

U.S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE

CHEROKEE NATIONAL FOREST

OCOEE-HIWASSEE

RANGER DISTRICT

ROAD PLANS

FOR

SHORTS CREEK/DUTCH FIELDS TIMBER SALE

ROAD NAME	ROAD#	LENGTH	RECONST./CONST.
TOLLIVER SHANTY	5054	1.1	R

*Jerry Pierce*

TECHNICAL SERVICES STAFF

7/30/15  
Date

*Michael Stutz*

OCOEE-HIWASSEE DISTRICT RANGER

8/6/15  
Date

*[Signature]*

PLANNING/FIRE/VEG. MGMT STAFF

7/30/15  
Date

*[Signature]*

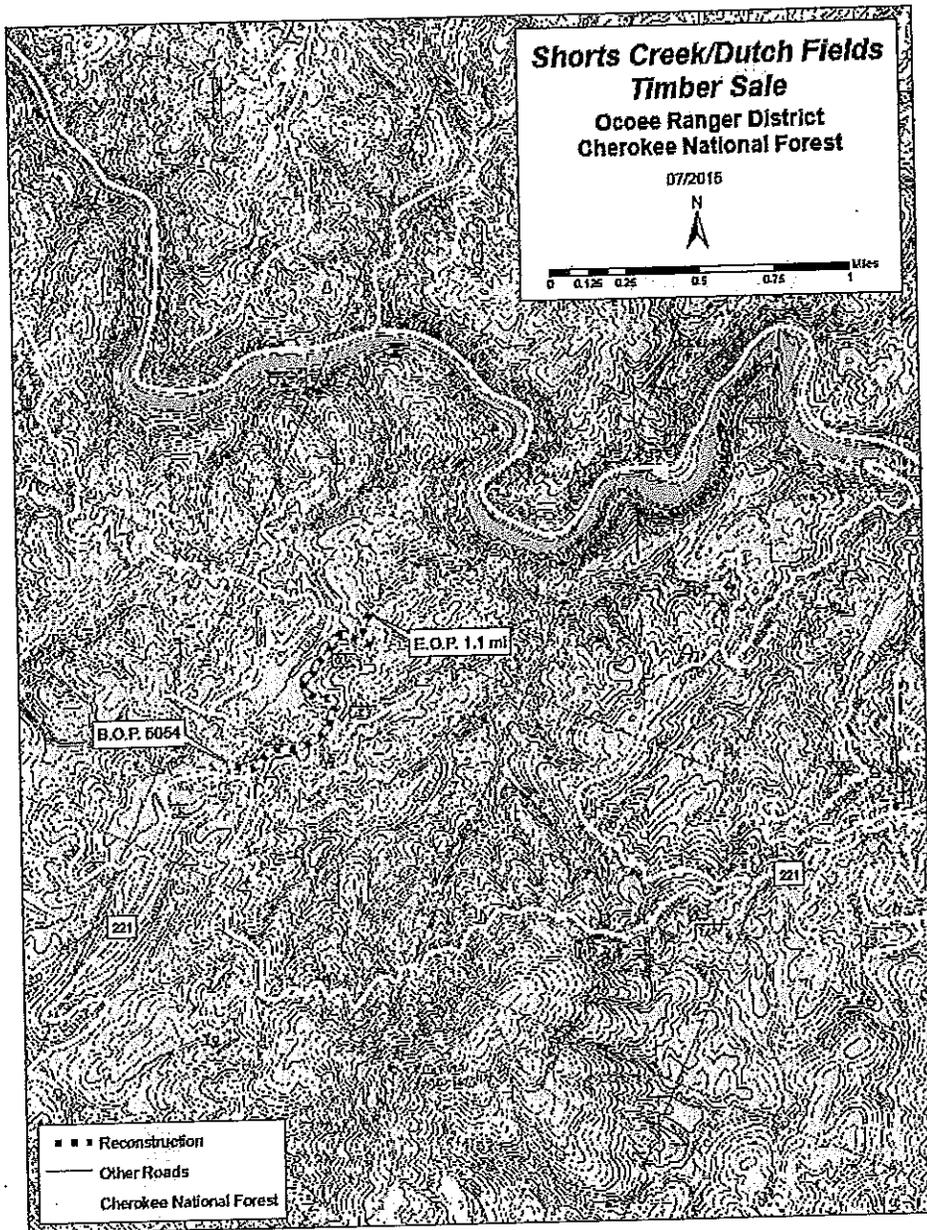
FOREST SUPERVISOR

8/11/15  
Date

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# AREA ROAD MAP



# SUMMARIES OF QUANTITIES

Road No. 5054  
Road Name Tolliver Shanty Length (Mi.) 1.1

Item Number	Description	Method of Meas.	Unit	Quantity
21201	Linear grading	AQ	Mile	1.1
21202	Linear grading for widening	LSQ	Lump Sum	4.00
30802	Roadway aggregate, compaction method A	AQ	Ton	150

**DIP LOCATIONS\***

5054	
MILEPOST	
0.05	0.40
0.12	0.43
0.20	0.46
0.27	0.56
0.32	0.86
0.36	0.92
0.38	

\* PLACE APPROX. 5 TONS #4 AGGREGATE IN EACH DIP

**CURVE WIDENING\***

5054	
MILEPOST	LENGTH(FT)
0.50	50'
0.65	50'
0.87	400'
1.07	100'

\*PLACE APPROX. 10 TONS #4 AGGREGATE AT EACH LOCATION TO BE WIDENED

**AGGREGATE LOCATIONS OTHER THAN DIPS AND CURVE WIDENING\***

MILEPOST	TONS
0.29	22
0.77	10
0.9	13

\* GRAVEL GRADATION MAY VARY UNDER DIRECTION OF ER

## NOTES

### CLEARING & GRUBBING

On roads to be reconstructed, clear 5' on each side of the road for the entire length. Cut only trees and vegetation less than 7" in diameter. All trees, brush, and stumps beyond the roadbed shall be cut flush with the uphill ground line. Grubbing shall not be required unless the stump interferes with construction or reshaping of ditches, dips or other specified drainage work.

Merchantable timber is timber that meets AT2-Volume Estimate and Utilization Standards of the applicable Timber Sale Contract.

Branches on remaining trees or shrubs shall be trimmed to give a clear height of 12' above the roadbed.

Disposal of unmerchantable timber and construction slash shall be scattered, except that this material shall be windrowed in areas where the centerline is within 100' (horizontal distance) of a protected stream course.

### EXCAVATION

Excess excavation shall be sidecast but not within 200' of culverts or drains.

Dips shall be constructed or reshaped by the end of the construction season. the description of work and dip location chart. Pay item 30318 includes construction of new dips and reshaping existing dips.

A turnaround that will accommodate a gravel truck shall be constructed at the E.O.P of all roads unless the area will be used as a log landing.

