

SCHEDULE OF ITEMS, SPECIFICATIONS & DRAWINGS FOR SPECIFIED ROADS

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ROAD SUMMARY

SPECIFIED ROADS

a. Description of Work:

Maintenance/Reconstruction: FR 186, 460, 461

Clearing & Grubbing, Brushing, Pit Run Aggregate, Reconditioning of Roadbed, Mobilization, Culvert Installation, Gate Installation, Pit Development, Seeding & Mulching and Removal of Culverts.

b. Construction Costs:

| <u>Road No.</u> | <u>Miles</u> | <u>Estimated road cost</u> | <u>Engineer's Estimate</u> | <u>Reconstruction Deposits</u> |
|-----------------|--------------|--------------------------------|--------------------------------|------------------------------------|
| 186 | 1.1 | \$3,981.00 | \$4,824.00 | \$1,000.00 |
| 460 | 1.1 | \$24,446.50 | \$29,347.50 | \$5,000.00 |
| 461 | 0.8 | \$16,420.00 | \$20,262.00 | \$3,400.00 |
| Total | | \$44,847.50 | \$54,433.50 | \$9,400.00 |

Completion date: 9/30/2009

FR 186

| Pay Item | Description | Pay Unit | Estimated Quantity | Unit Price | Extended Total | Engineer's Estimate Unit Price | Engineer's Extended Total |
|--------------|---|-------------|--------------------|------------|----------------|--------------------------------|---------------------------|
| 15101 | Mobilization (Lump Sum) | All | 1 | 1000.00 | \$ 1,000.00 | 1500.00 | \$ 1,500.00 |
| 25101 | Placed riprap, class R-4 | Ton | 5 | 60.00 | \$ 300.00 | 70.00 | \$ 350.00 |
| 30103 | Aggregate base, grading pit run, compaction method A | Cubic Yard | 24 | 7.50 | \$ 180.00 | 8.50 | \$ 204.00 |
| 30326 | Road reconditioning | Mile | 1.1 | 950.00 | \$ 1,045.00 | 1100.00 | \$ 1,210.00 |
| 60263 | 18 inch aluminized steel, type 2, corrugated steel pipe, 0.064 inch thickness, method A | Linear Foot | 52 | 28.00 | \$ 1,456.00 | 30.00 | \$ 1,560.00 |
| TOTAL | | | | | \$ 3,981.00 | | \$ 4,824.00 |

FR 460

| Pay Item | Description | Pay Unit | Estimated Quantity | Unit Price | Extended Total | Engineer's Estimate Unit Price | Engineer's Extended Total |
|--------------|---|-------------|--------------------|------------|----------------|--------------------------------|---------------------------|
| 15101 | Mobilization (Lump Sum) | All | 1 | 1500.00 | \$ 1,500.00 | 3200.00 | \$ 3,200.00 |
| 20102 | Clearing and grubbing (Lump Sum) | All | 1 | 200.00 | \$ 200.00 | 250.00 | \$ 250.00 |
| 20301 | Removal of culverts | Each | 4 | 90.00 | \$ 360.00 | 105.00 | \$ 420.00 |
| 23050 | Brushing | Mile | 1.1 | 300.00 | \$ 330.00 | 350.00 | \$ 385.00 |
| 25101 | Placed riprap, class R-4 | Ton | 3.0 | 60.00 | \$ 180.00 | 70.00 | \$ 210.00 |
| 30103 | Aggregate base, grading pit run, compaction method A | Cubic Yard | 1725 | 5.50 | \$ 9,487.50 | 6.50 | \$ 11,212.50 |
| 30326 | Road reconditioning | Mile | 1.1 | 1800.00 | \$ 1,980.00 | 2000.00 | \$ 2,200.00 |
| 60263 | 18 inch aluminumized steel, type 2, corrugated steel pipe, 0.064 inch thickness, method A | Linear Foot | 90 | 28.00 | \$ 2,520.00 | 30.00 | \$ 2,700.00 |
| 60263 | 36 inch aluminumized steel, type 2, corrugated steel pipe, 0.079 inch thickness, method A | Linear Foot | 62 | 52.00 | \$ 3,224.00 | 55.00 | \$ 3,410.00 |
| 62503 | Seeding, hydraulic or dry method (Lump Sum) | All | 1 | 1000.00 | \$ 1,000.00 | 1200.00 | \$ 1,200.00 |
| 65001 | Furnish and install road closure device, type gate, size 21' | Each | 1 | 1250.00 | \$ 1,250.00 | 1400.00 | \$ 1,400.00 |
| 65101 | Pit and quarry development | Each | 1 | 2415.00 | \$ 2,415.00 | 2760.00 | \$ 2,760.00 |
| TOTAL | | | | | \$ 24,446.50 | | \$ 29,347.50 |

FR 461

| Pay Item | Description | Pay Unit | Estimated Quantity | Unit Price | Extended Total | Engineer's Estimate Unit Price | Engineer's Extended Total |
|--------------|---|-------------|--------------------|------------|----------------|--------------------------------|---------------------------|
| 15101 | Mobilization (Lump Sum) | All | 1 | 1500.00 | \$ 1,500.00 | 3000.00 | \$ 3,000.00 |
| 20102 | Clearing and grubbing (Lump Sum) | All | 1 | 250.00 | \$ 250.00 | 300.00 | \$ 300.00 |
| 20301 | Removal of culverts | Each | 2 | 90.00 | \$ 180.00 | 105.00 | \$ 210.00 |
| 23050 | Brushing | Mile | 0.8 | 300.00 | \$ 240.00 | 350.00 | \$ 280.00 |
| 30103 | Aggregate base, grading pit run, compaction method A | Cubic Yard | 1270 | 5.00 | \$ 6,350.00 | 6.00 | \$ 7,620.00 |
| 30326 | Road reconditioning 18 inch aluminized steel, type 2, corrugated steel pipe, 0.064 inch thickness, method A | Mile | 0.8 | 1800.00 | \$ 1,440.00 | 2000.00 | \$ 1,600.00 |
| 60263 | | Linear Foot | 94 | 28.00 | \$ 2,632.00 | 30.00 | \$ 2,820.00 |
| 62503 | Seeding, hydraulic or dry method (Lump Sum) | All | 1 | 800.00 | \$ 800.00 | 1000.00 | \$ 1,000.00 |
| 65001 | Furnish and install road closure device, type gate, size 21' | Each | 1 | 1250.00 | \$ 1,250.00 | 1400.00 | \$ 1,400.00 |
| 65101 | Pit and quarry development | Each | 1 | 1778.00 | \$ 1,778.00 | 2032.00 | \$ 2,032.00 |
| TOTAL | | | | | \$ 16,420.00 | | \$ 20,262.00 |

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Preface

Preface_wo_03_15_2004_m

Delete all but the first paragraph and add the following:

The Forest Service, US Department of Agriculture has adopted FP-03 for construction of National Forest System Roads.

101 - Terms, Format, and Definitions

101.00_nat_us_07_25_2005

101.01_nat_us_04_04_2007

101.01 Meaning of Terms

Delete all references to the TAR (Transportation 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 |

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.

