cost to the contractor. If the Department determines that the submittal fails to meet generally accepted engineering standards, it will return the

submittal for correction. The Department will perform reviews of re-submittals with its own personnel when possible. If Department staff does not have time available to perform reviews, at the Department's sole option it may hire a consultant engineer from outside the Department to finish the review process.

The Department will charge for reviews of re-submittals for its staff time and at the rate charged by a hired engineering firm for its staff time, if the Department hires one. The Department will subtract the charges from contractor payments.

Working drawings and falsework plans for facilities open to public travel are to be signed by a professional engineer registered in the State of Montana before submittal to the Project Manager.

Check and approve working drawings and submittals before submittal to the Project Manager. Show the Contractor's approval on the drawings and submittals.

105.03.1 GENERAL (CONFORMITY WITH PLANS AND SPECIFICATIONS) Page 27 2-11-10

Rescind the third paragraph (that begins with "When a contract ...") and replace with the following:

When a contract item does not meet the contract requirements but is adequate to serve the design purpose, the Contractor will be notified in writing of the deficiency. The Contractor will be given the choice to remove and replace the deficient work, correct the work at no expense to the Department, or accept a reduction in the contract unit price. If the Contractor chooses to accept a price reduction, the Project Manager will determine the amount of the reduction and will apply the reduction using a line item adjustment to the contract. The Project Manager may document the basis of the acceptance by change order.

105.03.2 ITEMS DESIGNATED FOR ACCEPTANCE ON A LOT BASIS (QA) Page 28 10-1-06

Delete the Column for "Cleanness Value" under Table 105-1.

105.03.2 ITEMS DESIGNATED FOR ACCEPTANCE ON A LOT BASIS (QA) Page 27-29 12-27-07

Delete the fourth column titled "Penetration" from Table 105-1.

Delete the tenth row titled "AC in Plant Mix Surfacing and Base" from Table 105-1.

Delete the 6th row titled "Penetration, 85-100 asphalt cement" from Table 105-2.

Delete the 7th row titled "Penetration, 120-150 asphalt cement" from Table 105-2.

Delete the 8th row titled "Penetration, 200-300 asphalt cement" from Table 105-2.

105.03.3 QUALITY INCENTIVE ALLOWANCE Page 29 2-23-12

Rescind Part A under Subsection 105.03.3 (that begins with "When Volumetric Acceptance...") and replace with the following:

A. Gradation. When "Volumetric Acceptance" is not specified, a 1.05 pay factor will be applied to non-commercial plant mix surfacing lots where the average results of aggregate gradation tests for the lot for the No. 4 (4.75 mm), No. 40 (0.425 mm), and No. 200 (0.075 mm) sieves are not more than one-half the allowable tolerance from the job mix target value.

Rescind Part C under Subsection 105.03.3 (that begins with "Quality incentive allowances...") and replace with the following:

C. Quality Incentive Allowances. Quality incentive allowances will be used to offset any price reductions. Any quality incentive allowance remaining after all price reductions have been deducted will be paid for as a lump sum when all work on the item is complete.

105.03.4 TABLE OF CONTRACTOR SUBMITTALS

Page 30

4-8-10

Add the following two paragraphs after the last paragraph (that begins with "Submit all required...")

Electronic submittals to the Department will be accepted if they are in a format accessible by the Department's software, do not require a signature, and legible once opened. Verify acceptable electronic format types with the Project Manager prior to submittal.

When a specification requires submittal of a form, submit the most current Department form. Forms are available from the Project Manager or on the Department's Contractor's system Internet site at <http://www.mdt.mt.gov>

105.05 COOPERATION BY CONTRACTOR

Page 31

3-1-07

Add the following sentence to the end of the third paragraph

This contact must be maintained during all work suspensions, including winter suspension.

Add the following paragraph at the end of Subsection 105.05

Failure to maintain the ability to be contacted within 2 hours during times of work suspension will result in contract time being charged. Time will be charged for the day the Department first attempts to make contact and each additional day that the Contractor's designated representative cannot be contacted.

105.08.5 SURVEY TOLERANCES AND INSPECTION

Page 33

4-8-10

- A. Replace the second sentence in part A. Subgrade(that begins with "The 1000 foot...") and replace with the following:

The 1,000-foot (300-meter) section will be accepted if 80 percent or more of the points checked are within a vertical tolerance range of + 0.05 foot (+15 mm) to - 0.10 foot (- 30 mm), and the horizontal alignment is within 0.30 foot (90 mm) of the true line.

- B. Replace the second sentence in part B. Special Borrow(that begins with "The 1000 foot...") and replace with the following:

The 1,000-foot (300-meter) section will be accepted if 80 percent or more of the points checked are within a vertical tolerance range of + 0.05 foot (+ 15 mm) to - 0.10 foot (- 30 mm), and the horizontal alignment is within 0.30 foot (90 mm) of the true line.

- C. Replace the second sentence in part C. Aggregate Surfacing (that begins with "Each 1000 foot...") and replace with the following:

Each 1,000-foot (300-meter) section will be accepted if 85 percent or more of the points checked are within a vertical tolerance range of + 0.10 foot (30 mm) to - 0.05 foot (- 15 mm), and the horizontal alignment is within 0.30 foot (90 mm) of the true line.

Rescind the third paragraph (that begins with "A station check...") and replace with the following paragraph:

A station check consists of centerline, shoulders, any break in cross slope, and intermediate points not to exceed intervals of 20 feet (6 m). All elevation checks are taken on the material, not on the finish grade control. The Project Manager may increase or decrease the number of stations being checked. After receiving notification of a completed section, the Project Manager will perform the finish grade check by the close of the following business day. Contract time will be extended day for day, without any other compensation, for Department caused delays beyond the allotted time to perform the finish grade check.

105.13 EQUIPMENT

Page 35

10-1-07

Delete Subsection 105.13.

105.15.1 COMPONENT INSPECTION

Page 35

12-1-11

Rescind Subsection 105.15.1 Reserved and replace with the following:

Upon notice of completion for a project component with a contract specific warranty (non-manufacturer), a milestone, or defined phase or unit of construction, the Project Manager will arrange to make an inspection of that work. Seal Coat warranties will be administered in accordance with Section 409.

If the contract work is found satisfactorily completed, the inspection will constitute the component inspection. If the inspection discloses unsatisfactory work, the Project Manager will issue written instructions to the Contractor on the necessary corrections. When the deficiencies are corrected, another inspection will be made which constitutes the component inspection.

Upon completion of the component inspection, submit a completed "Contractor's Component Inspection" (form CSB105_15_1). The form is available from the Department's website or the Project Manager. The Contractor's project superintendent must sign the form. The form must state that:

1. The Department and the Contractor have completed a component inspection of the work, and the Contractor verifies that the work was completed in full accordance with the specifications and the requirements of the contract.
2. If applicable, the component has an associated incentive or disincentive, and they have been assessed.
3. If applicable, the component has an associated warranty and what the expiration date is.

Contract time assessment will not cease until all contract-specific warranties have expired, but may be suspended under Subsection 105.15.2. Within 14 calendar days of being notified of necessary warranty repairs, submit a plan detailing repair procedures, the expected date activities will begin, and expected duration of repair work. The time suspension will be rescinded and contract time charged if a repair plan is not provided within the allotted 14 calendar days.

The time suspension will be rescinded and contract time charged beginning on the date that repair activities begin or the date provided in the repair plan, whichever is earlier, and continue until repairs are complete.

Completion and approval of the Contractor's Work Component Inspection is not a statement or commitment by the Department that all work meets the contract requirements, and does not waive or alter any of the contract's terms.

105.15.2 SUBSTANTIAL WORK COMPLETE

Page 35

12-1-11

Rescind Subsection 105.15.2 and replace with the following:

When all work on the site is complete, the Project Manager will schedule a final inspection (project walk-through). If all work is complete but deferment of the final inspection is necessary for causes outside the Contractor's control, the Project Manager will suspend contract time.

If the work is determined to be in compliance with the contract, the inspection will constitute the final inspection. If the inspection discloses unsatisfactory work, the Project Manager will issue written notification of the deficiencies. Upon notification by the contractor that the deficiencies are corrected, the Project Manager will conduct another inspection of those items.

Before the completion of a Contractor's Substantial Work Complete form (form CSB105_15_2), the contractor's project superintendent must provide a sworn and notarized certification that the following items have been completed:

1. The Department and the Contractor have completed a final inspection of the work, and the Contractor verifies that the work was completed in full accordance with the specifications and the requirements of the contract.
2. The project has been inspected for compliance with the General Permit for Storm Water Discharges Associated with Construction Activities (General Storm Water Permit), all necessary corrective actions taken, and the General Storm Water Permit transferred to the appropriate entity. The Contractor will defend and hold the Department harmless from any violations, claims, enforcement actions, penalties or fines issued for Contractor activities or recordkeeping that occurred prior to the transfer of the General Storm Water Permit; this does not include activities specifically directed by the Department in writing. The Department is not liable for the completeness or accuracy of Contractor records completed prior to the permit transfer.
3. Liquidated damages have or have not been assessed, and damages that have been assessed either are or are not disputed by the Contractor.
4. The contract does or does not include any contract specific warranties (non-manufacturer). If it does, all contract specific warranties have expired.
5. The Contractor is aware that the Department will not consider the contract for "final acceptance" until the required labor and materials certifications and documentation are complete, and the Contractor has reviewed the final estimate.

Contract time assessment will not cease until all warranty issues are corrected and the Contractor's Substantial Work Complete form has been received and approved. The Project Manager may suspend contract time for punch list items provided the roadway is in a safe and convenient condition. The date the form is approved is the Substantial Work Complete Date. Maintain the insurance specified in Subsection 107.13 until the Substantial Work Complete Date.

Completion and approval of the Contractor's Substantial Work Complete form is not a statement or commitment by the Department that the work meets all contract requirements, and does not waive or alter any of the contract's terms. The contract bond will remain in effect until the certificate of completion is executed and the contract is finally accepted by the Commission, plus any time period specified by Montana law.

105.15.3 FINAL ACCEPTANCE

Page 36

12-1-11

Rescind 105.15.3 and replace with the following:

105.15.3 Final Acceptance

When the final estimate is completed and submitted to the Contractor under Subsection 109.08, submit a completed "Contractor's Request and Certification for Acceptance" (form CSB 105_15_3). The form is available from the Department's website or the Project Manager. An authorized officer of the Contractor must sign the certification, which must be sworn to and notarized. The certification must state that:

1. The work requested for acceptance has been completed in accordance with the contract's specifications, and the required materials have been used, both in quality and quantity.
2. All construction claims made on the contract have been submitted, and are closed or resolved as of that date.
3. There are no pending investigations referencing alleged nonpayment to subcontractors or suppliers.
4. There are no pending labor compliance or nonpayment claims on the contract.
5. There are no known environmental violations, and the Contractor is responsible for any violations issued for damages or non-compliance with permit requirements and conditions prior to the transfer of the General Storm Water Permit.
6. All contract specific warranty periods (non-manufacturer) have expired.

If any of the above is not completed in full before the certification form is submitted, the Project Manager will inform the Contractor that the form is rejected. If the Request for Acceptance form is approved, a Certificate of Completion will be issued within 10 days and the final estimate submitted to Accounting for payment.

The contract is not finally accepted until it is accepted by the Commission, plus any time period specified by Montana law.

105.16.1 NOTICE OF CLAIM

Page 36

7-31-08

Rescind the first sentence of the first paragraph (that begins with "Notify the Project Manager ...") and replace with the following:

Submit a notice of claim using the Department's "Notice of Claim" Form CSB105_16_1A, no later than the next business day of disagreements that are to be the subject of a claim for additional compensation, time extension, contract change, or other remedy.

105.16.2 SUBMISSION OF CERTIFIED CLAIMS

Page 37

12-17-09

Rescind the first sentence of the third paragraph (that begins with "The Prime Contractor ...") and replace:

The Prime Contractor must verify the claim data and certify the claim. Claims from a subcontractor or supplier will not be accepted.

105.16.3 DECISION ON CLAIMS

Page 38

10-7-10

Rescind and replace the first paragraph (that begins with "The District Construction ...") and replace with:

The Prime Contractor must verify the claim data and certify the claim. Claims from a subcontractor or supplier will not be accepted. The District Construction Engineer will provide a written decision no more than 30 calendar days after receipt of the Certified Claim for Contracts that do not require Escrow of Bid Documents. The

District Construction Engineer will provide a written decision no more than 45 calendar days after receipt of Bid Documents for Contracts that do require Escrow of Bid Documents. If additional time is required to research and evaluate the Claim, the District Construction Engineer can extend the time period 14 calendar days by notifying the Contractor in writing.

105.16.3 DECISION ON CLAIMS

Page 38

2-10-11

Rescind the first sentence of the second paragraph (that begins with "To advance the...") and replace with the following sentence

To advance the claim, appeal the District Construction Engineer's decision to the Claims Review Board (Board).

105.16.3 DECISION ON CLAIMS

Page 38

8-6-08

Rescind the second sentence in the second paragraph (that begins with "Submit the ...") and replace with the following:

Submit the "Request for Appeal" Form CSB105_16_3H to the Construction Engineering Services Engineer no more than 30 calendar days after the date of the District Construction Engineer's decision.

Rescind the fourth sentence in the second paragraph (that begins with "The District Construction Engineer's decision ...") and replace with the following:

The District Construction Engineer's decision is final unless appealed no more than 30 calendar days after the date of the decision.

Delete the third paragraph (that begins with "If the District Construction Engineer ...").

Rescind sixth paragraph (that begins with "The Board may affirm ...") and replace with the following:

The Board may affirm, overrule, or modify, in whole or in part, the decision of the District Construction Engineer. The decision of the Board is the Department's final decision.

Add the following paragraph after the sixth (last) paragraph (that begins with "The Board may affirm ...")

The Contractor or Department may request non-binding, independent third party mediation. The Contractor's request for third party mediation must be submitted to the Construction Engineer on the "Request for Mediation" Form CSB105_16_3E no more than 30 calendar days after the date of the Board's decision. If the Department and Contractor both agree to mediation, they must mutually agree on a mediator and a mediation date within 14 calendar days of the date of the request for mediation. All costs associated with mediation will be shared equally between the Contractor and the Department.

106.01.1 SOURCE OF SUPPLY

Page 39

8-1-07

Add the following paragraph after the second paragraph:

Perform sampling of any material to be tested in accordance with the contract. The Department will decide if a sample was taken correctly. Samples not properly taken may be rejected and may not be accepted for testing.

106.01.2(B) MATERIALS ACCEPTED BY DEPARTMENT TESTING

Page 39

4-8-10

Rescind the last sentence in the second paragraph (that begins with "Copies of individual....") and replace with the following:

Copies of individual Montana test methods are available from the Department's Materials Bureau in Helena.

106.02.2 PROSPECTED SOURCES

Page 40

4-8-10

Rescind Subsection 106.02.2 and replace with the following:

Contact the Department for information on Department prospected local material sources.

The Department is not responsible for the quantity or quality of materials indicated in the prospected source reports. Test data included in the reports are based on the samples tested from the exact locations shown using standard tests. No interpretation is made or intended by the Department. Any interpretation is the judgment of the person examining the tests. See Subsection 102.06 concerning verifying quantity and quality by an independent subsurface investigation before submitting a bid. Make arrangements with landowners for sampling and obtaining material from the prospected material sources.

Do not sell or use material from Department-owned or Department-optioned sources for anything other than the designated project without a written agreement from the landowner and Department approval. Other than those requirements specified in a written agreement between the landowner and Department, any arrangements between the landowner and the Contractor are solely between them. Submit copies of all correspondence and agreements with the landowner to the Project Manager.

Notify the Department in writing if a prospected source is to be used and list the contract items for which that material will be used.

Pay all royalties, obtain all required permits and follow their requirements. Coordinate with the landowner to determine the access routes that are allowed for use and any additional landowner requirements. Adhere to all agreed stipulations, including contouring of pits, topsoil conservation and replacement, seeding, repair or obliteration of haul roads, cattle guards, and fencing; the cost of which is incidental to and included in the materials cost.

106.02.3 CONTRACTOR-FURNISHED SOURCES

Page 40

2-11-10

Rescind Subsection 106.02.3 and replace with the following:

Acquire the rights to take materials from Contractor-furnished sources and pay all related costs, including costs due to increased haul length, exploring and source development.

Furnish material that meets all statutory and regulatory requirements for being non-toxic and non-hazardous. Do not furnish material from mine tailings and waste, slag, sources within state and federal superfund sites, or sources within areas known or suspected to be contaminated with toxic substances or petroleum products unless laboratory reports from an approved laboratory indicate the material meets these requirements.

Obtain Department approval for any special borrow or aggregate source prior to use. Arrange with the Project Manager for representative samples to be taken and witnessed by the Department at least 30 calendar days before beginning production. Provide all equipment and labor necessary for the sampling. See Subsection 106.10 for the number of Department furnished tests at Department expense.

The Department's approval of the source does not release the Contractor from the responsibility to produce materials meeting all specified acceptance requirements.

A. Borrow Source Approval. The 85th percentile of the samples taken from the source(s) must meet the R-value and/or the soils classification specified in the contract.

Furnish a minimum of eight Department-witnessed samples at the locations and depths designated within the limits of the proposed source(s).

Samples will be tested for R-value according to AASHTO T190. The R-value at a 300 psi (2,068 kPa) exudation pressure will be used for evaluation. Samples will be tested for soils classification according to MT 214. If the source is approved, it may be limited to certain areas, layers, or soil classes within a source, during or after source approval testing. Approval of the source does not preclude the Department from sampling from the roadway.

B. Aggregate Source Approval. The Department will process and test samples to determine the suitability of the material in accordance with Subsections 701.02.1 and 701.03.1.

Passing wear and volume swell test results are mandatory for Department approval of bituminized material aggregate sources. Passing wear test results are mandatory for Department approval of untreated aggregate sources.

Assume all risk for producing aggregate from sources not meeting the wear test (MT 209) and volume swell (MT 305) tests. The Department will randomly test stockpiled aggregate for wear and volume swell acceptance.

106.05 FIELD LABORATORY

Page 42

4-8-10

Rescind Subsection 106.05 and replace with the following:

The Department will furnish all field offices and laboratories.

Furnish and install electrical power to field offices and laboratories as directed:

- A continuous 200-ampere, 220 to 230 volt, single phase, 60-hertz power supply using a four wire connector; or
- A 110 to 120 volt alternating current of sufficient capacity.

Have the source connected by a Montana licensed electrician.

Furnish a potable water supply to operate all testing equipment for the offices and laboratories.

No additional payment will be made for providing power and water to the field office and laboratories.

Include these costs in the other items on the project.

106.09 DOMESTIC MATERIALS

Page 44

5-24-12

Rescind Subsection 106.09 and replace with the following:

Furnish domestic steel or iron materials for products required to be permanently incorporated in the work. Domestic material is material that all manufacturing processes, including coating of steel or iron, occur in the United States. Pig iron, and processed, pelletized and reduced iron ore may be manufactured outside the United States. Furnish the appropriate manufacturer's mill tests and certifications documenting the manufacturing processes, including coatings of covered materials, performed in the United States. A minimal quantity of foreign manufactured steel and iron material may be used if the cost of the material, including delivery costs to the project, does not exceed one-tenth of one percent of the total contract amount or \$2,500.00, whichever is greater.

Do not incorporate steel or iron materials into the project until a completed Form 406 with all required documentation is accepted. Submit documentation to the Department in a clear, organized, legible manner or it will be returned. Clarify which material certifications are for which items. The Department will review the submitted documentation one time at no cost to the contractor. If the Department determines that the submitted documentation is inadequate or fails to meet the contract requirements, the submitted documentation will be returned for clarification or correction. The cost for the Department's re-review of the same submittal is the contractor's responsibility, and may be deducted from contractor payments. Field inspection of many pre-cast products and prefabricated steel products will take place at the point of manufacture. The District lab, Helena Materials Bureau, or Department representative will inspect the manufacture of these items and collect and maintain supporting documentation. Submittal of a Form 406 is not required when inspection of the fabricated/manufactured product is made at the point of production and documented by the Department. All supporting documentation must be supplied at the point of manufacture.

Submit a request to use a minimal quantity of foreign manufactured steel and iron a minimum of five working days before incorporation into the work. Include in the request the dollar amount of the steel for this request, and the cumulative dollar amount requested to date. Failure to do so will require removal and replacement of all foreign steel and iron with domestic steel and iron. If the foreign steel and iron cannot be positively distinguished from any domestic material used, then all of the material must be removed and replaced with domestic steel and iron at the contractor's expense.

106.10 MIX DESIGNS AND TESTING OF MATERIAL SOURCES

Page 44

2-11-10

Rescind Subsection 106.10 and replace with the following:

The Department will furnish the number of mix designs and tests shown in Table 106-1, at no cost to the Contractor:

TABLE 106-1
NUMBER OF MIX DESIGNS AND TESTS FURNISHED AT NO COST

DESCRIPTION	NO. FURNISHED PER CONTRACT
Plant Mix Surfacing Mix Design or Verification	2 per grade
Plant Mix Base Mix Design	2 per grade
Portland Cement Concrete Mix Design	1 per class
Cement Treated Base Mix Design	2 per grade
Special Borrow Testing Package	1 per 65,000 cubic yard (50,000 cubic meters) of plan quantity
Surfacing Material Testing Package	
Indicated source(s) shown on plans	2
Surfacing source(s) furnished by the Contractor	2

Requests for additional testing will be processed in the order they are received, with a minimum 30-calendar day turnaround. The Contractor will be charged the Department's cost for each additional mix design, mix design verification, and testing package. The total cost will be deducted from the progress estimate payments.

107.02 PERMITS, LICENSES, AND TAXES Page 45 7-3-08

Rescind the first paragraph (that begins with "Obtain all ...") and replace with the following:

Obtain all legally required permits, authorizations and licenses, pay all charges, fees, taxes, and fuel taxes giving all notices necessary and incidental to the lawful prosecution of the work.

107.06 PUBLIC CONVENIENCE AND SAFETY Page 46 5-1-08

Add the following three paragraphs after the first paragraph (that begins with "Conduct construction with..."):

High-visibility safety apparel must be worn by all workers within the right-of-way of all projects. Use high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled "*American National Standard for High-Visibility Safety Apparel and Headwear*".

Workers include all persons on the project at the request of, employed by, or for the benefit of the Contractor. This includes suppliers and subcontractors at every tier including volunteers.

A workers failure to wear required apparel may result in the worker's immediate and permanent ejection from the project, and/or a suspension of work in that area, at the discretion of the Project Manager. No claim for compensation or delay costs may be made by or through the Contractor in such a case.

107.08 LOAD RESTRICTIONS Page 47 8-1-07

Delete the first paragraph (that starts with "Do not exceed legal load ...") and replace with the following:

Do not exceed legal load restrictions when hauling material and equipment on public roadways and bridges within and beyond the project limits and on all new and existing portland cement concrete roadways, completed and accepted gravel surfaces, treated base courses, bituminous surfacing lifts and courses, including plant mix base, plant mix surfacing, and seal and cover.

107.08 LOAD RESTRICTIONS Page 47 6-1-06

Rescind the last sentence of the fourth paragraph (that begins with "Furnish a ...") and replace with the following:

Furnish a drawing showing distances between axles, truck tare weight, and the overall length of each truck prior to hauling or placing operations.

Add the following paragraph after the fifth paragraph under Subsection 107.08:

If raising a retractable or tag axle results in the truck being over the maximum legal weight, only raise the axles when backing to unload at a chip spreader, windrow, or plant mix paver. Back the minimum distance possible while over legal weight restrictions. Do not exceed the legal weight on the steering axle by more than 25 percent, or tandem axles by more than 50 percent while backing with the retractable or tag axles lifted.

107.10 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE Page 48 12-2-10

Rescind Subsection 107.10 and replace with the following:

107.10 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE

107.10.1 Public and Private Property.

Preserve all public and private property when performing work. Do not disturb or damage land monuments and property markers until witnessed or referenced by the Project Manager.

Be responsible for all damage to public and private property resulting from any act, omission, neglect, or misconduct in the manner or method of executing work until the project is accepted. This responsibility includes damage caused by compaction, vibratory, and impact equipment.

Replace or restore damaged property to its original condition at Contractor expense.

Conduct a review of all public roadways to be used by Contractor equipment, including haul operations, before work begins. Arrange for a local road authority representative and the Project Manager to attend the review. The parties are to review and document the roadways existing condition and determine a dispute resolution process if an agreement on roadway restoration cannot be reached.

Once the roadway is no longer in use by the Contractor, conduct another review by the same parties. The parties are to reach an agreement on what is required to restore the roadway comparable to its original condition. Perform all work required to restore the roadway comparable to its original condition and obtain the Engineer's approval of the work once completed.

Roadway restoration is not measured for payment.

107.10.2 American Legion Fatality Markers.

Take inventory of all American Legion Fatality Markers (fatality markers) within the project limits prior to construction activities. Identify the fatality marker's route, reference post, and side of road it is located on. Identify fatality markers that are in conflict with proposed construction activities and those that are not.

- A. Fatality Markers in Conflict with Construction Activities. Prior to construction activities in vicinity of fatality markers, remove and locate fatality markers to a safe location. Upon completion of construction activities, return the fatality markers to the same route as close as practical to the original reference post and side of road, at an offset distance established by the Department.
- B. Fatality Markers not in Conflict with Construction Activities. Do not disturb fatality markers not in Conflict with construction activities.

Be responsible for all damage to fatality markers resulting from any act, omission, neglect, or misconduct in the manner or method of executing work until the project is accepted. Replace or restore damaged fatality markers to their original condition at Contractor expense. All costs incurred to meet the American Legion Fatality Marker requirements are incidental to other items of the contract.

107.11 ENVIRONMENTAL PROTECTION

Page 48

2-23-12

Rescind Subsection 107.11 and replace with the following:

107.11 ENVIRONMENTAL PROTECTION

107.11.1 General

Follow all state, local, tribal, and federal laws and regulations controlling pollution of the environment. Take precautions to prevent pollution of aquatic resources from silt, fuels, oils, bitumens, chemicals, or other harmful materials. Take precautions to prevent pollution of the atmosphere from particulate and gaseous matter. Do not begin work in areas covered by the permits, authorizations, or notifications until all are received from the regulatory agency. Allow a minimum of 45 days to receive required permits, authorizations, or notifications from the date of the submittal of a complete request, unless a different timeframe is specified by the regulatory agency. The Department is not responsible for delays caused by incomplete or inaccurate submittals by the Contractor.

Obtain and submit one copy to the Project Manager of all required environmental permits, authorizations, and notifications necessary for activities relating to construction activities, including those secured for sites outside of the project limits before construction activities start in permitted area. Submit to the Project Manager, within seven days of sending or receiving, all correspondence to or from regulatory agencies regarding potential noncompliance or violations.

107.11.2 Water Pollution Control Regulations

Refer to Section 208 for other requirements relating to water pollution control and aquatic resource protection.

- A. Construction De-watering Permit. A Construction De-watering General Permit Authorization is required for any construction activity that discharges sediment-laden water from the work area, such as cofferdams, trenches, excavation pits, or other work types identified in the permit, to state waters. Obtain authorization from the Water Protection Bureau, Department of Environmental Quality (DEQ) before discharging into any state waters. If sediment-laden water is land-applied and will not reach state waters, then a discharge permit is not required.
- B. Short-term Turbidity Standard (318 Authorization). Obtain authorization as required under MCA 75-5-318, for any activity that will cause a short term increase in turbidity.
- C. Section 404 - Nationwide Permit (NWP) and Individual Permit (IP). Follow the provisions of the Federal Clean Water Act, including the requirements of Section 404.

Temporary facilities and construction activities in and around waters of the U.S. may be covered by a U.S. Army Corps of Engineers (COE) 404 Permit. Adhere to applicable permit conditions and/or NWP Fact Sheets, Regional Conditions, and 401 Certification requirements. Obtain a 404 Permit for temporary facilities and/or construction activities that are not covered by the 404 Permit obtained by the Department for permanent structures. These construction activities may include, but are not limited to, temporary work bridges, work pads, cofferdams, diversions, temporary fills and berms, haul roads, and other work that involves the placement of fill or dredged materials into waters of the U.S.

Prepare the application and submit to the Project Manager for Department review and submittal to the COE. The contract may include additional conditions and requirements for applicable Section 404 permits.

D. Section 10 Rivers and Harbors Act Permits. Follow the requirements of the Rivers and Harbors Act, including requirements of Section 10. COE permits are required for structures or work in, over, under or affecting navigable waters of the U.S. In Montana, navigable waters of the U.S. include, but are not limited to the: Kootenai River, Missouri River, and Yellowstone River. Section 10 permits can be issued concurrently with the Section 404 permits described above. Adhere to applicable permit conditions and/or NWP Fact Sheets, Regional Conditions, and 401 Certification requirements.

E. General Storm Water Permits. Follow the requirements of the National and Montana Pollutant Discharge Elimination Systems (NPDES and MPDES) Storm Water Permits. Coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (General Storm Water Permit) is required for any construction activity that disturbs an area of at least one acre or has the potential of discharge. DEQ administers the MPDES permit. If the project is located on one of Montana's Indian Reservations, NPDES permit authorization is issued by the US Environmental Protection Agency (EPA). Permit authorization is obtained by submitting a complete application package, including the Notice of Intent (NOI) to the appropriate regulatory entities. The EPA allows electronic submittal of the NOI. Obtain the permit authorization directly from the DEQ or EPA.

F. SPA 124 Notification. Follow the requirements of the Montana Stream Protection Act (SPA). The SPA is administered by the Montana Department of Fish, Wildlife and Parks (FWP).

Obtain an SPA 124 for temporary facilities and/or construction activities that are not covered under the SPA 124 obtained by the Department. These activities may include, but are not limited to, work bridges, work pads, cofferdams, temporary detours, diversions, removal and disposal of existing structures, access, sequencing, and construction methodology.

Prepare the application and submit it to the Project Manager for Department review and submittal to FWP. The contract may include additional conditions from the SPA 124 obtained from Contractor submittal.

G. Tribal Permits. Work within reservations may require additional permits and submittals to tribal authorities. Coordinate with the Department to determine requirements and receive assistance in obtaining permits.

The Aquatic Lands Protection Ordinance (ALPO) #90-A provides regulation of all waters and aquatic lands on the Blackfeet Reservation in order to prevent or minimize their degradation. Obtain an ALPO permit for any project within or near aquatic resources.

The Shoreline Protection Office of the Confederated Salish and Kootenai Tribes (CSKT) Tribal Council administers the following Tribal Ordinances:

- Shoreline Protection Ordinance 64A, which deals with any work along the shoreline of Flathead Lake.
- Aquatic Lands Conservation Ordinance (ALCO) 87A, which is required for the alteration of aquatic lands, wetlands, or Flathead Reservation waters from activities such as dredging, filling, irrigation diversions and returns, drainage ditches, and maintenance repairs of these resources.

Tribal Permits are required for construction activities within the project limits and may be required for temporary facilities outside the project limits. If required, coordinate with the Department and obtain tribal permits from the tribal office for additional activities and facilities not covered by tribal permits obtained by the Department.

H. Floodplain Permit. Follow the requirements of the Montana Floodplain and Floodway Management Act. Any construction project within a designated 100-year floodplain is required to have a floodplain development permit prior to the start of construction. The Montana Department of Natural Resources and Conservation (DNRC) administer this permit through the Floodplain Management Section or local floodplain administrators.

MDT obtains this permit for permanent facilities. Obtain the Floodplain Permit from the DNRC or the local floodplain administrator for temporary facilities if required.

