

# PART III: EXHIBITS

State Timber Sale Contract  
No. 341-16-43  
Clear Head

EXHIBIT B

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

## OREGON DEPARTMENT OF FORESTRY

### TIMBER SALE OPERATIONS PLAN

(See Page 2 for instructions)

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

(5) State Brand Information (complete):



(1) Contract No.: 341-16-43

(2) Sale Name: Clear Head

(3) Contract Expiration Date: October 31, 2018

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

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

(6) Purchaser Representatives:

Projects: \_\_\_\_\_

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

Cell/Other

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

Home: \_\_\_\_\_

Projects: \_\_\_\_\_

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

Cell/Other

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

Home: \_\_\_\_\_

Projects: \_\_\_\_\_

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

Cell/Other

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

Home: \_\_\_\_\_

Projects: \_\_\_\_\_

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

Cell/Other

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

Home: \_\_\_\_\_

Logging: \_\_\_\_\_

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

Cell/Other

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

Home: \_\_\_\_\_

Logging: \_\_\_\_\_

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

Cell/Other

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

Home: \_\_\_\_\_

Logging: \_\_\_\_\_

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

Cell/Other

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

Home: \_\_\_\_\_

Logging: \_\_\_\_\_

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

Cell/Other

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

Home: \_\_\_\_\_

(7) State Representatives:

Projects: \_\_\_\_\_

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

Cell/Other

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

Home: \_\_\_\_\_

Logging: \_\_\_\_\_

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

Cell/Other

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

Home: \_\_\_\_\_

(8) Name of Subcontractors & Starting Dates:

Projects: No(s) \_\_\_\_\_ - \_\_\_\_\_

Date: \_\_\_\_\_

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

No(s) \_\_\_\_\_ - \_\_\_\_\_

Date: \_\_\_\_\_

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

No(s) \_\_\_\_\_ - \_\_\_\_\_

Date: \_\_\_\_\_

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

No(s) \_\_\_\_\_ - \_\_\_\_\_

Date: \_\_\_\_\_

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

Logging: Felling \_\_\_\_\_

Date: \_\_\_\_\_

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

Yarding: \_\_\_\_\_

Date: \_\_\_\_\_

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

(9) Comments:

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

(10) Operations Map: Attach a copy of timber sale Exhibit A or other suitable map which plainly shows the items listed on the instruction sheet.

EXHIBIT B  
INSTRUCTION SHEET FOR OPERATIONS PLAN

**SUBMIT ONE COPY OF PLAN TO STATE**

Operations shall be limited to the work shown in the plan until a revised plan or supplemental plan is submitted covering additional work. Compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act. If STATE has prepared a required Forest Practices Act (FPA) "Written Plan" for operations, PURCHASER shall comply with all provisions of the Written Plan.

**Explanation of Item No. (from Page 1)**

- (5) All sales require you to use a brand furnished by STATE. If the State brand has not been assigned when the plan is submitted, it will be furnished and assigned later. Complete drawing. If more than one brand is assigned to the sale, complete both drawings.
- (6) The contract requires you to have a designated representative available on the sale area or work location who is authorized to receive in your behalf any notice or instruction given by STATE and to take action in regard to performance under the contract. If logging and project work is widely separated, a representative is required for each.
- (7) The STATE representative will be designated when your plan is approved and is the person who will inspect and issue instructions regarding performance.
- (8) Show names of subcontractors to be used for any or all phases of the operations. If subcontractors are not known, or are changed later, give notification to the STATE representative prior to commencement of work by subcontractor.

Show projected dates for commencement of both projects and logging. If projected dates need to be changed at a later date, notification must be given to the STATE representative by supplemental plan or otherwise, prior to commencement of such operations.

- (10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:
  1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings in sequence.
  2. Locations of spur roads planned for construction, other than those required by the timber sale contract. Provide spur road specifications.
  3. Location of proposed tractor yarding roads. Show if and how marked on the ground.
  4. Location of temporary stream crossings.
  5. List the sequence of performing project work.
  6. Location of rock sources - attach pit development plans.



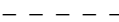
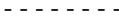


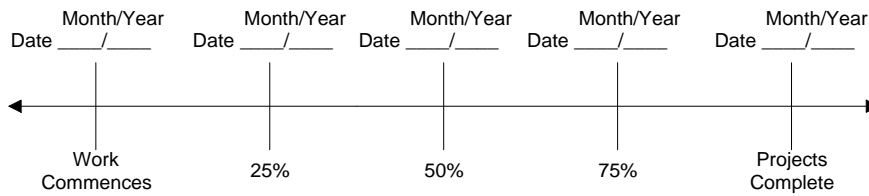
|   |   |
|---|---|
|  | Cable Landing, with numbers for sequence.   |
|  | Tractor Landing with alphabetical sequence. |
|  | Approximate setting boundary.               |
|  | Spur truck roads.                           |
|  | Tractor yarding roads.                      |
|  | Temporary stream crossings.                 |

EXHIBIT B  
OPERATIONS PLAN

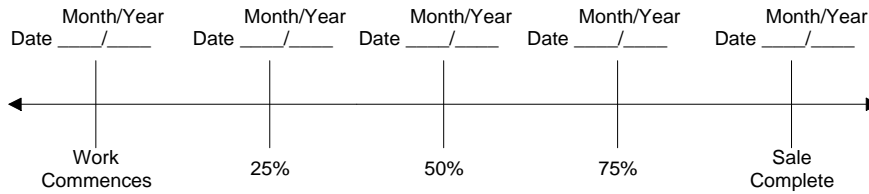
**Completion Timeline**

Indicate on the appropriate timeline below, the dates by which you plan to complete the work as required under this contract. The purpose of this section is to develop a plan that will ensure you complete the work as required, and meet the interim completion date(s) and contract expiration date. This plan is incorporated and made a part of the contract. When, in the opinion of STATE, operations are not commencing in a manner that meets the intent of this plan, you may be placed in violation of contract and your operations suspended until an amended plan is submitted and approved by STATE.

**Projects**



**Harvest & Other Requirements**



**The Federal Endangered Species Act (ESA) prohibits a person from taking any federally listed threatened or endangered species. Taking under the federal ESA may include alteration of habitat. STATE's approval of this plan does not certify that PURCHASER's operation under the plan is lawful under the federal ESA. As provided in the timber sale contract, PURCHASERS must comply with all applicable state, federal, and local laws.**

**PURCHASER's compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act.**

APPROVED: Date: \_\_\_\_\_

SUBMITTED BY:  
PURCHASER

STATE OF OREGON - DEPARTMENT OF FORESTRY

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

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

Original: Salem  
cc: District File  
Purchaser

**EXHIBIT C – SAWMILL GRADE (WESTSIDE SCALE)**

**SCALING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION**

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

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

(3) FROM: Forest Grove (05) Phone (503) 357-2191  
 (State Forestry District)  
 Address 801 Gales Creek Road  
Forest Grove, OR, 97116

(4) PURCHASER: \_\_\_\_\_  
 Mailing Address: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_

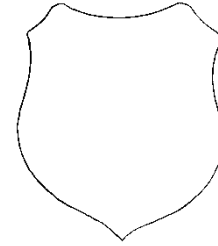
(9) SALE NAME: Clear Head

COUNTY: Columbia, Clatsop

(10) STATE CONTRACT NUMBER: 341-16-43

(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

(6) WESTSIDE SCALE: YES  NO   
 Use Region 6 actual taper rule. Logs over 40'.

(7) Weight Scale Sample

| (8)<br>APPROVED SCALING<br>LOCATIONS<br><small>(as shown on the ODF Approved Locations web-site)</small> | Species | Yard | Truck | Weight |
|--|---------|------|-------|--------|
|  |         |      |       |        |
|  |         |      |       |        |
|  |         |      |       |        |
|  |         |      |       |        |
|  |         |      |       |        |
|  |         |      |       |        |
|  |         |      |       |        |
|  |         |      |       |        |
|  |         |      |       |        |
|  |         |      |       |        |
|  |         |      |       |        |
|  |         |      |       |        |

| (14) SPECIAL REQUESTS (Check applicable)                 |                                     |
|--|-------------------------------------|
| PEELABLE CULL (all species) .....                        | <input checked="" type="checkbox"/> |
| <b>NO DEDUCTIONS ALLOWED FOR MECHANICAL DAMAGE</b> ..... | <input checked="" type="checkbox"/> |
| ADD-BACK VOLUME - Deductions due to delay .....          | <input checked="" type="checkbox"/> |
| OTHER: _____   |                                     |

(15) REMARKS \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

(16) SIGNATURES:  
 \_\_\_\_\_  
 Purchaser or Authorized Representative Date  
 \_\_\_\_\_  
 State Forester Representative Date  
 \_\_\_\_\_  
 State Forester Representative PRINT NAME

**Notify the District within one hour when branding or painting is inadequate for quick identification, the receipts are missing, not correctly or completely filled out, and/or when logs presented for scaling are impossible to scale accurately.**

