

# PART III: EXHIBITS

State Timber Sale Contract  
No. 341-17-57  
Tilden Beach

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.: 341-17-57

(2) Sale Name: Tilden Beach

(3) Contract Expiration Date: June 30, 2019

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.

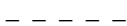
- (10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:
  1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings 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.



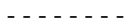
Cable Landing, with numbers for sequence.



Tractor Landing with alphabetical sequence.



Approximate setting boundary.



Spur truck roads.



Tractor yarding roads.



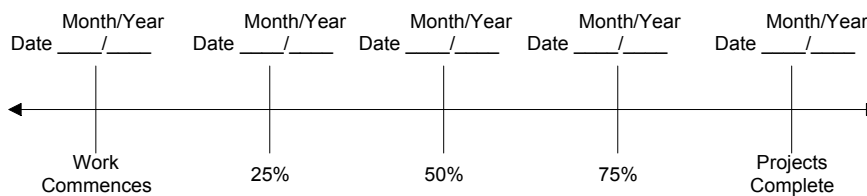
Temporary stream crossings.

EXHIBIT B  
OPERATIONS PLAN

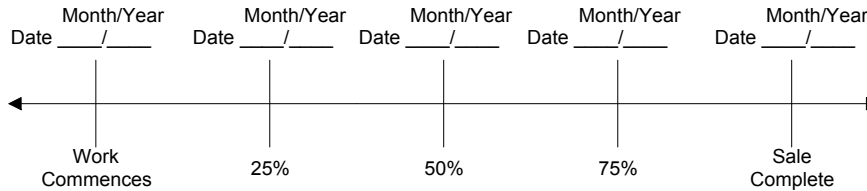
**Completion Timeline**

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 \_\_\_\_\_

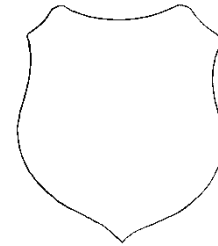
\_\_\_\_\_  
Title \_\_\_\_\_

Original: Salem  
cc: District File  
Purchaser  
(Purchaser Representative ) \_\_\_\_\_

## SCALING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

- (1) ORIGINAL REGISTRATION ☐ Date \_\_\_\_\_  
 REVISION NUMBER \_\_\_\_\_ ☐ Date \_\_\_\_\_  
 CANCELLATION ☐ Date \_\_\_\_\_
- (2) TO: \_\_\_\_\_  
 (Third Party Scaling Organization)
- (3) FROM: Western Lane (03) Phone 541-935-2283  
 (State Forestry District)  
 Address 87950 Territorial Hwy, Veneta, OR, 97487
- (4) PURCHASER: \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_

- (9) SALE NAME: Tilden Beach  
COUNTY: Lane
- (10) STATE CONTRACT NUMBER: 341-17-57
- (11) STATE BRAND REGISTRATION NUMBER:
- (12) STATE BRAND INFORMATION (COMPLETE):



- (13) PAINT REQUIRED: YES ☒  
COLOR: Orange

### (5) MINIMUM SCALING SPECIFICATIONS

SPECIES	MINIMUM NET VOLUME
Conifers	10
Hardwoods	10

Apply minimum volume test to whole logs over 40' Westside

- |     |   |                                     |                                     |
|-----|---|-------------------------------------|-------------------------------------|
|     |   | YES                                 | NO                                  |
| (6) | WESTSIDE SCALE:<br>Use Region 6 actual taper rule. Logs over 40". | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| (7) | Weight Scale Sample   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

**(14) SPECIAL REQUESTS** (Check applicable)

- |  |                          |
|--|--------------------------|
| PEELABLE CULL (all species) .....                            | <input type="checkbox"/> |
| <b>NO DEDUCTIONS ALLOWED FOR<br/>MECHANICAL DAMAGE</b> ..... | <input type="checkbox"/> |
| ADD-BACK VOLUME - Deductions due to delay .....              | <input type="checkbox"/> |
| OTHER:   |                          |

- (15) **REMARKS** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

- (16) SIGNATURES:

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Purchaser or Authorized Representative
Date

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

State Forester Representative PRINT NAME

[illegible]

**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.**

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

**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@mwlsqb.com](mailto:info@mwlsqb.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 Scalpers, Inc.  
5526 NE 122<sup>nd</sup> Ave, Portland, OR 97230  
Phone: (503) 254-0600 Fax: (503) 408-0919  
Email: [info@nwlogscalpers.com](mailto:info@nwlogscalpers.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 <\\WP0DFILL01\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: \_\_\_\_\_

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

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

(7) PULP FACILITY PROCESSING INSTRUCTIONS:

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

(8) TPSO PROCESSING INSTRUCTIONS

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

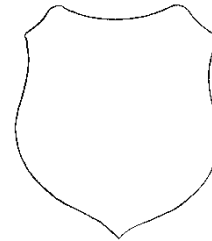
(9) SALE NAME: Tilden Beach

COUNTY: Lane

(10) STATE CONTRACT NUMBER: 341-17-57

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

(12) STATE BRAND INFORMATION: (COMPLETE BELOW)



(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.**

**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 Scalpers, Inc.  
5526 NE 122<sup>nd</sup> Ave, Portland, OR 97230  
Phone: (503) 254-0600 Fax: (503) 408-0919  
Email: [info@nwlogscalpers.com](mailto:info@nwlogscalpers.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 \\WPODFFILL01\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
Beecher Ck	16'	12	A to B	0+00 to 11+00	Ditched
Beecher Ck	16'	12	B to C	11+00 to 53+00	Ditched & Outsloped
Beecher Ck	16'	12	C to D	53+00 to 76+00	Ditched & Outsloped
Beecher Ck	16'	12	D to E	76+00 to 134+00	Outsloped
Spur 1	16'	12		0+00 to 3+85	Ditched
Spur 2	16'	12		0+00 to 17+50	Ditched
Spur 2a	14'	12		0+00 to 2+00	Outsloped

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 H 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. Plans are provided for Spur 2.

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 or outsloped 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.

<u>SLOPES</u>	<u>Back Slopes</u>	<u>Fill Slopes</u>
Solid Rock	Vertical to $\frac{1}{4}$ :1	
Fractured Rock	$\frac{1}{4}$ :1	
Soil - side slopes 50% and over	$\frac{3}{4}$ :1	
Soil - side slopes less than 50%	1:1	$1\frac{1}{2}$ :1

Top of cutslope 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 70 feet wide unless otherwise approved by STATE. Surface is to be outsloped or crowned for drainage with general grade no more than 3 percent. Surface as shown in the "Road Surfacing" table in this Exhibit.

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

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

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

- (1) Timber Removal. Remove all trees within posted right-of-way, 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.
- (4) 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.
- (5) Stream crossings 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.
- (6) 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) 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.
- (8) 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 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.

