

**PART I - SCHEDULE OF ITEMS
SECTION B - SERVICES AND PRICES**

Page 1 of 1
WatSit Timber Sale, Road 2900400
Olympic National Forest
Pacific Ranger District
Clallam County, Washington

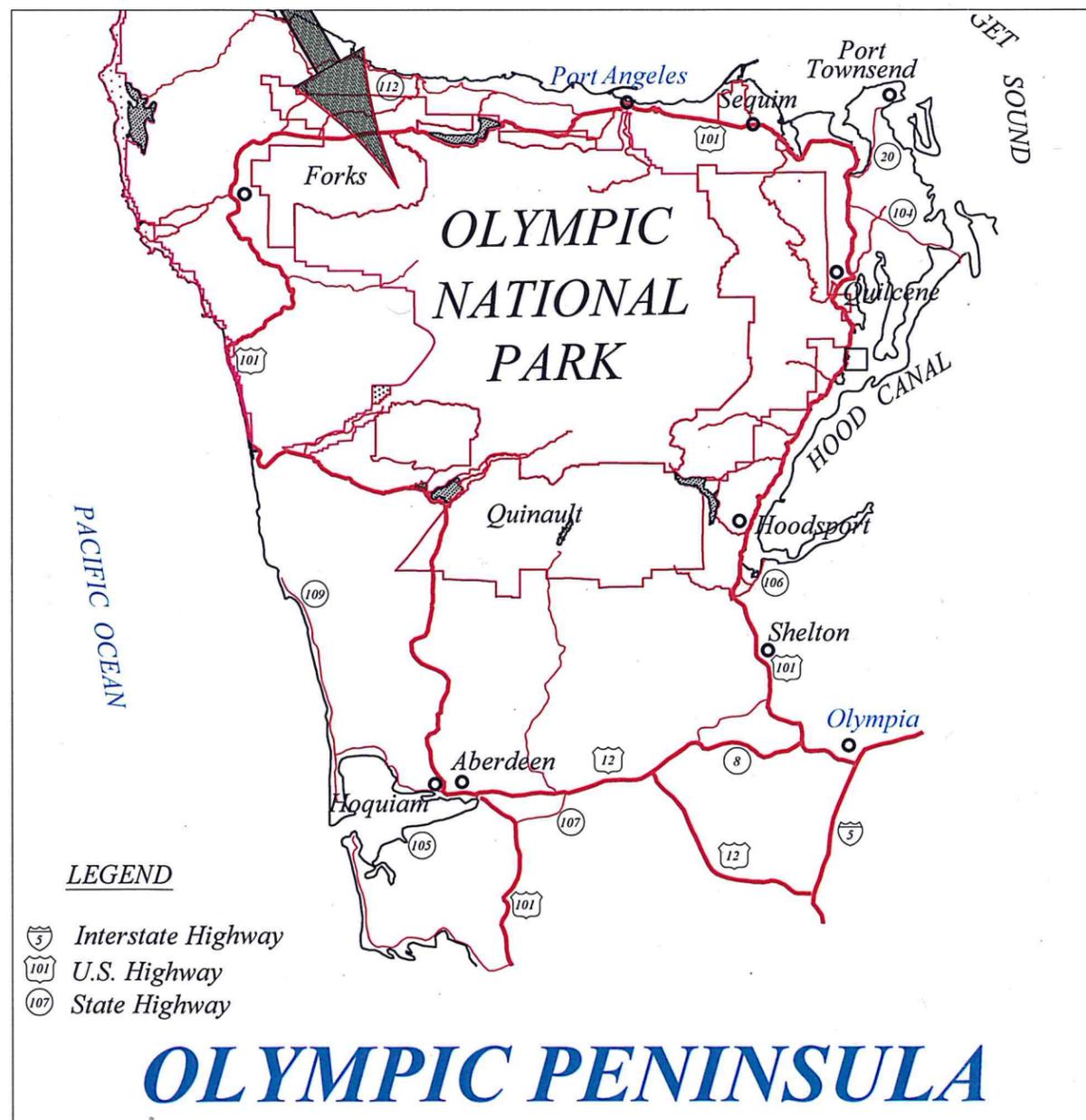
Rd. 2900400 MP 0.0 - 0.21

ITEM NO.	DESCRIPTION	UNIT	QUAN-TITY	UNIT PRICE	TOTAL
15101	Mobilization	LS	1	\$ 1,300.00	\$ 1,300.00
15713	Soil Erosion and Pollution Control	LS	1	\$ 215.00	\$ 215.00
20105	Clearing & Grubbing, disposal of tops & limbs F, logs F, stumps F	LS	1	\$ 640.00	\$ 640.00
20401	Roadway Excavation, Compaction Method A, Finishing Method A	Cubic Yard	10	\$ 16.00	\$ 160.00
30111	Aggregate Surface Course, Grading G, Compaction Method B	Cubic Yard	225	\$ 45.00	\$ 10,125.00
30321	Road reconditioning, Roadbed Compaction Method B	LS	1	\$ 1,300.00	\$ 1,300.00
62530	Seeding and Mulching, Dry Method	LS	1	\$ 380.00	\$ 380.00
	Road 2900400			Total	\$ 14,120.00

USDA-Forest Service Region 6
 Olympic National Forest
 RECONSTRUCTION PLANS FOR:
WATSIT TIMBER SALE

Road List			
Road No.	M.P.	Type of work	Units
2900000	0.3 - 9.4	Road Reconstruction	US Customary
2900400	0.00 - 0.21	Road Reconstruction	US Customary

INDEX TO SHEETS	
Sheet No.	Sheet Title
1 of 6	Title Sheet
2 of 6	Vicinity Map & Traffic Control Plan
3 of 6	Estimate of Quantities
4 of 6	General Notes & Temporary Erosion Control Details
5 of 6	Road Details
6 of 6	2900000 and 2900400 Work List



DESIGNED BY:		
<i>Shannon R. Henning</i>	CIVIL ENG. TECH.	3-12-15
NAME	TITLE	DATE
APPROVED FOR TECHNICAL ADEQUACY:		
<i>Shannon R. Henning</i>	CIVIL ENGINEER	3/12/15
NAME	TITLE	DATE
APPROVED BY FOREST ENGINEER: <i>for John Langley</i>		
<i>John Langley</i>	AFE	3/12/15
NAME	TITLE	DATE
APPROVED BY:		
<i>John Miller</i>	District Ranger	3/18/15
NAME	TITLE	DATE

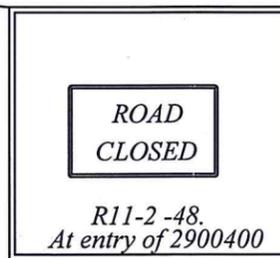


PROJECT
LOCATIONS

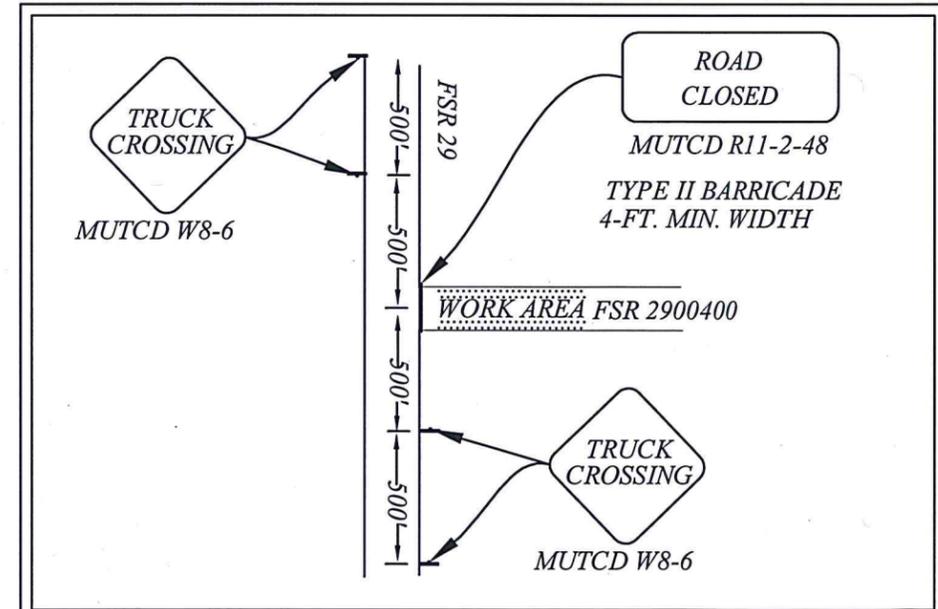


TRAFFIC CONTROL PLAN FOR ROAD CLOSURE

- 1) Notify CO 14 days before road closure under Supplemental Specification 15.3.05. Operations at all other times will accommodate traffic.
- 2) Traffic control devices shall be maintained for duration of closure.
- 3) All signs shall conform with MUTCD Sections 2A-11, through 2A-16, 6B-1, and 6B-2 of the Current Edition.
- 4) For the purpose of this project, post and maintain Road Closed sign R11-2-48 at the beginning of the project. Contractor shall install Truck Crossing signs (MUTCD W8-6) 500 feet and 1000 feet away on either side of the intersection between Road 29 and 2900400



NOTE:
Signs, locations, and installation details per MUTCD (Current Edition)



Unit / Region :
USDA - Forest Service - R6

National Forest :
Olympic

District :
Pacific

Project Name :
Watsit Timber Sale
Road Reconstruction FSR 2900 and 2900400

Sheet Name :
Vicinity Map & Traffic Control Plan

Sheet Number :
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Refer To The Standard Specifications For Construction Of Roads And Bridges On Federal Highway Projects / FP-03 US Customary Units