**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).  

|   |  |
|---|--|
| <p>Columbia River Log Scaling &amp; Grading Bureau<br/>P.O. Box 7002, Eugene, OR 97401<br/>Phone: (541) 342-6007 Fax: (541) 342-2631<br/>Email: <a href="mailto:services@crls.com">services@crls.com</a></p> <p>Mountain Western Log Scaling &amp; Grading Bureau<br/>P.O. Box 580, Roseburg, OR 97470<br/>Phone: (541) 673-5571 Fax: (541) 672-6381<br/>Email: <a href="mailto:info@mwlsgb.com">info@mwlsgb.com</a></p> <p>Northwest Log Scalars, Inc<br/>5526 NE 122<sup>nd</sup> Ave, Portland, OR 97230<br/>Phone: (503) 254-0600 Fax: (503) 408-0919<br/>Email: <a href="mailto:info@nwlogscalars.com">info@nwlogscalars.com</a></p> | <p>Pacific Rim Log Scaling Bureau, Inc.<br/>8288 28<sup>th</sup> Court North East, Lacey, WA 98516<br/>Phone: (360) 528-8710 Fax: (360) 528-8718<br/>Email: <a href="mailto:office@prlsb.com">office@prlsb.com</a></p> <p>Yamhill Log Scaling &amp; Grading Bureau<br/>P.O. Box 709, Forest Grove, OR 97116<br/>Phone: (503) 359-4474 Fax: (503) 359-4476<br/>Email: <a href="mailto:yamhill@attglobal.net">yamhill@attglobal.net</a></p> <p>Pacific Log Scaling &amp; Grading Bureau, Inc.<br/>P.O. Box 23939, Portland, OR 97281<br/>Phone: (503) 684-5599 Fax: (503) 639-4880<br/>Email: <a href="mailto:PacLogScale@aol.com">PacLogScale@aol.com</a></p> |
|---|--|
- (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 D  
 FOREST ROAD SPECIFICATIONS

| SUBGRADE WIDTH | SURFACED WIDTH | POINT TO POINT | STATION TO STATION | DRAINAGE |
|----------------|----------------|----------------|--------------------|----------|
| 16 feet        | 12 feet        | A to B         | 0+00 to 9+75       | Ditch    |
| 16 feet        | 12 feet        | C to D         | 0+00 to 5+50       | Ditch    |
| 18 feet        | 14 feet        | E to F         | 0+00 to 152+20     | Ditch    |
| 16 feet        | 12 feet        |                | 152+20 to 248+80   | Ditch    |
| 18 feet        | 14 feet        | F to G         | 0+00 to 196+95     | Ditch    |
| 16 feet        | 12 feet        | G to H         | 0+00 to 8+75       | Ditch    |
| 16 feet        | 12 feet        | G to I         | 0+00 to 81+30      | Ditch    |
| 14 feet        | 12 feet        |                | 81+30 to 93+60     | Outslope |
| 16 feet        | 12 feet        |                | 93+60 to 119+20    | Ditch    |
| 16 feet        | 12 feet        | J to K         | 0+00 to 80+60      | Ditch    |
| 16 feet        | 12 feet        | L to M         | 0+00 to 16+50      | Ditch    |
| 16 feet        | 12 feet        | N to O         | 0+00 to 7+55       | 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 - The "Road Brushing Specifications" in Exhibit G shall apply.

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 and 5 feet out from the toe of the fill slope or edge of the road prism 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. Existing stumps within the clearing limits shall be removed.

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 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.

SLOPES

Solid Rock

Fractured Rock

Soil - side slopes 50% and over

Soil - side slopes less than 50%

Back Slopes

Vertical to ¼ :1

¼ :1

½ :1

¾ :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 H and blocked from vehicular traffic prior to October 31, annually and as directed by STATE.

EROSION CONTROL. Install 38 bio bags for erosion control in project areas and ditch lines where sedimentation or erosion is possible. Two Bio-bags shall be installed in the ditch line before every Live Stream in locations identified by STATE. Each Bio-bag shall be installed with a minimum of two wooden stakes.

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. Subgrade Preparation and Application of Surfacing Rock.
  - (a) Complete 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>  |
|----------------|----------------|--|
| A to B         | 0+00           | Point A. Begin road construction; crown road, begin ditch.                     |
|                | 3+75           | Construct ditch out to right.  |
|                | 9+75           | Point B. End road construction, construct landing.                             |
| C to D         | 0+00           | Point C. Begin full bench end-haul road construction; crown road, begin ditch. |
|                | 2+00           | End full bench construction, begin balanced construction.                      |
|                | 5+50           | Point D. End road construction, construct landing.                             |



EXHIBIT D  
FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

1. Roadside Brushing. Conduct roadside brushing as specified in Exhibit G.
2. 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.
3. 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.
4. 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 requires the use of crushed rock for culvert bedding. Removed culverts shall be hauled off of STATE land.
5. Drainage Ditches. Restore or construct ditchlines, including ditchouts, as directed by STATE. Sections of road in thru cuts shall have ditches constructed to specification on both sides of the road. 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. 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.
6. Cutslopes. Excavate cutslopes to slopes specified in this exhibit. Remove all vegetation and stumps within the clearing limits of the excavated area. Excavated material shall be hauled to designated waste areas. Excavated material shall be sloped and compacted for drainage. Excavated material and cutslopes shall be seeded and mulched in accordance with specifications in Exhibit I.
7. Settling Ponds and Ditch Armoring. Construct settling ponds, as specified in this Exhibit, for erosion control in project areas and ditchlines where sedimentation or erosion is possible as directed by STATE. Excavated material shall be hauled to the designated waste areas shown on Exhibit A. Waste materials shall be sloped and compacted for drainage. Settling pond dimensions shall be a finished length of 4 feet, width of 3 feet, and 3 feet in depth, or as directed by STATE. Backslopes shall be 3/4:1.
8. Energy Dissipator Construction. 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.
9. 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:

10. Subgrade Preparation and Application of Surfacing Rock.
- (a) Complete culvert installations, drainage ditches, fill reconstruction, ditchouts, settling ponds 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 or outslope 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>  |
|----------------|----------------|--|
| E to F         | 0+00           | Point E, North Fork Wolf Creek Road. Begin road improvement.   |
|                | 79+40          | 1.5 Mile Marker.   |
|                | 152+20         | Begin road brushing. Begin cleaning or construction of ditches. Clean inlet and outlet of existing culverts.   |
|                | 161+60         | Existing culvert, install marker.  |
|                | 166+35         | Existing culvert.  |
|                | 166+90         | Live Stream. Existing culvert.   |
|                | 168+40         | Existing culvert.  |
|                | 181+75         | Existing culvert.  |
|                | 183+30         | Begin cutslope excavation and establish ditch on left.   |
|                | 184+00         | End cutslope excavation.   |
|                | 184+30         | Existing culvert.  |
|                | 185+00         | Install Culvert No. 1 (18" x 30') as disconnect.   |
|                | 189+40         | Install Culvert No. 2 (18" x 30') as disconnect.   |
|                | 190+40         | Live Stream. Existing culvert, install Energy Dissipator at outlet, according the specifications in Exhibit E. |
|                | 191+60         | Install Culvert No. 3 (18" x 30') as disconnect.   |
|                | 197+45         | Existing culvert.  |
|                | 208+10         | Existing culvert, install marker.  |
|                | 217+00         | Begin cutslope excavation and establish ditch on right.  |
|                | 217+70         | Existing culvert, install marker.  |

EXHIBIT D  
 FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

| <u>Segment</u> | <u>Station</u> | <u>Work Description</u>   |
|----------------|----------------|---|
| E to F (cont)  | 218+00         | End cutslope excavation.  |
|                | 223+40         | Existing culvert, install marker.   |
|                | 239+75         | Point N on left.  |
|                | 242+00         | Begin cutslope excavation and establish ditch on left.                                      |
|                | 242+80         | Existing culvert, install marker. End cutslope excavation.                                  |
|                | 244+70         | Begin cutslope excavation, remove tree and stump from top of cutslope, and establish ditch. |
|                | 245+40         | End cutslope excavation.  |
|                | 248+80         | Point F. End road improvement. End Road Brushing.   |

|        |       |  |
|--------|-------|--|
| F to G | 0+00  | Point F, McGregor Road. Begin road improvement. Begin road brushing. Begin cleaning or construction of ditches. Clean inlet and outlet of existing culverts. |
|        | 5+50  | Begin cutslope excavation and establish ditch on both sides of road.   |
|        | 6+00  | End cutslope excavation on both sides of road.   |
|        | 15+30 | Begin cutslope excavation and establish ditch on both sides of road.   |
|        | 16+80 | End cutslope excavation on both sides of road.   |
|        | 20+50 | Begin cutslope excavation and establish ditch on both sides of road.   |
|        | 22+40 | End cutslope excavation on both sides of road.   |
|        | 28+00 | Live Stream. Existing culvert, install marker.   |
|        | 30+00 | Begin cutslope excavation and establish ditch on right side of road, ditch across dirt spur on left.   |
|        | 31+30 | End cutslope excavation on right side of road.   |
|        | 36+50 | Begin cutslope excavation and establish ditch on both sides of road.   |
|        | 38+90 | End cutslope excavation on both sides.   |
|        | 49+75 | Begin cutslope excavation and establish ditch on right side of road.   |
|        | 51+10 | End cutslope excavation on right side of road.   |
|        | 61+00 | Begin cutslope excavation and establish ditch on right side of road.   |
|        | 62+20 | End cutslope excavation on right side of road.   |
|        | 64+00 | Existing culvert.  |
|        | 66+80 | Begin cutslope excavation and establish ditch on left side of road.  |

