

# PART III: EXHIBITS

State Timber Sale Contract  
No. 341-17-39  
Sunday Punch

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.: 341-17-39

(2) Sale Name: Sunday Punch

(3) Contract Expiration Date: October 31, 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.

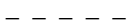
- (10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:
  - 1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings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



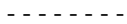
Cable Landing, with numbers for sequence.



Tractor Landing with alphabetical sequence.



Approximate setting boundary.



Spur truck roads.



Tractor yarding roads.



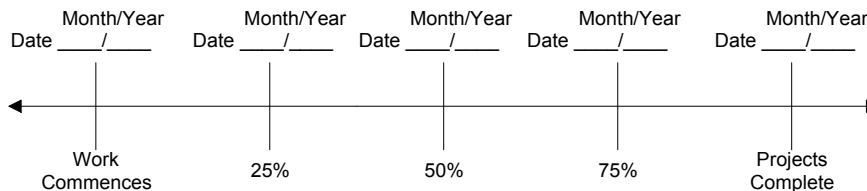
Temporary stream crossings.

EXHIBIT B  
OPERATIONS PLAN

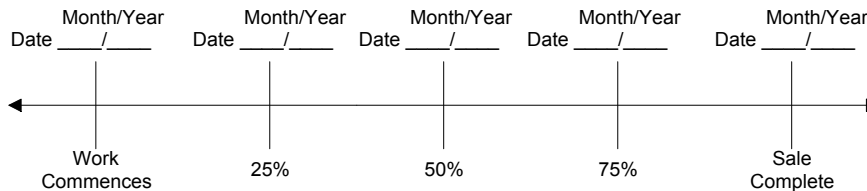
**Completion Timeline**

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: \_\_\_\_\_  
STATE OF OREGON - DEPARTMENT OF FORESTRY

SUBMITTED BY:  
PURCHASER

Title \_\_\_\_\_

Title \_\_\_\_\_

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



**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.

## 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)

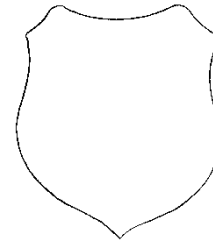
(3) FROM: Forest Grove (05) Phone (503) 357-2191  
(State Forestry District)

(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.

(9) SALE NAME: Sunday Punch

COUNTY: Washington County, OR

(10) STATE CONTRACT NUMBER: 341-17-39

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

(12) STATE BRAND INFORMATION: (COMPLETE BELOW)

(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@mwlsbg.com](mailto:info@mwlsbg.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

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STATION TO STATION	DRAINAGE
16 feet	12 feet	B to C	0+00 to 25+95	Ditch
16 feet	12 feet	C to D	0+00 to 7+85	Ditch
16 feet	12 feet	E to F	0+00 to 2+40	Ditch
16 feet	12 feet	G to H	0+00 to 6+40	Ditch
16 feet	12 feet	I to J	0+00 to 7+00	Ditch
16 feet	12 feet	K to L	0+00 to 2+20	Ditch
16 feet	12 feet	M to N	0+00 to 7+00	Ditch
16 feet	12 feet	O to P	0+00 to 3+00	Ditch
16 feet	12 feet	Q to R	0+00 to 6+00	Ditch
16 feet	12 feet	S to T	0+00 to 1+80	Ditch
16 feet	12 feet	U to V	0+00 to 2+85	Ditch
16 feet	12 feet	W to X	0+00 to 83+50	Ditch
16 feet	12 feet	Y to C	0+00 to 27+50	Ditch

CLEARING. This work shall consist of clearing, removing, and disposing of all trees, Snags, Down Timber, brush, surface objects, and protruding obstructions within the clearing limits. Clearing debris shall not be placed or permitted to remain in or under any road embankment sections.

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

CLEARING CLASSIFICATION:

New Construction - Where clearing limits have not been marked, the clearing limits shall extend 5 feet back of the top of the cutslope and 5 feet out from the toe of the fill slope, or as directed by STATE.

Improvement – Where clearing limits have not been marked, the clearing limits shall extend 5 feet back of the top of the cutslope and 10 feet out from the toe of the fill slope, or as directed by STATE.

GRUBBING. This work shall consist of the removal or digging out of stumps and protruding objects.

All stumps shall be completely removed within the limits of required grubbing. Stumps overhanging cutslopes shall be removed. Grubbing debris shall not be placed or permitted to remain in or under any road embankment sections.

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 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.

SLOPES

Solid Rock

Fractured Rock

Soil - side slopes 50% and over

Soil - side slopes less than 50%

Back Slopes

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

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

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

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

Fill Slopes

1½:1

1½:1

Top of cutslope shall be rounded.

LANDINGS. Landings shall be constructed as posted in the field, no less than 50 feet wide and no more than 70 feet wide unless otherwise approved by STATE. Surface is to be 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 G, 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. 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.
2. Energy Dissipator Construction. Where rock is used for energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit E.
3. Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic-yard, track-mounted excavator.
4. 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 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 at 4 to 6 percent.

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
Point A	0+00	Point A. Install gate according to the specifications in Exhibit J. Gate may be picked up at the Forest Grove District Office. Block all other access around the gate using existing boulders and stumps onsite.
B to C	0+00	Point B. Begin road construction; crown road, begin ditch. Construct road ≤18% grade, corners shall be ≤16%.
	8+00	Install Culvert No. 1 (18" x 40') as cross drain, place 36cy of riprap at outlet as Energy Dissipator.
	9+50	End balanced construction, begin drifting material ahead to construct fill at 11+75 in order to maintain grade.
	13+50	End drift, begin balanced construction.
	15+00	End balance construction, begin drifting material ahead to meet grade.
	16+00	Live Stream. Install Culvert No. 2 (24" x 40'), place 36cy of riprap at outlet as Energy Dissipator.
	17+00	Live Stream. Install Culvert No. 3 (24" x 40'), place 36cy of riprap at outlet as Energy Dissipator.
	20+00	End drift, begin balanced construction.
	25+95	Point C. End road construction.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
C to D	0+00	Point C. Begin road construction. Construct 100' spur with landing to the left.
	4+20	Point E. Spur to the right.
	5+60	Construct roadside landing on right.
	7+85	Point D. End road construction, construct landing.
E to F	0+00	Point E. Begin road construction.
	2+40	Point F. End road construction, construct landing.
G to H	0+00	Point G. Begin road construction.
	5+20	Point H. End road construction, construct landing.
I to J	0+00	Point I. Begin road construction.
	2+50	Point K. Spur to the left.
	7+00	Point J. End road construction, construct landing.
K to L	0+00	Point K. Begin road construction.
	2+20	Point L. End road construction, construct landing.
M to N	0+00	Point M. Begin road construction.
	0+75	Point O. Spur to the right.
	7+00	Point N. End road construction, construct landing.
O to P	0+00	Point O. Begin road construction.
	3+00	Point P. End road construction, construct landing.
S to T	0+00	Point S. Begin road construction.
	1+80	Point T. End road construction, construct landing.
U to V	0+00	Point U. Begin road construction.
	1+20	Construct 100' spur with landing to the left.
	2+85	Point V. End road construction, construct landing.

