

APPENDIX B

**FOREST SERVICE
ROAD MAINTENANCE
REQUIREMENTS**

(As used with Timber Sale Contract Form 2400-6, C5.31#)

C5.31# – ROAD MAINTENANCE REQUIREMENTS. (7/01)

Contract Road Maintenance Requirements Summary

| Road | Termini | | Miles | Applicable Prehaul Road Maintenance Specifications | | | | | | | | | | |
|------|---------|----|-------|--|--|--|--|--|--|--|--|--|--|--|
| | From | To | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

P = Purchaser Performance Item, D = Deposit to Forest Service, D3 = Deposit to Third Party

| Road | Termini | | Miles | Applicable During Haul Road Maintenance Specifications | | | | | | | | | | |
|------|---------|----|-------|--|--|--|--|--|--|--|--|--|--|--|
| | From | To | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

P = Purchaser Performance Item, D = Deposit to Forest Service, D3 = Deposit to Third Party

| Road | Termini | | Miles | Applicable Post Haul Road Maintenance Specifications | | | | | | | | | | |
|------|---------|----|-------|--|--|--|--|--|--|--|--|--|--|--|
| | From | To | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

P = Purchaser Performance Item, D = Deposit to Forest Service, D3 = Deposit to Third Party

Road Maintenance T-Specifications
for
Timber Sale Contracts

To be used with Timber Sale Contract Form 2400-6, C5.31#

| No. | Specification Title |
|------------|--------------------------------|
| T-800 | Definitions |
| T-801 | Slide and Slump Repair |
| T-802 | Ditch Cleaning |
| T-803 | Surface Blading |
| T-804 | Surfacing Repair |
| T-804A | SPS Surfacing and Slope Repair |
| T-804B | SPS Spot Rocking |
| T-805 | Drainage Structures |
| T805A | SPS Culvert Cleaning |
| T-806 | Dust Abatement |
| T-807 | Roadway Vegetation |
| T-808 | Miscellaneous Structures |
| T-809 | Waterbars |
| T-810 | Barriers |
| T-811 | Surface Treatment |

SPECIFICATION T-800 DEFINITIONS

Wherever the following terms or pronouns are used in Specifications T-801 through T-811, the intent and meaning shall be interpreted as follows:

800-1.1 - Agreement. Maintenance projects require a mutually acceptable method to resolve the problems which arise when incompatible situations arise between drawings and specifications and actual conditions on the ground to allow orderly and satisfactory progress of the maintenance.

These specifications have been developed in anticipation of those problem areas and have provided that such changes will be by Agreement.

It is intended that drawings and specifications will govern unless "on-the-ground" conditions warrant otherwise, when specifications call for "Agreement", "agreed", or "approval" such Agreement or approval shall be promptly confirmed in writing.

~~1.2 - Annual Road Maintenance Plan.~~ A plan prepared by various users of one or several roads. The plan is an Agreement on maintenance responsibilities to be performed for the coming year.

800-1.3 - Base Course. Material used to reinforce Subgrade or, as shown on drawings, placed on Subgrade to distribute wheel loads.

800-1.4 - Berm. Curb or dike constructed to prevent Roadway runoff water from discharging onto embankment slope.

800-1.5 - Borrow. Select Material taken from designated borrow sites.

800-1.6 - Crown, Inslope, and Outslope. The cross slope of the Traveled Way to aid in drainage and traffic maneuverability.

800-1.7 - Culverts. A conduit or passageway under a road, trail, or other obstruction. A culvert differs from a bridge in that it is usually entirely below the elevation of the Traveled Way.

800-1.8 - Drainage Dip. A dip in the Traveled Way which intercepts surface runoff and diverts the water off the Traveled Way. A Drainage Dip does not block the movement of traffic.

800-1.9 - Drainage Structures. Manufactured structures which control the runoff of water from the Roadway including Inslope, overside drains, aprons, flumes, downdrains, downpipes, culverts and the like.

800-1.10 - Dust Abatement Plan. A table which lists the road, dust palliative, application rates, and estimated number of subsequent applications.

800-1.11 - Lead-off Ditches. A ditch used to transmit water from a Drainage Structure or Drainage Dip outlet to the natural drainage area.

800-1.12 - Material. Any substances specified for use in the performance of the work.

800-1.13 - Prehaul Maintenance. Road maintenance work which must be accomplished to maintain the roads to a satisfactory condition commensurate with the Purchaser's use, provided Purchaser's Operations do not damage improvements under B6.22 or National Forest resources and hauling can be done safely. This work will be shown in the Annual Road Maintenance Plan as provided in C5.31#.

SPECIFICATION T-800 DEFINITIONS

Prehaul Maintenance work the Purchaser elects to perform will be in compliance with the Road Maintenance T-Specifications.

800-1.14 - Roadbed. The portion of a road between the intersection of Subgrade and sideslopes, excluding that portion of the ditch below Subgrade.

800-1.15 - Road Maintenance Plan. A table which shows applicable road maintenance specifications to be performed by Purchaser on specific roads.

800-1.16 - Roadside. A general term denoting the area adjoining the outer edge of the Roadway.