### ROADBED WIDTH

Minimum width shall be 14'. Additional width is necessary to accommodate a 40' trailer at the locations listed in the CURVE WIDENING CHART and in the DESCRIPTION OF WORK.

Curve widening is paid under pay item 20212 which includes clearing, grubbing excavation and seeding.

### RECONDITIONING OF ROADBED

Scarification of roadbed is only required where necessary to reduce outslope of roadbed to less than 6%. Reconditioning also includes reshaping dips.

## EROSION CONTROL

All disturbed material at dips, and excess sidecast excavation shall be seeded.

Seeding season shall be from March 15 to May 30 and from September 1 to October 30. The Engineer shall have the authority to modify this season, in writing, due to the prevailing weather conditions.

THE FOLLOWING MIXTURE SHALL BE APPLIED AT EACH DIP:

	<u>Quantity</u>
Limestone:	110 lbs
Fertilizer (6-12-12):	15 lbs
Straw mulch:	4 bales
Rye Grass:	1 pound

THE FOLLOWING MIXTURE SHALL BE APPLIED ON DISTURBED AREAS:

	<u>Quantity (per Acre)</u>
Limestone:	3000 lbs
Fertilizer (6-12-12):	600 lbs
Straw mulch:	200 bales

Seed - Pounds of Live Seed\* (per Acre):

- White Dutch Clover (inoculated): 3
- Rye Grass: 30

\*Determine the amount of live seed in container by the following formula: Net weight of seed in container multiplied by the purity percentage multiplied by the germination percentage (e.g. if seed is 96% pure and tests 80% germination, then a 100 ounce container would contain 76.8 ounces of live seed).

The seedbed shall be prepared as stated in section 625.04.

## TEMPORARY EROSION CONTROL

Excavation work done for drainage structures (pipes, dips, ditches, etc.) shall receive temporary erosion control measures immediately after construction (bales at pipe outlets shall be placed prior to excavation for pipe installation) as described below.

Stake 2 straw/hay bales at the edge of the clearing limits at each pipe outlet and 1 bale in all newly constructed ditchlines. After permanent seeding is established, bales shall be removed as approved by the Engineer.

DESCRIPTION OF WORK FSR # 5054

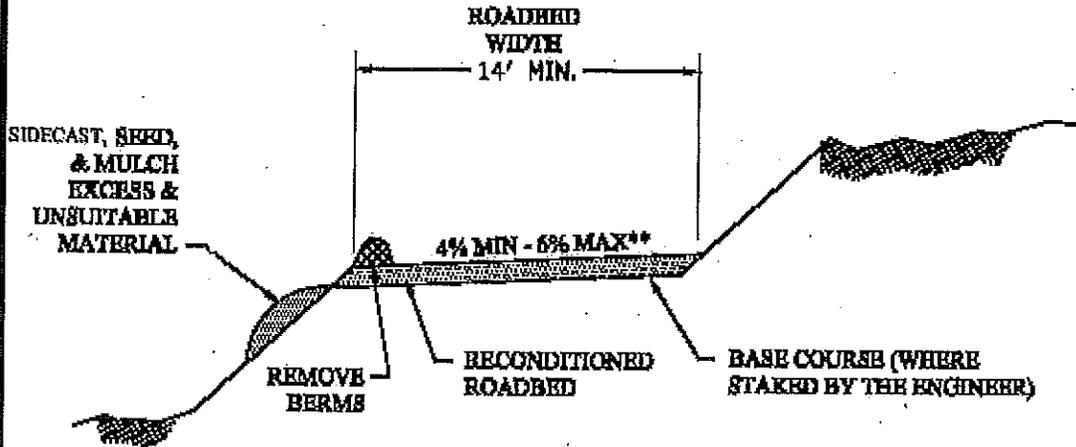
<u>MP</u>	<u>ITEM</u>
0.0	Intersection with FSR #1376
0.021	Existing swing gate. Adjust as needed.
0.05	Reshape dip/Reverse grade. Place 5 tons
0.12	Reshape dip/reverse grade. Place 5 tons
0.2	Reshape dip. Place 5 tons
0.27	Reshape dip/reverse grade. Place 5 tons
0.29 -0.32	Steep hill. Place 22 tons
0.32	Reshape dip. Place 5 tons
0.36	Reshape dip. Place 5 tons
0.37	Intersection with # 33292
0.38	Reshape dip. Place 5 tons
0.4	Reshape dip. Place 5 tons
0.43	Reshape dip. Place 5 tons
0.46	Reshape dip. Place 5 tons
0.5-0.55	Widen curve right approx. 4'-5' X approx. 50'.Place 10 tons

DESCRIPTION OF WORK # 5054 CONT.

- 0.56 Reshape dip. Place 5 tons
- 0.6 Road splits. Stay right.
- 0.645-0.66 Widen curve right approx. 4'-5' X approx. 50'. Place 10 tons
- 0.77 Springhead. Drain mud hole. Place 10 tons
- 0.86 Reshape dip/reverse grade. Place 5 tons
- 0.87-0.95 Widen road under power line approx. 4'-5' X approx. 400'.  
Place 13 tons.
- 0.92 Reshape dip. Place 5 tons
- 1.07 Widen curve right approx. 4'-5' X approx. 100'. Very rocky  
area. Place 10 tons
- 1.1 E.O.P. Reshape old log landing.