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

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

**Beecher Ck Rd, (B to C), as shown on Exhibit A (Stationing 11+00 to 53+00)**

**Instructions:**

11+00 to 53+00	<p>Clear and grub. Approx., 30 feet wide of clearing and grubbing is anticipated. Remove all stumps within 5 feet of the edge of the road and any stump where the roots or stump are overhanging the cutslope.</p> <p>Scatter stumps in openings and gaps in stable locations. On slopes greater than 50%, stumps shall be hauled to an approved waste area.</p> <p>Conduct sidecast pullback where specified by STATE. Remove any organic debris encountered in the road prism or logs cribbed against fill material.</p> <p>Improve the ditchlines. Establish a 3'x1' ditch.</p> <p>The subgrade shall be compacted according to Exhibit F and in lifts where fills are used.</p> <p>Extra subgrade width shall be provided for offtracking around horizontal curves.</p>
11+00 to 24+50	The subgrade shall be <u>crowned</u> at 4 to 6 percent with a 3'x1' ditch.
24+50 to 29+50	The subgrade shall be <u>outsloped</u> at 4 to 6 percent.
29+50 to 46+00	The subgrade shall be <u>crowned</u> at 4 to 6 percent with a 3'x1' ditch.
46+00 to 50+00	The subgrade shall be <u>outsloped</u> at 4 to 6 percent.
14+00	Create a turnout left. To establish the appropriate width, utilize clean waste material to build up the outside edge of the road.
14+00 to 41+00	Where the width permits, create two turnouts through this portion as approved by STATE.
22+00	<p>Conduct sidecast pullback. Remove all of the material associated with the stress cracking and slump. Remove all organic debris encountered during excavation.</p> <p>Re-establish centerline. Excavate into the bank to establish required road width. End-haul waste material to an approved waste area.</p>
35+21	Replace stream pipe with an 18" culvert. The inlet and outlet shall be armored with Riprap or Pit run quality rock.
Approx. 41+00	Install an 18 in cross drain. There is a seep near this location. Install an embedded energy dissipator at the outlet with Riprap or Pit run quality rock. A well-defined ditch shall be constructed to ensure separation from the water table and the subgrade.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

- 42+00 to 46+00      Create one turnout between this section as approved by STATE.
- Create separation from the water table and establish proper drainage. Clean waste may be used to build up the subgrade.
- Approx. 44+00      Install 18" culvert at stream crossing. The inlet and outlet shall be armored with Riprap or Pit run quality rock.
- The water is currently flowing over a debris fan and the channel over the existing roadbed is not defined. The culvert shall be installed on the downhill side of the debris fan and angled back towards the channel/drainage basin. A STATE representative shall mark the inlet and outlet locations of said culvert prior to installation. A well-defined ditch shall be constructed before the crossing to capture any seeping water from the debris fan.
- 46+00              Install 24" culvert at stream crossing. The inlet and outlet shall be armored with Riprap or Pit run quality rock.
- The stream currently splits at the top of the debris fan. The main fork has channelized most of the flow but a portion of the flow, seeps towards 47+40. The operator shall install the stream crossing to encompass all water through the one culvert.
- The main channel has eroded the outside edge of the existing road. The operator shall re-align the road by excavating into the debris fan or by using STATE approved fill material. The operator is required to establish side hill embankments according to Exhibit K prior to placing fill.
- The outside edge shall be armored with Riprap or Pit run quality rock to mitigate against future erosion.
- If the operator chooses to fill in the eroded fill slope, side hill embankments shall be constructed in accordance to Exhibit K prior to re-constructing the fill.
- Approx. 47+40      Re-construct the outer edge of the fill. Water has eroded the outside edge of the fill. If soil is used to reconstruct the fill, the operator is required to establish side hill embankments according to Exhibit K prior to placing soil. Rip rap or Pit run quality rock may be machined placed to build up the outer edge without embankment requirements. All fill material shall be compacted.
- 48+00 to 50+00      Ensure a smooth transition into the stream crossing. The operator may be required to build up portions of this road to transition properly into the crossing. Clean fill may be used to build up road. Fill material is expected to be hauled in where necessary and utilized from the waste generated from the project roads listed. An alternative source may be approved in writing by STATE.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

**Beecher Ck Rd stream crossings "Project 3" (Stationing 50+00 to 53+00)**

**Instructions for Project 3:**

50+00 to 53+00

Construct Crossing. Provide a minimum of 5 feet of fill over the top of each crossing. The total depth of fill shall not exceed 15 ft. unless otherwise approved by STATE.

Fill material shall be hauled in where necessary. Fill material shall be clean waste material produced during the construction efforts of the roads listed in the project work, an alternative source may be approved in writing by STATE.

All fill material shall be clean soil or rock, absent of organic debris. Fill material adjacent to the stream culverts shall be clean soil or 1½" or smaller crushed rock. All fill material shall be thoroughly compacted in accordance to Exhibit F.

Fill shall be sloped 1½:1 unless otherwise approve by STATE.

The subgrade width shall be 20 feet wide. The subgrade shall be crowned at 4 to 6 percent.

All portions of the fill material on the inlet side shall be armored with Riprap or Pit run quality rock. Areas at risk of erosion shall be armored, these areas shall be determined by STATE. Suitable rock material shall be approved by STATE, and may be acquired on STATE lands in approved locations.

Seed and mulch in accordance to Exhibit J.

Crossings at 51+25 and 52+15

At both crossings. Install a 54" round pipe or equivalent. The pipe must be able to withstand a max flow of 90 cfs. Approx. 70 ft. of culvert is required for a 15 foot fill.

Remove old log culverts and any organic debris encountered in the fill.

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.

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.

The inlet and outlet shall be armored with Riprap or Pit run quality rock. A STATE representative shall determine the extent of the rock armoring.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

**Rocking Instructions for Beecher Ck Rd (B to C):**

- 11+00 to 53+00      Apply a compacted depth of 4" of 3"-0" base rock and 4" of 1½"-0" cap rock.
- The running surface shall be sloped for drainage according to the subgrade specifications for that portion.
- Apply additional rock for offtracking and turnouts as directed by STATE.
- 50+00 to 53+00      Apply 2 feet of additional surfacing width, over the crossings.

**Beecher Ck Rd (C to D), as shown on Exhibit A (Stationing 53+00 to 76+00)**

**Instructions:**

- 53+00 to 76+00      Clear and grub. Approx., 30 feet wide of clearing and grubbing is anticipated. Remove all stumps within 5 feet of the edge of the fill slope and any stump where the roots or stump are overhanging the cutslope.
- Conduct sidecast pullback where specified by STATE. Remove any organic debris encountered in the road prism or cribbed against fill material.
- On slopes greater than 50%, stumps shall be end-hauled to an approved waste area. Otherwise, stumps shall be wasted in openings and gaps in stable locations.
- The subgrade shall be compacted according to Exhibit F and in lifts where fills are used.
- Extra subgrade width shall be provided for offtracking around horizontal curves.
- 53+00 to 61+50      The road should be crowned 4 to 6 percent with a 3' by 1' ditch.
- 61+50 to 64+50      The subgrade shall be outsloped 4 to 6 percent.
- 64+50 to 76+00      The road should be crowned 4 to 6 percent with a 3' by 1' ditch.
- 54+60                The stream has eroded the outside edge of the existing road. The operator shall re-align the road by excavating into the bank and/or build up the outside edge by using STATE approved fill material.
- The outside edge shall be armored with Riprap or Pit run quality rock to mitigate against future erosion.
- 55+50                Install an 18 in cross drain. There is a seep near this location. Install an embedded energy dissipator at the outlet with Riprap or Pit run quality rock. A well-defined ditch shall be constructed to ensure separation from the water table and the subgrade.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

59+23                    The stream eroded the outside edge of the road. The operator shall re-align the road by excavating into the cut bank.

The outside edge shall be armored with Riprap or Pit run quality rock to mitigate against future erosion.

61+50                    Construct a turn out left.

64+50                    The stream eroded the outside edge of the road. The operator shall re-align the road by excavating into the cut bank.

**A portion of the re-alignment will likely require drilling and blasting.**

Suitable rock material encountered "as approved by STATE" may be used for rock armoring purposes as required in the project work.

Conduct sidecast pullback. Remove all of the material associated with the stress cracking and the slump. Remove all organic debris encountered during excavation.

Round off the outer edge to minimize future raveling.

The outside edge shall be armored with Riprap or Pit run quality rock to mitigate against future erosion.

66+00                    Construct a turn out left.

