

# PART III: EXHIBITS

State Timber Sale Contract  
No. 341-06-45  
Clamson

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.: 341-06-45

(2) Sale Name: Clamson

(3) Contract Expiration Date: June 30, 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.



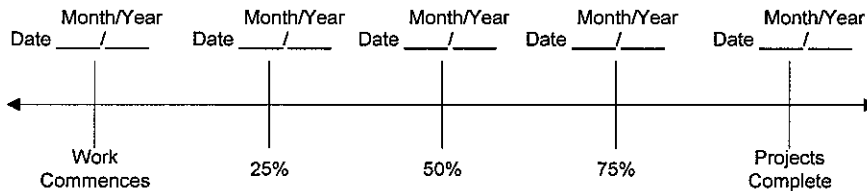
Temporary stream crossings.

EXHIBIT B  
OPERATIONS PLAN

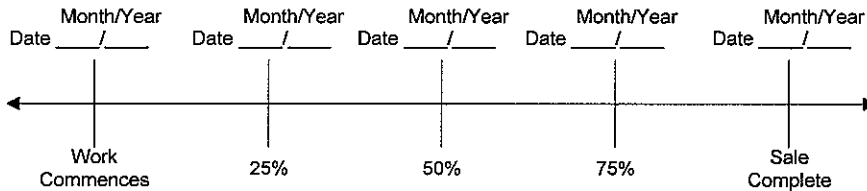
**Completion Timeline**

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: Tillamook (06) Phone (503) 842-2545  
 (State Forestry District)  
 Address 5005 Third St., Tillamook, OR 97141

(4) PURCHASER: \_\_\_\_\_  
 Address \_\_\_\_\_

(12) SALE NAME Clamson  
 COUNTY Tillamook

(13) STATE CONTRACT NUMBER 341-06-45

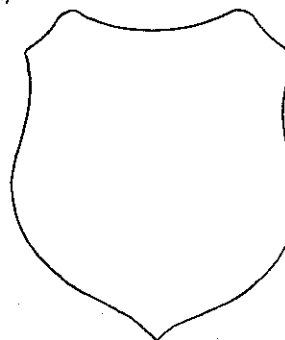
(14) SCALE: westside  eastside  cubic foot

(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
Conifers	--	10	X		
Hardwoods	--	--		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: Loads containing only SUM material need not be accounted for by scale ticket.

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

(11) NOTICE OF CANCELLATION OF BRAND:  
 Effective Date: \_\_\_\_\_

(21) SIGNATURES:

\_\_\_\_\_  
 Purchaser or Authorized Representative Date

\_\_\_\_\_  
 State Forester's Representative

\_\_\_\_\_  
 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, Operator, District, Mgmt. 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 (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	DITCH TOP WIDTH (Feet)	DITCH CONFIGURATION (U, V, TRAPAZOID)	DITCH DEPTH FROM SUBGRADE (Feet)
14 feet	12 feet	A to B	0+00 to 3+00	Outslope	--	--	--
14 feet	12 feet	A to B	3+00 to 4+95	Ditch	3	V	1.5
14 feet	12 feet	A to B	4+95 to 14+45	Outslope	--	--	--
14 feet	12 feet	A to B	14+45 to 15+70	Ditch	3	V	1.5
14 feet	12 feet	A to B	15+70 to 31+35	Outslope	--	--	--
14 feet	12 feet	A to B	31+35 to 32+65	Ditch	3	V	1.5
14 feet	12 feet	A to B	32+65 to 38+40	Outslope	--	--	--
14 feet	12 feet	A to B	38+40 to 39+65	Ditch	3	V	1.5
14 feet	12 feet	A to B	39+65 to 82+55	Outslope	--	--	--
14 feet	12 feet	A to B	82+55 to 84+25	Ditch	3	V	1.5
14 feet	12 feet	A to B	84+25 to 118+50	Outslope	--	--	--
14 feet	12 feet	C to D	0+00 to 11+95	Outslope	--	--	--
14 feet	12 feet	E to F	0+00 to 13+60	Outslope	--	--	--
14 feet	12 feet	G to H	0+00 to 1+75	Outslope	--	--	--
14 feet	12 feet	I to J	0+00 to 8+00	Outslope	--	--	--
14 feet	12 feet	K to L	0+00 to 3+50	Outslope	--	--	--

**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 10 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 classifications are as follows:

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

EXHIBIT D

FOREST ROAD SPECIFICATIONS

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

Trees outside the clearing limits shall not be felled unless approved in writing by STATE.

Sidecast pullback – From top of pullback to toe of pullback.

CLEARING AND GRUBBING DISPOSAL. Scatter through openings in the timber outside of the cleared right-of-way, except areas where end-haul is required.

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 E and G.

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.

Bank excavation and sidecast pullback on a project road segment shall be completed prior to subgrade approval.

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

Ditch. Construct ditch as specified in Exhibit D. Subgrade shall be crowned at 4 to 6 percent. Construct ditchouts away from subgrade at locations marked in the field. All through-cuts on ditched road segments shall have a ditch on both road edges.

Outslope. Road subgrade shall be outsloped at 4 to 6 percent. All through-cuts on outsloped road segments shall have a ditch on the lower outsloped road edge only. Construct ditchouts away from subgrade at locations specified in Exhibit D.

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

Location: As marked in the field.

GRADING

Rock  
Common -  
Common - turnpike (level) section

<u>Back Slopes</u>
Vertical to 1/4:1
3/4:1
2:1

<u>Fill Slopes</u>
Not steeper than 1 1/2:1

Top of cutslope shall be rounded.

LANDINGS. Landings shall be constructed no more than 70' wide. Surface shall be crowned for drainage.

TURNAROUNDS. Increase subgrade width an additional 30' for a length of 16' with 20' radius returns at locations marked in the field.

