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: _____

(1) Contract Number: WL-341-2023-W00845-01

(2) Sale Name: North Pat

(3) Contract Expiration Date: 05/31/2025

(4) Purchaser Name: _____

(5) State Brand Information (Complete)

(6) State Representatives:

Name	Circle One	Phone No.	Cell No.	Alt Phone
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			
	Logging Projects All			

(7) Purchaser Representatives:

Name	Circle One	Phone No.	Cell No.	Alt Phone
	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:

Project No.	Subcontractor Name.	Start Date	Completion Date	Cell No.	Alt Phone

	Subcontractor Name.	Start Date	Cell No.	Alt Phone
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 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.

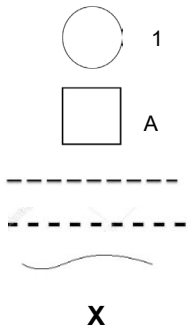
(7) The STATE representative will be designated when your plan is approved and is the person who will inspect and issue instructions regarding performance.

(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.



Cable Landing, with numbers for sequence.

Tractor Landing with alphabetical sequence.

Approximate setting boundary.

Spur truck roads.

Tractor yarding roads.

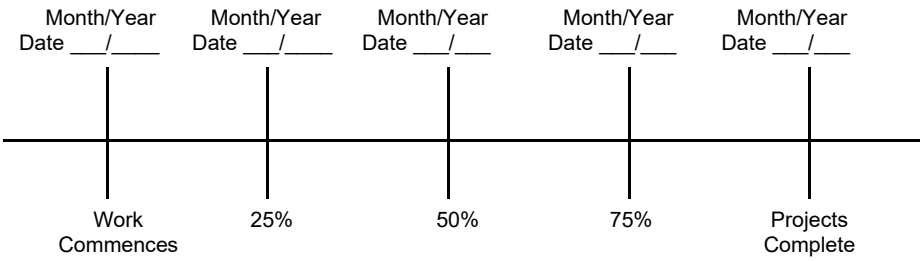
Temporary stream crossings.

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

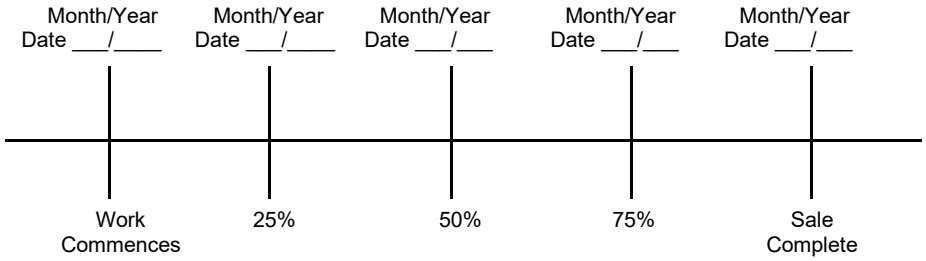
Completion Timeline

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.

Projects



Harvest & Other Requirements



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: _____

STATE OF OREGON - DEPARTMENT OF FORESTRY

_____

Title _____

SUBMITTED BY:
PURCHASER

_____

Title _____

Oregon Department of Forestry

EXHIBIT C - SAWMILL GRADE (WESTSIDE SCALE)
SCALING INSTRUCTIONS - LOCATION APPROVAL - BRAND INFORMATION
Western Lane - SOA

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

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

(3) FROM: Western Lane Phone (541) 935-2283
(State Forestry District)
Address: 87950 TERRITORIAL HWY
VENETA,OR 97487-0157

(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'.

	YES	NO
(7) Weight Scale Sample	☐	☑

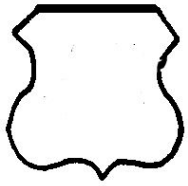
(8) **APPROVED SCALING LOCATIONS** (as shown on the ODF Approved Locations web-site)	**Species**	**Yard**	**Truck**	**Weight**

(9) **SALE NAME:** North Pat
COUNTY: Lane

(10) **STATE CONTRACT NUMBER:**
WL-341-2023-W00845-01

(11) STATE BRAND REGISTRATION NUMBER:

(12) **STATE BRAND INFORMATION:**



(13) PAINT REQUIRED: YES ☑
COLOR: Orange

(14) **SPECIAL REQUESTS** (Check applicable)	
PEELABLE CULL (all species).....	☑
NO DEDUCTIONS ALLOWED FOR MECHANICAL DAMAGE.....	☑
ADD-BACK VOLUME - Deductions due to delay...	☑
OTHER :	

(15) **REMARKS:**

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

(16) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

_____
State Forester Representative PRINT NAME

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 and Purchaser.

Oregon Department of Forestry
EXHIBIT C - SAWMILL GRADE
INSTRUCTIONS FOR EXHIBIT C
Western Lane - SOA

(1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires logging and hauling to be complete, recall branding hammers.

(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

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

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

(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 specifies 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: https://apps.odf.oregon.gov/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 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. Signatures not required on revisions.

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

Western Lane, SOA

(1) ORIGINAL REGISTRATION ☐ Date _____

REVISION NUMBER 000 ☐ Date _____

CANCELLATION ☐ Date _____

(2) TO: _____

(Approved Pulp Processing Facility)

(3) FROM: Western Lane Phone (541) 935-2283
(State Forestry District)

Address: 87950 TERRITORIAL HWY

VENETA,OR 97487-0157

(4) PURCHASER: _____

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

Mailing Address: _____

, _____

Phone Number: _____

(6) **STATE Definition of Approved Pulp Sort:**

- Top portion of the tree (tops).
- All logs with a diameter (Big End) greater than 9 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.

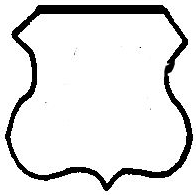
(9) **SALE NAME:** North Pat

COUNTY: Lane

(10) **STATE CONTRACT NUMBER:**
WL-341-2023-W00845-01

(11) STATE BRAND REGISTRATION NUMBER: _____

(12) STATE BRAND INFORMATION:



(13) **REMARKS:**

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

(14) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

_____
State Forester Representative PRINT NAME

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.

General Distribution: TPSO, Approved Scaling Locations and Purchaser.

Oregon Department of Forestry
EXHIBIT C - PULP SORT
INSTRUCTIONS FOR EXHIBIT C

Western Lane, SOA

(1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires logging and hauling to be complete, recall branding hammers.

(2) Approved Pulp Processing Facility. Write in as written in the Approved Log Delivery Location
https://apps.odf.oregon.gov/Divisions/management/asset_management/scalinglocation.asp

(3) State District office, address and phone.

(4) Enter Purchaser's business name, address, and phone number as it appears on the Contract.

(5) 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: 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@mwlsgb.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

(6) 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.

(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 (13).

(13) Use this section to list any special instructions or the reason for any revisions in section item (1).

(14) Require purchaser to sign and date completed form in addition to State Forester Representative, sign and print name on the form. Signatures not required on revisions.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

Road	Subgrade Width	Surfaced Width	STATION TO STATION	Drainage
Beecher Creek	16'	12'	A to C	Maintain Existing
B to E	16'	12'	B to E	Maintain Existing
Spur 1	16'	12'	0+00 to 36+50	Crowned
Spur 1	16'	12'	36+50 to 45+10	Outsloped w/Ditch
Spur 1	16'	12'	45+10 to 65+75	Crowned
Spur 1	16'	12'	65+75 to 73+05	Outsloped w/Ditch
Spur 1a	16'	12'	0+00 to 8+01	Outsloped
Spur 1b	16'	12'	0+00 to 1+80	Crowned

Surface width shall be increased to accommodate off-tracking on horizontal curves.

