

CONSTRUCTION OF SPECIFIED ROADS

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Schedule of Items	3 pages
Specification List	2 pages
Special Project Specifications	40 pages
Drawings (under separate cover)	10 pages

SCHEDULE OF ITEMS
(Timber Sale)

Timber Sale Walter Springs TS

Road No. 3111115

Road Name N/A

Length (Miles) 3.17

Item Number	Description	Method of Meas.	Unit	Quantity	S.R.C Unit Price	Total
15101	Mobilization	AQ	Lump Sum	1.00	\$ 1,699.84	\$ 1,699.84
20104	Clearing and grubbing, disposal of tops and limbs f, logs f, stumps f	CQ	Acre	2.31	\$ 1,115.85	\$ 2,577.61
20401	Roadway excavation, compaction method (d), finishing method A	CQ	Cubic Yard	211.00	\$ 4.59	\$ 968.49
25101	Placed riprap, class 1	CQ	Cubic Yard	10.00	\$ 134.36	\$ 1,343.60
30304	Road reconditioning, ditch	CQ	Mile	1.20	\$ 350.90	\$ 421.08
30318	Road reconditioning, roadbed, compaction method (d)	CQ	Mile	3.17	\$ 1,152.53	\$ 3,653.52
32203	Aggregate base, grading c, compaction method B	CQ	Cubic Yard	104.00	\$ 93.36	\$ 9,709.44
60201	18" inch pipe culvert	CQ	Foot	40.00	\$ 46.21	\$ 1,848.40

SUB-TOTAL: \$ 22,221.98

TOTAL ALL ROADS: \$ 39,203.86

SCHEDULE OF ITEMS

(Timber Sale)

Timber Sale Walter Springs TS

Road No. 3111117

Road Name N/A

Length (Miles) 3.53

Item Number	Description	Method of Meas.	Unit	Quantity	S.R.C Unit Price	Total
15101	Mobilization	AQ	Lump Sum	1.00	\$ 2,173.49	\$ 2,173.49
20104	Clearing and grubbing, disposal of tops and limbs f, logs f, stumps f	CQ	Acre	2.57	\$ 1,094.43	\$ 2,812.69
20301	Removal of culvert	AQ	Each	1.00	\$ 720.93	\$ 720.93
20420	Drainage excavation, type drain dip	AQ	Each	28.00	\$ 224.99	\$ 6,299.72
30318	Road reconditioning, roadbed, compaction method (d)	CQ	Mile	3.53	\$ 1,152.53	\$ 4,068.43

SUB-TOTAL: \$ 16,075.26

TOTAL ALL ROADS: \$ 39,203.86

SCHEDULE OF ITEMS

(Timber Sale)

Timber Sale Walter Springs TS
Road Name N/A

Road No. 3111131
Length (Miles) 0.21

Item Number	Description	Method of Meas.	Unit	Quantity	S.R.C Unit Price	Total
20104	Clearing and grubbing, disposal of tops and limbs f, logs f, stumps f	CQ	Acre	0.26	\$ 1,601.63	\$ 416.42
30318	Road reconditioning, roadbed, compaction method (d)	CQ	Mile	0.21	\$ 2,334.30	\$ 490.20

SUB-TOTAL: \$ 906.62

TOTAL ALL ROADS: \$ 39,203.86

WALTER SPRINGS TS - SPECIFICATION LIST

WALTER SPRINGS TS		ROAD NUMBER					
		3111	3111	3111			
SECTION NO. & TITLE	REV DATE	115	117	131			
101 - Terms, Format, and Definitions	2013	X	X	X			
101 01 Meaning of Terms	1/22/2009	X	X	X			
101 03 Abbreviations	6/16/2006	X	X	X			
101 04 Definitions	11/6/2007	X	X	X			
101 04 Definitions	3/29/2007	X	X	X			
102 - Bid, Award, and Execution of Contract	2013	X	X	X			
102 00 Delete 102 in its entirety	2/16/2005	X	X	X			
103 - Scope of Work	2013	X	X	X			
103 00 Intent of Contract	2/16/2005	X	X	X			
104 - Control of Work	2013	X	X	X			
104 00 Deletions to 104	6/16/2006	X	X	X			
104 03 Specifications and Drawings.	1/22/2009	X	X	X			
104 03 Specifications and Drawings	2/22/2005	X	X	X			
104 06 Use of Roads by Contractor	2/17/2005	X	X	X			
105 - Control of Material	2013	X	X	X			
105 02 Material Sources	1/18/2007	X	X	X			
105 05 Use of Material Found in the Work	5/12/2004	X	X	X			
106 - Acceptance of Work	2013	X	X	X			
Conformity with Contract							
106 01 Requirements	7/31/2007	X	X	X			
106 07 Partial and Final Acceptance	5/11/2004	X	X	X			
107 - Legal Relations and Responsibility To the Public	2013	X	X	X			
Protection and Restoration of							
107 02 Property and Landscape	2/17/2005	X	X	X			
107 05 Responsibility for Damage Claims	5/11/2004	X	X	X			
107 06 Contractor Responsibility for Work	6/16/2006	X	X	X			
107 08 Sanitation, Health & Safety	3/29/2005	X	X	X			
107 09 Legal Relationship of the Parties	6/16/2006	X	X	X			
107 10 Environmental Protection	6/16/2006	X	X	X			
108 - Prosecution and Progress	2013	X	X	X			
108 00 Delete Section 108 in entirety	2/16/2005	X	X	X			
109 - Measurement and Payment	2013	X	X	X			
109 00 Deletions	2/17/2005	X	X	X			
Measurement Terms and							
109 02 Definitions	6/16/2006	X	X	X			
151 - Mobilization	2013	X	X				
155 - Schedules for Construction Contracts	2013	X	X	X			
Contractor Quality Control Plan,							
155 00 Records	5/11/2004	X	X	X			
201 - Clearing and Grubbing	2013	X	X	X			
201 00 Deletions	8/5/2009	X	X	X			
201 01 Description	2/18/2005	X	X	X			
201 04 Clearing	2/22/2005	X	X	X			
201 06 Disposal	2/18/2005	X	X	X			
203 - Removal of Structures and Obstructions	2013		X				
203 01 Description	2/25/2005		X				

WALTER SPRINGS TS - SPECIFICATION LIST

WALTER SPRINGS TS			ROAD NUMBER				
			3111	3111	3111		
SECTION NO. & TITLE	REV DATE	115	117	131			
203 04 Removing Material	2/18/2005		X				
203 05 Disposing of Material	2/18/2005		X				
203 08 Payment	2/24/2005		X				
204 - Excavation and Embankment	2013	X	X				
204 06 Roadway Excavation	3/2/2005	X	X				
204 06 Roadway Excavation	3/2/2005	X	X				
204 09 Preparing Foundation for Embankment Construction	3/2/2005	X	X				
204 10 Embankment Construction	3/2/2005	X	X				
204 11 Compaction	4/11/2005	X	X				
204 13 Sloping, Shaping, and Finishing	3/2/2005	X	X				
204 13 Sloping, Shaping, and Finishing	3/2/2005	X	X				
204 14 Disposal of Unsuitable or Excess Material	3/2/2005	X	X				
204 15 Acceptance	2/7/2007	X	X				
251 - Riprap	2013	X					
251 03 General	8/5/2009	X					
303 - Road Reconditioning	2013	X	X	X			
303 01 Description	3/2/2005	X	X	X			
303 06 Aggregate & Asphalt Surface Reconditioning	8/5/2008	X	X	X			
303 07 Roadway Reconditioning	3/2/2005	X	X	X			
303 10 Measurement	3/29/2005	X	X	X			
322 - Minor Aggregate Courses	2013	X					
602 - Culverts and Drains	2013	X					
602 03 General	9/6/2005	X					
703 - Aggregate	2013	X					
703 05 Subbase, Base, & Surface Course Aggregate	8/14/2009	X					
703 07 FLH FP-03 Correction metric uscu Flakiness Index and Adherent	3/2/2005	X					
703 10 Coatings	4/11/2011	X					
705 - Rock	2013	X					
705 02 Riprap Rock	8/5/2009	X					
718 - Traffic Signing and Marking Material	2013	X	X	X			
718 05 Aluminum Panels	8/5/2009	X	X	X			

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Preface

Preface_wo_03_15_2004_m

Delete all but the first paragraph and add the following:

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

101 - Terms, Format, and Definitions

101.00_nat_us_07_25_2005

101.01_nat_us_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	<u>National Institute of Standards and Technology</u>
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.

