

PACKAGE ASSEMBLY AND APPROVAL SHEET

Sale Name SUGARLOAF TIMBER SALE Designer HIDALGO-MARTINEZ Date 02/26/15

Contract Documents

Provision A7	
Provision A8	X
Schedule of Items (one for each road and one total sheet)	X
Specification List (List approved specials & supplements)	X
Approved specials and supplemental specifications	X
Plans and Drawings	X

"C" Provisions Requiring Engineering Input

C5.13# Road Completion Date	X
C5.213# Road Reconstruction Engineering Deposits	X
C5.221# Material Sources	N/A

"C" Provisions Requiring Engineering Input (When Applicable)

C5.11# Requirements of R/W & Land Use Agreements	N/A
C5.12# Use of Roads by Purchaser - (INCLUDE ON SAL)	N/A
C5.123# Load Limitations	N/A
Engineer's Estimate (for Sm. Business Turn-back)	X

Commensurate Share Maintenance

Road Maintenance Map (Sale Area Map 2 of 2)	X
C5.31# Road Maintenance Requirements - Table A, Summary	X
C5.31# Road Maintenance Requirements - Table B, Dust Abatement Plan	X
C5.31# Road Maintenance Requirements - Table C, Road Maintenance T-Specifications	X
C5.32# Road Maintenance Deposit Schedule	N/A
C5.35# Surface Replacement Deposits (5-08)	X
Road and Bridge Regulation List	N/A
Road Summary and Appraisal Estimate (for TEA input)	X

Prepared By Cynthia Hidalgo
Project Engineer

Date 3/5/15

Reviewed By Dan Hopkins
Project Engineer

Date 3/5/15

Reviewed By PARVIZ NOORS
Parviz Noors
Forest Engineer

Date 3/5/15

A7 - Specified Roads, applicable to B5.2

Name and Date of Governing Road Specifications: STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-03

Project		Design Class	Approx. Length (mi)	Sheet Numbers and Approval Date	Performance Responsibility		
Road No.	Name				Survey	Design	Const. Staking 1/
21N15	LEXINGTON	SL-15	0.88		FS	FS	FS BC
21N42Y	CLARKS RAVINE	SL-15	0.61		FS	FS	FS BC
21N75Y	WONDER	SL-15	0.45		FS	FS	FS BC
21N79	UPPER DUTCH	SL-15	0.28		FS	FS	FS BC
21N07YA	PANSY SPUR A	SL-15	0.60		FS	FS	FS BC

1/ Indicate timing, i.e., before clearing (BC) or after clearing (AC). Applicable to B5.212.

A8 - Forest Service Engineering Completion Schedule, applicable to B5.21

Road No.	Road Name	Type of Work	Completion Date
21N15	LEXINGTON	Staking	SEPTEMBER 30, 2016
21N42Y	CLARKS RAVINE	Staking	SEPTEMBER 30, 2016
21N75Y	WONDER	Staking	SEPTEMBER 30, 2016
21N79	UPPER DUTCH	Staking	SEPTEMBER 30, 2016
21N07YA	PANSY SPUR A	Staking	SEPTEMBER 30, 2016

SCHEDULE OF ITEAM**SUGARLOAF TIMBER SALE****ROAD: 21N15 SEGMENT 1**

Item	Description	Qty	Unit	Cost	Price
15101	Mobilization	1	LS	JOB	\$216.50
20104	Clearing and grubbing, disposal of tops and limbs: D, logs: D, STUMPS: D.	0.05	ACRE	\$2,500.00	\$125.00
30301	Road reconditioning, surfacing: b, compaction method B.	0.08	MI	\$3,000.00	\$240.00
60201	Culvert installation	1	EA	\$1,800.00	\$1,800.00
ROAD TOTAL					\$2,381.50

ROAD: 21N15 SEGMENT 2

Item	Description	Qty	Unit	Cost	Price
15101	Mobilization	1	LS	JOB	\$8,111.00
20104	Clearing and grubbing, disposal of tops and limbs: D, logs: D, STUMPS: D.	3	ACRE	\$3,500.00	\$10,500.00
20406	Drainage excavation, type: Dip.	7	EA	\$400.00	\$2,800.00
20406	Drainage excavation, type: Dip on Rock Surface	3	EA	\$1,800.00	\$5,400.00
20412	Drainage excavation, type: ditch	0.4	MI	\$150.00	\$60.00
20412	Drainage excavation, type: lead-off ditch	200	LF	\$5.00	\$1,000.00
30301	Road reconditioning, surfacing: b, compaction method B.	0.8	MI	\$6,000.00	\$4,800.00
60201	Culvert installation	1	EA	\$1,800.00	\$1,800.00
70305	Surface course aggregate	1095	CY	\$50.00	\$54,750.00
ROAD TOTAL					\$89,221.00

ROAD: 21N79

Item	Description	Qty	Unit	Cost	Price
15101	Mobilization	1	LS	JOB	\$464.00
20104	Clearing and grubbing, disposal of tops and limbs: D, logs: D, STUMPS: D.	0.6	ACRE	\$2,000.00	\$1,200.00
20406	Drainage excavation, type: Dip.	2	EA	\$400.00	\$800.00
30301	Road reconditioning, surfacing: b, compaction method B.	0.28	MI	\$3,000.00	\$840.00
60201	Culvert installation	1	EA	\$1,800.00	\$1,800.00
ROAD TOTAL					\$5,104.00

ROAD: 21N42Y

Item	Description	Qty	Unit	Cost	Price
15101	Mobilization	1	LS	JOB	\$970.00
20104	Clearing and grubbing, disposal of tops and limbs: D, logs: D, STUMPS: D.	1.5	ACRE	\$2,500.00	\$3,750.00
20406	Drainage excavation, type: Dip.	2	EA	\$400.00	\$800.00
30301	Road reconditioning, surfacing: b, compaction method B.	0.62	MI	\$2,500.00	\$1,550.00
60201	Culvert installation	2	EA	\$1,800.00	\$3,600.00
ROAD TOTAL					\$10,670.00

ROAD: 21N07YA

Item	Description	Qty	Unit	Cost	Price
15101	Mobilization	1	LS	JOB	\$530.00
20104	Clearing and grubbing, disposal of tops and limbs: D, logs: D, STUMPS: D.	1.5	ACRE	\$2,500.00	\$3,750.00
30301	Road reconditioning, surfacing: b, compaction method B.	0.62	MI	\$2,500.00	\$1,550.00
ROAD TOTAL					\$5,830.00

ROAD: 21N75Y

Item	Description	Qty	Unit	Cost	Price
15101	Mobilization	1	LS	JOB	\$547.50
20104	Clearing and grubbing, disposal of tops and limbs: D, logs: D, STUMPS: D.	1.1	ACRE	\$2,500.00	\$2,750.00
20406	Drainage excavation, type: Djp.	4	EA	\$400.00	\$1,600.00
30301	Road reconditioning, surfacing: b, compaction method B.	0.45	MI	\$2,500.00	\$1,125.00
ROAD TOTAL					\$6,022.50

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SAMPLE

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.

SAMPLE

101 - Terms, Format, and Definitions

101.00_nat_us_07_25_2005

101.01_nat_us_01_22_2009

101.01 Meaning of Terms

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

101.03_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.

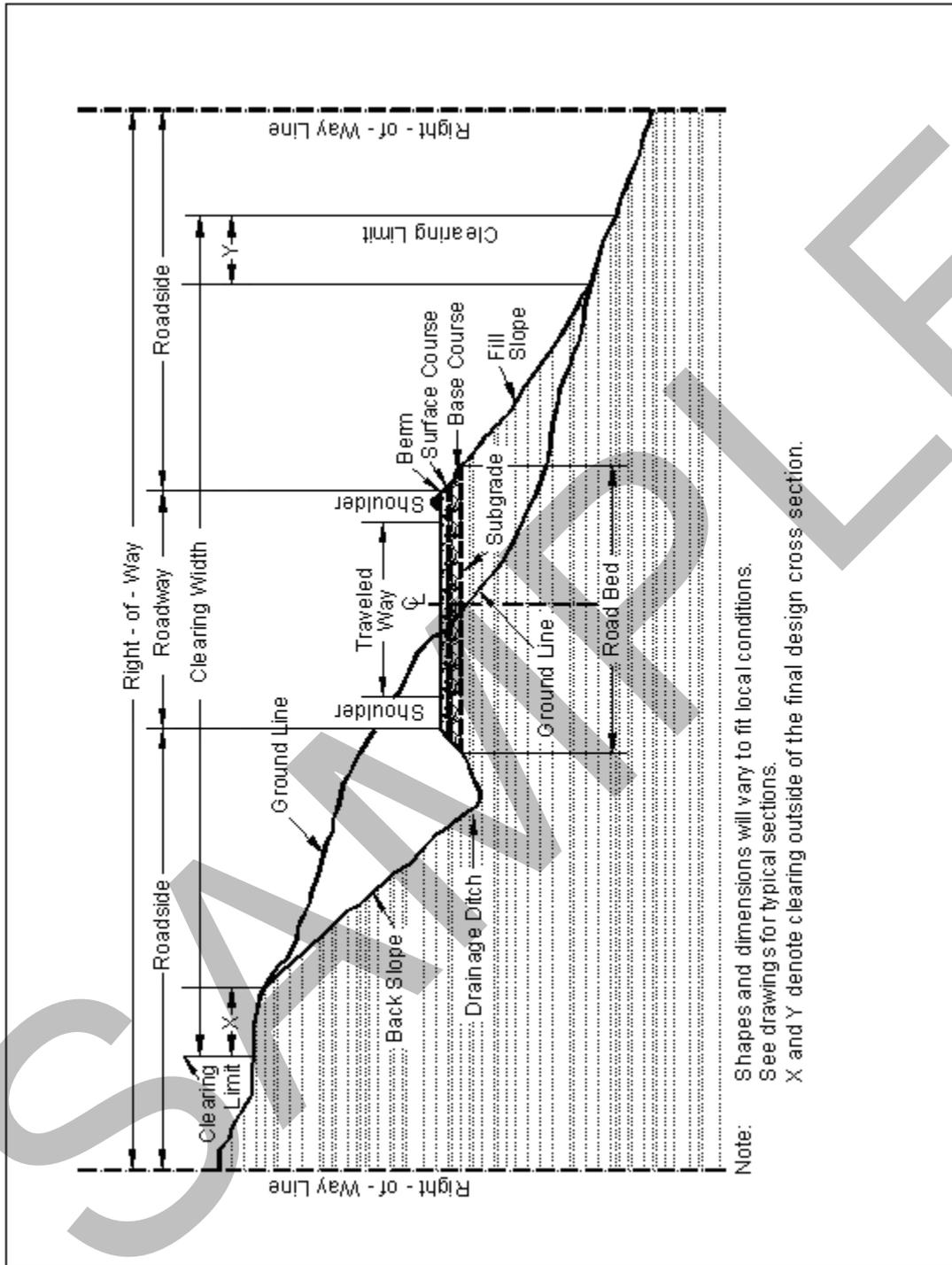
Road Order--An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

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.



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

106.07_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.

107.10_05_us_05_04_2007

107.02 Protection and Restoration of Property and Landscape

Add the following:

Meet the requirements chapters 10, 11, and 12.2 in their entirety of "Water Quality Management for National Forest System Lands in California Best Management Practices" dated September 2000

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.

151 - Mobilization

151.01_0105_us_05_04_2007

151.01 Description

Add the following at the end of the last sentence:

"Work also includes cleaning of all equipment used at the project site. Clean all construction equipment prior to entry on the project site. Remove all dirt, plant parts and material that may carry noxious weed seeds into the area. Only construction equipment inspected by the Forest Service will be allowed to operate within the project area. Treat subsequent move-ins of equipment the same as the initial move-in. Clean truck beds and dump boxes hauling to the project site prior to entering the work area."

151.03_nat_us_08_05_2005

151.03 Payment

Delete the entire subsection and add the following:

151.03 Payment

Mobilization is considered an indirect cost of this contract and will not be compensated as a separate work item.

201 - Clearing and Grubbing

201.01_nat_us_02_18_2005

201.01 Description

Replace with the following

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

201.04_nat_us_02_22_2005

201.04 Clearing. (c)

Delete paragraph (c) and replace with the following:

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

201.04 Clearing.

Delete subsection (d) and replace with the following:

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

Add the following:

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

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

201.06_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.