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 10 feet back of the top of the cut slope and 10 feet out from the toe of the fill slope, or as directed by STATE. The "Road Brushing Specifications" in Exhibit I 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.

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.

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.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

EXCAVATION. (cont.) 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, insloped, or outsloped at 4 to 6 percent as shown on the "Forest Road Specifications" table in this Exhibit or as specified by STATE.

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, or as staked on the ground, plus 25-foot approaches at each end.

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

SLOPES	Back Slopes	Fill Slopes
Solid Rock	Vertical to ¼ :1	
Fractured Rock	¼:1	
Soil - side slopes 50% and over	¾:1	
Soil - side slopes less than 50%	1:1	1½ :1

Top of cut slope shall be rounded were specified by STATE.

LANDINGS. Landings shall be constructed as posted in the field, no less than 50 feet wide and no more than 120 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.

Roadside Landings. Roadside landings shall be constructed as posted in the field and should widen the subgrade width a minimum of 20ft from the road edge for at least 40ft in length or as directed by STATE. Surface is to be outsloped for drainage with an average 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 N, and blocked from vehicular traffic prior to October 31, annually and as directed by STATE.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

GENERAL ROAD CONSTRUCTION/ RECONSTRUCTION/ IMPROVEMENT INSTRUCTIONS:

(1) Roadside Brushing. Conduct roadside brushing as specified in Exhibit I.

(2) Timber Removal. Remove all trees within posted right-of-way, as specified in Section 2210, "Designated Timber."

(3) Bank Slough Removal. Dig out all bank sloughs. 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.

(4) Drainage Ditches. Restore or construct ditch lines, including ditchouts, as directed by STATE. Clean out any plugged culvert inlets and outlets. 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. Make sure markers are placed out of reach of the grader blade.

(5) Excavated Materials. Excavated materials shall be utilized for road construction 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.

(6) Stream crossings and Cross Drains. Culverts shall be installed as directed by STATE and in accordance to Exhibit G. The Location of the culverts shall be marked by STATE. A STATE representative will mark the location after the completion of the subgrade. Rocking shall not occur until all culverts have been installed unless otherwise approved in writing by STATE.

Each culvert shall be backfilled with some crushed rock or provided extra surfacing rock allocated over the culvert on the running surface or compact the soil with a tamping device. Operator shall provide adequate support around the culvert.

All inlets and outlets of stream crossings shall be armored with rock. All outlets of cross drains shall be armored with rock. Rock may be acquired at STATE approved locations on STATE lands or utilized from STATE approved road generated rock material. Install energy dissipater as outlined in Exhibit G.

(7) Fill Armor and Energy Dissipator Construction. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit G.

(8) Controlled Blasting. 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 material within the road prism.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

GENERAL ROAD CONSTRUCTION/ RECONSTRUCTION/ IMPROVEMENT INSTRUCTIONS:

(9) Subgrade Preparation and Application of Surfacing Rock.

(a) Complete culvert installations, drainage ditches, ditchouts, fill construction, and other specified work prior to the application of surfacing rock.

(b) Subgrade shall be crowned, insloped, or outsloped at 4 to 6 percent.

(c) Upon completion of above required work, apply, process, and compact surfacing rock in accordance with specifications in the "Compaction and Processing Requirements" in this Exhibit. Final road surface shall be crowned or outsloped at 4 to 6 percent.

(10) 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, including logs, 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 this Exhibit. 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 STATE land.

(11) Settling Ponds and Ditch Armoring. Construct settling ponds as directed by STATE. Excavated material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A. Waste materials shall be sloped and compacted for drainage. Settling pond dimensions shall be a finished top diameter of 8 feet, bottom diameter of 4 feet and 3 feet in depth, to the top of the pond armor rock or as directed by STATE. Backslopes shall be 3/4:1. Ditch line armor and settling pond armor shall be 8 inches deep.

(12) Fill Armor and Energy Dissipator Construction. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit G.

The subgrade shall be approved by STATE prior to the application of rock.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Beecher Creek as shown on Exhibit A:

A to C	Conduct roadside brushing according to exhibit I. Brush around stream culvert inlets and outlets so that the pipe is visible. Clean out ditches, dig out catch basins, re-establish settling ponds, and unplug culvert inlets/outlets. Remove overhanging woody debris and logs within the road prism. Grade and shape running surface to re-establish drainage. Operator shall maintain or re-establish drainage for the entire road based on current grade and shape. Open turnout locations during improvement. Prepare the surface for spot rocking where needed.
B	Stockpile location.
WA4	Waste area location off Beecher Creek, just past the gate. Clear and grub out to posted ROW. Drift out existing waste material to prepare area for additional waste. There is a cross drain on the road draining through the waste area that has an existing ditch out. This will need to be preserved during construction and left in a state that continues to facilitate drainage. The waste material must be compacted in lifts and sloped to drain with the existing terrain. Toe of fill must not come within 10ft or extend past posted ROW. Waste capacity 6,000cy loose truck yards. This waste area is intended to be used last as overflow.
WA5	Drift out wasted material at turnout towards ridge. Re-establish turnout location so that it is useable and at the same elevation as road surface. **Do not add more waste at this location unless authorized by STATE.**
WA3	Waste area location west of ridgetop spur on lower bench. The waste material must be compacted in lifts and sloped to drain with the existing terrain. Waste must be trucked into lower bench and built up from the bottom unless otherwise approved by STATE. Toe of fill must not come within 10ft or extend past posted ROW. Waste capacity 4,500cy loose truck yards. Construct access road using old grade to reach waste area location. This old grade starts at the turnout location just before reaching the top of the ridge. There is centerline and posted ROW for this access road. Clear and grub stumps and woody debris. Use clean fill generated from road construction to build up subgrade as needed. The road grade for this access shall not exceed 18%. Upon completion of use, construct waterbars according to exhibit M and block the entrance off the main road.
C to D1	Re-establish waterbars after work at D1 and D2 has been completed and approved by STATE.
D1	Pullback material associated with road edge failure. Endhaul to designated waste area. Stabilize outside edge, or cut into upper spur, to allow for vehicle traffic past pullback location.
D2	Pullback perched slash material on the landing edge where indicated. Endhaul to designated waste area.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

Beecher Creek as shown on Exhibit A: continued

B to E — Conduct roadside brushing according to exhibit I.

Clean out ditches, dig out catch basins, re-establish settling ponds, and unplug culvert inlets/outlets. Remove overhanging wood debris and logs within the road prism. Grade and shape running surface to re-establish drainage. Operator shall maintain or re-establish drainage for the entire road based on current grade and shape. Prepare the surface for a lift of rock.

F to G — Open old grade with dozer. Clear vegetation and bank sloughs to allow for ATV travel.

There is a small slump just past point F that will need to be excavated. Waste from this slump may be placed at nearby landing as directed by STATE.

Rocking Instructions:

A to B — Apply a compacted 2" lift of 1 ½"-0" cap rock from stockpile.

B to C — Apply spot rock as needed and as directed by STATE. 100 CY provided.

WA5 — Apply allocated turn out rock. 20 CY.

B to E — Apply a compacted 2" lift of 1 ½"-0" cap rock from stockpile.

Spur 1 as shown on Exhibit A:

0+00 to 73+05 — Clear and grub. Approximately 30 feet wide of clearing and grubbing is anticipated. Remove all stumps within the road prism, stumps within 5ft of the outside edge, and any stumps where the roots or stump are overhanging the cut slope. Scatter stumps in openings and gaps in stable locations. On slopes greater than 50%, stumps shall be hauled to an approved waste area. Clearing debris shall be piled on stable locations on slopes less than 50%. Clearing debris shall be piled in a manor to facilitate burning. The piles shall be conical in nature.