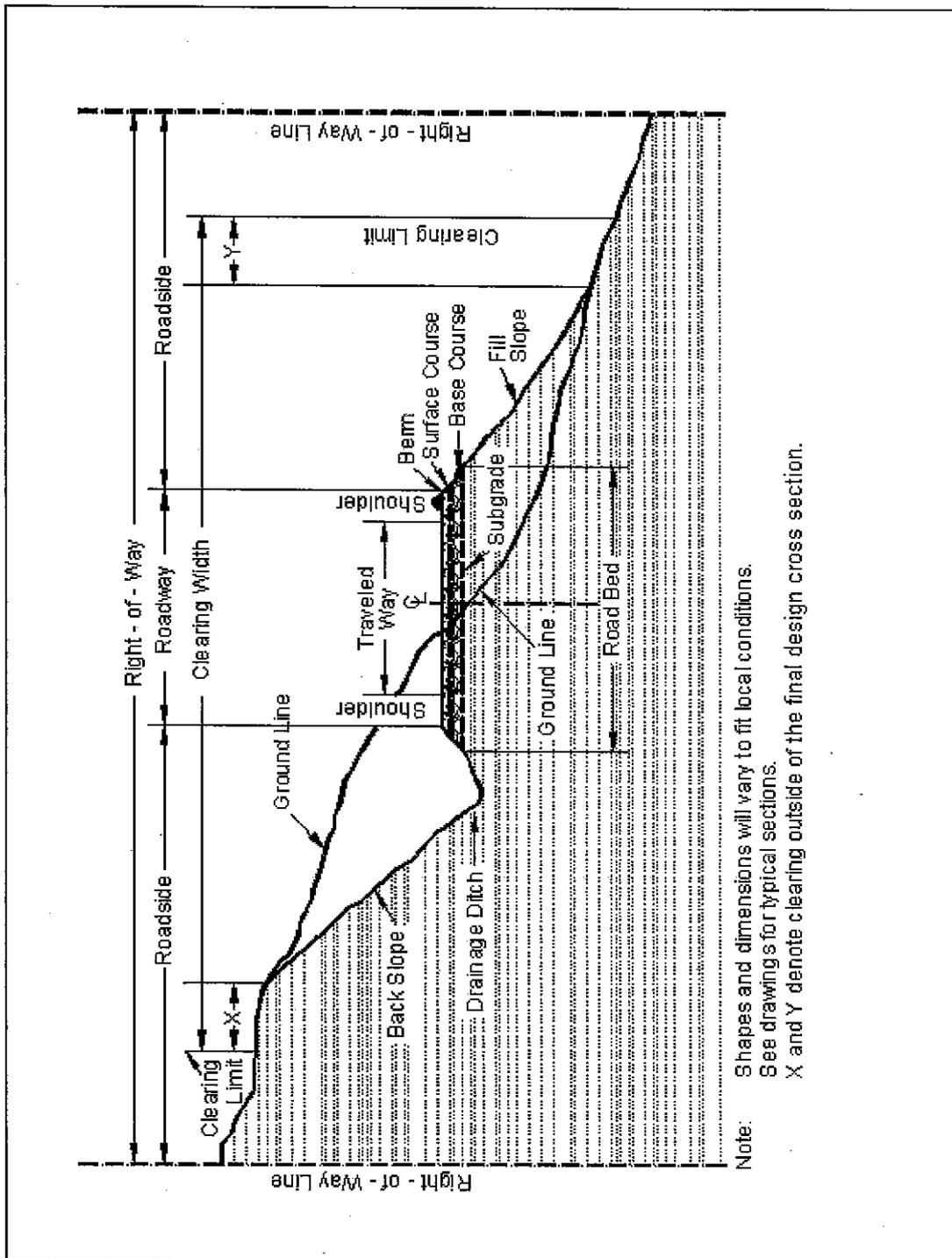
Road Order--An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

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.



101.04 Definitions.

Delete the following definitions:

Contract Modification

Day

Notice to Proceed

Solicitation

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.

104.03_nat_us_02_22_2005

104.03 Drawings and Specifications

Delete subsection 104.03

104.03_nat_us_01_22_2009

104.03 Specifications and Drawings.

Delete 104.03.

104.06_nat_us_02_17_2005

Add the following subsection:

104.06 Use of Roads by Contractor

The Contractor is authorized to use roads under the jurisdiction of the Forest Service for all activities necessary to complete this contract, subject to the limitations and authorizations designated in the Road Order(s) or described in the contract, when such use will not damage the roads or national forest resources, and when traffic can be accommodated safely.

105 - Control of Material

105.02_nat_us_01_18_2007

105.02 Material Sources.

105.02(a) Government-provided sources.

Add the following:

Comply with the requirements of 30 CFR 56, subparts B and H. Use all suitable material for aggregate regardless of size unless otherwise designated. When required, re-establish vegetation in disturbed areas according to section 625.

105.05_nat_us_05_12_2004

105.05 Use of Material Found in the Work.

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

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

106 - Acceptance of Work

106.01_nat_us_07_31_2007

106.01 Conformity with Contract Requirements.

Delete Subsection 106.01 and substitute the following:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

106.07_nat_us_05_11_2004

106.07 Delete

Delete subsection 106.07.

107 - Legal Relations and Responsibility to the Public

107.05_nat_us_05_11_2004

107.05 Responsibility for Damage Claims.

Delete the entire subsection.

107.06_nat_us_06_16_2006

107.06 Contractor's Responsibility for Work.

Delete the following from the first paragraph.

“except as provided in Subsection 106.07”.

107.08_nat_us_03_29_2005

107.08 Sanitation, Health, and Safety

Delete the entire subsection.

107.09_nat_us_06_16_2006

107.09 Legal Relationship of the Parties.

Delete the entire subsection.

107.10_nat_us_06_16_2006

107.10 Environmental Protection.

Add the following:

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

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

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

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

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

108 - Prosecution and Progress

108.00_nat_us_02_16_2005

108 Delete.

Delete Section 108 in its entirety.

109 - Measurement and Payment

109.00_nat_us_02_17_2005

109 Deletions

Delete the following entire subsections:

109.06 Pricing of Adjustments.

109.07 Eliminated Work.

109.08 Progress Payments.

109.09 Final Payment.

109.02_nat_us_06_16_2006

109.02 Measurement Terms and Definitions.

(b) Contract quantity.

Add the following:

Contract quantities will be adjusted only when there are errors in the original design of 15% or more.

