

# PART III: EXHIBITS

State Timber Sale Contract  
No. 341-16-73  
Aha Pataha

EXHIBIT B

Page 1 of 3  
629-Form 341-203  
Revised 06/97

## OREGON DEPARTMENT OF FORESTRY

### TIMBER SALE OPERATIONS PLAN

(See Page 2 for instructions)

Date Received by STATE: \_\_\_\_\_

(5) State Brand Information (complete):



(1) Contract No.: 341-16-73

(2) Sale Name: Aha Pataha

(3) Contract Expiration Date: March 31, 2018

Project Completion Dates: \_\_\_\_\_

(4) Purchaser: \_\_\_\_\_

(6) Purchaser Representatives:

Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____

(7) State Representatives:

Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____

(8) Name of Subcontractors & Starting Dates:

Projects: No(s) _____ - _____	Date: _____	Phone: _____
No(s) _____ - _____	Date: _____	Phone: _____
No(s) _____ - _____	Date: _____	Phone: _____
No(s) _____ - _____	Date: _____	Phone: _____
Logging: Felling _____	Date: _____	Phone: _____
Yarding: _____	Date: _____	Phone: _____

(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.

EXHIBIT B  
INSTRUCTION SHEET FOR OPERATIONS PLAN

**SUBMIT ONE COPY OF PLAN TO 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.

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 those required by the timber sale contract. Provide spur road specifications.
  - 3. Location of proposed tractor yarding roads. Show if and how marked on the ground.
  - 4. Location of temporary stream crossings.
  - 5. List the sequence of performing project work.
  - 6. Location of rock sources - attach pit development plans.



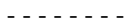
Cable Landing, with numbers for sequence.



Tractor Landing with alphabetical sequence.



Approximate setting boundary.



Spur truck roads.



Tractor yarding roads.



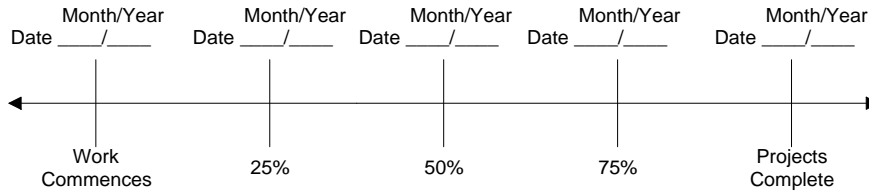
Temporary stream crossings.

EXHIBIT B  
OPERATIONS PLAN

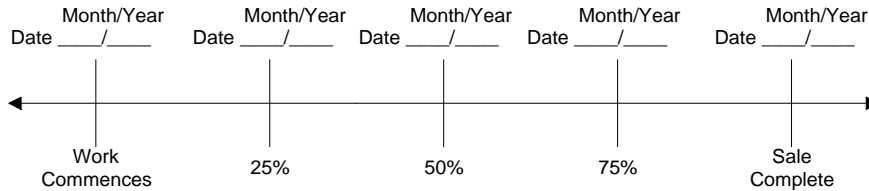
**Completion Timeline**

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, PURCHASERS 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 \_\_\_\_\_

Original: Salem  
cc: District File  
Purchaser



**EXHIBIT C – SAWMILL GRADE**  
INSTRUCTIONS FOR FORM 343-307a (rev. 11/11)

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

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

Pacific Rim Log Scaling Bureau, Inc.  
8288 28<sup>th</sup> Court North East, Lacey, WA 98516  
Phone: (360) 528-8710 Fax: (360) 528-8718  
Email: [office@prlsb.com](mailto: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](mailto: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: [yamhill@attglobal.net](mailto:yamhill@attglobal.net)

Northwest Log Scalars, Inc.  
5526 NE 122<sup>nd</sup> Ave, Portland, OR 97230  
Phone: (503) 254-0600 Fax: (503) 408-0919  
Email: [info@nwlogscalars.com](mailto:info@nwlogscalars.com)

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

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

### EXHIBIT C – PULP SORT

#### PROCESSING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

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

(2) TO: \_\_\_\_\_  
(Approved Pulp Processing Facility)

(3) FROM: Western Lane (03) Phone 541 935-2283  
(State Forestry District)

(4) PURCHASER: \_\_\_\_\_

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

\_\_\_\_\_

Mailing Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

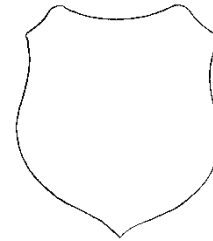
(9) SALE NAME: Aha Pataha

COUNTY: Lane

(10) STATE CONTRACT NUMBER: 341-16-73

(11) STATE BRAND REGISTRATION NUMBER \_\_\_\_\_

(12) STATE BRAND INFORMATION: (COMPLETE BELOW)



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

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

(13) REMARKS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

(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.

Operator's Name (Optional inclusion by District):

\_\_\_\_\_

(14) SIGNATURES:

\_\_\_\_\_  
Purchaser or Authorized Representative Date

\_\_\_\_\_  
State Forester Representative Date

\_\_\_\_\_  
State Forester Representative PRINT NAME

(8) TPSO PROCESSING INSTRUCTIONS

- Mail to ODF weekly.
- Convert to mbf using 10 tons per mbf.

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

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

**EXHIBIT C – PULP SORT**  
INSTRUCTIONS FOR FORM 343-307b (rev. 11/11)

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

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

Pacific Rim Log Scaling Bureau, Inc.  
8288 28<sup>th</sup> Court North East, Lacey, WA 98516  
Phone: (360) 528-8710 Fax: (360) 528-8718  
Email: [office@prlsb.com](mailto: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](mailto: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: [yamhill@attglobal.net](mailto:yamhill@attglobal.net)

Northwest Log Scalers, Inc.  
5526 NE 122<sup>nd</sup> Ave, Portland, OR 97230  
Phone: (503) 254-0600 Fax: (503) 408-0919  
Email: [info@nwlogscalers.com](mailto:info@nwlogscalers.com)

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

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

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

EXHIBIT D  
 FOREST ROAD SPECIFICATIONS

ROAD	SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STATION TO STATION	DRAINAGE
SPUR 1	16	12	to	0+00 to 31+00	Ditched
SPUR 2	16	12	to	0+00 to 40+00	Ditched
SPUR 2a	14	12	to	0+00 to 3+00	Outsloped
SPUR 2b	14	12	to	0+00 to 4+80	Outsloped
SPUR 3	14	12		0+00 to 3+80	Outsloped
Mid Bulmer	14	12		0+00 to 14+00	Outsloped
Penn Tie Rd	16	12		All Segments	Ditched
18-7-23.1	16	12		All Segments	Ditched

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 cutslope 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 cutslopes shall be removed. Grubbing debris shall not be placed or permitted to remain in or under any road embankment sections. Grubbing debris shall not be left lodged against standing trees.

GRUBBING CLASSIFICATION.

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

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

CLEARING AND GRUBBING DISPOSAL. Scatter in stable locations through openings in the timber outside of the cleared right-of-way, except areas where end-haul is required. In areas where end-haul is required, clearing and grubbing debris shall be fully contained and hauled to a designated waste area. Clearing and grubbing debris shall be left in a stable location, and not left lodged against standing trees.



EXHIBIT D

FOREST ROAD SPECIFICATIONS

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

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

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

Suitable excavated material shall be used for the formation of fills, shoulders, and drainage structure backfills. Embankment materials shall be free of woody debris, brush, muck, sod, frozen material, and other deleterious materials.

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

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

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

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

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

DRAINAGE

Subgrade. Subgrade shall be crowned, outsloped, or insloped as specified by STATE 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, 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

Solid Rock

Fractured Rock

Soil - side slopes 50% and over

Soil - side slopes less than 50%

Back Slopes

Vertical to ¼:1

(½):1

(¾):1

(¾):1

Fill Slopes

(1½:1)

(1½:1)

Top of cutslope shall be rounded where specified by STATE.

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

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

SEASONAL WINTERIZATION. All unsurfaced roads or unfinished subgrades shall be waterbarred in accordance with the specifications in Exhibit N, and blocked from vehicular traffic prior to October 31, annually and as directed by STATE.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD CONSTRUCTION INSTRUCTIONS:

- (1) Timber Removal. Remove all trees within posted right-of-way boundary or individually marked with a blue "C", as specified in Section 2210, "Designated Timber."
- (2) 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.
- (3) 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.
- (5) 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, outsloped, or insloped 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, outsloped, or insloped at 4 to 6 percent.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

**Spur 1 as shown on Exhibit A (Stationing 0+00 to 31+00)**

**Subgrade Instructions for Spur 1:**

0+00 to 31+00 Clear and grub. Approx. 30 feet wide of clearing and grubbing is anticipated.

Where the road prism exists on top of the ridge or gentle slopes, stumps may be wasted in openings and gaps away from the toe of the fill in stable locations. All other locations, stumps shall be wasted on the cut slope side of the road prism in openings and gaps in stable locations.