LOADED TRUCK TURNAROUND. Increase subgrade width an additional 100' for a length of 16' with 40' radius returns at locations marked in the field.

JUNCTIONS. Increase roadbed width as marked in the field.



EXHIBIT D

ADDITIONAL ROAD INSTRUCTIONS

A to B:

- (1) Construct road dips at Stations 21+70, 42+10, 48+40, 53+65, 55+55, 60+50, 65+95, 68+40, 75+20, 78+05, 86+00, 93+40, 96+70, 105+60, 110+40, and 116+60 according to the specifications in Exhibit H.
- (2) Install rubber water diverters at Stations 5+45 & 34+85 according to the specifications in Exhibit H.
- (3) Retrieve sidecast material between Stations 15+70 to 16+20, 17+70 to 18+50, 30+95 to 31+20, 37+40 to 37+65, 40+30 to 41+00, 47+85 to 48+00, 96+70 to 102+00, 108+95 to 109+45, and 116+60 to 117+75 according to the specifications in Exhibit I, and as marked in the field.
- (4) Remove logs and fill in stream channel between Stations 3+25 to 4+30, 14+85 to 15+15, 31+35 to 32+65, 39+00 to 39+30, and 83+75 to 84+25, and reconstruct fill according to the specifications in Exhibits E, G, and M. Place logs adjacent to downstream drainage way.
- (5) Construct a ditchout to the right at Stations 11+25, 12+90, 49+70, 62+55, and 102+75.
- (6) Construct a lead-off ditch from culvert outlet at Station 82+55.
- (7) Widen the road subgrade to the left as marked in the field between Stations 15+70 to 16+20, 17+70 to 18+50, 30+95 to 31+20, 37+40 to 37+65, 95+35 to 95+90, 96+70 to 101+70.
- (8) Remove bank sluff material from road prism between Stations 41+00 to 41+50 and 113+25 to 115+50 and end-haul material to waste area.
- (9) Relocate existing road between Stations 101+70 and 105+60 as marked in field.
- (10) Place geotextile fabric on subgrade prior to rocking between Stations 10+30 to 15+70, 37+65 to 39+65, 50+10 to 53+35 according to the specifications in Exhibit K.
- (11) Repair fill slope between Stations 48+00 to 48+25, 74+00 to 74+50, and 75+40 to 75+50 according to the specifications in Exhibits E and M.

C to D:

- (1) Construct a road dip at Station 7+45 according to the specifications in Exhibit H.
- (2) Construct a ditchout to the right at Station 10+40.

E to F:

- (1) Install a rubber water diverter at Station 4+20 according to the specifications in Exhibit N.
- (2) Widen road subgrade to the right as marked in the field between Stations 12+45 and 13+60.
- (3) Construct road dips at Station 12+45 according to the specifications in Exhibit H.
- (4) Raise subgrade elevation between Stations 5+55 and 8+75 as marked in the field.

G to H:

Remove piled logging slash at Station 1+75 and end-haul to waste area.

EXHIBIT D  
 END-HAULING REQUIREMENTS

POINT TO POINT	STA. TO STA.	WASTE AREA LOCATION	WASTE AREA TREATMENT
A to B	14+85 to 18+50	1	1, 2
A to B	30+95 to 31+20	1	1, 2
A to B	31+35 to 33+35	1	1, 2
A to B	37+40 to 41+00	1	1, 2
A to B	47+85 to 48+00	1	1
A to B	83+75 to 84+25	1	1, 2
A to B	96+70 to 101+70	1	1
A to B	101+70 to 105+60	1, 2	1, 2, 3
A to B	108+95 to 117+75	1	1
C to D	0+00 to 8+20 & 10+40 to 11+95	2	2, 3
E to F	0+00 to 0+20	3	2
G to H	1+50 to 1+75	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 all material 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.

Tree bases and stumps may have up to 12 inches of material directly above them. Any amount of material exceeding the containment requirements shall be removed by whatever means necessary and end-hauled to a designated waste area.

Waste Area Location

- (1) As shown on Exhibit A and as marked in the field.
- (2) On Road Segment C to D (Stations 8+20 to 10+15).
- (3) On Road Segment E to F (Stations 5+55 to 8+75).

Waste Treatment

- (1) Deposit at waste area, spread evenly, compact, and provide adequate drainage. Pile woody debris separate from other waste material.
- (2) Suitable material shall be used for fill construction.
- (3) Suitable material shall be used for pit-run surfacing and riprap rock.

EXHIBIT E

ROAD SURFACING

**Note: The conversion from compacted yardage to truck yardage is 1.2 multiplied by the compacted yardage equals truck yardage.**

TYPE OF ROCK	SIZE OF ROCK	COMPACTED DEPTH	POINT TO POINT	STATION TO STATION	APPROX. TOTAL TRUCK MEASURE VOLUME
Crushed	2-1/2"-0"	4"	A to B	3+00 to 4+95, 14+45 to 15+70, & 38+40 to 39+65	*107 CY
Pit-Run	---	12"	A to B	0+00 to 86+00	5,934 CY
Pit-Run	---	9"	A to B	86+00 to 118+50	1,472 CY
Pit-Run	---	9"	C to D	0+00 to 11+95	541 CY
Pit-Run	---	9"	E to F	0+00 to 13+60	684 CY
Pit-Run	---	12"	G to H	0+00 to 1+75	80 CY
Crushed	2-1/2"-0"	4"	I to J	5+00 to 7+25	*48 CY
Pit-Run	---	12"	I to J	0+00 to 8+00	529 CY
Pit-Run	---	12"	K to L	0+00 to 3+50	242 CY
<b>TURNOUTS:</b>			<b>STATIONS</b>		
Pit-Run	---	12"	A to B	7+55, 18+85, 28+30, 33+25, 47+50, 59+80, & 81+35	143 CY
Pit-Run	---	9"	A to B	90+10 & 107+30	30 CY
Pit-Run	---	12"	I to J	2+85	20 CY
<b>TURNAROUNDS:</b>					
Pit-Run	---	9"	A to B	118+50	24 CY
Pit-Run	---	9"	E to F	8+75	24 CY
<b>LOADED TRUCK TURNAROUND:</b>					
Pit-Run	---	12"	A to B	70+85	80 CY
<b>JUNCTIONS:</b>					
Pit-Run	---	12"	A to B	0+00, & 62+55	40 CY
Pit-Run	---	9"	A to B	101+70	15 CY
Pit-Run	---	9"	E to F	0+00 & 6+05	30 CY
Pit-Run	---	12"	I to J	0+00	20 CY
Pit-Run	---	12"	K to L	0+00	20 CY

