



**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: FG-341-2021-W00228-01

(2) Sale Name: Alpha Quadrant

(3) Contract Expiration Date: 10/31/2022

(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>

Subcontractor Name.

Start Date

Cell No.

Alt Phone


(9) Comments:

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(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.



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PART III: EXHIBITS

**EXHIBIT B**

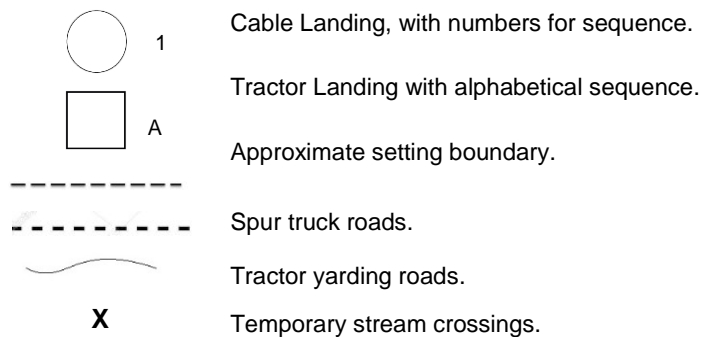
**INSTRUCTION SHEET FOR OPERATIONS PLAN**

**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 Written 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.




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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.

**Projects**

Month/Year Date ____/____	Month/Year Date ____/____	Month/Year Date ____/____	Month/Year Date ____/____	Month/Year Date ____/____
Work Commences	25%	50%	75%	Projects Complete

**Harvest & Other Requirements**

Month/Year Date ____/____	Month/Year Date ____/____	Month/Year Date ____/____	Month/Year Date ____/____	Month/Year Date ____/____
Work Commences	25%	50%	75%	Sale Complete

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**  
Forest Grove - NWOA

(1) ORIGINAL REGISTRATION ☐ Date \_\_\_\_\_  
REVISION NUMBER 000 ☐ Date \_\_\_\_\_  
CANCELLATION ☐ Date \_\_\_\_\_

(2) TO: \_\_\_\_\_  
(Third Party Scaling Organization)

(3) FROM: Forest Grove Phone (503) 357-2191  
(State Forestry District)  
Address: 801 GALES CRK RD  
FOREST GROVE, OR 97116-1199

(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

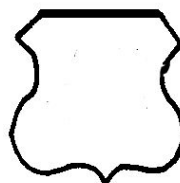
(8) APPROVED SCALING LOCATIONS (as shown on the ODF Approved Locations web-site )	Species	Yard	Truck	Weight

(9) SALE NAME: Alpha Quadrant  
COUNTY: Columbia

(10) STATE CONTRACT NUMBER:  
FG-341-2021-W00228-01

(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"/>
<b>NO DEDUCTIONS ALLOWED FOR MECHANICAL DAMAGE</b> .....	<input checked="" type="checkbox"/>
ADD-BACK VOLUME - Deductions due to delay...	<input checked="" type="checkbox"/>
OTHER :	

(15) REMARKS

Operator's Name (Optional inclusion by District): \_\_\_\_\_

(16)

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)**  
**Forest Grove - 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)

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](mailto:services@crls.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](mailto:info@southernoregonlogscaling.com)

Northwest Log Scalpers Inc.  
6137 NE 63rd St, Vancouver, WA, 98661  
Phone: (360) 553-7212 ext. 4 Fax: (360) 553-7213  
Email: [info@nwlogscalpers.com](mailto:info@nwlogscalpers.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](mailto:office@prlsb.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](mailto:yamhilllog@frontier.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](mailto: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](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 timber sales. 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](mailto: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

EXHIBIT D  
FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STATION TO STATION	DRAINAGE
Match Existing 16 feet	Match Existing 12 feet	A to B	0+00 to 17+05 17+05 to 42+75	Ditch Outsloped
Match Existing	Match Existing	C to D	0+00 to 43+90	Ditch
Match Existing	Match Existing	E to F	0+00 to 20+45	Ditch
Match Existing	Match Existing	G to H	0+00 to 39+00	Ditch
Match Existing	Match Existing	I to J	0+00 to 18+70	Ditch
Match Existing	Match Existing	K to L	0+00 to 86+30	Ditch
Match Existing	Match Existing	M to N	0+00 to 6+90	Ditch
Match Existing	Match Existing	O to P	0+00 to 11+00	Ditch
Match Existing	Match Existing	Q to R	0+00 to 17+50	Ditch
16 Feet	12 feet	S to T	0+00 to 8+00	Ditch

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

**CLEARING CLASSIFICATION.**

Improvement - the "Road Brushing Specifications" in Exhibit G shall apply. Where clearing limits have not been marked, the clearing limits shall extend 5 feet back of the top of the cutslope and 10 feet out from the toe of the fill slope, or as directed by STATE.