67+60                    **Project # 4**

The stream eroded the outside edge of the road. The operator shall re-align the road by excavating into the bank.

**A portion of the re-alignment will likely require drilling and blasting.**

Suitable rock material encountered "as approved by STATE" may be used for rock armoring purposes as required in the project work.

Conduct sidecast pullback. There are two adjacent stress cracks. Remove all of the material associated with the stress cracking and the slump. Remove all organic debris encountered during excavation.

Round off the outer edge to minimize future raveling.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

- 67+60                      Remove the old log that is cribbing fill material. Build access to the log. All sidecast encountered shall be removed and hauled to an approved waste area. Rock may be used to rebuild the outside edge "as approved by STATE." The rock fill shall be machine placed no steeper than 1:1.
- The outside edge shall be armored with Riprap or Pit run quality rock to mitigate against future erosion.
- 70+00                      Construct a turnout left.
- Approx. 74+50            Intersection of Spur 1 and Beecher Ck Rd.
- 76+00                      Construct a landing next to the intersection of Spur 1.

**Rocking Instructions for Beecher Ck Rd (C to D):**

- 53+00 to 76+00            Apply a compacted depth of 4" of 3"-0" base rock and 4" of 1½"-0" cap rock.
- The running surface shall be sloped for drainage according to the subgrade specifications for that portion.
- Apply additional rock for offtracking and turnouts as directed by STATE.
- Apply 40 Cu. Yds. of Jaw Run of landing rock for each landing.

**Beecher Ck Rd (D to E), as shown on Exhibit A (Stationing 76+00 to 134+00)**

**Instructions:**

- 76+00 to 134+00            Clear and grub. Approx., 30 feet wide of clearing and grubbing is anticipated. Remove all stumps within 5 feet of the edge of the fill slope and any stump where the roots or stump are overhanging the cutslope.
- Conduct sidecast pullback where specified by STATE. Remove any organic debris encountered in the road prism or cribbed against fill material.
- On slopes greater than 50%, stumps shall be end-hauled to an approved waste area. Otherwise, stumps shall be wasted in openings and gaps in stable locations.
- The subgrade shall be compacted according to Exhibit F and in lifts where fills are used.
- Extra subgrade width shall be provided for offtracking around horizontal curves.



EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

76+00 to 134+00	The subgrade shall be outsloped 4 to 6%.
84+00	May utilize the bench below the road as a waste area for <b><u>STUMPS</u></b> only. Consult with STATE prior to using.
86+00	Construct a landing.
95+00	Construct a turn out left.
95+00 to 131+00	Where the width permits, create two turnouts through this portion as approved by STATE.
108+40	<p>The outer edge of the road is eroded away. Re-align the road into the cut bank to gain road width.</p> <p>Rock is showing above the existing cut bank, so <b>standard drilling and blasting techniques are likely.</b></p> <p>Suitable rock material encountered "as approved by STATE" may be used for rock armoring purposes as required in the project work.</p> <p>Conduct sidecast pullback along this portion, round off the outer edge to minimize future raveling.</p> <p>The outside edge shall be armored with Riprap or Pit run quality rock to mitigate against future erosion.</p>
111+40	Remove old culvert and replace with a 24" culvert at stream crossing. The old culvert is slightly skewed, away from the natural channel. The new culvert shall follow the natural stream channel.
116+85	<p>The outer edge of the road is eroded away. Re-align the road into the cut bank to gain road width.</p> <p><b>Standard drilling and blasting techniques are likely.</b></p> <p>Suitable rock material encountered "as approved by STATE" may be used for rock armoring purposes as required in the project work.</p> <p>Conduct sidecast pullback along this portion, round off the outer edge to minimize future raveling.</p> <p>The outside edge shall be armored with Riprap or Pit run quality rock to mitigate against future erosion.</p>
131+00	Construct a turn out left.
132+50	Spur 2 intersection.
134+00	End of Re-construction. Clear and grub old landing site just past Spur 2 intersect.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

**Rocking Instructions for Beecher Ck Rd (D to E):**

76+00 to 134+00      Apply a compacted depth of 6" of 3"-0" base rock and 2" of 1½"-0" cap rock.

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

Apply additional rock for offtracking and turnouts as directed by STATE.

Apply 40 Cu. Yds. of Jaw Run of landing rock for each landing.

**SPUR 1 " New Construct", as shown on Exhibit A (Stationing 0+00 to 3+85)**

**Instructions for Spur 1:**

0+00 to 3+85      Clear and grub. Approximately 40 feet wide of clearing and grubbing is anticipated.

Stumps may be wasted in openings and gaps away from the toe of the fill in stable locations.

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

0+00 to 3+00      Use clean waste material generated from project work to build up the subgrade.

No more than **3,000 Cu. Yds.** unless otherwise approved by STATE may be incorporated into the road prism.

All stumps and organics shall be removed prior to the placing fill in the road prism.

For fills greater than 3 ft., add an additional foot of width to the subgrade each side.

1+00      Old skid trails exist on the east aspect. Key the toe of the fill into these skid trails. Do not extend the fill material used for the construction efforts of spur 1 past these skid trails.

1+00 to 2+30      Shall key the toe of the fill into the bench below. Fill material shall be compacted in lifts to ensure proper stability.

3+85      Construct a landing. Landing shall be crowned or outsloped at 3%.

**Rocking Instructions for Spur 1:**

0+00 to 3+85      Apply a compacted depth of 6" of 3"-0" base rock.

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

Apply 40 Cu. Yds. of Jaw Run of landing rock.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

**SPUR 2 “ New Construct”, as shown on Exhibit A (Stationing 0+00 to 17+50)**

**Instructions for Spur 2:**

0+00 to 17+50	<p>Clear and grub. Approximately 40 feet wide of clearing and grubbing is anticipated.</p> <p>On slopes greater than 50%, stumps shall be end-hauled to an approved waste area. Otherwise, stumps shall be wasted in openings and gaps in stable locations.</p> <p>The subgrade shall be crowned at 4 to 6 percent with a 3'x1' ditch.</p> <p>Subgrade construction consists of both balanced and full bench. All fill material shall be clean soil, free from organic debris.</p> <p>The subgrade shall be compacted according to Exhibit F and in lifts where fills are used.</p> <p>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.</p> <p>Extra subgrade width shall be provided for offtracking around horizontal curves.</p>
Approx. 1+30	Construct ditchout right.
Approx. 5+70	Construct ditchout left.
Approx. 10+00	Install 18" cross drain.
Approx. 12+50	Construct ditchout right.
3+96 to 12+26	<p>The top of cut shall be marked with a slope stake.</p> <p>The STATE has set, centerline, slope, and reference stakes out in the field. The slope and reference stakes are placed together just outside of the Right-of-Way boundary tags.</p> <p>The operator shall take precautions to preserve slope stakes in the field during the felling logging, and construction of spur 2.</p> <p>Between approx. 9+10 to 11+00 some slope stakes exist inside of the right of way boundary of Spur 2a. Extra precautions shall be taken to preserve these stakes.</p> <p>After felling and logging, a STATE representative shall move the slope stakes to their true position “top of cut.”</p>
3+70 to 9+10	Subgrade shall be full bench.
6+70 to 8+50	<b>Standard drilling and blasting techniques are likely.</b>

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION/RECONSTRUCT INSTRUCTIONS:

When blasting, the operator shall contain the shot.

Suitable rock material encountered "as approved by STATE" may be used for rock armoring purposes as required in the project work.

