## PART III: EXHIBITS

State Timber Sale Contract No. 341-13-50 Wobblies

## **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 In | nformation (complete):       |          |
|------|--|--------------------|------------------------------|----------|
| (1)  | Contract No.: 341-13-50                    |                    |                              | ) ( )    |
| (2)  | Sale Name: Wobblies                        |                    |                              | <b>—</b> |
| (3)  | Contract Expiration Date: October 31, 2014 | Project Completion | Dates: October 31, 2013      |          |
| (4)  | Purchaser:                                 | <u> </u>           |                              |          |
| (6)  | Purchaser Representatives:                 |                    |                              |          |
|      | Projects:                                  | Phone:             |                              | Home:    |
|      | Projects:                                  | Phone:             |                              | Home:    |
|      | Projects:                                  | Phone:             | Cell/Other Phone: Cell/Other | Home:    |
|      | Projects:                                  | Phone:             |                              | Home:    |
|      | Logging:                                   | Phone:             |                              | Home:    |
|      | Logging:                                   | Phone:             | Phone:<br>Cell/Other         | Home:    |
|      | Logging:                                   | Phone:             |                              | Home:    |
|      | Logging:                                   | Phone:             |                              | Home:    |
| (7)  | State Representatives:                     |                    | g 11/0 t                     |          |
|      | Projects:                                  | Phone:             |                              | Home:    |
|      | Logging:                                   | Phone:             | Cell/Other Phone:            | Home:    |
| (8)  | Name of Subcontractors & Starting Dates:   |                    |                              |          |
|      | Projects: No(s)<br>No(s)<br>No(s)<br>No(s) | Date:<br>Date:     | Phone: Phone:                |          |
|      | Logging: FellingYarding:                   | Date:              | Phone: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.

| 1 | Cable Landing, with numbers for sequence.   |
|---|---|
| A | Tractor Landing with alphabetical sequence. |
|   | Approximate setting boundary.               |
|   | Spur truck roads.                           |
|   | Tractor yarding roads.                      |
| X | 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 |
|-----------------|-------------------------|
| Title           | Title                   |

Original: Salem cc: District File Purchaser

Operations Plan.doc/Jaz B (TS)

Page 1 of 4 629-Form 343-307a Revised 11/11

## EXHIBIT C – SAWMILL GRADE (WESTSIDE SCALE) SCALING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

| REVISIOI CANCELI (2) TO: (3) FROM: ½ Address § (4) PURCHA |  | ☐ Date ☐ | e<br>ion)<br>325-5<br>7103 | 5451   | <br><br>!<br> | (9)<br>(10)<br>(11)<br>(12) | SALE NAME: Wobblies  COUNTY: Clatsop  STATE CONTRACT NUMBER: 341-13-50  STATE BRAND REGISTRATION NUMBER:  STATE BRAND INFORMATION (COMPLETE): |
|---|--|---|----------------------------|--------|---------------|-----------------------------|---|
| Phone Nu  | IMBER:   |   |                            |        |               | ]                           |   |
| SPECIES<br>Conifers<br>Hardwoods                          | MINIMUN  | 1 NET VOLUM<br>10<br>10   | ИE                         |        |               | (13)                        | PAINT REQUIRED: YES 🗵 COLOR: Orange   |
| (6) WESTSIE Use Region 6 ac                               | DE SCALE: ctual taper rule. Logs over 40'.         |   | YES                        | NC<br> | ]             | PEI NO ME                   | D-BACK VOLUME - Deductions due to delay   |
| LOCATI  | VED SCALING<br>ONS<br>Approved Locations web-site) | Species   | Yard                       | Truck  | Weight        | (15)                        | REMARKS   |
|   |  |   |                            |        |               | 1 '                         | ator's Name (Optional inclusion by District):   |
|   |  |   |                            |        |               |                             | Purchaser or Authorized Representative Date   |
|   |  |   |                            |        |               |                             | State Forester Representative Date  |
|   |  |   |                            |        |               | ]<br>-<br>-                 | 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.

## **EXHIBIT C - SAWMILL GRADE**

INSTRUCTIONS FOR FORM 343-307a (rev. 11/11)

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.

Designate Third Party Scaling Organization (TPSO).

Columbia River Log Scaling & Grading Bureau

P.O. Box 7002, Eugene, OR 97401

Phone: (541) 342-6007 Fax: (541) 342-2631

Email: services@crls.com

Southern Oregon Log Scaling & Grading Bureau

P.O. Box 580, Roseburg, OR 97470

Fax: (541) 672-6381 Phone: (541) 673-5571

Email: info@southernoregonlogscaling.com

Northwest Log Scalers, Inc . 5526 NE 122<sup>nd</sup> Ave, Portland, OR 97230

Phone: (503) 254-0600 Fax: (503) 408-0919

Email: info@nwlogscalers.com

Pacific Rim Log Scaling Bureau, Inc.

8288 28th Court North East, Lacey, WA 98516 Phone: (360) 528-8710 Fax: (360) 528-8718

Email: office@prlsb.com

Yamhill Log Scaling & Grading Bureau P.O. Box 709, Forest Grove, OR 97116

Phone: (503) 359-4474 Fax: (503) 359-4476

Email: yamhill@attglobal.net

Pacific Log Scaling & Grading Bureau, Inc. P.O. Box 23939, Portland, OR 97281

Phone: (503) 684-5599 Fax: (503) 639-4880

Email: PacLogScale@aol.com

- State District office, address and phone. (3)
- Enter Purchaser's business name, address, and phone number as it appears on the Contract.
- Minimum Scaling Specifications.
- Westside Region 6 actual taper segment scale. Check Yes or No. Special Service Rules on file with TPSO. See: Segment (6)Scaling and Grading of Long Logs -- All Species -- State Forestry Department Scaling Practices (Westside).
- 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).
- 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 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 \\WPODFFILL01\Transfer\ScalingInstructions or e-mailed directly to scaling@odf.state.or.us. Scaling instructions for each brand should be scanned separately, for each approved TPSO.

State Timber Sale Contract No. 341-13-50 Wobblies Page 3 of 4 629-Form 343-307b Revised 11/11

## **EXHIBIT C - PULP SORT**

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

| (1)                               | ORIGINAL REGISTRATION              □ Date   | (9)  | SALE NAME: _Wobblies  COUNTY: Clatsop  |
|-----------------------------------|---|------|--|
| (2)                               | TO:(Approved Pulp Processing Facility)  | ` ,  | STATE CONTRACT NUMBER: 341-13-50 STATE BRAND REGISTRATION NUMBER             |
| <ul><li>(3)</li><li>(4)</li></ul> | FROM: Astoria (04) Phone 503-325-5451 (State Forestry District)  PURCHASER:   | , ,  | STATE BRAND INFORMATION: (COMPLETE BELOW)                                    |
| (5)                               | Scaling Bureau (TPSO) Processing Weight receipts:  Mailing Address: Phone Number:   |      |  |
| (6)                               | <ul> <li>STATE Definition of Approved Pulp Sort:</li> <li>Top portion of the tree (tops).</li> <li>All conifer logs with a diameter (Big End) greater than <u>8</u> inches marked with blue paint.</li> <li>All hardwood logs with a diameter (Big End) greater than <u>8</u> inches marked with blue paint.</li> </ul> |      | REMARKS:ator's Name (Optional inclusion by District):                        |
| (7)                               | <ul> <li>PULP FACILITY PROCESSING INSTRUCTIONS:</li> <li>Pulp loads shall be weighed in lieu of scaling.</li> <li>One Ton = 2000 lbs (Short Ton).</li> <li>Pulp loads shall have a yellow Log Load Receipt</li> </ul>   | (14) | SIGNATURES:  |
|                                   | <ul> <li>attached.</li> <li>Gross weight and truck tare weight for each load shall be machine printed on the weight receipt.</li> <li>Weigher shall sign the weight receipt.</li> </ul>   |      | Purchaser or Authorized Representative Date                                  |
|                                   | <ul> <li>Weigher shall record the Log Load Receipt number on the weight receipt.</li> <li>Weigher shall attach the Weight receipt to the Log Load Receipt and mail them weekly to the TPSO processing the Weight receipt.</li> </ul>  |      | State Forester Representative Date  State Forester Representative PRINT NAME |

## (8) TPSO PROCESSING INSTRUCTIONS

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

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

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

## **EXHIBIT C - PULP SORT**

INSTRUCTIONS FOR FORM 343-307b (rev. 11/11)

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

Columbia River Log Scaling & Grading Bureau P.O. Box 7002, Eugene, OR 97401

Phone: (541) 342-6007 Fax: (541) 342-2631

Email: <a href="mailto:services@crls.com">services@crls.com</a>

Southern Oregon Log Scaling & Grading Bureau P.O. Box 580, Roseburg, OR 97470

Phone: (541) 673-5571 Fax: (541) 672-6381 Email: info@southernoregonlogscaling.com

Northwest Log Scalers, Inc . 5526 NE 122<sup>nd</sup> Ave, Portland, OR 97230 Phone: (503) 254-0600 Fax: (503) 408-0919

Email: info@nwlogscalers.com

Pacific Rim Log Scaling Bureau, Inc.

