

UNITED STATES DEPARTMENT OF AGRICULTURE



FOREST SERVICE--REGION SIX  
WILLAMETTE NATIONAL FOREST  
MIDDLE FORK RANGER DISTRICT



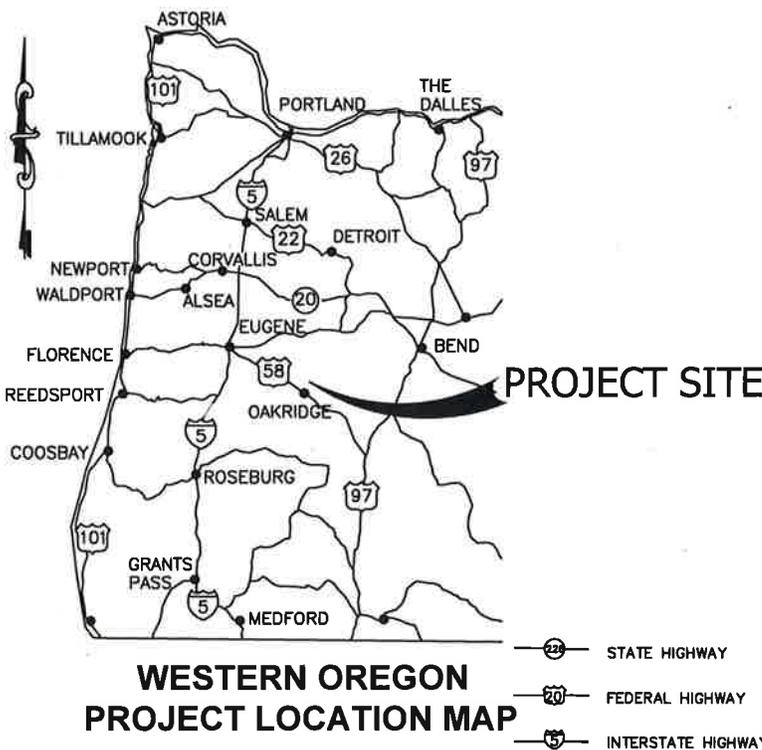
Project located in Lane County, OR

PLANS FOR  
**FIRST THIN TIMBER SALE**

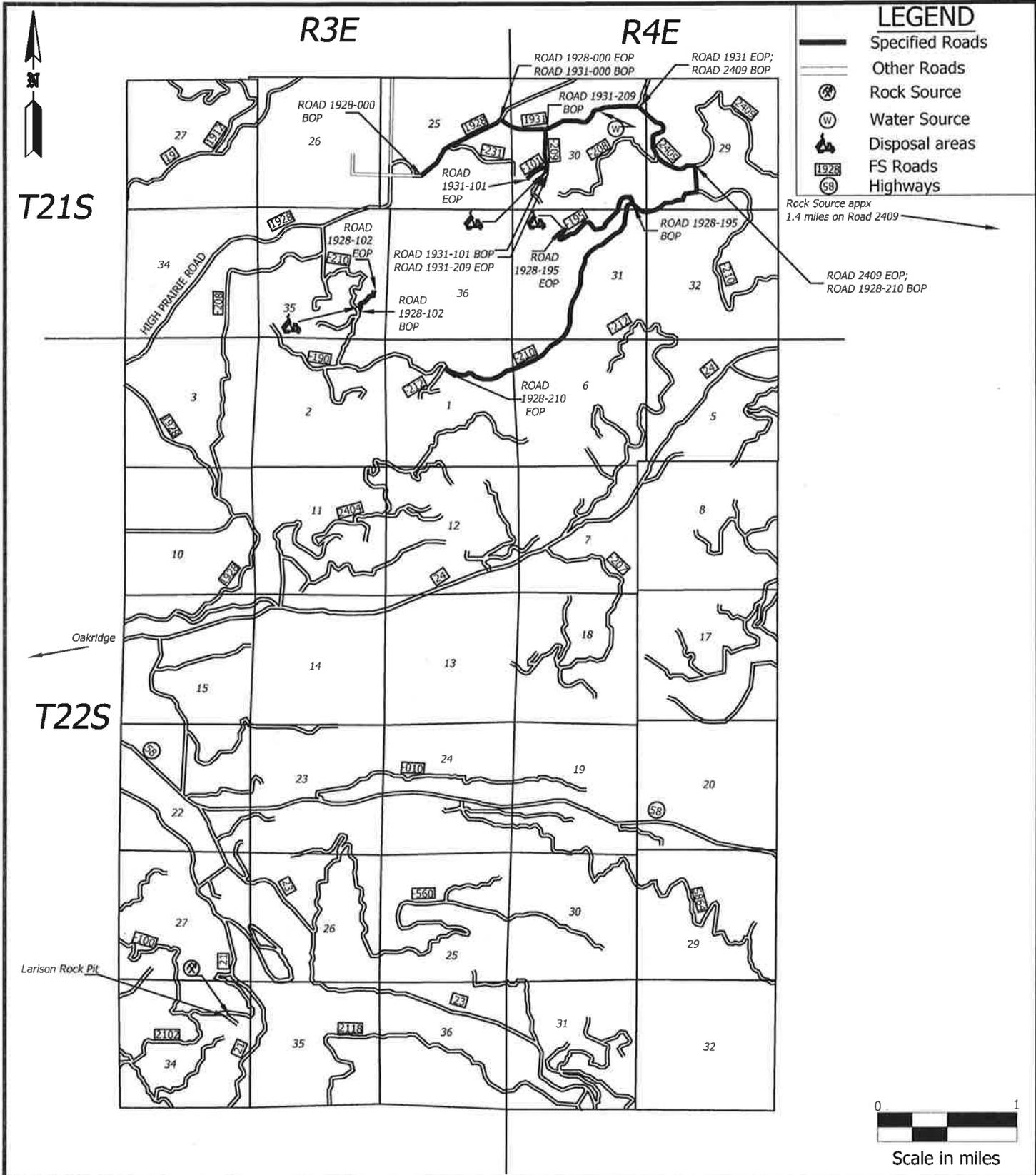
INDEX TO SHEETS	
NO.	DESCRIPTION
1	TITLE SHEET
2	VICINITY MAP
3	GENERAL NOTES
4-7	ESTIMATE OF QUANTITIES
8	ROAD 1928-000 RECONSTRUCTION SUMMARY
9	ROAD 1928-102 RECONSTRUCTION SUMMARY
10	ROAD 1928-195 RECONSTRUCTION SUMMARY
11	ROAD 1928-210 RECONSTRUCTION SUMMARY
12	ROAD 1931-000 RECONSTRUCTION SUMMARY
13	ROAD 1931-101 RECONSTRUCTION SUMMARY
14	ROAD 1931-209 RECONSTRUCTION SUMMARY
15	ROAD 2409-000 RECONSTRUCTION SUMMARY
16	DRAINAGE LISTING
17-18	DRAINAGE CONSTRUCTION DETAILS
19	LINEAR GRADING TYPICAL
20	ROLLING DIP DETAILS
21	CLEARING AND GRUBBING TYPICAL
22	RECONSTRUCTION TYPICAL