EXHIBIT D  
 FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

| <u>Segment</u> | <u>Station</u> | <u>Work Description</u>  |
|----------------|----------------|--|
| F to G (cont.) | 67+90          | End cutslope excavation on left side of road.  |
|                | 68+95          | Existing culvert.  |
|                | 72+80          | Existing culvert, install marker.  |
|                | 78+90          | Existing culvert, install marker.  |
|                | 83+75          | Begin cutslope excavation and establish ditch on both sides of road.   |
|                | 85+20          | End cutslope excavation on both sides of road.   |
|                | 97+90          | Existing culvert, install marker.  |
|                | 99+30          | Existing culvert, repair / reattach half round, repair inlet, install marker.                                    |
|                | 101+90         | Existing culvert, install marker.  |
|                | 105+00         | Existing culvert, install marker. Install Energy Dissipator at outlet according the specifications in Exhibit E. |
|                | 116+70         | Existing culvert, install marker.  |
|                | 129+30         | Existing culvert, install marker.  |
|                | 134+40         | Begin cutslope excavation and establish ditch on right side of road.   |
|                | 136+90         | End cutslope excavation on right side of road.   |
|                | 152+25         | Existing culvert, install marker.  |
|                | 160+95         | Existing culvert, install marker.  |
|                | 173+40         | Existing culvert, install marker.  |
|                | 182+65         | Existing culvert.  |
|                | 186+75         | Install Culvert No. 4 (18" x 30') as disconnect.   |
|                | 187+65         | Live Stream. Existing culvert.   |
|                | 188+95         | Live Stream. Existing culvert, install marker.   |
|                | 194+35         | Existing culvert.  |
|                | 196+95         | Point G. End road improvement. End Road Brushing.  |

|        |      |  |
|--------|------|--|
| G to H | 0+00 | Point G, Lower Rock Creek Road. Begin road improvement. Begin road brushing. Begin cleaning or construction of ditches. Clean inlet and outlet of existing culverts. |
|        | 2+95 | Live Stream. Install Culvert No. 5 (24" x 30').  |
|        | 6+50 | Live Stream. Install Culvert No. 6 (24" x 30').  |
|        | 8+75 | Point H. End road improvement at rock pit. End Road Brushing.  |

EXHIBIT D  
 FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

| <u>Segment</u> | <u>Station</u> | <u>Work Description</u>  |
|----------------|----------------|--|
| G to I         | 0+00           | Point G, Pit Road. Begin road improvement. Begin road brushing. Begin cleaning or construction of ditches. Clean inlet and outlet of existing culverts. All excavated material and excavated stumps shall be hauled to designated Waste Areas. |
|                | 0+95           | Point J on left. Existing culvert.   |
|                | 1+85           | Remove stump on right, backfill with crushed rock.   |
|                | 3+75           | Remove stump on right, backfill with crushed rock.   |
|                | 4+40           | Existing culvert.  |
|                | 15+00          | Existing culvert.  |
|                | 16+40          | Live Stream. Existing culvert.   |
|                | 22+30          | Existing culvert, excavate cutslopes to specification around catch basin, install marker.  |
|                | 25+40          | Install Culvert No. 7 (18" x 30') as disconnect.   |
|                | 25+70          | Remove existing culvert and backfill with crushed rock.  |
|                | 26+90          | Live Stream. Remove existing culvert and install Culvert No. 8 (54" x 50').  |
|                | 28+00          | Construct two settling ponds in ditch line.  |
|                | 28+40          | Live Stream. Existing culvert, install marker.   |
|                | 29+20          | Begin cutslope excavation and establish ditch on left side of road. Rock showing in cutbank.   |
|                | 33+80          | End cutslope excavation.   |
|                | 34+20          | Existing culvert, install marker.  |
|                | 36+30          | Remove two stumps on left and shape cutslope.  |
|                | 37+70          | Install Culvert No. 9 (18" x 30') as disconnect.   |
|                | 38+00          | Remove existing culvert and backfill with crushed rock.  |
|                | 38+65          | Live Stream. Existing culvert.   |
|                | 39+40          | Begin cutslope excavation and establish ditch on left side of road.  |
|                | 40+50          | Remove stump on right, backfill with crushed rock.   |
|                | 42+35          | End cutslope excavation.   |
|                | 42+80          | Existing culvert, excavate cutslopes to specification around catch basin, install marker.  |
|                | 43+30          | Remove stump on left and shape cutslope.   |
|                | 45+05          | Begin cutslope excavation and establish ditch on left side of road.  |

EXHIBIT D  
 FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

| <u>Segment</u> | <u>Station</u> | <u>Work Description</u>   |
|----------------|----------------|---|
| G to I (cont.) | 45+30          | Remove stump on left and shape cutslope.  |
|                | 45+60          | Existing culvert, install marker. End cutslope excavation.  |
|                | 48+45          | Begin cutslope excavation and establish ditch on left side of road.   |
|                | 49+45          | End cutslope excavation.  |
|                | 51+70          | Live Stream. Existing culvert, install marker.  |
|                | 51+80          | Construct two settling ponds in ditch line.   |
|                | 52+80          | Remove existing culvert and backfill with crushed rock. Begin cutslope excavation and establish ditch on left side of road. |
|                | 54+00          | Remove stump on right, backfill with crushed rock. End cutslope excavation.   |
|                | 56+00          | Existing culvert.   |
|                | 58+00          | Begin cutslope excavation and establish ditch on left side of road.   |
|                | 58+75          | Remove two stumps on left and shape cutslope.   |
|                | 60+10          | End cutslope excavation.  |
|                | 61+44          | Live Stream. Existing culvert, install marker.  |
|                | 62+00          | Begin cutslope excavation and establish ditch on left side of road.   |
|                | 62+10          | Construct two settling ponds in ditch line.   |
|                | 68+30          | End cutslope excavation.  |
|                | 65+80          | Existing culvert, excavate cutslopes to specification around catch basin.   |
|                | 69+00          | Existing culvert, install marker.   |
|                | 70+90          | Live Stream. Existing culvert.  |
|                | 71+00          | Construct two settling ponds in ditch line.   |
|                | 72+10          | Remove existing culvert and backfill with crushed rock.   |
|                | 72+75          | Install Culvert No. 10 (18" x 30') as disconnect.   |
|                | 74+00          | Point C on left.  |
|                | 74+80          | Install Culvert No. 11 (18" x 30') as cross drain.  |
|                | 76+90          | Remove stump on left and shape cutslope.  |
|                | 81+30          | Begin cutslope excavation and establish ditch on left side of road.   |
|                | 82+85          | End cutslope excavation.  |

EXHIBIT D  
 FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

| <u>Segment</u> | <u>Station</u> | <u>Work Description</u>  |
|----------------|----------------|--|
| G to I (cont.) | 84+15          | Existing culvert, excavate cutslopes to specification around catch basin. Remove half round and install Energy Dissipator at outlet according the specifications in Exhibit E. |
|                | 87+00          | Live Stream. Existing culvert, install marker. End crown road, begin outslope, maintain ditch.   |
|                | 87+10          | Construct two settling ponds in ditch line.  |
|                | 87+75          | Begin cutslope excavation and establish ditch on left side of road. Rock showing in cutbank.   |
|                | 88+25          | Remove stump on left and shape cutslope.   |
|                | 89+00          | Remove stump on left and shape cutslope.   |
|                | 89+25          | End cutslope excavation.   |
|                | 90+00          | Live Stream. Existing culvert.   |
|                | 90+40          | Construct two settling ponds in ditch line.  |
|                | 91+10          | Begin cutslope excavation and establish ditch on left side of road.  |
|                | 91+70          | Remove existing culvert and backfill with crushed rock.  |
|                | 93+00          | Remove stump on left and shape cutslope.   |
|                | 93+60          | End outslope, begin crown. Install Culvert No. 12 (18" x 30') as cross drain.  |
|                | 94+20          | End cutslope excavation.   |
|                | 99+60          | Existing culvert.  |
|                | 108+00         | Begin cutslope excavation and establish ditch on left side of road, rock showing in cutslope.  |
|                | 108+05         | Install Culvert No. 13 (18" x 30') as disconnect. End cutslope excavation.   |
|                | 108+60         | Live Stream. Existing culvert.   |
|                | 111+55         | Install Culvert No. 14 (18" x 30') as cross drain.   |
|                | 112+90         | Remove existing culvert and backfill with crushed rock.  |
|                | 113+10         | Live Stream. Install Culvert No. 15 (24" x 30'), in center of channel.   |
|                | 114+00         | Remove stump on right, backfill with crushed rock.   |
|                | 114+80         | Begin cutslope excavation and establish ditch on left side of road.  |
|                | 144+70         | Remove stump on right, and backfill with crushed rock.   |
|                | 115+70         | End cutslope excavation.   |
|                | 118+50         | Begin cutslope excavation and establish ditch on left side of road.  |