- |                |  |
|----------------|--|
| 8+00           | 10 feet of cut at centerline is required to produce adequate incoming and outgoing grades.   |
| 11+50 to 12+50 | Subgrade shall be full bench.  |
| 14+50          | Construct empty truck turn around.   |
| 17+50          | Construct a Landing. The ridge at the end of the landing can support some material. The quantity of material wasted at the end of the landing shall be approved by STATE. The fill shall be compacted in lifts in accordance to Exhibit F. |

**Rocking Instructions for Spur 2**

- |               |   |
|---------------|---|
| 0+00 to 17+50 | Apply a compacted depth of 6" of 3"-0" base rock and 3" of ¾" -0" cap rock.<br><br>The running surface shall be sloped for drainage according to the subgrade specifications for that portion.<br><br>Apply additional rock for offtracking and turnouts as directed by STATE.<br><br>Apply 40 Cu. Yds. of Jaw Run of landing rock. |
|---------------|---|

**SPUR 2a " New Construct" as shown on Exhibit A (Stationing 0+00 to 2+00)**

**Instructions for Spur 2a:**

- |              |  |
|--------------|--|
| 0+00 to 2+00 | Construct a short spur to the ridge.<br><br>Where spur 2a intersects with spur 2, spur 2a will likely have to be full bench for a short portion to match the elevation of spur2.<br><br>The subgrade shall be outsloped at 4 to 6 percent.<br><br>Apply a compacted depth of 8" of Jaw run.  |
| 2+00         | Construct a landing. The landing at the top of the ridge can support some waste material. Waste material shall be keyed into the top of the ridge. The quantity of material wasted shall be approved by STATE. The fill shall be compacted in lifts in accordance to Exhibit F.<br><br>Apply 40 cu yds of Jaw run of landing 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 H.
- (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.
- (9) Stream crossings 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.

EXHIBIT D  
FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- (10) 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 the road generated material. Install energy dissipater as outlined in Exhibit G.
- (11) 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.
- (12) Subgrade Preparation and Application of Surfacing Rock.
  - (a) Complete culvert installations, drainage ditches, fill reconstruction, ditchouts, and other specified work prior to the application of new surfacing rock.
  - (b) Cut out all potholes and/or washboard sections from the existing surfacing.
  - (c) Apply required patching and leveling rock, as directed by STATE.

EXHIBIT D  
FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

**Beecher Ck Rd (A to B) as shown on Exhibit A (Stationing 0+00 to 11+00)**

**Instructions:**

- |               |  |
|---------------|--|
| 0+00 to 11+00 | <p>Clear and grub. Approx. 30 feet wide of clearing and grubbing is anticipated. Remove all stumps within 5 feet of the edge of the fill slope and any stump where the roots or stump are overhanging the cutslope.</p> <p>Conduct sidecast pullback where specified by STATE. Remove any organic debris encountered in the road prism or cribbed against fill material.</p> <p>On slopes greater than 50%, stumps shall be end-hauled to an approved waste area. Otherwise, stumps shall be wasted in openings and gaps in stable locations.</p> <p>The road should be crowned 4-6%. Where a crown surface isn't present, the operator shall shape the surface to ensure proper drainage.</p> <p>Improve the ditchlines. Establish a 3 ft. wide by 1 ft. depth ditch.</p> |
| Approx. 2+00  | <p>Create a catch basin on the uphill side of the road to capture the ditch water. The water should pond and settle in the catch basin.</p>  |
| 7+00          | <p>Create a turnout left. Operator will have to build up the outside edge of the road to establish the appropriate width. The STATE anticipates the operator to utilize clean waste material here.</p>   |
| 0+00 to 11+00 | <p>Apply a compacted depth of 3" of 3"-0" base rock and 3" of 1½" -0" cap rock.</p> <p>The running surface shall be crowned 4-6%.</p> <p>Apply additional rock for offtracking as directed by STATE.</p>   |

**Pat Ck Rd (F to G) as shown on Exhibit A "Project # 5"**

- |           |   |
|-----------|---|
| .73 miles | <p>Brush Pat Ck Rd according to the Road Brushing Specifications in Exhibit H as directed by STATE.</p> |
|-----------|---|

**Project # 6**

- |      |   |
|------|---|
| 0+00 | <p>Install a gate in according to Exhibit J and as directed by STATE.</p> |
|------|---|

EXHIBIT D

FULL BENCH AND END-HAUL REQUIREMENTS

ROAD	LOCATION	CONTAINMENT - SIDECAST	WASTE AREA LOCATION	WASTE AREA TREATMENT
Beecher Ck Rd	As determined by STATE	(1)	1 - 4	1 & 2
Spur 2	As determined by STATE	(2 & 3)	1 - 4	1 & 2
Spur 2a	As determined by STATE	(2 & 3)	1 - 4	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) The total quantity of sidecast allowed shall be determined by 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) Waste Area 1 as shown on Exhibit A as posted and directed by STATE.
- (2) Waste Area 2 as shown on Exhibit A as posted and directed by STATE.
- (3) Waste Area 3 as shown on Exhibit A. "Max 5,000 Cu. Yds."
- (4) As approved 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	LOOSE TRUCK Cu. Yds./Sta	STA. TO STA. OR POINT TO POINT	TOTAL LOOSE TRUCK VOLUME
Beecher Ck Rd	Base	3"-0"	3"	17	0+00 to 11+00 A to B	187
Beecher Ck Rd	Cap	1½"-0"	3"	17	0+00 to 11+00 A to B	187
Beecher Ck Rd	Base	3"-0"	4"	22	11+00 to 53+00 B to C	924
Beecher Ck Rd	Cap	1½"-0"	4"	22	11+00 to 53+00 B to C	924
Beecher Ck Rd	Base	3"-0"	4"	22	53+00 to 76+00 C to D	506
Beecher Ck Rd	Cap	1½"-0"	4"	22	53+00 to 76+00 C to D	506
Beecher Ck Rd	Base	3"-0"	6"	33	76+00 134+00 D to E	1914
Beecher Ck Rd	Cap	1½"-0"	2"	11	76+00 134+00 D to E	638
Spur 1	Base	3"-0"	6"	33	0+00 to 3+85	127
Spur 2	Base	3"-0"	6"	33	0+00 to 17+50	578
Spur 2	Cap	¾"-0"	3"	17	0+00 to 17+50	298
Spur 2a	Base	Jaw Run	8"	44	0+00 to 2+00	88
<b>TURNOUTS:</b>				<b>NO. OF T.O.</b>	<b>LOCATION</b>	
Beecher Ck Rd A to B	Base	3"-0"	6"	1	7+00	20
Beecher Ck Rd B to C	Base	3"-0"	6"	4	14+00 2 between 14+00 & 41+00 1 between 41+00 & 46+00	80

EXHIBIT E  
ROAD SURFACING

TURNOUTS:				NO. OF T.O.	LOCATION	
Beecher Ck Rd C to D	Base	3"-0"	6"	3	61+50, 66+00, & 70+00	60
Beecher Ck Rd D to E	Base	3"-0"	6"	4	95+00 2 between 95+00 & 131+00 131+00	80
TURNAROUNDS:			NO. OF T.A	Cu. Yds.		
Spur 2	Base	1½"-0"	1	20	14+50	20
LANDINGS AND JUNCTIONS:			COMPACTED DEPTH	Cu. Yds.	NO. OF LANDINS	
Beecher Ck Rd C to D	Base	Jaw Run	6"	40	1	40
Beecher Ck Rd D to E	Base	Jaw Run	6"	40	1	40
Spur 1	Base	Jaw Run	6"	40	1	40
Spur 2	Base	Jaw Run	6"	40	1	40
Spur 2a	Base	Jaw Run	6"	40	1	40
MISCELLANEOUS: (Curve Widening, Riprap)				Cu. Yds.	STATION TO STATION	
Beecher Ck Rd A to B	Curve Widening	3"-0"		30	As directed by STATE	30
Beecher Ck Rd A to B	Energy Dissipator	Riprap/ Pit run		10	Culvert outlets	10
Beecher Ck Rd B to C	Curve Widening	3"-0"		50	As directed by STATE	50
Beecher Ck Rd B to C	Energy Dissipator	Riprap/ Pit run		70	Culvert outlets	70
Beecher Ck Rd C to D	Curve Widening	3"-0"		100	As directed by STATE	100

