CHOKER BELL THIN STEWARDSHIP
RECONSTRUCTION OF SPECIFIED ROADS

TABLE OF CONTENTS

CHOKER BELL THIN STEWARDSHIP

ROAD RECONSTRUCTION COSTS

Road Reconstruction Total Estimated Costs

FSR Number	Estimated Costs
4811036	**$31,154.00**
4811040	**$6,032.00**

C5.213# Reconstruction Engineering Deposits **$4,266.88**

TOTAL RECON $ **$41,452.88**

Public Works Costs - $48,922.68

SCHEDULE OF ITEMS

CHOKER BELL THIN STEWARDSHIP

Central Coast Ranger District
Siuslaw National Forest
Douglas County

RECONSTRUCTION OF FS ROAD 4811036

2.10 MILES

ITEM NO.	DESCRIPTION	PAY UNIT	EST. QTY.	UNIT PRICE	TOTAL PRICE
15101	Mobilization	Lump Sum	ALL	$4,100.00	$4,100.00
20304	removal of berm vegetation	Mile	All	$452.00	$452.00
20419A	Drainage excavation, type daylight berm	Foot	90	$4.00	$360.00
20419B	Drainage excavation, type lead off ditch	Foot	60	$2.10	$126.00
20420	Drainage excavation, type catch basin	Each	1	$314.00	$314.00
20459	Excavation	Cubic Yard*	66	$19.00	$1,254.00
20478	Unsuitable excavation	Lump Sum	All	$320.00	$320.00
21201A	Linear Grading	Mile	0.05	$31,700.00	$1,585.00
21201B	Linear Grading	Mile	0.07	$6,300.00	$441.00
23051	Roadside brushing, disposal method J	Mile	2.10	$1,140.00	$2,394.00
30359	Roadway reconditioning, compaction method B	Mile	2.10	$2,120.00	$4,452.00
32203	Aggregate base, grading A, compaction method B	Cubic Yard*	107	$50.00	$5,350.00
32218L	Screened aggregate grading L, compaction method B	Cubic Yard*	83	$44.00	$3,652.00
32218P	Screened aggregate grading P, compaction method B	Cubic Yard*	36	$47.00	$1,692.00
60278	18 Inch corrugated polyethylene pipe, type S, method B	Foot	60	$51.00	$3,060.00
60655	18-inch full circle outlet pipe	Foot	40	$25.00	$1,000.00
62509	Mulching, dry method	Lump Sum	ALL	$290.00	$290.00
63307	Delineators, type 2, white w/reflectors	Each	13	$24.00	$312.00
				Total	$31,154.00

Payment will be made on actual work performed as described in FP-03 109.01 unless otherwise denoted.
*** Denotes Contract Quantities**

SCHEDULE OF ITEMS

CHOKER BELL THIN STEWARDSHIP

Central Coast Ranger District
Siuslaw National Forest
Douglas County

RECONSTRUCTION OF FS ROAD 4811040

0.80 MILES

ITEM NO.	DESCRIPTION	PAY UNIT	EST. QTY.	UNIT PRICE	TOTAL PRICE
20429	Excavation	Cubic Yard*	80	$13.00	$1,040.00
23051	Roadside brushing, disposal method J	Mile	0.8	$1,160.00	$928.00
30359	Roadway reconditioning, compaction method B	Mile	0.80	$2,800.00	$2,240.00
32218P	Screened aggregate grading P, compaction method B	Cubic Yard*	36.00	$44.00	$1,584.00
62509	Mulching, dry method	Lump Sum	ALL	$240.00	$240.00
				Total	$6,032.00

Payment will be made on actual work performed as described in FP-03 109.01 unless otherwise denoted.
*** Denotes Contract Quantities**

SCHEDULE OF ITEMS

CHOKER BELL THIN STEWARADSHIP

Central Coast Ranger District
Siuslaw National Forest
Douglas County

RECONSTRUCTION OF FS ROADS 4811036 and 4811040

ITEM NO.	DESCRIPTION	PAY UNIT	EST. QTY.	UNIT PRICE	TOTAL PRICE
C5.213#	RECONSTRUCTION ENGINEERING DEPOSITS	LUMP SUM	1	$4,266.88	$4,266.88
				Total	$4,266.88

Payment will be made on actual work performed as described in FP-03 109.01 unless otherwise denoted.
*** Denotes Contract Quantities**

UNITED STATES DEPARTMENT OF AGRICULTURE

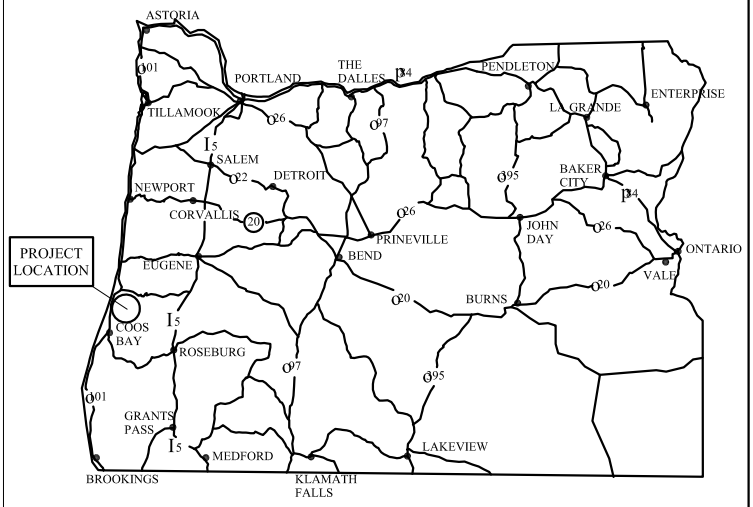
FOREST SERVICE - REGION SIX
SIUSLAW NATIONAL FOREST
CENTRAL COAST RANGER DISTRICT

PLANS FOR PROPOSED
CHOKER BELL THIN STWD
DOUGLAS COUNTY

INDEX OF SHEETS	
SHEET NO	DESCRIPTION
1	TITLE SHEET
2	VICINITY MAP
3	ESTIMATE OF QUANTITIES
4	ROAD STRUCTURE DETAIL AND DRAINAGE LISTING
5	BRUSHING & VEGETATION REMOVAL TYPICAL
6	DRAINAGE CONSTRUCTION DETAILS
7 - 9	FS ROAD 4811036 RECONSTRUCTION LOG
10	FS ROAD 4811040 RECONSTRUCTION LOG

ROAD NO.	TERMINI (MP to MP)	LENGTH (MILES)	TYPE OF WORK
4811036	0.00 - 2.10	2.10	RECONSTRUCTION
4811040	0.00 - 0.80	0.80	RECONSTRUCTION

Plan In Hand Review: July 9, 2014



KEY MAP OF OREGON SHOWING LOCATION OF PROJECT

Designed by:

Designer (W.Hislop) Date

Reviewed by:

Reviewer (R. Sanders) Date

Development Engineer (J. Caswell) Date

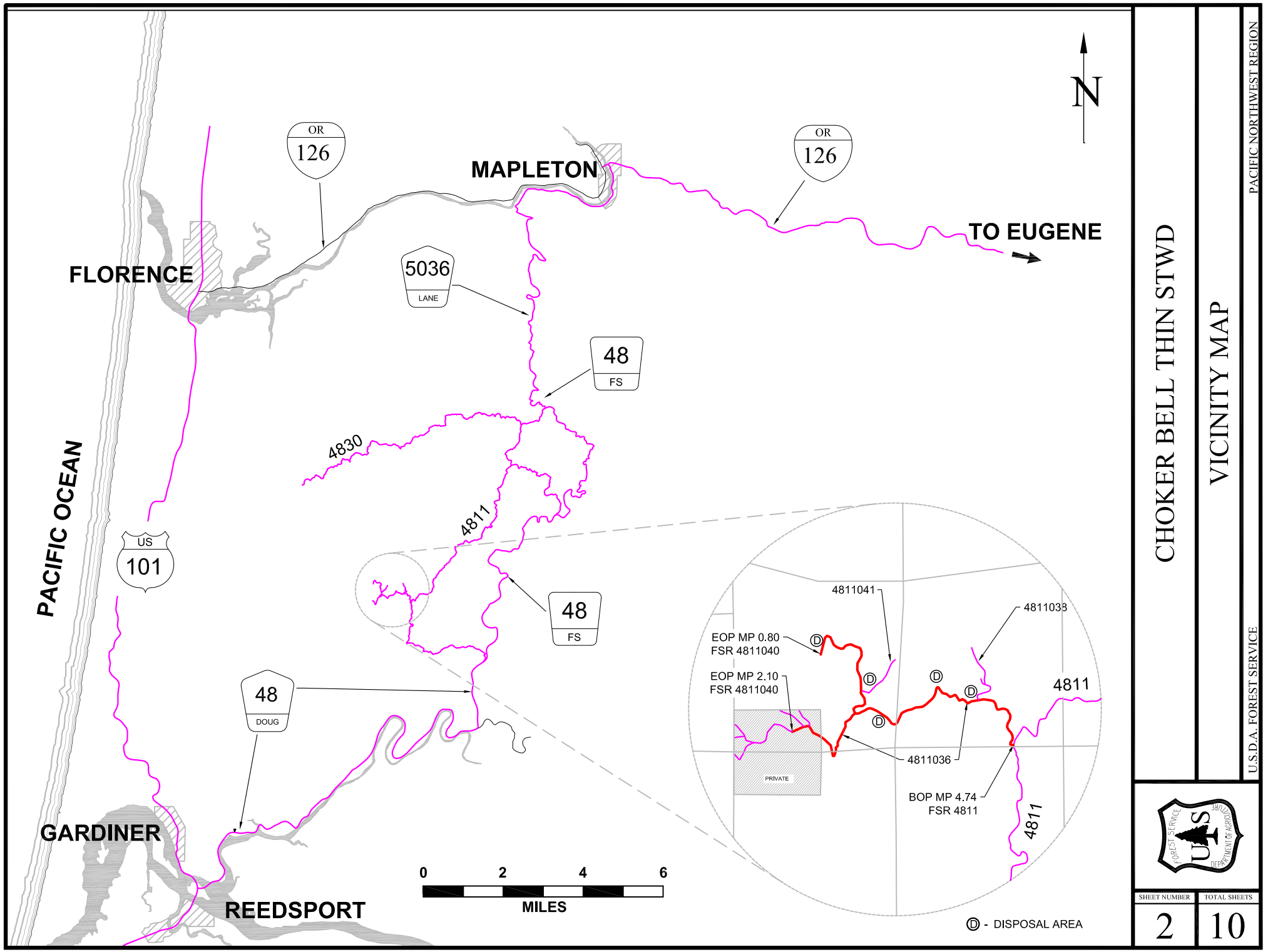
Recommended by:

Zone Engineer (J. Acosta) Date

Approved by:

Line Officer (M. Jones) Date

Forest Engineer (C. McKenna) Date



CHOKER BELL THIN STWD

VICINITY MAP

PACIFIC NORTHWEST REGION

U.S.D.A. FOREST SERVICE

SHEET NUMBER	TOTAL SHEETS
2	10

ROAD NUMBER			4811036	4811040	Remarks
PROJECT LENGTH (MILES)			2.10	0.80	Payment will be made on actual work performed as described in FP-03 109.01 unless otherwise noted.
ITEM NO.	DESCRIPTION	UNIT	QUANTITIES	QUANTITIES	* Denotes Contract Quantities
15101	Mobilization	LS	All	0	Traffic Control, equipment washing, fire prevention, and sign installations are included by indirect payment.
20304	Removal of berm vegetation	LS	All	0	Remove all trees/vegetation on the fillslope berms on FS Rd 4811036 MP 2.03, 2.06, and 2.09 to be daylighted under Pay Item 201419A. Scatter vegetation outside the clearing limits as directed by CO.
20419A	Drainage excavation, type daylight berm	FT	90	0	Remove existing berm for 30' at MP2.03, 2.06, and 2.09 as staked by CO. Use suitable material to fill ruts in road. Haul unsuitable to waste area. Outslope to facilitate drainage from road.
20419B	Drainage excavation, type Lead-off ditch	FT	60	0	Construct lead-off ditch as staked by CO at MP 2.09
20420	Drainage excavation, type catch basin	EA	1	0	Construct catch basin for new culvert install at MP 0.40
20429	End haul	CY*	0	80	Remove 80 CY cutslope failure (slide) on FS Road 4811040 at MP 0.50 restoring roadway template. Haul to disposal area. Clearing and grubbing of disposal are is indirect to this pay item.
20459	Excavation	CY*	66	0	Remove sections of unsuitable material from road way as described in the work summary and haul to disposal area.
20478	Unsuitable excavation	LS	All	0	AT MP 0.36, Begin pullback of fillslope to remove 3'-6' vertical face as marked by CO. Load/haul unsuitable excavation to disposal site. Clearing and grubbing of disposal sites are indirect to this pay item.
21201A	Linear grading	MI	0.05	0	Linear grading for minor road realignments as described in the work summary and staked in field by CO.
21201B	Linear grading	MI	0.07	0	Linear grading as described in the work summary and staked in field by CO.
23051	Roadside brushing, disposal method 1	MI	2.10	0.80	Disposal of slash is scatter, if unable to scatter, haul to nearby waste area as directed by CO.
30359	Roadway reconditioning, compaction method b	MI	2.10	0.80	Includes mixing in "borrow" material from daylighting berms from MP 2.03, 2.06, and 2.09.
32203	Aggregate base, grading A, compaction method B	MI	107	0	Aggregate surfacing used for surface rocking for realignments/road widening (Pay Item 21201A) and from MP 2.03 to 2.10.
32218P	Screened aggregate grading L, compaction method B	CY*	83	0	6" crushed rock used for filling in unstable "mud bog" sections called out in the work summary
32218L	Screened aggregate grading P, compaction method B	CY*	36	36	3" crushed rock and for covering/filling existing waterbars as called out in the work summary.
60278	18-inch corrugated polyethelene pipe, type S, method B	FT	60	0	Install culvert as staked in the field by the CO.
60654	18-inch full circle polyethylene outlet pipe	FT	40	0	Single wall corrugated plastic pipe. Anchor assemblies are indirect to this pay item.
62509	Mulching, dry method	LS	All	All	Mulch all disturbed soil with weed free straw (Government furnished).
63307	Delineators, type 2 white with reflective tape (Government Furnished)	EA	13	0	Install on fill slope as staked by CO.

* indicates Contract Quantity.

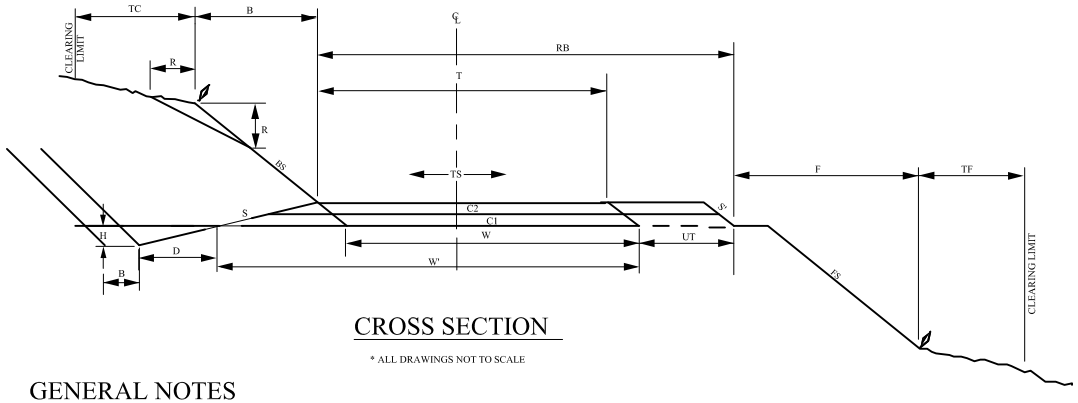
CHOKER BELL THIN STWD

ESTIMATE OF QUANTITIES

PACIFIC NORTHWEST REGION

U.S.D.A. FOREST SERVICE

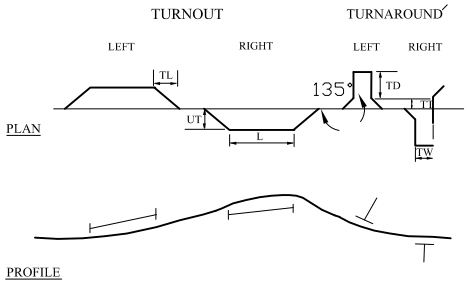
SHEET NUMBER	TOTAL SHEETS
3	10



CROSS SECTION

* ALL DRAWINGS NOT TO SCALE

TURNOUT AND TURNAROUND SYMBOLS



GENERAL NOTES

1. CURVE WIDENING, TURNOUTS AND TURNAROUNDS SHALL BE SURFACED TO THE SAME DEPTH AS THE ROADBED UNLESS OTHERWISE SHOWN ON THE PLANS.
2. EX = MATCH EXISTING DIMENSIONS.
3. V- VARIES, SEE RECONSTRUCTION LOGS

					CLEARING			GRADING													SURFACE STRUCTURE						SHOULDER ROCK			
ROAD NUMBER	SEGMENT	STATION or MILEPOST	TO STATION or MILEPOST	TRAVELED WAY WIDTH	WHICHEVER IS GREATER FT			CONSTRUCTION TOLERANCE	OUTSLOPE (O) INSLOPE (I) CROWN (C)	ROADBED WIDTH		DITCH DIMENSIONS			TURNOUT				TURN AROUND		GRADATION		COMPACTED DEPTH		SLOPE RATIO		DEPTH	SLOPE RATIO	WIDTH	GRADATION
				FT	MINIMUM BEYOND SHOULDER	BEYOND SLOPE STAKE			%	FT		FT			WIDTH FT	TRANSITION LENGTH FT	LENGTH FT	TAPER FT	WIDTH FT	LENGTH FT			IN		AGG	ASP	IN		IN	
				T		TC	TF		TS	W	W'	B	D	H	UT	TL	L	TT	TW	TD	C1	C2	C1	C2	S	S'				
4811036		M.P. 0.00	M.P. 2.03	12				C	C-5		EX	0	3	1	10	25	50	EX	EX	EX										
4811036		M.P. 2.03	M.P. 2.10	12				C	C-5		EX	0	3	1	10	25	50	EX	EX	EX		A		4"	1V:2H					
4811040		M.P. 0.00	M.P. 0.80	12				C	C-5		EX	0	3	1	10	25	50	EX	EX	EX										