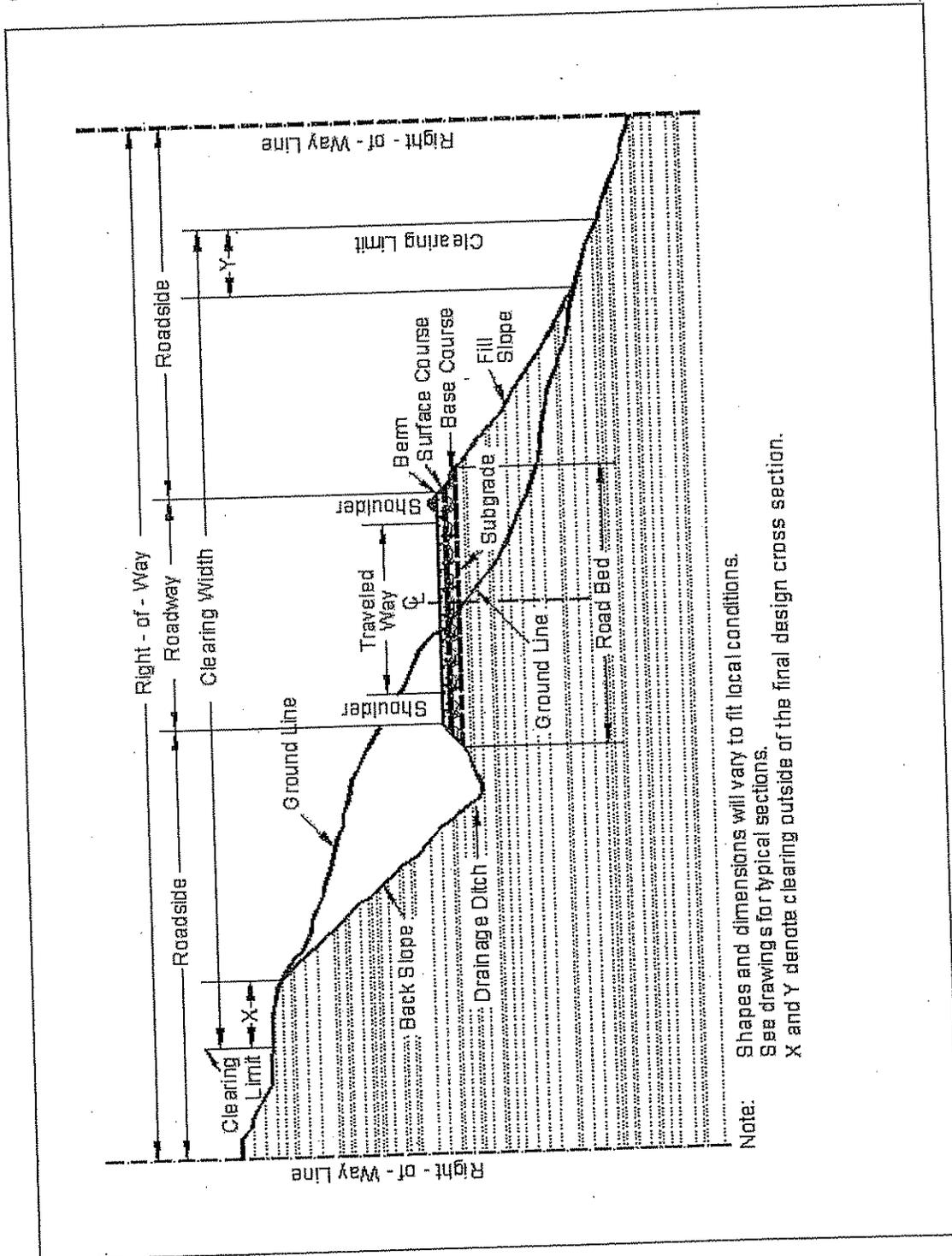
Road Order--An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

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.



Note: Shapes and dimensions will vary to fit local conditions.
 See drawings for typical sections.
 X and Y denote clearing outside of the final design cross section.

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.

104.06_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.

106.07_nat_us_05_11_2004

106.07 Delete

Delete subsection 106.07.

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".

107.09_nat_us_06_16_2006

107.09 Legal Relationship of the Parties.

Delete the entire subsection.

107.10_nat_us_06_16_2006

107.10 Environmental Protection.

Add the following:

Design and locate equipment repair shops, stationary refueling sites, or other facilities to minimize the potential and impacts of hazardous material spills on Government land.

Before beginning any work, submit a Hazardous Spill Plan. List actions to be taken in the event of a spill. Incorporate preventive measures to be taken, such as the location of mobile refueling facilities, storage and handling of hazardous materials, and similar information. Immediately notify the CO of all hazardous material spills. Provide a written narrative report form no later than 24 hours after the initial report and include the following:

- Description of the item spilled (including identity, quantity, manifest number, and other identifying information).
- Whether amount spilled is EPA or state reportable, and if so whether it was reported, and to whom.
- Exact time and location of spill including a description of the area involved.
- Containment procedures.
- Summary of any communications the Contractor had with news media, Federal, state and local regulatory agencies and officials, or Forest Service officials.
- Description of clean-up procedures employed or to be employed at the site including final disposition and disposal location of spill residue.

When available provide copies of all spill related clean up and closure documentation and correspondence from regulatory agencies.

The Contractor is solely responsible for all spills or leaks that occur during the performance of this contract. Clean up spills or leaks to the satisfaction of the CO and in a manner that complies with Federal, state, and local laws and regulations.

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.

155 - Schedules for Construction Contracts

155.00_nat_us_05_11_2004

155 Delete.

Delete Section 155 in its entirety.

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_03_03_2005

Construction Requirements

201.04 Clearing.

Add the following:

Utilization standards for merchantable timber are listed below. Fall and buck merchantable material into lengths not to exceed _____ feet. Pieces (logs) meet utilization standards when such pieces would have met Utilization Standards if bucking lengths were varied to include such material.

Minimum Utilization Standards

| Length | Diameter (Inside Bark) at Small End | _____ % Net Scale in % of Gross Scale |
|------------|-------------------------------------|--|
| _____ feet | _____ inches | |

201.06_nat_us_02_18_2005

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

203.01_nat_us_02_25_2005

203.01 Description.

Delete and replace with the following:

This work consists of disposing of construction slash and debris, salvaging, removing, and disposing of buildings, fences, structures, pavements, culverts, utilities, curbs, sidewalks, and other obstructions.

203.04_nat_us_02_18_2005

203.04 Removing Material.

Replace the fourth and fifth paragraphs with the following:

Where part of an existing culvert is removed, remove the entire culvert upstream from the removal. The remaining downstream culvert may be left in place if no portion of the culvert is within 12 inches of the subgrade, embankment slope, or new culvert or structure; and the culvert ends are sealed with concrete.

Remove structures and obstructions in the roadbed to 12 inches below subgrade elevation. Remove structures and obstructions outside the roadbed to 12 inches below finished ground or to the natural stream bottom.

203.05_nat_us_02_24_2005

203.05 Disposing of Material.

Add the following:

(e): **Scattering.** Scatter pieces of wood less than 3 inches in diameter and 3 feet in length within the clearing limits. Do not place construction slash in lakes, meadows, streams, or streambeds. Immediately remove construction slash that interferes with drainage structures.

203.08_nat_us_02_24_2005

203.08 Payment

Add the following:

Disposal of construction slash will be compensated under the designated pay item in Section 201.

204 - Excavation and Embankment

204.00_nat_us_10_23_2007

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 $1\frac{1}{2}V:1H$ 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 overburden. 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 13,000 yd ³ | " | " | " |
| | | 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 in work | Yes, when requested | Before using in work |
| | | Gradation | — | AASHTO T 27 & T 11 | " | " | " | " |
| | | 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 13,000 yd ³ | " | " | " |
| | | 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 ² | " | " | " |
| | | 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

251 - Riprap

251.03_nat_us_06_18_2007

Construction Requirements

251.03 General.

Add the following:

Place riprap under or adjacent to structures before placing prefabricated superstructure units or constructing superstructure falsework unless otherwise approved by the CO.

251.08 Measurement.

Add the following:

Payment for excavation and embankment required for placement of riprap is indirectly included in the pay item for riprap.

301 - Untreated Aggregate Courses

301.00_nat_us_03_03_2005

301 Title Change.

Change the title to: Section 301 Aggregate Courses

301.01_nat_us_03_03_2005

301.01 Work.

Add the following:

Work includes producing aggregate by pit-run, grid rolling, screening, or crushing methods, or placing Government-furnished aggregate. Work may include additive mineral filler, or binder.

301.02_nat_us_05_16_2005

301.02 Material.

Add the following:

| | |
|---|--------|
| Bentonite | 725.30 |
| Calcium Chloride Flake | 725.02 |
| Lignon Sulfonate | 725.20 |
| Magnesium Chloride Brine or Calcium Chloride Liquid | 725.02 |

301.03_nat_us_09_14_2005

301.03 General.

Add the following:

Written approval of the roadbed is required before placing aggregate.

For pit run or grid-rolled material, furnish material smaller than the maximum size. No gradation other than maximum size will be required for pit-run or grid-rolled material. For grid rolling, use all suitable material that can be reduced to maximum size. After processing on the road, remove all oversize material from the road and dispose of it as directed by the CO.

Provide additives or binder, if required, at the proportions specified.

Develop and use Government furnished sources according to Section 105.

If the aggregate is produced and stockpiled before placement, handle and stockpiled according to Section 320. Establish stockpile sites at locations approved. Clear and grub stockpile sites according to Section 201.

301.04 Mixing and Spreading.

Delete the first sentence of the first paragraph and add the following:

Ensure that aggregate and any required additives, water, mineral filler, and binder are mixed by the specified method except, if crushed aggregate products are being produced and mineral filler, binder, or additives are required, uniformly blend following crushing. Control additive proportions to 0.5 percent dry weight.

(a) Stationary Plant Method. Mix the aggregate with other required materials in an approved mixer. Add water during the mixing operation in the amount necessary to provide the moisture content for compacting to the specified density. After mixing, transport the aggregate to the jobsite while it contains the proper moisture content, and place it on the roadbed or base course using an aggregate spreader.

(b) Travel Plant Method. After placing the aggregate for each layer with an aggregate spreader or windrow-sizing device, uniformly mix it with other required materials using a traveling mixing plant. During mixing, add water to provide the necessary moisture content for compacting.

