



Oregon Department of Forestry
 2600 State St Salem OR 97310

PART III: EXHIBITS

EXHIBIT B

TIMBER SALE OPERATIONS PLAN

(See page 2 for instructions)

Date Received by State: _____

(5) State Brand Information (Complete)

(1) Contract Number: WO-341-2019-W00776-01

(2) Sale Name: Cold Boulder

(3) Contract Expiration Date: 12/31/2020

(4) Purchaser Name: _____

(6) State Representatives:

<u>Name</u>	<u>Circle One</u>	<u>Phone No.</u>	<u>Cell No.</u>	<u>Alt Phone</u>
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			

(7) Purchaser Representatives:

<u>Name</u>	<u>Circle One</u>	<u>Phone No.</u>	<u>Cell No.</u>	<u>Alt Phone</u>
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			

(8) Name of Subcontractors and Start Dates:

<u>Project No.</u>	<u>Subcontractor Name.</u>	<u>Start Date</u>	<u>Completion Date</u>	<u>Cell No.</u>	<u>Alt Phone</u>

	<u>Subcontractor Name.</u>	<u>Start Date</u>	<u>Cell No.</u>	<u>Alt Phone</u>
FELLING				
YARDING				

(9) Comments:

(10) Operations Map: Attach a copy of timber sale Exhibit A or other suitable map which plainly shows the items listed on the instruction sheet.



Oregon Department of Forestry

2600 State St Salem OR 97310

PART III: EXHIBITS

EXHIBIT B






INSTRUCTION SHEET FOR OPERATIONS PLAN

SUBMIT ONE COPY OF PLAN STATE

Operations shall be limited to the work shown in the plan until a revised plan or supplemental plan is submitted covering additional work. Compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act. If STATE has prepared a required Forest Practices Act (FPA) "Written Plan" for operations, PURCHASER shall comply with all provisions of the Wirtten Plan.

Explanation of Item No.(from Page 1)

- (5) All sales require you to use a brand furnished by STATE. If the State brand has not been assigned when the plan is submitted, it will be furnished and assigned later. Complete drawing. If more than one brand is assigned to the sale, complete both drawings.
- (6) The contract requires you to have a designated representative available on the sale area or work location who is authorized to receive in your behalf any notice or instruction given by STATE and to take action in regard to performance under the contract. If logging and project work is widely separated, a representative is required for each.
- (7) The STATE representative will be designated when your plan is approved and is the person who will inspect and issue instructions regarding performance.
- (8) Show names of subcontractors to be used for any or all phases of the operations. If subcontractors are not Known, or are changed later, give notification to the STATE representative prior to commencement of work by subcontractor.
- (9) Show projected dates for commencement of both projects and logging. If projected dates need to be changed at a later date, notification must be given to the STATE representative by supplemental plan or otherwise, prior to commencement of such operations.
- (10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:
 1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings in sequence.
 2. Locations of spur roads planned for construction, other than required by the timber sale contract. Provide spur road specifications
 3. Locations of proposed tractor yarding roads. Show if and how marked on the ground.
 4. Locations of temporary stream crossings.
 5. List the sequence of performing project work.
 6. Location of rock sources - attach pit development plans.

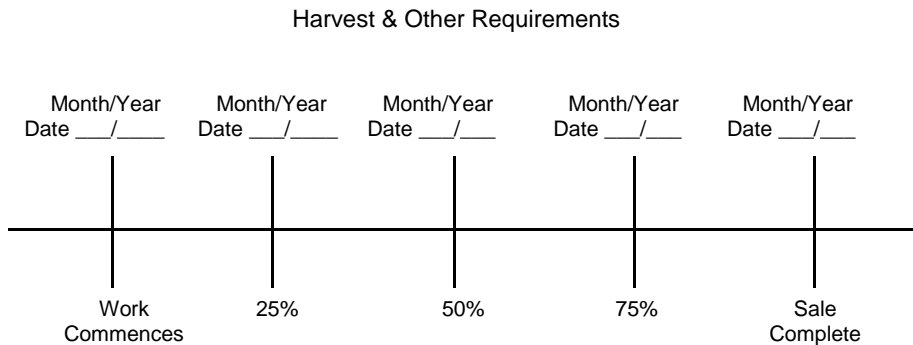
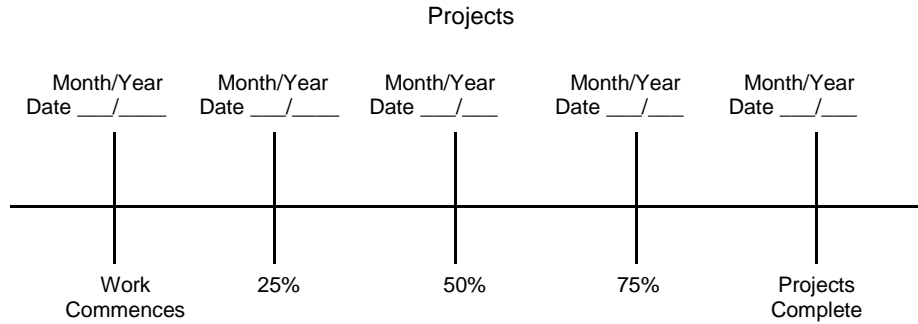
	1	Cable Landing, with numbers for sequence.
	A	Tractor Landing with alphabetcal sequence.
		Approximate setting boundary.
		Spur truck roads.
		Tractor yarding roads.
X		Temporary stream crossings.



Oregon Department of Forestry
 2600 State St Salem OR 97310
 PART III: EXHIBITS
EXHIBIT B
OPERATIONS PLAN

Completion Timeline

Indicate on the appropriate timeline below, the dates by which you plan to complete the work as required under this contract. The purpose of this section is to develop a plan that will ensure you complete the work as required, and meet the interim completion date(s) and contract expiration date. This plan is incorporated and made a part of the contract. When, in the opinion of STATE, operations are not commencing in a manner that meets the intent of this plan, you may be placed in violation of contract and your operations suspended until an amended plan is submitted and approved by STATE.