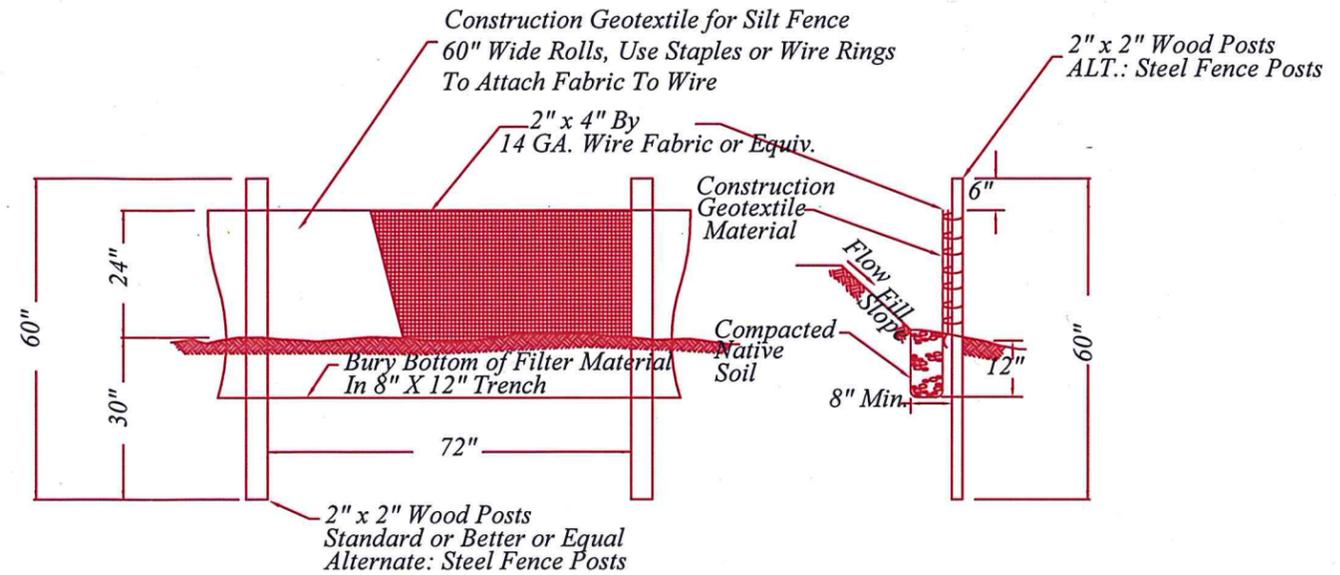
<i>ESTIMATE of QUANTITIES</i>			2900000	2900400	
<i>Project Name: Watsit Timber Sale</i>		<i>MP-BOP</i>	0.3	0.00	
		<i>MP-EOP</i>	9.4	0.21	
<i>ITEM NO.</i>	<i>DESCRIPTION</i>	<i>PAY UNIT</i>	<i>QUANTITIES</i>	<i>QUANTITIES</i>	<i>REMARKS</i>
15101	<i>Mobilization</i>	<i>Lump Sum</i>	1	1	<i>Includes all work needed to access sites. Cleaning of all equipment is required prior to entering National Forest Land.</i>
15713	<i>Soil Erosion & Pollution Control</i>	<i>Lump Sum</i>		1	<i>Maintenance for erosion control devices is an indirect cost to this pay item.</i>
20105	<i>Clearing & Grubbing, Disposal of Tops & Limbs F, Logs F, Stumps F</i>	<i>Lump Sum</i>		1	<i>Clear and Grub as shown on the worklist. Clearing Limits shall be from Top of cut to Toe of fill. Do not grub out stumps along ditch.</i>
20401	<i>Roadway Excavation, Compaction Method A, Finishing Method A</i>	<i>Cubic Yard</i>	40	10	<i>2900400 - Excess material to be disposed of adjacent to excavated areas, shaped to drain, seeded and mulched. 29 Rd. - Dispose of waste material in the Calawah Pit as directed.</i>
30111	<i>Aggregate Surface Course, Grading G, Compaction Method B</i>	<i>Cubic Yard</i>	80	225	<i>Commercial Source. Roller compaction as specified in subsection 301.05 [refers to 204.11(a)(1)]. Volumes are compacted inplace Quantities.</i>
30321	<i>Road Reconditioning, Roadbed, Compaction Method B</i>	<i>Lump Sum</i>	1	1	<i>Cleaning of ditches and inlets are an indirect cost to this pay item 30321. Roller compaction as specified in subsection 204.11(a).</i>
32203	<i>Aggregate Base, Grading D, Compaction Method B</i>	<i>Cubic Yard</i>	15		<i>Commercial Source. Roller compaction as specified in subsection 322.05 [refers to 204.11(a)(1)]. Volumes are compacted inplace Quantities</i>
32222	<i>Pit Run Maximum Size 3 inches, Compaction Method B</i>	<i>Cubic Yard</i>	15		<i>Commercial Source. Roller compaction as specified in subsection 322.05 [refers to 204.11(a)(1)]. Sorting/Screening will be required to obtain Grading Q, see section 703.05(c) Table 703-16. Volumes are compacted inplace Quantities</i>
40401	<i>Minor Hot Asphalt Concrete</i>	<i>Ton</i>	30		<i>Commercial Source, Cutting, Tack Coat and compaction testing are an indirect cost to this pay item. Compaction Required. Asphalt shall become the property of the Contractor/Purchaser and shall be disposed off of National Forest Land.</i>
62530	<i>Seeding & Mulching, Dry Method</i>	<i>Lump Sum</i>		1	<i>Government Furnished Seed @ 15 lbs/acres</i>

TEMPORARY EROSION CONTROL

DETAILS

GENERAL NOTES:

- 1) Should weather conditions during project operations generate and transport substantial sediment to the stream channel, cease operations until the weather conditions improve.
- 2) An erosion control plan shall be submitted by the Purchaser per Specification 15713. The erosion control plan shall include all necessary drawings and documentation to describe the Purchaser's ability to prevent sediment from reaching a live stream.
- 3) Item 62530, seed shall be applied prior to straw mulch. Native Seed shall be Government Furnished. It shall be applied at a rate of 15 lbs/Acre. Mulch must be certified weed free straw or mulch. Mulch shall be applied at a rate of 4000 Lbs per acre. Seed and mulch in accordance with Specification 625 all areas disturbed by construction activities.
- 4) All areas that have been excavated and disposal sites shall be sloped to drain, seeded and mulched.
- 5) A hazardous spill clean-up kit shall be on site available during equipment operation.
- 6) Merchantable timber removed during roadway cleaning operations shall be decked adjacent to roadway, decking areas shall be located by the CO. Utilizations standards are: all Douglas Fir, Hemlock, other coniferous species and Red Alder that are 12 feet long and a minimum 6 inch diameter inside the bark at the small end.
- 7) Clearing and Brushing - Trim tree branches that extent over the road surface and shoulders to attain a clear height of 20 feet from top of cut to toe of fill.



SILT FENCE STAKING DETAIL
NOT TO SCALE

NOTE:

- 1) Silt fence shall be installed at the locations where necessary to prevent silt latent runoff.
- 2) Minor grading may be utilized in lieu of silt fences at some locations to prevent silt latent runoff from leaving the project site. Work shall be an indirect cost to Payitems 15713..
- 3) Silt fence joints shall be minimized. When neccessary, silt fence shall be spliced together only at a support post, with a minimum of 24" overlap.
- 4) Repair of damaged silt fence and removal of silts against fence shall be an indirect cost to soil erosion and pollution control.
- 5) Silt fence shall be installed concurrently with clearing and grubbing.
- 6) Work shall be done under dry conditions. A contingency plan shall be submitted prior to beginning construction activities, along with an erosion control plan.
- 7) Contractor shall protect existing vegetation and shall confine excavation to within the clearing limits.

MATERIALS:

- 1) Construction geotextile for silt fence shall be Type V - C



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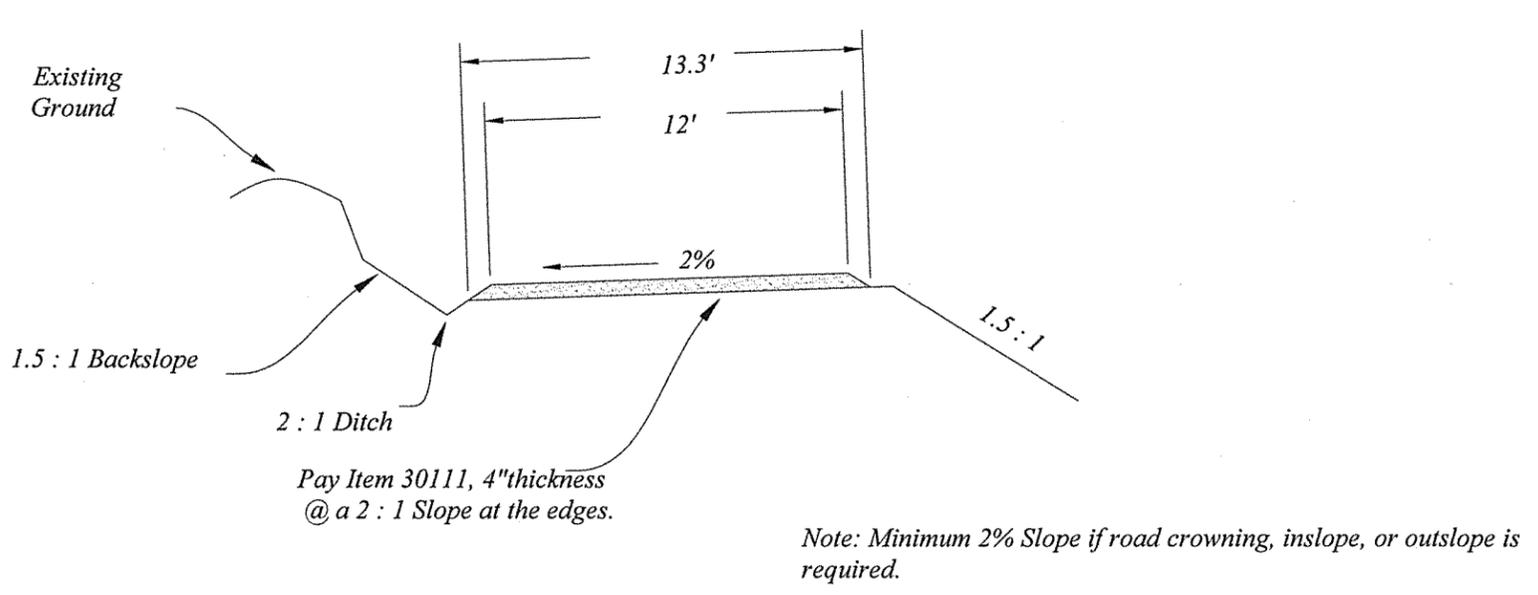
National Forest :
Olympic