Change the following:

“(b) Cubic yard” to “(c) Cubic yard”.

Add the following definition:

(p) Thousand Board Feet (Mbf). 1,000 board feet based on nominal widths, thickness, and extreme usable length of each piece of lumber or timber actually incorporated in the job. For glued laminated timber, 1,000 board feet based on actual width, thickness, and length of each piece actually incorporated in the job.

155 - Schedules for Construction Contracts

155.00_nat_us_05_11_2004

155 Delete.

Delete Section 155 in its entirety.

201 - Clearing and Grubbing

201.00_nat_us_08_05_2009

201.02 Material:

Delete Tree wound dressing material reference.

201.03 General.

Delete the last sentence.

201.04 Clearing.

Delete the last sentence of (d).

201.01_nat_us_02_18_2005

201.01 Description

Replace with the following

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

201.04_nat_us_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.

203 - Removal of Structures and Obstructions

203.01_nat_us_02_25_2005

203.01 Description.

Delete and replace with the following:

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

203.04_nat_us_02_18_2005

203.04 Removing Material.

Replace the fourth and fifth paragraphs with the following:

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

Remove structures and obstructions in the roadbed to 12 inches below subgrade elevation.

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

203.05_nat_us_02_18_2005

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.

203.08_nat_us_02_24_2005

203.08 Payment

Add the following:

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

204 - Excavation and Embankment

204.06_nat_us_03_02_2005

204.06 Roadway Excavation.

Add the following:

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.

204.06_nat_us_03_02_2005

204.06 Roadway Excavation

(a) General.

Add the following:

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

204.09_nat_us_03_02_2005

204.09 Preparing Foundation for Embankment Construction.

Delete subsection (a) and replace it with the following:

(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.

204.10_nat_us_03_02_2005

204.10 Embankment Construction.

Add the following:

Obtain written approval before beginning construction of embankments over 6 feet high at subgrade centerline.

(a) General.

Delete the third paragraph and add the following:

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.

204.11_nat_us_04_11_2005

204.11 Compaction.

Delete the first paragraph and replace it with the following:

For compaction according to method (a), (b), or (c), use AASHTO T 27 to determine the amount of material retained on a Number. 4 sieve. For compaction methods (d) or (e) no sieve test is required.

Add the following compaction methods:

(d) Layer Placement Method (Hauling and Spreading Equipment). 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.

(e) Layer Placement (Roller Compaction) Method. 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 visible deformation of the layer ceases or, in when a sheepsfoot roller is used, the roller “walks out” of the layer. Make at least three complete passes.

204.13_nat_us_03_02_2005

204.13 Sloping, Shaping, and Finishing.

(a) Sloping.

Add the following:

Slope rounding is not required on tolerance class D through M roads.

204.13_nat_us_03_02_2005

204.13 Sloping, Shaping, and Finishing.

Delete section (d) and add the following:

(d) Finishing. For surfaced roads, remove all material larger than 6 inches from the top 6 inches of the roadbed. For all roads, 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 for both surfaced and unsurfaced roads 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 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 visible displacement ceases.
- (3) Method C. For roads designated as Construction Tolerance Class K, L, or M, finish the roadbed by spreading the excavation. Eliminate rock berms.

Add Table 204-2—Construction Tolerances:

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.

204.14 Disposal of Unsuitable or Excess Material.

Delete the text of the first paragraph and substitute the following:

Dispose of unsuitable or excess material at designated sites or legally off of the project.

204.15_nat_us_02_07_2007

204.15 Acceptance

Table 204-1 Sampling and Testing Requirements.

Add the following note to the table:

(2) When compaction methods (d) or (e) are used AASHTO M 145, T 99, T 180, and T 310 are not required for earth embankment test methods.

251 - Riprap

251.03_nat_us_08_05_2009

Construction Requirements

251.03 General.

Add the following:

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

251.08 Measurement.

Add the following:

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

303 - Road Reconditioning

303.01_nat_us_03_02_2005

303.01 Work.

Delete and add the following:

This work consists of reconditioning ditches, shoulders, roadbeds, cattleguards, asphalt surfaces, and aggregate surfaces.

303.06_nat_us_08_05_2008

303.06 Aggregate Surface Reconditioning.

Delete and replace with the following:

303.06 Asphalt and Aggregate Surface Reconditioning.

Repair soft and unstable areas to the full depth of the aggregate surface and according to Subsection 204.07. Scarify to the depth of the aggregate surface or to a depth of 6 inches, whichever is less, and remove surface irregularities. Reshape, finish, and compact the entire aggregate surface according to Subsection 301.05, Subsection 321.05, or Subsection 322.05 as applicable.

For asphalt surfaces, clean the existing surface of all loose material, dirt, or other deleterious substances by approved methods. Remove and dispose of unsuitable material that shows evidence of distress, excess asphalt material, or settlement in the roadbed. Patch the areas with approved material that conforms to and is compatible with the adjacent pavement structure. Perform the patch work according to Section 301, 404, 430, or other sections as applicable for the layer or courses being repaired. Clean and seal cracks in the existing asphalt surface according to Subsection 414.05. Correct surface irregularities exceeding 6 inches in depth with a specified aggregate. Place and compact the aggregate according to Subsections 301.04 and 301.05. Prelevel other dips, depressions, sags, excessive or nonexistent crown, or other surface irregularities with asphalt concrete according to Section 404. Spread and compact the asphalt concrete in layers parallel to the grade line not to exceed 2 inches in compacted depth.

Delete Table 303-1 and replace with the following:

**Table 303-1
Sampling and Testing Requirements**

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time	
Existing Roadway	Measured and tested for conformance (106.04)	Moisture-density Method D	—	AASHTO T 99 ⁽¹⁾	1 per each mixture or change in material	Processed material before incorporating in work	Yes, when requested	Before using in work	
		Moisture-density Method E	—	R-1 Marshall	"	"	"	"	
		Moisture-density Method F	—	AASHTO T 180 ⁽¹⁾	"	"	"	"	"
		Moisture-density Method G	—	R-1 Marshall	"	"	"	"	"
		In-place density & moisture content	—	AASHTO T 310 or other approved procedures	1 per 3000 yd ²	In-place	—	Before placing next layer	

(1) Minimum of 5 points per proctor.

303.07_nat_us_03_02_2005

303.07 Roadway Reconditioning.

Add the following:

Remove cattleguard decks. Clean the deck and the area beneath the cattleguard of soil and other material to the bottom of the original foundation over the entire width of the installation. Reinstall the cattleguard deck.

303.11_nat_us_03_29_2005

303.10 Measurement

Modify the second paragraph as follows:

Measure ditch reconditioning and shoulder reconditioning by the mile, station, or foot horizontally along the centerline of the roadway for each side of the roadway.

322 - Minor Aggregate Courses

322.00_nat_us_10_14_2011

Description

322.01 This work consists of constructing one or more courses of aggregate on a prepared surface. Work includes producing aggregate by grid rolling, screening, or crushing methods, or placing pit-run or Government-furnished aggregate.

Surface aggregate grading is designated as shown in Table 703-3.

Subbase and base aggregate grading is designated as shown in Table 703-2.

Screened aggregate grading is designated as shown in Table 703-16.

Material

322.02 Conform to the following Subsections:

Aggregate	703.05
Water	725.01

Construction Requirements

322.03 General. Prepare the surface on which the aggregate course is placed according to Section 204 or 303 as applicable.

Request approval of the roadbed in writing before placing aggregate.

Develop, haul, and apply water in accordance to Section 170.

