

Poison Creek Stewardship Roads

Powder River District

Johnson County, Wyoming



USDA
Forest Service

*Caring for the Land and
Serving People*



U.S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE

ROCKY MOUNTAIN REGION

BIGHORN NATIONAL FOREST

DRAWINGS FOR:

POISON CREEK

TIMBER SALE ROADS

PREPARED BY:

John Zil 3-5-15

DATE

I CERTIFY THAT THESE DRAWINGS COMPLY WITH LAND AND RESOURCE MANAGEMENT PLANS.

[Signature] 3/5/2015

DISTRICT RANGER

DATE

REVIEWED BY:

Bruce Kerstad 3-5-15

DATE

I CERTIFY THE TECHNICAL ADEQUACY OF THESE DRAWINGS.

Chris Atkinson (acting) 3/5/15

FOREST ENGINEER

DATE

I CERTIFY THAT THIS PROJECT IS INCLUDED IN THE APPROVED PROGRAM OF WORK AND THAT ADEQUATE FUNDING IS AVAILABLE.

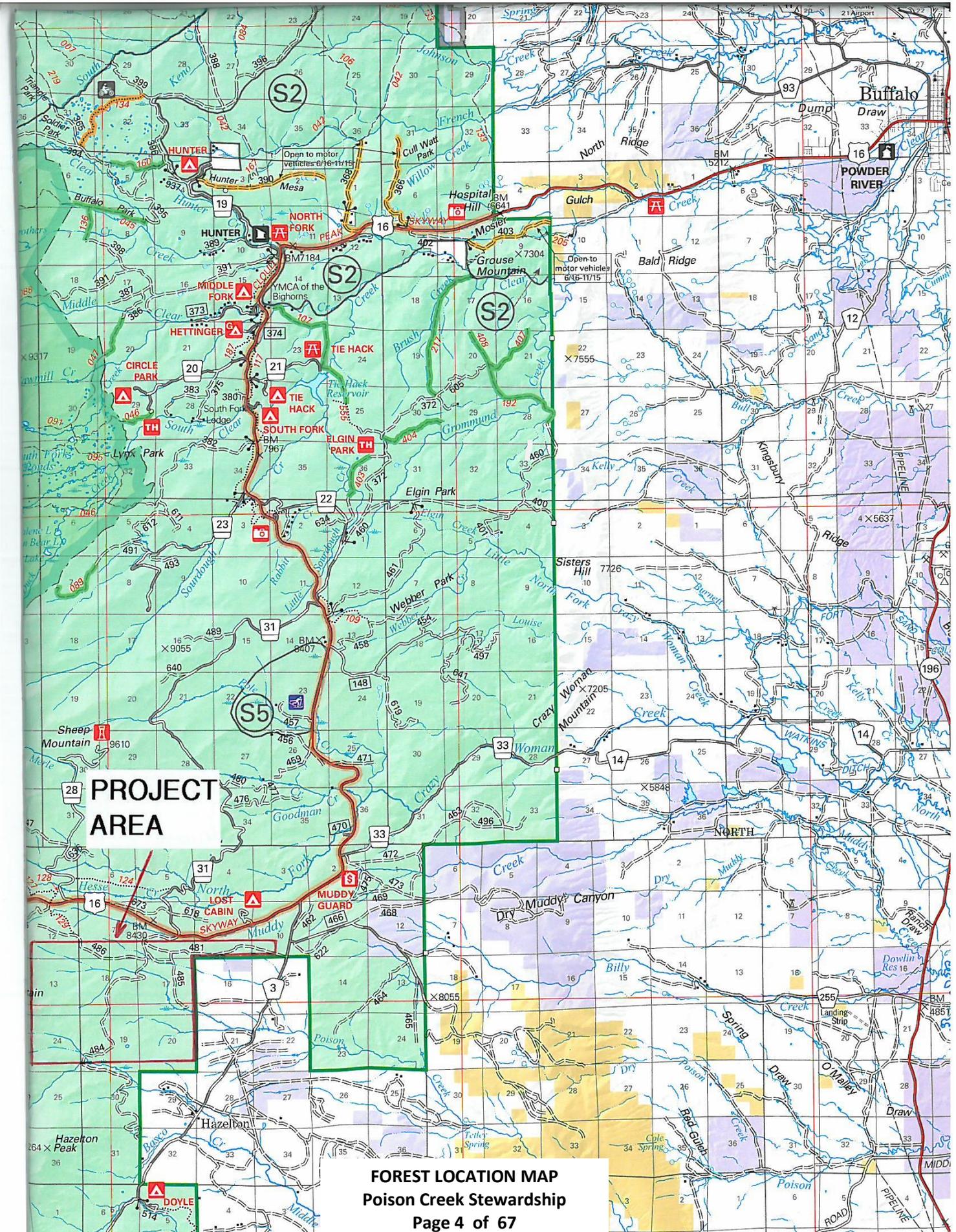
William T. Ball 3/6/2015

FOREST SUPERVISOR

DATE

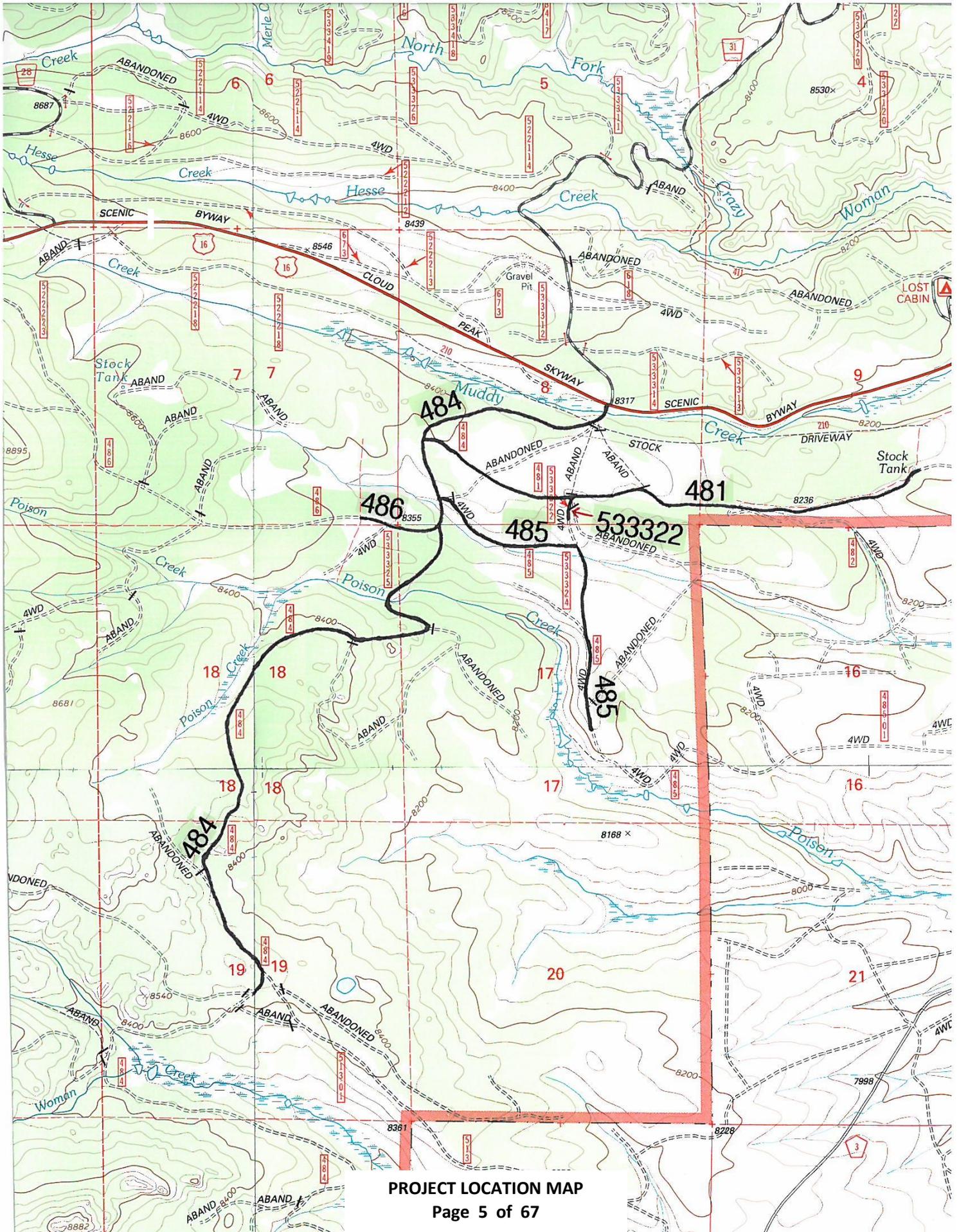
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PROJECT AREA

FOREST LOCATION MAP
Poison Creek Stewardship
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PROJECT LOCATION MAP
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.....
SPECIFIED ROAD LIST

| ROAD NAME | NUMBER | MILES | CONSTRUCT | RECONSTRUCT |
|--------------------|--------|-------|-----------|-------------|
| Lower Poison Creek | 481 | 1.8 | -0- | 1.8 |
| Hazelton Peak | 484 | 3.4 | -0- | 3.4 |
| Dry Poison Circle | 485 | 1.2 | -0- | 1.2 |
| West of George | 486 | 0.3 | -0- | 0.3 |
| Oh-Bla-De-Bla-Da | 533322 | 0.1 | -0- | 0.1 |

MILES CONSTRUCTION (C): 0.00

MILES RECONSTRUCTION (R): 6.8

PROJECT TOTAL MILES: 6.8

PROJECT NOTES

1. **SPECIFICATIONS**

THE SPECIFICATIONS FOR THIS CONTRACT ARE CONTAINED WITHIN THE DOCUMENT “STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS”, DOCUMENT FP-03 U.S. CUSTOMARY UNITS. A COPY OF THESE SPECIFICATIONS CAN BE OBTAINED FROM THE ENGINEERING REPRESENTATIVE.

2. **SPECIFICATION 201 & 203 SLASH DISPOSAL**

CLEARING, UNDER THIS SPECIFICATION, WILL INVOLVE THE REMOVAL OF SMALL TREES WHICH HAVE ENCROACHED INTO THE DITCH LINE AND ROADWAY. ALL OF THIS MATERIAL IS CONSIDERED NONMERCHANTABLE. THE TOPS, LIMBS AND STUMPS WILL BE DISPOSED OF IN ACCORDANCE WITH SPECIAL PROJECT SPECIFICATION 203 METHOD F.

3. **SPECIFICATION 204 (07) – BORROW SOURCES**

THE ENGINEERING REPRESENTATIVE WILL LOCATE A BORROW SOURCE WITHIN TWO MILES OF THE PLACEMENT LOCATION. AFTER REMOVAL OF THE REQUIRED BORROW THE AREA WILL BE DRESSED TO A 1 ½:1 OR FLATTER SLOPE. THE AREA WILL BE OUTSLOPED TO PROVIDE DRAINAGE SO WATER WILL NOT POND.

4. **SPECIFICATION 204(19) DRAINAGE EXCAVATION – OUTDITCH**

CONSTRUCTION OF 80 LF OF OUTDITCH. OUTDITCH LOCATIONS AS SHOWN ON THE CONSTRUCTION PLANS ARE APPROXIMATE AND THE EXACT LOCATIONS WILL BE STAKED IN THE FIELD BY AN ENGINEERING REPRESENTATIVE.

5. **SPECIFICATION 204(20) ROLLING DIP LOCATIONS**

ROLLING DIP LOCATIONS AS SHOWN ON THE CONSTRUCTION PLANS ARE APPROXIMATE AND THE EXACT LOCATIONS WILL BE STAKED IN THE FIELD BY AN ENGINEERING REPRESENTATIVE.