Conduct sidecast pullback where specified according to exhibit L. Remove any organic debris encountered in the road prism or logs cribbed against fill material. Remove any material associated with stress cracking and slumps. Remove any waste or organic debris built up on outside edge of road.

Drilling and blasting techniques may be likely for portions of reconstruction. When blasting, the operator shall contain the shot. Suitable material may be used for armoring as approved by STATE.

Fill will be needed for portions of reconstruction. Material produced during construction efforts should be used for fill and hauled in where necessary. All fill material shall be clean soil or rock, absent of organic debris. For fills where soil is used, the operator is required to construct sidehill embankments according to exhibit K prior to placing soil. Areas at risk of erosion shall be armored and will be determined by STATE. (Continued next page)

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

Spur 1 as shown on Exhibit A: continued

0+00 to 73+05	Grade and shape subgrade to facilitate drainage according to the table in this exhibit. Extra subgrade width shall be provided for off tracking around horizontal curves. The subgrade shall be compacted according to exhibit F and in lifts where fills are used. Improve ditch lines and re-establish them where necessary. Prepare the running surface for a lift of rock. Purchaser is required to maintain during the entirety of sale.
0+00 to 1+50	Road re-alignment for small slide. Slope stakes are posted to top of cut. Excavate into the bank to establish required road width. End-haul waste material to an approved waste area. 450cy estimated.
0+50 to 4+30	Conduct sidecast pullback according to the specifications in exhibit L. Re-establish centerline where needed. Excavate into the bank to establish required road width. End-haul waste material to an approved waste area.
3+10	Install 18" x 30' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
4+30	Construct truck turn out according to specifications in this exhibit.
5+50 to 9+00	Conduct sidecast pullback according to the specifications in exhibit L. Re-establish centerline where needed. Excavate into the bank to establish required road width. End-haul waste material to an approved waste area.
8+00	Install 18" x 30' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
9+75	Construct landing. Landing must be at least 60ft x 60ft. This landing may also be utilized as a waste area off the end of the landing towards the SW ridge nose (WA1). The waste material must be compacted in lifts and sloped to drain with the existing terrain. Toe of fill must not come within 10ft or extend past posted ROW. Waste capacity 2,000cy loose truck yards.
10+98	Install 18" x 30' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
11+70	Construct truck turn out according to specifications in this exhibit.
12+50 to 16+00	Conduct sidecast pullback according to exhibit L. Re-establish centerline where needed. Excavate into the bank to establish required road width. End-haul waste material to an approved waste area.
12+50 to 13+25	Perform curve widening. Increase subgrade width right of centerline by 6ft.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

Spur 1 as shown on Exhibit A: continued

14+40	Install 18" x 30' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
16+00	Construct roadside landing according to the specifications in this exhibit. Increase subgrade width by 20ft for 60ft.
17+60 to 20+73	Conduct sidecast pullback according to exhibit L. Re-establish centerline where needed. Excavate into the bank to establish required road width. End-haul waste material to an approved waste area.
19+55 to 20+37	Start crossing improvement and curve widening. Increase subgrade width right of centerline by 6ft. The stream has eroded the outside edge of the road. The operator shall re-align the road as necessary or build up outside edge to provide adequate subgrade width. Construct a series of settling ponds in ditch line that drains towards new inlet. Excavate old fill, sidecast, and organic material associated with existing crossing. Remove any crossing structures or logs encountered during excavation, and endhaul unsuitable material to an approved waste site. Excavated material that is suitable for backfilling may be temporarily stored nearby in a stable location as directed by STATE. Rip rap, pit run quality rock, or suitable armoring material must be used to armor the fill as the crossing is reconstructed. Suitable rock material shall be approved by STATE and may be acquired on STATE lands in approved locations.
20+02	Install 24" x 50' culvert. The inlet and outlet shall be armored with riprap or suitable material as approved by STATE. Channelize flow to inlet and create large catch basin. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock. For fills where soil is used, the operator is required to construct sidehill embankments according to exhibit K prior to placing soil. Road surface elevation at crossing should meet existing grade and eliminate vertical curves.
20+73	Install 18" by 30' disconnect. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
22+60 to 23+40	Utilize bench below the road edge as WA2. Key into the small ridge that follows a general SW aspect, and build fill up to the road surface elevation. The waste material must be compacted in lifts and sloped to drain with the existing terrain. The depth of fill must not exceed 15ft unless otherwise approved by STATE. Toe of fill must not come within 10ft or extend past the posted ROW. Waste capacity 1,000cy loose truck yards.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

Spur 1 as shown on Exhibit A: continued

24+75	Construct truck turn out according to specifications in this exhibit.
26+85	Install 18" x 30' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
27+85 to 38+97	Conduct sidecast pullback according to exhibit L. Re-establish centerline where needed. Excavate into the bank to establish required road width. End-haul waste material to an approved waste area.
31+29	Pull old pipe. Install 18" x 30' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
31+29 to 32+16	Spring Origin. Construct a well-defined ditch to inlet to ensure separation from the water table and the subgrade.
32+16 to 34+53	Construct a series of settling ponds in the ditch.
34+53 to 34+91	Spring origin. Remove sloughed bank material and construct a well-defined ditch to inlet to ensure separation from the water table and the subgrade. Construct a series of settling ponds in the ditch.
34+91	Install 18" x 40' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
34+91 to 36+50	Start crossing improvement and curve widening. Increase subgrade width right of centerline by 6ft. The stream has eroded the outside edge of the road. The operator shall re-align the road as necessary or build up outside edge to provide adequate subgrade width.
34+91 to 36+50	Excavate old fill, sidecast, and organic material associated with existing crossing. Remove any crossing structures or logs encountered during excavation, and endhaul unsuitable material to an approved waste site. Excavated material that is suitable for backfilling may be temporarily stored nearby in a stable location as directed by STATE. Rip rap, pit run quality rock, or suitable armoring material must be used to armor the fill as the crossing is reconstructed. Suitable rock material shall be approved by STATE and may be acquired on STATE lands in approved locations.
36+07	Install 36" x 60' culvert. The inlet and outlet shall be armored with riprap or suitable material as approved by STATE. Below the pipe, prepare a bedding of rock to support the load. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

Spur 1 as shown on Exhibit A: continued

36+07 (cont.)	Create a large pond at inlet catch basin. The pond shall be a minimum 30 feet wide by 30 feet long, and 5 feet deep, unless otherwise approved by STATE. The STATE envisions the operator excavating out the drafting pond on the inlet side of the cross drain and wasting the material adjacent to the pond either in a form of a berm around the pond or as a pile adjacent to. The excavated slopes shall be no steeper than 1:1. There are two streams that drain to this location over a debris fan that will need to be channelized so that they both drain into the pond. Construct a well-defined ditch to capture any seeping water from the debris fan. Armor pond and catch basin where water will be in contact with the road edge fill. The surrounding flat area may be used as a waste area as directed by STATE to help facilitate pond and channelized stream construction. All disturbed areas after construction must be seeded and mulched according to exhibit J. For fills where soil is used, the operator is required to construct sidehill embankments according to exhibit K prior to placing soil. Road surface elevation at crossing should meet existing grade and eliminate vertical curves.
36+50	Install 18" by 30' disconnect. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
36+50 to 38+97	Excavate into the bank to establish required road width. Re-establish centerline where needed. End-haul waste material to an approved waste area. **Drilling and blasting techniques likely.** There is rock in the cutbank that will need to be excavated to establish adequate subgrade width. Construct a well-defined ditch to capture any seeping water from the cutbank.
38+97 to 40+83	Construct Landing. Excavate into the cut bank to facilitate at least an additional 40ft of subgrade width. There are slope stakes posted to top of cut. There is rock in the bank and **drilling and blasting techniques are likely**. Estimated rock excavated to posted slope stakes is approximately 2,400cy in place material. This rock will be used to facilitate road construction and for armoring purposes at the stream crossings. Excavate rock as needed for construction purposes as directed by STATE.
40+83 to 54+46	Conduct sidecast pullback according to exhibit L. Re-establish centerline where needed. Excavate into the bank to establish required road width. End-haul waste material to an approved waste area. Remove any waste or organic debris built up on outside edge of road.
41+58	Install 18" x 30' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

Spur 1 as shown on Exhibit A: continued

41+58 to 43+68 Construct a well-defined ditch and create a series of settling ponds towards inlet.

