

EXHIBIT "B"

FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STA. TO STA.	DITCH REQ.	OUTSLOPE
16 feet	12 feet	5A to 5B	0+00 to 13+80	YES	NO
16 feet	12 feet	5C to 5D	0+00 to 13+50	YES	NO
16 feet	12 feet	5E to 5F	0+00 to 9+00	YES	NO
16 feet	12 feet	8A to 8B	0+00 to 12+14	YES	NO
16 feet	12 feet	8C to 8D	0+00 to 10+75	YES	NO
16 feet	12 feet	9A to 9B	0+00 to 12+60	YES	NO
16 feet	12 feet	10A to 10B	0+00 to 23+30	YES	NO
16 feet	12 feet	10C to 10D	0+00 to 3+00	YES	NO
16 feet	12 feet	I1 to I2	0+00 to 119+30	YES	NO
16 feet	12 feet	I2 to I12	0+00 to 73+90	YES	NO
16 feet	12 feet	I2 to I17	0+00 to 66+00	YES	NO
16 feet	12 feet	I3 to I4	0+00 to 41+20	YES	NO
16 feet	12 feet	I5 to I6	0+00 to 15+85	YES	NO
16 feet	12 feet	I7 to 5A	0+00 to 45+50	YES	NO
16 feet	12 feet	I8 to I9	0+00 to 10+00	YES	NO
16 feet	12 feet	I10 to I11	0+00 to 30+60	YES	NO
16 feet	12 feet	I13 to I14	0+00 to 25+45	YES	NO
16 feet	12 feet	I15 to I16	0+00 to 30+25	YES	NO
16 feet	12 feet	I17 to I18	0+00 to 19+00	YES	NO
16 feet	12 feet	P1 to P2	0+00 to 46+95	YES	NO
16 feet	12 feet	P2 to P4	46+95 to 103+99	YES	NO
16 feet	12 feet	P3 to P5	0+00 to 5+80	YES	NO

CLEARING. This work shall consist of clearing, removing, and disposing of all trees, snags, down timber, brush, surface objects, and protruding obstructions within the clearing limits.

Where clearing limits have not been staked, the clearing limits shall extend 10 feet back of the top of the cutslope and 10 feet out from the toe of the fill slope, or as directed by STATE. Clearing debris shall not be placed or permitted to remain in or under any road embankment sections. Clearing debris shall not be left lodged against standing trees.

All danger trees, leaners, and snags outside the clearing limits which could fall and hit the road shall be felled.

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GRUBBING. This work shall consist of the removal or digging out of stumps and protruding objects.

All stumps shall be completely removed within the limits of required grubbing. Stumps overhanging cutslopes shall be removed. Grubbing debris shall not be placed or permitted to remain in or under any road embankment sections. Grubbing debris shall not be left lodged against standing trees. Grubbing classifications are as follows:

New construction - From the top of the cutslope to the toe of the fill.

Improvements and reconstructions - 4 feet back from the shoulder of the subgrade or ditch, whichever is widest, or as marked in the field.

CLEARING AND GRUBBING DISPOSAL. Scatter through openings in the timber outside of the cleared right-of-way, except where end-haul is required. In areas where end-haul is required, clearing and grubbing debris shall be fully contained and hauled to a designated waste area.

EXCAVATION. Excavation and grading shall not be done when weather and/or ground conditions are such that damage will result to existing subgrade or cause excessive erosion.

Excavation shall conform to STATE-engineered lines, grades, dimensions, and plans when provided.

All suitable excavated material shall be used where possible for the formation of fills, shoulders, and drainage structure backfills. Embankment materials shall be free of woody debris, brush, muck, sod, frozen material, and other deleterious materials. All fills and drainage structure backfills shall be machine compacted according to the specifications in Exhibit B.

Unless road design plans show otherwise, all roads shall be on a balanced cross section, except when the slope is over 50 percent, the road shall be on full bench for the width specified.

Excess excavation shall not be sidecast where material will enter a stream course or where material will accumulate in areas deemed a high landslide hazard location by STATE.

ROAD WIDTH LIMITATIONS. PURCHASER shall obtain advance written approval from STATE to construct the road to a greater width than specified. Extra subgrade width shall be required for:

Fill Widening. Add to each fill shoulder 1 foot for fills 3 feet to 6 feet high; 2 feet for fills over 6 feet high.

Curve Widening. Widen the inside shoulder of all curves as follows: 400 divided by the radius of the curve equals the amount of extra width.

DRAINAGE

Ditch. Construct "V" ditch 3 feet wide and to a depth of 1 foot below subgrade. Subgrade shall be crowned at 4 to 6 percent.

Outslope. Road subgrade shall be outsloped at 4 to 6 percent.

TURNOUTS. Increase roadbed width an additional 8 feet for both subgrade and surfacing. Length shall be at least 50 feet, or as staked on the ground, plus 25-foot approaches at each end.

Location: Intervisible but not greater than 750 feet, and as marked in the field.

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GRADING

Rock
 Common - side slopes 50% and over
 Common - side slopes less than 50%
 Common - turnpike (level) section

Back Slopes

Vertical to 1/4:1
 3/4:1
 1:1
 2:1

Fill Slopes

Not steeper
 than 1½:1

Top of cutslope shall be rounded.

LANDINGS. Cable landings shall be constructed no less than 50 feet wide and no more than 70 feet wide. Tractor landings shall be constructed no less than 30 feet wide and no more than 45 feet wide. Surface is to be crowned for drainage, with general grade no more than 3 percent. Surface as shown on Exhibit B.

TURNAROUNDS. Increase subgrade width an additional 20 feet for a length of 20 feet at locations listed in Exhibit B, and/or as marked in the field.

SEASONAL WINTERIZATION. All unrocked roads or unfinished subgrades shall be waterbarred in accordance with specifications in Exhibit I, and blocked to vehicular traffic, prior to November 1, annually, and as directed by STATE.

GENERAL ROAD CONSTRUCTION SPECIFICATIONS

- (1) Excavated Material. Excavated materials shall be utilized for road and fill construction and hauled in where necessary. Surplus excavated materials shall be hauled to the waste area as marked in the field and/or designated on Exhibit A. Waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit B.
- (2) Geotextile Road Fabric. Install fabric in accordance with specifications in Exhibit G.
- (3) Riprap Rock Use. Where rock is specified for fill armor, rock shall be placed and tamped at a 1½:1 slope, beginning at the fill toes. Where rock is used for an energy dissipater, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, as specified in Exhibit H.
- (4) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic-yard, track-mounted excavator.

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
5A to 5B	7+55	Borrow area left.
	7+60 to 7+85	Remove old fill and end haul material.
	11+70	Borrow area left.
	11+70 to 12+50	Remove old fill and end haul material.
	12+60 to 13+75	Remove old fill and end haul material.
	13+80	Borrow area left.

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SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
8C to 8D	4+60	Begin fabric.
	8+40	End fabric.
9A to 9B	7+00	Begin full containment.
	8+10	End full containment.
10A to 10B	1+50	Begin fabric.
	3+50	End fabric.
	10+60	Install Culvert 48"X 65' (CMP-al. ctd.). Utilize common material for fill with a fill slope of 1½:1. Utilize 100 cubic yards of 24"-6" riprap rock for fill armor, 60 cubic yards of ¾"-0" crushed rock for culvert bedding, and 24 cubic yards of 24"-6" rock for Dissipater Rock.

GENERAL ROAD IMPROVEMENT INSTRUCTIONS

- (1) Timber Removal. Remove all trees within the posted Right-of-Way Boundary, as specified in Section 55, "Designated Timber."
- (2) Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal. Where fill reconstruction or culvert replacement is specified, fills shall be excavated to natural stream course levels. All woody debris encountered during fill excavation shall be removed. All waste materials shall be hauled to nearby waste areas and shall be uniformly sloped and compacted for drainage. Fill reconstruction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with Exhibit B. Crushed rock shall be used for backfilling excavation trenches less than 3 feet deep. STATE may require the use of crushed rock for culvert bedding. Removed culverts shall be hauled to an approved refuse site off of STATE land.
- (3) Riprap Rock Use. Where rock is specified for fill armor, rock shall be placed and tamped at a 1½:1 slope, beginning at the fill toes. Where rock is used for an energy dissipater, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, as specified in Exhibit H.
- (4) Free Draining Base Fill Construction. Where free draining fill construction is required, clean 24"-6" riprap rock shall be hauled in and used for fill construction. 1½"-0" crushed rock shall be used for backfilling around culverts. Free draining fills will be constructed in accordance with Exhibit F.
- (5) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic-yard, track-mounted excavator.

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GENERAL ROAD IMPROVEMENT INSTRUCTIONS

- (6) Drainage Ditches. Restore or construct ditchlines, including ditchouts, as directed by STATE. Clean out all culvert inlets and outlets for a 10-foot radius. Re-establish or construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE. Damaged culvert inlets and/or outlets shall be repaired by opening them with a hydraulic jack, or cutting off the culvert end to allow for free passage of water at peak flow levels. Install a culvert marker at each newly installed culvert and at each existing culvert that is missing a marker that could be reached by a grader blade. Markers shall meet specifications in Exhibit C.
- (7) Subgrade Preparation and Application of New Surfacing Rock.
- (a) Complete culvert installations, fill reconstruction, and after specified work, prior to the application of new surfacing rock.
 - (b) Cut out all chuckholed and/or washboarded sections from the existing surfacing.
 - (c) Apply required base and leveling rock, as directed by STATE.
 - (d) Process (grade and mix) the existing surface and add base rock. Provide for a crown of ½ inch per foot in road width and compact in accordance to Exhibit B.
 - (e) Upon completion of above required work, apply, process, and compact surfacing rock according Exhibit B.
- (8) Excavated Material. Excavated materials shall be utilized for road and fill construction and hauled in where necessary. Surplus excavated materials shall be hauled to the waste area as marked in the field and/or designated on Exhibit A. Waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit B.

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
l1 to l2	25+35	Replace existing culvert with 18" x 40' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill, and utilize 12 cubic yards of ¾"-0" crushed rock for re-surfacing on the road.
	33+20	Begin re-alignment of main Simmons Ridge Road. This will move the center line of the existing road about 27 feet to the east at the junction.
	34+32	The center line will shift 27 feet right.
	35+80	End re-alignment of main Simmons Ridge Road.
	39+60	Add Dissipater Rock. Utilize 24 cubic yards of 24"-6" rock.

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ROAD IMPROVEMENT INSTRUCTIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
11 to 12 Cont.	44+90	Install culvert (18" x 40' CPP). Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill, and utilize 12 cubic yards of ¾"-0" crushed rock for re-surfacing on the road.
	71+24	Add Dissipater Rock. Utilize 12 cubic yards of 24"-6" rock.
	74+45	Replace existing culvert with 18" x 40' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill, and utilize 12 cubic yards of ¾"-0" crushed rock for re-surfacing on the road.
	87+00 to 88+30	Remove old fill material and end haul material not needed for fill reconstruction.
	87+64	<u>Culvert Replacement and Free Draining Fill Reconstruction.</u> Remove existing fill. Install 48" x 86' CMP al. ctd.. Utilize 180 cubic yards of 1½"-0" crushed rock for backfill/bedding material. Construct a free draining fill base to a height of 6½ feet by utilizing 450 cubic yards of 24"-6" rock, and utilize 200 feet of 10 oz. Non-woven filtration cloth to cover the base rock. Utilize common materials to reconstruct the fill to match existing grade (for a total fill height of about 20 feet). Fill slopes shall be 1½:1. The subgrade width shall be 27 feet wide with a running surface of 21 feet (3½ feet of curve widening on each side). Utilize 240 cubic yards of 24"-6" riprap rock for fill armor and dissipater rock. Utilize 130 cubic yards of 4"-0" crushed rock to re-construct the road base and 40 cubic yards of ¾"-0" crushed rock to repair the surface material.
	95+05	Replace existing culvert with 18" x 30' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill, and utilize 12 cubic yards of ¾"-0" crushed rock for resurfacing on the road.
	101+40	Replace existing culvert with 18" x 35' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill, and utilize 12 cubic yards of ¾"-0" crushed rock for re-surfacing on the road.
	108+25	Replace existing culvert with 18" x 35' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill, and utilize 12 cubic yards of ¾"-0" crushed rock for re-surfacing on the road.
	110+90	Replace existing culvert with 18" x 35' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill, and utilize 12 cubic yards of ¾"-0" crushed rock for re-surfacing on the road.
12 to 112	0+00	Begin Surface Rock replacement.
	8+50	Replace existing culvert with 18" x 40' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill.