800-1.17 - Roadway. The portion of a road within the limits of excavation and embankment.

800-1.18 - Shoulder. That portion of Roadway contiguous with Traveled Way for accommodation of stopped vehicles, for emergency use, and lateral support of base and Surface Course, if any.

800-1.19 - Slide. A concentrated deposit of Materials from above or on backslope extending onto the Traveled Way or Shoulders, whether caused by mass land movements or accumulated ravelling.

800-1.20 - Slough. Material eroded from the backslope which partially or completely blocks the ditch, but does not encroach on the Traveled Way so as to block passage of traffic.

800-1.21 - Slump. A localized portion of the Roadbed which has slipped or otherwise become lower than that of the adjacent Roadbed and constitutes a hazard to traffic.

800-1.22 - Special Project Specifications. Specifications which detail conditions and requirements peculiar to the individual project.

800-1.23 - Subgrade. Top surface of Roadbed upon which Base Course or Surface Course is constructed. For roads without Base Course or Surface Course, that portion of Roadbed prepared as the finished wearing surface.

800-1.24 - Surface Course. The Material placed on Base Course or Subgrade primarily to resist abrasion and the effects of climate. Surface Course may be referred to as surfacing.

800-1.25 - Surface Treatment Plan. A table which lists the roads and surface treatments to be applied.

800-1.26 - Traveled Way. That portion of Roadway, excluding Shoulders, used for the movement of vehicles.

800-1.27 - Turnouts. That portion of the Traveled Way constructed as additional width on single lane roads to allow for safe passing of vehicles.

800-1.28 - Water Source. A place designated on the Road Maintenance Map for acquiring water for road maintenance purposes.

800-1.29 - Waterbar. A dip in the Roadbed which intercepts surface runoff and diverts the water off the Roadway. A Waterbar is not designed to be traversable by logging trucks.

SPECIFICATION T-801 SLIDE AND SLUMP REPAIR

DESCRIPTION

1.1 Slide removal is the removal from Roadway and disposal of any Material, such as soil, rock, and vegetation that cannot be routinely handled by a motorgrader during Ditch Cleaning, T-802, and Surface Blading, T-803 Operations.

Slump repair is the filling of depressions or washouts in Roadway which cannot be routinely filled by a motor grader during Surface Blading, T-803 Operations.

Slide removal and Slump repair includes excavation, loading, hauling, placing, and compacting of waste or replacement Material and the development of disposal or borrow areas.

REQUIREMENTS

3.1 Slide Material, including soil, rock and vegetative matter which encroaches into the Roadway, shall be removed. The slope which generated the Slide Material shall be reshaped during the removal of the Slide Material with the excavation and loading equipment. Slide Material deposited on the fillslope and below the Traveled Way will not be removed unless needed for slope stability or to protect adjacent resources.

Surface and Base Courses shall not be excavated during Slide removal operations.

Slide Material which cannot be used for other beneficial purposes shall be disposed of at sites designated by the Forest Service. Material placed in disposal sites will not require compaction unless shown on Road Maintenance Plan. Side casting may be approved by the Forest Service. Side casting into streams, lakes or water courses will not be permitted.

3.2 When filling Slumps or washouts, Material shall be moved from agreed locations or borrow sites, placed in layers, and compacted by operating the hauling and spreading equipment uniformly over the full width of each layer.

Existing aggregate surfacing shall be salvaged when practical and relaid after depressions have been filled.

Damaged aggregate base, aggregate surfacing, and bituminous pavement shall be repaired under Specification T-804 Surfacing Repair.

The repaired areas of the Slump shall conform to the cross-section which existed prior to the Slump and shall blend with the adjacent undisturbed Traveled Way.

3.3 The maximum volume of Purchaser responsibility for Slide and Slump repair is 10 Cubic yards per 100 foot station. Greater volumes of Slide and Slump repair not qualifying as Catastrophic Damage are Forest Service responsibility.

SPECIFICATION T-802 DITCH CLEANING

DESCRIPTION

1.1 Ditch cleaning is removing and disposing of all Slough Material and other debris from Roadway ditches, including outlet and lead-off ditches, to provide a free-draining waterway.

REQUIREMENTS

3.1 Ditch cleaning shall be repeated during the year as often as necessary to facilitate proper drainage.

3.2 All Slough Material or other debris which might obstruct water flow in the Roadway ditch shall be removed. Material removed from the ditch, if suitable, may be blended into existing native road surface or Shoulder or placed in designated Berms in conjunction with Surface Blading T-803 operations.

Material removed from ditches that is not by Agreement blended into existing roads or placed in Berms shall be loaded and hauled to the disposal site designated by the Forest Service.

3.3 Roadway backslope or Berm shall not be undercut.

SPECIFICATION T-803 SURFACE BLADING

DESCRIPTION

1.1 Surface blading is keeping a native or aggregate Roadbed in a condition to facilitate traffic and provide proper drainage. It includes maintaining the Crown, Inslope or Outslope of the Traveled Way, Turnouts, and Shoulder; repairing Berms; blending approach road intersections; and cleaning bridge decks, Drainage Dips, and Lead-off Ditches.

