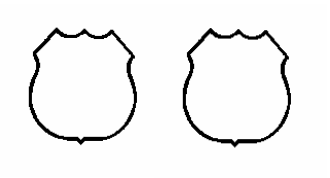
PART III: EXHIBITS

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.: 341-08-27

(2) Sale Name: Buster Camp

(3) Contract Expiration Date: October 31, 2010

Project Completion Dates: Project Nos. 1-3 – Prior to October 31, 2008

(4) Purchaser: _____

Project No. 4 – Prior to August 31, 2009

(6) Purchaser Representatives:

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

(7) State Representatives:

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

(8) Name of Subcontractors & Starting Dates:

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

(9) Comments: _____

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

EXHIBIT B

INSTRUCTION SHEET FOR OPERATIONS PLAN

SUBMIT ONE COPY OF PLAN TO STATE

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

Explanation of Item No. (from Page 1)

(5) All sales require you to use a brand furnished by STATE. If the State brand has not been assigned when the plan is submitted, it will be furnished and assigned later. Complete drawing. If more than one brand is assigned to the sale, complete both drawings.

(6) The contract requires you to have a designated representative available on the sale area or work location who is authorized to receive in your behalf any notice or instruction given by STATE and to take action in regard to performance under the contract. If logging and project work is widely separated, a representative is required for each.

(7) The STATE representative will be designated when your plan is approved and is the person who will inspect and issue instructions regarding performance.

(8) Show names of subcontractors to be used for any or all phases of the operations. If subcontractors are not known, or are changed later, give notification to the STATE representative prior to commencement of work by subcontractor.

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

(10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:

1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings in sequence.
2. Locations of spur roads planned for construction, other than those required by the timber sale contract. Provide spur road specifications.
3. Location of proposed tractor yarding roads. Show if and how marked on the ground.
4. Location of temporary stream crossings.
5. List the sequence of performing project work.
6. Location of rock sources - attach pit development plans.

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

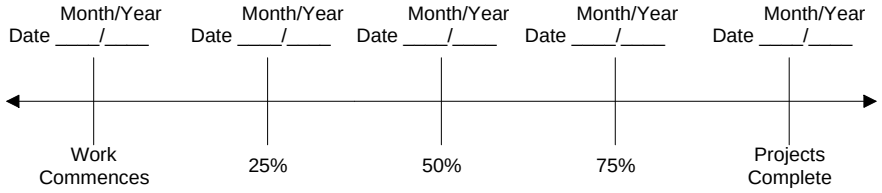
EXHIBIT B

OPERATIONS PLAN

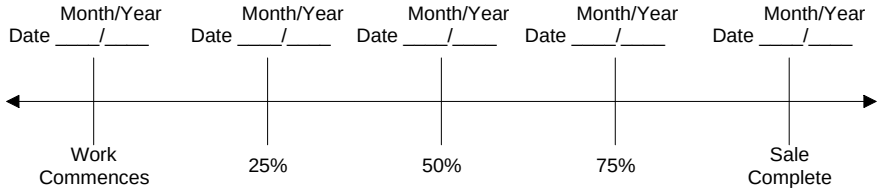
Completion Timeline

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: _____

STATE OF OREGON - DEPARTMENT OF FORESTRY

_____

Title _____

SUBMITTED BY:
PURCHASER

_____

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 _____

(5) **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

(10) **APPROVED SCALING LOCATIONS**	**Species**	**Yard**	**Truck**

(11) NOTICE OF CANCELLATION OF BRAND:
Effective Date: _____

_____
State Forester's Representative

(12) SALE NAME Buster Camp
COUNTY Clatsop

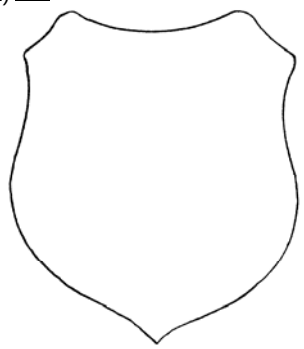
(13) STATE CONTRACT NUMBER 341-08-27

(14) SCALE: westside* ☒ eastside ☐ cubic foot ☐

(15) STATE BRAND REGISTRATION NUMBER _____

(16) BUREAU BRAND CODE NUMBER _____

(17) STATE BRAND INFORMATION:
(COMPLETE) ☐



(18) PAINT REQUIRED: YES ☒
COLOR Orange

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

(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): _____

(21) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

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

Distribution: ORIGINAL: Salem / COPIES: TPSO (4), Purchaser, District, Jewell Unit

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
14 feet	N/A	1A to 1B	0+00 to 24+50	OUTSLOPE
14 feet	N/A	1C to 1D	0+00 to 6+30	OUTSLOPE
14 feet	N/A	1E to 1F	0+00 to 5+80	OUTSLOPE
16 feet	12 feet	1G to 1H	0+00 to 6+00	DITCH
16 feet	12 feet	2A to 2B	0+00 to 1+50	DITCH
16 feet	12 feet	2C to 2D	0+00 to 24+60	DITCH
16 feet	12 feet	2E to 2F	0+00 to 17+40	DITCH
14 feet	N/A	3A to 3B	0+00 to 10+90	OUTSLOPE
16 feet	12 feet	4A to 4B	0+00 to 1+90	DITCH
16 feet	12 feet	4C to 4D	0+00 to 7+80	DITCH
16 feet	12 feet	I1 to I2	0+00 to 2+00	DITCH
16 feet	12 feet	I3 to I4	0+00 to 185+50	DITCH
16 feet	12 feet	I5 to I6	0+00 to 42+30	DITCH
16 feet	12 feet	I7 to I8	0+00 to 13+00	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.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

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.

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 (½ 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	Back Slopes	Fill Slopes
Rock	Vertical to ¼ :1	Not steeper
Common - side slopes 50% and over	¾ :1	than 1½:1
Common - side slopes less than 50%	1 :1	
Common - turnpike (level) section	2 :1	

Top of cutslope shall be rounded.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

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 Specifications in Exhibit I, and blocked from vehicular traffic prior to October 1, annually, and as directed by STATE.

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 H.

(3) Geotextile Road Fabric: Install woven fabric from Station 5+20 to Station 24+00 on Road Segment 2C to 2D and from Station 4+40 to Station 5+90 on Road Segment 2E to 2F.

(4) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic-yard, track-mounted 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 (½ inch per foot).

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 Exhibit D. Final road surface shall be crowned at 4 to 6 percent (½ inch per foot).

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS:

Segment	Station	Work Description
1G to 1H	0+00	Install culvert across Buster Creek Road at spur entrance. Utilize 20 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator.
2C to 2D	0+00	Install culvert across Green Mountain Road at spur entrance. Utilize 30 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator.
	5+20	Begin road fabric installation.
	6+10	Install culvert, utilize 10 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill.
	11+50	Remove old fill/puncheon and haul to waste area at Station 11+85. Install stream-crossing culvert and reconstruct fill. Utilize 30 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill. Utilize 50 cubic yards of 6"-0" pit-run for fill reconstruction and sub-grade reinforcement. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator.
	11+85	Develop Waste Area right side of road.
	15+85	Install culvert, utilize 10 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill.
	19+50	Install culvert, utilize 10 cubic yards 1½"-0" crushed rock for culvert bedding and backfill.
	24+00	End road fabric installation.
2E to 2F	0+40	Install culvert across Green Mountain Road. Utilize 30 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill. Utilize 10 cubic yards of 24"-6" riprap rock to construct an energy dissipator.
	4+40	Begin road fabric installation.
	5+15	Install culvert. Utilize 30 cubic yards 1½"-0" crushed rock for culvert bedding and backfill. Utilize 50 cubic yards of 6"-0" pit-run rock for fill reconstruction and subgrade reinforcement. Utilize 10 cubic yards 24"-6" riprap rock to construct an energy dissipator.
	5+90	End road fabric installation.
	12+15	Install culvert, utilize 10 cubic yards 1½"-0" crushed rock for culvert bedding and backfill.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

WASTE AREAS:

Waste Area Locations

Station 0+50 and 11+85 on Road Segment 2C to 2D, and Station 5+15 on Road Segment 2E to 2F.