45+10 to 46+19 Start crossing improvement and curve widening. Increase subgrade width right of centerline by 6ft. The crossing has started failing and eroding both the inside and outside edge of the road. The operator will need to use fill to re-build the subgrade back up to the proper road elevation.

Excavate old fill, sidecast, and organic material associated with existing crossing. Remove any crossing structures or logs encountered during excavation, and endhaul unsuitable material to an approved waste site. Excavated material that is suitable for backfilling may be temporarily stored nearby in a stable location as directed by STATE.

Rip rap, pit run quality rock, or suitable armoring material must be used to armor the fill as the crossing is reconstructed. Suitable rock material shall be approved by STATE and may be acquired on STATE lands in approved locations.

45+60 Install 36" x 60' culvert. Provide a minimum of 5ft fill over the top of the crossing. The total depth of fill shall not exceed 15ft unless otherwise approved by STATE. All fill material shall be clean soil or rock, absent of organic debris. All portions of the fill material on the inlet side shall be armored with riprap, pit run quality rock, or suitable material as approved by STATE.

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.

A bedding of crushed rock 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. A minimum of 6" of 1½"-0" or equivalent rock shall be used. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.

Backfill shall consist of 1½" crushed rock or clean job-excavated soils. The backfill shall be compacted in 6-inch lifts using a tamping device.

For fills where soil is used, the operator is required to construct sidehill embankments according to exhibit K prior to placing soil. Road surface elevation at crossing should meet existing grade and eliminate vertical curves.

46+19 Install 18" by 30' cross drain. Construct a well-defined ditch to capture water from springs and seeps above this location. Skew pipe in a way that facilitates extra filtering on outlet end. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

Spur 1 as shown on Exhibit A: continued

50+93	Install 18" by 30' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
55+84	Construct empty truck turn around according to the specifications in this exhibit.
57+71	Construct roadside landing according to the specifications in this exhibit. Increase subgrade width by 30ft for 80ft.
59+72	Install 18" by 30' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
61+40 to 65+75	Conduct sidecast pullback according to exhibit L. Re-establish centerline where needed. Excavate into the bank to establish required road width. End-haul waste material to an approved waste area. Remove any waste or organic debris built up on outside edge of road.
64+56	Install 24" by 40' culvert. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
64+56 to 65+75	Start curve widening. Increase subgrade width right of centerline by 6ft.
	Excavate old fill, sidecast, and organic material within the road prism. Endhaul unsuitable material to an approved waste site. Fill may be required to re-build the subgrade back up to the existing grade. Establish a well-defined ditch and a series of settling ponds that drain to the inlet.
66+95	Construct turn out according to the specifications in this exhibit.
67+91	Install 18" by 30' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
	Begin approach to intersection of spur 1a. There are slope stakes posted to top of cut to realign spur 1 to provide enough room for the approach to spur 1a.
68+96	Construct turn out according to the specifications in this exhibit.
70+43 to 71+78	Conduct sidecast pullback. Re-establish centerline where needed. Excavate into the bank to establish required road width. End-haul waste material to an approved waste area. Remove any waste or organic debris built up on outside edge of road.

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

Spur 1 as shown on Exhibit A: continued

70+43	Install 18" by 30' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.
71+78	Start landing construction. Begin cutting into bank to posted slope stakes to create enough room for landing. Estimating 1,040cy of in place material.
73+05	End landing and road construction.

Rocking Instructions:

0+00 to 73+05	Apply a compacted 6" lift of 3"-0" base rock and a 2" lift of 1 ½"-0" cap rock from stockpile.
	Apply allocated bedding and backfill rock for all 18" culverts. 10 CY each. 150 CY Total.
	Apply armoring where indicated.
	Apply allocated turn out and turn around rock. 20 CY each. 200 CY Total.
	Apply allocated curve widening rock. 290 CY provided.
	Apply allocated landing rock. 40 CY each. 200 CY Total.
20+02	20 CY bedding and backfill. Armor fill, inlet, and outlet as directed by STATE.
36+07	40 CY bedding and backfill. Armor fill, inlet, and outlet as directed by STATE.
45+60	40 CY bedding and backfill. Armor fill, inlet, and outlet as directed by STATE.
64+56	20 CY bedding and backfill. Armor fill, inlet, and outlet as directed by STATE.

Spur 1a as shown on Exhibit A:

0+00 to 8+01	Clear and grub. Approximately 30 feet wide of clearing and grubbing is anticipated. Remove all stumps within the road prism and any stump where the roots or stumps are overhanging the cut slope. Scatter stumps in openings and gaps in stable locations. On slopes greater than 50%, stumps shall be hauled to an approved waste area.
	Clearing debris shall be piled on stable locations on slopes less than 50%. Clearing debris shall be piled in a manor to facilitate burning. The piles shall be conical in nature.
	Grade and shape subgrade to facilitate drainage. The subgrade shall be compacted according to exhibit F and in lifts where fills are used. (Continued next page)

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

Spur 1a as shown on Exhibit A: continued

0+00 to 8+01 Prepare the running surface for a lift of rock. Purchaser is required to maintain during the entirety of sale.

0+00 to 7+00 Road re-alignment to mitigate old sidecast and tie in with ramp down from spur 1. Conduct sidecast pullback according to exhibit L. Re-establish centerline where needed. Excavate into the bank to establish required road width. End-haul waste material to an approved waste area. Remove any waste or organic debris built up on outside edge of road.

0+62 Construct truck turn out according to the specifications in this exhibit prior to spur 1b intersection.

6+50 Install 18" by 30' cross drain. Install an embedded energy dissipator according to exhibit H at the outlet with Riprap or pit run quality rock.

7+41 Construct empty truck turn around according to specifications in this exhibit.

8+01 Construct landing. Landing must be at least 60ft x 60ft. End reconstruction.

Rocking Instructions:

0+00 to 8+01 Apply a compacted 6" lift of 3"-0" base rock and a 2" lift of 1 ½"-0" cap rock from stockpile.

Apply allocated bedding and backfill rock. 10 CY.

Apply allocated turn out and turn around rock. 40 CY.

Apply allocated landing rock. 40 CY.

Spur 1b as shown on Exhibit A: NEW CONSTRUCTION

0+00 to 3+20 Clear and grub. Approximately 30 feet wide of clearing and grubbing is anticipated. Remove all stumps within the road prism. Scatter stumps in openings and gaps in stable locations. On slopes greater than 50%, stumps shall be hauled to an approved waste area.