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SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
I2 to I12 Cont.	20+60	Replace existing culvert with 36" x 40' CMP al. ctd. and install a protective guard over inlet ("L" connection with a beaver guard w/ screen). Utilize 30 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill. Add Dissipater Rock by utilizing 12 cubic yards of 24"-6" rock.
	26+40	Add Dissipater Rock. Utilize 12 cubic yards of 24"-6" rock.
	39+05	Replace existing culvert with 18" x 40' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill.
	39+60	End Surface Rock replacement.
	53+85	Replace existing culvert with 18" x 30' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill, and utilize 12 cubic yards of ¾"-0" crushed rock for resurfacing on the road.
I3 to I4	1+60	Begin re-alignment of road by slide. Utilize 200 cubic yards of 4"-0" crushed rock for base rock and 100 cubic yards of ¾"-0" crushed rock for surface rock. Utilize 50 cubic yards of riprap (24"-6") rock to armor the slide face. End haul common excavation material to the waste area at Pt. I10 or utilize at the relocation of the junction at Pt. 3 and on the new construction segment 8C to 8D.
	3+50	Begin Sidecast Pullback on left.
	3+65	The Centerline will shift 14 feet to the right.
	4+00	End Sidecast Pullback on left.
	5+60	End re-alignment of road by slide.
	6+30	Replace existing culvert with 18" x 30' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill, and utilize 12 cubic yards of ¾"-0" crushed rock for resurfacing on the road.
	11+10	Begin Surface Rock Replacement, Post Harvest .
	41+20	Point I4. End Surface Rock Replacement, Post Harvest .
I7 to 5A	13+75	Replace existing culvert with 18" x 35' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill.
	16+90	Add Dissipater Rock. Utilize 24 cubic yards of 24"-6" rock.
	31+70	Replace existing culvert with 18" x 30' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill.
	38+00	Add Dissipater Rock. Utilize 24 cubic yards of 24"-6" rock.

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SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
I8 to I9	1+05	Add Dissipater Rock. Utilize 12 cubic yards of 24"-6" rock.
	7+40	Install culvert, 18" x 35' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill, and utilize 24 cubic yards of 4"-0" crushed rock for re-surfacing on the road.
I13 to I14	9+75	Ditchout left.
	10+00	Ditchout right.
	11+95	Ditchout both sides.
I15 to I16	11+35	Add Dissipater Rock. Utilize 12 cubic yards of 24"-6" rock.
	14+10	Replace existing culvert with 24" x 40' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill, and utilize 12 cubic yards of ¾"-0" crushed rock for resurfacing on the road. Add Dissipater Rock by utilizing 12 cubic yards of 24"-6" rock.
	16+35	Add Dissipater Rock. Utilize 12 cubic yards of 24"-6" rock.
	20+85	Install culvert, 18" x 30' CPP. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding/backfill, and utilize 12 cubic yards of ¾"-0" crushed rock for re-surfacing on the road. Add Dissipater Rock by utilizing 12 cubic yards of 24"-6" rock.
	23+80	Add Dissipater Rock. Utilize 12 cubic yards of 24"-6" rock.
	26+35	Rock Turnaround. Utilize 40 cubic yards of 4"-0" crushed rock.
	30+25	Deepen ditch to block road, and haul away old culvert that was left on site previously.
	I17 to I18	1+60
5+30		Add Dissipater Rock. Utilize 12 cubic yards of 24"-6" rock.

EXHIBIT "B"
 ROAD SURFACING

ROAD SEGMENT	5A to 5B			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	5A to 5B		0+00 to 13+80		TOTAL VOLUME (CY)
				Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	0+00 to 13+80	8	station	50	stations	13.80	690
Turnouts	4"-0" Crushed	5+68	8	turnout	30	turnouts	1	30
Junctions	4"-0" Crushed	0+00, 8+00	8	junction	30	junctions	2	60
Junctions	1½"-0" Crushed	0+00	3	junction	24	junctions	1	24
Turnarounds	4"-0" Crushed	12+40	8	TA	24	TAs	1	24
Fill widening	4"-0" Crushed		8	station	12.5	station	2.50	31
Curve widening	4"-0" Crushed		8	station	12.5	station	1.50	19
Total Rock for Road Segment:				5A to 5B				878
ROAD SEGMENT	5C to 5D			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	5C to 5D		0+00 to 13+50		TOTAL VOLUME (CY)
				Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	0+00 to 13+50	8	station	50	stations	13.50	675
Traction Rock	1½"-0"Crushed	0+00 to 6+70	3	station	19	stations	6.70	127
Turnouts	4"-0" Crushed	3+08,5+96,10+55	8	turnout	30	turnouts	3	90
Curve widening	4"-0" Crushed		8	station	12.5	station	1.50	19
Turnarounds	4"-0" Crushed		8	TA	24	TAs	1	24
Total Rock for Road Segment:				5C to 5D				935
ROAD SEGMENT	5E to 5F			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	5E to 5F		0+00 to 9+00		TOTAL VOLUME (CY)
				Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	0+00 to 9+00	8	station	50	stations	9.00	450
Traction Rock	1½"-0"Crushed	3+75 to 6+25	3	station	19	stations	2.50	48
Turnouts	4"-0" Crushed	6+22	8	turnout	30	turnouts	1	30
Junctions	4"-0" Crushed	0+00, 2+31	8	junction	30	junctions	2	60
Junctions	¾"-0" Crushed	0+00	3	junction	24	junctions	1	24
Curve widening	4"-0" Crushed		8	station	12.5	station	1.00	13
Turnarounds	4"-0" Crushed	8+07	8	TA	24	TAs	1	24
Landings	6"-0" Pit-run	2+31, 9+00 (5F)	N/A	landing	60	landings	2	120
Total Rock for Road Segment:				5E to 5F				768
ROAD SEGMENT	8A to 8B			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	8A to 8B		0+00 to 12+14		TOTAL VOLUME (CY)
				Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	0+00 to 12+14	8	station	50	stations	12.14	607
Turnouts	4"-0" Crushed	3+80,5+72,8+65	8	turnout	30	turnouts	3	90
Junctions	4"-0" Crushed	0+00	8	junction	25	junctions	4	100
Junctions	1½"-0"Crushed	0+00	3	junction	24	junctions	1	24
Turnarounds	4"-0" Crushed	10+42	8	TA	24	TAs	1	24
Total Rock for Road Segment:				8A to 8B				845

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ROAD SEGMENT	8C to 8D			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock	8C to 8D		0+00 to 10+75		TOTAL
			(inches)	Volume (CY) per	Number of	VOLUME (CY)		
Base Rock	4"-0" Crushed	0+00 to 10+75	8	station	50	stations	10.75	538
Turnouts	4"-0" Crushed	1+55, 5+70	8	turnout	30	turnouts	2	60
Junctions	4"-0" Crushed	0+00	8	junction	30	junctions	1	30
Turnarounds	4"-0" Crushed	9+30	8	TA	24	TAs	1	24
Landings	6"-0" Pit-run	10+75 (8D)	N/A	landing	60	landings	1	60
Total Rock for Road Segment:			8C to 8D					712
ROAD SEGMENT	9A to 9B			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock	9A to 9B		0+00 to 12+60		TOTAL
			(inches)	Volume (CY) per	Number of	VOLUME (CY)		
Base Rock	4"-0" Crushed	0+00 to 12+60	8	station	50	stations	12.60	630
Traction Rock	1½"-0"Crushed	0+00 to 8+00	3	station	19	stations	8.00	152
Turnouts	4"-0" Crushed	4+30, 6+70	8	turnout	30	turnouts	2	60
Turnouts	1½"-0"Crushed	4+30, 6+70	3	turnout	10	turnouts	2	20
Junctions	4"-0" Crushed	0+00, 10+80	8	junction	30	junctions	2	60
Junctions	1½"-0"Crushed	0+00	3	junction	24	junctions	1	24
Curve widening	4"-0" Crushed	(2)	8	station	12.5	station	2.40	30
Curve widening	1½"-0"Crushed	6+00 to 7+40	3	station	7	station	1.40	10
Landings	6"-0" Pit-run	10+80,12+60(9B)	N/A	landing	60	landings	2	120
Total Rock for Road Segment:			9A to 9B					1,106
ROAD SEGMENT	10A to 10B			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock	10A to 10B		0+00 to 23+30		TOTAL
			(inches)	Volume (CY) per	Number of	VOLUME (CY)		
Base Rock	4"-0" Crushed	0+00 to 23+30	8	station	50	stations	23.30	1,165
Traction Rock	1½"-0"Crushed	0+70 to 8+50	3	station	19	stations	7.80	148
Turnouts	4"-0" Crushed	8+30,11+70,15+55	8	turnout	30	turnouts	3	90
Turnouts	1½"-0"Crushed	8+30	3	turnout	10	turnouts	1	10
Junctions	4"-0" Crushed	0+00, 13+55(10C)	8	junction	30	junctions	2	60
Junctions	1½"-0"Crushed	0+00	3	junction	24	junctions	1	24
Curve widening	4"-0" Crushed	(2)	8	station	12.5	station	2.00	25
Culvert Bedding	¾"-0" Crushed	10+60		culvert	60	culvert	1	60
Fill Armor	24-6" Riprap	10+60		fill	100	fill	1.00	100
Energy Dissipater	24-6" Riprap	10+60		culvert	24	culvert	1.00	24
Turnarounds	4"-0" Crushed	20+95	8	TA	24	TAs	1	24
Landings	6"-0" Pit-run	23+30 (10B)	N/A	landing	60	landings	1	60
Total Rock for Road Segment:			10A to 10B					1,790
ROAD SEGMENT	10 C to 10D			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock	10 C to 10D		0+00 to 3+00		TOTAL
			(inches)	Volume (CY) per	Number of	VOLUME (CY)		
Base Rock	4"-0" Crushed	0+00 to 3+00	8	station	50	stations	3.00	150
Landings	6"-0" Pit-run	3+00 (10D)	N/A	landing	60	landings	1	60
Total Rock for Road Segment:			10 C to 10D					210

EXHIBIT "B"

ROAD SURFACING

ROAD SEGMENT	I1 to I2			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2		0+00 to 119+30		
				Volume (CY) per		Number of		
Leveling Rock	¾"-0" Crushed			location	12	location	10	120
Base Rock	4"-0" Crushed	33+20 to 35+80	8	station	50	stations	2.60	130
Base Rock with Curve Widening	4"-0" Crushed	87+00 to 88+30		station	100	stations	1.30	130
Surface Rock	¾"-0" Crushed	33+20 to 35+80	4	station	25	stations	2.60	65
Surface rock /CW	¾"-0" Crushed	87+00 to 88+30	4	station	31	stations	1.30	40
Surface rock over culverts	¾"-0" Crushed	(7)	4	culvert	12	culvert	7	84
Culvert Bedding	¾"-0" Crushed	See cul. list		culvert	20	culvert	7	140
Culvert Bedding/Backfill	¾"-0" Crushed	87+64		culvert	180	culvert	1	180
Fill Armor and Dissipater Rock	24-6" Riprap	87+64		fill	240	fill	1	240
Free Draining Fill	24-6" Drain Rock	87+64		fill	450	fill	1	450
Curve widening	¾"-0" Crushed	33+20 to 35+80	4	station	7	station	2.6	18
Curve widening	4"-0" Crushed	33+20 to 35+80	8	station	12	station	2.6	31
Energy Dissipater	24-6" Riprap	39+60,71+24		culvert		culvert	2	36
Total Rock for Road Segment:				I1 to I2				1,665
ROAD SEGMENT	I2 to I12			POINT TO POINT		Sta. To Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I2 to I12		0+00 to 73+90		
				Volume (CY) per		Number of		
Leveling Rock	1½"- 0" Crushed			location	12	locations	10.00	120
Surface Rock	1½"- 0" Crushed	0+00 to 39+60	3	station	19	stations	39.60	752
Culvert Bedding	¾"-0" Crushed	See cul. List		culvert		culvert	4	90
Surface rock over culvert	¾"-0" Crushed	53+85	3	culvert	12	culvert	1	12
Turn Outs	1½"- 0" Crushed		3	turnout	11	turnouts	10	110
Junctions	¾"-0" Crushed		3	junction	24	junctions	3	72
Curve widening	1½"- 0" Crushed	0+00 to 39+60	3	curve	7	curves	5	35
Energy Dissipater	24-6" Riprap	20+60,26+40		culvert	12	culvert	2	24
Total Rock for Road Segment:				I2 to I12				1,215
ROAD SEGMENT	I2 to I17			POINT TO POINT		Sta. To Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	I2 to I17		0+00 to 66+00		
				Volume (CY) per		Number of		
Leveling Rock	1½"-0" Crushed		N/A	location	12	locations	10.00	120