Waste Area Treatment

(1) Use suitable excavated material for use in subgrade/fill construction on Road Segments 2C to 2D and 2E to 2F.

(2) Place excess excavated materials, end haul materials, and clearing and grubbing debris in the waste areas shown on Exhibit A. All waste materials shall be deposited in stable locations as directed by STATE, spread evenly, compacted, and adequate drainage established. Pile woody debris on top of waste area.

(3) Apply grass seed and straw mulch to all waste areas in accordance with Exhibit K.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

(1) Excavated Materials. Excavated materials shall be utilized for road and fill construction and hauled in where necessary. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit D.

(2) 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 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 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.

(3) 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.

(4) 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 H.

(5) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard track-mounted excavator.

(6) 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 with Exhibit D.

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: 1G to 1H				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	1G to 1H		0+00 to 6+00		
				Volume (CY) Per		**Number Of**		
Base Rock	4"-0" Crushed	0+00 to 6+00	9	Station	49	Stations	294	294
Junction Rock	4"-0" Crushed	0+00	9	Junction	24	Junctions	1	24
Surfacing Rock	1½"-0" Crushed	0+00	3	Junction	10	Junctions	1	10
Culvert Bedding and Backfill	1½"-0" Crushed	0+00 on Buster Ck. Rd.	N/A	Culvert	20	Culverts	1	20
Dissipator Rock	24" -6"	0+00	N/A	Dissipator	10	Dissipator	1	10
Landing	6"-0" Pit-run	1H	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:			1G to 1H					408
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 1+50		
				Volume (CY) Per		**Number of**		
Base Rock	4"-0" Crushed	0+00 to 1+50	9	Station	49	Stations	1.5	74
Junction	4"-0" Crushed	2A	9	Junction	24	Junctions	1	24
Junction	1½"-0" Crushed	2A	3	Junction	10	Junctions	1	10
Landings	6"-0" Pit-run	2B	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:			2A to 2B					158
ROAD SEGMENT: 2C to 2D				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size And Type**	**Location**	**Depth of Rock (inches)**	2C to 2D		0+00 to 24+60		
				Volume (CY) Per		**Number Of**		
Base Rock	4"-0" Crushed	0+00 to 24+60	9	Station	49	Stations	24.6	1,205
Junction	4"-0" Crushed	4A	9	Junction	24	Junctions	1	24
Junction	1½"-0" Crushed	4A	3	Junction	10	Junctions	1	10
Curve Widening	4"-0" Crushed	N/A	9	N/A	50	Curves	N/A	50
Turnouts	4"-0" Crushed	N/A	9	Turnout	22	Turnout	4	88
TA	4"-0" Crushed	Sta. 22+70	9	Turnaround	24	TA	1	24
Culvert Bedding and Backfill	1½"-0" Crushed	0+00 across Green Mt. Road	N/A	Culvert	30	Culverts	1	30
Culvert Bedding and Backfill	1½"-0" Crushed	Sta. 6+10 15+85 19+50 23+00	N/A	Culvert	10	Culverts	4	40
Culvert Bedding and Backfill	1½"-0" Crushed	Sta. 11+50	N/A	Culvert	30	Culverts	1	30
Fill Rock	6"-0" Pit-run	Sta. 11+50	N/A	Fill	50	Fills	1	50
Dissipator Rock	24" -6"	0+00 & 11+50	N/A	Dissipator	10	Dissipator	2	20
Landings	6"-0" Pit-run	2D	N/A	Landing	80	Landings	1	80
Total Rock for Road Segment:			2C to 2D					1,651

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: 2E to 2F				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	2E to 2F		0+00 to 17+40		
				Volume (CY) Per		**Number Of**		
Base Rock	4"-0" Crushed	0+00 to 17+40	9	Station	49	Stations	17.4	853
Junction	4"-0" Crushed	0+00	9	Junction	24	Junctions	1	24
Junction	1½"-0" Crushed	0+00	4	Junction	10	Junctions	1	10
Curve Widening	4"-0" Crushed	N/A	9	N/A	50	Curves	N/A	50
Turnouts	4"-0" Crushed	N/A	9	Turnout	22	Turnout	4	88
Turnaround	4"-0" Crushed	Sta. 14+80	N/A	Turnaround	24	TA	1	24
Culvert Bedding and Backfill	1½"-0" Crushed	Sta. 0+40	N/A	Culvert	30	Culverts	1	30
Culvert Bedding and Backfill	1½"-0" Crushed	Sta. 5+15	N/A	Culvert	30	Culverts	1	30
Culvert Bedding and Backfill	1½"-0" Crushed	Sta. 12+15	N/A	Culvert	10	Culverts	1	10
Dissipator Rock	24" -6"	0+40 & 5+15	N/A	Dissipator	10	Dissipator	2	20
Fill Rock	6"-0" Pit-run	Sta. 5+15	N/A	Fill	50	Fills	1	50
Landings	6"-0" Pit-run	2F	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:			2E to 2F					1,239
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 1+90		
				Volume (CY) Per		**Number Of**		
Base Rock	4"-0" Crushed	0+00 to 1+90	9	Station	49	Stations	1.9	93
Junction	4"-0" Crushed	4A	9	Station	24	Junctions	1	24
Turnout	4"-0" Crushed	N/A	9	Turnout	22	Turnouts	1	22
Curve Widening	4"-0" Crushed	N/A	9	N/A	20	Curves	N/A	20
Landings	6"-0" Pit-run	4B	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:			4A to 4B					209
ROAD SEGMENT: 4C to 4D				**POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size And Type**	**Location**	**Depth of Rock (inches)**	4C to 4D		0+00 to 7+80		
				Volume (CY) Per		**Number Of**		
Base Rock	4"-0" Crushed	0+00 to 7+80	9	Station	49	Stations	7.8	382
Junction	4"-0" Crushed	Pt. 4C	9	Station	24	Stations	1	24
Turnouts	4"-0" Crushed	3+70 & 5+25	9	Turnout	22	Turnouts	2	44
Turnaround	4"-0" Crushed	Sta. 5+25	N/A	Turnaround	24	TA	1	24
Curve Widening	4"-0" Crushed	N/A	9	N/A	20	Curves	N/A	20
Landings	6"-0" Pit-run	Pt. 4D	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:			4C to 4D					544