EXHIBIT D  
FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

1. 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 D.
2. 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. Waste materials shall be seeded and mulched in accordance with specifications in Exhibit I.
3. Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal. Existing culvert geometry shall be modified to provide for optimum drainage and culvert performance. Modifications may include, skewing the culvert and/or installing the culvert at gradients equal to or exceeding the drainage (or ditch) gradient. Where fill reconstruction or culvert replacement is specified, fills shall be excavated to natural stream course levels. All woody debris encountered during fill excavation shall be removed. All waste materials shall be hauled to nearby waste areas and shall be uniformly sloped and compacted for drainage. Waste materials shall be seeded and mulched in accordance with specifications in Exhibit I. 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 off of STATE land.
4. Drainage Ditches. Restore or construct ditchlines, including ditchouts, as directed by STATE. Clean out all culvert inlets and outlets for a 10-foot radius. Ditch debris including woody debris shall be loaded and hauled to designated waste areas, and shall be accomplished with the use of an excavator and dump truck. Re-establish or construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas 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.
5. 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 E.
6. Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

7. 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) Process (grade and mix) the existing surface. Provide for a crown of 4 to 6 percent, and compact in accordance to the "Compaction and Processing Requirements" in this Exhibit.
- (d) Upon completion of above required work, apply, process, and compact surfacing rock in accordance to this Exhibit.

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
Q to R	0+00	Point Q. Begin road Improvement.
	5+00	Point S. Spur to the right.
	6+00	Point R. End road improvement, construct landing.
W to X	0+00	Point W. Begin road improvement. Crown road, clean or construct ditches, clean inlet and outlet of culverts. Widen road to specifications. Begin using drifted and borrowed material to raise road grade thru the curve to Station 2+00; begin construction of a 60 ft. minimum radius curve; place 100 cy of additional road rock to be used as junction rock, fill widening and curve widening.
	4+70	Install Culvert No. 4 (18" x 30') as cross drain.
	8+20	Install Culvert No. 5 (18" x 30') as cross drain.
	14+70	Begin moving the centerline of the road 5 feet into the cut slope; End-haul all excavated material to Waste Area.
	16+20	End road widening. Live Stream. Remove existing culvert and excavate puncheon. End-haul unsuitable material to Waste Area. Install Culvert No. 6 (30" x 40'). Armor the inlet with 24 cy of riprap; place 24 cy of riprap to armor the outlet; place 36 cy of riprap as energy dissipator at the outlet.
	17+75	Point Y. Spur to the right.
	30+95	Point I. Spur to the left.
	37+20	Remove existing culvert and install Culvert No. 7 (18" x 30') as cross drain.
	46+35	Live Stream. Remove existing culvert and excavate puncheon. End-haul unsuitable material to Waste Area. Install Culvert No. 8 (30" x 50'). Armor the inlet with 24 cy of riprap; place 24 cy of riprap to armor the outlet; place 36 cy of riprap as energy dissipator at the outlet.
	47+00	Point M. Spur to the left.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
	52+55	Install Culvert No. 9 (18" x 30') as cross drain.
	55+55	Live Stream. Remove existing culvert and excavate puncheon. End-haul unsuitable material to Waste Area. Install Culvert No. 10 (36" x 50'). Armor the inlet with 24 cy of riprap; place 24 cy of riprap to armor the outlet; place 36 cy of riprap as energy dissipator at the outlet.
	56+45	Install Culvert No. 11 (18" x 30') as cross drain.
	57+75	Point Q. Spur to the left.
	63+65	Live Stream. Remove existing culvert and excavate puncheon. End-haul unsuitable material to Waste Area. Install Culvert No. 12 (36" x 50'). Armor the inlet with 24 cy of riprap; place 24 cy of riprap to armor the outlet; place 36 cy of riprap as energy dissipator at the outlet.
	67+90	Point U. Spur to the left.
	70+40	Live Stream. Remove existing culvert and excavate remaining puncheon. End-haul unsuitable material to Waste Area. Install Culvert No. 13 (24" x 30').
	83+50	Point X. End road improvement, construct landing.
Y to C	0+00	Point Y. Begin road improvement. Crown road, clean or construct ditches, clean inlet and outlet of culverts. Construct Y junction. Widen road to specifications. Install Culvert No. 14 (18" x 30') as cross drain in low spot.
	2+00	Begin road widening, incorporate material into road.
	3+50	End road widening.
	4+65	Begin road widening, incorporate material into road.
	8+50	End road widening.
	10+00	Begin road widening, incorporate material into road.
	13+25	End road widening.
	12+50	Point G. Spur to the right.
	19+15	Live Stream. Remove existing culvert and excavate puncheon. End-haul unsuitable material to Waste Area. Install Culvert No. 15 (30" x 40').
	19+65	Install Culvert No. 16 (18" x 30") as disconnect.
	21+30	Begin re-aligning road into cutslope, incorporate cutslope material into road.
	23+00	End road re-alignment.
	26+00	Begin road widening, incorporate material into road.
	23+50	Point E. Spur to the right.
	27+50	Point C. End road widening. Construct Landing. Spur to the right, road to the left.

EXHIBIT D

FULL BENCH AND END-HAUL REQUIREMENTS

POINT TO POINT	STA. TO STA.	CONTAINMENT - SIDECAST	WASTE AREA LOCATION	WASTE AREA TREATMENT
W to X	0+00 to 83+50	1	1	1, 2 & 3
Y to C	0+00 to 27+50	1	1	1, 2 & 3
V1 to V2	0+00 to 21+80	1 & 2	1	1, 2 & 3

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.

Clearing and grubbing debris shall be end-hauled on road segment B to C (9+50 to 15+00).

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.

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/or as marked in the field.

Waste Area Treatment

1. Deposit at waste area, spread evenly, compact, and provide adequate drainage.
2. Pile woody debris separate from other waste material.
3. Mulch and seed all waste areas in accordance with Exhibit I.

EXHIBIT D  
ROAD SURFACING

ROAD SEGMENT: B to C								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 25+95	6"	Station	31	Stations	25.95	804
Turnouts	3"-0" Crushed		10"	Turnout	24	Turnouts	4	96
Junctions	3"-0" Crushed	Point B	10"	Junction	24	Junctions	1	24
Junctions	3"-0" Crushed	Point C	10"	Junction	36	Junctions	1	36
Culvert Bedding	1½"-0" Crushed	Culvert Nos. 1, 2 & 3	Varies	Culvert	12	Culverts	3	36
Traction Rock	1½"-0" Crushed	0+00 to 25+95	4"	Station	20	Stations	25.95	519
Energy Dissipator	36" - 12" Riprap	Culvert Nos. 1, 2 & 3	Varies	Culvert	36	Culverts	3	108
Total Rock for Road Segment:								1,623
ROAD SEGMENT: C to D								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 7+85	8"	Station	42	Stations	7.85	330
Turnarounds	3"-0" Crushed		8"	Turnaround	14	Turnarounds	1	14
Junctions	3"-0" Crushed	Point E	8"	Junction	12	Junctions	1	12
Landings	3"-0" Crushed	0+00 & Point D	8"	Landing	120	Landings	2	240
Landings	3"-0" Crushed	5+60	8"	Landing	80	Landings	1	80
Approach to Landing	3"-0" Crushed	0+00	8"	Approach	42	Approaches	1	42
Total Rock for Road Segment:								718
ROAD SEGMENT: E to F								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 2+40	8"	Station	42	Stations	2.4	101
Turnarounds	3"-0" Crushed		8"	Turnaround	14	Turnarounds	1	14
Landings	3"-0" Crushed	Point F	8"	Landing	120	Landings	1	120
Total Rock for Road Segment:								235
ROAD SEGMENT: G to H								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 6+40	8"	Station	42	Stations	6.4	269
Turnarounds	3"-0" Crushed		8"	Turnaround	14	Turnarounds	1	14
Landings	3"-0" Crushed	Point H	8"	Landing	120	Landings	1	120
Total Rock for Road Segment:								403



EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I to J								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 7+00	8"	Station	42	Stations	7	294
Turnarounds	3"-0" Crushed		8"	Turnaround	14	Turnarounds	1	14
Junctions	3"-0" Crushed	Point K	8"	Junction	12	Junctions	1	12
Landings	3"-0" Crushed	Point H	12"	Landing	180	Landings	1	180
Total Rock for Road Segment:								500
ROAD SEGMENT: K to L								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 2+20	8"	Station	42	Stations	2.2	92
Turnarounds	3"-0" Crushed		8"	Turnaround	14	Turnarounds	1	14
Landings	3"-0" Crushed	Point H	8"	Landing	120	Landings	1	120
Total Rock for Road Segment:								226
ROAD SEGMENT: M to N								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 7+00	8"	Station	42	Stations	7	294
Turnarounds	3"-0" Crushed		8"	Turnaround	14	Turnarounds	1	14
Junctions	3"-0" Crushed	Point O	8"	Junction	12	Junctions	1	12
Landings	3"-0" Crushed	Point N	8"	Landing	120	Landings	1	120
Total Rock for Road Segment:								440
ROAD SEGMENT: O to P								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 3+00	8"	Station	42	Stations	3	126
Turnarounds	3"-0" Crushed		8"	Turnaround	14	Turnarounds	1	14
Landings	3"-0" Crushed	Point P	8"	Landing	120	Landings	1	120
Total Rock for Road Segment:								260
ROAD SEGMENT: Q to R								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 6+00	4"	Station	20	Stations	6	120
Landings	3"-0" Crushed	Point R	8"	Landing	120	Landings	1	120
Total Rock for Road Segment:								240

EXHIBIT D  
ROAD SURFACING

ROAD SEGMENT: S to T								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 1+80	8"	Station	42	Stations	1.8	76
Landings	3"-0" Crushed	Point T	8"	Landing	120	Landings	1	120
Total Rock for Road Segment:								196
ROAD SEGMENT: U to V								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 2+85	8"	Station	42	Stations	2.85	120
Junctions	3"-0" Crushed	1+20	8"	Junction	12	Junctions	1	12
Landings	3"-0" Crushed	1+20 & Point V	8"	Landing	120	Landings	2	240
Approach to Landing	3"-0" Crushed	1+20	8"	Station	42	Stations	1	50
Total Rock for Road Segment:								422
ROAD SEGMENT: W to X								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 17+75	10"	Station	53	Stations	17.75	941
Surfacing Rock	3"-0" Crushed	17+75 to 83+50	8"	Station	42	Stations	65.75	2,762
Turnouts	3"-0" Crushed		8"	Turnout	19	Turnouts	6	114
Turnarounds	3"-0" Crushed		8"	Turnaround	14	Turnarounds	1	14
Junction	3"-0" Crushed	Point W	8"	Junction	100	Junctions	1	100
Junctions	3"-0" Crushed	Points I, M, Q, U, & Y	8"	Junction	12	Junctions	5	60
Landings	3"-0" Crushed	Point X	8"	Landing	120	Landings	1	120
Culvert Bedding and Backfill	1½"-0" Crushed	Culvert Nos. -4-13	6"	Culvert	24	Culverts	10	240
Energy Dissipator	36" - 12" Riprap	Culvert Nos. 6, 8, 10 & 12	36"	Culvert	36	Culverts	4	144
Fill Armor	36" - 12" Riprap	Culvert Nos. 6, 8, 10 & 12	24"	Fill	48	Fills	4	192
Total Rock for Road Segment:								4,687
ROAD SEGMENT: Y to C								
Application	Rock Size and Type	Location	Depth of Rock	Volume (CY) Per		Number of		TOTAL VOLUME (CY)
Surfacing Rock	3"-0" Crushed	0+00 to 27+50	10"	Station	53	Stations	27.5	1,458
Turnouts	3"-0" Crushed		10"	Turnout	24	Turnouts	4	96
Turnarounds	3"-0" Crushed		8"	Turnaround	14	Turnarounds	1	14
Junctions	3"-0" Crushed	Point Y	10"	Junction	53	Junctions	1	53
Junctions	3"-0" Crushed	Points G & E	10"	Junction	12	Junctions	2	24
Landings	3"-0" Crushed	Point C	8"	Landing	120	Landings	1	120
Culvert Bedding and Backfill	1½"-0" Crushed	Culvert Nos. 14 - 16	6"	Culvert	24	Culverts	3	36
Total Rock for Road Segment:								1,801

ROCK TOTALS (CY)	36" - 12"	3" - 0"	1½" - 0"
	444	10,478	831

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

EXHIBIT D

ROCK ACCOUNTABILITY

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

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

Depth Measurement. Rock shall be spread and compacted according to the depths specified in Exhibit D. Truck measure volumes are given, but shall not limit the amount of rock spread.

Depth shall be determined in the most compacted area of the surface cross section. The depth of compacted aggregates shall not vary more than 1 inch from the depth specified in the "Road Surfacing" table in Exhibit D. The average depth for each road segment shall be the specified depth or greater. If additional rock is required because of insufficient depth, the locations and volumes to be added shall be determined by STATE.

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

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

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

Subgrade. Subgrade surfaces of the road segments listed below shall be graded and compacted prior to rocking. Compaction shall be accomplished by traveling all surfaces from shoulder to shoulder until the surface is smooth and hard and visible deformation ceases. At least 3 passes shall be made over the entire width and length of the road. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

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

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments.	1 & 3

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
All road segments.	1, 2 & 3

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

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments.	1

COMPACTION EQUIPMENT OPTIONS

1. Vibratory Rollers. The drum shall have a smooth surface, a diameter not less than 48 inches, a width not less than 58 inches, and a turning radius of 15 feet or less. Vibration frequency shall be regulated in steps to 1400, 1500, and 1600 VPM, corresponding to engine speeds of 1575, 1690, and 1800 RPM. The centrifugal force developed shall be 7 tons at 1600 VPM. It shall be activated by a power unit of not less than 25 horsepower. The vibratory roller shall be self-propelled and operated at speeds ranging from 0.9 miles to 1.8 miles per hour, as directed by STATE.
2. Vibratory Hand-Operated or Backhoe-Mounted Tamper. Vibratory hand-held or hydraulic tampers shall be used for compaction of backfill materials around culverts 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.
3. Dozer. A dozer/track-type tractor weighing a minimum of 82,000 pounds shall be operated so that the entire surface comes in contact with the tracks.

## EXHIBIT E

### CULVERT SPECIFICATIONS

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

Culverts shall be constructed of corrugated double-walled polyethylene and shall be double-walled and meet the requirements of AASHTO M-294-06, Type S Culvert.

Polyethylene culverts shall not be used where required culvert diameter is over 36 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

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 drains shall be skewed to fit the required culvert length to the road prism.

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.

#### Disconnect Culverts

The culvert inlet shall be located as close to the channel that it is disconnecting, while the culvert outlet shall be located as far from the channel as possible; discharge culvert outflow on the forest floor, allowing for filtration before the water enters the disconnected channel.

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

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

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

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

EXHIBIT E

CULVERT SPECIFICATIONS

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" and 18" for culverts 42" to 96". Minimum vertical cover for other designs shall be as specified by STATE.

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

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

The intake end of relief culverts shall be provided with a sediment catching basin 3 feet in diameter at the bottom. The outlet end of any culvert which would allow water to erode embankment soil shall be provided with an energy dissipator, half round, or other approved slope protection device. Construct lead-off ditches away from culvert outlets where the slope gradients restrict the free flow of water.

Culverts 36 inches in diameter or larger shall have 1:1 step beveled inlets.

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

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

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.

Energy Dissipators shall be installed within 72 hours of culvert installation, unless otherwise approved in writing by STATE. Steel posts used with half round installation shall be painted with rust preventative paint.