6. **SPECIFICATION 635 – CONSTRUCTION SIGNS**

PROJECT NOTES

CASE II CONSTRUCTION WARNING SIGNS WILL BE REQUIRED ON THIS PROJECT, SEE DRAWINGS "TEMPORARY TRAFFIC CONTROL"

STANDARD SPECIFICATIONS FOR CONSTRUCTION OF
ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS

FP- 03

U.S. CUSTOMARY UNITS

POISON CREEK STEWARDSHIP SALE

SPECIFICATION LIST

| Spec. No. | Title | Road Numbers | Special Project Specifications |
|-----------|---------------------------|---------------|--------------------------------|
| 151 | MOBILIZATION | ALL ROADS | |
| 201 | CLEARING AND GRUBBING | 481, 484, 486 | X |
| 204 | EXCAVATION AND EMBANKMENT | 481, 484, 485 | X |
| 207 | EARTHWORK GEOTEXTILES | 481 | |
| 303 | ROAD RECONDITIONING | ALL ROADS | X |
| 635 | TEMPORARY TRAFFIC CONTROL | ALL ROADS | X |

SPECIAL SPECIFICATIONS

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101 - Terms, Format, and Definitions

101.01_nat_us_01_22_2009

101.01 Meaning of Terms

Delete all references to the TAR (Transportation Acquisition Regulations) in the specifications.

101.01_nat_us_01_22_2009

101.01 Meaning of Terms

Delete all references to the FAR (Federal Acquisition Regulations) in the specifications.

101.03_nat_us_06_16_2006

101.03 Abbreviations.

Add the following to (a) Acronyms:

| | |
|-------|--|
| AFPA | American Forest and Paper Association |
| MSHA | Mine Safety and Health Administration |
| NIST | National Institute of Standards and Technology |
| NESC | National Electrical Safety Code |
| WCLIB | West Coast Lumber Inspection Bureau |

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Add the following to (b) SI symbols:

| | |
|-----|------------------|
| mp | Milepost |
| ppm | Part Per Million |

101.04_nat_us_03_29_2007

101.04 Definitions.

Delete the following definitions and substitute the following:

Bid Schedule--The Schedule of Items.

Bridge--No definition.

Contractor--The individual or legal entity contracting with the Government for performance of prescribed work. In a timber sale contract, the contractor is the "purchaser".

Culvert--No definition.

Right-of-Way--A general term denoting (1) the privilege to pass over land in some particular line (including easement, lease, permit, or license to occupy, use, or traverse public or private lands), or (2) Real property necessary for the project, including roadway, buffer areas, access, and drainage areas.

Add the following:

Adjustment in Contract Price--“Equitable adjustment,” as used in the Federal Acquisition Regulations, or “construction cost adjustment,” as used in the Timber Sale Contract, as applicable.

Change--“Change” means “change order” as used in the Federal Acquisition Regulations, or “design change” as used in the Timber Sale Contract.

Design Quantity--“Design quantity” is a Forest Service method of measurement from the FS-96 *Forest Service Specifications for the Construction of Roads and Bridges*. Under these FP specifications this term is replaced by the term “Contract Quantities”.

Forest Service--The United States of America, acting through the Forest Service, U.S. Department of Agriculture.

Neat Line--A line defining the proposed or specified limits of an excavation or structure.

Pioneer Road--Temporary construction access built along the route of the project.

Purchaser--The individual, partnership, joint venture, or corporation contracting with the Government under the terms of a Timber Sale Contract and acting independently or through agents, employees, or subcontractors.

Protected Streamcourse--A drainage shown on the plans or timber sale area map that requires designated mitigation measures.

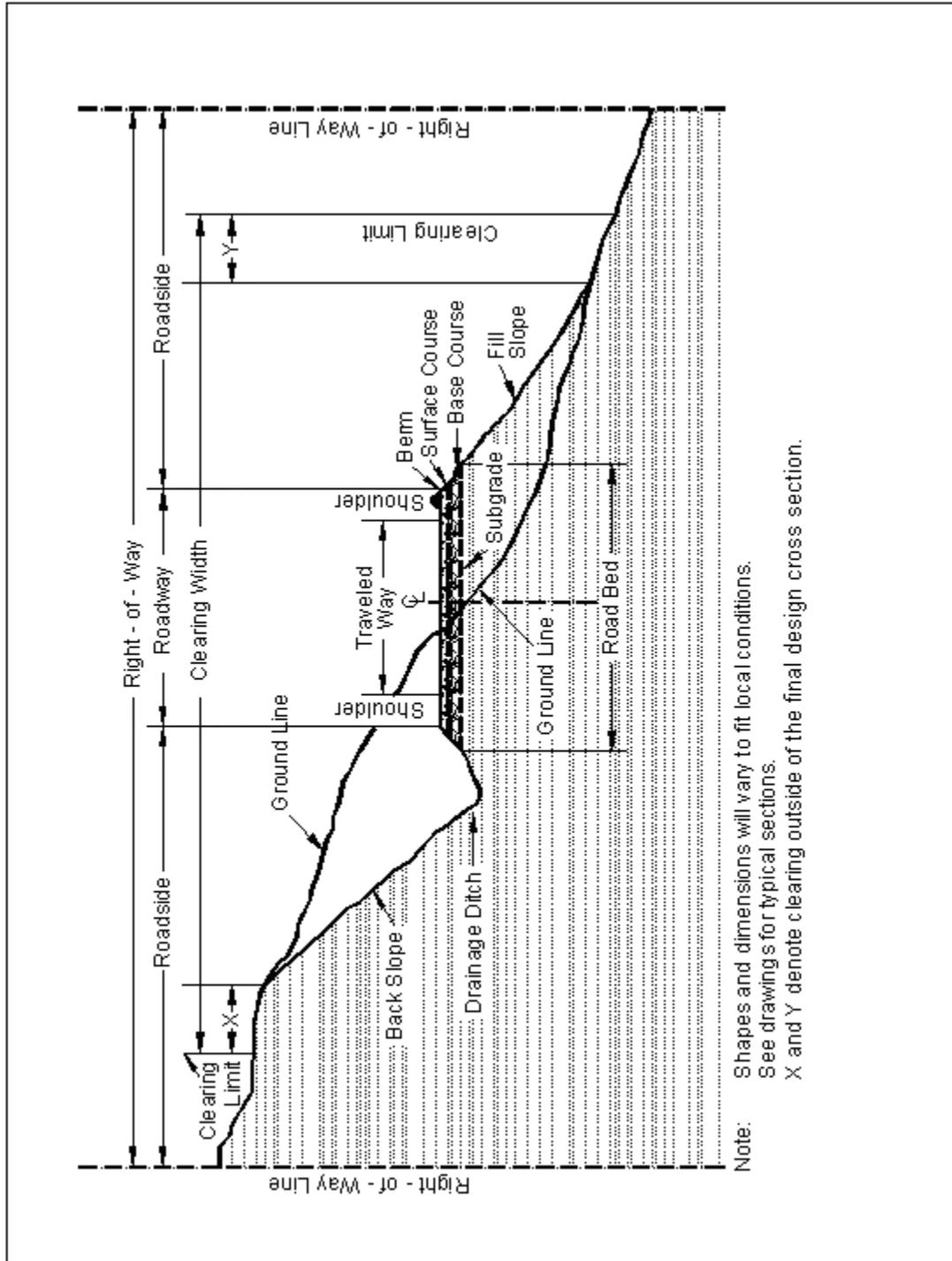
Road Order--An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

Schedule of Items--A schedule in the contract that contains a listing and description of construction items, quantities, units of measure, unit price, and amount.

Utilization Standards--The minimum size and percent soundness of trees described in the specifications to determine merchantable timber.

Add Figure 101-1—Illustration of road structure terms:

Figure 101-1—Illustration of road structure terms.



101.04_nat_us_11_06_2007

101.04 Definitions.

Delete the following definitions:

Contract Modification

Day

Notice to Proceed

Solicitation

102 - Bid, Award, and Execution of Contract

102.00_nat_us_02_16_2005

102 Bid, Award, and Execution of Contract

Delete Section 102 in its entirety.

103 - Scope of Work

103.00_nat_us_02_16_2005

Deletions

Delete all but subsection 103.01 Intent of Contract.

104 - Control of Work

104.00_nat_us_06_16_2006

Deletions

Delete Sections 104.01, 104.02, and 104.04.

104.03_nat_us_01_22_2009

104.03 Specifications and Drawings.

Delete 104.03.

104.06_nat_us_02_17_2005

Add the following subsection:

104.06 Use of Roads by Contractor

The Contractor is authorized to use roads under the jurisdiction of the Forest Service for all activities necessary to complete this contract, subject to the limitations and authorizations designated in the Road Order(s) or described in the contract, when such use will not damage the roads or national forest resources, and when traffic can be accommodated safely.

105 - Control of Material

105.02_nat_us_01_18_2007

105.02 Material Sources.

105.02(a) Government-provided sources.

Add the following:

Comply with the requirements of 30 CFR 56, subparts B and H. Use all suitable material for aggregate regardless of size unless otherwise designated. When required, re-establish vegetation in disturbed areas according to section 625.

105.05_nat_us_05_12_2004

105.05 Use of Material Found in the Work.

Delete 105.05 (a) and (b) and the last sentence of the second paragraph and substitute the following:

Materials produced or processed from Government lands in excess of the quantities required for performance of this contract are the property of the Government. The Government is not obligated to make reimbursement for the cost of producing these materials.

106 - Acceptance of Work

106.01_nat_us_07_31_2007

106.01 Conformity with Contract Requirements.

Delete Subsection 106.01 and substitute the following:

References to standard test methods of AASHTO, ASTM, GSA, and other recognized standard authorities refer to the methods in effect on the date of solicitation for bids.

Perform all work to the lines, grades, cross-sections, dimensions, and processes or material requirements shown on the plans or specified in the contract.

Incorporate manufactured materials into the work according to the manufacturer's recommendations or to these specifications, whichever is more strict.

Plan dimensions and contract specification values are the values to be strived for and complied with as the design values from which any deviations are allowed. Perform work and provide material that is uniform in character and reasonably close to the prescribed value or within the specified tolerance range. The purpose of a tolerance range is to accommodate occasional minor variations from the median zone that are unavoidable for practical reasons.

When standard manufactured items are specified (such as fence, wire, plates, rolled shapes, pipe conduits, etc., that are identified by gauge, unit mass, section dimensions, etc.), the identification will be considered to be nominal masses or dimensions. Unless specific contract tolerances are noted, established manufacturing tolerances will be accepted.

The Government may inspect, sample, or test all work at any time before final acceptance of the project. When the Government tests work, copies of test reports are furnished to the Contractor upon request. Government tests may or may not be performed at the work site. If Contractor testing and inspection is verified by the Government, the Contractor's results may be used by the Government to evaluate work for acceptance. Do not rely on the availability of Government test results for process control.

Acceptable work conforming to the contract will be paid for at the contract unit bid price. Four methods of determining conformity and accepting work are described in Subsections 106.02 to 106.05 inclusive. The primary method of acceptance is specified in each Section of work. However, work may be rejected at any time it is found by any of the methods not to comply with the contract.

Remove and replace work that does not conform to the contract, or to prevailing industry standards where no specific contract requirements are noted, at no cost to the Government.

(a) Disputing Government test results. **If the accuracy of Government test results is disputed, promptly inform the CO. If the dispute is unresolved after reasonable steps are taken to resolve the dispute, further evaluation may be obtained by written request. Include a narrative describing the dispute and a proposed resolution protocol that addresses the following:**

- (1) Sampling method;
- (2) Number of samples;
- (3) Sample transport;
- (4) Test procedures;
- (5) Testing laboratories;
- (6) Reporting;
- (7) Estimated time and costs; and
- (8) Validation process.

If the evaluation requires additional sampling or testing be performed, mutually agree with the Government on witnessing procedures and on sampling and testing by a third party laboratory. Use a third party laboratory accredited by the AASHTO accreditation program. Provide proof of the laboratory's accreditation for the test procedures to be used. Do not use the same laboratory that produced the disputed Government test results or that produced the test results used as a basis for the dispute.