The Federal Endangered Species Act (ESA) prohibits a person from taking any federally listed threatened or endangered species. Taking under the federal ESA may include alteration of habitat. STATE's approval of this plan does not certify that PURCHASER's operation under the plan is lawful under the federal ESA. As provided in the timber sale contract, PURCHASER's must comply with all applicable state, federal, and local laws.

PURCHASER's compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act.

APPROVED; Date: _____

SUBMITTED BY:
PURCHASER

STATE OF OREGON - DEPARTMENT OF
FORESTRY

Title _____

Title _____



Oregon Department of Forestry
EXHIBIT C - SAWMILL GRADE (WESTSIDE SCALE)
SCALING INSTRUCTIONS - LOCATION APPROVAL - BRAND INFORMATION
 West Oregon - NWOA

(1) ORIGINAL REGISTRATION Date _____
 REVISION NUMBER 000 Date _____
 CANCELLATION Date _____

(2) TO: _____
 (Third Party Scaling Organization)

(3) FROM: West Oregon Phone (541) 929-3266
 (State Forestry District)
 Address: 24533 ALSEA HWY
 PHILOMATH, OR 97370

(4) PURCHASER: _____
 Mailing Address: _____
 Phone Number: _____

(5) MINIMUM SCALING SPECIFICATIONS	
SPECIES	MINIMUM NET VOLUME
Conifers	10
Hardwoods	10

*Apply minimum volume test to whole logs over 40' Westside

(6) WESTSIDE SCALE:
 Use Region 6 actual taper rule. Logs over 40'.

(7) Weight Scale Sample YES NO

(8) APPROVED SCALING LOCATIONS <small>(as shown on the ODF Approved Locations web-site)</small>	Species	Yard	Truck	Weight

(9) SALE NAME: Cold Boulder
 COUNTY: Lincoln

(10) STATE CONTRACT NUMBER:
 WO-341-2019-W00776-01

(11) STATE BRAND REGISTRATION NUMBER:

(12) STATE BRAND INFORMATION:

(13) PAINT REQUIRED: YES
 COLOR: Orange

(14) SPECIAL REQUESTS (Check applicable)	
PEELABLE CULL (all species).....	<input checked="" type="checkbox"/>
NO DEDUCTIONS ALLOWED FOR MECHANICAL DAMAGE	<input checked="" type="checkbox"/>
ADD-BACK VOLUME - Deductions due to delay...	<input checked="" type="checkbox"/>
OTHER :	

(15) REMARKS Mule Train loads require a load ticket for each set of bunks.

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

(16) SIGNATURES:

 Purchaser or Authorized Representative Date

 State Forester Representative Date

 State Forester Representative PRINT NAME



Oregon Department of Forestry
EXHIBIT C - SAWMILL GRADE
INSTRUCTIONS FOR FORM 343-307a (rev. 11/11)
West Oregon - NWOA

- (1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires logging and hauling to be complete, recall branding hammers, date and sign where indicated, write diagonally across page "CANCEL", and send to TPSO.
- (2) Designate Third Party Scaling Organization (TPSO).

Columbia River Log Scaling & Grading Bureau
P.O.Box 7002, Eugene, OR 97401
Phone: (541) 342-6007 Fax: (541) 342-2631
Email: services@crls.com

Pacific Rim Log Scaling Bureau, Inc.
8288 28th Court North East, Lacey, WA 98516
Phone: (360) 528-8710 Fax: (360) 528-8718
Email: office@prlsb.com

Mountain Western Log Scaling & Grading Bureau
P.O.Box 580, Roseburg, OR 97470
Phone: (541) 673-5571 Fax: (541) 672-6381
Email: info@southernoregonlogscaling.com

Yamhill Log Scaling & Grading Bureau
P.O.Box 709, Forest Grove, OR 97116
Phone: (503) 359-4474 Fax: (503) 359-4476
Email: yamhilllog@frontier.com

Northwest Log Scalers Inc.
6137 NE 63rd St, Vancouver, WA, 98661
Phone: (360) 553-7212 ext. 4 Fax: (360) 553-7213
Email: info@nwlogscalers.com

Pacific Log Scaling & Grading Bureau, Inc.
P.O.Box 23939, Portland, OR 97281
Phone: (503) 684-5599 Fax: (503) 639-4880
Email: PacLogScale@sol.com

- (3) State District office, address and phone.
- (4) Enter Purchaser's business name, address, and phone number as it appears on the Contract.
- (5) Minimum Scaling Specifications.
- (6) Westside - Region 6 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) Weight Scale Sample - Check box if sale is to be a Weight Scale Sample. All specifics for handling, scaling and processing will be attached or explained in the Remarks section item (15).
- (8) Show scaling locations only applicable to TPSO. Location name should appear as it does on the ODF Approved Scaling Location web site: http://www.odf.state.or.us/DIVISIONS/management/asset_management/ScalingLocation.asp Locations with scaling and processing directions specific to their location should be on a separate form. Species should be identified if not capable of receiving "all" species. Check appropriate box for either: yard, truck scale, or weight. Refer to the web site listed above for the locations approval status.
- (9) Enter sale name and county.
- (10) Enter sale Contract number.
- (11) Enter Oregon's State Brand Registry Number (**REQUIRED**).
- (12) Show brand assigned to timber sale. One brand only. If more than one brand is assigned to the sale: (1) make a separate form for each brand and (2) on each form, explain and show other brand(s) in the Remarks section item (15).
- (13) Check yes for Paint Required and designate "Orange" for color. Non required removal volumes may sometimes require blue paint.
- (14) Special Requests. These are requests that will be applied to ODF timbersales. All boxes applicable to the timber sales designated in the Exhibit C form must be "marked". If "Other" is indicated, it must contain a description and any necessary comments.
- (15) Use this space to designate any weight conversion factors, per load volumes, weight scale sample instructions or any other explanations to clarify scaling, processing and/or mailing requirements. If additional scaling locations are approved, revise original or current form showing all (old and new) locations. Check REVISION box at top of form and explain under remarks. Route as indicated.
- (16) Require purchaser to sign and date completed form in addition to State Forester Representative, sign and print name on the form.