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

EXHIBIT E  
CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	ROAD SEGMENT POINT TO POINT	STATION
1	18	40	CPP	B to C	8+00
2	24	40	CPP	B to C	16+00
3	24	40	CPP	B to C	17+00
4	18	30	CPP	W to X	4+70
5	18	30	CPP	W to X	8+20
6	30	40	CPP	W to X	16+20
7	18	30	CPP	W to X	37+20
8	30	50	CPP	W to X	46+35
9	18	30	CPP	W to X	52+55
10	36	50	CPP	W to X	55+55
11	18	30	CPP	W to X	56+45
12	36	50	CPP	W to X	63+65
13	24	30	CPP	W to X	70+40
14	18	30	CPP	Y to C	0+00
15	30	40	CPP	Y to C	19+15
16	18	30	CPP	Y to C	19+65

CPP = Polyethylene



EXHIBIT E

TYPICAL EMBEDDED ENERGY DISSIPATOR

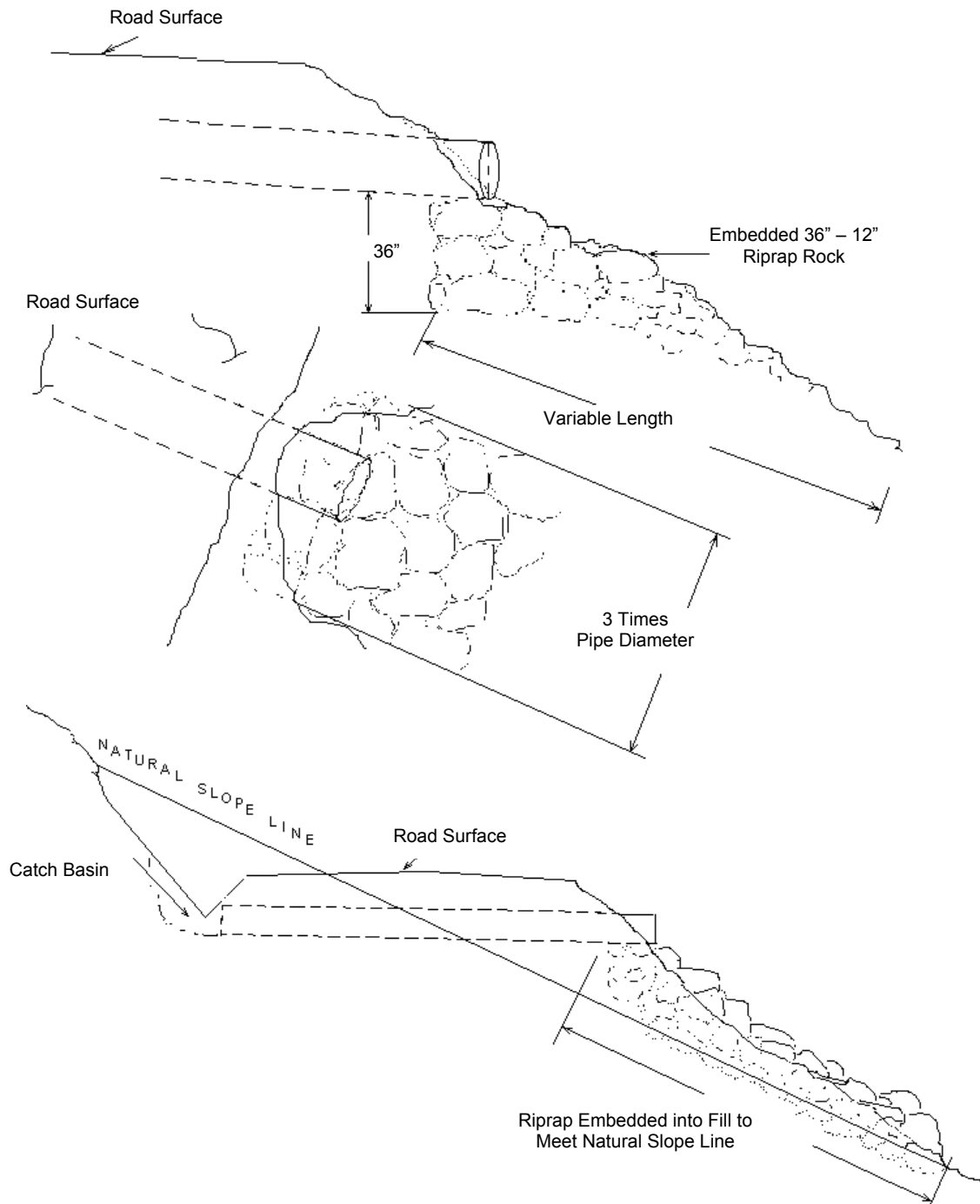


EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

1. PURCHASER shall prepare a written development plan for the quarry area. The plan shall be submitted to STATE for approval prior to conducting any operation in quarry area. The plan shall include, but not be limited to:
  - (a) Location of benches and roads to benches.
  - (b) Disposal site for woody debris, overburden and reject material.
  - (c) Time lines for rock quarry use.
  - (d) Erosion Control measures.
2. PURCHASER shall schedule and coordinate quarry and stockpile usage with other existing or planned activity requiring quarry or stockpile usage. PURCHASER shall notify STATE 5 days prior to the start of quarry development activities.
3. The quarry site shall be left in a condition free from overburden and debris. Access roads to the quarry, and the quarry floor, shall be cleared at the termination of use. Overburden shall be removed for a distance of 20 feet beyond the developed rock source.
4. All overburden and reject material shall be hauled to the designated waste area as directed by STATE.
5. PURCHASER shall conduct the operations relative to the disposal of waste material in such manner that sediment, rock, or debris shall not be washed, conveyed, or otherwise deposited in any stream.
6. 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 as much material as possible within the quarry development area. PURCHASER shall maintain a comprehensive blasting log that contains all pertinent data for all blasting operations. The blasting log shall be submitted to the STATE after the completion of all blasting activity. The blasting log is intended for STATE record keeping purposes only.
7. Benches shall be maintained/constructed at intervals of 40 feet or less in height and shall be a minimum of 20 feet in width. Any gravel or talus slopes shall be left with a working face at an angle of 60 percent or less. There shall be a minimum of one bench with an access road to it. Said bench shall be easily accessible with tractors.
8. Quarry face shall be developed in a uniform manner. All quarry backslopes shall be left in a stable condition.
9. Oversized material that is produced shall be piled in a designated area adjacent to the pit. It shall not be wasted.
10. The quarry floor shall be developed to provide for drainage away from the quarry. All quarry and stockpile site drainage ditches shall be maintained. Quarry access roads shall be cleared and blocked upon completion of quarry use as directed by STATE.
11. Proper winterization and storm-water control measures such as waterbarring, drainage, utilization of filter bales, mulching and/or blocking access shall be constructed and maintained to protect the watershed and Project Work, as directed by STATE.
12. Apply seed and mulch to the waste area, as specified in Exhibit I.

EXHIBIT F

CRUSHED ROCK SPECIFICATIONS

Materials. The material shall be fragments of rock crushed to the required size. The material shall be free from vegetation and lumps of clay.

STATE may require screening and/or rejecting of materials utilized for production of crushed rock for the purpose of removing excess fine material. Excess fines are present, when greater than 5 percent of a total rock sample weight, passes a #200 sieve.

Rock crushing shall be limited to periods when weather conditions are acceptable to STATE.

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

Rock strength: for rock not produced from STATE quarries, the material from which base material is produced or manufactured shall meet the following test requirement for Aggregate Hardness - Test Method AASHTO T 96 30 percent Maximum.

For the purpose of crushing rock specified under the projects in Section 2610, "Project Work," PURCHASER shall utilize a three-stage rock crusher, or equivalent, unless otherwise approved by STATE.