The CO will review the proposed resolution protocol and may modify it before final approval and execution.

The Government will use the approved resolution protocol test results to determine the validity of the disputed testing. If the Government test results are validated, the Contractor will be responsible for all costs associated with developing and performing the resolution protocol. If the Government test results are not validated, the Government will be responsible for all costs associated with developing and performing the resolution protocol. If the validity of the Government test results cannot be determined, the Contractor and Government will equally share all costs associated with developing and carrying out the resolution protocol.

(b) Alternatives to removing and replacing non-conforming work. As an alternative to removal and replacement, the Contractor may submit a written request to:

- (1) Have the work accepted at a reduced price; or
- (2) Be given permission to perform corrective measures to bring the work into conformity.

The request must contain supporting rationale and documentation. Include references or data justifying the proposal based on an evaluation of test results, effect on service life, value of material or work, quality, aesthetics, and other tangible engineering basis. The CO will determine disposition of the nonconforming work.

Delete subsection 106.07.

106.07 Delete

107 - Legal Relations and Responsibility to the Public

107.05_nat_us_05_11_2004

107.05 Responsibility for Damage Claims.

Delete the entire subsection.

107.06_nat_us_06_16_2006

107.06 Contractor's Responsibility for Work.

Delete the following from the first paragraph.

“except as provided in Subsection 106.07”.

107.08_nat_us_03_29_2005

107.08 Sanitation, Health, and Safety

Delete the entire subsection.

107.09_nat_us_06_16_2006

107.09 Legal Relationship of the Parties.

Delete the entire subsection.

108 - Prosecution and Progress

108.00_nat_us_02_16_2005

108 Delete.

Delete Section 108 in its entirety.

109 - Measurement and Payment

109.00_nat_us_02_17_2005

109 Deletions

Delete the following entire subsections:

109.06 Pricing of Adjustments.

109.07 Eliminated Work.

109.08 Progress Payments.

109.09 Final Payment.

109.02_nat_us_06_16_2006

109.02 Measurement Terms and Definitions.

(b) Contract quantity.

Add the following:

Contract quantities will be adjusted only when there are errors in the original design of 15% or more.

Change the following:

“(b) Cubic yard” to “(c) Cubic yard”.

Add the following definition:

(p) Thousand Board Feet (Mbf). 1,000 board feet based on nominal widths, thickness, and extreme usable length of each piece of lumber or timber actually incorporated in the job. For glued laminated timber, 1,000 board feet based on actual width, thickness, and length of each piece actually incorporated in the job.

201 - Clearing and Grubbing

201.00_nat_us_05_01_2006

201.02 Delete:

Delete Tree wound dressing material reference.

201.03 General.

Delete the last sentence.

201.04 Clearing.

Delete the last sentence of (d).

201.01_nat_us_02_18_2005

201.01 Description

Replace with the following

This work consists of clearing and grubbing within clearing limits and other designated areas.

201.04_nat_us_02_22_2005

201.04 Clearing. (c)

Delete paragraph (c) and replace with the following:

(c) In areas outside the excavation, embankment, and slope rounding limits, cut stumps to within 12 inches or one-third of the stump diameter of the ground, whichever is higher, measured on the side adjacent to the highest ground. For timber sales, stump heights will meet the requirements of the Timber Sale contract.

201.04 Clearing.

Delete subsection (d) and replace with the following:

(d) Do not cut vegetation less than 3 feet tall and less than 3 inches in diameter, that is within the clearing limits but beyond the roadway and not in a decking area, and that does not interfere with sight distance along the road.

Add the following:

(e) Trim branches of remaining trees or shrubs to give a clear height of 14 feet above the roadbed unless otherwise indicated. Trim tree limbs as near flush with the trunk as practicable.

(f) Remove brush from log decks. Deck logs so that logs are piled parallel to one another; can be removed by standard log loading equipment; will not damage standing trees; will not interfere with drainage, and will not roll. Keep logs in log decks free of brush and soil.

201.04 Clearing.

Add the following:

When marked in advance, remove dead trees over 6 inches in diameter measured at 12 inches above the ground that lean toward the road and are tall enough to reach the roadbed.

201.06 Disposal

Delete the first sentence of this paragraph and substitute the following:
Limb and deck logs that meet utilization standards at locations approved by the CO or otherwise designated. Deck logs according to 201.04 (f).

201.06 Disposal.

Delete the first sentence of this subsection and substitute the following:

Dispose of merchantable timber designated for removal according to the provisions of the timber sale contract.

203 - Removal of Structures and Obstructions

203.05_nat_us_02_18_2005

203.05 Disposing of Material.

Add the following:

(e) Windrowing Construction Slash. Place construction slash outside the roadway in neat, compacted windrows approximately parallel to and along the toeline of embankment slopes. Do not permit the top of the windrows to extend above subgrade. Use construction equipment to matt down all material in a windrow to form a compact and uniform pile. Construct breaks of at least 15 feet at least every 200 feet in a windrow. Do not place windrows against trees. Obtain approval for pioneer roads. A pioneer road may be constructed to provide an area for placement of windrows, provided the excavated material is kept within the clearing limits and does not adversely affect the road construction.

(f) Scattering. Scatter construction slash outside the clearing limits without damaging trees. Limb all logs. Place logs and stumps away from trees, positioned so they will not roll, and are not on top of one another. Limb and scatter other construction slash to reduce slash concentrations.

(g) Chipping or Grinding. Use an approved chipping machine to grind slash and stumps greater than 3 inches in diameter and longer than 3 feet. Deposit chips or ground woody material on embankment slopes or outside the roadway to a loose depth less than 6 inches. Minor amounts of chips or ground woody material may be permitted within the roadway if they are thoroughly mixed with soil and do not form a layer.

(h) Debris Mat. Use tree limbs, tops, cull logs, split stumps, wood chunks, and other debris to form a mat upon which construction equipment is operated. Place stumps upside down and blend stumps into the mat.

(i) Decking Firewood Material. Remove brush from decks. Limb and deck logs that do not meet Utilization Standards according to Subsection 201.04 as directed by the CO. Cut logs to lengths less than 30 feet. Ensure that logs stacks are stable and free of brush and soil.

(j) Removal to designated locations. Remove construction slash to designated locations.

(k) Piling. Pile construction slash in designated areas. Place and construct piles so that if the piles are burned, the burning will not damage remaining trees. Keep piles free of dirt from stumps. Cut unmerchantable logs into lengths of less than 20 feet.

(l) Placing Slash on Embankment Slopes. Place construction slash on completed embankment slopes to reduce soil erosion. Place construction slash as flat as practicable on the completed slope. Do not place slash closer than 2 feet below subgrade. Priority for use of available slash is for: (1) through fills; (2) insides of curves; and (3) ditch relief outlets.

(m) Hydrological Sensitive Placement. Where required use this method in combination with other designated methods to dispose of material to reduce erosion and to aid in re-vegetation:

1. Place windrow segments on contours, wrap in type I geotextile.
2. Place logs as log erosion barriers on contours. Place logs so that 80% of their length is on the ground surface.
3. Scatter slash on bare or disturbed areas within or outside the clearing limits as directed.
4. Scatter chips or ground woody material on bare or disturbed areas within or outside the clearing limits as directed.

Place stumps in swales or on sites to form planting pockets. Place windrow segments on contours, wrap in type I geotextile.

204 - Excavation and Embankment

204.00_nat_us_03_26_2009

Replace Section 204 in its entirety with the following:

Description

204.01 This work consists of excavating material and constructing embankments. This includes furnishing, hauling, stockpiling, placing, disposing, sloping, shaping, compacting, and finishing earthen and rocky material.

204.02 Definitions.

(a) **Excavation.** Excavation consists of the following:

(1) **Roadway excavation.** All material excavated from within the right-of-way or easement areas, except subexcavation covered in (2) below and structure excavation covered in Sections 208 and 209. Roadway excavation includes all material encountered regardless of its nature or characteristics.

(2) **Subexcavation.** Material excavated from below subgrade elevation in cut sections or from below the original groundline in embankment sections. Subexcavation does not include the work required by Subsections 204.05, 204.06(b), and 204.06(c).

(3) **Borrow excavation.** Material used for embankment construction that is obtained from outside the roadway prism. Borrow excavation includes unclassified borrow, select borrow, and select topping.

(b) **Embankment construction.** Embankment construction consists of placing and compacting roadway or borrow excavation. This work includes:

- (1) Preparing foundation for embankment;
- (2) Constructing roadway embankments;
- (3) Benching for side-hill embankments;
- (4) Constructing dikes, ramps, mounds, and berms; and
- (5) Backfilling subexcavated areas, holes, pits, and other depressions.

(c) **Conserved topsoil.** Excavated material conserved from the roadway excavation and embankment foundation areas that is suitable for growth of grass, cover crops, or native vegetation.

(d) **Waste.** Excess and unsuitable roadway excavation and subexcavation that cannot be used.

Material

204.03 Conform to the following Subsections:

| | |
|---------------------|--------|
| Backfill material | 704.03 |
| Select borrow | 704.07 |
| Select topping | 704.08 |
| Topping | 704.05 |
| Unclassified borrow | 704.06 |
| Water | 725.01 |

Construction Requirements

204.04 Preparation for Roadway Excavation and Embankment Construction. Clear the area of vegetation and obstructions according to Sections 201 and 203.

204.05 Reserved.

204.06 Roadway Excavation. Excavate as follows:

(a) General. Do not disturb material and vegetation outside the construction limits. Incorporate only suitable material into embankments. Replace any shortage of suitable material caused by premature disposal of roadway excavation. Dispose of unsuitable or excess excavation material according to Subsection 204.14.

At the end of each day's operations, shape to drain and compact the work area to a uniform cross-section. Eliminate all ruts and low spots that could hold water.

Retrieve material deposited outside of the clearing limits as directed by the CO. Place unsuitable material in designated areas.

(b) Rock cuts. Blast rock according to Section 205. Excavate rock cuts to 6 inches below subgrade within the roadbed limits. Backfill to subgrade with topping or with other suitable material. Compact the material according to Subsection 204.11

(c) Earth cuts. Scarify earth cuts to 6 inches below subgrade within the roadbed limits. Compact the scarified material according to Subsection 204.11.

(d) Pioneer Roads. Road pioneering, slash disposal, and grubbing of stumps may proceed concurrently with excavation. Conduct excavation and placement operations so material to be treated under Section 201 will not be incorporated into the roadway unless specified in the slash treatment method. Maintain drainage during pioneering operations.

Remove snow and ice in advance of the work and deposit beyond the roadway limits in a manner that will not waste material or generate sediment. Do not incorporate snow and ice into embankments. Place snow or ice in a manner to prevent resource damage.

204.07 Subexcavation. Excavate material to the limits designated by the CO. Take cross-sections according to Section 152. Prevent unsuitable material from becoming mixed with the backfill. Dispose of unsuitable material according to Subsection 204.14. Backfill the subexcavation with topping, or other suitable material. Compact the material according to Subsection 204.11.

204.08 Borrow Excavation. Use all suitable roadway excavation in embankment construction. Do not use borrow excavation when it results in excess roadway excavation. Deduct excess borrow excavation from the appropriate borrow excavation quantity.

Obtain borrow source acceptance according to Subsection 105.02. Develop and restore borrow sources according to Subsection 105.03. Do not excavate beyond the established limits. When applicable, shape the borrow source to permit accurate measurements when excavation is complete.

204.09 Preparing Foundation for Embankment Construction. Prepare foundation for embankment construction as follows:

(a) **Embankment less than 4 feet high over natural ground.** When designated, remove topsoil and break up the ground surface to a minimum depth of 6 inches by plowing or scarifying. Compact the ground surface according to Subsection 204.11.