DRAINAGE LISTING

MILEPOST OR STATION	DESIGNED												INSTALLATION DETAILS						RIPRAP - CY						REMARKS
	PLASTIC PIPE		PLASTIC SPILLWAY				CORRUGATED METAL PIPE		CORRUGATED METAL SPILLWAY								PLASTIC SPILLWAY CONNECTION		HAND PLACED		MACHINE PLACED		DUMPED		
	DIAMETER (INCHES)	LENGTH (FEET)	DIAMETER (INCHES)	LENGTH (FEET)	FULL CIRCLE	HALF ROUND	DIAMETER (INCHES)	LENGTH (FEET)	DIAMETER (INCHES)	LENGTH (FEET)	FULL CIRCLE	HALF ROUND	GRADE (%)	SCEW (DEGREE)	ANCHOR ASSEMBLY	TYPE	FLEX ELBOW		INLET CY	OUTLET CY	INLET CY	OUTLET CY	INLET CY	OUTLET CY	
ROAD 4811036 0.34	18	30	18	20	X								5	120		2									
ROAD 4811036 0.40	18	30	18	20	X								5	90		2									

CHOKER BELL THIN STWD

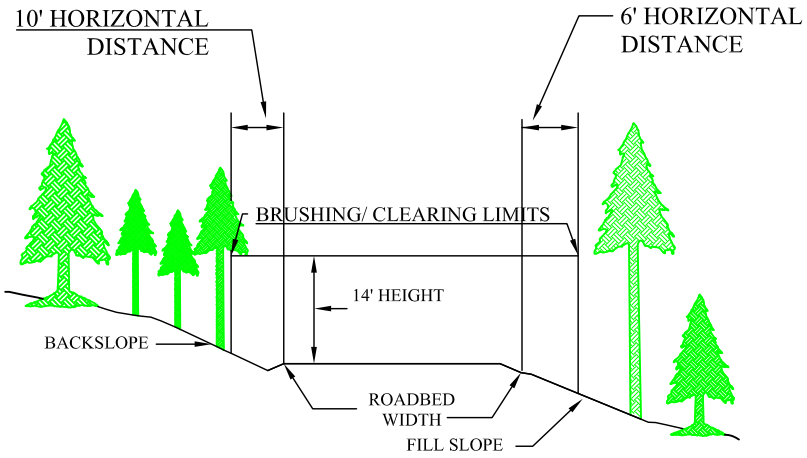
ROAD STRUCTURE DETAIL AND DRAINAGE LISTING

U.S.D.A. FOREST SERVICE

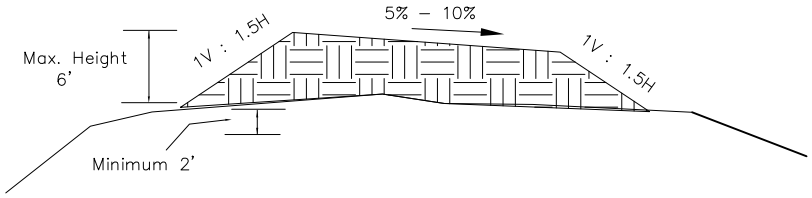
PACIFIC NORTHWEST REGION

SHEET NUMBER	TOTAL SHEETS
4	10

BRUSHING & VEGETATION REMOVAL DETAILS



WASTE AREA DETAILS



GENERAL NOTES

CO will flag waste area limits

Layer place, shape material to drain

Windrow clearing debris from waste area along waste area limits

CHOKER BELL THIN STWD

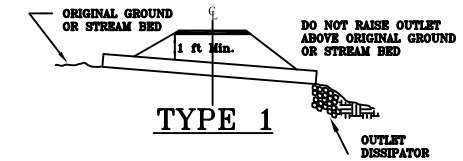
BRUSHING AND VEGETATION REMOVAL TYPICAL

U.S.D.A. FOREST SERVICE

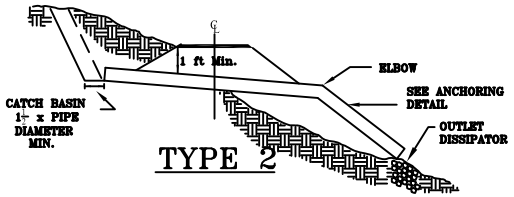
PACIFIC NORTHWEST REGION

SHEET NUMBER	TOTAL SHEETS
5	10

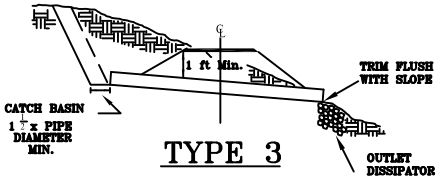
CULVERT INSTALLATION TYPES



TYPE 1



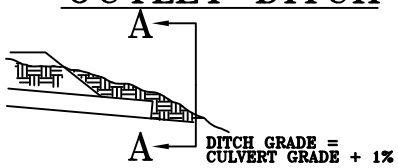
TYPE 2



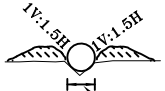
TYPE 3

CULVERT INVERT – THE LOWEST INTERIOR ELEVATION OF THE CULVERT AT ANY SELECTED POINT.

OUTLET DITCH



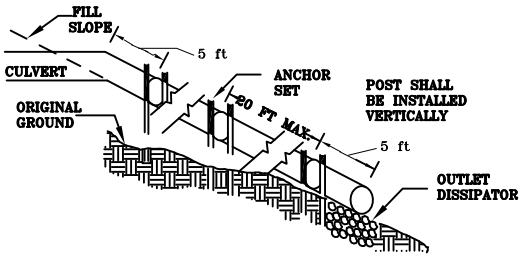
SECTION A–A

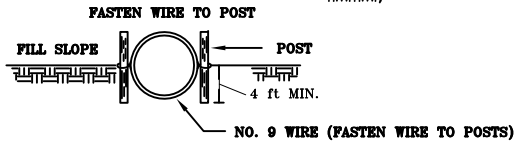


MATERIAL TO BE DEPOSITED ON BOTH SIDES OF DITCH

CULVERT DIAMETER

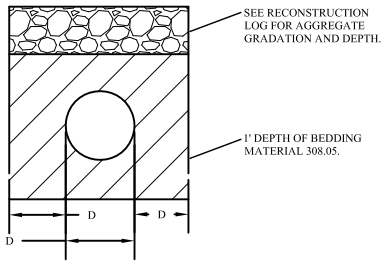
ANCHOR DETAILS





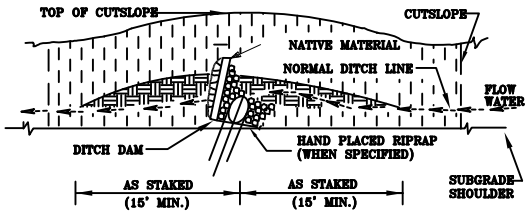
NOTE:
3 FT DIAMETER AND LARGER DOWNPIPE SHALL BE HALF BURIED.
ANCHOR SETS SHALL CONSIST OF TWO 6 FT STEEL FENCE POSTS (AASHTO M 281) AND NO. 9 GALVANIZED WIRE. 3 STRANDS OF WIRE SHALL BE TWISTED TOGETHER AND ENCOMPASS THE ENTIRE CIRCUMFERENCE OF THE PIPE.