Clearing debris shall be piled on stable locations on slopes less than 50%. Clearing debris shall be piled in a manor to facilitate burning. The piles shall be conical in nature.

The subgrade shall be crowned 4 to 6 percent. Construction will be a mix of balanced and through cut, daylighting to the edge on both sides of centerline. However, instead of constructing the subgrade as a through cut with cut banks, the cut will continue out on the edge at the same slope and elevation till it runs out. (Continued next page)

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

Spur 1b as shown on Exhibit A: continued

0+00 to 3+20	The STATE has set centerline and slope stakes out in the field. The slope stakes are placed just inside of the Right-of-Way boundary tags. The operator shall take precautions to preserve slope stakes in the field during the felling logging and construction of spur 1b. Cross sections for design are available upon request.
0+16	Fill in low spot with suitable material. Approximately 1ft fill at centerline.
0+45	Start of cut and daylighting outside edge. Approximately 1 ½ ft cut at centerline.
0+99	Begin tapering subgrade to meet 45ft landing width. Approximately 2ft cut at centerline.
1+30 to 1+80	Construct 45ft wide landing. Deepest cut through landing will be approximately 2 ½ ft at centerline.
1+80 to 3+20	Utilize ridge to drift out generated waste during construction. Estimated waste from construction is 300 cubic yards. Toe of through fill along ridge must not extend past posted ROW. Fill depth through fill along ridge must not exceed 4ft in depth unless otherwise approved by STATE.
3+20	End construction.

Rocking Instructions:

0+00 to 1+30	Apply a compacted 6" lift of 3"-0" base rock and a 2" lift of 1 ½"-0" cap rock from stockpile.
	Apply allocated landing rock. 40 CY.

EXHIBIT D
END HAUL REQUIREMENTS

Full bench construction is required on slopes over 55%. Excavated material from these areas shall be deposited in waste areas approved by State

Road	STA. to STA.	Approx. Waste (yds^3)	Containment Sidecast	Waste Area Location	Waste Area Treatment
Spur 1	0+00 to 73+05	13500	2	1, 3	1, 2, 3
Spur 1b	0+45 to 1+80	300	2	1, 3	1, 2, 3
Beecher Creek	D1 & D2	100	2	1,3	1, 2, 3
	Total	**13900**			

Landing fills shall not be allowed on slopes over 55%

	Capacity	Description
WA1	2000	off landing at 9+75
WA2	1000	widening outside edge 22+60
WA3	4500	Waste area off ridge top spur off Beecher Improvement
WA4	6000	waste off Beecher just past the gate

***additional waste may be placed in approved locations as directed by STATE**
These additional areas must not exceed 200cy

End-Haul Areas General Requirements

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. Material shall not be sidecast unless specified above.

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

Containment/Sidecast

(1) Full: No excavated material remains below the road.

(2) Normal/Incidental: The amount of excavated material lost over the outside edge of the road shall not exceed 1 foot in depth.

(3) Sidecast: Material shall be spread evenly below the road so that it does not build up behind trees, snags, or other debris, and shall not exceed 3 feet in depth.

Any amount of material exceeding the containment requirements shall be removed by whatever means necessary and end-hauled to a designated waste area.

Waste Area Location

(1) As shown on Exhibit A, Vicinity, and as marked in the field.

(2) Setback from slope break shall be a minimum of 20 feet horizontal measurement.

(3) As directed by STATE.

Waste Area Treatment

(1) Deposit at waste area, spread evenly, compact with Dozer, and provide adequate drainage. Fill depths greater than one foot must be compacted in 6" lifts.

(2) Pile woody debris separate from other waste material.

(3) Mulch and seed all waste areas in accordance with Exhibit J

EXHIBIT E
ROAD SURFACING

ROAD	ROCK TYPE	ROCK SIZE	COMPACTED DEPTH	YDS^3/STA	TOTAL STATIONS	STA. TO STA. POINT TO POINT		APPROX. TOATAL YDS^3
A-B	CAP	Stockpile 1 1/2"	2"	11	5.00	A	B	60
Spur 1	BASE	Stockpile 3"	6"	33	73.05	0+00	73+05	2410
Spur 1	CAP	Stockpile 1 1/2"	2"	11	73.05	0+00	73+05	800
Spur 1a	BASE	Stockpile 3"	6"	33	8.01	0+00	8+01	260
Spur 1a	CAP	Stockpile 1 1/2"	2"	11	8.01	0+00	8+01	90
Spur 1b	BASE	Stockpile 3"	6"	33	1.30	0+00	1+30	40
Spur 1b	CAP	Stockpile 1 1/2"	2"	11	1.30	0+00	1+30	10
B-E	CAP	Stockpile 1 1/2"	2"	11	7.00	B	E	80
LANDINGS								
ROAD		ROCK SIZE	COMPACTED DEPTH	YDS^3/STA	STATIONS	STATION		APPROX. TOATAL YDS^3
Spur 1		Stockpile 3"	6"	40	5.00	Specified in Exhibit D		200
Spur 1a		Stockpile 3"	6"	40	1.00	8+01		40
Spur 1b		Stockpile 3"	6"	40	1.00	1+30		40
TRUCK TURN AROUND / TURN OUT								
ROAD		ROCK SIZE	COMPACTED DEPTH	Yds^3/Point	NO. OF TURN AROUNDS	STATION		APPROX. TOATAL YDS^3
B-C		Stockpile 3"	6"	20	1	WA 5		20
Spur 1		Stockpile 3"	6"	20	10	Specified in Exhibit D		200
Spur 1a		Stockpile 3"	6"	20	2	7+41		40
CURVE WIDENING/SPOT ROCK								
Road		ROCK SIZE	COMPACTED DEPTH	Yds^3/Point	# POINTS	STATION		APPROX. TOATAL YDS^3
B-C		Stockpile 1 1/2"		10	10	As direced by STATE		100
Spur 1		Stockpile 1 1/2"		10	29	Specified in Exhibit D		290
ENERGY DISSIPATOR/BACKFILL/ARMORING								
Road		ROCK SIZE	COMPACTED DEPTH	Yds^3/Point	# POINTS	STATION		APPROX. TOATAL YDS^3
Spur 1		Stockpile 1 1/2"		10	15	Specified in Exhibit D		150
Spur 1a		Stockpile 1 1/2"		10	1	6+50		10
Crossing Improvements		Stockpile 1 1/2"		10	12	Specified in Exhibit D		120

Road shall be compacted, graded, shaped, and approved by STATE prior to rocking.
Approximate yards assumes construction during ideal weather conditions.
Only clean, uncontaminated crushed rock counts towards rock depth measurement.

Rock Totals	Stockpile 3"-0"	Stockpile 1 1/2"-0"
LOOSE TRUCK Cu. Yds	3250	1710

EXHIBIT E
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 weekly. However, depth measurement shall be used to determine contract compliance.

Grading Requirements

For 1½"-0"	Passing	2" sieve	100%
	Passing	1½" sieve	90-100%
	Passing	3/4" sieve	60-90%
	Passing	1/4" sieve	30-50%
	Passing	No. 10 sieve	15-30%
	Passing	No. 40 sieve	7-15%
For 3"-0"	Passing	4" sieve	100%
	Passing	3" sieve	90-100%
	Passing	1½" sieve	60-90%
	Passing	3/4" sieve	40-60%
	Passing	1/4" sieve	20-40%
	Passing	No. 10 sieve	5-20%

JAW-RUN, PIT-RUN, and RIPRAP ROCK SPECIFICATIONS

For Pit Run	Passing	6" sieve	100%
	Passing	3" sieve	45-65%

Control of gradation shall be by visual inspection by STATE.

