

# PART III: EXHIBITS

State Timber Sale Contract  
No. 341-07-42  
Cow Hollow

EXHIBIT B

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

## OREGON DEPARTMENT OF FORESTRY

### TIMBER SALE OPERATIONS PLAN

(See Page 2 for instructions)

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

(5) State Brand Information (complete):



(1) Contract No.: 341-07-42

(2) Sale Name: Cow Hollow

(3) Contract Expiration Date: October 31, 2009

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

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

(6) Purchaser Representatives:

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

(7) State Representatives:

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

(8) Name of Subcontractors & Starting Dates:

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

(9) Comments:

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

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

EXHIBIT B  
INSTRUCTION SHEET FOR OPERATIONS PLAN

**SUBMIT ONE COPY OF PLAN TO STATE**

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

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

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

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

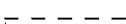
- (10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:
  1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings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



Cable landing, with numbers for sequence.



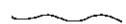
Tractor landing with alphabetical sequence.



Approximate setting boundary.



Spur truck roads.



Tractor yarding roads.



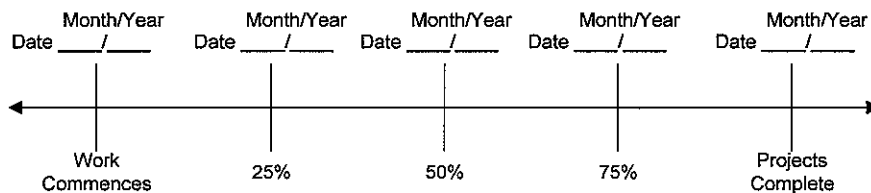
Temporary stream crossings.

EXHIBIT B  
OPERATIONS PLAN

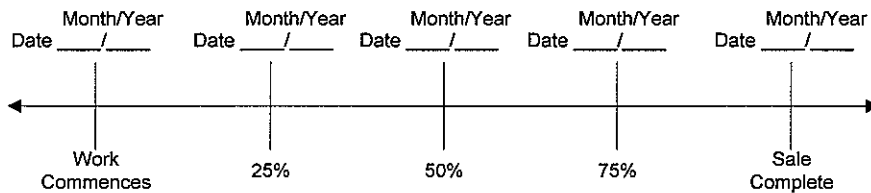
**Completion Timeline**

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

**Projects**



**Harvest & Other Requirements**



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

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

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

SUBMITTED BY:  
PURCHASER

STATE OF OREGON - DEPARTMENT OF FORESTRY

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

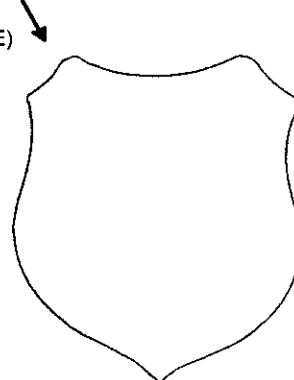
\_\_\_\_\_  
Title \_\_\_\_\_

Original: Salem  
cc: District File  
Purchaser

EXHIBIT C

SCALING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

- (1) ORIGINAL REGISTRATION  Date \_\_\_\_\_  
 REVISION NUMBER \_\_\_\_\_  Date \_\_\_\_\_  
 CANCELLATION  Date \_\_\_\_\_
- (2) TO: \_\_\_\_\_  
 (Third Party Scaling Organization)
- (3) FROM: Astoria (04) Phone (503) 325-5451  
 (State Forestry District)  
 Address 92219 Hwy. 202, Astoria, OR 97103
- (4) PURCHASER: \_\_\_\_\_  
 Address \_\_\_\_\_

- (12) SALE NAME Cow Hollow  
 COUNTY Clatsop
- (13) STATE CONTRACT NUMBER 341-07-42
- (14) SCALE: westside  eastside  cubic foot
- (15) STATE BRAND REGISTRATION NUMBER \_\_\_\_\_
- (16) BUREAU BRAND CODE NUMBER \_\_\_\_\_
- (17) STATE BRAND INFORMATION:  
 (COMPLETE) 

MINIMUM SCALING SPECIFICATIONS			CLASS		
SPECIES	SCALING DIAMETER INCHES	*NET SCALE VOLUME	PER MBF	** SUM	SUB
All Conifers	--	10	X		
All Hardwoods	--	10	X		

\* Apply minimum volume test to whole logs over 40' Westside; 20' Eastside.  
 \*\* Sum (if indicated): see instructions and explain in Item (20).

- (6) WESTSIDE SCALE: YES  NO   
 Actual taper all logs over 40' scaling length
- (7) EASTSIDE SCALE: YES  NO   
 \*Actual taper butt logs over 40' scaling length
- (8) PENCIL BUCK YES  NO   
 back to Minimum Scaling Diameter \_\_\_\_\_
- (9) ADD-BACK VOLUME -- YES  NO   
 Deductions due to delay

- (18) PAINT REQUIRED: YES   
 COLOR Orange

(19) SPECIAL SCALES
PEELABLE CULL (all species)
UTILITY/PULP (all species)
<b>NO DEDUCTIONS ALLOWED FOR MECHANICAL DAMAGE</b>
OTHER: _____
OTHER: _____

(10) APPROVED SCALING LOCATIONS	Species	Yard	Truck

- (20) REMARKS: All hardwood logs less than 30 board feet shall be scaled as "utility." Hardwood logs greater than or equal to 30 net board feet shall be scaled as a sawlog.

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

- (11) NOTICE OF CANCELLATION OF BRAND:  
 Effective Date: \_\_\_\_\_  
 \_\_\_\_\_  
 State Forester's Representative

- (21) SIGNATURES:  
 \_\_\_\_\_ Date  
 Purchaser or Authorized Representative  
 \_\_\_\_\_ Date  
 State Forester Representative

**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

INSTRUCTIONS FOR FORM 343-307 (rev. 5/01)