(c) Road Mix Method. After placing the aggregate for each layer, mix it with other required materials at the required moisture content until the mixture is uniform throughout. Mix aggregate, water, and all other materials until a uniform distribution is obtained.

Spread the aggregate in a uniform layer, with no segregation of size, and to a loose depth that will provide the required compacted thickness.

When placing aggregate over geotextile, place aggregate in a single lift to the full depth specified.

Route and distribute hauling and leveling equipment over the width and length of each layer.

301.05_nat_us_05_17_2005

301.05 Compacting

Delete and replace with the following:

Compact each layer full width. Roll from the sides to the center, parallel to the centerline of the road. Along curbs, headers, walls, and all places not accessible to the roller, compact the material with approved tampers or compactors.

Compact the aggregate using one of the following methods as specified:

Compaction A. Operating spreading and hauling equipment over the full width of the travelway.

Compaction B. Operate rollers and compact as specified in Subsection 204.11(a)(1).

Compaction C. Moisten or dry the aggregate to a uniform moisture content between 5 and 7 percent based on total dry weight of the mixture. Operate rollers and compact as specified in Subsection 204.11(a)(1).

Compaction D. Compact to a density of at least 95 percent of the maximum density, as determined by AASHTO T 99, method C or D.

Compaction E. Compact to a density of at least 96 percent of the maximum density, as determined by the Modified Marshall Hammer Compaction Method (available upon request from USDA Forest Service, Regional Materials Engineering Center, P.O. Box 7669, Missoula, MT 59807).

Compaction F. Compact to a density of at least 95 per-cent of the maximum density, as determined by AASHTO T 180, method C or D.

Compaction G. Compact to a density of at least 100 percent of the maximum density as determined by the Modified Marshall Hammer Compaction Method (available upon request from USDA Forest Service, Regional Materials Engineering Center, P.O. Box 7669, Missoula, MT 59807).

For all compaction methods, blade the surface of each layer during the compaction operations to remove irregularities and produce a smooth, even surface. When a density requirement is specified, determine the in place density and moisture content according to AASHTO T 310 or other approved test procedures.

301.06_nat_us_03_03_2005

301.06 Surface Tolerance.

Add the following:

Thickness and Width requirements:

The maximum variation from the compacted specified thickness is $\frac{1}{2}$ inch. The compacted thickness is not consistently above or below the specified thickness and the average thickness of 4 random measurements for any $\frac{1}{2}$ mile of road segment is within $\pm \frac{1}{4}$ inch of the specified thickness.

The maximum variation from the specified width will not exceed +12 inches at any point. The compacted width is not consistently above the specified width and the average of any four random measurements along any $\frac{1}{2}$ mile of road segment is within +4 inches of the specified width.

Table 301-1 Field Density Requirements.
Table 301-1: Delete laboratory and field density requirements for base, subbase, and surfacing and replace with the following:

| Material or Product | Type of Acceptance (Subsection) | Characteristic | Category | Test Methods Specifications | Sampling Frequency | Point of Sampling | Split Sample | Reporting Time | |
|---------------------|---|----------------------------------|----------|---|-----------------------------------|--------------------|--------------|----------------------|-------------------------------|
| Base and Subbase | Measured and tested conformance (Subsection 106.04) | Moisture Density Method C | --- | AASHTO T 99 | 1 per type and source of material | Source of material | Yes | Before using in work | |
| | | Method C-1 | --- | R-1 Marshall | " | " | " | " | |
| | | Method D | --- | AASHTO T 180 | " | " | " | " | |
| | | Method D-1 | --- | R-1 Marshall | " | " | " | " | |
| | | Compaction Method C, C-1, D, D-1 | --- | AASHTO T 310 or other approved procedures | 1 per 500 t | In-place | --- | --- | Before placing the next layer |
| | | Moisture Density Method C-1 | --- | R-1 Marshall | " | " | " | " | Before using in work |
| | | Method D | --- | AASHTO T 180 | " | " | " | " | " |
| Surfacing | Measured and tested conformance (Subsection 106.04) | Method D-1 | --- | R-1 Marshall | " | " | " | " | |
| | | Compaction Method C, C-1, D, D-1 | --- | AASHTO T 310 or other approved procedures | 1 per 500 t | In-place | --- | --- | |
| | | Moisture Density Method C-1 | --- | R-1 Marshall | " | " | " | " | |
| | | Method D | --- | AASHTO T 180 | " | " | " | " | |

Table 301-1: Add the following:

Table 301-1—Acceptance 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 |
|--|---|----------------|----------|-----------------------------|--------------------|--|--------------|----------------|
| Subbase & Base Courses L, M, N, O, P, Q, R | Measured and tested conformance (Subsection 106.04) | Plastic Limit | - | AASHTO T 90 | 1 per each 1,000 T | From the windrow or roadbed after processing | Yes | 4 Hours |

Table 301-1—Acceptance 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 |
|---------------------|---|--------------------|----------|-----------------------------|--------------------|--|--------------|----------------|
| Aggregate Width | Measured and tested conformance (Subsection 106.04) | Width | - | - | 4 per each 0.5 mi | Roadbed after processing | - | 4 Hours |
| Aggregate Thickness | Measured and tested conformance (Subsection 106.04) | Thickness | - | - | 4 per each 0.5 mi | Roadbed after processing | - | 4 Hours |
| Additive | Measured and tested conformance (Subsection 106.04) | Amount of Additive | - | - | 1 per each 1,000 T | From the windrow or roadbed after processing | No | 4 Hours |

301.08_nat_us_03_30_2005

301.08(b) Plasticity Index.

Add the following to the first sentence:

“and under 703.05(c)(1)”.

301.09_nat_us_07_07_2005

301.09 Measurement.

Replace the second paragraph with the following:

Measure aggregate by cubic yard compacted in place when payment is by contract quantities.

301.10_nat_us_03_03_2005

301.10 Payment

Delete the following:

adjusted according to Subsection 106.05

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
303-1
replace
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
and
with

following:

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.

602 - Culverts and Drains

602.03_nat_us_09_06_2005

602.03 General.

Add the following:

Ensure that the final installed alignment of all pipe allows no reverse grades, and does not permit horizontal and vertical alignments to vary from a straight line drawn from center of inlet to center of outlet by more than 2 percent of pipe center length or 1.0 feet, whichever is less.

625 - Turf Establishment

625.03_nat_us_07_02_2007

625.03 General.

Delete this subsection and replace with the following:

Apply turf establishment to prepared ground or any disturbed area between April 15th and September 30th. Apply turf establishment to the areas shown on the plans or worklists within 7 days after completion of ground disturbing activities. Unless otherwise specified in writing by the CO apply turf establishment after each 1000 foot section of road has been constructed to template lines. Seeded areas damaged by construction activities shall be reseeded within 10 days of the damage. Do not seed during windy weather or when the ground is excessively wet, frozen, or snow covered.

Assure that all seed and mulch used in the work conforms to the weed free requirements of Section 713.

625.04 Preparing Seedbed.

Delete entire subsection and replace with the following:

Ensure that the surface soil is in a roughened condition favorable for germination and growth.

625.05 Watering

Delete entire subsection.

625.06 Fertilizing.

Delete entire subsection and replace with the following:

Apply fertilizer having a chemical analysis as listed below by the following methods.

(a) Dry Method. Apply the fertilizer with approved mechanical equipment. Hand operated methods are satisfactory on areas inaccessible to mechanical equipment.

(b) Hydraulic method. Use hydraulic-type equipment capable of providing a uniform application using water as the carrying agent. Add fertilizer to the slurry and mix before adding seed. Add the tracer material when designated by the CO.

Fertilizer. Apply fertilizer at the rate of 500 pounds per acre. Insure that the fertilizer meets the following chemical analysis:

| <u>Nutrient</u> | <u>Percent</u> |
|---|----------------|
| Nitrogen, N | 10 |
| Phosphorus, P ₂ O ₅ | 20 |
| Potassium, K | 20 |

625.07 Seeding.

Delete the first sentence and add the following.

Apply seed mix by the following methods:

(a) **Dry method.** Delete the third sentence.

Add the following after subsection (b).