**SPECIFIED ROADS**

ROAD NO.	LENGTH	TYPE OF WORK
1928-000	0.67 MILES	RECONSTRUCTION
1928-102	0.22 MILES	RECONSTRUCTION
1928-195	0.65 MILES	RECONSTRUCTION
1928-210	2.82 MILES	RECONSTRUCTION
1931-000	1.13 MILES	RECONSTRUCTION
1931-101	0.13 MILES	RECONSTRUCTION
1931-209	0.27 MILES	RECONSTRUCTION
2409-000	1.08 MILES	RECONSTRUCTION



DESIGNED BY: HELMUT KREIDLER	DATE
<i>Helmut Kreidler</i>	2/11/2016
REVIEWED BY: PHIL BUREL	DATE
<i>Phil Burel</i>	7.1.16
REVIEWED BY (DEVELOPMENT ENGINEER): JEFF CASWELL	DATE
<i>Jeff Caswell</i>	7.5.16
RECOMMENDED BY (ACT. ZONE ENGINEER): KEN KITTRELL	DATE
<i>Ken Kittrell</i>	8/3/2016
APPROVED BY (DISTRICT RANGER): DUANE BISHOP	DATE
<i>Duane Bishop</i>	8/2/2016
APPROVED BY (FOREST ENGINEER): DARREN LEMON	DATE
<i>Darren Lemon</i>	July 18, 2016

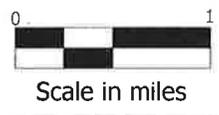


**LEGEND**

- Specified Roads
- Other Roads
- Rock Source
- Water Source
- Disposal areas
- FS Roads
- Highways

Rock Source appx  
1.4 miles on Road 2409

ROAD 2409 EOP;  
ROAD 1928-210 BOP



**FIRST THIN TIMBER SALE**

**VICINITY MAP**

SHEET NUMBER	TOTAL SHEETS
2	22

1. Purchaser's representative responsible for all permits and utility locates prior to beginning reconstruction work. Purchaser is responsible for damage to utilities resulting from Purchaser's representative negligence.
2. Salvage existing aggregate during culvert removal and use as bedding and initial backfill material during installation.
3. Designated disposal site(s) are identified on the plans. The Contracting Officer (CO) will flag the disposal areas prior to placement of material. For all excess or unsuitable materials, place in one pile and shape to drain away from road. Disposal area development and shaping is indirect to item 21201.
4. All culvert installations/replacements with flowing water are considered live stream channels. Replace culverts when stream channels are dry or during instream work period. Dewatering will be deleted if there is no water in the stream when work is done. The in-stream work period is July 1 to October 15. Additional timing/date restrictions, if applicable, are included in C6.24 and C6.315 of the timber sale provisions and specification FSSS 156.05.
5. For all culvert installations, extra excavation required to install culvert at proper depth is indirect to pay item. Rebuild fills over pipes with a minimum of 1V : 1.5H fill slope and 1' shoulders.
6. Do not undercut existing backslopes when cleaning and/or reconstructing roadway ditch.
7. Maintain any construction staking on the project until final inspection and acceptance.
8. Haul and spread government furnished grass seed and straw over disturbed soil at all culvert installations, disposal areas and other disturbed soil work areas, excluding ditches. Straw shall be applied a minimum of 2" thick so that no gaps exist between disturbed soil and matrix. Place seed at a rate of 10 lbs per acre. Straw and seed is stored at the Flat Creek Work Center, located on Forest Service Road 24, 2 miles east of the town of Oakridge. Contact the CO to arrange pick up.
9. Dispose of excess culvert (new and old) by removing from government land according to FSSS 203.05, method (a).
10. Recondition turnouts and curve widening to the dimensions on the ground and to the same standard as roadway reconditioning, where specified.
11. Clearing and grubbing of trees during culvert installations is considered indirect to corresponding culvert installation. Logs meeting utilization standards (see section 201.04) are to be limbed, separated, and decked adjacent to the work area as designated by the CO. Dispose of slash according to subsection FSSS 203.05, disposal method (f).
12. Construction tolerance class D for all roads.
13. An additional equipment cleaning, as specified in B6.35 of the contract, shall be required if starting reconstruction work on the 1931-209, 1928-210, or 1928-102 before any other road. This shall be indirect to pay item 15101, Mobilization.



**FIRST THIN TIMBER SALE**

**GENERAL NOTES**

SHEET NUMBER TOTAL SHEETS

3 22

ITEM NUMBER	DESCRIPTION - All Roads	UNIT	QUANTITIES								REMARKS
			1928-000	1928-102	1928-195	1928-210	1931-000	1931-101	1931-209	2409-000	
	<b>FS ROAD NUMBER</b>										
	<b>PROJECT ROAD LENGTH</b>	Miles	0.67	0.22	0.65	2.82	1.13	0.13	0.27	1.08	
15101	Mobilization	Lump Sum	All								Includes fire protection, equipment cleaning, temporary traffic control, equipment haul, transportation, etc. encountered during work on all roads in the project area.
15755	Dewatering structure	Each					2		1		Dewatering will be deleted if no water in stream when work is done.
20103	Clearing and grubbing, disposal of tops and limbs (f), logs (i), stumps (f)	Mile							0.27		Deck trees at designated locations as staked by Contracting Officer.
20253	Removal of individual trees, miscellaneous: disposal of tops and limbs: (f) and logs: (f)	Each	2		5	5	4		4		
20358	Removal of corrugated metal pipe, disposal method (a)	Each					3		1		
20404	Unclassified borrow, compaction method B	Cubic Yard*	100								Includes removal and replacement of any shortage or unsuitable material encountered during work on all roads. If not used pay item shall be deleted. Commercial Source.

\* Denotes contract quantity

**FIRST THIN TIMBER SALE**  
**ESTIMATE OF QUANTITIES**



SHEET NUMBER	TOTAL SHEETS
4	22

ITEM NUMBER	DESCRIPTION - All Roads	UNIT	QUANTITIES								REMARKS
			1928-000	1928-102	1928-195	1928-210	1931-000	1931-101	1931-209	2409-000	
	<b>FS ROAD NUMBER</b>										
	<b>PROJECT ROAD LENGTH</b>	Miles	0.67	0.22	0.65	2.82	1.13	0.13	0.27	1.08	
20419A	Drainage excavation, type culvert inlet ditch	Foot					10	120			Construct inlet ditch as staked by Contracting Officer. Waste excavated material adjacent to ditch.
20419B	Drainage excavation, type culvert outlet ditch	Foot				30				40	
20420	Drainage excavation, type catch basin	Each			2	1				1	
20426	Grade dips, rolling dip	Each			1						See sheet 20 for details.
20701	Earthwork geotextile type II-A	Square Yard*			48						Commercial Source. For rolling dip installation.
21201	Linear grading	Mile		0.22	0.65			0.13			See sheet 19 for details. Includes constructing new cut slopes, as needed, to obtain road width.
25104	Keyed riprap, class 4	Cubic Yard*			2	2	16		1		Government furnished material. Road 2409, MP 1.56 (from 1928-210 junction), left side. Purchaser's representative responsible for development, screening, sorting as required.
30311A	Roadway reconditioning, surfacing, compaction method B	Mile	0.67								Scarify to 4" depth and to full surfacing width. Scarify minimum 1" below the depth of all potholes, washboards or surface irregularities over 4" deep.