- (1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires Item (21). Complete date.
- (2) Designate Third Party Scaling Organization (TPSO). Send 4 copies to TPSO, 1 to purchaser, 1 to Salem, and keep such copies as to district needs.
- (3) State District office, address and phone.
- (4) Enter Purchaser's business name and address as it appears on the Contract.
- (5) Minimum Scaling Specifications. Review Section 2040 or 2045, "Log Removal," of the Contract. Species, or combined species can be separate entries. Information serves as a basis for scaling (see also Items (13) thru (17)), and is required to show existence on the sale. **PerM** (per MBF). **SUM** (lump sum material). **SUB** (submerchantable material. SUB, as used by the State, references that material containing at least 10 bf (net) but less than the lower merchantable net volume limit or grade requirements for other merchantable (PerM) entries. PerM, SUM, and Sub must be indicated by checking the appropriate column. Species with the same specifications and value are combined into one entry. PerM and Sub require scaling therefore complete specifications. SUM need not be scaled, hence no specifications. Loads containing only SUM are to be ticketed if so instructed in Item (19). Mixed loads of SUM, PERM and/or subspecies will always be scaled.
- (6) Westside -- actual taper segment scale. Check Yes or No. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs -- All Species -- State Forestry Department Scaling Practices (Westside).
- (7) Eastside -- actual taper/taper table segment scale. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs -- All Species -- State Forestry Department Scaling Practices (Northwest Log Rules Eastside). Items with \* follow U.S. Forest Service Eastside rules.
- (8) Pencil Buck. Check NO if a westside sale, optional for eastside sales.
- (9) Add-Back Volume. Add-Back is normally checked YES. Scaler records deductions (sap rot, weather checks, etc.) caused by an abnormal delay in removal. Enter separately on scale ticket. TPSO provides State with summaries that include this as a net volume by species. Salvage sales and certain other circumstances may require that "NO" be checked.
- (10) Show scaling locations only applicable to TPSO. Not necessary to list markets. If all species are scaled at same location, enter "ALL."
- (11) When logging is complete, recall branding hammers, date and sign where indicated, check CANCELLATION box at top of form, and send to TPSO.
- (12) Enter sale name and county.
- (13) Enter sale Contract number.
- (14) Check Westside or Eastside log scale. Cubic foot refers to Northwest Log Rules Cubic Foot Scale.
- (15) Oregon Forest Products Brand Registry Number (optional).
- (16) DO NOT USE -- TPSO will fill in when applicable.
- (17) Show one brand only. Complete drawing. If more than one brand is assigned to the sale, (1) make separate form for each brand, and (2) on each form, explain and show other brand(s) under REMARKS, Item 19.
- (18) Check YES and designate orange.
- (19) Special Scales. These are the Special Scales that will be applied. If "Other" is indicated, please describe. Give comments in Item (19).
- (20) Use this space to designate weight conversion factors, or any other explanations to clarify scaling requirements. If additional scaling locations are approved, prepare another form showing all (old and new) locations. Check REVISION box at top of form and explain under remarks. Route as indicated.
- (21) Require purchaser to sign and date completed form.

EXHIBIT D  
 FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STATION TO STATION	DRAINAGE
16 feet	12 feet	2A to 2B	0+00 to 2+80	DITCH
14 feet	N/A	3A to 3B	0+00 to 30+20	OUTSLOPE
14 feet	N/A	3C to 3D	0+00 to 2+85	OUTSLOPE
16 feet	12 feet	3E to 3F	0+00 to 3+80	DITCH
16 feet	12 feet	4A to 4B	0+00 to 8+40	DITCH
16 feet	12 feet	4C to 4D	0+00 to 0+50	DITCH
16 feet	12 feet	4E to 4F	0+00 to 2+30	DITCH
14 feet	N/A	4G to 4H	0+00 to 9+00	OUTSLOPE
16 feet	12 feet	5A to 5B	0+00 to 0+50	DITCH
16 feet	12 feet	5C to 5D	0+00 to 0+50	DITCH
20 feet	16 feet	GS1 to GS2	0+00 to 8+02	DITCH

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

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.

**CLEARING AND GRUBBING DISPOSAL.** Scatter in stable locations through openings in the timber outside of the cleared right-of-way, except areas where end-haul is required. In areas where end-haul is required, clearing and grubbing debris shall be fully contained and hauled to a designated waste area. Do not place clearing and grubbing debris on side slopes exceeding 50 percent. Grubbing debris shall be left in a stable location, and not left lodged against standing trees.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

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

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

All suitable excavated material shall be used where possible 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. All fills and drainage structure backfills shall be machine compacted according to the specifications in Exhibit D.

Unless road design 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.

Excess excavation shall not be sidecast where material will enter a stream course or where material will accumulate in areas deemed a high landslide hazard location by STATE.

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

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

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

DRAINAGE

Subgrade. Subgrade shall be crowned at 4 to 6 percent ( $\frac{1}{2}$  inch per foot).

Ditch. Construct "V" ditch 3 feet wide and to a depth of 1 foot below subgrade.

Ditchouts. Construct ditchouts away from subgrade at locations marked in the field or as directed by STATE.

Outslope. Road subgrade shall be outsloped at 4 to 6 percent.

TURNOUTS. 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.

GRADING

	<u>Back Slopes</u>	<u>Fill Slopes</u>
Rock	Vertical to $\frac{1}{4}$ :1	Not steeper
Common - side slopes 50% and over	$\frac{3}{4}$ :1	than 1 $\frac{1}{2}$ :1
Common - side slopes less than 50%	1 :1	
Common - turnpike (level) section	2 :1	

Top of cutslope shall be rounded.

LANDINGS. Landings shall be constructed as posted in the field, no less than 50 feet wide and no more than 70 feet wide. Surface is to be crowned for drainage, with general grade no more than 3 percent. Surface as shown on Exhibit D.

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

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

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD CONSTRUCTION INSTRUCTIONS:

- (1) Excavated Materials. Excavated materials shall be utilized for road construction and hauled in where necessary. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit D.
- (2) Fill Armor and Energy Dissipator Construction. Where rock is specified for fill armor, rock shall be placed and tamped at a 1½:1 slope, beginning at the fill toes. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit G.
- (3) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic-yard, track-mounted excavator.
- (4) Subgrade Preparation and Application of Surfacing Rock.
  - (a) Complete culvert installations, drainage ditches, ditchouts, fill construction, and other specified work prior to the application of surfacing rock.
  - (b) Subgrade shall be crowned at 4 to 6 percent (½ inch per foot).
  - (c) Upon completion of above required work, apply, process, and compact surfacing rock in accordance with specifications in Exhibit D. Final road surface shall be crowned at 4 to 6 percent (½ inch per foot).

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
3A to 3B	0+00	Begin truck end-haul from Project No. 2 GS1 to GS2 for fill construction.
	4+10	End of truck end-haul for fill construction
	11+60	Stream crossing culvert installation and fill construction. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding.
	13+65	Stream crossing culvert installation and fill construction. Utilize 20 cubic yards of ¾"-0" crushed rock for culvert bedding.
	19+35	Stream crossing culvert installation and fill construction.
	24+50	Junction with 3C to 3D.



EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- (1) Timber Removal. Remove all trees within the 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 H.
- (3) Excavated Materials. Excavated materials shall be utilized for road and fill construction and hauled in where necessary. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit D. In addition, all clearing and grubbing debris on road segment GS1 to GS2 shall be hauled to the Greasy Spoon/Cow Ridge Stockpile site and disposed of by burning.
- (4) Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal. Existing culvert geometry shall be modified to provide for optimum drainage and culvert performance. Modifications may include, skewing the culvert and/or installing the culvert at gradients equal to or exceeding the drainage (or ditch) gradient. Where fill reconstruction or culvert replacement is specified, fills shall be excavated to natural stream course levels. All woody debris encountered during fill excavation shall be removed. All waste materials shall be hauled to nearby waste areas and shall be uniformly sloped and compacted for drainage. Waste materials shall be seeded and mulched in accordance with specifications in Exhibit J. 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 Exhibit D. 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.
- (5) Drainage Ditches. Restore or construct ditchlines, including ditchouts, as directed by STATE. Clean out all culvert inlets and outlets for a 10-foot radius. Re-establish or construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE. Damaged culvert inlets and/or outlets shall be repaired by opening them with a hydraulic jack, or cutting off the culvert end to allow for free passage of water at peak flow levels. Install a culvert marker at each newly installed culvert and at each existing culvert that is missing a marker that could be reached by a grader blade.
- (6) Riprap Rock Use: Where rock is used for fill armor, rock shall be placed and tamped at a 1½:1 slope, beginning at the fill toes. When used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit G.
- (7) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.