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I1 to I2				POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size And Type	Location	Depth of Rock (inches)	I1 to I2 Volume (CY) Per		0+00 to 2+00 Number Of		
Surfacing	1½"-0" Crushed	I1 to I2	4	Station	22	Stations	2	44
Total Rock for Road Segment:			I1 to I2					44
ROAD SEGMENT: I3 to I4				**POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size And Type**	**Location**	**Depth of Rock (inches)**	I3 to I4 **Volume (CY) Per**		0+00 to 185+50 **Number Of**		
Surfacing	1½"-0" Crushed	I3 to I4	4	Station	22	Station	185.5	4,081
Leveling Rock	1½"-0" Crushed	I3 to I4	N/A	N/A	N/A	N/A	N/A	500
Curve Widening	1½"-0" Crushed	I3 to I4	4	Curve	N/A	Curves	N/A	160
Junctions	1½"-0" Crushed	I3 to I4	4	Junction	11	Junctions	15	165
Turnouts	1½"-0" Crushed	I3 to I4	4	Turnout	11	Turnouts	29	319
Total Rock for Road Segment:			I3 to I4					5,225
ROAD SEGMENT: I5 to I6				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I5 to I6 **Volume (CY) Per**		0+00 to 42+30 **Number of**		
Surfacing	4"-0" Crushed	I5 to I6	6	Station	33	Stations	42.3	1,396
Leveling Rock	4"-0" Crushed	I5 to I6	N/A	N/A	N/A	N/A	N/A	100
Curve Widening	4"-0" Crushed	I5 to I6	6	Curve	N/A	Curves	N/A	30
Turnouts	4"-0" Crushed	I5 to I6	6	Turnout	12	Turnouts	4	48
Junctions	4"-0" Crushed	I5	6	Junction	24	Junctions	1	24
Junctions	1½"-0" Crushed	I5	3	Junction	22	Junctions	1	22
Traction Rock	1½"-0" Crushed	12+00 - 34+50	2	Station	13	Stations	22.5	293
Landings	6"-0" Pit-run	I6	N/A	Landing	50	Landings	1	50
Total Rock for Road Segment:			I5 to I6					1,963
ROAD SEGMENT: I7 to I8				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I7 to I8 **Volume (CY) Per**		0+00 to 13+00 **Number of**		
Surfacing	4"-0" Crushed	I7 to I8	6	Station	33	Stations	13	429
Leveling Rock	4"-0" Crushed	I7 to I8	N/A	N/A	N/A	N/A	N/A	50
Curve Widening	4"-0" Crushed	I7 to I8	6	Curve	N/A	Curves	N/A	30
Turnouts	4"-0" Crushed	I7 to I8	6	Turnout	12	Turnouts	3	36
Junctions	4"-0" Crushed	I7	6	Junction	12	Junctions	1	12
Junctions	1½"-0" Crushed	I7	2	Junction	12	Junctions	1	12
Total Rock for Road Segment:			I7 to I8					569

ROCK TOTALS (CY)	24"-6"	6"-0"	4"-0"	1 1/2"-0"
12,010	50	480	5,654	5,826

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. 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

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."

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 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

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 Tamper. Vibratory hand-held or hydraulic tampers shall be used for compaction of backfill materials around culverts. The tamper shoe dimensions shall be a minimum of 10" X 13" and capable of a centrifugal force of 2,250 pounds.

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	40	CPP	1E to 1F Across Buster Creek Rd.	0+00
2	18	40	CPP	2C to 2D Across Green Mt. Rd.	0+00
3	18	30	CPP	2C to 2D	6+10
4	24	40	CPP	2C to 2D	11+50
5	18	30	CPP	2C to 2D	15+85
6	18	30	CPP	2C to 2D	19+50
7	18	30	CPP	2C to 2D	23+00
8	18	60	CPP	2E to 2F Across Green Mt. Rd.	0+40
9	18	40	CPP	2E to 2F	5+15
10	18	40	CPP	2E to 2F	12+15

CPP = Polyethylene

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

(1) PURCHASER shall prepare written development plans for the quarry areas. The plans shall be submitted to STATE for approval prior to conducting any operation in the quarry areas. The plans shall include, but not be limited to:

(a) Location of benches and roads to benches.
(b) Disposal site for debris and overburden.
(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) PURCHASER shall conduct the operations 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.

(4) 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.

(5) Benches shall be 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 degrees or less. There shall be a minimum of one bench with an access road to it. Said bench shall be easily accessible with tractors.

(6) Quarry face shall be developed in a uniform manner. All quarry backslopes shall be left in a stable condition.

(7) Oversized material that is produced or encountered during development shall be broken down and utilized for crushing.

(8) 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.

(9) 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.

(10) 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.

(11) All overburden, reject material, and unsuitable material encountered shall be hauled to the designated waste area as directed by STATE.

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

(12) All woody debris, including stumps and slash shall be hauled to the designated waste area, piled and disposed of by burning as directed by STATE.

(13) PURCHASER shall obtain a FPA Burn Permit prior to debris disposal for the Green Mountain Quarry No. 2.

GREEN MOUNTAIN NO. 2 SPECIFIC INSTRUCTIONS:

That portion of the Rock Source identified as “Rock Source A” shall be developed and crushed prior to any work in the area identified as “Rock Source B.”