Submit target values within the gradation ranges shown in Table 703-2 or 703-3 for the required grading. After reviewing the proposed target values the CO will determine the final values for the gradation and notify the Contractor in writing.

No quality requirements or gradation other than maximum size will be required for pit run and grid-rolled material. For grid rolling, use all suitable material that can be reduced to maximum size.

After processing on the road, remove all oversize material from the road and dispose of it as directed by the CO.

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

322.04 Mixing and Spreading. Mix the aggregate and adjust the moisture content to obtain a uniform mixture with a moisture content suitable for the specified compaction method. Spread and shape the mixture on the prepared surface in a uniform layer with no segregation of size, and to a loose depth that will provide the required compacted thickness.

Do not place in layers exceeding 6 inches in compacted thickness for aggregate base and surface courses or twice the maximum particle size for screened aggregate. When more than one layer is necessary, compact each layer according to Subsection 322.05 before placing the next layer. Route hauling and leveling equipment uniformly over the full width.

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

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

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

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

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

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

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

Compaction E. Removed.

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

Compaction G. Removed.

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.

322.06 Construction Tolerance. If grade finishing stakes are required, finish the surface to within ± 0.10 feet from staked line and grade elevation.

If grade finishing stakes are not required, shape the surface to the required template and check the surface with a 10-foot straightedge. Defective areas are surface deviations in excess of 1/2 inch in 10 feet between any two contacts of the straightedge with the surface.

Correct all defective areas by loosening the material, adding or removing material, reshaping, and compacting.

Ensure that the compacted thickness is not consistently above or below the specified thickness. The maximum variation from the compacted specified thickness is 1/2 inch.

Ensure that the compacted width is not consistently above the specified width. The maximum variation from the specified width will not exceed +12 inches at any point.

322.07 Maintenance. Maintain the aggregate course to the correct line, grade, and cross-section by blading, watering, rolling, or any combination thereof until placement of the next course. Correct all defects according to Subsection 322.06.

322.08 Acceptance. See Table 322-1 or Table 322-2 as applicable, for sampling and testing requirements.

Aggregate gradation and surface course plasticity index will be evaluated under Subsection 106.04. If the aggregate is obtained from a Government stockpile then the above characteristics will be evaluated under Subsection 106.02. Other aggregate quality properties will be evaluated under Subsections 106.02 and 106.04. Placement of aggregate courses will be evaluated under Subsections 106.02 and 106.04.

The allowable upper and lower aggregate gradation limits are the Target Value plus or minus the allowable deviations shown in Tables 703-2 and 703-3.

The allowable upper and lower Plasticity index limits for surface courses are stated in 703.05(b).

Preparation of the surface on which the aggregate course is placed will be evaluated under Section 204 or 303 as applicable.

Measurement

322.09 Measure the Section 322 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

Measure square yard width horizontally to include the top of aggregate width including designed widening. Measure the square yard length horizontally along the centerline of the roadway.

If the measurement for aggregate is by cubic yard using contract quantities then measure aggregate by the cubic yard in-place once compacted, otherwise measurement for aggregate by the cubic yard is measured by the cubic yard in the hauling vehicle.

Measure thickness perpendicular to the grade of the travelway.

Measure width perpendicular to the centerline.

Payment

322.10 The accepted quantities will be paid at the contract price per unit of measurement for the Section 322 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

**Table 322-1
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
Aggregate source quality 703.05	Measured and tested for conformance (106.04 & 105)	LA abrasion (coarse)	—	AASHTO T 96	1 per type & source of material	Source of material	Yes, when requested	Before using in work
		Sodium sulfate soundness loss (coarse & fine)	—	AASHTO T 104	"	"	"	"
		Durability index (coarse & fine)	—	AASHTO T 210	"	"	"	"
		Fractured faces	—	ASTM D 3821	"	"	"	"
Subbase, Base, and Surface courses	Measured and tested for conformance (106.04)	Sample	—	AASHTO T 2	2 per day	From windrow or roadbed after processing or from approved crusher sampling device	Yes	48 hours

Table 322-1 (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
Subbase, Base, and Surface	Measured and tested for conformance (106.04)	Moisture-density Method D	—	AASHTO T 99 ⁽¹⁾	1 per type and source of material	Source of material	Yes, when requested	Before using in work
		Moisture-density Method F	—	AASHTO T 180 ⁽¹⁾	"	"	"	"
		In-place density & moisture content	—	AASHTO T 310 or other approved procedures	3 per day	In-place	—	Before placing next layer
			—					

**Table 322-2
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
Screened Aggregate	Measured and tested for conformance (106.04)	Sample	—	AASHTO T 2	2 per day	From windrow or roadbed after processing or from approved crusher sampling device	Yes	48 hours

602 - Culverts and Drains

602.03_nat_us_09_06_2005

602.03 General.

Add the following:

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

703 - Aggregate

703.05_nat_us_08_14_2009

Delete 703.05 and replace with the following:

703.05 Subbase, Base, Surface Course, and Screened Aggregate.

(a) Subbase or base aggregate. Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming the following:

(1) Gradation	Table 703-2
(2) Liquid limit, AASHTO T 89	25 max.
(3) Plastic limit, AASHTO T 90	Nonplastic
(4) Los Angeles abrasion, AASHTO T 96	40% max.
(5) Sodium sulfate soundness loss (5 cycles), AASHTO T 104	12% max.
(6) Durability index (coarse), AASHTO T 210	35 min.
(7) Durability index (fine), AASHTO T 210	35 min.
(8) Fractured faces, ASTM D 5821	50% min.
(9) Free from organic matter and lumps or balls of clay	

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary. Fine aggregate, material passing the No. 4 sieve, shall consist of natural or crushed sand and fine mineral particles.

(b) Surface course aggregate. Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming the following:

(1) Gradation	Table 703-3
(2) Liquid limit, AASHTO T 89	35 max.
(3) Plastic Index, AASHTO T 90	

a) If the percent passing the No. 200 sieve is less than 12%	2 to 9
b) If the percent passing the No. 200 sieve is greater than 12%	Less than 2
(4) Los Angeles abrasion, AASHTO T 96	40% max.
(5) Sodium sulfate soundness loss (5 cycles), AASHTO T 104	12% max.
(6) Durability index (coarse), AASHTO T 210	35 min.
(7) Durability index (fine), AASHTO T 210	35 min.
(8) Fractured faces, ASTM D 5821	75% min.
(9) Free from organic matter and lumps or balls of clay	

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Do not furnish material that contains asbestos fibers.

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary. Fine aggregate, material passing the No. 4 sieve, shall consist of natural or crushed sand and fine mineral particles.

(c) **Screened aggregate** – Furnish hard, durable particles or fragments of stone, slag, or gravel conforming the following:

(1) Gradation	Table 703-16
(2) Plastic Index, AASHTO T 90	Less than 9
(3) Los Angeles abrasion, AASHTO T 96	55% max.
(4) Free from organic matter and lumps or balls of clay.	

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary.

Delete Table 703-2 and replace with the following:

Table 703-2
Target Value Ranges for Subbase and Base Gradation
Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)

Sieve Size	Grading Designation				
	A (Subbase)	B (Subbase)	C (Base)	D (Base)	E (Base)
2½ inch	100				
2 inch	97 - 100	100			
1½ inch		97 - 100			
1 inch	65 - 79 (6)		80 - 100 (6)	100	
¾ inch			64 - 94 (6)	86 - 100 (6)	100
½ inch	45 - 59 (7)				
⅜ inch			40 - 69 (6)	51 - 82 (6)	62 - 90 (6)
No. 4	28 - 42 (6)	40 - 60 (8)	31 - 54 (6)	36 - 64 (6)	36 - 74 (6)
No. 40	9 - 17 (4)			12 - 26 (4)	12 - 26 (4)
No. 200	4.0 - 8.0 (3)	4.0 - 12.0 (4)	4.0 - 7.0 (3)	4.0 - 7.0 (3)	4.0 - 7.0 (3)

() The value in the parentheses is the allowable deviation (±) from the target values..