The rock crusher shall be calibrated to produce rock as specified in this exhibit. Prior to the commencement of production crushing, PURCHASER shall sample, test, and provide rock test results meeting STATE specifications. STATE may then sample and test crushed rock for approval to proceed. PURCHASER shall take one sample of each 2,000 cubic yards of crushed rock material produced thereafter, using approved AASHTO sampling procedures. PURCHASER shall submit samples to a certified laboratory or shall perform testing for gradation requirements using AASHTO T 11 and AASHTO T 27 testing procedures. Prior to testing, each sample shall be split, making one-half of the sample, with proper identification, available for testing by STATE. Each sample and the results of PURCHASER testing shall be made available to STATE within 24 hours of sampling. Any rock crushed prior to STATE approval to proceed shall not be credited to the required rock quantity. Any subsequent rock tests not meeting STATE specifications shall be reason for rejection of that portion of crushed rock produced after that test and shall not be credited to the required rock quantity. STATE may sample the crushed rock at any time during the operation. Results of STATE's tests shall prevail over all other test results.

EXHIBIT F

DURABLE CRUSHED ROCK SPECIFICATIONS

Grading Requirements

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

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

RIPRAP ROCK SPECIFICATIONS

For 36"-12" 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

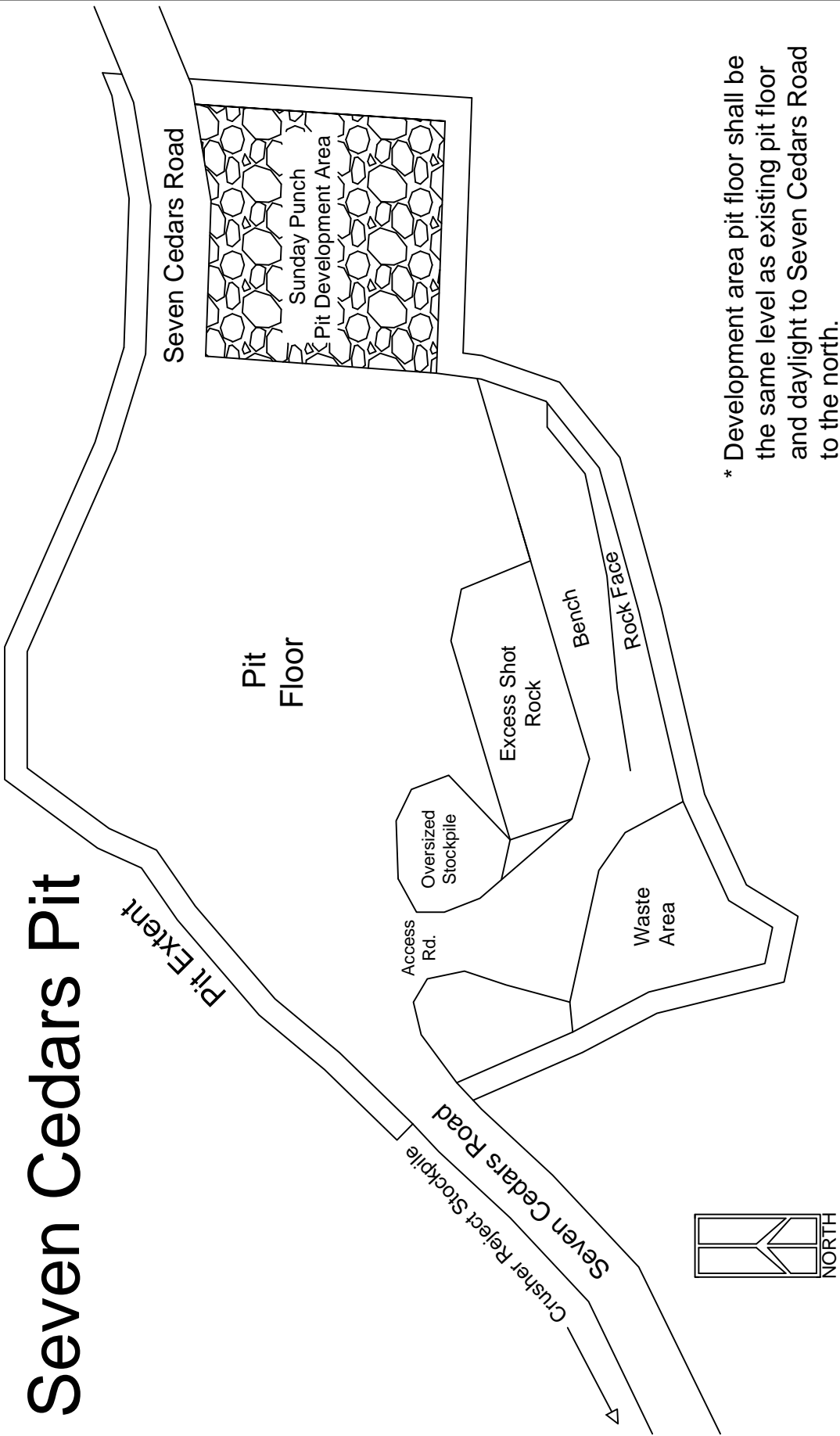
ROCK QUARRY TEST DRILLING REQUIREMENTS

- 1) Notify STATE a minimum of 48 hours prior to beginning any operations. A STATE Representative shall be present during test drilling to monitor results, issue instructions, determine test hole locations and depths. The representative also will certify hours of operation or acceptance of work when required under contract.
- 2) Work scheduling 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. Testing operations shall not be allowed from November 1 to March 31, or during any other period when operations might damage sites or affect stream flows. Any exception to these instructions must be authorized in writing by STATE.
- 3) The hydraulic rock drill shall be a crawler-type in the 40,000 pound class or greater, with a minimum penetration rate of 120 feet per hour while drilling a 4"-6" bore hole, in overburden, fractured rock and solid rock.
- 4) The operator must be experienced in operating hydraulic rock drills on rock test drilling operations, be able to operate the drill proficiently, and operate in the area as directed by STATE.
- 5) 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.
- 6) Test holes shall be drilled to determine mass attitudes of rock strata, rates of drill advancement, depths of overburden and other pertinent information.
- 7) Each test hole shall be staked and assigned an individual number. Test holes shall be drilled for a maximum distance of 40 feet in vertical, horizontal and/or other directions, as directed by STATE.
- 8) STATE may elect to change the test drilling locations at the quarry sites.
- 9) Access road construction may be required. Access roads shall be constructed by the PURCHASER using small excavator. All routes and location of access roads shall be flagged and approved by STATE prior to construction. Timber removal shall be minimized and limited to that necessary to access the drill sites.
- 10) Upon completion of test drilling at each site, waterbar and block all excavator and test equipment access roads and reestablish drainage ditches, as directed by STATE.