REQUIREMENTS

3.1 Surface blading shall be performed before, during, and after Purchaser's use as often as necessary to facilitate traffic and proper drainage.

3.2 The surface blading shall preserve the existing cross-section. Surface irregularities shall be eliminated and the surface left in a free-draining state and to a smoothness needed to facilitate traffic. Surface Material which has been displaced to the Shoulders or Turnouts shall be returned to the Traveled Way. The blading operation shall be conducted to prevent the loss of surface Material and to provide for a thorough mixing of the Material being worked.

3.3 Water, taken from Water Sources designated on Sale Area Map, shall be applied during blading if sufficient moisture is not present to cut, mix, or compact the surface Material.

3.4 On native surfaced roads, Material generated from backslope Sloughing, and ditch cleaning may be blended with the surface Material being worked. On aggregate surfaced roads this Material shall not be blended with Surface or Base Course Material unless agreed otherwise.

3.5 Roadway backslopes or Berms shall not be undercut, nor shall new Berms be established unless agreed otherwise.

Berms shall be repaired by placing Material, as needed to restore the Berm, to reasonably blend with existing line, grade, and cross-section.

3.6 Drainage Dips and Lead-off Ditches shall be cleaned and maintained to reasonably blend with existing line, grade, and cross-section.

3.7 Intersecting roads shall be bladed for a distance of 50 feet to assure proper blending of the two riding surfaces.

3.8 Rocks or other Material remaining on the Traveled Way after the final pass that are larger than 4 inches in diameter or are larger than the maximum size of imported surfacing shall be removed from the Traveled Way. Unless otherwise designated by the Forest Service, the oversized Material shall be disposed of by sidecasting. Sidecasting into streams, lakes, or water courses will not be permitted.

3.9 Material resulting from work under this specification shall not remain on or in structures, such as Culverts, overside drains, cattleguards, ditches, Drainage Dips, and the like.

3.10 Material resulting from work under this specification, plus any other accumulated debris, shall be removed from bridge decks and the deck drains opened. This includes existing debris under pre haul maintenance.

SPECIFICATION T-804 SURFACING REPAIR

DESCRIPTION

1.1 Surfacing repair is repairing potholes or small soft areas in the Traveled Way. It includes area preparation and furnishing and placing all necessary Materials, and other work necessary to repair the surface.

MATERIALS

2.1 Material used in the repair of soft areas on aggregate or native surfaced roads may be acquired from approved commercial sources, designated Forest Service Borrow areas, or Borrow sources agreed to. The quality and quantity of the imported Material used in the repair will be limited to that needed to provide a stable Traveled Way for hauling and to minimize damage to the road and adjacent resources. The quantity of imported surface repair Material used in the appraisal estimate will be shown on Road Maintenance Plan. However, the magnitude of the work may vary depending on Purchaser's hauling schedule and ground conditions.

2.2 Material used in the repair of bituminous pavements may be acquired from local commercial sources. If a mixing table is required, the location shall be approved by the Forest Service. The bituminous mixture to be used by the Purchaser shall be approved by the Forest Service. The Purchaser's share of the quantity of bituminous mixture used in the appraisal estimate will be shown on Road Maintenance Plan. However, Purchaser's share of the work may vary depending on Purchaser's hauling schedule, ground conditions, other traffic, etc.

REQUIREMENTS

3.1 Work under this specification shall be performed in a timely manner to reduce further deterioration of the Traveled Way.

3.2 Soft spots on aggregate or native surfaces shall be repaired by placing the imported Surface Course on top of the soft spot. Layers of imported Material shall be placed until a firm surface is produced.

3.3 Bituminous Pavement Repairs. The areas to receive bituminous pavement repairs will be marked on the road surface by the Forest Service just prior to Purchaser performing the work.

3.4 Potholes (deep patch). Surface Course and Base Course Materials shall be excavated to a depth necessary to reach firm, suitable Material. The minimum depth of excavation shall be 2 inches and the maximum depth of excavation shall be to the top of the Subgrade.

The edges of the prepared hole shall be extended to form a vertical face in unfractured asphalt surfacing. The prepared hole shall generally be circular or rectangular in shape, dry, and cleaned of all loose Material.

Prepared potholes shall be patched or barricaded immediately.

The faces of the prepared hole shall be tacked with a slow-setting emulsified asphalt.

The bituminous mixture shall be placed in layers not exceeding a compacted depth of 2 inches. Each layer shall be compacted thoroughly with hand or mechanical tampers or rollers. Compaction shall not be done with equipment wheels.

Upon completion, the compacted patch in the pothole shall be flush, with a tolerance or approximately ¼ inch to ½ inch above the level of the adjacent pavement.

SPECIFICATION T-804 SURFACING REPAIR

3.5 Skin Patches. Bituminous mixture shall be distributed uniformly with feathered edges in layers not to exceed 2 inches compacted depth. When multiple layers are ordered, joints shall be offset at least 6 inches between layers.

Each layer shall be compacted by two passes with a 7-10 ton steel roller or comparable vibratory roller.