EXHIBIT D  
FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- (8) Subgrade Preparation and Application of Surfacing Rock.
- (a) Complete culvert installations, drainage ditches, fill reconstruction, ditchouts, and other specified work prior to the application of new surfacing rock.
  - (b) Cut out all potholes and/or washboard sections from the existing surfacing.
  - (c) Apply required patching and leveling rock, as directed by STATE.
  - (d) Process (grade and mix) the existing surface and added base rock. Provide for a crown of ½ inch per foot in road width (4 to 6 percent), and compact in accordance to Exhibit D.
  - (e) Upon completion of above required work, apply, process, and compact surfacing rock in accordance to Exhibit D.
- (9) Greasy Spoon/Cow Ridge Stockpile Site Expansion.
- (a) Waste material designated for the stockpile site shall be located, placed, and compacted according to Exhibit D and as directed by STATE.
  - (b) PURCHASER, shall obtain a FPA Burn Permit prior to debris disposal and provide all necessary resources for burning operations.
  - (c) Stockpile site expansion is to be rocked with reclaimed rock. The reclaimed rock stockpile location is shown on Exhibit A.
- (10) Road Segment GS1 to GS2. Realign the road, construct back slopes to 1:1, widen, improve vertical alignment, and improve turnout in accordance with the plans on file at the Astoria District Office.
- (11) Prior to conducting any activity near Greasy Spoon Mainline shown on Exhibit A, PURCHASER shall notify STATE and West Oregon Electric, PO Box 69, Vernonia, Oregon 97064, 1-800-777-1276 / 503-429-3021. PURCHASER shall conduct activities near this utility line according to the recommendations of West Oregon Electric and shall be responsible for any damage to the utility resulting from PURCHASER's activities.

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
GS1 to GS2	0+00	Begin realignment of Greasy Spoon Road.
	8+02	End realignment of Greasy Spoon Road.
	9+70	Waste Area location at south edge of Greasy Spoon/Cow Ridge stockpile site.

EXHIBIT D  
END-HAULING REQUIREMENTS

POINT TO POINT	STA. TO STA.	CONTAINMENT	WASTE AREA LOCATION	WASTE AREA TREATMENT
GS1 to GS2	0+00 to 8+02	Full	2	2 and 3
GS1 to GS2	0+00 to 8+02	Full	1	1

End-Haul Areas General Requirements

Material shall not be intentionally side cast.

Clearing and grubbing debris shall be end-hauled.

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

Containment

Full containment: The amount of material lost over the outside edge of the road shall not exceed 6 inches in depth measured perpendicular to the natural ground slope. Pioneer excavation shall be removed by digging, loading, and hauling rather than by pushing or scraping methods.

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

Waste Area Location

- (1) Waste Area No. 1 is for fill construction on Road Segment 3A to 3B, Station 0+00 to 4+10. Specified quantity of excavated material only is to be hauled to this location for fill construction, as directed by STATE.
- (2) Waste Area No. 2 as shown on Exhibit A, is at the Greasy Spoon/Cow Ridge Stockpile site.

Waste Area Treatment

- (1) Use suitable excess excavated materials as designed by STATE from road segment GS1 to GS2 to construct designed fill between Stations 0+00 and 4+10 on Road Segment 3A to 3B. Compact fill according to Exhibit D specifications.
- (2) Deposit at Stockpile site, spread evenly, compact and provide adequate drainage.
- (3) Pile woody debris separate from other waste material.

EXHIBIT D  
 ROAD SURFACING

ROAD SEGMENT: 2A to 2B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B		0+00 to 2+80		
				Volume (CY) Per		Number of		
Base Rock	4"-0" Crushed	2A to 2B	8	Station	43	Stations	2.80	120
Landings	6"-0" Pit-run	2B		Landing	50	Landings	1	50
Total Rock for Road Segment:				2A to 2B				170
ROAD SEGMENT: 3A to 3B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A to 3B		0+00 to 0+50		
				Volume (CY) Per		Number Of		
Base Rock	4"-0" Crushed	0+00 to 0+50	8	Station	43	Stations	.50	22
Culvert Bedding	3/4"-0" Crushed	11+60		Culvert	1	Culverts	20	20
Culvert Bedding	3/4"-0" Crushed	13+65		Culvert	1	Culverts	20	20
Total Rock for Road Segment:				3A to 3B				62
ROAD SEGMENT: 3E to 3F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	3E to 3F		0+00 to 3+80		
				Volume (CY) Per		Number of		
Base Rock	4"-0" Crushed	3E to 3F	8	Station	43	Stations	3.80	163
Traction Rock	3/4"-0" Crushed	0+00 to 3+00	2	Station	11	Stations	3	33
Junction	3/4"-0" Crushed	3E	2	Station	11	Stations	1	11
Junction	4"-0" Crushed	3E	8	Station	24	Stations	1	24
Turnouts	4"-0" Crushed		8	Turnout	19	Turnouts	1	19
Landings	6"-0" Pit-run	3F		Landing	50	Landings	1	50
Total Rock for Road Segment:				3E to 3F				300
ROAD SEGMENT: 4A to 4B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size And Type	Location	Depth of Rock (inches)	4A to 4B		0+00 to 8+40		
				Volume (CY) Per		Number Of		
Base Rock	4"-0" Crushed	4A to 4B	8	Station	43	Stations	8.40	361
Junction	3/4"-0" Crushed	4A	2	Station	11	Stations	1	11
Junction	4"-0" Crushed	4A	8	Station	24	Stations	1	24
Landings	6"-0" Pit-run	2+80, 6+05		Landing	40	Landings	2	80
Landings	6"-0" Pit-run	8+40		Landing	50	Landings	1	50
Total Rock for Road Segment:				4A to 4B				526
ROAD SEGMENT: 4C to 4D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	4C to 4D		0+00 to 1+00		
				Volume (CY) Per		Number Of		
Base Rock	4"-0" Crushed	4C to 4D	8	Station	43	Stations	1.00	43
Landings	6"-0" Pit-run	4D		Landing	50	Landings	1	50
Junction	3/4"-0" Crushed	4C	2	Station	11	Stations	1	11
Junction	4"-0" Crushed	4C	8	Station	24	Stations	1	24
Total Rock for Road Segment:				4C to 4D				128