Stumps shall not be lodged against any trees.

Construct the subgrade. A balanced cut and fill is anticipated throughout the majority of the construction. All fill material shall be clean soil, free from organic debris. Any excess material needed to construct the subgrade, standard drifting or end-haul techniques shall be used. Full bench shall occur on side slopes greater than 50 percent.

Ditchouts shall be used when possible and cross drain 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 provide extra surfacing rock allocated over the culvert on the running surface, or compact the soil with a tamping device. The goal is to provide an adequate support above and around the culvert to produce a viable running surface.

Install steel culvert markers at the inlet of each culvert. Each culvert marker should be painted with high visibility paint.

Clean Pit run/Riprap, free of soil and debris, shall be used as an energy dissipator at the end of each culvert outlet that drains onto a fill. Install energy dissipater as outlined in Exhibit G.

The subgrade shall be compacted according to Exhibit F and in lifts where fills are used to produce adequate stability.

The subgrade shall be widened around the horizontal curves to account for offtracking. The operator shall minimize vertical and horizontal curve where possible.

0+00 to 19+60 The subgrade shall be crowned at 4 percent with a 3'x1' ditch.

19+60 to 20+50 The subgrade shall be insloped at 4 percent with a 3'x1' ditch.

20+50 to 25+00 The subgrade shall be crowned at 4 percent with a 3'x1' ditch.

25+00 to 31+00 The subgrade shall be outsloped at 6 percent.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

- At 7+30 May conduct a ramp down fill and utilize the waste from the previous stations. Excess material from the previous stations may be drifted to this location and sidecast into a waste area. The waste area shall be compacted and sloped 6% for drainage.
- 7+30 to 10+80 Install Geotextile fabric as needed or as directed by STATE. The fabric may be moved or re-located for its use in more critical locations.
- At 14+50 Logger option spur Intersect.
- 26+00 to 29+50 Install Geotextile fabric as needed or as directed by STATE. The fabric may be moved or re-located for its use in more critical locations.
- 0+00 to 31+00 Construct purchaser determined Landings. The purchaser shall determine the location of each Landing, each Landing shall be approved by STATE. The STATE anticipates 4 Landings will be necessary. The Landings shall be no greater than 50 feet wide for ground-base operations and 70 feet wide for cable. Refer to the logging plan for potential Landing locations.

**Consult with STATE prior to constructing spur 1.**

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

**Rocking Instructions for Spur 1:**

- 0+00 to 7+00 Apply a compacted depth of 6" of 3"-0" base rock and 3" of ¾"-0" cap rock.
- 7+00 to 18+00 Apply a compacted depth of 6" of 3"-0" base rock and 2" of 1 ½"-0" cap rock.
- 18+00 to 25+00 Apply a compacted depth of 6" of 3"-0" base rock and 3" of ¾"-0" cap rock.
- 25+00 to 31+00 Apply a compacted depth of 8" of 3"-0" base rock.
- 0+00 to 31+00 The running surface shall be sloped for drainage according to the subgrade specifications for that portion.
- Apply additional rock for offtracking as directed by STATE.
- Apply 30 Cu. Yds. of Jaw Run of Landing rock for each Landing.

**Spur 2a as shown on Exhibit A (Stationing 0+00 to 3+00)**

**Instructions:**

- 0+00 to 3+00 Clear and grub. Waste stumps in openings and gaps in stable locations.
- The subgrade shall be outsloped 4 percent to allow for adequate drainage.
- Compact the subgrade according to Exhibit F.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

Apply a compacted depth of 8" of 3"-0" rock.

At 3+00

Construct a Landing.

Apply 30 Cu. Yds. of Jaw Run for Landing rock.

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

**Spur 2b as shown on Exhibit A (Stationing 0+00 to 4+80)**

**Instructions:**

0+00 to 4+80

Clear and grub. Waste stumps in openings and gaps in stable locations.

The subgrade shall be outsloped 4 percent to allow for adequate drainage.

Compact the subgrade according to Exhibit F.

Apply a compacted depth of 8" of 3"-0" rock.

Approx. 1+40

Install a 30" culvert at the stream crossing according to Exhibit G. Approximately 2 feet of fill is required over the stream crossing to minimize the vertical curve. Apply armoring rock to the outlet drop to protect from erosion. The armoring rock shall be Riprap quality rock that is free draining and clean of debris.

Each culvert shall be backfilled with some crushed rock, or provide extra surfacing rock allocated over the culvert on the running surface, or compact the soil with a tamping device. The goal is to provide an adequate support above and around the culvert to produce a viable running surface.

At 4+80

Construct a Landing.

Apply 30 Cu. Yds. of Jaw Run for Landing rock.

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

**Spur 3 as shown on Exhibit A (Stationing 0+00 to 3+80)**

**Instructions:**

0+00 to 3+80

A ramp down of clean soil will be needed to properly construct the intersection of Spur 3. The STATE anticipates 200 yds. of material will be needed to construct the ramp down. Clean waste generated from the construction efforts of all the roads listed in this contract may be used to construct the ramp down. An alternative source of material may be proposed and approved in writing by a STATE representative.

Clear and grub. Waste stumps in openings and gaps in stable locations.

The subgrade shall be outsloped 4 percent to allow for adequate drainage.

Compact the subgrade according to Exhibit F.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

Apply a compacted depth of 8" of 3"-0" rock.

At 0+00

Install a cross drain on 18-7-23.1 Rd before the intersection of Spur 3.

Each culvert shall be backfilled with some crushed rock, or provide extra surfacing rock allocated over the culvert on the running surface, or compact the soil with a tamping device. The goal is to provide an adequate support above and around the culvert to produce a viable running surface.

At 3+80

Construct a Landing.

Apply 30 Cu. Yds. of Jaw Run for Landing rock.

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

EXHIBIT D  
FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- (1) Timber Removal. Remove all trees within posted Right-of-Way Boundary as specified in Section 2210, Designated Timber.
- (2) Roadside Brushing. Conduct roadside brushing as specified in Exhibit I.
- (3) Excavated Materials. Excavated materials shall be utilized for road and fill 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. Waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit F.
- (4) Bank Slough Removal. Dig out all bank slough. Bank slough material shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE.
- (5) 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. 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 of STATE land.
- (6) Drainage Ditches. Restore or construct ditchlines, including ditchouts, as directed by STATE. Clean out all culvert inlets and outlets for a 10-foot radius. Re-establish or construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE. Damaged culvert inlets and/or outlets shall be repaired by opening them with a hydraulic jack, or cutting off the culvert end to allow for free passage of water at peak flow levels. Install a culvert marker at each newly installed culvert and at each existing culvert that is missing a marker that could be reached by a grader blade.
- (7) 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. Ditchline armor and settling pond armor shall be 8 inches deep.
- (8) 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.

EXHIBIT D  
FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- (9) Subgrade Preparation and Application of Surfacing Rock.
- (a) Complete culvert installations, drainage ditches, fill reconstruction, ditchouts, and other specified work prior to the application of new surfacing rock.
  - (b) Cut out all potholes and/or washboard sections from the existing surfacing.

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

**Spur 2 as shown on Exhibit A (Stationing 0+00 to 40+00)**

**Instructions:**

0+00 to 40+00

**Re-construct.**

Clear and grub. Waste stumps in openings and gaps in stable locations.

The subgrade shall be crowned at 4% percent with a 3'x1' ditch.

The subgrade shall be compacted according to Exhibit F and in lifts where fills are used to produce adequate stability.

The subgrade shall be widened around the horizontal curves to account for offtracking.

Ditchouts shall be used when possible and cross drain 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 provide extra surfacing rock allocated over the culvert on the running surface, or compact the soil with a tamping device. The goal is to provide an adequate support above and around the culvert to produce a viable running surface.

Install steel culvert markers at the inlet of each culvert. Each culvert marker should be painted with high visibility paint.

Construct purchaser determined Landings. The purchaser shall determine the location of each Landing, each Landing shall be approved by STATE. The STATE anticipates 4 Landings will be necessary. The Landings shall be no greater than 50 feet wide for ground-base operations and 70 feet wide for cable. Refer to the logging plan for potential Landing locations.



EXHIBIT D

FOREST ROAD SPECIFICATIONS

Each Landing shall have at least 30 Cu. Yds. of Landing rock delivered, spread, shaped and compacted.

Approx. 5+50 Install new cross drain before the stream crossing.

Approx. 20+00 Old cross drain. Clean out inlet, outlet, and catch basin.

Approx. 27+20 Old cross drain. Clean out inlet, outlet, and catch basin.

Approx. 33+10 Old cross drain. Clean out inlet, outlet, and catch basin.

Approx. 38+40 Old cross drain. Clean out inlet, outlet, and catch basin.