EXHIBIT "B"

ROAD SURFACING

Total Rock for Road Segment:			I2 to I17					120
ROAD SEGMENT	I3 to I4			POINT TO POINT	Sta. To Sta.			
			Depth of	I3 to I4	0+00 to 41+20		TOTAL	
Application	Rock Size and Type	Location	Rock (inches)	Volume (CY) per	Number of		VOLUME (CY)	
Leveling Rock	¾"-0" Crushed		N/A	location	12	location	5	60
Base Rock	4"-0" Crushed	1+60 to 5+60	8	station	50	stations	4.00	200
Surface Rock	¾"-0" Crushed	1+60 to 5+60	4	station	25	stations	4.00	100
Surface Rock	¾"-0" Crushed	11+10 to 41+20	3	station	19	stations	30.10	572
Culvert Bedding	¾"-0" Crushed	6+30		culvert	20	culvert	1	20
Surface rock over culvert	¾"-0" Crushed	6+30	3	culvert	12	culvert	1	12
Turn Outs	¾"-0" Crushed	11+10 to 41+20	3	turnout	11	turnouts	4	44
Junctions	¾"-0" Crushed		3	junction	24	junctions	4	96
Fill Armor (slide)	24-6" Riprap	3+25		fill	50	fill	1	50
Curve widening	¾"-0" Crushed	11+10 to 41+20	3	curve	7	curves	5	35
Total Rock for Road Segment:			I3 to I4					1,189
ROAD SEGMENT	I5 to I6			POINT TO POINT	Sta. To Sta.			
			Depth of	I5 to I6	0+00 to 15+85		TOTAL	
Application	Rock Size and Type	Location	Rock (inches)	Volume (CY) per	Number of		VOLUME (CY)	
Leveling Rock	4"-0" Crushed		N/A	location	12	location	8.00	96
Landing/Turn Around	6"-0" Pit-run	Pt. I6 (15+85)	N/A	landing	40	landings	1	40
Total Rock for Road Segment:			I5 to I6					136
ROAD SEGMENT	I7 to 5A			POINT TO POINT	Sta. to Sta.			
			Depth of	I7 to 5A	0+00 to 45+50		TOTAL	
Application	Rock Size and Type	Location	Rock (inches)	Volume (CY) per	Number of		VOLUME (CY)	
Leveling Rock	1½"-0" Crushed		N/A	location	12	location	8.00	96
Surface Rock	1½"-0" Crushed	0+00 to 45+50	3	station	19	stations	45.50	865
Culvert Bedding	¾"-0" Crushed	13+75, 31+70	N/A	culvert	20	culvert	2	40
Turn Outs	1½"-0" Crushed		3	turnout	11	turnouts	7	77
Junctions	1½"-0" Crushed		3	junction	24	junctions	5	120
Energy Dissipater	24-6" Riprap	16+90, 38+00		culvert	24	culvert	2	48
Curve widening	1½"-0" Crushed	0+00 to 45+50	3		7		7	49
Total Rock for Road Segment:			I7 to 5A					1,295
ROAD SEGMENT	I8 to I9			POINT TO POINT	Sta. to Sta.			
			Depth of	I8 to I9	0+00 to 10+00		TOTAL	
Application	Rock Size and Type	Location	Rock (inches)	Volume (CY) per	Number of		VOLUME (CY)	
Culvert Bedding	¾"-0" Crushed	7+40	N/A	culvert	20	culvert	1	20
Surface rock over culverts	4"-0" Crushed	7+40	8	culvert	24	culvert	1	24
Energy Dissipater	24-6" Riprap	1+05		culvert	12	culvert	1	12
Total Rock for Road Segment:			I8 to I9					56

EXHIBIT "B"

ROAD SURFACING

ROAD SEGMENT	I10 to I11			POINT TO POINT		Sta. to Sta.		
Application	Rock Size And Type	Location	Depth of Rock (inches)	I10 to I11		0+00 to 30+60		TOTAL VOLUME (CY)
				Volume (CY) per	Number of			
Leveling Rock	1½" -0" Crushed		N/A	location	12	location	6.00	72
Total Rock for Road Segment:			I10 to I11					72
ROAD SEGMENT	I13 to I14			POINT TO POINT		Sta. to Sta.		
Application	Rock Size And Type	Location	Depth of Rock (inches)	I13 to I14		0+00 to 25+45		TOTAL VOLUME (CY)
				Volume (CY) per	Number of			
Leveling Rock	1½" -0" Crushed		N/A	location	12	location	4	48
Turn Around	4"-0" Crushed	13+55	8	each	20	each	1	20
Total Rock for Road Segment:			I13 to I14					68
ROAD SEGMENT	I15 to I16			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	I15 to I16		0+00 to 30+25		TOTAL VOLUME (CY)
				Volume (CY) per	Number of			
Leveling Rock	1½" -0" Crushed		3	location	12	location	6.00	72
Culvert Bedding	¾"-0" Crushed	14+10, 20+85	N/A	culvert	20	culvert	2	40
Energy Dissipater	24-6" Riprap	(5)		culvert	12	culvert	5	60
Surface Rock over culverts	1½" -0" Crushed	14+10, 20+85	3	culvert	12	culvert	2	24
Turn Around	4"-0" Crushed	26+35	8	each	40	each	1	40
Total Rock for Road Segment:			I15 to I16					236
ROAD SEGMENT	I17 to I18			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	I17 to I18		0+00 to 19+00		TOTAL VOLUME (CY)
				Volume (CY) per	Number of			
Leveling Rock	4"-0" Crushed		N/A	location	12	location	5.00	60
Surface Rock	4"-0" Crushed	0+00 to 19+00	6	station	38	stations	19.00	722
Energy Dissipater	24-6" Riprap	1+60, 5+30		culvert		culvert	2	36
Junctions	1½" -0" Crushed	0+00	3	junction	24	junctions	1	24
Turn Outs	4"-0" Crushed	14+00	6	turnout	22	turnouts	1	22
Total Rock for Road Segment:			I17 to I18					864

PROJECT NO. 4
 (HUG POINT)

ROAD SEGMENT	P1 to P2			POINT TO POINT		Sta. to Sta.		
Application	Rock Size and Type	Location	Depth of Rock (inches)	P1 to P2		0+00 to 46+95		TOTAL VOLUME (CY)
				Volume (CY) per	Number of			
Leveling Rock	6"-0" Pit Run	0+00 to 46+95	8	location	10	location	40	400
Surface Rock	2 ½"-0" Crushed	0+00 to 46+95	5	station	30	stations	46.95	1,409
Turn Outs	2 ½"-0" Crushed		5	turnout	14	turnouts	7	98
Curve Widening	2 ½"-0" Crushed		5	curves	10	curves	6	60
Fill Widening	2 ½"-0" Crushed		5	fill	10	fills	4	40
Total Rock for Road Segment:			P1 to P2					2,007

EXHIBIT "B"
 ROAD SURFACING

ROAD SEGMENT	P2 to P4			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	P2 to P4		46+95 to 103+99		
				Volume (CY) per	Number of	Number of	Number of	
Base Rock	6"-0" Pit Run	46+95 to 103+99	8	station	50	stations	57.04	2,852
Surface Rock	2½"-0" Crushed	46+95 to 103+99	3	station	20	stations	57.04	1,140
Turn Outs	6"-0" Pit Run		8	turnout	22	turnouts	9	198
Turn Outs	2½"-0" Crushed		3	turnout	8	turnouts	9	72
Curve Widening	6"-0" Pit Run		8	curves	17	curves	4	68
Curve Widening	2½"-0" Crushed		3	curves	7	curves	4	28
Fill Widening	6"-0" Pit Run		8	fill	17	fills	2	34
Fill Widening	2½"-0" Crushed		3	fill	6	fills	2	12
Total Rock for Road Segment:				P2 to P4				4,404
ROAD SEGMENT	P3 to P5			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	P3 to P5		0+00 to 5+80		
				Volume (CY) per	Number of	Number of	Number of	
Base Rock	6"-0" Pit Run	0+00 to 5+80	8	station	50	stations	5.8	290
Surface Rock	2½"-0" Crushed	0+00 to 5+80	3	station	20	stations	5.8	116
Turn Outs	6"-0" Pit Run		8	turnout	22	turnouts	1	22
Turn Outs	2½"-0" Crushed		3	turnout	8	turnouts	1	8
Curve Widening	6"-0" Pit Run		8	curves	17	curves	1	17
Curve Widening	2½"-0" Crushed		3	curves	7	curves	1	7
Total Rock for Road Segment:				P3 to P5				460

Road Construction:

ROCK TOTALS	24"- 6"	6"- 0"	4"- 0"	2 ½"-0"	1½"- 0"	¾"- 0"
7,244	124	420	6,005		611	84

Road Improvement:

ROCK TOTALS	24"- 6"	6"- 0"	4"- 0"	2 ½"-0"	1½"- 0"	¾"- 0"
6,915	956	40	1,475		2,584	1,860

Hug Point:

ROCK TOTALS	24"- 6"	6"- 0"	4"- 0"	2 ½"-0"	1½"- 0"	¾"- 0"
6,871		3,880		2,991		

GRAND TOTALS:

ROCK TOTALS	24"- 6"	6"- 0"	4"- 0"	2 ½"-0"	1½"- 0"	¾"- 0"
21,030	1,080	4,340	7,480	2,991	3,195	1,944

Additional rock for curve widening is required and has been included in the volume estimates.

Roads shall be uniformly graded and approved by STATE prior to rocking. For typical cross section, see Forestry Department Drawing Nos. 351-C and 351-D at the Forestry Department District Office.

EXHIBIT "B"

END-HAULING REQUIREMENTS

POINT TO POINT	STA. TO STA.	WASTE AREA LOCATION	WASTE AREA TREATMENT
5A to 5B	7+60 to 7+85	1 or 2	1, 2, & 3
5A to 5B	11+70 to 12+50	1 or 2	1, 2, & 3
5A to 5B	12+60 to 13+75	1 or 2	1, 2, & 3
9A to 9B	7+00 to 8+10	1	1, 2, & 3
I1 to I2	87+00 to 88+30	1	1, 2, & 3
I3 to I4	1+60 to 5+60	1 or 3	1, 2, & 3
Weyerhaeuser Quarry	--	4	1, 2, & 3

End-Haul Areas General Requirements

Material shall not be intentionally sidecast.

Clearing and grubbing debris shall be end-hauled.

When blasting is required, it shall be accomplished using timed devices, delayed charges, low intensity shots, or other suitable means to contain as much material as possible within the road prism.

Containment

Full Containment: The amount of material lost over the outside edge of the road shall not exceed 6 inches in depth measured perpendicular to the natural ground slope. Pioneer excavation shall be removed by digging, loading, and hauling rather than by pushing or scraping methods.

Trees and stumps may have up to 12 inches of material directly above them. Any amount of material exceeding the containment requirements shall be removed by operator from the slope, by whatever means necessary, and end hauled to a designated waste area.

Waste Area Location

- (1) Waste Area No. 1, as shown on Exhibit A, is at Point I10 (Station 68+70 of I1 to I2).
- (2) Road 5A to 5B (Station 5+00), as shown on Exhibit A.
- (3) Road Segment I1 to I2 (Stations 33+20 to 35+80) or Road Segment 8C to 8D (Station 10+04).
- (4) Road P2 to P4 – Section 18 – as shown on Exhibit A.

Waste Area Treatment

- (1) Deposit at waste area, spread evenly, and provide adequate drainage.
- (2) Utilize clean dirt only for fill subgrade construction.
- (3) Mulch and seed all waste areas in accordance to Exhibit L.

EXHIBIT "B"

ROCK ACCOUNTABILITY

Subgrades must be approved by STATE prior to rocking. Rocking must be done only when weather conditions are acceptable to STATE, and must be suspended when muddy water could enter streams from runoff.

Rock accountability shall be determined by the following methods, as directed by STATE. STATE shall be given 24 hours' notice prior to rocking.