EXHIBIT E  
ROAD SURFACING

<b>MISCELLANEOUS: (Curve Widening, Riprap)</b>			<b>Cu. Yds.</b>	<b>STATION TO STATION</b>		
Beecher Ck Rd C to D	Energy Dissipator	Riprap/ Pit run		80	Culvert outlets	80
Beecher Ck Rd D to E	Curve Widening	3"-0"		130	As directed by STATE	130
Beecher Ck Rd D to E	Energy Dissipator	Riprap/ Pit run		90	Culvert outlets	90
Spur 2	Curve Widening	1½"-0"	20		As directed by STATE	20
Spur 2	Energy Dissipator	Riprap/ Pit run	10		Culvert outlets	10

<b>ROCK TOTALS</b>	<b>(3"-0")</b>	<b>(1½" - 0")</b>	<b>(¾" - 0")</b>	<b>Jaw Run</b>	<b>(Riprap/Pit Run)</b>
LOOSE TRUCK Cu. Yds.	4786	2295	298	288	260

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 1 1/2"-0"</u>	Passing	2" sieve	100%
	Passing	1 1/2" 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	1 1/2" 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 or outsloped at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
Beecher Ck Rd, Spur 1, 2, & 2a.	(1)

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

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

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
Beecher Ck Rd (50+00 to 53+00)	1, 4, & 8
Spur 1, 2, & 2a	1, 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 double-walled polyethylene or corrugated aluminized (Type 2).

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

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

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 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.

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 rock shall be as follows: 12" for culverts 18" to 36". Minimum vertical cover for other designs shall be as specified by STATE.

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

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



EXHIBIT G

CULVERT SPECIFICATIONS

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.

Compaction by tamping utilizing a Vibratory Hand-Operated or Backhoe-Mounted Tamper is required for 51+25 and 52+15 stream crossing culverts.

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.

<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)	LENGTH (Feet)	MATERIAL TYPE	GAUGE	ROAD SEGMENT POINT TO POINT	STATION
1	18	40	CPP		A to B	4+50
2	18	40	CPP		B to C	13+00
3	18	40	CPP		B to C	20+00
4	18	40	CPP		B to C	29+50
5	18	40	CPP		B to C	35+21
6	18	40	CPP		B to C	41+00
7	18	40	CPP		B to C	44+00
8	24	40	CPP		B to C	46+00
9	54	70	ACSP	14	B to C	51+25
10	54	70	ACSP	14	B to C	52+15
11	18	40	CPP		C to D	53+50
12	18	40	CPP		C to D	54+60
13	18	40	CPP		C to D	55+50
14	18	40	CPP		C to D	59+23
15	18	40	CPP		C to D	62+60
16	18	40	CPP		C to D	64+50
17	18	40	CPP		C to D	67+60
18	18	40	CPP		C to D	71+00
19	18	40	CPP		D to E	89+30
20	18	40	CPP		D to E	92+80
21	18	40	CPP		D to E	101+50
22	18	40	CPP		D to E	104+00
23	18	40	CPP		D to E	108+40
24	24	40	CPP		D to E	111+40
25	18	40	CPP		D to E	114+00
26	18	40	CPP		D to E	116+86
27	18	40	CPP		D to E	124+00
28	18	40	CPP		Spur 2	≈10+00

EXHIBIT G  
CULVERT LIST

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

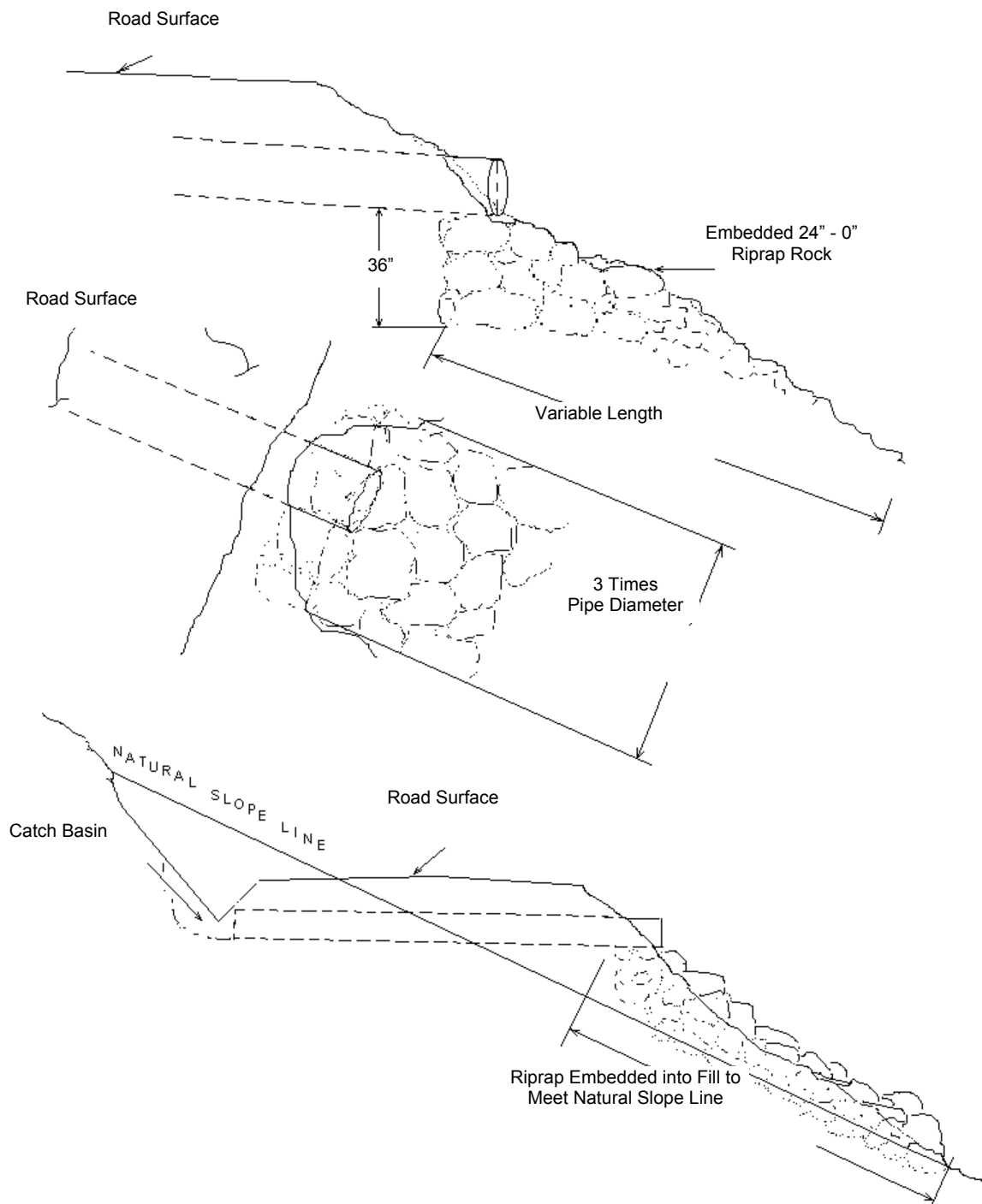
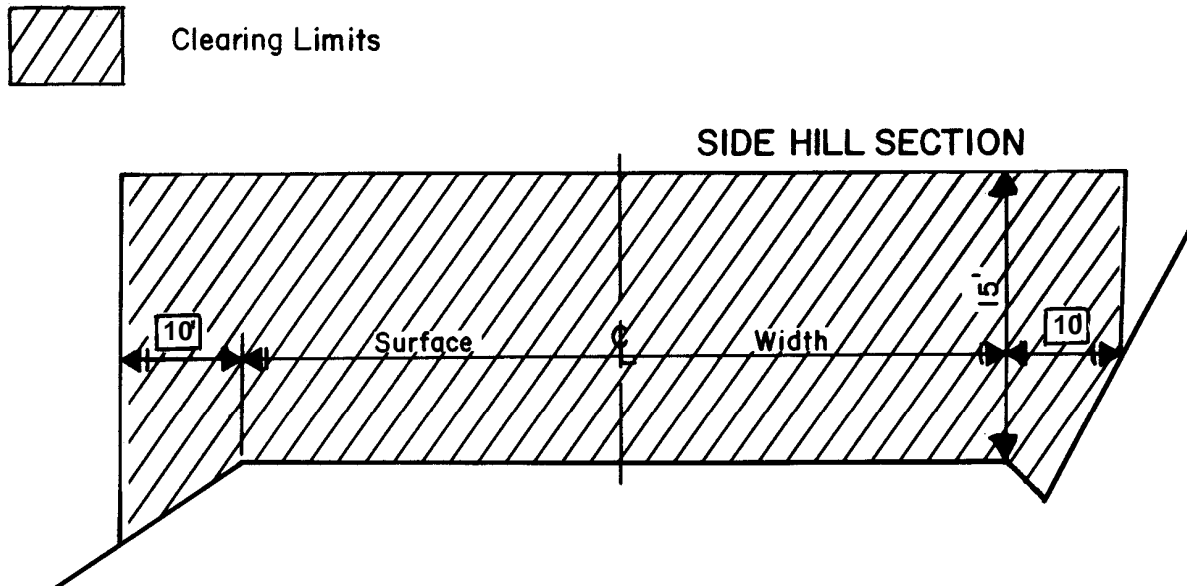