At 40+00 **New construct.**

Clear and grub. Waste stumps in openings and gaps in stable locations.

The subgrade shall be sloped to allow for adequate drainage.

Compact the subgrade according to Exhibit F.

Construct a Landing.

40+00 also serves as a waste area for the culvert removal at project point A. The waste may be incorporated into the construction efforts of the Landing, or piled separately in a location that won't interfere with logging.

The running surface shall be sloped for drainage according to the subgrade specifications for that portion.

Apply 30 Cu. Yds. of Jaw Run for Landing rock.

0+00 to 40+00 Apply a compacted depth of 6" of 3"-0" base rock and 2" of 1 ½"-0" cap rock.

The running surface shall be sloped for drainage according to the subgrade specifications for that portion.

Apply additional rock for offtracking as directed by STATE.

**Mid Bulmer as shown on Exhibit A (Stationing 0+00 to 14+00)**

**Instructions:**

0+00 to 14+00 **Re-construct.**

Clear and grub. Waste stumps in openings and gaps in stable locations.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

Remove all bank slough. Clean bank slough, free from organics, may be incorporated into the leveling of the project work conducted at Point B. Non suitable material shall be transported to a waste area approved by STATE.

The subgrade shall be outslope at 4 percent to allow for adequate drainage.

The subgrade shall be compacted according to Exhibit F.

The subgrade shall be widened around the horizontal curves to account for offtracking. Refer to the table below for the minimum offtracking specifications.

Approx. 9+00

Open up existing Landing.

Apply 50 Cu. Yds. of Jaw Run for Landing rock.

10+00 to 14+00

Conduct cutslope rounding. Remove all material overhanging the cutslope and slope back the top of the cut slope to reduce the risk of material deteriorating down to the road surface.

Clean material, free from organics, may be incorporated into the leveling of the project work conducted at Point B. Non suitable material shall be transported to a waste area approved by STATE.

AT 14+00

Open up existing Landing.

Apply a compacted depth of 6" of 3"-0" base rock and 2" of 1 ½"-0" cap rock.

Apply 50 Cu. Yds. of Jaw Run for Landing rock.

**18-7-23.1 as shown on Exhibit A (Point B)**

**Instructions:** Construct a turn/truck turn around.

- Clear and grub the site.
- Use the clean waste from the Mid Bulmer Rd to level out the location. An alternative source of material may be proposed and approved in writing by a STATE representative.
- The intersection of 18-7-23.1 and 18-7-16 roads shall be built to facilitate turnaround operations of a standard loaded truck from the Mid Bulmer spur.
- The curve shall be at a minimum a 50 foot radius curve.
- Install new cross drain that drains away from the Turn. Remove the existing cross drain and haul culvert to an approved disposal site off of STATE lands.
- Compact the subgrade according to Exhibit F.
- Apply a compacted depth of 8" of 3"-0" rock for the surfacing material.

EXHIBIT D  
FOREST ROAD SPECIFICATIONS

**Point D as shown on Exhibit A**

**Instructions:** Repair Gate at railroad crossing.

- Re-align the post containing the lock box with the gate.
- Ensure all posts are adequately secure and stable for use.
- Use concrete to stabilize the post.
- Re-establish Guylines as needed.
- Paint all exposed portions of metal. Metal shall be primed prior to painting.

EXHIBIT D

FULL BENCH AND END-HAUL REQUIREMENTS

Road	Side Slopes	CONTAINMENT - SIDECAST	WASTE AREA LOCATION	WASTE AREA TREATMENT
Spur 1	Greater than 50%	(3, 4)	(1)&(2)	(1)&(2)
Mid Bulmer Spur	Greater than 50%	(2)	(1)&(2)	(1)&(2)

Full Bench and 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.
- (4) Some Incidental sidecast shall be allowed in the construction efforts of full bench portions. The sidecast **shall not** serve as the subgrade width. The total quantity of sidecast allowed shall be determined by the STATE and any sidecast in the opinion of the STATE found in excess shall be pulled back and End Hauled to an approved Waste Area.

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 and as marked in the field.
- (2) As directed by STATE in writing.

Waste Area Treatment

- (1) Deposit at waste area, spread evenly, and provide adequate drainage.
- (2) Pile woody debris separate from other waste material.

EXHIBIT E  
 ROAD SURFACING

ROAD	ROCK TYPE	SIZE OF ROCK	COMPACTED DEPTH	APPROX. YDS <sup>3</sup> /STA	STA. TO STA OR POINT TO POINT	TOTAL CU. YDS.
SPUR 1	BASE	3" - 0"	6"	33	0+00 to 7+00	231
SPUR 1	CAP	¾" - 0"	3"	17	0+00 to 7+00	119
SPUR 1	BASE	3" - 0"	6"	33	7+00 to 18+00	363
SPUR 1	CAP	1 ½" - 0"	2"	11	7+00 to 18+00	121
SPUR 1	BASE	3" - 0"	6"	33	18+00 to 25+00	231
SPUR 1	Cap	¾" - 0"	3"	17	18+00 to 25+00	119
SPUR 1	BASE	3" - 0"	8"	44	25+00 to 31+00	264
SPUR 2	BASE	3"-0"	6"	33	0+00 to 40+00	1320
SPUR 2	CAP	1 ½" - 0"	2"	11	0+00 to 40+00	440
SPUR 2a	BASE	3" - 0"	8"	44	0+00 to 3+00	132
SPUR 2b	BASE	3" - 0"	8"	44	0+00 to 4+80	211
SPUR 3	BASE	3" - 0"	8"	44	0+00 to 3+80	167
MID BULMER	BASE	3" - 0"	6"	33	0+00 to 14+00	462
MID BULMER	CAP	1 ½" - 0"	2"	11	0+00 to 14+00	154
<b>TURNAROUNDS:</b>			<b>NO. OF T.A.</b>	<b>Cu. Yds.</b>		
18-7-23.1	BASE	3"-0"	1	50	POINT B	50
18-7-23.1	CAP	1 ½" - 0"	1	10	POINT B	10
Spur 2	Base	Jaw Run	2	40	Determined by STATE	40
<b>LANDINGS AND JUNCTIONS:</b>					<b>NO. OF Landings</b>	
SPUR 1	BASE	Jaw Run	6"	33	4	132
SPUR 2	BASE	Jaw Run	6"	33	4	132
SPUR 2a	BASE	Jaw Run	6"	33	1	33
SPUR 2b	BASE	Jaw Run	6"	33	1	33
SPUR 3	BASE	Jaw Run	6"	33	1	33
Mid Bulmer	BASE	Jaw Run	6"	50	2	99

EXHIBIT E  
 ROAD SURFACING

MISCELLANEOUS: (Curve Widening, Riprap)		SIZE OF ROCK	AMOUNT	POINT TO POINT	LOCATION	
SPUR 1	Curve Widening	1½"-0"	220		As directed by STATE	220
SPUR 1	Energy Dissipator	Pit Run	40		As directed by STATE	40
SPUR 2	Curve Widening	1½"-0"	70		As directed by STATE	70
SPUR 2b	Riprap	Free Draining 24"-0"	10	Sta. 1+40	Culvert Outlet	10

ROCK TOTALS	Rip Rap	Pit Run/Jaw Run	3" - 0"	1½" - 0"	¾" - 0"
Cu. Yds.	10	542	3431	1015	238

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

Depth measurement shall be used to determine contract compliance.

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.

EXHIBIT E

DURABLE CRUSHED ROCK SPECIFICATIONS

Grading Requirements

<u>For 3/4"-0"</u>	Passing	1" sieve	100%
	Passing	3/4" sieve	90-100%
	Passing	3/8" sieve	55-75%
	Passing	1/4" sieve	40-60%
	Passing	No. 10 sieve	20-40%
	Passing	No. 40 sieve	8-16%
<u>For 1½"-0"</u>	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%
<u>For 3"-0"</u>	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%
<u>For Jaw-Run</u>	Passing	6" sieve	100%
	Passing	3" sieve	45-65%
<u>For 6"-0" Pit-Run</u>	Passing	10" sieve	100%
	Passing	6" sieve	60-85%
	Passing	3" sieve	30-50%
	Passing	1/4" sieve	0-20%

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

Control of gradation shall be by visual inspection by STATE.



EXHIBIT F

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 and Instructions" located in Exhibit D.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
SPUR 1, SPUR 2, SPUR 2a, SPUR 2b, SPUR 2, MID BULMER, 18-7-23.1	(1)

Fills. Embankments and fills shall be placed in approximately horizontal layers not more than 8 inches in depth. Each layer shall be separately, and thoroughly, compacted. Compaction equipment shall be operated over the entire width of each layer until visible deformation of the layers ceases. At least 3 passes shall be made over the entire width and length of each layer.