107.11.3 Air Quality

Operate all equipment including, but not limited to, hot-mix paving plants, concrete batch plants, generators, aggregate crushers and screens, etc. to meet the minimum air quality standards and applicable requirements established by federal, state, tribal, and local agencies. Secure necessary air quality permits from the appropriate regulatory entity.

Use reasonable precautions to prevent or reduce dust on the project caused by construction operations or traffic, to be in compliance with all federal, state, tribal, and local laws and regulations.

Use water, liquid magnesium chloride, liquid calcium chloride, or other dust palliative approved by the Project Manager. Use only Contractor owned water sources or water that is obtained under a purchased water right according to applicable laws.

Dust control for compliance with all laws and regulations is not measured for payment. Include the cost for dust control in the item of work being performed that results in dust. Any violations or fines associated with dust control / dust control operations are the responsibility of the Contractor.

No additional payment will be made for the use or installation of dust or smoke control devices, for the disruption of work or loss of time occasioned by the installation of such control devices, or for any other related reasons.

107.11.4 Noise Pollution

Adhere to local noise ordinances, laws and regulations, and follow all requirements contained in the contract regarding noise pollution.

107.11.5 Noxious Weed Management

Follow the requirements of the County Noxious Weed Management Act, Title 7, Chapter 22, Part 21 MCA, and all county and contract noxious weed control requirements. Determine the specific noxious weed control requirements not specified in the contract of each county where the project is located before submitting a bid.

Noxious weeds include those species designated by the Montana Department of Agriculture. The most recent list of designated noxious weeds is available from the MT Department of Agriculture, or local county Extension Service or Weed District. The Montana Department of Agriculture web site with noxious weed information is: www.agr.mt.gov/weedpest/noxiousweeds.asp

Clean all equipment and vehicles prior to their transport into the project area. Equipment or vehicles with visible dirt or plant parts will not be allowed into the project area until they are cleaned to the satisfaction of the Project Manager.

All costs incurred to meet the county weed control requirements are incidental to other items of the contract.

107.11.6 Noxious Weed Control

When Noxious Weed Control is included as a bid item, provide noxious weed control to all lands within the right-of-way within the project limits.

Monitor the construction, borrow and staging areas at intervals necessary to prevent noxious weeds from developing viable seed. Noxious weeds may be controlled through hand-pulling or herbicide application. Select the most effective and appropriate means of control based upon the species and size of infestation and environmental conditions.

If the control is accomplished with the application of herbicides, use only a licensed commercial pesticide applicator certified to apply general and restricted-use herbicides. Use herbicides that meet all applicable state and federal pesticide laws and that are registered with the Montana Department of Agriculture as required by the Montana Pesticide Act. Apply herbicides in a manner that provides immediate control, but does not jeopardize or cause potential harm to final reclamation objectives. Follow all applicable state and federal pesticide laws. If it is determined that herbicide application caused or contributed to the failure of reclamation, take corrective action at no additional cost to the Department.

Do not perform noxious weed control on areas that have received final seeding.

Noxious Weed Control within the project limits is measured by force account methodology. Noxious Weed Control in areas outside of the project limits is not measured for payment.

Work performed within the project limits is paid by units of Noxious Weed Control.

107.11.7 Plant and Animal Protection

A. Migratory Bird Treaty Act. Complete operations in compliance with the Migratory Bird Treaty Act. Migratory birds of any kind (including but not limited to swallows and other song birds) are protected under the Migratory Bird Treaty Act. It is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Direct disturbance of an occupied migratory bird nest (with birds or eggs) is prohibited under the law.

The Migratory Bird Treaty Act does not prohibit the destruction of most unoccupied (without birds or eggs) migratory bird nests, provided that no possession occurs during the destruction. The destruction of unoccupied nests of eagles; colonial nesters such as cormorants, herons, and pelicans; and some

ground/cavity nesters such as burrowing owls or bank swallows may be prohibited under the Migratory Bird Treaty Act.

Contact the Department District Biologist if further instruction, clarification or consultation is required prior to or during construction.

Compliance with the Migratory Bird Treaty Act is incidental to performance of the work and no additional payment is made.

B. Bald and Golden Eagle Protection Act. Complete operations in compliance with the Bald and Golden Eagle Protection Act. The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle or golden eagle, alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

For purposes of this contract, "disturb" means: "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle; 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment.

A violation of the Act can result in a fine of \$100,000 (\$200,000 for organizations), imprisonment for one year, or both, for a first offense. Penalties increase substantially for additional offenses, and a second violation of this Act is a felony.

C. Endangered Species Act. Complete operations in compliance with the Endangered Species Act (ESA) (16 U.S.C 1531 et seq.). The ESA provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The ESA prohibits any taking of a threatened or endangered species. The definition of "take" includes to harass, harm, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.

107.12 FOREST PROTECTION

Page 50

2-23-12

Rescind subsection 107.12 and replace with the following:

107.12 FOREST PROTECTION

Observe sanitary laws and regulations regarding the performance of the work within or adjacent to State or national Forests and Parks. Keep all areas in a neat condition, dispose of all refuse, and obtain permits for the construction and maintenance of construction camps, stores, warehouses, residences, latrines, cesspools, septic tanks, and other structures.

Prevent, suppress, and assist in preventing and suppressing forest fires, and immediately notify a forest official of the location and extent of any fire discovered.

Maintain spark arresters to meet the Forest Supervisor's requirements on all steam, gas, or diesel-driven machinery and on all flues at construction camps.

107.13 INSURANCE REQUIREMENTS

Page 50

12-1-11

Rescind Subsection 107.13 and replace with the following:

107.13 INSURANCE REQUIREMENTS

Meet the timing requirements of subsection 103.07.

107.13.1 Insurance on All Contracts

- A. Commercial General Liability Insurance. Obtain Commercial General Liability insurance with a general aggregate limit of \$2,000,000; an occurrence limit of \$1,000,000; and products and completed operations limit of \$1,000,000. The policy must name the State of Montana, its agents, employees, and officers as an additional named insured.
- B. Owners and Contractors Protective Liability Insurance. Obtain an Owner's and Contractor's Protective (OCP) liability insurance policy for all work to be done, on behalf of the owner (State of Montana, the Department, and its agents, employees and officers) to be submitted with the contract when executed, with a general aggregate limit of not less than \$2,000,000 and an occurrence limit of not less than \$1,000,000.

C. Insurance Policies. Both of the above policies must:

1. Provide coverage on an occurrence basis and not on a claims-made basis;
2. Not contain exclusions for explosion, collapse, or underground damage hazards; and
3. Provide that all insurance or self insurance maintained by the State, its agents, employees, and officers is in excess of the required insurance and does not contribute with it.

Maintain Commercial General Liability insurance in full force from the effective date stipulated in the Notice to Proceed until Commission acceptance of the project, unless written approval is given by the Construction Administration Services Engineer to cancel the policy. Maintain Owner's and Contractor's liability insurance in full force from the effective date stipulated in the Notice to Proceed until the "Contractor's Substantial Work Complete" (form CSB 105_15_2) is approved by the Department.

Obtain all policies from an insurer with a Best rating of A- or better on the date the policy is written.

The insurance requirements are a condition precedent to the contract. Failure to obtain and maintain all required insurance is considered a material breach of the contract.

Reinstate the policies listed above if a return to the project is required to complete additional work. Do not begin work until the policies are reinstated and submitted to the Construction Administration Services Bureau in Helena.

107.13.2 Insurance Involving Railroads

Furnish Railroad Protective Liability Insurance on behalf of the railroad when equipment or personnel are located or work is done on any railroad right of way.

The limits of liability are specified in the contract.

Maintain Railroad Protective Liability Insurance in full force until the "Contractor's Substantial Work Complete" (form CSB 105_15_2) is approved by the Department.

Submit copies of the railroad insurance policies as specified in the contract for transmittal to and approval by the railroad. Do not use or enter railroad property until railroad approval is received and the policies are in effect. This applies to all work done as a part of the project.

Reinstate the Railroad Protective Liability Insurance if a return to the project is required to complete additional work. Do not begin work until the policy is reinstated and submitted to the Construction Administration Services Bureau in Helena.

107.13.3 Reserved

107.13.4 General

Furnish insurance policies with an endorsement that prohibits canceling, altering, amending or reducing coverage without giving a minimum of 30 calendar days written notice by the insurance company to the insured and the Department. A Montana resident agent must countersign all insurance policies issued under the contract. If the state where the insurance is being purchased has a reciprocal agreement with the State of Montana and the insurance company is licensed to do business in the State of Montana, a countersignature by a Montana Resident Agent is not required.

107.17 CONTRACTORS RESPONSIBILITY FOR WORK

Page 51

12-1-11

Rescind and replace Subsection 107.17 with the following:

Protect the work against loss, injury, or damage caused by the elements, traffic, or any other cause, including, but not limited to, fire, theft, pilferage, vandalism, or third-party negligence until final acceptance. Repair all damage to any project work, or the project site, caused by the Contractor or anyone performing any project work at no expense to the Department.

Rebuilding, repairing, and restoring damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor (including, but not restricted to: acts of God such as earthquake, flood, tornado, or other cataclysmic phenomenon of nature or acts of the public enemy or of governmental authorities) will be paid for under Subsection 104.03. This does not excuse, or allow compensation or repayment for any act or omission by the Contractor or its subcontractors, either in violation of law, regulation, ordinance, etc., or for any act or occurrence, which could have or should have been foreseen.

Expect probable adverse weather and stream flow conditions to occur. The cost of delay, loss, injury, or damage occurring to dikes, cofferdams, caissons, work bridges, haul bridges, or any other construction item or equipment, caused by adverse weather and stream flow conditions is the Contractor's responsibility.

The above requirements do not apply if the contract has reached the Substantial Work Complete Date under Subsection 105.15.2.

Provided the damage was not caused by the Contractor or Subcontractor, repair to items that have been accepted as complete is Extra Work under Subsection 104.03 and will be paid for under Subsection 109.04. A building is considered complete when it is fully functional, and is open to the public.

Payment for repair of damages resulting from public traffic and use does not entitle the Contractor to:

- A. The release of any part of unpaid contract funds; or
- B. Relief from responsibility for defective workmanship or materials; or

C. A waiver of any contract provision.

Conduct the work to assure maximum convenience and safety to the general public and to the property owners adjacent to the work.

Maintain access for adjacent property owners at all times.

Take precautions to prevent damage to the project during work suspensions. Provide for drainage and erect all necessary temporary structures, signs, or other facilities at Contractor expense.

107.18 CONTRACTORS RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES Page 52 12-2-10

Rescind the second paragraph (that begins with "Call the utilities...") and replace with the following paragraph:

Call the Utilities Underground Location Center (1-800-424-5555) or other notification system, UDIG (1-800-551-5344) if in Flathead or Lincoln County, for the marking and locating of the utilities before excavation.

Add the following paragraph after the second paragraph (that begins with "Call the utilities..."):

The Department will locate existing Department owned utilities. If utilities are relocated or installed as part of the contract, the location of the relocated or newly installed utilities is the responsibility of the Contractor. The Contractor remains responsible for the relocated or newly installed utilities until the utility is functioning and in use by the traveling public.

107.21 NO WAIVER OF LEGAL RIGHTS Page 53 12-1-11

Rescind the first paragraph (that begins with "Once the work...") and replace with the following:

Final inspection under Subsection 105.15.2 does not prevent the Department from correcting any measurement, estimate, or certificate made before or after contract completion and from recovering from the Contractor, or surety, or both overpayments sustained for failure to fulfill the obligations under the contract. A Department waiver of any breach of any part of the contract does not constitute a waiver of any other or subsequent breach.

107.23 DISCOVERY OF UNDERGROUND STORAGE TANKS Page 54 9-9-10

Rescind Subsection 107.23 and replace with the following:

Take the following action if an underground storage tank or tanks are encountered, the existence or location which was previously unknown to the Department or Contractor, on the project within the project limits.

- A. Immediately stop work in the vicinity and notify the Project Manager
- B. Immediately notify the local fire authority and protect people and property from fire, explosion, vapor, and other potential hazards, and prevent further release of the tank's contents. Take all actions requested by the Project Manager.
- C. Notify the Department of Environmental Quality (DEQ) within 24 hours if there is evidence of soil or groundwater contamination resulting from a tank leak or pipe leak, at:
Underground Storage Tank Program
Department of Environmental Quality
Environmental Remediation Division, Petroleum Technical Section
1-800-457-0568
- D. Perform the tank removal and closure work as permitted by DEQ.
- E. Do not resume work in the immediate vicinity of the tank or piping until approved by the Project Manager.

Costs incurred from the discovery of underground storage tanks within the project limits are paid for as extra work under Subsection 104.03. Costs from the discovery of underground storage tanks outside the project limits are not the Department's responsibility.

107.24 DISCOVERY AND REMOVAL OF UNKNOWN HAZARDOUS MATERIALS

Rescind Subsection 107.24 and replace with the following:

If hazardous material is discovered within the project limits, the existence or location of which was previously unknown to the Department or the Contractor or not identified in the contract, immediately stop work in that area and notify the Project Manager. Hazardous material includes, but is not limited to; contaminated soil, contaminated water, asbestos, PCBs, petroleum, PCPs, hazardous waste or radioactive material. If the area is determined to pose a hazard to the traveling public, close off all access to the area as directed. Work may continue in unaffected areas believed to be safe.

Once notified of the contaminated site, the Department will determine whether a separate Contractor will be used to assess and clean up the contaminated site before permitting the Contractor to resume work in the contaminated area. If the Department, after consulting with the Contractor, determines that the Contractor can perform the work it is subject to Subsection 107.26 and is paid for under Subsection 104.03. Obtain all necessary clearances (procedures, permits, etc.) from the regulatory agencies before starting any work.

If the Contractor does not want to perform the work, it agrees and accepts that it waives any potential claim for itself, its subcontractors, and suppliers for damages for delay from the Department's securing another Contractor to perform the clean-up work.

The Department will equitably compensate the Contractor under Subsection 109.04.3 for costs associated with the delay to work in the affected area.

108.01.1 SUBCONTRACTING

Rescind Subsection 108.01.1 and replace with the following:

108.01.1 Subcontracting

Do not subcontract, assign, or otherwise dispose of more than 60 percent of the original contract cost without the written consent of the surety and the Department.

Table 108-1A illustrates when an executed subcontract is required. The table is not all-inclusive, but shows examples. When required, a final determination will be made by the Construction Administration Services Engineer.

Table 108-1A

Activity	Subcontract Required	Payroll Required
Physical work within the project limits	Yes	Yes
Material application (dust palliative, water, oil products, etc.)	Yes	Yes
Commercially supplied materials	No	No
Owner/Operator of heavy haul trucks (haul only)	No	*
Owner/Operator of heavy haul trucks (haul and place)	Yes	*
Crushing operations at a site dedicated to the project	Yes	*
Concrete pump truck (No labor by operator)	No	No
Equipment rentals (w/ operator)	No	Yes
Work performed by a Contractor on the prime's payroll	No	Yes
Survey Work	Yes	*
Consultant services within project limits	Yes	*
Consultant services not within project limits	No	No

*Contact the Department's Civil Rights Bureau for a determination.

The same criteria apply to work added by a change order. A subcontract is required for work performed by a Subcontractor at any level (second-tier, third-tier, etc) of the contract.

Include in the written subcontract or assignment or in a separate written document with the subcontract or assignment the following language:

"In consideration of being awarded this subcontract, and in consideration of having this subcontract approved by the State of Montana, the Subcontractor hereby assigns to the State of Montana any and all claims or causes of action for any antitrust law violations, or damages arising there from, as to goods, materials, and services purchased under the terms of this subcontract or any change order that may result from this subcontract."

Do not hire or use in any manner a person or organization that performed any part of the design work for the Department unless first approved by the Department in writing.

108.01.2 CONTRACT PERFORMANCE

Page 57

2-23-12

Rescind Subsection 108.01.2 and replace with the following:

108.01.2 Contract Performance

Perform at least 40 percent of the original contract cost with the Contractor's organization. The price of items designated in the contract as "Specialty Items" will be subtracted from the original contract price before the amount required to be performed by the Contractor is calculated.

Where an entire item is subcontracted, the percentage of the work subcontracted is based on the original contract item unit price. When a portion of an item is subcontracted, the percentage of the work subcontracted will be based on either the subcontract item unit price or on an estimated percentage of the contract item unit price, determined by the Construction Administration Services Engineer. An item will not be considered partially subcontracted unless the prime contractor performs a portion of the work (equipment, materials or labor). If the same item is subcontracted at multiple levels, the cost is only accounted for at the first level. When an item added by change order is subcontracted, the cost of the item does not count towards the required contract performance in Subsection 108.01.1.

Do not allow a Subcontractor at any contract tier to start work until its subcontract is consented to by the Construction Administration Services Engineer. Include one executed and certified copy of the subcontract, a letter from the surety consenting to the subcontract, and the Subcontractor's Checklist, which includes a statement that the subcontractor has a current special fuel users permit issued under 15-70-302 MCA if required. If the subcontractor does not use special fuel, include a letter stating that the "subcontractor does not use special fuel" with the subcontracts.

Inform the Subcontractor of all the contract provisions, and that the Subcontractor is bound by all terms of the prime's contract with the Department. Provide the Subcontractor a copy of all the contract provisions including the applicable prevailing wage rates and FHWA 1273. Include in the subcontract the following language:

"The Subcontractor agrees to comply with all of the labor provisions contained in the attached Special Required Contract Provisions and Davis Bacon Wage Decision."

All subcontractors are agents of the Contractor. The Contractor is responsible for all work, material furnished, project documentation provided by, and indebtedness incurred by its subcontractors.

Written consent to subcontract, assign or transfer the contract does not release the Contractor from liability under the contract and bond.

108.01.3 SUBCONTRACTOR PAYMENTS

Page 57

4-8-10

Add the following Subsection:

Submit payment information for all Subcontractors to the Civil Rights Bureau within 30 calendar days of the payment. This information can be submitted electronically on the Department's website.

108.03.1 GENERAL (PROSECUTION OF WORK)

Page 58

9-23-10

Delete the fourth sentence of the third paragraph (that begins with "A pre-construction conference ...") and replace with the following sentences:

Submit a schedule meeting all requirements of Subsection 108.03.2 or 108.03.3 at or before the pre-construction conference. No other work, except obtaining permits, may begin until the schedule requirements have been met. No payments will be made on the contract until the pre-construction conference has been held and the submitted schedule reviewed.

108.03.1 GENERAL (PROSECUTION OF WORK)

Page 58

1-31-08

Replace the first sentence in the third paragraph (that begins with "A pre-construction conference ...") and replace with the following:

A pre-construction conference will be held on a mutually agreed date between the Contractor, Department and other parties interested in the work before work within the project limits begins no later than twenty days after the Notice to Proceed date.

108.03.2 PROJECT SCHEDULES

Page 59

1-31-08

Add the following sentence after the first sentence in the first paragraph:

The initial schedule must show that the work will be completed in the time frame as specified in the contract.

108.03.3 CRITICAL PATH METHOD (CPM) SCHEDULING

Page 60

5-24-12

Rescind the first paragraph (that begins "When requested...") and replace with the following:

Develop, maintain and provide a detailed time-scaled computer generated progress schedule using the Critical Path Method that is compatible with Primavera P6 software.

Schedule all contract work including that of subcontractors, vendors and suppliers. The initial schedule must show that the work will be completed in the time frame as specified in the contract.

After the third paragraph under part (A) rescind the first sentence (that begins "Prepare an initial...") and replace with the following:

Prepare an initial schedule and submit an electronic file compatible with Primavera P6 software and one ANSI D (24-inch by 36-inch) paper copy.

Rescind part (C) and replace with the following:

C. Schedule Requirements.

Schedule submittals include:

1. Activity identification numbers;
2. Project milestones;
3. Activity descriptions;
4. Appropriate relationships;
5. Activity durations appropriate for the work. Submit activity manpower, equipment, unit quantities and production rates to the Project Manager for review;
6. Procurement of permits;
7. Material procurement separated into at least two activities, fabrication and delivery. Include time for delivering all submittals and Department review of working drawing submittals as separate items in the schedule logic for all items requiring submittal, review and approval;
8. Activities coded to reflect the party performing each activity (only one party performs each activity) including subcontractors and suppliers and the area/location of each activity;
9. Work days per week, holidays, number of shifts per day, hours per shift and major equipment to be used;
10. Phasing (staging) details, if the work has phasing or is to be performed in phases;
11. Written narrative describing the anticipated work in an orderly sequence of the construction phasing, anticipated problems, and anticipated project completion dates, in a detailed description. Narratives that are a listing of the work will not be acceptable. Written narratives shall be included with each submission; and
12. Calendars, including weekends, holidays, or other Contractor non-work periods. All activities must be identified by entry of their appropriate Calendar.

Use only contractual constraints in the schedule logic. Do not use any other schedule constraints such as activity mandatory start and finish dates or mandatory zero float constraints.

Float is defined as the amount of time between when an activity "can start" and when it "must start". Total float is float shared with all other activities and is defined as the amount of time an activity can be delayed without affecting the overall time of project completion. Float is a shared commodity, not for the exclusive use or financial benefit of either party. Either party has the full use of float until it is depleted.

The critical path is defined as the longest continuous Sequence of Activities through the network Schedule that establishes the minimum overall project duration. The submitted activity sequence and durations must generate a CPM schedule having a critical path. Multiple critical paths and near-critical paths must be kept to a minimum. Multiple critical paths and near-critical paths must be described with thorough and reasonable justification in the written narrative to be accepted.

Show the sequence and interdependence of all activities required for the complete performance of all items of work under this contract, including acquiring all the environmental permits. Show all network "dummies" on the diagram.

The Department reserves the right to limit the number of activities on the schedule to between 50 and 1000 activities.

Describe the activities so that the work is identifiable and the progress on each activity is measurable.

Under part (D) rescind the second paragraph (that begins "Each month...") and replace with the following:

Each month of the project, one week before the end of the project's monthly estimate cycle, submit an electronic file compatible with Primavera P6 software containing:

Rescind part (1) under part (D).

108.05 CHARACTER OF WORKERS Page 62 5-24-12

Rescind the second paragraph (that begins "Remove any person...") and replace with the following:

Remove any person employed who does not perform work in a proper and skillful manner or who is intemperate, disorderly, or verbally abusive. Employees may not return to the project or communicate with Department personnel without the written approval of the Project Manager.

108.07 DETERMINATION OF COMPENSATION AND EXTENSION OF CONTRACT Page 62 4-12-12
TIME FOR EXCUSABLE, NONCOMPENSABLE, AND COMPENSABLE DELAYS

Rescind the first paragraph under 108.07 and replace with the following:

Time allowed for completion of the contract is determined by the "Completion Date", "Calendar Day" or "Working Day" provision in the contract.

108.07.1 COMPLETION DATE CONTRACTS Page 62 4-12-12

Rescind Subsection 108.07.1 and replace with the following:

Complete all work by the completion date specified in the contract. The work begins on the effective date stated in the "Notice to Proceed".

The completion date will be extended for the following:

- A. Extensions according to the calendar days added under Subsection 108.07.5; or
- B. Suspensions of work authorized after the contract is awarded; or
- C. Delays in the award of the contract.

The new completion date is determined by adding the calendar days added under Subsection 108.07.5; the number of calendar days less No Work Days during authorized suspensions; or the number of calendar days the award was delayed past the posted award date to the specified completion date.

Do not work on No Work Days as defined in Subsection 101.03, unless approved by the Engineer.

The fixed completion date will be reduced by one day for each approved No Work Day worked.

The actual completion date is the date the Project Manager approves the Contractor's Substantial Work Complete form under Subsection 105.15.2.

Contract time overruns for assessment of liquidated damages will be computed as the number of calendar days elapsing between the contract completion date and the actual completion date.

108.07.2 CALENDAR DAY CONTRACTS Page 62 4-12-12

Rescind Subsection 108.07.2 Reserved and replace with the following:

108.07.2 Calendar Day Contracts

Complete all work within the number of calendar days specified in the contract.

A calendar day is defined in Subsection 101.03. The work begins on the effective date stated in the "Notice to Proceed".

Calendar days will be added for extensions added under Subsection 108.07.5.

Do not work on No Work Days as defined in Subsection 101.03, unless approved by the Engineer.

Contract time assessment will cease when the Project Manager approves the Contractor's Substantial Work Complete form under Subsection 105.15.2.

Contract time overruns for assessment of liquidated damages will be computed as the number of calendar days the contract is not complete beyond the contract time specified.

108.07.3 WORKING DAY CONTRACTS

Page 63

4-12-12

Rescind Subsection 108.07.3 and replace with the following:

Complete all work within the number of working days specified in the contract.

A working day is defined in Subsection 101.03. The work begins on the effective date stated in the "Notice to Proceed".

Working days will be assessed against the contract time except for days when inclement weather or the aftermath of inclement weather prevents the performance of operations that would be in progress. A working day will not be assessed if work must be suspended or the work crew is dismissed due to inclement weather before four hours of work has been completed.

Do not work on No Work Days as defined in Subsection 101.03, unless approved by the Engineer.

A working day will not be assessed against the contract for work performed up until 12:00 noon on Friday prior to Memorial Day, Labor Day or Independence Day (July 4).

Chargeable or non-chargeable working days will be determined daily by the Project Manager. Except during the winter shutdown, the Project Manager will furnish a weekly report every Monday showing the number of working days:

- A. Charged for the preceding week;
- B. Previously charged;
- C. Specified for contract completion;
- D. Approved time extensions; and
- E. Remaining to complete the contract.

During winter shutdown, the Project Manager will furnish a report showing the information listed above for any week that the Contractor has chargeable days.

Submit a written protest to the Project Manager within the timeframe shown on the weekly report for any alleged discrepancies in the time assessed. Failure to file a protest is conclusive evidence that the time assessed is accepted as correct.

Contract time assessment will cease when the Project Manager approves the Contractor's Substantial Work Complete form under Subsection 105.15.2.

Contract time overruns for assessment of liquidated damages will be computed as the number of working days assessed beyond the contract time specified.

108.07.4 DELAYS

Page 63

5-24-12

Add the following sentence to the end of part (A):

Provide project and site specific documentation to support the delay cause.

108.07.5 EXTENSIONS (TIME)

Page 64

5-24-12

Rescind the second paragraph (that begins with "The contract time as awarded ...") and replace with the following:

The contract time as awarded is based on the estimated quantities as defined in Subsection 102.05. No decrease in contract time will be made for any decrease in a contract item. The contract time may be increased based on the quantity and difficulty of added work and how it impacts the critical activities of the Contractor's operation as shown on the most current work schedule as required under Subsection 108.03.

The time extension will be to the nearest whole day.

No additional contract time will be allowed for:

- A. Increases in percentages of asphalt in plant mix materials.
- B. The addition of anti-stripping additives to bituminous materials.
- C. The addition of or for increases in hydrated lime or mineral fillers to plant mix materials.
- D. Increases in traffic control devices.
- E. Delays for slow delivery of materials from the supplier or fabricator.
- F. Material deliveries delayed for reasons of late ordering, financial considerations, or other foreseeable and preventable causes within the Contractor's control.

Rescind Subsection 108.08 and replace with the following:

If the contract time is exceeded, including approved adjustments, a daily charge will be made against the contract until the work is substantially complete under Subsection 105.15.2. This daily charge, determined from Table 108-1, will be deducted from any money due the Contractor. This deduction is for liquidated damages for added Department contract administration costs, etc. for failure to complete the work on time.

TABLE 108-1
SCHEDULE OF LIQUIDATED DAMAGES

ORIGINAL CONTRACT AMOUNT		DAILY CHARGE
From More Than	To and Including	Working Day or Calendar Day
\$ 0	\$ 100,000	\$ 852
\$100,000	\$ 500,000	\$ 1,473
\$ 500,000	\$ 1,000,000	\$ 1,801
\$ 1,000,000	\$ 2,000,000	\$ 2,220
\$ 2,000,000	\$ 5,000,000	\$ 2,889
\$ 5,000,000	\$ 10,000,000	\$ 4,523
\$ 10,000,000	—	\$ 5,819

Permitting the Contractor to continue and complete the work after the specified contract completion time or approved extensions granted, does not waive the Department's rights under the contract.

If the Contractor disputes the liquidated damages on the approved "Contractor's Substantial Work Complete" form, the Construction Administration Services Bureau will send a final notification in writing to the Contractor of the number of days to be assessed and the dollar amount of proposed liquidated damages. Submit any objections of the assessment to the Construction Administration Services Bureau in writing within thirty days of receipt of the Department's notification. Include with the objection the justification and all information to support an adjustment to the assessment. The Department will review the Contractor's information and perform a final analysis.

The Commission will review all liquidated damages and any disputes. The Construction Administration Services Bureau will submit the Contractor's information and the Department's recommendation to the Commission. A copy of the Department's recommendation will be sent within 45 days of receipt of the objections to the Contractor. The Contractor must state in writing within fourteen days of receipt of the Department's recommendation if an appearance before the Commission is requested. If an appearance is requested, the Department will notify the Contractor in writing of the date the Commission will review the liquidated damages recommendation. The Commission will not receive or hear new information at the meeting not already furnished in the Contractor's original response.

Rescind the second and third paragraphs and replace with the following paragraphs:

Payment will be made for materials delivered or stockpiled, or work performed, that comply with the contract's specifications or that have been inspected, tested, and accepted for use. Payment will only be made for materials that have been properly stored and maintained until they are delivered to the Department. An equitable adjustment will be made under Subsection 109.05 for partially completed items of work and disposal of materials.

Submit the termination costs to the Project Manager within 60 calendar days of the date of the notice of Termination for Public Convenience, under Subsection 108.10.1. Provide sufficient detail and make all project records available so the Engineer can determine the basis and amount of the termination costs. If a basis cannot be agreed upon, then an adjustment will be made in such amount as the Engineer may determine to be fair and equitable. Follow the requirements of Subsection 105.16 if the Engineer's equitable adjustment is disputed.

Add the following subsection:

109.02.1 Pay Unit Rounding

The Project Manager will determine the quantities of work performed for each pay estimate as outlined in Subsection 109.01. All quantity calculations will be rounded for payment as outlined in Table 109-1A.

TABLE 109-1A
ROUNDING CRITERIA

PAY UNIT	ROUNDING
Foot (meter)	1 (0.1)
Station	0.01
Mile (kilometer)	0.01 (0.01)
Course Foot (kilometer)	10 (0.01)
Square Foot (meter)	1 (0.1)
Square Yard (meter)	0.1 (0.1)
Acre (hectare)	0.01 (0.001)
Cubic Yard (meter)	0.01 (0.01)
Thousand Board Feet (cubic meter)	0.01 (0.01)
Gallon (liter)	1 (1)
Pound (kilogram)	1 (1)
Ton (metric ton)	0.001 (0.001)
Ton-Mile (metric ton-kilometer)	1 (1)
Mile-Cubic Yard (kilometer-cubic meter)	1 (1)
Hour	0.1
Lump Sum	0.001
Each	1
Unit	1

All dollars will be rounded on progress and final estimates to \$0.01.

Rescind Subsection 109.04.1 Unit Price or Lump Sum Basis and replace with the following:

109.04.1 Unit Price or Agreed Price

Extra work performed under Subsections 104.02 and 104.03 is paid for at the unit price or price agreed upon and specified in the change order.

Force account basis under 109.04.2 will be used if a change order with an agreed price is not signed by the Contractor.