SAMPLE

204 - Excavation and Embankment

204.00_nat_us_03_26_2009

Replace Section 204 in its entirety with the following:

Description

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

204.02 Definitions.

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

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

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

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

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

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

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

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

Material

204.03 Conform to the following Subsections:

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

Construction Requirements

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

204.05 Reserved.

204.06 Roadway Excavation. Excavate as follows:

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

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

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

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

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

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

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

204.07 Subexcavation. Excavate material to the limits designated by the CO. Take cross-sections according to Section 152. Prevent unsuitable material from becoming mixed with the backfill. Dispose of unsuitable material according to

Subsection 204.14. Backfill the subexcavation with topping, or other suitable material. Compact the material according to Subsection 204.11.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- (a) Four roller passes of a vibratory roller having a minimum

dynamic force of 40,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.

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

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

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

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

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

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

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

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

Use compression-type or vibratory rollers. Compact each layer of material full width to at least 95 percent of the maximum density. Determine the in-place density and moisture content according to AASHTO T 310 or other approved test procedures. When required, use AASHTO T 224 to correct for coarse particles.

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

(c) Compaction C. Place material by end dumping to the minimum depth needed for operation of spreading equipment. Level and smooth each embankment layer before placing the next layers. Operate hauling and spreading equipment uniformly over the full width of each layer. Construct a solid embankment

with adequate compaction by working smaller rock and fines in with the larger rocks to fill the voids, and by operating hauling and spreading equipment uniformly over the full width of each layer as the embankment is constructed.

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

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

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

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

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

(b) Stepped slopes. Where required by the contract, construct steps on slopes of $1\frac{1}{2}V:1H$ 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 over burden.

Upon completion of the waste placement, retake cross-sections before replacing overburden.

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

Payment

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

SAMPLE

Table 204-1
Sampling and Testing Requirements

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

(1) Minimum of 5 points per proctor

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

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

(1) Minimum of 5 points per proctor.

**Table 204-2
Construction Tolerances**

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

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

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

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

718 - Traffic Signing and Marking Material

718.05_nat_us_08_05_2009

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.

SAMPLE

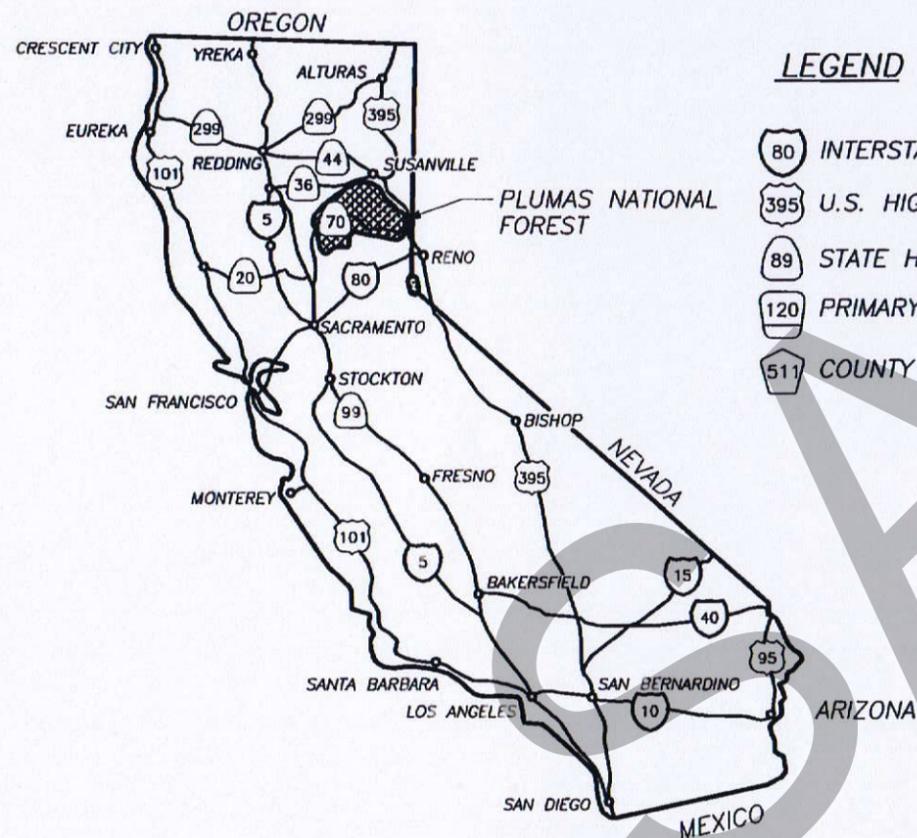
UNITED STATES DEPARTMENT OF AGRICULTURE
 FOREST SERVICE
 PACIFIC SOUTHWEST REGION FIVE



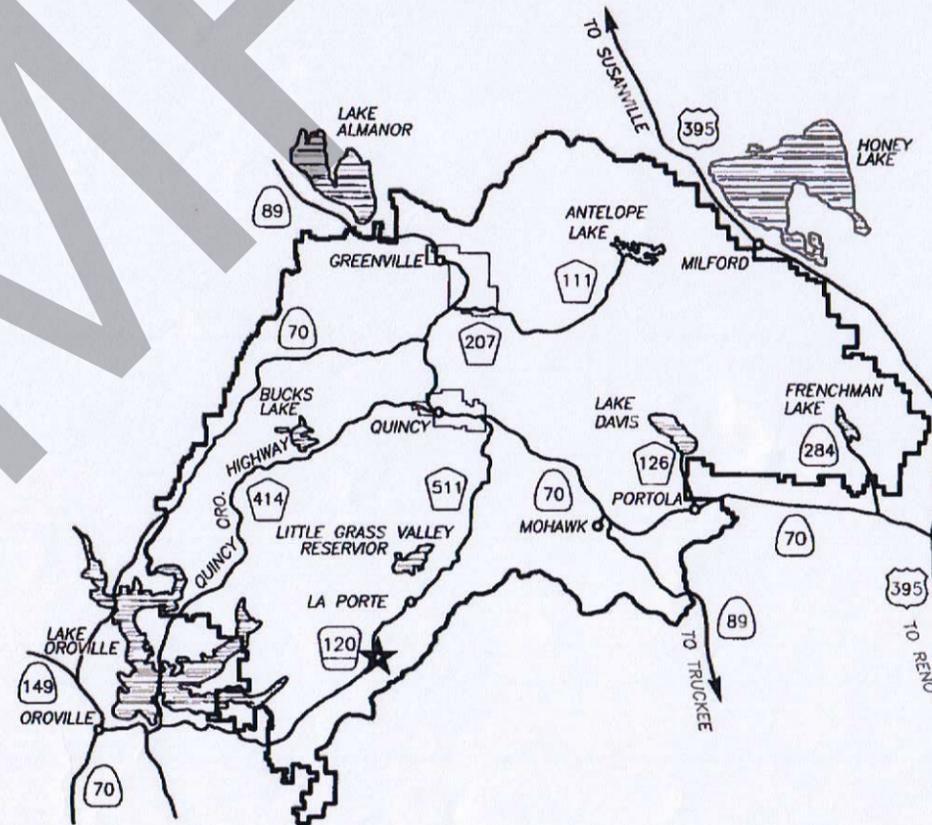
PLUMAS NATIONAL FOREST
 SUGARLOAF TIMBER SALE
 FEATHER RIVER RANGER DISTRICT

INDEX TO SHEETS

1	TITLE SHEET
2	LOCATION
3	SUMMARY OF QUANTITIES
4	LEGEND
5	CLEARING
6	DIPS
7	SIGNS
8	WORK LIST - 21N07YA, 21N15
9	WORK LIST - 21N42Y, 21N75Y, 21N79



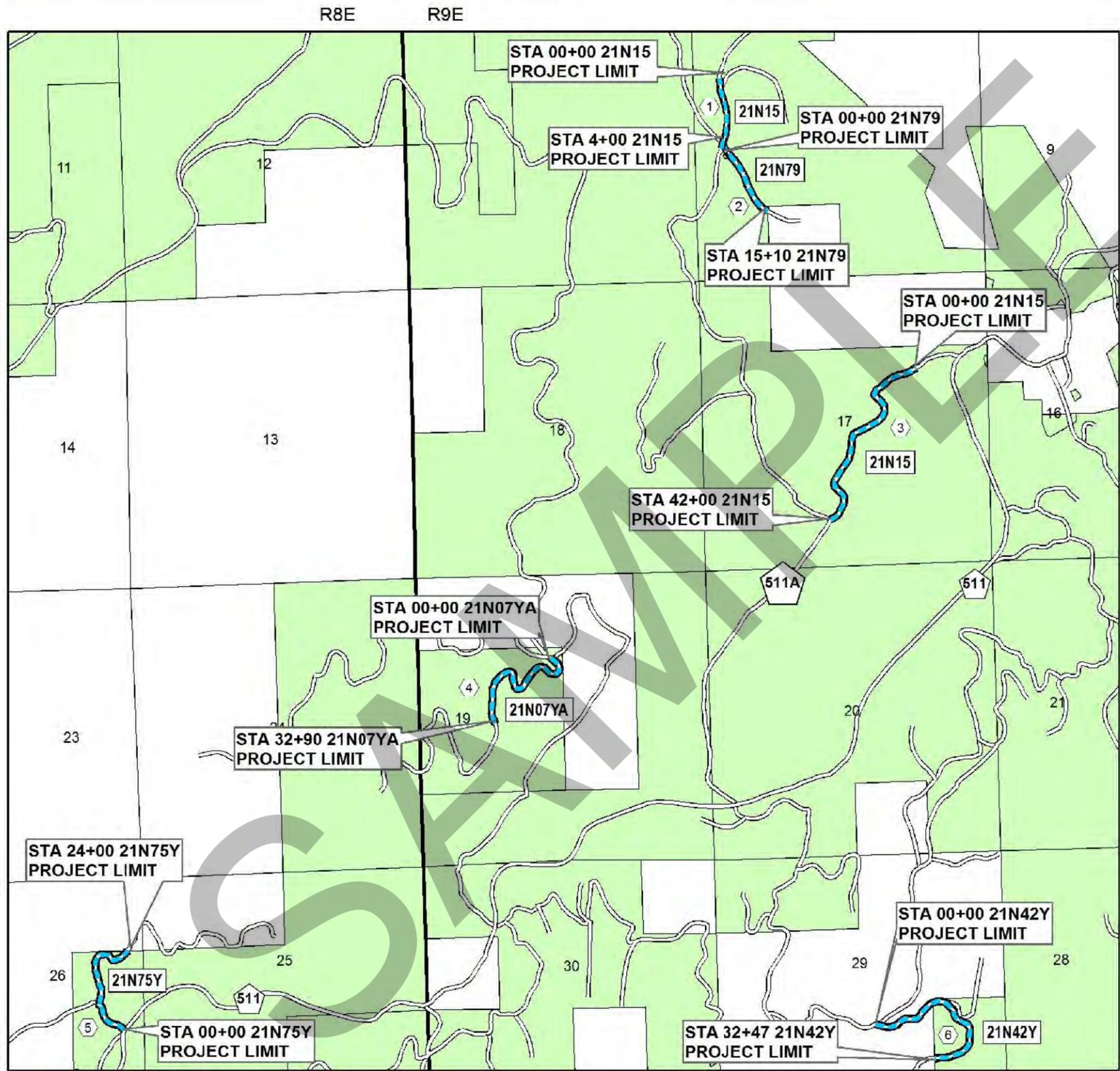
STATE OF CALIFORNIA
 INDEX MAP



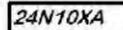
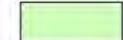
PLUMAS NATIONAL FOREST
 ★ PROJECT LOCATION



PREPARED BY:	<i>Cynthia Hidalgo</i>	<u>3/5/15</u>
PROJECT ENGINEER		DATE
REVIEWED BY:	<i>Dan Hopkins</i>	<u>3/5/15</u>
PROJECT ENGINEER		DATE
APPROVED BY:	<i>Parviz Noori</i>	<u>3/5/15</u>
FOREST ENGINEER		DATE
APPROVED BY:	<i>Randall Gould</i>	<u>3/6/15</u>
DISTRICT RANGER		DATE



LEGEND

-  EXISTING ROADS
-  RECONSTRUCTION
-  FOREST SERVICE ROAD NUMBER
-  COUNTY ROAD NUMBER
-  SEGMENT NUMBER
-  PLUMAS NATIONAL FOREST
-  OTHER OWNERSHIP