**TYPICAL SECTION  
RECONDITIONING ROADBED**

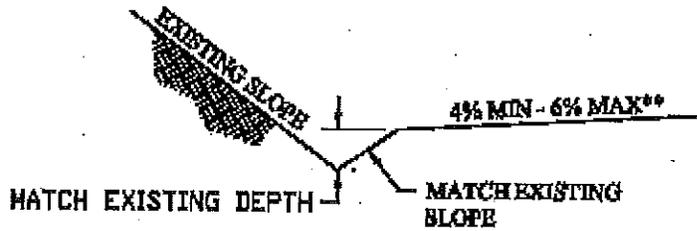
NO SCALE



**\*\* ROADBED SHALL BE INSLOPED, OUTSLOPED,  
OR CROWNED DEPENDING ON EXISTING  
TEMPLATE.**

**DITCH GRADING DETAIL**

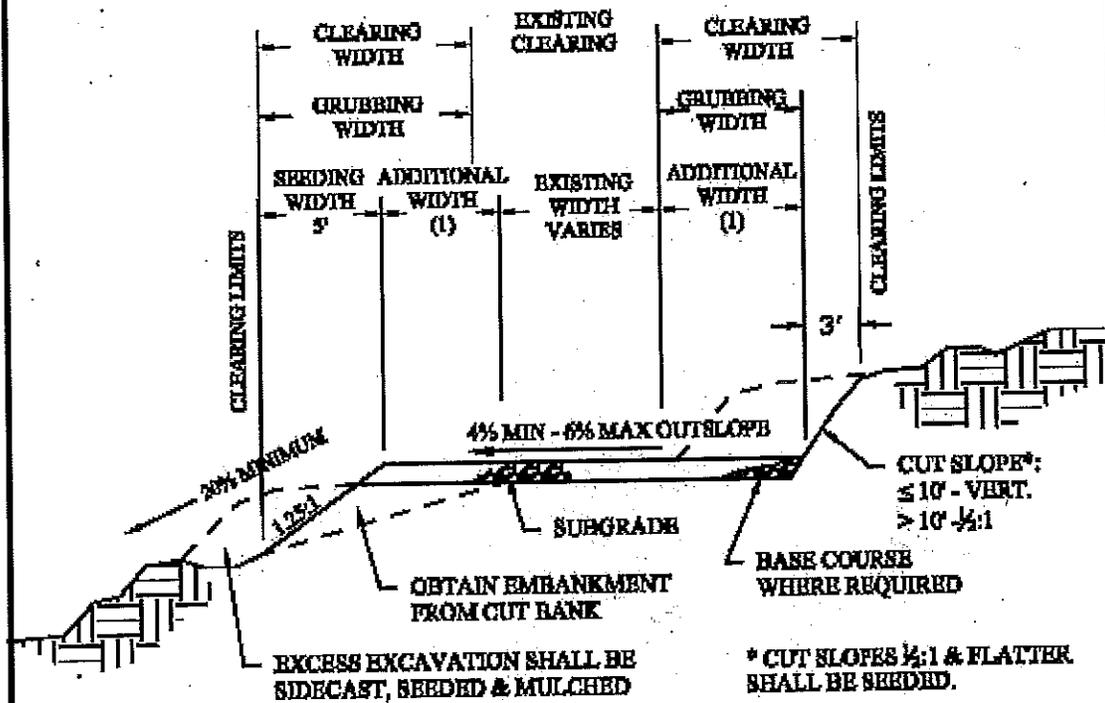
NO SCALE



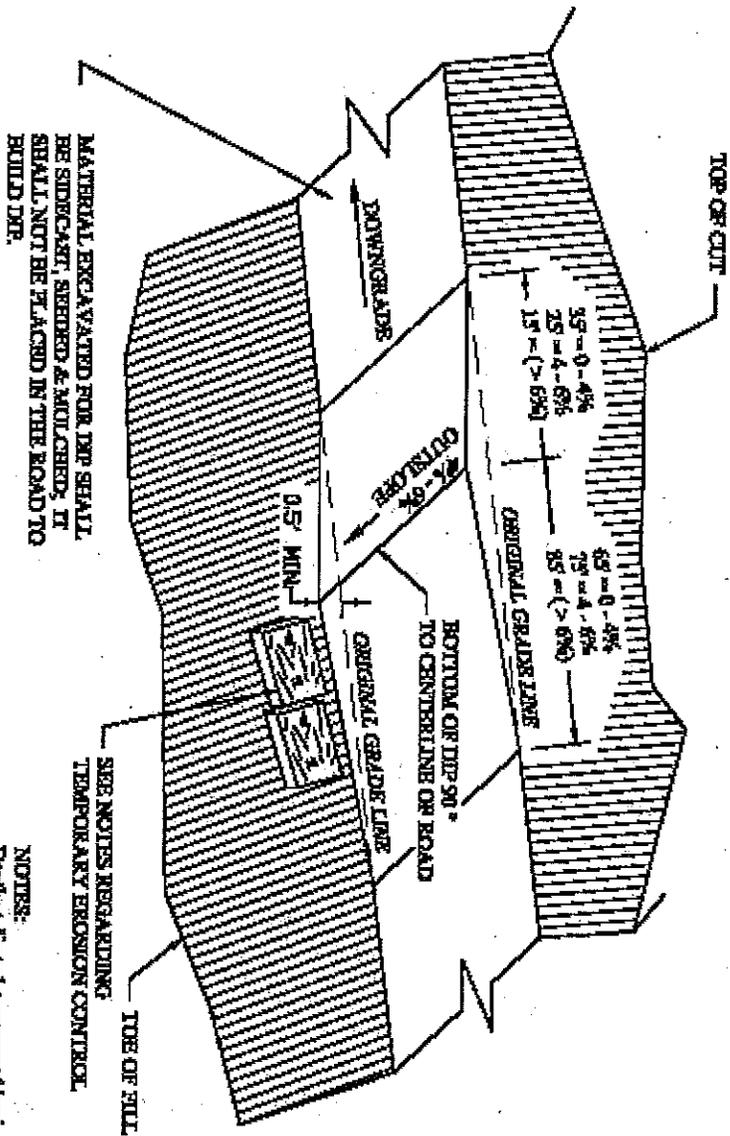
**AREAS CALLING FOR RECONDITIONING THE ROAD SHALL BE GRADED TO DRAIN, EXISTING  
ROADSIDE DITCHES SHALL BE REFILLED AND CLEANED PRIOR TO GRAVEL PLACEMENT.  
SCARIFICATION SHALL BE LIMITED TO WHAT IS REQUIRED TO CUT OUT RUTS, POTHOLES, AND  
OBTAIN MINIMUM OR MAXIMUM INSLOPE OR OUTSLOPE, ETC. ENTIRE ROAD SHALL BE  
GRADED PRIOR TO FINAL ACCEPTANCE.**

# TYPICAL SECTION CURVE WIDENING

NO SCALE



(1) SEE WIDENING CHART FOR DIRECTION & AMOUNT OF WIDENING.



MATERIAL EXCAVATED FOR DIP SHALL BE SUBCRAFT, SIEVED & MULCHED; IT SHALL NOT BE PLACED IN THE ROAD TO BUILD DIP.

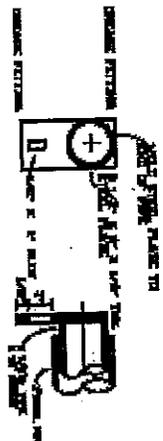
SEE NOTES REGARDING TEMPORARY EROSION CONTROL.

## DIP PLAN

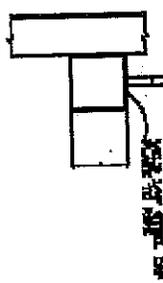
NO SCALE

NOTES:  
 Depth of dip to be measured horizontally from downgrades end of dip.  
 Place 54 tons grade 4 aggregate in bottom of dip.