EXHIBIT E  
 ROAD SURFACING

TYPE OF ROCK	SIZE OF ROCK	COMPACTED DEPTH	POINT TO POINT	STATIONS	APPROX. TOTAL TRUCK MEASURE VOLUME
LANDINGS:	SIZE OF ROCK	COMPACTED DEPTH	POINT TO POINT	STATIONS	APPROX. TOTAL TRUCK MEASURE VOLUME
Pit-Run	---	9"	C to D	11+95	52 CY
Pit-Run	---	9"	E to F	13+60	52 CY
Pit-Run	---	9"	G to H	1+75	52 CY
Pit-Run	---	12"	I to J	8+00	70 CY
Pit-Run	---	12"	K to L	3+50	70 CY
MISCELLANEOUS:			USE	LOCATION	
Crushed	2-1/2"-0"	---	Bedding/ Backfill	A to B: 4+00, 15+00, & 39+15	120 CY
Pit-Run	---	---	Backfill	A to B: 3+25 to 4+30	785 CY
Crushed	6"-3"	---	Drain Rock	A to B: 83+75 to 84+25	175 CY
Riprap	48"-24"	---	Slope Stabilization/ Energy Dissipater	A to B: 3+25 to 4+30, 14+85 to 15+15, 39+00 to 39+30, 48+00 to 48+25, 74+00 to 74+50, 75+40 to 75+50, & 93+75 to 84+25	780 CY
Riprap	24"-12"	---	Fill Armor	A to B: 3+25 to 4+30, 14+85 to 15+15, & 39+00 to 39+30	285 CY
Crushed	2-1/2"-0"	---	Bedding/Bac kfill	I to J: 5+40 & 6+95	40 CY
Riprap	24"-12"	---	Fill Armor	I to J: 5+30 to 5+50 & 6+85 to 7+05	30 CY
Riprap	48"-24"	---	Slope Stabilization/ Energy Dissipater	I to J: 5+30 to 5+50 & 6+85 to 7+05	40 CY

\* Obtain approval from STATE for pit-run rocking prior to spreading crushed rock.

Additional rock for curve widening is required and has been included in the volume estimates. Turnouts, turnarounds, landings and junctions shall be rocked concurrently with the road. End-dumping of riprap shall not be allowed, unless otherwise approved in writing by STATE.

Roads shall be uniformly graded and approved by STATE prior to rocking. For typical cross section, turnout and turnaround see Forestry Department Drawing Nos. 351-C, 351-D and TOTA-1 at the Forestry Department district office.

EXHIBIT E

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.

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

The material from which base material is produced or manufactured shall meet the following test requirements:

Hardness - Test Method AASHTO T 96 35% Maximum

Durability - Test Method ODOT TM 208  
Passing No. 20 Sieve: 30% Maximum  
Sediment Height: 3" Maximum

<u>For 6"-3" Drain Rock</u>	Passing	6" sieve	100%
	Passing	3" sieve	0%

<u>For 6"-0" Pit-Run</u>	Passing	10" sieve	100%
	Passing	6" sieve	60-85%
	Passing	3" sieve	30-50%
	Passing	1/4" sieve	10% maximum

For 24"-12" Riprap 50% or more of the rock shall be at least four cubic feet in volume. 100% of the rock shall be at least one half cubic foot in volume.

48" - 24" Riprap 50% or more of the rock shall be at least one cubic yard in volume. 100% of the rock shall be at least four cubic feet in volume.

Control of riprap and pit-run gradation shall be by visual inspection by STATE. Pit-run shall be reasonably free of organic material and shall not contain an excessive amount of oversized (cobbles or boulders) or undersized (clay, silt or sand) particles.

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.

EXHIBIT E

ROCK ACCOUNTABILITY

**PURCHASER shall obtain STATE approval for subgrades prior to rocking.** Rocking must be done only when weather conditions are acceptable to STATE, and must be suspended when muddy water could enter streams.

Rock accountability shall be determined by depth measurement. STATE shall be given 24 hours' notice prior to rocking.

Depth Measurement. Road rock shall be spread and compacted according to the depths specified in Exhibit E. 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 1.2 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 E. The average depth for each road segment shall be the specified depth or greater.

Junctions shall have a surfaced area, as marked in the field, at the compacted depths specified in Exhibit E.

Turnouts shall have a surfaced area of at least 44 square yards each at the depths shown in Exhibit E.

Turnarounds shall have a surfaced area of at least 73 square yards each at the depths shown in Exhibit E.

The Loaded Truck Turnaround shall have a surfaced area of at least 182 square yards at the depth shown in Exhibit E.

Landings shall have a surfaced area of at least 140 square yards each at the depths shown in Exhibit E.

Curve Surfacing. Extra surface width shall be required for the inside of all curves as follows: 400 divided by the radius of the curve equals the amount of extra width to be surfaced at the depths shown in Exhibit E.