109.04.2 FORCE ACCOUNT BASIS

Page 72

5-1-08

Rescind the first paragraph (that begins with "Approved extra work ...") and replace with the following:

Approved extra work paid for on a force account basis will be accounted for daily. The daily report sheets are the true record of extra work. The payments below are full compensation and include profit and overhead. No additional profit will be added. Extra work on a force account basis ordered by the Engineer in writing, under Section 104, is paid for as follows

Rescind the first sentence of the first paragraph in part A (that begins with "The Contractor is paid ...") and replace with the following:

The Contractor is paid the wage rates for all labor and foremen assigned exclusively to performing the extra work for the total hours worked plus at least 80 percent of the total.

Add the following sentence after the first sentence in the second paragraph of part A (that begins with "Submit evidence of ..."):

Only labor on certified payrolls is eligible.

Rescind the first sentence in Subsection C (that begins with "The Contractor will receive ...") and replace with the following:

The Contractor will receive the rental rate or invoice price, where applicable, for machinery or special equipment (other than small tools) used to perform the work plus 10 percent.

Add the following sentence after the second sentence of part D (that begins with "No surcharge is allowed ..."):

No payment will be made for additional performance bond premiums if the evidence is not submitted within 30 days of completion of the force account work.

Rescind the second paragraph of Subsection F (that begins with "The inspector will ...") and replace with the following:

The Inspector will compile and forward to the Project Manager, at the end of each day, a daily record of extra work done on a force account basis. The Project Manager will forward the information to the Contractor.

109.05 DELETED OR TERMINATED WORK

Page 73

3-12-09

Rescind the first sentence in 109.05, part (1) (that begins with "Payment will be...") and replace with the following sentence:

Payment will be made for the actual number of units of work completed and meeting all contract requirements at the contract unit prices unless the Engineer determines the contract unit prices are inappropriate for the work actually performed.

Rescind the first sentence in 109.05, part (2) (that begins with "Payment for partially ...") and replace with the following sentence:

Payment for partially completed lump sum items that meet contract requirements will be as mutually agreed.

109.06 PARTIAL PAYMENTS

Page 74

7-3-08

Rescind the first paragraph (that begins with "Partial payments will be made ...") and replace with the following:

Partial payments will be made once each month, following the effective date on the Notice To Proceed, based on estimates of the value of the work performed and materials complete in place under the contract, including materials delivered under Subsection 109.07. No payments will be made for work performed or materials produced without the required permits and authorizations in place as required under Subsection 107.02.

109.06.1 BILLING CYCLE

Page 74

10-8-09

Add the following subsection:

109.06.1 BILLING CYCLE

In accordance with §28-2-2115, MCA, this contract provides that the Department will submit payment estimates in billing cycles other than once a month, when deemed necessary. Do not submit a request for routine payment and requests for payment of any item does not initiate any period for payment. Requests may be submitted for stockpiled material payments in accordance with 109.07.

In accordance with federal regulations, the Project Manager will issue estimates, usually monthly, for progress payments greater than \$500 based on the documentation of approved work and the Project Manager's opinion of the percentage of completion, in accordance with specifications, of each of the project's "Schedule of Items". The Department will review work performed for completeness, specification compliance, and quality assurance before it is given conditional approval for progress payment. Should work that was previously paid for any reason, such as stockpiled material under 109.07, be later found not to comply with quality assurance or specification, such as compliance testing or any required material certification, that part of the work will be deleted from payment approval. In such case, future monthly estimates will be lessened by the reduced amount, or the Contractor will be required to repay the previously-paid amounts until the work is performed in full compliance with specification and quality assurance.

Notice of extended payment provision: this contract allows the Department to make payment within thirty (30) days after submission of estimates by the Project Manager.

The contract's final payment will not be made until:

- The Contractor has fully completed all work under the contract;
- All required documentation has been submitted to the Department's satisfaction; and
- The materials supplied and work performed has passed the Department's quality assurance testing.

Pay all subcontractors within seven days after receipt of a periodic or final payment from the Department, for the full amount due the subcontractor under the subcontract for work performed or materials provided that were included in the periodic or final payment according to the provisions of §28-2-2103(2)(a), MCA. A subcontract may not provide for a time longer than the law's mandated seven days.

109.07 PAYMENT FOR MATERIAL ON HAND

Page 74

5-24-12

Rescind Subsection 109.07 and replace with the following:

109.07 STOCKPILED MATERIALS

Materials delivered and stockpiled at the project site or other location approved by the Project Manager may be considered for partial payment, if the following requirements are met:

1. The requirements of Subsection 108.03 have been satisfied.
2. The material meets the contract requirements.
3. The material is a manufactured end product or a fully fabricated product. Aggregate must be produced and stockpiled to the final stage for incorporation into the specified mixture or the roadway. Riprap meeting the gradations specified in Table 701-19 for the class specified in the plans is considered a manufactured end product for this Subsection.
4. Material is stored to prevent damage and theft, without obstructing or impeding the traveling public. MDT Inspectors have access to the inventory sheets and the stockpiles at all times.
5. A written request is accompanied with an invoice(s) for all items received at least one week before the end of the monthly estimate cycle. Include the quantity for which payment is requested, the length of time the material is to be stored, the location for material stored off the project site, and sufficient detail to justify the costs. If the material is manufactured by the prime contractor, include the manufacturing costs in the request.

Submit a new request and invoice(s) to the Project Manager whenever items are added to the stockpile. Clearly identify the project number, location, designation and the entire inventory on these sheets. Keep each project's stockpiled material separated from stockpiles belonging to other projects. Only use stockpiled material for the designated project.

Steel or Iron items meeting Subsection 106.09 may be stored at property owned or leased by the Contractor or approved Subcontractor if approved by the Project Manager. The property must be located in Montana and accessible to Department personnel at all times.

Payment made for material on hand does not constitute acceptance of the material.

If stored material is lost, stolen, or damaged, the material's value will be deducted from the subsequent estimate or estimates.

Payment of partial estimates for stored material, acceptance of the materials to be stored, or approval of the storage method does not relieve the Contractor's responsibility for all materials and work upon which payments have

been made or the restoration of any damaged work. The payments are not a waiver by the Department of any other contract provisions or of its rights to require fulfillment of all contract terms.

Partial payment will be made for the invoice price, or for the manufacturing costs incurred by the prime contractor. Payment for stockpiled materials will not exceed the contract unit price or the amount justified to the Project Manager. When stockpiled material has been produced by crushing operations, payment will not exceed 40 percent of the contract unit price. Maximum payment for materials in storage will be based on quantities that will be measured for payment.

Obtain the Engineer's written approval of off-project site storage locations for bridge prestressed beams, bridge structural steel members, concrete box structures, and other large structural items.

No payment is made for bridge deck re-surfacing materials having a manufacturer's expiration date passing before its scheduled incorporation into the work.

109.08 FINAL ESTIMATE

Page 77

12-1-11

Rescind Subsection 109.08 and replace with the following:

When the contract has reached the Substantial Work Complete under Subsection 105.15.2, the contract documents will be finalized and a final estimate will be prepared. The estimate will include the amount and value of each class of work performed and any extra work and materials. Deductions for all previous payments and amounts to be deducted or withheld under the provisions of the contract will be made in the final estimate. Errors made in previous partial payments will be corrected in the final estimate.

When the final estimate is complete and all required documentation (such as material certifications, labor dispute resolutions, etc.) has been received, the Construction Administration Services Bureau will send a copy of the final estimate to the Contractor for review. The Contractor has thirty days to dispute the final estimate or submit the request for acceptance under Subsection 105.15.3.

To dispute the final estimate, submit the items disputed and justification to the Construction Administration Services Bureau. Provide a copy to the Project Manager. The Construction Administration Services Bureau will provide a written decision on the disputed items.

If the Contractor fails or refuses to request final acceptance, the Department may, upon notice, proceed to close the contract without it.

The Department reserves the right to withhold all or part of the final payments earned under the contract until all taxes and assessments due and owing to the State of Montana for any reason have been paid in full unless a written release is received from the Department or the state agency having a claim against the Contractor.

The statutory time for filing claims against the contract bond is 90 calendar days from the date of the Commission acceptance of the project. See 18-2-201 to 18-2-208 MCA.

The Construction Administration Services Bureau will immediately notify the Contractor and its surety of all claims filed against the contract or bond.

109.09.1 GENERAL (MOBILIZATION)

Page 77

3-1-07

Add the following number 7 after number 6 in Subsection 109.09.1 General:

7. Submission of all forms, certifications, and documentation required for the Department to prepare the final estimate and issue a certificate of completion.

Add the following paragraph at the end, after number 7:

Mobilization is only to be used for these reasonably-anticipated expenses, and is not to be used either to front-load a bid in order to receive payment earlier, or to unbalance a bid.

109.09.2 PAYMENT (MOBILIZATION)

Page 77

9-23-10

Rescind Subsection 109.09.2 and replace with the following:

109.09.2 Payment

The original contract amount is the total price of the contract as bid. The Contract Amount Paid is the cumulative amount paid on progress estimates, excluding all price adjustments. Partial payments for mobilization will be made based on the lump sum contract unit price under Table 109-2. No payments will be made for mobilization until the requirements of Subsection 108.03 have been satisfied.

TABLE 109-2
MOBILIZATION PAYMENTS

Percent of Contract Amount Paid	Amount Paid (whichever is less)	
	Percent of Mobilization Bid Amount ¹	Percent of Original Contract Amount
First estimate after Notice to Proceed	99	1
5	25	3
10	50	6
25	60	8
50	90	10
70 or Substantial Work Complete, whichever occurs first	99	
Form CSB105_15_3 has been approved	100	

Note:

1. This percentage is the cumulative amount paid to that point, not the amount paid on the progress estimate.

Payment at the contract unit price is full compensation for all necessary resources to complete the item of work under the contract.

109.10 OVERPAYMENTS

Page 78

5-24-12

Rescind Subsection 109.10 and replace with the following:

Overpayments on progress estimates will be deducted from subsequent progress estimate payments. If there are no subsequent progress estimate payments to be made, or the amounts to be paid are less than the overpayment, the Department may:

1. Notify the Contractor of the overpayment. The Contractor has 30 days from the date of receipt of notification of overpayment to repay the money owed. If the money owed is not received by the Department before the 30-day period expires, interest will be charged on the overpayment beginning with the date of receipt of notification of overpayment. The interest rate charged will be the average Short Term Investment Pool (STIP) rate, determined by the Montana State Board of Investments, for the period in which the overpayment is not repaid.
The Contractor may be barred from bidding on Department projects until the money that is owed has been received.
2. The Department may deduct the amount of overpayment and accrued interest from the progress estimate payment of any contract with the Department.

109.11 FUEL PRICE ADJUSTMENT

Page 78

11-17-11

Rescind Subsection 109.11 Fuel Price Adjustment and replace with the following:

109.11 FUEL PRICE ADJUSTMENT

Notify the Project Manager in writing by the Notice to Proceed Date or at the Pre-construction Conference, whichever comes first, of intent to participate in fuel price adjustment. Once the provision is invoked, it will not be reversed. Submit a list of contract items, according to Table 109-3, that are requested to be subject to fuel price adjustment. Submit the list to the Project Manager for approval by the Pre-construction Conference, using form CSB109_11.

TABLE 109-3
ITEMS SUBJECT TO FUEL PRICE ADJUSTMENT

Original Contract Amount	Maximum Number of Items
\$0 to \$8,000,000	10
\$8,000,001 to \$15,000,000	15
Greater than \$15,000,000	20

Provide actual diesel fuel, propane fuel and gasoline fuel costs along with the calculations used to determine the costs for the respective contract items. The accumulated diesel fuel, propane fuel and gasoline fuel costs may not exceed 20 percent of the contract unit price without additional justification acceptable to the Project Manager. Items

measured on a lump sum basis will not be eligible for fuel price adjustment. No fuel price adjustment will be made for stockpiled materials.

Adjustments will be calculated using the increase or decrease between the base price and the monthly average price at the time the contract items are added to the progress estimate. The base price for the contract will be the average of the high and low price for the five business days before the bid opening. The base price for propane fuel will be the base price for diesel fuel divided by the difference in BTU/hr for each fuel, or 1.5455 BTU/hr. The monthly average price will be the average of the high and low prices on Wednesday of each week in the adjustment period taken from Platt's Oilgram Price Report, or other fuel price report determined by the Department for unleaded gasoline and ultra-low sulfur diesel fuel. The average price for propane fuel will be the average monthly price for diesel fuel divided by 1.5455. The adjustment period for fuel price is from the Wednesday of the full week before the beginning of the estimate cycle to the Wednesday of the full week prior to the next estimate cycle. If the estimate cycle extends beyond the monthly estimate period, only the fuel prices from the month in which the item is added to the estimate will be used to generate the average price.

Adjustments will be made only when the monthly average price exceeds \$0.25 per gallon more or less than the base price. The adjustments will be for the amount exceeding \$0.25 per gallon.

The price adjustment for each type of fuel will be the change in cost from the base price (BP) to the monthly average price (AP) that exceeds \$0.25, multiplied by the quantity (Q) of the item added to the progress estimate, multiplied by the fuel cost (FC).

Adjustments will be according to the following formulas:

$$\text{Increase} = \left(\frac{AP - BP - 0.25}{BP} \right) * FC * Q$$

$$\text{Decrease} = - \left(\frac{BP - AP - 0.25}{BP} \right) * FC * Q$$

Where:

AP = Monthly Average Price

BP = Base Price

FC = Fuel Cost

Q = Quantity

Include only the cost of fuel associated with the approved items in fuel cost (FC). Do not include additional costs related to items such as servicing of equipment, lubricants, tire and ground engaging component wear, depreciation, insurance, storage, licenses, inspection, etc.

Adjustments will be calculated for each type as described without regard to the grade or amount of fuel actually used. The total of the fuel price adjustments will be added to, or subtracted from, the monthly progress estimate.

202.03.1(B) REMOVAL OF SUBSTRUCTURES

Page 85

1-12-12

Rescind Part B. Removal of Substructures and replace with the following:

- B. Removal of Substructures. Remove or cut off piles and substructures to 3 feet (915 mm) below the finished grade or existing ground surface elevation, whichever is lower. Shape and contour the removal areas to blend with the surrounding terrain.

Do not damage new work while removing existing structures.

202.03.1(C)(2) CONCRETE AND MASONRY

Page 85

6-1-06

In the first sentence, delete the words Section 203 and replace with Subsection 202.03.3.

202.03.3 REMOVAL OF PAVEMENT, SIDEWALKS, CURBS, ETC. Page 86 6-1-06

Rescind the title of Subsection 202.02.3 and replace with 202.03.3 Removal of Pavement, Concrete, and Masonry.

Rescind the first sentence of Subsection 202.03.3 (that begins with "Remove and dispose ...") and replace with the following:

Remove and dispose of all existing bituminous or portland cement concrete materials to be removed unless otherwise specified.

Rescind the second paragraph (that begins with "Existing Pavement ...") and replace with the following:

Existing materials used for embankment or base gravel must meet the specifications for the particular item. Process bituminous material to be used as embankment to a maximum 6-inch (150 mm) size in its largest dimension. Process concrete material to a maximum 12-inch (305 mm) size in its largest dimension. Do not place the removed bituminous or concrete material in ephemeral drainages or within 100 feet (30 m) of standing water and groundwater wells.

202.04.1 REMOVE STRUCTURES AND OBSTRUCTIONS Page 86 1-12-12

Rescind Subsection 202.04.1 and replace with the following:

Remove structures and obstructions is measured by the lump sum and includes the removal and disposal of all structures and obstructions encountered within the right-of-way.

202.05 BASIS OF PAYMENT Page 86 1-12-12

Rescind Subsection 202.05 and replace with the following:

Payment for the completed and accepted quantities is made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Remove Structures and Obstructions	Lump Sum
Remove Pipe Culvert	Foot (meter)
Remove and Relay Pipe Culvert	Foot (meter)

Payment at the contract unit price is full compensation for all resources necessary to complete the item of work under the contract.

When the contract does not contain a lump sum item for removal and disposal of structures and obstructions, the work is incidental to and included in payment for other items of work.

203 EXCAVATION AND EMBANKMENT Page 87 5-24-12

Rescind Section 203 and replace with the following:

SECTION 203
EXCAVATION AND
EMBANKMENT

203.01 DESCRIPTION

This work is the excavation, placing, compacting and disposal of material encountered within the construction limits necessary to construct the project. This is also referred to as grading.

203.01.1 Excavation

- A. Unclassified Excavation. Unclassified excavation is excavating and disposing, when required, of material from the right-of-way or construction easement areas except borrow excavation and muck excavation as defined in Subsection 203.01.1.
- B. Borrow Excavation. Borrow for embankment construction is Contractor furnished excavation from outside the right-of-way or construction easement areas.
 - 1. Unclassified Borrow.

Use Department approved sources meeting current environmental and cultural resource preservation regulations.

Material from a Department-optional or Department-owned borrow source may be available at no cost.

The applicable provisions of Subsections 102.06 and 106.02 apply to unclassified borrow.

2. Special Borrow. Special borrow-excavation and special borrow-neat line is the providing and placing of the specified quality of borrow material from designated sources or from other approved sources.
The applicable provisions of Subsection 203.01.1(B) (1) and Subsection 106.02 apply to special borrow-excavation and special borrow-neat line.
- C. Unclassified Channel Excavation. Unclassified channel excavation is excavating and disposing of all materials from new watercourses or channels and the widening, deepening, or relocation of existing channels.
- D. Street Excavation. Street excavation is excavating and disposal of all material to the street template.
- E. Muck Excavation. Muck excavation is removing and disposing of unsuitable material in cut sections or below the natural ground line in embankment sections. Material defined as Muck must be deemed unsuitable and is unable to be excavated using the same equipment and methods as for unclassified excavation.
Material is considered unsuitable if:
 1. It contains soil or organic matter unsuitable for foundation material, regardless of moisture content; or
 2. It is too wet to be properly compacted and cannot be dried within a demonstrated reasonable timeframe prior to incorporating into work. Excessive moisture alone is not sufficient cause for determining unsuitable material.Topsoil removed below the natural ground line in embankment sections is unsuitable material.
Excavated unsuitable material areas will be measured before they are backfilled.
Do not place fill over unsuitable or unstable foundation soils without the Project Manager's approval.
Materials placed before approval may be ordered removed and replaced at Contractor expense.
- F. Sub-excavation. Sub-excavation is removing unstable material from below the plan subgrade elevation as shown or directed.
- G. Digout Excavation. Digout excavation is removing and replacing sections of material at neat lines as shown on the plans or directed by the Project Manager.

203.01.2 Embankment

Place and compact excavation in roadway embankments, dikes, areas where unsuitable material is removed, holes, pits, and other roadway depressions. Prepare embankment foundations prior to placing embankment material.

203.02 RESERVED

203.03 CONSTRUCTION REQUIREMENTS

203.03.1 Excavation

- A. General. Do not begin grading operations before the area is cleared of vegetation and obstructions under Sections 201 and 202 and erosion controls are placed as specified in the contract.
Excavate without disturbing material and vegetation outside of the slope limits.
Use all suitable material removed from the excavation in embankments, subgrade, shoulders, topsoiling, and other designated locations. Excavated material not used as specified or directed is not paid for.
Sequence excavation of backfill or road finishing material so it is placed into final position as soon as possible. Stockpile suitable material that is not immediately used.
Construct temporary fencing to restrict livestock and vehicular traffic from the work under Subsection 607.03.5.
Replace temporarily removed fence and repair damaged fence to a condition equal to the existing fence at Contractor expense. Confine livestock when fencing is disturbed.
If excavated material from the roadbed is used outside the embankments, furnish and place at Contractor expense, an equal quantity of borrow to replace the material.
Do not dispose of excess or unusable material within the right-of-way limits unless approved by the Project Manager.
Compact the top 8 inches (205 mm) of the subgrade in cut sections under Subsection 203.03.3.
- B. Rock Blasting.
 1. General. Use and store explosives under Subsection 107.09.
Use current technology in rock blasting to prevent slides, minimize overbreak, and provide smooth cut slope faces free of loose or fractured rock. Design the ignition sequence and blasting pattern with delays to produce maximum relief to the holes nearest the cut slope face.
Temporarily suspend blasting operations if the specified slopes are not produced, nearby residences, structures, utilities, or appurtenances are endangered, or the safety and convenience of the traveling public is jeopardized by fly rock, fragmentation, vibration, air blast, or overbreak.

2. Blasting Plan. Submit the blasting plan before drilling and blasting operations begin and when there is a change in the proposed drilling and blasting methods. Submit the blasting plan on form CSN-55, available from the Project Manager, with the following information:

- a. Station limits of proposed blast;
- b. Plan of proposed drill hole and delay pattern including free face, burden, and spacing; and
- c. Report of hole depth, diameter, burden, spacing, stemming, explosive types, powder factor, and delays.

The blasting plan is to reflect a blast design that provides for the proper drilling and blasting procedures to produce the specified results.

Revise the drilling and blasting methods as necessary to produce the specified results.

3. Scaling. Scale all loose or detached rock and soil masses that create a potentially dangerous situation to the work, workers, or the public. Remove the rock by barring, wedging, equipment, or using light explosive charges. Scale during or after each lift is completed. Scaling and disposing of the scaled materials is incidental to unclassified excavation.

4. Pre-splitting Rock Slopes.

- a. General. Pre-split rock cuts to a smooth plane using loaded, timed, and spaced drill holes.

Produce a continuous or semi-continuous fracture between drill holes and a stable rock cut by eliminating overbreak in the backslope during primary blasting. Detonate pre-split holes before detonating the production holes.

- b. Drilling. Use drills equipped with mechanical devices that accurately determine the angle the drill steel enters the rock. Do not drill if the devices are missing or inoperative.

Remove overburden soil and loose or decomposed rock along the top of the excavation to produce a smooth rock surface for drilling.

Use pre-split hole diameters that are between 2 1/2 inches (64 mm) and 3 inches (75 mm). Drill pre-split holes within 3 inches (75 mm) of the staked collar location. Holes drilled outside the 3-inch (75 mm) tolerance will be rejected and not measured for payment. Drill hole intervals may vary between 24 inches (610 mm) and 36 inches (915 mm). A 30-inch (765 mm) interval is used to estimate the measurement of pre-split contract quantities.

When the cut height exceeds 30 feet (10 m), an offset from the staked slope line, not to exceed 2 feet (610 mm) is allowed at the top of each lift after the top lift. The actual slope cannot deviate from the plan slope by more than 2 feet (610 mm).

Control the drilling operations to insure that no hole deviates from the slope plane by more than 9 inches (230 mm) parallel or normal to the slope. Pre-split holes exceeding these limits will not be paid for.

Drilling 2 feet (610 mm) below ditch bottom to aid removing the toe berm is permitted.

Extend pre-split holes a minimum of 30 feet (9.2 m) beyond the limits of the production holes or to the end of the cut.

Maintain the length of pre-split holes for any individual lift at no more than 30 feet (9.2 m). The Project Manager may approve a written request to increase the hole length to a maximum of 60 feet (18.3 m) if it is demonstrated that the above pre-split hole tolerances and a uniform slope can be obtained. If over five percent of the pre-split holes are misaligned in any one lift, reduce the lift heights until the 9-inch (230 mm) tolerance is met.

- c. Blasting. Verify that the drill holes are free of obstructions for their entire depth before placing charges. Take precautions to prevent material from entering the drill holes while placing the charges.

Drill hole conditions may vary from dry to water filled. Use the type or types of explosives and blasting accessories for the conditions encountered following the manufacturer's recommendations.

Use explosives with a maximum diameter no more than one-half the diameter of the pre-split hole. Do not use bulk ammonium nitrate and fuel oil in the pre-split holes. Use only standard explosives manufactured specifically for pre-splitting.

If fractional portions of standard explosive cartridges are used, firmly affix them to the detonating cord to prevent the cartridges from slipping down the cord or bridging across the hole. Space fractional cartridges along the length of the detonating cord at maximum 30-inch (765 mm) centers and adjust spacing to produce the specified results.

Assemble and affix continuous column cartridge type explosives to the detonating cord following the explosive manufacturer's instructions. Furnish the Project Manager these instructions 24 hours before blasting begins.

The pre-split hole bottom charge may be larger than the line charges if it does not cause overbreak. Reduce the top charge of the pre-split hole and place it far enough below the collar to avoid overbreak and heaving.

Stem the upper 3 feet (915 mm) of all pre-split holes below the hole collar with sand or other dry, angular granular material passing a 3/8-inch (9.5 mm) sieve.

The Contractor may pre-split the slope face before production drilling or pre-split the slope face and production blast at the same time, if the pre-split drill holes are fired simultaneously at least 100 milliseconds before the production blast. Do not delay pre-split holes more than 25 milliseconds, hole to hole, to reduce noise and ground vibration.

Do not vary the pre-split slope face by more than 1 foot (305 mm), measured perpendicular to the slope, from a plane passing through adjacent drill holes unless otherwise directed.

5. Production Blasting. Drill the row of production blast holes adjacent to the pre-split blast line on a plane parallel to and no closer than 6 feet (1.8 m) to the pre-split blast lines. Do not drill the production hole bottoms lower than the pre-split hole bottoms and with a diameter not greater than 6 inches (155 mm).
 - Detonate production holes on a delay sequence toward a free face.
 - Stem production holes a minimum of 3 feet (915 mm) or 0.7 times the burden distance, whichever is greater, with sand or other dry, angular granular material passing a 3/8-inch (9.5 mm) sieve.
 - Perform production blasting to minimize blast damage to the backslope.
 - Production blasting is incidental to and included in the measurement and payment for unclassified excavation.
- C. Rock Excavated Below Grade. Excavate all un-yielding materials that require blasting or the use of rippers to at least 6-inches (155 mm) below subgrade within the roadbed limits. Backfill the excavation with specified or approved material. Remove or drain surface rock pockets that trap or pond water.
 - Rock, removed to a maximum depth of 6 inches (155 mm) below subgrade is measured and paid for as unclassified excavation. Rock removed or backfilling due to over excavating in excess of the 6 inches (155 mm) with approved backfill material is at Contractor expense.
- D. Removing Excess Moisture. Rework materials from excavation or borrow areas exceeding two percent of optimum moisture to the specified optimum moisture before use in embankments or as backfill. Costs to remove excess moisture from the material is incidental to the embankment.
 - Remove excess moisture in the finished roadbed soil, introduced or caused by construction operations, for re-use in the work at Contractor expense. Excessively wet material, caused by the construction operations that cannot be properly compacted must be removed and replaced with suitable material at Contractor expense.
- E. Borrow Material. Excluding special borrow, borrow material may be used only after the roadway excavation has been placed in the embankment. If excess borrow is placed creating a waste of excavation, the waste quantity will be deducted from the measured volume in the borrow area.
 - Provide the Project Manager five calendar days notice before excavating material from the borrow area so that the area may be surveyed. Do not excavate beyond the dimensions and elevations established for the borrow areas. Finish and shape all borrow areas to permit accurate measurements. Reclaim borrow areas meeting Subsection 106.02.5 requirements
- F. Roughen Slopes. Roughen slopes as directed.
- G. Digout. In areas of digout, excavate the full road width to a depth as shown in the plans or as directed by the Project Manager. Excavate parallel to the finish grade, daylighting to the left and right slopes. The ends of the digout must be sloped no steeper than a 4:1. Dispose of the excavated material to the satisfaction of the Project Manager.
 - Provide Special Borrow for digout replacement material consisting of a well-graded sand and gravel, free of organic and other deleterious material, meeting the AASHTO M 145-91 requirements for A-1-a group classification, with 100% passing the 2 inch sieve and a maximum of 8% passing the No. 200 sieve. The material may consist of up to 50% millings if available.
 - Provide Stabilization Geotextile that meets the requirements of Subsection 716.03 for Stabilization geotextile.
 - Place Stabilization Geotextile over the bottom and sides of the excavated digout area in conformance with Subsection 622.03. Extend the geotextile up the side walls of the excavation for the full height of the exposed subgrade soils.
 - Place the initial lift of Special Borrow over the geotextile in accordance with Subsection 622.03.2.
 - Repair any Geotextile damaged during construction in accordance with the Manufacturers recommendations or as directed by the Project Manager at Contractor expense.

203.03.2 Embankment

- A. General. Do not place stumps, trees, logs, rubbish, vegetation, muck, frozen material, pockets of rock, volcanic ash or other deleterious materials in embankments.
 - Sod mixed with surface soil and soil containing excessive humus or other organic materials may be spread over the top of embankment slopes Compact embankment, backfill, and embankment foundation areas under Subsection 203.03.3.
 - Leave the surface of completed embankments in a roughened condition.
- B. Embankment at Structures. Do not place rocks, broken concrete, or other solid material in areas where piling is to be driven.

Do not place embankment against any backwall or abutment until the concrete has cured for 10 days or has reached 70 percent of the required strength. Furnish a certified laboratory test report showing the field-cured cylinders meet the required strengths.

The Project Manager may approve early embankment work at backwalls or abutments with beams or girders in place, or that are cantilevered from a fixed footing or cap if the strength requirement is met.

Do not place embankment against un-supported backwalls or U-shaped abutments rigidly connected to the deck until the deck is placed and cured meeting the applicable requirements of Section 552.

The Contractor may submit a method of supporting the structure to permit early placement of embankment against the structure. If approved, all costs of the alternate method are at Contractor expense.

Place embankment in 8-inch (205 mm) maximum layers loose thickness and compact adjacent to structures, around columns and similar structural supports, and on both sides of concrete walls, box type structures, and similar structures. Extend embankment material placed above the excavation limits or ground line a minimum 10 feet (3 m) from the structure or structural support.

Restore, repair, or replace structures or structural members moved or distorted by placing and compacting embankment at Contractor expense.

Compact embankment inaccessible to rollers by mechanical tampers to the density specified in Subsection 203.03.3.

Before placing and compacting backfill, compact at least the top 8 inches (205 mm) of the existing ground under Subsection 203.03.3.

- C. Preparation of Embankment Foundations. Bench all embankments placed and compacted on hillsides, against existing embankments, built one-half width at a time, or on slopes 6:1 or steeper when measured at right angles to the roadway centerline. Construct benches in minimum 4-foot (1.2 m) widths. Maintain the horizontal inclination within 5 percent of horizontal. Backfill and compact each bench in maximum 8-inch (205 mm) layers.

Excavate each bench as close to each other as the slope permits. Use approved material excavated from benches in the embankment.

In excavation to embankment transitions where the natural ground slope exceeds 6:1, construct the excavated benches so the natural ground surface is a minimum 12 inches (305 mm) from the top of the subgrade.

Remove frozen earth, snow and ice from the cut or embankment surface and place it outside the slope stakes. Provide the replacement borrow material at no cost to the Department.

Clear the full width of the subgrade of sod and vegetative matter. Scarify the top 8 inches (205 mm) of the embankment foundation and compact under Subsection 203.03.3 before constructing embankments 4 feet (1.2 m) high or less, or embankments placed on soils having less than 95 percent maximum density, determined by MT-210.

If original lightly compacted soils are encountered that exceed 8 inches (205 mm) in depth, remove it to the depth directed. Compact the upper 8 inches (205 mm) of the ground under Subsection 203.03.3. Place the removed material in the embankment or use it for topsoil as directed. Material useable as topsoil may be placed alongside the roadway after compaction is completed.

- D. Earth Embankment. Place earth roadway embankment in uniform horizontal layers not exceeding 8 inches (205 mm) loose measurement and compact under Subsection 203.03.3. Continuously level, work, and maintain moisture to compact to the specified density. Uniformly work the entire surface of each layer.

Work each layer of earth embankment that is not rock, gravel or sand using a tandem type construction disk with a maximum disk spacing of 14 inches (355 mm) and a minimum worn disk diameter of 25 inches (635 mm). With the disk, work moisture into the soil, break clods of soil, disorient the soil particles, and penetrate the full depth of the layer being placed. Larger disks may be used if the ratio of disk spacing to disk size is comparable to the above dimensions. Leave the embankment slopes in a roughened condition.