**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 CLASSIFICATION.**

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

**CLEARING AND GRUBBING DISPOSAL.** Clearing and grubbing debris shall not be placed or permitted to remain in or under any road embankment sections. Clearing and grubbing debris shall be left in a stable location, and not left lodged against standing trees. Clearing and grubbing debris may be scattered through openings in the timber outside of the cleared right-of-way, except for the following areas where debris shall be fully contained and hauled to a designated waste area:

- Where end-haul is required
- On side slopes exceeding 55 percent
- On unstable areas
- In any stream channel (Type F, N or D) or where material may enter the stream channel.

Clearing, grubbing, and associated disposal shall be completed prior to subgrade approval.

## 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.

**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, outsloped, or insloped at 4 to 6 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 25 feet, plus 25-foot approaches at each end. Location: Intervisible but not greater than 750 feet apart.

**SLOPES.** Top of cut slope shall be rounded.

Solid Rock

Fractured Rock

Soil - side slopes 50% and over

Soil - side slopes less than 50%

#### Cut Slopes

Vertical to  $\frac{1}{4}$ :1

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

$\frac{1}{2}$ :1

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

#### Fill Slopes

$1\frac{1}{2}$ :1

$1\frac{1}{2}$ :1

**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 stated or 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, with 2 feet of subgrade extending out from base of the surfacing.

**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 G, and blocked from vehicular traffic prior to October 31, annually and as directed by STATE.

**EROSION CONTROL.** Install bio bags, silt fence, or straw bales for erosion control in project areas and ditch lines where sedimentation or erosion is possible, as directed by STATE. Each Bio-bag shall be installed with a minimum of two wooden stakes.

EXHIBIT D  
FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- (1) Timber Removal. Fell all trees and snags in clearing limits or marked with painted blue C's as specified in Section 2210, Designated Timber. All timber shall be hauled away during project work.
- (2) Bank Slough Removal. Excavate all bank slough. Bank slough material shall not be pulled across existing surfacing rock. Excavated material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A.
- (3) Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal. Existing culvert geometry shall be modified to provide for optimum drainage and culvert performance. Modifications may include, skewing the culvert and/or installing the culvert at gradients equal to or exceeding the drainage (or ditch) gradient. 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. Fill reconstruction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Unsuitable backfill material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A. Backfill materials shall be hauled in where necessary.
- (4) Drainage Ditches. Restore or construct ditchlines, including ditchouts, as directed by STATE. Clean out all culvert inlets and outlets for a 10-foot radius. (Ditch debris including woody debris shall be loaded and hauled to designated waste areas, and shall be accomplished with the use of an excavator and dump truck.) 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.
- (5) Sod Removal. Remove/separate sod from crushed rock surfacing as directed by STATE. Sod material shall be scattered in stable locations through openings in the timber outside of the cleared right-of-way. In areas where sod cannot be scattered in a stable location, material shall be end hauled to designated waste areas as shown on Exhibit A, or other stable locations as directed by STATE.
- (6) 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, outslope, or inslope of 4 to 6 percent, and compact in accordance to the "Compaction and Processing Requirements" in this Exhibit.
  - (e) Upon completion of above required work, apply, process, and compact surfacing rock in accordance to this Exhibit.



# EXHIBIT D

## FOREST ROAD SPECIFICATIONS

### SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS:

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
<b>A to B</b>	0+00	Point A. Enterprise road. Begin road improvement. Crown road. Clean or construct ditchlines.
	2+80	Point C. Junction C to D on Left.
	6+08	Existing culvert, clean inlet and outlet.
	13+85	Existing culvert, clean inlet and outlet.
	17+05	Junction on right. End crown and ditch, begin outslope. Continue improvement onto powerline access road. Fall all timber marked with painted blue C's. Stack merchantable outside the road prism.
<b>END</b>	42+75	Point B. Junction with C to D. End road improvement.