District :
Pacific

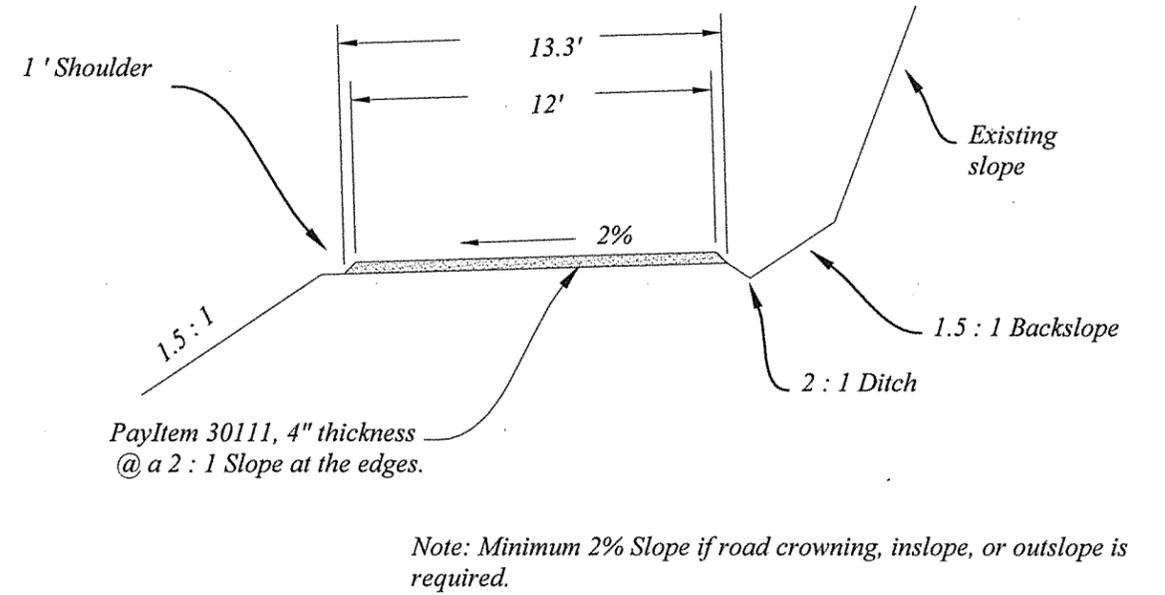
Project Name :
Watsit Timber Sale
Road Reconstruction FSR 2900 and 2900400

Sheet Name :
General Notes & Temporary Erosion
Control Details

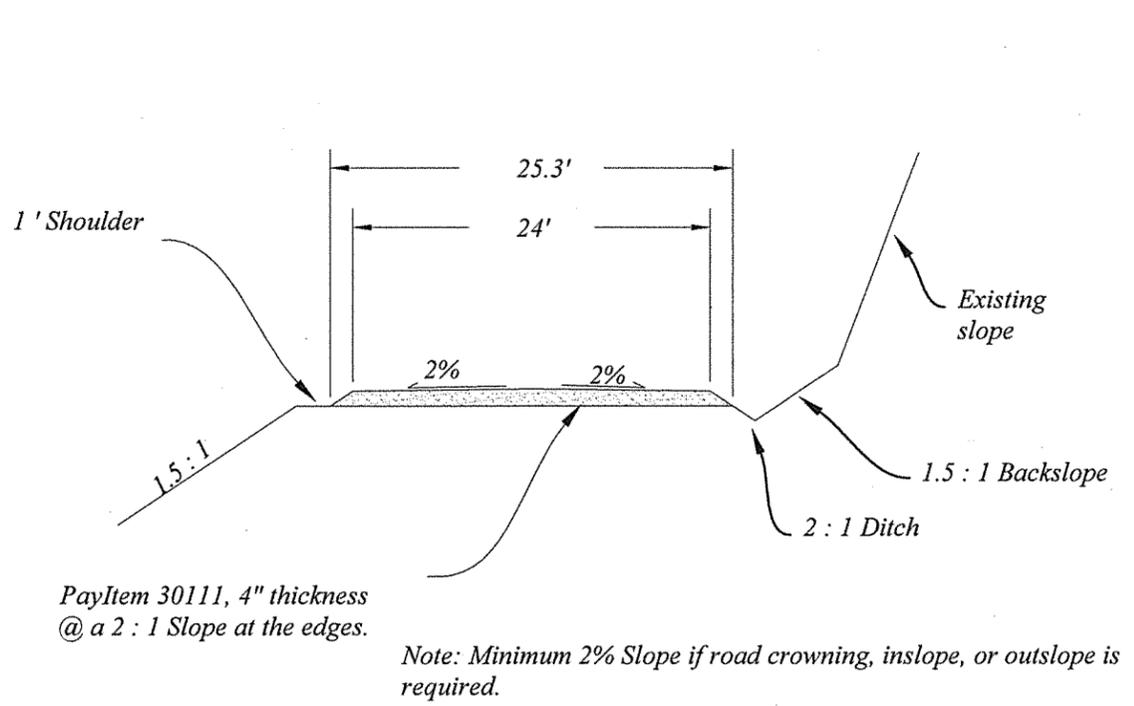
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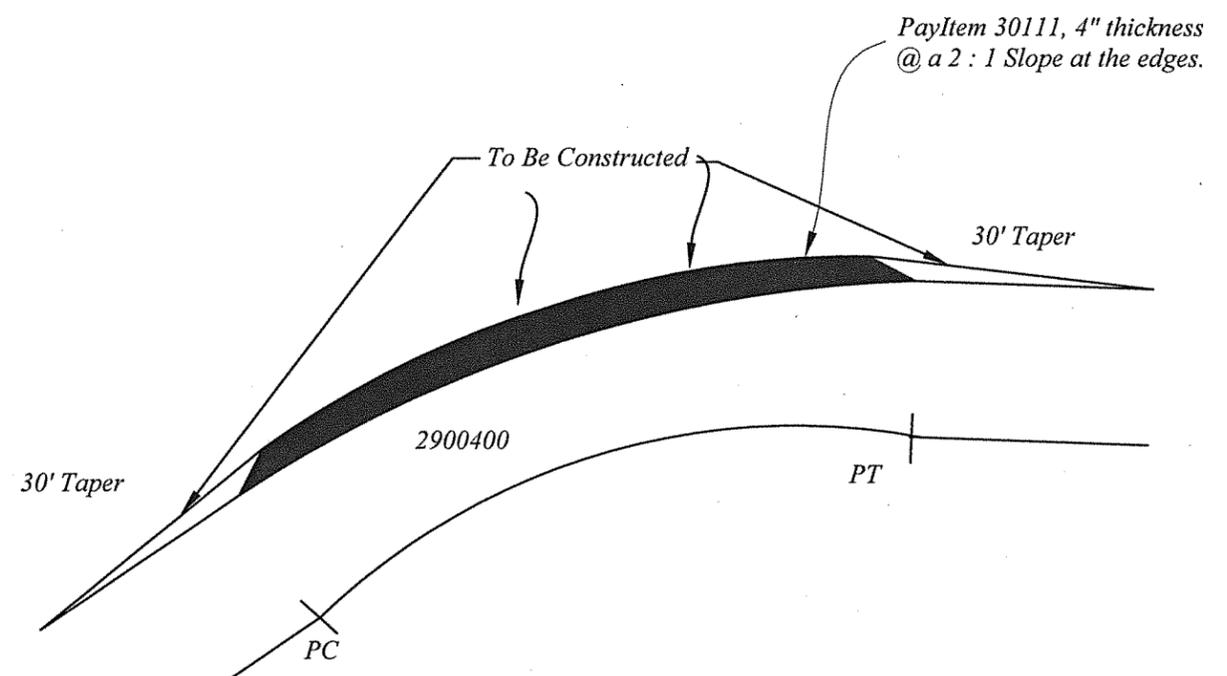
TYPICAL INSLOPE GRADING DETAIL - SINGLE LANE



TYPICAL OUTSLOPE GRADING DETAIL - SINGLE LANE



TYPICAL CROWN GRADING DETAIL - Double Lane



CURVE WIDENING DETAIL

FSR 2900000

M.P.	REQUIREMENT	ROCK QUAN. (CU.YD.)			CULVERT INSTALLATION / IMPROVEMENTS		
		Agg. Base or Pit Run	Culvert Size	Riprap In/Out (cu.yd.)			
	29 Road M.P. 0.3 to 9.4						
0.3	Hot Mix Asphalt Concrete Patch - Excavate an area 36 feet length x 13 feet wide. Remove and replace 8" of the aggregate/subgrade soil. Dispose at waste site in Calawah pit at M.P. 5. Blade shape and roller compact. Place 4" of Pit Run material and roller compact, Then place 4" of Crushed aggregate (Pay Item 32203) and roller compact. Apply tack coat on the edges. Place 4" of asphalt (Approx. 12 Tons of Asphalt)	7 Agg. 7 P.R					
2.0	Hot Mix Asphalt Concrete Patch - Excavate an area 56 feet length x 9 feet wide. Remove and replace 8" of the aggregate/subgrade soil. Dispose at waste site in Calawah pit at M.P. 5. Blade shape and roller compact. Place 4" of Pit Run material and roller compact, Then place 4" of Crushed aggregate (Pay Item 32203) and roller compact. Apply tack coat on the edges. Place 4" of asphalt (Approx. 15 Tons of Asphalt)	8 Agg. 8 P.R					
3.6	North Fork Calawah - Clean out the debris from the edges and potholes from both ends of the bridge. Apply a tack coat. Asphalt apron on both ends of the bridge. Apron shall be the existing width of the bridge 28 feet X 5 feet long X 2 " Depth shall taper to the existing road surface. (Approx. 2 Tons of Asphalt)						
6.4	Blade, Shape and Compact Aggregate Patch as specified in Pay Item 30321. Place 20 C.Y. of Aggregate Surface and roller compact as specified in Subsection 204.11 (a)	20 Surface Agg.					
7.2	Blade, Shape and Compact Aggregate Patch as specified in Pay Item 30321. Place 20 C.Y. of Aggregate Surface and roller compact as specified in Subsection 204.11 (a)	20 Surface Agg.					
8.0	Hyas Creek - Clean out the debris from the edges and potholes from both ends of the bridge. Apply a tack coat. Asphalt apron on both ends of the bridge. Apron shall be the existing width of the bridge 14 feet X 5 feet long X 2 " Depth shall taper to the existing road surface. (Approx. 1 Tons of Asphalt)						
9.1	Blade, Shape and Compact Aggregate Patch as specified in Pay Item 30321. Place 20 C.Y. of Aggregate Surface and roller compact as specified in Subsection 204.11 (a)	20 Surface Agg.					
9.4	Blade, Shape and Compact Aggregate Patch as specified in Pay Item 30321. Place 20 C.Y. of Aggregate Surface and roller compact as specified in Subsection 204.11 (a)	20 Surface Agg.					