Delete Table 703-3 and replace with the following:

**Table 703-3
Target Value Ranges for Surface Gradation
Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)**

Sieve Size	Grading Designation							
	F	G	H	S	T	U		
1 1/2 inch	100			100				
1 inch	97-100	100		72 - 92 (6)	100			
3/4 inch	76-89 (6)	97 - 100	97 - 100			100		
1/2 inch					71 - 91 (6)			
3/8 inch	56-68 (6)	70 -- 80 (6)	80 - 92 (6)	51 - 71 (6)		71 - 90 (6)		
No. 4	43-53 (7)	51 - 63 (7)	58 - 70 (7)	36 - 53 (7)	43 - 60 (7)	50 - 68 (7)		
No. 8				26 - 40 (6)	30 - 46 (6)	34 - 51 (6)		
No. 16	23-32 (6)	28 - 39 (6)	28 - 40 (6)					
No. 40	15-23 (5)	19 - 27 (5)	16 - 26 (5)	14 - 25 (5)	16 - 28 (5)	19 - 30 (5)		
No. 200	10.0-16.0 (4)	10.0 - 16.0 (4)	9.0 - 14.0 (4)	8.0 - 15.0 (4)	8.0 - 15.0 (4)	8.0 - 15.0 (4)		

() The value in the parentheses is the allowable deviation (\pm) from the target values.
If the plasticity index (PI) is greater than 0, the TV range for the No. 200 sieve size is 8-12 (4).

Add Table 703-16:

Table 703-16

Gradation Requirements for Screened Aggregate

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)						
	Grading Designation						
	L	M	N	O	P	Q	R
6 inch	100	100					
4 inch			100	100			
3 inch					100	100	
2 inch							100
No. 4		15-45		15-45		15-45	

703.07_nat_us_03_02_2005

Table 703-2 Correction

Include the following substitution

In Table 703-2, delete the “436 – 74 (6)” percent by mass passing for grading E (base) No. 4 sieve size and substitute “36 – 74 (6).”

703.10(e) Flakiness Index.

Delete and replace with the following:

Flakiness Index, FLH T 508 30% max.

703.10(i) Adherent Coating.

Add the following:

Adherent coating on the aggregate, FLH T 512 0.5% max.

705 - Rock

705.02_nat_us_08_05_2009

705.02 Riprap Rock.

Delete Table 705-1 and replace it with the following:

Gradation Requirements for Riprap

Class	Percent of Rock by Mass	Mass (pounds)	Approximate Cubic Dimension ^{b,c} (inches)
1	20	22 to 33	6 to 8
	30	11 to 22	5 to 6
	40	1 to 11	2 to 5
	10 ^a	0 to 1	0 to 2
2	20	55 to 110	8 to 10
	30	22 to 55	6 to 8
	40	2 to 22	3 to 6
	10 ^a	0 to 2	0 to 3
3	20	220 to 330	14 to 16
	30	110 to 220	10 to 14
	40	11 to 110	5 to 10
	10 ^a	0 to 11	0 to 5
4	20	550 to 770	18 to 20
	30	220 to 570	14 to 18
	40	22 to 220	6 to 14
	10 ^a	0 to 22	0 to 6
4a	20	770 to 1353	20 to 24
	30	330 to 770	16 to 20
	40	33 to 330	7 to 16
	10 ^a	0 to 33	0 to 7
5	20	1540 to 2200	26 to 28
	30	1100 to 1540	20 to 26
	40	55 to 1100	8 to 20
	10 ^a	0 to 55	0 to 8
6	20	1870 to 3520	28 to 34
	30	1100 to 1870	22 to 28
	40	110 to 1100	10 to 22
	10 ^a	0 to 110	0 to 10
7	20	4400 to 5940	35 to 39
	30	2200 to 4400	28 to 35
	40	220 to 2200	14 to 28

	10 ^a	0 to 220	0 to 14
8	20	7000 to 10000	42 to 47
	30	4000 to 7000	35 to 42
	40	400 to 4000	16 to 35
	10 ^a	0 to 400	0 to 16

- (a) Furnish spall and rock fragments graded to provide a stable dense mass.
- (b) The volume of a rock with these cubic dimensions has a mass approximately equal to the specified rock mass.
- (c) Furnish rock with breadth and thickness at least one-third its 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.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE



REGION 6
OKANOGAN - WENATCHEE NATIONAL FORESTS

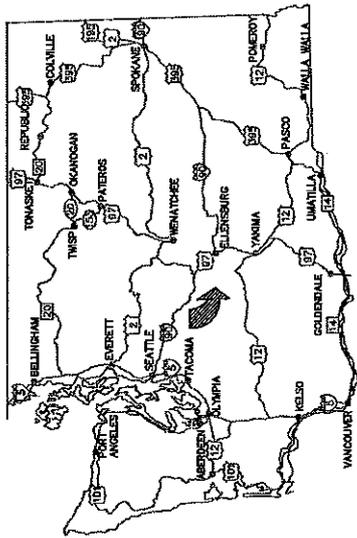
Cle Elum Ranger District

CONSTRUCTION DRAWINGS FOR

Walter Springs T.S.

INDEX TO SHEETS

SHEET NO.	DESCRIPTION
1	TITLE
2	VICINITY MAP
3	ESTIMATE OF QUANTITIES
4	NOTES, SYMBOLS & TYPICAL DETAILS
5	ROAD STRUCTURE DETAILS
6	CLEARING DETAILS
7	DRAINAGE LISTING
8	DRAINAGE CONSTRUCTION DETAILS
9	DRAIN DIP DETAILS
10	WORK DESCRIPTIONS



KEY MAP OF WASHINGTON SHOWING LOCATION OF PROJECT

ROAD NO.	LENGTH MILES	RECONST./CONST.	SHEET NO.
3111115	3.17	RECONST	10
3111117	3.53	RECONST	10
3111131	0.21	RECONST	10

TOTAL CONSTRUCTION 0 MILES
TOTAL RECONSTRUCTION 6.91 MILES

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R-6
PACIFIC NORTHWEST REGION