EXHIBIT D  
 FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

| <u>Segment</u> | <u>Station</u> | <u>Work Description</u>   |
|----------------|----------------|---|
| G to I (cont.) | 118+70         | End cutslope excavation.  |
|                | 118+75         | Existing culvert, install marker.   |
|                | 119+20         | Point I. End road improvement, construct turnaround, and remove existing pile of scrap culverts. End Road Brushing. |

|        |       |   |
|--------|-------|---|
| J to K | 0+00  | Point J, Eastside Grade. Begin road improvement. Begin road brushing. Begin cleaning or construction of ditches. Clean inlet and outlet of existing culverts. |
|        | 0+10  | Begin cutslope excavation and establish ditch on right side of road, remove stumps and trees.   |
|        | 0+50  | End cutslope excavation.  |
|        | 4+70  | Existing culvert, install marker.   |
|        | 12+70 | Remove stump on right, backfill with crushed rock.  |
|        | 16+55 | Existing culvert, install marker.   |
|        | 17+55 | Remove stump on right, backfill with crushed rock.  |
|        | 22+55 | Remove stump on right, backfill with crushed rock.  |
|        | 24+10 | Existing culvert, install marker.   |
|        | 25+20 | Remove stump on right, backfill with crushed rock.  |
|        | 27+90 | Remove stump on right, backfill with crushed rock.  |
|        | 28+40 | Remove stump on right, backfill with crushed rock.  |
|        | 32+75 | Existing culvert, install marker.   |
|        | 34+45 | Remove stump on left and shape cutslope.  |
|        | 39+90 | Existing culvert, install marker.   |
|        | 44+15 | Remove stump on right, backfill with crushed rock.  |
|        | 46+65 | Begin cutslope excavation and establish ditch on right side of road.  |
|        | 47+00 | End cutslope excavation.  |
|        | 49+90 | Remove stump on right, backfill with crushed rock.  |
|        | 54+30 | Begin cutslope excavation and establish ditch on both sides of road.  |
|        | 56+00 | End cutslope excavation.  |
|        | 57+60 | Install Culvert No. 16 (18" x 30') as disconnect.   |
|        | 58+25 | Live Stream. Existing culvert.  |



EXHIBIT D  
 FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

| <u>Segment</u> | <u>Station</u> | <u>Work Description</u>  |
|----------------|----------------|--|
| J to K (cont.) | 118+70         | End cutslope excavation.   |
|                | 58+60          | Begin cutslope excavation and establish ditch on both sides of road. |
|                | 60+30          | End cutslope excavation.   |
|                | 61+50          | Begin cutslope excavation and establish ditch on both sides of road. |
|                | 62+70          | End cutslope excavation.   |
|                | 64+30          | Begin cutslope excavation and establish ditch on both sides of road. |
|                | 65+40          | End cutslope excavation.   |
|                | 66+80          | Point L on right.  |
|                | 80+60          | Point K. End improvement, improve landing. End Road Brushing.        |

|        |       |   |
|--------|-------|---|
| L to M | 0+00  | Point L. Begin road improvement. Begin road brushing. Begin cleaning or construction of ditches. Clean inlet and outlet of existing culverts. |
|        | 2+70  | Existing culvert.   |
|        | 6+60  | Existing culvert, install marker.   |
|        | 6+95  | Point A on left.  |
|        | 16+50 | Point M. End road improvement, construct turnaround. End Road Brushing.   |

|        |      |  |
|--------|------|--|
| N to O | 0+00 | Point N. Begin road improvement. Begin cleaning or construction of ditches. Clean inlet and outlet of existing culverts. |
|        | 0+05 | Existing culvert, install marker.  |
|        | 4+00 | Existing culvert.  |
|        | 7+55 | Point O. End road improvement.   |

EXHIBIT D  
 FULL BENCH AND END-HAUL REQUIREMENTS

| POINT TO POINT | STA. TO STA. | CONTAINMENT -<br>SIDECAST | WASTE AREA<br>LOCATION | WASTE AREA<br>TREATMENT |
|----------------|--------------|---------------------------|------------------------|-------------------------|
| 0+00 to 2+00   | C to D       | 1                         | 1                      | 1, 2 & 3                |
| 0+00 to 248+80 | E to F       | 1                         | 1                      | 1, 2 & 3                |
| 0+00 to 196+95 | F to G       | 1                         | 1                      | 1, 2 & 3                |
| 0+00 to 119+20 | G to I       | 1                         | 1                      | 1, 2, & 3               |
| 0+00 to 80+60  | J to K       | 1                         | 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.

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.

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

Waste Area Location

1. As shown on Exhibit A and as marked in the field.

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: A to B         |                    |                    |               |                 |     |             |       |                   |
|------------------------------|--------------------|--------------------|---------------|-----------------|-----|-------------|-------|-------------------|
| Application                  | Rock Size and Type | Location           | Depth of Rock | Volume (CY) Per |     | Number of   |       | TOTAL VOLUME (CY) |
|                              |                    |                    |               |                 |     |             |       |                   |
| Surfacing Rock               | 3"- 0" Crushed     | A to B             | 12"           | Station         | 65  | Stations    | 9.75  | 634               |
| Turnout                      | 3"- 0" Crushed     |                    | 12"           | Turnout         | 22  | Turnouts    | 1     | 22                |
| Turnaround                   | 3"- 0" Crushed     |                    | 12"           | Turnaround      | 20  | Turnarounds | 1     | 20                |
| Junctions                    | 3"- 0" Crushed     | Point A            | 12"           | Junctions       | 12  | Junctions   | 1     | 12                |
| Landing                      | 3"- 0" Crushed     | Point B            | 12"           | Landing         | 180 | Landings    | 1     | 180               |
| Traction Rock                | 1½"-0" Crushed     | 0+00 to 2+00       | 2"            | Station         | 12  | Stations    | 2     | 24                |
| Total Rock for Road Segment: |                    |                    |               |                 |     |             |       | 892               |
| 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     | C to D             | 12"           | Station         | 65  | Stations    | 5.5   | 358               |
| Turnaround                   | 3"- 0" Crushed     |                    | 12"           | Turnaround      | 20  | Turnarounds | 1     | 20                |
| Junctions                    | 3"- 0" Crushed     | Point C            | 12"           | Junctions       | 12  | Junctions   | 1     | 12                |
| Landing                      | 3"- 0" Crushed     | Point D            | 12"           | Landing         | 180 | Landings    | 1     | 180               |
| Traction Rock                | 1½"-0" Crushed     | 2+00 to 4+00       | 2"            | Station         | 12  | Stations    | 2     | 24                |
| Total Rock for Road Segment: |                    |                    |               |                 |     |             |       | 594               |
| ROAD SEGMENT: E to F         |                    |                    |               |                 |     |             |       |                   |
| Application                  | Rock Size and Type | Location           | Depth of Rock | Volume (CY) Per |     | Number of   |       | TOTAL VOLUME (CY) |
|                              |                    |                    |               |                 |     |             |       |                   |
| Surfacing Rock               | 1½"-0" Crushed     | 0+00 to 79+20      | 4"            | Station         | 23  | Stations    | 79.2  | 1,822             |
| Surfacing Rock               | 1½"-0" Crushed     | 79+20 to 152+20    | 6"            | Station         | 36  | Stations    | 73    | 2,628             |
| Surfacing Rock               | 1½"-0" Crushed     | 152+20 to 248+80   | 6"            | Station         | 31  | Stations    | 96.6  | 2,995             |
| Turnouts                     | 1½"-0" Crushed     | 79+20 to 248+80    | 6"            | Turnouts        | 11  | Turnouts    | 12    | 132               |
| Junctions                    | 1½"-0" Crushed     | Points N & F       | 6"            | Junctions       | 12  | Junctions   | 2     | 24                |
| Culvert Bedding and Backfill | 1½"-0" Crushed     | Culvert Nos. 1 - 3 | Varies        | Culvert         | 24  | Culverts    | 3     | 72                |
| Curve Widening               | 1½"-0" Crushed     | E to F             | 6"            | Station         | 8   | Stations    | 12.25 | 98                |
| Energy Dissipator            | 24"-6" Riprap      | 190+40             | Varies        | Dissipator      | 36  | Dissipators | 1     | 36                |
| Total Rock for Road Segment: |                    |                    |               |                 |     |             |       | 7,806             |
| ROAD SEGMENT: F to G         |                    |                    |               |                 |     |             |       |                   |
| Application                  | Rock Size and Type | Location           | Depth of Rock | Volume (CY) Per |     | Number of   |       | TOTAL VOLUME (CY) |
|                              |                    |                    |               |                 |     |             |       |                   |
| Spot Rock                    | 1½"-0" Crushed     | F to G             | Varies        |                 |     |             |       | 500               |
| Culvert Bedding and Backfill | 1½"-0" Crushed     | Culvert No. 4      | Varies        | Culvert         | 24  | Culverts    | 1     | 24                |
| Total Rock for Road Segment: |                    |                    |               |                 |     |             |       | 524               |
| 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      | G to H             | 6"            | Station         | 31  | Stations    | 8.75  | 269               |
| Culvert Bedding and Backfill | 1½"-0" Crushed     | Culvert Nos. 5 & 6 | Varies        | Culvert         | 24  | Culverts    | 2     | 48                |
| Total Rock for Road Segment: |                    |                    |               |                 |     |             |       | 317               |