EXHIBIT F
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 or outsloped at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
Spur 1, 1a, & 1b	(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 layer's 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
Spur 1, 1a, & 1b	1, 4, & 8

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

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

EXHIBIT F
COMPACTION AND PROCESSING REQUIREMENTS

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments requiring crushed rock.	1 & 8

Pit-Run Rock. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of pit-run rock shall be moistened or dried to uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 8 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.

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.

(4) 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.

(8) As Approved by STATE.

EXHIBIT G
CULVERT SPECIFICATIONS

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

Culverts shall be constructed of corrugated aluminized (Type 2) or corrugated double-walled polyethylene.

Aluminized (Type 2) steel culverts shall meet the requirements of AASHTO M-36-03[1].

Polyethylene culverts shall be double-walled and meet the requirements of AASHTO M-294-06, Type S, **or** ASTM F2648 Culvert.

Polyethylene culverts shall not be used where required culvert diameter is over 24 inches.

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.

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 specified in special instructions.

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

Cross drain culverts on road grades more than 3 percent shall be skewed at least 30 degrees from perpendicular to the road centerline, except that cross drain culverts at the low point of dips in roads shall not be skewed.

Cross drain culverts shall be installed at a slope steeper than the incoming ditch grade, but not less than 3 percent or greater than 10 percent.

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 stream crossing culverts.

Backfill shall consist of, crushed rock, or clean job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the culvert.

Transporting of the culvert shall be done carefully. Dragging or allowing free fall from trucks or into trenches shall not be permitted.

Minimum height of cover over top of culvert to subgrade when road is to be rocked 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 ends of each culvert shall be free of logs and debris which would restrict the free flow of water.

The intake end of relief culverts shall be provided with a sediment catching basin 3 feet in diameter at the bottom.

The outlet ends of any culvert which would allow water to erode embankment soil shall be provided with an energy dissipator, or other approved slope protection device. Construct lead-off ditches away from culvert outlets where the slope gradients restrict the free flow of water.

EXHIBIT G
CULVERT SPECIFICATIONS

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

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.

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

Following are the minimum standard gauges for steel culvert and coupling bands. Some culverts may require different gauges and may be found in the culvert listing.

	Steel Culvert	Thickness			Band Widths (")	
Dia.	Gauge	Uncoated	Coated	Band Gauges	Annular	Helical
18-24	16	(0.0598")	(0.064")	16	12	12

Culverts larger than 60" in diameter shall have (3" x 1") corrugations.

CULVERT LIST

DIAMETER / PIPE ARCH	LENGTH		MATERIAL	ROAD	STATION
(Inches)	(Feet)	Gauge			
18	30		Polyethelene	Spur 1	3+10
18	30		Polyethelene	Spur 1	8+00
18	30		Polyethelene	Spur 1	10+98
18	30		Polyethelene	Spur 1	14+40
24	50		Aluminized Steel	Spur 1	20+02
18	30		Polyethelene	Spur 1	20+73
18	30		Polyethelene	Spur 1	26+85
18	30		Polyethelene	Spur 1	31+29
18	40		Polyethelene	Spur 1	34+91
36	60		Aluminized Steel	Spur 1	36+07
18	30		Polyethelene	Spur 1	36+50
18	30		Polyethelene	Spur 1	41+58
36	60		Aluminized Steel	Spur 1	45+60
18	30		Polyethelene	Spur 1	46+19
18	30		Polyethelene	Spur 1	50+93
18	30		Polyethelene	Spur 1	59+72
24	40		Aluminized Steel	Spur 1	64+56
18	30		Polyethelene	Spur 1	67+91
18	30		Polyethelene	Spur 1	70+43
18	30		Polyethelene	Spur 1a	6+50

Ditchouts will be utilized to provide ditch relief or as approved or directed by the STATE.

ACSP = Aluminized, CPP = Polyethylene, GCSP = Galvanized

Culvert Length shown are not the exact lengths. The length may be less or greater based on-site conditions. Operator shall install the appropriate length of culvert to meet the requirements in this Exhibit as stated above and as directed by STATE.