(b) **Embankments over an existing asphalt, concrete, or gravel road surface.** Scarify gravel roads to a minimum depth of 6 inches. Scarify or pulverize asphalt and concrete roads to 6 inches below the pavement. Reduce all particles to a maximum size of 6 inches and produce a uniform material. Compact the surface according to Subsection 204.11.

(c) **Embankment across ground not capable of supporting equipment.** Dump successive loads of embankment material in a uniformly distributed layer to construct the lower portion of the embankment. Limit the layer thickness to the minimum depth necessary to support the equipment.

(d) **Embankment on an existing slope steeper than 1V:3H.** Cut horizontal benches in the existing slope to a sufficient width to accommodate placement and compaction operations and equipment. Bench the slope as the embankment is placed and compacted in layers. Begin each bench at the intersection of the original ground and the vertical cut of the previous bench.

204.10 Embankment Construction. Incorporate only suitable roadway excavation material into the embankment. When the supply of suitable roadway excavation is exhausted, furnish unclassified borrow to complete the embankment. Obtain written approval before beginning construction of embankments over 6 feet high at subgrade centerline. Construct embankments as follows:

(a) **General.** At the end of each day's operations, shape to drain and compact the embankment surface to a uniform cross-section. Eliminate all ruts and low spots that could hold water.

During all stages of construction, route and distribute hauling and leveling equipment over the width and length of each layer of material.

Compact embankment side slopes flatter than 1V:1.75H with a tamping type roller or by walking with a dozer. For slopes 1V:1.75H or steeper, compact the slopes as construction of the embankment progresses.

Where placing embankment on one side of abutments, wing walls, piers, or culvert headwalls, compact the material using methods that prevent excessive pressure against the structure.

Where placing embankment material on both sides of a concrete wall or box structure, conduct operations so compacted embankment material is at the same elevation on both sides of the structure.

Where structural pilings are placed in embankment locations, limit the maximum particle size to 4 inches.

(b) Embankment within the roadway prism. Place embankment material in horizontal layers not exceeding 12 inches in compacted thickness. Incorporate oversize boulders or rock fragments into the 12-inch layers by reducing them in size or placing them individually as required by (c) below. Compact each layer according to Subsection 204.11 before placing the next layer.

Material composed predominately of boulders or rock fragments too large for 12-inch layers may be placed in layers up to 24 inches thick. Incorporate oversize boulders or rock fragments into the 24-inch layer by reducing them in size or placing them individually according to (c) below. Place sufficient earth and smaller rocks to fill the voids. Compact each layer according to Subsection 204.11 before placing the next layer.

(c) Individual rock fragments and boulders. Place individual rock fragments and boulders greater than 24 inches in diameter as follows:

- (1) Reduce rock to less than 48 inches in the largest dimension.
- (2) Distribute rock within the embankment to prevent nesting.
- (3) Place layers of embankment material around each rock to a depth not greater than that permitted by (b) above. Fill all the voids between rocks.
- (4) Compact each layer according to Subsection 204.11 before placing the next layer.

(d) Embankment outside of roadway prism. Where placing embankment outside the staked roadway prism, place material in horizontal layers not exceeding 24 inches in compacted thickness. Compact each layer according to Subsection 204.11.

204.11 Compaction. Compact the embankment using one of the following methods as specified:

(a) Compaction A. Use AASHTO T 27 to determine the amount of material retained on a Number 4 sieve. If there is more than 80 percent retained on the No. 4 sieve use procedure (1). If there is 50 to 80 percent retained on the No. 4 sieve use procedure (2). If there is less than 50 percent retained on the No. 4 sieve use procedure (3).

(1) Adjust the moisture content to a level suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Use compression-type rollers at speeds less than 6 feet per second and vibratory rollers at speeds less than 3 feet per second. Compact each layer of material full width with one of the following and until there is no visible evidence of further consolidation.

(a) Four roller passes of a vibratory roller having a minimum dynamic force of 40,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.

(b) Eight roller passes of a 20-ton compression-type roller.

(c) Eight roller passes of a vibratory roller having a minimum dynamic force of 30,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.

Increase the compactive effort for layers deeper than 12 inches as follows:

- For each additional 6 inches or fraction thereof, increase the number of roller passes in (a) above by four passes.
- For each additional 6 inches or fraction thereof, increase the number of roller passes in (b) and (c) above, by eight passes.

(2) Use AASHTO T 99 to determine the optimum moisture content of the portion of the material passing a No. 4 sieve. Multiply this number by the percentage of material passing a No. 4 sieve, and add 2 percent to determine the optimum moisture content of the material. Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within 2 percent of the optimum moisture content.

Use compression-type rollers at speeds less than 6 feet per second and vibratory rollers at speeds less than 3 feet per second. Compact each layer of material full width according to (1) above.

(3) Classify the material according to AASHTO M 145. For material classified A-1 or A-2-4, determine the maximum density according to AASHTO T 180, method D. For other material classifications, determine the optimum moisture content and maximum density according to AASHTO T 99, method C.

Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within 2 percent of the optimum moisture content.

Use compression-type or vibratory rollers. Compact each layer of material full width to at least 95 percent of the maximum density. Determine the in-place density and moisture

content according to AASHTO T 310 or other approved test procedures. When required, use AASHTO T 224 to correct for coarse particles.

(b) Compaction B. Place material by end dumping to the minimum depth needed for operation of spreading equipment. Adjust the moisture content of the material to obtain a mass that will not visibly deflect under the load of the hauling and spreading equipment. Operate compaction equipment over the full width of each layer until there is no visible evidence of further consolidation or, if when a sheepsfoot roller is used, the roller “walks out” of the layer. Make at least three complete passes.

(c) Compaction C. Place material by end dumping to the minimum depth needed for operation of spreading equipment. Level and smooth each embankment layer before placing the next layers. Operate hauling and spreading equipment uniformly over the full width of each layer. Construct a solid embankment with adequate compaction by working smaller rock and fines in with the larger rocks to fill the voids, and by operating hauling and spreading equipment uniformly over the full width of each layer as the embankment is constructed.

204.12 Ditches. Slope, grade, and shape ditches. Remove all projecting roots, stumps, rock, or similar matter. Maintain all ditches in an open condition and free from leaves, sticks, and other debris.

Form furrow ditches by plowing or using other acceptable methods to produce a continuous furrow. Place all excavated material on the downhill side so the bottom of the ditch is approximately 18 inches below the crest of the loose material. Clean the ditch using a hand shovel, ditcher, or other suitable method. Shape to provide drainage without overflow.

204.13 Sloping, Shaping, and Finishing. Complete slopes, ditches, culverts, riprap, and other underground minor structures before placing aggregate courses. Slope, shape, and finish as follows:

(a) Sloping. Leave all earth slopes with uniform roughened surfaces, except as described in (b) below, with no noticeable break as viewed from the road. Except in solid rock, round tops and bottoms of all slopes including the slopes of drainage ditches. Round material overlaying solid rock to the extent practical. Scale all rock slopes. Slope rounding is not required on tolerance class D through M roads.

If a slide or slipout occurs on a cut or embankment slope, remove or replace the material, and repair or restore all damage to the work. Bench or key the slope to stabilize the slide. Reshape the cut or embankment slope to an acceptable condition.

(b) Stepped slopes. Where required by the contract, construct steps on slopes of 1½V:1H to 1V:2H. Construct the steps approximately 18 inches high. Blend the steps into natural ground at the end of the cut. If the slope contains nonrippable rock outcrops, blend steps into the rock. Remove loose material found in transitional area. Except for removing large rocks that may fall, scaling stepped slopes is not required.

(c) Shaping. Shape the subgrade to a smooth surface and to the cross-section required. Shape slopes to gradually transition into slope adjustments without noticeable breaks. At the ends of cuts and at intersections of cuts and embankments, adjust slopes in the horizontal and vertical planes to blend into each other or into the natural ground.

(d) Finishing. Finish the roadbed to be smooth and uniform, and shaped to conform to the typical sections. Remove unsuitable material from the roadbed and replace it with suitable material. Finish roadbeds to the tolerance class shown in table 204-2. Ensure that the subgrade is visibly moist during shaping and dressing. Scarify to 6 inches below the bottom of low sections, holes, cracks, or depressions and bring back to grade with suitable material. Maintain proper ditch drainage.

For surfaced roads, remove all material larger than 6 inches from the top 6 inches of the roadbed.

For unsurfaced roads, use one of the following methods to finish the roadbed:

(1) Method A. Remove all material larger than 6 inches from the top 6 inches of the roadbed and replace with suitable material.

(2) Method B. Use a vibratory grid roller or approved equal with a minimum weight of 10 tons. Roll at least 5 full-width passes or until there is no visible evidence of further consolidation.

(3) Method C. For roads designated as Construction Tolerance Class K, L, or M, finish the roadbed by spreading the excavation. Eliminate rock berms.

204.14 Disposal of Unsuitable or Excess Material. Dispose of unsuitable or excess material at designated sites or legally off of the project.

When there is a pay item for waste, shape and compact the waste material in its final location. Do not mix clearing or other material not subject to payment with the waste material.

204.15 Acceptance. See Table 204-1 for sampling and testing requirements.

Material for embankment and conserved topsoil will be evaluated under Subsections 106.02 and 106.04.

Excavation and embankment construction will be evaluated under Subsections 106.02 and 106.04.

Clearing and removal of obstructions will be evaluated under Sections 201 and 203.

Measurement

204.16 Measure the Section 204 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

(a) Roadway excavation. Measure roadway excavation in its original position as follows:

- (1) Include the following volumes in roadway excavation:
- (a) Roadway prism excavation;
 - (b) Rock material excavated and removed from below subgrade in cut sections;
 - (c) Unsuitable material below subgrade and unsuitable material beneath embankment areas when a pay item for subexcavation is not shown in the bid schedule;
 - (d) Ditches, except furrow ditches measured under a separate bid item;
 - (e) Topsoil;
 - (f) Borrow material used in the work when a pay item for borrow is not shown in the bid schedule;
 - (g) Loose scattered rocks removed and placed as required within the roadway;
 - (h) Conserved material taken from stockpiles and used in Section 204 work; and
 - (i) Slide and slipout material not attributable to the Contractor's method of operation.
- (2) Do not include the following in roadway excavation:
- (a) Overburden and other spoil material from borrow sources;
 - (b) Overbreakage from the backslope in rock excavation;
 - (c) Water or other liquid material;
 - (d) Material used for purposes other than required;
 - (e) Roadbed material scarified in place and not removed;
 - (f) Material excavated when stepping cut slopes;
 - (g) Material excavated when rounding cut slopes;
 - (h) Preparing foundations for embankment construction;
 - (i) Material excavated when benching for embankments;
 - (j) Slide or slipout material attributable to the Contractor's method of operation;
 - (k) Conserved material taken from stockpiles constructed at the option of the Contractor; and
 - (l) Material excavated outside the established slope limits.
- (3) When both roadway excavation and embankment construction pay items are shown in the bid schedule, measure the following as roadway excavation only:
- (a) Unsuitable material below subgrade in cuts and unsuitable material beneath embankment areas when a pay item for subexcavation is not shown in the bid schedule;
 - (b) Slide and slipout material not attributable to the Contractor's method of operations; and
 - (c) Drainage ditches, channel changes, and diversion ditches.

(b) Unclassified borrow, select borrow, and select topping. When measuring by the cubic yard measure in its original position. If borrow excavation is measured by the cubic yard in place, take initial cross-sections of the ground surface after stripping overburden. Upon completion of excavation and after the borrow source waste material is returned to the source, retake cross-sections before replacing the overburden.

Do not measure borrow excavation used in place of excess roadway excavation.

(c) Embankment construction. Measure embankment construction in its final position. Do not make deductions from the embankment construction quantity for the volume of minor structures.

(1) Include the following volumes in embankment construction:

- (a)* Roadway embankments;
- (b)* Material used to backfill subexcavated areas, holes, pits, and other depressions;
- (c)* Material used to restore obliterated roadbeds to original contours; and
- (d)* Material used for dikes, ramps, mounds, and berms.