3.6 Asphalt Berm. Damaged segments of Berm shall be removed and the exposed ends beveled at approximately 45 degrees from vertical. The Berm foundation shall be cleaned and patched as necessary. The foundation and joining surfaces shall be coated with a slow-setting emulsified asphalt. Asphalt mix shall be placed and compacted to conform with the shape and alignment of the undamaged segment.

3.7 Disposal. All Materials removed from potholes, patches, and Berms shall be disposed of at disposal sites designated by the Forest Service.

SPECIAL PROJECT SPECIFICATION T-804A SURFACING AND SLOPE REPAIR

DESCRIPTION

1.1 Surfacing is aggregate surface replacement at landing areas and/or skidder crossings and haul routes on _____ to replace aggregate surfacing damaged by logging operations. It includes area preparation and furnishing and placing all necessary Materials and other work necessary to repair the surface.

1.2 Slope repair is repairing the road cut and fill slopes at skid trails and landing areas along damaged by logging operations. It includes repairing and reshaping slopes to their original condition.

MATERIALS

2.1 Materials used in the repair of aggregate surfaced roads shall be acquired from an approved commercial source and shall meet the Forest Service specifications for 1" minus surface course aggregate, Grading V. The quantity of approved aggregate used in the appraisal estimate may vary depending on Purchaser's logging operations and ground conditions.

2.2 Materials used in the repair of cut and fill slopes shall be obtained on-site from disturbed areas. If additional Material is needed for slope repair, material may be obtained from a designated Forest Service borrow area.

REQUIREMENTS

3.1 Work under this specification shall be performed in a timely manner to reduce further deterioration of the Roadway.

3.2 Aggregate surface shall be repaired by placing the imported Surface Course at a 4" compacted depth at areas staked by the Forest Service. Lifts of imported material shall be compacted until a firm surface is produced.

3.3 Slopes shall be repaired by placing on-site, displaced material back to its original condition. Material shall be compacted by operating equipment uniformly over the full width of each layer. Disturbed slopes will be seeded with an approved seed mix at a rate of 20 pounds per acre. (C6.601# Erosion Control Seeding)

3.4 Ditch cleaning shall conform to Specification T-802. Material removed from the ditch, if suitable, shall be blended back into the disturbed cut slope.

3.5 Unless designated by the Forest Service, unsuitable material shall be disposed of by side casting.

SPECIAL PROJECT SPECIFICATION T-804B SPOT ROCKING

DESCRIPTION

1.1 This work consists of placement of rock in soft areas and other wet areas in the Traveled Way. It includes area preparation and furnishing and placing all necessary Materials and other work necessary to blend with the adjacent road cross section.

MATERIALS

2.1 Material used for this work to facilitate haul across soft areas and other wet areas may be acquired from approved commercial sources, designated Forest Service Borrow areas, or Borrow sources agreed to. The quality and quantity of the imported Material used will be limited to that needed to provide a stable Traveled Way for hauling and to minimize damage to the road and adjacent resources. In no case will more than of material be required to be placed under this specification.

2.2 Materials for this specification are available from a Commercial Source. Commercially obtained material shall be weed free and meet the following requirements: (a) Same requirements of item _____ of the specified road plans, (b) _____ .

REQUIREMENTS

3.1 Work under this specification shall be performed in a timely manner to facilitate haul during required period and reduce deterioration or other damage of the Traveled Way.

3.2 Soft spots and wet areas will be strengthened by placing the imported Surface Course on top of the soft spot. Layers of imported Material shall be placed until a firm surface is produced.

3.3 Areas requiring placement of rock will be agreed to in advance of placement and staked on the ground if needed.

SPECIFICATION T-805 DRAINAGE STRUCTURES

DESCRIPTION

1.1 This work consists of maintaining Drainage Structures and related items such as conveyor belt water deflectors, inlet and outlet channels, existing riprap, trash racks, and drop inlets.

MATERIALS

2.1 All Materials used in the maintenance of Drainage Structures shall conform by type and specification to the Material in the structure being maintained.

REQUIREMENTS

3.1 Drainage Structures and related items shall be cleared of all foreign Material which has been deposited above the bottom of the structure and all vegetative growth which interferes with the flow pattern. Material removed that cannot be incorporated into maintenance work shall be hauled to a disposal site designated by the Forest Service.

3.2 Culverts which have silted in shall have their inlet and outlets cleaned as well as three (3) feet of the upper and lower ends of the inside cleaned out to expose the full diameter of the culvert.

Catch basins shall be cleared of material to the bottom of the invert of the culvert and at least eighteen (18) inches horizontally towards the back slope or the width of the basin, whichever is the greater.

The backslope shall be cleaned of loose material for a distance of two (2) pipe diameters as measured from the bottom of the ditch up the backslope and for a width of two (2) pipe diameters as measured horizontally on the backslope. Undercutting the backslope will not be permitted.

Inlet channel transition from the drainage ditch to the catch basin and outlet ditches shall be cleaned a minimum of ten (10) feet or to allow free drainage of water. Material removed, if suitable, may be blended into existing native road surfaces or shoulders. On aggregate surface roads, care must be taken to assure the material is not mixed into the existing aggregate. Unsuitable material shall be disposed of by side casting or as otherwise designated by the Forest Service. Side casting into streams, lakes or watercourses will not be permitted.