State Timber Sale Contract
No. WL-341-2023-W00845-01
North Pat

EXHIBIT H
TYPICAL EMBEDDED ENERGY DISSIPATOR

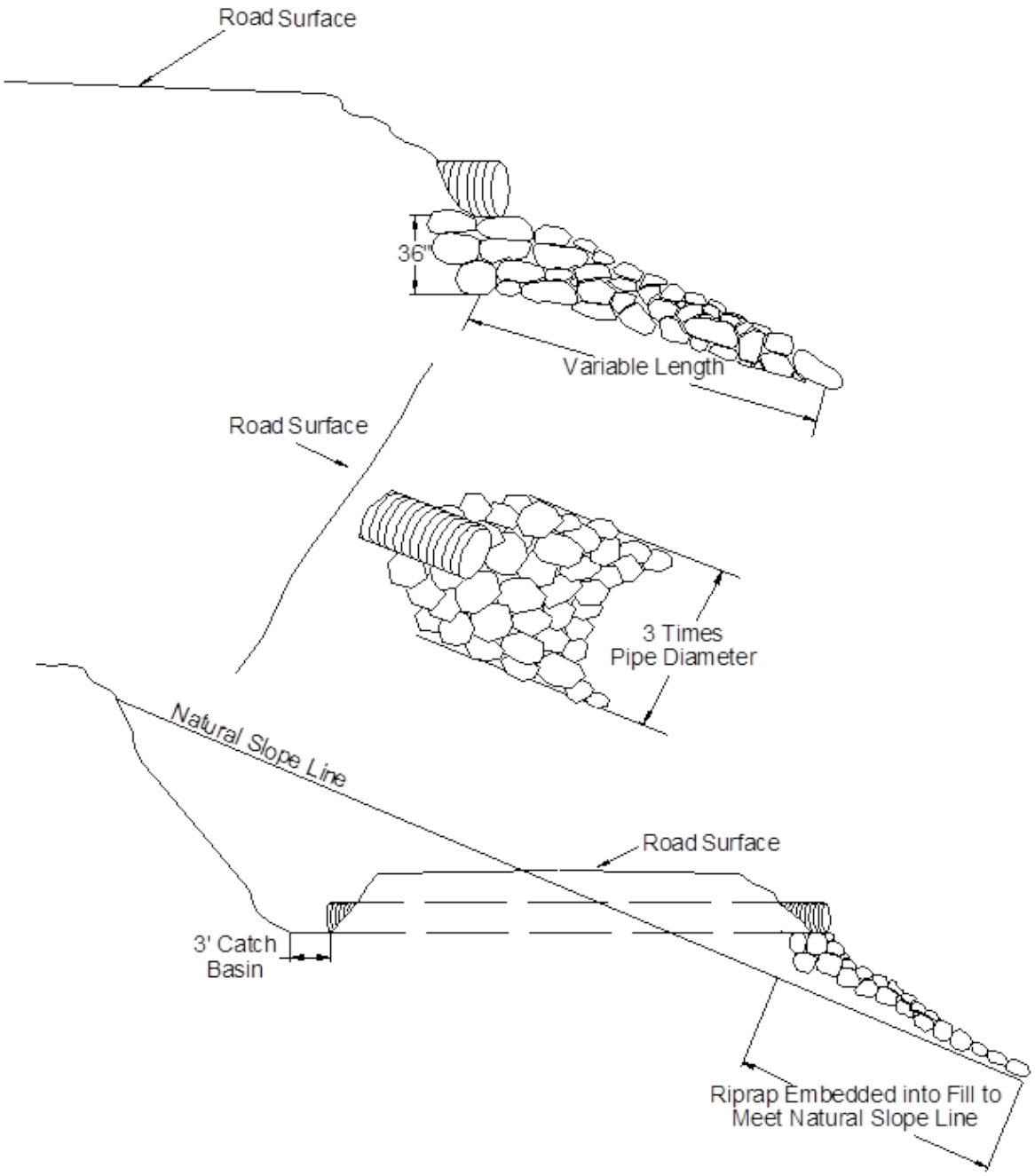


EXHIBIT I
ROAD BRUSHING SPECIFICATIONS

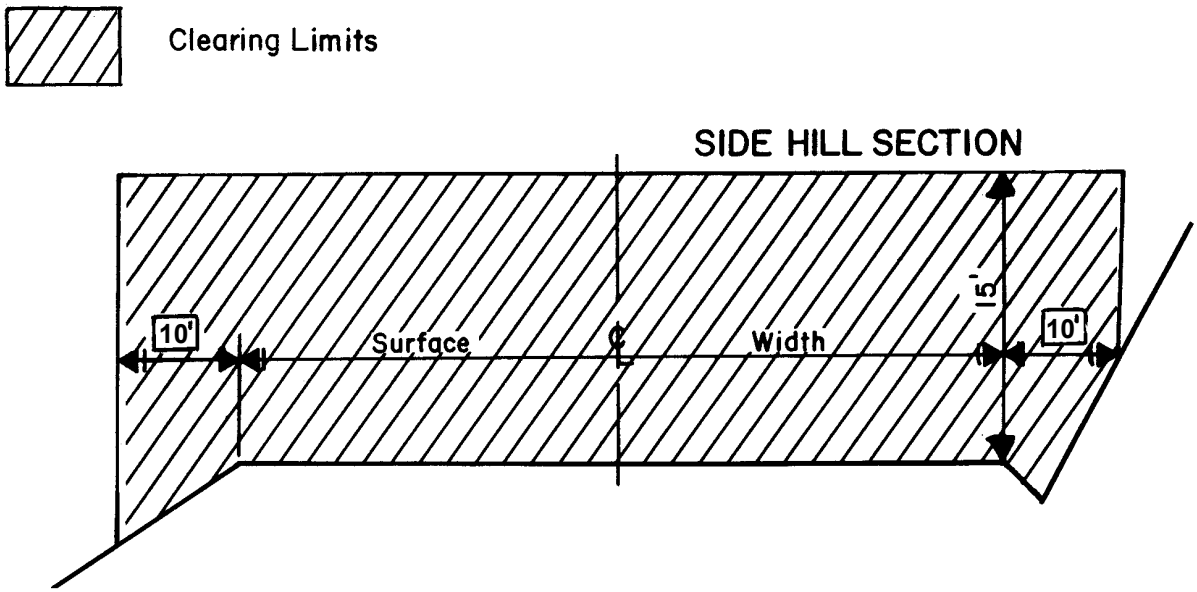


EXHIBIT I
ROAD BRUSHING SPECIFICATIONS

REQUIREMENTS

The minimum height of clearing shall be 15 feet from the road surface, and the minimum width of clearing on the cut slope sides 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 height on the cut slope may vary from the drawing, as directed by STATE.

For cuts lopes less than 6 feet in height, brushing shall extend 5 feet beyond the top of cut slope.

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, cut slope, 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.

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.

State Timber Sale Contract
No. WL-341-2023-W00845-01
North Pat

EXHIBIT J
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 straw mulch in locations directed by STATE.

Seeding Seasons. Seeding shall be performed only from March 1 through June 15 and August 15 through October 31 unless otherwise approved by STATE. 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.

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%

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 0.75 to 1.5 inches. This rate requires 1 tons of dry mulch per acre.

Application Locations:

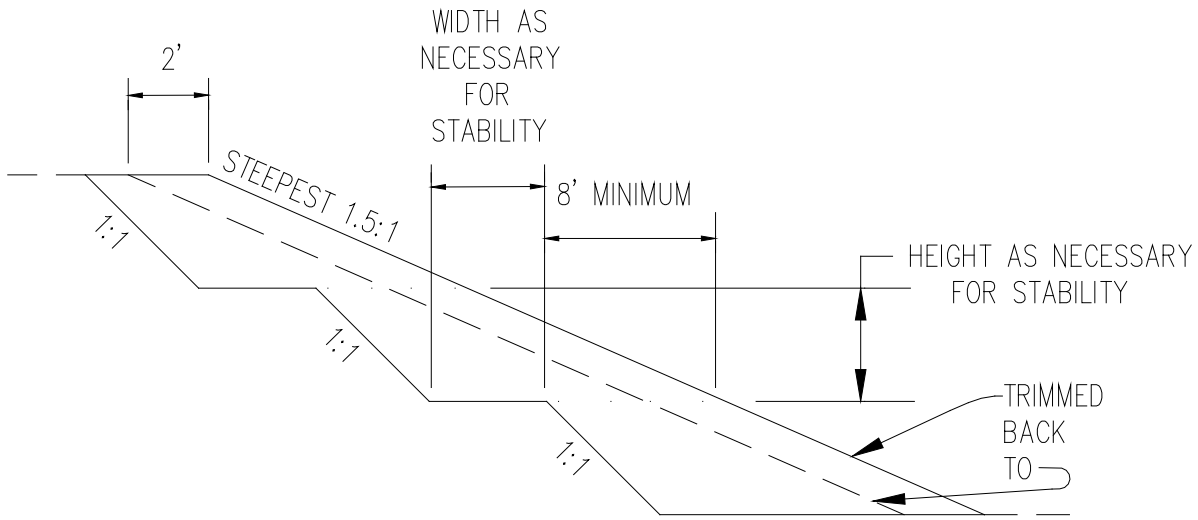
Road Segment	Location
WA 1	9+75
WA 2	22+60
WA 3	Shown in Exhibit A
WA 4	Shown in Exhibit A
Spur 1b	1+80 to 3+20

State Timber Sale Contract
No. WL-341-2023-W00845-01
North Pat

EXHIBIT K
SIDEHILL EMBANKMENT FILL CONSTRUCTION SPECIFICATIONS

(no scale)

All temporary earth slopes shall comply with OR-OSHA requirements. Areas to receive structural fill that have a slope greater than 2 ½: 1 (40%) shall have horizontal benches and keyways cut into the fill areas prior to placing the new fills. All fill material shall be placed and compacted as fill 2 feet beyond 1.5H: 1V slope and then be trimmed back to a 1.5H: 1V slope so that compacted fill is exposed on the face of the slope (see detail below).