Sunday Punch No. 341-17- 39

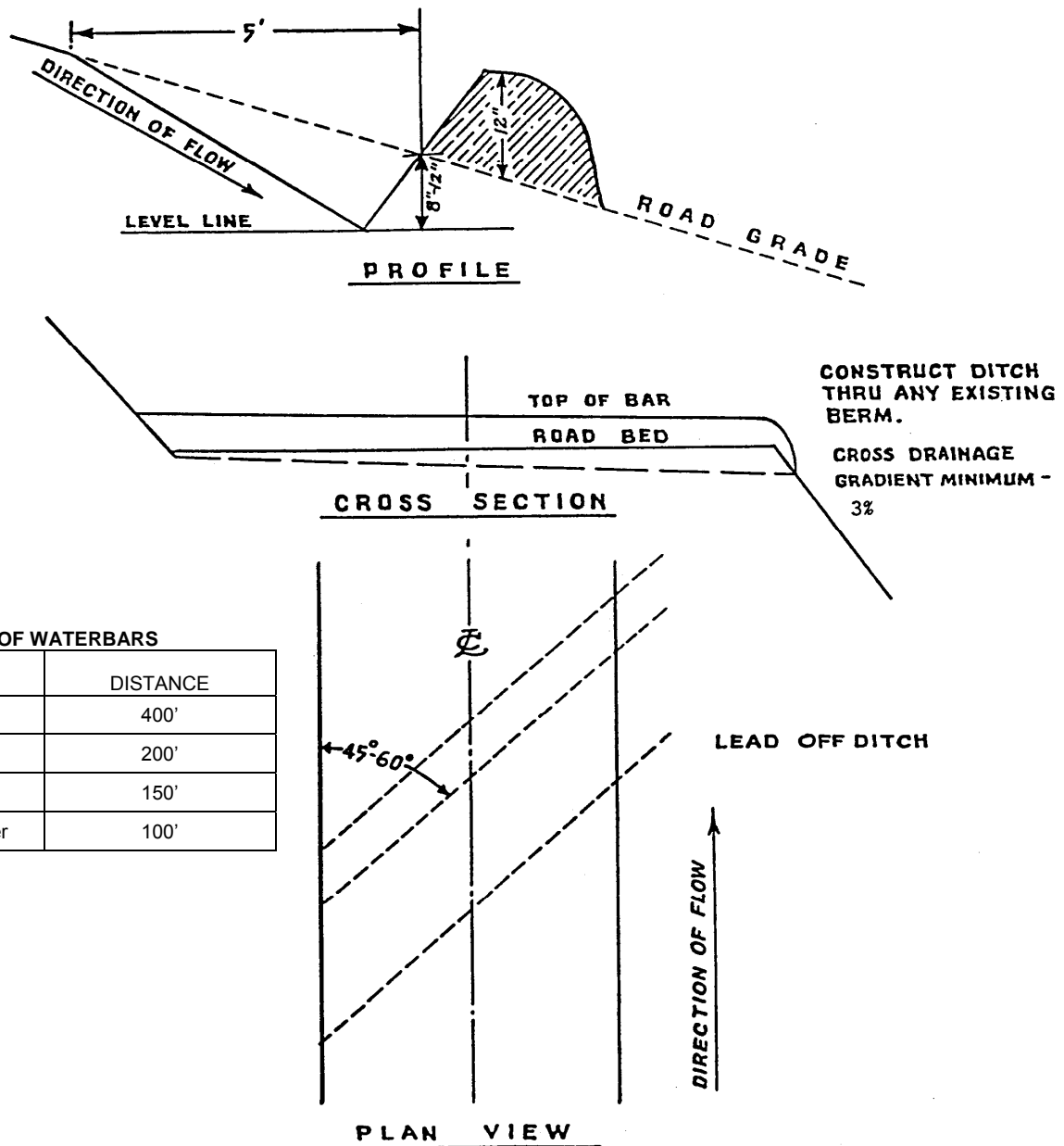
Exhibit F  
Pit Development Plan

Seven Cedars Pit



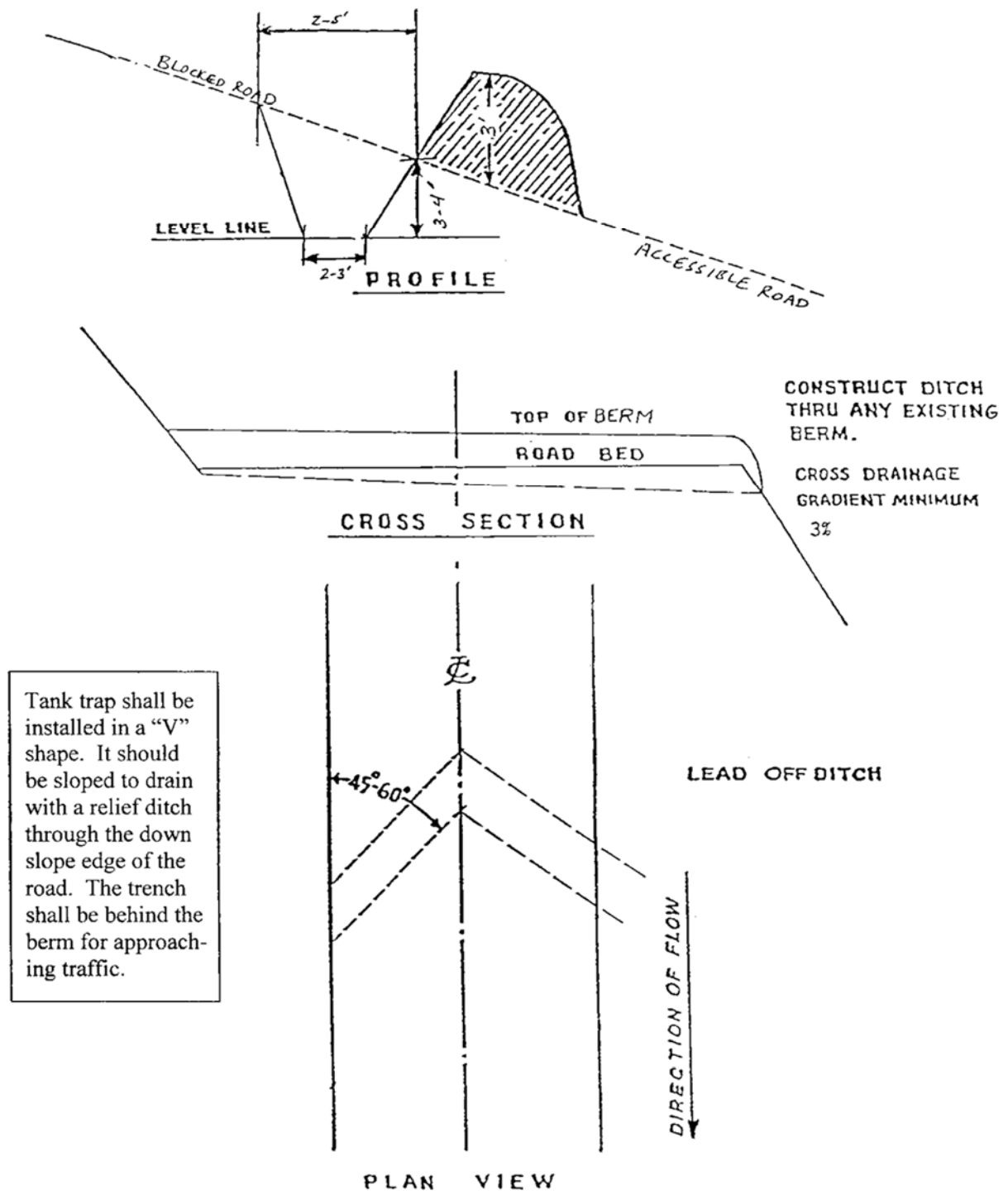
\* Development area pit floor shall be the same level as existing pit floor and daylight to Seven Cedars Road to the north.

EXHIBIT G  
WATERBAR SPECIFICATIONS



WATERBAR SPECIFICATIONS  
FOR CROSS DITCHING #298

EXHIBIT G  
TANK TRAP SPECIFICATIONS



Tank trap shall be installed in a "V" shape. It should be sloped to drain with a relief ditch through the down slope edge of the road. The trench shall be behind the berm for approaching traffic.