<b>C to D</b>	0+00	Point C. Begin road improvement. Crown road. Clean or construct ditchlines.
	2+88	Existing culvert, clean inlet and outlet.
	8+00	Existing culvert, clean inlet and outlet.
	15+80	Existing culvert, clean inlet and outlet.
	24+25	Existing culvert, clean inlet and outlet.
	30+45	Point B. Junction with A to B on right.
	31+90	Existing culvert, clean inlet and outlet.
	43+00	Existing culvert, install marker, clean inlet and outlet.
<b>END</b>	43+90	Point D. End road improvement. Improve landing.

<b>E to F</b>	0+00	Point E. Begin road improvement. Crown road. Clean or construct ditchlines.
	5+90	Existing culvert, install marker, clean inlet and outlet.
	10+45	Existing culvert, install marker, clean inlet and outlet.
<b>END</b>	20+45	Point F. End road improvement. Improve landing.

<b>G to H</b>	0+00	Point G. Begin road improvement. Crown road. Clean or construct ditchlines.
	8+90	Existing culvert, install marker, clean inlet and outlet.
	15+30	Existing culvert, clean inlet and outlet.
	20+50	Remove all waste debris from STATE land.
	27+00	Existing culvert, clean inlet and outlet.
	31+90	Existing culvert, install marker, clean inlet and outlet.
<b>END</b>	39+00	Point H. End road improvement. Improve landing.

<b>I to J</b>	0+00	Point I. Begin road improvement. Crown road. Clean or construct ditchlines.
<b>END</b>	18+70	Point J. End road improvement. Improve landing

<b>K to L</b>	0+00	Point K. Begin road improvement. Crown road. Clean or construct ditchlines.
	16+30	Existing culvert, install marker, clean inlet and outlet.
	18+90	Existing culvert, install marker, clean inlet and outlet.
	24+20	Existing culvert, install marker, clean inlet and outlet.
	28+90	Existing culvert, install marker, clean inlet and outlet.
	32+80	Junction. Rudy Stockpile to right.
	34+75	Junction on right.
	35+75	Live stream. Existing culvert, clean inlet and outlet.
	36+70	Live stream. Remove existing culvert and install Culvert No. 1 (24"x30').
	38+70	Existing culvert, clean inlet and outlet.
	39+45	Live stream. Existing culvert, clean inlet and outlet.
	41+60	Existing culvert, clean inlet and outlet.
	42+05	Live stream. Existing culvert, clean inlet and outlet.
	47+30	Existing Culvert, clean inlet and outlet.
	48+10	Live stream. Existing culvert, clean inlet and outlet.
	48+55	Existing culvert, clean inlet and outlet.
	52+25	Existing culvert, clean inlet and outlet.
	57+50	Powerline access road on left.
	58+10	Existing culvert, clean inlet and outlet.
	58+90	Live stream. Existing culvert, clean inlet and outlet.
	59+75	Junction on left.
	61+95	Existing culvert, clean inlet and outlet.
	63+55	Live stream. Existing culvert, clean inlet and outlet..
	63+80	Junction. Point M to N on left.
	64+10	Existing culvert, clean inlet and outlet.
	75+75	Points O and Q. Junction with O to P and Q to R on left.
	77+60	Point S. Junction with S to T on left.
	80+85	Existing culvert, install marker, clean inlet and outlet.
	84+30	Existing culvert, clean inlet and outlet.
<b>END</b>	86+30	Point L. End road improvement. Improve landing

<b>M to N</b>	0+00	Point M. Begin road improvement. Crown road. Clean or construct ditchlines.
	5+05	Existing culvert, clean inlet and outlet.
<b>END</b>	6+90	Point N. End road improvement. Improve landing. Remove all waste debris from STATE land.

<b>O to P</b>	0+00	Point O. Begin road improvement. Crown road. Clean or construct ditchlines.
	2+45	Existing culvert, clean inlet and outlet.
	8+20	Existing culvert, install marker, clean inlet and outlet.
<b>END</b>	11+00	Point P. Remove all waste debris from STATE land. End road improvement. Construct roadside landing.

<b>Q to R</b>	0+00	Point Q. Begin road improvement. Crown road. Clean or construct ditchlines.
	1+25	Existing culvert, clean inlet and outlet.
	11+00	Existing culvert, clean inlet and outlet.
<b>END</b>	17+50	Point R. End road improvement. Improve truck turnaround. Improve roadside landing.