EXHIBIT D  
 ROAD SURFACING

ROAD SEGMENT: 4E to 4F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	4E to 4F		0+00 to 2+30		
				Volume (CY) Per		Number Of		
Base Rock	4"-0" Crushed	4E to 4F	8	Station	43	Stations	2.30	99
Junction	3/4"-0" Crushed	4E	2	Station	11	Stations	1	11
Junction	4"-0" Crushed	4E	8	Station	24	Stations	1	24
Landings	6"-0" Pit-run	4F		Landing	50	Landings	1	50
Total Rock for Road Segment:				4E to 4F				184
ROAD SEGMENT: 4G to 4H				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size And Type	Location	Depth of Rock (inches)	4G to 4H		0+00 to 0+50		
				Volume (CY) Per		Number Of		
Base Rock	4"-0" Crushed	0+00 to 0+50	8	Station	43	Stations	.5	22
Total Rock for Road Segment:				4G to 4H				22
ROAD SEGMENT: 5A to 5B				POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size And Type	Location	Depth of Rock (inches)	5A to 5B		0+00 to 0+50		
				Volume (CY) Per		Number Of		
Base Rock	4"-0" Crushed	0+00 to 0+50	8	Station	43	Stations	.5	22
Junction	4"-0" Crushed	5A	10	Station	24	Stations	1	24
Landings	6"-0" Pit-run	5B		Landing	50	Landings	1	50
Total Rock for Road Segment:				5A to 5B				96
ROAD SEGMENT: 5C to 5D				POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size And Type	Location	Depth of Rock (inches)	5C to 5D		0+00 to 0+50		
				Volume (CY) Per		Number Of		
Base Rock	4"-0" Crushed	0+00 to 0+50	8	Station	43	Stations	.5	22
Junction	4"-0" Crushed	5C	10	Station	24	Stations	1	24
Landings	6"-0" Pit-run	5D		Landing	50	Landings	1	50
Total Rock for Road Segment:				5C to 5D				96
ROCK TOTALS (CY)		6"-0"		4"-0"		3/4"-0"		
1,584		430		1,037		117		

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

EXHIBIT D  
 ROAD SURFACING

ROAD SEGMENT: 11 to 12				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	11 to 12		0+00 to 258+25		
				Volume (CY) Per		Number of		
Subgrade Leveling	3/4"-0" Crushed	11 to 12	N/A					300
Junction	3/4"-0" Crushed	11 to 12	3	Junction	11	Junctions	16	176
Turnouts	3/4"-0" Crushed	11 to 12	3	Turnout	11	Turnouts	23	253
Surfacing Rock	3/4"-0" Crushed	11 to 12	3	Station	19	Stations	258.25	4,907
Total Rock for Road Segment:				11 to 12				5,636
ROAD SEGMENT: 13 to 14				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size And Type	Location	Depth of Rock (inches)	13 to 14		0+00 to 11+25		
				Volume (CY) Per		Number Of		
Surfacing Rock	4"-0" Crushed	13 to 14	6	Station	33	Stations	11.3	371
Junction	4"-0" Crushed	13	6	Junction	24	Junctions	1	24
Turnouts	4"-0" Crushed	13 to 14	6	Station	12	Turnouts	3	36
Total Rock for Road Segment:				13 to 14				431
ROAD SEGMENT: 15 to 16				POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size And Type	Location	Depth of Rock (inches)	15 to 16		0+00 to 20+75		
				Volume (CY) Per		Number Of		
Subgrade Leveling	3/4"-0" Crushed	15 to 16	N/A					70
Total Rock for Road Segment:				15 to 16				70
ROAD SEGMENT: 17 to 18				POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size And Type	Location	Depth of Rock (inches)	17 to 18		0+00 to 24+70		
				Volume (CY) Per		Number Of		
Surfacing Rock	4"-0" Crushed	17 to 18	6	Station	33	Stations	25	815
Junction	4"-0" Crushed	17	6	Station	24	Turnouts	1	24
Junction	3/4"-0" Crushed	17	2	Station	11	Turnouts	1	11
Turnouts	4"-0" Crushed	17 to 18	6	Station	12	Turnouts	3	36
Total Rock for Road Segment:				17 to 18				886
ROCK TOTALS (CY)		4"-0"		3/4"-0"				
7,023		1,306		5,717				

Roads shall be uniformly graded and approved by STATE prior to

EXHIBIT D  
 ROAD SURFACING

ROAD SEGMENT: GS1 to GS2				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	GS1 to GS2		0+00 to 8+02		
				Volume (CY) Per	Number of	Stations	Curves	
Base Rock	4"-0" Crushed	2+00 – 5+10	10	Station	70	Stations	3.10	217
Curve Widening	4"-0" Crushed	2+00 – 5+10	10	Curve	N/A	Curves	2	11
Turnouts	4"-0" Crushed	2+00 – 5+10	10	Turnout	32	Turnouts	1	32
Surface Rock	¾"-0" Crushed	0+00 – 8+02	4	Station	28	Stations	8.02	225
Curve Widening	¾"-0" Crushed	0+00 – 8+02	4	Curve	N/A	Curves	2	5
Turnouts	¾"-0" Crushed	0+00 – 8+02	4	Turnout	13	Turnouts	1	12
Total Rock for Road Segment:				GS1 to GS2				502
ROAD SEGMENT: to Stockpile Site				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	Stockpile Site				
				Volume (CY) Per	Number Of	Stations		
Base Rock	Reclaimed Rock		10	Station		Stations		620
Total Rock for Road Segment:				Stockpile Site				

ROCK TOTALS (CY)	Reclaimed Rock	4"-0"	¾"-0"
1,122	620	260	242

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

EXHIBIT D

ROCK ACCOUNTABILITY

PURCHASER shall obtain subgrade approval from STATE prior to rocking. Rocking shall be limited to periods when weather conditions are acceptable to STATE and when sediments will not enter streams.

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 500 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.

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

Depth shall be determined in the most compacted area of the surface cross section. If additional rock is required because of insufficient depth, it shall be added by truck measure to those areas that were slighted. The conversion from compacted yardage to truck yardage is 1.3 multiplied by the compacted yardage equals truck yardage.

The depth of compacted aggregates shall not vary more than 1 inch from the depth specified in Exhibit D. The average depth for each road segment shall be the specified depth or greater. Surfacing areas shall be staked by STATE.

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



EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

Subgrade. Subgrade surfaces of the road segments listed below shall be graded and compacted prior to rocking. Compaction shall be accomplished by traveling all surfaces from shoulder to shoulder until visible deformation ceases, or in the case of a sheepsfoot roller, the roller "walks out." At least 3 passes shall be made over the entire width and length of the road. A pass is defined as traveling a road section in one direction and then back over that same section again. 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 unless otherwise specified.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments that require rock surfacing.	1, 3 or 5
Greasy Spoon/Cow Ridge Junction Stockpile	1 or 5

Fills. Embankments and fills shall be placed in (approximately) horizontal layers not more than 8 inches in depth. Each layer shall be separately, and thoroughly, compacted. Compaction equipment shall be operated over the entire width of each layer until visible deformation of the layers ceases or, in the case of a sheepsfoot roller, the roller "walks out." At least 3 passes shall be made over the entire width and length of each layer. A pass is defined as traveling a fill layer in one direction and then back over that same layer again.