Placing individual rocks or boulders with more depth than the allowed layer thickness shall be permitted, provided the embankment will accommodate them. Such rocks and boulders shall be at least 6 inches below the subgrade. They shall be carefully distributed and the voids filled with finer material, forming a dense and compacted mass.

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

EXHIBIT F

COMPACTION AND PROCESSING REQUIREMENTS

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

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.

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) steel.

Aluminized (Type 2) steel culverts shall meet the requirements of AASHTO M-36-03<sup>1</sup>.

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 in excess of 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.

Backfill shall consist of, crushed rock, rock crusher reject, or job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the culvert. Backfill material chosen must be adequate material used to produce a viable running surface. If crushed rock is not used, additional rock shall be placed above the culvert on the surfacing material to accommodate for compacting and consolidation.

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".

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 end 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.

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.

EXHIBIT G

CULVERT SPECIFICATIONS

All cross drains, stream crossings, or any culverts requiring removal shall become the property of the PURCHASER and shall be removed from state lands to an approved disposal site. The void space from the removal of the drainage structure shall be rehabbed according to the guidance of the STATE in writing.

Abandoned stream crossings shall have all fill material removed from the stream channel and sloped back to its natural gradient unless otherwise specified by the STATE. Exposed soil shall be mulched and seeded according to the specifications in Exhibit K "Seeding and Mulching."

The intake ends of culverts in fills less than 3 feet to the top of the culvert shall be mark 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.

<u>Dia.</u>	<u>Steel Culvert</u>	<u>Thickness</u>		<u>Band Gauges</u>	<u>Band Widths ("</u>	
	<u>Gauge</u>	<u>Uncoated</u>	<u>Coated</u>		<u>Annular</u>	<u>Helical</u>
12-15	16	(0.0598")	(0.064")	16	7	12
18-24	16	(0.0598")	(0.064")	16	12	12
30-36	16	(0.0598")	(0.064")	16	12	12
42	14	(0.0747")	(0.079")	16	12	12
48	14	(0.0747")	(0.079")	16	24	24
54	14	(0.0747")	(0.079")	16	24	24
60	12	(0.1046")	(0.109")	16	24	24
66-72	12	(0.1046")	(0.109")	16	24	24
78	12	(0.1046")	(0.109")	16	24	24
84	12	(0.1046")	(0.109")	16	24	24
90-120	12	(0.1046")	(0.109")	16	26	26

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

EXHIBIT G  
 CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	APPROX. LENGTH (Feet)	MATERIAL TYPE	GAUGE	ROAD SEGMENT
Spur 1	18	40	ACSP	16	Determined by STATE
Spur 1	18	40	ACSP	16	Determined by STATE
Spur 1	18	40	ACSP	16	Determined by STATE
Spur 1	18	40	ACSP	16	Determined by STATE
Spur 1	18	40	ACSP	16	Determined by STATE
Spur 1	18	40	ACSP	16	Determined by STATE
Spur 2	18	40	ACSP	16	Approx. 5+50
Spur 2	18	40	ACSP	16	Determined by STATE
Spur 2	18	40	ACSP	16	Determined by STATE
Spur 2b	30	40	ACSP	16	Approx. 1+40
18-7-23.1	18	40	ACSP	16	Intersection of Spur 3
18-7-23.1	18	40	ACSP	16	At Point B

ACSP = Aluminized, CPP = Polyethylene, GCSP = Galvanized

The actual in place length shall be adjusted to fit within the road prism. On site conditions may differ from the lengths provided thus requiring shortening or lengthening.

EXHIBIT G  
TYPICAL EMBEDDED ENERGY DISSIPATOR

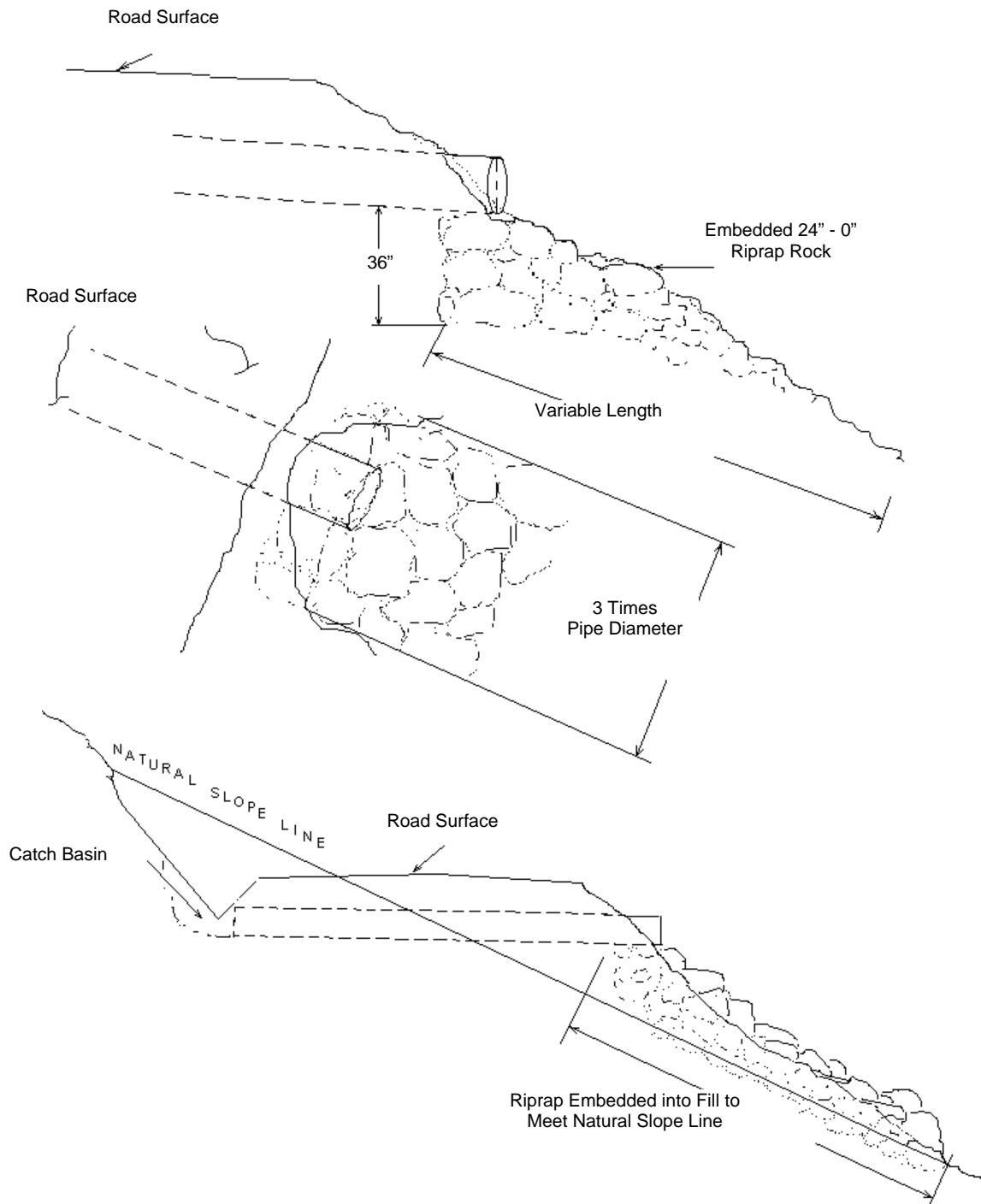


EXHIBIT H

GEOTEXTILE SPECIFICATIONS

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

- |                       |            |                 |
|-----------------------|------------|-----------------|
| 1. Grab Tensile       | (200) lbs. | ASTM D4623;     |
| 2. Puncture strength  | (90) lbs.  | ASTM D4833;     |
| 3. Mullen Burst       | (400) lbs. | ASTM D3786; and |
| 4. Width – 12.5 feet. |            |                 |