- E. Rock Embankment. When the excavated material contains more than 25 percent rock by volume, 6 inches or larger (155 mm) in its greatest dimension, place the embankment in layers 2 inches (50 mm) thicker than the maximum size rock in the material not to exceed 24 inches (610 mm) loose thickness.

Individual rocks and boulders larger than 24 inches (610 mm) in diameter may be placed in the embankment if the rocks do not exceed 48 inches (1.2 m) vertical height after placement, are evenly distributed, and are spaced to allow placing and compacting of the soil in between the rocks.

Place and compact the upper 2 feet (610 mm) of the embankment in maximum 8-inch (205 mm) layers loose thickness as specified in Subsection 203.03.2(D).

Dump and work rock from excavations to the stream face when the embankments are adjacent to streams or channels. Prevent the rock from entering the stream. This work is incidental to unclassified excavation.

- F. Embankment Over Swampy Areas. On low, swampy ground incapable of supporting haul equipment, construct the lower part of the embankment by dumping successive loads of uniformly distributed material in layers thick enough to support the equipment. Place subsequent layers under Subsection 203.03.2 (D) or (E) as directed.
- G. Disposal of Unsuitable or Excess Material. If disposal of excess or unusable excavation within the right-of-way limits is approved by the Project Manager, slope and shape all disposal areas to blend into the surrounding terrain and meet the requirements of Subsections 106.02.5 and 107.11.

203.03.3 Moisture and Density Requirements

Compact each layer of material to the in-place density requirements of Table 203-1 for the method of moisture and density control used. The moisture and density control is the Proctor method or the Zero Air Voids method, determined by the Project Manager.

If proctors are used for density control, the Contractor may make a written request to the Project Manager to compact the soils at a lower moisture content. Identify the soil class in the request. The Project Manager may approve the request provided a Department investigation determines the lower moisture content is not detrimental to the soil for the given application. For A-1 material in embankments, MT 218 and MT 230 tests will be used.

Compact rock embankments that cannot be tested by Montana Test Methods MT-212, MT-215, and MT-218 (Proctor Method) or MT-229 (Zero Air Voids Method) with compaction equipment and hauling and spreading equipment. Use grid rollers, pneumatic-tired rollers, vibrating rollers, vibrating compactors, or self-propelled tamping rollers. Do not use sheepsfoot rollers unless approved. Use water as required.

TABLE 203-1
COMPACTION REQUIREMENTS

COMPACTION CONTROL METHOD		
Material Compacted	Proctor	Zero Air Voids
	Test Methods: MT-210, MT-230, MT-212, MT-215, MT-218	Test Method: MT-229
Earth Embankment Including All Backfills Top 8 Inches (205 mm) of Subgrade in Cut Sections Culvert Foundations Top 8 Inches (205 mm) of Embankment Foundations Backfill Foundations	Minimum 95% of Maximum Density at Optimum Moisture \pm 2%	Less than 10% Air-filled Voids

203.03.4 Sloping and Finishing

- A. Sloping. Finish and shape all cut slopes, ditches, embankments, and structure berms to a uniform, rough textured surface. Scarify smooth slopes.

Conduct slope roughening in accordance with the plans and Detailed Drawings. Slope roughening is a part of slope construction and is not measured for payment.

Where roadway slopes are not completed to the planned or directed lines and the material from the backslope erodes, sloughs, or slides due to incomplete erosion control measures or the Contractor's operations, the removal of the material and restoration of the slope is at Contractor expense.

Where roadway slopes are completed to the plan or directed lines, all required erosion control devices are in place as specified, and the material from the completed slopes erode, slough, or slide onto the roadbed before acceptance of the work, through no fault of the Contractor, the removing of the slide material, potential slide material, and the drainage excavation is paid for at an agreed unit price or on a force account basis under Subsection 109.04.

When directed, widen cuts and flatten slopes to obtain additional excavation for embankments or to increase slope stability. The Project Manager may steepen stable rock slopes. This work is measured and paid for under the grading item unless it requires non-contract construction methods increasing costs that are considered extra work under Subsection 104.03.

- B. Finishing. Finish the entire roadbed to the final elevations specified.

203.03.5 Maintenance of Constructed Roadway

Maintain the roadway during construction so it is continuously well drained.

Keep all drainage ditches and structures open and free from debris until the final inspection is approved.

If grading work is suspended, blade smooth and grade the entire roadway area to prevent water from collecting or ponding on the roadway. Maintain the roadway during suspension periods to the specified grade and cross section at Contractor expense.

Maintain erosion and siltation control devices meeting the contract requirements.

203.03.6 Topsoil - Salvaging and Placing

Remove sufficient amounts of topsoil from the excavation and embankment foundations to ensure replacement quantities are available to cover all disturbed areas with four inches (100 mm) of topsoil.

Place topsoil on the completed graded roadway to the lines, grades, and elevations specified.

Unless directed by the Project Manager, place topsoil on all slopes, excluding slopes 2:1 or steeper. Place topsoil to an average 4-inch (100 mm) loose depth on the base course surfacing inslope. Uniformly spread what is available over the remainder of the disturbed areas. Finish the disturbed areas in accordance with the requirements of Subsection 610.03.2.

Stockpile topsoil at acceptable selected locations within the right-of-way. When construction operations do not permit stockpiling within the right-of-way, make arrangements for stockpile sites outside the right-of-way at no additional cost to the Department.

Construct stockpiles so drainage is maintained and topsoil is easily reclaimed. Provide erosion controls following best management practice.

In the event that construction sequencing prevents replacement of topsoil over all disturbed areas prior to final paving, reserve adequate quantities to cover the exposed base course surfacing inslope as shown in the Detailed Drawings.

203.03.7 Limitation on Grading Operations

The maximum length allowed to be disturbed at one time within the project limits is 2.0 miles (3200 meters) of clearing and grubbing and 2.0 miles (3200 meters) of borrow, excavation and embankment.

The Project Manager may modify the restriction when soil characteristics, Contractor operations or both, indicate that a smaller or larger area is acceptable. For long or complex projects, the Contractor may have several separate grading operations working, where the Project Manager may apply the limit to each individual operation, provided finishing, mulching, and seeding closely follow the rough grading operations at each location. Use the specified pollution controls at each individual location.

203.04 METHOD OF MEASUREMENT

203.04.1 Excavation

The quantities of unclassified excavation, unclassified borrow excavation, special borrow-excavation, unclassified channel excavation, street excavation, sub-excavation, digout excavation, and muck excavation are measured for payment in cubic yards (cubic meters) as surveyed or calculated under Subsection 109.01.

The Department will provide the initial measurement at no charge for the following specific work areas:

1. In slide areas determined by the Department not to be the fault of the Contractor;
2. In excavated areas authorized by the Project Manager, outside the staked lines and grades; and
3. In un-staked areas such as borrow areas, muck excavations, sub-excavations, and un-staked excavations authorized by the Project Manager.

These areas of excavation and borrow are measured in their original position under Subsection 109.01. Disposal of excess or unusable excavation is not measured for payment.

The quantities of special borrow-neat line for payment are calculated in its final position under Subsection 109.01 with no allowance for shrink or swell.

Either the Department or the Contractor may request re-measurement of specific work areas, or the entire project, if there is disagreement over the accuracy of quantities computed from the staked lines and grades. The party requesting the re-measurement is responsible for all costs associated with the re-measurement. Department staff may perform the re-measurement, in which case, the rate for determining the costs for performing the work are based upon the original contract amount, and the daily charge established in Subsection 108.08, Table 108-1. An independent third party acceptable to the District Construction Engineer, and under the direction of a professional land surveyor registered in Montana, may also be used to perform the re-measurement.

Excavation is eligible for a second payment under the following conditions:

1. A second handling is required;
2. The excavated material meets all the contract requirements for the second usage;
3. The second payment item quantity is calculated in-place in its final disposition, or computed from plan dimensions. Items that require a second field measurement, such as special borrow-excavation, are not eligible for a second payment;
4. The contractor makes up any shortfall in excavation, at no cost to the Department, caused by the second use. The material making up the shortfall is subject to approval by the Project Manager; and
5. The contractor is responsible for the haul, balance lengths, balance points or other foreseen or unforeseen project constraints. No payment will be made for any additional costs.

Authorized excavation of rock, shale, muck, or unstable material below grade necessary to provide the designed thickness of backfill is measured for payment. If the designated bottom plane of the excavation falls within a layer of rock, the below-grade excavation to the bottom of the layer, not exceeding 6 inches (150 mm) below grade, is considered authorized and is measured for payment.

Rock excavation exceeding 6 inches (150 mm) below grade is not measured for payment. If the nature of the material, the thickness of the layers or strata, and method of operations make it practical to excavate only to the plan depth, any material removed below plan depth is not measured.

Measurements are made for unusable materials excavated and removed.

Useable material temporarily removed and replaced for Contractor convenience is not measured for payment.

Removal and disposal of unusable materials from borrow areas is not measured for payment. Special borrow removed from areas before surveying is not measured for payment.

The actual quantities of plan and approved sub-excavation are measured and added to the quantities of unclassified excavation for payment.

Unstable material reworked under Subsection 203.03.1(D) is measured and paid for as unclassified excavation for the second handling.

When the contract does not contain a bid item for muck excavation and an area is determined to be Muck under Subsection 203.01.1(E), the muck excavation quantity is measured and paid for at an agreed price or force account basis under Subsection 109.04. Measurement and payment for muck excavation at the agreed price includes all excavating and hauling, disposing of all stumps, logs, and other debris encountered in the excavation, all pumping and de-watering required, and finishing of the planned disposal areas.

Unclassified excavation allowed for pre-split drill equipment clearance is calculated from the area bounded by the plan slope and lines parallel to plan slope, offset 2 feet (610 mm) for each 50-foot (15.2 m) increment in vertical cut height. The quantity for drill equipment clearance where the cut slope height is less than 50 feet (15.2 m) is not measured for payment.

Excavation used as select or stockpiled select material is measured by the cubic meter in its original position.

Removed and placed stockpile material is measured using the volume in its original excavated position.

Channel excavation is measured and paid for as unclassified channel excavation.

Street excavation is measured and paid for as unclassified excavation unless the contract has street excavation as a bid item. Disposal of material or other items within the limits of the street excavation are not measured for payment.

Geotextile is measured in accordance with Subsection 622.04. Accepted quantities of Geotextile are paid for in accordance with Subsection 622.05.

203.04.2 Drill Pre-splitting Holes

Drill pre-splitting holes are measured by the foot (meter). The measurement is made from the rock surface to the roadway grade or to a predetermined bench elevation. The quantity of drill pre-splitting holes shown in the contract is not guaranteed, and the Department reserves the right to increase or decrease this item with no adjustment in the contract unit price.

203.04.3 Embankment in Place

The embankment quantities measured in cubic yards (cubic meters) for payment as Embankment In Place include the following:

1. The actual quantities of roadway embankment measured, above the original ground line under Subsection 109.01, with no volume adjustments made for shrinkage, compaction, or subsidence.
2. The topsoil replacement quantity, measured in the topsoil stockpiles.
3. Excavation of unusable material and sub-excavation in the contract or directed by the Project Manager in its original position.

203.04.4 Compaction

Work and materials to compact embankment material and backfill to the specified density is not measured for payment.

203.04.5 Topsoil

Excavation of topsoil material from its original position, loading, hauling, stockpiling, and removal from the stockpile and spreading on the designated areas is measured for payment by the cubic yard (cubic meter) in the stockpile before final placement.

Before measurement, shape and smooth each stockpile into the smallest practical area. Haul is not measured for payment.

Topsoil removed from cut areas is not deducted from the grading quantities.

Measurement is made as if the topsoil had not been removed.

Topsoil removed from embankment areas and from borrow areas, excluding Contractor-optional under Section 106, is measured under the bid item Topsoil - Salvaging and Placing.

203.05 BASIS OF PAYMENT

Payment for the completed and accepted quantities is made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Unclassified Excavation	Cubic Yard (cubic meter)
Unclassified Borrow Excavation	Cubic Yard (cubic meter)
Special Borrow	Cubic Yard (cubic meter)
Unclassified Channel Excavation	Cubic Yard (cubic meter)
Digout Excavation	Cubic Yard (cubic meter)
Muck Excavation	Cubic Yard (cubic meter)
Drill Pre-splitting Holes	Foot (meter)
Embankment in Place	Cubic Yard (cubic Meter)
Topsoil - Salvaging and Placement	Cubic Yard (cubic meter)
Street Excavation	Cubic Yard (cubic meter)

Payment at the contract unit prices is full compensation for all resources necessary to complete these items of work under the contract.

207.01 DESCRIPTION (CULVERT AND TRENCH EXCAVATION) Page 103 1-12-12

Rescind Subsection 207.01 and replace with the following:

207.01 DESCRIPTION

This work is the excavation for placing or removing drainage and other appurtenant structures. It includes foundation preparation, backfilling, disposal of excavation material, bailing, dewatering, drainage, sheeting, shoring, cribbing and installation of safety measures needed to satisfy the requirements of Subsection 107.17. Excavation classes are described below.

207.03.6 FOUNDATION PREPARATION Page 104 3-12-09

Rescind the second paragraph (that begins with "Remove unstable or ...") and replace with the following paragraph:

Remove unstable or unsuitable material encountered below the excavation floor elevation and replace with material meeting Subsection 701.04.2. Cover with bedding material meeting Subsection 701.04.1 as directed. Substitute excavatable flowable fill as bedding material for concrete and steel pipes only with the Project Manager's prior approval. A request to use excavatable flowable fill for any other pipes or application must be submitted a minimum of 5 working days prior to use. The Project Manager will investigate unstable pipe installations requiring 4 feet (1.2 m) or more of foundation material.

207.05 BASIS OF PAYMENT (CULVERT AND TRENCH EXCAVATION) Page 104 1-12-12

Add the following after the last paragraph:

Payment for safety measures required to protect open trenches is included in the contract unit price per foot (meter) of pipe (type and size).

208.03.3 LIMITATIONS ON GRADING OPERATIONS Page 106 5-13-10

Rescind Subsection 208.03.3.

208.03.6 INSPECTIONS (GENERAL STORM WATER PERMITS)

Page 108

10-9-08

Rescind section 208.03.6 and replace with the following:

Conduct inspections of BMP's according to the MPDES/NPDES and the associated General Permit for Storm Water Discharges Associated with Construction Activity. Provide one copy of the signed Storm Water Pollution Prevention Plan (SWPPP) inspection report to the Project Manager.

- On the 1st and 15th of each month when the SWPPP requires inspection every 14 days;
- On the 15th of the month when the SWPPP requires inspection monthly;
- Within three calendar days of a storm event of 0.5 inches or greater that requires an inspection within 24 hours.

Use the most current version of the Department's inspection form, CSB208_03_6 when the Department and the Contractor are co-permittees. Use the Department's form or another form that conforms to the requirements of the General Storm Water Discharge Permit when the Contractor is the sole permit holder.

Failure to conduct BMP inspections and submit inspection reports renders the BMP's unacceptable. No payment will be made for BMP's installed and the total paid to date on progress estimates for BMP's will be deducted on the next monthly progress estimate until the inspection reports are completed and received by the Project Manager.

Repair or replace damaged, inadequate, non-functioning or non-conforming devices or BMPs.

Immediately report potential noncompliance in accordance with applicable regulations, guidance, and permit conditions. The Contractor is wholly responsible for all violations including but not limited to those that result during the times when no inspections are conducted, inspection report forms are not submitted, or required maintenance of BMP's is not performed.

208.05 BASIS OF PAYMENT (TEMPORARY EROSION CONTROL)

Page 108

1-31-08

Add the following paragraph after the second paragraph.

Payment for completed and accepted temporary erosion/sediment control devices will be made under one of the following two categories:

1. Category #1 – New Installation. When a device is new and used for the first time it will be paid at 100 percent of the rate schedule.
2. Category #2 – Reuse. When a previously used BMP material that meets contract specifications is placed in a new location it will be paid at 75 percent of the rate schedule.

301.03.1(B) ACCEPTANCE SAMPLING AND TESTING (AGGREGATE SURFACING)

Page 123

1-15-09

Rescind third paragraph (that begins with "The largest quantity ...")

301.03.1(B) ACCEPTANCE SAMPLING AND TESTING (AGGREGATE SURFACING)

Page 123

7-31-08

Rescind the first Sentence (that begins with "The Project Manager will ...") and replace with the following:

The Project Manager will randomly select samples taken by the Contractor and witnessed by an Inspector, for gradation and fracture testing from processed material in its final position on the roadway under MT-201. Samples for other tests will be taken at the point of production.

301.03.1(B) ACCEPTANCE SAMPLING AND TESTING (AGGREGATE SURFACING)

Page 123

10-1-06

Delete "Cleanness Value MT-228" as an acceptance test.

301.03.1(C) ACCEPTANCE (SAMPLING, TESTING, AND ACCEPTANCE) Page 124 2-23-12

Rescind 301.03.1(C) and replace with the following:

C. Acceptance. Surfacing aggregates are evaluated for gradation and mechanical fracture on a lot-by-lot basis. The upper and lower limits in the gradation tables in Section 701 are the upper and lower limits in the evaluation formulas. The specified minimum fracture is the lower limit.
Acceptance is made under Subsection 105.03.2.

301.03.5(D) COMPACTION (AGGREGATE SURFACING CONSTRUCTION) Page 126 1-31-08

Remove "MT-210" from the last sentence (that begins with "Densities will be determined ...").

301.03.7 TRAFFIC GRAVEL Page 127 4-8-10

Add the following after the last paragraph:

Milled and/or pulverized plant mix material may be used as traffic gravel under the following conditions:

1. Submit in writing a detailed plan showing locations for the use of the milled or pulverized material. Include an updated traffic control plan and stockpile locations.
2. Place all milled/pulverized material below the finished subgrade elevation unless approved in writing by the Project Manager.
3. Do not mill/pulverize areas outside the planned limits unless approved in writing by the Project Manager.
4. 100% of the milled/pulverized material must pass the 2" sieve.

301.05 BASIS OF PAYMENT Page 129 5-13-10

Add the following sentence after the last sentence of the third paragraph (that begins with "Sale of excess...") :

If milled/pulverized plant mix is used on any portion of the project, no payment for excess traffic gravel will be made.

302 BITUMINOUS PAVEMENT PULVERIZATION Page 131 4-8-10

Rescind Section 302 and replace with the following:

SECTION 302
BITUMINOUS PAVEMENT PULVERIZATION

302.01 DESCRIPTION

This work consists of processing the existing plant mix surfacing with existing crushed aggregate course, additional crushed aggregate course, or combination of these to restore the roadway section.

302.02 MATERIALS

Furnish crushed aggregate course meeting the requirements of Subsection 701.02.1 and one of the following Subsections:

- Crushed Aggregate Course Type "A" Grade 5701.02.4
- Crushed Aggregate Course Type "A" Grade 6701.02.4

302.03 CONSTRUCTION REQUIREMENTS

302.03.1 Pulverization

Pulverize the bituminous surfacing to the depth(s) specified in the contract. Pulverize the existing material so that 100 percent by weight passes a 2-inch (50 mm) sieve.

302.03.2 Equipment

Equipment used to pulverize the existing surfacing must not reduce the aggregate size in the existing surfacing.

302.03.3 Mixing

Add crushed aggregate course as necessary to construct the roadway to the specified typical section and profile grade. Uniformly mix the pulverized material and crushed aggregate course by pugmilling or by using the pulverization equipment.

302.03.4 Compaction

Compact the pulverized mixture to maximum 8 inch (200 mm) compacted lifts to 98 percent of the target density. The target density will be determined by one of the following methods:

- A. Pugmill Mixing. MT-230 determines maximum density when the pulverized plant mix and crushed aggregate course are blended at a constant ratio by pugmill. The initial target density is the average of the maximum density of at least two tests on samples representing the material to be compacted.
- B. In-place Mixing. MT-219 determines maximum density when in-place pulverized plant mix and crushed aggregate course mixtures are combined at varying ratios.

The Project Manager will determine target densities and moisture corrections. A new target density will be established if the ratio of pulverized material and crushed aggregate course change by more than 20 percent or the Engineer determines the pulverized material characteristics or site conditions change.

302.03.5 Testing and Acceptance

Each lift of pulverized mixture material will be divided into 2000-foot long (610 meter) sections. The in-place dry density of each lift will be determined within each section at ten randomly selected locations. The average of the ten tests must exceed 98 percent of the target density with no more than two out of the ten tests being less than 98 percent of the target density.

Be responsible for controlling compaction and all necessary quality control testing.

Notify the Project Manager when compaction is complete on a section so it can be tested.

Re-compact sections not meeting density requirements. Re-compacted sections will be tested at ten new random locations.

Compaction and testing will continue until the section meets density requirements.

302.04 METHOD OF MEASUREMENT

302.04.1 Aggregate

Virgin crushed aggregate course is measured by the ton (metric ton) under Subsection 301.03.2(C) or by the cubic yard (meter).

302.04.2 Pavement Pulverization

Pavement pulverization is measured by the square yard (square meter) based on the bottom width of the pulverized material. The contract unit price may be adjusted if the average pavement depth varies by more than 0.10 foot (30 millimeters) from plan and the Project Manager issues a written order to increase or decrease the pulverization depth.

302.05 BASIS OF PAYMENT

Payment for the completed and accepted quantities is made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Crushed Aggregate Course	Ton (metric ton) or Cubic Yard (cubic meter)
Pavement Pulverization	Square Yard (square meter)

Payment at the contract unit price is full compensation for all resources necessary to complete the item of work under the contract.

304.02.1 PORTLAND CEMENT

Page 135

3-1-07

Rescind Subsection 304.02.1 and replace with the following:

Use Portland cement meeting AASHTO M85 or ASTM C150, Type I or Type II requirements. Blended hydraulic cement that conforms to one of the following may be substituted:

- ASTM C595 Type IP or Type IP(MS)
- ASTM C1157 Type GU or Type MS

304.03.1(C) AGGREGATE (COMPOSITION AND PROPORTIONING)

Page 135

3-12-09

Rescind 304.03.1(C) Aggregate.

401.03.6 SURFACE CONDITIONS, WEATHER LIMITATIONS, AND PAVING DATES Page 151 4-8-10

Rescind the seventh paragraph and replace with the following:

No payment is made for the plant mix or asphalt on progress estimates between November 1st and April 15th for partial width or thickness of the typical section. Promptly repair damage to all partial width or thickness of plant mix surfacing used by traffic during this period for any reason including suspension of work due to adverse weather at Contractor expense.

Rescind the eighth paragraph and replace with the following:

Provide all interim traffic striping and traffic control required to maintain partially completed pavement at Contractor expense.

401.03.10 SPREADING AND FINISHING Page 152 3-1-07

Delete the third paragraph (that begins with "Place plant mix surfacing...").

401.03.11 CONSTRUCTING JOINTS Page 153 3-1-07

Rescind the second sentence of the fourth paragraph (that begins with "If these locations ...") and replace with the following:

Obtain approval from the Project Manager to construct the joint at any other location.

Add the following paragraph after the sixth paragraph:

It is preferred that exposed longitudinal joints between driving lanes be avoided by constructing abutting passes equally by the end of paving each day. If an exposed longitudinal joint remaining at the end of a day's paving is not located outside of the temporary driving lines to be occupied by traffic, delineate and sign the exposed joint at no additional cost to the Department. Obtain the Project Manager's prior approval of the delineation and signing.

401.03.12(A) COMPACTION Page 153 1-31-08

Remove the second paragraph (that begins with "Complete compaction rolling ...") and replace with the following:

Complete compaction rolling within the temperature range recommended by the asphalt binder supplier included in the mix design. Suspend paving operations when compaction rolling damages the new pavement

401.03.12(D) ACCEPTANCE TESTING Page 154 2-23-12

Rescind the third paragraph (which begins with "The Project Manager will...") and replace with the following:

Core locations will be selected randomly based on the tons of mix placed. Provide cores to the Project Manager after all rolling is complete, and before the roadway is open to traffic. Areas within 12 inches (300 mm) of longitudinal paving joints, 12 inches (300 mm) of a shoulder hinge point, or where the planned nominal thickness is less than 0.1 feet (30 mm) will not have sample locations designated within them. The pavement density is determined from cores taken at randomly selected locations after all rolling is complete and before the roadway is open to traffic.

Provide two 4 inch (100 mm) cores of the full depth of the plant mix surfacing extracted from within a 5 inch (125 mm) radius of each designated location. Remove free water from each core hole, place and compact new plant mix in 2 inch (50 mm) lifts to the finished surface. Mark each core as directed by the inspector witnessing the coring.

402.03.2(A) GENERAL (SAMPLING)

Page 157

11-17-11

Rescind the fourth paragraph (which begins with "Draw two one-quart...") and replace with the following:

Draw two one-quart (0.9 L) samples from each shipment, witnessed by the Project Manager. Submit both samples to the Project Manager for testing. One sample will be tested and the second sample will be retained for use as specified in Subsection 702.02.

402.03.2(B) ASPHALT SAMPLING (QUALITY ASSURANCE SAMPLING)

Page 157

4-8-10

Rescind the fourth paragraph (that begins with "The Project Manager...") and replace with the following:

The Project Manager will randomly designate the time of sampling based on the tons (metric tons) of asphalt cement incorporated into the completed mix produced. The approximate quantity of asphalt cement represented by each sample is 25 tons (25 mt). The Project Manager may require additional samples and testing.

Rescind the first sentence in the fifth paragraph (that begins with "Six samples represent...") and replace with the following:

Six samples represent approximately 150 tons (150 mt) of asphalt cement and constitute a lot whenever production schedules or material continuity permit.

402.03.5 ACCEPTANCE

Page 158

11-17-11

Rescind Subsection 402.03.5 and replace with the following:

402.03.5 Acceptance

- A. General. Provide the Project Manager a copy of the original bill of lading and a copy of the certificate of compliance, with each shipment. Assure the certificate is signed by the supplier's representative and attests that the bituminous material meets the Department's specifications for the type and grade of material provided and that the shipping container was inspected and found free of contamination. The certificate of compliance is the basis for tentative material acceptance and use.
- B. Failures. If a shipment of bituminous material fails to meet any of the specifications the material will be accepted at a 10% price reduction of the bituminous material cost if the test results are within the tolerances shown in Table 402-1a.

If a shipment fails to meet any one of the specifications after twice the allowable tolerances have been applied, the price reduction will be 25 percent of the unit price bid for bituminous material when it is paid as a separate item or the invoice price when it is part of a bid item.

If a shipment fails to meet any one of the specifications after triple the allowable tolerances have been applied, the Engineer may reject the material and require its removal from the work, or the Engineer may accept the material at a 50 percent price reduction of the cost of the bituminous material.

The cost of the bituminous material for calculating price reductions is the material's contract unit price.

If a shipment fails more than one of the specifications, the failure causing the largest percentage price reduction is assessed.

TABLE 402-1a
SCHEDULE OF TOLERANCES

TEST	ALLOWABLE VARIATION		REMARKS
	From Min. Specification Requirement	From Max. Specification Requirement	
Penetration Distillation Residues	-10%	+10%	
% Residue from Distillation	-5%		% of Total Distillate: 2 ml may be added or subtracted at any distillation temp. before calculating the % recovered
Viscosity Cutback Asphalts Emulsified Asphalts	-10% -5%	+10% +25%	
Ductility	-10%		
Flash Test Cutback Asphalt	-10%		
Particle Charge	NO TOLERANCE - Materials in violation of spec. and any aggregate used in conjunction with its use will, at the Engineer's discretion, be either rejected or paid for at a unit rate not to exceed 50% of the cost of the materials.		

402.03.8 PERFORMANCE GRADED ASPHALT BINDER (PGAB) Page 159 11-17-11

Rescind the first sentence of the first paragraph (that begins with "Furnish Performance Graded...") and replace with the following sentence:

Furnish Performance Graded Asphalt Binder (PGAB) meeting Table 702-2 requirements for the binder specified in the contract.

402.03.8A PERFORMANCE GRADED ASPHALT BINDER (PGAB) Page 160 10-7-10

Delete Part A of 402.03.8 (That begins with "A. Test Results. Provide...")

403.02(A) MATERIALS (CRACK SEALANT) Page 163 2-11-10

Rescind the first sentence and replace with the following:

A. Crack Sealant. Use sealant meeting the specifications in Table 403-1:

403.03.4 SEALING

Page 164

9-9-10

Rescind the last paragraph (that begins with "All cracks sealed...") and replace with the following two paragraphs:

Seal previously repaired cracks to restore water resistance. Remove any dust, dirt, loose materials, or moisture from the area to be sealed before applying sealant. Spread and smooth the sealant as required to seal the reservoir, but do not exceed 2 inches of spread sealant on the roadway.

Apply blotter material to all sealed cracks.

406 ROAD MIX BITUMINOUS PAVEMENT

Page 165

1-12-12

Rescind Section 406.

407.02.1 BITUMINOUS MATERIAL

Page 169

3-1-07

Delete the fourth paragraph (that begins with "The Contractor may ...") and replace with the following:

The Contractor may substitute CSS-1, CSS-1h, or SS-1h emulsified asphalt for SS-1 emulsified asphalt for tack coat.

409.01.1 CONTRACT TIME

Page 171

7-3-08

Add the following after the last sentence of the third paragraph (which begins with "Time charges according...")

In cases where seal coat and pavement marking application are the only remaining items of work as of August 21, contract time will not be charged after August 20 if seal coat work is not performed. Contract time will be charged according to Subsection 108.07.3, beginning on the day seal coat work begins, from August 21 through August 31 if seal coat work is performed.

Submit written notice to perform seal coat work from August 21 through August 31.

409.02.2 BITUMINOUS MATERIAL

Page 171

11-17-11

Rescind Subsection 409.02.2 and replace with the following:

409.02.2 Bituminous Material

Furnish material meeting Table 702-3.

409.03.2 AGGREGATE AND BITUMINOUS MATERIAL APPLICATION REATES

Page 172

6-24-10

Rescind the second sentence of the first paragraph (that begins with "Submit the following...") and replace with the following sentence:

Submit the following for informational purposes before starting full production or any time the source of aggregate or bituminous material changes:

Rescind the first sentence of the second paragraph (that begins with "Before starting full"...") and replace with the following sentence:

Before starting full production or after changing sources of either aggregate or bituminous material, complete a test section at least 2000 feet (0.6 km) long to verify the following:

409.03.3 SEASONAL AND WEATHER LIMITATIONS (SEAL COAT)

Page 172

1-12-12

Rescind Subsection 409.03.3 and replace with the following:

409.03.3 Seal Coat Limitations

The following conditions govern seal coat work:

1. Perform seal coat operations between May 1 and August 31.

2. Do not perform seal coat work during the 48-hour period immediately preceding a holiday or a holiday weekend except for pilot car operation as specified in Subsection 618.03.11.
3. Perform seal coat work when both the ambient and pavement surface temperatures meet the bituminous material supplier's recommended temperatures.
4. Stop seal coat work at least 1/2 hour before sunset, to include equipment off of the roadway and placement of traffic control devices for non-construction activities.
5. Do not apply bituminous material to damp or wet roadway surfaces.
6. Do not apply bituminous material to plant mix pavement which has been placed, under the contract, within the previous 72 hours.

409.03.5 SURFACE PREPARATION Page 173 9-23-10

Rescind Subsection 409.03.5 and replace with the following:

409.03.5 Surface Preparation

Do not apply bituminous material unless the roadway surface is free of all dust, dirt, and foreign material. Remove excess crack seal blotter material placed under the contract prior to seal coat operations.