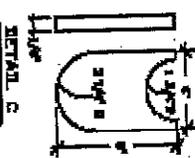
# GATE PLAN NOTES



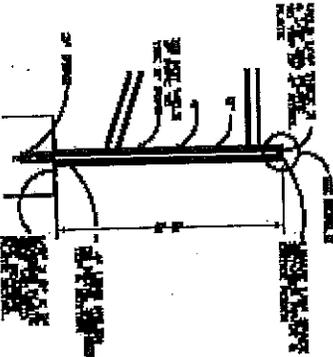
DETAIL A



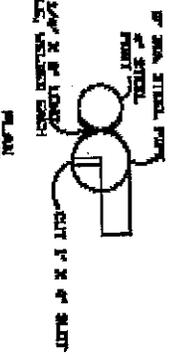
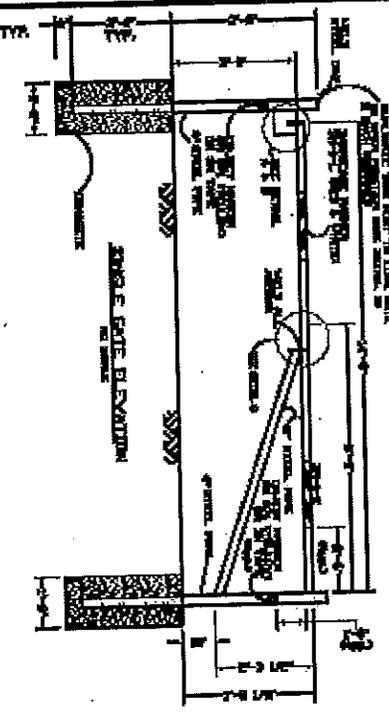
DETAIL B