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

Crushed or Reclaimed Rock. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of crushed rock shall be moistened or dried to uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 6 inches in depth. When more than 1 layer is required, each shall be shaped and compacted before the succeeding layer is placed. Any irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and adding or removing material until the surface is smooth and uniform. Each layer shall be compacted with a minimum of 3 passes over the entire width and length of the road. A pass is defined as traveling a road section in one direction and then back over that same section again. 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 unless otherwise specified.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments requiring crushed rock.	1
Greasy Spoon/Cow Ridge Junction Stockpile	1

EXHIBIT D

COMPACTION EQUIPMENT OPTIONS

- (1) Vibratory Rollers. The drum shall have a smooth surface, a diameter not less than 48 inches, a width not less than 58 inches, and a turning radius of 15 feet or less. Vibration frequency shall be regulated in steps to 1400, 1500, and 1600 VPM, corresponding to engine speeds of 1575, 1690, and 1800 RPM. The centrifugal force developed shall be 7 tons at 1600 VPM. It shall be activated by a power unit of not less than 25 horsepower. The vibratory roller shall be self-propelled and operated at speeds ranging from 0.9 miles to 1.8 miles per hour, as directed by STATE.
- (2) Rubber-Tired Skidders. 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) Tampingfoot Compactors. Tampingfoot or sheepsfoot 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) Vibratory Hand-Operated or Backhoe-Mounted Tamper. Vibratory hand-held or hydraulic tampers shall be used for compaction of backfill materials around culverts (and/or bridge approach embankment materials around abutments). The tamper shoe dimensions shall be a minimum of 10" X 13" and capable of a centrifugal force of 2,250 pounds.
- (5) Vibratory Grid Compactors. The roller shall have a grid surface and have an operating weight of 32,000 pounds or more. The rock shall be worked with a grader weighing at least 20,000 pounds during the grid rolling process. All rock shall come in contact with the vibratory grid compactor.

EXHIBIT E

CULVERT SPECIFICATIONS

All culvert materials shall be furnished and installed by PURCHASER, unless otherwise specified in the Contract. Culverts shall be constructed of corrugated double-walled polyethylene and shall meet the requirements of AASHTO M-294-901, Type S. This specification applies to high density polyethylene corrugated pipe with an integrally formed smooth interior. All culverts shall conform to the material and fabricating requirements of the "Standard Specifications for Highway Construction" prepared by the Highway Division of the Oregon State Department of Transportation. Corrugation types and shapes other than those meeting the above minimum Highway requirements, shall be approved in writing by STATE.

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 stipulated in special instructions.

The STATE Representative shall determine final culvert locations and stake the locations in the field prior to installation.

Culvert grade shall slope away from ditch grade at least 2 percent unless otherwise specified.

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 pipe. The culvert trench shall be excavated 3 pipe diameters wide to Permit compaction and working on each side of the pipe. Tamping shall be done in 6-inch lifts, 1 pipe diameter each side of the pipe to 95 percent density or over. Bedrock shall be excavated as required to provide a uniform foundation for the full length of the culvert.

A bedding of granulated material or crushed rock as specified shall be placed to provide a wide band of support and to transmit the load from above evenly over the entire length of the pipe.

Backfill shall consist of granulated material, crushed rock, or job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the pipe.

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

Joining shall be done with bands of like material and corrugations. Manufacturers' instructions shall be followed for prefabricated pipe assembly.

Polyethylene joints shall be made with split couplings, corrugated to engage the pipe corrugations, and shall engage a minimum of 4 corrugations, 2 on each side of the pipe joint.

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

EXHIBIT E

CULVERT SPECIFICATIONS

Minimum height of cover over top of culvert to subgrade when road is to be rocked shall be as follows: 12" for culverts 18" to 36" and 18" for culverts 42" to 96" (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.

Tamping is required.

All removed culverts shall be hauled to an approved refuse site off of STATE land.

The intake ends of culverts in fills less than 3 feet 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 2 ½ inches wide, with the spade driven 2 feet into the ground.

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	ROAD SEGMENT POINT TO POINT	STATION
1	18	30	CPP	2A to 2B	1+90
2	18	40	CPP	3A to 3B	11+60
3	18	40	CPP	3A to 3B	13+65
4	18	40	CPP	3A to 3B	19+35
5	18	30	CPP	4A to 4B	0+00
6	18	30	CPP	4C to 4D	0+00

CPP = Polyethylene

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE, AND ROCK SPECIFICATIONS

- (1) PURCHASER shall prepare a written development plan for the quarry area. The plan shall be submitted to STATE for approval prior to conducting any operation in quarry area. The plan shall include, but not be limited to:
  - (a) Location of benches and roads to benches.
  - (b) Disposal site for woody debris, overburden and reject material.
  - (c) Time lines for rock quarry use.
  - (d) Erosion Control measures.
- (2) PURCHASER shall schedule and coordinate quarry and stockpile usage with other existing or planned activity requiring quarry or stockpile usage. PURCHASER shall notify STATE 5 days prior to the start of quarry development activities.
- (3) 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.
- (4) PURCHASER shall conduct the operation relative to the disposal of waste material in such manner that silt, rock, debris, dirt, or clay shall not be washed, conveyed, or otherwise deposited in any stream.
- (5) Quarry face shall be developed in a uniform manner.
- (6) Benches shall be maintained 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 degrees or less. Said bench shall be easily accessible with tractors.
- (7) Proper winterization and storm-water control measures such as water barring, drainage, utilization of filter bales, mulching, and/or blocking access shall be utilized and such measures maintained to protect the watershed and project work, as directed by STATE.
- (8) All quarry backslopes shall be left in a stable condition.
- (9) 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.
- (10) 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.

PIT-RUN AND RIPRAP ROCK SPECIFICATIONS

<u>For 6"-0" Pit-Run</u>	Passing	10" sieve	100%
	Passing	6" sieve	65%

Control of gradation shall be by visual inspection by STATE.