Seed Mix. Furnish and apply the following kinds and amounts of pure live seed from Ernst Conservation Seeds, 9006 Mercer Pike, Meadville, PA. 16335 (800)873-3221 or Fax (814) 336-5191 or www.ernstseed.com Native Right-of-Way Woods Seed Mix with Annual Ryegrass-ERNMX-132-1:

| <u>Type of Seed</u> | <u>Quantity of Pure Live Seed (Lbs/Acre)</u> |
|----------------------------|--|
| 1. 30% Virginia Wild Rye | 9 |
| 2. 20% Annual Ryegrass | 6 |
| 3. 15% Shelter Switchgrass | 4.5 |
| 4. 10% Creeping Red Fescue | 3 |
| 5. 5% Autumn Bentgrass | 1.5 |
| 6. 5% Fox Sedge | 1.5 |
| 7. 5% Showy Tick Trefoil | 1.5 |
| 8. 5% Nimble Will | 1.5 |
| 9. 5% Tioga Deer Tongue | 1.5 |

Total Seeding rate 30 lb per acre

Determine the pounds of seed to be furnished per acre by dividing the pounds of pure live seed required per acre by the product of the percent purity and percent germination.

625.08 Mulching.

Delete the entire subsection and replace with the following:

Apply Mulch within 24 hours after seeding by the following methods.

(a) **Dry Method.** Apply straw mulch with a hand spreader or a spreader utilizing forced air at a rate of 4000 pounds per acre. Anchor the mulch with an approved stabilizing emulsion tackifier at a rate of 0 gallons per acre. Do not mark or deface structure, pavements, utilities, or plant growth with tackifier.

(b) **Hydraulic Method.** Apply mulch in a separate application from the seed using hydraulic-type equipment according to Subsection 625.07(b). Apply wood fiber or grass straw cellulose fiber mulch at a rate of 775 pounds per acre.

Apply bonded fiber matrix hydraulic mulch at a minimum rate of 775 pounds per acre. Apply so no hole in the matrix is greater than 0.04 inches. Apply so that no gaps exist between the matrix and the soil.

Inaccessible areas may be mulched by hand. Apply mulch uniformly over the entire disturbed area.

625.09 Protecting and Caring for Seeded Areas

Delete the first sentence and add the following:
Protect and care for seeded areas until final acceptance.

625.11 Measurement.

Delete the entire Subsection and replace with the following:
Measure the Section 625 items listed in the bid schedule according to Subsection 109.02.

633 - Permanent Traffic Control

633.02_nat_us_03_03_2005

633.02 Material.

Add the following subsections

| | |
|-------------------------|--------|
| Protective Overlay Film | 718.02 |
| Edge Film | 718.02 |

633.03_nat_us_03_03_2005

633.03 General.

Delete the subsection and add the following:

Furnish traffic control devices and guide signs according to the MUTCD, approved USDA-FS and state supplements, the current edition of USDA-FS EM-7100-15 Sign and Poster Guidelines for the Forest Service, and Standard Highway Signs published by FHWA. Submit the sign list for approval before ordering.

633.05_nat_us_03_03_2005

633.05 Panels.

Add the following:

Apply protective overlay film and top edge film as required and according to with manufacturer's recommendations.

Delete the sentence: "Use antitheft fasteners where possible" in the fifth paragraph and replace it with the following: "For each sign panel use at least one antitheft fastener."

650 - Road Closure Devices

650.00_nat_us_06_28_2007

Description

650.01 Work. Furnish and install, or install only, road closure devices using fabricated gates and accessories, combination post and rail barriers, concrete barriers, earth mound barriers, and other devices.

Materials

650.02 Requirements. Furnish materials to be used in fabricating gates and barriers. Ensure that all hardware is galvanized in accordance with AASHTO M 232 and meets the requirements of ASTM A 307. Furnish plain or cut washers that are American Standard Washers.

Furnish timber posts, rails, and lumber that meet the requirements of AASHTO M 168. Provide timber of the species and type, and rate of preservative treatment.

Furnish concrete that meets the requirements of Subsection 601.03, method B or C.

Construct earth mound barriers from excavated material adjacent to the barrier location, or from other designated locations.

Construction

650.03 Performance. Place road closure devices at designated locations. Construct all devices to the required dimensions. In assembling gates, perform required welding in accordance with the best modern practice and the applicable requirements of AWS D1.1.

After assembly, clean non-galvanized steel pipe gates and paint them with one coat of zinc-rich primer and two coats of exterior enamel of the required type and color.

Set all posts vertically and embed them to the required depth. Place concrete for embedment against undisturbed earth within an excavation sized to achieve the embedment dimensions. Compact the backfill in 6 inch layers to finished grade.

Furnish and install all signs and/or reflective warning markers accessory to the road closure device.

650.04 Acceptance. Construction of road closure devices will be evaluated under Subsections 106.02 and 106.04.

Measurement

650.05 Measure the items listed in the bid schedule according to Subsection 109.02.

Payment

650.06 The accepted quantities, measured as provided in Subsection 109.02 and above, will be paid at the contract price per unit of measurement for the Section 650 pay item listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

651 - Development of Pits & Quarries

651.00_nat_us_03_02_2005

Description

651.01 This work consists of clearing, grubbing, stripping topsoil, removing overburden, constructing access roads, conducting restoration activities, and performing other incidental work required for pit or quarry development.

Construction Requirements

651.02 General. Submit a plan of operations according to Section 105. Perform all work in accordance with Sections 105, 201, 203, 204, 625, and 635, landscape preservation requirements, and the approved pit and quarry development plan of operations. Perform the work in accordance with MSHA 30 CFR, part 56.

651.03 Acceptance. Developing pits and quarries will be evaluated under Subsections 106.02 and 106.04.

Measurement

651.04 Measure the Section 651 items listed in the bid schedule according to Subsection 109.02.

Payment

651.05 The accepted quantities will be paid at the contract price per unit of measurement for the Section 651 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

718 - Traffic Signing and Marking Material

718.05_nat_us_02_25_2008

718.05 Aluminum Panels

Delete the third paragraph and replace with the following:

Clean, degrease and properly prepare the panels according to methods recommended by the sheeting manufacturer. Conversion coatings will conform to ASTM B-921 or ASTM B-449.

DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION 9
ALLEGHENY NATIONAL FOREST

South Drive-In Timber Sale

| | | |
|--------|-----------|---|
| FR 186 | Kinglad | 1.1 Mile Maintenance/Reconst. - Level C |
| FR 460 | Gladwater | 1.1 Mile Maintenance/Reconst. - Level C |
| FR 461 | Greendale | 0.8 Mile Maintenance/Reconst. - Level C |

Marienville Ranger District
McKean County
Pennsylvania

| | |
|-------|-----------------------------------|
| 1 | Title Sheet |
| 2 | Vicinity Map |
| 3-5 | Schedule of Items & General Notes |
| 6-11 | Road Log/Work Description |
| 12-15 | Roadbed Details |
| 16-18 | Pit Development Plan |

The location and design elements of this facility have been correlated with the plans, policies and constraints of the approved South Branch Kinzua Creek Environmental Assessment.

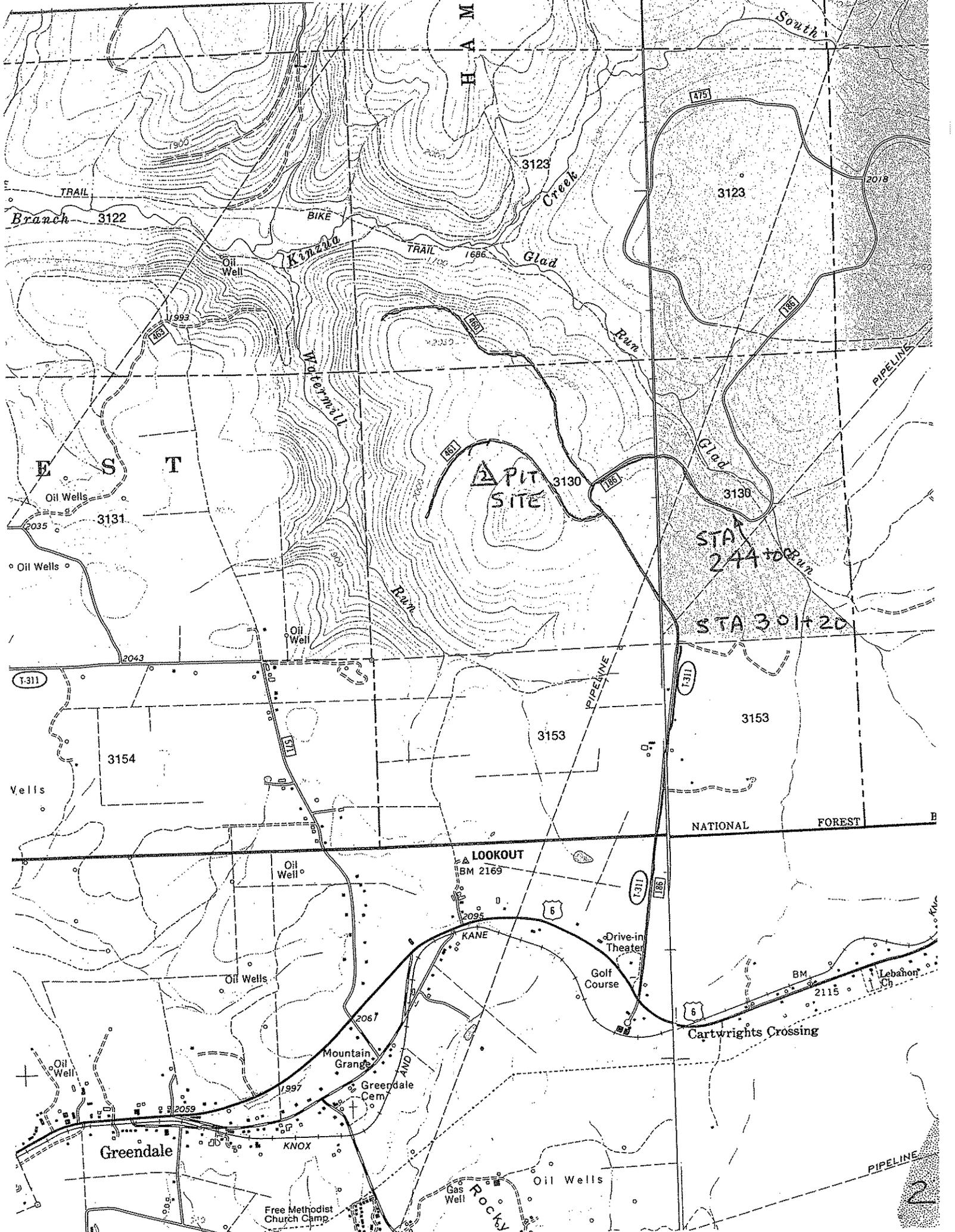
Plans are to be used with "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects FP-03 with Special Project Specifications thereto included in this contract.