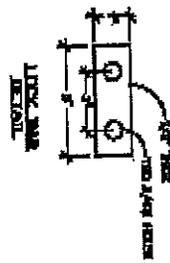
DETAIL C



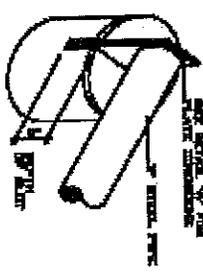
ELEVATION OF GATE



FRONT VIEW OF GATE



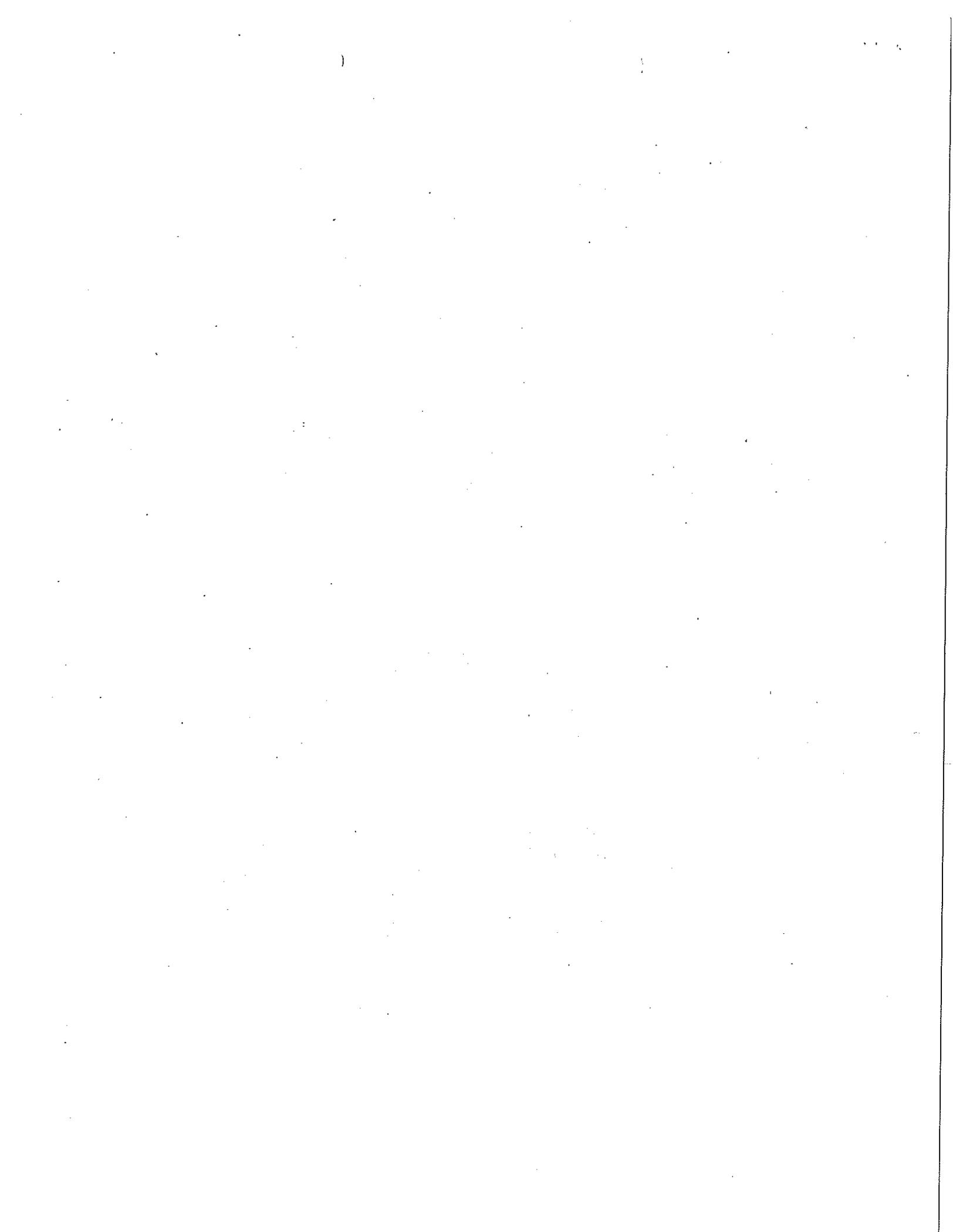
REAR VIEW OF GATE



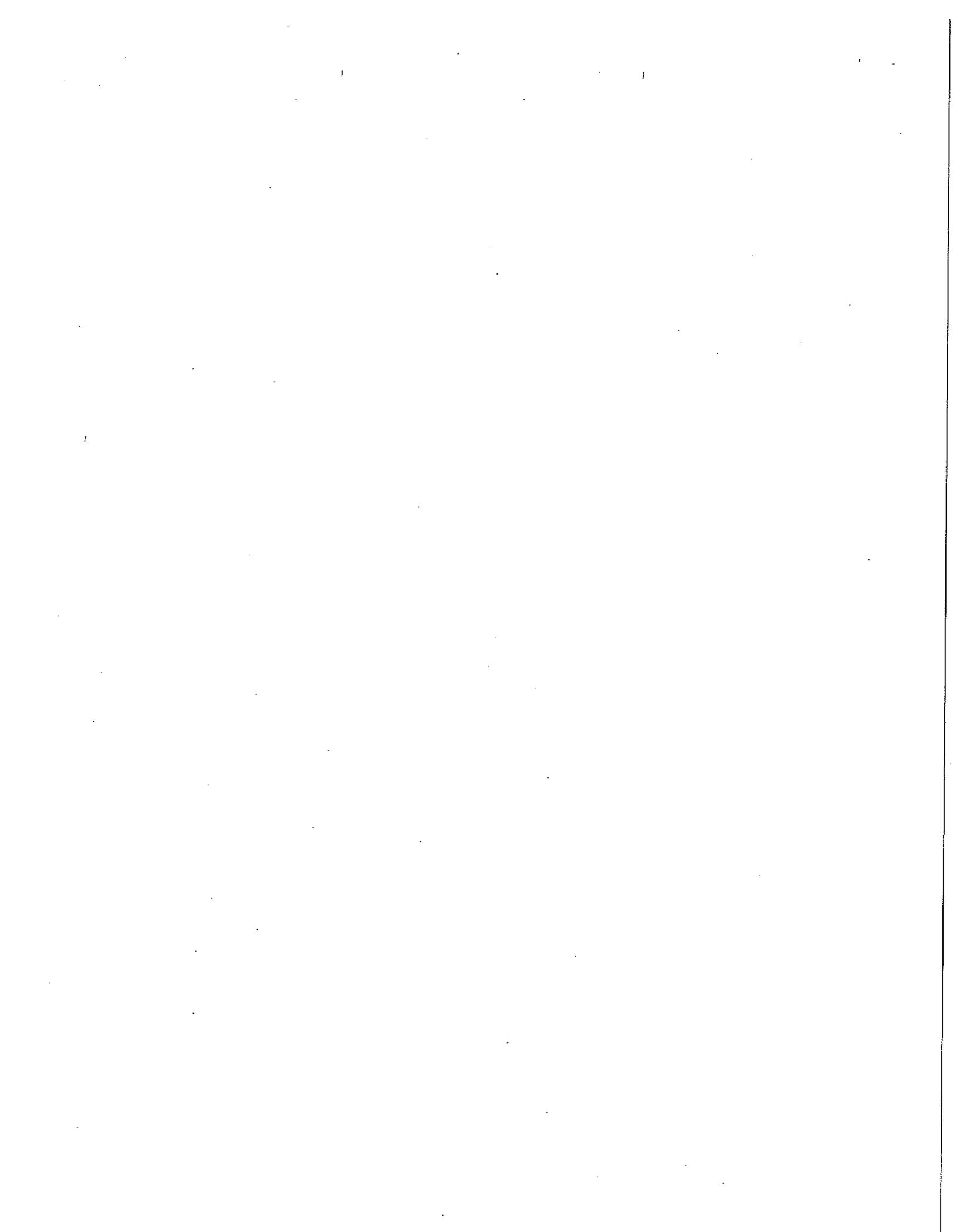
PERSPECTIVE VIEW OF GATE

**GENERAL NOTES**

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS.
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES AND STRUCTURES UNDERGROUND AND ABOVEGROUND.
- THE CONTRACTOR SHALL MAINTAIN ADEQUATE RECORDS OF ALL WORK DONE AND SUBMIT THEM TO THE ENGINEER UPON COMPLETION OF THE PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONNEL AND THE PUBLIC AT ALL TIMES.
- THE CONTRACTOR SHALL MAINTAIN ADEQUATE RECORDS OF ALL WORK DONE AND SUBMIT THEM TO THE ENGINEER UPON COMPLETION OF THE PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONNEL AND THE PUBLIC AT ALL TIMES.







DEPOSIT FOR RECONSTRUCTION ENGINEERING SERVICES  
 CHEROKEE NATIONAL FOREST

6/10/2015

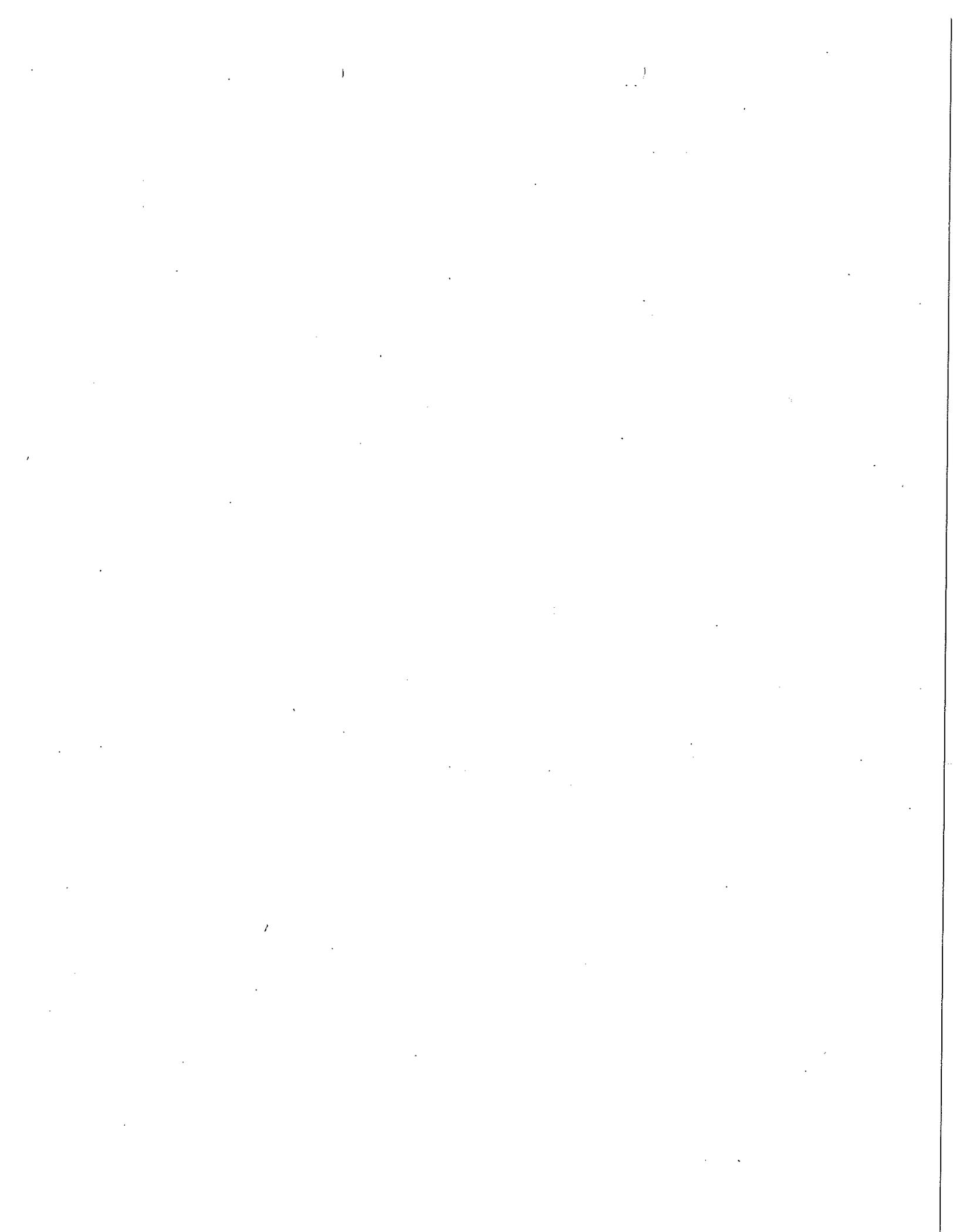
TIMBER SALE: SHORTS CREEK      DISTRICT: Ocoee