3.3 Ditches shall be cleaned to conform to previous line, grade and cross section. Cleaning is not required on ditches that provide drainage and are free of debris larger than three (3) inches in diameter and one (1) foot in length.

3.4 Drainage dip maintenance consists of cleaning existing dips on native surface and aggregate surfaced roads.

Drainage dips shall be shaped to a depth and width to provide drainage and in reasonably conformity to the original lines, grades, and cross sections unless otherwise designated on the ground. Lead-off ditches shall be cleaned for a distance of ten (10) feet from the drainage dip.

3.5 If outlet or inlet riprap was installed by Purchaser as a construction item or existed prior to Purchaser's haul, it shall be maintained in good condition including the replacement of riprap if necessary to previous line, grade, and cross-section.

3.6 Perform maintenance to insure the proper functioning of the head walls, aprons, inlet assemblies, overside drains, riprap, trash racks, and other facilities related to the Drainage Structure.

SPECIAL PROJECT SPECIFICATION T-805A CULVERT CLEANING

DESCRIPTION

1.1 This work consists of Culvert Cleaning above and beyond what can be accomplished by T-805 Drainage Structures.

MATERIALS

2.1 Materials removed shall be disposed of as designated by the Forest Service. Disposal into streams, lakes or watercourses will not be permitted.

REQUIREMENTS

3.1 Culverts shall be cleared of all foreign material to expose the entire length and diameter of the culvert, by any means necessary without damaging the culvert.

Catch basins shall be cleared of material to the bottom of the invert of the culvert and at least eighteen (18) inches horizontally towards the back slope or the width of the basin, whichever is the greater.

The backslope shall be cleaned of loose material for a distance of two (2) pipe diameters as measured from the bottom of the ditch up the backslope and for a width of two (2) pipe diameters as measured horizontally on the backslope. Undercutting the backslope will not be permitted.

Inlet channel transition from the drainage ditch to the catch basin and outlet ditches shall be cleaned a minimum of ten (10) feet or to allow free drainage of water. Material removed, if suitable, may be blended into existing native road surfaces or shoulders. On aggregate surface roads, care must be taken to assure the material is not mixed into the existing aggregate. Unsuitable material shall be disposed of by sidecasting or as designated by the Forest Service. Sidecasting into streams, lakes or watercourses will not be permitted.

SPECIFICATION T-806 DUST ABATEMENT

DESCRIPTION

1.1 This work shall consist of preparing Traveled Way and furnishing and applying Materials to abate dust.

MATERIALS

2.1 The roads requiring dust abatement, type of dust abatement Material to be used, the rates of application, and frequency of applications will be shown on Dust Abatement Plan (C5.31#). The Dust Abatement Plan may be changed by written Agreement.

2.2 Water. The locations of Water Sources are shown on Sale Area Map.

2.3 Dust abatement Materials shall meet the requirements of the following subsections of FP-03 Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects.

| | |
|-------------------------------------|--------|
| Emulsified Asphalt | 702.03 |
| Blotter Material | 703.13 |
| Magnesium or Calcium Chloride Brine | 725.02 |
| Calcium Chloride Flake | 725.02 |
| Lignin Sulfonate | 725.20 |

2.4 Testing of Materials. Certification and sampling of bituminous Materials lignin sulfonate, and magnesium chloride shall be in accordance with subsections 106.04 and 702.09 or 106.03 and 306.06 of FP-03 Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects.

REQUIREMENTS

3.1 General. Dust abatement Materials shall be applied to the road surface as necessary to control road surface loss, provide for road user safety, and minimize damage to adjacent resources.

3.2 Compaction. When the methods listed below specify compaction, Traveled Way shall be compacted by an 8 to 10 ton pneumatic, steel-wheeled or equivalent vibrating roller making 2 passes over the full Traveled Way and Shoulder width, unless compaction is not required on the Dust Abatement Plan (C5.31#).

3.3 Preparation to Dust Abatement Materials Other Than Water. The following applies to all methods of preparation:

Bituminous residue shall be scarified and pulverized to produce loosened Material not exceeding 4 inches in greatest dimension.

Traveled Way shall be bladed in accordance with T-803.

Prior to applying DO-6BA, DO-6PA, or DO-8, the top 2 inches of Traveled Way shall contain not less than 80 percent nor more than 120 percent of optimum moisture as determined by AASHTO T-99, Method C. Prior to applying other bituminous Material, Traveled Way shall have a moisture content between 1 and 3 percent. If surface dusting prevents the bituminous Material from penetrating, a light application of water shall be applied just prior to applying the bituminous Material.

SPECIFICATION T-806 DUST ABATEMENT

Lignin Sulfonate and magnesium chloride shall be applied when the top 1 inch of Traveled Way contains not less than 3 percent moisture, nor more than 120 percent of optimum moisture as determined by AASHTO T-99, Method C.

Moisture content will be determined in accordance with AASHTO T-217 OR T-239.

One or more of the following methods shall be used, as specified in the Dust Abatement Plan (C5.31#).