Reviewed and Approved By

DISTRICT RANGER _____
FOREST ENGINEER _____

DATE _____

Recommended and Approved By

Zone Engineer _____

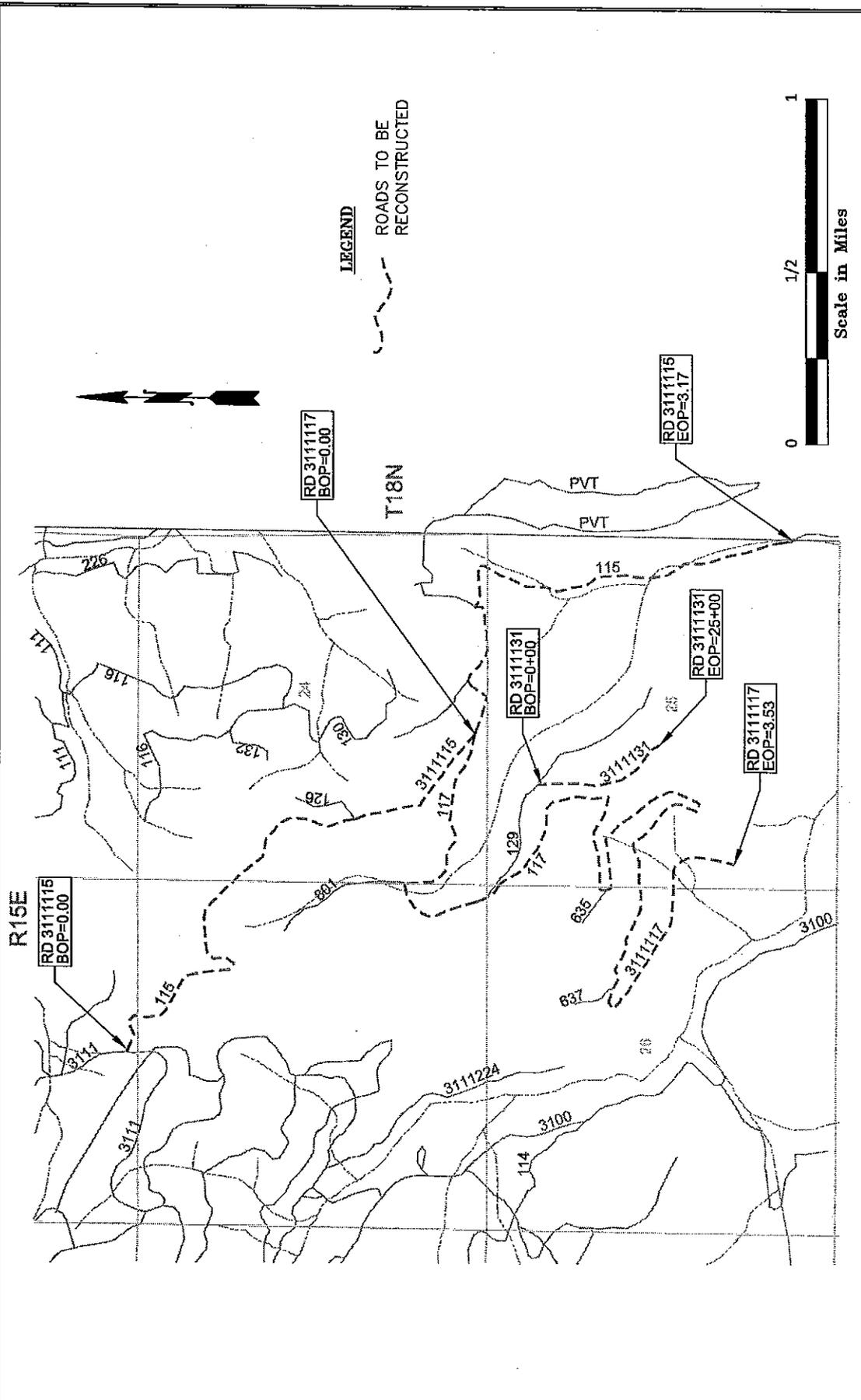
DATE _____

DESIGNED BY _____
REVIEWED BY _____

Sheet

Title

Sheet 1



U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE R-6 PACIFIC NORTHWEST REGION	District Cle Elum RANGER DISTRICT	Forest Okanogan-Wenatchee National Forests Project Walter Springs T.S.	Sheet Title Vicinity Map	Sheet 2
		(Empty space for additional information)		

Notes, Symbols & Typical Details

DISPOSAL OF MERCHANTABLE TIMBER (TIMBER MEETING UTILIZATION STANDARDS):
Merchantable timber (timber meeting Utilization Standards) shall be decked in locations shown on drawings, within reach of standard loading equipment.

To meet minimum tree specifications, trees must be equal or exceed 7-inches DBH and contain at least one minimum piece. Such timber shall be felled and bucked into log lengths not exceeding 52 ft. Pieces (logs) shall also be considered as meeting Utilization Standards, and be required to be decked, when such pieces would have met Utilization Standards if bucking lengths were varied to include such material. Merchantable timber shall be limbed and bucked. Log decks shall be free of slash and debris. Material not meeting Utilization Standards, including any material remaining after deck removal, shall be disposed of as other construction slash pursuant to Specification 201.04.

MINIMUM UTILIZATION STANDARDS:

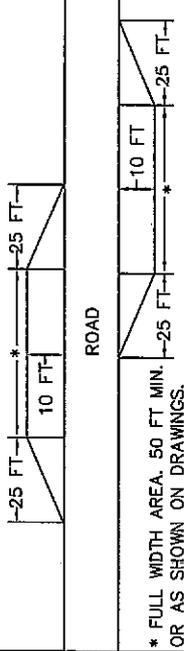
SEE AT.2- Volume Estimate and Utilization Standards.

DISPOSAL OF UNMERCHANTABLE TIMBER: Logs not meeting Utilization Standards which are suitable for use as firewood, may be scattered and decked. Material not suitable for firewood shall be treated by other slash methods.

STAKES: All stakes shall have the following minimum nominal dimensions. Hubs shall be 2 in. X 2 in. X 8 in. Guard, reference, slope, and other stakes shall be 0.3 in. X 1.5 in. X 18 in. Lath shall be 0.4 in. X 1.5 in. X 3 ft. Other dimensions and materials may be used, such as steel reinforcing bars and metal pins, if approved by the Engineer. The color of paint or flagging, as well as the colors for use on stakes for clearing, reference, structures, and slope staking shall be fluorescent orange. Other colors may be used if approved in writing by the Engineer.

SYMBOLS	DESCRIPTION
BOP, EOP	BEGINNING OF PROJECT, END OF PROJECT
CW	CURVE WIDENING
FW	FULL WIDTH AREA*
TOL, TOR, TOS	TURNOUT LEFT/RIGHT/SPLIT
V	DRAIN DIP
LOD	LEAD-OUT DITCH
⊕ & ⊙	CULVERT (EXISTING)
⊕ & ⊙	CULVERT (INSTALL)

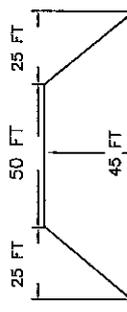
TURNOUT



TURNAROUND

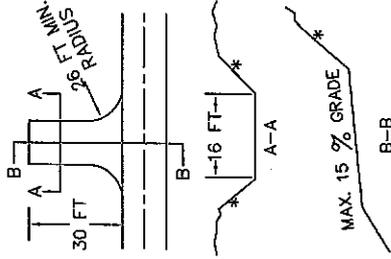


SPLIT



L.T./R.T.

"J" HOLE



* BACKSLOPES SHALL CONFORM TO CONSTRUCTION TOLERANCES ON ROAD STRUCTURE DETAILS SHEET.