EXHIBIT H

ROAD BRUSHING SPECIFICATIONS



Brush between Points F and G as shown on Exhibit A in accordance to the requirements below.

REQUIREMENTS

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

For cutslopes less than 6 feet in height, brushing shall extend 5 feet beyond the top of cutslope.

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 H

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.

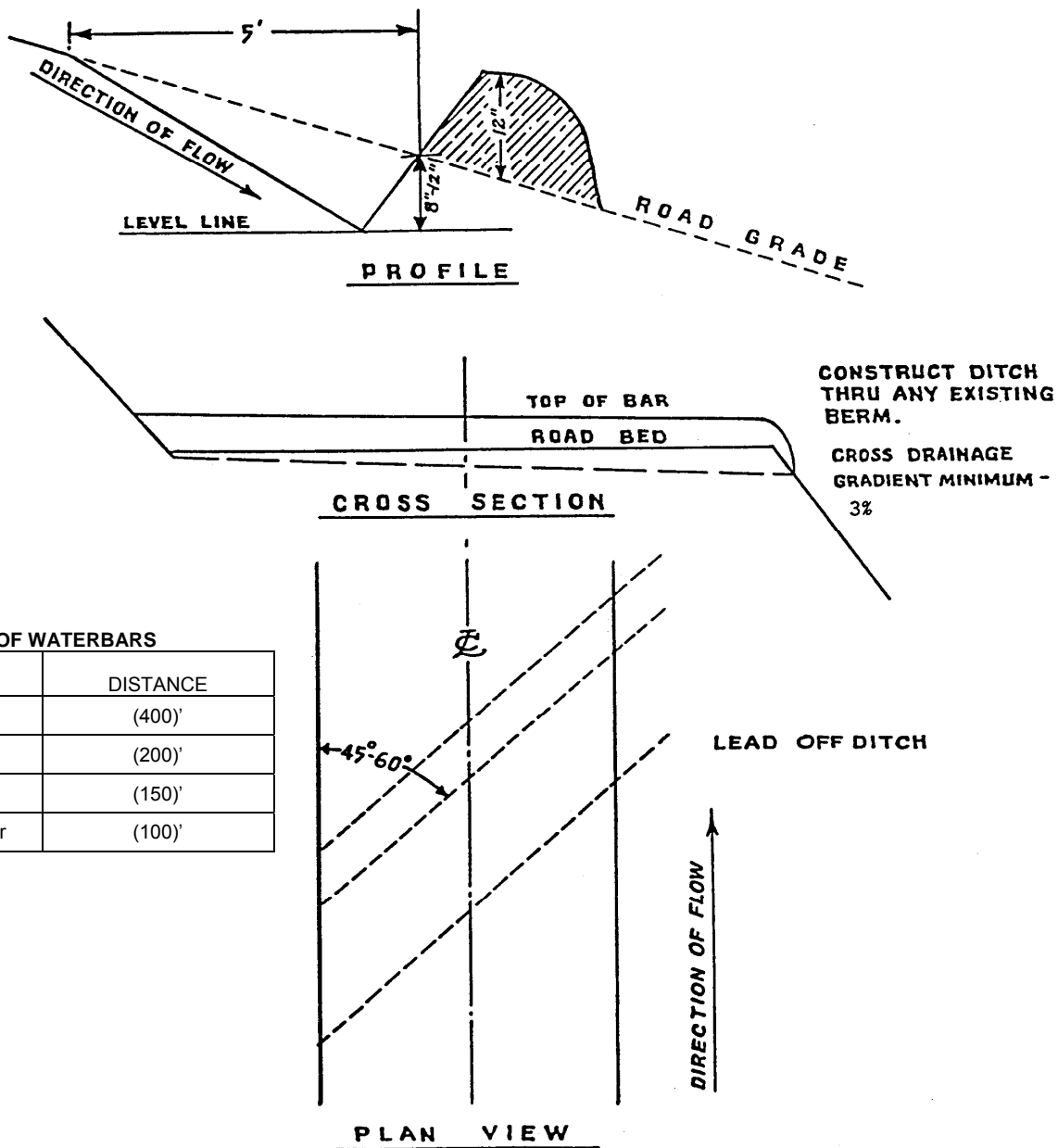
Merchantable blown down trees encountered shall be bucked in lengths as directed by STATE, and placed in locations acceptable to STATE, or pushed out of the road prism.