\* Denotes contract quantity

FIRST THIN TIMBER SALE

ESTIMATE OF QUANTITIES



SHEET NUMBER TOTAL SHEETS

5

22

ITEM NUMBER	DESCRIPTION - All Roads	UNIT	QUANTITIES								REMARKS
			1928-000	1928-102	1928-195	1928-210	1931-000	1931-101	1931-209	2409-000	
	<b>FS ROAD NUMBER</b>										
	<b>PROJECT ROAD LENGTH</b>	Miles	0.67	0.22	0.65	2.82	1.13	0.13	0.27	1.08	
30311B	Roadway reconditioning, surfacing, compaction method B	Mile				2.82					Scarify minimum 1" below the depth of all potholes, washboards or surface irregularities.
30359	Roadway reconditioning, compaction method E	Mile							0.27		Haul material pulled from ditch reconditioning, slough and slide removal, and logs in ditch to disposal areas located at MP 0.03, 0.14, and 0.27 on Road 1931-209.
32207	Aggregate subbase grading A, compaction method B	Cubic Yard*	30	10		100	1000		250	50	Commercial Source.
32222	Pit run, maximum size 3-inches, compaction method B	Cubic Yard*		510	820			300			Government furnished material. Road 2102 MP 0.69, left side. Purchaser's representative responsible for development, screening, sorting as required.
60276A	18-inch corrugated aluminized steel pipe, 0.064-inch thickness, method B	Foot		30				30	30		Includes bands, gaskets, and necessary hardware. Compact using FSSS 209.11.
60276B	24-inch corrugated aluminized steel pipe, 0.064-inch thickness, method B	Foot					42				Includes bands, gaskets, and necessary hardware. Compact using FSSS 209.11.
60276C	36-inch corrugated aluminized steel pipe, 0.064-inch thickness, method B	Foot					126				Includes bands, gaskets, and necessary hardware. Compact using FSSS 209.11.

\* Denotes contract quantity

**FIRST THIN TIMBER SALE**  
**ESTIMATE OF QUANTITIES**



SHEET NUMBER    TOTAL SHEETS

6

22

**FIRST THIN TIMBER SALE**  
**ESTIMATE OF QUANTITIES**

ITEM NUMBER	DESCRIPTION - All Roads	UNIT	QUANTITIES								REMARKS
			1928-000	1928-102	1928-195	1928-210	1931-000	1931-101	1931-209	2409-000	
	<b>FS ROAD NUMBER</b>										
	<b>PROJECT ROAD LENGTH</b>	Miles	0.67	0.22	0.65	2.82	1.13	0.13	0.27	1.08	
60652	18-inch full-circle outlet pipe with aluminized coating	Foot				10					Remove 2-feet from outlet (incidental to pay item). New pipe - 0.064-inch thickness
62558	Seeding and mulching, dry method	Lump Sum	All								Includes work on all disturbed areas, except ditches, on all roads in the project area. Government furnished
* Denotes contract quantity											



MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK 1928-000
0.00				Access via High Prairie Road/Road 1928-000.
				End County maintenance: End Huckleberry Road, Road 1928-000.
				Beginning of project: Road 1928-000 (at end of pavement).
	30311A	0.67	Mile	Begin surfacing reconditioning. Scarify to minimum 4" depth and to full surfacing width. Scarify minimum 1" below the depth of all potholes, washboards or surface irregularities.
0.14				Junction right, Road 1928-220.
0.18				Junction right, Road 1928-231.
0.22				Junction left, Road 1928-225.
0.53				Junction left, Road 1928-228.
0.62				MP 7, right side.
0.67				Junction right, Road 1931.
	20253	2	Each	Fall trees as designated by CO.
	32207	30	Cubic Yard*	Place spot rock as designated by the CO.
				End of project.



**FIRST THIN TIMBER SALE**

**ROAD 1928-000 RECONSTRUCTION SUMMARY**

SHEET NUMBER TOTAL SHEETS

8

22

PACIFIC NORTHWEST REGION

MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK 1928-102
0.00				Access via Road 1928-210, from junction with Road 1928, MP 1.17 , Road 1928-102 left.
				Beginning of project: Road 1928-102
	21201	0.22	Mile	Begin linear grading. See typical on sheet 19. Dispose of waste on Road 1928-102, MP 0.03, as staked by CO. Disposal work indirect to pay item.
	32222	510	Cubic Yard*	Begin placement of 9-inch depth of pit-run, compaction method B. Blend to adjacent surfaces and widths to provide for smooth transitions. Includes curve widening and turnouts.
	60276A	30	Foot	Install 18-inch aluminized CMP in ditchline. Skew 90 degrees and slope 6 percent, as staked by CO.
	32207	10	Cubic Yard*	Place 6-inch depth of compacted crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transitions.
0.22				End linear grading.
				End placement of pit-run rock.
				End of project.



**FIRST THIN TIMBER SALE**

**ROAD 1928-102 RECONSTRUCTION SUMMARY**

SHEET NUMBER TOTAL SHEETS

9 22

MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK 1928-195
0.00				Access via Road 1928-210 from junction with Road 2409, MP 0.53, Road 1928-195, right.
				Beginning of project: Road 1928-195.
	21201	0.65	Mile	Begin linear grading. See typical on sheet 19. Dispose of waste on Road 1928-195, MP 0.65, as staked by CO. Disposal work indirect to pay item.
	32222	800	Cubic Yard*	Begin placement of 6-inch depth of pit-run, compaction method B. Blend to adjacent surfaces and widths to provide for smooth transitions. Includes curve widening and turnouts.
0.37				Existing 18-inch culvert.
	20420	1	Each	Reconstruct catch basin.
0.40	20426	1	Each	Construct rolling dip as staked by CO. See typical, sheet 20.
	20701	48	Square Yard*	Place geotextile fabric as directed by CO. See sheet 20 for details.
	32222	20	Cubic Yard*	Place 12-inch depth of pit run, compaction method B. See sheet 20 for details.
	25104	2	Cubic Yard*	Construct splash apron (7'L x 4'W x 2'D) at low point of rolling dip. See sheet 20 for location and sheet 18 for typical.
0.44				Existing 18-inch culvert.
	20420	1	Each	Reconstruct catch basin.
0.57				End placement of pit-run.
0.65				Disposal area.
				End linear grading.
	20253	5	Each	Fall trees as designated by CO.
				End of project.