Prepared By:

Henry H. Hus

Approved By:

| | |
|-----------------------|---------------|
| <u>Scott Kell</u> | <u>2/4/09</u> |
| District Ranger | Date |
| <u>Dan Sch</u> | <u>2-9-09</u> |
| Forest Engineer | Date |
| <u>Thomas M. Mate</u> | <u>2-9-09</u> |
| Forest Supervisor | Date |



SCHEDULE OF ITEMS

FR 186

| ITEM | DESCRIPTION | UNIT | QTY |
|-------|---|------------|-----|
| 15101 | Mobilization (Lump Sum) | All | 1 |
| 25101 | Placed riprap, class R-4 | Ton | 5 |
| 30103 | Aggregate base, grading pit run, compaction method A | Cubic Yard | 24 |
| 30326 | Road reconditioning | Mile | 1.1 |
| 60263 | 18 inch aluminized steel, type 2, corrugated steel pipe, 0.064 inch thickness, method A | Foot | 52 |

FR 460

| ITEM | DESCRIPTION | UNIT | QTY |
|-------|---|------------|------|
| 15101 | Mobilization (Lump Sum) | All | 1 |
| 20102 | Clearing and grubbing (Lump Sum) | All | 1 |
| 20301 | Removal of culverts | Each | 4 |
| 23050 | Brushing | Mile | 1.1 |
| 25101 | Placed riprap, class R-4 | Ton | 3 |
| 30103 | Aggregate base, grading pit run, compaction method A | Cubic Yard | 1725 |
| 30326 | Road reconditioning | Mile | 1.1 |
| 60263 | 18 inch aluminized steel, type 2, corrugated steel pipe, 0.064 inch thickness, method A | Foot | 90 |
| 60263 | 36 inch aluminized steel, type 2, corrugated steel pipe, 0.079 inch thickness, method A | Foot | 62 |
| 62503 | Seeding, hydraulic or dry method (Lump Sum) | All | 1 |
| 65001 | Furnish and install road closure device, type gate, size 21' | Each | 1 |
| 65101 | Pit and quarry development | Each | 1 |

FR 461

| ITEM | DESCRIPTION | UNIT | QTY |
|-------|---|-------------|------|
| 15101 | Mobilization (Lump Sum) | All | 1 |
| 20102 | Clearing and grubbing (Lump Sum) | All | 1 |
| 20301 | Removal of culverts | Each | 2 |
| 23050 | Brushing | Mile | 0.8 |
| 30103 | Aggregate base, grading pit run, compaction method A | Cubic Yard | 1270 |
| 30326 | Road reconditioning | Mile | 0.8 |
| 60263 | 18 inch aluminized steel, type 2, corrugated steel pipe, 0.064 inch thickness, method A | Linear Foot | 94 |
| 62503 | Seeding, hydraulic or dry method (Lump Sum) | All | 1 |
| 65101 | Pit and quarry development | Each | 1 |

General Notes

-Prior to any earth disturbing activities, contractor shall call the Pennsylvania One Call System (800-242-1776) and all Oil & Gas Operators in the work area to determine locations of any underground utility lines.

-Culvert cleaning and repair will be considered incidental to road reconditioning.

-Contractor is responsible for maintenance of all Forest Service roads over which pit run or commercial stone material is hauled. Roads shall be bladed or shaped to restore travel way to the condition found prior to haul.

-Contractor shall install "ROAD CONSTRUCTION AHEAD" signs on all roads worked on in this project area and at ATV trail crossings. Signs shall conform to the Manual on Uniform Traffic Control Devices (MUTCD). Signs shall be covered when construction activity is not taking place.

-Roads shall be completed in such a manner that water shall not pond on roadbed or in ditch lines.

-The Forest Service will mark clearing limits. Hazard trees that could fall on the road right of way will be removed by the contractor.

-All removed culverts shall be hauled off Federal lands and become the property of the contractor, unless otherwise indicated for salvage.

-Forest Service gate plans are available at the Allegheny National Forest Supervisor's Office, Warren, PA. 16365. The following are gate manufacturers:

Gary Asel
Marienville, PA.
(814) 927-8380

ADM Welding
2818 Penna. Ave. West
Warren, PA. 16365
(814) 723-7227

-Contouring, topsoil respreading, seeding and mulching of disturbed areas as determined by the Forest Service is required.

-DSA limestone shall be shipped at optimum moisture content not exceeding 15%. Limestone loads that fail test parameters will be rejected.

-When replacing culverts in live streams, contractor shall install silt fence and straw bales at approaches to live stream crossings to eliminate sediment in the stream course. Any sediment collected will be removed and ground will be stabilized with seed and mulch. Dewatering pumps will be used to redirect water out of the stream course at the time of stream crossing installation. Silt fence and straw bales will be removed only after vegetation is clearly re-established as determined by the Engineer.

Roadway sod encountered during road reconditioning operations will be spread and leveled outside the road template avoiding piles. Natural terrain depressions and openings are the preferred waste locations. Seeding and mulching may be required to supplement natural revegetation.

Vegetation cut down during roadside brushing will be pulled beyond the clearing limits and the toe of any roadway template construction. Mixing of soil and cut vegetation shall be avoided. All material will be scattered and lopped within 3' of the ground.

Aggregate stockpiled for culvert replacement will be located on the existing road surface to assure maximum utilization of the material and eliminate disturbance of existing vegetated areas.

FR 186 Kinglad (Level C)

| Station | Road Log/Work Description |
|---------------|---|
| 0+00 | Intersection with FR 186 and FR 150 heading west |
| 26+50 | Intersection with FR 495 left |
| 120+75 | FR 186A left |
| 157+45 | FR 475 right, gated |
| 230+35 | 90" high x 15' wide box culvert, with 4 reflector signs (Glad Run) |
| 244+00-301+20 | Recondition roadbed to 14' running surface minimum, see TYPICAL RECONDITION SECTION, clean all culverts and ditches |
| 244+35 | 18" x 32' CMP, place 5 tons R-4 riprap at outlet, see RIPRAP DETAIL, spring drainage re-entering ground 4' before it hits the culvert |
| 246+15 | Turnout left |
| 247+05 | 18" x 40' CMP |
| 248+75 | Turnout left |
| 250+25 | Install 18" x 26' CMP, apply 12 CY pit run |
| 251+70 | Turnout right |
| 251+70 | NFG pipeline crossing |
| 256+05 | Turnaround left |
| 257+50 | 18" x 28' CMP |
| 260+45 | Install 18" x 26' CMP, apply 12 CY pit run, spring left |
| 260+90 | Reconstruct turnout left, apply 6" pit run surfacing |
| 261+75 | Landing left |
| 265+60 | 18" x 34' CMP |

| | |
|--------|--|
| 267+05 | Turnout left |
| 268+55 | 18" x 44' CMP, spring drainage |
| 269+55 | Intersection with FR 460 right |
| 271+30 | Turnout right |
| 275+40 | Intersection with FR 461 right |
| 276+40 | Landing left, with barricade |
| 281+00 | Turnaround left |
| 286+35 | Turnout left |
| 286+80 | Pipeline crossing |
| 288+90 | NFG pipeline crossing |
| 290+95 | Turnout left |
| 292+10 | Landing left |
| 296+85 | Turnout left |
| 297+70 | Fiber optic line crossing |
| 301+15 | Snowmobile sign left |
| 301+20 | End of road at T-311, about 1.2 miles north of US Rte 6. |