ROAD: 21N15 SEGMENT 1

Item	Description	Qty	Unit
15101	Mobilization	1	LS
20104	Clearing and grubbing, disposal of tops and limbs: D, logs: D, STUMPS: D.	0.05	ACRE
30301	Road reconditioning, surfacing: b, compaction method B.	0.08	MI
60201	Culvert installation	1	EA

ROAD: 21N15 SEGMENT 2

Item	Description	Qty	Unit
15101	Mobilization	1	LS
20104	Clearing and grubbing, disposal of tops and limbs: D, logs: D, STUMPS: D.	3	ACRE
20406	Drainage excavation, type: Dip.	7	EA
20406	Drainage excavation, type: Dip on Rock Surface	3	EA
20412	Drainage excavation, type: ditch	0.4	MI
20412	Drainage excavation, type: lead-off ditch	200	LF
30301	Road reconditioning, surfacing: b, compaction method B.	0.8	MI
60201	Culvert installation	1	EA
70305	Surface course aggregate	1095	CY

ROAD: 21N79

Item	Description	Qty	Unit
15101	Mobilization	1	LS
20104	Clearing and grubbing, disposal of tops and limbs: D, logs: D, STUMPS: D.	0.6	ACRE
20406	Drainage excavation, type: Dip.	2	EA
30301	Road reconditioning, surfacing: b, compaction method B.	0.28	MI
60201	Culvert installation	1	EA

ROAD: 21N42Y

Item	Description	Qty	Unit
15101	Mobilization	1	LS
20104	Clearing and grubbing, disposal of tops and limbs: D, logs: D, STUMPS: D.	1.5	ACRE
20406	Drainage excavation, type: Dip.	2	EA
30301	Road reconditioning, surfacing: b, compaction method B.	0.62	MI
60201	Culvert installation	2	EA

ROAD: 21N07YA

Item	Description	Qty	Unit
15101	Mobilization	1	LS
20104	Clearing and grubbing, disposal of tops and limbs: D, logs: D, STUMPS: D.	1.5	ACRE
30301	Road reconditioning, surfacing: b, compaction method B.	0.62	MI

ROAD: 21N75Y

Item	Description	Qty	Unit
15101	Mobilization	1	LS
20104	Clearing and grubbing, disposal of tops and limbs: D, logs: D, STUMPS: D.	1.1	ACRE
20406	Drainage excavation, type: Dip.	4	EA
30301	Road reconditioning, surfacing: b, compaction method B.	0.45	MI



 EXISTING TRANSPORTATION SYSTEM ROAD

 SPECIFIED ROAD RECONSTRUCTION

 SPECIFIED ROAD CONSTRUCTION

 FOREST SERVICE ROAD NUMBER

 STATE HIGHWAY ROAD NUMBER

 PLUMAS COUNTY ROAD NUMBER

 RIPRAP AND AGGREGATE SOURCE

 WATER SOURCE

 OTHER OWNERSHIP

 BORROW SOURCE (IE. EARTH, SAND, ETC)

 DISPOSAL SITE

 CATTLEGUARD

 UNMERCHANTABLE DECKING AREA

 MERCHANTABLE DECKING AREA

 CONSTRUCTION SLASH DISPOSAL AREA

 STUMP DISPOSAL AREA

 OVERSIDE DRAIN

 REINFORCED SUBGRADE

 GATE

 GUARDRAIL BARRIER

 RIPRAP (ENERGY DISSIPATOR)

 CONSTRUCT TURNAROUND

 CONSTRUCT HAMMERHEAD TURNAROUND

 CONSTRUCT TURNOUT

 ROLLING DIP

 WATERBAR

 REINFORCED ROLLING DIP

 LOW WATER CROSSING

 STREAM

 LEAD-IN, LEAD-OFF, OR DRAINAGE DITCH

 CULVERT PIPE, PLAN VIEW

 CULVERT PIPE, PROFILE VIEW

 CULVERT PIPE, WITH CATCH BASIN

 EARTH BARRIER

 UNDER DRAIN (PMP) OR TEXTILE DRAIN

 GABION BASKET

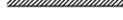
 "P" (PRELIMINARY) LINE AS SURVEYED

 "L" LINE - CENTER LINE TO BE CONSTRUCTED

 OFFICE LINE

 V.P.I. (VERTICAL POINT OF INTERSECTION)

 RIGHT-OF-WAY LIMITS

 SECTION LINE

 CUT LINE } CONSTRUCTION LIMITS

 FILL LINE }

 FENCE LINE

 EXISTING ROAD EDGE

 BRIDGE

 BERM

 US HIGHWAY

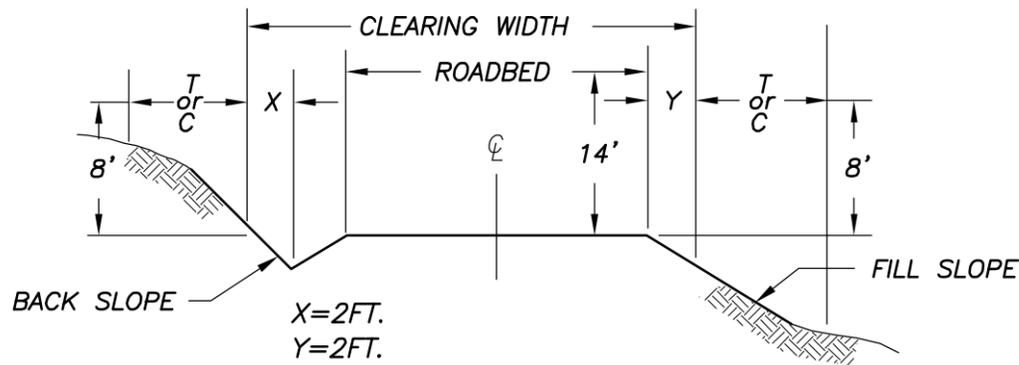
 CAMPGROUND

 INTERSTATE HIGHWAY

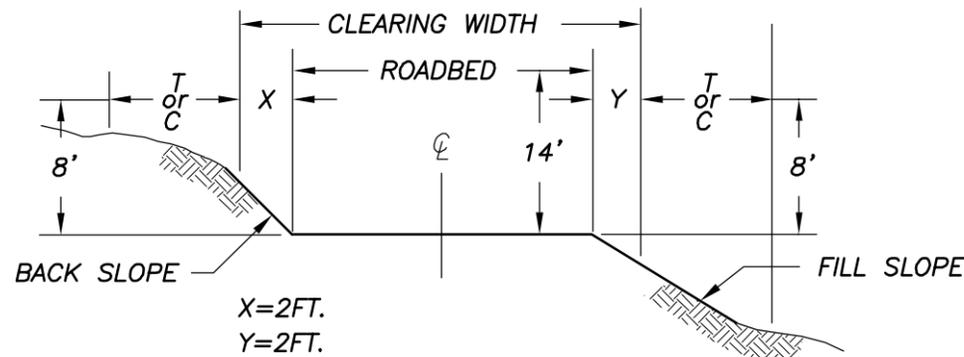
 SALESTAR

 NORTH ARROW

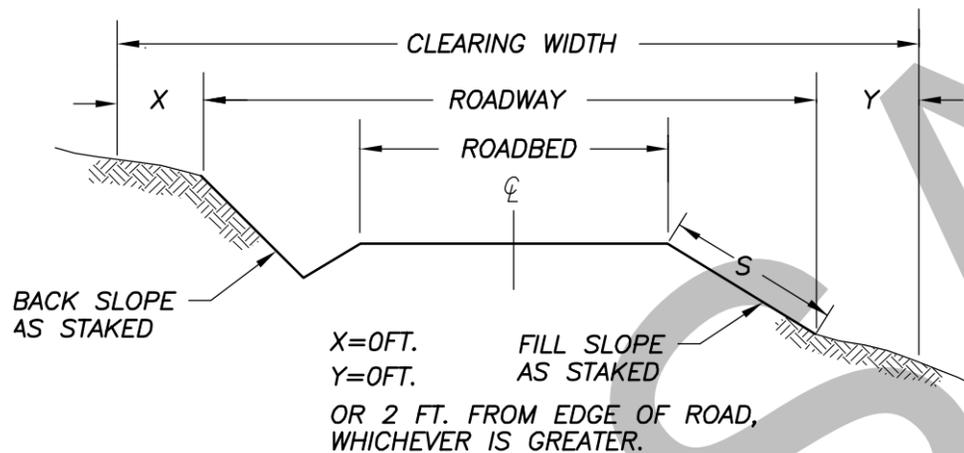
CLEARING



RECONSTRUCTION ~ DITCH SECTION



RECONSTRUCTION ~ NO DITCH



NEW CONSTRUCTION & NEWLY CONSTRUCTED SLOPES

NOTES:

- ① ROADBED WIDTHS SHOWN ON PLAN AND PROFILE, OR WORKLIST PLANS, INCLUDE TURNOUTS AND CURVE WIDENING.
- ② BLADE TO DAYLIGHT OR CONSTRUCT DRAINAGE DITCH, UNLESS OTHERWISE SHOWN ON PLANS. WHERE DAYLIGHT WILL EXCEED 5', CONSTRUCT DRAINAGE DITCH. WHEN AGREED, A DRAINAGE DITCH SHAPE MAY BE USED FOR LEAD-OFF DITCH.
A CROSS SLOPE OF 4% +/- 1%, SHALL BE USED FOR ALL SUPERELEVATED CURVES, AND FOR ALL INSLOPED, OUTSLOPED, OR CROWNED ROADBEDS.

AGGREGATE SHALL BE SLOPED 3.1:1 OR TO EXISTING DITCH SLOPE.

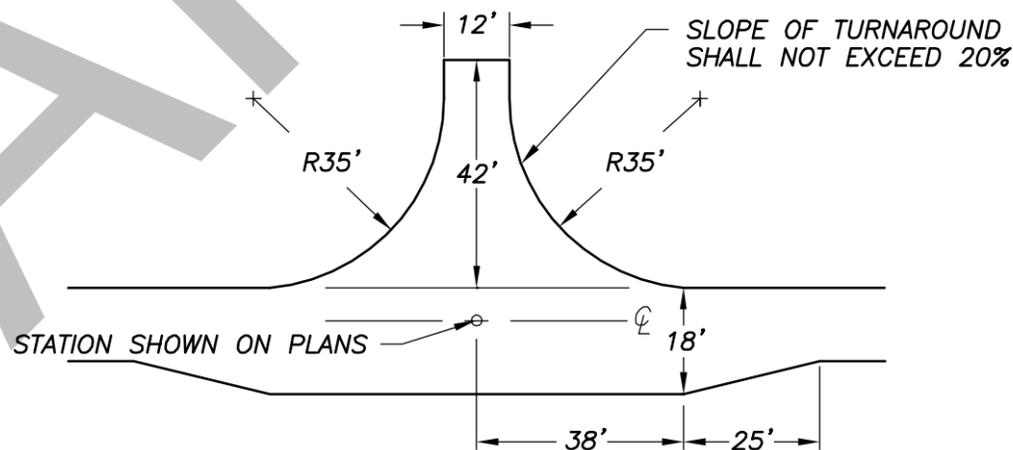
SEEDING AND MULCHING AREAS SHALL CONSIST OF FILL SLOPES, SPECIFIED AREAS IDENTIFIED ON THE DRAWINGS, AND AREAS UNNECESSARILY DISTURBED OR REPEATEDLY USED DURING CONSTRUCTION. DIMENSION "S", ON NEW CONSTRUCTION AND NEWLY CONSTRUCTED SLOPES SHALL BE 6', OR TOE OF FILL, WHICHEVER IS GREATER.

A GRADER FINISH WITH ROLLER COMPACTION SHALL BE REQUIRED ON ALL PROJECTS. THE SUBGRADE SHALL BE VISIBLY MOIST DURING BLADING AND SHAPING OPERATIONS.

IN CLEAR OR TRIM SECTIONS, LEAVE STABLE TREES OVER 3' TALL AND LESS THAN 3" D.B.H. THAT DOESN'T INTERFERE W/SIGHT DISTANCE. (SPS 201.04)

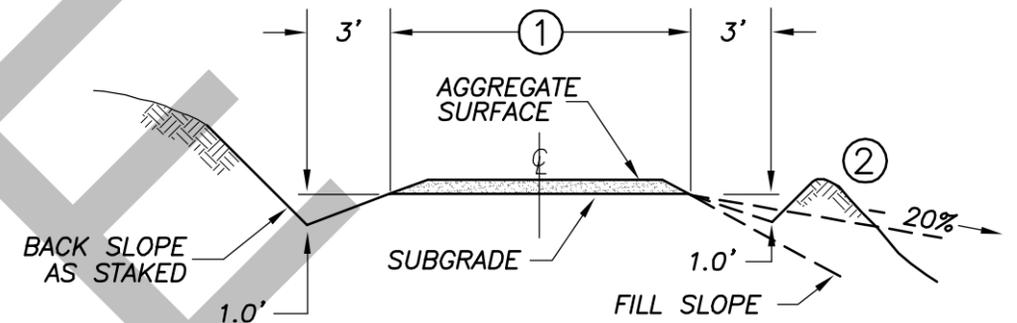
ROADS CONSTRUCTED UNDER SECTION 204 SHALL USE TOLERANCE CLASS G.