(2) Do not include the following in embankment construction:

- (a)* Preparing foundations for embankment construction;
- (b)* Adjustments for subsidence or settlement of the embankment or of the foundation on which the embankment is placed; and
- (c)* Material used to round fill slopes.

(d) Rounding cut slopes. Measure rounding cut slopes horizontally along the centerline of the roadway if a pay item for slope rounding is included in the bid schedule. If a pay item for slope rounding is not included in the bid schedule slope rounding will be considered subsidiary to excavation.

(e) Waste. Measure waste by the cubic yard in its final position. Take initial cross-sections of the ground surface after stripping over burden. Upon completion of the waste placement, retake cross-sections before replacing overburden.

(f) Slope scaling. Measure slope scaling by the cubic yard in the hauling vehicle.

Payment

204.17 The accepted quantities will be paid at the contract price per unit of measurement for the Section 204 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Table 204-1
Sampling and Testing Requirements

| Material or Product | Type of Acceptance (Subsection) | Characteristic | Category | Test Methods Specifications | Sampling Frequency | Point of Sampling | Split Sample | Reporting Time |
|--|--|---|----------|--|--|---|---------------------------|---------------------------|
| Topping (704.05) & unclassified borrow (704.06) | Measured and tested for conformance (106.04) | Classification | — | AASHTO M 145 | 1 per soil type | Processed material before incorporating in work | Yes, when requested | Before using in work |
| | | Moisture-density | — | AASHTO T 180, method D ⁽¹⁾ or T 99, method C ⁽¹⁾ | 1 per soil type but not less than 1 per | “ | “ | “ |
| | | Compaction | — | AASHTO T 310 or other approved procedures | 1 per 6000 yd ² but not less than 1 per layer | In-place | — | Before placing next layer |
| Select borrow (704.07) & Select topping (704.08) | Measured and tested for conformance (106.04) | Classification | — | AASHTO M 145 | 1 per soil type but not less than 1 for each day of production | Processed material before incorporating | Yes, when requested | Before using in work |
| | | Gradation | — | AASHTO T 27 | “ | “ | “ | “ |
| | | Liquid limit | — | AASHTO T 89 | “ | “ | “ | “ |
| | | Moisture-density | — | AASHTO T 180, method D ⁽¹⁾ or T 99, method C ⁽¹⁾ | 1 per soil type but not less than 1 per | “ | “ | “ |
| Compaction | — | AASHTO T 310 or other approved procedures | — | 1 per 6000 yd ² but not less than 1 per layer | In-place | — | Before placing next layer | |

(1) Minimum of 5 points per proctor

**Table 204-1 (continued)
Sampling and Testing Requirements**

| Material or Product | Type of Acceptance (Subsection) | Characteristic | Category | Test Methods Specifications | Sampling Frequency | Point of Sampling | Split Sample | Reporting Time |
|---|--|-----------------------|-----------------|--|--|--------------------------|---------------------|---------------------------|
| Earth embankment (204.11, Compaction A) | Measured and tested for conformance (106.04) | Classification | — | AASHTO M 145 | 1 per soil type | Source of Material | Yes, when requested | Before using in work |
| | | Moisture-density | — | AASHTO T 180, method D ⁽¹⁾ or T 99, method C ⁽¹⁾ | 1 per soil type but not less than 1 per 13,000 yd ³ | “ | “ | “ |
| | | Compaction | — | AASHTO T 310 or other approved procedures | 1 per 3500 yd ² but not less than 1 per layer | In-place | — | Before placing next layer |
| Top of subgrade (204.11 Compaction A) | Measured and tested for conformance (106.04) | Compaction | — | AASHTO T 310 or other approved procedures | 1 per 2500 yd ² | In-place | — | Before placing next layer |

(1) Minimum of 5 points per proctor.

**Table 204-2
Construction Tolerances**

| | Tolerance Class ^(a) | | | | | | | | | | | | |
|--|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| Roadbed width (ft) | +0.5 | +0.5 | +1.0 | +1.0 | +1.0 | +1.0 | +1.5 | +1.0 | +2.0 | +2.0 | +2.0 | +2.0 | +2.0 |
| Subgrade elevation (ft) | ±0.1 | ±0.2 | ±0.2 | ±0.5 | ±0.5 | ±1.0 | ±1.0 | ±1.5 | ±2.0 | ±3.0 | ±2.0 | ±3.0 | (c) |
| Centerline alignment (ft) | ±0.2 | ±0.2 | ±0.5 | ±0.5 | ±1.0 | ±1.0 | ±1.5 | ±1.5 | ±2.0 | ±3.0 | ±3.0 | ±5.0 | (c) |
| Slopes, excavation, and embankment (% slope ^(b)) | ±3 | ±5 | ±5 | ±5 | ±5 | ±5 | ±10 | ±10 | ±10 | ±10 | ±20 | ±20 | ±20 |

(a) Maximum allowable deviation from construction stakes and drawings.

(b) Maximum allowable deviation from staked slope measured from slope stakes or hinge points.

(c) Unless otherwise shown the centerline alignment and subgrade elevation, as built, have no horizontal curves with a radius of less than 80 feet, and no vertical curves with a curve length of less than 80 feet when the algebraic difference in the grade change is less than 10 percent, or a curve length of less than 100 feet when the algebraic difference of the grade change is greater than or equal to 10 percent. The centerline grade is not to exceed 20 percent in 100 feet of length.

204.05 Conserved Topsoil

Delete the entire paragraph.

204.06_nat_us_03_02_2005

204.06 Roadway Excavation

(a) General.

Add the following:

Retrieve material deposited outside of the clearing limits as directed by the CO. Place unsuitable material in designated areas.

204.06_nat_us_03_02_2005

204.06 Roadway Excavation.

Add the following:

d) Pioneer Roads. Road pioneering, slash disposal, and grubbing of stumps may proceed concurrently with excavation. Conduct excavation and placement operations so material to be treated under Section 201 will not be incorporated into the roadway unless specified in the slash treatment method. Maintain drainage during pioneering operations.

Remove snow and ice in advance of the work and deposit beyond the roadway limits in a manner that will not waste material or generate sediment. Do not incorporate snow and ice into embankments. Place snow or ice in a manner to prevent resource damage.

204.06_nat_us_03_02_2005

204.06 Roadway Excavation

(b) Rock Cuts.

Add the following:

When blasting rock, use blasting methods according to Subsection 205.08

204.09_nat_us_03_02_2005

204.09 Preparing Foundation for Embankment Construction.

Delete subsection (a) and replace it with the following:

(a) Embankment less than 4 feet high over natural ground. When designated, remove topsoil and break up the ground surface to a minimum depth of 6 inches by plowing or scarifying. Compact the ground surface according to Subsection 204.11.

204.10_nat_us_03_02_2005

204.10 Embankment Construction.

Add the following:

Obtain written approval before beginning construction of embankments over 6 feet high at subgrade centerline.

(a) General.

Delete the third paragraph and add the following:

Compact embankment side slopes flatter than 1V:1.75H with a tamping type roller or by walking with a dozer. For slopes 1V:1.75H or steeper, compact the slopes as construction of the embankment progresses.

204.11_nat_us_04_11_2005

204.11 Compaction.

Delete the first paragraph and replace it with the following:

For compaction according to method (a), (b), or (c), use AASHTO T 27 to determine the amount of material retained on a Number. 4 sieve. For compaction methods (d) or (e) no sieve test is required.

Add the following compaction methods:

(d) Layer Placement Method (Hauling and Spreading Equipment). Place material by end dumping to the minimum depth needed for operation of spreading equipment. Level and smooth each embankment layer before placing the next layers. Operate hauling and spreading equipment uniformly over the full width of each layer. Construct a solid embankment with adequate compaction by working smaller rock and fines in with the larger rocks to fill the voids, and by operating hauling and spreading equipment uniformly over the full width of each layer as the embankment is constructed.

(e) Layer Placement (Roller Compaction) Method. Place material by end dumping to the minimum depth needed for operation of spreading equipment. Adjust the moisture content of the material to obtain a mass that will not visibly deflect under the load of the hauling and spreading equipment. Operate compaction equipment over the full width of each layer until visible deformation of the layer ceases or, in when a sheepsfoot roller is used, the roller “walks out” of the layer. Make at least three complete passes.

204.13 Sloping, Shaping, and Finishing.**(a) Sloping.**Add the following:

Slope rounding is not required on tolerance class D through M roads.

204.13_nat_us_03_02_2005

204.13 Sloping, Shaping, and Finishing.Delete section (d) and add the following:

(d) Finishing. For surfaced roads, remove all material larger than 6 inches from the top 6 inches of the roadbed. For all roads, finish the roadbed to be smooth and uniform, and shaped to conform to the typical sections. Remove unsuitable material from the roadbed and replace it with suitable material. Finish roadbeds to the tolerance class shown in table 204-2.

Ensure that the subgrade for both surfaced and unsurfaced roads is visibly moist during shaping and dressing. Scarify to 6 inches below the bottom of low sections, holes, cracks, or depressions and bring back to grade with suitable material. Maintain proper ditch drainage.

For unsurfaced roads, use one of the following methods to finish the roadbed:

- (1) Method A. Remove all material larger than 6 inches from the top 6 inches of the roadbed and replace with suitable material.
- (2) Method B. Use a vibratory grid roller or approved equal with a minimum weight of 10 tons. Roll at least 5 full-width passes or until visible displacement ceases.
- (3) Method C. For roads designated as Construction Tolerance Class K, L, or M, finish the roadbed by spreading the excavation. Eliminate rock berms.

Add Table 204-2—Construction Tolerances:**Table 204-2 Construction tolerances.**

| | Tolerance Class ^(a) | | | | | | | | | | | | |
|--|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
| Roadbed width (ft) | +0.5 | +0.5 | +1.0 | +1.0 | +1.0 | +1.0 | +1.5 | +1.0 | +2.0 | +2.0 | +2.0 | +2.0 | +2.0 |
| Subgrade elevation (ft) | ±0.1 | ±0.2 | ±0.2 | ±0.5 | ±0.5 | ±1.0 | ±1.0 | ±1.5 | ±2.0 | ±3.0 | ±2.0 | ±3.0 | (c) |
| Centerline alignment (ft) | ±0.2 | ±0.2 | ±0.5 | ±0.5 | ±1.0 | ±1.0 | ±1.5 | ±1.5 | ±2.0 | ±3.0 | ±3.0 | ±5.0 | (c) |
| Slopes, excavation, and embankment (% slope ^(b)) | ±3 | ±5 | ±5 | ±5 | ±5 | ±5 | ±10 | ±10 | ±10 | ±10 | ±20 | ±20 | ±20 |

a. Maximum allowable deviation from construction stakes and drawings.

b. Maximum allowable deviation from staked slope measured from slope stakes or hinge points.

c. Unless otherwise shown the centerline alignment and subgrade elevation, as built, have no horizontal curves with a radius of less than 80 feet, and no vertical curves with a curve length of less than 80 feet when the algebraic difference in the grade change is less than 10 percent, or a curve length of less than 100 feet when the algebraic difference of the grade change is greater than or equal to 10 percent. The centerline grade is not to exceed 20 percent in 100 feet of length.

204.14_nat_us_03_02_2005

204.14 Disposal of Unsuitable or Excess Material.

Delete the text of the first paragraph and substitute the following:

Dispose of unsuitable or excess material at designated sites or legally off of the project.

204.15_nat_us_02_07_2007

204.15 Acceptance

Table 204-1 Sampling and Testing Requirements.

Add the following note to the table:

(2) When compaction methods (d) or (e) are used AASHTO M 145, T 99, T 180, and T 310 are not required for earth embankment test methods.

303 - Road Reconditioning

303.01_nat_us_03_02_2005

303.01 Work.

Delete and add the following:

This work consists of reconditioning ditches, shoulders, roadbeds, cattleguards, asphalt surfaces, and aggregate surfaces.