ROADS:

<u>NUMBER</u>	<u>NAME</u>	<u>LENGTH (MI.)</u>
5054	Tolliver Shanty	1.1

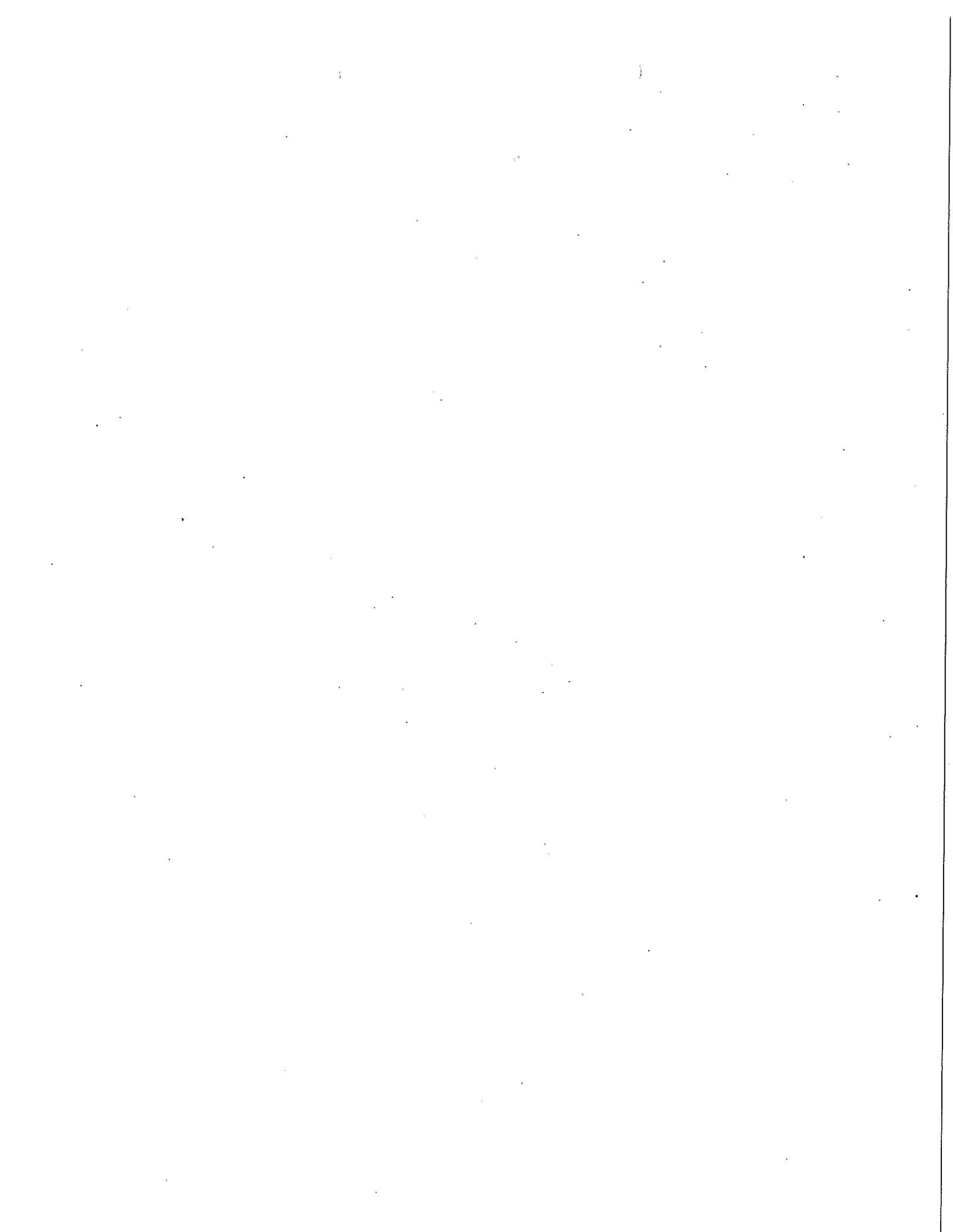
**PRECONSTRUCTION ENGINEERING**

<u>TASK</u>	<u>PERSON</u>	<u>RATE</u>	<u>DAYS</u>	<u>COST</u>
<b>1. Prelim. invest.</b>				
Review EA, consult w/ district	HUBBARD	409.00	0.1	\$40.90
	LOGGINS	272.00	0	\$0.00
	SCHLATT.	300.00	0.25	\$75.00
Mileage:	0	0.3 /mi.		\$0.00
<b>2. Location, Survey, etc.</b>				
	HUBBARD	409.00	0	\$0.00
	LOGGINS	272.00	0.5	\$136.00
	SCHLATT.	300.00	0.5	\$150.00
Mileage:	90	0.3 /mi.		\$27.00
<b>3. Design, Prep. plans, etc.</b>				
	HUBBARD	409.00	0.25	\$102.25
	LOGGINS	272.00	0	\$0.00
	SCHLATT.	300.00	0.75	\$225.00
Mileage:	0	0.3 /mi.		\$0.00
<b>4. Prebid Showing</b>				
	HUBBARD	409.00	0.5	\$204.50
	SCHLATT.	300.00	0.5	\$150.00
Mileage:	90	0.3 /mi.		\$27.00
<b>TOTAL FOR PRECONSTRUCTION ENGINEERING</b>				<b>\$1,137.65</b>



**CONSTRUCTION ENGINEERING**

<u>TASK</u>		<u>PERSON</u>	<u>RATE</u>	<u>DAYS</u>	<u>COST</u>
<b>1. Prewrite Conf.</b>		HUBBARD	409.00	0.25	\$102.25
		LOGGINS	272.00	0.1	\$27.20
		SCHLATT.	300.00	0.1	\$30.00
	Mileage: 50	0.3 /mi.			\$15.00
<b>2. Layout, staking, etc.</b>		HUBBARD	409.00	0	\$0.00
		LOGGINS	272.00	0.5	\$136.00
		SCHLATT.	300.00	0.5	\$150.00
	Mileage: 90	0.3 /mi.			\$27.00
<b>3. Contract changes</b>		HUBBARD	409.00	0.1	\$40.90
		LOGGINS	272.00	0	\$0.00
		SCHLATT.	300.00	0.25	\$75.00
	Mileage: 0	0.3 /mi.			\$0.00
<b>TOTAL FOR CONSTRUCTION ENGINEERING:</b>					<b>\$603.35</b>
<b>TOTAL DEPOSIT FOR RECONST. ENGINEERING SERVICES:</b>					<b>\$1,741.00</b>



**FOREST SERVICE SUPPLEMENT SPECIFICATIONS**

**To**

**FP-03**

**For**

**SHORTS CREEK/DUTCH FIELDS TIMBER SALE**

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## Preface

Preface\_wo\_03\_15\_2004\_m

Delete all but the first paragraph and add the following:

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

## 101 - Terms, Format, and Definitions

101.00\_nat\_08\_12\_2004

101.01\_nat\_05\_11\_2004

### 101.01 Meaning of Terms.

#### Add the following:

Delete all references in FP-03 to Transportation Acquisition Regulations (TAR). For Timber Sales, delete all references in FP-03 to Federal Acquisition Regulations (FAR).