Salem Distribution Instructions: Original will be mailed to Salem after it is electronically scanned and placed in the Salem transfer drive <\\WPODFILL01\Transfer\ScalingInstructions> or e-mailed directly to scaling@odf.state.or.us. Scaling Instructions for each brand should be scanned separately, for each approved TPSO.

Notify the District within one hour when branding or painting is inadequate for quick identification, the receipts are missing, not correctly or completely filled out, and/or when logs presented for scaling are impossible to scale accurately.

General Distribution: TPSO, Approved Scaling Locations(s), Purchaser, Specific distribution instructions are outlined on the last page of this report; Instructions for Form



Oregon Department of Forestry
EXHIBIT C - PULP SORT
PROCESSING INSTRUCTIONS - LOCATION APPROVAL
BRAND INFORMATION

West Oregon, NWOA

(1) ORIGINAL REGISTRATION Date _____
 REVISION NUMBER 000 Date _____
 CANCELLATION Date _____

(2) TO: _____
 (Approved Pulp Processing Facility)

(3) FROM: West Oregon Phone (541) 929-3266
 (State Forestry District)
 Address: 24533 ALSEA HWY
PHILOMATH, OR 97370

(4) PURCHASER: _____

(5) Scaling Bureau (TPSO) Processing Weight receipts:

Mailing Address: _____

Phone Number: _____

(9) SALE NAME: Cold Boulder

COUNTY: Lincoln

(10) STATE CONTRACT NUMBER:
WO-341-2019-W00776-01

(11) STATE BRAND REGISTRATION NUMBER: _____

(12) STATE BRAND INFORMATION:



(13) REMARKS: Mule Train loads require a load ticket for each set of bunks.

Operator's Name (Optional inclusion by District):

(14) SIGNATURES:

 Purchaser or Authorized Representative Date

 State Forester Representative Date

 State Forester Representative PRINT NAME

(6) STATE Definition of Approved Pulp Sort:

- Top portion of the tree (tops).
- All logs with a diameter (Big End) greater than 8 inches marked with blue paint.

(7) PULP FACILITY PROCESSING INSTRUCTIONS:

- Pulp loads shall be weighed in lieu of scaling.
- One Ton = 2000 lbs(Short Ton).
- Pulp loads shall have a yellow Log Load Receipt attached.
- Gross weight and truck tare weight for each load shall be machine printed on the weight receipt.
- Weigher shall sign the weight receipt.
- Weigher shall record the Log Load Receipt number on the weight receipt.
- Weigher shall attach the Weight receipt to the Log Load Receipt and mail them weekly to the TPSO processing the Weight receipt.

(8) TPSO PROCESSING INSTRUCTIONS

- Submit data files daily (or each day of activity).
- Mail or deliver scale tickets weekly to ODF Headquarters in Salem.

Notify the District within one hour when branding is inadequate for quick identification, the logs are marked with orange paint, the receipts are missing, not correctly or completely filled out, and/or logs do not meet the specifications of the STATE definition of Approved Pulp Sort.

Distribution: ORIGINAL: Salem/ COPIES: TPSO, Approved Pulp Processing Location, Purchaser, District, Mgmt. Unit



Oregon Department of Forestry
EXHIBIT C - PULP SORT
Instructions for Form 343-307b

West Oregon, NWOA

- (1) **Must Complete.** Check appropriate box. REVISION NUMBER requires comments in the Remarks Section(13). CANCELLATION requires logging and hauling to be complete, recall branding hammers, date and sign where indicated, write diagonally across page "CANCEL", and send to TPSO.
- (2) **Must Complete.** Approved Pulp Processing Facility. Write in as written in the Approved Log Delivery Location http://www.odf.state.or.us/DIVISIONS/management/asset_management/ScalingLocation.asp
- (3) **Must Complete.** State Forestry District and District Phone Number.
- (4) **Must Complete.** Purchaser's business name as it appears on the Contract.
- (5) **Must Complete.** Third Party Scaling Organization that will be processing the weight tickets, mailing address, and phone number.

Columbia River Log Scaling & Grading Bureau
P.O. Box 7002, Eugene, OR 97401
Phone: (541) 342-6007 Fax: (541) 342-2631
Email: service@crls.com

Pacific Rim Log Scaling Bureau, Inc.
8288 28th Court North East, Lacey, WA 98516
Phone: (360) 528-8710 Fax: (360) 528-8718
Email: office@prlsb.com

Mountain Western Log Scaling & Grading Bureau
P.O. Box 580, Roseburg, OR 97470
Phone: (541) 673-5571 Fax: (541) 672-6381
Email: info@southernoregonlogscaling.com

Yamhill Log Scaling & Grading Bureau
P.O. Box 709, Forest Grove, OR 97116
Phone: (503) 359-4474 Fax: (503) 359-4476
Email: yamhilllog@frontier.com

Northwest Log Scalars Inc.
6137 NE 63rd St, Vancouver,WA, 98661
Phone: (360) 553-7212 ext. 4 Fax:(360) 553-7213
Email: info@nwlogscalars.com

Pacific Log Scaling & Grading Bureau, Inc.
P.O. Box 23939, Portland, OR 97281
Phone: (503) 684-5599
Email: PacLogScale@aol.com