CULVERT INSTALLATION DETAIL

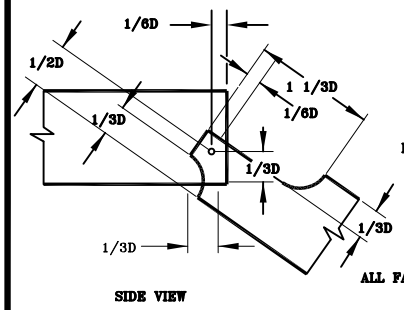


DITCH DAM PLAN VIEW

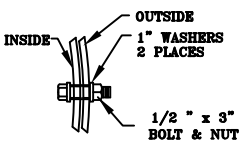
TYPE 2 & 3 CULVERT INSTALLATION



FLEX ELBOW

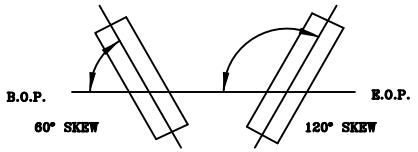


SIDE VIEW



BOLT DETAIL
ALL FASTENERS SHALL BE GALVANIZED

SKEW DIAGRAM



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

CHOKER BELL THIN STWD

DRAINAGE CONSTRUCTION DETAILS

PACIFIC NORTHWEST REGION

U.S.D.A. FOREST SERVICE

SHEET NUMBER	TOTAL SHEETS
6	10

MILE POST	PAY ITEM	QUANTITY	UNIT	DESCRIPTION OF WORK
0.00				Intersecting FS Road 4811000 at mile post 4.74.
				Beginning of project.
	20351	2.10	Mile	Begin Roadside Brushing. Refer to Brushing Typical.
	30359	2.10	Mile	Begin roadway reconditioning. Grubbing & disposal of all vegetation & root masses within roadbed and in the ditch is required unless otherwise noted in the work description. Preserve underlying surface aggregate. Haul material from ditch reconditioning, slough and slide removal to an approved disposal site. Scatter all logs and woody debris from top of cutbank to the opposite road shoulder outside clearing limits. Scarify minimum 1" below the depth of all potholes, washboards, or surface irregularities.
	32218P	36	Cubic Yard*	Place 3 CY 3" screened aggregate to fill/cover existing waterbars (12 total.)
	62509	All	Lump Sum	Mulch all disturbed ground as directed by CO. Government-furnished straw.
0.10	21201A	0.01	Mile	Shift road 3 feet into cutslope for 60 feet as staked by the engineer.
	32203	10	Cubic Yard*	Place 8" crushed aggregate full depth for 40' along 6' realigned section with 10' tapers on each end. Blend to adjacent road surfaces to provide a smooth transition.
	63307	3	Each	Install delineators along the fillslope.
0.20	21201A	0.01	Mile	Shift road 3 feet into cutslope for 60 feet as staked by the engineer.
	32203	5	Cubic Yard*	Place 8" crushed aggregate full depth for 40' along 6' realigned section with 10' tapers on each end. Blend to adjacent road surfaces to provide a smooth transition.
	63307	3	Each	Install delineators along the fillslope.
0.34	32203	8	Cubic Yard*	Place 8" crushed aggregate full depth for 15' centered over culvert with 10' tapers on each end and a 12' top width. Blend to adjacent road surfaces to provide a smooth transition.
	60278	30	Foot	Install new 18-inch corrugated plastic double wall type S pipe as staked by the CO. excavation of trench for new culvert is indirect to this pay item.
	60654	20	Foot	Install new 18-inch corrugated plastic single wall down pipe.
0.36	20478	All	Lump Sum	Begin pullback of fillslope to remove 3'-6' vertical face as marked by CO. Load/haul unsuitable excavation to disposal site.
	21201A	0.02	Mile	Shift road 6 feet into cutslope for 100 feet as staked by the engineer.
	32203	15	Cubic Yard*	Place 8" crushed aggregate full depth for 40' along 6' realigned section with 10' tapers on each end. Blend to adjacent road surfaces to provide a smooth transition.
	63307	4	Each	Install delineators along the fillslope.
* denotes Contract Quantity				

CHOKER BELL THIN STWD

FS RD 4811036 RECONSTRUCTION LOG

PACIFIC NORTHWEST REGION

U.S.D.A. FOREST SERVICE

SHEET NUMBER	TOTAL SHEETS
7	10

MILE POST	PAY ITEM	QUANTITY	UNIT	DESCRIPTION OF WORK
0.40	20420	1	Each	Construct catch basin.
	32203	8	Cubic Yard*	Place 8" crushed aggregate full depth for 15' centered over culvert with 10' tapers on each end and a 12' top width. Blend to adjacent road surfaces to provide a smooth transition.
	60278	30	Foot	Install new 18-inch corrugated plastic double wall type S pipe as staked by the CO. excavation of trench for new culvert is indirect to this pay item.
0.49				Junction with FS Road 4811038 right.
				Disposal area as staked by CO
0.59	21201A	0.01	Mile	Shift road 3 feet into cutslope for 60 feet as staked by the CO.
	32203	5	Cubic Yard*	Place 8" crushed aggregate full depth for 15' centered over culvert with 10' tapers on each end and a 12' top width. Blend to adjacent road surfaces to provide a smooth transition.
	63307	3	Each	Install delineators along the fillslope as staked by the CO.
0.78				Disposal area right as staked by CO
1.00	20459	15	Cubic Yard*	Remove 20' long by 12' wide x 1' deep unsuitable (with 10' transition on both ends) material and haul to disposal area.
	32218L	15	Cubic Yard*	Place 6" screened aggregate 1' depth for 20' centered over staked location as marked by the CO with 10' tapers on each end and a 12' top width. Blend to adjacent road surfaces to provide a smooth transition.
1.16				Disposal area left as staked by CO.
1.44				Junction with FS Road 4811040 right.
1.47	20459	21	Cubic Yard*	Remove 30' long by 12' wide x 1' deep unsuitable (with 10' transition on both ends) material and haul to disposal area.
	32218L	21	Cubic Yard*	Place 6" screened aggregate 1' depth for 30' centered over staked location as marked by the CO with 10' tapers on each end and a 12' top width. Blend to adjacent road surfaces to provide a smooth transition.
1.49	20459	26	Cubic Yard*	Remove 40' long by 12' wide x 1' deep unsuitable (with 10' transition on both ends) material and haul to disposal area.
	32218L	26	Cubic Yard*	Place 6" screened aggregate 1' depth for 30' centered over staked location as marked by the CO with 10' tapers on each end and a 12' top width. Blend to adjacent road surfaces to provide a smooth transition.
* denotes Contract Quantity				

CHOKER BELL THIN STWD

FS RD 4811036 RECONSTRUCTION LOG

PACIFIC NORTHWEST REGION

U.S.D.A. FOREST SERVICE

SHEET NUMBER	TOTAL SHEETS
8	10

MILE POST	PAY ITEM	QUANTITY	UNIT	DESCRIPTION OF WORK
1.59	20459	21	Cubic Yard*	Remove 30' long by 12' wide x 1' deep unsuitable (with 10' transition on both ends) material and haul to disposal area.
	32218L	21	Cubic Yard*	Place 6" screened aggregate 1' depth for 30' centered over staked location as marked by the CO with 10' tapers on each end and a 12' top width. Blend to adjacent road surfaces to provide a smooth transition.
1.89				Forest Boundary - Entering Private lands
1.98				Junction with FS Road 4811361 right.
2.02				Junction with FS Road 4811362 right.
2.03	20304	0.01	Mile	Begin clearing and grubbing of all trees within the road shoulder and drainage ditch. Refer to the Brushing Typical.
	20419A	30	Foot	Begin daylighting roadway (removing berm for 30') as staked by CO. Use excavated material to fill ruts in road way.
	21201B	0.07	Mile	Begin Linear Grading to remove ruts and blend borrow (daylighted berm material).
	32203	56	Cubic Yard*	Place aggregate 4" depth as marked by the CO with 10' tapers on each end and a 12' top width. Blend to adjacent road surfaces to provide a smooth transition.
2.06	20304	0.01	Mile	Begin clearing and grubbing of all trees within the road shoulder and drainage ditch. Refer to the Brushing Typical.
	20419A	30	Foot	Begin daylighting roadway (removing berm for 30') as staked by CO. Use excavated material to fill ruts in road way.
2.09	20304	0.01	Mile	Begin clearing and grubbing of all trees within the road shoulder and drainage ditch. Refer to the Brushing Typical.
	20419A	30	Foot	Begin daylighting roadway (removing berm for 30') as staked by CO. Use excavated material to fill ruts in road way.
	20419B	60	Foot	Construct lead off ditch left as staked by CO
2.10				Junction with private road left.
	21201B			End Linear Grading
	23051			End roadside brushing.
	30359			End roadway reconditioning.
				End of project.
* denotes Contract Quantity				

CHOKER BELL THIN STWD

FS RD 4811036 RECONSTRUCTION LOG

PACIFIC NORTHWEST REGION

U.S.D.A. FOREST SERVICE

SHEET NUMBER	TOTAL SHEETS
9	10

MILE POST	PAY ITEM	QUANTITY	UNIT	DESCRIPTION OF WORK
0.00				Intersecting FS Road 4811040 at mile post 1.44.
				Beginning of project.
	20351	0.80	Mile	Begin Roadside Brushing. Refer to Brushing Typical.
`	30359	0.80	Mile	Begin roadway reconditioning. Grubbing & disposal of all vegetation & root masses within roadbed and in the ditch is required unless otherwise noted in the work description. Preserve underlying surface aggregate. Haul material from ditch reconditioning, slough and slide removal to an approved disposal site. Scatter all logs and woody debris from top of cutbank to the opposite road shoulder outside clearing limits. Scarify minimum 1" below the depth of all potholes, washboards, or surface irregularities.
	32218P	36	Cubic Yards*	3" screened aggregate used to fill/cover the 12 existing water bars between M.P. 0.00 and 0.80.
	62509	All	Lump Sum	Mulch all disturbed ground as directed by CO. Government-furnished straw.
0.18				Junction with FS Road 4811041 right.
				Disposal area as staked by CO
0.50	20429	80	Cubic Yards*	Remove 80 CY cutslope failure (slide) restoring roadway template. Haul to disposal area.
0.80				Disposal area in landing right as staked by CO.
				End roadside brushing.
				End roadway reconditioning.
				End of project.

* denotes Contract Quantity

CHOKER BELL THIN STWD

FS RD 4811040 RECONSTRUCTION LOG

PACIFIC NORTHWEST REGION

U.S.D.A. FOREST SERVICE

SHEET NUMBER	TOTAL SHEETS
10	10

FP-03 SPECIFICATION LIST FOR CHOKER BELL THIN STWD

All specifications not included in the specification listing, but referenced by listed specifications, are applicable.

The supplements shown on the specification list are physically attached.