EXHIBIT D

ROAD SURFACING

| ROAD SEGMENT: G to I         |                            |   |                                    |                 |    |                                    |       |                   |
|------------------------------|----------------------------|---|------------------------------------|-----------------|----|------------------------------------|-------|-------------------|
| Application                  | Rock Size and Type         | Location  | Depth of Rock                      | Volume (CY) Per |    | Number of                          |       | TOTAL VOLUME (CY) |
| Surfacing Rock               | 3"-0" Crushed              | G to I  | 6"                                 | Station         | 31 | Stations                           | 119.2 | 3,695             |
| Turnout                      | 3"-0" Crushed              |   | 6"                                 | Turnouts        | 11 | Turnouts                           | 15    | 165               |
| Turnaround                   | 3"-0" Crushed              | Point I   | 6"                                 | Turnaround      | 16 | Turnarounds                        | 1     | 16                |
| Junctions                    | 3"-0" Crushed              | Point G   | 6"                                 | Junctions       | 12 | Junctions                          | 1     | 12                |
| Culvert Bedding and Backfill | 1½"-0" Crushed             | Culvert Nos. 7 -15                                      | Varies                             | Culvert         | 12 | Culverts                           | 15    | 360               |
| Curve Widening               | 3"-0" Crushed              | G to I  | 6"                                 | Station         | 8  | Stations                           | 7     | 56                |
| Stump Removal Backfill       | 3"-0" Crushed              | 1+85, 3+75, 20+80, 40+50, & 54+00                       | Varies                             | Stump           | 12 | Stumps                             | 5     | 60                |
| Energy Dissipator            | 24"-6" Riprap              | 84+15   | Varies                             | Dissipator      | 36 | Dissipators                        | 2     | 72                |
| Total Rock for Road Segment: |                            |   |                                    |                 |    |                                    |       | 4,436             |
| ROAD SEGMENT: J to K         |                            |   |                                    |                 |    |                                    |       |                   |
| Application                  | Rock Size and Type         | Location  | Depth of Rock                      | Volume (CY) Per |    | Number of                          |       | TOTAL VOLUME (CY) |
| Surfacing Rock               | 3"-0" Crushed              | J to K  | 6"                                 | Station         | 31 | Stations                           | 80.6  | 2,037             |
| Turnout                      | 3"-0" Crushed              |   | 6"                                 | Turnouts        | 11 | Turnouts                           | 9     | 99                |
| Junctions                    | 3"-0" Crushed              | Point J & L   | 6"                                 | Junctions       | 12 | Junctions                          | 2     | 24                |
| Landing                      | 3"-0" Crushed              | Point K   | 6"                                 | Landing         | 50 | Landings                           | 1     | 50                |
| Culvert Bedding and Backfill | 1½"-0" Crushed             | Culvert No. 16  | Varies                             | Culvert         | 24 | Culverts                           | 1     | 24                |
| Stump Removal Backfill       | 3"-0" Crushed              | 12+70, 17+55, 22+55, 25+20, 21+65, 28+40, 44+15 & 49+90 | Varies                             | Stump           | 12 | Stumps                             | 8     | 96                |
| Total Rock for Road Segment: |                            |   |                                    |                 |    |                                    |       | 2,330             |
| ROAD SEGMENT: L to M         |                            |   |                                    |                 |    |                                    |       |                   |
| Application                  | Rock Size and Type         | Location  | Depth of Rock                      | Volume (CY) Per |    | Number of                          |       | TOTAL VOLUME (CY) |
| Turnaround                   | 3"-0" Crushed              | Point M   | 12"                                | Turnaround      | 20 | Turnarounds                        | 1     | 20                |
| Total Rock for Road Segment: |                            |   |                                    |                 |    |                                    |       | 20                |
| ROAD SEGMENT: N to O         |                            |   |                                    |                 |    |                                    |       |                   |
| Application                  | Rock Size and Type         | Location  | Depth of Rock                      | Volume (CY) Per |    | Number of                          |       | TOTAL VOLUME (CY) |
| Surfacing Rock               | 1½"-0" Crushed             | N to O  | 6"                                 | Station         | 31 | Stations                           | 7.55  | 234               |
| Junctions                    | 1½"-0" Crushed             | Point O   | 6"                                 | Junctions       | 12 | Junctions                          | 1     | 12                |
| Total Rock for Road Segment: |                            |   |                                    |                 |    |                                    |       | 246               |
| Stockpile                    | Location                   |   | Approximate Dimensions (L x W x H) |                 |    | Volume (Stockpile Measurement, CY) |       |                   |
| 1½"-0 Crushed                | Lower Rock Creek Stockpile |   | 135' x 150' x 20'                  |                 |    | 10,000                             |       |                   |

| ROCK TOTALS (CY) | 24"-6" | 3"-0" | 1½"-0" |
|------------------|--------|-------|--------|
|                  | 108    | 8,037 | 20,620 |

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

## EXHIBIT D

### ROCK ACCOUNTABILITY

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

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

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

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

Stockpile Measurement. Purchaser shall construct stockpiles according to the dimensions determined by STATE and included in the Quarry development plan required by Exhibit F. Dimensions will consist of the length and width of the base, length and width of the top, and height of all four corners. The finished stockpile surface shall be smooth, uniform, and all corners filled in. All stakes and reference points shall be protected until stockpile measurements are accepted 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 or outsloped 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                            |

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                     |
| Culvert & Stump backfill | 2                            |
| Pit Rehab                | 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 or outsloped 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 requiring crushed rock. | 1                            |

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. 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 or corrugated aluminized (Type 2) steel.

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

Backfill shall consist of crushed rock.

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 culverts.

All culverts scheduled for replacement or specified to be removed 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, Settling Ponds and Bio Bags 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.

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> |
| 54          | 14                   | (0.0747")        | (0.079")      | 16                 | 24                     | 24             |

EXHIBIT E  
CULVERT LIST

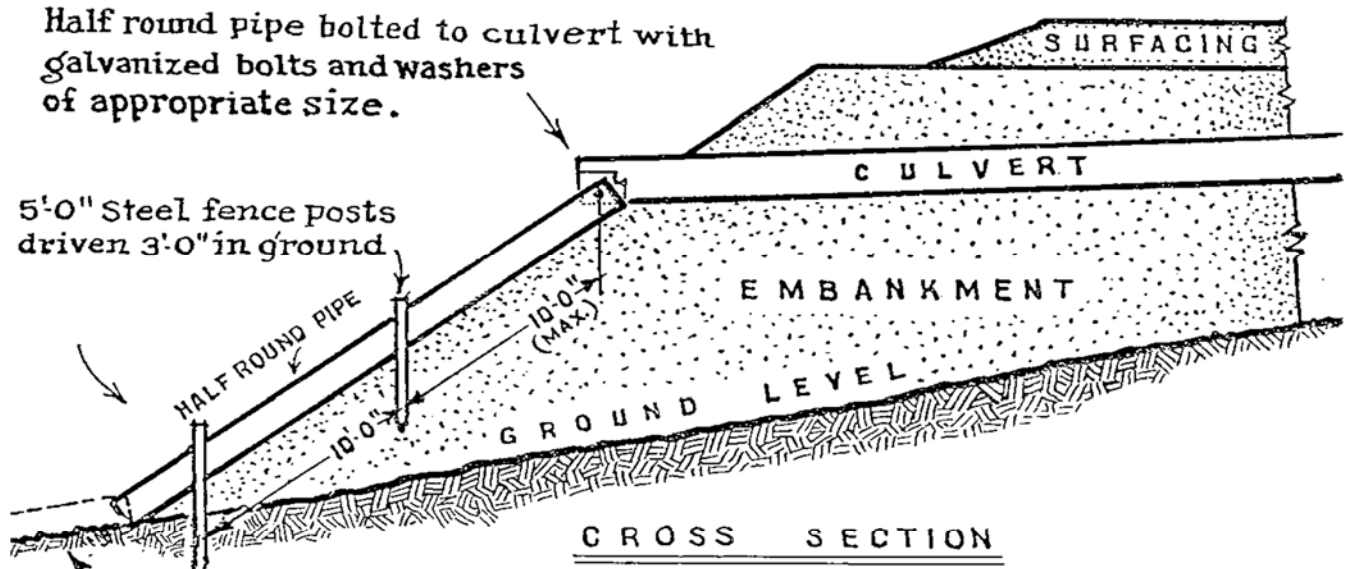
| CULVERT NO. | DIAMETER (Inches) | LENGTH (Feet) | MATERIAL TYPE | ROAD SEGMENT POINT TO POINT | STATION |
|-------------|-------------------|---------------|---------------|-----------------------------|---------|
| 1           | 18                | 30            | CPP           | E to F                      | 185+00  |
| 2           | 18                | 30            | CPP           | E to F                      | 189+40  |
| 3           | 18                | 30            | CPP           | E to F                      | 191+60  |
| 4           | 18                | 30            | CPP           | F to G                      | 186+75  |
| 5           | 24                | 30            | CPP           | G to H                      | 2+95    |
| 6           | 24                | 30            | CPP           | G to H                      | 6+50    |
| 7           | 18                | 30            | CPP           | G to I                      | 25+40   |
| 8           | 54                | 50            | ACSP          | G to I                      | 26+90   |
| 9           | 18                | 30            | CPP           | G to I                      | 37+70   |
| 10          | 18                | 30            | CPP           | G to I                      | 72+75   |
| 11          | 18                | 30            | CPP           | G to I                      | 74+80   |
| 12          | 18                | 30            | CPP           | G to I                      | 93+70   |
| 13          | 18                | 30            | CPP           | G to I                      | 108+05  |
| 14          | 18                | 30            | CPP           | G to I                      | 111+55  |
| 15          | 24                | 30            | CPP           | G to I                      | 113+10  |
| 16          | 18                | 30            | CPP           | J to K                      | 57+60   |