Rock Checking. All rock spreading shall be done only when a STATE representative is present. STATE shall issue a receipt for each load delivered, and rock shall be measured without allowance for shrinkage or shakedown during hauling. Total truck measure volume for each road segment shall be as shown on Exhibit B. Deliver at least 700 cubic yards per 8-hour shift, unless otherwise approved by STATE. A penalty of \$10 for each 10 cubic yards which are not delivered during a single shift shall be billed, and payment shall be required prior to final acceptance of the project by STATE.

Stockpile Rock Checking. PURCHASER shall provide STATE with a receipt for each load delivered to the Hug Point Stockpile site, and rock shall be measured without allowance for shrinkage or shakedown during hauling. All such receipts shall be compiled on a daily basis by truck and submitted to STATE at the completion of the Hug Point Stockpile. The Simmons Ridge stockpiles shall be dimension stockpiles per the PROJECTS, "Stockpile Construction and Measurements" provision.

Depth Measurement. Rock shall be spread and compacted according to the depths specified in Exhibit B. Truck measure volumes are given, but shall not limit the amount of rock spread.

Depth shall be determined in the most compacted area of the surface cross section. If additional rock is required because of insufficient depth, it shall be added by truck measure to those areas that were slighted. The conversion from compacted yardage to truck yardage is 1.3 multiplied by the compacted yardage equals truck yardage.

The depth of compacted aggregates shall not vary more than 1 inch from the depth specified in Exhibit B. The average depth for each road segment shall be the specified depth or greater. Surfacing areas shall be staked by STATE.

Load Records. Notify STATE before spreading the rock and maintain a record of all rock delivered for spreading. Make the record available for STATE inspection. A report listing the amount of rock delivered the prior month must be submitted no later than the 15th of each month.

COMPACTION AND PROCESSING REQUIREMENTS

Subgrade. Subgrade surfaces of the road segments listed below shall be graded and compacted prior to rocking. Compaction shall be accomplished by traveling all surfaces from shoulder to shoulder until visible deformation ceases, or in the case of a sheepsfoot roller, the roller "walks out." A minimum of 3 passes shall be made over the entire width and length of the road. A pass is defined as traveling a road section in one direction and then back over that same section again. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All Road Construction and Road Improvement Segments	1

Subgrade shall be crowned at 4 to 6 percent unless otherwise specified.

EXHIBIT "B"
 COMPACTION AND PROCESSING REQUIREMENTS

Fills. Embankments and fills shall be placed in (approximately) horizontal layers not more than 8 inches in depth. Each layer shall be separately, and thoroughly, compacted. Compaction equipment shall be operated over the entire width of each layer until visible deformation of the layers ceases or, in the case of a sheepsfoot roller, the roller "walks out." A minimum of 3 passes shall be made over the entire width and length of each layer. A pass is defined as traveling a fill layer in one direction and then back over that same layer again.

Placing individual rocks or boulders with more depth than the allowed layer thickness shall be permitted, provided the embankment will accommodate them. Such rocks and boulders shall be at least 6 inches below the subgrade. They shall be carefully distributed and the voids filled with finer material, forming a dense and compacted mass. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All Road Construction and Road Improvement Segments	1, 2, or 3; and 4

Stockpile Site Construction. Embankments and fills shall be placed in (approximately) horizontal layers not more than 8 inches in depth. Each layer shall be separately, and thoroughly, compacted. Compaction equipment shall be operated over the entire width of each layer until visible deformation of the layers ceases or. A minimum of 3 passes shall be made over the entire width and length of each layer. A pass is defined as traveling a fill layer in one direction and then back over that same layer again. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

STOCKPILE SITE	COMPACTION EQUIPMENT OPTIONS
Project No. 4, Hug Point Stockpile Site	1 or 6

Pit-Run Rock. Pit-run surfacing rock shall be spread on roads with a crawler tractor and continuously walked-in. Rock spreading shall begin at nearest point from the rock source and progress toward the end of the project, unless otherwise approved in writing by STATE. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Rock shall be compacted and processed during the same project period it is spread, unless other wise approved by STATE.

This requirement also applies to pit-run leveling rock used for Project No. 4.

Rock shall be crowned at 4 to 6 percent unless otherwise specified.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments	1, 5, or 6

EXHIBIT "B"
 COMPACTION AND PROCESSING REQUIREMENTS

Crushed Rock. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of crushed rock shall be moistened or dried to a uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 6 inches in depth except where installation of road fabric is required. When more than 1 layer is required, each shall be shaped and compacted before the succeeding layer is placed. Any irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and adding or removing material until the surface is smooth and uniform. Each layer shall be compacted with a minimum of 3 passes over the entire width and length of the road. A pass is defined as traveling a road section in one direction and then back over that same section again. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All Road Construction and Road Improvement Segments	1

COMPACTION EQUIPMENT OPTIONS

- (1) Vibratory Rollers. The drum shall have a smooth surface, a diameter not less than 48 inches, a width not less than 58 inches, and a turning radius of 15 feet or less. Vibration frequency shall be regulated in steps to 1400, 1500, and 1600 VPM, corresponding to engine speeds of 1575, 1690, and 1800 RPM. The centrifugal force developed shall be 7 tons at 1600 VPM. It shall be activated by a power unit of not less than 25 horsepower. The vibratory roller shall be self-propelled and operated at speeds ranging from 0.9 mile to 1.8 miles per hour, as directed by STATE.
- (2) Tampingfoot Compactors. Tampingfoot or sheepsfoot compactors shall exert a minimum pressure of 250 pounds per square inch on the ground area in contact with the tamping feet. The compactor shall cover a minimum width of 60 inches per pass and weigh a minimum of 16,000 pounds.
- (3) Rubber-Tired Skidders. A rubber-tired skidder weighing a minimum of 20,000 pounds shall be operated over the fill layers so that the entire surface comes into contact with the tires. Skidders with oversized tires (high floatation) are not acceptable for compaction.
- (4) Vibratory Hand-Operated or Backhoe-Mounted Tamper. Vibratory hand held or hydraulic tampers shall be used for compaction of backfill around culverts. The tamper shoe dimensions shall be a minimum of 10" X 13" and capable of a centrifugal force of 2,250 pounds.
- (5) Grid Rollers. Pit-run rock shall be processed by grid rolling with a Hyster Grid Roller Model D or equivalent, fully equipped with 32,000 pounds or more of ballast weights. Twenty passes shall be made with a grid roller over the entire length and width of the road, unless STATE requires fewer passes. A grader weighing at least 20,000 pounds shall work the pit-run surface during grid rolling so that all pit-run rock comes in contact with the grid roller. Grid rolling shall be performed when the subgrade is dry and firm. Road surface shall be uniformly shaped and graded prior to and during grid rolling.
- (6) Crawler Tractors. D-7 Caterpillar or equivalent.

EXHIBIT "B"

GENERAL STOCKPILE SITE CONSTRUCTION INSTRUCTIONS

- (1) Timber Removal. Remove all trees within the posted stockpile site boundary. Fell, buck, and deck trees needing removal adjacent to the stockpile site as directed by STATE. Trees within the posted stockpile site boundary shall remain the property of Weyerhaeuser Company.
- (2) Clearing Debris. Clearing debris shall be wind-rowed on the outer edge of the stockpile site perimeter in neat and compact wind-rows.
- (3) Excavation. Cutting and filling during site excavation shall be balanced. All excavated material shall be incorporated into the site construction.
- (4) Drainage. Site shall slope to drain as directed by STATE.
- (5) Site Compaction. During site construction, all fill and excavated material shall be compacted according to Exhibit B.
- (6) Site Dimensions. PURCHASER shall submit a plan for STATE approval as to the dimensions of the stockpile site to be constructed. A 100' x 53' x 14' stockpile shall contain 1,500 cubic yards.
- (7) Site Location. Stockpile location shall be as indicated on Exhibit A and marked in the field. PURCHASER may request to build the stockpile site at another location. A change in site location requires STATE and Weyerhaeuser Company approval.

EXHIBIT "C"

CULVERT SPECIFICATIONS

All culvert materials shall be furnished and installed by PURCHASER, unless otherwise specified in the contract. Culverts shall conform to the material and fabricating requirements of Sections 2410 and 2420 of the "Standard Specifications for Highway Construction" prepared by the Highway Division of the Oregon State Department of Transportation. All culverts shall be constructed with of double-walled polyethylene except for Culvert Nos. 19, 24, and 30 shall be constructed of 14 gauge, corrugated aluminized steel, as specified on pages 2 and 3 of Exhibit C.

Double-walled polyethylene pipe shall meet the requirements of AASHTO M-294-901, Type S. Corrugation types and shapes other than those meeting the above minimum Highway requirements, shall be approved in writing by STATE. This specification applies to high density polyethylene corrugated pipe with an integrally formed smooth interior. A manufacturer's certification that the products were manufactured, tested, and supplied in accordance with the specifications of the contract shall be furnished to the Project Engineer upon request. Clean, reworked material may be used.

Culverts shall be located according to the alignment and grade as shown on the Plan and Profile, and/or as staked in the field, or as stipulated in special instructions.

The STATE Representative shall determine final culvert locations and stake the locations in the field prior to installation.

Culvert grade shall slope away from ditch grade at least 2 percent unless otherwise specified.

The foundation and trench walls for all culverts shall be free from logs, stumps, limbs, stones over 3 inches, and other objects which would dent or damage the pipe during installation or use. If tamping is required, the trench shall be excavated wide enough to permit working on each side of pipe. Bedrock shall be excavated as required to provide a uniform foundation for the full length of the culvert.

A bedding of granulated material or job-excavated soil shall be placed to provide a wide band of support and to transmit the load from above evenly over the entire length of the pipe.

Transporting of the pipe shall be done carefully. Dragging or allowing free fall from trucks or into trenches shall not be permitted. Damage to bituminous coating shall be repaired before the pipe is covered.

On new installations, joining shall be done with bands of like material and corrugations. Manufacturers' instructions shall be followed for prefabricated pipe assembly.

Backfill shall consist of granulated material or job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the pipe.

Tamping is required as specified in Exhibit B and shall be done in 8-inch lifts, 1 pipe diameter each side of the pipe to 85 percent density or over, and to the minimum fill height as specified below.

Fill heights, if not shown on a road plan and profile, shall be in accordance with those shown in Drawing No. 2094, "Fill Height Tables," prepared by the Highway Division of the Oregon State Department of Transportation. Any deviation must be approved by STATE.

Minimum height of cover over top of culvert to subgrade when road is to be rocked shall be as follows: 12" for aluminized steel culverts 18" to 36", 18" for aluminized steel culverts 42" to 96", and 12" for polyethylene culverts (add 6" for roads which will not be rocked). Minimum vertical cover for other steel designs shall be as specified by STATE.

Lengths of individual culvert sections shall be not less than 10 feet, unless otherwise provided for in special instructions.

The ends of each culvert shall be free of logs and debris which would restrict the free flow of water. Culverts in Type F streams must allow free passage of fish as provided in the Oregon Forest Practice Rules. The intake end of relief culverts shall be provided with a sediment catching basin 3 feet in diameter at the bottom. The outlet end of any culvert which would allow water to erode embankment soil into waters of the State shall be provided with a downspout or other approved slope protection device.

EXHIBIT "C"

CULVERT SPECIFICATIONS

All coupling band designs shall be in accordance with the minimum requirements of the Highway Division (Drawing Nos. 2091-A and B), or as approved by STATE.

Culvert Nos. 19 and 24 (CMPA al. Ctd.) shall have 3" x 1" corrugations.

Polyethylene culverts between 3" to 10" in diameter shall meet the requirements of AASHTO M-252-851. Polyethylene culverts between 10" to 36" in diameter shall be double walled and meet the requirements of AASHTO M-294-901, Type S.

The intake ends of culverts shall be marked by driving white fiberglass posts within 6 inches of the downgrade side. Posts shall be a minimum of 6 feet long, and be a minimum of 2½ inches in width, with the spade driven 2 feet into the ground.

Culvert Nos. 19 and 24 shall have a 1:1 step beveled inlet.

Tamping is required.

All removed culverts shall be hauled to an approved refuse site off of STATE land.