<b>S to T</b>	0+00	Point S. Begin road improvement. Crown road. Clean or construct ditchlines.
	5+30	Existing culvert, clean inlet and outlet.
<b>END</b>	8+00	Point R. End road improvement. Improve roadside landing.

## EXHIBIT D

## ROCK TABLE

ROAD SEGMENT: A to B					Sta. to Sta.				TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	17+05 to 42+75					
				Volume (CY) Per		Number of			
Surfacing Rock	3" – 0 Crushed	17+05 to 42+75	10	Station	53	Stations	25.7	1,362	
Total Rock for Road Segment:								1,362	
ROAD SEGMENT: C to D					Sta. to Sta.				TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	0+00 to 42+90					
				Volume (CY) Per		Number of			
Spot Rock	1 ½" – 0 Crushed	0+00 to 42+90	Varies					96	
Total Rock for Road Segment:								96	
ROAD SEGMENT: E to F					Sta. to Sta.				TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	0+00 to 20+45					
				Volume (CY) Per		Number of			
Surfacing Rock	3" – 0 Crushed	0+00 to 20+45	3	Station	15	Stations	20.5	307	
Spot Rock	1 ½" – 0 Crushed	0+00 to 20+45	Varies					150	
Landing	3" – 0 Crushed	Point F	6	Landing	47	Landings	1	47	
Total Rock for Road Segment:								504	
ROAD SEGMENT: G to H					Sta. to Sta.				TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	0+00 to 39+00					
				Volume (CY) Per		Number of			
Surfacing Rock	3" – 0 Crushed	0+00 to 39+00	6	Station	31	Stations	39	1,209	
Landing	3" – 0 Crushed	Point H	6	Landing	47	Landings	1	47	
Total Rock for Road Segment:								1,256	
ROAD SEGMENT: I to J					Sta. to Sta.				TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	0+00 to 18+70					
				Volume (CY) Per		Number of			
Spot Rock	1 ½" – 0 Crushed	0+00 to 18+70	Varies					60	
Total Rock for Road Segment:								60	
ROAD SEGMENT: K to L					Sta. to Sta.				TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	0+00 to 86+30					
				Volume (CY) Per		Number of			
Culvert Bedding /Backfill	1 ½" - 0 Commercial	Culvert No. 1	Varies	Culvert	24	Culverts	1	24	
Spot Rock	1 ½" – 0 Commercial	35+75, 36+70, 39+45, 42+05, 48+10, 58+90 & 63+55	Varies					70	
Spot Rock	1 ½" – 0 Commercial	16+30, 18+90 & 28+90	Varies					60	
Total Rock for Road Segment:								154	

ROAD SEGMENT: M to N				Sta. to Sta.				TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	0+00 to 6+90				
				Volume (CY) Per		Number of		
Spot Rock	1½" – 0 Crushed	0+00 to 6+90	Varies					60
Total Rock for Road Segment:								60
ROAD SEGMENT: S to T				Sta. to Sta.				TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	0+00 to 8+00				
				Volume (CY) Per		Number of		
Surfacing Rock	1½" – 0 Crushed	0+00 to 8+00	6	Station	31	Stations	8	248
Total Rock for Road Segment:								248

TOTAL ROCK	3"-0 Commercial	1 ½"-0 Crushed	1 ½"-0 Commercial
	1716CY	554CY	154CY

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.

### 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, outsloped, or insloped at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	SUBGRADE COMPACTION OPTIONS
All road segments that require rock surfacing	Vibratory Roller

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	FILL COMPACTION OPTIONS
All road segments	Vibratory Roller, Vibratory Hand-Operated, Backhoe-Mounted Tamper, or Dozer

## EXHIBIT D

## 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 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, compacted, and approved by STATE 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 compacted and processed during the same project period it is spread, unless otherwise approved in writing by STATE.

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

ROAD SEGMENT	CRUSHED ROCK COMPACTION OPTIONS
All road segments requiring crushed rock	Vibratory Roller

## COMPACTION EQUIPMENT OPTIONS

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.

Vibratory Hand-Operated or Backhoe-Mounted Tamper. Vibratory hand-held or hydraulic tampers shall be used for compaction of backfill materials around culverts. The tamper shoe dimensions shall be a minimum of 10" X 13" and capable of a centrifugal force of 2,250 pounds.