303.06_nat_us_08_05_2008

303.06 Aggregate Surface Reconditioning.

Delete and replace with the following:

303.06 Asphalt and Aggregate Surface Reconditioning.

Repair soft and unstable areas to the full depth of the aggregate surface and according to Subsection 204.07. Scarify to the depth of the aggregate surface or to a depth of 6 inches, whichever is less, and remove surface irregularities. Reshape, finish, and compact the entire aggregate surface according to Subsection 301.05, Subsection 321.05, or Subsection 322.05 as applicable.

For asphalt surfaces, clean the existing surface of all loose material, dirt, or other deleterious substances by approved methods. Remove and dispose of unsuitable material that shows evidence of distress, excess asphalt material, or settlement in the roadbed. Patch the areas with approved material that conforms to and is compatible with the adjacent pavement structure. Perform the patch work according to Section 301, 404, 430, or other sections as applicable for the layer or courses being repaired. Clean and seal cracks in the existing asphalt surface according to Subsection 414.05. Correct surface irregularities exceeding 6 inches in depth with a specified aggregate. Place and compact the aggregate according to Subsections 301.04 and 301.05. Prelevel other dips, depressions, sags, excessive or nonexistent crown, or other surface irregularities with asphalt concrete according to Section 404. Spread and compact the asphalt concrete in layers parallel to the grade line not to exceed 2 inches in compacted depth.

Delete
1 and
with the

Table 303-1
Sampling and Testing Requirements

| Material or Product | Type of Acceptance (Subsection) | Characteristic | Category | Test Methods Specifications | Sampling Frequency | Point of Sampling | Split Sample | Reporting Time | |
|---------------------|--|-------------------------------------|----------|---|--|---|---------------------|---------------------------|---|
| Existing Roadway | Measured and tested for conformance (106.04) | Moisture-density Method D | — | AASHTO T 99 (1) | 1 per each mixture or change in material | Processed material before incorporating in work | Yes, when requested | Before using in work | |
| | | Moisture-density Method E | — | R-1 Marshall | “ | “ | “ | “ | |
| | | Moisture-density Method F | — | AASHTO T 180(1) | “ | “ | “ | “ | “ |
| | | Moisture-density Method G | — | R-1 Marshall | “ | “ | “ | “ | “ |
| | | In-place density & moisture content | — | AASHTO T 310 or other approved procedures | 1 per 3000 yd ² | In-place | — | Before placing next layer | |

(1) Minimum of 5 points per proctor.

Table 303-
replace
following:

303.07_nat_us_03_02_2005

303.07 Roadway Reconditioning.

Add the following:

Remove cattleguard decks. Clean the deck and the area beneath the cattleguard of soil and other material to the bottom of the original foundation over the entire width of the installation.
Reinstall the cattleguard deck.

303.11_nat_us_03_29_2005

303.10 Measurement

Modify the second paragraph as follows:

Measure ditch reconditioning and shoulder reconditioning by the mile, station, or foot horizontally along the centerline of the roadway for each side of the roadway.

635 - Temporary Traffic Control

635.03_nat_us_05_13_2004

635.03 General.

Add the following:

Install temporary traffic control signs to temporary posts or approved temporary sign mounts.

SUMMARY OF QUANTITIES

(POISON CREEK STEWARDSHIP)

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|---|-------------|-----------|--------------|-----------------|
| 151(01) | Mobilization | Lump Sum | 1 | \$1,480 | \$1,480 |
| 201(03) | Clearing and grubbing, disposal of tops and limbs <u>F</u> , logs <u>F</u> , stumps <u>F</u> | Mile | 3.3 | \$870 | \$2,871 |
| 204(07) | Select borrow, compaction method <u>C</u> , finishing method <u>dozer finish</u> | Cubic Yard | 242 | \$20.70 | \$5,009 |
| 204(19) | Drainage excavation, type <u>Outditch</u> . | Lineal Foot | 80 | \$2.30 | \$184 |
| 204(20) | Drainage excavation, type <u>Rolling Dip</u> | Each | 1 | \$220 | \$220 |
| 207(01) | Earthwork GeoTextiles, type Geofabric | Square Yard | 85 | \$3.60 | \$306 |
| 303(01) | Road reconditioning, <u>6</u> inch depth, surfacing <u>native material</u> , compaction method <u>C</u> | Mile | 6.8 | \$590 | \$4,012 |
| | | | | TOTAL | \$14,082 |

NOTE: Payment will be made on actual work performed as described in FP-03 109.01 unless otherwise noted.

SCHEDULE OF ITEMS

(POISON CREEK STEWARDSHIP)
 LOWER POISON CREEK – ROAD 481
 MP 0.0 TO MP 1.8

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|---|-------------|-----------|--------------|----------------|
| 151(01) | Mobilization | Lump Sum | 1 | \$366 | \$366 |
| 201(03) | Clearing and grubbing, disposal of tops and limbs <u>F</u> , logs <u>F</u> , stumps <u>F</u> | Mile | 0.2 | \$870 | \$174 |
| 204(07) | Select borrow, compaction method <u>C</u> , finishing method <u>dozer finish</u> | Cubic Yard | 56 | \$20.70 | \$1,159 |
| 207(01) | Earthwork GeoTextiles, type Geofabric | Square Yard | 85 | \$3.60 | \$306 |
| 303(01) | Road reconditioning, <u>6</u> inch depth, surfacing <u>native material</u> , compaction method <u>C</u> | Mile | 1.8 | \$590 | \$1,062 |
| | | | | TOTAL | \$3,067 |

NOTE: Payment will be made on actual work performed as described in FP-03 109.01 unless otherwise noted.

SCHEDULE OF ITEMS

(POISON CREEK STEWARDSHIP)
HAZELTON PEAK – ROAD 484
MP 0.0 TO 3.4

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|---|------------|-----------|--------------|----------------|
| 151(01) | Mobilization | Lump Sum | 1 | \$899 | \$899 |
| 201(03) | Clearing and grubbing, disposal of tops and limbs <u>F</u> , logs <u>F</u> , stumps <u>F</u> | Mile | 3.0 | \$870 | \$2,610 |
| 204(07) | Select borrow, compaction method <u>C</u> , finishing method <u>dozer finish</u> | Cubic Yard | 186 | \$20.70 | \$3,850 |
| 204(19) | Drainage Excavation, type <u>Outditch</u> | LF | 60 | \$2.30 | \$138 |
| 204(20) | Drainage excavation, type <u>Rolling Dip</u> | Each | 1 | \$220 | \$220 |
| 303(01) | Road reconditioning, <u>6</u> inch depth, surfacing <u>native material</u> , compaction method <u>C</u> | Mile | 3.4 | \$590 | \$2,006 |
| | | | | TOTAL | \$9,723 |

NOTE: Payment will be made on actual work performed as described in FP-03 109.01 unless otherwise noted.

SCHEDULE OF ITEMS

(POISON CREEK STEWARDSHIP)
 DRY POISON CIRCLE – ROAD 485
 MP 0.0 TO 1.2

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|---|----------|-----------|--------------|--------------|
| 151(01) | Mobilization | Lump Sum | 1 | \$90 | \$90 |
| 204(19) | Drainage Excavation, type <u>Outditch</u> . | LF | 20 | \$2.30 | \$46 |
| 303(01) | Road reconditioning, <u>6</u> inch depth, surfacing <u>native material</u> , compaction method <u>C</u> | Mile | 1.2 | \$590 | \$708 |
| | | | | TOTAL | \$844 |

NOTE: Payment will be made on actual work performed as described in FP-03 109.01 unless otherwise noted.

SCHEDULE OF ITEMS

(POISON CREEK STEWARDSHIP)
MUD POISON – ROAD 486
MP 0.0 TO 0.3

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|---|----------|-----------|--------------|--------------|
| 151(01) | Mobilization | Lump Sum | 1 | \$32 | \$32 |
| 201(03) | Clearing and grubbing, disposal of tops and limbs <u>F</u> , logs <u>F</u> , stumps <u>F</u> | Mile | 0.1 | \$870 | \$87 |
| 303(01) | Road reconditioning, <u>6</u> inch depth, surfacing <u>native material</u> , compaction method <u>C</u> | Mile | 0.3 | \$590 | \$177 |
| | | | | TOTAL | \$296 |

NOTE: Payment will be made on actual work performed as described in FP-03 109.01 unless otherwise noted.

SCHEDULE OF ITEMS

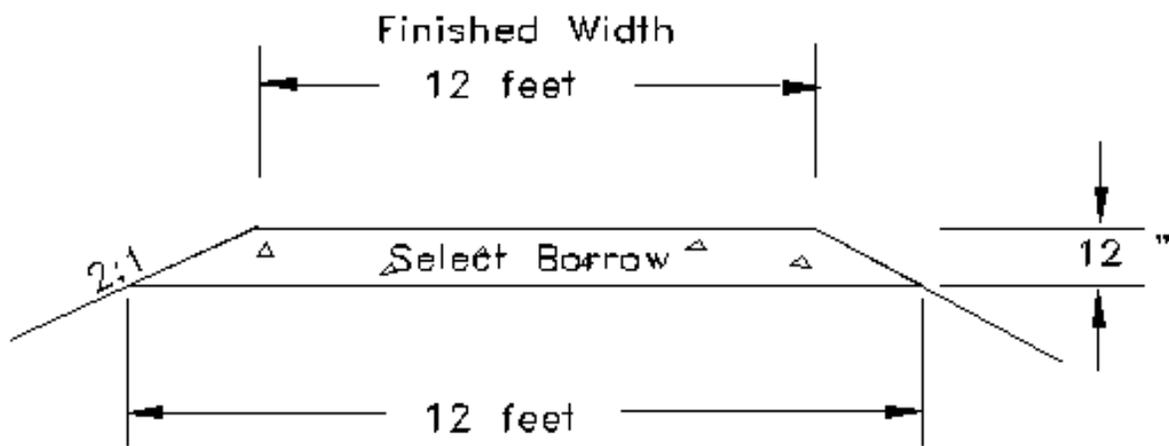
(POISON CREEK STEWARDSHIP)

Oh-Bla-De-Bla-Da – ROAD 533322

MP 0.0 TO 0.2

| ITEM NO. | DESCRIPTION | PAY UNIT | EST. QTY. | UNIT PRICE | TOTAL PRICE |
|----------|---|----------|-----------|--------------|--------------|
| 151(01) | Mobilization | Lump Sum | 1 | \$93 | \$93 |
| 303(01) | Road reconditioning, <u>6</u> inch depth, surfacing <u>native material</u> , compaction method <u>C</u> | Mile | 0.1 | \$590 | \$59 |
| | | | | TOTAL | \$152 |

NOTE: Payment will be made on actual work performed as described in FP-03 109.01 unless otherwise noted.

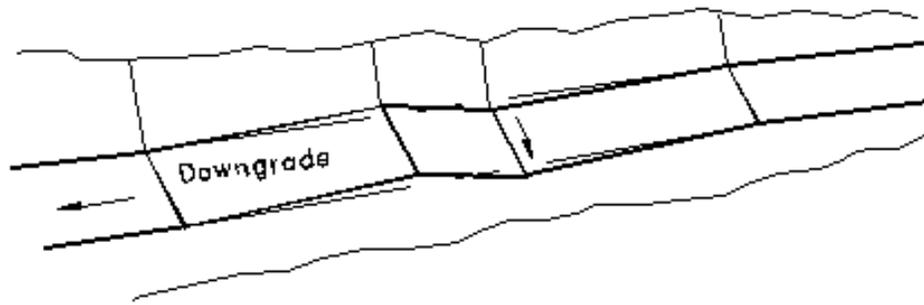


NOTE: Traveled way width shown is without necessary widening for fill, sluff, curves, intersections and turnouts. Required widening has been included in the design and quantity calculations.

