Road Maintenance T-Specifications
For
Timber Sale Contracts

HAPPY FLAT SBA Timber Sale

To be used with Timber Sale Contract Form 2400-6(T), 2400-3(T), C(T)5.31#

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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.

800-1.2 - 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 run-off 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 culverts, overside drains, aprons, flumes, downdrains, downpipes, and the like.

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

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 the Purchaser determines must be accomplished to maintain the roads to a satisfactory condition commensurate with 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 B6.31.

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 the 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 specified 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 raveling.

800-1.20 - Slough. Material eroded from the backslope which partially or completely blocks the ditch, but does not encroach on the traveled way to 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 road bed 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 motor grader 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 fill slope 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 disposal sites SHOWN ON THE SALE AREA MAP. Material placed in disposal sites will not require compaction unless compaction is SHOWN ON THE ROAD MAINTENANCE PLAN.

3.2 When filling slumps or washouts, material shall be moved from agreed locations or borrow site SHOWN ON THE SALE AREA MAP, 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 Surface 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 SHOWN ON ROAD MAINTENANCE PLAN. 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 from roadside 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 roadside 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 SHOWN ON THE SALE AREA MAP.

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 Traveled Way, Turnouts, and Shoulder; repairing Berms, blending approach road intersections; and cleaning of 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 elminated and the surface left in a free draining state and to a smoothness needed to facilitate traffic. Surface material which has been displaced from 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 THE 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.

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. The oversized material shall be disposed or by sidecasting unless SHOWN OTHERWISE ON THE SALE AREA MAP. Sidecasting into streams, leakes 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 accumulated debris shall be removed from bridge decks and the deck drains opened.

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.

MATERIAL

2.1 Material used in the repair of soft areas on aggregate or native surfaced roads may be acquired from approved commercial sources, Forest Service borrow areas SHOWN ON THE SALE AREA MAP 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 or hauling and to minimize damage to the road and adjacent resources. The quantity of imported repair material used in the appraisal estimate will be SHOWN ON THE ROAD MAINTENANCE PLAN. However, the magnitude of the work may vary depending on Purchase'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 THE 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 two 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 two 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 one-fourth inch to one-half inch above the level of the adjacent pavement.

3.5 Skin Patches

Prior to skin patching, potholes shall be patched, and the surface shall be cleaned of loose or deleterious material. Apply a tack coat with a slow-setting emulsified asphalt at the rate of 0.1 gallons per square yard.

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

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

3.6 Asphalt Berms

Damaged segments of Berm shall be removed and the exposed ends beveled at approximately forty-five 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 SHOWN ON THE SALE AREA MAP.

SPECIFICATION T-805 DRAINAGE STRUCTURES

DESCRIPTION

1.1 This work consists of maintaining Drainage Structures and related items such as 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 SHOWN ON THE SALE AREA MAP.

3.2 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 a good condition including the replacement of riprap if necessary to previous line, grade, and cross section.

3.3 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.

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 THE DUST ABATEMENT PLAN (C(T)5.31#). The Dust Abatement Plan may be changed by written agreement.

2.2 Water

Water sources are covered under C(T)5.31, and the locations are SHOWN ON THE SALE AREA MAP.

Operating Guidelines:

1. Operations are restricted to one hour after sunrise to one hour before sunset.
2. Pumping rate shall not exceed 350 gallons per minute.
3. The pumping rate shall not exceed ten percent of the stream flow.
4. Seek streams and pools where water is deep and flowing, as opposed to streams with low flow and small isolated pools.
5. Pumping shall be terminated when the tank is full. The effect of single pumping operations, or multiple pumping operations at the same location, shall not result in obvious draw-down of either upstream or downstream pools.
6. Each pumping operations shall use a fish screen. The screen face should be oriented parallel to flow for best screening performance. The screen shall be designed and used such that it can be submerged with at least on-screen-height clearance above and below the screen.
7. Operators shall keep a log on the truck containing the following information:
   a. Operator's Name
   b. Date
   c. Time
   d. Pump Rate
   e. Filling Time
   f. Screen Cleaned (Y or N)
   g. Screen condition
   h. Comments

Screen Construction Criteria:

1. Surface Area:
   a. The total (unobstructed) surface area of the screen shall be at least 2.5 square feet, based on the upper limit of pumping of 350 gpm. Larger surface areas are recommended where debris buildup is anticipated, and where stream depth is adequate to keep the screen submerged at approximately mid-depth.
2. Screen Mesh:
   a. Screen Mesh must be in good repair and present a sealed, positive barrier effectively preventing entry of the "design fish" into the intake. The design fish in this case is an immature (20-30mm) salmon or steelhead fry.
   b. The screen mesh size shall be: round openings – maximum 3/32 inch diameter (.09 inch).
   c. Square openings – maximum 3/32 inch diagonal (.09 inch).
   d. Slotted openings – maximum 1.16 inch width (.07 inch.
3. Screen Design:
   a. Water drafting screens maybe off-the-shelf products, but they are often custom-made devices appropriate to the scale and duration of pumping operations. To keep the screen supported and correctly positioned in the water column, adjustable support legs are advised. Screen geometry can be configured either as rectangular or cylindrical, i.e. as a shallow "box-shape" or tubular.

b. The intake structure shall be designed to promote uniform velocity distribution at all external mesh surfaces. This can be accomplished with a simple internal baffle devise that distributes the flow evenly across the entire surface of the screen. In order to accomplish this, the designer needs to understand the hydraulic characteristics of these devices. There is a tendency for most of the intake water to enter the screen near the hose end, so a typical internal baffle would consist of a pipe (or manifolded set of pipes) which have variable porosity holes at predetermined spacing. We recommend starting near the hose end with approximately 5-10% average open area, and gradually increasing the porosity toward the length of the screen. At a point where screen length exceeds three times the diameter of the suction hose, the baffling effect tends to diminish rapidly. At this point the baffle porosity may approach 100%. A successful baffle system will functionally distribute flow to all areas of the screen. A poorly designed screen may result in high-velocity "hot spots", which could lead to fish impingement on the screen face.

c. Hydraulic testing of prototype screen designs is recommended where the application is on-going and extensive.

4. Screen Structure:
   a. The screen frame must be strong enough to withstand the hydraulic forces it will experience. However, the structural frames, braces, and other elements that block the flow, change flow direction, or otherwise decrease the screen surface area should be minimized.
5. Screen Cleaning:
   a. The screen shall be cleaned as often as necessary to prevent approach velocity from exceed 0.33 feet per second. Operators should withdraw the screen and clean it after each use, or as necessary to keep screen face free of debris. A suitable brush shall be on board the truck for this cleaning operation.
   b. IF the operator notes (1) impingement of any juvenile fish on the screen face or (2) entrainment of any fish through the screen mesh, he/she should stop operations and notify the Department of Fish & Game and/or NMFS hydraulic engineering staff:

      National Marine Fisheries Service
      Engineering Section
      777 Sonoma Avenue, Suite 325
      Santa Rosa, CA 95404
      (707) 575-6050

2.3 Dust abatement materials shall meet the requirements of the following subsections of Forest Service Standard Specifications for Construction of Roads and Bridge or ATTACHED SPECIAL PROJECT SPECIFICAITONS.

Bituminous Materials

Liquid Asphalts 702.02
Bituminous Dust Palliatives . 702.04
Application Temperatures. . . 702.05

Blotter Material 703.14

Lignin Sulfonate 712.09

Application Temperature . . . 412.04

Magnesium Chloride 712.11

Application Temperature . . . 412.04

2.4 Testing of Materials

Certification and sampling of bituminous materials lignin sulfonate and magnesium chloride shall be in accordance with Subsection Specifications for Construction of Roads and Bridges.

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-tine 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 for 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, 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 ASSHTO T-99, Method C. Prior to applying other bituminous material Traveled Way shall have a moisture contest 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.

Lignin Sulfonate and magnesium chloride shall be applied when the top 1 inch of Traveled Way contains not less than 3 percent moisture or more than 120 percent of optimum moisture as determined by ASSHTO T-99, Method C.

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

To prevent any runoff when the road is within 200 feet of a watercourse or running water:

1. Construct a berm along the edge of the road where needed prior to starting a dust abatement project.

2. Block or berm lead off ditches, culverts, drain dips, overside drains and areas where runoff concentrates.

3. Remove the berms and reopen blocked or bermed drainage structures after treatment has stabilized.

Spill containment materials shall be available during dust palliative or oiling operations. The spill containment material will be at least three bales or straw, or equal material as a minimum.