8288 28<sup>th</sup> Court North East, Lacey, WA 98516

Phone: (360) 528-8710 Fax: (360) 528-8718

Email: office@prlsb.com

Yamhill Log Scaling & Grading Bureau P.O. Box 709, Forest Grove, OR 97116

Phone: (503) 359-4474 Fax: (503) 359-4476

Email: yamhill@attglobal.net

Pacific Log Scaling & Grading Bureau, Inc. P.O. Box 23939, Portland, OR 97281

Phone: (503) 684-5599 Fax: (503) 639-4880

Email: PacLogScale@aol.com

- (6) **Must Complete.** Big end log not to exceed \_\_\_\_8\_\_ inches. Big end of log is not to exceed 2 inches greater than the minimum removal specifications in the contract. Example: Minimum removal specifications 6 inches and 20 board feet, then the Big end of log not to exceed 8 inches. When conifer and hardwood removal specifications are different, use the smaller removal diameter to determine this specification.
- (9) **Must Complete**. Enter sale name and county. If more than one county write in all the counties that the sale is located in.
- (10) Must Complete. Enter sale Contract number.
- (11) Must Complete. Enter Oregon's State Brand Registry Number (REQUIRED).
- (12) **Must Complete**. Show brand assigned to timber sale. One brand only. If more than one brand is assigned to the sale: (1) make a separate form for each brand and (2) on each form, explain and show other brand(s) in the Remarks section Item (13).
- (13) Use this section to list any special instructions or the reason for any revisions in section item (1).
- (14) **Must Complete.** Purchaser required to sign and date completed form in addition to State Forester Representative, sign <u>and</u> print name on the form.

**Salem Distribution Instructions:** Original will be mailed to Salem after it is electronically scanned and placed in the Salem transfer drive \\WPODFFILL01\Transfer\ScalingInstructions or e-mailed directly to <a href="maileo-scaling@odf.state.or.us">scaling@odf.state.or.us</a>. Scaling instructions for each brand should be scanned separately, for each approved TPSO.

# EXHIBIT D FOREST ROAD SPECIFICATIONS

| SUBGRADE<br>WIDTH | SURFACED<br>WIDTH | POINT TO<br>POINT | STATION TO<br>STATION | DRAINAGE    |
|-------------------|-------------------|-------------------|-----------------------|-------------|
| 16 feet           | 12 feet           | 1A to 1B          | 0+00 to 11+10         | CROWN/DITCH |
| 16 feet           | 12 feet           | 1C to 1D          | 0+00 to 1+40          | CROWN/DITCH |
| 16 feet           | 12 feet           | 1E to 1F          | 0+00 to 12+75         | CROWN/DITCH |
| 16 feet           | 12 feet           | 2A to 2B          | 0+00 to 7+20          | CROWN/DITCH |
| 14 feet           | N/A               | 2C to 2D          | 0+00 to 2+60          | OUTSLOPED   |
| 16 feet           | 12 feet           | I1 to I2          | 0+00 to 99+50         | CROWN/DITCH |
| 16 feet           | 12 feet           | l3 to l4          | 0+00 to 5+00          | CROWN/DITCH |
| 16 feet           | 12 feet           | I5 to I6          | 0+00 to 27+90         | CROWN/DITCH |
| 16 feet           | 12 feet           | 17 to 18          | 0+00 to 159+00        | CROWN/DITCH |

<u>CLEARING</u>. This work shall consist of clearing, removing, and disposing of all trees, Snags, Down Timber, brush, surface objects, and protruding obstructions within the clearing limits.

Where clearing limits have not been marked, the clearing limits shall extend 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. Clearing debris shall not be placed or permitted to remain in or under any road embankment sections. Clearing debris shall not be left lodged against standing trees.

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

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

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

#### GRUBBING CLASSIFICATION.

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

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

<u>CLEARING AND GRUBBING DISPOSAL</u>. 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.

## FOREST ROAD SPECIFICATIONS

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

Excavation shall conform to STATE-specified lines, grades, dimensions, and plans when provided. Plans are provided for portions of Road Segment I1 to I2, and for Road Segments 2A to 2B and 2C to 2D.

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 or where material will accumulate in areas deemed a high-risk site by STATE.

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

<u>ROAD WIDTH LIMITATIONS</u>. 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.

<u>Curve Widening</u>. 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**

<u>Subgrade</u>. Subgrade shall be crowned/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.

<u>TURNOUTS</u>. Increase roadbed width an additional 8 feet for both subgrade and surfacing. Length shall be at least 50 feet, or as staked on the ground, plus 25-foot approaches at each end.

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

| SLOPES                           | Back Slopes                    | Fill Slopes |
|----------------------------------|--------------------------------|-------------|
| Solid Rock                       | Vertical to 1/4:1              |             |
| Fractured Rock                   | ½ :1                           |             |
| Soil - side slopes 50% and over  | <sup>3</sup> ⁄ <sub>4</sub> :1 | 1½:1        |
| Soil - side slopes less than 50% | 1:1                            | 1½:1        |

Top of cutslope shall be rounded.

<u>LANDINGS</u>. 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.

<u>SEASONAL WINTERIZATION</u>. All unsurfaced roads or unfinished subgrades shall be waterbarred in accordance with the specifications in Exhibit J, and blocked from vehicular traffic prior to October 1, annually and as directed by STATE.

#### FOREST ROAD SPECIFICATIONS

## **GENERAL ROAD CONSTRUCTION INSTRUCTIONS:**

- 1. <u>Timber Removal</u>. Remove all trees within posted right-of-way boundary as specified in Section 2210, "Designated Timber."
- 2. <u>Excavated Materials</u>. Excavated materials shall be utilized for road construction. 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. Excess excavated material not used for embankment shall be end hauled or pushed to waste areas as shown on Exhibit A and marked in the field.
- 3. <u>Fill Armor and Energy Dissipator Construction</u>. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit H.
- Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic-yard, trackmounted excavator.
- 5. Subgrade Preparation and Application of Surfacing Rock.
  - (a) Complete culvert installations, drainage ditches, ditchouts, fill construction, and other specified work prior to the application of surfacing rock.
  - (b) Subgrade shall be crowned 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> | Work Description:              |
|----------------|----------------|--------------------------------|
| 1E to 1F       | 6+65           | Begin full bench construction. |
|                | 7+65           | End full bench construction.   |

#### FOREST ROAD SPECIFICATIONS

## GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- 1. <u>Timber Removal</u>. Remove all trees within posted Right-of-Way Boundary or individually marked with an orange "C", as specified in Section 2210, Designated Timber.
- 2. Roadside Brushing. Conduct roadside brushing as specified in Exhibit I.
- 3. <u>Excavated Materials</u>. Excavated materials shall be utilized for road construction. 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. Excess excavated material not used for embankment on the following segment: I1 to I2, shall be end hauled to waste areas as shown on Exhibit A and marked in the field.
- 4. <u>Bank Slough Removal.</u> 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 K.
- 5. <u>Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal</u>. 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 K. Fill reconstruction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with this Exhibit. Crushed rock shall be used for backfilling excavation trenches less than 3 feet deep. STATE may require the use of crushed rock for culvert bedding. Removed culverts shall be hauled to an approved refuse site off of STATE land.
- 6. <u>Drainage Ditches.</u> Restore or construct ditchlines, including ditchouts, as directed by STATE. Clean out all culvert inlets and outlets for a 10-foot radius. Ditch debris including woody debris shall be loaded and hauled to designated waste areas, and shall be accomplished with the use of an excavator and dump truck. Re-establish or construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE. Damaged culvert inlets and/or outlets shall be repaired by opening them with a hydraulic jack, or cutting off the culvert end to allow for free passage of water at peak flow levels. Install a culvert marker at each newly installed culvert and at each existing culvert that is missing a marker that could be reached by a grader blade.
- 7. <u>Fill Armor and Energy Dissipator Construction</u>. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit H.
- 8. <u>Equipment</u>. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.