FSR 2900400

Station	REQUIREMENT	ROCK QUAN. (CU.YD.)			CULVERT INSTALLATION / IMPROVEMENTS		
		Aggregate Base	Culvert Size	Riprap In/Out (cu.yd.)			
	Junction of roads 29 & 2900400 (M.P. 19.6 on road 29)						
0+00	Begin Blading and shaping. Begin Placing 4" depth aggregate. Begin Clearing of R-O-W. Begin Insloping.	200					
0+30	Remove grassy area on the Right for 40 feet length x 8 feet wide, dispose material at area as designated by the C.O. Existing Road Width is 12 feet. Increase road width to 20 feet for Log Trucks. Place Aggregate Surface at 6" depth over the same area with 30 foot taper on the far side and roller compact. Seed and Mulch the adjacent designated waste area.	12					
1+39	End Inslope. Begin Outslope						
1+72	Existing 30" CMP Clean Inlet.						
1+90	Remove fill and grassy area on the left for 50 feet length x 4 feet wide, dispose material at area as designated by the C.O. Existing Road Width is 12 feet. Increase road width to 16 feet for Log Trucks. Place Aggregate Base at 12" depth over the same area with 30 foot taper on each end and roller compact. Seed and Mulch the adjacent designated waste area.	13					
2+28	End Outslope. Begin Inslope						
3+15	Existing 18" CMP, Clean Inlet						
5+95	End 4" Aggregate Placement, Existing 18" CMP, Clean Inlet						
8+67	Existing 18" CMP, Clean Inlet						
11+40	EOP, End Blading and shaping, End Clearing of R-O-W, End Insloping.						



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USDA - Forest Service - R6

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Project Name :
**Watsit Timber Sale
Road Reconstruction FSR 2900 and 2900400**

Sheet Name :
**FSR 2900000 and 2900400
Work List**

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STANDARD SPECIFICATIONS
FOR CONSTRUCTION OF
ROADS AND BRIDGES
ON FEDERAL HIGHWAY PROJECTS
FP-03
US CUSTOMARY UNITS

Project Name: WATSIT TIMBER SALE ROAD RECONSTRUCTION
Date: 1/9/2015

ID LABEL	1	2
ROAD NO.	2900000	2900400
	Reconst.	Reconst.
Terminus Begin	MP 0.3	MP 0.00
Terminus End	MP 9.4	MP 0.21
Construction (C) Reconstruction (R)	R	R

Title		Revised Date	1	2
Preface			X	X
03/15/2004				
100 General Requirements				
101 - Terms, Format, and Definitions				
	FLH FP-03 Corrections	07/25/2005		
X	Meaning of Terms	01/22/2009	X	X
X	Meaning of Terms	01/22/2009	X	X
X	Abbreviations and Symbols	06/16/2006	X	X
04	Symbols	03/29/2007	X	X
04	Definitions	11/06/2007	X	X
102 - Bid, Award, and Execution of Contract				
00	Delete 102 in its entirety	02/16/2005	X	X
103 - Scope of Work				
00	Intent of Contract	02/16/2005	X	X

104 - Control of Work				
	00	Deletions to 104	06/16/2006	X X
	03	Specifications and Drawings	02/22/2005	
	03	Specifications and Drawings	01/22/2009	X X
	03	Specifications and Drawings	02/22/2005	
	06	Use of Roads by Contractor	02/17/2005	X X
	07	Other Contracts	02/17/2005	X X
105 - Control of Material				
	02	Material Sources	02/17/2005	
	02	Material Sources	02/17/2005	
	02	Material Sources	01/18/2007	X X
	02	Material Sources	02/17/2005	X X
	02	Material Sources	02/17/2005	
	02	Government-provided sources	03/29/2005	
	02	Contractor-provided material sources	03/08/2007	X X
	05	Use of Material Found in the Work	05/12/2004	X X
106 - Acceptance of Work				
	01	Conformity with contract requirements	07/31/2007	
	01	Conformity with contract requirements	07/31/2007	X X
	07	Partial and Final Acceptance	05/11/2004	X X
107 - Legal Relations and Responsibility To the Public				
	02	Protection and Restoration of Property and Landscape	02/17/2005	
	05	Responsibility for Damage Claims	05/11/2004	X X
	06	Contractor Responsibility for Work	06/16/2006	X X
	08	Sanitation, Health, and Safety	05/11/2004	
	08	Sanitation, Health & Safety	03/29/2005	X X
	09	Legal Relationship of the Parties	06/16/2006	X X
	10	Environmental Protection	06/16/2006	X X

	11	Protection of Forests, Parks, and Public Lands	02/17/2005		
108 - Prosecution and Progress					
	00	Delete Section 108 in entirety	02/16/2005	X	X
109 - Measurement and Payment					
	00	Deletions	02/17/2005	X	X
	02	Measurement Terms and Definitions	06/16/2006	X	X
	03	Weighing Procedures and Devices	02/17/2005		
	03	Weighing Procedures and Devices	03/29/2005		
150 Project Requirements					
151 - Mobilization					
	03	Payment	08/05/2005		
152 - Construction Survey and Staking					
	00	Construction Survey and Staking	08/05/2005		
153 - Contractor Quality Control					
	02	Contractor Quality Control Plan	02/17/2005		
	04	Records	10/24/2007		
154 - Contractor Sampling and Testing					
	01	Description	05/24/2005		
155 - Schedules for Construction Contracts					
	00	Contractor Quality Control Plan, Records	05/11/2004	X	X
156 - Public Traffic					
	00	Complete specification	04/17/2007	X	X
	03	Accommodating Traffic During Work	02/24/2005		
	04	Maintaining Roadways During Work	02/24/2005		
	08	Traffic and Safety Supervisor	02/24/2005		
157 - Soil Erosion Control					
	03	General	02/24/2005		X
170 - Develop Water Supply and Watering					

	00	Complete Specification	03/30/2005		
171 - Weed and Disease Prevention					
	00	Complete Specification	03/30/2005	X	X
183 - P Line Survey					
	00	Complete Specification	03/30/2005		
185 - Low Volume Road Design					
	00	Complete Specification	02/24/2005		
200 Earthwork					
201 - Clearing and Grubbing					
	00	Deletions	08/05/2009		X
	01	Description	02/18/2005		X
	04	Clearing	02/18/2005		
	04	Clearing	02/22/2005		X
	04	Clearing	03/03/2005		X
	06	Disposal	02/18/2005		X
	06	Disposal	02/23/2005		
	06	Disposal	02/23/2005		
	06	Disposal	11/04/2004		X
	06	Disposal	05/12/2004		
	06	Disposal	11/09/2005		X
203 - Removal of Structures and Obstructions					
	01	Description	02/25/2005		X
	02	Material	02/18/2005		
	04	Removing Material	02/18/2005		X
	05	Disposing of Material	02/24/2005		
	05	Disposing of Material	02/18/2005		
	05	Disposing of Material	02/18/2005		X
	08	Payment	02/24/2005		

204 - Excavation and Embankment				
	00	Complete Specification	03/26/2009	X X
	05	Conservation of Topsoil	02/18/2005	
	06	Roadway Excavation	03/02/2005	
	06	Roadway Excavation	03/02/2005	
	06	Roadway Excavation	03/02/2005	
	09	Preparing Foundation for Embankment Construction	03/02/2005	
	10	Embankment Construction	03/02/2005	
	11	Compaction	04/11/2005	
	13	Sloping, Shaping, and Finishing	03/02/2005	
	13	Sloping, Shaping, and Finishing	03/02/2005	
	14	Disposal of Unsuitable or Excess Material	03/02/2005	
	15	Acceptance	02/07/2007	
205 - Rock Blasting				
	02	Regulations	05/13/2004	
	06	Preblast condition survey and vibration monitoring and control	05/12/2004	
	07	Test Blasting	05/12/2004	
	08	Controls	05/12/2004	
209 - Structure Excavation and Backfill				
	00	Complete Spec. 209A; Exc & Backfill for selected Minor Structures. NOT a Replacement for 209.	03/24/2008	
	10	Backfill	10/23/2007	
	11	Compacting	02/24/2005	
211 - Roadway Obliteration				
	01	Description	03/30/2005	
	01	Description	03/30/2005	
	02	Construction Requirements	02/25/2005	