EXHIBIT G

TYPICAL EMBEDDED ENERGY DISSIPATOR

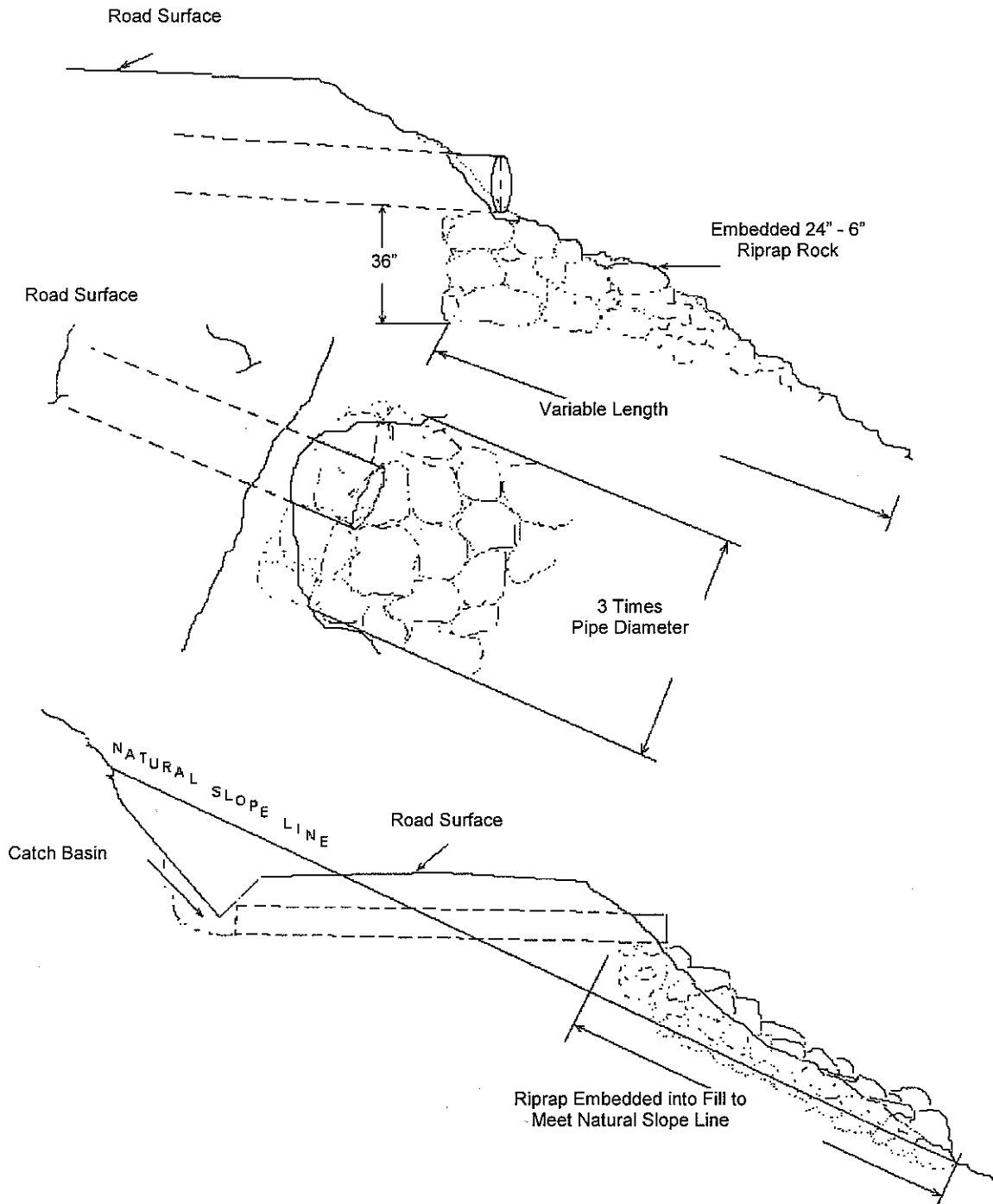
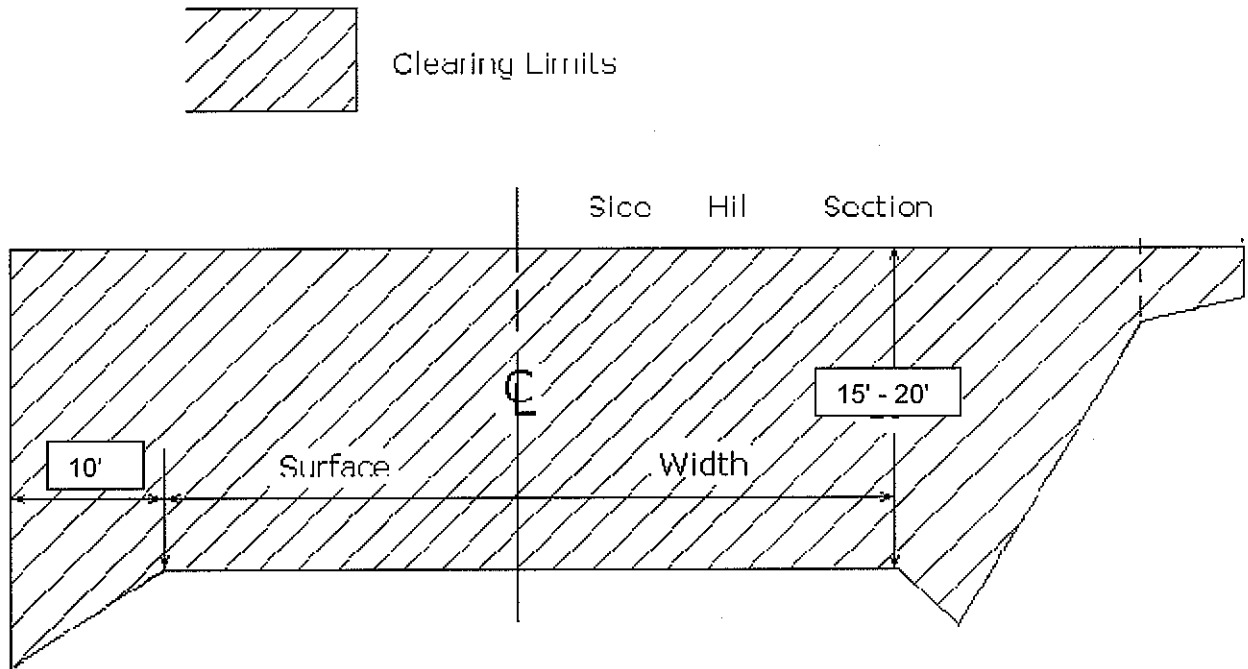


EXHIBIT H

ROAD BRUSHING SPECIFICATIONS



REQUIREMENTS

The minimum height of clearing shall be 15 or 20 feet from the road surface, and the minimum width of clearing on the cutslope side(s) of the road shall be 15 feet horizontal distance from the shoulder of the road and 10 feet horizontal on the down slope side from the road shoulder. For cutslopes less than 6 feet in height, brushing shall extend 5 feet beyond the top of cutslope. For cutslopes greater than 6 feet in height, brushing shall extend 15 feet horizontal distance from the road shoulder.