## FOREST ROAD SPECIFICATIONS

## **GENERAL ROAD IMPROVEMENT INSTRUCTIONS:**

- 9. <u>Subgrade Preparation and Application of Surfacing Rock.</u>
  - (a) Complete culvert installations, drainage ditches, fill reconstruction, ditchouts, and other specified work prior to the application of new surfacing rock.
  - (b) Cut out all potholes and/or washboard sections from the existing surfacing.
  - (c) Apply required patching and leveling rock, as directed by STATE.
  - (d) Process (grade and mix) the existing surface and added base rock. Provide for a crown of 4 to 6 percent, and compact in accordance to the "Compaction and Processing Requirements" in this Exhibit.
  - (e) Upon completion of above required work, apply, process, and compact surfacing rock in accordance to this Exhibit.

| Segment  | <u>Station</u> | Work Description:  |
|----------|----------------|--|
| I1 to I2 | 0+00           | Point I1. Begin application of 3 inch lift of ¾"-0" crushed rock. Utilize 44 cubic yards of ¾"-0" crushed rock at the "Y" junction for blending purposes as directed by STATE.   |
|          | 1+35           | Begin ditchline re-establishment.  |
|          | 3+75           | Install new culvert. Utilize 33 cubic yards of ¾"-0" crushed rock for bedding and backfill. Install culvert marker. Utilize 11 cubic yards of 24"-6" riprap rock for an energy dissipator.   |
|          | 9+85           | End ditchline re-establishment. Replace existing culvert. Utilize 55 cubic yards of ¾"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap rock for an energy dissipator.  |
|          | 13+30          | Repair damaged culvert inlet, unplug outlet, improve catch basin as directed by STATE.   |
|          | 19+60          | Begin road re-alignment as specified in plans. Begin application of 8" lift of 4"-0" crushed rock. Rehab the existing road as directed by STATE. Recover and utilize crushed rock from rehabed existing road as directed by STATE. Remove as designated timber trees painted with an orange "C". Remove stumps as directed by STATE. Round the top of the cut slopes as directed by STATE. |

## FOREST ROAD SPECIFICATIONS

| <u>Segment</u> | <u>Station</u> | Work Description:   |
|----------------|----------------|---|
| I1 to I2       | 23+80          | Begin ditchline re-establishment.   |
|                | 24+05          | End road re-alignment. End application of 4"-0" crushed rock.   |
|                | 24+55          | End ditchline re-establishment and cutslope rounding.   |
|                | 26+30          | Install new culvert. Utilize 33 cubic yards of ¾"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap rock for an energy dissipator. Install culvert marker.  |
|                | 34+34          | Install new culvert. Utilize 33 cubic yards of ¾"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap rock for an energy dissipator. Install culvert marker.  |
|                | 34+54          | Begin road re-alignment as specified in plans. Begin application of 8" lift of 4"-0" crushed rock.  |
|                | 35+78          | Replace existing culvert as specified in plans. Utilize 44 cubic yards of 3/4"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap rock for an energy dissipator.                                     |
|                | 37+62          | Point I3. Junction for road segment I3 to I4.   |
|                | 39+56          | End road re-alignment. End application of 4"-0" crushed rock.   |
|                | 42+75          | Begin road re-alignment as specified in plans. Begin application of 8" lift of 4"-0" crushed rock. Rehab the existing road as directed by STATE. Recover and utilize crushed rock from rehabbed existing road as directed by STATE. |
|                | 43+50          | Replace existing culvert. Utilize 33 cubic yards of 3/4"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap rock for an energy dissipator. Install culvert marker.                                   |
|                | 46+20          | Replace existing culvert as specified in plans. Utilize 132 cubic yards of ¾"-0" crushed rock for bedding and backfill. Utilize 175 cubic yards of 24"-6" riprap rock for fill armoring as directed by STATE.                       |
|                | 49+20          | Replace existing culvert as specified in plans. Utilize 33 cubic yards of 3/4"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap rock for an energy dissipator. Install culvert marker.             |
|                | 49+41          | End road re-alignment. End application of 4"-0" crushed rock.   |

## FOREST ROAD SPECIFICATIONS

| Segment  | Station | Work Description:  |
|----------|---------|--|
| I1 to I2 | 76+65   | Begin road re-alignment as specified in plans. Begin application of 8" lift of 4"-0" crushed rock. Rehab the existing road as directed by STATE. Recover and utilize crushed rock from rehabed existing road as directed by STATE. |
|          | 79+55   | End road re-alignment. End application of 4"-0" crushed rock.  |
|          | 91+55   | Replace existing culvert as specified in plans. Utilize 33 cubic yards of ¾"-0" crushed rock for bedding and backfill. Utilize 11 cubic yards of 24"-6" riprap rock for an energy dissipator. Install culvert marker.              |
|          | 99+55   | Point I2. End application of 3/4"-0" crushed rock.   |
| l3 to l4 | 0+00    | Point I3. Begin application of 8 inch lift of 4"-0" crushed rock.  |
|          | 2+98    | Construct a turnout/turnaround as directed by STATE.   |
|          | 3+42    | Replace existing culvert. Utilize 22 cubic yards of ¾"-0" crushed rock for bedding and backfill. Utilize 22 cubic yards of 4"-0" crushed rock as fill backfill. Install culvert marker.  |
|          | 4+50    | Reshape existing road grade as directed by STATE.  |
|          | 5+00    | Point I4. End application of 4"-0" crushed rock.   |
| I5 to I6 | 1+50    | Install culvert marker.  |
|          | 8+95    | Install culvert marker.  |
|          | 9+80    | Install culvert marker.  |
| I7 to I8 | 0+00    | Point I7. Begin application of 3 inch lift of ¾"-0" crushed rock. Begin heavy ditchline re-establishment and removal of brushed alder stumps as directed by STATE.   |
|          | 54+75   | Improve turnout right. Utilize 22 cubic yards of 4"-0" crushed rock for base course material.  |
|          | 75+20   | Bridge on Horseshoe Camp Road. End application of 3 inch lift of ¾"-0" crushed rock. End heavy ditchline re-establishment and removal of brushed alder stumps as directed by STATE.  |
|          | 94+45   | Begin application of 33 cubic yards of $\frac{3}{4}$ "-0" crushed rock for surface stabilization and reinforcement.  |
|          | 95+10   | End application of 33 cubic yards of 3/4"-0" crushed rock for surface stabilization and reinforcement.   |

## FOREST ROAD SPECIFICATIONS

| Segment  | Station | Work Description:  |
|----------|---------|--|
| 17 to 18 | 100+50  | Begin application of 55 cubic yards of $\frac{3}{4}$ "-0" crushed rock for surface stabilization and reinforcement.                            |
|          | 101+50  | End application of 55 cubic yards of 3/4"-0" crushed rock for surface stabilization and reinforcement.   |
|          | 106+00  | Begin application of 99 cubic yards of $\frac{3}{4}$ "-0" crushed rock for surface stabilization and reinforcement.                            |
|          | 108+00  | End application of 99 cubic yards of 3/4"-0" crushed rock for surface stabilization and reinforcement.   |
|          | 126+00  | Begin application of 143 cubic yards of $3/4$ "-0" crushed rock for surface stabilization and reinforcement. Begin ditchline re-establishment. |
|          | 129+00  | End application of 143 cubic yards of 3/4"-0" crushed rock for surface stabilization and reinforcement.  |
|          | 132+50  | Begin application of 110 cubic yards of ¾"-0" crushed rock for surface stabilization and reinforcement.  |
|          | 133+30  | Install culvert marker.  |
|          | 134+00  | End application of 110 cubic yards of 3/4"-0" crushed rock for surface stabilization and reinforcement.  |
|          | 135+00  | End ditchline re-establishment.  |

# EXHIBIT D FULL BENCH AND END-HAUL REQUIREMENTS

| POINT TO POINT | STA. TO STA. | CONTAINMENT -<br>SIDECAST |
|----------------|--------------|---------------------------|
| 1E to 1F       | 6+65 to 7+65 | 2                         |

## Full Bench and End-Haul Areas General Requirements

Sidecast includes any road generated excess excavation material which is not essential as part of the road prism, is not compacted, and is below the roadway. Material shall not be sidecast unless specified above.

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

## Containment/Sidecast

- (1) Full: No excavated material remains below the road.
- (2) Normal/Incidental: The amount of excavated material lost over the outside edge of the road shall not exceed 1 foot in depth.
- (3) Sidecast: Material shall be spread evenly below the road so that it does not build up behind trees, snags or other debris, and shall not exceed 3 feet in depth. Sidecast shall not be placed where it will enter a stream course or where material will accumulate in areas deemed a high-risk site by STATE.

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

- As shown on Exhibit A and as marked in the field.
- Setback from slope break shall be a minimum of 20 feet horizontal measurement.