409.03.6 APPLICATION OF FOG SEAL Page 173 3-12-09

Rescind Subsection 409.03.6.

409.03.7 APPLICATION OF SEAL COAT MATERIALS Page 173 3-1-07

Rescind the third sentence of the second paragraph (that begins with "Locate longitudinal ...") and replace with the following two sentences:

Locate longitudinal joints at the centerline or lane line. Obtain approval from the Project Manager to construct the joint at any other location.

409.03.8 WARRANTY (SEAL COAT) Page 173 10-7-10

Rescind 409.03.8 and replace with:

The Contractor warrants the seal coat work. If the seal coat experiences chip loss, tracking, flushing or bleeding, at any time between the date the seal coat is completed and the first Wednesday in December of the same calendar year, perform repairs to the seal coat, and replace pavement markings covered by the repairs at no additional cost to the Department. Areas of cover material loss determined to result from means beyond the Contractor's control (snow plow damage, tire chain damage, or others) are not considered under these warranty requirements. Final determination regarding cover material loss will be made by the Engineer. When repairs are deemed necessary, reference is made to the "MDT Seal Coat Warranty Administration Guide". Submit a detailed repair plan to the Project Manager for approval within 14 calendar days of notification of required repairs. The repair plan must address the area of failure and transitions required to ensure a uniformly bonded, smooth surface. Make warranty repairs in accordance with the provisions of this specification when performing warranty work. furnish traffic control meeting Section 618 requirements at no additional cost to the Department.

411.03.1 EQUIPMENT (COLD MILLING) Page 179 4-8-10

Delete the second paragraph (that begins with "Use cold milling...") and delete items 1. and 2.

411.03.3 (A) MILLING

Page 179

4-8-10

Rescind and replace 411.03.3 (A) with the following:

- A. Connections. Mill the existing bituminous surfacing from bridge decks, bridge approaches, cattle guards, and project connections at the locations specified in the contract or as directed by the Project Manager.

Bridge Decks

- Mill the depth shown in the contract or as adjusted to meet field conditions.

Bridge Ends

- Mill full depth from the bridge end out for a distance of 30 feet (10m) prior to the milling taper.
- For milling depths less than or equal to 0.35 feet (105 mm), mill a taper distance of 200 feet (60 m).
- For milling depths greater than 0.35 feet (105 mm), mill a taper distance based on a rate of 30 feet (10 m) per 0.05 feet (15 mm) of milling depth.

Cattle Guards or Railroad Crossings

- Mill full depth from the cattle guard or railroad crossing out for a distance of 15 feet (5 m) prior to the milling taper.
- Mill a taper distance of 50 feet (15m).

Project Connections

- For milling depths less than or equal to 0.35 feet (105 mm), mill a taper distance of 200 feet (60 m).
- For milling depths greater than 0.35 feet (105 mm), mill a taper distance based on a rate of 30 feet (10 m) per 0.05 feet (15 mm) of milling depth.

411.03.3 (B) MILLING

Page 179

9-9-10

Rescind Subsection 411.03.3 (B) and replace with the following:

- B. Milling at Other Designated Areas. Mill the existing pavement at the locations, widths and depths specified. The depth is measured below the existing pavement plane projected from points on un-distorted pavement near the centerline and the edge of the driving lane.

501.02.5 EXPANSION JOINT FILLER AND JOINT SEALING MATERIAL

Page 181

2-23-12

Rescind Subsection 501.02.5 and replace with the following:

Furnish expansion joint filler and joint sealing material listed on the Department's QPL and meeting Subsection 707.01 requirements.

501.04.1 AREA MEASUREMENT (PCCP)

Page 195

1-12-12

Rescind the second paragraph and replace with the following:

The measured width is from outside to outside of completed pavement including integral curb, not exceeding the specified width or the width ordered by the Project Manager.

Rescind the seventh (last) paragraph and replace with the following:

Integral curb included in the completed pavement is not measured separately for payment.

551.03.2(A) DESIGN (COMPOSITION OF CONCRETE)

Page 200

7-3-08

Rescind the first Sentence of Number 4 Part (d) (that begins with "Ground granulated ...") and replace with the following:

- d. Ground granulated blast furnace slag may be included in the mix design for up to 25 percent by weight of the total cementitious material.

551.03.7(A)(4) FLOWABLE FILL (TESTING AND ACCEPTANCE OF CONCRETE) Page 208 3-1-07

Add the following paragraph at the end of Subsection 551.03.7 (A) (4) Flowable Fill:

Cover the flowable fill trench with steel plates of sufficient thickness to hold traffic if the trenched area is opened to traffic prior to meeting the required strength listed in part b) above. Anchor the plates to prevent movement from traffic.

551.03.7(C)(2) CLASS "PRE" CONCRETE Page 210 11-17-11

Rescind and replace Section 551.03.7(C)(2) with the following:

551.03.7(C)(2) Class "Pre" Concrete. Class "Pre" concrete is evaluated for acceptance on a lot-by-lot basis based on the average of the 28-day compressive strength cylinders and variation in test results as measured by the standard deviation. The average strength of the three cylinders must equal or exceed:

$$F'c + 0.35S$$

Where:

S is the standard deviation of the strengths for the three 28-day cylinders.

F'c is the concrete strength required for final acceptance as specified in the contract.

A lot is defined as all the concrete that is placed in a single pre-cast prestressed member.

Lots with any actual average cylinder strengths less than that calculated from the above formula will be rejected.

Three 28-day compressive test cylinders will be made for each lot, and each 28-day test cylinder sample will be selected on a random basis from all batches or loads.

The strengths of other cylinders made from a sample and tested at an earlier age will not be considered for acceptance purposes.

The cylinders for acceptance will be cast under MT-101, sampled under MT-111 and tested under AASHTO T 22.

The cylinders will be cured within the curing enclosure under the exact conditions and methods used to cure the prestressed member until transfer of pre-stress. After transfer of pre-stress, the cylinders will continue curing under MT-101.

552.03.5 (A) GENERAL (PLACING CONCRETE) Page 214 2-23-12

Within the eighth paragraph, rescind the third (last) sentence (that begins with "Do not allow concrete...") and replace with the following:

Do not allow concrete to segregate by falling through or over reinforcing steel, tie rods, or similar items.

Rescind the twelfth paragraph (that begins with "Place and secure...") and replace with the following:

Place and secure all reinforcing, dowels, and other embedded items as specified. Clean rust, scale, oil, dried mortar deposits or foreign material from all embedded materials before placing the concrete.

552.03.9(A) GENERAL (COLD WEATHER CONCRETING) Page 218 3-27-08

Rescind the first sentence (that begins with "Assume all...") and replace with the following:

A. General. Assume all risk for placement and cure of concrete during cold weather.

552.03.12(E4) BRIDGE DECK SURFACE TEXTURE Page 223 9-23-10

Rescind 552.03.12, Part (E. 4.) and replace with the following:

E. Concrete Bridge Decks. Finish deck slabs by the machine method, excluding small or irregularly shaped areas where a machine is impractical.

4. Bridge Deck Surface Texture. Perform transverse deck grooving prior to allowing traffic on the new deck. After the Project Manager has approved the finished deck surface and concrete has cured for the specified cure period, saw cut transverse grooves into the finished deck. Use grooving equipment capable of saw cutting $\frac{1}{8}$ " (3 mm) $\pm 1/16$ " (1 mm) wide, $3/16$ " (5 mm) $\pm 1/16$ " (2 mm) deep at $1\frac{1}{4}$ " (30 mm) $\pm 1/16$ " (2 mm) center-to-center spacing. Do not overlap grooves during succeeding passes. Terminate grooves 1 foot (.3 meter) from the face of rail or face of barriers and 4" (.1 meter) from the paving notch, guard angles or expansion joints.

552.03.12(E6) SURFACE SMOOTHNESS Page 223 9-23-10

Rescind and replace the first sentence of the first paragraph (that begins with "The finished Surface...") with the following sentence:

The finished surface must not vary more than $3/16$ -inch (5 mm) from a 10-foot (3 m) straightedge placed parallel to the roadway centerline.

552.03.13 FILLED JOINTS Page 225 2-23-12

Rescind the first paragraph (that begins with "Construct poured...") and replace with the following:

Construct poured expansion joints similar to open joints. Use filler material listed on the Department's QPL meeting the requirements of Subsection 707.01.

552.04 METHOD OF MEASUREMENT Page 227 9-23-10

Add the following paragraph at the end of 552.04:

Transverse Deck Grooving is measured in square yards (square meters) for the actual area grooved.

552.05 BASIS OF PAYMENT Page 228 9-23-10

Rescind and replace the Pay Item and Pay Unit tables with the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Concrete	Cubic Yard (cubic meter)
Transverse Deck Grooving	Square Yard (square meter)

553.03.1 FABRICATION Page 229 12-1-11

Rescind Subsection 553.03.1 and replace with the following:

553.03.1 Fabrication

Fabricate all prestressed concrete members using a manufacturing plant currently certified by the Prestressed Concrete Institute or the National Precast Concrete Association in the category applicable to the member being fabricated. The Department will make an exemption for new manufacturing plants that are of the same ownership as an existing certified plant, provided the new manufacturing plant operates under the same quality assurance and control programs as the certified plants, modified to address any production differences, and all fabrication is performed under the direct supervision of a quality assurance and control manager provided by an existing pre-qualified plant. Direct supervision means that the quality assurance and control manager is on site during all fabrication performed in the new fabrication plant and is responsible for the quality assurance and control activities.

Furnish a copy of the plant's current certification in the applicable category along with the fabrication drawings for the elements to be fabricated. For new manufacturing plants, submit and receive approval of any proposed modifications to the parent plant's quality assurance and control program prior to beginning production. Allow 30 working days from the date submitted for Department review and approval.

The fabricator may prestress by pretension or post-tensioning the member, subject to the contract requirements.

Obtain written approval before changing the prestressing details.

555.03.3 PLACING AND FASTENING (REINFORCING STEEL)

Page 246

9-1-06

Rescind the tenth paragraph (that begins with "Use plastic-coated ...") and replace with the following:

Use plastic-coated tie wires or tie wires coated with another inert coating approved by the Engineer to tie the coated bars in place.

556.03.1 PRE-QUALIFICATION

Page 249

12-1-11

Rescind Subsection 556.03.1 and replace with the following:

556.03.1 Pre-qualification for steel fabricators

Use metal fabricators that are pre-qualified under the AISC Quality Certification Program for the items listed below. The Department will make an exemption for new manufacturing plants that are of the same ownership as an existing certified plant, provided the new manufacturing plant operates under the same quality assurance and control programs as the certified plants, modified to address any production differences, and all fabrication is performed under the direct supervision of a quality assurance and control manager provided by an existing pre-qualified plant. Direct supervision means that the quality assurance and control manager is on site during all fabrication performed in the new fabrication plant and is responsible for the quality assurance and control activities. For new manufacturing plants, submit and receive approval of any proposed modifications to the parent plant's quality assurance and control program prior to beginning production. Allow 30 working days from the date submitted for Department review and approval. Items not listed may be fabricated by non-certified shops. AISC has quality certification in the following categories:

AISC has quality certification in the following categories:

- Standard for Steel Building Structures (STD). This certification applies uniformly to all building fabricators, regardless of project complexity.
- Simple Steel Bridge Structures (SBR). The certification is typically specified for unspliced rolled beam bridges.
- Major Steel Bridges (CBR). The certification is typically specified for large span bridges. Main members are typically fabricated girders that must be spliced with a welded or bolted connection.

A. Certification Requirements

1) Use fabricators having Category CBR certification to fabricate the following:

- a. Fracture critical members and attachments. Fabricators must have the Fracture Critical Endorsement (F).
- b. Main members, (including spliced rolled beams).
- c. Welded floor beams.
- d. Diaphragms for horizontally curved girders.

2) Use fabricators having Category SBR certification to fabricate the following:

- a. Non-spliced rolled beams.
- b. Non-spliced floor beams.
- c. Diaphragms for straight girders (does not include diaphragms used for concrete beams).

3) Use fabricators having a Category CBR, SBR, or STD certification to fabricate the following:

- a. Modular expansion joints.
- b. Steel grid decking.
- c. Overhead sign bridge and cantilever sign structures.
- d. Lighting poles and anchor bases.

559.02.2 FURNISH PILE

Page 269

2-19-09

Rescind the second paragraph (that begins with "The specified lengths...") and replace with the following:

The specified lengths are those required below cutoff. Adjust lengths for the difference between the cut off length and the pile position in the driving equipment and as necessary to meet the requirements of Subsection

559.02.5. Increase pile lengths 1.0 foot (300 mm) for steel pile. Remove and dispose of excess pile length after the pile is driven.

559.02.4 SPLICING PILES

Page 269

2-19-09

Rescind the first sentence of the first paragraph (that begins with "Splice piles driven...") and replace with the following:

When directed by the Project Manager, splice piles driven to plan grade that do not obtain the required driving resistance and continue driving until the required capacity is obtained.

559.02.5 HOLES IN PILING

Page 269

2-19-09

Add the following subsection:

559.02.5 Holes in Piling

Pile segments with one drilled hole having a diameter of 7/8 inch (22 mm) or less in any cross-section may be incorporated into the finished structure. Pile with more than one hole in a cross-section, flame cut hole(s), or a hole greater than 7/8 inch (22 mm), must be cut off to remove the hole(s). This requirement does not apply to holes drilled for attaching dynamic testing equipment, holes shown in the plans or holes within 12 inches (305mm) of the cutoff elevation.

559.03.2 EVALUATION OF PILE DRIVING EQUIPMENT

Page 271

5-12-11

Rescind Subsection 559.03.2 and replace with the following:

559.03.2 Evaluation of Pile Driving Equipment

The Department will evaluate pile-driving equipment provided by the Contractor. The equipment must have the capability to drive the project pile to the design pile tip elevation and required ultimate pile capacity without damage to the pile. Provide pile-driving equipment that produces the following results from the wave equation analysis:

- 35 to 120 blows per one foot (0.3 meter) at ultimate capacity; and
- Maximum compressive driving stress less than 90 percent of the minimum pile material yield strength.

The Department will base hammer evaluations on a wave equation analysis. Submit the pile driving equipment information on Form CSB559_03_2.

The Project Manager will notify the Contractor of results of the pile driving equipment evaluation within 14 calendar days after receipt of the Pile and Driving Equipment Data form. If the Department's wave equation analysis indicates that pile damage may occur or that the proposed pile driving equipment cannot drive the pile to the specified ultimate capacity and design tip elevation, re-submit a plan that modifies the equipment or the method to ensure the ability to drive pile to the specified ultimate capacity and design tip elevation without pile damage. The Project Manager will notify the Contractor of results of the revised pile driving submission within seven calendar days after receipt of the re-submittal.

Do not vary from the evaluated driving system without prior written approval. The Department will consider proposed changes to the pile driving equipment or method only after submittal of revised information for a new wave equation analysis. The Project Manager will notify the Contractor of evaluation results of the pile driving system changes within seven calendar days after receipt of the submittal. Delays and additional costs associated with developing, submitting and obtaining evaluation results for pile driving proposals and resulting changes in the pile driving equipment and work methods are at Contractor's expense.

559.03.3 PILE CAPACITY

Page 271-273

1-31-08

Delete the first two sentences of 559.03.3(A) (that begins with "Drive the pile to") and replace with the following:

A. Driven Pile Capacity. Drive the pile to the design tip elevation shown on the plans, or deeper, if necessary and to the ultimate pile capacity during driving shown on the plans. The Project Manager will use one of the following methods specified to determine the ultimate driven pile capacity and the service pile driving criteria.

Replace the third paragraph in 559.03.3(B)(2) Dynamic Load Tests (that begins with “With dynamic testing ...”) and replace with the following:

With dynamic testing equipment attached, drive the pile in one continuous operation to the design tip elevation, or deeper if directed by the Project Manager. The Project Manager may lower the required tip elevation based on the ultimate pile capacity measurements at the time of driving or re-driving. Reduce the driving energy to the pile to maintain pile stresses below the values specified in Subsection 559.03.3(A)(2), using additional cushions or reduction of the hammer’s output energy. If eccentric driving is indicated, immediately re-align the driving system. Provide a printed summary of the dynamic load test results and recommendations for service pile driving criteria (blow count and stroke) and pile tip elevation. The Project Manager will determine the service pile driving criteria and minimum pile tip elevations based on the dynamic load test results and specialty consultant’s recommendations.

Replace the fourth paragraph in 559.03.3(B)(2) Dynamic Load Tests (that begins with “If the Project Manager ...”) and replace with the following:

Perform a re-drive of the test pile when required by the Project Manager. After initial driving, wait the minimum time specified, then re-drive each dynamic load test pile with the instruments attached. Apply at least 20 resistance blows to warm the hammer before re-driving. Do not warm the hammer using the dynamic load test pile. Re-drive the dynamic load test pile for a maximum penetration of 6 inches(150mm) or a maximum of 50 blows, whichever occurs first.

559.03.3 (B) (2) DYNAMIC LOAD TESTS (PILE CAPACITY)

Page 273

5-12-11

Rescind and replace the second sentence of the first paragraph (That begins with “Use a pile...”) to read:

Use a pile specialty consultant with at least three years’ experience in dynamic load testing and analysis to perform the dynamic load test, Case Pile Wave Analysis Program (CAPWAP) and the wave equation analysis.

559.03.5 SERVICE PILE

Page 274

2-19-09

Rescind 559.03.5 and replace with the following:

559.03.5 Service Pile

Do not initiate driving of the service piles until all test piles and analysis are complete unless authorized by the Project Manager. Drive the pile to the design tip elevation shown on the plans, or deeper if necessary to achieve the ultimate pile capacity during driving. If specified, establish pile tip elevation and ultimate pile capacity by compression load testing or dynamic load testing.

Furnish the service pile lengths specified in the contract. Adjust pile lengths for the difference between cutoff length and the pile position in the driving equipment.

The Project Manager will observe the pile driving and calculate the predicted pile capacity as it is being driven.

When a re-drive of the service pile is required, re-drive the pile not less than 24 hours or more than 72 hours after initial driving and do not drive the pile below cut off elevation. If the Project Manager determines pile stresses during driving are damaging the pile, the Department may require other installation methods or equipment to obtain pile penetration.

Correct or replace improperly driven, damaged or defective pile at Contractor’s expense.

Temporary welded plates for aligning field splices or hoisting may be used with the Project Manager’s approval. Remove temporary plates and grind welds smooth.

559.03.7 STEEL PIPE PILE

Page 274

2-19-09

Rescind Supplemental Specification 559.03.7 (Effective 1-31-08) and replace with the following:

Securely cover driven pipe piling to prevent open-hole hazards.

Remove water in steel pipe piles before placing concrete or place the concrete using a tremie when water is present in the pile.

Provide lighting to illuminate the full pile length when requested to aid inspection of the pile before placing concrete. Fill steel pipe piles to an elevation no less than 2 feet (600 mm) below the cut off elevation with Class "DD" Portland cement concrete a minimum of 12 hours prior to pouring the cap.
Do not place concrete in pipe piles until all piles for the bent have been driven.

559.03.8 PAINTING STEEL PILE OR STEEL PIPE PILE

Page 275

12-27-07

Delete the reference to Subsection 710.02(B)(4) under part (A) Paint, and replace with 710.02(B)(3).

559.04.1 LOAD TESTS (PILING)

Page 275

2-19-09

Rescind Subsection 559.04.1 and replace with the following:

Static and dynamic load tests, and test pile re-drives, completed and accepted are measured by the unit. Include all materials, tools, the first 24 hours of standby time for items dedicated solely to this work, and equipment required to perform each test or test pile re-drive in the unit bid price for the item.

Furnishing, driving, splices, re-driving of service piles and pile end protection are measured for payment as outlined in other Subsections. Do not include these costs in the static and dynamic load tests.

559.04.2 FURNISH PILE

Page 275

2-19-09

Rescind Subsection 559.04.2 and replace with the following:

Furnish pile is measured by the foot (meter) based on the plan quantity.

559.05 BASIS OF PAYMENT (PILING)

Page 276

2-19-09

Rescind Supplemental Specification 559.05 (Effective 8-1-07) and replace with the following:

The Department will not pay for:

- Furnishing or driving falsework pile;
- Pile driven out of place and not accepted;
- Defective pile, or pile damaged in handling or driving;
- Forming holes;
- Lengths of pile cut off according to Subsection 559.02; or
- Welding temporary plates, removing the plates and grinding the welds smooth.

Include payment for the costs associated with painting steel pile and steel pipe piles and filler concrete in the contract unit price per foot (meter) of drive pile.

Pile furnished, based on the plan quantities, but not incorporated in the finished structure, is paid for at the contract unit price per foot (meter) of furnish pile and becomes the property of the Contractor. Pile furnished in addition to plan quantity that is incorporated in the finished structure, is paid for by lump sum agreed price or under Subsection 109.04.2..

Payment for the completed and accepted quantities is made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Static Load Test	Each
Dynamic Load Test	Each
Re-drive Test Pile	Each
Furnish Pile	Foot (meter)
Drive Pile	Foot (meter)
Pile Pre-bore	Foot (meter)
Pile Drill and Socket	Foot (meter)
Pile Splice	Force Account
Pile Driving Point	Each
<u>Pay Item</u>	<u>Pay Unit</u>
Pile Conical Driving Point	Each
Pile Cutting Shoe	Each
Re-drive Test Pile	Each
Re-drive of Service Pile	Force Account

Partial payments for drive pile will be made based on the total quantity as follows:

1. 95 percent when the piles are driven to final penetration.
2. 100 percent when the piles are cut off and painted as specified.

603.03.1 GENERAL (PIPES, STORM DRAINS, SANITARY SEWER, STOCKPASSES) Page 281 4-8-10

Rescind the last sentence of the fifth paragraph (that begins with "Include terminal sections...") and replace with the following:

Include terminal sections and connection hardware, where required.

603.03.4 BACKFILLING (CULVERTS AND PIPES) Page 284 3-1-07

Delete part B Imperfect Trench Method.

Renumber part C Rock Embankment as part B.

603.04.3 BEDDING MATERIAL Page 285 12-17-09

Rescind Subsection 603.04.3 and replace with the following:

603.04.3 Bedding Material

Bedding material is measured by the cubic yard (cubic meter) in place for pipes greater than 48 inch (1.2 meter) diameter, and for all sizes of storm drain trunklines. Include the cost of bedding material for pipes 48 inch (1.2 meter) diameter or less in the cost of the pipe.

603.05 BASIS OF PAYMENT Page 285 3-12-09

Add the following paragraph after the last paragraph (that begins with "Payment for All..."):

No additional payment will be made for excavatable flowable fill used as bedding material.

606.02 MATERIALS (GUARDRAIL) Page 289 1-12-12

Add the following item to the list of materials under the first paragraph (that begins with "Furnish metal beam..."):

Steel Guardrail Post.....705.01.5

Rescind the second (last) paragraph (that begins "Furnish all new...") and replace with the following:

Furnish all new materials. Do not use refurbished material unless specified in the contract documents.

606.03.2 INSTALLING POSTS Page 290 6-24-10

Rescind the second paragraph (that begins with "Always drive steel...") and replace with the following paragraph:

Always drive steel posts. Wood posts may be placed by excavating and backfilling or by driving.

Delete the last paragraph (that begins with "If furnishing steel..."), and delete lines 1., 2., and 3.

606.03.3 METAL BEAM GUARDRAIL ERECTION Page 290 1-12-12

Add the following paragraph after the fourth paragraph (that begins "Ensure the bolts..."):

Drilling or cutting in the field is only allowed for special connections and sampling. Do not use cutting torches to cut guardrail or make bolt holes. Obtain Project Manager approval prior to drilling bolt holes or cutting guardrail for special connections.

607.02.1 SNOW FENCE (NEW) Page 295 12-27-07

Add the following new Subsection:

Furnish all timbers, lumber and hardware as specified.

A. All lumber used must meet the Western Wood Products Association requirements, or equivalent grading rules for #2 grading and 3 common or better, all of which must meet ASTM D 245.

B. All treated material must meet the requirements of Subsection 706.04 or the special provisions.

607.04.3 GATES Page 299 2-10-11

Rescind Subsection 607.04.3 and replace with the following

607.04.3 Gates

Gates are measured by the foot (meter) from center to center of adjacent fence posts.

607.04.7 REMOVE FENCE Page 299 1-12-12

Add the following after part (B):

C. Postholes. Backfill and compact the postholes left from post removal using clean material or crushed base. Do not cut off and leave existing posts in place.

608 CONCRETE SIDEWALKS Page 301 11-17-11

Rescind and replace Section 608 with the following:

SECTION 608
CONCRETE SIDEWALKS

608.01 DESCRIPTION

This work is the construction of concrete sidewalks and the installation of Detectable Warning Devices at the locations shown in the plans.

608.02 MATERIALS

Furnish materials meeting the following Section and Subsection requirements:

Classes "A" and "D" Portland Cement Concrete.....551
Reinforcing Steel711.01
Joint Materials707.01

Use Detectable Warning Devices – Type 1 for new sidewalk construction. Detectable Warning Devices - Type 1 are cast directly into sidewalk. Use Detectable Warning Devices - Type 2 for retrofits on existing sidewalks where new concrete is not being placed. Detectable Warning Devices – Type 2 are surface applied on the sidewalk.

Meet all of the Department's requirements on the qualified products list (QPL) for Detectable Warning Devices – Type 1 and for Detectable Warning Devices – Type 2 . The QPL requirements and list can be found on the Department's website.

Use Detectable Warning Devices that are a brick red color.

608.03 CONSTRUCTION REQUIREMENTS

Construct concrete sidewalks as specified in the contract and as follows.

608.03.1 Subgrade and Forms

Excavate, shape, and compact the foundation to the specified width and grade.

Place and compact aggregate base to the specified thickness.

Use forms and form meeting Section 552 and Subsection 609.03 requirements.

608.03.2 Concrete

Furnish and place concrete meeting Section 551 requirements.

Place reinforcing steel as specified.

Dampen the foundation and forms immediately before placing concrete.

Do not place concrete on a frozen foundation course or subgrade.

Construct sidewalks meeting Subsections 501.03.18 and 501.03.19 requirements.

608.03.3 Detectable Warning Devices

Install detectable warning devices so they extend the full width of the ramp and the edge of the dome panel is located no more than 6 inches (150 mm) from the back of curb. If the detectable warning device used is embedded in concrete, install so the top of the panel is flush with the adjacent concrete and the domes will protrude above the adjacent surface. If Detectable Warning Devices require cutting, locate non-factory edges on the exterior side of Detectable Warning Device installation.

608.04 METHOD OF MEASUREMENT

Concrete sidewalk is measured by the square yard (square meter), including wheelchair ramps.

Detectable Warning Devices are measured by the square yard (square meter) to the nearest 0.1 square yard (0.1 square meter).

- A. Contracts with Sidewalk Work Not in Conjunction with Roadway Reconstruction. Reinforcing steel, expansion joint material, bond breaker, excavation or embankment, crushed gravel base, and disposal of material associated with the work are not measured for payment.
- B. All Other Contracts. Reinforcing steel, expansion joint material, bond breaker, disposal of material, and crushed gravel base are not measured for payment. Excavation or embankment associated with the work is measured by the cubic yard (cubic meter).

608.05 BASIS OF PAYMENT

Payment for the completed and accepted quantities is made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Sidewalk-Concrete	Square Yard (square meter)
Detectable Warning Devices – Type 1	Square Yard (square meter)
Detectable Warning Devices – Type 2	Square Yard (square meter)

The cost of the concrete used under Detectable Warning Devices – Type 1 is included in the contract unit price for Detectable Warning Devices – Type 1.

- A. Contracts with Sidewalk Work Not in Conjunction with Roadway Reconstruction. The cost of reinforcing steel, expansion joint material, bond breaker, excavation or embankment, crushed gravel base, and disposal of material associated with the work are included in the contract unit price of sidewalk.
- B. All Other Contracts. The cost of reinforcing steel, expansion joint material, bond breaker, crushed gravel base, and disposal of material associated with the work are included in the contract unit price of sidewalk. Excavation or embankment associated with the work is paid for under the specified type of earthwork.

Payment at the contract unit price is full compensation for all resources necessary to complete the item of work under the contract.

609.04 METHOD OF MEASUREMENT (CURBS AND GUTTERS)

Page 304

5-24-12

Rescind Subsection 609.04 and replace with the following:

Curb, integral curb and gutter, and median concrete curb are measured by the foot (meter) to the nearest 0.1-foot (0.1m) along the face of the curb at the flow line.

Paint and painting is measured by the gallon (Liter) under Subsection 620.04.

A. Contracts with Curb, Integral Curb and Gutter, Median Curb, and Precast Concrete Curb Work Not in Conjunction with Roadway Reconstruction. Reinforcing Steel, expansion joint material, bond breaker, excavation or embankment, crushed gravel base, emulsified asphalt and disposal of material associated with the work are not measured for payment.

B. All Other Contracts. Reinforcing Steel, expansion joint material, bond breaker, disposal of material, and emulsified asphalt are not measured for payment. Excavation or embankment associated with the work is measured by the cubic yard (cubic meter).

609.05 BASIS OF PAYMENT (CURBS AND GUTTERS)

Page 304

5-24-12

Rescind Subsection 609.05 and replace with the following:

Payment for completed and accepted quantities is made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Curb	Foot (meter)
Integral Curb and Gutter	Foot (meter)
Median Concrete Curb	Foot (meter)
Paint	Gallon (liter)

A. Contracts with Curb, Integral Curb and Gutter, Median Curb, and Precast Concrete Curb Work Not in Conjunction with Roadway Reconstruction. The cost of reinforcing steel, expansion joint material, bond breaker, curing compound, excavation or embankment, crushed gravel base, emulsified asphalt and disposal of material associated with the work are included in the contract unit price of curb and gutter.

B. All Other Contracts. The cost of reinforcing steel, expansion joint material, bond breaker, curing compound, emulsified asphalt, and disposal of material associated with the work are included in the contract unit price of curb and gutter. Excavation or embankment associated with the work is paid for under the specified type of earthwork.

Payment at the contract unit price is full compensation for all resources necessary to complete the item of work under the contract.

610.01 DESCRIPTION (ROADSIDE REVEGETATION)

Page 305

3-12-09

Rescind the first paragraph (that begins with "This work is...") and replace with the following paragraph:

This work is re-establishing vegetative cover on specified areas with salvaged topsoil under Subsection 203.03.6 or furnished topsoil, seeding, planting, fertilizing, mulching, composting, soil retention blankets, and sodding.

610.02 MATERIALS (ROADSIDE REVEGETATION)

Page 305

1-12-12

Add the following item to the list of materials under the first paragraph (that begins with "Furnish materials..."):

Compost.....713.13

610.03.1 TOPSOILING

Page 305

3-12-09

Rescind the title of 610.03.1 and replace with the following title:

610.03.1 Furnished Topsoil

Rescind the first sentence of the first paragraph (which begins with "Furnish topsoil and...") and replace with the following sentence:

When Topsoil is a bid item, furnish topsoil and notify the Project Manager of the proposed topsoil source(s) as soon as possible after the contract award.

610.03.2 (A) GENERAL (SEEDING, FERTILIZING, AND MULCHING) Page 305 1-12-12

Within the second paragraph, rescind the second sentence (that begins "Fertilizing, ...") and replace with the following:

Fertilizing, mulching, composting, permanent erosion control blanket placement and seeding are specified in the contract.

Add the following paragraph after the last paragraph (that begins with "Seed all disturbed ...")