101.03\_nat\_05\_17\_2004

### 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

101.04\_nat\_11\_26\_2004

### 101.04 SI Symbols.

#### Add the following to (b) SI Symbols:

mp	Milepost
ppm	Part Per Million

### 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.

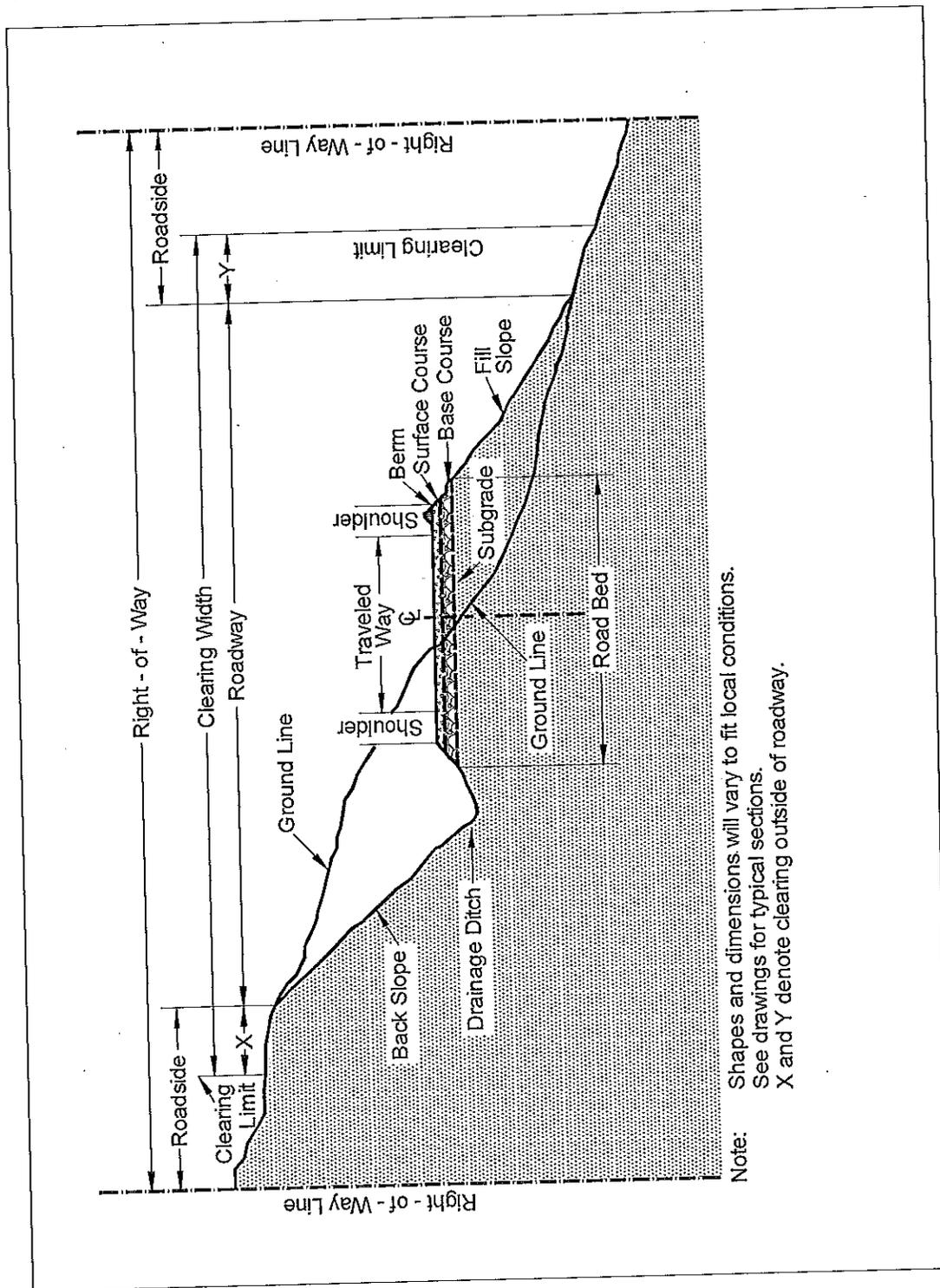
Road Order--An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

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\_05\_17\_2004

### 102 Delete

Delete Section 102 in its entirety.

## 103 - Scope of Work

103.00\_nat\_05\_17\_2004

### 103 Delete

Delete all but subsection 103.01 Intent of Contract.

## 104 - Control of Work

104.01\_nat\_05\_11\_2004

### 104 Control of Work:

Delete sections 104.01, 104.02, and 104.04.

## 105 - Control of Material

105.02\_nat\_05\_11\_2004

### 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.

105.02\_nat\_05\_12\_2004

#### 105.02(a) Government Provided Sources.

(a) Government-provided sources. Add the following:

There are no Government-provided sources for this project.

105.05\_nat\_05\_12\_2004

#### 105.05 Use of Material Found in the Work.

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

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

## 106 - Acceptance of Work

106.01\_nat\_08\_12\_2004

### 106.01 Conformity with Contract Requirements.

Delete Subsection 106.01 and substitute the following:

Follow the requirements of FAR Clause 52.246-12 Inspection of Construction.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

106.07\_nat\_05\_11\_2004

**106.07 Delete**

Delete subsection 106.07.

## **107 - Legal Relations and Responsibility To the Public**

107.05\_nat\_05\_11\_2004

### **107.05 Responsibility for Damage Claims.**

Delete the entire subsection.

107.09\_nat\_05\_11\_2004

### **107.09 Legal Relationship of the Parties.**

Delete the entire subsection:

## 108 - Prosecution and Progress

108.00\_nat\_05\_11\_2004

**108 Delete.**

Delete Section 108 in its entirety.