## Waste Area Treatment

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

## **ROAD SURFACING**

| ROAD SEGMENT: 1A to 1B |                       | POINT TO      | 0                            | Sta. to S                  | ta.         |              |              |                         |
|------------------------|-----------------------|---------------|------------------------------|----------------------------|-------------|--------------|--------------|-------------------------|
|                        |                       |               | Donth of                     | 1A to 1B 0+00 t            |             | 0+00 to 11   | +10          | TOTAL                   |
| Application            | Rock Size<br>and Type | Location      | Depth of<br>Rock<br>(inches) | Volume (C                  | Volume (CY) |              | Number<br>of |                         |
| Base Rock              | 4"-0" Crushed         | 0+00 to 11+10 | 8                            | station                    | 50          | stations     | 11.1         | 555                     |
| Junction Rock          | 4"-0" Crushed         | 0+00          | 8                            | junction                   | 22          | junctions    | 1            | 22                      |
| Junction Rock          | 3/4"-0" Crushed       | 0+00          | 3                            | junction                   | 11          | junctions    | 1            | 11                      |
| Turnouts               | 4"-0" Crushed         | 1+70          | 8                            | turnout                    | 22          | turnouts     | 1            | 22                      |
| Landing                | 6"-0" Pit-run         | 9+25          | N/A                          | landing                    | 50          | landings     | 1            | 50                      |
| Landing                | 6"-0" Pit-run         | 1B            | N/A                          | landing                    | 80          | landings     | 1            | 80                      |
| Total Rock for F       | Road Segment:         |               | 1A to 1B                     |                            |             |              |              | 740                     |
| ROAD SEGN              | MENT: 1C to 1D        |               |                              | POINT TO                   | )           | Sta. to S    | ta.          |                         |
|                        |                       |               | Don'th of                    | 1C to 1D                   | )           | 0+00 to 1    | +40          | TOTAL                   |
| Application            | Rock Size<br>and Type | Location      | Depth of Rock (inches)       | Volume (C                  | (Y)         | Numbe        | er           | TOTAL<br>VOLUME<br>(CY) |
| Base Rock              | 4"-0" Crushed         | 0+00 to 1+40  | 8                            | station                    | 50          | stations     | 1.40         | 70                      |
| Junction Rock          | 4"-0" Crushed         | 0+00          | 8                            | junction                   | 22          | junctions    | 1            | 22                      |
| Landing                | 6"-0" Pit-run         | 1D            | N/A                          | landing                    | 80          | landings     | 1            | 80                      |
| Total Rock for F       | Road Segment:         |               | 1C to 1D                     |                            |             |              |              | 172                     |
| ROAD SEGN              | MENT: 1E to 1F        |               |                              | POINT TO POINT Sta. to Sta |             | ta.          |              |                         |
|                        |                       |               | Depth of                     | 1E to 1F                   | :           | 0+00 to 12   | 2+75         | TOTAL                   |
| Application            | Rock Size<br>and Type | Location      | Rock<br>(inches)             | Volume (C                  | (Y)         | Number<br>of |              | VOLUME<br>(CY)          |
| Base Rock              | 4"-0" Crushed         | 0+00 to 12+75 | 8                            | station                    | 50          | stations     | 12.8         | 638                     |
| Junction Rock          | 4"-0" Crushed         | 0+00          | 8                            | junction                   | 22          | junctions    | 1            | 22                      |
| Junction Rock          | 3/4"-0" Crushed       | 0+00          | 3                            | junction                   | 11          | junctions    | 1            | 11                      |
| Landing                | 6"-0" Pit-run         | 5+45, 11+00   | N/A                          | landing                    | 50          | landings     | 2            | 100                     |
| Landing                | 6"-0" Pit-run         | 1F            | N/A                          | landing                    | 80          | landings     | 1            | 80                      |
| Total Rock for F       | Road Segment:         |               | 1E to 1F                     |                            |             |              |              | 851                     |
| ROAD SEGM              | IENT: 2A to 2B        |               |                              | POINT TO POINT             | Ö           | Sta. to S    | ta.          |                         |
|                        |                       |               | Depth of                     | 2A to 2B                   | }           | 0+00 to 7    | +20          | TOTAL                   |
|                        | Rock Size             |               | Rock                         | Volume (C                  | (Y)         | Numbe        | er           | VOLUME                  |
| Application            | and Type              | Location      | (inches)                     | per                        | ,           | of           |              | (CY)                    |
| Base Rock              | 4"-0" Crushed         | 0+00 to 7+20  | 8                            | station                    | 50          | stations     | 7.2          | 360                     |
| Junction Rock          | 4"-0" Crushed         | 0+00          | 8                            | junction                   | 22          | junctions    | 1            | 22                      |
| Junction Rock          | 3/4"-0" Crushed       | 0+00          | 3                            | junction                   | 11          | junctions    | 1            | 11                      |
| Turnouts               | 4"-0" Crushed         | 3+75          | 8                            | turnout                    | 22          | turnouts     | 1            | 22                      |
| Turnarounds            | 4"-0" Crushed         | 6+20          | 8                            | turnaround                 | 22          | turnarounds  | 1            | 22                      |
| Traction Rock          | 3/4"-0" Crushed       | 0+00 to 5+00  | 2                            | station                    | 13          | stations     | 5            | 65                      |
| L a la alia a          | 6"-0" Pit-run         | 2B            | N/A                          | landing                    | 80          | landings     | 1            | 80                      |
| Landing                | 0 -0 Fit-full         | 20            | 111/7                        | lanuing                    | 00          | landings     | '            | - 00                    |

## ROAD SURFACING

| ROAD SEGMENT: 2C to 2D        |                    | _   |                         | 5 11 (        |          | POINT TO POINT   |              | Sta. to Sta. |      | TOTAL         |               |
|-------------------------------|--------------------|---|-------------------------|---------------|----------|------------------|--------------|--------------|------|---------------|---------------|
|                               |                    | Depth<br>Roc  |                         |               | 2C to 2D |                  | 0+00 to 2+60 |              | =    | OTAL<br>OLUME |               |
| Application                   | Rock Size and Type | Location  |                         | ches)         |          | Volume (C        | CY)          | Numbe        | er   | \ \ \         | (CY)          |
|                               |                    |   | (                       | ,             |          | per              |              | of           |      |               | (-,           |
| Junction Rock                 | 4"-0" Crushed      | 0+00  |                         | 8             | j        | unction          | 55           | junctior     | าร   | 1             | 55            |
| Total Rock for Ro             | -                  |   | 2C                      | to 2D         |          |                  |              |              |      |               | 55            |
| ROAD SEGMEN                   | Γ: 2Ε              |   |                         |               | PC       | DINT TO P        | OINT         | Sta. to S    | Sta. |               |               |
|                               |                    |   |                         | oth of<br>ock |          | 2E               |              | N/A          |      |               | OTAL<br>OLUME |
| Application                   | Rock Size and Type | Location  |                         | ches)         |          | Volume (0        | CY)          | Numbe        | er   |               | (CY)          |
|                               |                    |   | •                       |               |          | per              |              | of           |      |               |               |
| Junction Rock                 | 3/4"-0" Crushed    | 0+00  |                         | 3             | -        | unction          | 11           | junction     |      | 1             | 11            |
| Landing                       | 6"-0" Pit-run      | 2F  | ١                       | N/A           | l        | landing          | 200          | landing      | gs   | 1             | 200           |
| Total Rock for Ro             | -                  |   | :                       | 2E            |          |                  |              |              |      |               | 211           |
| ROAD SEGMEN                   | Γ: 2F              |   | _                       |               | PC       | DINT TO P        | OINT         | Sta. to S    | Sta. |               |               |
|                               |                    |   |                         | oth of<br>ock |          | 2F               |              | N/A          |      |               | OTAL<br>OLUME |
| Application                   | Rock Size and Type | Location  |                         | ches)         |          | Volume (0<br>per | CY)          | Number<br>of | er   |               | (CY)          |
| Junction Rock                 | 3/4"-0" Crushed    | 0+00  |                         | 3             | ju       | ınction          | 11           | junctions    | 1    |               | 11            |
| Landing                       | 6"-0" Pit-run      | 2H  | ١                       | N/A           | la       | anding           | 200          | landings     | 1    |               | 200           |
| Total Rock for Ro             | ad Segment:        |   | :                       | 2F            |          |                  |              |              |      |               | 211           |
| ROAD                          |                    |   |                         |               |          | POINT            | _            |              |      |               |               |
| SEGMENT                       | I1 to I2           |   |                         |               | _        | POIN             | IT           | Sta. to      | Sta. |               |               |
|                               |                    |   |                         | Depth<br>of   | )        | I1 to            | 12           | 0+00 to 9    | 9+50 |               | OTAL          |
|                               | Rock Size          |   |                         | Rock          |          | Volume           | (CY)         | Numb         | er   |               | OLUME         |
| Application                   | and Type           | Location  |                         | (inches       | s)       | per              | ·            | of           |      |               | (CY)          |
| Base Rock<br>Realignments     | 4"-0" crushed      | 19+60-24+05, 34+54-3<br>42+75-49+41, 76+65-7  |                         | 8             |          | station          | 50           | stations     | 19.1 |               | 956           |
| Curve Widening<br>Realignment | 4"-0" crushed      | 34+54-39+64, 42+75-4<br>78+00-79+50   | 9+41,                   | 8             |          | curve            | N/A          | curves       | 3.0  |               | 154           |
| Subgrade<br>Leveling          | 3/4"-0" Crushed    | I1-I2   |                         | N/A           |          | N/A              | N/A          | N/A          | N/A  |               | 418           |
| Surface Rock                  | 3/4"-0" Crushed    | l1-l2   |                         | 3             |          | station          |              | stations     | 99.5 |               | 1,891         |
| Curve Widening Realignment    | 3/4"-0" Crushed    | 34+54-39+64, 42+75-4<br>78+00-79+50   | 9+41,                   | 3             |          | curve            | N/A          | curves       | 3    |               | 77            |
| Turnouts                      | 3/4"-0" Crushed    | 5+55, 8+65, 10+70, 13<br>18+70, 20+80, 25+55, 3<br>36+40, 44+75, 48+00, 5<br>61+25, 65+30, 66+40, 7<br>77+80, 81+85, 92+3 | 0+95,<br>3+45,<br>0+80, | 3             |          | TC               | 22           | TO's         | 19   |               | 418           |
| Junctions                     | 3/4"-0" Crushed    | 0+00, 61+25, 74+35, 9<br>99+50  | 7+00,                   | 3             |          | junction         | N/A          | junctions    | 6    |               | 198           |
| Culvert Bedding<br>Backfill   | 3/4"-0" Crushed    | 3+75, 9+85, 26+30, 33+20,<br>35+78, 43+05, 46+20, 49+20,<br>91+55   |                         | N/A           |          | culver           | t n/a        | culverts     | 9    |               | 286           |
| Culvert Bedding backfill      | 3/4"-0" Crushed    | 46+20   |                         | N/A           |          | culver           | t n/a        | culverts     | 1    |               | 132           |
| Dissipator                    | 24"-6"             | 3+75, 9+85, 26+30, 33<br>35+78, 43+50, 49+20, 9   |                         | N/A           |          | dissipator       |              | dissipators  | 8    |               | 88            |
| Fill Armor                    | 24"-6"             | 46+20   |                         | N/A           |          | fil              | l 175        | fill         | 1    |               | 175           |
| Total Rock for Ro             | ad Segment:        |   |                         | I1 to I2      | 2        |                  |              |              |      |               | 4,792         |