FR 460 Gladwater (Level C)

| Station | Road Log/Work Description |
|------------|--|
| 0+00 | Intersection with FR 186 Station 269+55 |
| 0+00-57+00 | Recondition roadbed to TYPICAL RECONDITION SECTION removing sod buildup, remove any existing brush to area outside clearing limits, clean all culverts and ditches |
| 0+00-57+00 | Apply 6" pit run surfacing to road; including all turnouts and turnarounds |
| 0+10 | STOP sign left |
| 0+30 | Remove 24" x 30' CMP, install 36" x 30' CMP, apply 24 CY pit run |
| 0+50 | Road number sign right |
| 0+75 | NO OUTLET sign right, install Forest Service gate, see TYPICAL GATE DETAIL (field locate with Forest Service) |
| 5+40 | Remove 24" x 32' CMP, replace with 36" x 32' CMP, apply 24 CY pit run |
| 7+45 | Turnout left |
| 9+90 | Remove 18" x 32' CMP, install 18" x 32' CMP, apply 12 CY pit run |
| 14+05 | Turnout right |
| 15+35 | Remove 18" x 30' CMP, install 18" x 30' CMP, apply 12 CY pit run |
| 20+90 | 18" x 28' CMP |
| 29+35 | 18" x 26' CMP, place 3 tons R-5 riprap at outlet |
| 31+25 | Turnout left |
| 39+50 | Turnout right |
| 42+00 | Construct leadoff ditch right |

42+30

18" x 28' CMP

45+45

Install 18" x 28' CMP, apply 12 CY pit run

48+70

Reshape turnout left

55+15

18" x 28' CMP

55+75

Enlarge turnaround left for lowboy, construct 40' wide x 60' deep with 50' turning radius, apply 12" pit run surfacing

57+00

End of road

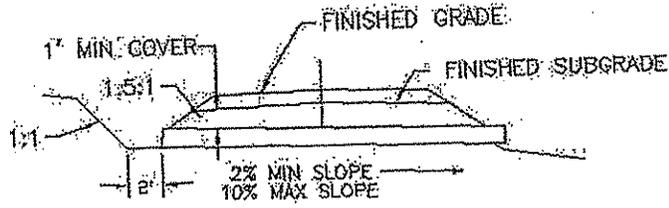
FR 461 Greendale (Level C)

| Station | Road Log/Work Description |
|------------|---|
| 0+00 | Intersection with FR 186 at Station 275+40 |
| 0+00-43+05 | Recondition roadbed to TYPICAL RECONDITION SECTION removing sod buildup, remove any existing brush to area outside clearing limits, clean all culverts and leadoff ditches |
| 0+00-43+05 | Apply 6" pit run surfacing to road; including all turnouts and turnarounds |
| 0+15 | 18" x 36' CMP |
| 0+22 | STOP sign left |
| 0+50 | Road number sign right |
| 0+85 | NO OUTLET sign right, install Forest Service gate (field locate with Forest Service) |
| 4+85 | Install 18" x 28' CMP, apply 12 CY pit run |
| 7+20 | Turnout left |
| 8+00 | 18" x 36' CMP |
| 13+25 | Turnout left |
| 21+35 | 18" x 36' CMP |
| 22+15 | Turnout right |
| 28+30 | Remove 18" x 30' CMP, install 18" x 30' CMP, apply 12 CY pit run |
| 32+41 | Proposed new pit area left, see Pit Development Plan, construct entrance into pit area |
| 34+85 | 18" x 28' CMP |
| 36+05 | Turnout right |

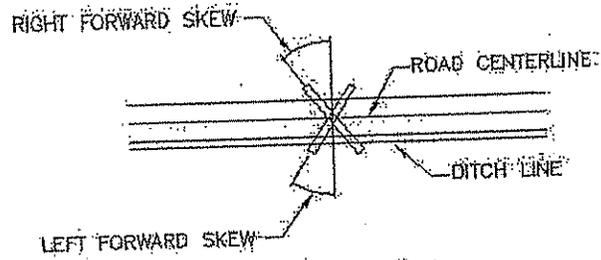
41+30 Remove 18" x 36" CMP, install 18" x 36' CMP, apply 12 CY
pit run, apply 12 CY pit run

42+00 Turnaround left

43+05 End of road



CULVERT SECTION

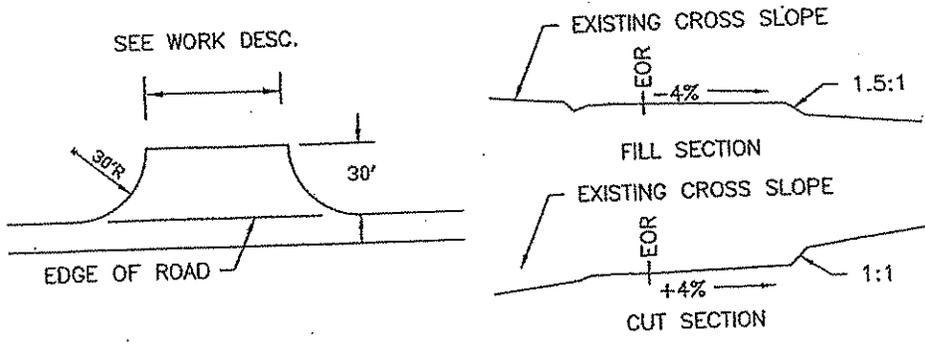


SKEW DETAIL

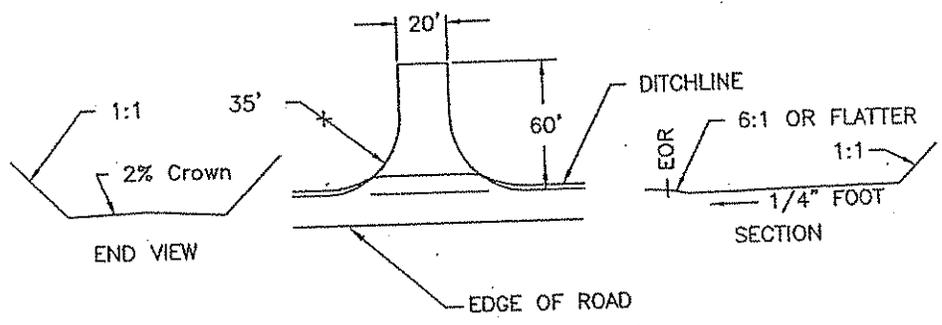
NOTE: Field locate ditch to minimize new clearing