ACSP = Aluminized, CPP = Polyethylene

EXHIBIT E

TYPICAL HALF ROUND CULVERT INSTALLATION

(no scale)

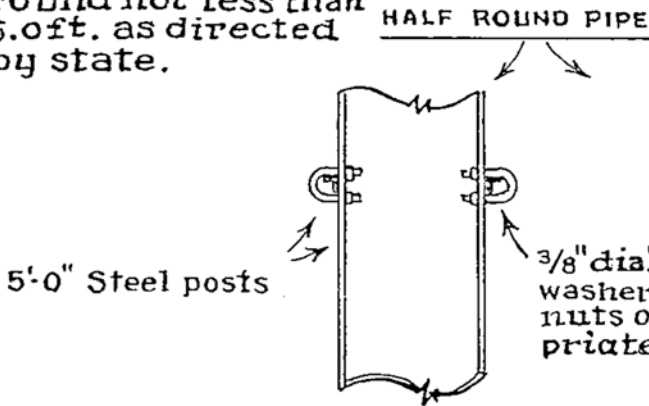


Half round pipe bolted to culvert with galvanized bolts and washers of appropriate size.

5'-0" Steel fence posts driven 3'-0" in ground

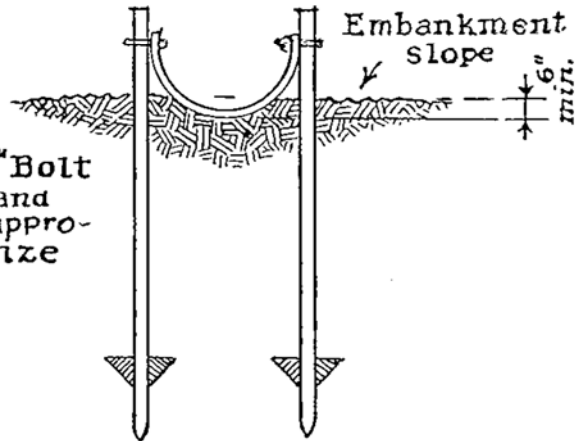
CROSS SECTION

Solid rock, boulders etc. If erodable, install half round not less than 5.0ft. as directed by state.



PLAN VIEW

5'-0" Steel Fence posts both sides of pipe



END VIEW

REV. 6-10-95 LH



EXHIBIT E  
TYPICAL EMBEDDED ENERGY DISSIPATOR

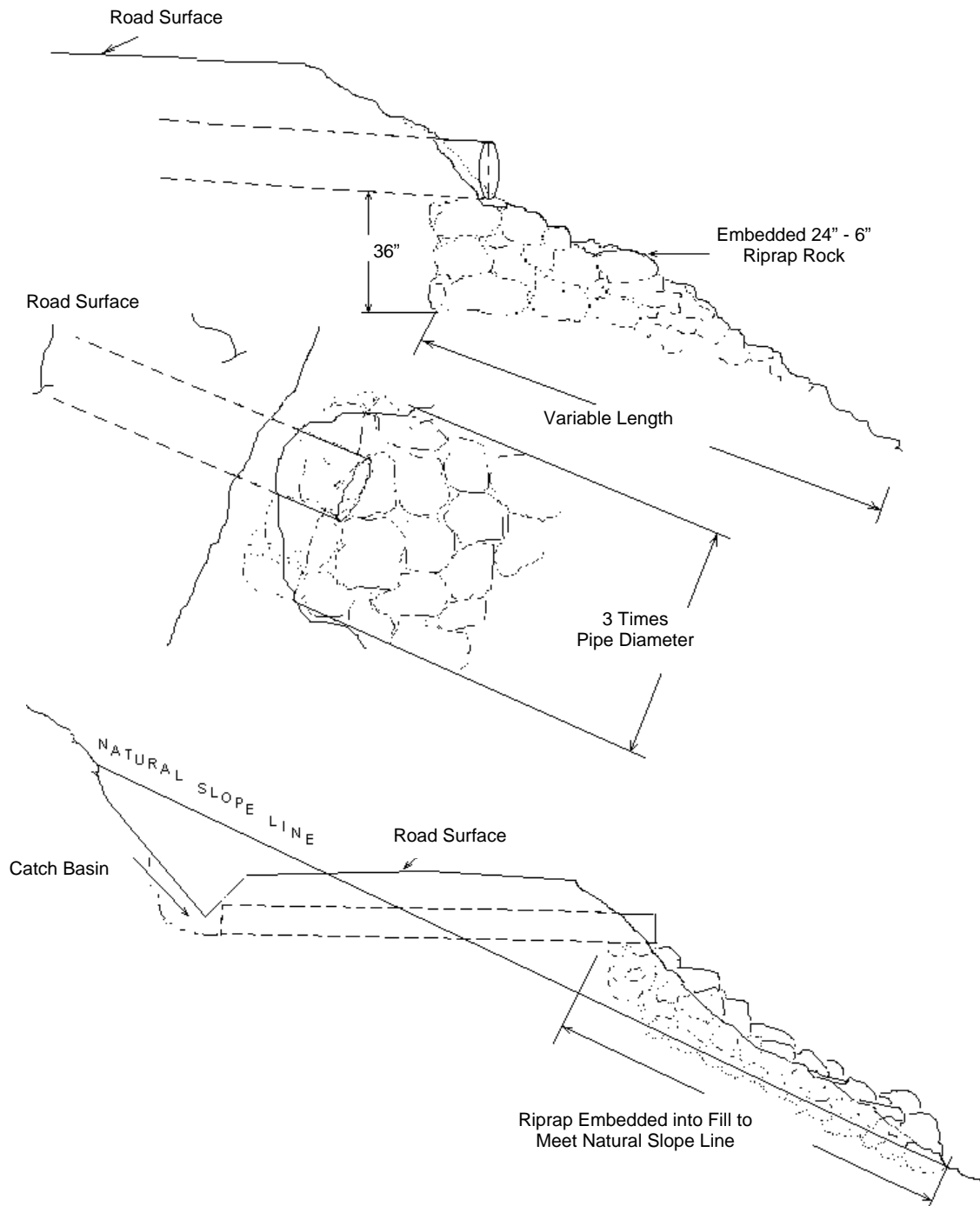


EXHIBIT F

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.
  - (e) Blockage locations post-operation.
  - (f) Drainage.
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, woody debris, 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. All quarry and stockpile site drainage ditches shall be maintained.
11. Pit access roads shall be cleared and blocked within 24 hours of the completion of pit use as directed by STATE. Access to the pit shall be blocked to all vehicle traffic along the edge of Lower Rock Creek Road utilizing oversized material from pit.
12. 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.
13. 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%   |