		Title	Revised	4811036	4811040
Preface		**Preface**	FP03 & 3/15/2004	X	X
101		**Terms, Format, and Definitions**	FP03	X	X
101	.01	Meaning of Terms	1/22/2009	X	X
101	.01	Meaning of Terms	1/22/2009	X	X
101	.03	Abbreviations	6/16/2006	X	X
101	.04	Definitions	3/29/2007	X	X
101	.04	Definitions	11/6/2007	X	X
102		**Bid, Award, and Execution of Contract**	FP03	X	X
102	.00	Bid, Award, and Execution of Contract	2/16/2005	X	X
103		**Scope of Work**	FP03	X	X
103	.00	Deletions	2/16/2005	X	X
104		**Control of Work**	FP03	X	X
104	.00	Deletions	6/16/2006	X	X
104	.03	Drawings and Specifications	1/22/2009	X	X
104	.06	Use of Road by Contractor	2/17/2005	X	X
105		**Control of Material**	FP03	X	X
105	.02	Material Sources	1/18/2007	X	X
105	.02	Material Sources	3/8/2007	X	X
105	.05	Use of Materials found in Work	5/12/2004	X	X
106		**Acceptance of Work**	FP03	X	X
106	.01	Conformity with Contract Requirements	7/31/2007	X	X
106	.07	Delete	5/11/2004	X	X
107		**Legal Relations and Responsibility to the Public**	FP03	X	X
107	.02	Protection of Property and Landscape	2/17/2005	X	X
107	.05	Responsibility for Damage Claims	5/11/2004	X	X
107	.06	Contractor's Responsibility for Work	6/16/2006	X	X
107	.08	Sanitation, Health and Safety	3/29/2005	X	X
107	.09	Legal Relationship of the Parties	6/16/2006	X	X
107	.10	Environmental Protection	6/16/2006	X	X
108		**Prosecution and Progress**	FP03	X	X
108		Delete	2/16/2005	X	X
109		**Measurement and Payment**	FP03	X	X
109		Deletions	2/17/2005	X	X
109	.02	Measurement Terms and Definitions	6/16/2006	X	X
151		**Mobilization**	FP03	X	
156		**Public Traffic**	FP03	X	X
156	.00	Complete Specification	4/17/2007	X	X

FP-03 SPECIFICATION LIST FOR CHOKER BELL THIN STWD

All specifications not included in the specification listing, but referenced by listed specifications, are applicable.

The supplements shown on the specification list are physically attached.

		Title	Revised	4811036	4811040
201		**Clearing and Grubbing**	FP03	X	X
201	.02	Material	8/5/2009	X	X
201	.01	Description	2/18/2005	X	X
201	.04	Clearing	2/22/2005	X	X
201	.06	Disposal	2/18/2005	X	X
201	.06	Disposal	2/23/2005	X	X
203		**Removal of Structures and Obstructions**	FP03	X	X
203	.01	Description	3/25/2005	X	X
203	.05	Disposing of Material	3/26/2007	X	X
203	.08	Payment	3/25/2005	X	X
204		**Excavation and Embankment**	FP03	X	X
204	.00	Complete Specification	5/28/2008	X	X
209	.00	Complete Spec 209: Excavation & Backfill for Selected Minor Structures	6/14/2011	X	
209	.07	Dewatering	7/12/2007	X	
209	.10	Backfill	10/23/2007	X	
209	.11	Compacting	2/24/2005	X	
230	.00	Complete Specification - Roadside Brushing	3/31/2010	X	X
303		**Road Reconditioning**	FP03	X	X
303	.01	Work	1/20/2009	X	X
303	.06	Aggregate & Asphalt Surface Reconditioning	8/5/2008	X	X
303	.07	Roadway Reconditioning.	3/23/2007	X	X
303	.10	Measurement	3/26/2007	X	X
303	.11	Measurement	3/29/2005		
322	.00	Complete Specification - Minor Aggregate Courses	10/24/2007	X	X
602		**Culverts and Drains**	FP03	X	
602	.03	General	9/6/2005	X	
602	.03	General	3/17/2010	X	
602	.06	Laying Plastic Pipe	8/5/2009	X	
703		**Aggregate**	FP03	X	X
703	.05	Subbase, Base, & Surface Course Aggregate	8/14/2009	X	X
703	.05	Subbase, Base, and Surface Course Aggregate	7/14/2010	X	X
703	.07	FLH FP-03 Correction metric uscu	3/2/2005	X	X
703	.10	Flakiness Index and Adherent Coatings	4/11/2011	X	X
704		**Soil**	FP03		
704	.02	Bedding Material	4/24/2008	X	
704	.03	Backfill Material	3/26/2007	X	
718		**Traffic Signing and Marking Material**	FP03	X	X
718	.05	Aluminum Panels	8/5/2009	X	X

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

101.01_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 Definitions.

Delete the following definitions and substitute the following:

Bid Schedule--The Schedule of Items.

Bridge--No definition.

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

Culvert--No definition.

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

Add the following:

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

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

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

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

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

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

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

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

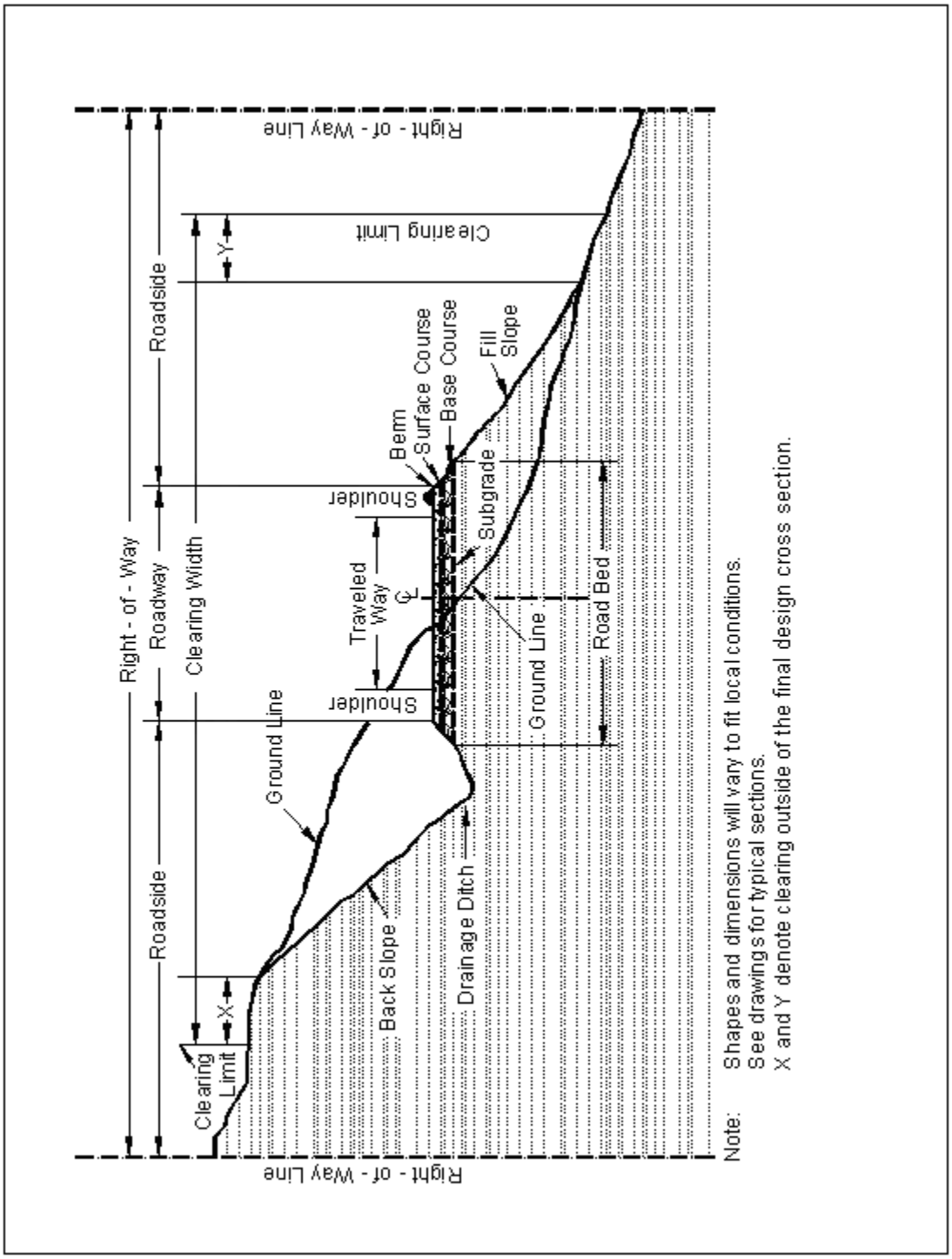
Road Order--An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

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

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

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

Figure 101-1—Illustration of road structure terms.



101.04 Definitions.

Delete the following definitions:

Contract Modification

Day

Notice to Proceed

Solicitation

102 - Bid, Award, and Execution of Contract

102.00_nat_us_02_16_2005

102 Bid, Award, and Execution of Contract

Delete Section 102 in its entirety.

103 - Scope of Work

103.00_nat_us_02_16_2005

Deletions

Delete all but subsection 103.01 Intent of Contract.

104 - Control of Work

104.00_nat_us_06_16_2006

Deletions

Delete Sections 104.01, 104.02, and 104.04.

104.03_nat_us_01_22_2009

104.03 Specifications and Drawings.

Delete 104.03.

104.06_nat_us_02_17_2005

Add the following subsection:

104.06 Use of Roads by Contractor

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

105 - Control of Material

105.02_nat_us_01_18_2007

105.02 Material Sources.

105.02(a) Government-provided sources.