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	ROAD SEGMENT POINT TO POINT	STATION
1	18	30	5A to 5B	0+51
2	18	30	5A to 5B	3+03
3	24	40	5A to 5B	7+74
4	18	30	5A to 5B	8+77
5	24	50	5A to 5B	12+02
6	24	60	5A to 5B	12+79
7	18	30	5C to 5D	1+89
8	18	40	5C to 5D	4+52
9	18	30	5E to 5F	0+48
10	18	30	5E to 5F	6+26
11	18	35	8A to 8B	0+00
12	18	35	8C to 8D	0+00
13	24	50	8C to 8D	10+04
14	18	30	9A to 9B	3+90
15	18	30	9A to 9B	7+40
16	18	30	10A to 10B	4+50

EXHIBIT "C"
 CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	ROAD SEGMENT POINT TO POINT	STATION
17	18	30	10A to 10B	7+80
18	18	30	10A to 10B	9+50
* 19	48 (14 gauge Aluminized Steel)	65	10A to 10B	10+60
20	18	30	10A to 10B	13+40
21	18	40	I1 to I2	25+35
22	18	40	I1 to I2	44+90
23	18	40	I1 to I2	74+45
* 24	48 (14 gauge Aluminized Steel)	86	I1 to I2	87+64
25	18	30	I1 to I2	95+05
26	18	35	I1 to I2	101+40
27	18	35	I1 to I2	108+25
28	18	35	I1 to I2	110+90
29	18	40	I2 to I12	8+50
* 30 * *	36 (14 gauge Aluminized Steel)	40	I2 to I12	20+60
31	18	40	I2 to I12	39+05
32	18	30	I2 to I12	53+85
33	18	35	I3 to I4	6+30
34	18	35	I7 to 5A	13+75
35	18	30	I7 to 5A	31+70
36	18	35	I8 to I9	7+40
37	24	40	I15 to I16	14+10
38	18	30	I15 to I16	20+85

*Indicates culverts that do not require markers.

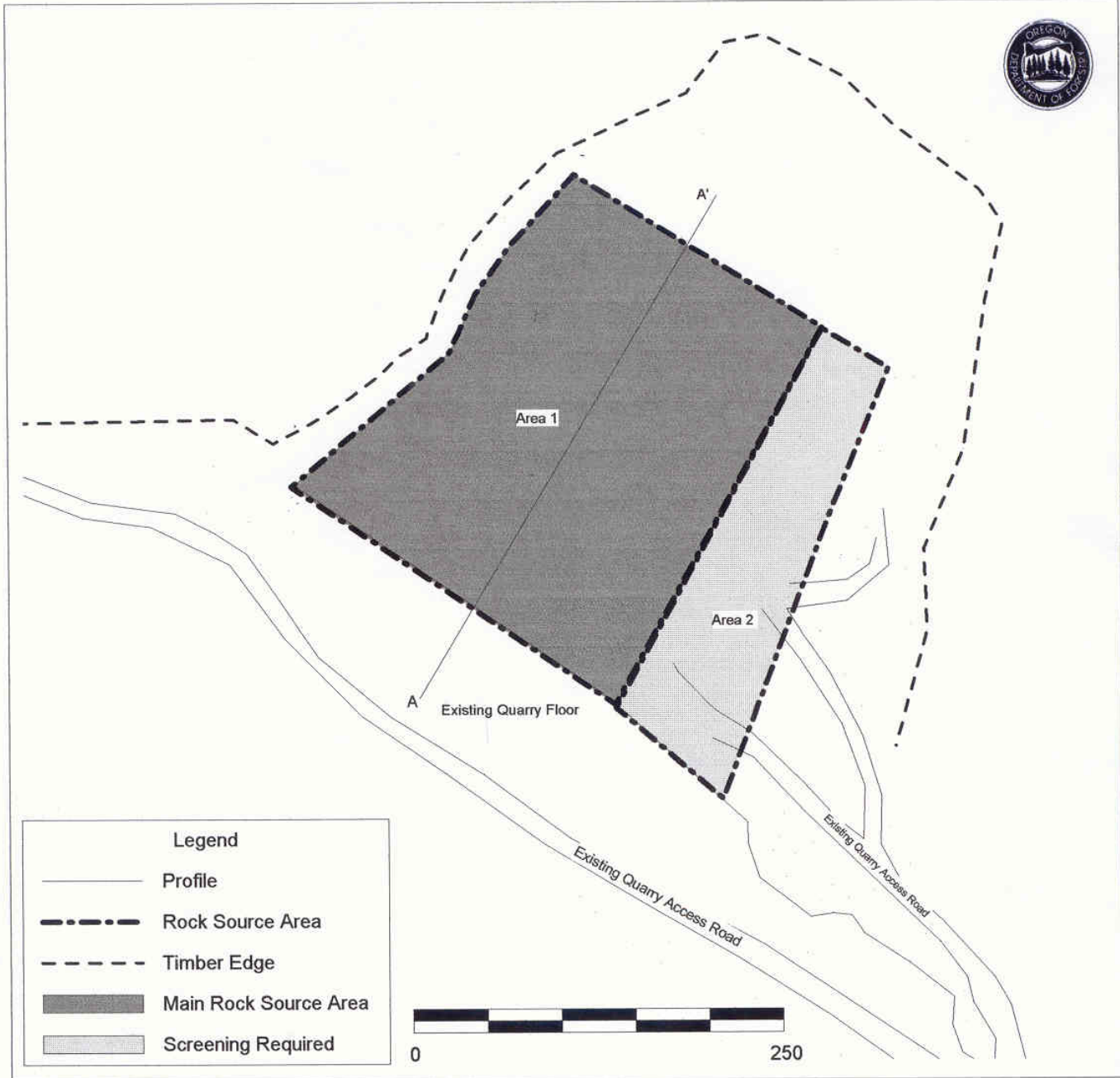
* * Requires "L" inlet with screens for beaver protection (similar to what is presently on site).

EXHIBIT "D"

ROCK PIT DEVELOPMENT AND USE
(Simmons Ridge Quarry)

- (1) PURCHASER shall schedule and coordinate Simmons Ridge Quarry and stockpile use with other existing STATE contracts and planned STATE contracts requiring quarry and stockpile use.
- (2) PURCHASER shall prepare a written development plan for the pit area. The plan shall be submitted to STATE for approval prior to conducting any operation in the pit area. The plan shall include, but not be limited to:
 - (a) Location of benches and roads to benches.
 - (b) Disposal site for debris and overburden.
 - (c) Time lines for rock quarry use.
 - (b) Erosion Control measures.
- (3) PURCHASER shall conduct the operations relative to the disposal of waste material in such manner that silt, rock, debris, dirt, or clay shall not be washed, conveyed, or otherwise deposited in any stream.
- (4) All overburden and reject material shall be hauled to the designated waste area shown on Exhibit A. Waste material will be spread evenly on the site, sloped and compacted for drainage, as directed by STATE.
- (5) Benches shall be constructed at intervals of 40 feet or less in height and shall be a minimum of 20 feet in width. Any gravel or talus slopes shall be left with a working face at an angle of 60 degrees or less. There shall be a minimum of 1 bench with an access road to it. Said bench shall be easily accessible with tractors.
- (6) Pit face shall be developed in a uniform manner.
- (7) If blasting will be utilized, controlled blasting techniques are required, and shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain as much material as possible within the quarry development area. PURCHASER shall maintain a comprehensive blasting log that contains all pertinent data for all blasting operations. The blasting log shall be submitted to the STATE after the completion of all blasting activity. The blasting log is intended for STATE record keeping purposes only.
- (8) Oversized material that is produced or encountered during development shall be broken down and utilized for crushing, utilized for rip rap rock as required in Exhibit B, or stored on site, as directed by STATE.
- (9) The pit site shall be left in a condition free from overburden and debris. Access roads to the pit and the pit floor shall be cleared at the termination of use. Overburden shall be removed for a distance of 20 feet beyond the developed rock source.
- (10) The quarry floor shall be developed to provide for drainage away from the quarry. All quarry and stockpile site drainage ditches shall be maintained. Quarry access roads shall be cleared and blocked upon completion of quarry use as directed by STATE.
- (11) Proper winterization and storm-water control measures such as waterbarring, drainage, utilization of filter bales, mulching and/or blocking access shall be constructed and maintained to protect the watershed and project work, as directed by STATE.
- (12) All quarry backslopes shall be left in a stable condition.
- (13) PURCHASER shall notify STATE 5 days prior to the start of quarry development activities.

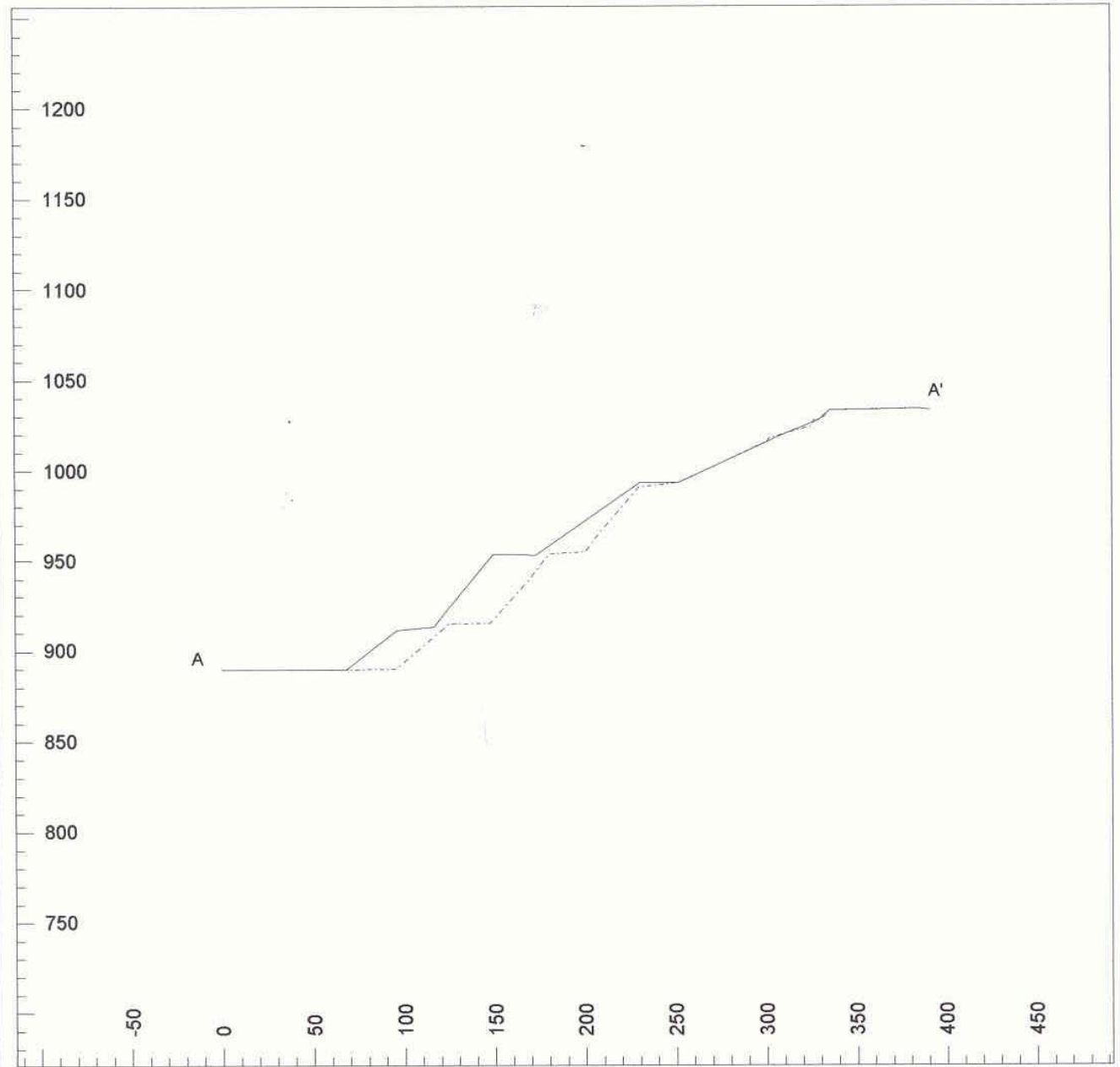
EXHIBIT "D"
ROCK PIT DEVELOPMENT AND USE



Oregon Department of Forestry
Astoria District
Engineering Unit

Simmons Ridge Quarry
NE1/4, Section 28, T7N, R8W, W.M.
Clatsop County, Oregon

EXHIBIT "D"
ROCK PIT DEVELOPMENT AND USE



Oregon Department of Forestry
Astoria District
Engineering Unit

Simmons Ridge Quarry
NE1/4, Section 28, T7N, R8W, W. M.
Clatsop County, Oregon

EXHIBIT "D"

ROCK PIT DEVELOPMENT AND USE
(Hug Point Quarry)