## ROAD SURFACING

| ROAD<br>SEGMENT                 | 13 to 14              |  |                        | POINT T<br>POINT |     | Sta. to St  | ta.  |                         |
|---------------------------------|-----------------------|--|------------------------|------------------|-----|-------------|------|-------------------------|
|                                 |                       |  | Depth                  | l3 to l4         |     | 0+00 to 5+  |      | TOTAL                   |
| Application                     | Rock Size<br>and Type | Location   | of<br>Rock<br>(inches) | Volume (         | CY) | Numbe<br>of | r    | TOTAL<br>VOLUME<br>(CY) |
| Base Rock                       | 4"-0" crushed         | 13-14  | 8                      | station          | 50  | stations    | 5    | 250                     |
| Culvert<br>Bedding/<br>Backfill | 3/4"-0" Crushed       | 3+40   | N/A                    | culvert          | 33  | culverts    | 1    | 33                      |
| Subgrade<br>Leveling            | 4"-0" crushed         | 3+40   | N/A                    | station          | N/A | stations    | N/A  | 22                      |
| Turnarounds                     | 4"-0" crushed         | 3+00   | 8                      | TA               | 44  | TA's        | 1    | 44                      |
| Junction Base<br>Rock           | 4"-0" crushed         | 0+00   | 8                      | junction         | 22  | junctions   | 1    | 22                      |
| Junction                        | 3/4"-0" Crushed       | 0+00   | 3                      | junction         | 22  | junctions   | 1    | 22                      |
| Total Rock for F                | Road Segment:         |  | 13 to 14               |                  |     |             |      | 393                     |
| ROAD<br>SEGMENT                 | 15 to 16              |  |                        | POINT T<br>POINT |     | Sta. to St  | ta.  |                         |
|                                 |                       |  | Depth<br>of            | 15 to 16         |     | 0+00 to 27  | +90  | TOTAL                   |
| Application                     | Rock Size<br>and Type | Location   | Rock<br>(inches)       | Volume (         | CY) | Numbe<br>of | r    | VOLUME<br>(CY)          |
| Subgrade<br>Leveling            | 3/4"-0" Crushed       | 15 -16   | N/A                    | N/A              | N/A | N/A         | N/A  | 110                     |
| Total Rock for F                | Road Segment:         |  | I5 to I6               |                  |     |             |      | 110                     |
| ROAD<br>SEGMENT                 | 17 to 18              |  |                        | POINT T<br>POINT |     | Sta. to St  | ta.  |                         |
|                                 |                       |  | Depth                  | 17 to 18         |     | 0+00 to 159 | 9+00 | TOTAL                   |
| Application                     | Rock Size<br>and Type | Location   | of<br>Rock<br>(inches) | Volume (         | CY) | Numbe<br>of | r    | TOTAL<br>VOLUME<br>(CY) |
| Surface Rock                    | 3/4"-0" Crushed       | 0+00-75+20   | 3                      | station          | 19  | stations    | 75.2 | 1,429                   |
| Turnouts                        | 3/4"-0" Crushed       | 1+00, 7+90, 10+70, 12+90, 27+50, 29+60, 37+70, 40+40, 44+50, 48+25, 50+80, 54+75, 59+45, 69+80, 71+90, 74+60 | 3                      | turnout          | 22  | turnouts    | 16   | 352                     |
| Turnouts                        | 4"-0" crushed         | 54+75  | 8                      | turnout          | 22  | turnouts    | 1    | 22                      |
| Junctions                       | 3/4"-0" Crushed       | 17+50, 19+60, 23+50, 33+55,<br>34+80, 41+35, 48+25   | 3                      | junction         | 22  | junctions   | 7    | 154                     |
| Turnarounds                     | 3/4"-0" Crushed       | 7+90   | 3                      | TA               | 22  | TA's        | 1    | 22                      |
| Subgrade<br>Leveling            | 3/4"-0" Crushed       | 0+00-75+20   | N/A                    | N/A              | N/A | N/A         | N/A  | 165                     |
| Surface<br>Stabilization        | 3/4"-0" Crushed       | 94+45-95+10  | N/A                    | N/A              | N/A | N/A         | N/A  | 33                      |
| Surface<br>Stabilization        | 3/4"-0" Crushed       | 100+50-101+50  | N/A                    | N/A              | N/A | N/A         | N/A  | 55                      |
| Surface<br>Stabilization        | 3/4"-0" Crushed       | 106+00-108+00  | N/A                    | N/A              | N/A | N/A         | N/A  | 99                      |
| Surface<br>Stabilization        | 3/4"-0" Crushed       | 126+00-129+00  | N/A                    | N/A              | N/A | N/A         | N/A  | 143                     |
| Surface<br>Stabilization        | 3/4"-0" Crushed       | 132+50-134+00  | N/A                    | N/A              | N/A | N/A         | N/A  | 110                     |
| Total Rock for F                | Road Segment:         |  | 17 to 18               |                  |     |             |      | 2,584                   |

## **ROAD SURFACING**

| ROCK TOTALS (CY) | 24"-6" | 6"-0" | 4"-0" | 3/4"-0" |
|------------------|--------|-------|-------|---------|
| 10,778           | 285    | 870   | 3,346 | 6,277   |

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

## **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.

Rock Checking. All rock spreading shall be done only when a STATE representative is present. STATE shall issue a receipt for each load delivered, and rock shall be measured without allowance for shrinkage or shakedown during hauling. Total truck measure volume for each road segment shall be as shown on Exhibit D. Deliver at least 600 cubic yards per 8-hour shift, unless otherwise approved by STATE. A penalty of \$10 for each 10 cubic yards which are not delivered during a single shift shall be billed, and payment shall be required prior to final acceptance of the project by STATE.

<u>Depth Measurement</u>. 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.

<u>Load Records</u>. Notify STATE before spreading the rock and maintain a record of all rock delivered for spreading. Make the record available for STATE inspection. A report listing the amount of rock delivered the prior month must be submitted no later than the 15th of each month.

## COMPACTION AND PROCESSING REQUIREMENTS

<u>Moisture Content</u>: 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.