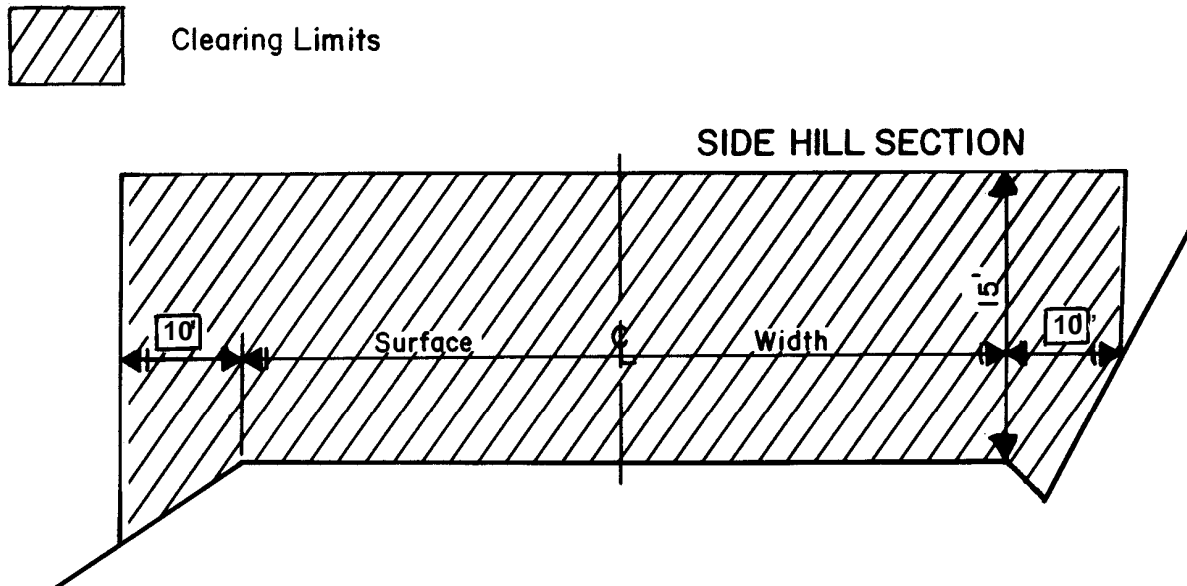
INSTALLATION REQUIREMENTS - fabric shall be installed according to the following requirements:

1. Subgrade surface shall be leveled and smoothed to remove humps and depressions which exceed 6 inches in height and depth. Small pieces of woody debris shall be removed. Light vegetation (grass, weeds, leaves, and fine woody debris) may be left in place.
2. Fabric shall be installed directly on the prepared surface. Longitudinal and traverse joints shall be overlapped at least 3 feet.
3. Surfacing course material shall be placed to the designated thickness in one lift and spread in the direction of fabric overlap. Hauling and spreading equipment shall not be operated on the fabric until the total thickness of surfacing course material is placed.
4. Torn, punctured, or separated sections of the fabric shall be repaired by installing a fabric patch over the break prior to placing the surfacing course material. The patch shall be at least 4 feet larger in horizontal dimensions than the break to be repaired.
5. Should STATE determine that installation of woven fabric on roads or portions of roads is not necessary, PURCHASER shall deliver an equivalent amount of woven road fabric to STATE.
6. Fabric locations:

Road Segment	Location
Spur 1	Sta. 7+30 to 10+80 As directed by STATE
Spur 1	26+00 to 29+50 As directed by STATE

The STATE may choose to allocate the fabric in a different location to meet STATE objectives as the construction efforts unfold.

EXHIBIT I  
ROAD BRUSHING SPECIFICATIONS



**Specific Road Brushing Location: Penn Tie Rd between Point C and D.**

Brush between Point C and D as shown on Exhibit A in accordance to the requirements bellow.

**REQUIREMENTS**

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

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

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



EXHIBIT I

ROAD BRUSHING SPECIFICATIONS

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

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

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

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

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

EXHIBIT J

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Description of Work to be done

PURCHASER shall expend 127 hours of track-mounted excavator (with a clam shell attachment unless otherwise approved by the STATE) time on the Aha Pataha Timber Sale Areas for the purpose of "in unit" brush and slash piling as directed by STATE. If STATE determines that fewer hours are needed, PURCHASER shall pay STATE \$165 per hour of each hour not authorized. Landing piles do not count towards the 127 hours of time.

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

Clearing – Brush i.e., vine maple, logging Slash, and other debris shall be cleared from planting sites and piled in windrows or piles, so that 80 percent or more of the soil organic layer is exposed. All woody vegetation other than trees is defined as brush in this exhibit.

Piles - shall be located inside the project area designated for piling and shall be more than 30 feet from any edge, property line, or standing conifer tree. Piles shall be conical in shape and built to a height of 8 to 10 feet and then covered to prevent water from reaching the Slash. Each pile shall be covered with 100 square feet (10' x 10') of 4 mil thick plastic provided by the PURCHASER. The plastic covering shall be positioned on the top of the pile and have all four corners and the middle well secured to the pile with string, wood chunks, or a combination of the two.

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

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

Residual Logs – All logs that do not meet the standards for log removal under Section 2045 (Log Removal) and are greater than 4" on the large end shall remain un-piled.

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

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

EXHIBIT J

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Equipment Type, Equipment Operation, and Conduct of Work

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

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

In Unit Piles:

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

Landing piles may use the following equipment:

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

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

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

Work Scheduling - work shall be accomplished only during dry weather conditions, and started within 14 calendar days after completion of yarding activities on Areas 1, and 2. Operations shall provide for continual operation until contract work is completed, unless interrupted by poor weather, fire closures, or other uncontrollable circumstances. Equipment breakdowns shall be repaired without undue delay, and provision shall be made for replacement of equipment to prevent prolonged delays. Piling operation shall not be allowed when operations might damage sites or affect stream flows. Any exception to these instructions must be authorized in writing by STATE.

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

EXHIBIT K

SEEDING AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed and straw mulch. Straw mulch shall consist of straw that is free of noxious weeds. Apply seed, and straw mulch to all bare soils resulting from Project No. 4.

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

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 in the amounts and mixtures specified. Hand-operated seeding devices may be used.

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 1½ inches. This rate requires 1 ton of dry mulch per acre.

APPLICATION LOCATIONS:

Road Segment	Location
Spur 2	Point A

EXHIBIT L

STREAM CROSSING REMOVAL AND ROAD VACATING

**Project # 4 at Project Point A**

**Instructions:**

Tree Removal. Cut or remove all trees necessary to access the project area and to facilitate vacating operations, as directed by STATE. Timber shall NOT be removed as designated timber, unless located within posted timber sale boundaries or right-of-way boundaries.

- Open up the existing road bed past 40+00 of Spur 2 to Cattle Creek. Minimize the access. Open up the existing road bed just enough to conduct operations.
- Remove the existing stream culvert in Cattle Creek. Removed culvert shall be hauled to an approved refuse site off of STATE land.
- Remove all fills to the natural stream course level. The stream bank shall be sloped back to its natural slope. The slope shall not exceed 1 ½:1 unless otherwise approved in writing by STATE.
- Waste material shall be wasted at an approved waste area as shown on Exhibit A or as determined by STATE.
- Trees cut for access shall be pulled across the open road bed during the vacating.
- All exposed bank surfaces shall be mulched and seeded including all portions of the opened road bed according to the specifications in Exhibit K.
- Create un-drivable waterbars every 50 feet.

Note: Refer to the "Project # 4" map provided in the Exhibits.

State Timber Sale Contract  
No. 341-16-73  
Aha Pataha

## EXHIBIT M

### STREAM ENHANCEMENT INSTRUCTIONS

**TREE SELECTION CRITERIA:** PURCHASER shall select trees from within the posted boundaries of the Timber Sale Area and shall be felled and bucked concurrent with normal felling and bucking activities. Trees shall not be obtained from stream buffers or Green Tree Retention Areas. PURCHASER may select low quality or deformed standing live trees as source of logs. Logs must meet the size specifications below.

**LOG SIZE SPECIFICATIONS:** All logs shall be at least 30 feet long and a minimum 16 inches diameter at the small end.

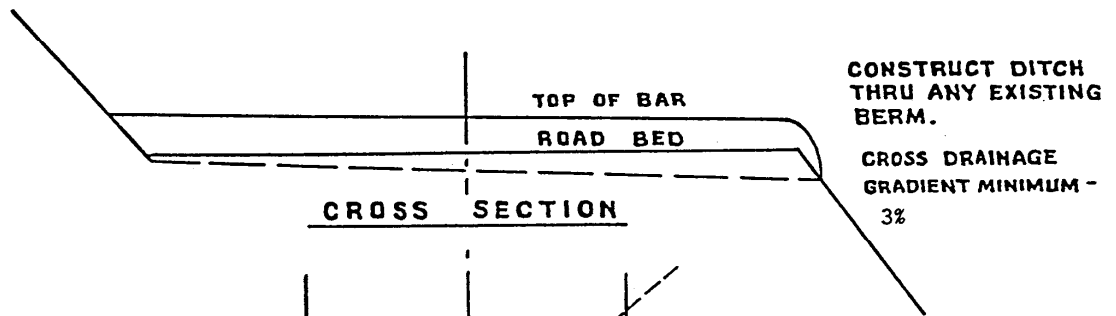
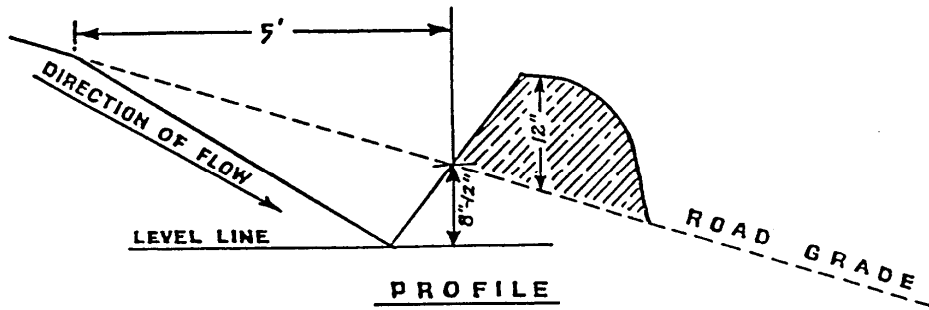
**LOG PLACEMENT SPECIFICATIONS:** Logs shall be placed in Cattle Creek in groups of four. A total of 12 logs will be placed in Cattle Creek. The log groups will be spaced out along the length of the stream reach. Logs will be placed in Cattle Creek where cable roads cross the streams in the course of normal logging activities. The large end of each log shall be placed in the active stream channel. Orientation of logs in the stream shall be determined by the STATE, however, the objective is to place as much of the log within the active channel to provide for instream habitat.