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

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

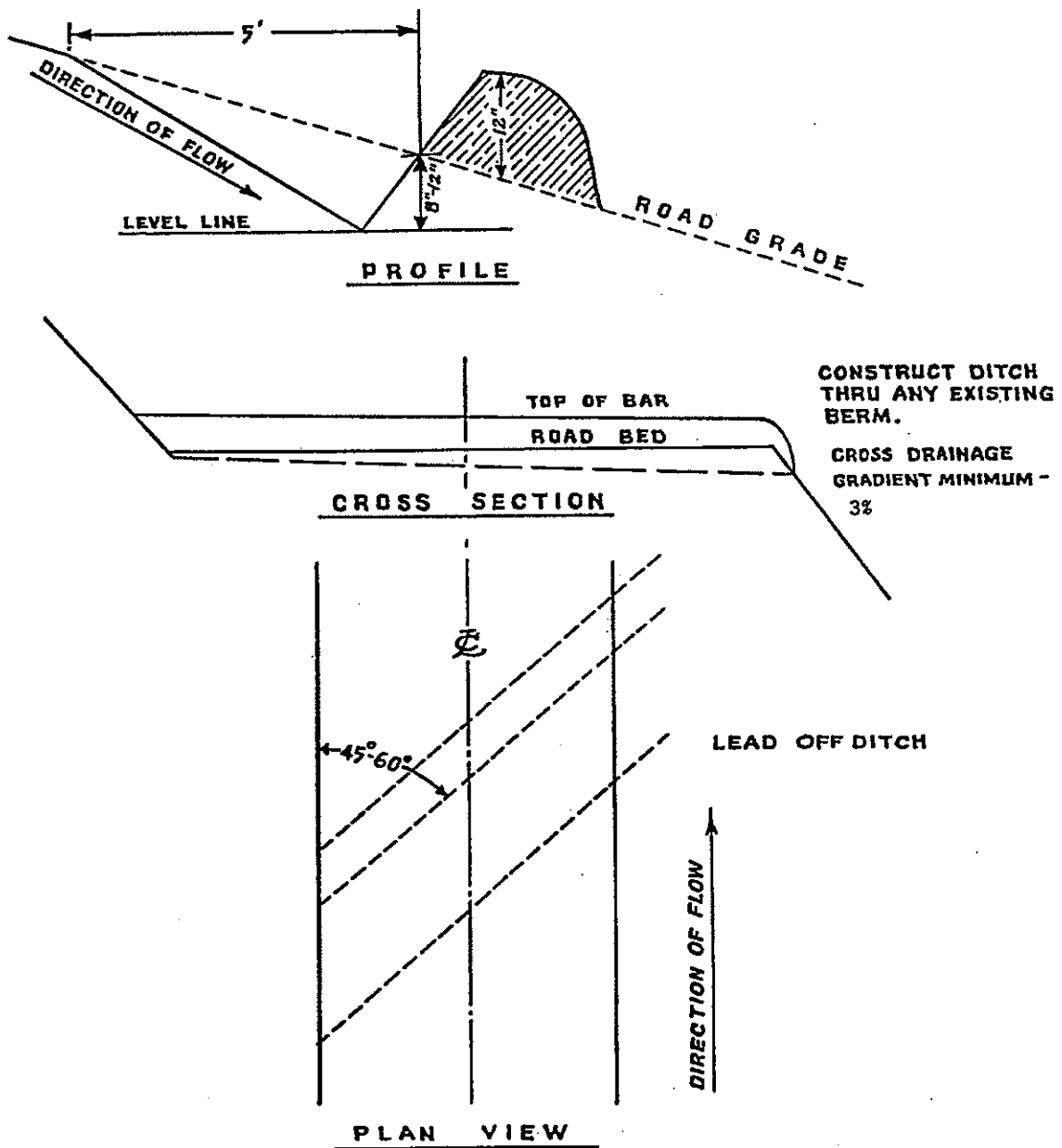
Trees larger than 6 inches in diameter at stump height, located within clearing limits but outside of the ditchline or shoulder, shall not be cut down, but shall be limbed for road visibility.

The minimum height of clearing shall be 15 feet from the road surface for road segment B3 to B4.

The minimum height of clearing shall be 20 feet from the road surface for road segment B1 to B2.

State Timber Sale Contract  
No. 341-07-42  
Cow Hollow

EXHIBIT I  
WATERBAR SPECIFICATIONS



WATERBAR SPECIFICATIONS  
FOR CROSS DITCHING #298



EXHIBIT J

SEEDING AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed, fertilizer, and straw mulch. Straw mulch shall consist of straw that is free of noxious weeds. Apply seed, fertilizer, and straw mulch to bare soils resulting from fill removal on Project No. 1.

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

Application Methods for Seed and Fertilizer

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

Application Rates for Seed and Fertilizer

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

SPECIES	MIXTURE	PURE LIVE SEED	POISON AND/OR REPELLENT	GERMINATION
Annual Rye	26%	95%	0	>90%
Orchard Grass	25%	95%	0	>90%
New Zealand White Clover	17%	95%	0	>90%
Perennial Rye	15%	95%	0	>90%
Birdsfoot Trifol	07%	95%	0	>90%
Red Clover	06%	95%	0	>90%
Alsike Clover	04%	95%	0	>90%

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

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

Application Rates for Mulch

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

EXHIBIT K

SPECIFICATIONS FOR HYDROSEEDING FOREST ROADS

This work shall consist of furnishing and placing required hydroseed.

Seeding Season. Hydroseeding shall be performed only from March 1 through June 15 and August 15 through October 31. Hydroseeding materials shall not be applied during windy weather or when the ground is excessively wet or frozen. Work shall be performed during each specified seeding season on all completed and previously untreated sections. PURCHASER shall notify STATE 24 hours prior to hydroseeding.

Description of Work. The area designated for hydroseeding is to be at any location affected by Project Work for this timber sale where soil disturbance has occurred. PURCHASER shall supply the hydroseeding. The hydroseeding shall consist of the following: Cellulose fiber produced from virgin wood, grass straw, or paper fiber product. The mulch material shall be free of noxious weed seeds and plants and contain no substance detrimental to plant life. Process the wood or straw mulch so that the fiber remains uniformly suspended under agitation in water. Blend the mulch with seed, fertilizer, and typical additives of a hydroseeding mixture to form a homogeneous slurry. The processed mulch shall have the ability to cover and hold grass seed in contact with soil. The wood or grass straw fiber shall have moisture-absorption and percolation properties to form a blotter ground cover. Color the cellulose fiber green to visibly aid uniform application.

Approximate Acres: 0.25 acre.