After all condition seedbed surface, seeding, and fertilizing work is complete, remove and dispose of any oversize material that protrudes 4-inches (100 mm) or more above the conditioned seedbed surface

610.03.2 (B) SEEDING SEASON (SEEDING, FERTILIZING, AND MULCHING) Page 305 1-12-12

Rescind 610.03.2 (B) and replace with the following:

B. Seeding Season. The seeding season is October 1 through May 15. Obtain the Department Reclamation Specialist's approval to seed outside this period.

610.03.2 (D) SEED DISTRIBUTION (SEEDING, FERTILIZING, AND MULCHING) Page 306 1-12-12

Rescind the first sentence of Subsection 610.03.2 (D)(2) (that begins "Drill seed slopes...") and replace with the following:

Drill seed Area 1 and Area 3 using equipment that regulates the seed application rate and planting depth.

Rescind part (3) "Dry Broadcast Seeding" and replace with the following:

3. Dry Broadcast Seeding. Hand seeding or mechanical seeding of Area 2 is preferred for all areas where drill seeding is not possible or practical. These areas include narrow medians, or areas too small to effectively operate drill seeding equipment.

Rescind the first sentence of part (4) (that begins "Hydraulic seeding...") and replace with the following:

Hydraulic seeding is permissible for Area 2 only if broadcast seeding is not possible due to steep slopes or unstable footing. Do not use hydraulic seeding without the Project Manager's prior approval.

Rescind part (4)(b) (that begins "b. Apply the remaining...") and replace with the following:

b. Apply the remaining mulch, and/or compost, along with fertilizer, if specified. See Subsection 610.03.2(F)(5).

610.03.2 (G) COMPOSTING (SEEDING, FERTILIZING, AND MULCHING) Page 307 1-12-12

Add Subsection 610.03.2 (G) Composting:

G. Composting. Use the compost type specified in the contract. Apply the compost at the rate, method and sequence specified in the contract.

610.04.1 TOPSOIL Page 308 3-12-09

Rescind 610.04.1 and replace with the following:

Topsoil is measured by the cubic yard (cubic meter) of loose material level with the haul vehicle box at the point of use on the project. Strike or level loads when directed. All costs for obtaining and furnishing topsoil are incidental and are not measured separately for payment. Include these costs in the unit bid price for Topsoil.

610.04.4 CONDITION SEEDBED SURFACE Page 308 7-3-08

Add the following after the first paragraph:

Removal of oversized material from the conditioned seedbed surface is not measured separately for payment.

610.04.8 COMPOSTING (METHOD OF MEASUREMENT) Page 309 1-12-12

Add Subsection 610.04.8 Composting:

610.04.8 Composting
Composting is measured by the acre (hectare).

610.05 BASIS OF PAYMENT (ROADSIDE REVEGETATION) Page 309 1-12-12

Add the following "Pay Item" and "Pay Unit" to the line items:

<u>Pay Item</u>	<u>Pay Unit</u>
Compost	Acre (hectare)

Add the following after the "Pay Item" and "Pay Unit" line items:

Include the cost of removing oversize material from the conditioned seedbed surface in the cost of Topsoil-Salvaging and Placing, or Topsoil (furnished), whichever is applicable.

611.02.2 STEEL (CATTLE GUARDS) Page 311 10-7-10

Rescind the second paragraph (that begins with "Furnish low-alloy...") and replace with the following:

Furnish low-alloy weldable steel meeting AASHTO M 270 Grade 36 (250 MPa) or ASTM A 572 (A 572M), Grade 42 (290 MPa) requirements for crossbars.

611.02.3 PAINT (CATTLE GUARDS) Page 311 12-27-07

Delete the Subsection requirements and replace with the following:

Shop (Prime Coat)	710.02(B)(6)
Aluminum Paint (Finish Coat)	710.02(B)(1)

612.01 DESCRIPTION (PAINTS AND PAINTING) Page 313 2-19-09

Rescind the first paragraph (that begins with "This work is ...") and replace with the following:

This work is the surface preparation, furnishing and applying the paint or powder coating, and protecting the paint and powder coatings, pedestrians, vehicular or other traffic upon or under the surface being painted or coated.

612.02 MATERIALS (PAINTS AND PAINTING) Page 313 2-19-09

Add the following paragraph at the end of the first paragraph (that begins with "Furnish Materials meeting...")

Coat powder coated items with a TGIC Polyester powder

612.03.6 APPLICATION OF POWDER COAT Page 317 2-19-09

Add the following Subsection:

612.03.6 Application of Powder Coat

- A. Surface Preparation. Prepare surfaces to be powder coated following the powder manufacturer's recommendations.
- B. Application of Coating Material. Apply the coating as specified by the powder manufacturer, following all recommendations for metal preparation, coating procedures, and cure of the coating.
- C. Handling of Coated Material. Handle coated materials to prevent damage or contamination and to limit required touchup or repair.
- D. Sampling and Testing. The Department may accept the coating on the basis of a Certification of Compliance or through inspection of the application and the finished coatings at the applicator's plant. The Department may sample and test any or all materials at any time.
- E. Damage and Repair. The Project Manager will determine if damaged items may be repaired or if the item will be rejected. Follow the manufacturer's procedures for maintenance and touchup repair due to handling and installation. Ensure at least one pound, or an equivalent prepackaged unit, of patching material compatible with the coating is on site for repairs to the coating damaged by handling. The patching material may be a liquid, which hardens to a solid on curing.

612.04 METHOD OF MEASUREMENT Page 317 2-19-09

Rescind the first paragraph (that begins with "Paints and painting ...") and replace with the following:

Paints, painting, and powder coating are incidental to the items being painted or coated and are not measured separately.

612.05 BASIS OF PAYMENT Page 318 2-19-09

Rescind the first paragraph (that begins with "Paints and painting ...") and replace with the following:

Paints, painting, and coating are not paid for separately but are included in the cost of the item painted and includes all materials and resources necessary to complete the work.

614.02 MATERIALS (RETAINING WALLS) Page 323 12-27-07

Delete the Subsection requirement for Metal Bin-Type Retaining Walls and replace with the following:

Metal Bin-Type Retaining Walls 711.17

617.03.1 GENERAL (CONSTRUCTION REQUIREMENTS) Page 331 9-9-10

Rescind the seventh paragraph (that begins with "Pay all fees...") and replace with the following paragraph:

Pay all fees and energy costs used for Contractor operations. The Department will pay the energy costs to operate signals and lighting used by the public.

617.04.2 TRAFFIC SIGNALS AND LIGHTING Page 336 12-27-07

Add the following to the list of bullet items under number 4:

- Overheight Detector

617.05 BASIS OF PAYMENT (TRAFFIC SIGNALS AND LIGHTING) Page 336 12-27-07

Add the following under the list of Pay Items and Pay Units:

Overheight Detector Each

Rescind Section 618 and replace with the following:

SECTION 618
TRAFFIC CONTROL

618.01 DESCRIPTION

This work is the furnishing, installing, and maintaining of traffic signs, barricades, lights, signals, pavement markings, and other specified traffic control devices. It includes flagging and pilot car operation and furnishing and applying water for dust control.

618.02 MATERIALS

Furnish materials meeting the contract, the MUTCD, and the following Subsection requirements:

Reflective Sheeting.....	704.01.10
Letters, Symbols and Accessories.....	704.01.11
Temporary Pavement Marking Tape	714.01
Temporary Pavement Marking Tabs.....	714.02
Preformed Plastic Pavement Markings.....	714.03
Temporary and Interim Traffic Paint	714.04
Signs and Channelizing Devices	715.01
Portable Sign Support Assemblies	715.02
Advance Warning Arrow Panels	715.03
Warning Lights.....	715.04
Flagger Ahead Warning Signs.....	715.05

Provide work zone traffic control devices that meet the National Cooperative Highway Research Council test Report 350 (NCHRP 350) or the AASHTO Manual for Assessing Safety Hardware (MASH) crash test requirements.

618.03 CONSTRUCTION REQUIREMENTS

618.03.1 Purpose and Prosecution of Work Zone Traffic Control

Schedule construction and provide work zone traffic control to accomplish the following:

1. Provide the protection, safety, and convenience for motorists, bicyclists, pedestrians, and other roadway users;
2. Ensure the protection and safety of construction personnel;
3. Advance the project work in the most beneficial manner to the public. and
4. Provide mobility for highway users.

Provide work zone traffic control for all construction activities on the roadway and within the clear construction zone and other specified areas. The construction clear zone is the area within 30 feet (9.2 m) of the edge of a traffic lane.

Furnish work zone traffic control meeting the contract requirements, the MUTCD, and the approved traffic control plan.

618.03.2 Traffic Control Plan

The Detailed Drawings and the Manual of Uniform Traffic Control Devices provide traffic control requirements for the contract.

A. Traffic Control Plan Requirements. Furnish a traffic control plan addressing the proposed operations to take place a minimum of 2 weeks prior to beginning the associated construction activities. Address contingencies in the submitted plan. Deviations or modifications from the submitted traffic control plan may be made to address field conditions if approved by the Project Manager. Limit inconvenience to the traveling public as much as practicable and account for the safety of both the traveling public and project personnel. The Detailed Traffic Control Plan for the proposed activities must consist of the following:

1. Contract Specific Drawings. Provide contract specific traffic control drawings that include proposed traffic control configurations. Provide drawings with the same level of detail as in the MUTCD and the Detailed Drawings. Identify the type and location of work zone traffic control devices proposed for use.
2. Special Features. Identify the location and purpose of proposed flaggers, temporary signals, pilot car use, business access signs, authorized vehicle median crossings, temporary median crossings, interchanges, interstate crossovers and detours. Detours not identified in the contract are subject to the approval of the Project Manager.
3. Sequencing Details. Provide details for each phase in the sequence of operations and for each type of construction operation. At a minimum, include details for earthwork operations, gravel placement, paving,

- seal and cover, striping, bridge work, detours, permanent sign installation, guardrail work, temporary blunt end protection, temporary access breaks, equipment crossings, and any other work within the clear zone.
4. Continuous Traffic. Provide details that ensure the continuous flow of traffic through the work zone. Do not stop traffic in both directions at the same time unless approved by the Project Manager. Identify measures to provide suitable passage of mail delivery and scheduled school bus runs within the project limits. Address traffic control measures for peak travel times on urban projects, signal replacements, and increased traffic due to public events on or near the project.
 5. Off-highway Vehicle Separation. Identify proposed measures and devices to keep articulated trucks, scrapers, and other off-highway vehicles (OHV) separated from traffic. Separate OHV's from traffic by means of separate haul roads.

Do not operate OHV's faster than 35 mph or the speed limit signed for the traveling public, whichever is lower. If any OHV operator violates this requirement or drives in an unsafe or erratic manner, upon written notice by the Project Manager, this driver must be removed from the project as an OHV operator.

If a separate haul road is not physically possible, submit an alternate plan to the Project Manager for approval. In order to be considered, the plan must meet the following requirements at a minimum:

 - The traveling public has the right-of-way.
 - When an OHV approaches vehicles, the OHV must come to a complete stop until all of the vehicles pass, including traffic lines led by pilot cars.
 - The OHV's are equipped with a back-up alarm, back-up camera, and warning light.
 6. Emergency Vehicles/Situations. Identify proposed measures to manage traffic delays due to incidents within the project limits and to accommodate emergency vehicles into and through the project limits.
 7. Pedestrian Traffic Control. Identify proposed measures and routes to maintain pedestrian traffic control if there are any pedestrian facilities within the project limits. Provide ADA compliant temporary measures for pedestrian facilities at all times. Do not close pedestrian routes without Project Manager approval. If closures of pedestrian routes are required, identify the proposed measures to warn, direct, and guide pedestrian traffic.
 8. NCHRP 350 or MASH Certification. Provide certification that each type of traffic control device to be used on the project meets NCHRP 350 or MASH requirements.
 9. Written Narrative. Provide a written narrative that details the proposed traffic control configuration for the project's construction operations. The written narrative must consist of the following:
 - a. Supporting details and explanation for the traffic control configuration proposals.
 - b. Detailed descriptions of the proposed traffic control for each separate operation of work.
 - c. A description of the construction sequence of operations and how the traffic control plan will accommodate each sequence. Ensure that the traffic control sequence of operations corresponds with the project schedule as described in Subsections 108.03.2 and 108.03.3.
 - d. Schedule of maintenance of traffic control devices.
- B. Traffic Control Plan Updates. Submit an updated traffic control plan that represents proposed activities. If the traffic control plan previously provided to the Project Manager is current and changes to traffic control operations are not anticipated, provide written notification to the Project Manager of this information. Failure to submit an updated traffic control plan on time and in the manner required renders the traffic control plan unacceptable. Submit updates to the traffic control plan to the Project Manager at the following times:
1. On the 1st of each month for projects located in the Billings, Glendive, or Great Falls districts. On the 15th of each month for projects located in the Butte or Missoula districts.
 2. When changes to the original construction operation plan requires a change to the traffic control plan. Coordinate the revision of the traffic control plan with the submission of the project schedule updates per Subsections 108.03.2 and 108.03.3. If the traffic control is not proceeding consistent with the Contractor's most recent traffic control plan, the Project Manager may require that the Contractor submit an updated traffic control plan that accurately reflects the Contractor's construction operations. If a required updated traffic control plan is not received or operations are not being conducted as per the current traffic control plan, the Project Manager may issue a project shut down order. Submit an updated traffic control plan prior to continuing work. Shut down orders due to the failure to meet traffic control requirements will not be considered as justification for additional compensation or contract time.

618.03.3 Traffic Control Conference

Attend a work zone traffic control conference organized by the Project Manager before starting work that alters the public's use of any roadway. The provisions for traffic control proposed for each stage of construction will be reviewed.

618.03.4 Traffic Control Reviews

Designate personnel to be responsible for traffic control work and its continuous surveillance. The designees must be available 24 hours a day to respond to calls concerning damage to traffic control devices from any cause. Provide the names and telephone numbers of the persons responsible for the surveillance.

The Project Manager and the designees will conduct periodic reviews of the traffic control throughout the work to insure compliance with the traffic control plan. The reviews will be conducted at night, during adverse weather conditions, when construction work is active and inactive, and at other times as necessary.

618.03.5 Traffic Control General Requirements

Meet all traffic control plan requirements before starting work affecting the roadway. Use devices that are new or like new in condition.

Properly maintain, clean, and operate devices when in use. Immediately remove the devices when they are no longer applicable to the work.

Install traffic control devices in accordance with manufacturer's recommendations or instructions.

Immediately remove or cover the sign face of non-applicable signs. Use coverings that are opaque, non-reflective, and securely fastened to eliminate visibility of the sign face. Cover signs with shapes having a specific meaning, such as STOP and YIELD, from both sides in a manner that masks the shape. Use materials of sufficient durability to resist deterioration due to weathering and atmospheric conditions. Do not use tape, paper, garbage bags, or cardboard for the covering. Do not rotate signs.

Remove portable traffic control devices when not in use.

Immediately remove existing signs and other traffic control devices on the present traveled way or on connecting state or federal routes to be abandoned when they no longer apply. Assure roadways are always appropriately signed. Turn removed signs over to the Department.

Provide functional traffic lanes with signing and channelizing appropriate to the roadway condition at the close of each work day.

Provide the traffic an un-obscured view of the traffic control devices at all times.

Store or park construction equipment, vehicles, materials, and debris at least 10 feet (3 m) behind guardrail or outside the clear zone. When this is impractical, use approved warning devices and protective measures to delineate the item. Only equipment and materials for immediate use or incorporation into the work may be placed within the clear zone.

Store unused traffic control devices outside the clear zone.

Contractor furnished traffic control devices are the Contractor's property. Traffic control devices furnished by the Department or installed on a force account basis are the Department's property.

Repair or replace all damaged traffic control devices at Contractor expense.

If the Contractor fails to provide the required traffic control, the Project Manager will provide the work and deduct the costs from monies due or that may become due the Contractor.

618.03.6 Access Breaks

Submit a written proposal on the "Request for Access Break Approval" form, available from the Project Manager, for temporary breaks in Interstate access control or right-of-way fences for approval. See the form for access breaks requiring FHWA approval. Include all information requested on the form. Interstate access breaks used for non-interstate contracts are prohibited.

Provide a written narrative that describes how the traffic control plan addresses traffic safety and minimizes delay to the mainline traffic. Ensure the plan meets the MUTCD and the departments Detailed Drawings requirements.

Do not begin work on the access break until the Department has returned an approved proposal. Obtain the Project Manager's approval for all modifications to the original plan and submit the changes in writing. Excluding traffic control, assume all costs associated with construction, maintenance, removal of the access break, and restoration of the area once the access break is removed.

618.03.7 Crossing, Entering, and Using Roadways

- A. General. Construct temporary approaches and crossings with 10:1 side slopes and include drainage provisions.

Remove all temporary approaches and median crossings once the work is complete. Restore and re-seed disturbed areas.

Do not use areas within the right-of-way as borrow sources or disposal areas for the construction or restoration of temporary approaches.

Provide the means and traffic control devices to allow safe crossings whenever articulated trucks, scrapers, and other off-highway vehicles are crossing the roadway being used by traffic as included in the traffic control plan and approved by the Project Manager in advance of operations. Operate registered and licensed hauling units, such as dump trucks, belly dumps, side dumps, etc. with the flow of traffic. Do not operate any hauling units on roadway shoulders.

- B. Controlled Access and Multiple-lane Roadways. Use frontage roads and interchanges for equipment access to controlled access highways whenever possible.

Do not stop the general traffic on one-way roadways for the convenience of haul units without Department approval. Use interchanges or a series of appropriate lane closures at authorized vehicle median crossings or temporary median crossings for haul-unit operations on one-way roadways.

Haul unit turning movements are restricted to right-turn movements only when there is access to the project by frontage roads or where left-turn movements by hauling units would pose a hazard to the traveling public.

The use of authorized vehicle median crossings or temporary median crossings will not be allowed unless stated in the contract. If the construction of temporary median crossings is allowed as part of the contract, their use will be subject to all requirements of Section 618.

Submit an updated Traffic Control Plan detailing the use of authorized vehicle median crossings or the construction of temporary median crossings, including the following:

1. The distance between any two median crossings, including interchanges, authorized vehicle median crossings, and temporary median crossings must be at least 2 miles (3.2 km) unless a shorter distance is approved by the Department.
 2. Median crossings must be at least 1,000 feet (305 m) from structures and have a minimum 1,500 feet (458 m) of sight distance at 3.5 feet (1.1 m) above the pavement.
 3. Sign median crossings as specified in the contract.
 4. When not in use, protect crossings through median barriers by one of the following methods:
 - a. Place an approved impact attenuator at each end of the barrier opening.
 - b. Close the inside lanes to traffic with a controlled lane closure.
 - c. Close the opening by replacing and pinning the median barrier.
- C. Two-lane Roadways. Always provide at least one functional lane for traffic. Meet Table 618-1 requirements.

TABLE 618-1
TRAFFIC CONTROL REQUIREMENTS FOR HAULING
UNITS ENTERING OR CROSSING 2-LANE ROADWAYS

ADT/LOAD FREQUENCY	TRAFFIC CONTROL REQUIREMENT
Less than 2000 ADT	Stop hauling units for traffic
2000 to 5000 ADT/ Less than 50 loads per shift	Stop hauling units for traffic
2000 to 5000 ADT/ More than 50 loads per shift	Provide flaggers to control traffic
More than 5000 ADT	Provide flaggers to control traffic

Limit the number of locations at which flagging is provided at roadway crossings, entrances or exits to:

1. One location per material source or plant site entrance or exit; or
2. Roadway crossings approved by the Project Manager in the Traffic Control Plan.

The Project Manager may adjust the ADT or load frequency at which flagging is required in Table 618-1. The Project Manager may add or reduce flagging locations to ensure the safety and mobility of the traveling public and workers within the construction limits.

Where flaggers are not required by Table 618-1, the Contractor may use flaggers and traffic control, with Project Manager approval, at the Contractor's expense.

618.03.8 Traffic Control at Drop-off Areas

When existing slopes are 3:1 or flatter, temporarily fill constructed drop-offs within 30 feet (9.2 m) of the edge of travel lanes used by traffic to a 3:1 slope or flatter at the close of work each day. Furnish and install, at Contractor expense, traffic control devices for slopes not temporarily filled to a 3:1 or flatter.

When existing slopes are steeper than 3:1, temporarily fill constructed drop-offs within 30 feet (9.2 m) of the edge of travel lanes used by traffic that matches or is flatter than the existing slope at the close of work each day. Furnish and install at Contractor expense, traffic control devices for slopes not temporarily filled to match, or that are steeper than the existing slope.

Temporary filling of drop-offs protected by positive barriers is not required.

Determine device spacing using the following formula:

$$\text{Factor in Feet (meters)} = \frac{(A \times C \times W)}{(S \times D)}$$

Where:

- A = Average Daily Traffic Adjustment
- C = Degree of Curvature (metric radius factor)
- W = Recoverable Width, 4:1 or flatter, in feet (meters) from the drop-off to the far edge of the adjacent traffic lane(s) with the same direction of traffic
- S = Posted Speed in MPH (km/h)
- D = Average Drop-off Depth in inches (mm)

Use the C factors in Table 618-2 for drop-offs outside of horizontal curves.

TABLE 618-2
C - FACTORS FOR DROP-OFFS ON THE OUTSIDE OF HORIZONTAL CURVES

DEGREE OF CURVE (ENGLISH RADIUS)	C	METRIC RADIUS	C
Less than 2 (2,865 ft)	5800	Greater than 900m	241,000
2 to less than 4 (2,865 ft to less than 1,433 ft)	5200	900m to more than 450m	218,000
4 to less than 6 (1,433 ft to less than 955 ft)	4900	450m to more than 300m	203,000
6 or greater (955 ft or greater)	4500	300m or less	188,00

Use the C - factor for curves with a degree of curve less than 2 (greater than 900 m) for drop-offs on the inside of horizontal curves.

Use the Average Daily Traffic (ADT) adjustment from Table 618-3.

TABLE 618-3
AVERAGE DAILY TRAFFIC ADJUSTMENT FACTOR

ADT	A
Under 750	1.50
750 - 1499	1.30
1500 - 5999	1.00
Over 6000	0.90

Round the computed spacing to the nearest 10 feet (3 m).

Use Table 618-4 to determine the device type using the spacing factor.

TABLE 618-4
TRAFFIC CONTROL DEVICE BASED ON SPACING FACTOR

SPACING FACTOR	DEVICE TYPE
400 feet (122 m) or greater	Flexible guideposts or standard delineators
40 FEET (12 M) TO 390 FEET (119 M)	Type 2 object marker
20 feet (6 m) to 30 feet (9 m)	Type C steady burn warning lights on alternate panels
Less than 20 feet (6 m)	Positive barrier, if 48 hours will lapse before filling

Space devices at the spacing factor. If the recoverable width (W) is less than 14 feet (4 m), do not exceed spacing in feet (m) that is double the posted speed in miles per hour.

Do not space Type 2 object markers less than 40 feet (12 m).

618.03.9 Traffic Control for Paving and Milling Operations

Provide flaggers at paving and milling machines. Locate the flagger 100 feet to 150 feet (30 m to 46 m) upstream from the machines.

Meet the following requirements for night paving operations:

- A. Place a 48-inch x 48-inch (1,220 mm x 1,220 mm) "NIGHT PAVING AHEAD" warning sign in advance of each warning sign series.
- B. Assure all personnel working on or adjacent to traveled lanes are wearing reflectorized vests or reflectorized exterior clothing. The reflectorized area must be at least 50 square inches (32,260 square mm) of material visible from any direction.

618.03.10 Reserved

618.03.11 Traffic Control for Seal Coat Operations

- A. Two-lane Two-way and Multiple-lane Two-way Roadways. Place "LOOSE GRAVEL" (W8-7), "DO NOT PASS" (R4-1), and "SPEED LIMIT 35" (R2-1) signs, at the beginning of each work zone. Place the same sign combination for each direction of travel at 2-mile (3.2 km) intervals within the work zone. Remove "LOOSE GRAVEL" (W8-7) signs once loose cover material is swept. Leave remaining signs in place until pavement markings within the zone are completed.

Control traffic with pilot cars until sweeping is completed for a maximum of 72 hours. The 72-hour period associated with pilot car use for each section begins once the seal and cover has been placed and rolling is complete. For this work, a section is defined as the area of seal coat completed in each day of production.

Traffic control beyond 72 hours, unless ordered by the Project Manager, is at Contractor expense.

Provide a roadway free of loose cover material. In curb and gutter sections, remove and dispose of all loose cover material. Correct surface irregularities affecting the ride quality at Contractor's expense. Remove all loose cover material before terminating pilot car use. If pavement markings are not placed within 72 hours of completion of the seal coat work, the Department will have the work performed and deduct the costs from monies due the Contractor.

Apply final pavement markings as specified elsewhere in the contract.

- B. Interstate Highways. Use lane closures and lane control devices for seal and cover operations on Interstate highways. Do not use pilot cars unless approved by the Project Manager.

Place "LOOSE GRAVEL" (W8-7) and "SPEED LIMIT 45" (R2-1) signs at the beginning of each work zone. Sign both sides of the roadway. Place the same sign combination at 2-mile (3.2 km) intervals within the work zone. Remove "LOOSE GRAVEL" (W8-7) signs once loose cover material is swept.

Remove all loose cover material and place pavement markings (centerline and edge lines) within 72 hours of seal coat completion. If pavement markings are not placed within 72 hours of completion of the seal coat work, the Department will have the work performed and deduct the costs from monies due the Contractor. Apply final pavement markings as specified elsewhere in the contract.

Provide a roadway free of loose cover material. In curb and gutter sections, remove and dispose of all loose cover material. Correct surface irregularities affecting the ride quality at Contractor expense.

Traffic control beyond 72 hours, unless ordered by the Project Manager, is at Contractor expense.

618.03.12 Traffic Control for Striping Operations

Provide the following traffic control for striping operations not performed under closed lane or pilot car situations.

1. Furnish and operate a shadow vehicle equipped with a truck-mounted attenuator meeting the requirements of Subsection 618.02 conforming to appropriate test levels. Position the truck to follow within 150 feet to 1,000 feet (45 m to 305 m) on pavement marking removal and application. When placing or removing traffic cones that protect the pavement markings, use a vehicle with a truck-mounted attenuator or follow with a shadow vehicle possessing a truck-mounted attenuator.
2. Equip shadow vehicles with an arrow board facing rear-approaching traffic.
 - a. On multiple-lane roadways, place the arrow board display in lane shift mode (sequential arrow mode).
 - b. On two-lane two-way roadways, place the arrow board in a hazard warning mode not displaying the lane-shift mode
3. If peak hours are specified in the contract, provide the Project Manager a schedule of striping operations at least 48 hours prior to striping. Perform striping operations during off-peak hours in order to minimize impacts to the traveling public unless approved differently by the Project Manager.
4. Include all costs associated with this work in the striping bid item.
5. If requested by the Project Manager, provide a written narrative identifying the proposed traffic control devices to be used for striping operations. If the Contractor and Project Manager agree that additional traffic control devices not listed in items 1 through 3 are warranted; the additional traffic control devices will be measured and paid in accordance with Subsection 618.04 and 618.05.

Failure to properly notify the Project Manager or provide adequate traffic control renders the striping operation unacceptable and unauthorized. Unacceptable or unauthorized work will be addressed in accordance with Subsection 105.12.

618.03.13 Traffic Control Device Location and Installation

Lay out the standard distances for traffic control devices to within an accuracy of plus or minus 5 percent. The Project Manager may direct adjustments to the device locations to fit site conditions.

Display all signs with the legend not more than 5 degrees (1 inch per foot) (25 mm per 305 mm) from the horizontal plane.

Display the signs at the required mounting height with the hinged signs closed or non-hinged signs removed when not applicable.

Do not locate signs on portable sign support assemblies less than 3.0 feet (0.91 m) from the edge of the traveled way to the closest part of the assembly without prior Department approval. The bottom of the sign must be at least 2.7 feet (0.82 m) above the shoulder of the travelled way.

Use only one type of reflective sheeting in each sequence or group of signs or devices.

Stabilize sign trailers to prevent movement by wind or passing vehicles.

Mount work zone traffic control signs to posts when they are to remain at the same location for more than three consecutive days. Trailer-mounted W20-7a (flagger ahead) signs with generators are excluded from this requirement.

Assure the G20-1 ("ROAD WORK NEXT (X) MILES) and G20-2 (END ROAD WORK) signs do not conflict with other construction signing. Remove these signs when directed.

Install work zone traffic control devices sequentially toward the work area beginning with the device located farthest from the work area. Remove sequentially in the opposite direction.

Use arrow boards in the sequential or flashing-arrow mode to supplement channelizing devices and standard signing when one or more lanes of a multiple-lane roadway are closed.

Do not use arrow boards in the sequential or flashing-arrow mode for lane closures or at flag stations on two-lane two-way roadways.

Do not use flexible guide posts in place of the specified hazard identification devices for shoulder drop-offs or other hazards adjacent to the travel lanes. Refer to Subsection 618.03.8.

Flexible reflectorized warning signs are acceptable for daylight hour use.

Do not use traffic cones for channelization devices.

Do not use steel barrels for work zone traffic control.

Ensure that construction zone and work zone speed limits signs comply with the desired minimum speed limit values in Table 618-5. The Project Manager may direct adjustments to the speed limits or device locations to fit the conditions.

Submit a written recommendation if the Contractor's proposed limits differ from those in Table 618-5. Give the locations and reasons for limits differing from those provided in Table 618-5. Reasons should be based upon the conditions of the roadway and the ability of traffic to flow safely and uniformly through the construction zone or activity area. The Project Manager will provide a written response to the recommendation, detailing the speed limit signs to be used.

TABLE 618-5
TRAFFIC CONTROL SPEED LIMITS IN CONSTRUCTION ZONES

SPEED LIMIT	ACTIVITY DESCRIPTION
Normal Limit	Construction activities are 30 feet (9.2 m) beyond the edge of the traveled way and construction vehicles are not crossing the traveled way.
65 mph	Two way traffic on Interstates.
45 mph	Two and four-lane roadways with construction activity adjacent to roadway but not encroaching on the roadway surface (shoulders and driving lanes).
35 mph	Seal and cover for two-lane two-way and multiple-lane two-way roadways.
35 mph	Four-lane roadways with construction activity in one lane or two-lane roadways with activity on the shoulders (only applies within construction activity areas).
45 mph	Seal and cover for Interstate.
35 mph	Paved roadways with a short temporary detour over a gravel surface. This speed limit only applies within detour areas. The design speed of the detour geometrics should be at least 35 mph.
35 mph	In advance of flagging stations.
25 mph	Two or four-lane roadways in an urban area with construction activity in a lane.
25 mph	Survey crew activity when survey crew has to occupy a portion of the traveled way.
35 mph	Survey crew activity requires occupying a portion of the shoulder. This speed limit only applies within the survey activity areas.
Normal Limit	Survey crew activities are not on the highway or parking shoulder.

618.03.14 Flagging Operations

Provide flaggers that are currently certified by the Montana flagger training program, the ATSSA flagger program, or Idaho, Oregon, or Washington state flagger training programs. Flaggers are required to carry proof of flagger certification and present to the Project Manager when requested.

Provide flaggers that are competent and equipped as required in the Department's booklet "Flaggers Handbook" furnished by the Department.

Maintain constant radio contact between flaggers at each end of a work zone and pilot vehicles when visual contact is not possible. Use two-way V.H.F. or U.H.F. FM radios, operable in the terrain.

Place the W20-7a (flagger ahead) warning sign signals so they are visible 2,000 feet (610 m) in advance of the sign. Place and operate the sign only when a flagger is at the flag station.