TANK TRAP  
SPECIFICATIONS



EXHIBIT H

ROAD VACATING SPECIFICATIONS

PURCHASER shall vacate at the following points: V1 to V2. Specific objectives for this project include:

- (a) Fill removal and stream channel development.
  - (b) Culvert removal.
  - (c) Restoration of natural contours by outslowing of the road prism.
  - (d) Sidecast pullback.
  - (e) Minimize disturbance of existing vegetation.
- 1) Tree Removal. Only cut or remove trees necessary to access the project area and to facilitate vacating operations, as approved by STATE. Timber outside the sale boundary shall NOT be removed.
  - 2) Fill Removal and Stream Channel Development. Remove fills to the natural stream course levels. Stream channel(s) shall be excavated/developed to specified widths. Developed stream banks shall be sloped at natural contours or no steeper than 1 ½:1, as directed by STATE.
  - 3) Culvert Removal. Remove drainage structures and culverts. Removed culverts shall be hauled to an approved refuse site off of STATE land.
  - 4) Rip Road Surface. Rip road surface to a minimum depth of 10 inches.
  - 5) Outslope Road. Outslope road to restore natural contours or establish a minimum of 10 percent slope for drainage at designated locations. If the road grade exceeds 10 percent, outslope of the road shall be 2 percent greater than the road grade.
  - 6) Sidecast Pullback. Excavate/pullback previously sidecast materials below the road between existing trees. Developed slopes shall be pulled back to a 1½:1 slope or to natural ground contours. The beginning position for sidecast pullback shall be no greater than 20 feet vertical distance from the existing road surface, in accordance with Exhibit D. Sidecast material remaining greater than 10 feet below the road shall be tapered and sloped for drainage.
  - 7) Use of Excavated Materials.
    - (A) Fill Excavation and Sidecast Pullback. Excavated materials shall be placed on the interior (cut) side of the road, and utilized to restore the cutslope to natural contours, or to a minimum 10 percent outslowed surface for drainage. Any excess material will be hauled to a designated waste area, as directed by STATE.
    - (B) Woody Debris Shall be placed on the surface of pullback/fill material.
    - (C) Block Roads. Use excavated material from fill removals to block roads from vehicle access, as directed by STATE.
  - 8) Erosion Control. Erosion control shall be completed in a progressive manner. Grass seed and straw mulch shall be applied for every 500 feet of road vacated, prior to continuing work.

All excavated material and bare soil shall utilize grass seed and straw mulch approved by STATE and in accordance with the specifications in Exhibit I. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.
  - 9) Construct Waterbars as directed by STATE. Construct waterbars according to the specifications in Exhibit G.
  - 10) Block Access. Block access to all vehicles at Point V1. Access shall be blocked by constructing a tank trap and using local boulders or stumps.

EXHIBIT H

ROAD VACATING SPECIFICATIONS

- 11) Equipment. A minimum 1½ cubic-yard, track mounted excavator shall be used for all excavation, culvert removal, streambed preparation, road blocking, and waterbarring, unless otherwise approved in writing by STATE.
- 12) Conditions. All work shall be performed during dry conditions acceptable to STATE.
- 13) Support. Support, including transport, other equipment, replacements, supplies, maintenance, and repairs, shall be furnished as required to complete the project and shall be furnished without cost to STATE, other than as agreed under the contract terms.

SPECIFIC INSTRUCTIONS/SPECIFICATIONS:

Segment      Station      Work Description

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
V1 to V2	0+00	Point V1. Begin road vacating. Construct Tank Trap and block road to vehicle access. Begin road ripping and sidecast pullback.
	3+50	Remove fill and establish stream channel.
	5+25	Remove fill and establish stream channel.
	10+25	Begin fill removal.
	10+53	Remove existing culvert and establish stream channel.
	10+95	End fill removal.
	12+00	Waste Area.
	20+70	Remove fill and establish stream channel.
	21+80	Point V2. End road vacating.

EXHIBIT H

TYPICAL CROSS SECTION VIEW OF ROAD VACATING SIDECAST PULLBACK

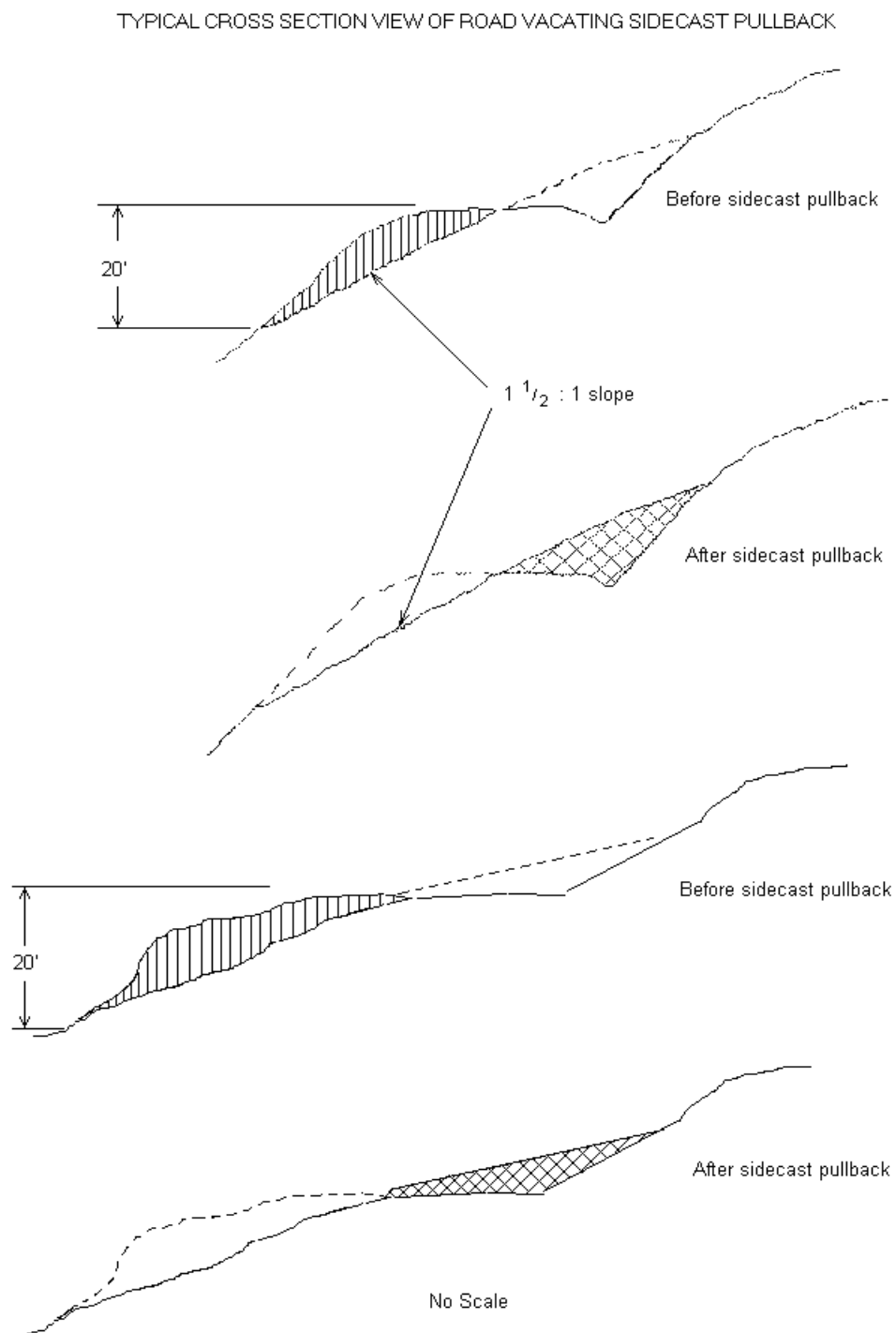


EXHIBIT I

SEEDING AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed, fertilizer, and straw mulch. Straw mulch shall consist of straw that is free of noxious weeds. Apply seed and fertilizer to all waste areas, and bare soils resulting from Project Nos. 2, 3 & 5. Apply straw mulch to all bare soils within 100' of streams resulting from Project Nos. 2, 3 & 5 and to all waste areas.

Seeding Seasons. Seeding shall be performed only from March 1 through June 15 and August 15 through October 31. Seeding materials shall not be applied during windy weather or when the ground is excessively wet or frozen. Areas of disturbed soil shall be seeded by the end of the project period in which work was started.