Vibratory Grid Compactors. The roller shall have a grid surface and have an operating weight of 32,000 pounds or more. The rock shall be worked with a grader weighing at least 20,000 pounds during the grid rolling process. All rock shall come in contact with the vibratory grid compactor.

## EXHIBIT E

### CULVERT SPECIFICATIONS

All culvert materials shall be furnished and installed by PURCHASER, unless otherwise specified in the Contract.

Culverts shall be constructed of corrugated polyethylene. Polyethylene culverts shall be double-walled and meet the requirements of AASHTO M-294-11, Type S, or ASTM F2648.

Joining shall be done with bands of like material and corrugations. Manufacturers' instructions shall be followed for prefabricated pipe assembly. Polyethylene joints shall be made with split couplings, corrugated to engage the culvert corrugations, and shall engage a minimum of 4 corrugations, 2 on each side of the culvert joint.

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

#### Live Stream Culverts

Culverts in live streams shall be installed with the inlet and outlet on grade with the stream bottom, unless otherwise specified in writing.

The foundation and trench walls for all culverts shall be free from logs, stumps, limbs, stones, and other objects which would dent or damage the culvert. The culvert trench shall be excavated 3 culvert diameters wide to permit compaction and working on each side of the culvert. Tamping shall be done in 6-inch lifts, 1 culvert diameter each side of the culvert. Bedrock shall be excavated as required to provide a uniform foundation for the full length of the culvert.

A bedding of crushed rock as specified shall be placed to provide a wide band of support and to transmit the load from above evenly over the entire length of the culvert for all live stream culverts and all culverts on road improvement segments.

Backfill shall consist of crushed rock on improvement segments and crushed rock or job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the culvert on new construction (and reconstruction) segments.

Minimum height of cover over top of culvert to subgrade when road is to be rock shall be as follows: 12" for culverts 18" to 36". Minimum vertical cover for other 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 shortest culvert section length shall be placed at the inlet end.

The ends of each culvert shall be free of logs and debris which would restrict the free flow of water.

Compaction by tamping utilizing a Vibratory Hand-Operated or Backhoe-Mounted Tamper is required for all stream crossing culverts and culverts on improvement sections.

All culverts scheduled for replacement shall become property of the PURCHASER and be removed from STATE land in the same project period in which replacement occurred. 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.

The intake ends of culverts in fills less than 3 feet to the top of the culvert shall be marked by driving steel posts within 6 inches of the downgrade side. Posts shall be painted with a rust-resistant paint and be a minimum of 5 feet long, with the spade driven 2 feet into the ground. Install a culvert marker at each existing culvert that is missing a marker that could be reached by a grader blade.

A manufacturer's certification that the product was manufactured, tested, and supplied in accordance with this specification shall be furnished to STATE upon request.



EXHIBIT E  
CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	ROAD SEGMENT POINT TO POINT	STATION
1	24	30	K to L	36+70

TOTAL LENGTHS BY DIAMETER
24 INCH
30

## EXHIBIT F

### OUTSIDE SOURCED

#### CRUSHED ROCK SPECIFICATIONS

Quality. The base material shall be rock. River gravel shall not be used. Crushed rock shall meet the grading requirements that follow:

Hardness - Aggregate Hardness - Test Method AASHTO T 96: 30% Maximum

Durability – Test Method ODOT TM 208

Passing No. 20 Sieve: 30% Maximum

Grading Requirements. Crushed rock shall meet the gradation requirements that follow:

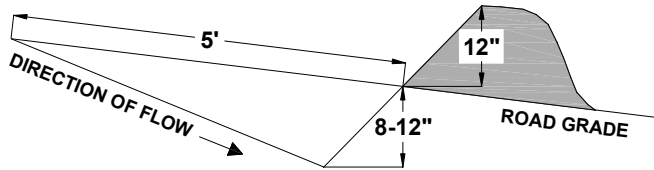
<u>For 1½"-0"</u>	Passing	2" sieve	100%
	Passing	1½" sieve	90-100%
	Passing	¾" sieve	60-90%
	Passing	¼" sieve	30-50%
	Passing	No. 10 sieve	15-30%
	Passing	No. 40 sieve	7-15%
<u>For 3"-0"</u>	Passing	4" sieve	100%
	Passing	3" sieve	90-100%
	Passing	1½" sieve	60-90%
	Passing	¾" sieve	40-60%
	Passing	¼" sieve	20-40%
	Passing	No. 10 sieve	5-20%