EXHIBIT E  
 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 the approved equipment listed below or others approved by STATE.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All	Vibratory Roller

Proof-Rolling. Prior to placing the road rock surfacing, the Purchaser shall proof roll the compacted subgrade of the road segments listed below with a tandem-wheeled dump truck loaded with a least 10 cubic yards of soil and approved by the STATE. Proof rolling shall consist of at least two complete passes with one pass being in the opposite direction to preceding one. To obtain subgrade approval, PURCHASER shall perform proof-rolling when STATE is present. PURCHASER shall notify STATE a minimum of 48 hours prior to beginning proof-rolling. Areas that deflect, rut, or pump more than two inches during proof-rolling shall be corrected prior to placing the road rock surfacing. Subgrade shall be maintained until succeeding operation has been accomplished.

ROAD SEGMENT	STATION TO STATION
A to B	0+00 to 118+50

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 the approved equipment listed below or others approved by STATE:

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All	Tamping Foot Compactor

Pit-Run Rock. Pit-run surfacing rock shall be spread on roads with a crawler tractor and continuously walked-in. Rock spreading shall begin at nearest point from the rock source and progress toward the end of the project, unless otherwise approved in writing by STATE. Compaction shall be accomplished by using the approved equipment listed below or others approved by STATE:

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

Rock shall be crowned or outsloped at 4 to 6 percent unless otherwise specified.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All	Vibratory Grid Compactor

EXHIBIT E

COMPACTION AND PROCESSING REQUIREMENTS

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 a 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 the approved equipment listed below or others approved by STATE:

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	Vibratory Roller

COMPACTION EQUIPMENT OPTIONS

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 mile to 1.8 miles per hour, as directed by STATE.

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

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.

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. A minimum of 10 passes shall be made with the grader and vibratory grid compactor over the entire length of the road, unless STATE requires fewer passes.



EXHIBIT F

ROCK PIT DEVELOPMENT AND USE

- (1) 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. All waste shall be deposited at an approved "waste disposal site."
- (2) Where overburden removal limits have not been marked, they shall extend for a distance of at least 20 feet beyond the developed rock source. Overburden removal limits, when marked, are designated by orange right-of-way boundary tags. Overburden and woody debris shall be hauled to a designated waste area. All merchantable timber shall be felled and decked. Overburden shall be spread evenly, grass seeded, and compacted at the waste area and woody debris stacked separately. Prior to drilling or rock removal, completion of overburden removal shall be approved in writing by STATE.
- (3) The rock pit floor shall be developed to provide drainage away from the rock pit. Rock pit drainage ditches shall be developed and maintained. 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 1 bench with an access road to it. All benches shall have an access road to them. Said benches shall be easily accessible with tractors.
- (4) The STATE shall be notified two working days prior to the beginning of drilling operations. Working days shall be defined as Monday through Thursday, 6:00 a.m. to 4:30 p.m.
- (5) Controlled blasting techniques shall be utilized for any blasting operations, and shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain all material in the rock pit prism (full containment). Each low intensity shot shall be shot into the previous shots' void in order to contain all the material in the rock pit prism. Each shot shall also have a "tattle-tale" end cap so that it is known if all charges were detonated. The purchaser shall detonate or remove all non-detonated explosives from STATE LANDS. PURCHASER shall maintain a comprehensive log that contains all pertinent data for all blasting operations. The blasting log shall be submitted to the STATE after the completion of all blasting activity. The blasting log is intended for STATE record keeping purposes only.
- (6) Pit face shall be developed in a uniform manner.
- (7) Oversized material that is produced shall be piled in the vicinity of the pit. It shall not be wasted.
- (8) PURCHASER shall prepare a written development plan for the pit area. The plan shall be submitted to STATE for approval prior to conducting any operation in the pit area.  
The plan 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.
  - (e) Oversized material location.
- (9) PURCHASER shall schedule and coordinate quarry and stockpile usage with other existing or planned STATE contracts requiring quarry and stockpile usage.
- (10) PURCHASER shall notify STATE 5 days prior to the start of quarry development activities.
- (11) Upon completion of use, the pit site and access roads shall be left in a condition free from overburden and debris. Rock pit roads shall be waterbarred to provide drainage as specified in Exhibit H and blocked as directed by STATE.

EXHIBIT G

CULVERT SPECIFICATIONS

All culvert materials shall be furnished and installed by PURCHASER, unless otherwise specified in the Contract. Culverts 36 inches in diameter and smaller shall be constructed of corrugated polyethylene. Culverts larger than 36 inches in diameter shall be constructed of corrugated aluminized steel. 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. Polyethylene culverts shall also be double walled and meet the requirements of AASHTO M-294-901, Type S. Corrugation types and shapes other than those meeting the above minimum Highway requirements, shall be approved in writing by STATE.

Watertight joints with gaskets are required for all culverts 36 inches in diameter or larger. Required gasket materials shall be in accordance with the minimum requirements of the Oregon Department of Transportation Drawing RD 326, or as 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 5 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. Minimum bedding depth shall be 6 inches.

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 G

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" in diameter and 18" for culverts 42" to 96" in diameter (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 approved slope protection device. Construct lead-off ditches away from culvert outlets where the slope gradients restrict the free flow of water.

Following are the minimum standard gauges for pipe and coupling bands.

<u>Dia.</u>	<u>Aluminized Steel Pipe Gauge</u>	<u>Band Gauges</u>	<u>Band Widths (" )</u>			<u>Hugger Band Widths (" )</u>	
			<u>Annular</u>	<u>Helical</u>	<u>Dimpled</u>	<u>Annular</u>	<u>Helical</u>
90	12	16	26	26	NA	NA	NA

EXHIBIT G  
CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	ROAD SEGMENT POINT TO POINT	STATION
1	36	60	A to B	4+00
2	30	42	A to B	15+00
3	18	30	A to B	32+65
*4	90	66	A to B	39+15
5	18	42	A to B	82+55
6	24	42	I to J	5+40
7	24	48	I to J	6+95

\*STATE supplied culvert. PURCHASER shall supply bands and gaskets. PURCHASER shall haul culvert from STATE office to installation location.