APPLICATION METHODS FOR SEED AND FERTILIZER

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

APPLICATION RATES FOR SEED AND FERTILIZER

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

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

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

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

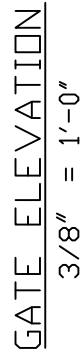
APPLICATION RATES FOR MULCH

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

Application Locations:

Road Segment	Location
B to C	Culvert Nos. 2 & 3
W to X	Culvert Nos. 6, 8, 10, 12 & 13
Y to C	Culvert No. 15
All	All Waste Areas

# METAL GATE INSTALLATION AND SPECIFICATIONS



Scale: Noted  
Date: 2/2008

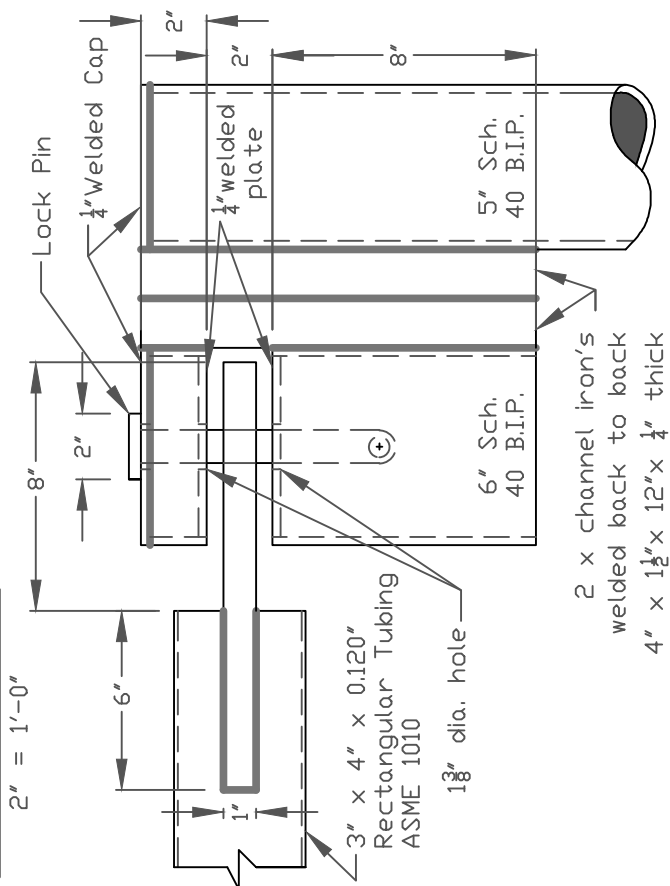


EXHIBIT K  
ROAD BRUSHING SPECIFICATIONS

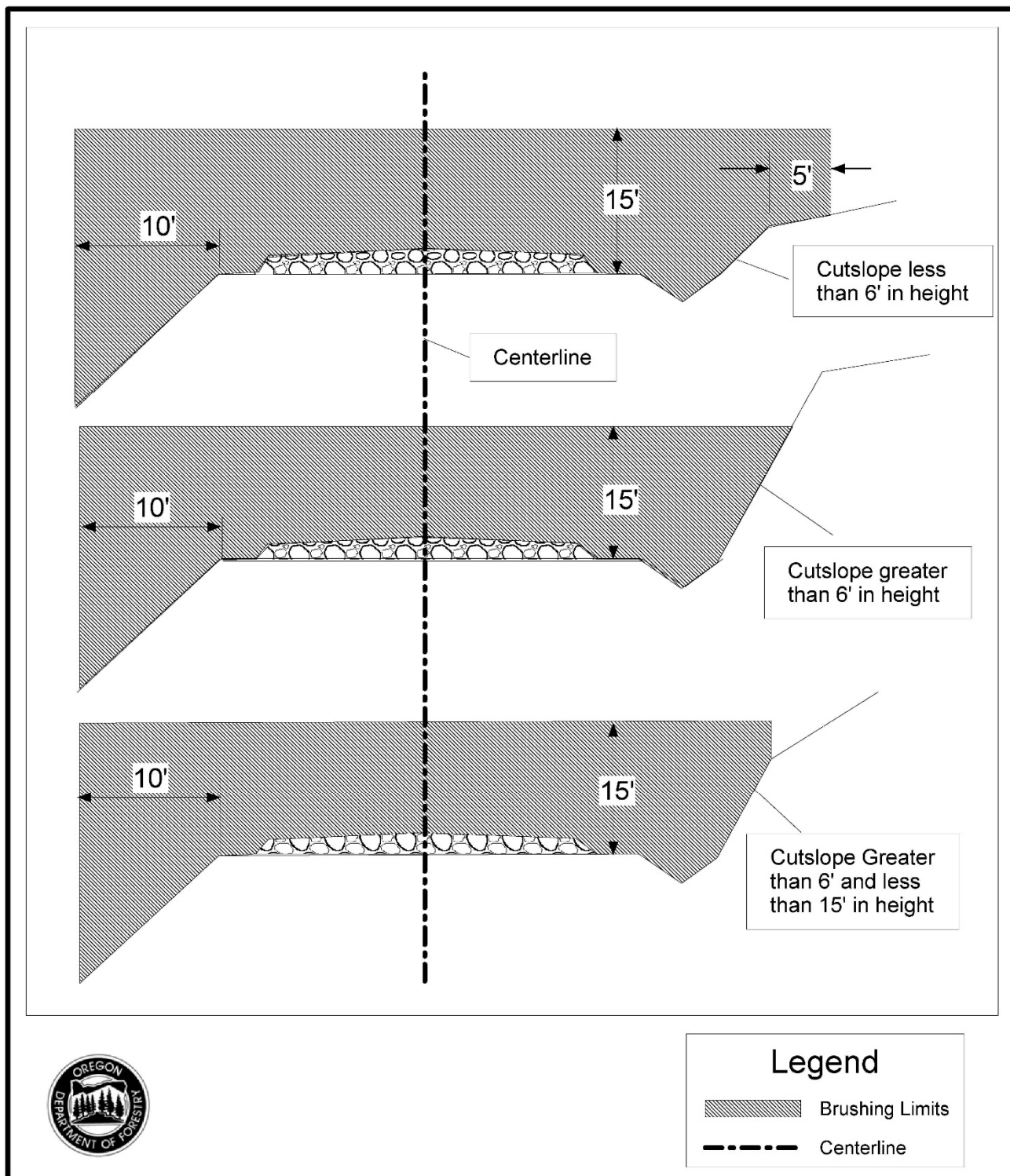


EXHIBIT K

ROAD BRUSHING SPECIFICATIONS

REQUIREMENTS

The minimum height of clearing shall be 15 feet from the road surface, and the minimum width of clearing on the down slope side of the road shall be 10 feet horizontal distance. The minimum width of brushing on the cutslope side of the road shall be dictated by the height of the cutslope as indicated in the three drawings above. 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.

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 replaced.

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

State Timber Sale Contract  
No. 341-17-39  
Sunday Punch

### **WRITTEN PLAN Sunday Punch Timber Sale #341-17-39**

**LEGAL DESCRIPTION:** Portions of Section Sections 1, 2 and 12, T1S, R6W, W.M, Washington County, Oregon.

**PROTECTED RESOURCE:** Type F streams, including Sunday Creek and the unnamed tributary of Sunday Creek along the southern boundary of the Timber Sale Area. Portions of the timber sale boundary was posted 25' from the unnamed tributary.

**DESCRIPTION OF THE AREA:** Slopes adjacent to these Creek range from 5% in the flood plane to approximately 70% immediately upslope. Streamside vegetation along these type F streams include second-growth Douglas-fir.

**PROTECTION MEASURES:** The partial cut prescription will not reduce the basal area to less than 130 square feet. Skidding operations will not be allowed from November 1 through March 31. Equipment shall not be allowed on slopes greater than 35% or operated within 50 feet of streams. Operations shall be suspended during periods of high soil moisture. Trees and snags adjacent to buffers shall be felled away from or parallel to buffer.

Prepared by: Kenton Burns 05/16/2016

Reviewed by: \_\_\_\_\_  
Erik Marcy; Unit Forester Date