Use reflectorized flagger devices and garments for night work. Furnish lighting that makes the flaggers clearly visible from 500 feet (153 m).

Provide a second flagger when more than 10 vehicles are stopped at a flag station 50 percent of the time to advise traffic of the delay. Place an additional W20-7a sign 500 feet to 1,000 feet (153 m to 305 m) ahead of the average end of the stopped vehicle line.

618.03.15 Pilot Car Operations

Use pilot cars as specified. Equip the cars with amber flashing lights, flags, and the G20-4 sign designated in Part VI of the MUTCD. Mount the sign in a conspicuous position on the vehicle with the bottom sign edge at least 6 feet (1.8 m) above the ground.

Schedule and cycle pilot vehicles to depart each flag station at maximum 15-minute intervals.

618.03.16 Water for Dust Control

Furnish, haul, and apply dust control of water using tank trucks equipped with spray systems that uniformly distributes the water over the application area. Discontinue watering as directed.

618.04 METHOD OF MEASUREMENT

The contract quantities for traffic control devices, temporary pavement markings, flagging, and pilot car operation are an estimate only and may vary from the actual quantities used or required in the contract. No additional compensation is considered or allowed due to these quantity differences.

Signs and devices must meet standards outlined in the current ATSSA "Quality Guidelines for Temporary Traffic Control Devices" to be measured for payment. Failure to adequately maintain and clean traffic control devices in use renders the traffic control operation unacceptable. The Department may withhold 10 percent of each monthly progress estimate for failure to adequately maintain and clean traffic control devices. Payment withheld for failure to adequately maintain and clean traffic control devices will be included in the next progress estimate following acceptable corrective actions.

Failure to submit an updated traffic control plan on time and in the manner required renders the traffic control plan unacceptable. The Department may withhold 10 percent of each monthly progress estimate for failure to submit an updated traffic control plan on time and in the manner required. Payment withheld for violation of the traffic control plan requirements will be included in the next progress estimate following the Contractor's submission and the Project Manager's approval of the updated traffic control plan.

Providing the traffic control plan is incidental to and included in payment for the traffic control bid item.

618.04.1 Traffic Control - Units

Traffic control devices are measured by the units of traffic control devices used and accepted. A unit of traffic control device is the base value used for establishing the relative value of each type of traffic control device. The relative value of each traffic control device in units is shown in the "Traffic Control Rate Schedule."

618.04.2 Traffic Control - Lump Sum

Traffic control is measured by the Lump Sum. Provide a written request for compensation resulting from a change in scope of work, differing site conditions or additional work. Quantities approved by any requested change will be measured by the units of traffic control devices used and accepted.

618.04.3 Flagging

Flagging is measured by the hour for the actual number of approved flagging hours provided on the project for each flagger used.

Travel time for flaggers to and from the project is not measured for payment.

618.04.4 Pilot Car Operation

Pilot car operation is measured by the hour for the approved number of hours of operation for each properly equipped pilot car.

618.04.5 Vacant

618.04.6 Items Not Eligible for Separate Payment

The following items are not measured or paid for separately:

- Amber flashing or strobe lights on equipment, vehicles, and hauling units;
- Impact attenuators for median barrier openings;
- Permits and costs relating to project access;
- Construction, drainage, maintenance, removal, restoration and reseeding of areas used for temporary roads, approaches, and crossovers;

- Radios for flaggers and pilot vehicles;
- Illumination of work areas;
- Reflectorized safety equipment, garments, and headgear;
- Vehicle-mounted arrow boards on strippers and shadow vehicles;
- Replacing temporary pavement marking tabs and tape destroyed by traffic;
- Temporary pavement marking tabs used for seal coat operations;
- Costs to clean and maintain installed traffic control devices;
- Devices not properly maintained.
- Devices placed beyond 1,500 feet (458 meters) of the work termination point for that day.
- Adjustments or moving of devices that were initially installed improperly.
- Adjustments or moving of devices solely to aid contractor operations, such as temporarily relocating devices to allow equipment access.
- Additional traffic control costs resulting from corrective actions on items failing to meet contract requirements.
- Traffic Control at commercial pits; and
- Other miscellaneous materials and equipment required for proper traffic control that are not included in the "Traffic Control Rate Schedule".

618.05 BASIS OF PAYMENT

Payment for the completed and accepted quantities is made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Traffic Control	Unit
Traffic Control	Lump Sum
Temporary Pavement Markings	Mile (kilometer)

Payment at the contract unit price is full compensation for all resources necessary to complete the item of work under the contract.

618.05.1 Traffic Control - Units

Traffic control devices are paid for at the contract unit price per unit of traffic control devices. The units of each type of traffic control device paid for are calculated by multiplying the measured quantity of each device by the value per each unit shown in the traffic control rate schedule.

Payment for traffic control devices is made for each setup directed by the Project Manager.

Replacing properly installed traffic control devices destroyed by traffic is paid for at the contract unit price per unit of traffic control devices.

Payment for barricades and drums includes the required ballast.

Payment for signs mounted on barricades is made only for the original mounting.

Payment for flashing arrow boards is made only for the actual hours of operation approved by the Project Manager. Payment includes the cost of operating the trucks or trailers on which the arrow boards are mounted.

Store devices in approved staging areas with a maximum of one staging area per three-mile segment of roadway. Detail the staging areas in the traffic control plan submitted for the Project Manager's approval. All devices not stored in the approved staging areas will be paid for at category #2 payment amounts and all portable signs not stored in approved staging areas will be paid for at 50 percent of the contract unit price.

Payment for traffic control devices will be made under one of the following two categories:

1. Category #1 - Standard Installation. The initial setup for the project or a new operation, or the moving of a device, and the setup of the device requires it be loaded in a truck (vehicle) or hitched to a truck (vehicle) for moving to a new location.
2. Category #2 - Adjustments. The manual moving of a device conducted by dragging, carrying, etc. of the device required to move it to a new location of a traffic control operation. Portable signs do not fall under category 2 devices.

Payment for traffic control devices will be paid for at the rates listed in Table 618-6 according to the category and device type.

TABLE 618-6
TRAFFIC CONTROL RATES BASED ON CATEGORY AND DEVICE TYPE

CATEGORY #	DEVICE	PAYMENT AMOUNT PERCENT
1	All Category 1 Devices	100
2	Type III Barricades	25
2	All Other Category 2 Devices	50

618.05.2 Traffic Control - Lump Sum

Payment for all costs associated with performing traffic control is included in the lump sum bid for Traffic Control. Payment for quantities approved by any requested change will be in accordance with the Traffic Control Rate Schedule, and will be paid under Traffic Control - Fixed.

Partial payments for Traffic Control will be monthly based on the lump sum contract price at the rates listed in Table 618-7.

TABLE 618-7
LUMP SUM PROGRESS PAYMENTS

PROGRESS ESTIMATE PAYMENT	PERCENT OF LUMP SUM ITEM
First Partial Payment After Start of Contract Work	35
Estimate Paying 25% of Original Contract Amount	25
Estimate Paying 50% of Original Contract Amount	20
Estimate Paying 75% of Original Contract Amount	10
Final Partial Payment After Completion of Work	Remainder of Traffic Control Contract Price

620.03.2 LAYOUT OF PAVEMENT MARKINGS

Page 357

5-1-08

Rescind Subsection 620.03.2 and replace with the following:

The Project Manager will layout the final pavement marking configurations and locations. Notify the Project Manager a minimum of 10 days before striping in the permanent location is to begin.

Preserve all marking configurations and locations after the initial layout by the Department.

Apply the centerline and shoulder lines within 0.30 feet (90 mm) of the true line. Ensure the stripe does not deviate by more than 0.15 foot (50 mm) in 500 feet (152 m).

Apply all other markings (words, symbols, stop bars, crosswalks, hash marks, and others) within 0.25 feet (75 mm) of the location marked by the Project Manager.

The Project Manager will determine the accuracy of the applied markings.

Remove and replace out of specification pavement markings as directed at Contractor expense.

620.03.6 EPOXY PAVEMENT MARKINGS

Page 359

12-18-08

Rescind Subsection 620.03.6 part (A) and replace with:

A. Materials. Furnish Materials meeting Subsection 714.05 and 714.08 requirements.

Add the following sentence after the last sentence of Subsection 620.03.6 part (D) (1):

The Project Manager may extend the 45 days due to holidays or inclement weather that prevent the application of epoxy pavement markings.

Rescind the third paragraph of Subsection 620.03.6 part (D) (2) (that begins with "Apply a 20-mil ± 2 mil...") and replace with the following:

Apply a 20-mil ± 2 mil (0.508 mm ± 0.051 mm) thick wet film immediately followed by applying at least 25 lbs/gallon (3 kg/L) of Montana Type 2 glass beads to the epoxy. Apply the markings to within 1/4 inch (6 mm) of the specified width.

620.03.6 EPOXY PAVEMENT MARKINGS

Page 359

6-1-07

Rescind the third sentence of the second paragraph in part B. (that begins with "Equip the pavement-marking....") and replace with the following:

The pavement-marking machine may be equipped with a flow meter and totalizer that measures paint quantities in gallons (liters), to the nearest 0.1 gallon (0.1L).

Delete the last sentence of the third paragraph in part B. (that begins with "In the event that...").

Add the following new paragraph after the third paragraph in part B.:

Park the equipment on a level surface approved by the Project Manager for each tank measurement.

Rescind the third paragraph in part C. (that begins with "Grind all surfaces...") and replace with the following:

Grind all surfaces with existing epoxy pavement markings within 3 calendar days before applying the pavement marking.

620.03.6 EPOXY PAVEMENT MARKING Page 360 3-27-08

Add the following new sentence/paragraph in 620.03.6, part (D)(2) after the second paragraph (that begins with "Do not place materials before furnishing...")

Apply the markings to within plus or minus 0.25 inch (6 mm) of the specified width.

620.03.6 EPOXY PAVEMENT MARKING Page 361 8-26-11

Add the following new sentence/paragraph after the last paragraph in 620.03.6, Part D,2.

Apply words, symbols, letters, and/or numeral pavement markings free of gaps and fully solid.

620.03.7(H) APPLICATION (THERMOPLASTIC PAVEMENT MARKING) Page 362 6-1-06

Rescind the sixth paragraph and replace with the following:

Clean the grooves before placing the thermoplastic material. Meet the surface requirements in Subsection 620.03.7(D).

620.03.7(I) GLASS BEAD APPLICATION Page 363 6-1-06

Rescind the first paragraph (that begins with "Apply glass beads by drop-on ...") and replace with the following:

Apply glass beads by drop-on methods immediately after the thermoplastic material application meeting Subsection 620.03.7(H) requirements.

620.03.8 PAVEMENT MARKING ON CONCRETE CURBS Page 363 1-14-10

Add the following paragraph after the third paragraph (that begins with "Apply yellow pavement..."):

Apply Type 1 or Type 2 reflective glass beads at a minimum rate of 8.0 pounds per gallon (0.96 kilograms per liter) immediately following the application of epoxy to concrete curbs.

620.04.1 TEMPORARY AND INTERIM PAVEMENT MARKING QUANTITIES Page 364 3-27-08

Add the following two paragraphs after the 3rd paragraph that begins with "Only those pavement markings..."

Should the actual quantity measured by the Project Manager using tank stabs or totalizer exceed the quantity calculated, the lesser quantity will be paid for.

The quantities will be calculated using the application rate (11 mils for temporary and 17 mils for interim) times the specified width (without applying the tolerance) times the length of line applied.

620.04.2 EPOXY PAVEMENT MARKINGS

Page 364

3-27-08

Replace the 2nd paragraph that begins “Should the actual quantity ...”) and replace with the following:

Should the actual quantity measured by the Project Manager using tank stabs or totalizer exceed the quantity calculated using an application rate of 22 mils times the specified width (without applying the tolerance) times the length of line applied, the lesser quantity will be paid for.

620.04.4 PAINTED PAVEMENT MARKINGS AND CURBS

Page 364

6-1-07

Rescind the last sentence of the second paragraph (that begins with “Computerized quantity print outs...”) and replace with the following:

Computerized quantity print outs will be compared against tank stabs and the quantity calculated based on the surface area and an application rate of 22 mils.

620.05 BASIS OF PAYMENT (PAVEMENT MARKINGS)

Page 365

6-1-07

Add the following new paragraph after the fourth paragraph of Subsection 620.05.

The quantity that is paid for marking materials is the lesser of the following quantities:

- Flow meter and totalizer;
- Calibrated tank and measuring device (tank stabs); and
- Surface area times the application rate specified.

622.04 METHOD OF MEASUREMENT (GEOTEXTILE)

Page 374

5-24-12

Rescind Subsection 622.04 and replace with the following:

Geotextiles are measured by the square yard (square meter) as staked by the Project Manager, except silt fence, which is measured by the yard (meter) of fence. Seams, excavated vertical faces, and laps, including any portion of geotextile keyed into the subgrade or fill material, are not measured for payment. For subsurface drainage filter geotextile, the entire drainage trench perimeter, and the top width, is measured for payment.

623 MAILBOXES

Page 375

11-17-11

Rescind Section 623 MAILBOXES and replace with the following:

SECTION 623
MAILBOXES

623.01 DESCRIPTION

This work is the removal, temporary reset and maintenance, and furnishing and installation of new mailboxes and crash-worthy supports at the specified locations or as directed.

623.02 MATERIALS

Use mailboxes listed on the Department’s Qualified Products List (QPL) for Mailbox and Mailbox – Large. The QPL requirements and list can be found on the Department’s website. The mailbox carrier service door must be embossed with the following two statements: “U.S. MAIL” in a minimum of ½ inch (13mm) high letters and “Approved By The Postmaster General” in a minimum of 3/16 inch (4.8mm) high letters.

Provide permanent address markings on the flag side of the mailbox at least 1 inch (26mm) high and in contrasting color in neat, legible letters and numbers. If the mailboxes are grouped provide address numbers on the mailbox door.

Furnish a crashworthy mailbox support as shown in the Detailed Drawings, a mailbox support identified in the current edition of the AASHTO *Guide for Erecting Mailboxes on Highways*, or other commercially manufactured NCHRP 350 compliant crashworthy mailbox support.

Furnish a NCHRP 350 compliant crashworthy support for temporary resets of mailboxes. Do not use traffic control devices as mailbox supports.

623.03 CONSTRUCTION REQUIREMENTS

Coordinate with the US postal Service and mailbox owner prior to any activities impacting mailboxes. Reset and maintain all mailboxes specified by the project manager that are removed during construction. Temporary supports and locations must be approved by the Project Manager. Install permanent mailboxes and supports at the locations shown in the plans. Salvage existing mailboxes if requested by landowner. Dispose of non-salvaged mailboxes.

623.04 METHOD OF MEASUREMENT

Mailbox and support are measured as a unit. Removal, temporary resets, salvage, numbering, disposal, and maintenance are not measured for payment.

623.05 BASIS OF PAYMENT

Payment for the completed and accepted quantities is made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Mailbox	Each
Mailbox - Large	Each

Payment at the contract unit price is full compensation for all resources necessary to complete the item of work under the contract.

701.01.1 (B) DELETERIOUS SUBSTANCES Page 377 9-9-10

Rescind the second paragraph (that begins with "The material must...") and replace with the following paragraph:

Ensure that the material does not contain other deleterious material.

701.01.2 (B) DELETERIOUS SUBSTANCES Page 379 9-9-10

In table 703-3, Rescind and replace the fourth row under "Substance" with the following:

Thin or elongated aggregate having a length greater than five times average thickness.

Rescind the second paragraph (that begins with "The material must...") and replace with the following paragraph:

Ensure that the material does not contain other deleterious material.

701.01.2 (G) GRADING (COURSE AGGREGATE FOR CONCRETE) (TABLE 701-4) Page 380 1-12-12

In Table 701-4 rescind the measurements for Sieve Size No. 3 [No. 4 to 1 1/2" (4.75 to 37.5mm)] and replace with the following:

3/4" to 1 1/2" (19 to 37.5mm)

701.02.1 GENERAL REQUIREMENTS-(AGGREGATE FOR SURFACING) Page 380 3-12-09

Rescind the first paragraph (that begins with "The following test methods ...") and replace with the following:

- The following test methods are used to evaluate the surfacing aggregate quality:
- Sieve Analysis For Fine And Coarse Aggregate.....MT-202
 - Wear Test.....MT-209
 - Liquid Limit, Plastic Limit, Plasticity Index.....MT-208
 - Fracture.....MT-217
 - Volume Swell of Bituminous Mixtures.....MT-305
 - Sulfate Soundness.....AASHTO T-104 or ASTM C-88
 - Micro-Deval.....MT-233

Rescind the second paragraph (which begins with "Sulfate soundness will be ...") and replace with the following paragraph:

Passing wear test results are mandatory for Department approval of sources. Micro-Deval or Sulfate soundness tests may be used by the Department for source approval. If Micro-Deval is used and the test fails, the Department will conduct the sulfate soundness test. If the sulfate soundness test fails the Contractor may not use the source to produce coarse surfacing aggregate.

Add the following paragraph after the second paragraph (which begins with "Passing wear test ..."):

- Meet the following Micro-Deval requirements:
- Coarse Aggregate, 18.0 percent loss maximum for acceptance.

Rescind the first sentence of the last paragraph (which begins with "The Department has ...") and replace with the following sentence:

The Department has 30 calendar days from receipt of the test sample to furnish the test results.

Rescind Table 701-8 and replace with the following:

TABLE 701-8
TABLE OF GRADATIONS - CRUSHED BASE COURSE TYPE "A"

PERCENTAGE BY WEIGHT PASSING SQUARE MESH SIEVES		
Sieve Size	Grade 5A	Grade 6A
2 inch (50 mm)	100	
1 1/2 inch (37.5 mm)	94-100	100
3/4 inch (19.0 mm)	70-88	74-96
3/8 inch (9.5 mm)	50-70	40-76
No. 4 (4.75 mm)	34-58	24-60
No. 40 (0.425)	6-30	6-34
No. 200 (0.075)	0-8	0-8

After the second paragraph (that begins "Meet the following...") rescind part (5) and replace with the following:

5. At least 35 percent by weight of the aggregate retained on the No. 4 sieve has at least one mechanically fractured face.

701.02.7 CRUSHED TOP SURFACING TYPE "B"

Page 384

1-12-12

Rescind Table 701-11 and replace with the following:

TABLE 701-11
TABLE OF GRADATIONS - CRUSHED TOP SURFACING TYPE "B"

PERCENTAGE BY WEIGHT PASSING SQUARE MESH SIEVES			
Sieve Size	Grade 1	Grade 2	Grade 3
1 1/2 inch (37.5 mm)	100		
1 inch (25 mm)		100	
3/4 inch (19.0 mm)			100
1/2 inch (12.5 mm)			
No. 4 (4.75 mm)	40-80	40-80	40-80
No. 10 (2.00 mm)	25-60	25-60	25-60
No. 200 (0.075)	8-20	8-20	8-20

After the second paragraph (that begins "Meet the following...") rescind part (2) and replace with the following:

2. The maximum liquid limit and plasticity index for the material passing the No. 40 sieve must not exceed 35, while the plasticity index may vary from 6 to 12;

After the second paragraph (that begins "Meet the following...") rescind part (4) and replace with the following:

4. At least 35 percent by weight of the aggregate retained on the No.4 sieve must have one fractured face.

701.02.8 CRUSHED COVER AGGREGATE (COVER MATERIAL)

Page 385

7-31-08

Rescind the first sentence of requirement 1, which reads:

The material for Grades 1A through 4A must be non-plastic.

701.02.9 AGGREGATE FOR PORTLAND CEMENT TREATED BASE

Page 385

3-12-09

Rescind subtitle "Job Mix Target Limits" and replace with "Percent passing" in TABLE 701-13.

701.03.1 GENERAL REQUIREMENTS (AGGREGATE FOR BIT. MIXTURES)

Page 386

3-12-09

Rescind the first paragraph (that begins with "The following test methods ...") and replace with the following:

The following test methods will be used to evaluate the quality of aggregate to be bituminized:
 Sieve Analysis For Fine And Coarse Aggregate.....MT-202
 Wear Test.....MT-209
 Liquid Limit, Plastic Limit, Plasticity Index.....MT-208
 Fracture.....MT-217
 Volume Swell of Bituminous Mixtures.....MT-305
 Plastic Fines in Graded Aggregates..... MT-213
 Sulfate Soundness.....AASHTO T-104 or ASTM C-88
 Micro-Deval.....MT-233

Rescind the second paragraph (which begins with "Sulfate soundness will be ...") and replace with the following paragraph:

Passing wear and volume swell test results are mandatory for Department approval of bituminized material aggregate sources. Micro-Deval or Sulfate soundness tests may be used by the Department for source approval. If Micro-Deval is used and the test fails, the Department will conduct the sulfate soundness test. If the sulfate soundness test fails the Contractor may not use the source to produce coarse aggregate to be bituminized.

Add the following paragraph after the second paragraph (which begins with "Passing wear and ..."):

- Meet the following Micro-Deval requirements:
 - Coarse Aggregate, 18.0 percent loss maximum for acceptance.

Rescind the first sentence of the last paragraph (which begins with "The Department has ...") and replace with the following sentence:

The Department has 30 calendar days from receipt of the test sample to furnish the test results.

701.04.1 BEDDING MATERIAL (TABLE 701-17) Page 388 3-1-07

Rescind Table 701-17 and replace with the following:

TABLE 701-17
TABLE OF GRADATIONS - BEDDING MATERIAL

PERCENTAGE BY WEIGHT PASSING SQUARE MESH SIEVES	
Sieve Size	Percent Passing
1 1/2 inch (37.5 mm)	100
No. 4 (4.75 mm)	24-60
No. 200 (0.075 mm)	12 maximum

Delete the note (that begins with "Use minus 1 1/2-inch ...")

701.11 GLASS CULLET Page 391 1-31-08

Replace part D (that begins with "Limit the glass ...") and replace with the following:

Limit the glass cullet content to no more than 10 percent of the total blended product.

702 BITUMINOUS MATERIALS Page 393 8-26-11

Rescind Section 702 and replace with the following:

SECTION 702
BITUMINOUS MATERIALS

702.01 BITUMINOUS MATERIALS

A. Furnish bituminous materials meeting the requirements of the following tables. The MDT tables are located at the end of this Section.

Performance Graded Asphalt Binder	Table 702-2
Polymer-Modified Cationic Emulsified Asphalt	Table 702-3
Medium Curing Liquid Asphalt (MC)	Table 702-4
High Float Emulsions	Table 702-5
Emulsified Asphalt	AASHTO M 140*, Table 1
Cationic Emulsified Asphalt	AASHTO M 208*, Table 1

*Cement Mixing test does not apply when SS-1 or CSS-1 emulsion is used for spray or tack application.

Meet the requirements for bituminous materials specified in the contract.

B. Polymerize CRS-2P emulsions using at least 3 percent polymer by weight (mass) of the asphalt binder.

702.02 TESTING AND ACCEPTANCE

Bituminous materials are accepted on the test results of samples selected and tested by the Department or its authorized representative. Collect samples as specified in Subsection 402.03.2 and tested using the applicable AASHTO method. The Project Manager may permit using bituminous materials before the test results are available, if the test results of material previously furnished by the refiner have consistently been satisfactory. The use of bituminous materials before receipt of the test results as permitted by the Project Manager does not waive the Department's right to accept or reject materials under these specifications.

TABLE 702-1
BASIS FOR ACCEPTANCE OF BITUMINOUS MATERIALS

SAMPLE TESTED	SPECIFICATION LIMITS ¹		REMARKS
	Test Results Within Limits	Test Results Outside Limits	
Original Sample	Accept Material	Test Retained Sample	Retained samples may be tested by the Department at any time.
Retained Sample	Accept Material	Accept Material at Reduced Price or Reject ²	

Notes:

1. See specification for bituminous materials.
2. Pay adjustments will be applied under QA.

If test results of both the original and retained samples are not within the specification limits, the average of the two values will determine the basis for acceptance of the material.

Exception: If either of the two test values are outside the applicable ASTM Repeatability Range, then the test value numerically nearest the specification requirement will be used as the basis for acceptance. In the event a material fails more than one test requirement, that requirement with the greatest violation will determine the basis for acceptance. See Subsection 402.03.5(C) for the method of calculating price reductions.

TABLE 702-2
SPECIFICATION FOR PERFORMANCE GRADED ASPHALT BINDER¹

Average 7-day Max, °C	PG 58	PG 64	PG 64	PG 64	PG 70
1-day Min, °C	-28	-22	-28	-34	-28
Tests on Original Binder					
≥ 230 °C	Flash Point (AASHTO T 48)				
≤ 3 Pa•s @ 135 °C	Rotational Viscosity (AASHTO T 316)				
≥ 1.00 kPa	Dynamic Shear Rheometer G*/sin δ (AASHTO T 315)				
Test Temperature	58 °C	64 °C	64 °C	64 °C	70 °C
Tests on RTFO Aged Binder (AASHTO T 240)					
≤ 1.00 %	Mass Loss (AASHTO T 240)				
≥ 30 cm @ 25 °C	n/a	n/a	Ductility (AASHTO T 51) ²		
≥ 2.20 kPa	Dynamic Shear Rheometer G*/sin δ (AASHTO T 315)				
Test Temperature	58 °C	64 °C	64 °C	64 °C	70 °C
Tests on PAV Aged Binder, 20 hours, 2.07 MPa, 100 °C (AASHTO R 28)					
≤ 5000 kPa	Dynamic Shear Rheometer G* sin δ (AASHTO T 315)				
Test Temperature	19 °C	25 °C	22 °C	19 °C	25 °C
≤ 300 MPa	Bending Beam Rheometer Stiffness (AASHTO T 313)				
≥ 0.300	Bending Beam Rheometer "m" value (AASHTO T 313)				
Test Temperature	-18 °C	-12 °C	-18 °C	-24 °C	-18 °C

Notes:

1. For Performance Graded Asphalt Binders not shown in Table 702-2, refer to AASHTO M 320, Table 1.
2. Pull Rate is established at 5 cm/minute.

TABLE 702-3
LATEX OR POLYMER MODIFIED CRS-2 EMULSIFIED ASPHALT

PROPERTY	TEST METHOD	CRS-2P
Viscosity at 122 °F (50 °C), sec.	AASHTO T-59	70-400
Sieve, percent	AASHTO T-59	0.3 max.
Settlement, 5 days, percent	AASHTO T-59	5 max.
Demulsibility, percent	AASHTO T-59	40 min.
Storage Stability Test, 1 day, percent	AASHTO T-59	1 max.
Particle Charge	AASHTO T-59	Positive
Ash Content, percent	AASHTO T-111	0.2 max.
TESTS ON RESIDUE BY EVAPORATION:		
PERCENT RESIDUE ¹	AASHTO T-59	65 min.
PENETRATION, 100 G, 5 SEC. AT 77 °F (25 °C), DMM	AASHTO T-49	90-250
DUCTILITY AT 77 °F (25 °C), 5 CM PER MINUTE, CM	AASHTO T-51	75 min.
ELASTIC RECOVERY, PERCENT	AASHTO T-301	58 min.

Note:

1. AASHTO T59 Residue By Evaporation will be used to obtain samples for all residue testing requirements. AASHTO T59 is modified by deleting note 8.

TABLE 702-4
SPECIFICATION FOR MEDIUM CURING LIQUID ASPHALTS

	MC-30		MC-70		MC-250		MC-800		MC-3000	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Kinematic Viscosity at 140 °F (60 °C), centistokes ¹	30	60	70	140	250	500	800	1600	3000	6000
Flash Point (tag, open-cup), °F (°C)	100 (38)	—	100 (38)	—	150 (66)	—	150 (66)	—	150 (66)	—
Water, percent	—	0.2	—	0.2	—	0.2	—	0.2	—	0.2
Distillation Test: Distillate, percentage by volume of total distillate to 680 °F (360 °C) to 437 °F (225 °C) to 500 °F (260 °C) to 600 °F (315 °C)	—	25	0	20	0	10	—	—	—	—
	40	70	20	60	15	55	0	35	0	15
	75	93	65	90	60	87	45	80	15	75
Residue from distillation to 680 °F (360 °C) volume percentage of sample by difference	50	—	55	—	67	—	75	—	80	—
Tests on residue from distillation: Penetration, 100 g, 5 sec. at 77 °F (25 °C), dmm Ductility, 5 cm/min, cm ² Solubility, percent	120	250	120	250	120	250	120	250	120	250
	100	—	100	—	100	—	100	—	100	—
	99	—	99	—	99	—	99	—	99	—
SPOT TEST	NEGATIVE FOR MC-3000 ONLY									

Notes:

- As an alternate, Saybolt-Furol viscosities may be specified as follows:
Grade MC-70 - Furol viscosity at 122 °F (50 °C) - 60 to 120 sec.
Grade MC-30 - Furol viscosity at 77 °F (25 °C) - 75 to 150 sec.
Grade MC-250 - Furol viscosity at 140 °F (60 °C) - 125 to 250 sec.
Grade MC-800 - Furol viscosity at 180 °F (82.2 °C) - 100 to 200 sec.
Grade MC-3000 - Furol viscosity at 180 °F (82.2 °C) - 300 to 600 sec.
- If the ductility at 77 °F (25 °C) is less than 100, the material will be acceptable if its ductility at 60 °F (15.5 °C) is more than 100.

TABLE 702-5
SPECIFICATIONS FOR HIGH FLOAT EMULSIONS

GRADE	HF-100	
	Min.	Max.
Tests on emulsions:		
Viscosity Saybolt Furol at 122 °F (50 °C), sec.	50	400
Storage Stability 24 hr., %	—	1
Sieve Test, %	—	0.1
Demulsibility, 50 ml. 5.55 g/L CaCl ₂ , % by mass	30	—
Distillation:		
Residue, %	65	—
Oil Distillate, by volume of emulsion, %	—	2
Tests on residue from distillation test:		
Penetration at 77 °F (25 °C), 100 g, 5 sec., dmm	100	170
Ductility at 77 °F (25 °C), 5 cm per min., cm	40	—
Solubility, percent	95.5	—
Float Test at 140 °F (60 °C), sec.	1200	—

703.02.1 PLASTIC CONDUIT

Page 401

12-18-08

Rescind Subsection 703.02.1 and replace with the following:

703.02.1 Plastic Conduit

Furnish rigid polyvinyl chloride meeting UL 651 or UL 651B, schedule 80, 150 °F (66 °C) wire rated, direct bury type, or directional boring. Install conduit meeting the applicable requirements of Section 616.

703.16 TREATED TIMBER POLES

Page 417

9-1-07

Rescind Subsection 703.16 and replace with the following:

Furnish the pole length and place as specified in the contract.

Furnish ANSI Class 4 poles as specified in the contract. Full length pressure treat poles with a five percent solution of pentachlorophenol or Copper Naphthenate (CuN) meeting AWPA Standards and Commodity specification D and Use Category 4A. Seat, backfill, and compact around the poles. Compact backfill in 9-inch (230 mm) lifts. Plumb and rake the pole as directed.

Treat injuries, cuts, and holes in poles after treatment with three applications of copper naphthenate solution containing a minimum two percent copper metal or with Chromated Copper Arsenate (CCA) meeting AWPA M4 requirements.

703.17.3 WOOD POLES FOR OVERHEAD CONDUCTOR HIGHWAY LIGHTING

Page 417

9-1-07

Delete Subsection 703.17.3 Wood Poles for Overhead Conductor Highway Lighting.