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

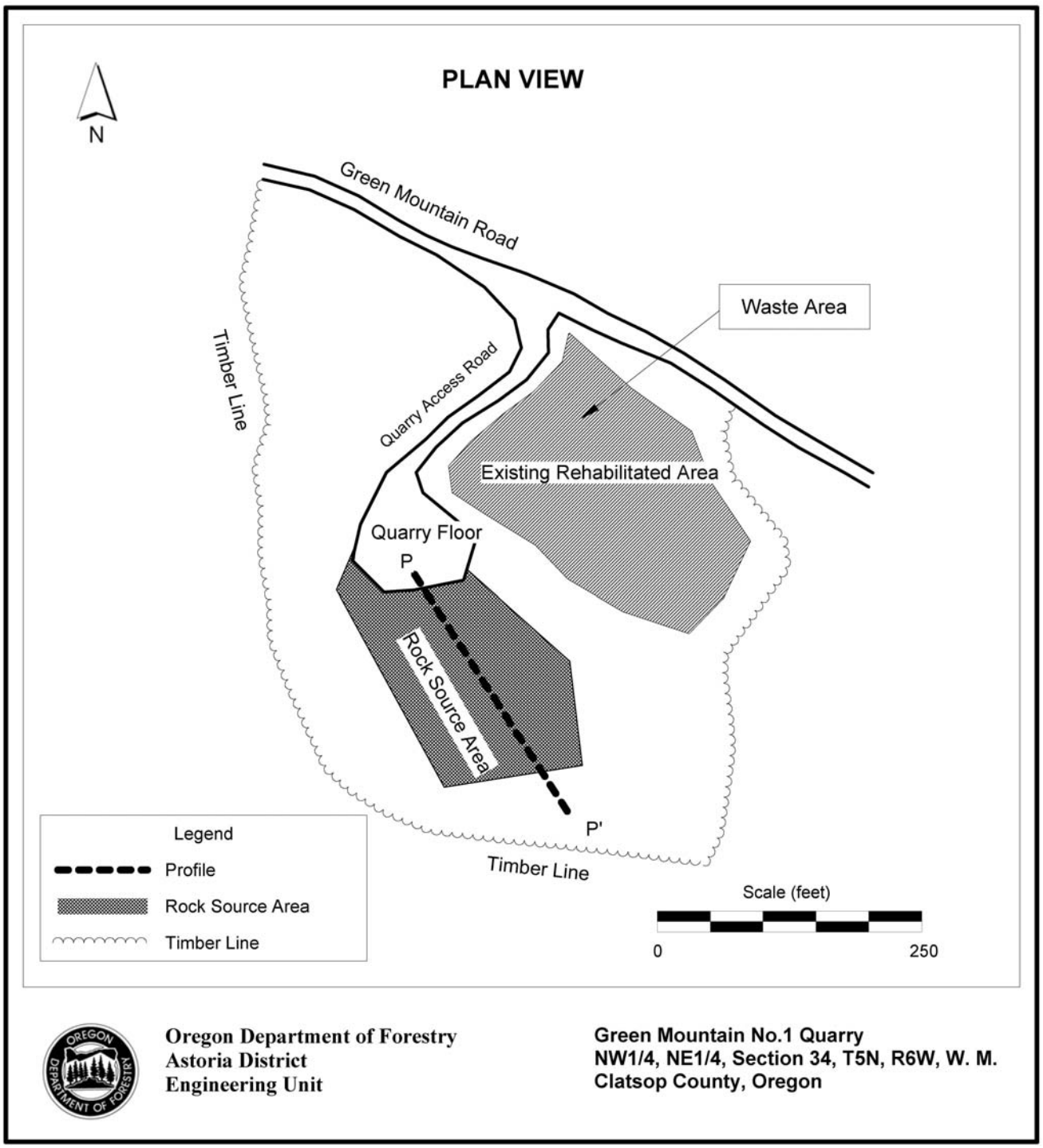


EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

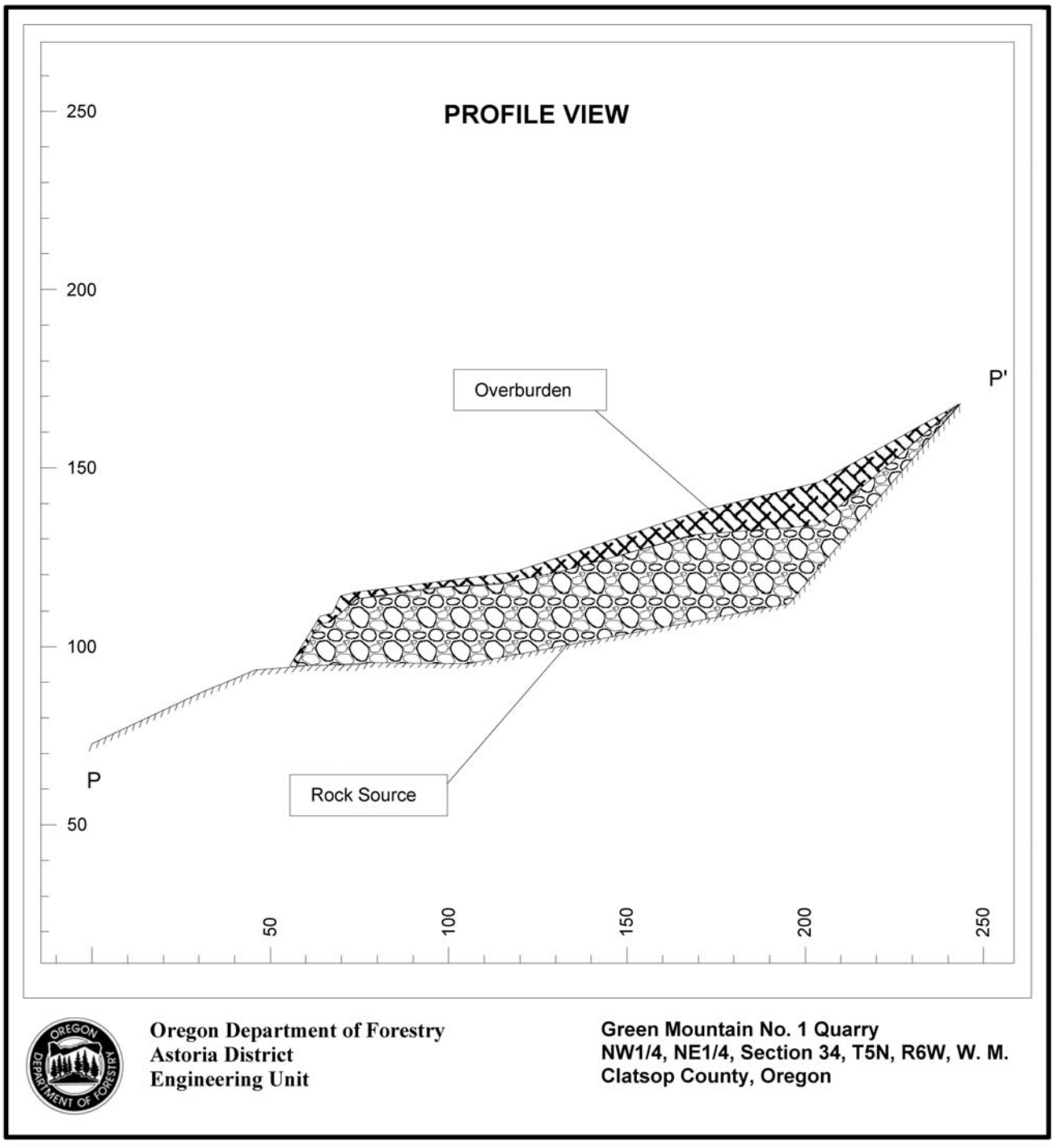


EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

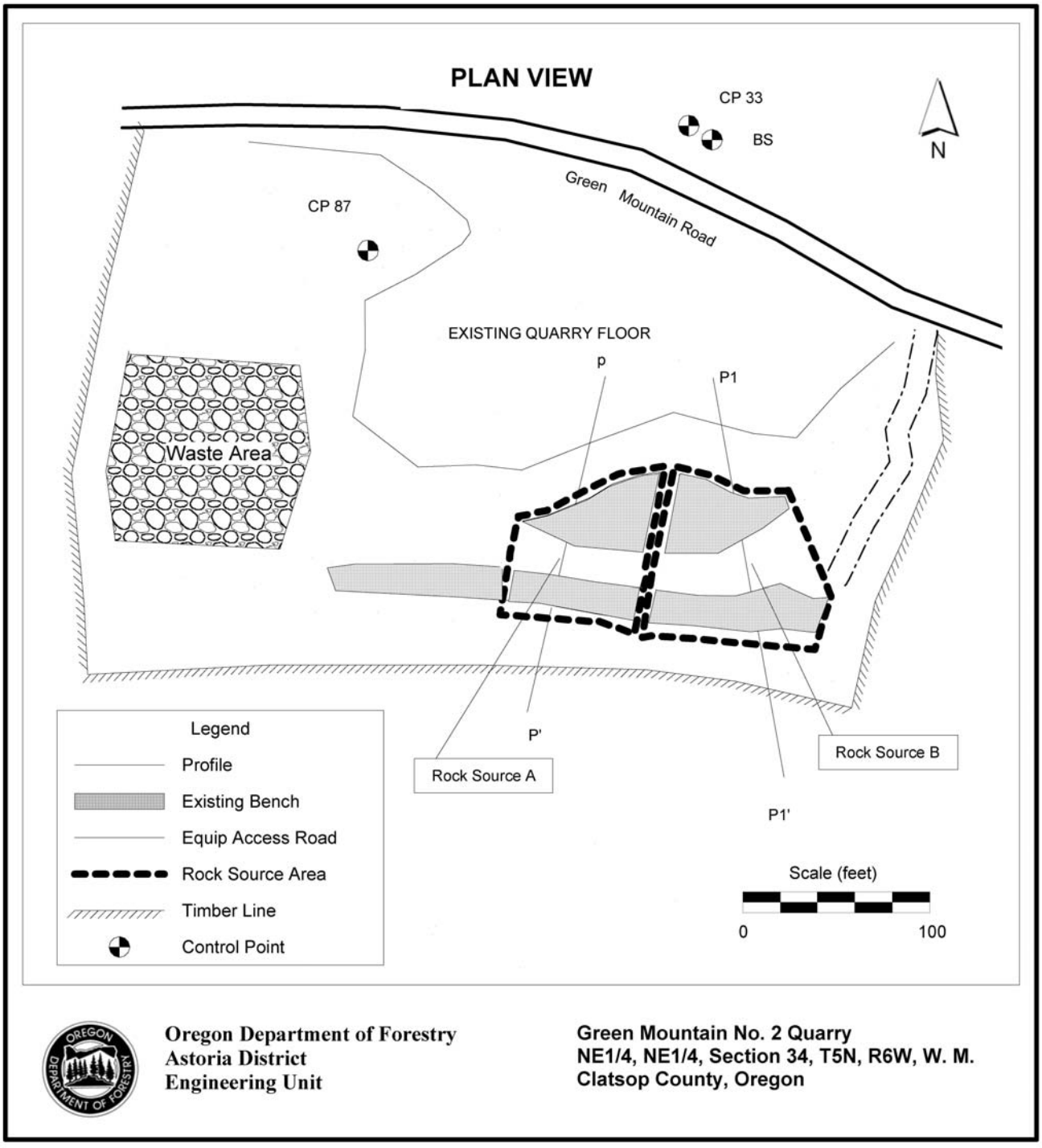


EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

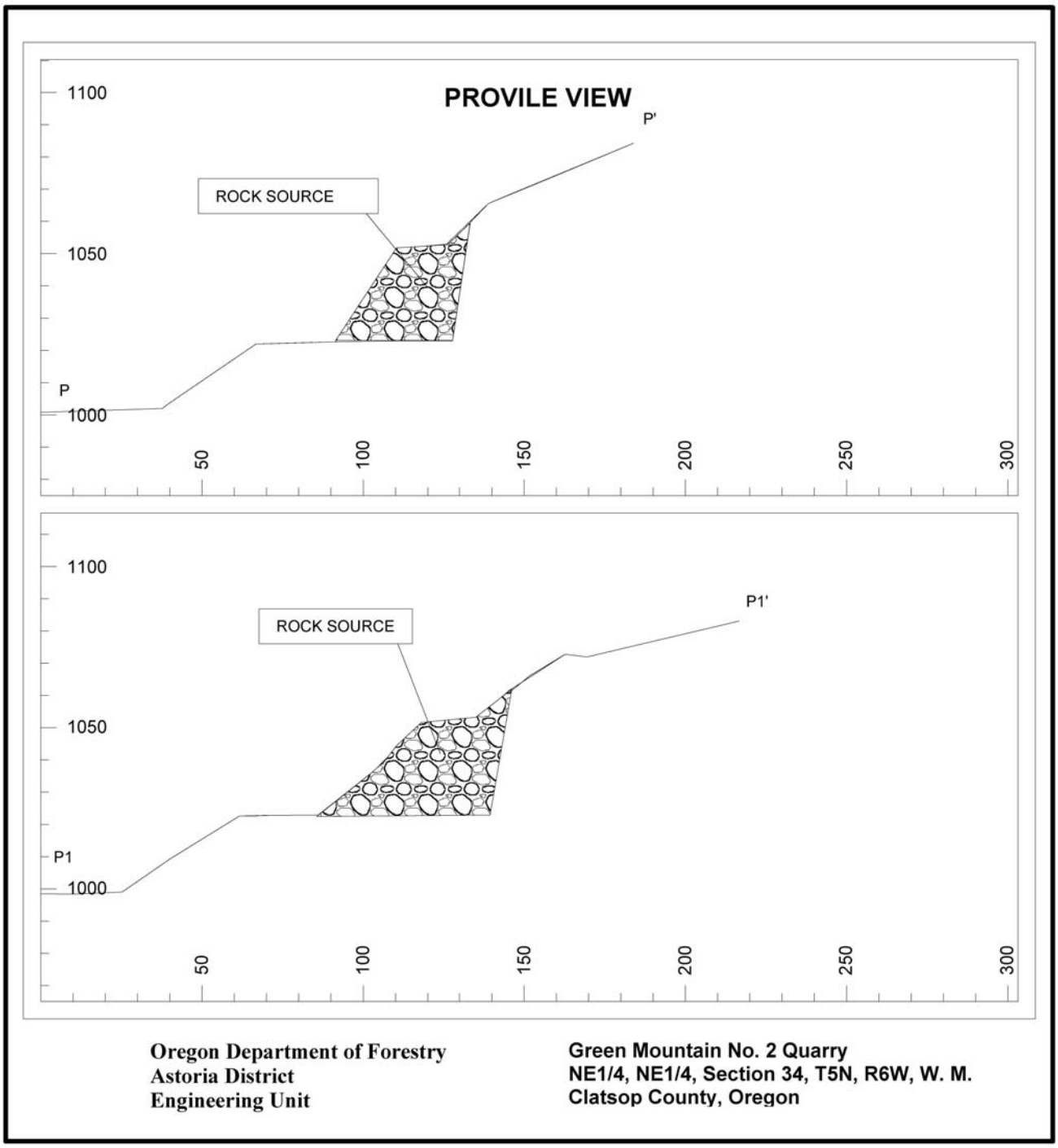


EXHIBIT G

CRUSHED ROCK SPECIFICATIONS

Materials. The material shall be fragments of rock or other hard, durable particles crushed to the required size and a filler of finely crushed stone, sand, or other finely divided mineral matter. 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 fines or dirt. Rock crushing shall be limited to periods when weather conditions are acceptable to STATE.

Quality and Grading Requirements. The stone base materials shall be crushed rock. River gravel shall not be used.

If material is specified as durable, it must meet the following test requirements:

Hardness - Test Method AASHTO T 96: 30% Maximum

Durability - Test Method ODOT TM 208
Passing No. 20 Sieve: 30% 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 Exhibit D. 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

CRUSHED ROCK SPECIFICATIONS

Grading Requirements

For 1½"-0"	Passing	2" sieve	100%
	Passing	1½" sieve	95-100%
	Passing	3/4" sieve	70-90%
	Passing	1/4" sieve	40-60%
	Passing	#10 sieve	30-50%
	Passing	#40 Sieve	10-20%
For 4"-0"	Passing	5” sieve	100%
	Passing	4" sieve	95-100%
	Passing	2" sieve	70-90%
	Passing	1” sieve	50-70%
	Passing	1/4" sieve	15-50%
	Passing	#10 sieve	0-30%
	Passing	#40 sieve	0-10%

The referenced sieve shall have square openings as set forth in AASHTO M 92, Woven Cloth Series. The determinations of size and gradings shall be as set forth in AASHTO T 27.

PIT-RUN AND RIPRAP ROCK SPECIFICATIONS

For 6"-0" Pit-Run	Passing	10" sieve	100%
	Passing	6" sieve	65%

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

Control of gradation shall be by visual inspection by STATE.