- (6) **Must Complete.** Big end log not to exceed _____ inches. Big end of log is not to exceed 2 inches greater than the minimum removal specifications in the contract. Example: Minimum removal specifications 6 inches and 20 board feet, then the Big end of log not to exceed 8 inches. When conifer and hardwood removal specifications are different, use the smaller removal diameter to determine this specification.
- (7) **Must Complete.** Enter sale name and county. If more than one county write in all the counties that the sale is located in.
- (8) **Must Complete.** Enter sale Contract number.
- (9) **Must Complete.** Enter Oregon's State Brand Registry Number (**REQUIRED**).
- (10) **Must Complete.** Show brand assigned to timber sale. One brand only, if more than one brand is assigned to the sale: (1) make a separate form for each brand and (2) on each form, explain and show other brand(s) in the Remarks section Item(13).
- (11) Use this section to list any special instructions or the reason for any revisions in section item(1).
- (12) **Must Complete.** Purchaser required to sign and date completed form in addition to State Forester Representative, sign and print name on the form.

Salem Distribution Instructions: Original will be mailed to Salem after it is electronically scanned and placed in the Salem transfer drive \\WPODFILL01\Transfer\ScalingInstructions or e-mailed directly to scaling@odf.state.or.us. Scaling instructions for each brand should be scanned separately, for each approved TPSO.

Distribution(See specific instructions on pg.2): ORIGINAL: Salem/ COPIES: TPSO, Approved Pulp Processing Location, Purchaser, District, Mgmt. Unit

EXHIBIT D
 FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STATION TO STATION	DRAINAGE
16 feet	14 feet	1 to 2	0+00 to Pt. 7	Ditch
14 feet	12 feet	1 to 2	Pt. 7 to 246+90	Outslope
14 feet	12 feet	3 to 4	0+00 to 4+10	Outslope
14 feet	12 feet	5 to 6	0+00 to 13+50	Outslope
14 feet	12 feet	7 to 8	0+00 to 18+60	Ditch
14 feet	12 feet	9 to 10	0+00 to 5+20	Outslope
16 feet	14 feet	11 to 12	0+00 to 55+10	Ditch
14 feet	12 feet	12 to 13	0+00 to 9+10	Outslope
14 feet	12 feet	14 to 15	0+00 to 46+20	Outslope
14 feet	12 feet	16 to 17	0+00 to 44+60	Outslope
14 feet	12 feet	18 to 19	0+00 to 6+00	Outslope

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 marked, the clearing limits shall extend 5 feet back of the top of the cut slope and 5 feet out from the toe of the fill slope, or as directed by STATE. The "Road Brushing Specifications" in this Exhibit shall apply. 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.

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 cut slopes 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.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

GRUBBING CLASSIFICATION.

New construction - from the top of the cut slope 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 in stable locations through openings in the timber outside of the cleared right-of-way, except areas 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. Clearing and grubbing debris shall be left in a stable location, and not left lodged against standing trees.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

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-specified lines, grades, dimensions, and plans when provided.

Unless road 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.

Suitable excavated material shall be used 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.

Sidecast includes any road generated excess excavation material which is not essential as part of the road prism, is not compacted, and is below the roadway. Sidecast shall not be placed where it will enter a stream course. Leaving sidecast below the road is only permissible if specifically allowed in "Full Bench and End Haul Requirements" in this Exhibit.

All fills shall be machine compacted according to the "Compaction and Processing Requirements" in this Exhibit.

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 specified in the plans or as follows: 400 divided by the radius of the curve equals the amount of extra width.

DRAINAGE

Subgrade. Subgrade shall be crowned at 4 to 6 percent or outsloped at 3 to 4 percent as shown on the "Forest Road Specifications" table in this Exhibit.

Ditch. Construct "V" shaped ditch 3 feet wide and to a depth of 1 foot below subgrade.

Ditchouts. Construct ditchouts to drain away from subgrade at locations marked in the field or as directed by STATE.

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.

SLOPES

Soil - side slopes 50% and over
Soil - side slopes less than 50%

Back Slopes

$\frac{3}{4}$:1
1:1

Fill Slopes

1½:1
1½:1

Top of cut slope shall be rounded.

LANDINGS. Landings shall be constructed as posted in the field, no less than 50 feet wide and no more than 70 feet wide unless otherwise approved by STATE. Surface is to be outsloped or crowned for drainage with general grade no more than 3 percent. Surface as shown in the "Road Surfacing" table in this Exhibit.

TURNAROUNDS. Increase subgrade width an additional 20 feet for a length of 20 feet at locations marked in the field.

SEASONAL WINTERIZATION. All unsurfaced roads or unfinished subgrades shall be waterbarred in accordance with the specifications in Exhibit D, and blocked from vehicular traffic prior to October 1, annually and as directed by STATE.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT AND MAINTENANCE INSTRUCTIONS:

- (1) Sod Removal. Scrape off sod and grass from road surfacing where needed. Do not leave berms along road edges and ditch lines.
- (2) Roadside Brushing. Conduct roadside brushing as specified in this Exhibit.
- (3) Excavated Materials. Excavated materials shall be utilized for fill reconstruction and hauled in where necessary. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with this Exhibit.
- (4) Bank Slough Removal. Dig out all bank slough. Bank slough material 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.
- (5) Drainage Ditches. Restore or construct ditch lines, 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.
- (6) Geotextile Road Fabric: Install woven fabric at Station 204+20 in accordance with the specifications in this Exhibit.
- (7) Free Draining Fill Construction. Where free draining fill construction is required, clean 6-8" open drain rock shall be hauled in and used for fill base construction to specified heights. Geotextile road fabric shall be used to cover drain rock. Crushed rock shall be used to rebuild road base and surface. Free draining fill construction shall be in accordance with this Exhibit.
- (8) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.
- (9) Subgrade Preparation and Application of Surfacing Rock.
 - (a) Complete culvert installations, drainage ditches, fill reconstruction, ditchouts, and other specified work prior to the application of new surfacing rock.
 - (b) Cut out all potholes and/or washboard sections from the existing surfacing.
 - (c) Apply required patching and leveling rock, as directed by STATE.
 - (d) Process (grade and mix) the existing surface and added base rock. Provide for a crown of 4 to 6 percent or outslope of 3 to 4 percent.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT AND MAINTENANCE INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
1 to 2	0+00 to 139+30	Clean out culvert inlets and outlets (10). Scatter waste material in stable locations away from streams. Remove bank slough (up to 60 CY) and end haul to Waste Area (W1).
	139+30 to 246+90	<p>Clean out culvert inlets and outlets (7). Scatter waste material in stable locations away from streams. Apply 20 CY of 3-0" rock to turnouts (2). Improve Landings and apply 20 CY of Jaw-run rock each at Stations 207+55, 221+20 and 241+30, and apply 20 CY of 3-0" rock at Point 2.</p> <p>Construct Free Draining Fill at Station 204+20.</p> <ul style="list-style-type: none">○ Excavate trench across road 3 feet deep (or to bedrock) and 3 feet long. End-haul excavated material to Waste Area (W3).○ Fill trench to within 8 inches of existing grade with 6 inch open drain rock. Place excess rock on fill slope below trench as an energy dissipater.○ Cover drain rock with geotextile fabric.○ Apply 6 inches of jaw-run rock and compact with vibratory hand tamper.○ Apply 4 inches of 1½-0" surface rock and compact with vibratory hand tamper. Feather surface rock into existing surface. Compact with vibratory roller in conjunction with compaction of entire road. <p>Apply 220 CY of 1½-0" spot rock from Station 139+30 to Point 2. Process and compact surfaced road with grader and vibratory roller from Station 172+00 to Point 2.</p>
3 to 4	0+00 to 4+10	Re-open outsloped unsurfaced road and Landing with dozer. Outslope @ 3% to 4%. Construct Landings at Station 1+00 and Point 4 with dozer. Compact subgrade and Landings with vibratory roller. Subgrade width =14 feet. Apply a 6 inch lift of Jaw-run rock (140 CY). Apply 20 CY of Jaw-run rock to each Landing. Apply 10 CY 3-0" Junction rock at Point 3. Process and compact surfaced road and Landings with grader and vibratory roller.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT AND MAINTENANCE INSTRUCTIONS

5 to 6	0+00 to 13+50	Re-open outsloped unsurfaced road and Landing with dozer. Outslope @ 3% to 4%. Construct Landings at Stations 0+50 and 8+90 with dozer. Compact subgrade and Landings with vibratory roller. Subgrade width =14 feet. Apply an 8 inch lift of Jaw-run rock (590 CY). Apply 20 CY of Jaw-run rock to Landings at Stations 0+50 and 8+90 and apply 40 CY of Jaw-run rock to Landing at Point 6. Apply 20 CY 3-0" Junction rock at Point 5. Process and compact surfaced road and Landings with grader and vibratory roller.
7 to 8	0+00 to 18+60	Clean out culvert inlets and outlets (1). Remove sod and any brushing debris from road surface and ditches with road grader.
9 to 10	0+00 to 5+20	Remove sod and any brushing debris from road surface and ditches with road grader.
11 to 12	0+00 to 55+10	Clean out culvert inlets and outlets (5). Scatter waste material in stable locations away from streams. Apply 50 CY of 1½-0" spot rock, process and compact surfaced road with grader and vibratory roller.
12 to 13	0+00 to 9+10	Remove sod and any brushing debris from road surface and ditches with road grader.
14 to 15	0+00 to 46+20	Clean out culvert inlets and outlets (2). Scatter waste material in stable locations away from streams. Remove stump and 30 CY of bank slough at Station 12+70. Haul to Waste Area (W2). Remove sod and any brushing debris from road surface and ditches with road grader.
16 to 17	0+00 to 44+60	Remove sod and any brushing debris from road surface and ditches with road grader.
18 to 19	0+00 to 6+00	Remove sod and any brushing debris from road surface and ditches with road grader.

EXHIBIT D
 ROAD SURFACING

ROAD SEGMENT	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL VOLUME (TONS)
				1 to 2	Volume (CY) per	139+30 to 246+90	Number of		
Drain rock	6-8" open	204+20	30	7	Free draining fill	1	fills	7	9
Base rock	jaw-run	204+20	6	1	Free draining fill	1	fills	1	1
Surface rock	1 1/2-0"	204+20	4	1	Free draining fill	1	fills	1	1
Landing rock	jaw-run	207+55, 221+20 & 241+30		20	Landing	3	Landings	60	81
Landing rock	3-0"	Pt. 2		20	Landing	1	Landings	20	27
Turnout rock	3-0"			10	turnout	2	turnouts	20	27
Spot rock	1 1/2-0"	139+30 to Pt. 2		110	mile	2.0	miles	220	297
Total								329	443

ROAD SEGMENT	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL VOLUME (TONS)
				3 to 4	Volume (CY) per	0+00 to 4+10	Number of		
Surface rock	jaw-run	0+00 to 4+10	6	34	Station	4.1	Stations	140	189
Landing rock	jaw-run	1+00 & 4+10		20	Landing	2	Landings	40	54
Junction rock	3-0"	0+00		10	junction	1	junction	10	14
Total								190	257

EXHIBIT D
 ROAD SURFACING

Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL VOLUME (TONS)
				5 to 6	Volume (CY) per	0+00 to 13+50	Number of		
Surface rock	jaw-run	0+00 to 13+50	8	44	Station	13.5	Stations	590	797
Landing rock	jaw-run	0+50 & 8+90		20	Landing	2	Landings	40	54
Landing rock	jaw-run	Pt. 6		40	Landing	1	Landings	40	54
Junction rock	3-0"	0+00		20	junction	1	junction	20	27
Total								690	932

Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	TOTAL VOLUME (TONS)
				11 to 12	Volume (CY) per	0+00 to 55+10	Number of		
Spot rock	1 1/2-0"			50	mile	1	miles	50	68
Total								50	68

ROCK CONVERSION FACTORS

Size	3/4-0"	1 1/2-0"	3-0"	4-0"	jaw-run	pit run
Tons/CY	1.35	1.35	1.35	1.35	1.35	1.35

(Conversion factors from Hardrock Quarry)

Final Road Maintenance Rock Volumes in CY							
Rock Size	3/4 - 0"	1 1/2-0"	3-0"	4-0"	jaw-run	pit run	other
Rock Totals		200					

TOTAL ROCK VOLUMES							
Rock Size	3/4 - 0"	1 1/2-0"	3-0"	4-0"	jaw-run	pit run	6-8"
Rock Totals CY	0	471	70	0	911	0	7
Rock Totals TONS	0	636	95	0	1230	0	9

Roads shall be uniformly graded, shaped and approved by STATE prior to rocking

EXHIBIT D

ROCK ACCOUNTABILITY

PURCHASER shall obtain subgrade approval from STATE prior to rocking. Rocking shall be limited to periods when weather conditions are acceptable to STATE and when sediment will not enter streams. Additional surfacing needed because of construction season or construction practice is not included in the preceding ROAD SURFACING table, and shall be furnished at PURCHASER expense.

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

Depth Measurement. Rock shall be spread and compacted according to the depths specified in Exhibit D. 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. The depth of compacted aggregates shall not vary more than 1 inch from the depth specified in the "Road Surfacing" table in Exhibit D. The average depth for each road segment shall be the specified depth or greater. If additional rock is required because of insufficient depth, the locations and volumes to be added shall be determined 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.

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

Moisture Content: Compaction must take place when moisture content of the materials being compacted is favorable for effective compaction as determined by STATE.

Compaction Pass: A pass is defined as traveling a road section forward and then backward over that same section.

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 the surface is smooth and hard and visible deformation ceases. At least 3 passes shall be made over the entire width and length of the road. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Subgrade shall be crowned at 4 to 6 percent or outsloped at 3 to 4 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
Points 3 to 4 and 5 to 6	1

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. At least 3 passes shall be made over the entire width and length of each layer.

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
1 to 2	1 and 2

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 uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 6 inches in depth. 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 until the surface is smooth and hard and visible deformation ceases. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Rock shall be crowned at 4 to 6 percent or outsloped at 3 to 4 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments requiring crushed rock.	1

EXHIBIT D

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 miles to 1.8 miles per hour, as directed by STATE.
- (2) Vibratory Hand-Operated or Backhoe-Mounted Tamper. Vibratory hand-held or hydraulic tampers shall be used for compaction of backfill materials around culverts (and/or bridge approach embankment materials around abutments). The tamper shoe dimensions shall be a minimum of 10" X 13" and capable of a centrifugal force of 2,250 pounds.

EXHIBIT D

DURABLE CRUSHED ROCK SPECIFICATIONS

Grading Requirements

<u>For 1½"-0"</u>	Passing	2" sieve	100%
	Passing	1½" sieve	90-100%
	Passing	¾" sieve	60-90%
	Passing	¼" sieve	30-50%
	Passing	No. 10 sieve	15-30%
	Passing	No. 40 sieve	7-15%

<u>For 3"-0"</u>	Passing	4" sieve	100%
	Passing	3" sieve	90-100%
	Passing	1½" sieve	60-90%
	Passing	¾" sieve	40-60%
	Passing	¼" sieve	20-40%
	Passing	No. 10 sieve	5-20%

<u>For Jaw-Run</u>	Passing	6" sieve	100%
	Passing	3" sieve	45-65%

<u>For 6"-0" Pit-Run</u>	Passing	10" sieve	100%
	Passing	6" sieve	60-85%
	Passing	3" sieve	30-50%
	Passing	¼" sieve	0-20%

For 6"-8" Drain Rock A minimum of 50 percent of the material shall measure a minimum of 8 inches, measured in one dimension. Material shall be clean, well graded, and free of 6"-0" fines.

Control of gradation shall be by visual inspection by STATE.