703.17.7 OVERHEIGHT DETECTOR

Page 419

12-27-07

Delete the reference to Subsection 617.05.2 in the fifth paragraph and replace with 617.05

704.01.5 TREATED SAWN TIMBER POSTS

Page 422

2-23-12

Rescind the first sentence of the first paragraph (starting with "Furnish treated timber posts...") and replace with the following:

Furnish treated sawn timber posts of construction grade, S4S, full length pressure treated with a five percent by weight pentachlorophenol solution or Chromated Copper Arsenate (CCA), Type B or C, or Ammoniacal Copper Arsenate (ACA) or Copper Naphthenate (CuN) meeting AWPA standards and Subsection 706.04.

704.01.6 TREATED WOOD POSTS AND POLES

Page 423

5-24-12

Rescind Subsection 704.01.6 Treated Timber Poles and replace with the following:

Timber poles are specified by the top diameter. Meet the Table 704-2 top diameter limits:

TABLE 704-2
TIMBER POLE - TOP DIAMETER LIMITS

SPECIFIED TOP DIAMETER inch (mm)	DIAMETER LIMITS inch (mm)	
	Min.	Max.
3 (75)	3 (75)	4 (100)
4 (100)	4 (100)	5 (130)
5 (130)	5 (130)	6 (150)
6 (150)	6 (150)	7 (180)

Furnish posts and poles that are straight so that a line from center of tip to center of butt passes through the body from tip to butt. The posts and poles must be free of crooks and sweeps. Gain and chamfer posts and poles as required in the Detailed Drawings. Perform all machining before treatment. Full length pressure treat all timber posts and poles with a 5 percent by weight pentachlorophenol solution or Chromated Copper Arsenate (CCA), Type C, or Copper Naphthenate (CuN) meeting AWPA standards.

Treat round posts and poles meeting AWPA Standards for Commodity Specification B and Use Category 4A, regardless of length. Supply round posts and poles meeting the AWPA minimum penetration requirements specified for natural posts and poles, with a penetration of at least 3/8-inch (9 mm). Posts and Poles must have sufficient sapwood to provide the 3/8-inch (9 mm) minimum penetration.

Treat damaged, cut, or bored holes in treated posts and poles meeting Subsection 704.01.5 requirements. Gain each post and pole on the sign face at least 2 inches (50 mm) in width as specified in the Detailed Drawings.

Use pressure treated, construction grade 2-inch x 4-inch (50 x 105 mm) in S4S for back bracing.

704.01.7 BARN POLES

Page 423

9-1-07

Delete Subsection 704.01.7 Barn Poles.

704.01.10 RETRO-REFLECTIVE SHEETING

Page 423

2-11-10

Rescind and replace Subsection 704.01.10 with the following:

704.01.10 Retro-reflective Sheeting

A. General. Furnish the type of retro-reflective sheeting and color specified in the contract.

Use traffic control sheeting that meets the ASTM retro-reflective sheeting requirements on the traffic control devices specified in Table 704-3.

The following traffic control devices in the Traffic Control Rate schedule require ASTM designated Retro-Reflective sheeting as specified. Provide orange sheeting that is fluorescent. All other sign colors need not be fluorescent:

TABLE 704-3
ASTM RETRO_REFLECTIVE SHEETING REQUIREMENTS

Traffic Control Rate Schedule Group No.	Specification	Type
1-15, 18 (sign panel), 19, 25 (panel) and all other work zone sign faces (e.g. flag person paddles, pilot car signs, etc.)	ASTM 4956	XI, X, IX VIII, VII or VI
17, 23, 27, 28 and all cones and tubular markers	ASTM 4956	III or V

Reflective sheeting may only be overlaid on reflective sheeting of the same color. Remove any existing legend prior to overlaying.

B. Acceptance. Submit manufacturer's certification that the retro-reflective sheeting used meets the designated ASTM TYPE Retro-Reflective requirement specified.

The Department may take sheeting samples for analysis and testing. The Project Manager may visually compare the sheeting's diffuse day color in the field using standard color charts and test the signs retro-reflectivity using a retro-reflectometer.

Replace rejected material at Contractor expense.

705.01.2 WOOD POSTS AND BLOCKOUTS

Page 427

1-12-12

Rescind the first paragraph (that begins "Furnish wood posts...") and replace with the following:

Furnish wood posts and blockouts made from Douglas fir, Hemlock, Ponderosa Pine, Spruce, Larch, Southern Yellow Pine, or Lodgepole pine. Furnish posts that are straight, sound, free from defects, and meet the dimensions specified in the contract.

Rescind the second paragraph (starting with "Meet the Western Wood Products Association...") and replace with the following:

Meet the Western Wood Products Association requirements or equivalent grading rules for #2 grading or better, all of which must meet ASTM D 245.

Rescind the third sentence of the third paragraph (that begins with "Ensure the wood posts ...") and replace with the following sentence:

Ensure the wood posts and blockouts are seasoned to accept the specified treatment requirements of Subsection 705.03.1.

Delete the fourth sentence of the third paragraph (starting with "Furnish wood posts and blocks...").

Delete the fifth sentence of the third paragraph (starting with " The minimum penetration depth...").

705.01.5 STEEL POSTS

Page 428

11-17-11

Rescind the first paragraph (that begins with "Furnish steel posts...") and replace with the following:

Furnish steel posts for cable guardrail meeting the contract requirements. Spot paint all bruised, broken, scaled, or damaged coating on steel posts with two coats of cold galvanizing compound following the paint manufacturer's recommendations.

705.03.1 WOOD TREATMENT

Page 428

9-1-07

Rescind Subsection 705.03.1 Wood Treatment and replace with the following:

Furnish wood posts and blocks pressure treated meeting Subsection 706.04, with a five percent by weight pentachlorophenol solution Chromated Copper Arsenate (CCA), Type B or C, or Ammoniacal Copper Arsenate (ACA) or Copper Naphthenate (CuN) meeting AWWA standards. Chamfer and perform other required framing and boring of bolt holes before post treating. Plug drill holes used for determining preservative penetration depth with tight fitting treated wood plugs.

Treat injuries, cuts, and holes in posts after treatment with three applications of copper naphthenate solution containing a minimum two percent copper metal or with Chromated Copper Arsenate (CCA) meeting AWWA M4 requirements.

706.04 TREATED TIMBER AND LUMBER

Page 429

9-1-07

Rescind the paragraph in 706.04 (starting with "Furnish structural timber...") and replace with the following:

Furnish structural timber and lumber treated with a wood preservative specified as follows.

706.04.1 TREATING

Page 429

9-1-07

Rescind Subsection 706.04.1 Treating and replace with the following:

Furnish timber and lumber that is pressure treated retaining at least the minimum preservative treatment quantity per cubic foot (cubic meter) specified in AWWA Standards and Commodity Specification A with retention specifications from Commodity specification B Use Category 4B.

Use one of the following preservatives:

- Creosote oil, creosote coal tar solution, five percent by weight pentachlorophenol solution.
- Chromated Copper Arsenate (CCA), Type B or C.
- Ammoniacal Copper Arsenate (ACA).
- Copper Naphthenate (CuN).

Use preservative meeting AWWA standards.

Treated timber or lumber to receive paint must permit the paint to adhere to the treated surface without discoloration.

Meet AASHTO M 133 requirements for all preservatives and their sampling and testing methods.

Treat injuries, cuts, and holes in timber and lumber after treatment with three applications of copper naphthenate solution containing a minimum two percent copper metal or with Chromated Copper Arsenate (CCA) meeting AWWA M4 requirements.

706.04.2 INCISING

Page 429

9-1-07

Rescind Subsection 706.04.2 Incising and replace with the following:

Mechanically incise timber and lumber of the listed species as specified in section 8.1 of AWWA Standard T1 having a nominal thickness of 2 inches (actual 38 mm thickness) or greater before treating.

Incise timber and lumber 3 inches (63 mm actual thickness) thick or greater on all four sides. Incise timber and lumber less than 3 inches (63 mm actual thickness) thick on the wide faces only, unless otherwise specified. Ensure incision patterns for all other material are dense enough to achieve uniform depth of penetration as specified in section 8.1.12 of standard T1 in the AWWA Standards. Incise Intermountain Douglas Fir then treat to refusal with preservative and retention requirements meeting AWWA standards listed in 706.04.1. Refusal being specified as the pressure and temperature shall be maintained constant or be increased within a range with good practice for the material being treated until the quantity of preservative absorbed in each of any two consecutive half hours is not more than 2 percent of the amount already injected. 1 1/2-inch (38 mm actual dimension) center-matched material used for flumes, boxes, etc., does not need to be incised.

Follow the requirements for minimum incision depths in Table 706-1:

TABLE 706-1
MINIMUM INCISION DEPTHS

SIZE IN INCHES (mm)	MINIMUM DEPTH OF INCISION inch (mm)
1 1/2 x 12 (38 x 286)	3/8 (9)
3 x 12 (63 x 290)	7/16 (11)
4 x 12 (89 x 290)	1/2 (13)
6 x 8 (145 x 190)	1/2 (13)
8 x 10 (190 x 240)	9/16 (14)
10 x 12 (240 x 290)	5/8 (16)
12 x 12 (290 x 290)	3/4 (19)

Notes:

- Proportion intermediate sizes.

706.04.3 INSPECTION

Page 430

9-1-07

Rescind Subsection 706.04.3 Inspection and replace with the following:

Wood products will be inspected by the method outlined in MT 404. Only wood products with worm holes and any staining due to fungus will be inspected in the white along with the moisture content of Intermountain Douglas Fir. For inspecting wood in the white a minimum of 72 hours advanced notice must be given and must be traceable from inspection in the white to inspection of the treated product. If stain is present in the wood use only material with blue stain. The correct moisture content for Intermountain Douglas Fir is 22 percent plus or minus 2 percent and the method to obtain this moisture content is outlined in the AWPA standards.

The acceptance of any material or finished members by the Inspector does not prevent their rejection if found defective. Replace rejected material and work at Contractor expense.

706.05(A) TIMBER PILES – TREATED TIMBER PILES

Page 430

9-1-07

Rescind Subsection 706.05 (A) Treated Timber Piles and replace with the following:

A. Treated Timber Piles. Furnish treated timber piling of Douglas Fir, Southern Pine, or Western Larch meeting ASTM D 25 requirements, excluding Tables 1 and 2.

Season, condition, and treat piles meeting ASTM D 1760 and AWPA Standards and Commodity Specification E for preservative treatment by pressure process. Use creosote oil, creosote coal tar solution, or a 5 percent by weight pentachlorophenol solution or Copper Naphthenate (CuN) for the preservative.

Treat injuries, cuts, and holes in timber pile after treatment with three applications of copper naphthenate solution containing a minimum two percent copper metal meeting AWPA M4 requirements.

707.02.1 RUBBER GASKETS

Page 431

6-1-06

Rescind the first paragraph and replace with the following:

Furnish ring gaskets meeting ASTM C1619-05 requirements.

707.02.2 FLEXIBLE PLASTIC GASKETS

Page 431

6-1-06

Rescind the title of Subsection 707.02.2 and replace with "Flexible Bituminized Gaskets":

Rescind the first sentence of the first paragraph and replace with the following:

Furnish flexible bituminized joint compounds produced from refined hydrocarbon resins and plasticizing materials reinforced with inert mineral filler and not containing solvents.

709.03 STEEL STRUCTURAL PLATE PIPE AND PIPE ARCHES Page 438 10-7-10

Rescind the third paragraph (that begins with "Meet AASHTO...") and replace with the following:

Meet AASHTO M 167 requirements for allowable tolerance in span and rise for pipe arches.

710.02.3 PAINT COATING SYSTEMS FOR STRUCTURES Page 445 3-1-07

Rescind the first sentence of part C (that begins with "C. Finish Coat. Provide ...") and replace with the following:

C. Finish Coat. Provide a urethane paint meeting Table 710-6 requirements.

710.03 POWDER COATING PREQUALIFICATION AND CERTIFICATION Page 445 11-17-11

Add the following subsection to Section 710:

710.03 POWDER COATING PREQUALIFICATION AND CERTIFICATION.

Provide certified test results of the tests shown in Table 710-7 for powder coated material. The test results must be from an independent professional testing laboratory. Submit certified test results and samples for approval. Only coatings approved are permitted to be used.

**TABLE 710-7
CERTIFIED TEST RESULTS**

Test Name	ASTM Designation	Specification Limits
Salt Spray Test	D1654 (B117)	Rating Number Minimum 6 (from Table 1) after 1000 hours
Impact Test	D2794	Minimum 80 in.-lbs
Cross Hatch Adhesion Test	D 3359	5A or 5B Minimum
Hardness Test	D3363	2H
Bend Test	D522	180 degree Bend ½ inch diameter mandrel with No Breaks Flaking or Cracks
UV Exposure	G154	1,000 hours No Film Failure
Thickness	G12	3 mil Minimum
Abrasion Taber Abraser	D4060	1,000 gram 1,000 cycles 100 mg maximum weight loss

Submit two 4 inch by 4inch by 24 gage coupons along with the test results of the coated material used to the Project Manager. The coating must be representative of expected quality and color of coatings from a production line.

711.03 STRUCTURAL STEEL TUBING Page 447 9-23-10

Rescind and replace the first sentence of the first paragraph (that begins with "Furnish structural steel...") with the following sentence:

Furnish structural steel tubing meeting ASTM A 500, Grade B, requirements for cold-formed welded seamless carbon steel structural tubing in rounds and shapes.

711.09 WELDED STUD SHEAR CONNECTORS Page 448 11-17-11

Rescind the first paragraph (that begins with "Furnish shear connector...") and replace with the following:

Furnish shear connector studs meeting the AWS D1.5 Section 7 specification for "Stud Welding" and the contract requirements.

711.10 STEEL PILING

Page 448

2-23-12

Rescind Subsection 711.10.1 and replace with the following:

711.10.1 Structural Steel Piles

Furnish new steel H piles, melted and manufactured in the USA, meeting AASHTO M270 Grade 345 MPa (50 ksi) and contract requirements.

Rescind Subsection 711.10.2 and replace with the following:

711.10.2 Steel Pipe Piles

Furnish new steel pipe piles, melted and manufactured in the USA, meeting ASTM A 252, Grade 2 requirements with a minimum yield strength of 310 Mpa (45 ksi). Steel pipe diameter and wall thickness is specified in the contract.

711.12.3 DRAINAGE STRUCTURE CASTINGS

Page 448

1-12-12

Rescind Subsection 711.12.3 and replace with the following:

Furnish structural drainage castings meeting the Detailed Drawing and AASHTO M 306 – HS 25 requirements.

712.01.1 GENERAL (CHAIN LINK FENCE)

Page 451

10-9-08

Rescind section 712.01.1 and replace with the following:

Meet AASHTO M 181 requirements, as modified herein. Use one of the following fence fabrics, as specified in the contract:

- Type 1 Class C Zinc-coated Steel
- Type 2 Aluminum-coated Steel
- Type 3 Aluminum Alloy

Zinc-5 Percent Aluminum-Mischmetal alloy meeting the requirements of ASTM B 750 may be substituted for zinc coating (hot-dipped) at a Class 2, or 1.0 oz/ft² (305 g/m²), coating thickness as specified by ASTM F 1345.

Use zinc-coated steel for all Type 1 and Type 2 fabric fence parts; including posts, rails, gate frames, expansion sleeves, wire ties, fabric ties, hog rings, tension wire, miscellaneous fittings, and hardware. Use aluminum alloy for these same Type 3 fabric fence parts. Use either zinc-coated steel or aluminum alloy for these Type 4 fabric fence parts.

712.01.3 POSTS, RAILS, AND BRACES

Page 451

2-23-12

Rescind Subsection 712.01.3 and replace with the following:

Meet ASTM F 1043 and the contract length requirements. Furnish all posts with a watertight cap that fits securely over the outside post top and supports the top rail.

712.01.5 FABRIC BANDS AND STRETCHER BARS

Page 451

11-17-11

Rescind the first bullet item (that begins with "Steel - a minimum...") and replace with the following:

- Steel - a minimum 1/8-inch (3 mm) thick by 1-inch (25 mm) wide.

712.01.6 TIE WIRE (FENCE) Page 451 10-9-08

Rescind the first paragraph (that begins with "Furnish 9-gauge galvanized...") and replace with the following:

Furnish 9-gauge galvanized steel tie wire meeting AASHTO M 279 (ASTM A 116) requirements. Furnish 11-gauge; Class 1 galvanized steel hog ring fasteners meeting AASHTO M 279 (ASTM A 116) requirements.

712.01.7 TENSION WIRE (FENCE) Page 451 10-9-08

Rescind the first paragraph (that begins with "Furnish 7-gauge galvanized...") and replace with the following paragraph:

Furnish 7-gauge galvanized coiled spring steel tension wire. Meet AASHTO M 279 (ASTM A 116), Class 1 galvanizing requirements.

712.01.8 GATES Page 452 2-23-12

Rescind the first sentence under part A (that begins with "Construct gate frames from steel...") and replace with the following:

Construct gate frames from steel sections meeting ASTM F 900 requirements.

Rescind the first sentence under part B (that begins with "Construct gate frames from aluminum...") and replace with the following:

Construct gate frames from aluminum sections meeting ASTM F 900 requirements.

Rescind Table 712-1.

712.02 INTERSTATE AND FARM FENCE Page 454 3-22-12

Just prior to Subsection 712.02.1 Woven Wire, add the following Subsection title:

712.02 INTERSTATE AND FARM FENCE

712.02.1 WOVEN WIRE (FENCE) Page 454 3-22-12

Rescind 712.02.1 and replace with the following:

Furnish woven wire meeting AASHTO M 279 (ASTM A 116) requirements and either of the Table 712-1 designations.

TABLE 712-1
WOVEN WIRE REQUIREMENTS

INTERSTATE FENCE			
Specification	Grade	Design Number	Metallic Coating
AASHTO M 279 (ASTM A 116)	No. 12 1/2 Grade 60	832-6-12 1/2	Type Z, Class 1 or Type ZA, Class 20
AASHTO M 279 (ASTM A 116)	No. 14 Grade125	832-6-14	Type Z, Class 3 or Type ZA, Class 40

FARM FENCE			
Specification	Grade	Design Number	Metallic Coating
AASHTO M 279 (ASTM A 116)	No. 12 1/2 Grade 60		Type Z, Class 1 or Type ZA, Class 20
AASHTO M 279 (ASTM A 116)	No. 14 Grade 125		Type Z, Class 3 or Type ZA, Class 40

Provide a 6-inch (155 mm) stay spacing. Match the fence height and mesh dimensions of the fence being replaced if not specified.

712.02.2 BARBED WIRE (FENCE)

Page 454

10-9-08

Rescind 712.02.2 and replace with the following:

Use 2-point 12 1/2 or 13 1/2-gauge barbed wire meeting AASHTO M 280 (ASTM A 121) requirements. Space barbs at a 4-inch nominal (105 mm) or a 5-inch nominal (130 mm) spacing. Provide the Project Manager Certification that the wire meets AASHTO M 280 (ASTM A 121) requirements.

712.02.7 METAL POSTS AND ASSEMBLIES

Page 454

3-22-12

Rescind 712.02.7 and Table 712-3 and replace with the following:

712.02.7 Metal Posts and Assemblies

Provide metal fence posts and assemblies meeting AASHTO M 281 requirements, modified as follows:

- Tables 712-2 and 712-3, and Section 7 of AASHTO M 281 apply to finished posts and assemblies after fabrication, punching, drilling, and finish coating.

Galvanize or paint posts, braces, and anchor plates. Meet AASHTO M 111 galvanizing requirements.

Furnish nuts, bolts, fittings, and other hardware meeting ASTM A 153 or B 695 (Class 50) galvanizing requirements. Paint following the paint manufacturer's recommendations.

Furnish fence posts and braces of the lengths in Table 712-2.

TABLE 712-2
POST LENGTHS

FENCE	POST TYPE	CORNER, END, GATE, PULL & PANEL POSTS	LINE POSTS	BRACES AND BRACE RAILS
Interstate	Metal	7 feet 8 inch (2.3 m)	6 feet 6 inch (2.0 m)	7 feet 8 inch (2.3 m)
Interstate	Wood	8 feet (2.4 m)	7 feet (2.1 m)	8 feet (2.4 m)
Farm	Metal	7 feet 8 inch (2.3 m)	6 feet 6 inch (2.0 m)	7 feet 8 inch (2.3 m)
Farm	Wood	8 feet (2.4 m)	7 feet (2.1 m)	8 feet (2.4 m)

Use 2 1/2 inch x 2 1/2 inch x 1/4 inch (64 mm x 64 mm x 6 mm) or heavier metal fence posts for Interstate and Farm fence corner, end, gate and pull posts. Use 2 inch x 2 inch x 1/4 inch (51 mm x 51 mm x 6 mm) or heavier metal pipe brace posts.

Use Tee, Channel, U, or Y bar section line posts with corrugations, knobs, notches, holes, or studs placed to engage the fence line wires.

Attach a steel anchor plate to each line post so that the anchor top is 2 inches to 3 inches (50 mm to 75 mm) below ground line when the post is set to the specified depth.

712.02.8 WOOD FENCE POSTS AND BRACE RAILS

Page 455

5-24-12

Rescind Subsection 712.02.8 Wood Fence Posts and Brace Rails and replace with the following:

A. General. Make fence posts and brace rails from well seasoned, sound, and straight-grained Western Larch, Lodgepole Pine, Ponderosa Pine, Southern Yellow Pine, or Douglas Fir. Remove all bark from the posts.

Taper round posts, to be driven, from 6 to 12 inches (155 to 305 mm) up from the bottom to a 1-inch \pm 1/2-inch (25 mm \pm 12 mm) point. Bevel the edges of post tops to produce a flat surface with a diameter 1-inch \pm 1/2-inch (25 mm \pm 12 mm) less than post diameter. These taper lengths are included in the specified post lengths. Perform all machining before treatment. Treat the natural round posts and rails meeting AWPA Standards for Commodity Specification B and Use Category 4A requirements. Treat the S4S post as specified in Subsection 706.04.

Ensure the posts and rails are straight so that a line running from the center of both ends is within the body of the post or rail.

Treat round posts and rails meeting AWPA Standards for Commodity Specification B and Use Category 4A. Supply round posts and rails meeting the AWPA minimum penetration requirements specified for natural posts, with a penetration of at least 3/8-inch (9 mm). Posts and rails must have sufficient sapwood to provide the 3/8-inch (9 mm) minimum penetration.

Treat injuries, cuts, and holes in timber pile after treatment with three applications of copper naphthenate solution containing a minimum two percent copper metal meeting AWPA M4 requirements.

B. Posts for Farm Fence and Interstate Fence. Furnish line posts and brace rails from a minimum 4-inch (105 mm) diameter round, or a minimum 4-inch x 4-inch (105 mm x 105 mm) square sawn. Furnish corner, end, gate, and pull posts from a minimum 5-inch (130 mm) diameter round post or a 5 x 5-inch (130 mm x 130 mm) square sawn post.

712.02.10 GATES FOR INTERSTATE FENCE Page 456 3-22-12

Rescind the fourth paragraph (that begins "The approximate weight ...") and replace with the following:

The approximate weight of the gate frames (less fabric) must meet Table 712-3 requirements.

Rescind the title of table 712-4, Approximate Gate Frame Weights, and replace with the following:

TABLE 712-3
APPROXIMATE GATE FRAME WEIGHTS

713.12 SOIL RETENTION/EROSION CONTROL BLANKETS AND MATS Page 461 7-3-08

Add the following paragraph:

All mass per unit area requirements for blankets or mats will be measured under ASTM D 6475 unless otherwise specified.

713.12.1 (C) WOOD EXCELSIOR FIBER BLANKETS (TYPE EX 3) Page 461 7-3-08

Rescind the sentence of Number 1 (that begins with "Minimum weight of ...") and replace with the following:

Minimum weight of 1.6 pounds per square yard (865 g per square meter)

713.13 COMPOST MULCH Page 463 1-12-12

Add the following Subsection to Section 713:

713.13 Compost Mulch

Compost mulch is the soil amendment product resulting from the controlled decomposition of organic materials also known as feedstock material. Acceptable compost feedstock material consist of agricultural vegetative residuals, leaf/yard trimmings, manure, domestic livestock carcasses, wood residue, municipal biosolids (sewage sludge), or food waste. If biosolids are used as a feedstock, compliance with USEPA 40 CFR Part 503 is required.

Furnish compost meeting Table 713-4 requirements.

TABLE 713-4
COMPOST MULCH
PHYSICAL AND CHEMICAL PROPERTIES

PROPERTY	REQUIREMENT	Method
Particle Size	90% (by volume) passing 1 inch (25 mm) screen	¹ TMECC 05.08-B
% Moisture	30% to 55%	TMECC 03.09-A
% Organic Matter	30% minimum	TMECC 05.07-A
pH	5.0 to 8.5	TMECC 04.11-A
C/N Ratio	10:1 to 30:1	TMECC 05.02-A
Inert Material	<1%	TMECC 03-02-A
Maturity	Stable, \geq 5 using Solvita test	Solvita Test Kit
Soluble Salt Concentration (electrical conductivity)	11.0 mmhos/cem maximum	TMECC 04.10-A

Notes:

1. TMECC – Test Methods for Evaluating Compost and Composting

Provide a manufacturer's certification under Subsection 106.03, attesting that the material meets these specifications.

714.02 TEMPORARY PAVEMENT MARKING TABS

Page 465

5-1-08

Rescind Part (1)(a) (that begins with "Type I tabs ...") and replace with the following:

- a. Type I tabs: white reflectorized tape on both sides with white bodies;

Rescind Part (2) (that begins with "A minimum tape reflectance of ...") and replace with the following:

2. Reflective flexible sheeting meeting ASTM D4956 Type V or better;

714.04 TEMPORARY AND INTERIM PAINT MARKINGS

Page 467

12-18-08

Rescind Subsection 714.04 and replace with the following:

714.04 TEMPORARY AND INTERIM PAVEMENT MARKINGS

Furnish either liquid pavement markings or solid pavement marking tape for temporary and interim pavement markings. Submit a manufacturer's formulation sheet or data sheet for the product to be used.

- A. Temporary and Interim Pavement Markings. Furnish marking materials that meet the following:
 1. White. Color to match Federal color chip # 37875. Colorimeter readings may be taken on the white portion of a Leneta form 5c. Daylight reflectance is Y=79.80 minimum. Color Coordinates are x=0.3136, y=0.3244. A plus or minus 6 percent tolerance applies to the coordinates.
 2. Yellow. Color to match Federal color chip # 595B-33538. Colorimeter readings may be taken on the white portion of a Leneta form 5c. Daylight reflectance is Y=48.32 minimum. Color coordinates are x=0.4851, y=0.4455. A plus or minus 6 percent tolerance applies to the coordinates.
- B. Cold weather Interim Pavement Marking. Furnish marking materials that meet the following:
 1. Color. Color specifications are the same as part A.
 2. Composition. The exact composition is at the manufacturer's discretion but the vehicle must be 100 percent acrylic polymer and the paint may not contain any ingredient in the vehicle listed below:
Lead or chromate compounds; Mercury; Lead; Chromate compounds; Chlorinated solvents;
Hydrolysable chlorine derivatives; Ethylene based glycerol ethers and their acetates.
 3. Tests.

D-2486	Scrubs resistance, cycles, min	1000	
D-1394	Titanium Dioxide	1.0 lb/gal White	0.15 lbs/gal Yellow

714.05 REFLECTIVE GLASS BEADS

Page 467

3-1-07

Delete "20 percent" in part B of Subsection 714.05 and replace with "25 percent".

Rescind Table 714-2 and replace with the following Table:

TABLE 714-2
REFLECTIVE GLASS BEAD GRADATION

SIEVE NUMBER	PERCENT PASSING	
	MONTANA TYPE 1	MONTANA TYPE 2
20 (0.850 mm)	97-100	90-97
30 (0.600 mm)	75-95	50-75
40 (0.425 mm)	-----	15-45
50 (0.300 mm)	15-35	0-15
80 (0.180 mm)	-----	0-5
100 (0.150 mm)	0-5	-----

Rescind the third sentence in Number 1. General (That begins with "Mix the components...") and replace with the following:

Mix the components within plus or minus 2.0 percent of the manufacturer's recommended mix ratio.

Rescind Table 714-5 Resin / Pigment Component (% By Weight) and replace with the following:

TABLE 714-5
RESIN / PIGMENT COMPONENT (% BY WEIGHT)

PIGMENT	WHITE	YELLOW
TiO ₂ , meeting ASTM D-476, Type II	18-28	12-17
Organic Yellow		7-9
Epoxy Resin	72-82	74-81

Rescind bullets 1)White and 2)Yellow and replace with the following:

e. Color.

- 1) White. Color is to match Federal color chip # 37875. Colorimeter readings may be taken on the white portion of a Leneta form 5c¹ if requested by the Project Manager. Color Coordinates are x = 0.3136, y = 0.3244. A ± 6 percent tolerance applies to the coordinates. The minimum Y-Tristimulus value is Y=79.80.
- 2) Yellow. Color is to match Federal color chip # 595B-33538. Colorimeter readings may be taken on the white portion of a Leneta form 5c if requested by the Project Manager. Color coordinates are x = 0.4851, y = 0.4455. A ± 6 percent tolerance applies to the coordinates. The minimum Y-Tristimulus value is Y=48.32.

715.01 SIGNS AND CHANNELIZING DEVICES

Page 475

4-8-10

Rescind Subsection 715.01 and replace with the following:

715.01 SIGNS AND CHANNELIZING DEVICES

Meet the Detailed Drawings and MUTCD requirements. Adjust signs within specified distances to prevent obstruction from or to existing signs.

Mount signs so they are vertical and stable. Posts must not extend more than two feet above the top of signs.

Construction signs may be horizontally hinged at the midpoint of the sign face provided the hinge gap does not exceed 1/2-inch (13 mm) and the sign legend is legible.

715.02 PORTABLE SIGN SUPPORT ASSEMBLIES

Page 475

4-8-10

Rescind Subsection 715.02(A) and replace with the following:

- A. Use wood members with a maximum 16 square inch (10,325 square mm) cross section for base construction and 8 square inch (5,160 square mm) cross section for uprights and braces. Provide wood members that are free of bark.

Rescind Subsection 715.02(B) and replace with the following:

- B. Use tubular metal members with a maximum 9 square inch (5,805 square mm) cross section.

715.05 ADVANCE FLAGGER AHEAD WARNING SIGNS

Page 475

9-9-10

Rescind and replace Subsection 715.05 with the following:

715.05 ADVANCE FLAGGER AHEAD WARNING SIGNS

Equip the W20-7a (advance flagger ahead) sign to meet one of the following:

A. Furnish signs equipped with:

- Two 12-inch (305 mm) amber signals, each mounted 36 inches (915 mm) from the center of the sign panel on a line 45 degrees above horizontal.
- Equip each lens with a 22-inch x 22-inch (560 x 560 mm) square backplate with a dull black finish and a 12-inch (305 mm) cut-away tunnel visor.
- Use 116-watt traffic signal light bulbs.
- Furnish 115/120 V.A.C. electrical current to the flasher unit.
- Set signals to flash alternately and continuously at a rate of 50 to 60 times per minute. The illuminated period of each flash must be not less than one-half nor more than two-thirds of the total flash cycle.

B. Furnish sign equipped with:

- Eight high-power, 1 watt, amber Light Emitting Diodes (LEDs) on the face of the W20-7a.
- Mount a LED in each corner of the sign with an additional LED spaced equally between the corners.
- Mount the LEDs one inch from the outside edge of the sign panel.
- Wire all LEDs in a string to activate simultaneously with a flashing output of 50 to 60 times per minute with a 100 to 500 millisecond flash duration.
- Power the LEDs using a solar panel, battery power, or combination of these.

Meet Subsection 715.02 requirements for mounting portable sign support assemblies.