- (1) PURCHASER shall prepare a written development plan for the pit area. The plan shall be submitted to STATE for approval prior to conducting any operation in the pit area. STATE must obtain approval of plan from the LANDOWNER of the Quarry. The plan shall include, but not be limited to:
 - (a) Location of benches and roads to benches.
 - (b) Disposal site for debris and overburden.
 - (c) Time lines for rock quarry use.
 - (d) Erosion Control measures.
 - (e) Decking location for any merchantable logs generated from quarry development.
- (2) PURCHASER shall schedule and coordinate Hug Point Quarry development and use with Weyerhaeuser Company, the LANDOWNER.
- (3) The pit site shall be left in a condition free from overburden and debris. Access roads to the pit, and the pit floor, shall be cleared at the termination of use. Overburden shall be removed for a distance of 20 feet beyond the developed rock source. Trees removed for Quarry development will be felled, bucked, and decked at a site acceptable to the STATE adjacent to the quarry. All such trees will remain the property of Weyerhaeuser Company.
- (4) Controlled blasting techniques shall be utilized for any blasting operations, and shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain as much material as possible within the quarry development area. PURCHASER shall maintain a comprehensive blasting log that contains all pertinent data for all blasting operations. The blasting log shall be submitted to the STATE after the completion of all blasting activity. The blasting log is intended for STATE record keeping purposes only.
- (5) PURCHASER shall conduct the operations relative to the disposal of waste material in such manner that silt, rock, debris, dirt, or clay shall not be washed, conveyed, or otherwise deposited in any stream.
- (6) All overburden and reject material shall be hauled to the designated waste area shown on Exhibit A and disposed of as directed by STATE.
- (7) Clear and grub the rock source area. All woody debris, including stumps and slash shall be burned in the quarry floor, as directed by STATE.
- (8) PURCHASER shall obtain a FPA Burn Permit prior to debris disposal.
- (9) PURCHASER shall provide and maintain a 500 gallon fire truck, which meets FPA requirements, during all phases of quarry development activities.
- (10) Benches shall be constructed at intervals of 40 feet or less in height and shall be a minimum of 20 feet in width. Any gravel or talus slopes shall be left with a working face at an angle of 60 degrees or less. There shall be a minimum of 1 bench with an access road to it. Said bench shall be easily accessible with tractors.
- (11) Pit face shall be developed in a uniform manner.

EXHIBIT "D"

ROCK PIT DEVELOPMENT AND USE
(Hug Point Quarry)

- (12) Oversized material that is produced or encountered during development shall be broken down and utilized for crushing or utilized for pit run rock as required in Exhibit B, or stored on site as directed by the STATE.
- (13) Proper winterization and storm-water control measures such as water barring, drainage, utilization of filter bales, mulching and/or blocking access shall be utilized and such measures maintained to protect the watershed and project work, as directed by STATE.
- (14) Blasting shall be conducted only during periods of low soil moisture, as determined by STATE.
- (15) PURCHASER shall notify STATE 5 days prior to the start of quarry development activities.
- (16) The quarry floor shall be developed to provide for drainage away from the quarry. All quarry and stockpile site drainage ditches shall be maintained. Quarry bench access road shall be cleared, water barred and blocked upon completion of quarry use as directed by STATE.

EXHIBIT "E"

CRUSHED ROCK SPECIFICATIONS

Materials. The material shall be fragments of rock or other hard, durable particles crushed to the required size and a filler of finely crushed stone, sand, or other finely divided mineral matter. The material shall be free from vegetation and lumps of clay. STATE may require screening and/or rejecting of materials utilized for production of 1½"-0" and ¾"-0" crushed rock for the purpose of removing excess dirt.

Quality and Grading Requirements. The stone base materials shall be crushed rock, including sand. River gravel shall not be used.

The material from which base material is produced or manufactured shall conform to the general requirements of Section 2630 of the "Standard Specifications for Highway Construction" prepared by the Highway Division, Oregon Department of Transportation, and shall meet the following test requirements:

Hardness - Test Method AASHTO T 96 35% Maximum

Durability - Test Method OSHD Standard
Passing No. 20 Sieve: 30% Maximum
Sediment Height: 3" Maximum

<u>For ¾"-0"</u>	Passing	1" sieve	100%
	Passing	¾" sieve	90-100%
	Passing	⅜" sieve	55-75%
	Passing	¼" sieve	40-60%

Of the fraction passing ¼" sieve, 40% to 60% shall pass the No. 10 sieve.

<u>For 1½"-0"</u>	Passing	2" sieve	100%
	Passing	1½" sieve	95-100%
	Passing	¾" sieve	60-90%
	Passing	¼" sieve	35-50%

Of the fraction passing ¼" sieve, 40% to 60% shall pass the No. 10 sieve.

<u>For 2 ½"-0"</u>	Passing	3" sieve	100%
	Passing	2 ½" sieve	95-100%
	Passing	1½" sieve	55-75%
	Passing	¼" sieve	30-45%

Of the fraction passing ¼" sieve, 40% to 60% shall pass the No. 10 sieve.

<u>For 4"-0"</u>	Passing	5" sieve	100%
	Passing	4" sieve	90-100%
	Passing	2" sieve	60-90%
	Passing	¼" sieve	15-35%

The referenced sieve shall have square openings as set forth in AASHTO M 92, Woven Cloth Series. The determinations of size and gradings shall be as set forth in AASHTO T 27.

EXHIBIT "E"

PIT-RUN AND RIPRAP ROCK SPECIFICATIONS

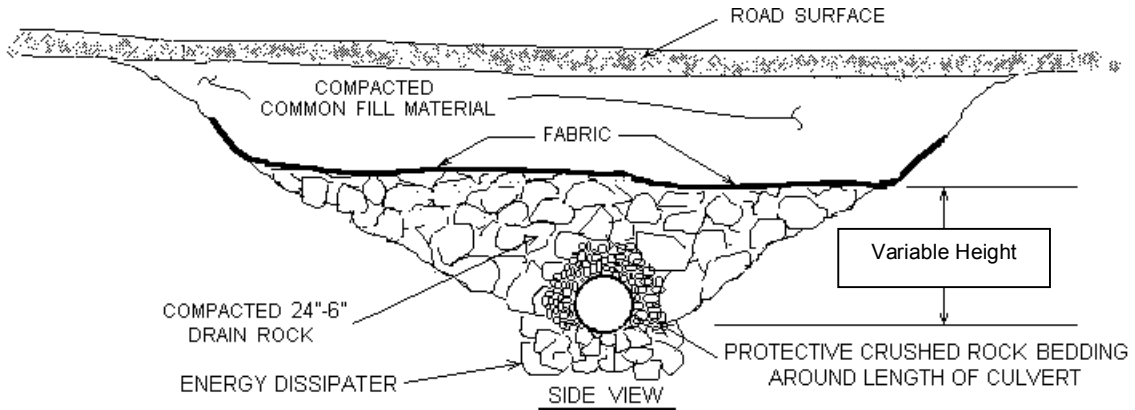
<u>For 6"-0" Pit-Run</u>	Passing	10" sieve	100%
	Passing	6" sieve	65%

For 24"-6" Riprap A minimum of 50 percent of the material shall measure a minimum of 24 inches, measured in one dimension. Material shall be clean, well graded, and free of 2"-0" fines.

Control of gradation shall be by visual inspection by STATE.

EXHIBIT "F"

TYPICAL FREE DRAINING FILL AND DRAINAGE BLANKET SPECIFICATIONS



Drainage Fabric Specifications:

Use nonwoven fabric designed for subsurface drain purposes, which meets or exceeds the following requirements:

	Test Method	Properties
1. Water Flow Rate	ASTM D 4491	85 gal/min/ft ²
2. Water Permeability	ASTM D 4491	0.30 cm/sec
3. Grab Tensile Strength	ASTM D 4632	250 lb.
4. Mullen Burst Test	ASTM D 3766	460 lb.
5. Mass	ASTM D 4533	10 oz/yd ²
6. Thickness	ASTM D 5199	100 mills
7. UV Resistance	ASTM D 4355 Xenon Arc	70% retained

EXHIBIT "G"

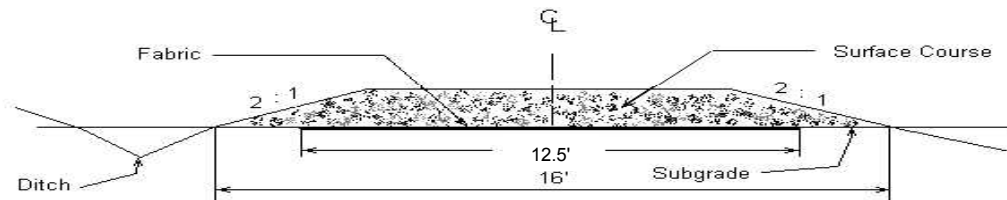
FABRIC SPECIFICATIONS

FABRIC SPECIFICATIONS - shall be woven fabric designed for forest road subgrade surfacing purposes and shall meet or exceed the following requirements, unless otherwise approved in writing by STATE:

- | | | | |
|-----|--------------------------------|----------|------------|
| (1) | Grab Tensile | 300 lbs. | ASTM D1682 |
| (2) | Modulus Load at 10% Elongation | 140 lbs. | ASTM D1682 |
| (3) | Mullen Burst | 600 lbs. | ASTM D751 |
| (4) | Width – 12 feet | | |

INSTALLATION REQUIREMENTS - fabric shall be installed according to the following requirements:

- (1) Typical cross section:



- (2) Subgrade surface shall be leveled and smoothed to remove humps and depressions which exceed 6 inches in height and depth. Small pieces of woody debris shall be removed or pushed below subgrade surface. Light vegetation (grass, weeds, leaves, and fine woody debris) may be left in place.
- (3) Fabric shall be installed directly on the prepared surface. Longitudinal and traverse joints shall be overlapped at least 3 feet.
- (4) Surfacing course material shall be placed to the designated thickness in one lift and spread in the direction of fabric overlap. Hauling and spreading equipment shall not be operated on the fabric until the total thickness of surfacing course material is placed.
- (5) Torn, punctured, or separated sections of the fabric shall be repaired, by installing a fabric patch over the break prior to placing the surfacing course material. The patch shall be at least 4 feet larger in horizontal dimensions than the break to be repaired.
- (6) Fabric failures resulting after rock placement and as evidenced by subgrade pumping or roadbed distortion shall be corrected. Correction measures shall consist of: (1) removing at least three-quarters the depth of surfacing course material in the affected area, (2) placing a fabric patch over the affected area with a minimum 4-foot overlap around the circumference of the area, and (3) replacing enough rock to cover the patch and blend in with the rest of the road.
- (7) Should STATE determine that installation of fabric on roads or portions of roads is not necessary, PURCHASER shall deliver an equivalent amount of road fabric to STATE.
- (8) Install fabric at the following locations: 4+60 to 8+40 on 8C to 8D, and 1+50 to 3+50 on 10A to 10B.