212 - Linear Grading				
	00	Complete Specification (composite road construction)	05/19/2005	
213 - Subgrade Stabilization				
	02	FLH FP-03 Correction metric	09/06/2005	
250 Structural Embankments				
251 - Riprap				
	03	General	06/18/2007	
252 - Special Rock Embankment and Rock Buttress				
	02	Material - Placing Rock	05/13/2004	
255 - Mechanically Stabilized Earth Walls				
	02	Material - Acceptance	02/25/2005	
262 - Reinforced Soil Embankment				
	00	Complete Specification	05/14/2004	
	01	Table 262-1 Sampling & Testing Requirements	05/14/2004	
300 Aggregate Courses				
301 - Untreated Aggregate Courses				
	00	Title Change	03/03/2005	X
	01	Work	03/03/2005	X
	02	Material	05/16/2005	X
	03	General	02/28/2013	X
	04	Mixing and Spreading	03/03/2005	X
	05	Compacting	10/14/2011	X
	06	Surface Tolerance	03/03/2005	X
	08	Acceptance	03/03/2005	X
	08	Acceptance	10/14/2011	X
	08	Acceptance	03/30/2005	X
	09	Measurement	07/07/2005	X
	10	Payment	03/03/2005	

302 - Treated Aggregate Courses					
	00	Deletes 302 in its entirety	02/16/2005		
	03	FLH FP-03 Corrections metric	08/12/2004		
303 - Road Reconditioning					
	01	Description	03/02/2005	X	X
	06	Aggregate Surface Reconditioning	05/17/2005	X	X
	07	Roadway Reconditioning	03/02/2005		
	11	Measurement	03/29/2005		
306 - Dust Palliative					
	03	General	03/02/2005		
	04	Preparation and Application	03/02/2005		
	06	Acceptance	03/02/2005		
	10	Table 306-1 Sampling & Testing	03/02/2005		
320 - Stockpiled Aggregates					
	00	Complete Specification	03/02/2005		
321 - Major Aggregate Courses					
	00	Complete Specification	12/19/2005		
322 - Minor Aggregate Courses					
	00	Complete Specification	10/14/2011	X	
400 Asphalt Pavements and Surface Treatments					
401 - Superpave Hot Asphalt Concrete Pavement					
	01	FLH FP-03 Correction metric uscu	08/12/2004		
	04	FLH FP-03 Correction uscu	08/12/2004		
402 - Hot Asphalt Concrete Pavement by Hveem or Marshall Mix Design Method					
	03	FLH FP-03 Correction metric uscu	08/12/2004		
403 - Hot Asphalt Concrete Pavement					
	06	Surface Preparation	05/17/2005		
	16	Pavement Smoothness & Testing	03/02/2005		

	17	Acceptance	03/02/2005		
	17	Acceptance	03/02/2005		
404 - Minor Hot Asphalt Concrete					
	02	Composition of Mix (Job-Mix Formula)	03/02/2005		
	04	Weather Limitations	03/02/2005	X	
	06	Placing	03/02/2005	X	
	07	Compacting (a)	03/02/2005	X	
	07	Compacting (b)	03/02/2005		
	09	Acceptance	03/02/2005		
409 - Asphalt Surface Treatment					
	02	Material	05/12/2004		
	06	Weather, date, time	05/12/2004		
	08	Application	06/21/2005		
	10	FLH FP-03 Corrections uscu	08/12/2004		
	11	table409-2	12/18/2004		
	12	FLH FP-03 Correction uscu	08/12/2004		
	13	Acceptance & Testing	05/13/2004		
411 - Asphalt Prime Coat					
	06	Application	05/12/2004		
414 - Asphalt Pavement Crack and Joint Sealing					
	02	Material	05/12/2004		
	05	Cleaning & Sealing	05/12/2004		
430 - Asphalt Pavement Patching					
	00	Complete Specification	05/12/2004		
550 Bridge Construction					
552 - Structural Concrete					
	13	FLH FP-03 Correction metric uscs	08/12/2004		
571 - Prefabricated Bridges					

	00	Complete Specification	03/15/2005		
572 - Log Stringer Bridges					
	00	Complete Specification	05/12/2004		
573 - Bridge Repair					
	00	Complete Specification	05/12/2004		
600 Incidental Construction					
601 - Minor Concrete					
	00	Replace Specification	05/14/2004		
	02	Table 601-2 Sampling & Testing	03/02/2005		
602 - Culverts and Drains					
	03	General	09/06/2005		
	06	Laying Plastic Pipe	08/05/2009		
603 - Structural Plate Structures					
	03	General	03/02/2005		
	04	Erecting	03/02/2005		
607 - Cleaning, Reconditioning, and Repairing Existing Drainage					
	04	Cleaning Culverts in Place	03/02/2005		
625 - Turf Establishment					
	03	General	02/25/2005		
	03	General	07/02/2007		X
	04	Preparing Seedbed	02/25/2005		
	05	Watering	03/30/2005		
	05	Watering	03/02/2005		
	07	Seeding	02/25/2005		
633 - Permanent Traffic Control					
	02	Material	03/03/2005		
	03	General	03/03/2005		
	05	Panels	03/03/2005		

634 - Permanent Pavement Marking				
03	General	03/03/2005		
635 - Temporary Traffic Control				
03	General	05/13/2004	X	X
648 - Stream Simulation				
00	Complete Specification	03/15/2005		
650 - Road Closure Devices				
00	Complete Specification	06/28/2007		
651 - Development of Pits & Quarries				
00	Complete Specification	03/02/2005		
700 Material				
703 - Aggregate				
05	Subbase, Base, & Surface Course Aggregate	08/14/2009	X	X
06	Flakiness Index and Adherent Coatings	03/02/2005		
07	FLH FP-03 Correction metric uscu	03/02/2005		
10	FLH FP-03 Correction	03/02/2005		
704 - Soil				
02	FLH FP-03 Correction Bedding Material	03/02/2005		
02	FLH FP-03 Modification - Bedding Material metric uscu	03/02/2005		
705 - Rock				
02	Riprap Rock	08/05/2009		
712 - Joint Material				
01	Sealants, Fillers, Seals, and Sleeves	03/02/2005		
713 - Roadside Improvement Material				
05	Mulch	03/02/2005		X
714 - Geotextile and Geocomposite Drain Material				
03	Geogrids	02/25/2005		
718 - Traffic Signing and Marking Material				

	02	Protective Overlay Film and Edge Film	03/02/2005		
	05	Aluminum Panels	02/25/2008	X	X
	08	FLH FP-03 Correction metric	03/27/2007		
	14	FLH FP-03 Correction metric uscu	03/02/2005		
	15	FLH FP-03 Corrections metric	03/27/2007		
	15	FLH FP-03 Correction metric	03/27/2007		
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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.

101.01_nat_us_01_22_2009

101.01 Meaning of Terms

Delete all references to the FAR (Federal Acquisition Regulations) in the specifications.

101.03_nat_us_06_16_2006

101.03 Abbreviations.

Add the following to (a) Acronyms:

AFPA	American Forest and Paper Association
MSHA	Mine Safety and Health Administration
NIST	National Institute of Standards and Technology
NESC	National Electrical Safety Code
WCLIB	West Coast Lumber Inspection Bureau

.

Add the following to (b) SI symbols:

mp	Milepost
ppm	Part Per Million

101.04_nat_us_03_29_2007

101.04 Definitions.

Delete the following definitions and substitute the following:

Bid Schedule--The Schedule of Items.

Bridge--No definition.

Contractor--The individual or legal entity contracting with the Government for performance of prescribed work. In a timber sale contract, the contractor is the "purchaser".

Culvert--No definition.

Right-of-Way--A general term denoting (1) the privilege to pass over land in some particular line (including easement, lease, permit, or license to occupy, use, or traverse public or private lands), or (2) Real property necessary for the project, including roadway, buffer areas, access, and drainage areas.

Add the following:

Adjustment in Contract Price--"Equitable adjustment," as used in the Federal Acquisition Regulations, or "construction cost adjustment," as used in the Timber Sale Contract, as applicable.

Change--"Change" means "change order" as used in the Federal Acquisition Regulations, or "design change" as used in the Timber Sale Contract.

Design Quantity--"Design quantity" is a Forest Service method of measurement from the FS-96 *Forest Service Specifications for the Construction of Roads and Bridges*. Under these FP specifications this term is replaced by the term "Contract Quantities".

Forest Service--The United States of America, acting through the Forest Service, U.S. Department of Agriculture.

Neat Line--A line defining the proposed or specified limits of an excavation or structure.

Pioneer Road--Temporary construction access built along the route of the project.

Purchaser--The individual, partnership, joint venture, or corporation contracting with the Government under the terms of a Timber Sale Contract and acting independently or through agents, employees, or subcontractors.

Protected Streamcourse--A drainage shown on the plans or timber sale area map that requires designated mitigation measures.