EXHIBIT D

GEOTEXTILE SPECIFICATIONS

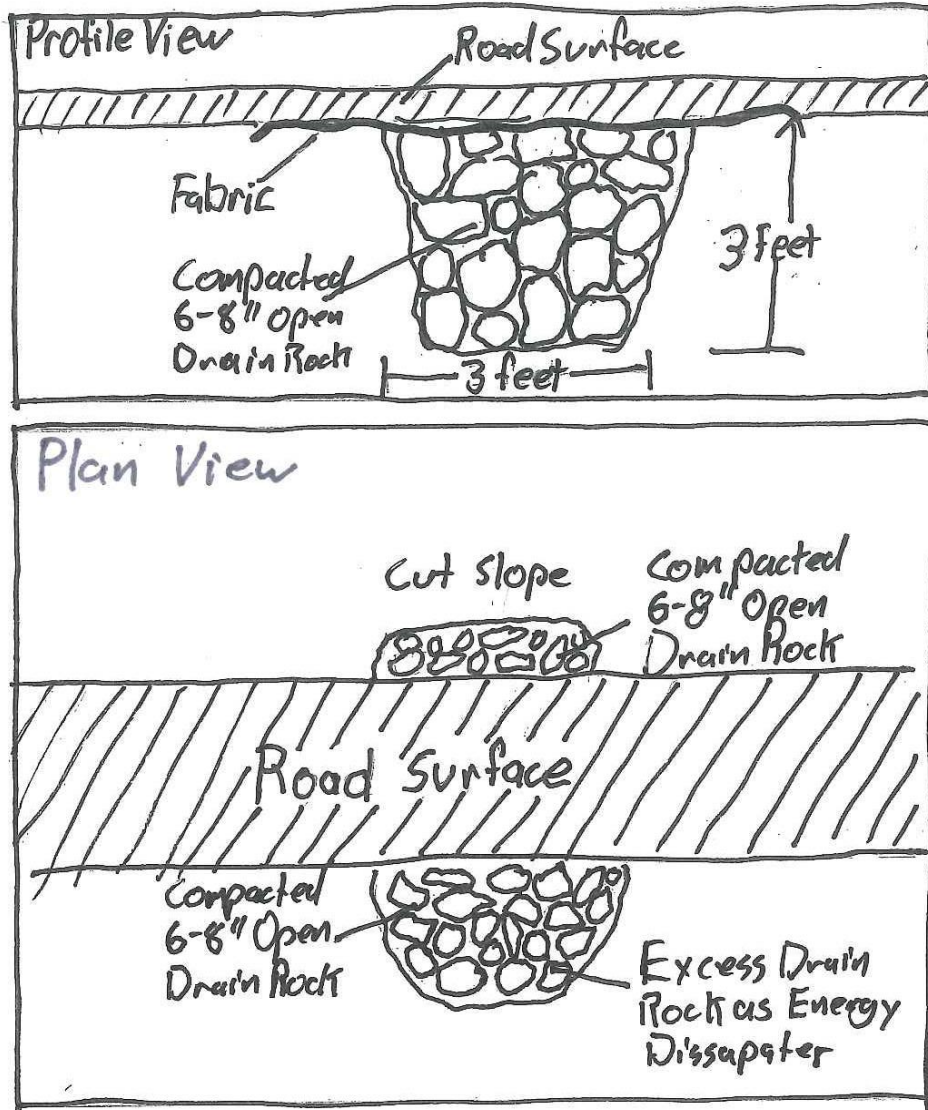
INSTALLATION REQUIREMENTS - fabric shall be installed according to the following requirements:

1. 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. Light vegetation (grass, weeds, leaves, and fine woody debris) may be left in place.
2. Fabric shall be installed directly on the prepared surface. Longitudinal and traverse joints shall be overlapped at least 3 feet.
3. 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.
4. 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.
5. 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.
6. Should STATE determine that installation of woven fabric on roads or portions of roads is not necessary, PURCHASER shall deliver an equivalent amount of woven road fabric to STATE.
7. Fabric locations:

Road Segment	Location
1 to 2	204+20

EXHIBIT D

FREE DRAIN FILL DRAINAGE GEOTEXTILE SPECIFICATIONS

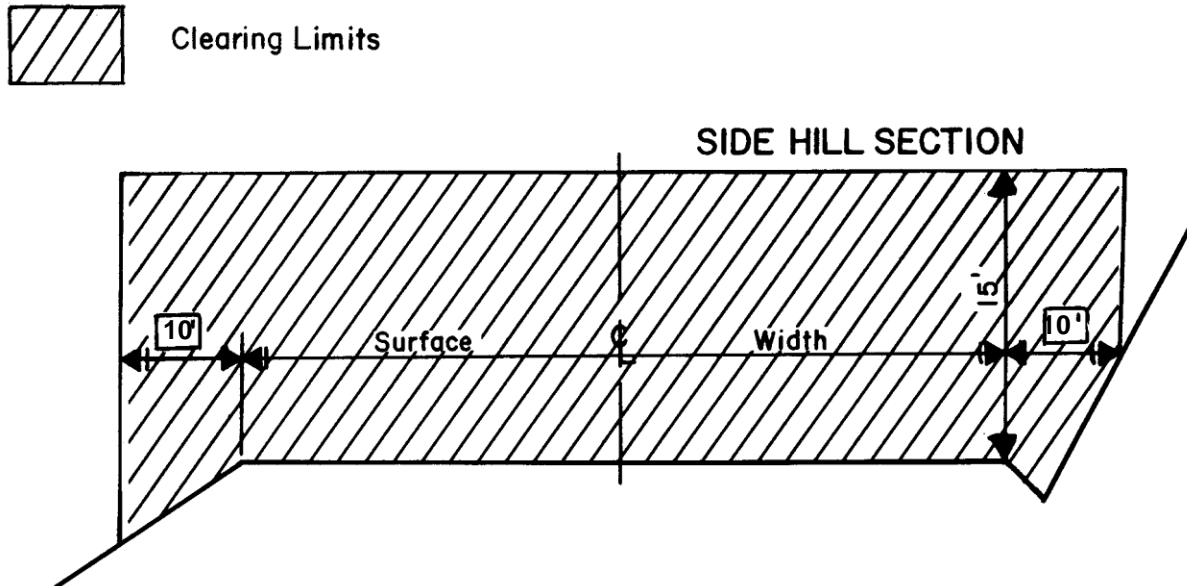


Drainage Geotextile Specifications:

Nonwoven drainage geotextile fabric designed for subsurface drain purposes which meets or exceeds the following requirements:

	Test Method	Properties
(a) Water Flow Rate	ASTM D 4491	(85) gal/min/ft ²
(b) Water Permeability	ASTM D 4491	(0.30) cm/sec
(c) Grab Tensile Strength	ASTM D 4632	250 lb
(d) Mullen Burst Test	ASTM D 3766	460 lb
(e) Mass	ASTM D 4533	10 oz/yd ²
(f) Thickness	ASTM D 5199	100 mills
(g) UV Resistance	ASTM D 4355	70% retained
	Xenon Arc	

EXHIBIT D
ROAD BRUSHING SPECIFICATIONS



REQUIREMENTS

The minimum height of clearing shall be 15 feet from the road surface, and the minimum width of clearing on the cutslope side(s) of the road shall be 10 feet horizontal distance from the shoulder of the road and 10 feet horizontal on the down slope side from the road shoulder. In situations where site distance is an issue brushing heights on the cutslope may vary from the drawing, as directed by STATE.