State Timber Sale Contract
No. 341-08-27
Buster Camp

EXHIBIT H

TYPICAL EMBEDDED ENERGY DISSIPATOR

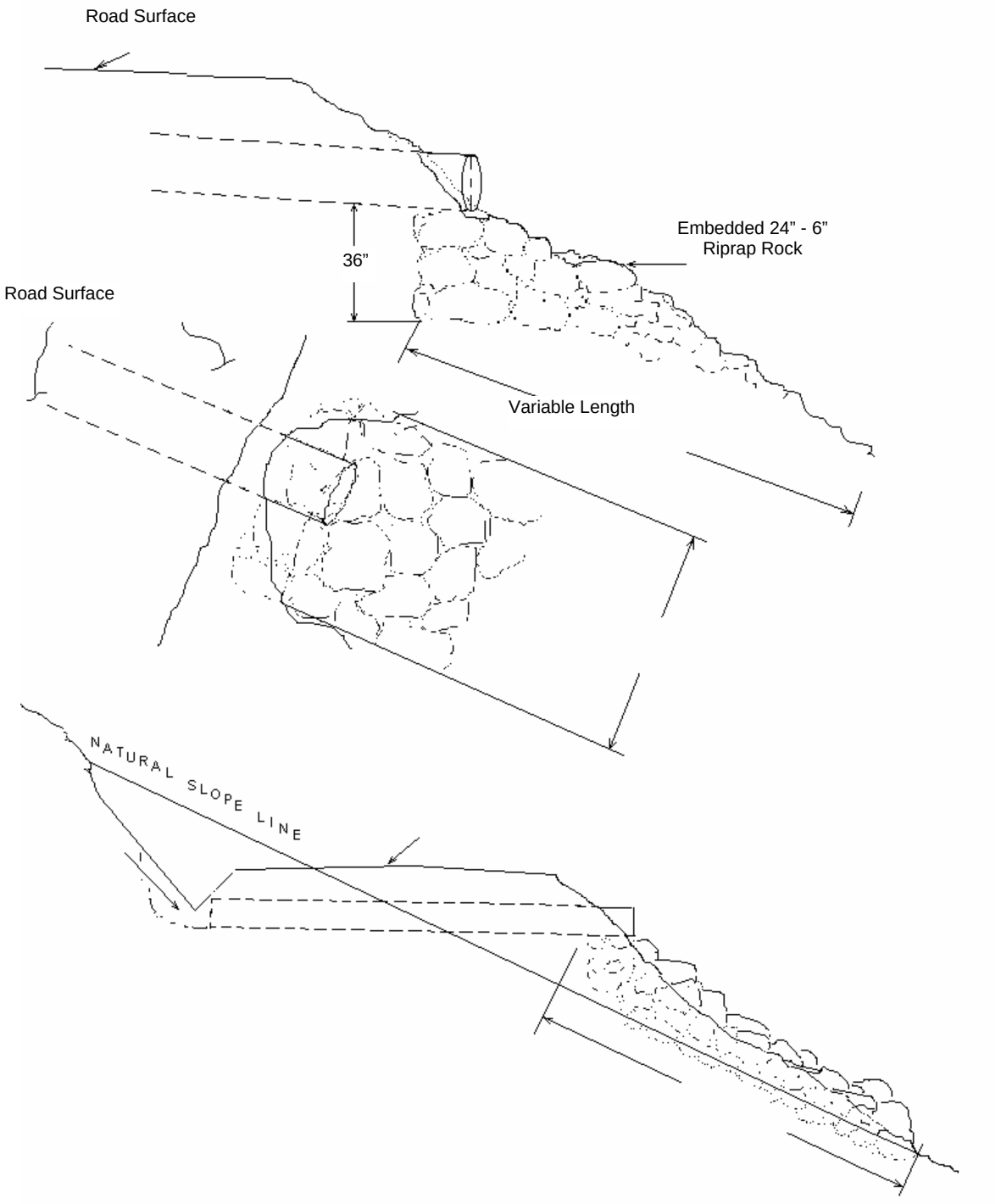
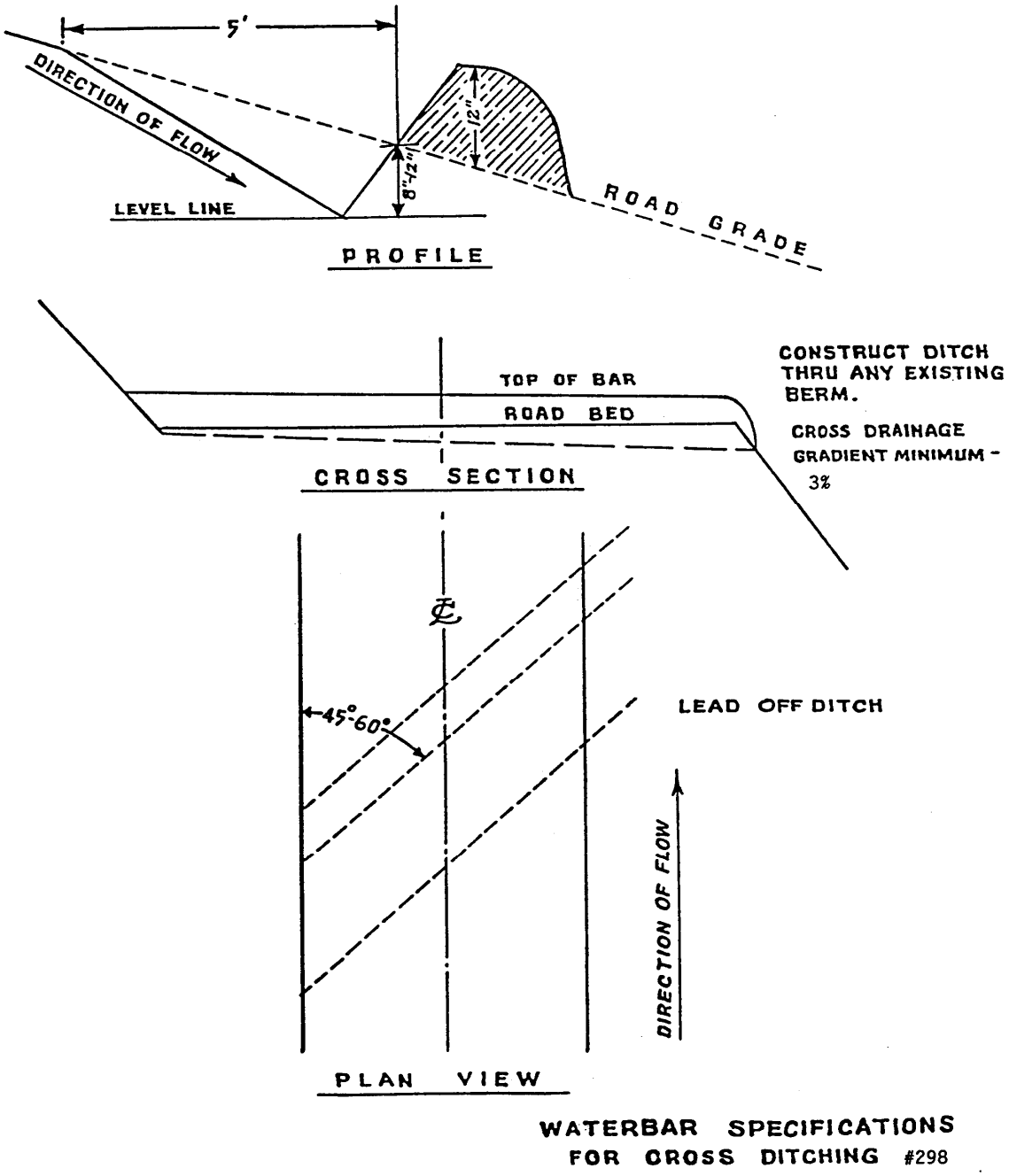


EXHIBIT I

WATERBAR SPECIFICATIONS



State Timber Sale Contract
No. 341-08-27
Buster Camp

EXHIBIT J

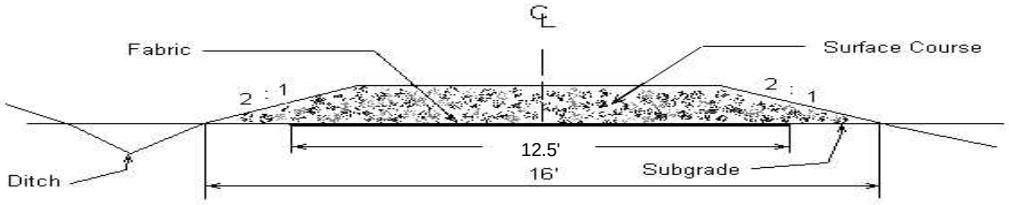
FABRIC SPECIFICATIONS

FABRIC SPECIFICATIONS - shall be woven fabric designed for forest road subgrade surfacing purposes and shall meet or exceed the following requirements, unless otherwise approved in writing by STATE:

(1)	Grab Tensile	300 lbs.	ASTM D1682
(2)	Modulus Load at 10% Elongation	140 lbs.	ASTM D1682
(3)	Mullen Burst	600 lbs.	ASTM D751
(4)	Width – 12.5 feet		

INSTALLATION REQUIREMENTS - fabric shall be installed according to the following requirements:

(1) Typical cross section:



(2) Subgrade surface shall be leveled and smoothed to remove humps and depressions which exceed 6 inches in height and depth. Small pieces of woody debris shall be removed or pushed below subgrade surface. Light vegetation (grass, weeds, leaves, and fine woody debris) may be left in place.

(3) Fabric shall be installed directly on the prepared surface. Longitudinal and traverse joints shall be overlapped at least 3 feet.