## 109 - Measurement and Payment

109.02\_nat\_05\_11\_2004

### 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.

### 109.02 Measurement Terms and Definitions.

##### 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.

109.06\_nat\_05\_11\_2004

### 109 Deletions

##### Delete the following entire subsections:

109.06 Pricing of Adjustments.

109.07 Eliminated Work.

109.08 Progress Payments.

109.09 Final Payment.

## 155 - Schedules for Construction Contracts

155.00\_nat\_05\_11\_2004

155 Delete.

Delete Section 155 in its entirety.

## 156 - Public Traffic

156.03\_nat\_11\_05\_2004

### 156.03 Accommodating Traffic During Work.

Delete the following from the last paragraph:

according to Subsection 106.07(b)

## 201 - Clearing and Grubbing

201.06\_nat\_05\_12\_2004

### 201.06 Disposal.

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

Dispose of merchantable timber designated for removal according to the B(BT) provisions of the timber sale contract.

## 203 - Removal of Structures and Obstructions

203.01\_nat\_05\_12\_2004

### 203.01 Work.

Delete and replace with the following:

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

203.05\_nat\_05\_12\_2004

### 203.05 Disposing of Material.

Add the following:

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

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

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

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

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

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

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

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

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

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

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

## 212 - Linear Grading

212.00\_nat\_11\_26\_2004

Delete the entire specification and replace it with the following:

### Description

**212.01** This work consists of clearing and grubbing, excavation and embankment, and erosion control to construct roadways and associated features.

### Construction Requirements

**212.02 Clearing & Disposal.** Protect construction stakes and construction control markers. Remove or treat all trees, snags, downed timber, brush, and stumps within the clearing limits.

Immediately remove slash deposited in stream courses.

Fell all dead trees that are outside the clearing limits and that lean toward the road and are tall enough to reach the roadbed.

Leave stump heights less than 12 inches or one-third of the stump diameter; whichever is greater, measured on the side adjacent to the highest ground. Leave felled trees outside the clearing limits in place, and treat them no further unless otherwise designated.

Do not cut vegetation less than 3 feet in height 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.

**Merchantable Timber.** See Special Contract Requirements for Subsection 201.06 for disposal of merchantable timber.

**Unmerchantable Timber and Large Construction Slash.** Dispose of this material in accordance with Special Contract Requirements for Subsection 203.05, method (f), and method (e) where road is within 100' of a protected stream course.

**212.03 Pioneering.** Do not undercut the final back slope during pioneering operations. Deposit material inside the roadbed limits. Do not restrict drainage.

**212.04 Grubbing.** Within the clearing limits remove stumps with less than 6 inches of cover.

**212.05 Excavation & Embankment.** Construct the roadway to the required template. Protect backslopes from being undercut. Embankment may be placed by side casting and end dumping.

Locate and use borrow material, and remove and treat unsuitable or excess material.

Place rocks that are too large to be incorporated in the embankment outside the traveled way on the downhill side so that they will not roll, obstruct drainage, or hinder roadbed use and maintenance.

Leave slopes that are to be seeded in a roughened condition.

Use a crawler tractor with a dozer blade to shape and finish the roadbed. Provide for drainage of surface water, unless otherwise designated. Do not permit individual rocks in the roadbed to protrude more than 4 inches above the subgrade. A motor grader finish is not required.

Do not encroach on stream channels, wetlands, or extend beyond right-of-way or easement limits. Do not make alignment or profile grade adjustments that adversely affect drainage. Construct the roadbed within the following grading tolerances:

(a) Alignment (centerline). Alignment may be shifted a maximum of 10 feet left or right of the planned centerline. Curve radii may be reduced by up to 50 percent. Do not construct curves with radii less than 100 feet. Compound curves are permitted. Traveled way tolerance is (+) 2 feet unless otherwise designated.

(b) Profile grade. Profile grade may be shifted a maximum of 5 feet up or down from the plan elevation provided the new grade tangent does not vary more than 2 percent from the plan grade tangent. Connect revised forward and back grade tangents with a uniform vertical curve consistent with the design.

**212.06 Drainage.** Install culverts and other drainage structures according to Section 602 and Section 209.

**212.07 Erosion Control.** Install erosion control measures and seeding according to the drawings and Section 625.

**212.08 Acceptance.** Linear grading will be evaluated under Subsections 106.02 and 106.04.

Clearing and slash and timber treatment will be evaluated under Sections 201 and 203.

### **Measurement**

**212.09** Measure the Section 212 items listed in the bid schedule according to Subsection 109.02 and the following.

Do not measure changes in the clearing and grubbing quantity caused by alignment adjustments under Subsection 212.04.

### **Payment**

**212.10** The accepted quantities, measured as provided in Subsection 109.02 and above, will be paid at the contract price per unit of measurement for the Section 212 pay item listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

## 301 - Untreated Aggregate Courses

301.00\_nat\_05\_11\_2004

### 301 Title Change.

Change the title to: **Section 301 Aggregate Courses**

301.05\_nat\_05\_12\_2004

### 301.05 Compacting.

Delete the first and third paragraphs and add the following:

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

- (a) Compaction A. Compact the aggregate by operating spreading and hauling equipment.
- (b) Compaction B. Moisten or dry the aggregate to a uniform moisture content between 5 and 7 percent based on total dry weight of the mixture. Operate rollers and compact as specified in Subsection 204.11(a).
- (c) Compaction C. Compact each layer of aggregate to a density of at least 95 per-cent of the maximum density, as determined by AASHTO T 99, method C or D.
  - (1) Compaction C-1. Compact each layer of aggregate to a density of at least 96 percent of the maximum density, as determined by the Modified Marshall Hammer Compaction Method (available upon request from USDA Forest Service, Regional Materials Engineering Center, P.O. Box 7669, Missoula, MT 59807).
- (d) Compaction D. Compact each layer of aggregate to a density of at least 95 per-cent of the maximum density, as determined by AASHTO T 180, method C or D.
  - (1) Compaction D-1. Compact each layer of aggregate to a density of at least 100 percent of the maximum density as determined by the Modified Marshall Hammer Compaction Method (available upon request from USDA Forest Service, Regional Materials Engineering Center, P.O. Box 7669, Missoula, MT 59807).
- (e) Compaction E. Operate rollers and compact as specified in Subsection 204.11(a).

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

## 602 - Culverts and Drains

602.03\_0910\_06\_23\_2004

### **602.03 General.**

Replace the second paragraph with the following:

The plans show the size, approximate location, and length of culverts. The Government will determine final location, skew, length, elevations, and grade of culverts after construction staking. Do not order culvert material until receiving written notice of this determination from the Government.

Add the following:

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

## 625 - Turf Establishment

625.03\_nat\_05\_13\_2004

### 625.03 General.

Delete the first subsection and add the following:

Apply turf establishment to finished slopes and ditches between 3/15 and 4/30 or between 8/15 and 10/15. Do not seed during windy weather or when the ground is excessively wet, frozen, snow covered, extremely dry, cloddy, hard pan, or is otherwise untillable.