DETAIL: BENCHING AND SIDEHILL EMBANKMENT FILL CONSTRUCTION

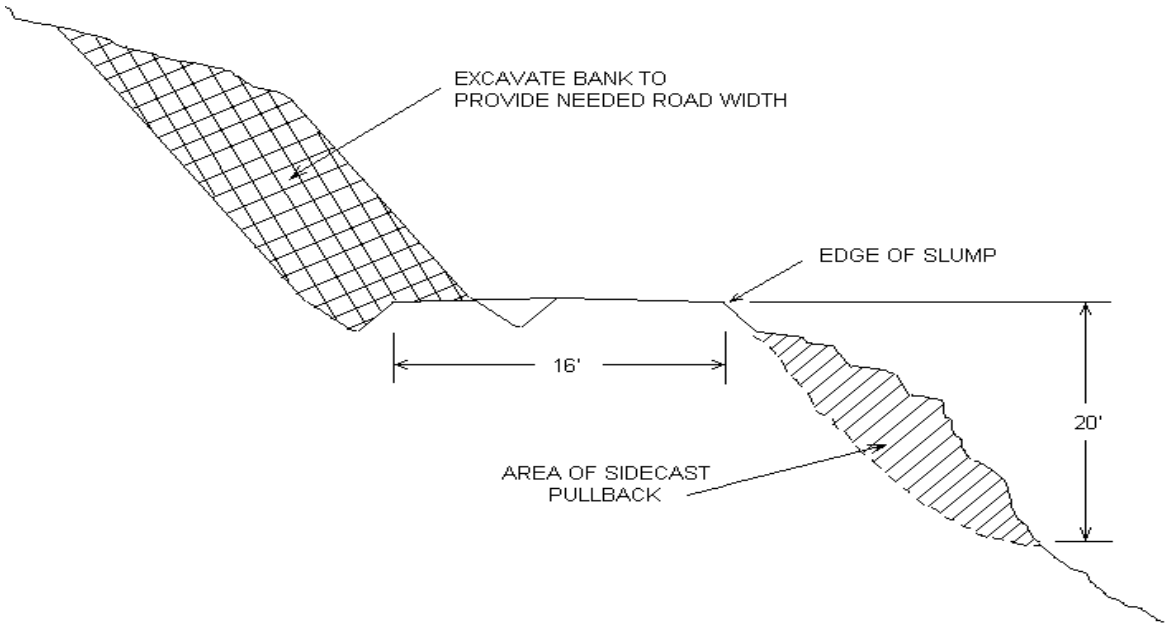
STATE shall be contacted to inspect the prepared bench configuration prior to new fill material placement. STATE shall be contacted to inspect the final cut and fill slope configurations.

Once observed by STATE, erosion control measures shall be applied to the graded slopes. Variations to these specifications shall not be allowed unless approved in writing by STATE.

State Timber Sale Contract
No. WL-341-2023-W00845-01
North Pat

EXHIBIT L
TYPICAL SIDECAST PULLBACK

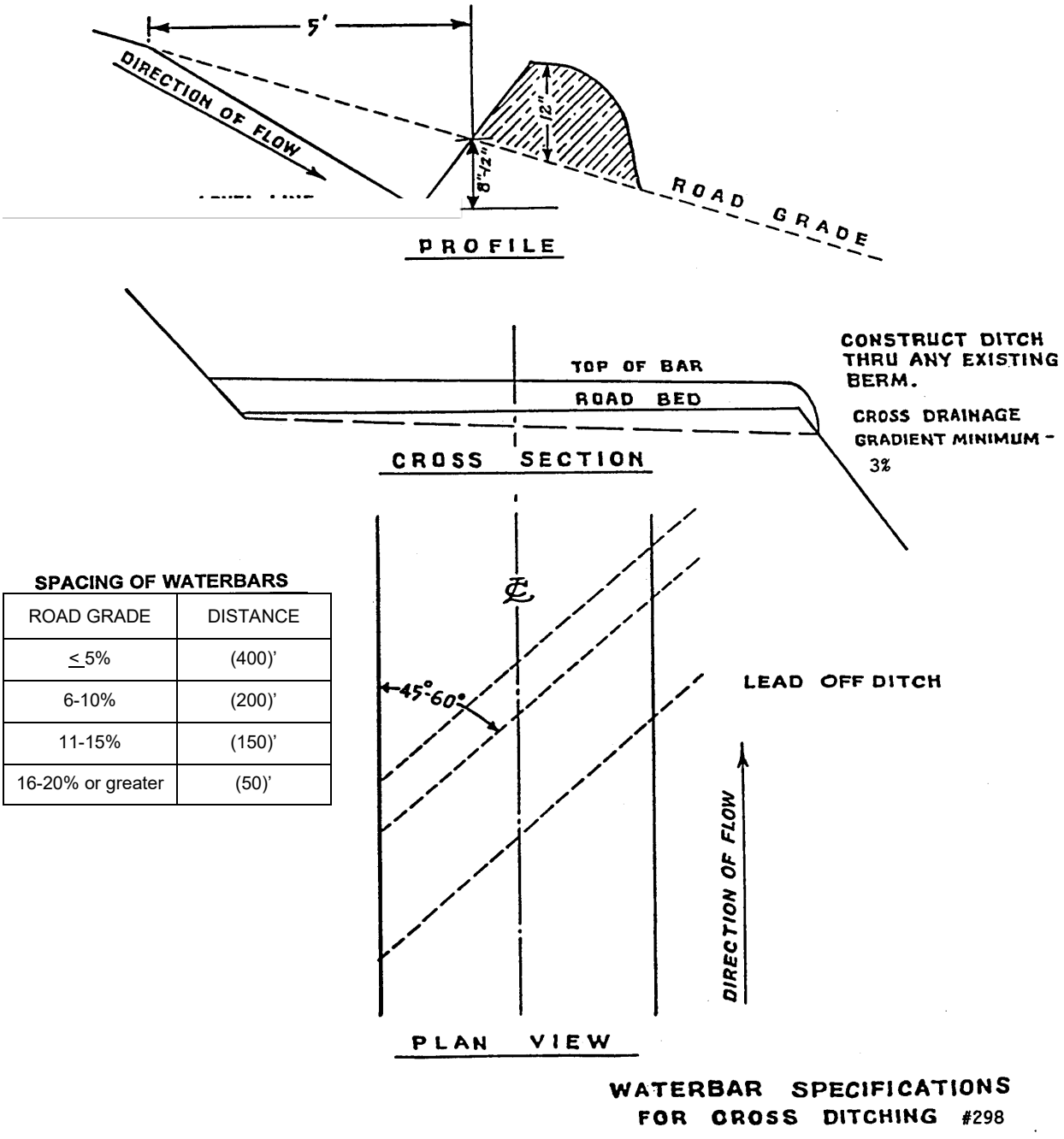
TYPICAL CROSS SECTION VIEW OF SIDECAST PULLBACK AND ROAD REALIGNMENT



(No Scale)

State Timber Sale Contract
No. WL-341-2023-W00845-01
North Pat

EXHIBIT M
WATERBAR SPECIFICATIONS



SPACING OF WATERBARS

ROAD GRADE	DISTANCE
≤ 5%	(400)'
6-10%	(200)'
11-15%	(150)'
16-20% or greater	(50)'

OREGON DEPARTMENT OF FORESTRY
Western Lane District

Written Plan

North Pat Timber Sale
341-2023-W00845-01

Portions of Section 24 and 25 in T17S, R9W and Section 19 and 30 in T17S, R8W, W.M., Lane County

Protected Waters: Medium Type F (Pat Creek)
Medium Type F (Pat Creek Tributary)
Small Type F (Pat Creek Tributary)

Activity: Cable yarding within 100 feet of a medium and small Type F stream for approximately 1,500 feet (Pat Creek and Pat Creek Tributary).

Protection Measures:

Cable Yarding:

- No cutting will take place within approximately 100 feet of the stream (either side) except for any cable corridors that may be needed or for safety purposes.
- Any tree requiring to be felled for either corridors or safety reasons that is within the stream RMA (beyond the Timber Sale Boundary signs) will be felled away from the stream if safe to do so and left where they fall.
- Corridors through the RMA, if necessary, will be at least 100 feet apart (within the RMA).
- All lines will be re-spooled and then restrung for each new corridor.

Prepared By: Morgan Kawakami
Roads Specialist

Date: October 04, 2022