(4) Surfacing course material shall be placed to the designated thickness in one lift and spread in the direction of fabric overlap. Hauling and spreading equipment shall not be operated on the fabric until the total thickness of surfacing course material is placed.

(5) Torn, punctured, or separated sections of the fabric shall be repaired by installing a fabric patch over the break prior to placing the surfacing course material. The patch shall be at least 4 feet larger in horizontal dimensions than the break to be repaired.

Fabric failures resulting after rock placement and as evidenced by subgrade pumping or roadbed distortion shall be corrected. Correction measures shall consist of: (1) removing at least three-quarters the depth of surfacing course material in the affected area, (2) placing a fabric patch over the affected area with a minimum 4-foot overlap around the circumference of the area, and (3) replacing enough rock to cover the patch and blend in with the rest of the road.

State Timber Sale Contract
No. 341-08-27
Buster Camp

EXHIBIT K

SEEDING AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed and straw mulch. Straw mulch shall consist of straw that is free of noxious weeds. Apply grass seed and straw mulch to all waste areas resulting from Project No. 1. Apply grass seed and straw mulch to all bare soils adjacent to SE Points 1 through 6 resulting from Project No. 4.

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

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 in the amounts and mixtures specified. Hand-operated seeding devices may be used when seed is applied in dry form.

Application Rates for Seed

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 Trifoil	07%	95%	0	>90%
Red Clover	06%	95%	0	>90%
Alsike Clover	04%	95%	0	>90%

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

Application Rates for Mulch

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

Application Locations

All waste areas resulting from Project No. 1. Waste Areas are located as follows: Stations 0+50 and 11+85 on Road Segment 2C to 2D, and Station 5+15 on Road Segment 2E to 2F. All bare soils resulting from Project No. 4 Stream Enhancement Points SE1 through SE6.

EXHIBIT L

STREAM ENHANCEMENT INSTRUCTIONS

GENERAL INSTRUCTIONS:

(a) Work shall be conducted only during periods of low water flows and between July 1 and August 31, annually unless otherwise approved in writing by STATE. STATE shall be notified a minimum of 48 hours prior to beginning work. STATE has prepared the required FPA "Written Plan" for this work.

(b) Stream crossings will be limited to those necessary to access the sites and whenever possible equipment will operate from the banks to minimize stream disturbance. Turbidity shall not exceed 10% above natural stream turbidities as a result of work. The turbidity may be exceeded for a limited duration (per OAR 340-41), provided all practicable erosion control measures have been implemented. Oil spill response materials will be on site before work begins.

(c) Trees required for stream enhancement work shall be obtained from the harvest unit or at other locations acceptable to STATE. Trees shall be selected jointly by Purchaser and State Representatives.

(d) Trees shall be uprooted, cut to length, and delivered to the project site, as directed by STATE. Trees will be transported by log truck, or other means so that roads are not damaged (i.e. trees cannot be dragged on road surface).

(e) Access routes will be selected to minimize disturbance to the riparian area, and will avoid damage to existing in-stream logs, riparian vegetation and other trees. Trees that are cleared to gain access will be placed in the creek or used to block access trails.

(f) A track-mounted excavator or log loader shall be used for all log placement.

(g) All areas of bare or disturbed soils shall be seeded with an approved grass seed mix (see Exhibit K). Fertilizer shall not be used. All access trails will be thoroughly blocked to prevent access using large woody debris or boulders, waterbarred, ripped, and mulched upon completion, as directed by STATE.

SPECIFIC INSTRUCTIONS:

Location	Work Description
Site No. 1	Materials: Four trees with a DBH of at least 22 inches and at least 50 foot long with attached root wads, and four logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of four tree tops at least 30 feet long. Place one tree with attached root wad in midstream with the top angled downstream. Wedge the tops of three trees with attached root wads into the alders on the north bank. Wedge the small end of the four logs into the alders on the south bank with the opposite end placed against the upstream side of the three previously placed trees with root wads. Place the four tree tops between and around the eight previously placed trees.
Site No. 2	Materials: Four trees with a DBH of at least 22 inches and at least 50 foot long with attached root wads, and five logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of five tree tops at least 30 feet long.

EXHIBIT L

STREAM ENHANCEMENT INSTRUCTIONS

SPECIFIC INSTRUCTIONS:

Location	Work Description
Site No. 2	Place the root wad end of one tree against the south bank with the top angled across existing log on north bank. Wedge the small end of one log into alders on the south bank with the opposite end placed on the upstream side of the previously placed tree. Place the root wad end of one tree against the north bank with the opposite end angled onto the south bank and against an alder. Place the root wad ends of two trees against the south bank with the opposite end wedged into the alders on north bank. Place five logs between the previously placed trees with the small ends wedged into alders on the south bank. Place the five tree tops between and around the previously placed trees. Attach cable to existing log and drag it approximately five feet into the stream.
Site No. 3	Materials: Four trees with a DBH of at least 22 inches and at least 50 foot long with attached root wads, and four logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of five tree tops at least 30 feet long. Place the root wad end of three trees against the south bank with the opposite ends extending into the low flood plain area on the north bank. Place the root wad of one tree against the north bank with the opposite end wedged into the alders on the south bank. Place the three logs between and upstream of these trees with one end extending into the low floodplain area. Place the five tree tops between and around the previously placed trees.
Site No. 4	Materials: Four trees with a DBH of at least 22 inches and at least 50 foot long with attached root wads, and five logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of five tree tops at least 30 feet long. Place the root wad end of one tree in mid channel with the opposite end angled downstream. Place the root wad end of one tree against the north bank with the top wedged into the alders on the south bank. Wedge the small end of one log into the same alder group on the north bank with the opposite end placed against the upstream side of the previously placed tree. Place the root wad end of one tree in mid channel with the opposite end angled toward the south bank. Place root wad end of one tree against north bank and opposite end onto south bank . Place four logs around these two trees with one end on bank. Place the five tree tops between and around the previously placed trees.
Site No. 5	Materials: Four trees with a DBH of at least 22 inches and at least 50 foot long with attached root wads, and three logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of four tops at least 30 feet long. Place the root wad end of two trees against the north bank and into the backwater pool area with the opposite ends extending onto the south bank. Place the root wad of one tree over these trees with the opposite end placed onto the north bank. Place the root wad end of the fourth tree against the north bank with the opposite end wedged into the alders on the south bank. Place the three logs in between these trees. Place the four tree tops between and around the previously placed trees.

EXHIBIT L

STREAM ENHANCEMENT INSTRUCTIONS

SPECIFIC INSTRUCTIONS:

Location	Work Description
Site No. 6	Materials: Seven trees with a DBH of at least 22 inches and at least 50 foot long with attached root wads, and six logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of five tree tops at least 30 feet long. Place the root wad end of two trees against the north bank in the deep pool the opposite end wedged into alders on the south bank. Place the root wad end of one tree into the pool with the opposite end wedged into the alders on the north bank. Place the root wad end of one tree against north bank with top wedged into alders on south bank. Place the root wad of one tree against south bank with opposite end wedged into alders on north bank. Place one log on the upstream side of each of these trees with one end extending onto south bank. Place the root wad of one tree at upstream end of existing log on north bank with the opposite end wedged into alders on south bank. Place two logs on upstream side of this tree with one end extending onto north bank. Place root wad of one tree in mid channel with opposite end wedged into alders on south bank. Place two logs on upstream side of this tree with one end extending onto south bank. Place the five tree tops between and around the previously placed trees.

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.

Covering / Piles – Purchaser shall supply covering for slash piling as specified 4 MIL Clear Polyethylene Plastic.

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

Skid Trails and Road Segment 3A-3B - shall be ripped to a depth of at least 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	42	$ 5.040.00
Log Loader	$ 87.50 / hour	57.6	$ 5,040.00

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 **Area 3**. 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 Harvesting Buster Camp 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 14, 15, 22, 23, 26, and 27 of T5N, R6W, W.M., Clatsop County, Oregon.