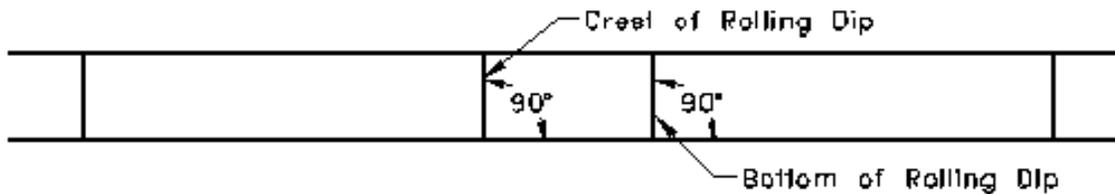
SELECT BORROW

STANDARD
DRAWING

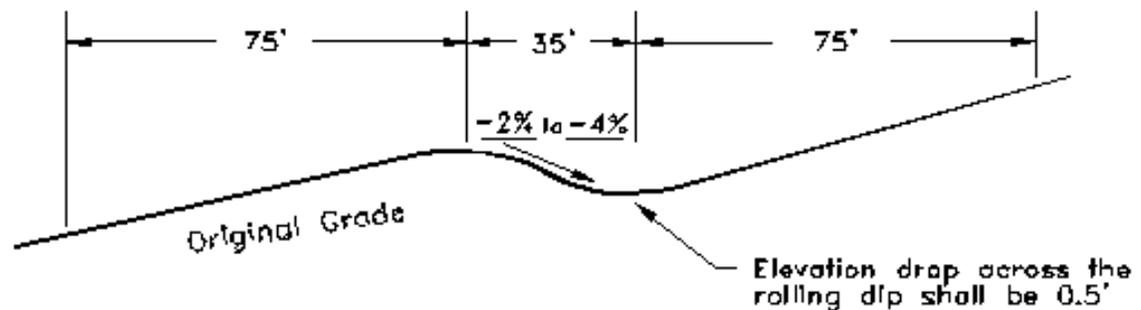
204-1



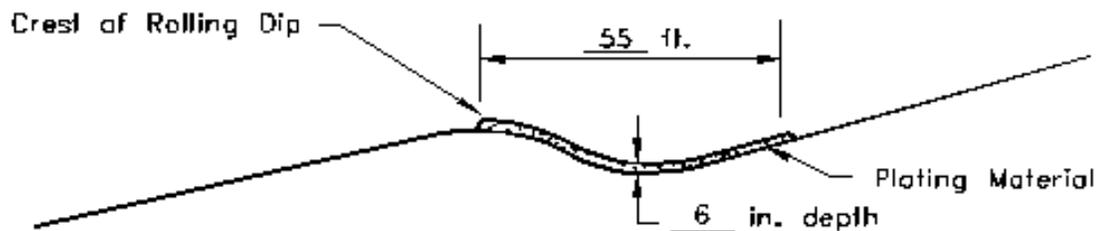
PERSPECTIVE VIEW



PLAN VIEW



PROFILE ROLLING DIP



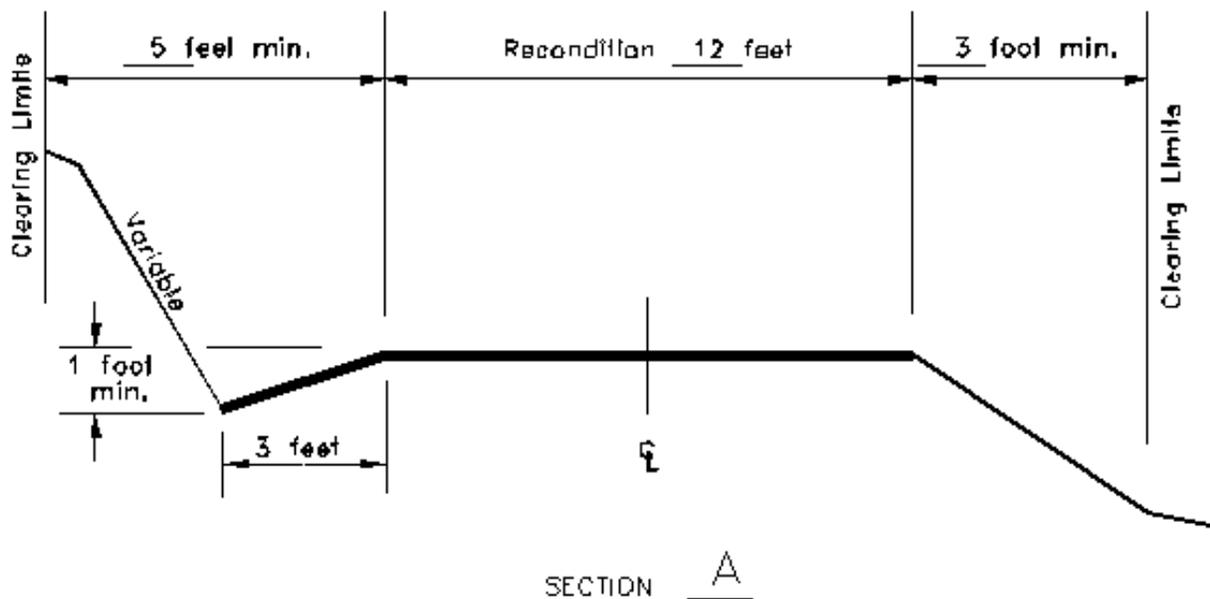
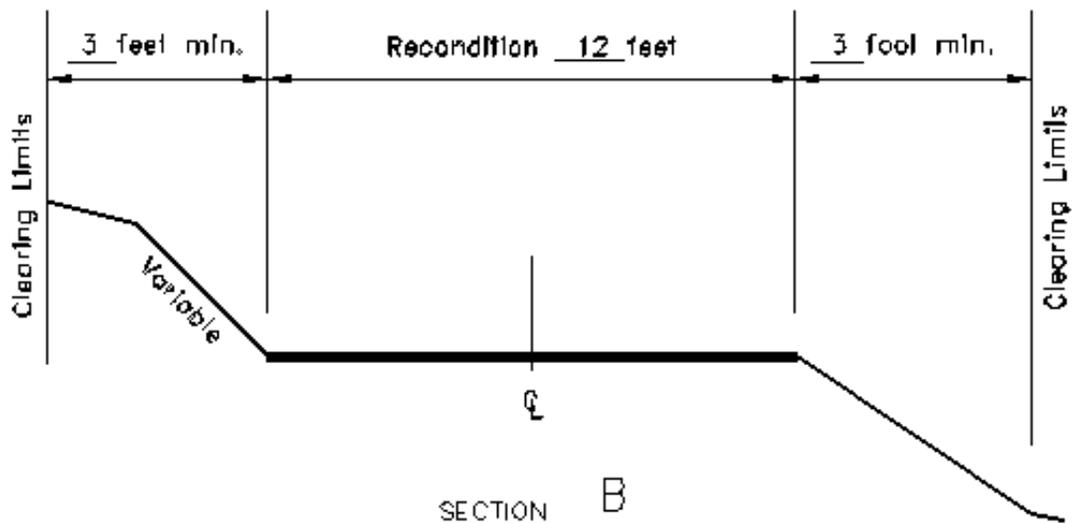
PROFILE ROLLING DIP WITH PLATING

1. When rolling dips are constructed in ditch sections the ditch shall drain across the rolling dip. Resume ditch construction 25' downgrade from the crest of the rolling dip.
2. Outlet drain ditches shall have cut slopes equal to or flatter than 1.5:1. Excavation from outlet ditching shall be wasted along the sides of the ditch. All necessary clearing will be treated in accordance with applicable specifications. Use Compaction, Method C; Finishing Method, Dozer Finish.

ROLLING DIP

STANDARD
DRAWING

204-2



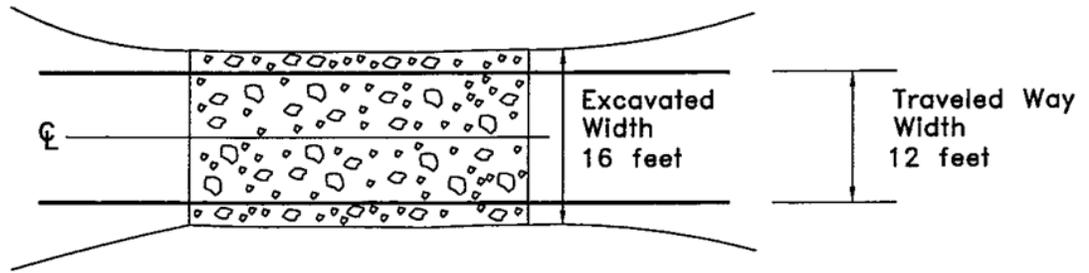
NOTES:

- (1) Rocks removed during scarification process may be deposited below fill slopes and scattered so the appearance of a windrow does not result.
- (2) Scarification will not be required where suitable roadbed (as determined by the Engineer) can be obtained by blading only.
- (3) Rock protrusion of 2" will be allowed.
- (4) Road widths, ditch widths and ditch depths will vary accordingly with the existing roadbed and ditch.

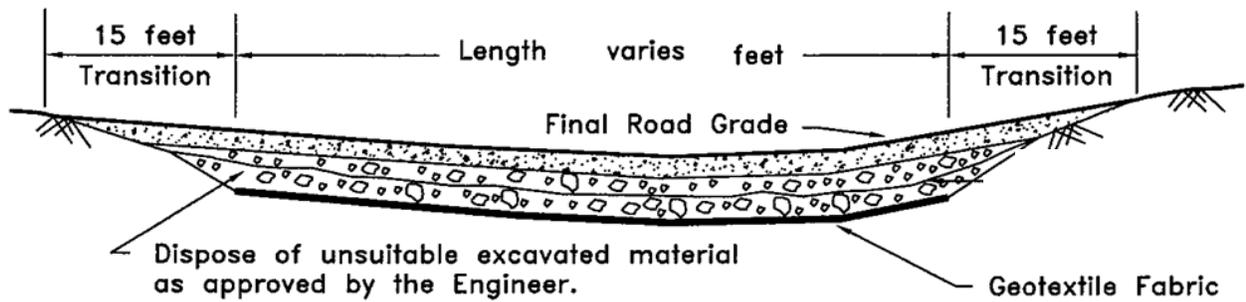
RECONDITIONING

STANDARD
DRAWING

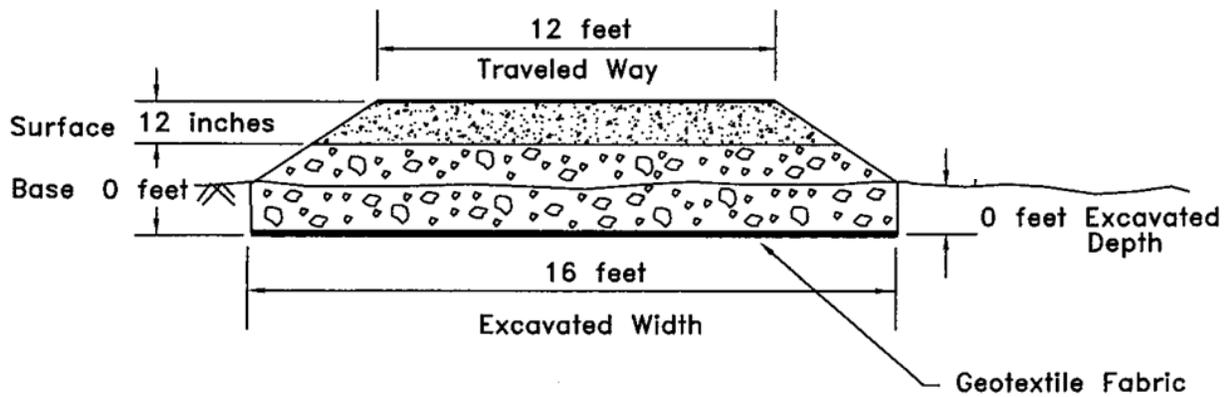
303



PLAN VIEW



PROFILE VIEW



CROSS SECTION VIEW

EARTHWORK GEOTEXTILE

STANDARD
DRAWING

207



W20-3

CASE I - Thru traffic prohibited



R11-3



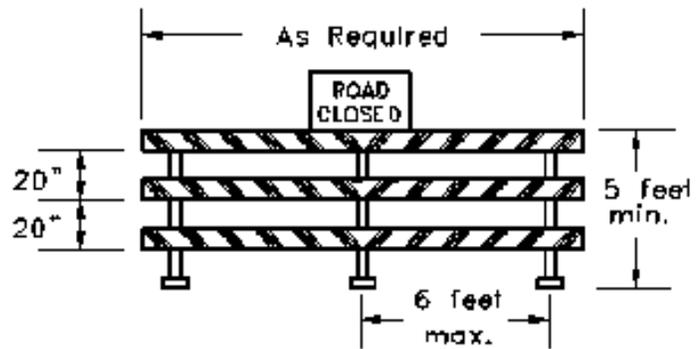
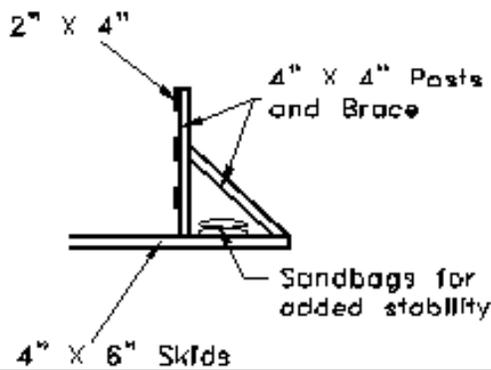
W20-1