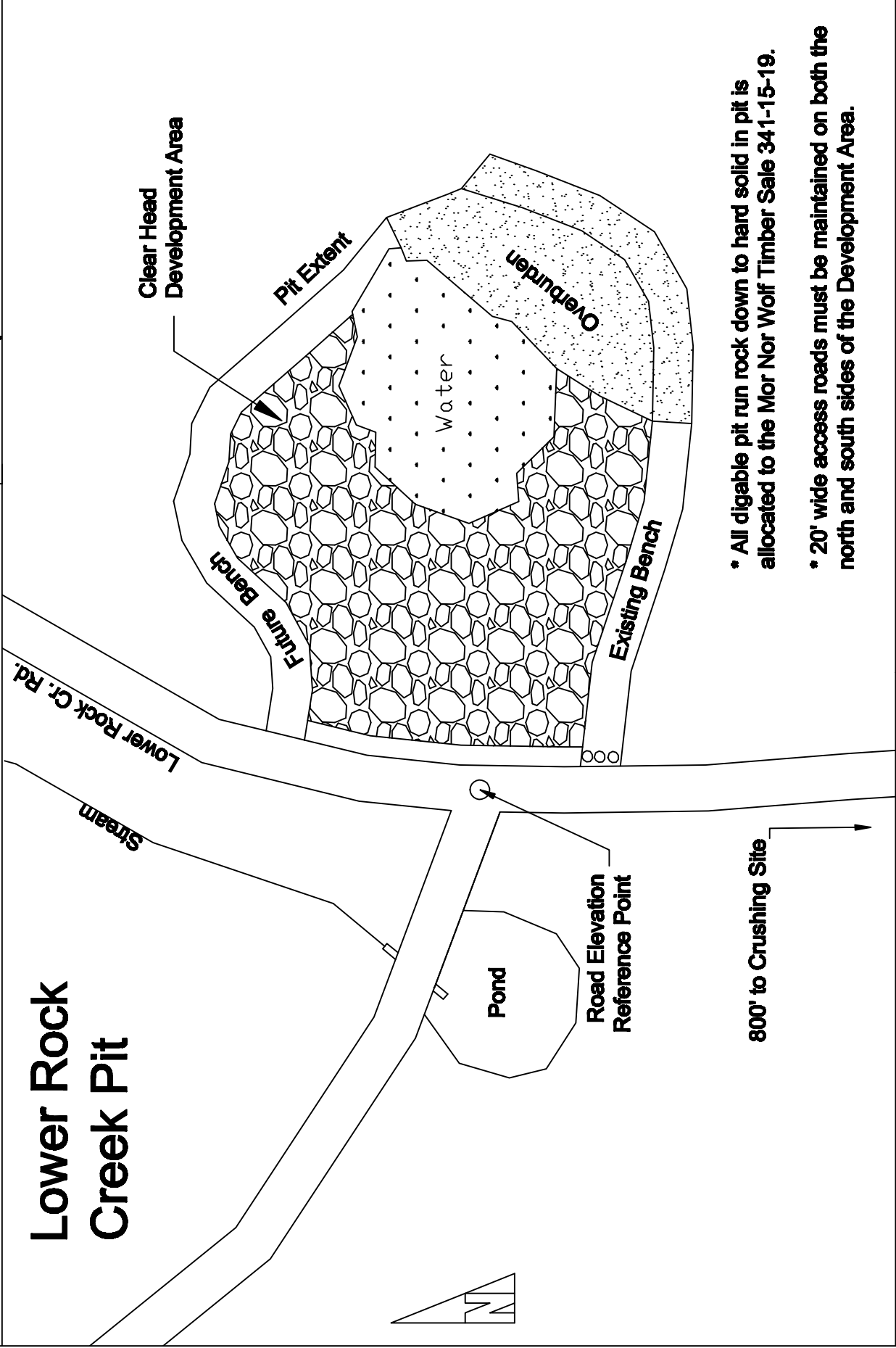
RIPRAP ROCK SPECIFICATIONS

For 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.

# Clear Head 341-16-43

## Exhibit F Pit Development Plan



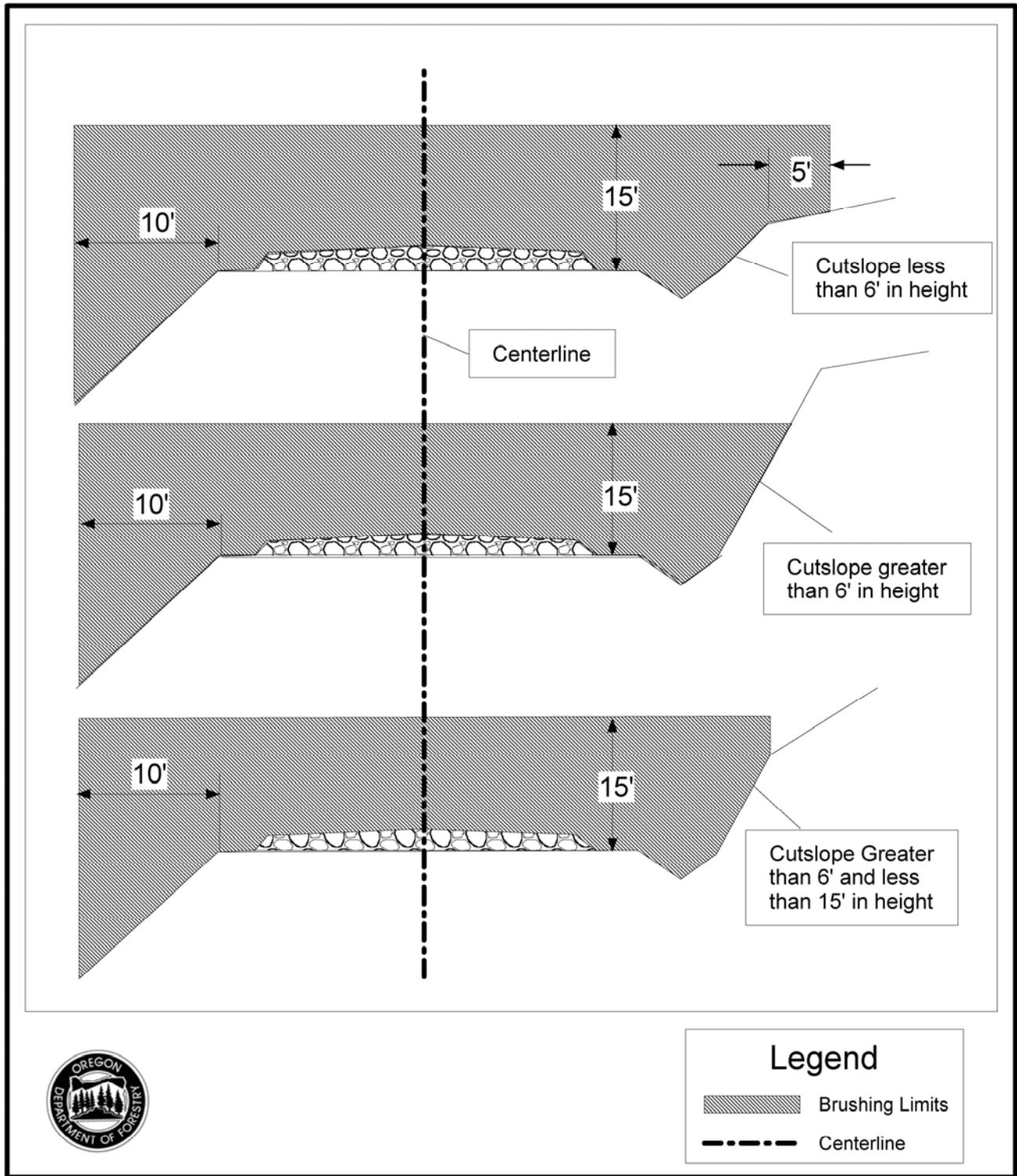
- \* All digable pit run rock down to hard solid in pit is allocated to the Mor Wolf Timber Sale 341-15-19.
- \* 20' wide access roads must be maintained on both the north and south sides of the Development Area.

Oregon Department Forestry  
Forest Grove District

No Scale  
T4N, R6W, Sec. 12, Clatsop County



EXHIBIT G  
ROAD BRUSHING SPECIFICATIONS



## EXHIBIT G

### ROAD BRUSHING SPECIFICATIONS

BRUSHING SEASON. Brushing shall be performed only from October 1 through June 1, unless otherwise approved by STATE.

#### 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.

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.