"C"=CLEAR "T"=TRIM

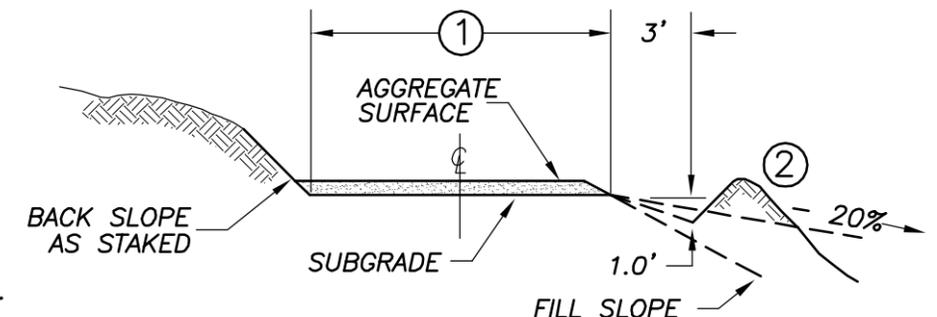


HAMMERHEAD TURNAROUND

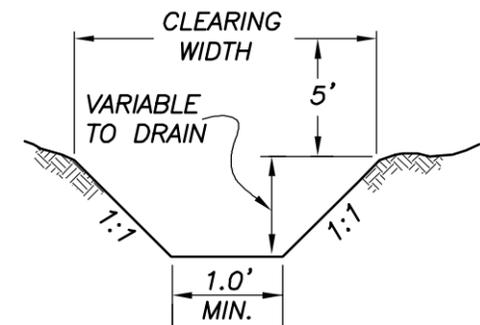
CONSTRUCTION



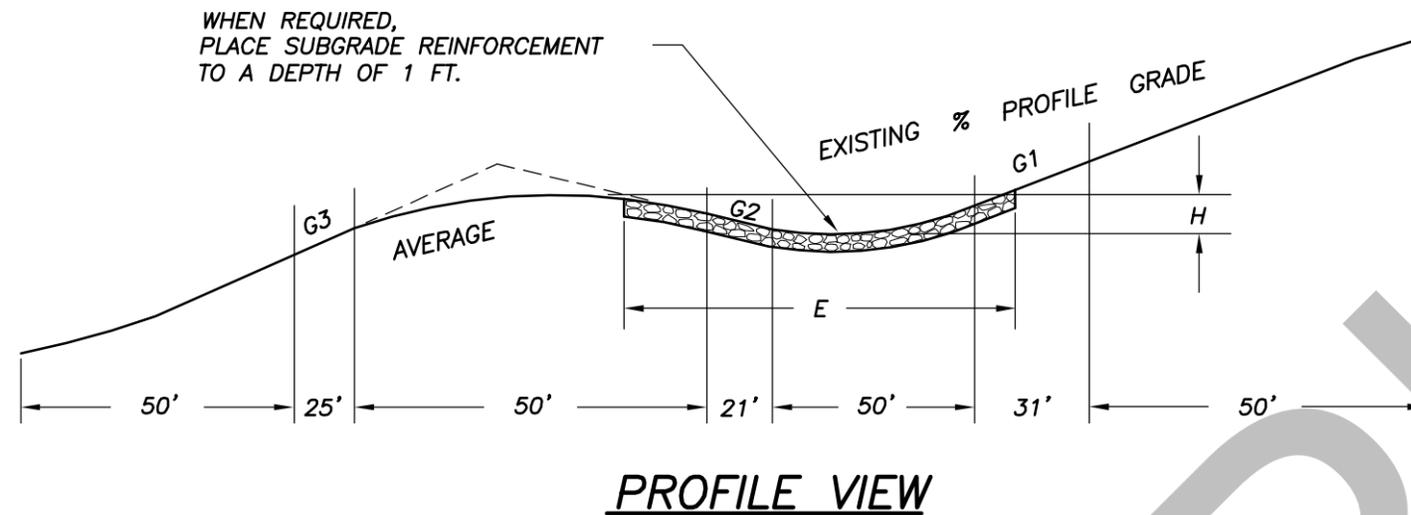
TYPICAL ROADWAY ~ DITCH SECTION



TYPICAL ROADWAY ~ NO DITCH



LEAD-OFF DITCH



ROLLING DIP CONSTRUCTION DIMENSIONS						
% PROFILE GRADE	CONST. GRADE			DEPTH (H)	REINFORCEMENT	
	G1	G2	G3		LENGTH (E)	CUBIC YARDS
0 TO 4	-7	2	-6	0.6'	20'	12
5 TO 6	-10	2	-9	0.6'	20'	12
7 TO 8	-13	2	-12	0.5'	20'	12
9 TO 10	-16	2	-15	0.5'	30'	18
OVER 10 % NOT RECOMMENDED						

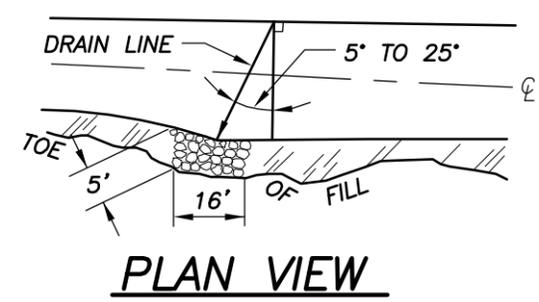
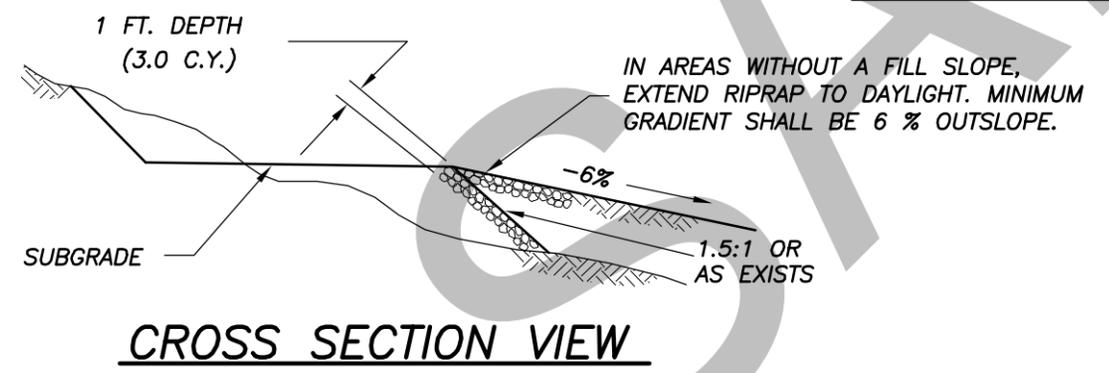
ROLLING DIP CONSTRUCTION NOTES:

1. THE CROSS SLOPE OF THE ROADBED SHALL BE MAINTAINED THROUGH THE DIP.
2. THE DRAIN LINE SHALL BE PERPENDICULAR TO THE CENTER LINE OF THE ROADBED.
3. PLACE CLASS 2 OR 3 OUTLET RIPRAP WHEN SHOWN ON THE DRAWINGS. REFER TO OUTLET RIPRAP DETAIL BELOW.
4. FOR DIPS ON AGGREGATE SURFACED ROADS, REDUCE (H) DEPTH BY 0.2 FT.
5. WATERBAR AND DIP CONSTRUCTION TOLERANCES SHALL BE IN ACCORDANCE WITH TABLE 204-2, TOLERANCE CLASS A.

WATERBAR CONSTRUCTION NOTES:

1. WATERBARS ARE USUALLY CONSTRUCTED BY ANGLE DOZERS. WATERBARS SHALL HAVE A CLEAN OUTLET AND BE CONSTRUCTED SO THEY WILL NOT FAIL THROUGH ALL WEATHER USE.
2. THE WATERBAR DRAIN LINE SHALL BE SKEWED 5° TO 25°.
3. WATERBARS SHALL BE CONSTRUCTED SO THAT DRAINLINE EXCAVATION IS APPROXIMATELY SIX INCHES (6") INTO SOLID SOIL AND THE TOP OF COMPACTED WATERBAR IS TWELVE INCHES (12") ABOVE THE DRAINLINE.
4. THE TOTAL LENGTH OF THE WATERBAR SHALL NOT BE LESS THAN SIXTEEN FEET (16').
5. CROSS SLOPE OF THE DRAIN LINE SHALL BE EQUIVALENT TO TO THE CROSS SLOPE OF THE ROAD PLUS TWO PERCENT (2%).

OUTLET RIPRAP



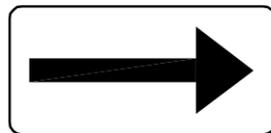
REINFORCEMENT GRADATION	
SIEVE SIZE	% PASSING
12"	100%
2"	20-80%
3/4"	0-40%
# 200	0-10%

DETOUR

M4-B
24" X 12"



M4-10R
24" X 9"



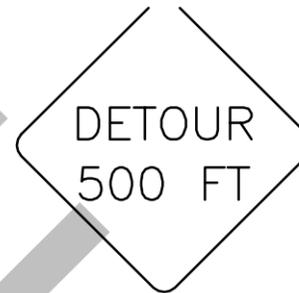
W1-6
48" X 24"



W20-1
48" X 48"



W20-2d
48" X 48"



W20-2c
48" X 48"



W21-3
36" X 36"



W3-1
30" X 30"



W5-2
36" X 36"



W8-6
30" X 30"



W8-7
30" X 30"



W21-1
30" X 30"



W11-1
30" X 30"



W21-2
24" X 24"

GENERAL NOTES:

DESIGNS FOR SIGNS AND BARRICADES SHOWN ABOVE SHALL BE IN ACCORDANCE WITH THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".

SIGNS SHALL BE LOCATED WHERE THEY WILL BE CONSPICUOUSLY VISIBLE DAY AND NIGHT ON THE RIGHT HAND SIDE OF APPROACHING TRAFFIC. THEY SHALL BE FACING TRAFFIC AND LOCATED WHERE THEY CAN BE SEEN AT ALL TIMES BY APPROACHING DRIVERS WITH A MINIMUM OF EFFORT.

WHEN A SIGN IS REQUIRED FOR AN EXTENDED PERIOD, IT SHALL BE FASTENED TO 4 X 4 POSTS WITH 2, 3/8" CARRIAGE BOLTS. PORTABLE SUPPORTS ARE PERMITTED FOR SHORT PERIODS PROVIDED THE CONSTRUCTION IS SUCH THAT WIND OR OTHER AGENTS CANNOT UPSET THE SIGN.

SIGN W20-1 SHALL BE ERECTED 1500' FROM EACH END OF CONSTRUCTION OPERATIONS.

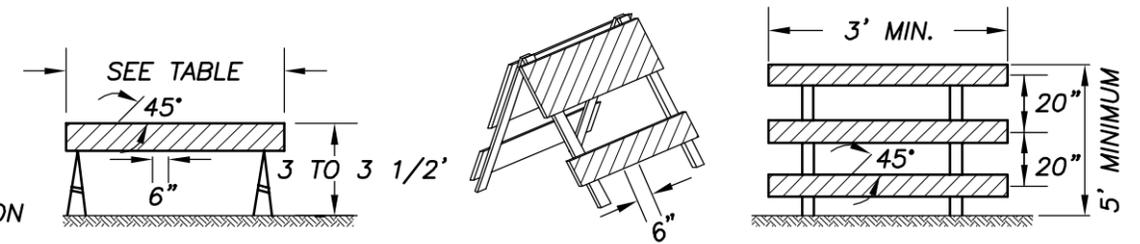
SIGN W21-3 AND W11-1 SHALL BE ERECTED AT EACH END OF AREAS WHERE HEAVY EQUIPMENT IS IN OPERATION AND SHALL BE REPEATED EVERY 1/2 MILE IF THE OPERATION EXTENDS OVER ONE MILE.