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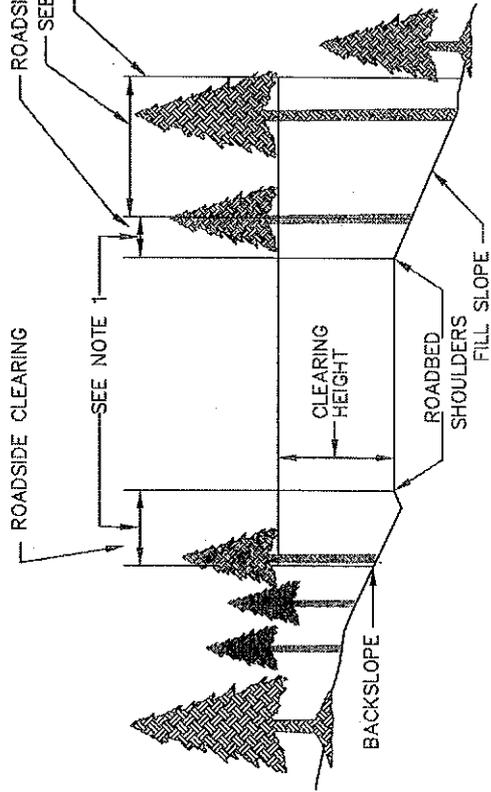
District
Cle Elum
RANGER DISTRICT

Not To Scale

Forest Okanogan-Wenatchee
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CLEARING DETAILS

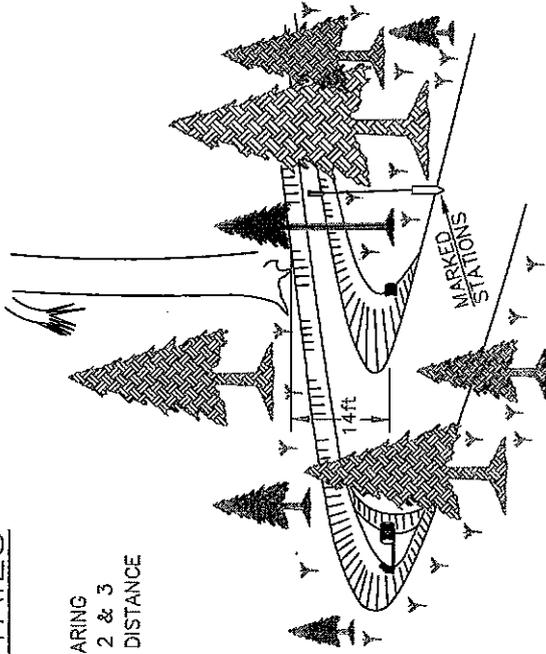


CLEARING LIMITS TYPICAL

NO SCALE

NOTES

1. ALL CONIFERS, HARDWOODS AND BRUSH WITHIN 1 FOOT OF THE OUTSIDE SHOULDER OF THE ROAD AND 5 FEET FROM THE BOTTOM OF THE DITCH OR INSIDE SHOULDER SHALL BE REMOVED.
2. THE AREA OF SIGHT DISTANCE CLEARING WILL BE FROM THE ROADSIDE CLEARING LIMIT, TO A LINE OF SIGHT BETWEEN THE BEGINNING AND ENDING STATIONS MARKED ON THE GROUND. CONIFERS WITHIN THIS AREA SHALL BE THINNED TO APPROXIMATELY A 12 FEET TRUNK SPACING, EXCEPT WHERE MARKED WITH PAINT OR FLAGGING FOR REMOVAL TO AN ALTERNATE SPACING. ALL HARDWOODS & BRUSH WITHIN THESE LIMITS SHALL BE REMOVED.



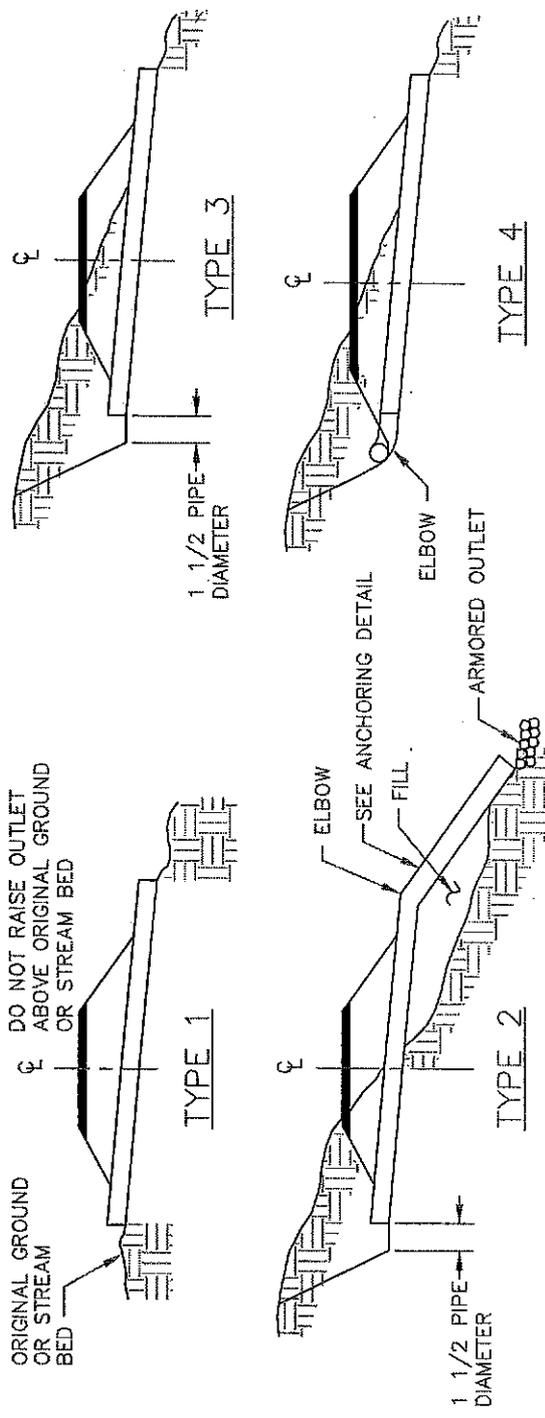
SIGHT DISTANCE TYPICAL

NO SCALE

3. BRANCHES ON REMAINING CONIFERS SHALL BE TRIMMED FROM GROUND LEVEL TO A CLEARING HEIGHT LIMIT 14 FEET ABOVE THE ROADBED OR TO A LIMIT OF 60% OF THE TREE'S HEIGHT, WHICHEVER IS LESS. LIMBS OF VEGETATION SHALL BE CUT SO AS TO NOT PROTRUDE WITHIN THE CLEARING LIMITS.