Area 1 There is one medium Type F stream which extends approximately 1,200 feet into Area 1. This stream is a Type F tributary to Buster Creek. Part of the southern boundary of Area 1 is adjacent to this same Buster Creek tributary for a distance of approximately 800 feet.

Area 2 The southern boundary of Area 2 is adjacent to Selders Creek a medium Type F stream for a distance of approximately 1,600 feet.

Area 4 The northern boundary of Area 4 is adjacent to a medium Type F tributary of Buster Creek for a distance of approximately 900 feet. An unnamed small Type F tributary of Buster Creek flows adjacent to the eastern boundary of Area 4 for a distance of approximately 1,600 feet.

Specific Site Characteristics:
Buster Creek: (Area 1): 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.

Selders Creek: (Area 2): The streambeds are approximately 3 to 12 feet wide with moderate stream-bank slopes. Streamside vegetation is dominated by scattered mature alder and mature Douglas-fir, with a significant component of conifer trees above the flood plain.

Type F Tributaries to Buster Creek: (Areas 3 and 4): The streambeds are approximately 3 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.

Tree and Vegetation Retention:
The timber sale boundary for Areas 1, 2, and 4 (partial cut) and Area 3 (modified clear-cut) are posted at least 100 feet from the Type F streams. A minimum of 120 ft^2 basal area per acre will be left within Areas 1, 2, and 4.

Practices:
Along the above mentioned Type F streams that are adjacent to Areas 1, 2, 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 (Areas 1, 3 and 4) will be permitted within 50 feet of the RMA's.
- Target Basal Area for Areas 1, 2, and 4 is 140 square feet throughout the sale areas.
- Cable corridors must be at least 100 feet apart where they cross 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: _____ Date: _____

Purchaser/Operator Contract Representative

FOREST PRACTICES ACT "WRITTEN PLAN" FOR
PROJECT NO. 4 STREAM ENHANCEMENT BUSTER CAMP TIMBER SALE

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

Protected Resources:
The following stream is located in Sections 20 and 21 of T5N, R6W, W.M., Clatsop County, Oregon.

Buster Creek which is designated as a large Type F stream is 10 feet to 25 feet wide where ODF&W Biologists have plans for stream enhancement projects at six locations east of the Wage Road Bridge near Buster Creek Road.

Specific Site Characteristics:
The streambed is approximately 10 to 25 feet wide where it parallels Buster Creek Road in places. The stream has a meandering pattern with a relatively low stream gradient. A broad flood plain accompanies the streams active channel. The stream banks are relatively gentle and riparian vegetation is alder with some mixed conifer and intermixed shrubs and grasses.

Tree and Vegetation Retention:
No harvesting is being planned anywhere close to Buster Creek. Logs and trees used for the stream enhancement will be taken from off-site locations nearby, but not within the stream buffers.

Practices:
Six stream enhancement structures will be constructed using ground based equipment at points SE1 – SE6. The approximate locations are shown on the Exhibit "A" and work to be done is described as follows:

Location	Work Description
Site No. 1	Materials: Four trees with a DBH of at least 22 inches and at least 50 foot long with attached root wads, and four logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of four tree tops at least 30 feet long. Place one tree with attached root wad in midstream with the top angled downstream. Wedge the three trees with attached root wads into the alders on the north bank. Wedge the small end of the four logs into then alders on the south bank with the opposite end placed against the upstream side of the three previously placed trees with root wads. Place the four tree tops between and around the eight previously placed trees.
Site No. 2	Materials: Four trees with a DBH of at least 22 inches and at least 50 foot long with attached root wads, and five logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of six tree tops at least 30 feet long. Place the root wad end of one tree against the south bank with the top angled across existing log on north bank. Wedge the small end of one log into alders on the south bank with the opposite end placed on the upstream side of the previously placed tree. Place the root wad end of one tree against the north bank with the opposite end angled onto the south bank and against an alder. Place the root wad ends of two trees against the south bank with the opposite end wedged into the alders on north bank. Place five logs between the previously placed trees with the small ends wedged into alders on the south bank. Place the six tree tops between and around the previously placed trees. Attach cable to existing log and drag it approximately five feet into the stream.

SPECIFIC INSTRUCTIONS:

Location	Work Description
Site No. 3	Materials: Four trees with a DBH of at least 22 inches and at least 50-foot long with attached root wads, and four logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of six tree tops at least 30 feet long. Place the root wad end of three trees against the south bank with the opposite ends extending into the low flood plain area on the north bank. Place the root wad of one tree against the north bank with the opposite end wedged into the alders on the south bank. Place the four logs between and upstream of these trees with one end extending into the low floodplain area. Place the six tree tops between and around the previously placed trees.
Site No. 4	Materials: Four trees with a DBH of at least 22 inches and at least 50-foot long with attached root wads, and five logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of five tree tops at least 30 feet long. Place the root wad end of one tree in mid channel with the opposite end angled downstream. Place the root wad end of one tree against the north bank with the top wedged into the alders on the south bank. Wedge the small end of one log into the same alder group on the north bank with the opposite end placed against the upstream side of the previously placed tree. Place the root wad end of one tree in mid channel with the opposite end angled toward the south bank. Place root wad end of one tree against north bank and opposite end onto south bank . Place four logs around these two trees with one end on bank. Place the five tree tops between and around the previously placed trees.
Site No. 5	Materials: Four trees with a DBH of at least 22 inches and at least 50-foot long with attached root wads, and three logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of four tree tops at least 30 feet long. Place the root wad end of two trees against the north bank and into the backwater pool area with the opposite ends extending onto the south bank. Place the root wad of one tree over these trees with the opposite end placed onto the north bank. Place the root wad end of the fourth tree against the north bank with the opposite end wedged into the alders on the south bank. Place the three logs in between these trees. Place the four tree tops between and around the previously placed trees.
Site No. 6	Materials: Seven trees with a DBH of at least 22 inches and at least 50-foot long with attached root wads, and six logs with a diameter of at least 20 inches and 50 feet long. The largest diameter portion of six tree tops at least 30 feet long. Place the root wad end of two trees against the north bank in the deep pool the opposite end wedged into alders on the south bank. Place the root wad end of one tree into the pool with the opposite end wedged into the alders on the north bank. Place the root wad end of one tree against north bank with top wedged into alders on south bank. Place the root wad of one tree against south bank with opposite end wedged into alders on north bank. Place one log on the upstream side of each of these trees with one end extending onto south bank. Place the root wad of one tree at upstream end of existing log on north bank with the opposite end wedged into alders on south bank. Place two logs on the upstream side of this tree with one end extending onto north bank. Place root wad of one tree in mid channel with opposite end wedged into alders on south bank. Place two logs on upstream side of this tree with one end extending onto south bank. Place the six tree tops between and around the previously placed trees.

Stream Enhancement structures must be created by the PURCHASER for stream improvement as recommended by ODFW fisheries biologist. Each structure will be created by placing conifer logs in the Type F stream. Structures shall be at least 100 feet apart. The logs will be placed with equipment (SE1 – SE6) into the stream at locations specified by STATE, and with consultation from an ODFW fisheries biologist. All conifer logs will be taken from sites away from the RMA. These structures will be created using conifer logs at each location. This work will take place during the instream work period (July 1 – August 31) if possible. If the work cannot be done during the designated instream work period an ODFW fisheries biologist will be consulted to field verify any fish habitat concerns and approve any work to be conducted outside the designated period. No excavation will be conducted during the stream enhancement.

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: _____ Date: _____

Purchaser/Operator Contract Representative

State Timber Sale Contract
No. 341-08-27
Buster Camp

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
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PUMPCERT.doc

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