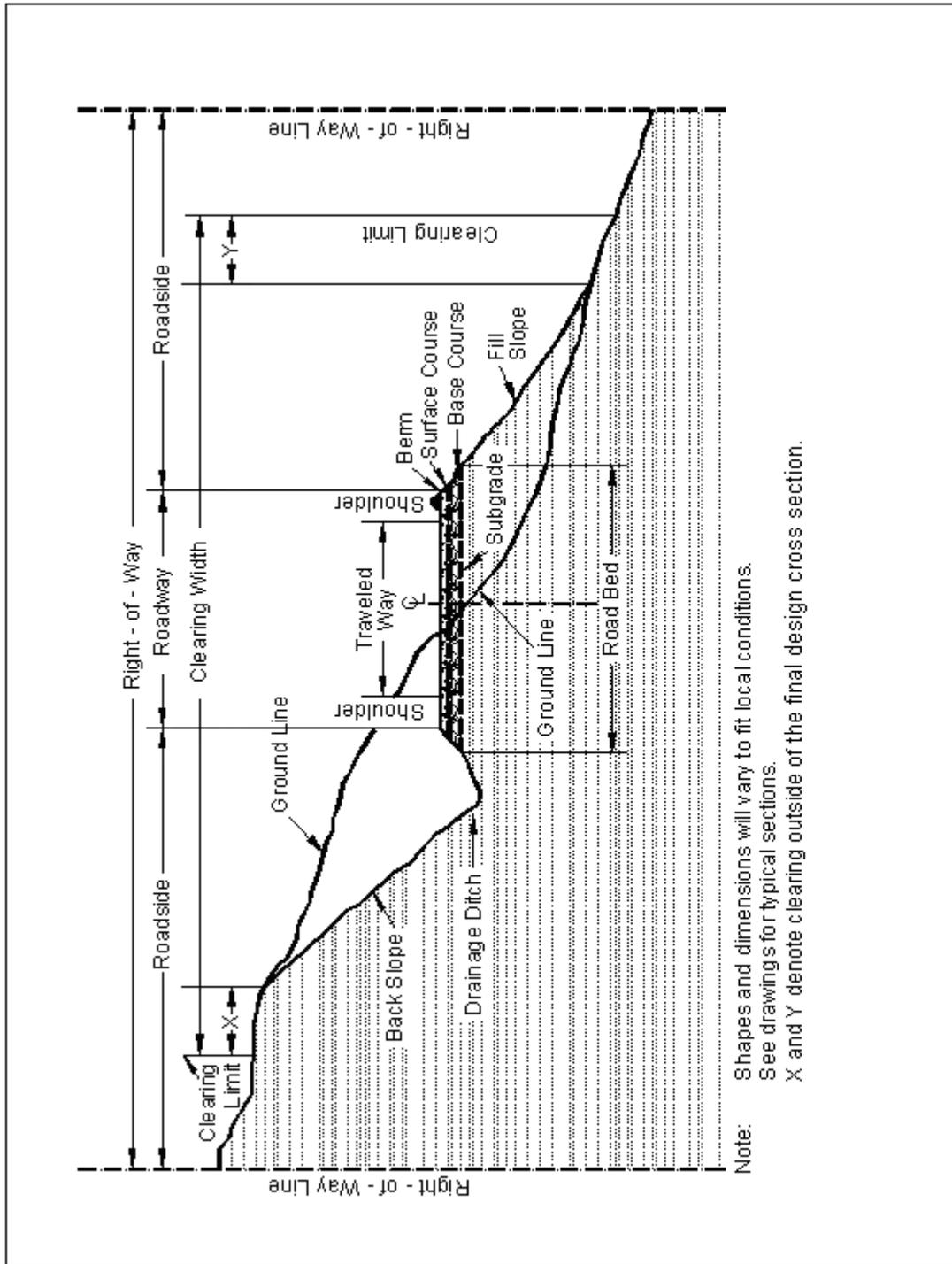
Road Order--An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

Schedule of Items--A schedule in the contract that contains a listing and description of construction items, quantities, units of measure, unit price, and amount.

Utilization Standards--The minimum size and percent soundness of trees described in the specifications to determine merchantable timber.

Add Figure 101-1-Illustration of road structure terms:

Figure 101-1—Illustration of road structure terms.



Note: Shapes and dimensions will vary to fit local conditions.
 See drawings for typical sections.
 X and Y denote clearing outside of the final design cross section.

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.

104.07_nat_us_02_17_2005

Add Subsection.

104.07 Other Contracts.

Example: The Federal Highway Administration is administering and is intending to award a contract for the reconstruction of 3 1/2 miles of Salmon la Sac Road approximately 5 miles north of this project. Schedule activities to assure no delays or interference to the operations of the Federal Highway Administration contract.

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.

105.02_nat_us_03_08_2007

105.02 Material Sources.

105.02(a) Contractor-provided sources.

Add the following:

All material (e.g., soil, gravel, sand, borrow, aggregate, etc.) transported onto National Forest System land or incorporated into the work will be weed-free. The Contracting Officer may request written documentation of methods used to determine the weed-free status of any and all materials furnished by the contractor. Contractor-provided expertise and methods to establish weed-free status must be appropriate for the weeds of concern in the local area. The following applies to this contract:

A Forest Service weed specialist will inspect proposed sources to determine weed-free status. Provide the Contracting Officer written notification of proposed material sources 14 days prior to use. Written approval of the specific source will be provided to the contractor. If weed species are present in the proposed source, appropriate mitigation measures may allow conditional use of the source as required by the Contracting Officer.

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.

156 - Public Traffic

156.00_nat_us_04_17_2007

Delete Section 156 in its entirety and replace with the following:

Description

156.01 This work consists of controlling and protecting public traffic adjacent to and within the project.

Material

156.02 Conform to the MUTCD and the following Sections and Subsections:

Construction sign panels	633
Retro-reflective sheeting	718.01
Temporary concrete barrier	618
Temporary plastic fence	710.11
Temporary traffic control devices	718.22

156.03 General. Unless otherwise provided for in Table 156-1, keep existing roads open to all traffic during road improvement work, and maintain them in a condition that will adequately accommodate traffic. Delays may not exceed 45 minutes at any one time followed by an open period of no less than 15 minutes.

Perform no work that interferes or conflicts with traffic or existing access to the roadway surface until a traffic control plan has been approved. Post construction signs and traffic control devices in conformance with MUTCD. All required signs will be in place and approved prior to beginning work on project.

If the Contractor agrees in writing to allow public traffic to use a new road being constructed prior to completion, it will be considered an existing road for traffic control purposes.

156.04 Temporary Traffic Control. Install and maintain temporary traffic control devices adjacent to and within the project as required by the approved traffic control plan and the MUTCD. Install and maintain traffic control devices as follows:

- (a) Furnish and install traffic control devices before the start of construction operations.
- (b) All detours outside of clearing limits will be approved in writing by the Contracting Officer as part of the traffic control plan.
- (c) Install only those traffic control devices needed for each stage or phase.
- (d) Relocate temporary traffic control devices as necessary.
- (e) Remove devices that no longer apply to the existing conditions.
- (f) Immediately replace any device that is lost, stolen, destroyed, or inoperative.
- (g) Keep temporary traffic control devices clean.
- (h) Remove all temporary traffic control devices upon contract completion or when approved.
- (i) When required, use flaggers certified by the American Traffic Safety Services Association, the National Safety Council, the International Municipal Signal Association, a state agency, or other acceptable organization. Perform the work described under MUTCD Part 6. Use type III, VII, VIII, or IX retroreflective sheeting on flagger paddles. Do not use flags. Flaggers must wear high visibility safety apparel as required by MUTCD 6E.02.

156.05 Temporary Closures. Road segments may be closed as shown in Table 156-1. The maximum consecutive days of closure shall be followed by a minimum number of consecutive days open to traffic as shown. Maintain traffic control devices during closure period(s). Appropriate barricades and signs will be erected and maintained as shown in the traffic control plan or as otherwise designated.

Prior to closing roads during construction, give written notice to the Contracting Officer at least 10 days in advance.

Table 156-1

Temporary Road Closures

Road Number	From Terminus	To Terminus	Maximum Consecutive Days of Closure	Minimum Consecutive Days Open
2900400	0.0	0.2	Close to the public for the Length of the sale.	Close to the public for the Length of the sale.

156.06 Acceptance. Public traffic work will be evaluated under Subsection 106.02.

Measurement and Payment

156.07 Do not measure Public Traffic for payment. Compensation is made as an indirect payment.

157 - Soil Erosion Control

157.03_nat_us_02_24_2005

157.03 General

Delete the entire subsection and replace with the following:

Prior to the start of construction, submit a written plan that provides permanent and temporary erosion control measures to minimize erosion and sedimentation during and after construction. Do not begin work until the necessary controls for that particular phase of work have been implemented. Do not modify the type, size, or location of any control. An alternate erosion control plan with all necessary permits may be submitted 30 days before intended use.

Incorporate all permanent erosion control features into the project at the earliest practicable time, as outlined in the approved plan.

When erosion control measures are not functioning as intended, immediately take corrective action.

171 - Weed and Disease Prevention

171.00_nat_us_03_30_2005

Description

171.01 This work consists of washing and treating construction equipment to remove seeds, plants, and plant fragments from the equipment before the equipment is used on National Forest System lands.

Material

171.02 Conform to the following Subsection:

Water	725.01
-------	--------

Construction Requirements

171.03 General . Notify the CO in writing at least 15 days before moving any construction equipment onto National Forest System lands. Construction equipment does not include cars, pickup trucks, and other vehicles that regularly travel between the construction site and areas outside of National Forest System lands.

Perform all work at a location designated on the plans or other locations approved in writing. Provide the CO with an opportunity to monitor the washing and inspection.

171.04 Equipment. Use a high pressure washing system.

For work on National Forest System lands, use a washing system that traps all wash water and either stores it for removal from National Forest System lands or recycles the water for continued use. If the equipment recycles the water, provide adequate filters for seed removal. Dispose of the filter material and removed seeds in an approved manner. Do not mix soaps, detergents, or other chemicals with the wash water.

For work at a commercial washing facility, use an approved facility.

171.05 Washing. Wash the sides, tops, and undercarriages of all construction equipment. Remove all seeds, plants, plant fragments, dirt, and debris from the construction equipment.

171.06 Inspection. Inspect the washed construction equipment, including the undercarriage, to ensure that the washing removed the dirt, debris, and seeds from the construction equipment. Rewash the construction equipment as necessary or as directed.

171.07 Acceptance. Weed prevention will be evaluated under Subsection 106.02.

Measurement

171.08 Do not measure weed prevention for payment.

Payment

171.09 Include all costs associated with the Section 171-Weed Prevention in the unit price for Section 151-Mobilization.

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.

Construction Requirements**201.04 Clearing.**

Add the following:

Utilization standards for merchantable timber are listed below. Fall and buck merchantable material into lengths not to exceed _____ feet. Pieces (logs) meet utilization standards when such pieces would have met Utilization Standards if bucking lengths were varied to include such material.

Minimum Utilization Standards

Length	Diameter (Inside Bark) at Small End	_____ % Net Scale in %
_____ feet	_____ inches	of Gross Scale

201.06_nat_us_11_04_2004

201.06 Disposal.

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

Merchantable timber removed from Forest Service land is subject to the Forest Resources Conservation and Shortage Relief Act of 1990 (PL 101-382; 104 Stat. 714-726; 16 USC 620 et. seq.). Do not export timber from the United States or use in direct or indirect substitution for unprocessed timber exported from the United States, from private lands by Purchaser, or any person as defined in Section 493 (16 USC 620e) of the Act.