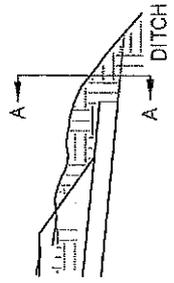


DRAINAGE CONSTRUCTION DETAILS

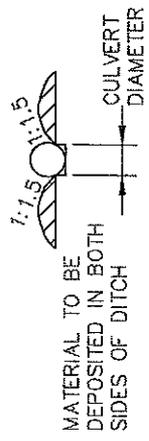


NOTE: MINIMUM COVER OVER CULVERT AT SHOULDER SHALL BE 1ft. BELOW SUBGRADE

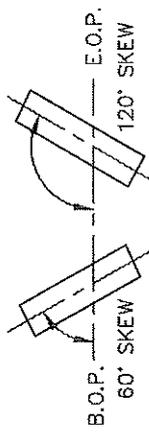
OUTLET DITCH



SECTION A-A



SKEW DIAGRAM



B.O.P. = BEGINNING OF PROJECT
E.O.P. = END OF PROJECT

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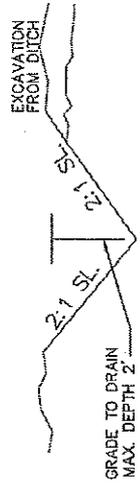
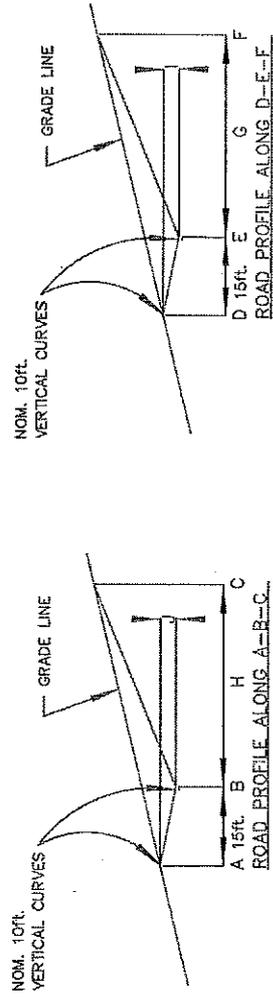
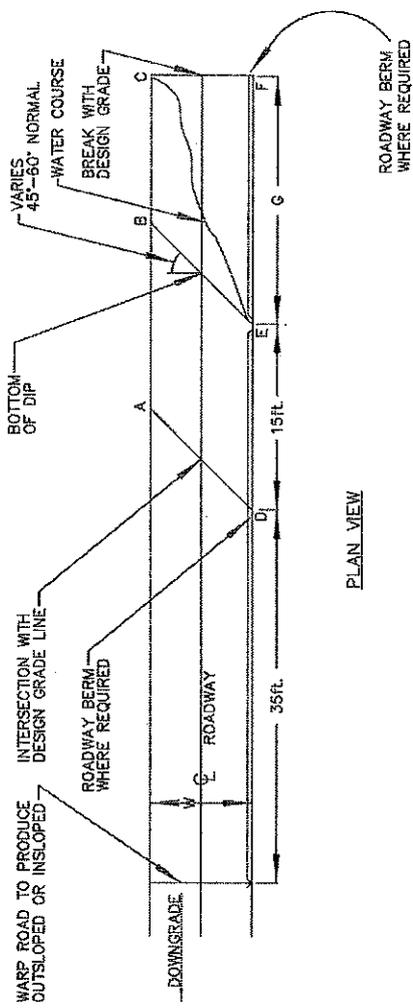
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Drainage Construction
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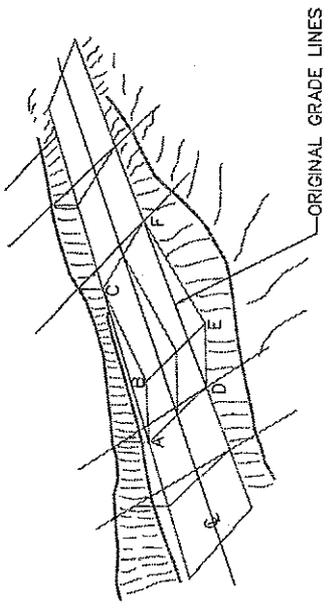
DRAIN DIP DETAILS



TYPICAL SECTION LEAD-OFF DITCH

ALL NUMBERS ARE IN FEET UNLESS STATED OTHERWISE

ROAD GRADE	W=12ft. TO 14ft.						W=24ft.					
	G	H	I	J	DEPTH	LENGTH	G	H	I	J	DEPTH	LENGTH
UNDER 3	82	50	0.66	0.30	74	50	1.15	0.30				
7	72	60	0.66	0.20	84	60	1.25	0.20				
9	82	70	0.66	0.10	94	70	1.31	0.10				



PERSPECTIVE VIEW

NOTE: PLAN SHOWN IS FOR OUTSLOPED ROLLING DIP. DIPS MAY BE EITHER INSLOPED OR OUTSLOPED. WHEN INSLOPED, DIPS SHALL DISCHARGE INTO A CULVERT, DROP INLET, OVERSIDE DRAIN OR ONTO NATURAL GROUND. THE MINIMUM CROSS GRADE FROM "B" TO "E" IS 4% GREATER THAN THE ORIGINAL ROAD GRADE.

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Drain Dip Details
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Road no.:3111115

Sta. (Mi)	Work Description
0.00	Begin Road Reconditioning
	Begin Clearing and Grubbing
0.17	Recondition Ditch left
0.27	End Recondition Ditch left
0.47	Hole in road, place 10 cy fill
0.54	Begin Recondition Ditch Left
0.55	Hole in road, place 10 cy fill
0.57	End Recondition Ditch Left
0.79	Begin Recondition ditch Left
0.93	End Recondition Ditch left
0.98	Begin Recondition Ditch right
1.01	End Recondition Ditch left
1.06	End Recondition Ditch left
1.13	Begin Recondition Ditch left
1.17	End Recondition Ditch left
1.19	Begin Recondition Ditch left
1.25	End Recondition Ditch left
1.50	Begin Recondition Ditch left
1.52	End Recondition Ditch left
2.06	Begin Recondition Ditch left
2.14	End Recondition Ditch left
2.19	Begin Recondition Ditch left
2.22	End Recondition Ditch left
2.24	Begin Recondition Ditch right
2.26	End Recondition Ditch right
2.40	End Recondition Ditch right
	Begin Recondition Ditch left
2.46	Install 18" X 40' CMP
2.67	Creek Crossing - Begin placing Aggregate, 6" compacted depth x 14 ft. wide
2.71	End Recondition Ditch left
2.72	Existing Culvert - Place 10 cy Riprap-Class 1, (5 cy inlet/5 cy outlet)
2.74	Begin Recondition Ditch right
2.75	End Aggregate Placement
2.82	End Recondition Ditch right
2.86	Begin Recondition Ditch right
3.10	Construct Drain Dip
	End Recondition Ditch right
3.11	Begin Excavation, Excavate cutslope to obtain 14ft wide road width, Reshape fill. Slopes shall be shaped to 1 1/2 H:1 V.

Road no.:3111115 Cont.

Sta. (Mi)	Work Description
3.13	End Excavation
3.14	Begin Recondition Ditch right
3.17	End Recondition Ditch right
	End Road Reconditioning
	End Clearing and Grubbing
	EOP

Road no.:3111117

Sta. (Mi)	Work Description
0.00	Begin Brushing
	Begin Road reconditioning
0.09	Construct drain dip
0.16	Construct drain dip
0.68	Remove and dispose of CMP
	Construct Drain Dip
0.77	Construct Drain dip
0.84	Construct Drain Dip
1.04	Construct Drain Dip
1.21	Construct Drain Dip
1.50	Construct Drain Dip
1.58	Construct Drain Dip
1.77	Construct Drain Dip
1.83	Construct Drain Dip
1.89	Construct Drain Dip
1.96	Construct Drain Dip
2.05	Construct Drain Dip
2.14	Construct Drain Dip
2.25	Construct Drain Dip
2.33	Construct Drain Dip
2.39	Construct Drain Dip
2.50	Construct Drain Dip
2.62	Construct Drain Dip
2.80	Construct Drain Dip
2.87	Construct Drain Dip
3.07	Construct Drain Dip
3.17	Construct Drain Dip
3.25	Construct Drain Dip
3.29	Construct Drain Dip
3.43	Construct Drain Dip
3.51	Construct Drain Dip
3.53	Do not remove large tree on right
	EOP

Road no.:3111131

Sta. (Ft)	Work Description
0+00	Begin Road Reconditioning
	Begin Clearing & Grubbing
2+00	End Road Reconditioning
	End Clearing & Grubbing
(2+00	Start Prehaul maintenance
16+00	End Prehaul Maintenance)
16+00	Begin Road Reconditioning
	Begin Clearing & Grubbing
25+25	End Road Reconditioning
	End Clearing & Grubbing
	EOP