OTHER SIGNS SHOWN ABOVE SHALL BE USED AS INDICATED BY THEIR DESIGN.

IF OTHER SIGNS NOT SHOWN ABOVE ARE REQUIRED THEY SHALL ALSO CONFORM TO THOSE SHOWN IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

SELECTION AND PLACEMENT OF ALL SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.

LIGHTING DEVICES SUCH AS FLASHERS, TORCHES, LANTERNS, AND ELECTRIC LIGHTS SHALL BE PLACED AND MAINTAINED FROM SUNSET TO SUNRISE AT ALL POINTS OF HAZARD AND ALL SIGNS INDICATING CAUTION.

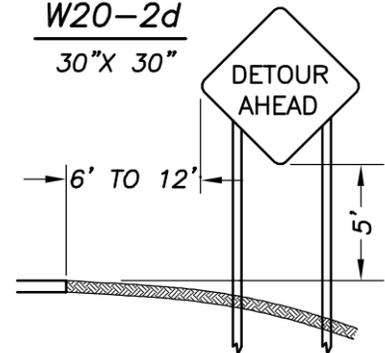


TYPE I BARRICADE TYPE II BARRICADE TYPE III BARRICADE

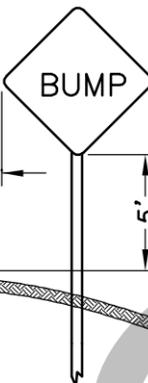
NOTE: FOR DIMENSIONS SEE TABLE

TYPE	I	II	III
WIDTH OF RAIL	8"MIN-12"MAX.	8"MIN-12"MAX.	8"MIN-12"MAX.
LENGTH OF RAIL	6'-8'	3'MIN-4'MAX.	3'MIN-VARIABLE MAX.
WIDTH OF STRIPES	6 IN.	6 IN.	6 IN.
HEIGHT	3 FT. MIN.	3'MIN-3 1/2'MAX.	5 FT. MIN.
TYPE OF FRAME	DEMOUNTABLE OR HEAVY "A" FRAME	LIGHT "A" FRAME	POST OR SKIDS
FLEXIBILITY	ESSENTIALLY MOVABLE	PORTABLE	ESSENTIALLY PERMANENT

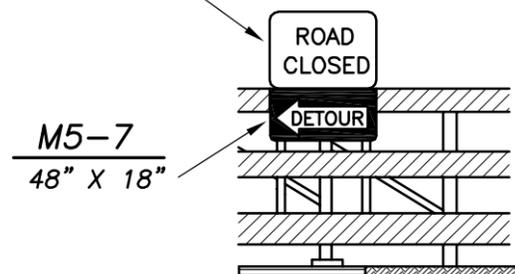
W20-2d
30" X 30"



W8-1
30" X 30"



R11-2
48" X 30"



M5-7
48" X 18"

STATION TO STATION

21N07YA WORK ITEMS

STATION TO STATION

21N15 SEGMENT 2 WORK ITEMS

0+00
0+00 - 32+90 PROJECT LIMIT. INTERSECTION WITH 21N51
CONSTRUCT ROADWAY IN ACCORDANCE WITH SECTIONS
201, 202, 203, 204, 303. THE TREATMENT FOR CONSTRUCTION SLASH
SHALL BE METHOD A- REMOVE FROM PROJECT. THE EXCAVATION AND
EMBANKMENT SHALL BE METHOD B LAYER PLACEMENT, ROLLER
COMPACTION. THE FINISHED ROADBED WIDTH SHALL INCLUDE
TURNOUTS AND CURVE WIDENING. THE MINIMUM FINISHED ROADBED
WIDTH SHALL BE 14 FEET.

0+00 - 32+90 OUTSLOPE ROADBED, RIGHT.
6+74 EXISTING CMP
9+45 ROAD INTERSECTION, RIGHT
16+39 EXISTING CMP
32+90 END OF PROJECT

0+00 PROJECT LIMIT. BEGIN AT 883 FT SOUTHWEST INTERSECTION OF PC511
AND 21N15, THE END OF PAVEMENT.
0+00 - 42+00 CONSTRUCT ROADWAY IN ACCORDANCE WITH SECTIONS
201, 202, 203, 204, 303, 602. THE TREATMENT FOR CONSTRUCTION
SLASH SHALL BE METHOD A- REMOVE FROM PROJECT. THE
EXCAVATION AND EMBANKMENT SHALL BE METHOD B LAYER
PLACEMENT, ROLLER COMPACTION. THE FINISHED ROADBED WIDTH
SHALL INCLUDE TURNOUTS AND CURVE WIDENING. THE MINIMUM
FINISHED ROADBED WIDTH SHALL BE 14 FEET.

0+00 - 11+37 OUTSLOPE ROADBED, LEFT
0+60 CONSTRUCT DIP, DRAIN LEFT, WITH 20' LEAD-OFF DITCH, LEFT
2+88 CONSTRUCT DIP, DRAIN LEFT, WITH 20' LEAD-OFF DITCH, LEFT
4+26 CONSTRUCT DIP, DRAIN LEFT, WITH 20' LEAD-OFF DITCH, LEFT
7+09 CONSTRUCT DIP, DRAIN LEFT, WITH 20' LEAD-OFF DITCH, LEFT
8+99 CULVERT INSTALLATION 24 IN X 40 FT
11+37 CONSTRUCT DIP, DRAIN LEFT, WITH 20' LEAD-OFF DITCH, LEFT
CONSTRUCT DIP, DRAIN LEFT, WITH 20' LEAD-OFF DITCH, LEFT

STATION TO STATION

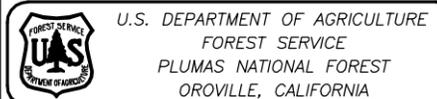
21N15 SEGMENT 1 WORK ITEMS

19+72 - 22+27 ROAD REALIGNMENT
20+32 EXISTING CMP
22+27 - 28+57 CONSTRUCT DRAINAGE DITCH, RIGHT.
24+47 CONSTRUCT DIP, DRAIN LEFT, WITH 20' LEAD-OFF DITCH, LEFT
28+57 CONSTRUCT DIP, DRAIN LEFT, WITH 20' LEAD-OFF DITCH, LEFT
28+57 OUTSLOPE ROADBED, LEFT
32+47 CONSTRUCT DIP, DRAIN LEFT, WITH 20' LEAD-OFF DITCH, LEFT
37+54 CONSTRUCT DIP, DRAIN LEFT, WITH 20' LEAD-OFF DITCH, LEFT
38+30 REMOVE BERM. UTILIZE SUITABLE EXCAVATED MATERIAL AS CUSHION
ON ADJACENT ROADBED AREAS.
42+00 END OF PROJECT

0+00
0+00 - 4+00 PROJECT LIMIT. INTERSECTION WITH 21N15A
CONSTRUCT ROADWAY IN ACCORDANCE WITH SECTIONS
201, 202, 203, 204, 303, 602. THE TREATMENT FOR CONSTRUCTION SLASH
SHALL BE METHOD A- REMOVE FROM PROJECT. THE EXCAVATION AND
EMBANKMENT SHALL BE METHOD B LAYER PLACEMENT, ROLLER
COMPACTION. THE FINISHED ROADBED WIDTH SHALL INCLUDE
TURNOUTS AND CURVE WIDENING. THE MINIMUM FINISHED ROADBED
WIDTH SHALL BE 14 FEET.

0+00 - 4+00 OUTSLOPE ROADBED, RIGHT. WIDEN ROADBED 4'. FINISHED ROADBED
WIDTH 14'

0+00 - 2+36 CONSTRUCT DRAINAGE DITCH, RIGHT
2+36 CMP INSTALLATION 24 IN X 40 FT
4+00 END OF PROJECT



SUGARLOAF TIMBER SALE

WORK LIST
21N07YA, 21N15

DESIGNED: C.HIDALGO DATE: 2/26/15
DRAWN: _____ DATE: _____
CHECKED: _____ DATE: _____

DATE	REVISION	BY

DRAWING NAME
MTS_Dwgs.dwg

SHEET 8

STATION TO STATION

21N42Y WORK ITEMS

0+00
0+00 - 32+47 PROJECT LIMIT. INTERSECTION WITH 21N18
CONSTRUCT ROADWAY IN ACCORDANCE WITH SECTIONS
201, 202, 203, 204, 303, 602. THE TREATMENT FOR CONSTRUCTION
SLASH SHALL BE METHOD A- REMOVE FROM PROJECT. THE
EXCAVATION AND EMBANKMENT SHALL BE METHOD B LAYER
PLACEMENT, ROLLER COMPACTION. THE FINISHED ROADBED WIDTH
SHALL INCLUDE TURNOUTS AND CURVE WIDENING. THE MINIMUM
FINISHED ROADBED WIDTH SHALL BE 14 FEET.

0+00 - 32+47 OUTSLOPE ROADBED, LEFT.
5+06 CMP INSTALLATION 24 IN X 40 FT
6+62 CONSTRUCT DIP, DRAIN LEFT.
8+92 FOREST BOUNDARY
13+84 INTERSECTION WITH 21N62Y, LEFT
18+13 CMP INSTALLATION 24 IN X 30 FT
21+78 CONSTRUCT DIP, DRAIN LEFT.
32+47 END OF PROJECT

STATION TO STATION

21N79 WORK ITEMS

0+00
0+00 - 15+10 PROJECT LIMIT. INTERSECTION WITH 21N15A
CONSTRUCT ROADWAY IN ACCORDANCE WITH SECTIONS
201, 202, 203, 204, 303. THE TREATMENT FOR CONSTRUCTION SLASH
SHALL BE METHOD A- REMOVE FROM PROJECT. THE EXCAVATION AND
EMBANKMENT SHALL BE METHOD B LAYER PLACEMENT, ROLLER
COMPACTION. THE FINISHED ROADBED WIDTH SHALL INCLUDE
TURNOUTS AND CURVE WIDENING. THE MINIMUM FINISHED ROADBED
WIDTH SHALL BE 14 FEET.

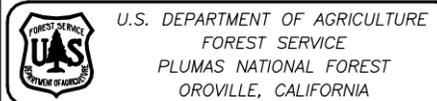
0+00 - 6+00 OUTSLOPE ROADBED, RIGHT.
1+32 CONSTRUCT DIP, WITH 20' LEAD-OFF DITCH, LEFT.
3+36 CONSTRUCT DIP, WITH 20' LEAD-OFF DITCH, RIGHT.
6+00 15+10 OUTSLOPE ROADBED, LEFT. CONSTRUCT DRAINAGE DITCH, LEFT.
6+53 CONSTRUCT DIP, WITH 20' LEAD-OFF DITCH, LEFT.
9+23 CONSTRUCT 20' LEAD-OFF DITCH, LEFT.
11+41 CONSTRUCT DIP, WITH 20' LEAD-OFF DITCH, LEFT.
14+99 REPLACE CMP WITH 24 IN X 40 FT
15+10 END OF PROJECT

STATION TO STATION

21N75Y WORK ITEMS

0+00
0+00 - 24+00 PROJECT LIMIT. INTERSECTION WITH PC 511
CONSTRUCT ROADWAY IN ACCORDANCE WITH SECTIONS
201, 202, 203, 204, 303. THE TREATMENT FOR CONSTRUCTION SLASH
SHALL BE METHOD A- REMOVE FROM PROJECT. THE EXCAVATION AND
EMBANKMENT SHALL BE METHOD B LAYER PLACEMENT, ROLLER
COMPACTION. THE FINISHED ROADBED WIDTH SHALL INCLUDE
TURNOUTS AND CURVE WIDENING. THE MINIMUM FINISHED ROADBED
WIDTH SHALL BE 14 FEET.