Add the following:

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

105.02_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:

Common Name	**Scientific Name**
African rue	Peganum harmala
Bamboo	Sasa palmata
Beachgrass, European	*Ammophila arenaria*
Bean-caper, Syrian	Zygophyllum fabago
Biddy-biddy	Acaena novae-zelandiae
Bindweed, field	Convolvulus arvensis
Blackberry, evergreen	Rubus laciniatus
Blackberry, Himalaya	*Rubus discolor*
Blueweed, Texas	*Helianthus ciliaris*
Broom, French	*Genista monspessulana*
Broom, Portuguese	*Cytisus striatus*
Broom, Scot's	*Cytisus scoparius*
Broom, Spanish	*Spartium junceum*
Broomrape, small	*Orobanche minor*

Buffalobur	*Solanum rostratum*
Bugloss, common	*Anchusa officinalis*
Buttercup, creeping	*Ranunculus repens*
Butterflybush	*Buddleja globosa*
Camelthorn	*Alhagi pseudalhagi*
Canary grass, reed	*Phalaris arundinacea*
Cherry, laurel	*Prunus laurocerasus*
Cinquefoil, sulfur	*Potentilla recta*
Clematis	*Clematis vitalba*
Cocklebur, spiny	*Xanthium spinosum*
Coltsfoot	*Tussilago farfara*
Cordgrass, Common	Spartina anglica
Cordgrass, Dense-flowered	Spartina densiflora
Cordgrass, Saltmeadow	Spartina patens
Cordgrass, smooth	Spartina alterniflora
Cress, creeping yellow	Rorippa sylvestris
Crupina, common	Crupina vulgaris
Daisy, ox-eye	*Chrysanthemum leucanthemum*
Dyers woad	*Isatis tinctoria*
False brome	*Brachypodium sylvaticum*
Floating heart, yellow	*Nymphoides peltata*
Garlic Mustard	*Alliaria petiolata*
Geranium, Robert	*Geranium robertianum*
Geranium, shining	*Geranium lucidum*
Goatgrass, barbed	*Aegilops triuncialis*
Goatgrass, jointed	*Aegilops cylindrical*
Goatgrass, ovate	*Aegilops ovata*
Gorse	*Ulex europaeus*
Halogeton	Halogeton glomeratus
Hawkweed, king devil	*Hieracium piloselloides*
Hawkweed, meadow	*Hieracium pratense*
Hawkweed, mouse-ear	*Hieracium pilosella*
Hawkweed, orange	Hieracium aurantiacum
Hawkweed, yellow	*Hieracium floribundum*
Holly, English	*Ilex aquafoluim*
Hogweed, giant	*Heracleum mantegazzianum*
Horsetail, giant	*Equisetum telmateia*
Houndstongue	*Cynoglossum officinale*
Hydrilla	*Hydrilla verticillata*
Iris, flag	*Iris pseudocorus*
Ivy, English	*Hedera helix*
Johnsongrass	*Sorghum halepense*
Knapweed, diffuse	Centaurea diffusa
Knapweed, meadow	Centaurea pratensis (jacea x nigra)
Knapweed, Russian	Acroptilon repens

Knapweed, short-fringed	Centaurea nigrescens
Knapweed, spotted	Centaurea maculosa
Knapweed, squarrose	Centaurea virgata
Knotweed, giant	Polygonum sachalinense
Knotweed, Himalayan	Polygonum polystachyum
Knotweed, Japanese	Polygonum cuspidatum
Kudzu	Pueraria lobata
Loosestrife, purple	*Lythrum salicaria*
Matgrass	Nardus stricta
Millet, wild proso	Panicum miliaceum
Nightshade, silverleaf	Solanum elaeagnifolium
Nutsedge, yellow	Cyperus esculentus
Nutsedge, purple	Cyperus rotundus
Pampas grass	Cortaderia selloana
Parrot feather	Myriophllum aquaticum
Paterson's curse	*Echium plantagineum*
Peavine, everlasting	*Lathyrus latifolius*
Peaweed, Austrian	*Sphaerophysa salsula*
Policeman's helmet	*Impatiens glandulifera*
Puncturevine	Tribulus terrestris
Quackgrass	Agropyron repens
Ragweed	Ambrosia artemisiifolia
Rush skeletonweed	Chondrilla juncea
Saltcedar	Tamarix ramosissima
Skeletonleaf bursage	Ambrosia tomentosa
Spikeweed	Hemizonia pungens
Spurge, leafy	Euphorbia esula
Spurge, myrtle	Euphorbia myrsinites
St. John's-wort	Hypericum perforatum
Starthistle, yellow	Centaurea solstitialis
Starthistle, Iberian	*Centaurea iberica*
Starthistle, purple	*Centaurea calcitrapa*
Tansy ragwort	*Senecio jacobaea*
Teasel	*Dipsacus sylvestris*
Teasel, cutleaf	*Dipsacus laciniatus*
Thistle, bull	*Cirsium vulgare*
Thistle, Canada	*Cirsium arvense*
Thistle, Italian	*Carduus pycnocephalus*
Thistle, musk	*Carduus nutans*
Thistle, plumeless	*Carduus acanthoides*
Thistle, Scotch	*Onopordum acanthium*
Thistle, slender-flowered	*Carduus tenuiflorus*
Thistle, smooth distaff	*Carthamus baeticus*
Thistle, woolly distaff	*Carthamus lanatus*
Toadflax, yellow	*Linaria vulgaris*

Toadflax, Dalmatian	*Linaria dalmatica*
Velvetleaf	*Abutilon theophrasti*
Water chestnut, European	*Trapa natans*
Waterlily, fragrant	Nymphaea oderata
Watermilfoil, Eurasian	Myriophyllum spicatum
Waterweed, South. American.	Elodea densa
Whitetop	Lepidium draba
Whitetop, hairy	Lepidium pubescens
Whitetop, lens-podded	Lepidium chalepensis

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

107.02_nat_us_02_17_2005

107.02 Protection and Restoration of Property and Landscape.

Add the following:

Signs indicating buried utilities are located near the junction of 3420 and 3420-114. It is contractors' responsibility to locate utilities and notify owner before activities in the vicinity of the buried utilities.

Do not work within the wetted perimeter of streams before July 1 or after September 15.

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.

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 60 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
4811036	MP 0.34	MP 0.40	5	N/A

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.

201 - Clearing and Grubbing

201.00_nat_us_08_05_2009

201.02 Material:

Delete Tree wound dressing material reference.

201.03 General.

Delete the last sentence.

201.04 Clearing.

Delete the last sentence of (d).

201.01_nat_us_02_18_2005

201.01 Description

Replace with the following

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

201.04_nat_us_02_22_2005

201.04 Clearing. (c)

Delete paragraph (c) and replace with the following:

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

201.04 Clearing.

Delete subsection (d) and replace with the following:

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

Add the following:

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

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

201.06_nat_us_02_18_2005

201.06 Disposal.

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

Dispose of merchantable timber designated for removal according to the provisions of the timber sale contract.

201.06_nat_us_02_23_2005

201.06 Disposal.

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

All merchantable timber within the clearing limits on either private or Government land remains the property of the landowners. Deck according to 201.04(f) on each owner's property adjacent to the road in approved locations.

201.06_0618_us_03_26_2007

201.06 Disposal

Delete the first sentence of this subsection.

203 - Removal of Structures and Obstructions

203.01_nat_us_03_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.

203.05_0618_us_03_26_2007

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(1)) Scattering method outside clearing limits. 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.

(f(2)): Scattering method inside clearing limits. Scatter pieces of wood less than 3 inches in diameter and 3 feet in length within the clearing limits. Do not place construction slash in lakes, meadows, streams, or streambeds. Immediately remove construction slash that interferes with drainage structures.

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

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

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

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

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

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

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

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

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

203.01_nat_us_03_25_2005

203.08 Payment

Add the following:

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

204 - Excavation and Embankment

204.00_0618_us_05_28_2008

Delete Section 204 in its entirety and replace with the following.

Description

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

(e) Drainage Excavation. Drainage excavation includes construction of all ditches, minor channel changes, drainage dips, catchbasins, surface water deflectors, and other minor

drainage structures. Compact by Method (f) unless otherwise shown on the plans. Excavate on a uniform grade between control points.

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 by the CO, remove topsoil. 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) <u>Compaction B.</u> 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.

(d) Compaction D. Hauling and Spreading Equipment. Adjust the moisture content to a level suitable for compaction. Compact the material by operating equipment over the full width of the roadway.

(e) Compaction E. Roller Compaction. Adjust the moisture content to a level suitable for compaction. Operate Rollers over the full width of each layer until visual displacement ceases, but not fewer than three complete passes. Use rollers that meet the following requirements:

(1) Steel wheeled rollers, other than vibratory, capable of exerting a force of not less than 250 pounds per inch of width of the compression roll or rolls.

(2) Vibratory steel wheeled rollers equipped with amplitude and frequency controls with a minimum weight of 6 tons, specifically designed to compact the material on which it is used.

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

(4) Sheepsfoot, tamping, or grid rollers capable of exerting a force of 250 lbs/inch of width of roller drum.

(f) Compaction F. Mechanical Tamper. Adjust the moisture content of the backfill material to a moisture content suitable for compaction. Compact each 6 inch layer with a minimum of three complete passes with a mechanical tamper.