**FIRST THIN TIMBER SALE**

**ROAD 1928-195 RECONSTRUCTION SUMMARY**

SHEET NUMBER TOTAL SHEETS

10

22

MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK 1928-210
0.00				Access via Road 2409-000 from junction with 1931-000 road, MP 1.08, Road 1928-210 right.
				Beginning of project: Road 1928-210.
	30311B	2.82	Mile	Begin surfacing reconditioning. Scarify minimum 1" below the depth of all potholes, washboards or surface irregularities.
0.18				Existing 18-inch culvert.
	25104	1	Cubic Yard*	Construct splash apron (5'L x 3'W x 2'D).
0.35				Disposal area left.
0.47				Existing 18-inch culvert.
	20420	1	Each	Reconstruct catch basin.
	60652	10	Foot	Remove 2-feet from outlet (indirect to pay item). Install culvert downspout.
0.52				Existing 18-inch culvert.
	25104	1	Cubic Yard*	Construct splash apron (5'L x 3'W x 2'D).
0.53				Junction right, Road 1928-195.
0.57				Existing 18-inch culvert.
	20419B	10	Foot	Construct outlet ditch.
0.70				Existing 18-inch culvert.
	20419B	10	Foot	Construct outlet ditch.
1.22				Junction left, Road 1928-104
1.23				Existing 18-inch culvert.
	20419B	10	Foot	Construct outlet ditch.
2.82				Junction left, Road 1928-212 (Equals MP 2.68 from Road 1928/ Road 1928-210 junction to west).
				End surfacing reconditioning.
	20253	5	Each	Fall trees as designated by CO.
	32207	100	Cubic Yard*	Place spot rock as designated by the CO.
				End of project.



## FIRST THIN TIMBER SALE

### ROAD 1928-210 RECONSTRUCTION SUMMARY

SHEET NUMBER TOTAL SHEETS

11

22

MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK 1931-000
				Access via 1928, MP0 0.67 from end County Maintenance, Road 1931-000 right.
0.00				Beginning of project: Road 1931-000.
	15101	All	Lump Sum	Includes fire protection, equipment cleaning, temporary traffic control, equipment haul, transportation, etc. encountered during work on all roads in the project area.
	20404	100	Cubic Yard*	Unclassified borrow, compaction method B. Material available for all roads, as needed, to replace unsuitable excavation materials generated during
	32207	950	Cubic Yard*	Begin placement of 3-inch lift of crushed aggregate, compaction method B. Blend to adjacent surfaces and widths to provide for smooth transitions. Includes curve widening and turnouts.
0.36				Junction right, Road 1931209.
0.65	20358	1	Each	Remove existing 18-inch CMP.
	60276B	42	Foot	Install 24-inch CMP at same skew and grade.
	32207	10	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transitions.
0.69	15755	1	Each	Install dewatering system.
	20358	1	Each	Remove existing 30-inch CMP (tributary to Fourth Creek).
	60276C	56	Foot	Install 36-inch CMP at same skew and grade.
	25104	6	Cubic Yard*	Install headwall at inlet (7' L1 x 14' L2 x 5' H x 2' D).
	32207	20	Cubic Yard*	Place 6-inch depth of compacted aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transitions.
0.73				Existing 18-inch CMP.
				Disposal area, left side before culvert, on old cat trails.
0.88	15755	1	Each	Install dewatering system.
	20358	1	Each	Remove existing 18-inch CMP.
	60276C	70	Foot	Install 36-inch CMP at same skew and grade.
	25104	10	Cubic Yard*	Install headwall at inlet (7' L1 x 14' L2 x 5' H x 2' D) and splash apron (9' L x 6' W x 2' D).
	32207	20	Cubic Yard*	Place 6-inch depth of crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transitions.
0.98				Existing 18-inch CMP.
				MP1, right side.
0.99				Existing 18-inch CMP.
	20419A	10	Foot	Construct inlet ditch.
1.13				Junction right, Road 2409-000.
	20253	4	Each	Fall trees as designated by CO.
	62558	All	Lump Sum	Includes work on all disturbed soil areas on all roads, except ditches, in the project area. Government furnished seed and straw.
				End placement of crushed aggregate.
				End of project.



## FIRST THIN TIMBER SALE

### ROAD 1931-000 RECONSTRUCTION SUMMARY

SHEET NUMBER TOTAL SHEETS

12

22

PACIFIC NORTHWEST REGION

MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK 1931-101
				Access via Road 1931-209, MP0.25, Road 1931-101 right. Disposal area on Road 1931-209 MP 0.27.
0.00				Beginning of project: Road 1931-101.
	21201	0.13	Mile	Begin linear grading. See typical on sheet 19.
	32222	300	Cubic Yard*	Begin placement of 9-inch depth of pit run, compaction method B. Blend to adjacent surfaces and widths to provide for smooth transition. Includes curve widening and turnouts.
0.13	60276A	30	Foot	Install 18-inch aluminized CMP. Skew 120 degrees and slope 6 percent, as staked by CO.
	20419A	120	Foot	Construct inlet ditch as staked by CO.
				End linear grading.
				End placement of pit run.
				End of project.



**FIRST THIN TIMBER SALE**

**ROAD 1931-101 RECONSTRUCTION SUMMARY**

SHEET NUMBER TOTAL SHEETS

13

22

MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK 1931-209
				Access via Road 1931-000, MP 0.36, Road 1931-209 right.
0.00				Beginning of project: Road 1931-209.
	30359	0.27	Mile	Begin reconditioning of roadway. Recondition ditch for full length of project and grub as necessary. Haul material from ditch reconditioning, slough and slide removal to disposal area. Scatter all logs and woody debris from top of cutbank to the opposite road shoulder outside clearing limits. Remove all standing trees as shown in Clearing and Grubbing Typical, sheet 21. Scarify minimum 1" below the depth of all potholes, washboards or surface irregularities.
	20103	0.27	Mile	Begin clearing and grubbing.
	32207	240	Cubic Yard*	Begin placement of 4-inch depth of crushed aggregate, compaction method B. Blend to adjacent surfaces and widths to provide for smooth transitions. Includes curve widening and turnouts.
0.03				Disposal area right.
0.09	20358	1	Each	Remove existing 18-inch CMP.
	60276A	30	Foot	Install 18-inch CMP (120° skew, 5% grade, as staked by CO).
	32207	10	Cubic Yard*	Place 6-inch depth of compacted crushed aggregate over culvert installation. Blend to adjacent surfaces and widths to provide for smooth transitions.
0.12				Junction right, unnamed spur.
0.14				Disposal area left.
0.23	15755	1	Each	Install dewatering system.
				Existing 36-inch CMP, live stream.
	25104	1	Cubic Yard*	Armor road shoulder left side, right side of culvert inlet with riprap. (3' x 3' x 3', as staked by CO).
0.25				Junction right, Road 1931-101.
				End placement of crushed aggregate.
0.27				Disposal area right.
				End roadway reconditioning.
				End placement of crushed aggregate.
				End clearing and grubbing.
	20253	4	Each	Fall danger trees as designated by CO.
				End of project.