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

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

| ROAD SEGMENT                                  | COMPACTION EQUIPMENT OPTIONS |
|---|------------------------------|
| All road segments that require rock surfacing | 1                            |

<u>Fills</u>. 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, or 3; and 4            |

## COMPACTION AND PROCESSING REQUIREMENTS

<u>Crushed Rock</u>. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of crushed rock shall be moistened or dried to uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 6 inches in depth. When more than 1 layer is required, each shall be shaped and compacted before the succeeding layer is placed. Any irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and adding or removing material until the surface is smooth and uniform. Each layer shall be compacted with a minimum of 3 passes over the entire width and length of the road until the surface is smooth and hard and visible deformation ceases. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

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

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

| ROAD SEGMENT                             | COMPACTION EQUIPMENT OPTIONS |
|--|------------------------------|
| All road segments requiring crushed rock | 1                            |

#### COMPACTION EQUIPMENT OPTIONS

- (1) <u>Vibratory Rollers</u>. 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) <u>Rubber-Tired Skidders</u>. A rubber-tired skidder weighing a minimum of 20,000 pounds shall be operated over the fill layers so that the entire layered surface comes in contact with the tires. Skidders with oversized tires (high flotation) are not acceptable for compaction.
- (3) <u>Tampingfoot Compactors</u>. Tampingfoot compactors shall exert a minimum pressure of 250 pounds per square inch on the ground area in contact with the tamping feet. The compactor shall cover a minimum width of 60 inches per pass and weigh a minimum of 16,000 pounds.
- (4) <u>Vibratory Hand-Operated or Backhoe-Mounted Tamper</u>. Vibratory hand-held or hydraulic tampers shall be used for compaction of backfill materials around culverts (and/or bridge approach embankment materials around abutments). The tamper shoe dimensions shall be a minimum of 10" X 13" and capable of a centrifugal force of 2,250 pounds.

#### **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, or ASTM F2648 Culvert.

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

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

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

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

A bedding of crushed rock or rock crusher reject as specified shall be placed to provide a wide band of support and to transmit the load from above evenly over the entire length of the culvert for stream crossing culverts.

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

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

#### **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 add 6" for roads which will not be rocked. 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 24 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 shall become property of the PURCHASER and be removed from STATE land and hauled to an approved refuse site in the same project period in which replacement occurred.

The intake ends of culverts in fills less than 3 feet to the top of the culvert shall be marked by driving white fiberglass posts within 6 inches of the downgrade side. Posts shall be a minimum of 6 feet long and 2½ inches wide, with the spade driven 2 feet into the ground.

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

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

|             | Steel Culvert | <u>Thickn</u>   | ess      |             | Band W         | <u>idths (")</u> |
|-------------|---------------|-----------------|----------|-------------|----------------|------------------|
| <u>Dia.</u> | <u>Gauge</u>  | <u>Uncoated</u> | Coated   | Band Gauges | <u>Annular</u> | <u>Helical</u>   |
| 12-15       | 16            | (0.0598")       | (0.064") | 16          | 7              | 12               |
| 18-24       | 16            | (0.0598")       | (0.064") | 16          | 12             | 12               |
| 30-36       | 16            | (0.0598")       | (0.064") | 16          | 12             | 12               |

## **EXHIBIT E**

## **CULVERT LIST**

| CULVERT<br>NO. | DIAMETER (Inches) | LENGTH<br>(Feet) | MATERIAL<br>TYPE | GAUGE | ROAD SEGMENT<br>POINT TO POINT | STATION |
|----------------|-------------------|------------------|------------------|-------|--------------------------------|---------|
| 1              | 18                | 30               | CPP              |       | 1A to 1B                       | 4+65    |
| 2              | 18                | 35               | CPP              |       | 1A to 1B                       | 6+00    |
| 3              | 18                | 30               | CPP              |       | 1A to 1B                       | 10+15   |
| 4              | 18                | 35               | CPP              |       | 2A to 2B                       | 2+25    |
| 5              | 18                | 40               | CPP              |       | I1 to I2                       | 3+75    |
| 6              | 24                | 40               | CPP              |       | I1 to I2                       | 9+85    |
| 7              | 18                | 40               | CPP              |       | I1 to I2                       | 26+30   |
| 8              | 18                | 40               | CPP              |       | I1 to I2                       | 34+34   |
| 9              | 18                | 50               | CPP              |       | I1 to I2                       | 35+78   |
| 10             | 24                | 40               | CPP              |       | I1 to I2                       | 43+50   |
| 11             | 36                | 94               | ACSP             | 16    | I1 to I2                       | 46+20   |
| 12             | 18                | 40               | CPP              |       | I1 to I2                       | 49+20   |
| 13             | 18                | 40               | CPP              |       | I1 to I2                       | 91+55   |
| 14             | 18                | 40               | СРР              |       | 13 to 14                       | 3+42    |

ACSP = Aluminized, CPP = Polyethylene

#### **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.
- PURCHASER shall schedule and coordinate quarry and stockpile usage with other existing or planned activity requiring quarry or stockpile usage. PURCHASER shall notify STATE 5 days prior to the start of quarry development activities.
- 3. The quarry site shall be left in a condition free from overburden and debris. Access roads to the quarry, and the quarry floor, shall be cleared at the termination of use. Overburden shall be removed for a distance of 20 feet beyond the developed rock source.
- 4. All overburden and reject material shall be hauled to the designated waste area as directed by STATE.
- 5. 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.
- 6. 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.
- 7. Quarry face shall be developed in a uniform manner. All quarry backslopes shall be left in a stable condition.
- 8. Oversized material that is produced or encountered during development shall be broken down and utilized for crushing.
- 9. All rock source material shall be screened prior to loading in the rock crusher hopper with a separate screening system acceptable to STATE.
- 10. The quarry floor shall be developed to provide for drainage away from the quarry. All quarry and stockpile site drainage ditches shall be maintained. Quarry access roads shall be cleared and blocked upon completion of quarry use as directed by STATE.
- 11. Proper winterization and storm-water control measures such as waterbarring, drainage, utilization of filter bales, mulching and/or blocking access shall be constructed and maintained to protect the watershed and Project Work, as directed by STATE.
- 12. Upon completion of quarry operations, maintain/repair the OHV trail adjacent to the guarry, as directed by STATE.
- 13. Apply seed and mulch to the waste area, as specified in Exhibit K.

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

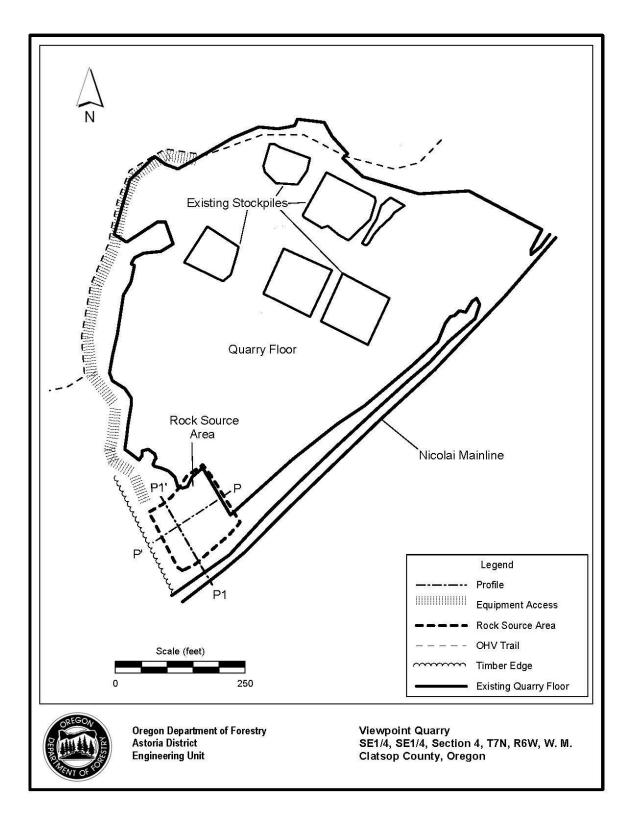
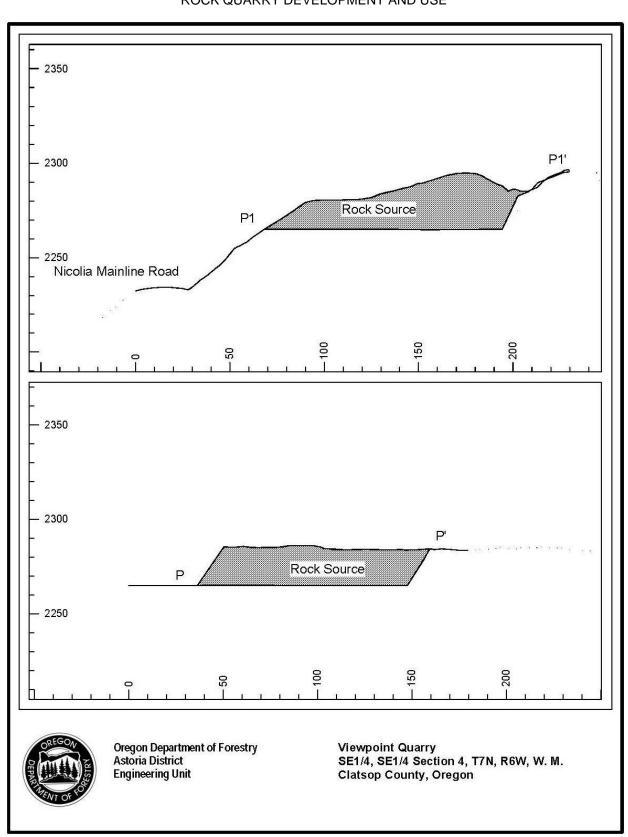


EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE



#### **EXHIBIT G**

## CRUSHED ROCK SPECIFICATIONS

<u>Materials</u>. 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.