Method 1. Compact Traveled Way and apply the dust abatement Material.

Method 2. Develop a layer of loose Material approximately 1 inch in depth for the full width of Traveled Way. Apply the dust abatement Material to this loose Material and compact after penetration. If traffic makes maintenance of the loose Material difficult, 1 inch of the Material may be bladed into a windrow along the Shoulder. The specified moisture content shall be maintained in the windrow and the top 1 inch of Traveled Way. The windrow shall be bladed to a uniform Material. When the dust abatement Material has penetrated, Traveled Way shall be compacted.

Method 3. Blade 1 inch of Material from Traveled Way into a windrow along the Shoulder. Maintain the specified moisture content in the windrow and the top inch of Traveled Way. Apply half the dust abatement Material. When the dust abatement Material has penetrated, the windrow shall be bladed to a uniform depth across dust abatement Traveled Way, and the remaining dust abatement Material shall be applied. Traveled Way shall be compacted.

Method 4. Develop a layer of loose Material approximately 2 inches in depth for the full width of Traveled Way. Apply half the dust abatement Material to the loose Material. Blade the top 2 inches into a windrow along the Shoulder. Apply the remaining dust abatement Material to Traveled Way and the Berm. Spread the Berm evenly across Traveled Way and compact.

3.4 Preparation for Dust Abatement with Water. Traveled Way shall be prepared in accordance with Specification T-803 Surface Blading when required.

3.5 Application Tolerance. Dust abatement Materials other than water shall be applied within 0.05 gallons per square yard of the rate specified.

3.6 Mixing Requirements. DO-6BA, DO-6PA, and DO-8 shall be thoroughly circulated in the distributor within 1 hour of application.

3.7 Weather Limitations. Dust abatement Materials shall not be applied when it is raining.

Bituminous Material shall be applied when the surface temperature of Traveled Way is 50 degrees Fahrenheit or higher.

Lignin sulfonate and magnesium chloride shall be applied when the atmospheric temperature is 40 degrees Fahrenheit or higher.

3.8 Blotter Material. Blotter Material shall be spread in a sufficient quantity to prevent tire pickup.

SPECIFICATION T-807 ROADWAY VEGETATION

DESCRIPTION

1.1 This work consists of cutting vegetative matter including brush and trees from within the Roadway limits.

REQUIREMENTS

3.1 Remove all vegetative matter from Roadbed and ditch for a minimum Roadbed width of twelve (12) feet and ditch width of three (3) feet. Roadbed width includes extra width for curve widening and turnouts. Cut trees and brush parallel to the ground and to a maximum height of one (1) inch above the ground. All limbs which extend over the roadbed or ditch within fourteen (14) feet above the road elevation shall be removed. Tree limbs shall be trimmed as near flush with the trunk as practicable or to within twelve (12) inches from the tree.

3.2 Remove all vegetative matter less than four (4) inches in diameter for 2 ' from road shoulder each side of the road including ditch section. Cut trees and brush outside the roadbed and ditch to a maximum height of six (6) inches above the ground surface.

3.3 Remove all vegetative matter from Roadway which interferes with rolling dip or culvert drainage, road maintenance operations such as surface blading and ditch cleaning, and on curves and intersections where sight distance is impeded.

3.4 Vegetative matter removed from the Roadway in excess of one (1) foot in length or three (3) inches in diameter shall be scattered outside the roadway to a depth less than eighteen (18) inches above the ground.

3.5 Vegetative matter shall not be placed in live streams or drainages.

SPECIFICATION T-808 MISCELLANEOUS STRUCTURES

DESCRIPTION

1.1 Maintenance of miscellaneous structures includes cattleguards, gates, and other similar structures that have been previously installed to insure safe and efficient operation of the road.

MATERIALS

2.1 Any Materials needed in the maintenance of miscellaneous structures shall be similar in type and quality to the Material in the structure being maintained.

REQUIREMENTS

3.1 Cattleguards. Loose rails shall be welded or bolted back in place.

Excess Material carried into the cattleguard shall be removed when drainage is blocked or when it reaches 6 inches from the bottom of the cattleguard frame. Drainage into and from the cattleguard shall be kept open.

3.2 Gates. Gates shall be kept in good repair and made to swing easily. Hinges or latches shall be repaired if not operating properly.

Brush and debris shall be removed from within the swinging radius.

SPECIFICATION T-809 WATERBARS

DESCRIPTION

1.1 This work consists of installing or removing Waterbars in the Roadbed.

REQUIREMENTS

3.1 Waterbars shall be installed on roads shown on Road Maintenance Plan in accordance with the attached drawings and at locations designated by the table below or staked on the ground.

All Material excavated shall be used in the installation of the Waterbar. Bermed Material shall be compacted by operating heavy equipment over the length and width of the Berm.