Unless Forest Service determines that circumstances warrant a written waiver or adjustment, (1) hammer brand all products on both ends with an assigned contract brand before removal from the project site, (2) hammer brand each product exempt from domestic processing on both ends with an exempt brand registered for use on exempt logs from National Forest, and (3) paint all domestic processing products on both ends with 2 inch circle of yellow paint according to Interim Specification 2400-400 (available upon request). Paint or brand products before removing them from project site unless approved by the CO. Brands and yellow paint must remain on logs until they are processed.

Contractor may remanufacture logs into different log lengths as approved. Repaint or rebrand all remanufactured pieces. Pay all surveillance costs except that Forest Service may waive such payment if such costs are minor and part of normal remanufacturing operations.

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.

201.06_nat_us_11_09_2005

201.06 Disposal

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

Limb and deck logs that meet utilization standards at locations approved by the CO or otherwise designated. Deck logs according to 201.04 (f).

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.

204 - Excavation and Embankment

204.00_nat_us_03_26_2009

Replace Section 204 in its entirety with the following:

Description

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

204.02 Definitions.

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

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

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

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

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

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

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

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

Material

204.03 Conform to the following Subsections:

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

Construction Requirements

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

204.05 Reserved.

204.06 Roadway Excavation. Excavate as follows:

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

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

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

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

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

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

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

204.07 Subexcavation. Excavate material to the limits designated by the CO. Take cross-sections according to Section 152. Prevent unsuitable material from becoming mixed with the backfill. Dispose of unsuitable material according to Subsection 204.14. Backfill the subexcavation with topping, or other suitable material. Compact the material according to Subsection 204.11.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- (a) Four roller passes of a vibratory roller having a minimum dynamic force of 40,000

pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.

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

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

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

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

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

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

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

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

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

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

(c) **Compaction C.** Place material by end dumping to the minimum depth needed for operation of spreading equipment. Level and smooth each embankment layer before placing the next layers. Operate hauling and spreading equipment uniformly over the full width of each layer. Construct a solid embankment with adequate compaction by working smaller rock and fines in with the larger rocks to fill the voids, and by operating hauling and spreading equipment uniformly over the full width of each layer as the embankment is constructed.

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

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

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

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

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

(b) Stepped slopes. Where required by the contract, construct steps on slopes of $1\frac{1}{2}V:1H$ to $1V:2H$. Construct the steps approximately 18 inches high. Blend the steps into natural ground at the end of the cut. If the slope contains nonrippable rock outcrops, blend steps into the rock. Remove loose material found in transitional area. Except for removing large rocks that may fall, scaling stepped slopes is not required.

(c) Shaping. Shape the subgrade to a smooth surface and to the cross-section required. Shape slopes to gradually transition into slope adjustments without noticeable breaks. At the ends of cuts and at intersections of cuts and embankments, adjust slopes in the horizontal and vertical planes to blend into each other or into the natural ground.

(d) Finishing. Finish the roadbed to be smooth and uniform, and shaped to conform to the typical sections. Remove unsuitable material from the roadbed and replace it with suitable material. Finish roadbeds to the tolerance class shown in table 204-2. Ensure that the subgrade is visibly moist during shaping and dressing. Scarify to 6 inches below the bottom of low sections, holes, cracks, or depressions and bring back to grade with suitable material. Maintain proper ditch drainage.

For surfaced roads, remove all material larger than 6 inches from the top 6 inches of the roadbed.

For unsurfaced roads, use one of the following methods to finish the roadbed:

(1) **Method A.** Remove all material larger than 6 inches from the top 6 inches of the roadbed and replace with suitable material.

(2) **Method B.** Use a vibratory grid roller or approved equal with a minimum weight of 10 tons. Roll at least 5 full-width passes or until there is no visible evidence of further consolidation.

(3) **Method C.** For roads designated as Construction Tolerance Class K, L, or M, finish the roadbed by spreading the excavation. Eliminate rock berms.

204.14 Disposal of Unsuitable or Excess Material. Dispose of unsuitable or excess material at designated sites or legally off of the project.

When there is a pay item for waste, shape and compact the waste material in its final location. Do not mix clearing or other material not subject to payment with the waste material.

204.15 Acceptance. See Table 204-1 for sampling and testing requirements.

Material for embankment and conserved topsoil will be evaluated under Subsections 106.02 and 106.04.

Excavation and embankment construction will be evaluated under Subsections 106.02 and 106.04.

Clearing and removal of obstructions will be evaluated under Sections 201 and 203.

Measurement

204.16 Measure the Section 204 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

(a) Roadway excavation. Measure roadway excavation in its original position as follows:

(1) Include the following volumes in roadway excavation:

(a) Roadway prism excavation;

(b) Rock material excavated and removed from below subgrade in cut sections;

(c) Unsuitable material below subgrade and unsuitable material beneath embankment areas when a pay item for subexcavation is not shown in the bid schedule;

(d) Ditches, except furrow ditches measured under a separate bid item;

(e) Topsoil;

(f) Borrow material used in the work when a pay item for borrow is not shown in the bid schedule;

(g) Loose scattered rocks removed and placed as required within the roadway;

(h) Conserved material taken from stockpiles and used in Section 204 work; and

(i) Slide and slipout material not attributable to the Contractor's method of operation.

- (2) Do not include the following in roadway excavation:
- (a) Overburden and other spoil material from borrow sources;
 - (b) Overbreakage from the backslope in rock excavation;
 - (c) Water or other liquid material;
 - (d) Material used for purposes other than required;
 - (e) Roadbed material scarified in place and not removed;
 - (f) Material excavated when stepping cut slopes;
 - (g) Material excavated when rounding cut slopes;
 - (h) Preparing foundations for embankment construction;
 - (i) Material excavated when benching for embankments;
 - (j) Slide or slipout material attributable to the Contractor's method of operation;
 - (k) Conserved material taken from stockpiles constructed at the option of the Contractor; and
 - (l) Material excavated outside the established slope limits.

- (3) When both roadway excavation and embankment construction pay items are shown in the bid schedule, measure the following as roadway excavation only:
- (a) Unsuitable material below subgrade in cuts and unsuitable material beneath embankment areas when a pay item for subexcavation is not shown in the bid schedule;
 - (b) Slide and slipout material not attributable to the Contractor's method of operations; and
 - (c) Drainage ditches, channel changes, and diversion ditches.

(b) Unclassified borrow, select borrow, and select topping. When measuring by the cubic yard measure in its original position. If borrow excavation is measured by the cubic yard in place, take initial cross-sections of the ground surface after stripping overburden. Upon completion of excavation and after the borrow source waste material is returned to the source, retake cross-sections before replacing the overburden. Do not measure borrow excavation used in place of excess roadway excavation.

(c) Embankment construction. Measure embankment construction in its final position. Do not make deductions from the embankment construction quantity for the volume of minor structures.

- (1) Include the following volumes in embankment construction:
- (a) Roadway embankments;
 - (b) Material used to backfill subexcavated areas, holes, pits, and other depressions;
 - (c) Material used to restore obliterated roadbeds to original contours; and
 - (d) Material used for dikes, ramps, mounds, and berms.
- (2) Do not include the following in embankment construction:
- (a) Preparing foundations for embankment construction;
 - (b) Adjustments for subsidence or settlement of the embankment or of the foundation on which the embankment is placed; and
 - (c) Material used to round fill slopes.

(d) Rounding cut slopes. Measure rounding cut slopes horizontally along the centerline of the roadway if a pay item for slope rounding is included in the bid schedule. If a pay item for slope rounding is not included in the bid schedule slope rounding will be considered subsidiary to excavation.

(e) Waste. Measure waste by the cubic yard in its final position. Take initial cross-sections of the ground surface after stripping overburden. Upon completion of the waste placement, retake cross-sections before replacing overburden.

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

Payment

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

Table 204-1
Sampling and Testing Requirements

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

(1) Minimum of 5 points per proctor

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

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

(1) Minimum of 5 points per proctor.

Table 204-2
Construction Tolerances

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

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

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

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

301 - Untreated Aggregate Courses

301.00_nat_us_03_03_2005

301 Title Change.

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

301.01_nat_us_03_03_2005

301.01 Work.

Add the following:

Work includes producing aggregate by pit-run, grid rolling, screening, or crushing methods, or placing Government-furnished aggregate. Work may include additive mineral filler, or binder.

301.02_nat_us_05_16_2005

301.02 Material.

Add the following:

Bentonite	725.30
Calcium Chloride Flake	725.02
Lignon Sulfonate	725.20
Magnesium Chloride Brine or Calcium Chloride Liquid	725.02

301.03_nat_us_02_28_2013

301.03 General.

Add the following:

Written approval of the roadbed is required before placing aggregate.

For pit run or grid-rolled material, furnish material smaller than the maximum size. No gradation other than maximum size will be required for pit-run or 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.

Provide additives or binder, if required, at the proportions specified.

Develop and use Government furnished sources according to Section 105.

If the aggregate is produced and stockpiled before placement, handle and stockpiled according to Section 320. Establish stockpile sites at locations approved. Clear and grub stockpile sites according to Section 201.

301.04_nat_us_03_03_2005

301.04 Mixing and Spreading.

Delete the first sentence of the first paragraph and add the following:

Ensure that aggregate and any required additives, water, mineral filler, and binder are mixed by the specified method except, if crushed aggregate products are being produced and mineral filler, binder, or additives are required, uniformly blend following crushing. Control additive proportions to 0.5 percent dry weight.

(a) Stationary Plant Method. Mix the aggregate with other required materials in an approved mixer. Add water during the mixing operation in the amount necessary to provide the moisture content for compacting to the specified density. After mixing, transport the aggregate to the

jobsite while it contains the proper moisture content, and place it on the roadbed or base course using an aggregate spreader.