(g) Compaction G. Excavator compaction - Adjust the moisture content of the backfill material to a moisture content suitable for compaction. Compact with bucket of excavator larger than 39,000 pounds GVW. Overlap compaction by ½ width of bucket, minimum of 3 blows each.

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 1⅓V: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 according to Subsection 204.11 (c) Compaction C. Do not mix clearing or other material not subject to payment with the waste material.

When there is not a pay item for waste, shape and compact the waste material in its final location according to Subsection 204.11 (c) Compaction C.

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

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

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

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

Measurement

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

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

(1) Include the following volumes in roadway excavation:

(a) Roadway prism excavation;

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

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

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

*(e)*Topsoil;

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

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

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

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

(2) Do not include the following in roadway excavation:

(a) Overburden and other spoil material from borrow sources;

(b) Overbreakage from the backslope in rock excavation;

(c) Water or other liquid material;

(d) Material used for purposes other than required;

(e) Roadbed material scarified in place and not removed;

(f) Material excavated when stepping cut slopes;

(g) Material excavated when rounding cut slopes;

(h) Preparing foundations for embankment construction;

(i) Material excavated when benching for embankments;

(j) Slide or slipout material attributable to the Contractor's method of operation;

(k) Conserved material taken from stockpiles constructed at the option of the Contractor; and

(l) Material excavated outside the established slope limits.

(3) When both roadway excavation and embankment construction pay items are shown in the bid schedule, measure the following as roadway excavation only:

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

(b) Slide and slipout material not attributable to the Contractor's method of operations; and

(c) Drainage ditches, channel changes, and diversion ditches.

(b) Unclassified borrow, select borrow, and select topping. When measuring by the cubic yard measure in its original position. If borrow excavation is measured by the cubic yard in place, take initial cross-sections of the ground surface after stripping overburden. Upon completion of excavation and after the borrow source waste material is returned to the source, retake cross-sections before replacing the overburden.

Do not measure borrow excavation used in place of excess roadway excavation.

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

(1) Include the following volumes in embankment construction:

(a) Roadway embankments;

(b) Material used to backfill subexcavated areas, holes, pits, and other depressions;

(c) Material used to restore obliterated roadbeds to original contours; and

(d) Material used for dikes, ramps, mounds, and berms.

(2) Do not include the following in embankment construction:

(a) Preparing foundations for embankment construction;

(b) Adjustments for subsidence or settlement of the embankment or of the foundation on which the embankment is placed; and

(c) Material used to round fill slopes.

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

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

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

Payment

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

Table 204-1
Sampling and Testing Requirements

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

(1) Minimum of 5 points per proctor

Table 204-1 (continued)
Sampling and Testing Requirements

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

(1) Minimum of 5 points per proctor.

Table 204-2
Construction Tolerances

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

(a) Maximum allowable deviation from construction stakes and drawings.
(b) Maximum allowable deviation from staked slope measured from slope stakes or hinge points.
(c) Unless otherwise shown the centerline alignment and subgrade elevation, as built, have no horizontal curves with a radius of less than 80 feet, and no vertical curves with a curve length of less than 80 feet when the algebraic difference in the grade change is less than 10 percent, or a curve length of less than 100 feet when the algebraic difference of

209 - Structure Excavation and Backfill

Section 209A. — STRUCTURE EXCAVATION AND BACKFILL FOR SELECTED MINOR STRUCTURES

Description

209A.01 This work consists of excavating, preparing foundations, backfilling, and subsequent removal of safety features for the construction of selected structures with or without a geogrid reinforcing mesh and welded wire facing.

Material

209A.02 Conform to the following Subsections:

Crushed Aggregate	703.06
Backfill Material	704.03
Structural backfill	704.04
Geotextile type I-D	714.01
Geogrids, Category 1, 2, 3, 4, 5 or 6	714.03
Welded wire form	720.01(b)

Construction Requirements

209A.03 Preparation for Structure Excavation. Clear the area of vegetation and obstructions according to Sections 201 and 203.

209A.04 General. Excavate trenches or foundation pits to a width and length that allows room for work. When excavation is complete obtain written approval of the foundation. Ensure the foundation is firm with uniform density throughout its length and width. Foundation grade is the elevation at the bottom of any bedding for installing the structure.

Where necessary to blast rock, blast according to Section 205.

Follow OSHA safety regulations (29 CFR, Part 1926, Subpart P, Excavation) for sloping the sides of excavations, using shoring and bracing, and for using other safety features. When sides of excavations are sloped for safety considerations, provide one copy of the design that demonstrates conformity with OSHA regulations. Where support systems, shield systems, or other protective systems are to be used, design the shoring according to Section 562 and submit working drawings and construction details according to Subsection 104.03.

Remove safety features when no longer necessary. Remove shoring and bracing to at least 2 feet below the surface of the finished ground.

Saw cut or mill existing pavements or concrete structures adjacent to the area to be excavated that are designated to remain.

Do not deposit excavated material in or near a waterway. Do not stockpile excavated material or allow equipment closer than 2 feet from the edge of the excavation.

Dispose of unsuitable or excess material at designated sites or legally off the project. If approved, suitable excavated material may be used as backfill material or structural backfill.

Remove all water as necessary to perform work.

Survey minor structures according to Subsection 152.03 (e) and (i), and verify the limits of the structure. Survey and establish controls within $\pm$ 0.16 feet. Grade the foundation for a width equal to the length of the bottom geogrid layer.

209A.05 Foundation Preparation. Excavate any unsuitable material below foundation grade, and replace it with backfill material. Place backfill material in horizontal layers that, when compacted, do not exceed 6 inches in depth. Compact each layer according to Subsection 209A.07.

Compact the foundation prior to placing backfill in Subsection 209A.06

209A.06 Backfill. Place leveling course with crushed aggregate on the foundation grade when required. Backfill with structural backfill material. Place backfill in horizontal layers that do not exceed 6 inches in compacted thickness. Compact each layer according to Subsection 209A.07.

Bring structural backfill up evenly on all sides of the structure as appropriate. Extend each layer to the limits of the excavation or to natural ground.

Ensure when placing the geotextile or geogrid layers that there are no voids below the layer. When placing geotextiles overlap the geotextile a minimum of one foot. When placing geogrid no overlap is required but ensure no gap between adjoining sheets is larger than one-inch. Do not operate equipment directly on top of or damage the welded wire form facing, geotextile, or geogrid elements. Place the geotextile and geogrid smooth and free of wrinkles or folds. Correct all damaged, misaligned, or distorted structure elements. Repair all damage to galvanized coating before installation.

Do not deviate from the design batter of the welded wire form by more than 1 inch per 10 feet of structure height.

209A.07 Compacting. Determine optimum moisture content and maximum density according to AASHTO T 99, method C. Adjust the moisture content of the backfill material to a moisture content suitable for compaction.

Compact material placed in all layers to at least 95 percent of the maximum density. Determine the inplace density and moisture content according to AASHTO T 310 or other approved test procedures.

Do not apply density requirements as measured by AASHTO T 310 to material that is incapable of being tested or compacted to maximum values determined by AASHTO T 99. For these materials, fill the voids around the rock in each layer with earth or other fine material. Compact each layer, full width, until there is no visible evidence of further consolidation, with a vibratory steel wheeled roller with a mass of at least 8 tons.

In places not accessible to the rollers compact with alternative equipment to obtain the required compaction requirements.

209A.08 Acceptance. .

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

Survey work will be evaluated under Subsection 106.02 and 106.04.

Material for the backfill material and structural backfill will be evaluated under Subsections 106.02 and 106.04.

Structure excavation and backfill work will be evaluated under Subsections 106.02 and 106.04.

Shoring and bracing will be evaluated under Subsections 106.02 and 106.04.

Welded wire forms, geotextiles, and geogrids will be evaluated under Subsection 106.02 and 106.03.

Placement of welded wire forms, geotextiles, and geogrids will be evaluated under Subsection 106.02 and 106.04.

Measurement

209A.09 Measure the Section 209A items listed in the bid schedule according to Subsection 109.02 and the following.

Measure structural excavation by the cubic yard in its original position according to Subsections 204.16 (a) (1) and (2). Do not include the following volumes in structure excavation:

(a) Any material included within the staked limits of the excavation, such as contiguous channel changes and ditches, for which measurement is covered under other sections; or

(b) Material rehandled, except when the contract specifically requires excavation after embankment placement.

Measure backfill material and structural backfill by the cubic yard in place for the volume placed according to Subsection 204.16 (c).

Measure geotextile by the horizontal and vertical dimensions.

Payment

209A.10 The accepted quantities measured as provided in Subsection 109.02 and above, will be paid at the contract price per unit of measurement for the Section 209A pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Payment for structure excavation, shoring, and bracing will be full compensation for excavation to a depth of 6 feet below the lowest elevation shown on the plans for each minor structure. When

the excavation exceeds 6 feet, either the Contractor or the CO may request an equitable price adjustment for the depth in excess of 6 feet.

230 - Roadside Brushing

230.00_0618_us_03_31_2010

230.01 Description. This work consists of removing limbs, residual slash, roadside brush and small trees within the brushing limits designated in the plans, including turnouts.