The intake end of culverts smaller than 48 inches in diameter shall be marked by installing a 5-foot long, painted steel fence post two feet into the ground, within 6 inches of the inlet on the downgrade side.

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

Tamping is required on all culverts. Backfills on culverts over 24 inches in diameter shall be compacted with a vibratory hand-operated or Backhoe mounted tamper.

Energy dissipaters shall be installed within 72 hours of culvert installation, unless otherwise approved in writing by STATE.

EXHIBIT G  
TYPICAL EMBEDDED ENERGY DISSIPATOR

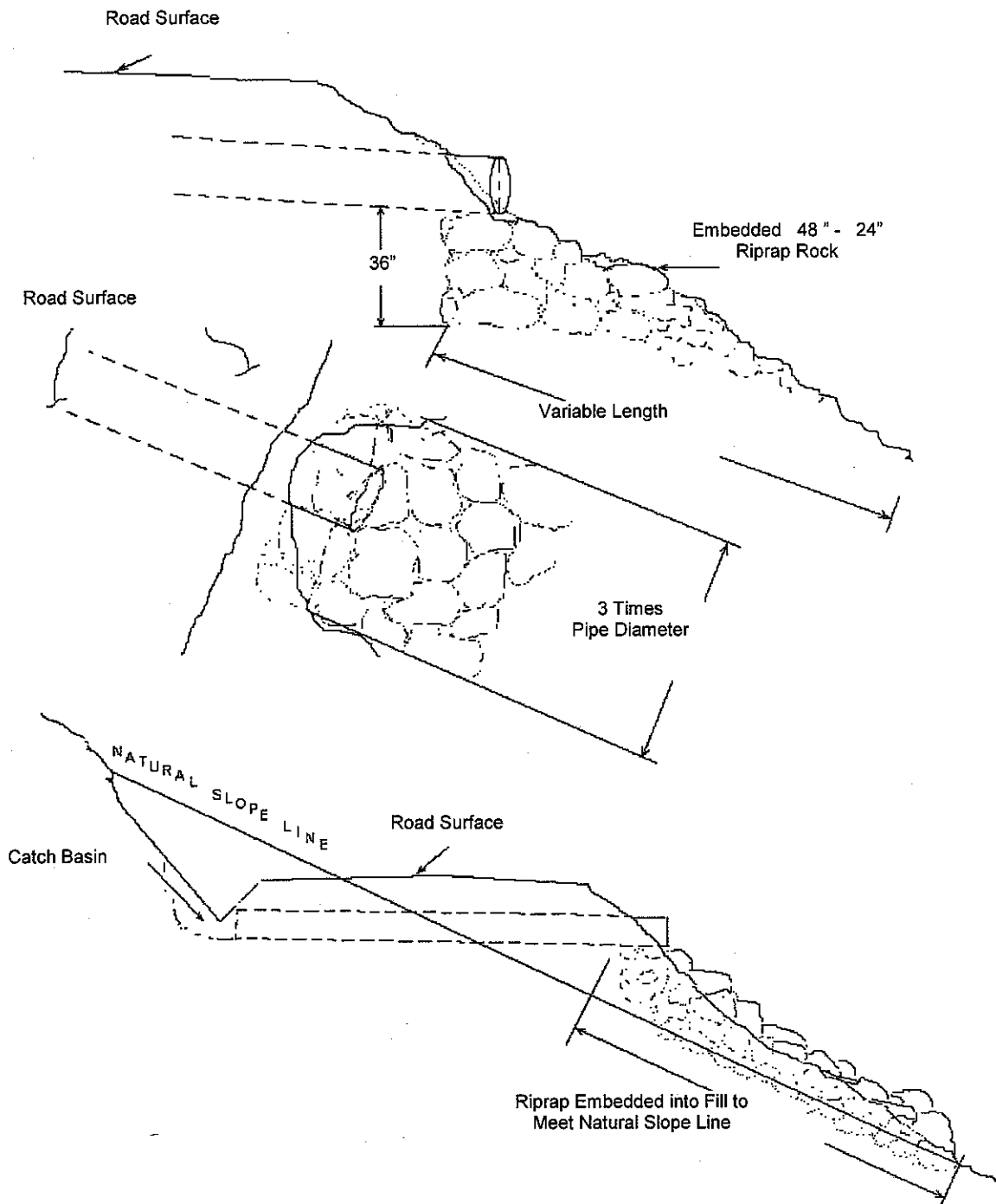
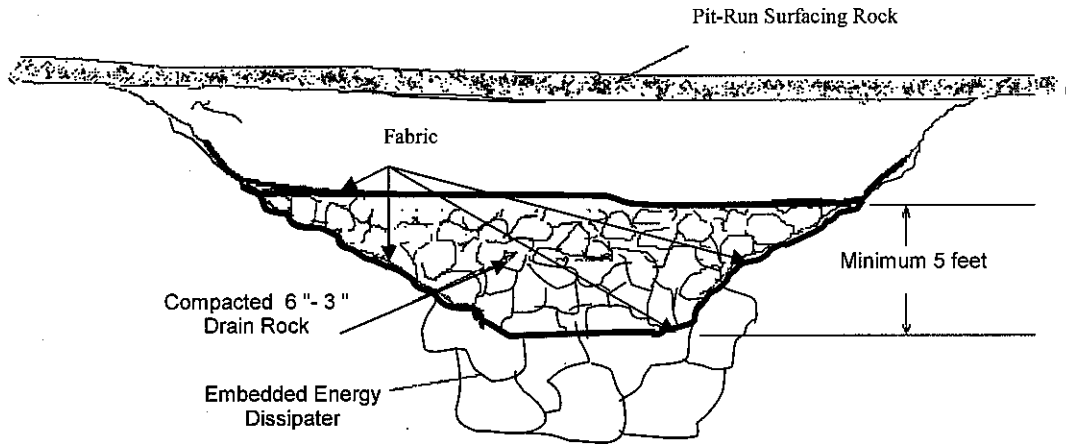