EXHIBIT "H"

TYPICAL EMBEDDED ENERGY DISSIPATER

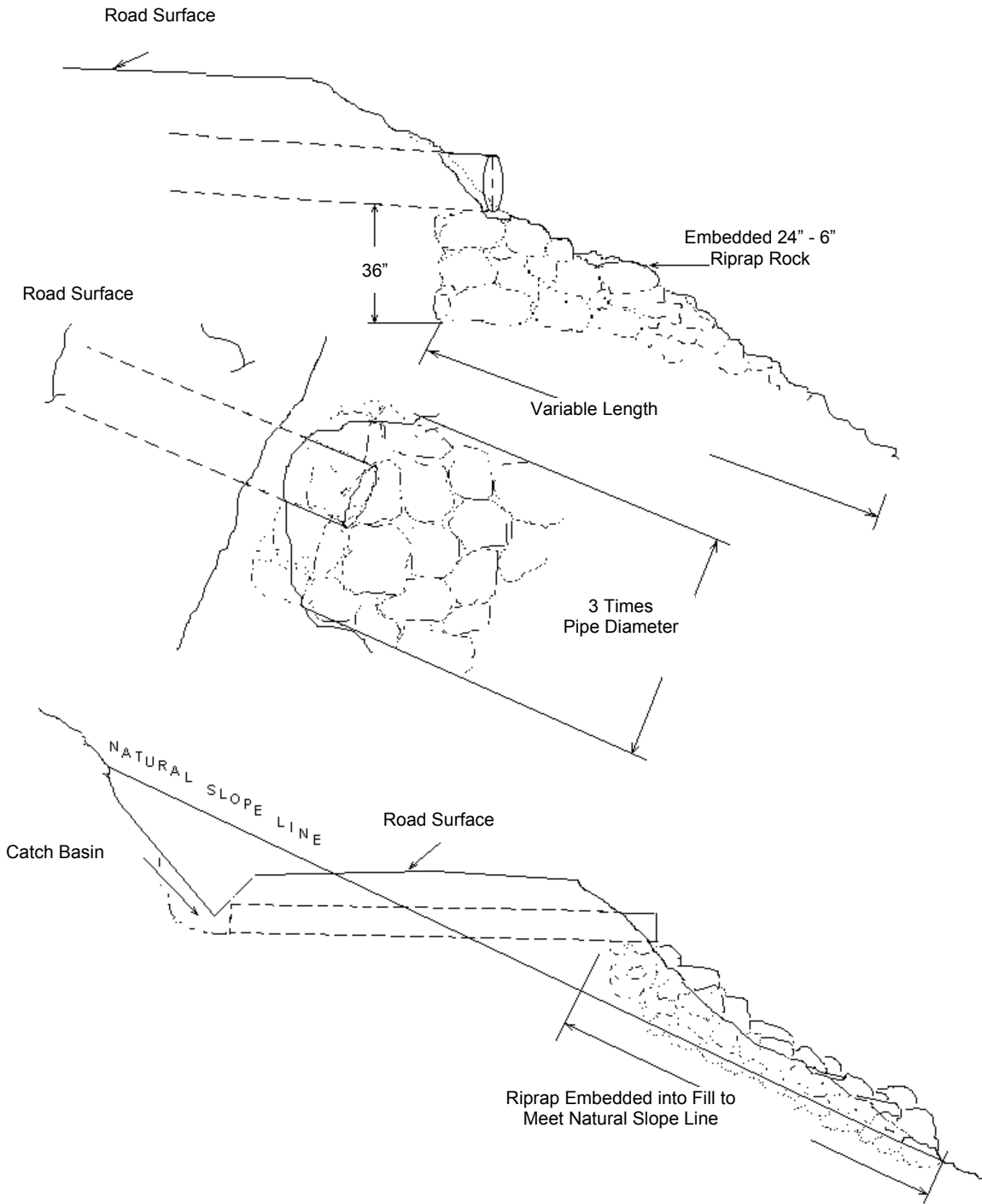
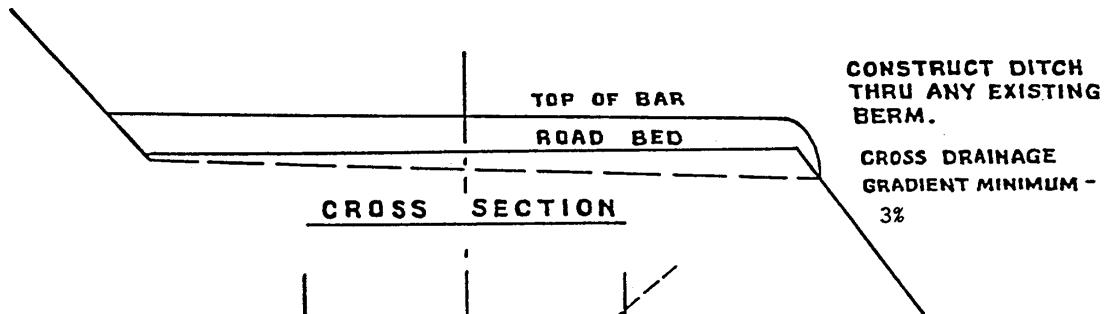
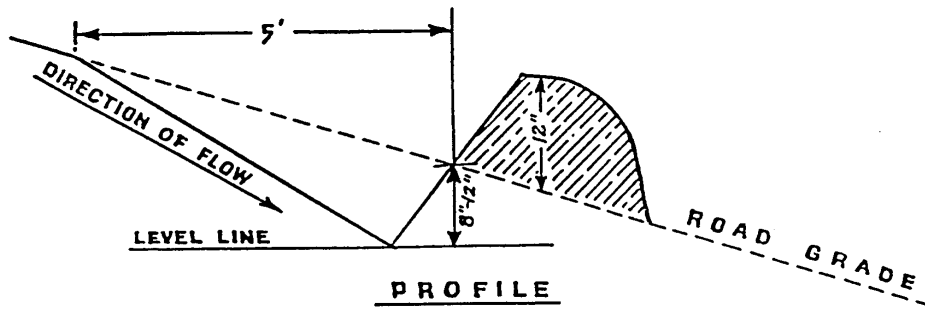
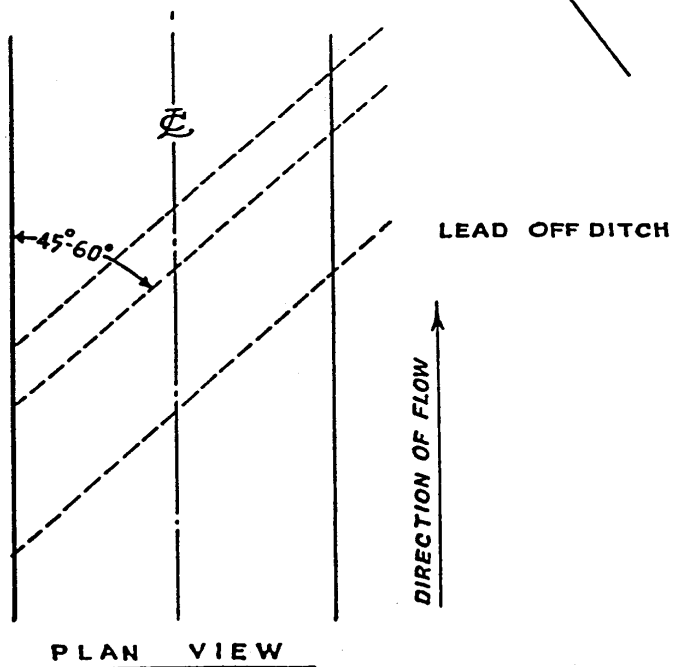


EXHIBIT "I"
 WATERBAR SPECIFICATIONS



SPACING OF WATERBARS

ROAD GRADE	DISTANCE
≤ 5%	400'
6-10%	200'
11-15%	150'
16-20% or greater	100'



**WATERBAR SPECIFICATIONS
 FOR CROSS DITCHING #298**

EXHIBIT "J"

ROAD VACATING SPECIFICATIONS

PURCHASER shall vacate at the following Points: V1 to V2, V3, and V4. Specific objectives for this project include:

- Fill removal and stream channel development.
- Culvert removal.
- Restoration of natural contours by outsloping of the road prism.
- Sidecast pullback.
- Minimize disturbance of existing vegetation.

PROJECT REQUIREMENTS AND GENERAL SPECIFICATIONS

- (1) Tree Removal. Cut or remove all trees necessary to access the project area and to facilitate vacating operations, as directed by STATE. Timber shall NOT be removed as designated timber, unless located within posted timber sale boundaries or right-of-way boundaries.
- (2) Fill Removal and Stream Channel Development. Remove fills to the natural stream course level(s). Stream channel(s) shall be excavated/developed to specified widths. Developed stream banks shall be sloped at natural contours or no steeper than 1½:1, as directed by STATE.
- (3) Culvert Removal. Remove drainage structures and culverts. Removed culverts shall be hauled to an approved refuse site off of STATE land.
- (4) Outslope Road. Outslope road to restore natural contours or establish a minimum of 10 percent slope for drainage at designated locations. If the road grade exceeds 10 percent, outslope of the road shall be 2 percent greater than the road grade.
- (5) Sidecast Pullback. Excavate/pullback previously sidecast materials below the road at designated locations. Developed slopes shall be pulled back to a 1½:1 slope or to natural ground contours. The beginning position for sidecast pullback shall be no greater than 20 feet vertical distance from the existing road surface, in accordance with Exhibit K.
- (6) Use of Excavated Materials
 - (a) Fill Excavation and Sidecast Pullback. Excavated materials shall be placed on the interior (cut) side of the road, and utilized to restore the cutslope to natural contours, or to a minimum 10 percent outsloped surface for drainage. Any excess material will be hauled to a designated waste area, as directed by STATE.
 - (b) Woody Debris may be incorporated in embankment material.
 - (c) Block Roads. Use excavated material from fill removals to block roads from vehicle access, as directed by STATE.
- (7) Erosion Control. Erosion control shall be completed in a progressive manner. Grass seed and straw mulch shall be applied for every 500 feet of road vacated, prior to continuing work.

All excavated material and bare soil shall utilize grass seed and straw mulch approved by STATE and in accordance with the specifications in Exhibit L. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.

- (8) Construct Waterbars as directed by STATE. Construct waterbars according to the specifications in Exhibit I.
- (9) Equipment. A minimum 1½ cubic-yard, track mounted excavator shall be used for all excavation, culvert removal, streambed preparation, road blocking, and waterbarring, unless otherwise approved in writing by STATE.

EXHIBIT "J"

ROAD VACATING SPECIFICATIONS

(10) Dry Conditions. All work shall be performed during dry conditions acceptable to STATE.

Continuous Operations. Operations shall provide for continual operation on the project, unless interrupted by poor weather, fire closures, or other uncontrollable circumstances. Equipment breakdowns shall be repaired without undue delay, and provision shall be made for replacement of equipment.

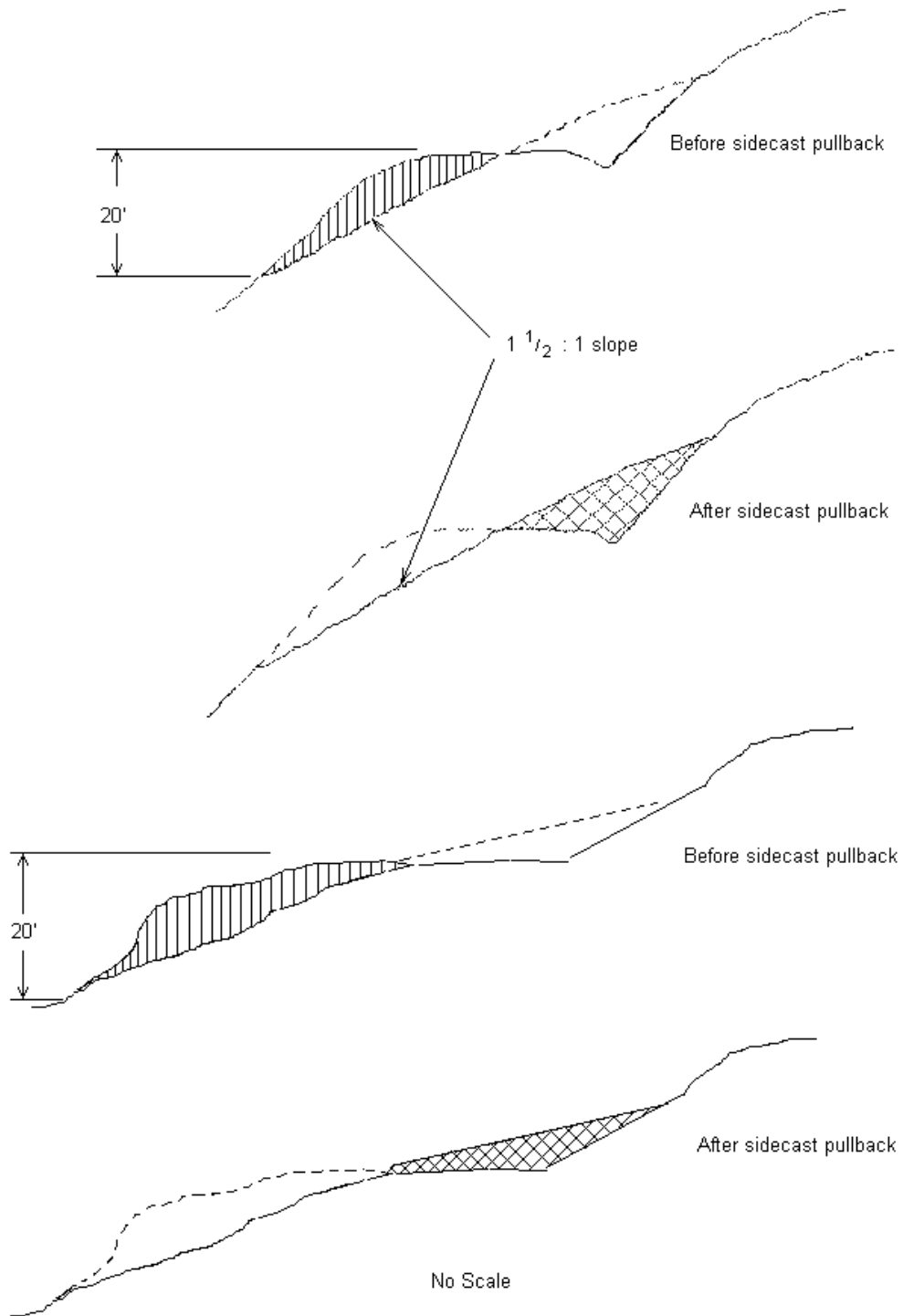
SPECIFIC INSTRUCTIONS/SPECIFICATIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
V1 to V2	0+10	Begin pullback / fill removal.
	0+30	Remove fill and culvert. Develop 4-foot stream channel.
	0+50	End pullback / fill removal.
V3	N/A	Remove fill, develop 3-foot stream channel.
V4	N/A	Remove fill, develop 3-foot stream channel.