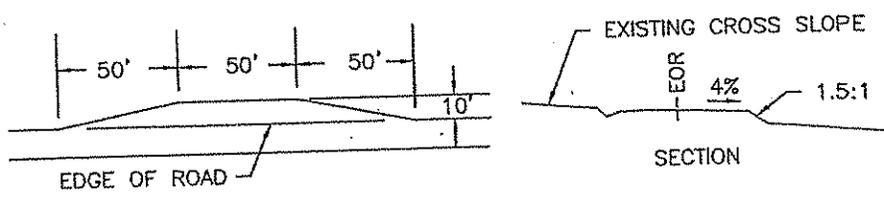
OUTLET/LEAD OFF DITCH SECTION



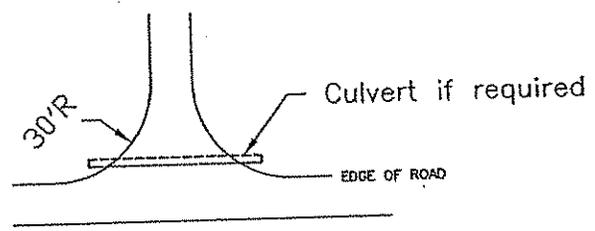
PARKING LOT DETAIL



TURNAROUND DETAIL

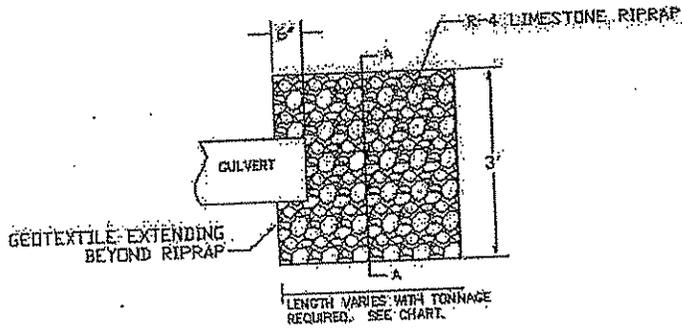


TURNOUT DETAIL

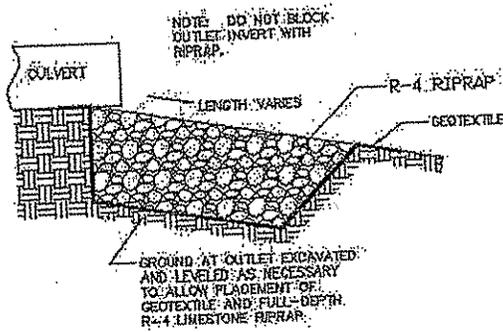


INTERSECTION DETAIL

CULVERT OUTLET RIPRAP DETAIL

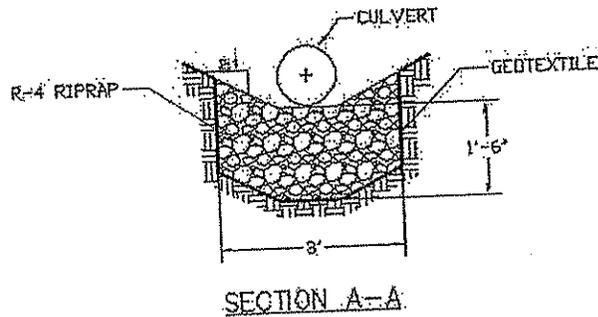


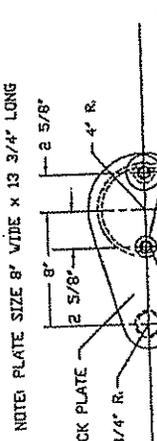
PLAN VIEW



| R-4 RIPRAP: | |
|-------------|----------------------|
| QUANTITY | APPROXIMATE COVERAGE |
| 2 TONS | 3' X 7' X 1.5' |
| 3 TONS | 3' X 10' X 1.5' |
| 4 TONS | 3' X 13' X 1.5' |

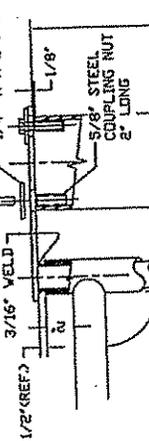
PROFILE





NOTE: PLATE SIZE 8" WIDE x 13 3/4" LONG

DETAIL



NOTE: PLATE SIZE 8" WIDE x 10" LONG

SIGN CODE

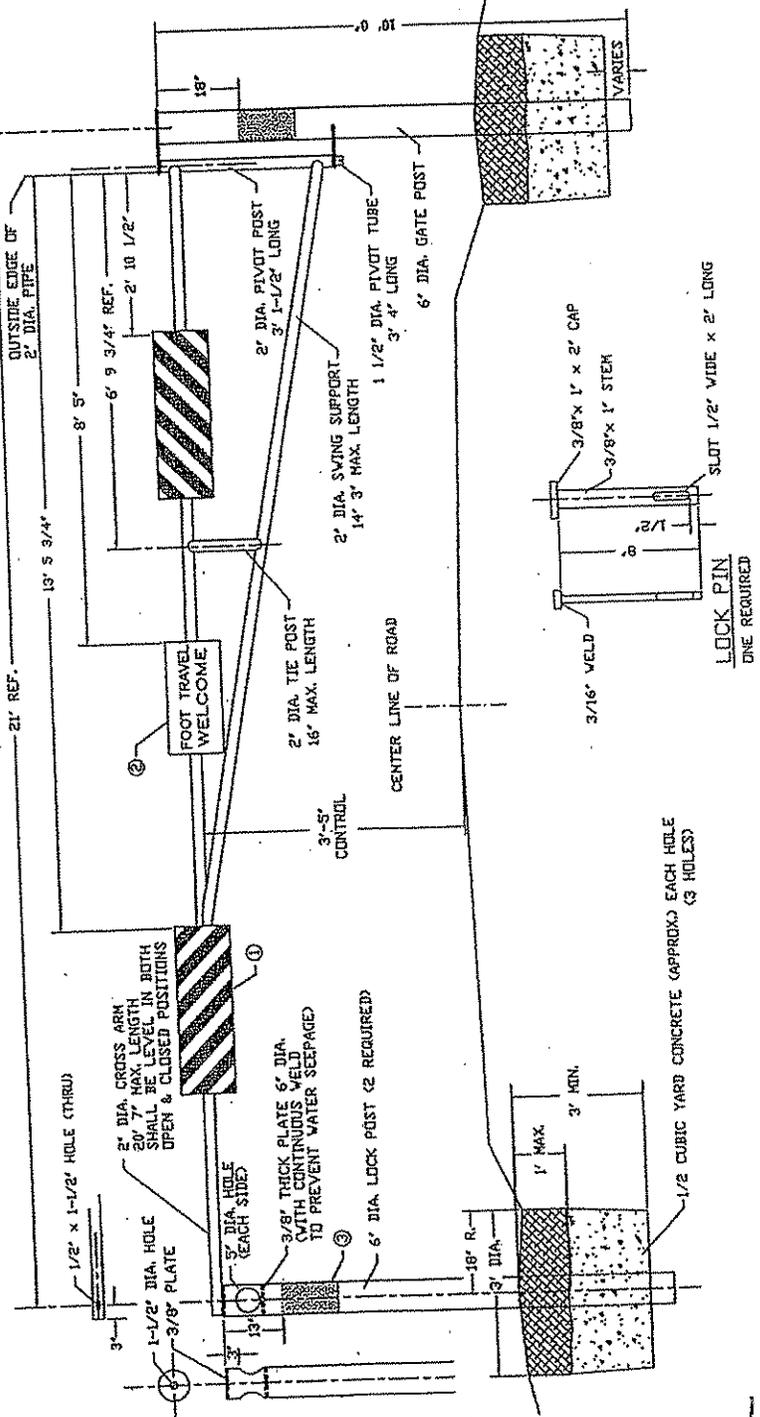
- ① (2) L-R AND (2) R-R TYPE 1 BARRICADE MARKERS
- RED ON WHITE - 12' x 36'
- ② (1) FOOT TRAVEL WELCOME
- ③ (3) TYPE 2 OBJECT MARKERS (OH-2-B)
- YELLOW (REFLECTORIZED) - 6" CLOSED POSITION LOCK POST
(2) ON GATE POST AND (2) ON OPEN POSITION LOCK POST FACED TO ONCOMING TRAFFIC
(1) ON OPEN POSITION LOCK POST FACED TO FOREST SERVICE AND INSTALLED BY THE CONTRACTOR.

ESTIMATED QUANTITIES

| MATERIAL | QUANTITY (LF) | REMARKS |
|------------------------|---------------|--------------------|
| 1-1/2" DIA. PIPE (NDH) | 3' 4" | PIVOT TUBE |
| 2" DIA. PIPE (NDH) | 39' 4" | CROSS ARM ASSEMBLY |
| 6" DIA. PIPE (NDH) | 30' 0" | GATE POSTS (3) |
| 3/8" x 1" STRAP | 0' 10" | LOCK PIN |
| 3/8" x 8" PLATE | 4' 1" | MISC. |
| BOLTS, NUTS, WASHERS | | TWO (2) OF EACH |

GENERAL NOTES

- ALL STEEL SHALL BE PAINTED WITH (3) COATS OF IRON OXIDE RED PRIMER AND (3) COAT OF VALNUT BROWN PAINT, FED. STANDARD 595 A PAINT, NO. 2040 (EXCEPT PIVOT TUBE)
- ALL STEEL SHALL BE NEW MATERIAL
- WELD ALL CROSS ARM ASSEMBLY JOINTS WITH 3/16" FILLETS ALL AROUND
- ALL WELDS ON GATE ASSEMBLY SHALL BE STRUCTURALLY SOUND
- DRILL 1/4" DIAMETER HOLES 4" ON CENTER IN BOTTOM OF CROSS ARM TO FACILITATE DRAINAGE
- APPLY GREASE TO OUTSIDE OF PIVOT TUBE, ENTIRE LENGTH, PRIOR TO INSTALLATION OF CROSS ARM ASSEMBLY. TYPE OF GREASE SHALL BE EXTREME PRESSURE MULTIPURPOSE WHEEL BEARING GREASE OR EQUAL
- POSTS SHALL BE ENCASED WITH CONCRETE TO WITHIN 1 FT. OF GROUND LEVEL AND BACKFILL COMPACTED (3 POSTS)
- PRIOR TO GATE INSTALLATION, NOTIFY FOREST SERVICE FOR LOCATION ON ROAD
- PARTS MAY BE FLAME CUT AND ALL BURRS REMOVED
- INSTALL SIGNS AFTER INSTALLATION OF GATE
- TECHNICAL CONTACT IS L. JEDREK C/O UNITED STATES FOREST SERVICE, WARREN, PA. (610) 723-5150