## FIRST THIN TIMBER SALE

### ROAD 1931-209 RECONSTRUCTION SUMMARY

SHEET NUMBER TOTAL SHEETS

14

22

PACIFIC NORTHWEST REGION

MILE POST	ITEM NUMBER	QUANTITY	UNIT	DESCRIPTION OF WORK 2409-000
0.00				Access via Road 1931-000 at MP 1.13, Road 2409-000 right. Waste area on Road 1931-000, MP 0.73.
				Beginning of project: Road 2409-000.
0.01				Existing 18-inch culvert.
	20419B	15	Foot	Construct outlet ditch.
	20420	1	Each	Reconstruct catch basin.
0.26				Existing 36-inch culvert.
	20419B	5	Foot	Construct outlet ditch.
0.52				Junction right, Road 2409-208.
0.61				Existing 18-inch culvert.
	20419B	10	Foot	Construct outlet ditch.
0.78				Existing 18-inch culvert.
	20419B	10	Foot	Construct outlet ditch.
0.89				Junction left, Road 2409-220.
1.08				Junction right, Road 1928-210.
				Road 2409-000 continues to left.
	32207	50	Cubic Yard*	Place spot rock as designated by the CO.
				End of project.



**FIRST THIN TIMBER SALE**

**ROAD 2409-000 RECONSTRUCTION SUMMARY**

SHEET NUMBER TOTAL SHEETS

15

22

ROAD NUMBER	MILE POST	DESIGNED			AS-BUILT			INSTALLATION DETAILS			RIPRAP		DEWATER	INLET DITCH (FT)	OUTLET DITCH (FT)	REMARKS
		CMP			PIPE	OUTLET PIPE	TYPE	SKEW (°)	GRADE (%)	MACHINE PLACED						
		DIAMETER (INCH)	LENGTH (FT)	THICKNESS (INCH)						CMP FULL CIRCLE (FT)	DIAMETER (INCH)	LENGTH (FT)				
1928-102	0.00	18	30	0.064				1	90	6%						As staked by CO.
1928-195	0.37	na			18											Reconstruct catch basin.
	0.44	na			18											Reconstruct catch basin.
1928-210	0.18	na			18							1				
	0.47	na		10	18											Reconstruct catch basin.
	0.52	na			18							1				
	0.57	na			18										10	
	0.70	na			18										10	
	1.23	na			18										10	
1931	0.65	24	42	0.064				#	#	#						
	0.69	36	56	0.064				#	#	#	6		X			
	0.88	36	70	0.064				#	#	#	6	4	X			
	0.99	na			18										10	
1931-101	0.13	18	30	0.064				#	120	6%				120		Inlet ditch as staked by CO.
1931-209	0.09	18	30	0.064				#	120	5%						As staked by CO.
	0.23	na			36						1		X			Armor right side of inlet as staked by CO.
2409-000	0.01	na			18										15	Reconstruct catch basin.
	0.26				36										5	Deep fill. Open outlet.
	0.61				18										10	
	0.78				18										10	

# Skew, grade and type shall match removed installation unless otherwise noted.  
NOTE: Install helically corrugated lock seam pipe with seam at inlet/outlet placed below horizontal center line.  
NOTE: Standard pipe corrugations will be 2 2/3 inch x 1/2 inch unless otherwise noted.  
Installation of some culverts may require additional excavation below grade line (Indirect to pay item 602XXX).



FIRST THIN TIMBER SALE

DRAINAGE LISTING

SHEET NUMBER TOTAL SHEETS

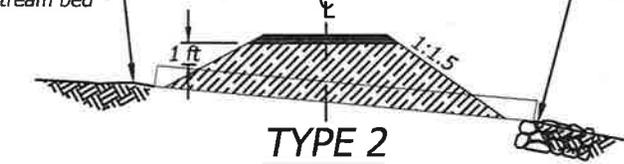
16 22

## CULVERT TYPES

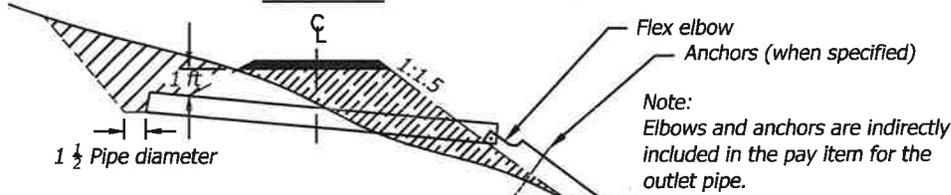
### TYPE 1

Original ground or stream bed

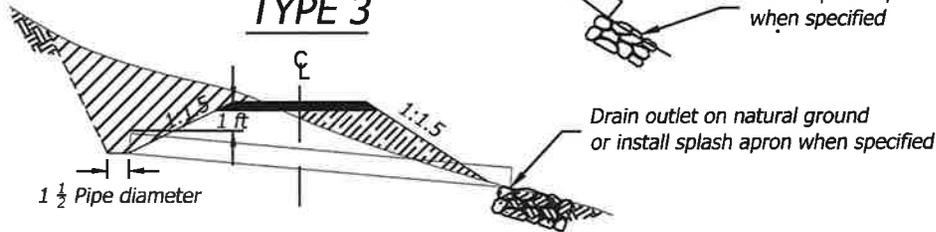
Do not raise outlet above original ground or stream bed. Install splash apron when specified