One or more of the following methods shall be used as specified in the DUST ABATEMENT PLAN (C5.31#). Unless otherwise specified, method 1 shall be used for placement of lignin sulfonate or magnesium chloride.

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

Method 2. Develop a layer of loose material approximately one 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, one 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 one inch of Traveled Way. The windrow shall be bladed to a uniform depth across Traveled Way just prior to applying the dust abatement material. When the dust abatement material has penetrated, Traveled Way shall be compacted.

Method 3. Blade one inch of material from raveled 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 of 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 one hour of application. Magnesium chloride shall be applied concentrated. Lignin sulfonate shall be applied diluted (1:1) with water unless otherwise SHOWN ON DUST ABATEMENT PLAN (C(T)5.31#).

3.7 Weather Limitations

Dust abatement materials shall not be applied when it is raining.

Prior to starting a dust palliative or oiling project, the Forest Service shall be notified at least 24 hours in advance. The Engineer will obtain a spot weather forecast covering the period of time for application through stabilization. The forecast will be updated daily. If conditions exist, or are projected to exist, that do not meet the specification equipments, the project will be postponed until favorable weather and soil moisture conditions are met. Forecasts will be obtained far enough in advance to allow cancellation of a load of oil or dust palliative.

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

Lignin surfonate and magnesium chloride shall be applied when the atmospheric temperature is 50 degrees Fahrenheit or higher.

3.8 Blotter Material

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

SPECIFICATION T-807 ROADSIDE VEGETATION

DESCRIPTION

1.1 This work includes removal of brush and trees from within the Roadway limits.

REQUIREMENTS

3.1 Vegetative matter within the Roadway which impedes vehicular travel or interferes with road maintenance operations such as surface blading, ditch and culvert cleaning, shall be removed. Downed timber meeting utilization standards shall be cut in appropriate lengths and decked along the Roadside in locations where the Traveled Way or sight distances will not be impaired.

3.2 Vegetative matter removed from the roadway shall be windrowed and/or scattered outside the roadbed.

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 the 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 THE ROAD MAINTENANCE PLAN in accordance with the ATTACHED DRAWING AND AT LOCATIONS DESIGNATED OR STAKED ON THE GROUND.

All material excavated shall be used in the installation of the Waterbar. Bermed material shall be compacted by operating heaving 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.

SPECIFICAITON 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 THE ATTACHED DRAWINGS.

REQUIREMENTS

3.1 Barriers shall be installed in accordance with the ATTACHED DRAWINGS.

The location of barriers to be removed or installed is SHOWN ON THE SALE AREA MAP. Installation or removal may occur as often as road use is terminated and resumed.

SPECIFICATION T-811 SURFACE TREATMENT

DESCRIPTION

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

Chip seals may consist of single or double applications or 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 of grade of bituminous material, and the rate of application and grading of cover aggregate will be SHOWN ON THE SURFACE TREATEMNT PLAN (C(T)5.31#).

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 THE SURFACE TREATMENT PLAN in C(T)5.31#.

2.3 Seal coat materials shall meet the requirements of the following Subsections of Forest Service Standard Specifications for Construction of Roads and Bridge or ATTACHED SPECIAL PROJECT SPECIFICATIONS:

Bituminous Materials

Asphalt Cement 702.01
Liquid Asphalts. 702.02
Emulsified Asphalt 702.03
Application Temperatures 702.05

Cover Aggregate 703.13
Blotter Material. 703.14
Water for Diluting. 712.01

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 B(T)6.33.

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 in below 65 degrees Fahrenheit in the shade.

Fog seal coats shall not be applied when the surface temperature is below 50 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.

When cover aggregates area 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 material is 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 spattered 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-of 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 coverages.

The second treatment of a double chip seal shall not be applied until at least 24 hours after completion of a first treatment, when an emulsion of asphalt cement is used. If a medium cure liquid asphalt is used, 48 hours shall be allowed between applications. Prior to the second treatment, any loose cover aggregate remaining on the surface after the first treatment shall be removed in such a manner that the cover aggregate set in the bituminous material will not be displaced.

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 a 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 seal shall be spread in sufficient quantity to prevent tire pickup.