A STATE representative shall be present while conducting STREAM ENHANCEMENT activities.

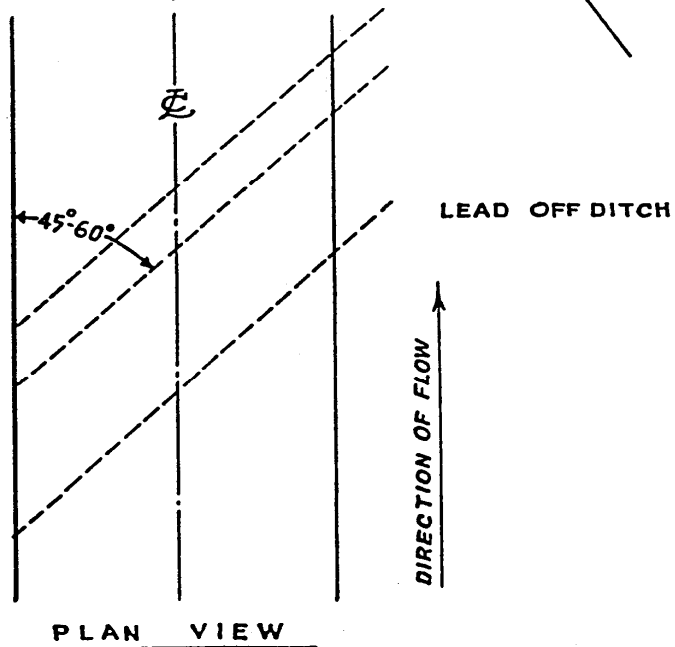
**Notification of Oregon Department of Fish and Wildlife:** PURCHASER shall notify STATE at least one week before log placement begins to allow ODF&W an opportunity to examine the proposed log placement sites.

EXHIBIT N

WATERBAR SPECIFICATIONS



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



**WATERBAR SPECIFICATIONS  
 FOR CROSS DITCHING #298**

EXHIBIT N  
TANK TRAP SPECIFICATIONS

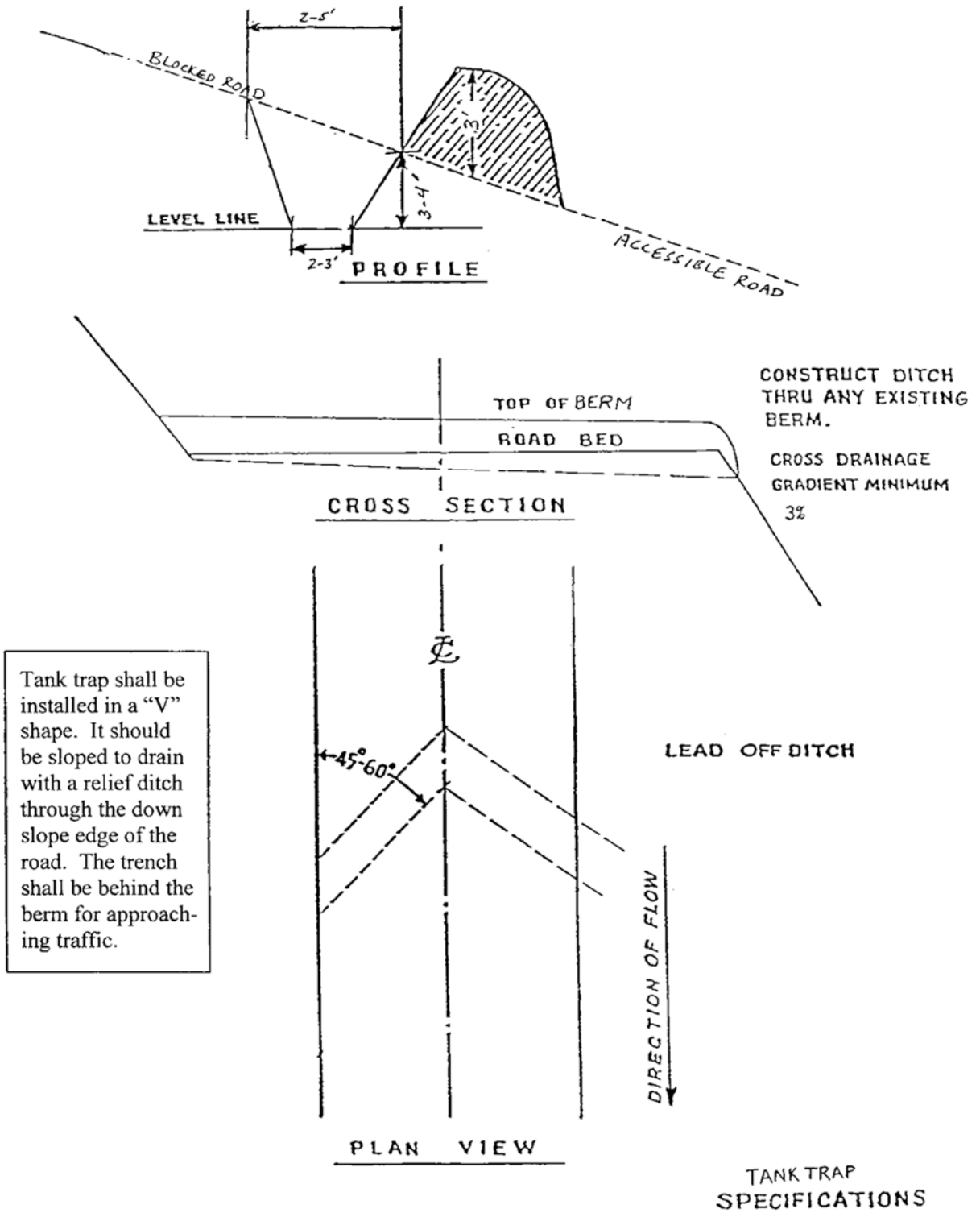
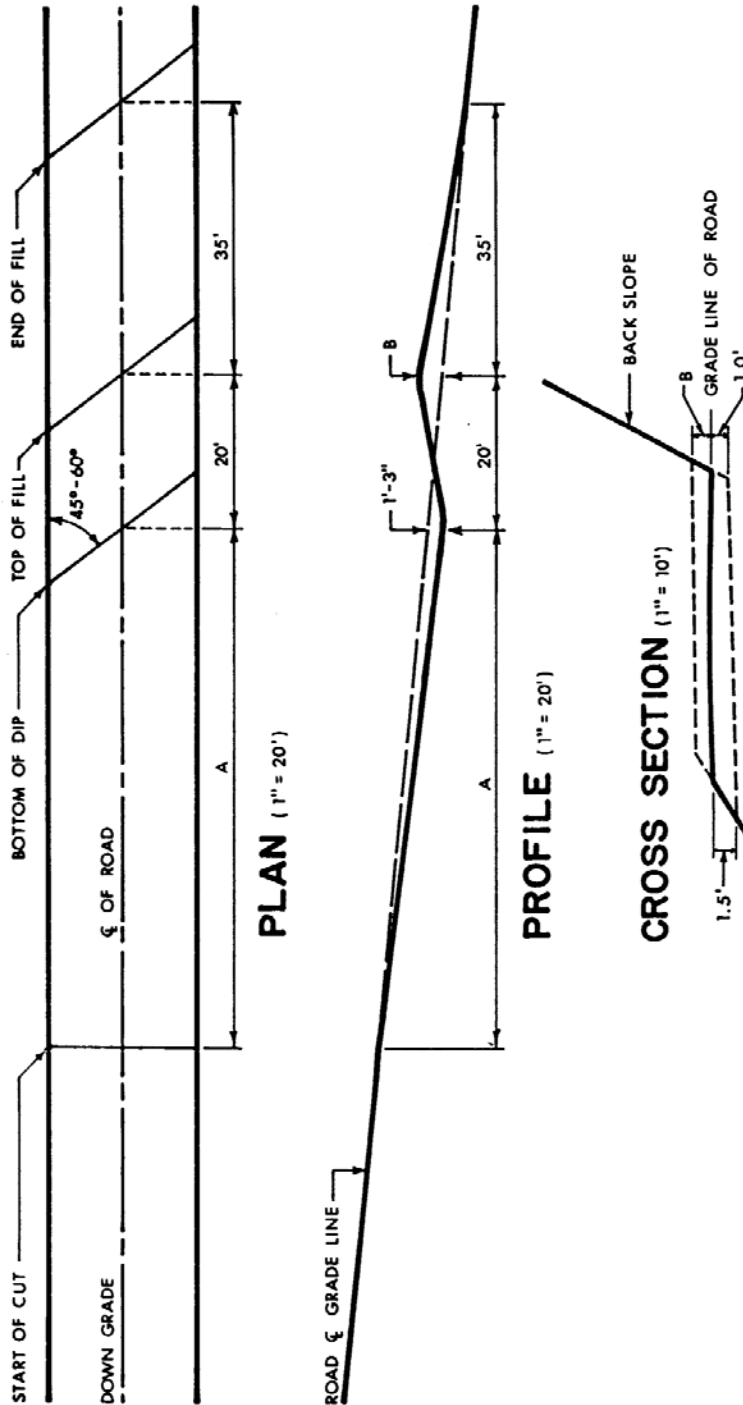