### TYPE 2

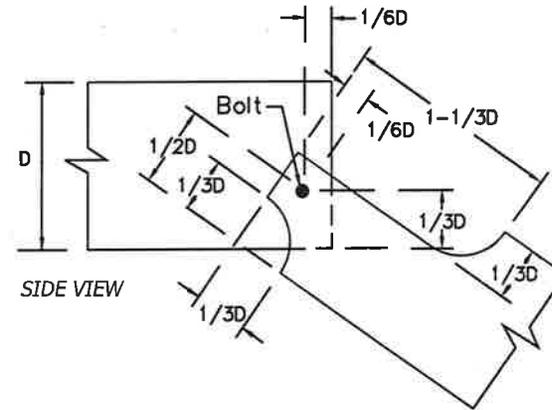


### TYPE 3

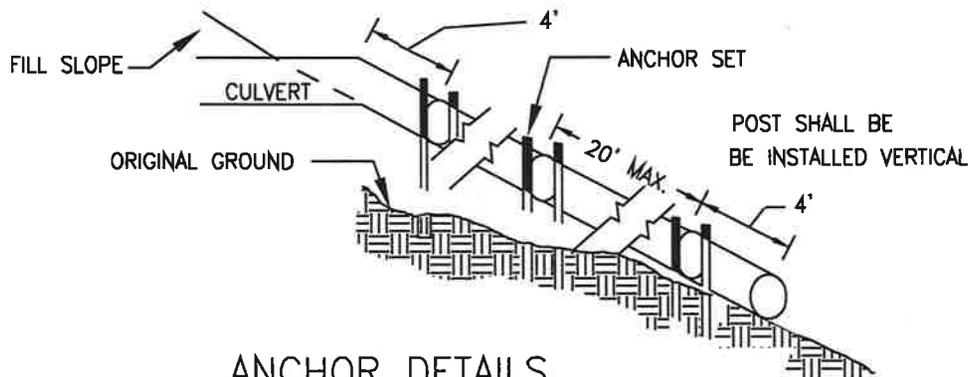
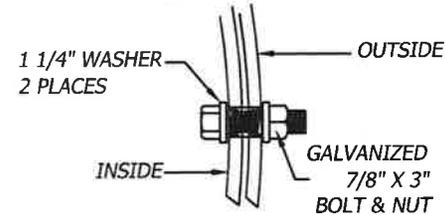


Some installations of culverts may require additional excavation below grade line.

## FLEX ELBOW DETAIL FOR METAL PIPE



## BOLT DETAIL FOR METAL PIPE



## ANCHOR DETAILS

NOTE:

ANCHOR SETS SHALL CONSIST OF TWO 6' STEEL FENCE POSTS (AASHTO M 281) AND 3/8" GALVANIZED WIRE ROPE. PROVIDE 2 TIGHT WRAPS AROUND THE PIPE AND BOTH ANCHOR POSTS. USE 2 CABLE CLAMPS AT EACH POST TO SECURE THE ENDS.