EXHIBIT G  
 FREE DRAIN FILL SPECIFICATIONS



Drainage Blanket Construction:

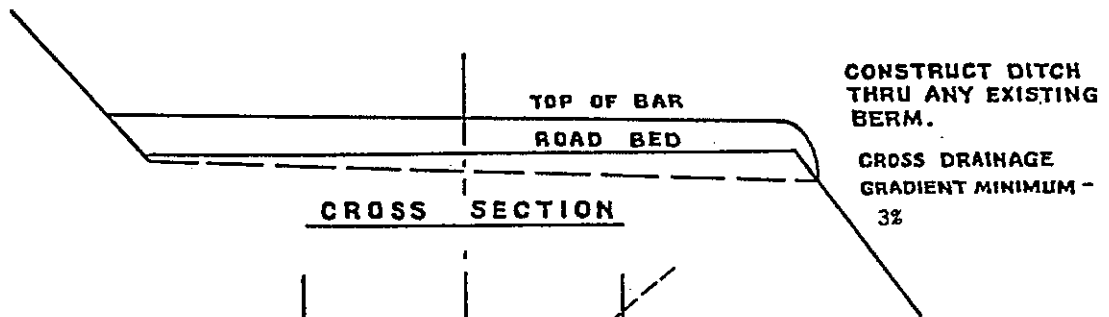
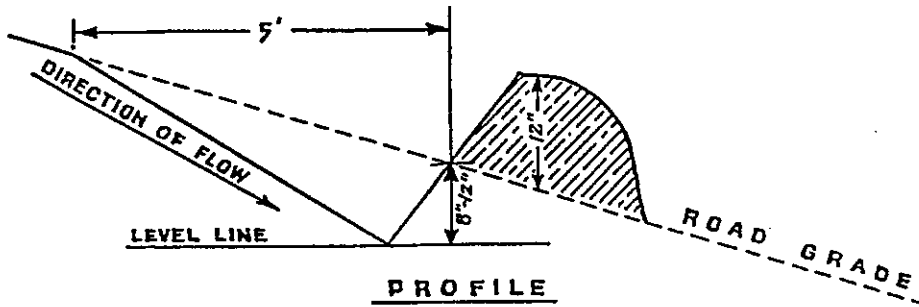
- (1) Excavate the drainage blanket trench to a width of 25 feet for the entire length of the embankment.
- (2) Construct the drainage blanket and fill base by placing and compacting a minimum of 175 cubic yards of 6-3 inch drain rock in the developed trench for a height of 5 feet.
- (3) Install drainage fabric directly on the top, bottom, and sides of the constructed drainage blanket to provide for separation of the drain rock and common fill materials. Any longitudinal and/or traverse drainage fabric joints shall be overlapped at least 2 feet.

Drainage Fabric Specifications:

Nonwoven drainage fabric designed for subsurface drain purposes which meets or exceeds the following requirements:

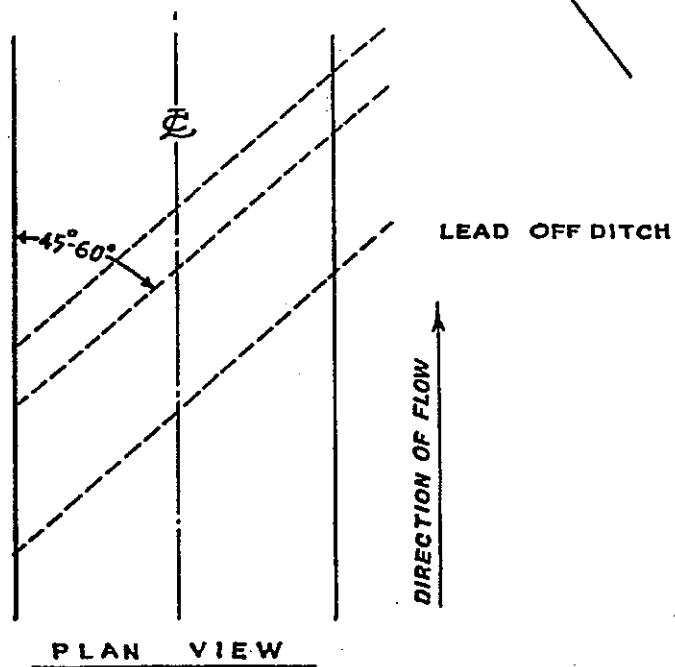
	Test Method	Properties
(1) Water Flow Rate	ASTM D 4491	85 gal/min/ft <sup>2</sup>
(2) Water Permeability	ASTM D 4491	0.30 cm/sec
(3) Grab Tensile Strength	ASTM D 4632	250 lb
(4) Mullen Burst Test	ASTM D 3766	460 lb
(5) Mass	ASTM D 4533	10 oz/yd <sup>2</sup>
(6) Thickness	ASTM D 5199	100 mills
(7) UV Resistance	ASTM D 4355 Xenon Arc	70% retained