Construction Requirements

230.02 General. Cut all brush and small trees, (**7** inch diameter or less at the point of cut) within the brushing limits and outside the roadbed no higher than **6** inches above the ground surface or obstructions such as rocks or stumps. Trees beyond the bottom of ditch and beyond the hinge point on the fill slope side, with a diameter larger than **6** inches at a point **1** feet above the ground shall be limbed to a height of **14** feet above the road surface.

Cut all brush and trees located in the roadbed. Grub and haul stumps to designated waste areas or as directed by the Contracting Officer. Smooth and shape the disturbed areas where stumps are removed to prevent water ponding.

230.03 Windfalls. Cut windfalls lying within or across the brushing limits to a horizontal distance of **6** feet from each shoulder or at the brushing limit, whichever is least. Dispose of windfall material as slash.

230.04 Slash Treatments. Remove limbs, chunks, and debris within the roadway in excess of

3 feet in length or **3** inches in diameter, or concentrations which may plug ditches or culverts, from the traveled way, shoulders, ditches and water courses.

Dispose of slash in accordance with one or more of the following methods, as shown in the bid schedule:

(1) Scattering. Scatter slash outside the roadway limits without damaging trees. Do not scatter any material in streambeds, culvert inlets or outlets, drainage ways or cattleguards.

(2) Chipping. Process slash through a chipping machine. Deposit chips on embankment slopes or outside the roadway to a loose depth less than 6 inches.

(3) Piling. Pile slash in designated locations. Place and construct piles so that if the piles are burned, the burning will not damage surrounding trees. Keep piles free of dirt. Cut unmerchantable logs into lengths less than 20 feet.

(4) Decking. Deck logs in excess of **10** feet long and **8** inches in diameter in designated locations. Logs shall be limbed and decks are to be stable and free of brush and soil. Treat other material according to designated slash treatment methods.

(5) Placing slash on embankment slopes. Place slash on embankments slopes as designated in the plans to reduce soil erosion. Place slash as flat as practicable on slope. Do not place closer than 2 feet below shoulder. Priority for use of available slash in for: (1) through fills; (2) insides of curves.

(6) Burying. Bury slash at designated locations. Mat slash down in layers and cover with rock and soil.

(7) Piling & burning. Pile and burn slash in designated locations. Construct piles so that burning does not damage remaining trees.

Measurement

230.05 Measure the Section 230 items listed in the bid schedule according to Subsection 109.02. Quantities will be the number of miles and fractions thereof along the road centerline, regardless of the amount of work required.

Payment

230.06 The accepted quantities will be paid at the contract price per unit of measurement for the Section 230 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

303 - Road Reconditioning

303.01_0618_us_01_20_2009

303.01 Work.

Delete and add the following:

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

303.07 Roadway Reconditioning.

Add the following:

Asphalt Surfaces

Clean the existing surface of all loose material, dirt, or other deleterious substances by approved methods.

303.06_nat_us_08_05_2008

303.06 Aggregate Surface Reconditioning.

Delete and replace with the following:

303.06 Asphalt and Aggregate Surface Reconditioning.

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

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

Delete Table 303-1 and replace with the following:

Table 303-1
Sampling and Testing Requirements

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

(1) Minimum of 5 points per proctor.

303.07_0618_us_03_23_2007

303.07 Roadway Reconditioning.

Delete and add the following:

Perform all the applicable work described in Subsection 303.03 through 303.06. Recondition the traveled way, shoulders and ditchline of intersecting roads to provide a smooth transition as shown on the plans.

303.10_0618_us_03_26_2007

303.10 Measurement

Remove and replace the first sentence in the third paragraph with the following:

Measure roadbed reconditioning, aggregate surface reconditioning, roadway reconditioning, and pulverizing by the mile, by the foot, by the station or by the square yard.

303.11_nat_us_03_29_2005

303.10 Measurement

Modify the second paragraph as follows:

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

322 - Minor Aggregate Courses

322.00_nat_us_10_14_2011

Description

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

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

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

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

Material

322.02 Conform to the following Subsections:

Aggregate	703.05
Water	725.01

Construction Requirements

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

Request approval of the roadbed in writing before placing aggregate.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Compaction E. Removed.

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

Compaction G. Removed.

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

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

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

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

Ensure that the compacted thickness is not consistently above or below the specified thickness. The maximum variation from the compacted specified thickness is ½ inch.

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

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

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

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

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

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

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

Measurement

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

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

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

Measure thickness perpendicular to the grade of the travelway.

Measure width perpendicular to the centerline.

Payment

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

Table 322-1
Sampling and Testing Requirements

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Aggregate source quality 703.05	Measured and tested for conformance (106.04 & 105)	LA abrasion (coarse)	—	AASHTO T 96	1 per type & source of material	Source of material	Yes, when requested	Before using in work
		Sodium sulfate soundness loss (coarse & fine)	—	AASHTO T 104	"	"	"	"
		Durability index (coarse & fine)	—	AASHTO T 210	"	"	"	"
		Fractured faces	—	ASTM D 5821	"	"	"	"
Subbase, Base, and Surface courses	Measured and tested for conformance (106.04)	Sample	—	AASHTO T 2	2 per day	From windrow or roadbed after processing or from approved crusher sampling device	Yes	48 hours

Table 322-1 (continued)
Sampling and Testing Requirements

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Subbase, Base, and Surface	Measured and tested for conformance (106.04)	Moisture-density Method D	—	AASHTO T 99 (1)	1 per type and source of material	Source of material	Yes, when requested	Before using in work
			—		"	"	"	"
		Moisture-density Method F	—	AASHTO T 180(1)	"	"	"	"
			—		"	"	"	"
		In-place density & moisture content	—	AASHTO T 310 or other approved procedures	3 per day	In-place	—	Before placing next layer

Table 322-2
Sampling and Testing Requirements

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Screened Aggregate	Measured and tested for conformance (106.04)	Sample	—	AASHTO T 2	2 per day	From windrow or roadbed after processing or from approved crusher sampling device	Yes	48 hours

602 - Culverts and Drains

602.03_nat_us_09_06_2005

602.03 General.

Add the following:

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

602.03_06_us_03_17_2010

602.03 General

Add the following:

Clean and paint damaged coating caused by welding, field cutting, or handling in accordance with AASHTO M 36M and ASTM A 849.

602.06_nat_us_08_05_2009

602.06 Laying Plastic Pipe.

Delete the second paragraph and substitute the following:

Provide soil-tight bell and spigot joints for plastic pipe culverts.

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

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)				
	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	
3/4 inch			64 – 94 (6)	86 – 100 (6)	100
1/2 inch	45 – 59 (7)				
3/8 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

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)					
	Grading Designation					
	F	G	H	S	T	U
1 1/2 inch	100			100		
1 inch	97-100	100		72 – 92 (6)	100	
3/4 inch	76-89 (6)	97 - 100	97 - 100			100
1/2 inch					71 – 91 (6)	
3/8 inch	56-68 (6)	70 – 80 (6)	80 – 92 (6)	51 – 71 (6)		71 – 90 (6)
No. 4	43-53 (7)	51 – 63 (7)	58 – 70 (7)	36 – 53 (7)	43 – 60 (7)	50 – 68 (7)
No. 8				26 – 40 (6)	30 – 46 (6)	34 – 51 (6)
No. 16	23-32 (6)	28 – 39 (6)	28 – 40 (6)			
No. 40	15-23 (5)	19 – 27 (5)	16 – 26 (5)	14 – 25 (5)	16 – 28 (5)	19 – 30 (5)
No. 200	10.0-16.0 (4)	10.0 – 16.0 (4)	9.0 – 14.0 (4)	8.0 – 15.0 (4)	8.0 – 15.0 (4)	8.0 – 15.0 (4)

( ) The value in the parentheses is the allowable deviation (±) 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	

Delete Table 703-2 and replace with the following:

Table 703-2
Target Value Ranges for Subbase and Base Gradation

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)				
	Grading Designation				
	A (Subbase)	B (Subbase)	C (Base)	D (Base)	E (Base)
3 inch	100				
2 inch	65 - 95	100	100		
1½ inch		97 – 100			
1 inch			80 – 100 (6)	100	
3/4 inch	40 - 75		64 – 94 (6)	86 – 100 (6)	100
1/2 inch					
3/8 inch			40 – 69 (6)	51 – 82 (6)	62 – 90 (6)
No. 4	22 - 45	40 – 60 (8)	31 – 54 (6)	36 – 64 (6)	36 – 74 (6)
No. 40	8 - 22			12 – 26 (4)	12 – 26 (4)
No. 200	2 - 10	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..

Note: Allowable deviations (±) from TV are shown in parentheses. If the plasticity index (PI) is greater than 0, the TV range for the No. 200 sieve size is 6-12 (4).

Table 703-2 Correction

Include the following substitution

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

Table 703-2 Correction

Include the following substitution

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

703.10_nat_us_04_11_2011

703.10(e) Flakiness Index.

Delete and replace with the following:

Flakiness Index, FLH T 508 30% max.

703.10(i) Adherent Coating.

Add the following:

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

704 - Soil

704.02_0618_us_04_24_2008

704.02 Bedding Material.

Delete the Soil classification, AASHTO M 145 requirement in (b).

704.03_0618_us_03_26_2007

704.03 Backfill Material.

Delete the Soil classification, AASHTO M 145 requirement in (a) (2) and (b) (2).

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.