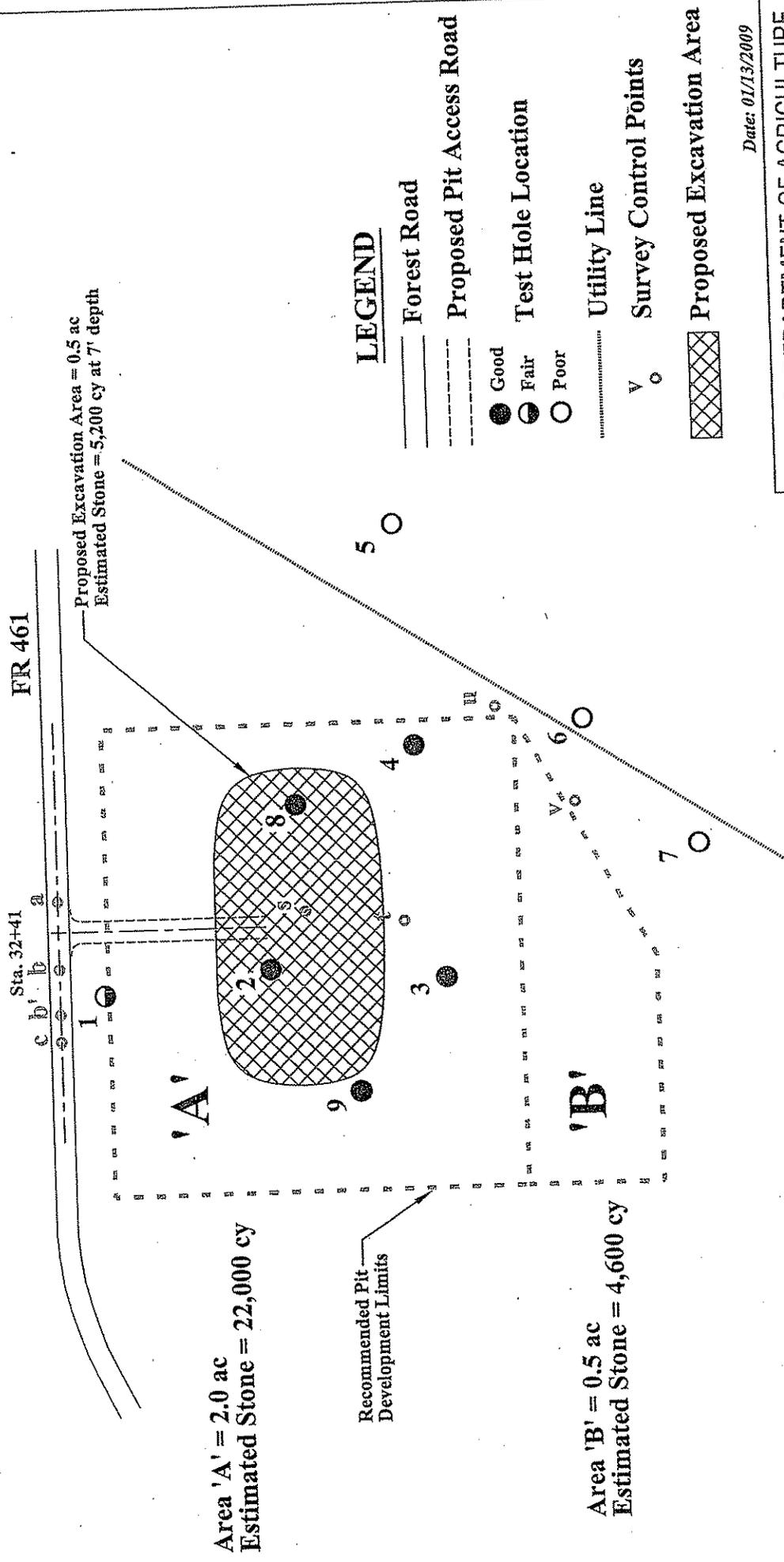


LEVEL 'D' FOREST SERVICE GATE
 ALLEGHENY NATIONAL FOREST
 WARREN, PA
 DES. INCHWING, L. JEDREK, RECALD-9/27/88
 DSK B. JOHNSON & RECALD-10/89
 NOT TO SCALE

Pit Development Plan - FR 461 Pit

South Drive-In Timber Sale

Marienville Ranger District, Hamlin Township, McKean County
Management Area 3.0 - Warrant 3130



Proposed Excavation Area = 0.5 ac
Estimated Stone = 5,200 cy at 7' depth

Area 'A' = 2.0 ac
Estimated Stone = 22,000 cy

Recommended Pit
Development Limits

Area 'B' = 0.5 ac
Estimated Stone = 4,600 cy

LEGEND

- Good
- Fair
- Poor
- Utility Line
- Survey Control Points
- Proposed Excavation Area
- Forest Road
- Proposed Pit Access Road
- Test Hole Location

Date: 01/13/2009

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE



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ALLEGHENY NATIONAL FOREST

PENNSYLVANIA ACT 38 (1991) requires notification to utility companies prior to any digging, drilling, blasting or excavating.
Contractor shall contact PA ONE-CALL 1 (800) 242-1776 prior to start of work.

It is the Contractor's responsibility to identify the physical locations of all utility lines prior to the start of construction.

Pit: FR 461.
Marienville Ranger District
Hamlin Township, McKean County
Management Area 3.0, Warrant 3130

Date: 01/13/2009

Pit Development Plan – South Drive-In Timber Sale
as part of the
South Branch Kinzua Creek Project

This is a proposed pit that will be used for road construction and maintenance during the South Drive-In Timber Sale. Based on previous test data provided by Leland Sperry on 5/17/1993, there is approximately 26,700 cy of stone material available in the 2.5 acre test area. An estimated stone volume of 4,800 cy is required for the project. The pit plan map depicts the proposed 0.5 acre excavation area and test hole locations.

The South Branch Kinzua Creek EA decision notice allows for a new 3.0 acre pit development at the end of FR 461.

A. Initial Pit Development:

1. The proposed excavation area shall be field delineated with two-stripe flagging tape by a Forest Service representative prior to excavation.
2. Operations shall begin with tree removal within the clearing limits followed by clearing and grubbing.
3. The progression of excavation should begin on the northern side of the pit and progress in the southern direction.
4. As excavation progresses, overburden shall be removed and stockpiled in a designated area or as directed by a Forest Service representative.

B. Operational Requirements and Constraints:

1. Overburden, logs, stumps, or oversized material that is encountered will be stockpiled in a designated area or as directed by a Forest Service representative.
2. Do not stockpile overburden beyond the designated excavation area or at the base of any standing trees.
3. Only one face is to be open and worked at any given time during operations.
4. Do not undermine the roots of boundary trees during development work.
5. Maintain a 10 foot buffer distance between boundary trees and excavation.
6. No disposed equipment, trash, vehicles, pipe, or miscellaneous supplies are to be stored in the pit or the surrounding area.
7. Subsequent changes in this pit development plan due to efficiency, logistics, or unforeseen circumstances may be permitted only with the written approval from a designated Forest Service representative.

C. Timber and Resource Utilization:

1. Large boulders encountered during the excavation process shall be stockpiled in a location designated by the Forest Service representative.
2. Slash will be scattered outside the proposed clearing limits of the roads and pit.
3. Stumps will be stockpiled in a location designated by a Forest Service representative and set upright for use in future reclamation work.
4. Timber will not be cut or pushed over unless it is marked and tallied by the Forest Service.
5. Timber stored within the pit area shall not be damaged or buried and decked in a location designated by the Forest Service.

D. Short Term Pit Reclamation:

1. As each open face is depleted or closed, that area will be reclaimed promptly to a slope of (1.5 : 1) or flatter, using the designated overburden stock pile material.
2. The sloped/reclaimed area will then be promptly seeded, fertilized, and mulched using a non-exotic seed mixture designated by the Forest Service.
3. Seed and mulch during favorable weather conditions or as directed by a Forest Service representative.
4. Depending on the location and safety issues, the Forest Service may request to leave one face open after material excavation has ceased.

E. Forest Road and Trail Access:

1. The contractor shall monitor the condition of all Forest Service roads or trails used for stone haul during the development process. If rutting, potholes deeper than 3 inches, crushing or blocking of culverts occurs, the contractor must cease all hauling operations and immediately notify a Forest Service representative or the Forest District Ranger for assessment of damage and necessary repairs needed.
2. After the development work is complete the contractor is required to restore all access roads to the previous condition.