## WIRE ROPE DETAIL



FIRST THIN TIMBER SALE

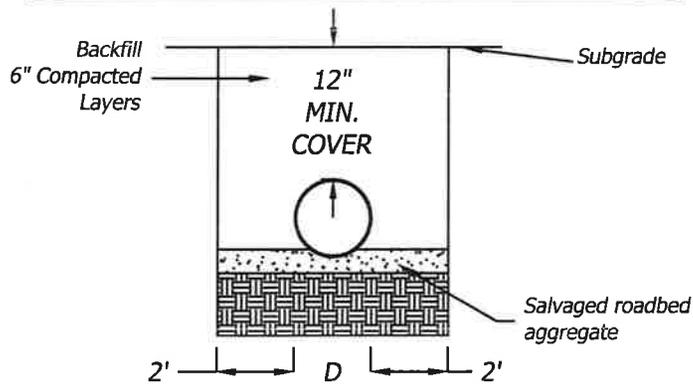
DRAINAGE CONSTRUCTION DETAILS



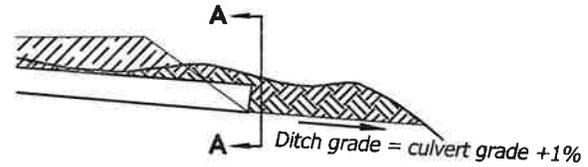
SHEET NUMBER TOTAL SHEETS

17 22

### CULVERT BEDDING & BACKFILL TYP.

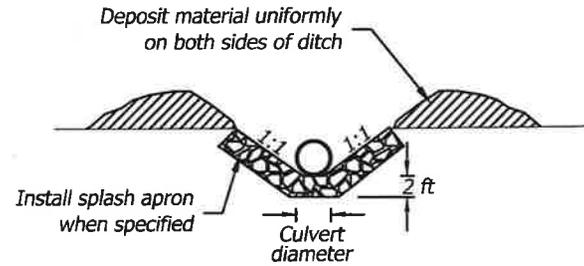


### OUTLET DITCH

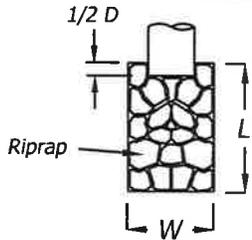


Note: Mulch & Seed ditch and berm when specified

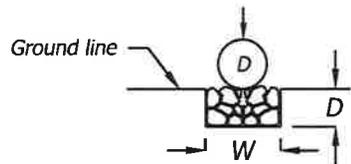
### OUTLET DITCH SECTION A-A



### SPLASH APRON PLAN VIEW

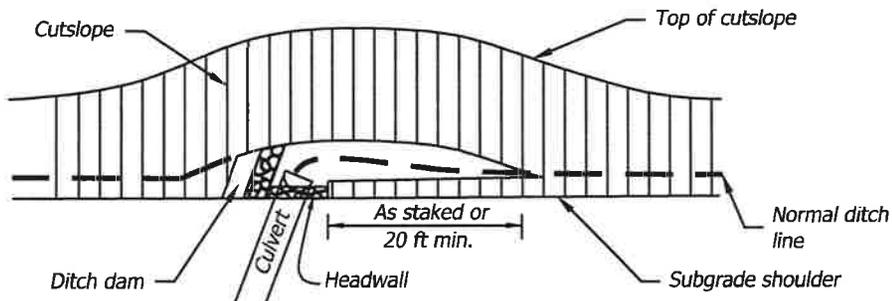


### SPLASH APRON ELEV. VIEW

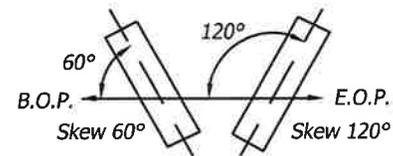


### CATCH BASIN DETAIL

PLAN VIEW



### SKREW DIAGRAM



Drawings not to scale

FIRST THIN TIMBER SALE

DRAINAGE CONSTRUCTION DETAILS

PACIFIC NORTHWEST REGION

U.S.D.A. FOREST SERVICE



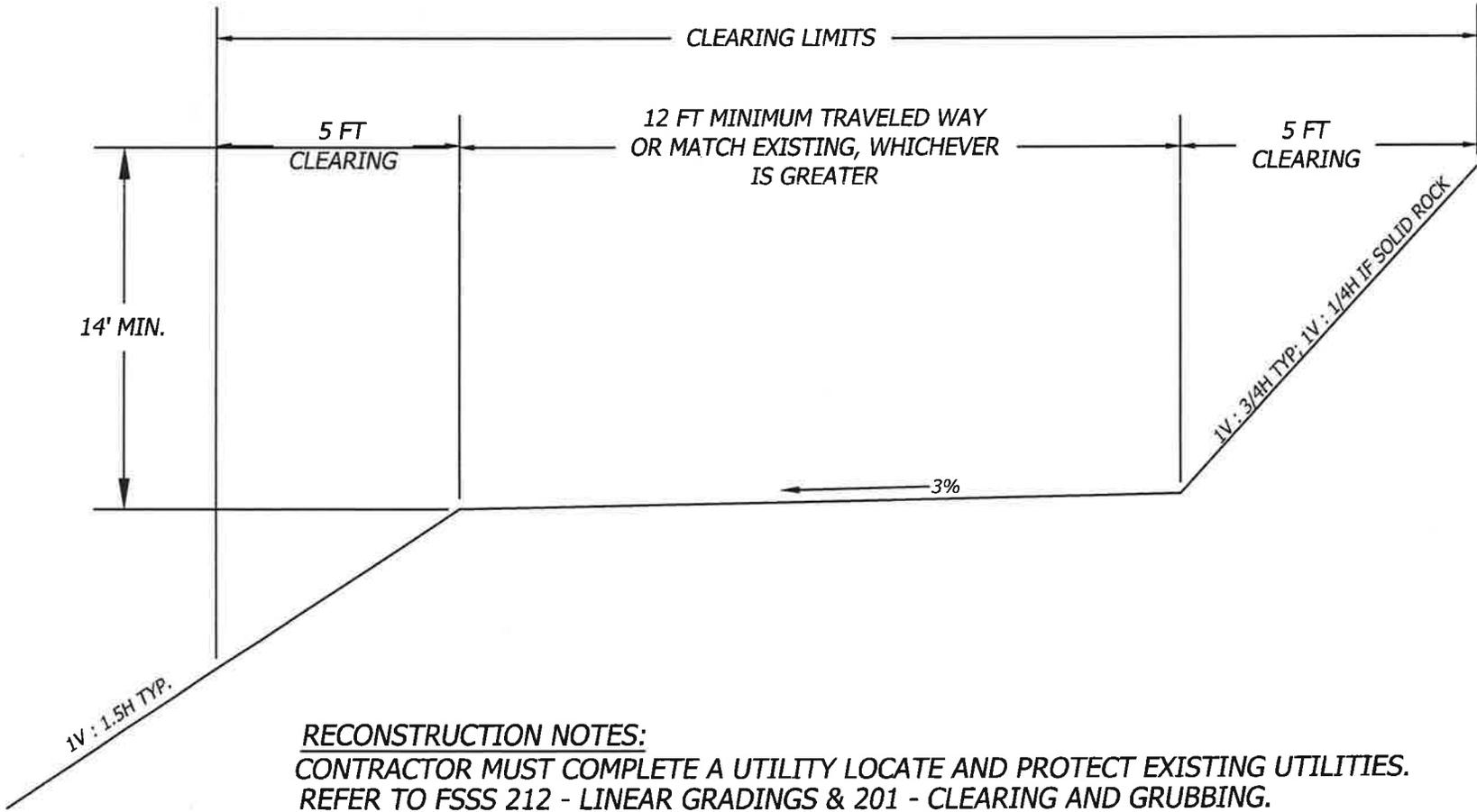
SHEET NUMBER TOTAL SHEETS

18

22

FIRST THIN TIMBER SALE

LINEAR GRADING TYPICAL

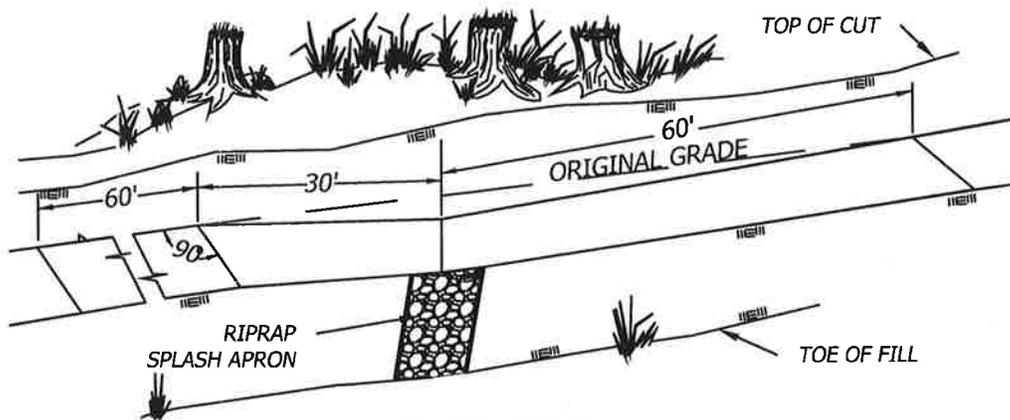


**RECONSTRUCTION NOTES:**

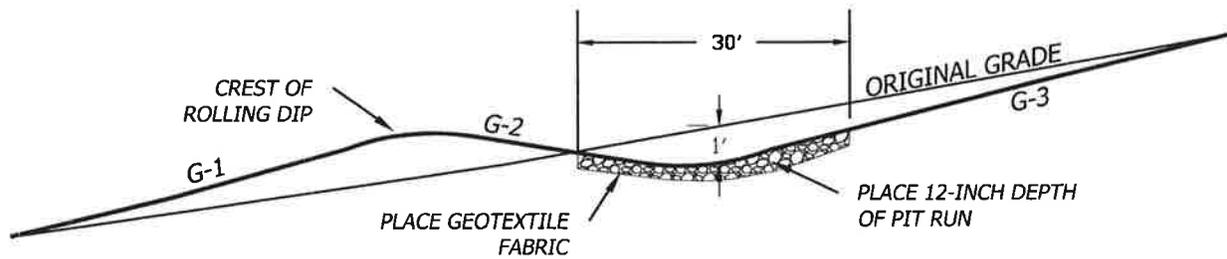
CONTRACTOR MUST COMPLETE A UTILITY LOCATE AND PROTECT EXISTING UTILITIES.  
 REFER TO FSSS 212 - LINEAR GRADINGS & 201 - CLEARING AND GRUBBING.  
 ALL WORK IS CONSIDERED TO BE INDIRECT TO 21201.  
 APPLY CURVE WIDENING AS MARKED BY THE CONTRACTING OFFICER.  
 LOGS MEETING UTILIZATION STANDARDS (SEE SECTION 201.01) ARE  
 TO BE LIMBED, SEPARATED, AND DECKED ADJACENT TO THE WORK AREA.  
 DISPOSE OF SLASH ACCORDING TO SUBSECTION FSSS 203.05, DISPOSAL METHOD (f).  
 CONSTRUCTION OF NEW CUT SLOPE MAY REQUIRE A ROCK HAMMER AND IS INDIRECT.  
 TO PAY ITEM 21201, ALONG WITH HAULING MATERIAL TO DISPOSAL SITE.



SHEET NUMBER	TOTAL SHEETS
19	22



**PLAN VIEW**



**ROLLING DIP ARMORING**

ROLLING DIP CONSTRUCTION TABLE			
PROFILE GRADE (%)	CONSTRUCTION GRADE		
	G-1 (%)	G-2 (%)	G-3 (%)
0-4	+7	-5	+7

**NOTES:**

- 1) DRAWINGS ARE NOT TO SCALE
- 2) BLEND KEYED RIPRAP INTO EXISTING GROUND. TAPER BETWEEN CONSTRUCTION SLOPES AND EXISTING SLOPES.
- 3) CONSTRUCT SPLASH APRON ON SHOULDER AS STAKED BY THE CONTRACTING OFFICER. CONSTRUCT WITH A 1V:1.5H SIDE SLOPES.
- 4) CONSTRUCT ROLLING DIP, EXTENDING TO CUTSLOPE. THIS IS INDIRECT TO PAY ITEM 20426.
- 5) CONSTRUCT ROLLING DIP WITH A 2% OUTSLOPE. BLEND INTO ADJACENT ROADBED TO PROVIDE FOR A SMOOTH TRANSITION.