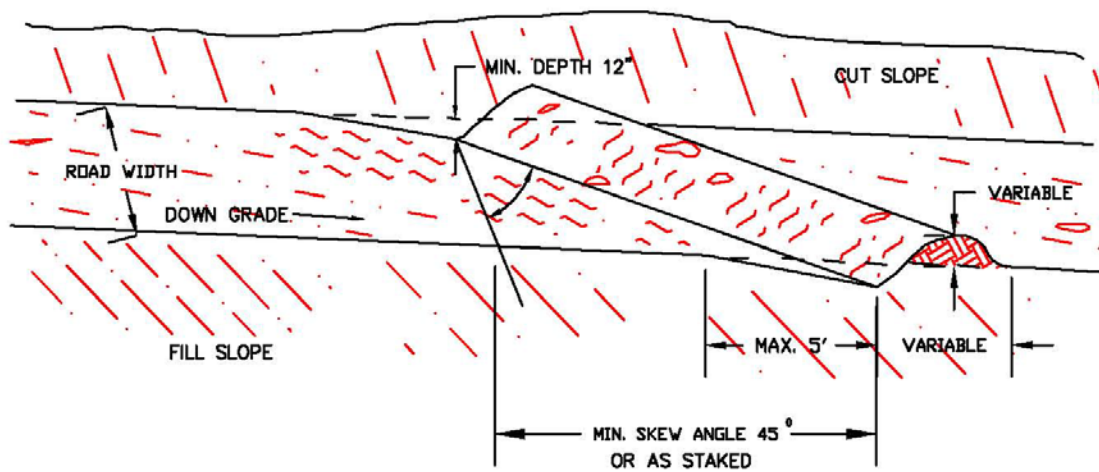
3.2 Waterbars shall be removed on roads shown on Road Maintenance Plan by blading the Berm into the adjacent depression to form a smooth transition along the Traveled Way. The length and width of the fill Material shall be compacted by the equipment performing the work.

3.3 Waterbars may be required to be installed between seasons of use and then removed when haul is resumed. Waterbar installation may also be required when use of a road has been completed.

Construct waterbars by cutting a dip in the road surface and mounding the excavated material along the downgrade edge of the waterbar. Waterbars shall be cut at a sufficient angle so that they will drain to the outside of the road. They shall cross the entire width of the roadbed and be constructed at the following spacing unless otherwise designated by the Forest Service:

| Percent Grade | Maximum Spacing |
|---------------|-----------------|
| 2 | 250' |
| 5 | 135' |
| 10 | 80' |
| 15 | 60' |
| 20 | 45' |

WATER BAR DETAIL



NO SCALE

NOTES

1. ALL WATER BARS SHALL BEGIN AT THE INTERSECTION OF THE ROADBED AND CUT SLOPE AND RUN ACROSS THE ENTIRE WIDTH OF THE ROADBED.
2. ALL WATER BARS SHALL HAVE FREE FLOWING OUTLETS.
3. WHEN STAKES ARE USED, THEY SHALL DESIGNATE THE OUTLET LOCATION.

SPECIFICATION T-810 BARRIERS

DESCRIPTION

1.1 This work shall consist of furnishing, installing, or removing barriers. Gates are not included.

MATERIALS

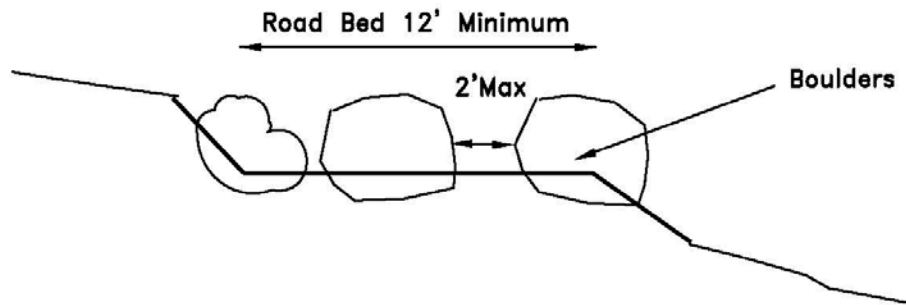
2.1 Materials for barriers shall meet the requirements as shown on attached drawings.

REQUIREMENTS

3.1 Barriers shall be installed in accordance with the attached drawings.

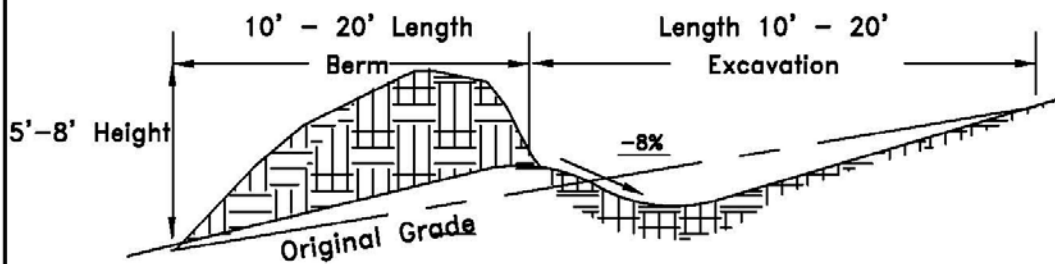
The location of barriers to be removed or installed are shown in the table below. Installation or removal may occur as often as road use is terminated and resumed.

| Barrier Location(s) | | |
|---------------------|-------------|--------------|
| Road Number | Location(s) | Barrier Type |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |



Rock size shall be a minimum of 3'x3'x2'.
 Maximum spacing between rocks is 2'.
 Rocks shall be embedded 1/3 of their depth into the roadbed
 Place rocks across entire length of the road width to block vehicle access.