CASE II - Traffic routed thru construction

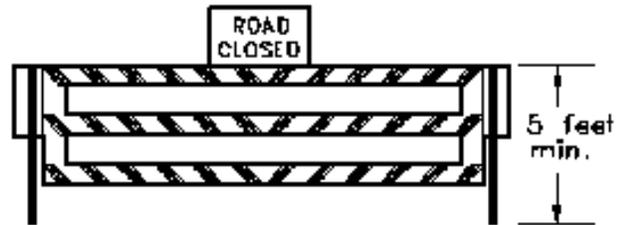
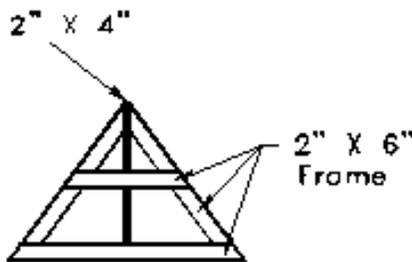


G20-1

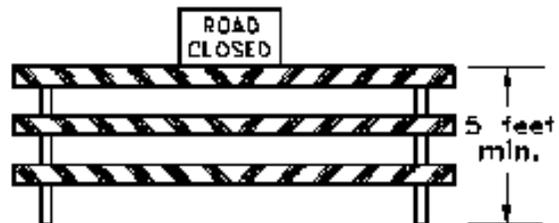
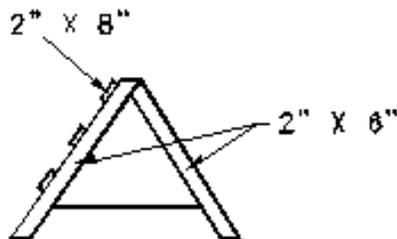
TYPE III MOVABLE BARRICADES



RIGID



DEMOUNTABLE



HINGED

TEMPORARY TRAFFIC CONTROL

STANDARD DRAWING

635-2

CONSTRUCTION SIGNS FOR FOREST DEVELOPMENT ROADS

All work shall be done accordance with The Standard Specifications applicable to the Project and the “Manual on Uniform Traffic Control Devices for all Classes of Streets and Highways” published by the U.S. Department of Transportation, Federal Highway Administration.

Work on the Project shall not be started until all required signs are in place and approved by the Engineer.

Where traffic is maintained through or over any part of the Project, the Contractor will be required to mark all hazards within the limits of the Project (including connecting roads) with well maintained signs. Sign shall be moved, added to, changed or removed as required during the progress of construction and removed entirely when the Project is completed.

All signs shall be placed for best visibility and legibility, maintained in good condition and kept clean and free of dirt at all times. Contractor and Engineer’s vehicles and equipment must be parked so that signs and barricades are visible to approaching traffic at all times.

Locations for control devices are to be approved by the Engineer. In all cases Warning signs are to be placed well in advance on the hazard, the distance depending on topography and existing approach speeds. Additional markings and any special signs required for the guidance and protection of traffic will be placed as required on the Project at the Contractor’s expense.

All signs shall be reflectorized unless otherwise specified on the plans. Signs shall have a screen processed black legend and border on orange flexible reflective sheeting, non-exposed lens background.

Sign panels furnished by the contractor for use only during construction may be fabricated from plywood, aluminum, steel or other suitable material, but shall be stable and durable enough to meet other requirements of the Standard.

All material shall be sound and durable. Barricades, signs, symbols and lettering shall be of good workmanship. Uneven lettering will not be acceptable. Reflective sheeting shall be of the smooth surface type.

Alternate methods of processing signs or the substitution of materials, symbols or other reflecting elements for painted symbols will be permitted only after approval of such methods or materials by the Engineer in writing.

Signs used as “Temporary Traffic Control” are considered incidental to other pay items and no separate payment will be made.

Signs shall be mounted on posts or portable stands approved by the COR.

TEMPORARY TRAFFIC CONTROL 635-1

| MILEPOST | TYP. SECTION | DRAIN. | EXTRA WIDTH (ft) | DESCRIPTION |
|-----------------------------|--------------|--------|--|---|
| 0.0 | | | | JCT. WITH ROAD 484 |
| 0.0 | RECON. (A) | | | BEGIN RECONDITIONING SINGLE LANE, NATIVE SURFACING |
| 0.5 | | | | JCT. WITH 533322 |
| 0.8 TO 1.0 | | | | CLEARING & GRUBBING |
| 1.1 | | | | EXISTING WIRE GATE |
| 1.1 | | | | JCT. WITH 482 |
| 1.4 | | | | INSTALL WOVEN GEOTEXTILE FABRIC, (50 FT. X 15 FT.) PLACE SELECT BORROW FOR 50 FT. (28 CU. YDS) |
| 1.6 | | | | EXISTING CATTLEGUARD |
| 1.6 | | | | EXISTING CULVERT |
| 1.6 | | | | PLACE SELECT BORROW FOR 50 FT. (28 CU. YDS) FOR APPROCHES TO THE CULVERT |
| 1.8 | | | | END RECONDITIONING |
| DESCRIPTION OF WORK | | | DEPARTMENT OF AGRICULTURE FOREST SERVICE BIGHORN NATIONAL FOREST | |
| ROAD NUMBER _____ 481 _____ | | | STANDARD DRAWING | of |

| MILEPOST | TYP. SECTION | DRAIN. | EXTRA WIDTH (ft) | DESCRIPTION |
|----------------------------|--------------|--------|------------------|--|
| 0.0 | RECON. (A) | | | BEGIN RECONDITIONING SINGLE LANE, NATIVE SURFACING (DRAINAGE - ROLLING DIPS) |
| 0.0 TO 1.2 | | | | CLEARING & GUBBING |
| 0.01 | | | | EXISTING CATTLEGUARD |
| 0.8 | | R/D | | CONSTRUCT ROLLING DIP |
| 0.8 | | | | JCT. WITH ROAD 481 |
| 0.9 | | | | JCT. WITH ROAD 485 |
| 0.9 | | | | EXISTING CULVERT |
| 0.9 | | | | PLACE SELECT BORROW FOR 100FT. (56 CU. YDS) |
| 1.0 | | | | JCT. WITH ROAD 486 |
| 1.0 | | | | CONSTRUCT OUTDITCH FOR DRAINAGE (20 FT) |
| 1.5 | | | | PLACE SELECT BORROW FOR 30 FT. (18 CU. YDS) |
| 1.6 TO 3.4 | | | | CLEARING & GRUBBING |
| 1.8 | | | | CONSTRUCT OUTDITCH FOR DRAINAGE (20 FT.) |
| 2.5 | | | | PLACE SELECT BORROW FOR 200 FT. (112 CU. YDS.) |
| CONTINUED ON THE NEXT PAGE | | | | |

| | | | |
|---------------------|--|--|---------------------------------|
| DESCRIPTION OF WORK | | DEPARTMENT OF AGRICULTURE FOREST SERVICE BIGHORN NATIONAL FOREST | |
| | | ROAD NUMBER _____ 484 _____ | STANDARD DRAWING _____ of _____ |

| MILEPOST | TYP. SECTION | DRAIN. | EXTRA WIDTH (ft) | DESCRIPTION |
|-----------------------------|--------------|--------|--|---------------------------------------|
| 3.2 | | | | CREATE OUTDITCH FOR DRAINAGE (20 FT.) |
| 3.2 | | | | EXISTING CATTLEGUARD |
| 3.4 | | | | END RECONDITIONING |
| DESCRIPTION OF WORK | | | DEPARTMENT OF AGRICULTURE FOREST SERVICE BIGHORN NATIONAL FOREST | |
| ROAD NUMBER _____ 484 _____ | | | STANDARD DRAWING | of |

| MILEPOST | TYP. SECTION | DRAIN. | EXTRA WIDTH (ft) | DESCRIPTION |
|-----------------------------|--------------|--------|--|--|
| 0.0 | | | | JCT. WITH 484 |
| 0.0 | RECON. (A) | | | BEGIN RECONDITIONING SINGLE LANE, NATIVE SURFACING (DRAINAGE - ROLLING DIPS) |
| 0.4 | | | | CONSTRUCT OUTDITCH FOR DRAINAGE (20 FT.) |
| 0.5 | | | | JCT. WITH ROAD 533322 |
| 0.5 | | | | EXISTING FORD |
| 0.8 | | | | JCT. WITH ROAD 533324 |
| 1.2 | | | | CONSTRUCT ROLLING DIP AND SEDIMENT TRAP |
| 1.2 | | | | END RECONDITIONING |
| DESCRIPTION OF WORK | | | DEPARTMENT OF AGRICULTURE FOREST SERVICE BIGHORN NATIONAL FOREST | |
| ROAD NUMBER _____ 485 _____ | | | STANDARD DRAWING | of |

| MILEPOST | TYP. SECTION | DRAIN. | EXTRA WIDTH (ft) | DESCRIPTION |
|-----------------------------|--------------|--------|--|--|
| 0.0 | RECON. (A) | | | JCT. WITH ROAD 484 |
| 0.0 | | | | BEGIN RECONDITIONING SINGLE LANE, NATIVE SURFACING (DRAINAGE - ROLLING DIPS) |
| 0.0 TO 0.1 | | | | CLEARING & GRUBBING |
| 0.15 | | | | JCT. WITH ROAD 533325 |
| 0.2 | | | | EXISTING CATTLEGUARD |
| 0.3 | | | | END RECONDITIONING |
| DESCRIPTION OF WORK | | | DEPARTMENT OF AGRICULTURE FOREST SERVICE BIGHORN NATIONAL FOREST | |
| ROAD NUMBER _____ 486 _____ | | | STANDARD | of |

| MILEPOST | TYP. SECTION | DRAIN. | EXTRA WIDTH (ft) | DESCRIPTION |
|---------------------------|--------------|--------|--|--|
| 0.0 | | | | JCT. WITH ROAD 481 |
| 0.0 | RECON. (A) | | | BEGIN RECONDITIONING SINGLE LANE, NATIVE SURFACING |
| 0.1 | | | | END RECONDITIONING |
| DESCRIPTION OF WORK | | | DEPARTMENT OF AGRICULTURE FOREST SERVICE BIGHORN NATIONAL FOREST | |
| ROAD NUMBER <u>533322</u> | | | STANDARD | of |