EXHIBIT H  
 WATERBAR SPECIFICATIONS



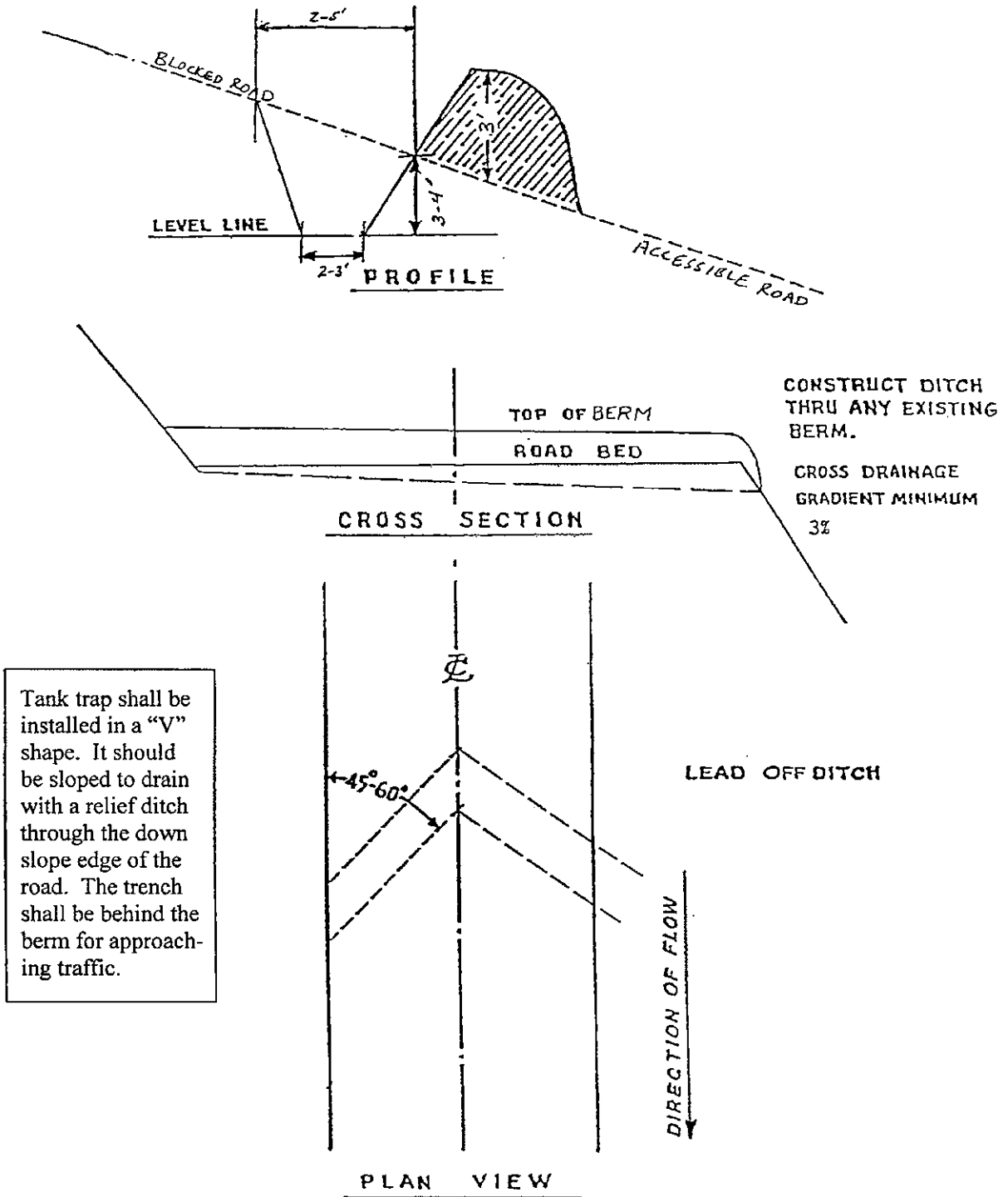
**SPACING OF WATERBARS**

ROAD GRADE	DISTANCE
≤ 5%	600'
6-10%	300'
11-15%	150'
16-20% or greater	100'



**WATERBAR SPECIFICATIONS  
 FOR CROSS DITCHING #298**

EXHIBIT H  
TANK TRAP SPECIFICATIONS



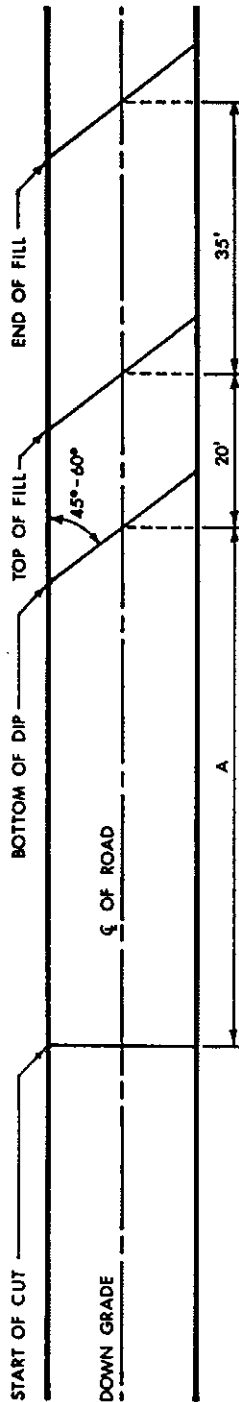
Tank trap shall be installed in a "V" shape. It should be sloped to drain with a relief ditch through the down slope edge of the road. The trench shall be behind the berm for approaching traffic.