Rock Barrier



Excavation depth 2' - 4'.
 Slope excavation area to drain
 Construct berm across entire length of road to block vehicle access.

Earthen Berm

SPECIFICATION T-811 SURFACE TREATMENT

DESCRIPTION

1.1 This work shall consist of applying a chip seal, sand seal, or fog seal to the Traveled Way.

Chip seals may consist of single or double applications of bituminous Material and cover aggregate.

MATERIALS

2.1 The roads requiring surface treatments, the type of seal coat to be applied, the rate of application, and type and grade of bituminous Material, and the rate of application and grading of cover aggregate will be shown on Surface Treatment Plan (C5.31#).

2.2 Emulsions used for fog seals shall be diluted with an equal amount of water and shall be applied at the diluted application rate shown on Surface Treatment Plan (C5.31#).

2.3 Seal coat Materials shall meet the requirements of the following subsections of FP-03 Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects:

| | |
|--------------------------|--------|
| Bituminous Materials | |
| Asphalt Cement | 702.01 |
| Liquid Asphalts | 702.02 |
| Emulsified Asphalt | 702.03 |
| Application Temperatures | 702.04 |
| Cover Aggregate | 703.12 |
| Blotter Material | 703.13 |
| Water for Diluting | 725.01 |

2.4 The cover aggregate shall be surface damp at the time of application when using emulsified asphalt and dry when using an asphalt cement or liquid asphalt. Excess water on the aggregate surface will not be permitted.

MAINTENANCE REQUIREMENTS

3.1 Traffic. Traffic shall be maintained in accordance with C6.333#.

3.2 Weather Limitations. Fog seal and chip seal shall not be applied when the weather is foggy or rainy.

Seal coats requiring cover aggregate shall not be applied when the temperature of the surface being treated is below 70 degrees Fahrenheit in the shade.

Fog seal coats shall not be applied when the surface temperature is below 40 degrees Fahrenheit in the shade.

3.3 Equipment. The following equipment or its equivalent shall be used:

A distributor truck equipped to spread the Material uniformly at the designated rate, within the temperature range specified and within 0.04 gallons per square yard of the rate specified. The distributor shall be equipped with a thermometer and a hand hose with spray nozzle.

A rotary power broom and/or blower.

SPECIFICATION T-811 SURFACE TREATMENT

When cover aggregates are applied: A pneumatic tire roller, 8-ton minimum weight with all tires equally inflated to a pressure of at least 90 pounds per square inch. Rollers shall be equipped with devices for applying water to the tires.

Self-propelled aggregate spreader supported by at least four wheels equipped with pneumatic tires on two axles, situated so that at no time will the tires contact the uncovered bituminous Materials. The aggregate spreader shall be equipped with positive controls so that the required amount of Materials will be deposited uniformly over the full width.

Trucks with spreading attachments shall not be used.

3.4 Preparation of Surface. Immediately before applying the bituminous Material, the surface to be sealed shall be cleaned of all foreign and loose Material.

3.5 Application of Bituminous Material. Bituminous Material shall be applied in a uniform, continuous spread. The distributor shall be moving forward at proper application speed at the time the spray bar is opened. Skipped areas or deficiencies shall be corrected prior to the application of cover aggregate.

The spread of bituminous Material shall not be more than 6 inches wider than the width to be covered by the cover aggregate. Operations shall not proceed if the bituminous Materials are allowed to cool, set up, dry, or otherwise impair retention of cover aggregate.

Fog seal shall be allowed to penetrate and dry before traffic is permitted on the sealed portion.

The surfaces of structures and trees adjacent to the area being treated shall be protected to prevent their being splattered or marred.

3.6 Application of Cover Aggregate and Blotter. Immediately following the application of the bituminous Material, cover aggregate shall be spread at the specified rate. Joints between adjacent applications of cover aggregate shall be approximately in the center of two-lane roads.

The aggregate spreader shall not be operated at speeds which cause the aggregate to roll over after striking the bituminous Material. The cut-off of aggregate shall be complete, and any excess aggregate shall be removed from the surface prior to resuming operations. Immediately after the cover aggregate has been spread, any piles, ridges, and uneven distribution shall be corrected.

Cover aggregate may be applied by hand in areas inaccessible to spreading equipment.

Rolling shall begin immediately after spreading the cover aggregate and shall consist of a minimum of two complete coverage's.

After rolling, traffic shall be controlled to a maximum speed of 15 miles per hour for a period of 4 hours.

The day following the final application of cover aggregate, any concentrations of loose cover aggregate shall be redistributed without disturbing the embedded aggregate. Four days after the final application of cover aggregate, all excess cover aggregate shall be removed. During this period, any bituminous Material that comes to the surface shall be covered with additional cover aggregate or approved blotter Material.

3.7 Blotter Material for fog seals shall be spread in sufficient quantity to prevent tire pickup.