(b) Travel Plant Method. After placing the aggregate for each layer with an aggregate spreader or windrow-sizing device, uniformly mix it with other required materials using a traveling mixing plant. During mixing, add water to provide the necessary moisture content for compacting.

(c) Road Mix Method. After placing the aggregate for each layer, mix it with other required materials at the required moisture content until the mixture is uniform throughout. Mix aggregate, water, and all other materials until a uniform distribution is obtained.

Spread the aggregate in a uniform layer, with no segregation of size, and to a loose depth that will provide the required compacted thickness.

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

Route and distribute hauling and leveling equipment over the width and length of each layer.

301.05_nat_us_10_14_2011

301.05 Compacting

Delete and replace with the following:

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. Operate 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.

301.06_nat_us_03_03_2005

301.06 Surface Tolerance.

Add the following:

Thickness and Width requirements:

The maximum variation from the compacted specified thickness is ½ inch. The compacted thickness is not consistently above or below the specified thickness and the average thickness of 4 random measurements for any ½ mile of road segment is within + ¼ inch of the specified thickness.

The maximum variation from the specified width will not exceed +12 inches at any point. The compacted width is not consistently above the specified width and the average of any four random measurements along any ½ mile of road segment is within +4 inches of the specified width.

Table 301-1 Field Density Requirements.

Table 301-1: Delete laboratory and field density requirements for base, subbase, and surfacing and replace with the following:

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Base and Subbase	Measured and tested conformance (Subsection 106.04)	Moisture Density	---					
		Method C	---	AASHTO T 99	1 per type and source of material	Source of material	Yes	Before using in work
			---		"	"	"	"
		Method D	---	AASHTO T 180	"	"	"	"
			---		"	"	"	"
		Compaction	---					
		Method C, D	---	AASHTO T 310 or other approved procedures	1 per 500 t	In-place	---	Before placing the next layer
Surfacing	Measured and tested conformance (Subsection 106.04)	Moisture Density	---					
			---		"	"	"	Before using in work
		Method D	---	AASHTO T 180	"	"	"	"
			---		"	"	"	"
		Compaction	---					
				Method C, D	---	AASHTO T 310 or other approved procedures	1 per 500 t	In-place

301.08(b) Plasticity Index.

Add the following to the first sentence:

"and under 703.05(c)(1)".

Table 301-1: Add the following:

Table 301-1-Acceptance 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 Courses L, M, N, O, P, Q, R	Measured and tested conformance (Subsection 106.04)	Plastic Limit	-	AASHTO T 90	1 per each 1,000 T	From the windrow or roadbed after processing	Yes	4 Hours

Table 301-1-Acceptance 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 Width	Measured and tested conformance (Subsection 106.04)	Width	-	-	4 per each 0.5 mi	Roadbed after processing	-	4 Hours
Aggregate Thickness	Measured and tested conformance (Subsection 106.04)	Thickness	-	-	4 per each 0.5 mi	Roadbed after processing	-	4 Hours
Additive	Measured and tested conformance (Subsection 106.04)	Amount of Additive	-		1 per each 1,000 T	From the windrow or roadbed after processing	No	4 Hours

301.09 Measurement.

Replace the second paragraph with the following:

Measure aggregate by cubic yard compacted in place when payment is by contract quantities.

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	-	AAASHTO T 99 ⁽¹⁾	each mixture or change in	material before incorporating in	Yes, when requested	Before using in work	
		Moisture-density Method E	-	R-1 Marshall	"	"	"	"	
		Moisture-density Method F	-	AAASHTO T 180 ⁽¹⁾	"	"	"	"	"
		Moisture-density Method G	-	R-1 Marshall	"	"	"	"	"
		In-place density & moisture content	-	AAASHTO T 310 or other approved procedures	1 per 3000 yd ²	In-place	-	Before placing next layer	

(1) Minimum of 5 points per proctor.

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 $\frac{1}{2}$ 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) sulfate soundness loss (coarse & fine) Durability index (coarse & fine)	-	AASHTO T 96 AASHTO T 104 AASHTO T 210 ASTM D 5821	1 per type & source of material " " "	Source of material " " "	Yes, when requested " " "	Before using in work " " "
Subbase, Base, and Surface courses	Measured and tested for conformance (106.04)	Sample	-	AASHTO T 2	2 per day	roadbed after processing or from approved crusher	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	-	AAASHTO T 99 ⁽¹⁾	type and source of	Source of material	Requested when requested	Before using in work	
			-	AAASHTO T 180 ⁽¹⁾	"	"	"	"	
			-	AAASHTO T 180 ⁽¹⁾	"	"	"	"	"
			-	AAASHTO 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	roadbed after processing or from approved crusher	Yes	48 hours

404 - Minor Hot Asphalt Concrete

404.04_nat_us_03_02_2005

404.04 Weather Limitations.

Change 35° F to 45° F:

404.06_nat_us_03_02_2005

404.06 Placing.

Add the following:

Do not place asphalt until the CO has approved in writing the area where it will be placed.

Delete the last sentence and replace with the following:

Offset the longitudinal joint of one layer at least 6 inches from the joint in the layer immediately below. Make the longitudinal joint in the top layer along the centerline of two-lane roadways or at the lane lines of roadways with more than two lanes. Offset transverse joints in succeeding layers and in adjacent lanes at least 10 feet, where possible.

404.07_nat_us_03_02_2005

404.07 Compacting (a).

Delete and replace with the following:

(a) Roadway paving. Thoroughly and uniformly compact the surface a minimum of three passes with rollers that meet one of the following requirements:

(1) Steel-wheeled rollers, other than vibratory type, capable of exerting a force of not less than 1.5 ton/feet of width of the compression roll or rolls.

(2) Vibratory steel-wheel rollers with a minimum mass of 5 ton, equipped with amplitude and frequency controls, and designed to compact asphalt concrete.

(3) Pneumatic-tire rollers with smooth tread tires of equal size that provide a uniform compacting pressure for the full width of the roller and capable of exerting a ground pressure of at least 80 lbf/in².

Perform initial compaction while the mixture is above 250 °F. Perform finish rolling with steel-wheel rollers and continue until no roller tracks remain.

625 - Turf Establishment

625.03_nat_us_07_02_2007

625.03 General.

Delete this subsection and replace with the following:

Apply turf establishment to prepared ground or any disturbed area between 06/01 and 10/31. Apply turf establishment to the areas shown on the plans or work lists within 7 days after completion of ground disturbing activities. Unless otherwise specified in writing by the CO apply turf establishment after each 2000 foot section of road has been constructed to template lines. Seeded areas damaged by construction activities shall be reseeded within 10 days of the damage. Do not seed during windy weather or when the ground is excessively wet, frozen, or snow covered.

Assure that all seed and mulch used in the work conforms to the weed free requirements of Section 713.

625.04 Preparing Seedbed.

Delete entire subsection and replace with the following:

Ensure that the surface soil is in a roughened condition favorable for germination and growth.

625.05 Watering

Delete entire subsection.

625.06 Fertilizing.

Delete entire subsection and replace with the following:

Apply fertilizer having a chemical analysis as listed below by the following methods.

(a) Dry Method. Apply the fertilizer with approved mechanical equipment. Hand operated methods are satisfactory on areas inaccessible to mechanical equipment.

(b) Hydraulic method. Use hydraulic-type equipment capable of providing a uniform application using water as the carrying agent. Add fertilizer to the slurry and mix before adding seed. Add the tracer material when designated by the CO.

Fertilizer. Apply fertilizer at the rate of XXXX pounds per acre. Insure that the fertilizer meets the following chemical analysis:

<u>Nutrient</u>	<u>Percent</u>
Nitrogen, N	<u>XXXXXX</u>
Phosphorus, P ₂ O ₅	<u>XXXXXX</u>
Potassium, K	<u>XXXXXX</u>

625.07 Seeding.

Delete the first sentence and add the following.

Apply seed mix by the following methods:

(a) Dry method. Delete the third sentence.

Add the following after subsection (b).

Seed Mix. Furnish and apply the following kinds and amounts of pure live seed:

<u>Type of Seed</u>	<u>Quantity of Pure Live Seed (Lbs/Acre)</u>
1. <u>Government Furnished</u>	<u>15 lbs/Acre</u>
2. _____	_____
3. _____	_____

4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
	Total	<u>15 lbs</u>

Determine the pounds of seed to be furnished per acre by dividing the pounds of pure live seed required per acre by the product of the percent purity and percent germination.

625.08 Mulching.

Delete the entire subsection and replace with the following:

Apply Mulch within XX hours after seeding by the following methods.

(a) Dry Method. Apply mulch with a hand spreader or a spreader utilizing forced air at a rate of XXXX pounds per acre. Anchor the mulch with an approved stabilizing emulsion tackifier at a rate of XX gallons per acre. Do not mark or deface structure, pavements, utilities, or plant growth with tackifier.

(b) Hydraulic Method. Apply mulch in a separate application from the seed using hydraulic-type equipment according to Subsection 625.07(b).

Apply wood fiber or grass straw cellulose fiber mulch at a rate of XXXX pounds per acre.

Apply bonded fiber matrix hydraulic mulch at a minimum rate of XXXX pounds per acre. Apply so no hole in the matrix is greater than 0.04 inches. Apply so that no gaps exist between the matrix and the soil.

Inaccessible areas may be mulched by hand. Apply mulch uniformly over the entire disturbed area.

625.09 Protecting and Caring for Seeded Areas

Delete the first sentence and add the following:

Protect and care for seeded areas until final acceptance.

625.11 Measurement.

Delete the entire Subsection and replace with the following:

Measure the Section 625 items listed in the bid schedule according to Subsection 109.02.

635 - Temporary Traffic Control

635.03_nat_us_05_13_2004

635.03 General.

Add the following:

Install temporary traffic control signs to temporary posts or approved temporary sign mounts.

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	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)	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	

713 - Roadside Improvement Material

713.05_nat_us_03_02_2005

713.05 Mulch.

Add the following:

Assure that mulch used on the project is certified noxious weed free by the appropriate authority in the jurisdiction of use.

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.