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 I

WATERBAR SPECIFICATIONS



SPACING OF WATERBARS

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

WATERBAR SPECIFICATIONS  
FOR CROSS DITCHING #298

EXHIBIT I

ROAD DIP CONSTRUCTION SPECIFICATIONS

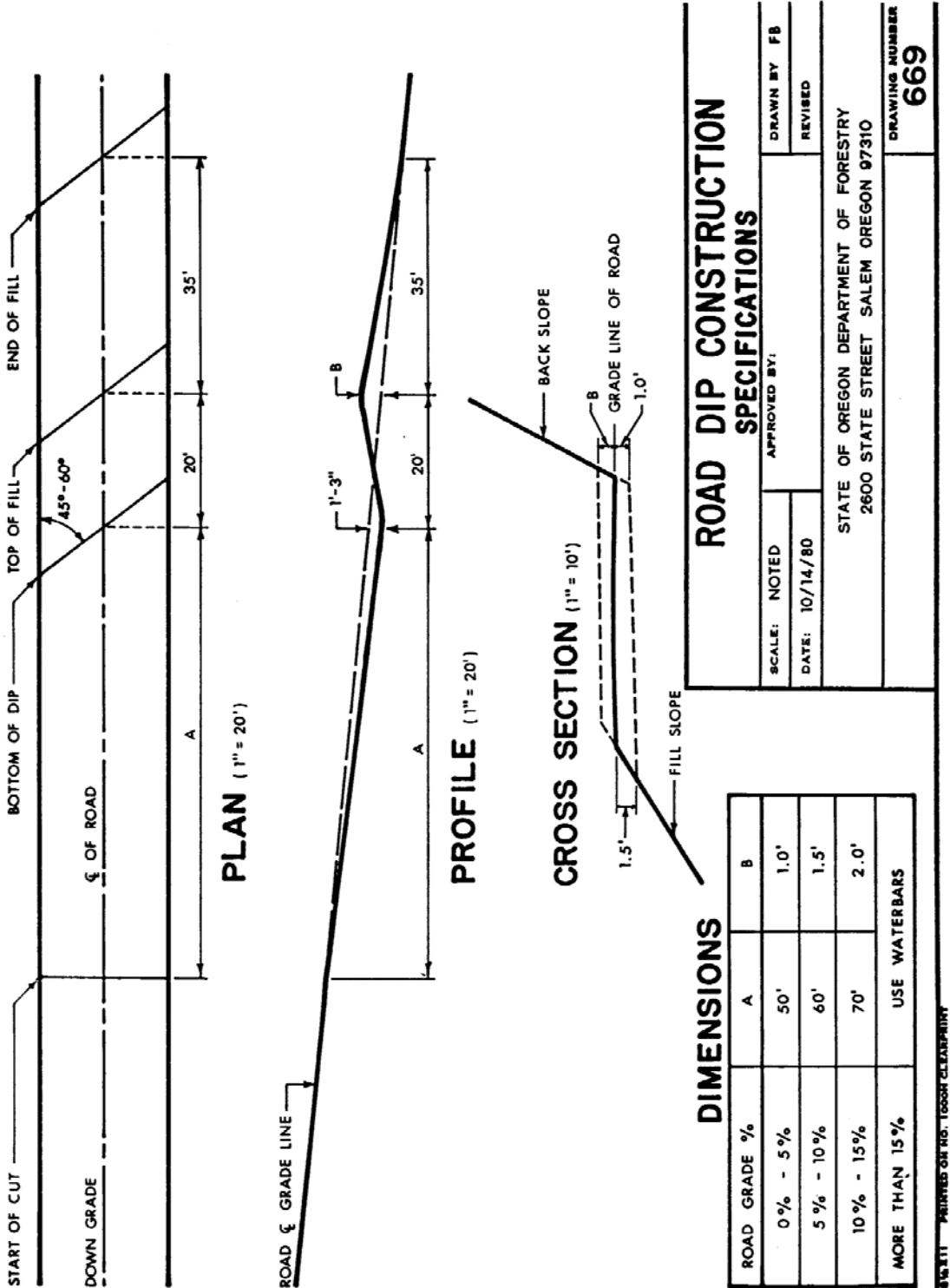




EXHIBIT J

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:

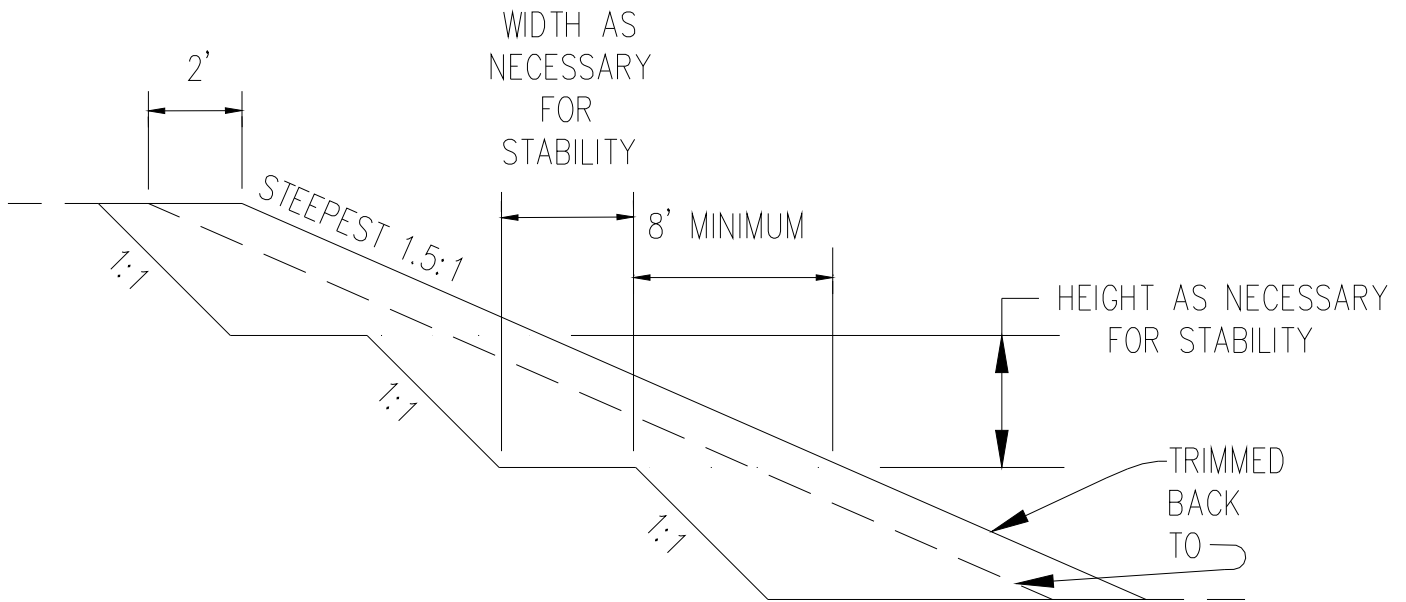
Road Segment	Location
Beecher Ck. Rd. Segment 2	50+00 to 53+00

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  $2\frac{1}{2} : 1$  (40%) shall have horizontal benches and key ways 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).