Grass seed and mulch all exposed soil areas in accordance to Exhibit L.

EXHIBIT "K"

TYPICAL CROSS SECTION VIEW OF ROAD VACATING SIDECAST PULLBACK



State Timber Sale Contract
No. 341-04-93
Simmons Ridge Combination

EXHIBIT "L"

GRASS SEEDING AND MULCHING

This work shall consist of furnishing and placing required grass seed and straw mulch.

Seeding Seasons. Seeding shall be performed only from March 1 through June 15 and August 15 through October 31. Seeding materials shall not be applied during windy weather or when the ground is excessively wet or frozen. Work shall be performed during each specified seeding season on all completed and previously untreated sections. PURCHASER shall notify STATE 24 hours prior to seeding.

Application Methods for Grass Seed

Dry Method. Hand-operated seeding devices may be used when seed is applied in dry form.

Application Rates for Seed

Seed listed below shall be applied at the following rate per acre: 100 lbs.

SPECIES	MIXTURE	PURE LIVE SEED	POISON AND/OR REPELLENT	GERMINATION
Annual Rye	33%	95%	0	>90%
Orchard Grass	33%	95%	0	>90%
Perennial Rye	34%	95%	0	>90%

Seeding and Mulching. Apply grass seed and straw mulch to all waste areas, and bare soils resulting from Project No. 6, and the waste areas from Project Nos. 1 and 2. Applied straw mulch shall be a minimum of 2 inches deep and provide a uniform cover.

EXHIBIT "M"

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Description of Work to be Done

Areas designated for work under the contract shall be treated according to the specifications given below:

Clearing - Brush, logging slash, and other debris shall be cleared from planting sites and piled in windrows or piled so that 80 percent or more of the soil organic layer is exposed. All woody vegetation (other than conifer trees) is defined as brush in this exhibit.

Piles - shall be located at least 75 feet apart and shall be no more than 75 feet long. Piles shall be located inside the project area designated for piling and shall be more than 75 feet from any edge or standing conifer tree. Piles shall be built to a height of 3 to 4 feet and then covered to prevent water from reaching the slash. STATE shall supply the materials used for covering the slash. Additional woody debris shall be piled on top of the covered piles to complete the piling, as directed by STATE. Logs and chunks which are suitable for firewood shall be piled separately from slash, near roads and landings and alongside the road in locations designated by STATE.

Conifer Trees - shall be saved, unless otherwise directed by STATE.

Skid Trails - shall be ripped to a depth of 12 inches.

Residual Logs – An average of 600 cubic feet of hard conifer logs per acre. Log shall contain a minimum of 10 cubic feet of volume and be no shorter than 6 feet in length. Two logs per acre shall be at least 24 inches in diameter, on the large end, where available. Hard conifer logs must be in decay class one or two as indicated by intact bark and original wood color. Trees or logs shall be left well distributed across the unit.

Protective Measures - shall comply with Oregon Forest Practice Rules issued per ORS 527.610 to 527.992. Examples of protective measures are: (1) waterbarring tractor trails where necessary to prevent runoff toward streams; (2) not windrowing in streams or streamways; and (3) leaving stream buffers along designated streams.

Work specifications may be modified or waived only upon written notice from STATE.

EXHIBIT "M"

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Equipment Type, Equipment Operation, and Conduct of Work

The specifications given below are requirements for equipment type, equipment operation, and conduct of work under the contract.

Shovel - shall be a track-mounted machine with a ground-pressure rating of not more than 6.8 PSI and a net horsepower of 85 or more. The machine shall be capable of a minimum horizontal reach of 26 feet and a minimum vertical reach of 16 feet.

- Excavator-shovel: Bucket shall be a hydraulically controlled, 4 to 5-foot wide, "clamshell-style bucket with rake arms," with a 360-degree continuous rotation, and tooth length on rake arm shall be greater than 14 inches long, unless otherwise approved in writing by STATE. "Clamshell-style bucket with rake arms" shall be hydraulically controlled to operate bucket in a horizontal position (**fixed position: positive control**) for piling slash.
- Log Loader – shovel: Bucket shall be a hydraulically controlled, 4 to 5 foot wide, "clamshell-style bucket with rake arms," with a 360-degree continuous rotation, and tooth length on rake arm shall be greater than 14 inches long, unless other wise approved in writing by STATE. "Clamshell-style bucket with rake arms" shall be hydraulically controlled to operate bucket in a vertical position (**free swinging**) for piling slash.

Equipment	Rate	Hours	Appraised Value
Excavator	\$ 95.00 / hour	175	\$ 16,625.00
Log Loader	\$ 70.00 / hour	237.5	\$ 16,625.00

Operator - must be experienced in operating similar equipment on land clearing operations, be able to operate the equipment proficiently, and pile the debris on the area as directed by STATE.

Support - including transport, other equipment, replacements, supplies, maintenance, and repairs shall be furnished as required to complete work; and shall be furnished without cost to STATE, other than as agreed under the contract terms.

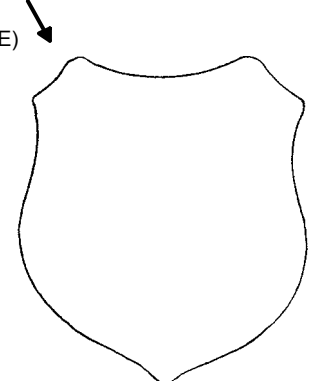
Work Scheduling - work shall be accomplished only during dry weather conditions, and started within 14 calendar days after completion of yarding activities on Areas 1, 4, 5, and 6. Operations shall provide for continual operation until contract work is completed, unless interrupted by poor weather, fire closures, or other uncontrollable circumstances. Equipment breakdowns shall be repaired without undue delay, and provision shall be made for replacement of equipment to prevent prolonged delays. Piling operation shall not be allowed when operations might damage sites or affect stream flows. Any exception to these instructions must be authorized in writing by STATE.

STATE Representative - shall provide directions for the conduct of work according to specifications.

EXHIBIT "N"
OREGON DEPARTMENT OF FORESTRY

SCALING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

- (1) ORIGINAL REGISTRATION Date _____
 REVISION NUMBER _____ Date _____
 CANCELLATION Date _____
- (2) TO: _____
 (Third Party Scaling Organization)
- (3) FROM: Astoria Phone (503) 325-5451
 (State Forestry District)
 Address 92219 Highway 202, Astoria, OR 97103
- (4) PURCHASER: _____
 Address _____

- (12) SALE NAME Simmons Ridge Combination
 COUNTY Clatsop
- (13) STATE CONTRACT NUMBER 341-04-93
- (14) SCALE: westside eastside cubic foot
- (15) STATE BRAND REGISTRATION NUMBER _____
- (16) BUREAU BRAND CODE NUMBER _____
- (17) STATE BRAND INFORMATION:
 (COMPLETE) 

(5) MINIMUM SCALING SPECIFICATIONS			CLASS		
SPECIES	SCALING DIAMETER INCHES	*NET SCALE VOLUME	PER MBF	** SUM	SUB
Conifers	--	10	X		
Hardwoods	--	10	X		

* Apply minimum volume test to whole logs over 40' Westside; 20' Eastside.
 ** Sum (if indicated): see instructions and explain in Item (20).

- (6) WESTSIDE SCALE: YES NO
 Actual taper all logs over 40' scaling length
- (7) EASTSIDE SCALE: YES NO
 *Actual taper butt logs over 40' scaling length
- (8) PENCIL BUCK YES NO
 back to Minimum Scaling Diameter _____
- (9) ADD-BACK VOLUME -- YES NO
 Deductions due to delay

- (18) PAINT REQUIRED: YES
 COLOR Orange

(19) SPECIAL SCALES
PEELABLE CULL (all species)
UTILITY/PULP (all species)
NO DEDUCTIONS ALLOWED FOR MECHANICAL DAMAGE
OTHER: _____
OTHER: _____

(10) APPROVED SCALING LOCATIONS	Species	Yard	Truck

(20) REMARKS: Hardwood logs less than 8 inches scaling diameter and containing less than 20 board feet shall be scaled as "Utility."

Operator's Name (Optional inclusion by District): _____

(21) SIGNATURES:

(11) NOTICE OF CANCELLATION OF BRAND:
 Effective Date: _____

 Purchaser or Authorized Representative Date

 State Forester Representative Date

 State Forester's Representative

EXHIBIT "N"

INSTRUCTIONS FOR FORM 343-307 (rev. 5/01)

- (1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires Item (21). Complete date.
- (2) Designate Third Party Scaling Organization (TPSO). Send 4 copies to TPSO, 1 to purchaser, 1 to Salem, and keep such copies as to district needs.
- (3) State District office, address and phone.
- (4) Enter Purchaser's business name and address as it appears on the contract.
- (5) Minimum Scaling Specifications. Review Section 45, "Log Removal," of the contract. Species, or combined species can be separate entries. Information serves as a basis for scaling (see also Items (13) thru (17)), and is required to show existence on the sale. **PerM** (per mbf). **SUM** (lump sum material). **SUB** (submerchantable material). SUB, as used by the State, references that material containing at least 10 bf (net) but less than the lower merchantable net volume limit or grade requirements for other merchantable (PerM) entries. PerM, SUM, and SUB must be indicated by checking the appropriate column. Species with the same specifications and value are combined into one entry. PerM and SUB require scaling therefore complete specifications. SUM need not be scaled, hence no specifications. Loads containing only SUM are to be ticketed if so instructed in Item (19). Mixed loads of SUM, PERM and/or SUB species will always be scaled.
- (6) Westside -- actual taper segment scale. Check Yes or No. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs -- All Species -- State Forestry Department Scaling Practices (Westside).
- (7) Eastside -- actual taper/taper table segment scale. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs -- All Species -- State Forestry Department Scaling Practices (Eastside). Items with * follow U.S. Forest Service Eastside rules.
- (8) Pencil Buck. Check NO if a westside sale, optional for eastside sales.
- (9) Add-Back Volume. Add-Back is normally checked YES. Scaler records deductions (sap rot, weather checks, etc.) caused by an abnormal delay in removal. Enter separately on scale ticket. TPSO provides State with summaries that include this as a net volume by species. Salvage sales and certain other circumstances may require that "NO" be checked.
- (10) Show scaling locations only applicable to TPSO. Not necessary to list markets. If all species are scaled at same location, enter "ALL."
- (11) When logging is complete, recall branding hammers, date and sign where indicated, check CANCELLATION box at top of form, and send to TPSO.
- (12) Enter sale name and county.
- (13) Enter sale contract number.
- (14) Check Westside or Eastside log scale. Cubic foot refers to Northwest Log Rules Cubic Foot Scale.
- (15) Oregon Forest Products Brand Registry Number (optional).
- (16) DO NOT USE -- TPSO will fill in when applicable.
- (17) Show one brand only. Complete drawing. If more than one brand is assigned to the sale, (1) make separate form for each brand, and (2) on each form, explain and show other brand(s) under REMARKS, Item 19.
- (18) Check YES and designate orange.
- (19) Special Scales. These are the Special Scales that will be applied. If "Other" is indicated, please describe. Give comments in Item (19).
- (20) Use this space to designate weight conversion factors, or any other explanations to clarify scaling requirements. If additional scaling locations are approved, prepare another form showing all (old and new) locations. Check REVISION box at top of form and explain under remarks. Route as indicated.
- (21) Require purchaser to sign and date completed form.