0+00 - 24+00 OUTSLOPE ROADBED, LEFT.
2+84 CONSTRUCT DIP, WITH 20' LEAD-OFF DITCH, LEFT.
5+70 CONSTRUCT DIP, WITH 20' LEAD-OFF DITCH, LEFT.
8+05 CONSTRUCT DIP, WITH 20' LEAD-OFF DITCH, LEFT.
9+84 EXISTING CMP
10+20 ROAD INTERSERTION, LEFT
18+75 CONSTRUCT DIP, WITH 20' LEAD-OFF DITCH, LEFT.
24+00 END OF PROJECT



U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
PLUMAS NATIONAL FOREST
OROVILLE, CALIFORNIA

SUGARLOAF TIMBER SALE

WORK LIST
21N42Y, 21N75Y, 21N79

DESIGNED: C.HIDALGO DATE: 2/26/15
DRAWN: DATE:
CHECKED: DATE:

DATE	REVISION	BY

DRAWING NAME
MTS_Dwgs.dwg

SHEET 9

C5.13# - ROAD COMPLETION DATE. (7/01) Construction of Specified Roads shall be completed no later than September 5, 2017; except for earlier construction completion dates for roads listed below:

Road Number	Road Name	Station		Completion Date
		From	To	
21N15 SEG1	LEXINGTON	0+00	4+00	09/5/17
21N15 SEG1	LEXINGTON	0+00	42+00	09/05/17
21N42Y	CLARKS RAVINE	0+00	32+47	09/5/17
21N75Y	WONDER	0+00	24+00	09/5/17
21N79	UPPER DUTCH	0+00	15+10	09/5/17
21N07YA	PANSY SPUR A	0+00	32+92	09/5/17

Completion date is binding on party that constructs road, whether Purchaser or Forest Service. Contracting Officer shall modify the completion date in writing to conform to the approved plan of operations under B6.3 at the request of Purchaser.

When Purchaser elects Forest Service construction of Specified Roads shown in sale advertisement, Forest Service may adjust construction completion date when road construction is interrupted or delayed for causes that qualify for an adjustment of the completion date of the road construction contract. When qualifying interruptions or delays of road construction occur, Forest Service shall evaluate such occurrences and document any findings. The current status of any adjustment shall be available to Purchaser on request. Promptly after the end of Normal Operating Season in which qualifying days occur, Forest Service shall give Purchaser written notice of (a) number of qualifying days claimed, and (b) new construction completion dates. After all road construction is complete, Forest Service shall grant Contract Term Adjustment under B8.21. Such adjustment shall be limited to road completion date delays that occurred during Normal Operating Season.

If Forest Service is responsible for road construction and the actual date of road completion is one year or more after the completion date stated above, Purchaser may request a rate redetermination under B3.31 for remaining volume. Such request must be made within 30 days of notification that road construction has been completed. Upon receipt of such request, Forest Service shall redetermine rates using standard methods in effect on the completion date of road construction. Rates to be established shall apply to all unscaled timber removed from Sale Area after the effective date of the rate redetermination.

Forest Service shall in no way be responsible for any delay or damage caused by road contractor in performing the road construction except such delay as may be the fault or negligence of Forest Service.

When Purchaser constructs Specified Roads and requests Contract Term Adjustment under B8.21, completion dates shall be adjusted by number of days that qualify for such adjustment, provided such qualifying days occur before specified construction completion date. When Purchaser desires to construct an alternate facility under B5.26, Forest Service and Purchaser shall agree, in writing, on a construction completion date for alternate facility. Contract Term Adjustment under B8.21 as noted above will apply. Completion date shall be adjusted where a design change, or physical changes necessitate a modification of Specified Road construction work that increases the scope or magnitude of the required work.

If Purchaser fails to complete construction of any or all Specified Roads by applicable completion date, as adjusted, Contract Term Extension under B8.23 shall not be granted.

As used in this provision, construction of a road is completed when:

(a) Purchaser constructs Specified Roads and Forest Service furnishes Purchaser with written notice of acceptance under B6.36, or

(b) Forest Service constructs road and furnishes Purchaser with written notice authorizing use of road.

Notwithstanding B5.1, Purchaser shall not use a road that Purchaser has elected for Forest Service to construct, until construction is completed and Forest Service furnishes Purchaser with written notice authorizing use of road.

SAMPLE

C5.213# - DEPOSIT FOR RECONSTRUCTION ENGINEERING SERVICES. (4/04)
 Purchaser shall make a cash deposit for engineering services (preconstruction and construction) provided by Forest Service for reconstruction of National Forest system roads necessary to accommodate Purchaser's use under this contract, pursuant to 16 USC 537.

The total amount to be deposited by Purchaser for reconstruction related engineering services to be completed by Forest Service personnel or by public works contract is \$14,450.00. Purchaser shall make this deposit at the end of the first full Normal Operating Season or 12 months from contract award, whichever occurs first. In the event a different deposit schedule is agreed to, such deposit shall be due within 15 days after the date of issue indicated on the initial bill for collection, pursuant to B4.4.

The amount of the required deposit will be shown as an associated charge on Purchaser's Timber Sale Account. Forest Service shall retain any unexpended deposit for reconstruction related engineering services.

The deposit for reconstruction related engineering services shall be commensurate with project need and Purchaser's road use. Forest Service shall complete reconstruction related engineering services on the following schedule unless a different completion schedule is agreed in writing:

Road or Facility No.	Termini		Engineering Services Completion Date
	From	To	
21N15 SEG1	0+00	4+00	09/5/16
21N15 SEG1	0+00	42+00	09/05/16
21N42Y	0+00	32+47	09/5/16
21N75Y	0+00	24+00	09/5/16
21N79	0+00	15+10	09/5/16
21N07YA	0+00	32+92	09/5/16

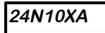
Reconstruction related engineering services may consist of some or all of the engineering work and expense of: preparing, setting out, controlling, inspecting, and measuring the reconstruction of a National Forest system road.

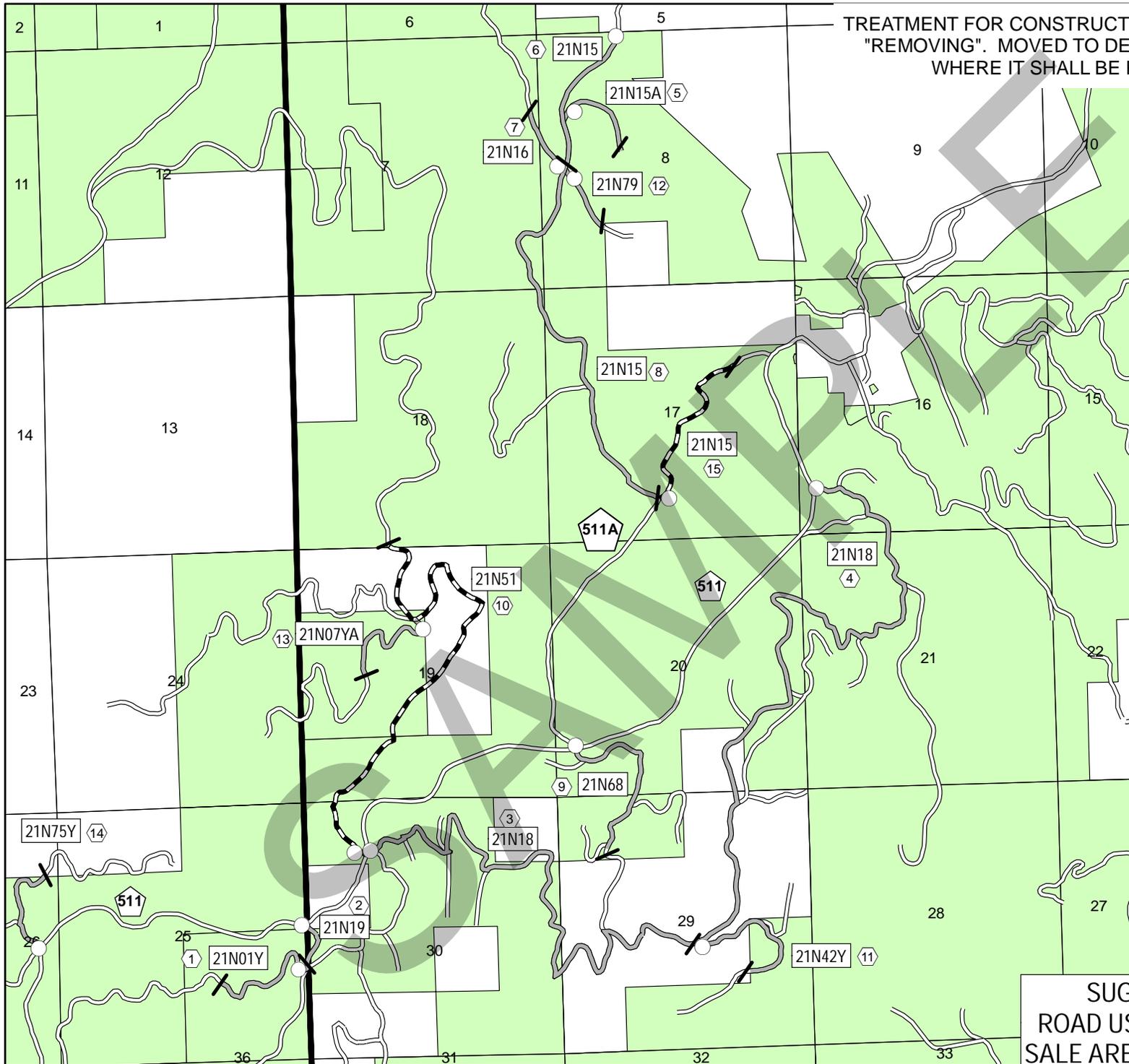
R8E R9E

TREATMENT FOR CONSTRUCTION SLASH SHALL BE METHOD "REMOVING". MOVED TO DESIGNATED ON THE GROUND WHERE IT SHALL BE PILED FOR DISPOSAL.



LEGEND

-  EXISTING ROADS
-  HAUL ROADS
NATIVE
-  HAUL ROADS,
AGGREGATE
-  FOREST SERVICE
ROAD NUMBER
-  COUNTY ROAD
NUMBER
-  ROAD TERMINI
- SEGMENT TERMINI
-  SEGMENT NUMBER
-  PLUMAS
NATIONAL FOREST
-  OTHER
OWNERSHIP



SUGARLOAF TIMBER SALE
ROAD USE AND MAINTENANCE MAP
SALE AREA MAP 2 OF 3 SHEET 1 OF 1

C5.31# – ROAD MAINTENANCE REQUIREMENTS. (7/01) Purchaser shall maintain roads in accordance with the following Contract Road Maintenance Requirements Summary:

TABLE A - Contract Road Maintenance Requirements Summary

Seg.	Road	Termini		Miles	Applicable Prehaul Road Maintenance Specifications										
		From	To		801	802	803	804	805	806	807	808	809	810	811
1	21N01Y	21N19	MP 1.13	0.73		P	P					P			
2	21N19	PC 511	21N01Y	0.19		P	P					P			
3	21N18	PC 511	21N42Y	2.85		P	P					P			
4	21N18	21N42Y	PC 511	3.13		P	P					P			
5	21N15A	21N15	SEC 8	0.15		P	P					P			
6	21N15	21N15A	MP 0.4	0.4		P	P					P			
7	21N16	21N15	MP 0.3	0.3		P	P					P			
8	21N15	21N79	PC 511A	1.65		P	P					P			
9	21N68	PC 511	MP 0.73	0.73		P	P					P			
10	21N51	PC 511	MP 2.2	2.2		P	P					P			
11	21N42Y	21N18	MP 0.61	0.61											
12	21N79	21N15	MP 0.28	0.28											
13	21N07YA	21N51	MP 0.60	0.6											
14	21N75Y	PCO 511	MP 0.45	0.45											
15	21N15	PC 511A	PC 511	0.8											

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

Seg.	Road	Termini		Miles	Applicable During Haul Road Maintenance Specifications										
		From	To		801	802	803	804	805	806	807	808	809	810	811
1	21N01Y	21N19	MP 1.13	0.73			P	P		P					
2	21N19	PC 511	21N01Y	0.19			P	P		P					
3	21N18	PC 511	21N42Y	2.85			P	P		P					
4	21N18	21N42Y	PC 511	3.13			P	P		P					
5	21N15A	21N15	SEC 8	0.15			P	P		P					
6	21N15	21N15A	MP 0.4	0.4			P	P		P					
7	21N16	21N15	MP 0.3	0.3			P	P		P					
8	21N15	21N79	PC 511A	1.65			P	P		P					
9	21N68	PC 511	MP 0.73	0.73			P	P		P					
10	21N51	PC 511	MP 2.2	2.2			P	P		P					
11	21N42Y	21N18	MP 0.61	0.61			P			P					
12	21N79	21N15	MP 0.28	0.28			P			P					
13	21N07YA	21N51	MP 0.60	0.6			P			P					
14	21N75Y	PCO 511	MP 0.45	0.45			P			P					
15	21N15	PC 511A	PC 511	0.8			P			P					

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

Seg.	Road	Termini		Miles	Applicable Post Haul Road Maintenance Specifications										
		From	To		801	802	803	804	805	806	807	808	809	810	811
1	21N01Y	21N19	MP 1.13	0.73		P	P			P					
2	21N19	PC 511	21N01Y	0.19		P	P								
3	21N18	PC 511	21N42Y	2.85		P	P			P					
4	21N18	21N42Y	PC 511	3.13		P	P			P					
5	21N15A	21N15	SEC 8	0.15		P	P								
6	21N15	21N15A	MP 0.4	0.4		P	P			P					
7	21N16	21N15	MP 0.3	0.3		P	P								
8	21N15	21N79	PC 511A	1.65		P	P			P					
9	21N68	PC 511	MP 0.73	0.73		P	P								
10	21N51	PC 511	MP 2.2	2.2		P	P			P					
11	21N42Y	21N18	MP 0.61	0.61		P	P			P					
12	21N79	21N15	MP 0.28	0.28		P	P			P					
13	21N07YA	21N51	MP 0.60	0.6		P	P			P					
14	21N75Y	PCO 511	MP 0.45	0.45		P	P								
15	21N15	PC 511A	PC 511	0.8		P	P			P					

P = Purchaser Performance Item D = Deposit to Forest Service D3 = Deposit to Third Party
MP = Mile Post

The Purchaser's share of the estimated quantity of surface repair material for native and aggregate surfaced roads is 1.0 (0.5) C.Y. / MBF (CCF) / Mi.
The Purchaser's share of the estimated quantity of bituminous surface repair material for bituminous surfaced roads is 0.2 (0.1) Ton / MBF (CCF) / Mi.