Brush and trees shall be cut to a maximum height of 6 inches above the ground surface or obstructions such as rocks or existing stumps.

Debris resulting from the brushing operation shall be removed from the roadway, cutslope, ditches, water courses, culvert inlets and outlets and sediment catching basins. Debris shall be mulched or scattered downslope from the road or placed in other stable locations. Large debris, 6 inches or larger in diameter, shall be mulched or cut into lengths 6 feet or less to facilitate rapid decay, unless otherwise approved by STATE.

EXHIBIT D

ROAD BRUSHING SPECIFICATIONS

Trees larger than 6 inches in diameter at stump height, located within clearing limits but outside of the ditch line or shoulder, shall not be cut down, but shall be limbed for road visibility. Planted or established conifers, located within brushing limits but outside of the ditch line or shoulder, shall not be cut down, but shall be limbed for road visibility unless otherwise directed by STATE.

Existing debris on the roadway, cut slope, ditch line, or catch basin shall be removed and treated. Debris shall be mulched or scattered downslope from the road or placed in other stable locations. Large non-merchantable debris, 6 inches or larger in diameter, shall be mulched or cut into lengths 6 feet or less to facilitate rapid decay, unless otherwise approved by STATE.

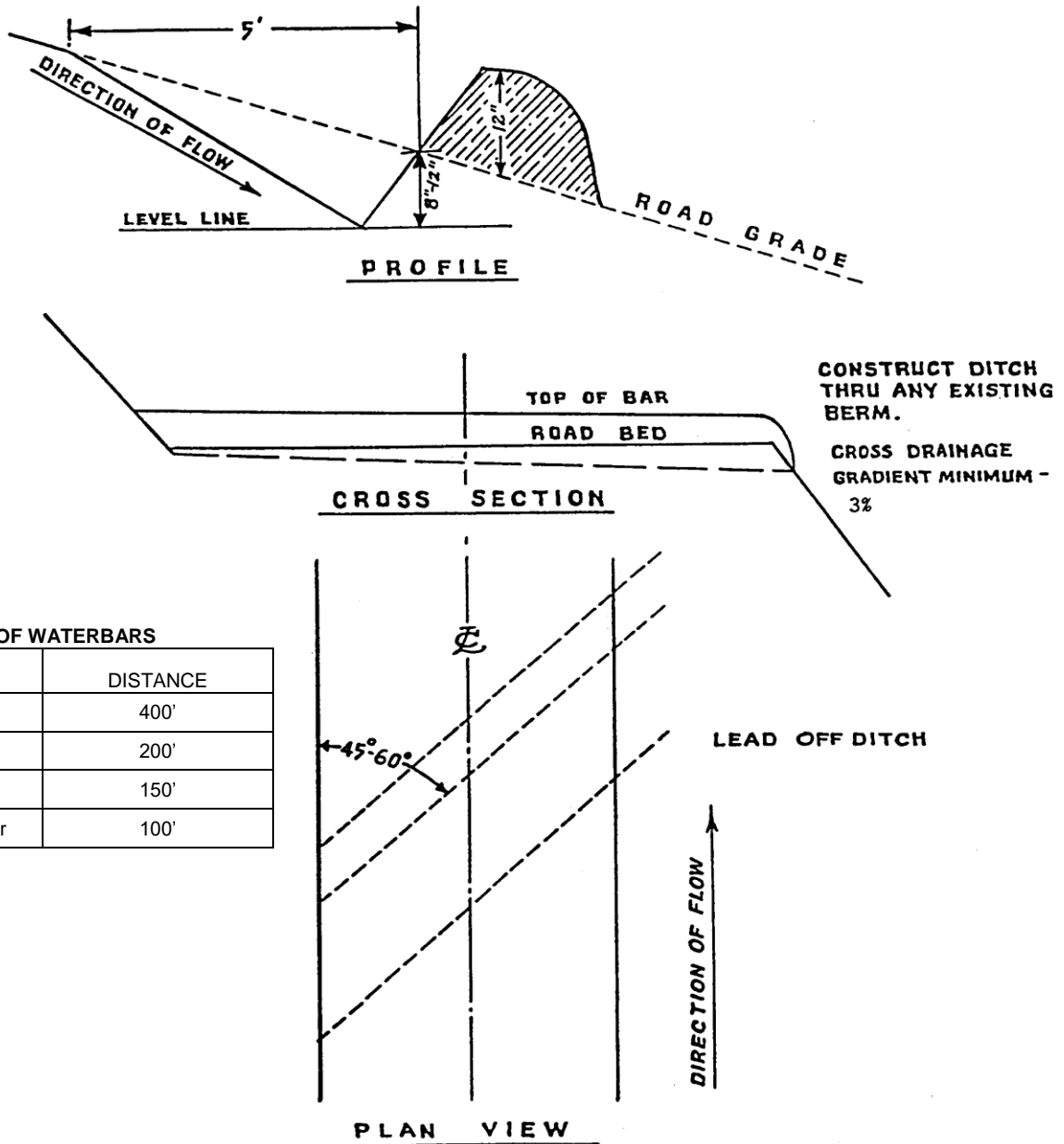
Merchantable blown down trees encountered shall be bucked in lengths as directed by STATE, and placed in locations acceptable to STATE, or pushed out of the road prism.

When spur roads to be brushed end with a Landing, the Landing is to be brushed as directed by STATE.

CULVERT AND ROAD MARKER DAMAGES. Culvert and road markers damaged, or any portion of a marker damaged from PURCHASER activities shall be assessed a damage fee of \$25 per marker.

EXHIBIT D

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