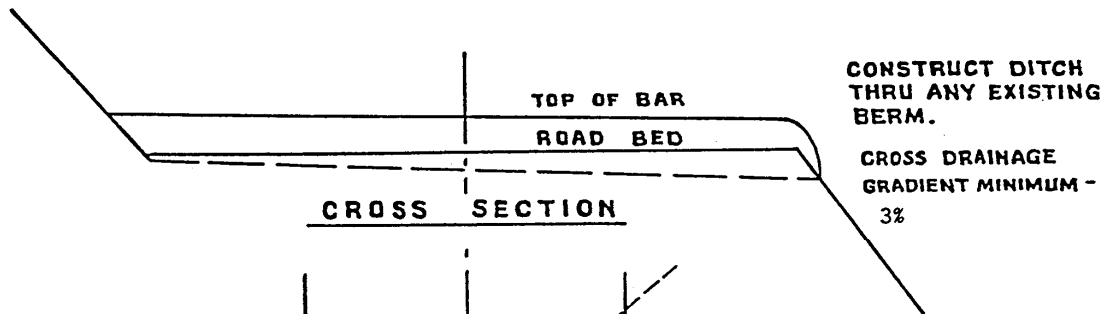
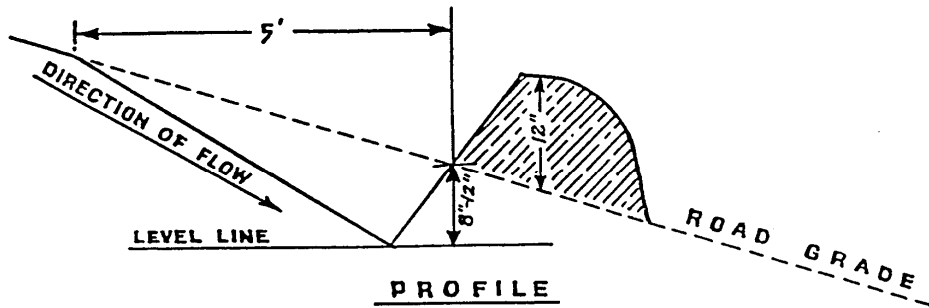
Merchantable blown down trees encountered shall be bucked in lengths as directed by STATE, and placed in locations acceptable to STATE, or pushed out of the road prism.

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

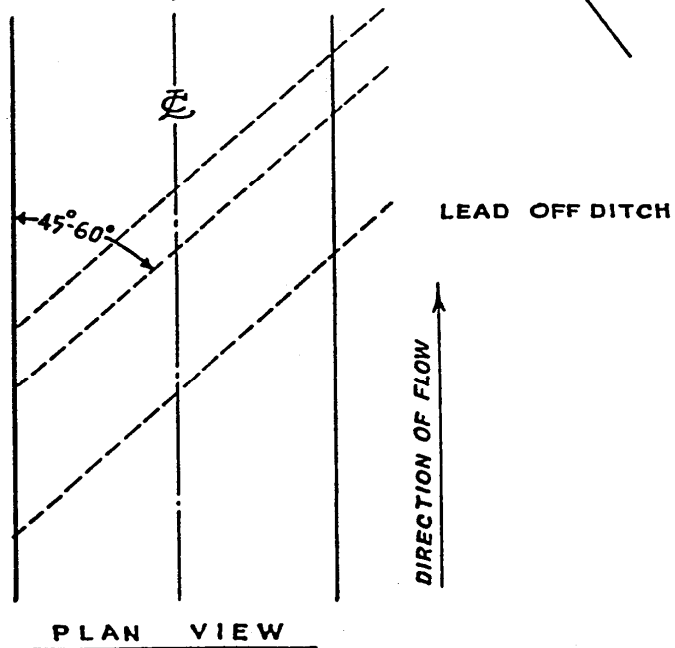
CULVERT AND ROAD MARKER DAMAGES. Culvert and road markers damaged, or any portion of a marker damaged from PURCHASER activities shall be replaced.

EXHIBIT H

WATERBAR SPECIFICATIONS

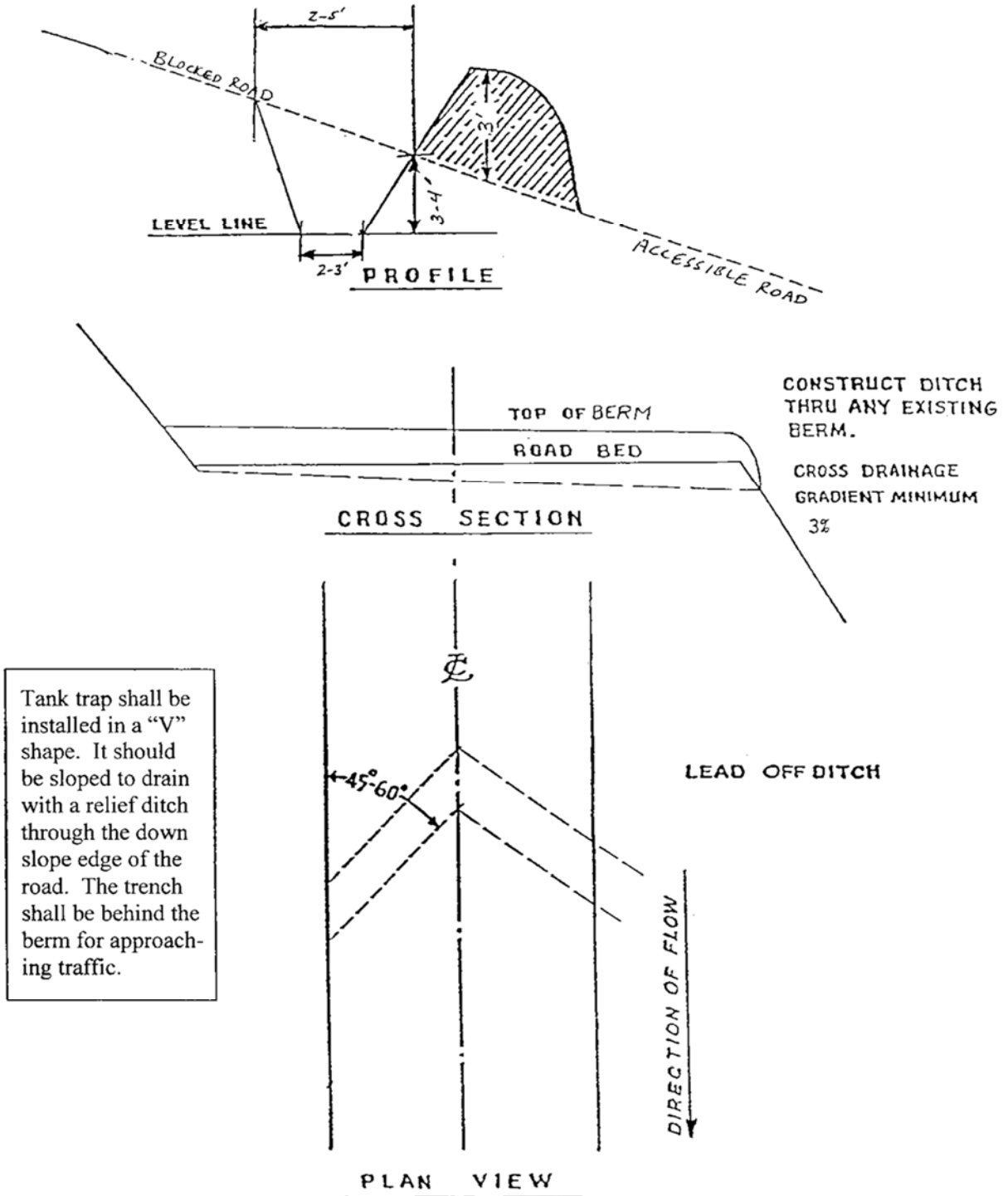


| SPACING OF WATERBARS |          |
|----------------------|----------|
| ROAD GRADE           | DISTANCE |
| ≤ 5%                 | 400'     |
| 6-10%                | 200'     |
| 11-15%               | 150'     |
| 16-20% or greater    | 100'     |



**WATERBAR SPECIFICATIONS  
 FOR CROSS DITCHING #298**

EXHIBIT H  
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 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 No. 1. Apply straw mulch to all bare soils within 100' of streams resulting from Project No. 1 and to all waste areas.

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

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  |
|--------------|---|
| E to F       | Ditchlines before all Live Stream Culverts                        |
| F to G       | Ditchlines before all Live Stream Culverts                        |
| G to H       | Ditchlines before all Live Stream Culverts<br>Culvert Nos. 5 & 6  |
| G to I       | Ditchlines before all Live Stream Culverts<br>Culvert Nos. 8 & 15 |
| J to K       | Ditchlines before all Live Stream Culverts                        |

## **PART IV: OTHER INFORMATION**

### **Written Plan Clear Head Contract # 341-16-43**

**LOCATION:** Portion of Section 13, T4N, R6W, W.M., Clatsop County, Oregon and portion of Section 18, T4N, R5W, W.M., Columbia County, Oregon.

**PROTECTED RESOURCE:** Unnamed tributary to South Fork Clear Creek, a medium Type-F stream that is runs between the timber sale areas. Unnamed tributary to South Fork Clear Creek, a medium Type-F stream that is runs south of the timber sale areas. Unnamed tributary to South Fork Clear Creek, a small Type-F stream located east of Area 2. There is potential for cable corridors to extend beyond the sale boundaries and over these streams. The streamside vegetation is a mix of conifer and alder. The slopes adjacent to the streams range from 10%-80%.

**PROTECTION MEASURES:** The Timber Sale Boundary was posted more than 100 feet upslope of the aquatic zone of the unnamed tributaries to South Fork Clear Creek. However, if cables extend over these streams, all necessary precautions shall be taken to prevent damage to the stream banks and stream course. Operations shall be discontinued when and where they will cause excessive damage to the watershed.

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

Prepared by Dax Strubb  
May 4, 2015