# EXHIBIT G

## WATERBAR SPECIFICATIONS

### PROFILE

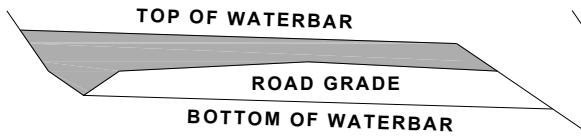
#### DITCHED AND OUTSLOPED



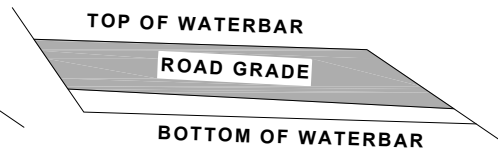
SPACING OF WATERBARS	
ROAD GRADE	DISTANCE
< 6 %	400'
6 - 10 %	200'
11 - 15 %	150'
> 15 %	100'

### CROSS SECTION

#### DITCHED



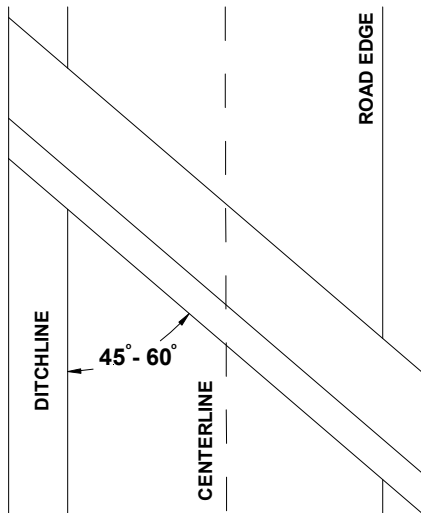
#### OUTSLOPED



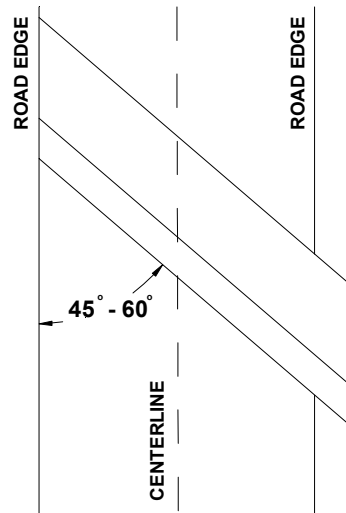
CONSTRUCT DITCHOUT THRU ANY EXISTING BERM.  
CROSS DRAINAGE GRADIENT MINIMUM 3%.

### PLAN VIEW

#### DITCHED



#### OUTSLOPED



## EXHIBIT H

### SEEDING AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed, fertilizer, and straw mulch. Straw mulch shall consist of straw that is free of noxious weeds. Apply seed and fertilizer to all waste areas, and bare soils resulting from Project Nos. 1. Apply straw mulch to all bare soils within 100' of streams resulting from Project Nos. 1 and to all waste areas.

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. Areas of disturbed soil shall be seeded by the end of the project period in which work was started. PURCHASER shall notify STATE within 24 hours of seeding and fertilizer application.

#### APPLICATION METHODS FOR SEED AND FERTILIZER

Dry Method. Mechanical seeders, seed drills, landscape seeders, cultipacker seeders, fertilizer spreaders, or other approved mechanical seeding equipment shall be used to apply the seed and fertilizer in the amounts and mixtures specified. Hand-operated seeding devices may be used when seed and fertilizer are applied in dry form.

#### APPLICATION RATES FOR SEED AND FERTILIZER

The seed mixture listed below shall be applied at 100 lbs. per acre. The seed mixture shall be comprised of the following:

SPECIES	MIXTURE	PURE LIVE SEED	GERMINATION
Annual Rye	33%	95%	>90%
Orchard Grass	33%	95%	>90%
Perennial Rye	34%	95%	>90%

Fertilizer: Chemical analysis shall be 16-20-0 and shall be applied at the rate of 200 pounds per acre. Fertilizer shall not be applied within 100 feet of streams.

Mulching Period. Straw mulch shall be applied within 24 hours of spreading grass seed and fertilizer.

#### APPLICATION RATES FOR MULCH

Place straw mulch to a reasonably uniform thickness of 1½ to 2½ inches. This rate requires between 2 and 3 tons of dry mulch per acre.

#### Application Locations:

Road Segment	Location
K to L	Culvert No. 1