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

TABLE B - DUST ABATEMENT PLAN

MATERIAL TYPE	WATER	MAGNESIUM CHLORIDE
ROAD SEGMENTS	All	Same as water
INITIAL APPLICATION RATE	During Purchaser's operations other than hauling, complete dust abatement after 40 accumulated T.U.	Same as water
	During hauling operations, complete dust abatement once a day before hauling.	During hauling operations, complete dust abatement before hauling at 0.5 Gal./S.Y.
SUBSEQUENT APPLICATION RATE AND FREQUENCY	During Purchaser's operations other than hauling, complete dust abatement after 40 accumulated T.U.	Same as water
	During hauling operations, complete dust abatement every 350 TONS hauled or as required to maintain complete dust abatement.	During hauling operations, complete dust abatement with water as required. Every 35,000 TONS hauled complete dust abatement at 0.5 Gal./S.Y.
PREPARATION METHOD	N/A	Method 1
VOLUME/ WEIGHT CONVERSION FACTOR	N/A	182 Gal./Ton

Notes: T.U. = Traffic Units as referenced in commensurate share calculations:
 Pickup or automobile (1 way) = 1 T.U.
 Semi Truck (2 way) = 15 T.U.

Complete Dust Abatement = Surface is firm, compacted and free of dust.
 Other dust palliatives may be used when agreed to by the Forest Service.

TABLE C - MAINTENANCE T-800 SPECIFICATIONS

<u>Specification No.</u>	<u>Specification Title</u>
T-800	Definitions
T-801	Slide and Slump Repair
T-802	Ditch Cleaning
T-803	Surface Blading
T-804	Surfacing Repair
T-805	Drainage Structures
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-809, 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 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.

SPECIFICATION T-800 DEFINITIONS

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 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#.

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.

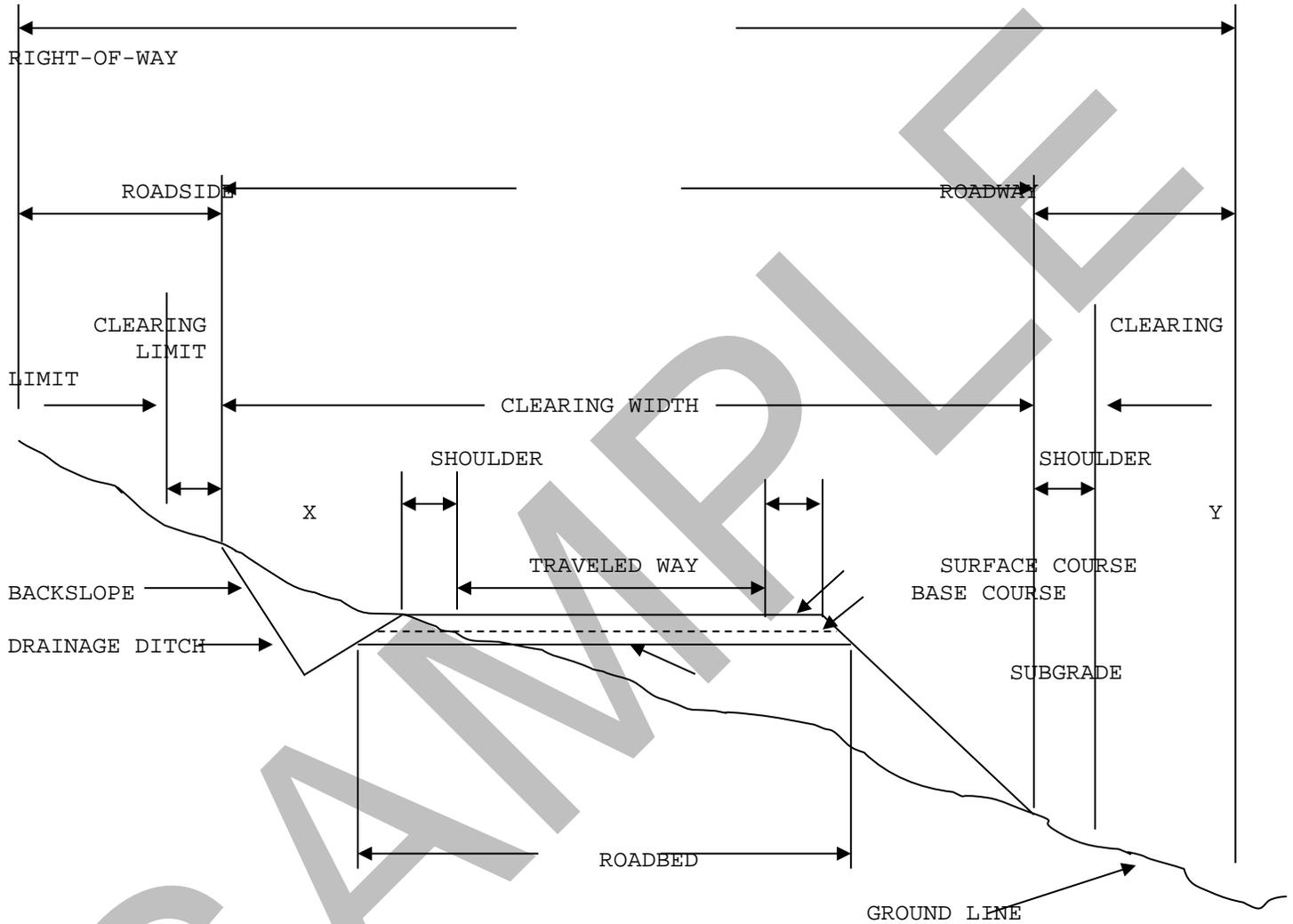
800-1.29 - Waterbar. A dip in the roadbed which intercepts surface runoff and diverts the water off the roadway. A waterbar is not designed to be traversable by logging trucks.

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SAMPLE

SPECIFICATION T-800 DEFINITIONS

FIGURE 800-2 ILLUSTRATION OF ROAD STRUCTURE TERMS



NOTE: X & Y Denote Clearing Limits
Outside of Roadway

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 sites SHOWN ON 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 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 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 roadway 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 SHOWN ON THE SALE AREA MAP.

3.3 Roadway backslope or Berm shall not be undercut.

SAMPLE

SAMPLE

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 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. 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. The oversized material shall be disposed of by sidecasting unless SHOWN OTHERWISE ON THE SALE AREA MAP. 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 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 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 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 THE 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 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 and deleterious material. Apply a tack coat with a slow-setting emulsified asphalt at the rate of 0.1 gallons per square yard.

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SPECIFICATION T-804 SURFACING REPAIR

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 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 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 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. The Dust Abatement Plan may be changed by written agreement.

2.2 Water

Water sources: approved locations are SHOWN ON SALE AREA MAP.

2.3 Dust abatement materials shall meet the requirements of the following Subsections of Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects or ATTACHED SPECIAL PROJECT SPECIFICATIONS.

Bituminous Materials

Liquid Asphalts.	702.02
Bituminous Dust Palliatives.	725.02
Application Temperatures	702.04

Blotter Material. 703.13

Lignin Sulfonate. 725.20

Application Temperature.	306.04(b)
Water, for diluting.	306.04(b)

Magnesium Chloride. 725.02

Application Temperature.	725.01
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2.4 Testing of Materials

Certification and sampling of bituminous materials lignin sulfonate, and magnesium chloride shall be in accordance with Subsection 105.04, 5-725.03, and 5-730.03, respectively, of 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.

SPECIFICATION T-806 DUST ABATEMENT

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.

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.

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 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 one hour of application.

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SAMPLE

SPECIFICATION T-806 DUST ABATEMENT

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.

SAMPLE

SPECIFICATION T-807 ROADWAY 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 treated by the specified method SHOWN ON THE SALE AREA MAP and as required by contract provisions.

SAMPLE

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 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 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.

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 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.

SAMPLE

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 Treatment, 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 THE SURFACE TREATMENT PLAN (C5.4).

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 (C5.4).

2.3 Seal coat materials shall meet the requirements of the following Sub-sections of Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects 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.....	703.12
Blotter Material.....	703.13
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.

3.1 Traffic

Traffic shall be maintained in accordance with C6.33.

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 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

A rotary power broom and/or blower.

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.

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SAMPLE

SPECIFICATION T-811 SURFACE TREATMENT

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 an 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-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 aggregates 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 or 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 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.

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SAMPLE

SPECIAL PROJECT SPECIFICATION

SECTION 725 LIGNIN SULFONATE

725.01 LIGNIN SULFONATE. Lignin Sulfonate shall be the residue produced by the acid-sulfite pulping of wood. The base cation shall be ammonium, calcium or sodium. The lignin sulfonate shall be supplied as a water solution.

The lignin sulfonate shall be miscible with an equal volume of water. The undiluted material shall meet the following requirements:

pH (AASHTO T 200)	4.5 minimum
Viscosity at 77 degrees F (AASHTO T 202)	20.0 poise maximum
Total Solids (TAPPI T 629-M53)	48 percent minimum

The solids shall meet the following requirements:

Lignin Sulfonate	50 percent minimum
Reducing Sugars	25 percent maximum

725.02 TEMPERATURE. The temperature of the material from the time it is loaded until it is applied on the road shall not exceed 140 degrees Fahrenheit. The temperature of the material at application shall be between 40 and 140 degrees Fahrenheit.

725.03 CERTIFICATION. When each load of Lignin Sulfonate is delivered, the Contractor shall furnish the Engineer with a completed Certificate of Compliance conforming to the format below (see Figure 725-1). A separate Certificate of Compliance will not be required if the Bill of Lading contains the required information.