EXHIBIT N

ROAD DIP CONSTRUCTION SPECIFICATIONS



ROAD GRADE %		A	B
0%	- 5%	50'	1.0'
5%	- 10%	60'	1.5'
10%	- 15%	70'	2.0'
MORE THAN 15%		USE WATERBARS	

ROAD DIP CONSTRUCTION SPECIFICATIONS		APPROVED BY:	DRAWN BY FB
SCALE: NOTED	DATE: 10/14/80		REVISED
STATE OF OREGON DEPARTMENT OF FORESTRY 2600 STATE STREET SALEM OREGON 97310			DRAWING NUMBER <b>669</b>

846.111 PRINTED ON HD. 1600SR CLEARPRINT

EXHIBIT O

ROAD MAINTENANCE PROJECT # 3

Conduct standard maintenance on the following road systems according to the specifications in Exhibit D, E, F, G, H, I, K, N, and O as shown on Exhibit A:

<u>Road</u>	<u>Segment</u>	<u>Miles</u>
Nelson Tie	Point 100 to 104	0.93
Knapp Rd	Point 200 to 208	2.37
Chickahominy Rd	Point 300 to 301	1.12
Chicken Cr Rd	Point 400 to 404	1.70
South Chicken Rd	Point 500 to 506	1.52
Tilden Tie	Point 600 to 601	1.00

**NOTE: Refer to the road builder packet for a specific map showing the road segments, the project points, and known existing cross drains.**

Road maintenance will be subject to these requirements but not limited to them:

(a) Cut Banks and Fill Slopes.

- (1) Remove obstructions and fallen timber.
- (2) All cut bank and fill slope maintenance work shall be performed in such a manner that soil and vegetative material does not contaminate the road surface.
- (3) Remove all berms unless otherwise specified.

(b) Ditches.

- (1) Remove bank slough, minor slides, and obstructions.
- (2) Restore to functional drainage.
- (3) Minimize erosion and/or sediment delivery by placement and maintenance of filtering systems.
- (4) Soil and vegetative material shall not be pulled across the road surface.

(c) Drainage Systems.

- (1) Clear all culverts, including inlets, outlets, half rounds, and sediment catching basins.
- (2) Install steel culvert markers at all outlets that do not have one.
- (2) Maintain waterbars, drainage dips, and other water diversion measures.
- (3) Repair damaged culvert ends.
- (4) Pull the outside edge of the road where soil or organics have prevented drainage. Standard slope shall be approx.10%, create punch outs through berms, and establish ditchouts where possible.

(d) Road Surfaces.

- (1) Grade, shape, crown, and/or outslope surface and shoulders at such time that the moisture content will bind the rock surfacing. Rip potholes prior to grading.
- (3) Prevent contamination of road surface materials with soil and vegetative material.
- (4) Prevent road surface materials from being bladed off the road.
- (6) Oblique waterbars shall be created as directed by STATE.

EXHIBIT O

SPECIFIC ROAD MAINTENANCE INSTRUCTIONS

In accordance to the requirements above the PURCHASER shall:

**Nelson Tie Rd (0.93 mile, Points 100 to 104)**

Note: Operator must contact Blachly Lane prior to doing any excavation. There are buried powerlines that are within the road prism.

Project Points	Instructions
100 to 101	<p>Re-establish at a minimum a 2'x1' ditch. Remove bank slough, minor slides, and obstructions.</p> <p>Pull ditchlines and outside edge of the roadway. Establish 10% sloped drainage on the outside edge of the road.</p> <p>Remove all berms on the outside edge of the roadway.</p> <p>Find all old cross drains, unplug them, create a catch basin, and install a culvert marker.</p> <p>Note: The existing cross drains appear to be 12" in diameter.</p> <p>Do not sidecast any material within this stretch. All incidental sidecast from the maintenance operation must be removed.</p> <p>Use a combination of grading, creating oblique waterbars, and waterbars as needed to produce adequate drainage off the road surface. Where grading and shaping alone will not produce adequate drainage, use oblique waterbars to divert the water off the surface. Oblique waterbars shall be attempted prior to the construction of full waterbars.</p> <p>Waste all material at an approved waste area determined by STATE. Alternative waste areas shall be approved by STATE in writing.</p>
102 to 103	<p>This portion is rutted with nonfunctioning waterbars. Grade out all ruts and waterbars and install functioning drivable waterbars according to the specifications in Exhibit N every 100 feet.</p> <p>Remove all berms on the outside edge.</p> <p>Re-establish at a minimum a 2'x1' ditch. Remove bank slough, minor slides, and obstructions.</p> <p>Find all old cross drains, unplug them, create a catch basin, and install a culvert marker.</p> <p>Do not sidecast any material within this stretch. All incidental sidecast from the maintenance operation must be removed.</p> <p>Waste all material at an approved waste area determined by STATE. Alternative waste areas shall be approved by STATE in writing.</p>
100 to 104	<p>Is subject to the standard road maintenance requirements as outlined above on Page 1.</p> <p>Grade and shape all portions of roads unless otherwise approved by STATE in writing.</p>

EXHIBIT O

SPECIFIC ROAD MAINTENANCE INSTRUCTIONS

**Knap Rd (2.37 miles, Points 200 to 208)**

Project Points	Instructions
200 to 201	<p>Re-establish at a minimum 2'x1' ditch. Remove bank slough, minor slides, and obstructions.</p> <p>Find all cross drains, clean inlet, outlet, and catch basin. Install a steel culvert marker for all culverts that do not have one.</p> <p>Pull ditchlines and outside edge of the road. Establish appropriate drainage off the subgrade and roadway.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface.</p> <p>Organics clean from soil may be scattered in stable locations as determined by STATE. All other material shall be end hauled.</p> <p>Waste all material at an approved waste area determined by STATE. Alternative waste areas shall be approved by STATE in writing.</p>
202 to 203	<p>Re-establish at a minimum 2'x1' ditch. Remove bank slough, minor slides, and obstructions.</p> <p>Find all cross drains, clean inlet, outlet, and catch basin. Install a steel culvert marker for all culverts that do not have one.</p> <p>Pull ditchlines and outside edge of the road. Establish appropriate drainage off the subgrade and roadway.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface.</p> <p>Organics clean from soil may be scattered in stable locations as determined by STATE. All other material shall be end hauled.</p> <p>Waste all material at an approved waste area determined by STATE. Alternative waste areas shall be approved by STATE in writing.</p>
204 to 205	<p>Re -establish at a minimum 2'x1' ditch. Remove bank slough, minor slides, and obstructions.</p> <p>Find all cross drains, clean inlet, outlet, and catch basin. Install a steel culvert marker for all culverts that do not have one.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface</p> <p>Waste all material at an approved waste area determined by STATE. Alternative waste areas shall be approved by STATE in writing.</p>
205 to 206	<p>No major maintenance expected. Maintain outslope drainage, remove any blockages.</p>
206 to 207	<p>Re -establish at a minimum 2'x1' ditch. Remove bank slough, minor slides, and obstructions.</p>

EXHIBIT O

SPECIFIC ROAD MAINTENANCE INSTRUCTIONS

**Knap Rd (2.37 miles, Points 200 to 208)**

Project Points	Instructions
206 to 207	<p>Find all cross drains, clean inlet, outlet, and catch basin. Install a steel culvert marker for all culverts that do not have one.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface.</p> <p>Waste all material at an approved waste area determined by STATE. Alternative waste areas shall be approved by STATE in writing.</p>
204 to 208	<p>There are portions in this segment that have saplings growing in the ditchline. Remove those saplings and restore functional drainage.</p> <p>Unplug all culverts, inlets, outlets, and catch basins.</p>
200 to 208	<p>Is subject to the standard road maintenance requirements as outlined above on Page 1.</p> <p>Grade and shape all portions of roads unless otherwise approved by state in writing.</p> <p>Remove saplings growing within the ditchlines and restore functional drainage.</p>