Seed Mixtures. The seed mixture shall be comprised of the following, unless otherwise approved in writing by the STATE:

<b>Seed Species</b>	<b>lbs./acre</b>
Annual Rye	33
Orchard Grass	33
Perennial Rye	34
Total Seed Application Rate (Per Acre)	100
<b>Approximate Total Seed Amounts</b>	<b>25</b>

<b>Cellulose Fiber</b>	
Fiber Application Rate (Per Acre)	50
<b>Approximate Total Fiber Amounts</b>	<b>13</b>

<b>Fertilizer</b>	
Chemical Analysis of 16-20-0	
Fertilizer Application Rate (Per Acre)	100
<b>Approximate Total Fertilizer Amounts</b>	<b>25</b>

Application Locations:

<b>Road Segment</b>	<b>Location</b>
GS1 to GS2	0+00 to 8+02

EXHIBIT L

ROAD VACATING SPECIFICATIONS

PURCHASER shall vacate roads between Points 3A to 3B, 3C to 3D, and 4G to 4H upon completion of logging activities on these road segments. Specific objectives for this project include:

- Fill removal and stream channel development.
- Culvert removal.
- Restoration of natural contours by outsloping of the road prism.
- Sidecast pullback.
- Minimize disturbance of existing vegetation.

PROJECT REQUIREMENTS AND GENERAL SPECIFICATIONS

- (1) Tree Removal. Cut or remove all trees necessary to access the project area and to facilitate vacating operations, as directed by STATE. Timber shall NOT be removed as designated timber, unless located within posted timber sale boundaries or right-of-way boundaries.
- (2) Fill Removal and Stream Channel Development. Remove fills to the natural stream course level(s). Stream channel(s) shall be excavated/developed to specified widths. Developed stream banks shall be sloped at natural contours or no steeper than 1 ½:1, as directed by STATE.
- (3) Culvert Removal. Remove drainage structures and culverts. Removed culverts shall be hauled to an approved refuse site off of STATE land.
- (4) Outslope Road. Outslope road to restore natural contours or establish a minimum of 10% slope for drainage at designated locations. If the road grade exceeds 10%, outslope of the road shall be 2% greater than the road grade.
- (5) Sidecast Pullback. Excavate/pullback previously sidecast materials below the road at designated locations. Developed slopes shall be pulled back to a 1½:1 slope or to natural ground contours. The beginning position for sidecast pullback shall be no greater than 20 feet vertical distance from the existing road surface.
- (6) Use of Excavated Materials.
  - (a) Fill Excavation and Sidecast Pullback. Excavated materials shall be placed on the interior (cut) side of the road, and utilized to restore the cutslope to natural contours, or to a minimum 10% outsloped surface for drainage. Any excess material will be hauled to a designated waste area, as directed by STATE.
  - (b) Woody Debris may be incorporated in embankment material.
  - (c) Block Roads. Use stumps and root wads to block roads from vehicle access, as directed by STATE.
- (7) Erosion Control. Erosion control shall be completed in a progressive manner. Grass seed and straw mulch shall be applied at fill removal sites.

Bare soil at fill removal sites shall utilize grass seed and straw mulch approved by STATE and in accordance with the specifications in Exhibit J. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.
- (8) Ripping and Tilling Road as directed by STATE. Road shall be ripped and tilled to a depth of 18" upon completion of log hauling on road segments.

EXHIBIT M

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Description of Work to be Done

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

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

Piles – shall be located at least 75 feet apart and shall be no more than 75 feet long. Piles shall be located inside the project area designated for piling and shall be more than 75 feet from any edge or standing conifer tree. Piles shall be built to a height of 3 to 4 feet and then covered to prevent water from reaching the slash. STATE shall supply the materials used for covering the slash. Additional woody debris shall be piled on top of the covered piles to complete the piling, as directed by STATE. Logs and chunks which are suitable for firewood shall be piled separately from slash, near roads and Landings and alongside the road in locations designated by STATE.

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

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

Residual Logs – An average of 600 cubic feet of hard conifer logs per acre. Log shall contain a minimum of 10 cubic feet of volume and be no shorter than 6 feet in length. Two logs per acre shall be at least 24 inches in diameter, on the large end, where available. Hard conifer logs must be in decay class one or two as indicated by intact bark and original wood color. Trees or logs shall be left well distributed across the unit.

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

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

EXHIBIT M

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Equipment Type, Equipment Operation, and Conduct of Work

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

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

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

Equipment	Rate	Hours	Appraised Value
Excavator	\$ 120.00 / hour	15.0	\$ 1,800.00
Log Loader	\$ 87.50 / hour	20.5	\$ 1,800.00

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

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

Work Scheduling - work shall be accomplished only during dry weather conditions, and started within 14 calendar days after completion of yarding activities on Areas 2, 5a and 5b. Operations shall provide for continual operation until contract work is completed, unless interrupted by poor weather, fire closures, or other uncontrollable circumstances. Equipment breakdowns shall be repaired without undue delay, and provision shall be made for replacement of equipment to prevent prolonged delays. Piling operation shall not be allowed when operations might damage sites or affect stream flows. Any exception to these instructions must be authorized in writing by STATE.

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

## **PART IV: OTHER INFORMATION**

### **FOREST PRACTICES ACT "WRITTEN PLAN" For Harvest of Cow Hollow Timber Sale**

**Landowner:**

Oregon Department of Forestry  
92219 Hwy 202  
Astoria, OR 97103  
(503) 325-5451

**Protected Resources:**

The following streams are located in Sections 3 and 10 of T6N, R6W, W.M., Clatsop County, Oregon.

Area 3 There is one small Type F stream which extends approximately 200 feet into Area 3. This stream is a Type F tributary to Lousignont Creek. The eastern boundary of Area 3 is adjacent to Lousignont Creek a small Type F stream for approximately 1,500 feet. The southeastern boundary of Area 3 is adjacent to a small Type F tributary of Lousignont Creek for approximately 1,000 feet.

Area 4 The eastern boundary of Area 4 is adjacent to Lousignont Creek a small Type F stream for approximately 1,600 feet.

**Specific Site Characteristics:**

Lousignont Creek: (Areas 3 and 4): The streambeds are approximately 5 to 12 feet wide with moderate stream-bank slopes. Streamside vegetation is dominated by mature red alder and Douglas-fir. There is a significant component of conifer trees located above the flood plain.

Type F Tributary to Lousignont Creek: (Area 3): The streambeds are approximately 3 to 10 feet wide with moderate stream-bank slopes. Streamside vegetation is dominated by mature red alder and Douglas-fir. There is a significant component of conifer trees located above the flood plain.

**Tree and Vegetation Retention:**

The timber sale boundary for Areas 3 and 4 (partial cut) are posted at least 25 feet from the Type F streams. There are several Type N streams throughout the sale area that are tributaries to these streams. These Type N streams have 25 foot unposted stream buffers. A minimum of 120 ft<sup>2</sup> basal area per acre will be left within Areas 3 and 4.

**Practices:**

Along the above mentioned Type F streams that are adjacent to Areas 3 and 4, as well as all other perennial Type N streams not listed, the following practices are required under the timber sale contract:

- No trees will be felled within stream buffers (RMA's), except in cable corridors.
- Trees adjacent to the stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- No ground based logging equipment will be permitted within the RMA's.

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.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan:

Submitted: \_\_\_\_\_  
Purchaser/Operator Contract Representative

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

State Timber Sale Contract  
No. 341-07-42  
Cow Hollow

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: (     ) \_\_\_\_\_

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