<u>Quality and Grading Requirements</u>. 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, 35 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 G**

## **DURABLE CRUSHED ROCK SPECIFICATIONS**

## **Grading Requirements**

| For 3/4"-0" | Passing | 1" sieve     | 100%    |
|-------------|---------|--------------|---------|
|             | Passing | 3/4" sieve   | 90-100% |
|             | Passing | 3/8" sieve   | 55-75%  |
|             | Passing | 1/4" sieve   | 40-60%  |
|             | Passing | No. 10 sieve | 20-40%  |
|             | Passing | No. 40 sieve | 8-16%   |
| For 4"-0"   | Passing | 5" sieve     | 100%    |
|             | Passing | 4" sieve     | 90-100% |
|             | Passing | 2" sieve     | 60-90%  |
|             | Passing | 3/4" sieve   | 35-60%  |
|             | Passing | 1/4" sieve   | 15-35%  |
|             | Passing | No. 10 sieve | 0-20%   |

## PIT-RUN and RIPRAP ROCK SPECIFICATIONS

| For 6"-0" Pit-Run | Passing | 10" sieve  | 100%   |
|-------------------|---------|------------|--------|
|                   | Passing | 6" sieve   | 60-85% |
|                   | Passing | 3" sieve   | 30-50% |
|                   | Passing | 1/4" sieve | 0-20%  |

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

Control of gradation shall be by visual inspection by STATE.

EXHIBIT H

TYPICAL EMBEDDED ENERGY DISSIPATOR

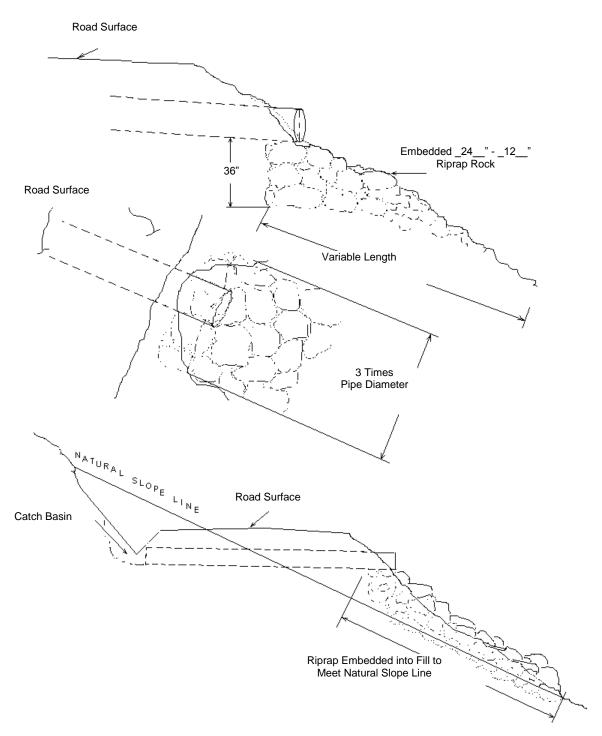
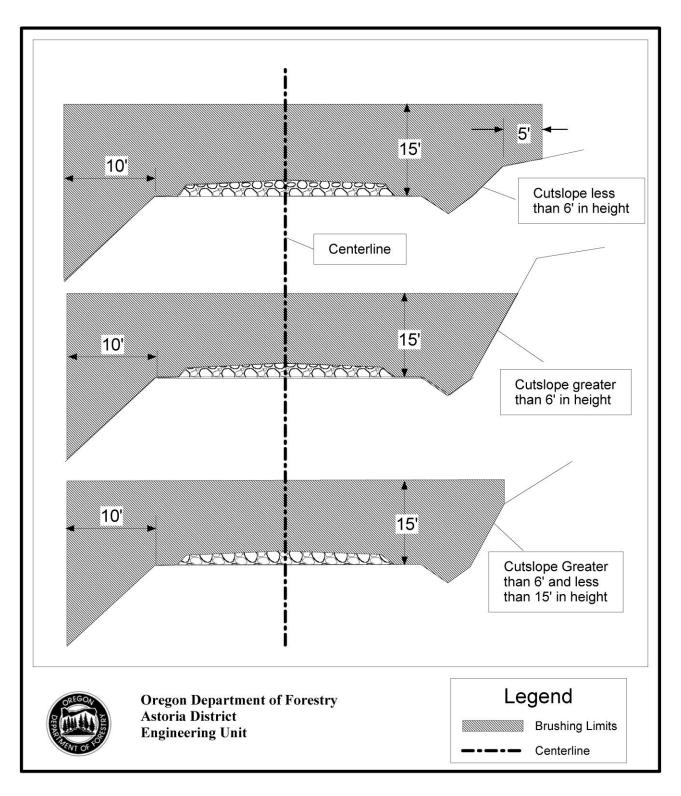


EXHIBIT I

ROAD BRUSHING SPECIFICATIONS



#### **EXHIBIT I**

#### ROAD BRUSHING SPECIFICATIONS

## **REQUIREMENTS**

The minimum height of brushing shall be for all situations 15 feet from the road surface, and the minimum width of brushing on the down slope side of the road shall be 10 feet horizontal distance. The minimum width of brushing on the cutslope side of the road shall be dictated by the height of the cutslope as indicated in the three drawings above. In situations where site distance is an issue brushing heights on the cutslope may vary from the above drawings, as directed by STATE.

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

Debris resulting from the brushing operation shall be removed from the roadway, cutslope, ditches, water courses, culvert inlets/outlets, and sediment catch 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 brushing limits but outside of the ditchline or shoulder, shall not be cut down, but shall be limbed for road visibility.

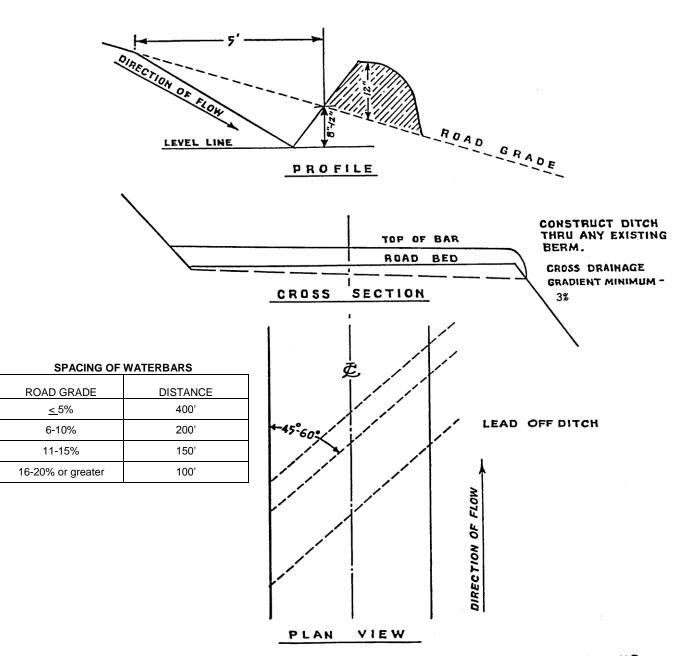
Existing debris on the roadway, cutslope, ditchline, or catch basin shall be removed and treated. Debris shall be mulched or scattered downslope from the road or placed in other stable locations. Large non-merchantable debris, 6 inches or larger in diameter, shall be mulched or cut into lengths 6 feet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

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

EXHIBIT J
WATERBAR SPECIFICATIONS



WATERBAR SPECIFICATIONS FOR CROSS DITCHING #298 State Timber Sale Contract No. 341-13-50 Wobblies

#### **EXHIBIT K**

## 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, fertilizer, and straw mulch to all waste areas.

<u>Seeding Seasons</u>. Seeding shall be performed only from <u>March 1</u> through <u>June 15</u> and <u>August 15</u> through <u>October 31</u>. 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

<u>Dry Method</u>. 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%        |  |

<u>Fertilizer</u>: 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

N/A Waste Areas

## PART IV: OTHER INFORMATION

State Timber Sale Contract No. 341-13-50 Wobblies

## FPA "Written Plan" for Operating within 100 Feet of Type F Streams Wobblies Timber Sale

Portions Sections 25, 26, and 35, T7N, R6W, W.M., Clatsop County, Oregon

**Landowner: Oregon Department of Forestry** 

92219 Highway 202 Astoria, Oregon 97103 Phone: (503) 325-5451

## **Protected Resources:**

- 1. Fishhawk Creek
- 2. Unnamed tributary to Fishhawk Creek

## **Specific Site Characteristics:**

- 1. <u>Fishhawk Creek</u> (Large Type F) This stream (approximately 10 to 15 feet wide) runs along the northwest boundaries of Areas 1 and 2 for approximately 5,000 feet. The stream has a meandering channel with an alder dominated flood plain.
- 2. <u>Unnamed tributary to Fishhawk Creek (Small, Type F) This stream (approximately 2 to 4 feet wide) runs approximately 500 feet adjacent to the timber sale boundary along the southwest side of Area 1. The stream channel also meanders through a floodplain dominated by alder and scattered conifer.</u>

## **Tree and Vegetation Retention:**

Vegetation within the buffers consists mostly of alder and salmonberry.