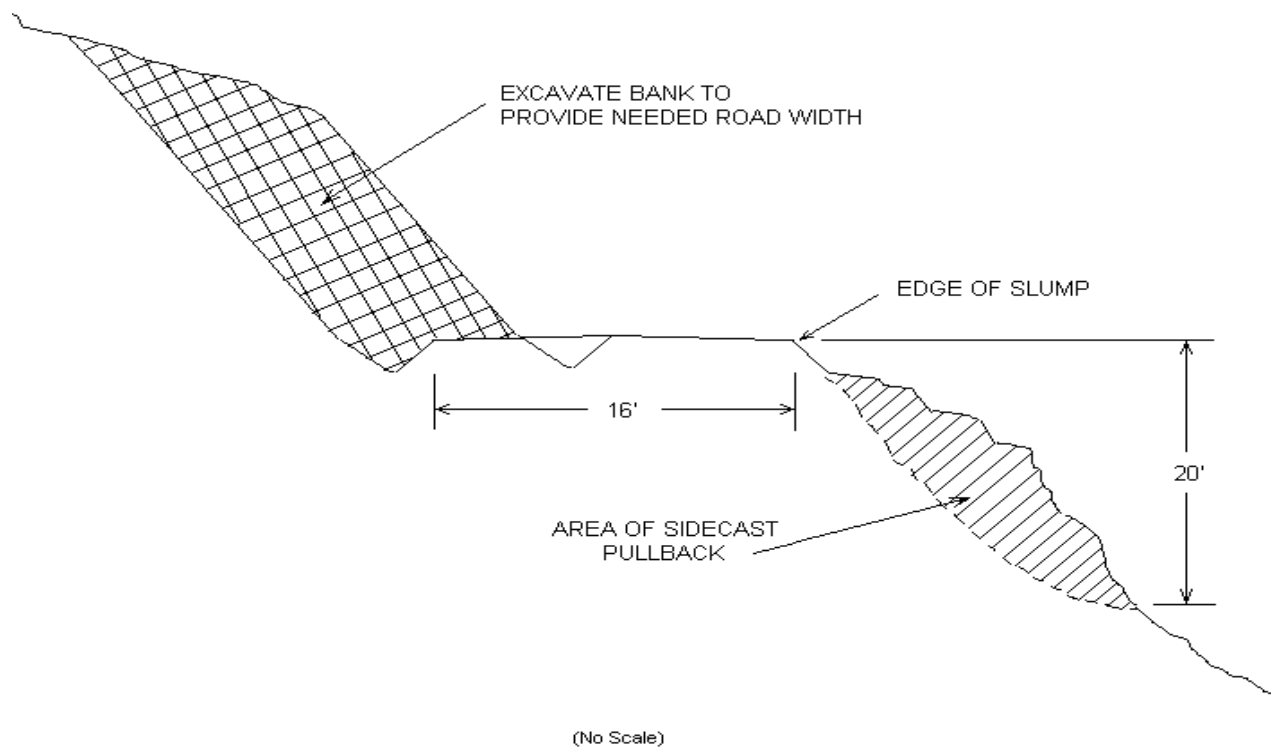
DETAIL: BENCHING AND SIDEHILL EMBANKMENT FILL CONSTRUCTION

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.

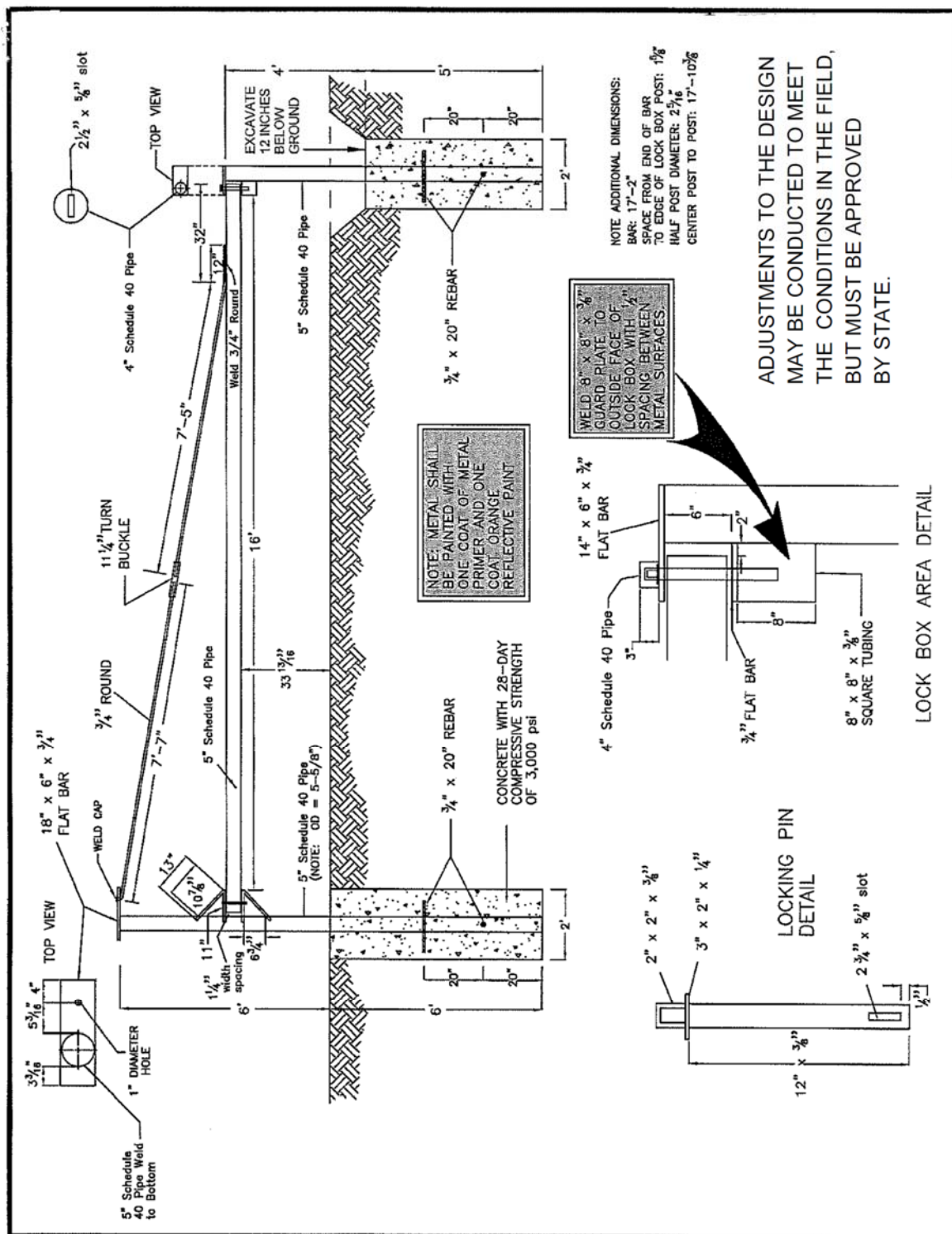
Once observed by STATE, erosion control measures shall be applied to the graded slopes. Variations to these specifications shall not be allowed unless approved in writing by STATE.

EXHIBIT L

TYPICAL CROSS SECTION VIEW OF SIDECAST PULLBACK AND ROAD REALIGNMENT



## EXHIBIT M



## ***PART IV: OTHER INFORMATION***

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

### **Non-Statutory Written Plan**

#### **Tilden Beach Timber Sale 341-17-57**

#### **Portions of Section 30, T17S, R08W, W.M.**

**Protected Resource:** Beecher Creek, Medium Non-fish stream.

**Activity:** Road reconstruction, culvert installation, fill over 15 feet deep.

This plan addresses the installation of two new culverts to reconstruct a historic stream crossing in the upper watershed of Beecher Creek.

#### **Protection Measures:**

- Culvert to be installed is designed to meet a peak flow that exceeds the 50 year flood return interval as described in ODF Technical Note 5.
- Operation will minimize the excavation of side slopes near the stream channel, and employ engineering best management practices to minimize surface erosion, embankment failure and downstream movement of fill material.
- Operation will minimize the volume of material in the fill by restricting the width and height of the fill to the amount needed for safe use of the road by vehicles, and by providing adequate cover over the culvert or other drainage structure.

**Prepared By:** Nikolai Hall  
Natural Resources Specialist

**Date:** August 8, 2016

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

**Statutory Written Plan**

**Tilden Beach Timber Sale**  
**341-17-57**

**Portions of Section 30, T17S, R08W, W.M.**

**Protected Resource:** Pat Creek, Medium Type F, Little Beecher Creek, Small Type F.

**Activity:** Cable yarding within 100 feet of Type F streams.

Operation involves yarding logs within 100 feet of Pat Creek and Little Beecher Creek.

Operation involves yarding logs fully suspended over Pat Creek and Little Beecher Creek.

**Cable Yarding:**

- No cutting will take place within approximately 100 feet of the streams (either side) except for where needed for cable corridors or safety purposes.
- Any trees to be felled within the Riparian Management Area (RMA, outside 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.
- Operation will swing all yarded material free of the ground in the aquatic areas and riparian areas.
- Operation will minimize the number and width of yarding corridors through the RMAs, and minimize disturbance to all vegetation within the RMAs.

**Prepared By:** Nikolai Hall  
Natural Resources Specialist

**Date:** August 8, 2016