**Chickahominy Rd (1.12 miles, Points 300 to 301)**

Project Points	Instructions
300 to 301	<p>Grade and shape. Clean out ditchlines and the outside edge of the road. Re-establish appropriate drainage.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface.</p> <p>Find all cross drains, clean inlet, outlet, and catch basin. Install a steel culvert marker for all culverts that do not have one.</p> <p>Where slopes are 45% or less, waste material may be scattered as sidecast in stable locations that will not enter into the waters of the STATE. This material shall not interfere with the drainage of the subgrade or running surface and shall not be in the form of a berm.</p>

**Chicken Creek Rd (1.7 miles, Points 400 to 404)**

Project Points	Instructions
400 to 401	<p>Grade and shape. Clean out ditchlines and the outside edge of the road. Re-establish appropriate drainage.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface.</p> <p>Find all cross drains, clean inlet, outlet, and catch basin. Install a steel culvert marker for all culverts that do not have one.</p> <p>Where slopes are 45% or less, waste material may be scattered as sidecast in stable locations that will not enter into the waters of the STATE. This material shall not interfere with the drainage of the subgrade or running surface and shall not be in a berm.</p>

EXHIBIT O

SPECIFIC ROAD MAINTENANCE INSTRUCTIONS

**Chicken Creek Rd (1.7 miles, Points 400 to 404)**

Project Points	Instructions
401 to 402	<p>Re-establish at a minimum 2'x1' ditch. Remove bank slough, minor slides, and obstructions.</p> <p>Find all cross drains, clean inlet, outlet, and catch basin. Install a steel culvert marker for all culverts that do not have one.</p> <p>Pull ditchlines and outside edge of the road. Establish appropriate drainage off the subgrade and roadway.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface.</p> <p>Organics clean from soil may be scattered in stable locations as determined by STATE. All other material shall be end hauled.</p> <p>Waste all material at an approved waste area determined by STATE. Alternative waste areas shall be approved by STATE in writing.</p>
402 to 403	<p>Maintain drainage, remove blockages, grade and shape. Pull ditchlines and the outside edge of the road to establish appropriate drainage.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface.</p>
403 to 404	<p>Re-establish at a minimum 2'x1' ditch or designed drainage. Remove bank slough, minor slides, and obstructions.</p> <p>Find all cross drains, clean inlet, outlet, and catch basin. Install a steel culvert marker for all culverts that do not have one.</p> <p>Pull ditchlines and outside edge of the road. Establish appropriate drainage off the subgrade and roadway.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface.</p> <p>Organics clean from soil may be scattered in stable locations as determined by STATE. All other material shall be end hauled.</p> <p>Waste all material at an approved waste area determined by STATE. Alternative waste areas shall be approved by STATE in writing.</p>
400 to 404	<p>Is subject to the standard road maintenance requirements as outlined above on Page 1.</p> <p>Grade and shape all portions of roads unless otherwise approved by STATE in writing.</p>

EXHIBIT O

SPECIFIC ROAD MAINTENANCE INSTRUCTIONS

**South Chicken Rd (1.52 miles, Points 500 to 506)**

Project Points	Instructions
500 to 501	<p>Grade and shape. Clean out ditchlines and the outside edge of the road. Re-establish appropriate drainage.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface.</p> <p>Find all cross drains, clean inlet, outlet, and catch basin. Install a steel culvert marker for all culverts that do not have one.</p> <p>Waste all material at an approved waste area determined by STATE. Alternative waste areas shall be approved by STATE in writing.</p>
501 to 502	<p>Re-establish at a minimum 2'x1' ditch or designed drainage. Remove bank slough, minor slides, and obstructions.</p> <p>Find all cross drains, clean inlet, outlet, and catch basin. Install a steel culvert marker for all culverts that do not have one.</p> <p>Pull ditchlines and outside edge of the road. Establish appropriate drainage off the subgrade and roadway.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface.</p> <p>Organics clean from soil may be scattered in stable locations as determined by STATE. All other material shall be end hauled.</p> <p>Waste all material at an approved waste area determined by STATE. Alternative waste areas shall be approved by STATE in writing.</p>
502 to 503 & 506	<p>Maintain drainage, remove blockages, grade and shape. Pull ditchlines and the outside edge of the road to establish appropriate drainage.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface.</p>
503 to 504	<p>Re-establish at a minimum 2'x1' ditch or designed drainage. Remove bank slough, minor slides, and obstructions.</p> <p>Find all cross drains, clean inlet, outlet, and catch basin. Install a steel culvert marker for all culverts that do not have one.</p> <p>Install driveable waterbars according to the specifications in Exhibit N every 100 feet.</p> <p>Pull ditchlines and outside edge of the road. Establish appropriate drainage off the subgrade and roadway.</p> <p>Organics clean from soil may be scattered in stable locations as determined by STATE. All other material shall be end hauled.</p> <p>Waste all material at an approved waste area determined by STATE. Alternative waste areas shall be approved by STATE in writing.</p>
504 to 505	<p>Re-establish drainage. Grade out the road surface. Try to establish a crown running surface.</p>

EXHIBIT O

SPECIFIC ROAD MAINTENANCE INSTRUCTIONS

**South Chicken Rd (1.52 miles, Points 500 to 506)**

Project Points	Instructions
504 to 505	<p>Where slopes are 45% or less, waste material may be scattered as sidecast in stable locations that will not enter into the waters of the STATE. This material shall not interfere with the drainage of the subgrade or running surface and shall not be in the form of a berm.</p> <p>Re-establish ditchouts and ditches where necessary to facilitate drainage.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install waterbars according to the specifications in Exhibit N.</p>
500 to 506	<p>Is subject to the standard road maintenance requirements as outlined above on Page 1.</p> <p>Grade and shape all portions of roads unless otherwise approved by STATE in writing.</p>

**Tilden Tie Rd (1.0 miles, Points 600 to 601)**

Project Points	Instructions
600 to 601	<p>Grade and shape. Clean out ditchlines and the outside edge of the road. Re-establish appropriate drainage.</p> <p>Where standard grading and shaping alone will not produce adequate drainage, install oblique waterbars to get the water off the running surface.</p> <p>Find all cross drains, clean inlet, outlet, and catch basin. Install a steel culvert marker for all culverts that do not have one.</p> <p>Waste all material at an approved waste area determined by STATE. Alternative waste areas shall be approved by STATE in writing.</p> <p>Is subject to the standard road maintenance requirements as outlined above on Page 1.</p> <p>Grade and shape all portions of roads unless otherwise approved by STATE in writing.</p> <p>Remove saplings growing within the ditchlines and restore functional drainage.</p>



## **PART IV: OTHER INFORMATION**

### **OREGON DEPARTMENT OF FORESTRY Western Lane District**

## **Written Plan**

### **Aha Pataha Timber Sale 341-16-73**

#### **Portions of Section 16, T18S, R7W, W.M.**

**Protected Waters:** Small Type F (Cattle Ck).

**Activity:** Cable yarding within 100 feet of a small Type F stream for approximately 1200 feet (Cattle Ck).

Stream crossing removal, an old culvert in Cattle Ck, and 4.5 stations of road vacating.

#### **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-spoiled and then restrung for each new corridor.

##### **Culvert Removal:**

- The stream crossing removal will be done during the in-stream work period.
- All fill material used for the stream crossing will be removed and end hauled to an appropriate waste site.
- The bank will be re-sloped back to its natural slope. No greater than 1½H:1V.
- All exposed soils will be mulched and seeded. Waterbars will be installed to divert water.

**Prepared By:** Chad Howard  
Natural Resource Specialist

**Date:** September 30, 2015

**OREGON DEPARTMENT OF FORESTRY**  
**Western Lane District**

**Written Plan**

**Aha Pataha Timber Sale**  
**341-16-73**

**Portions of Section 16, T18S, R7W, W.M.**

**Protected Waters:** Small Type F (Cattle Ck) and un-named tributaries.

**Activity:** Placement of Large Woody Debris (LWD) within the Type F. stream of Cattle Ck for approximately 1200 feet.

**Project Measures:**

- 12 logs at least 16" diameter on the small end and at least 30 feet long shall be placed by cable in Cattle Ck in groups not exceeding 4 logs.
- Oregon Department of Fish and Wildlife will be consulted prior to placing logs in streams.

**Prepared By:** Chad Howard  
Natural Resources Specialist

**Date:** September 29, 2015