All posted Type F buffers along or within cut units are approximately 150 feet. During cable yarding operations, it is anticipated that cable skylines will cross all of the above listed streams. It is not anticipated that any logs will pass over the Type F streams or buffers.

## **Resource Protection Practices:**

Along all of the above-mentioned streams, as well as any live streams, the following practices are required, under the timber sale contract, to protect the streams and streamside areas:

- 1. No trees will be felled within posted stream buffers (RMA's) except were needed for corridors.
- 2. Trees that fall or slide into Type F RMA's shall not be removed without prior approval from STATE.
- 3. Trees adjacent to the posted stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- 4. When cable logging is conducted nearby the RMA's, logging lines may cross, but will not be lowered into the RMA's during yarding, except during rigging. During rigging, the lines must be pulled out of the RMA's when changing corridors.
- 5. Logs shall be fully suspended when yarding across all stream buffers (RMA's).
- 6. Cable corridors must be at least 100 feet apart where they cross the RMA's.

|               | ed, submit this written plan in complia<br>perations conducted within 100 feet o | •     |  |
|---------------|--|-------|--|
| Submitted by: |  | Date: |  |
|               | Operator/PURCHASER   |       |  |

Attachments: Logging Plan Map

State Timber Sale Contract No. 341-13-50 Wobblies

## FOREST PRACTICES ACT "WRITTEN PLAN" Fill greater than 15 Feet Wobblies Timber Sale

Landowner: Oregon Department of Forestry

92219 Hwy 202 Astoria, OR 97103 (503) 325-5451

#### **Protected Resources:**

**Road Segment I1 to I2,** (Sta. 46+20): A unnamed type N tributary of Fishhawk Creek, located in the NW1/4, SW1/4, Section 35, T7N, R6W, W.M., Clatsop County, Oregon.

A written plan is required for fills greater than 15 feet in height.

#### Situation:

The current structure is failing.

#### Solution:

Design a crossing structure that meets or exceeds the need of this particular stream crossing site and FPA requirements for type N stream crossings.

**Drainage Area and Structure Design:** The existing 36" diameter and 84' foot long stream crossing structure will be replaced with a 94' long, 36" diameter, 16 gage aluminized steel round culvert pipe, with both ends step beveled.

New Stream Gradient:7%Size of Watershed:33 acresAverage Stream Width:2.5 feet

Streambed material: Cobble, Sand, Gravel, bedrock

50 Year Peak Flow/Mi.<sup>2</sup>: 100 cfs 50 Year Peak Flow: 5.1 cfs Flow Capacity of New Structure: 31 cfs

#### **Resource Protection Measures:**

- In water work is only allowed from July 31 through August 31.
- Machine activity in stream channel shall be minimized.
- All fill excavation, backfilling, stream channel development, and riprap placement shall be performed using a minimum 2 cubic yard track mounted excavator.
- A dewatering plan shall be developed and followed from the start of excavation until the structure is in place and water flowing.
- An erosion control plan shall be developed and followed to prevent sediment from entering the stream during construction work.
- Clearing debris, and excavation material shall be hauled to a designated waste area.
- Riprap rock shall be used to protect the structure, road approaches/embankments, and stream banks from erosion.

Date

Oil spill response materials shall be on site before work begins.

| I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the |
|--|
| operations conducted when, fill work exceeds 15 feet in height. I agree to the protection measures listed on this plan.    |
|  |
| Submitted  |

Attachments: Exhibit A and K

Original: Salem

Copies: Operator, Purchaser, District File, Engineering Unit, Sunset Unit

Purchaser/Operator

#### OREGON DEPARTMENT of FISH and WILDLIFE

## FISH SCREENING PROGRAM

## SMALL PUMP SCREEN SELF CERTIFICATION

The Oregon Water Resources Department in coordination and cooperation with the Oregon Department of Fish and Wildlife includes screen requirements on pumps to protect fish as a condition of many surface water and/or reservoir water right permits. This is done in accordance with ORS 537.153.

The Oregon Department of Fish and Wildlife does not usually inspect small pump screens at pumped diversions less than 225 GPM (Gallons per Minute), but furnishes the following fish screening criteria information to the water right permit tee:

Screen material open area must be at least 27% of the total wetted screen area.

**Perforated plate:** Openings shall not exceed 3/32 or 0.0938 inches (2.38 mm).

Mesh/Woven wire screen: Square openings shall not exceed 3/32 or 0.0938 inches (2.38mm)

in the narrow direction, e.g., 3/32 inch x 3/32 inch open mesh.

Profile bar screen/Wedge wire: Openings shall not exceed 0.0689 inches (1.75 mm) in the

narrow direction.

**Screen area** must be large enough to cause fish impact. Wetted screen area depends on the water flow rate and the water approach velocity. **Approach velocity** is the water velocity perpendicular to and approximately three inches in front of any part of the screen face.

An Active pump screen is a self cleaning screen that has a proven cleaning system. The screen approach velocity for active pump screens shall not exceed 0.4 fps (feet per second) or 0.12 mps (meters per second). The wetted screen area in square feet is calculated by dividing the maximum water flow rate in cubic feet per second (1 cfs = 449 gpm) by 0.4 fps.

**A Passive pump screen** is a screen that has no cleaning system other than periodic manual cleaning. **Screen approach velocity for passive pump screens** shall not exceed 0.2 fps or 0.06 mps. The wetted screen area in square feet is calculated by dividing the maximum water flow rate by 0.2 fps.

For further information on fish screening please contact:

Bernie Kepshire, Oregon Department of Fish and Wildlife, 7118 NE Vandenberg Avenue, Corvallis, OR 97330-9446 (541) 757-4186 x 255

As evidence of having met fish screen installation requirements, please sign the certification and send to: Oregon Water Resources Department, Water Rights Section, 725 Summer St. NE, Suite A, Salem, OR 97301-1271

**Certification:** I certify that my small pumped diversion of less than 225 gpm meets fish screening criteria, and that I will maintain it to comply with regulatory criteria. I also understand that should fish screening standards change, I may be required to modify my installation to meet applicable standards.

|                         | Applicant Signature: |              |        | Date: | / | / | WRD File # |  |
|-------------------------|----------------------|--------------|--------|-------|---|---|------------|--|
|                         | Printed Name         | and Address: |        |       |   |   |            |  |
|                         | Phone: (             | )            | Fax: ( | )     |   |   |            |  |
| bmk<br>3/11/99<br>PUMPO | CERT.doc             |              |        |       |   |   |            |  |

NB: ODFW logo is 129% of logo on HQ mail label

State Timber Sale Contract No. 341-13-50 Wobblies

## NOTICE OF TRANSFER OF STATE TIMBER

Instructions 629:-Form-301-010 Complete Section 1. Mark the box which applies to you/your company in Section 2. Complete Section 3 and obtain signatures. **SECTION 1** On \_\_\_\_\_\_, state timber sale purchaser (Transferor) \_\_\_\_\_, sold, exchanged or otherwise transferred to \_\_\_\_\_, (Transferee) state timber originating from State Timber Sale Contract No. \_\_\_\_\_ Transferee hereby certifies that they: Will not export the unprocessed state timber which is the subject of this transaction; Will not sell, transfer, exchange or otherwise convey the unprocessed timber which is the subject of this (b) transaction to any other person without first obtaining a like certification from that person; and Are not prohibited by OAR's 629-31-005 through 045 from purchasing state timber or logs directly from (c) the State Forester, or this is a sale of Western Red Cedar for domestic processing. **SECTION 2** Have not exported unprocessed timber originating from private lands in Oregon in the last 24 months. This is a sale of hardwood logs for domestic processing. П This is a sale of Western Red Cedar for domestic processing. This is a sale of pulp logs or cull logs processed at domestic pulp mills, domestic chip plants or other domestic operations for the purpose of conversion of the logs into chips. **SECTION 3** The parties understand that falsely entering into this certification, or failure to comply with the terms of this certification is a violation of the Forest Conservation and Shortage Relief Act of 1990 and OAR Chapter 629. Division 31, and is subject to any and all penalties contained therein. Transferor: Transferee: Signed Signed Title Title Dated Dated [Note: For the purpose of this form, the definition of unprocessed timber is the same as in OAR 629-31-005] Mail To: State Forester 2600 State Street

Notice of Transfer of State Timber Form 301-010.doc/Jaz B (SF)

Salem, OR 97310