FIGURE 725-1 (sample)

CERTIFICATE OF COMPLIANCE

Consignee _____ Destination

Date _____ Net Weight

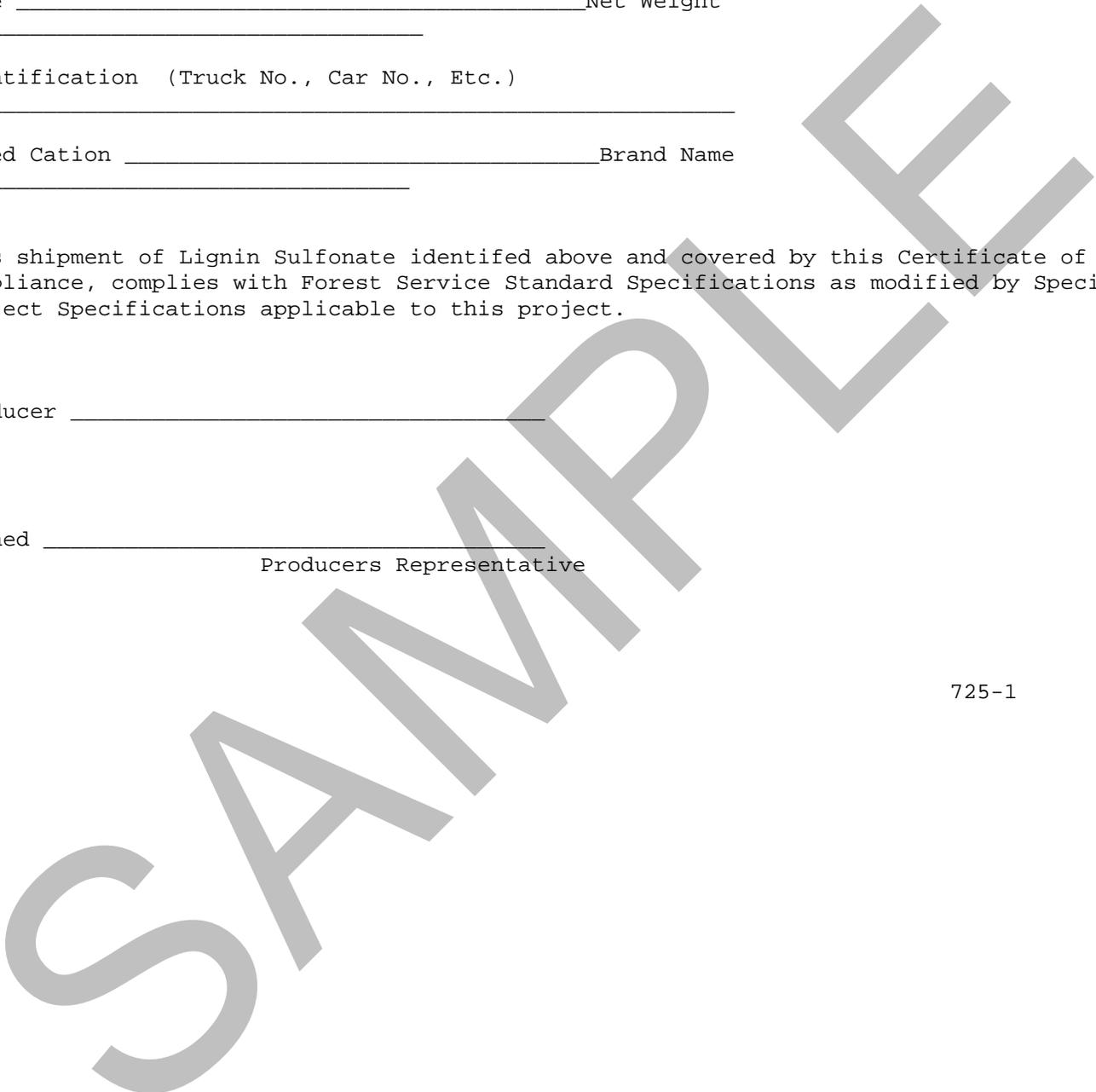
Identification (Truck No., Car No., Etc.)

Based Cation _____ Brand Name

This shipment of Lignin Sulfonate identified above and covered by this Certificate of Compliance, complies with Forest Service Standard Specifications as modified by Special Project Specifications applicable to this project.

Producer _____

Signed _____
Producers Representative



SPECIAL PROJECT SPECIFICATION

SECTION 730 MAGNESIUM CHLORIDE

730.01 MAGNESIUM CHLORIDE. Magnesium Chloride shall be a brine consisting of water and Magnesium Chloride. The chemical analysis* shall meet the following requirements:

<u>Chemical</u>	<u>Percent by Weight of Brine</u>
Magnesium	7.0 Minimum
Chloride	20.0 Minimum
Sulfate	4.3 Maximum
Nitrate	5.0 Maximum

The pH shall be between 4.5 and 10.0. The solids shall be at least 30 percent by weight of the brine.

730.02 TEMPERATURE. The temperature of the material shall be 40 degrees Fahrenheit or above when it is applied.

730.03 CERTIFICATION. When each load of Magnesium Chloride is delivered, the Contractor shall furnish the Engineer with a completed Certificate of Compliance conforming to the format as shown in Figure 730-1. a separate copy of test procedures* are available upon request from USDA Forest Service, Pleasant Hill Engineering Center, 2245 Morello Avenue, Pleasant Hill, CA 94523.

FIGURE 30-1 (sample)

CERTIFICATE OF COMPLIANCE

Consignee _____ Destination

Date _____ Net Weight

Identification (Truck No., Car No., Etc.)

Based Cation _____ Brand Name

This shipment of Magnesium Chloride identified above and covered by this Certificate of Compliance, complies with Forest Service Standard Specifications as modified by Special Project Specifications applicable to this project.

Producer _____

Signed _____
Producers Representative

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SAMPLE

C5.35# – ROAD AND WATER SUPPLY USE. (5/2008) National Forest water supply locations, access, method of filling trucks, period of water availability and procedures designed to maintain water quality at each location shall be agreed in advance of use. Such use shall at no time reduce water supplies to the level that further use may be detrimental to aquatic resources or other established use. Waterholes and other improvements relating to said water supplies shall be put into condition, prior to expected seasonal periods of precipitation or runoff, to avoid resource damage.

Damage to resources at such locations caused by Purchaser's Operations, other than fire suppression activities, shall be repaired by Purchaser in a timely and agreed manner to the extent practicable to restore and prevent further resource damage.

Unless otherwise agreed, Purchaser's use of roads and other water supply requirements shall conform to the following table.

SPECIFICATIONS PURSUANT TO C5.35# - REQUIREMENTS OF ROAD AND WATER SUPPLY USE

<p>Load Limitations</p>	<p>Purchaser shall notify Forest Service in writing of the planned size and load distribution for equipment which exceeds the State of California Vehicle Code legal size and weight, and the National Forest System roads to be used. Such notice may be part of plan of operation under B6.311. Within 15 days after receipt of the written notice Forest Service shall notify Purchaser in writing of any regulations or restrictions that may be needed to protect National Forest Transportation Facilities.</p> <p>A written permit shall be required for moving any vehicle which is in excess of the established legal size and weight which is not listed in the above plan, except as may be authorized in prior written agreements.</p>
<p>Existing Non-National Forest System Roads</p>	<p>Roads not shown on Sale Area Map may be used as Temporary Roads if there is agreement before use is started.</p>
<p>Snow Removal</p>	<p>If Purchaser removes snow from roads, such work shall be done with Forest Service approval and in a manner that will protect roads and adjacent resources.</p> <p>Snow berms shall be removed or placed to avoid accumulation of melt water on the road and prevent water concentration on erosive slopes or soils.</p> <p>Snow must not be removed to the road surface. A minimum <u>6</u> inch snow depth must be left to protect the roadway. If the road surface is damaged, Purchaser shall replace lost surface material and repair structures damaged in blading operations prior to hauling, unless climatic conditions prevent necessary work from being accomplished or as otherwise agreed in writing.</p> <p>Single lane roads shall be plowed full width including turnouts. In event double lane roads are not plowed to full width, warning signs shall be required and plowing shall be no less than single lane (12 feet) with intervisible turnouts.</p>

Water Supply Deposits	<p>If Purchaser utilizes the water site located < >, for any listed activity, Purchaser shall make deposit with Forest Service for that activity at the time and in the amount shown in the Water Supply Deposit Schedule table below.</p> <p style="text-align: center;">WATER SUPPLY DEPOSIT SCHEDULE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Activity</th> <th style="width: 15%;">Unit of Payment</th> <th style="width: 15%;">Unit Cost</th> <th style="width: 15%;">Total Cost</th> <th style="width: 25%;">Time of Payment</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Activity	Unit of Payment	Unit Cost	Total Cost	Time of Payment										
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Surface Replacement Deposits	<p>Purchaser shall make Required Deposits for deferred surface replacement (16 U.S.C. 537) for use of existing surfaced roads. If applicable, such deposits shall be based upon the volume and distance hauled on the roads and at the applicable rates listed in the table below titled Surface Replacement Deposit Schedule. If Purchaser uses surfaced roads under jurisdiction of Forest Service other than those listed, Forest Service may establish applicable rates for such surfaced roads.</p> <p style="text-align: center;">SURFACE REPLACEMENT DEPOSIT SCHEDULE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Road No.</th> <th style="width: 15%;">From</th> <th style="width: 15%;">To</th> <th style="width: 15%;">Miles</th> <th style="width: 40%;">Rate/TON</th> </tr> </thead> <tbody> <tr> <td>21N01Y</td> <td>21N19</td> <td>MP 1.13</td> <td>0.73</td> <td>0.15</td> </tr> <tr> <td>21N19</td> <td>PC 511</td> <td>21N01Y</td> <td>0.19</td> <td>0.15</td> </tr> <tr> <td>21N18</td> <td>PC 511</td> <td>21N42Y</td> <td>2.85</td> <td>0.15</td> </tr> <tr> <td>21N18</td> <td>21N42Y</td> <td>PC 511</td> <td>3.13</td> <td>0.15</td> </tr> <tr> <td>21N15A</td> <td>21N15</td> <td>SEC 8</td> <td>0.15</td> <td>0.15</td> </tr> <tr> <td>21N15</td> <td>21N15A</td> <td>MP 0.4</td> <td>0.4</td> <td>0.15</td> </tr> <tr> <td>21N16</td> <td>21N15</td> <td>MP 0.3</td> <td>0.3</td> <td>0.15</td> </tr> <tr> <td>21N15</td> <td>21N79</td> <td>PC 511A</td> <td>1.65</td> <td>0.15</td> </tr> <tr> <td>21N68</td> <td>PC 511</td> <td>MP 0.73</td> <td>0.73</td> <td>0.15</td> </tr> <tr> <td>21N51</td> <td>PC 511</td> <td>MP 2.2</td> <td>2.2</td> <td>0.15</td> </tr> </tbody> </table> <p style="text-align: center;">Sale Area Average Rate: \$ <u>0.15</u> / Ton</p>	Road No.	From	To	Miles	Rate/TON	21N01Y	21N19	MP 1.13	0.73	0.15	21N19	PC 511	21N01Y	0.19	0.15	21N18	PC 511	21N42Y	2.85	0.15	21N18	21N42Y	PC 511	3.13	0.15	21N15A	21N15	SEC 8	0.15	0.15	21N15	21N15A	MP 0.4	0.4	0.15	21N16	21N15	MP 0.3	0.3	0.15	21N15	21N79	PC 511A	1.65	0.15	21N68	PC 511	MP 0.73	0.73	0.15	21N51	PC 511	MP 2.2	2.2	0.15
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Road Maintenance Summary and Appraisal Estimates

Sale Name		Sugarloaf Timber Sale					Sale Volume	43066 GT	
Seg	Road No.	Mtc Lvl	Traf Serv Lvl	From	Termini To	Miles	Planned Work Perf	Water Royalty	Surface Replacemt Deposit
1	21N01Y	2	c	21N19	MP 1.13	0.73	\$6,236	\$0	\$255
2	21N19	2	C	PC 511	21N01Y	0.19	\$1,895	\$0	\$93
3	21N18	2	B	PC 511	21N42Y	2.85	\$11,427	\$0	\$24
4	21N18	2	B	21N42Y	PC 511	3.13	\$42,156	\$0	\$985
5	21N15A	2	D	21N15	SEC 8	0.15	\$1,969	\$0	\$55
6	21N15	2	D	21N15A	MP 0.4	0.4	\$2,124	\$0	\$40
7	21N16	2	D	21N15	MP 0.3	0.3	\$1,658	\$0	\$46
8	21N15	2	D	21N79	PC 511A	1.65	\$34,863	\$0	\$1,521
9	21N68	2	D	PC 511	MP 0.73	0.73	\$4,273	\$0	\$105
10	21N51	3	B	PC 511	MP 2.2	2.2	\$32,292	\$0	\$1,929
11	21N42Y	2	D	21N18	MP 0.61	0.61	\$3,297	\$0	\$0
12	21N79	2	D	21N15	MP 0.28	0.28	\$986	\$0	\$0
13	21N07YA	2	D	21N51	MP 0.60	0.6	\$4,569	\$0	\$0
14	21N75Y	2	D	PCO 511	MP 0.45	0.45	\$3,291	\$0	\$0
15	21N15	2	D	PC 511A	PC 511	0.8	\$18,917	\$0	\$0

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Totals							\$169,952	\$0	\$5,052
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Appraisal Estimates:

A. Work Performance	\$3.95 /GT
B. Water Royalty	\$0.00 /GT
C. Surface Replacement Deposits *	\$0.15 /GT
Total Appraisal Estimate	\$4.10 /GT

* includes Forest and R.O. overhead assessment rate of 24% and yearly inflation rate estimated from sale date to midpoint of haul