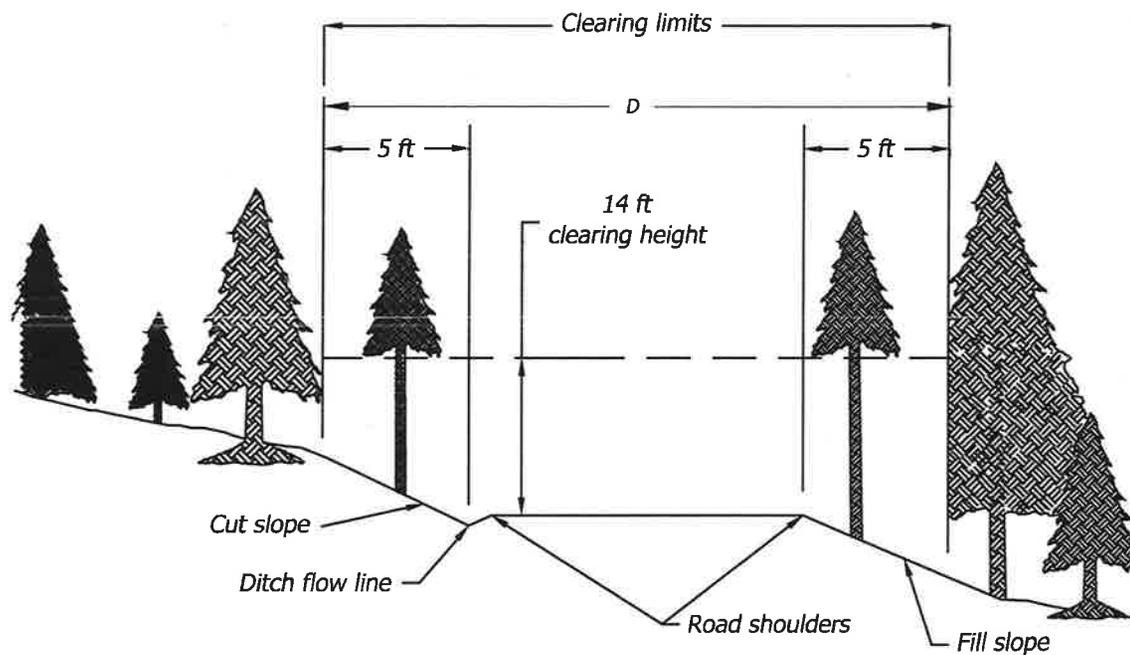


**FIRST THIN TIMBER SALE**

**ROLLING DIP DETAILS**

SHEET NUMBER TOTAL SHEETS

20 22



**NOTES:**

1. Cut all vegetation within the clearing limits to a maximum height of 6 inches above the ground surfaces.
2. Grub all trees and stumps within "D" above. Deck logs at designated locations by the Contracting Officer and scatter tops, limbs, and stumps outside the clearing limits.
3. Drawing not to scale.

**FIRST THIN TIMBER SALE**

**CLEARING AND GRUBBING TYPICAL**

PACIFIC NORTHWEST REGION

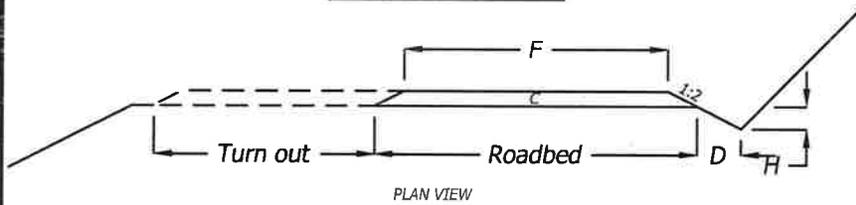
U.S.D.A FOREST SERVICE



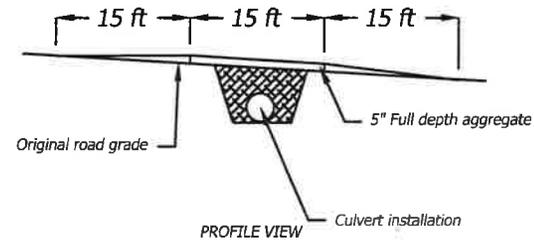
FOREST SERVICE  
U.S.  
DEPARTMENT OF AGRICULTURE

SHEET NUMBER	TOTAL SHEETS
21	22

**TYPICAL SECTION**



**CULVERT SURFACE ROCK REPLACEMENT FOR AGGREGATE ROADS ONLY**



ROAD NUMBER	BEGINNING MILE POST	ENDING MILE POST	CONSTRUCTION TOLERANCE	OUTSLOPED INSLOPED CROWNED	ROADBED WIDTH	DITCH DIMENSIONIS (FT)		PAVEMENT STRUCTURE		
						D	H	TRAVELED WAY WIDTH (FT)	COMPACTED DEPTH (IN)	SLOPE RATIO
										AGG
				%	FT.			F	C	V:H
1928-000	0.00	0.67	D	2C	16*	2	1	14*	na	1V:2H
1928-102	0.00	0.22	D	2O	14*	2	1	12*	9	1V:2H
1928-195	0.00	0.57	D	2O	14*	2	1	12*	6	1V:2H
1928-195	0.57	0.65	D	2O	14*	2	1	12*	na	1V:2H
1928-210	0.00	2.82	D	2C	14*	2	1	12*	na	1V:2H
1931-000	0.00	1.13	D	2C	16*	2	1	14*	3	1V:2H
1931-101	0.00	0.13	D	2O	14*	2	1	12*	9	1V:2H
1931-209	0.00	0.25	D	2C	14*	2	1	12*	4	1V:2H
1931-209	0.25	0.27	D	2C	14*	2	1	12*	na	1V:2H
2409-000	0.00	1.08	D	2C	16*	2	1	14*	na	1V:2H

**NOTES:**

- 1) SCARIFY TO WIDTH "F" MINIMUM
- 2) SCARIFY TO 4" DEPTH MINIMUM ON ROAD 1928-000. SCARIFY 1" MMINIMUM BELOW ALL POTHOLES, WASHBOARDS, AND IRREGULARITIES ON ALL OTHER ROADS.

Drawing not to scale.

**FIRST THIN TIMBER SALE  
RECONSTRUCTION TYPICALS**



SHEET NUMBER	TOTAL SHEETS
22	22