TANK TRAP SPECIFICATIONS

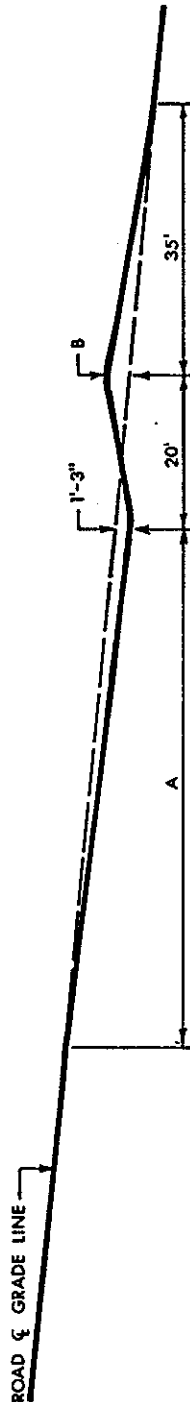


EXHIBIT H

ROAD DIP CONSTRUCTION SPECIFICATIONS

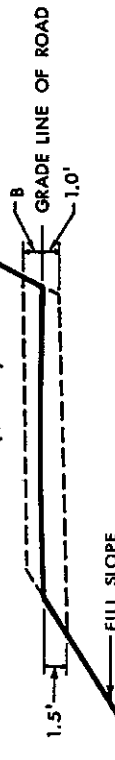


**PLAN (1" = 20')**



**PROFILE (1" = 20')**

**CROSS SECTION (1" = 10')**



**DIMENSIONS**

ROAD GRADE %	A	B
0% - 5%	50'	1.0'
5% - 10%	60'	1.5'
10% - 15%	70'	2.0'
MORE THAN 15%	USE WATERBARS	

**ROAD DIP CONSTRUCTION SPECIFICATIONS**

SCALE: NOTED	APPROVED BY:	DRAWN BY: FB
DATE: 10/14/80		REVISED
STATE OF OREGON DEPARTMENT OF FORESTRY 2800 STATE STREET SALEM OREGON 97310		
		DRAWING NUMBER <b>669</b>

EXHIBIT I  
TYPICAL SIDECAST PULLBACK

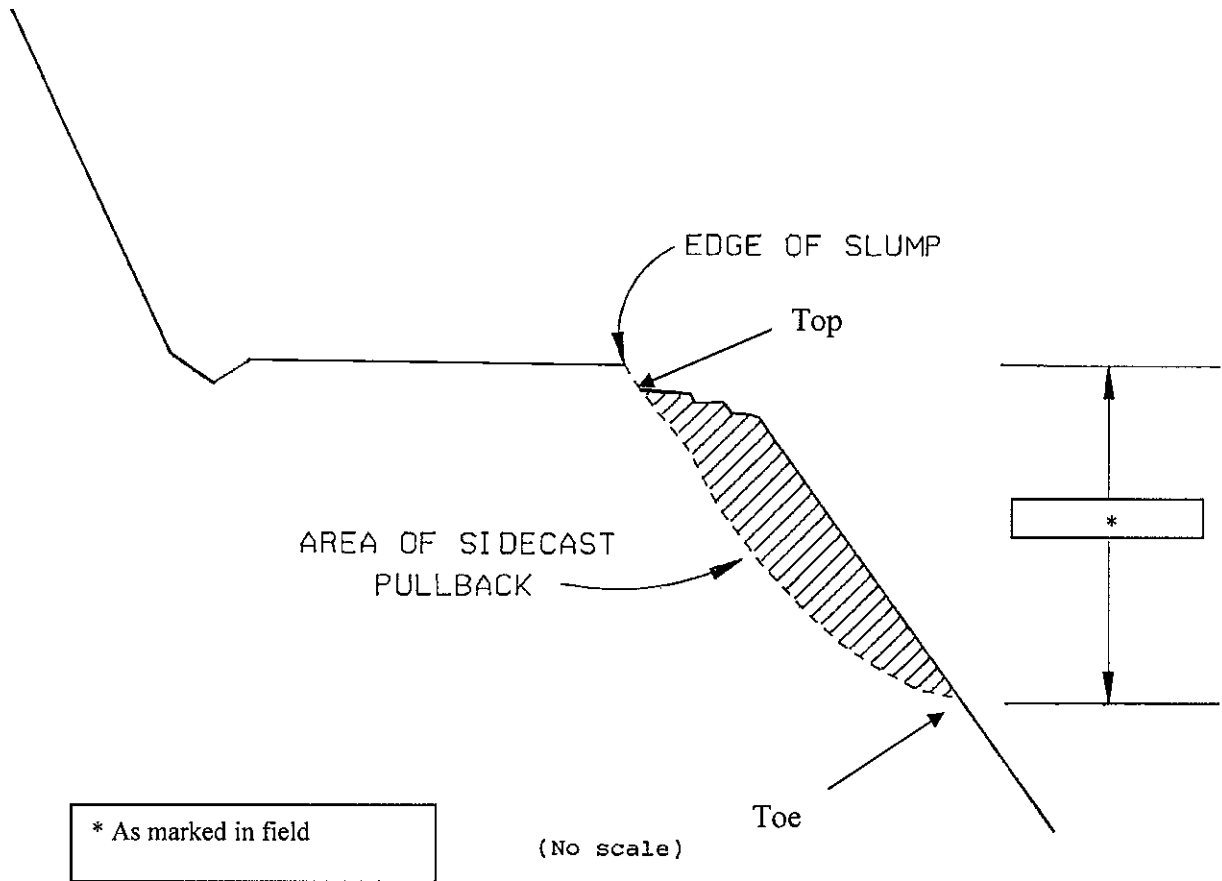


EXHIBIT J

SEEDING AND FERTILIZING

This work shall consist of preparing seedbeds and furnishing and placing required seed and fertilizer.

Seeding Seasons. Seeding shall be performed only from March 1 through June 15 and August 15 through October 15. 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. PURCHASER shall notify STATE 24 hours prior to seeding.

Soil Preparation. Areas to be seeded that have been damaged by erosion or other causes shall be restored prior to seeding. All areas to be seeded shall be finished and then cultivated to provide a reasonably firm, but friable seedbed. A minimum of 1/2 inch of surface soil shall be in a loose condition.

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

Seed listed below shall be applied at the following rates per acre:

<u>Species</u>	<u>Lb./Acre</u>	<u>Mixture</u>	<u>Pure Live Seed</u>	<u>Poison and/or Repellent</u>
Fine Fescue	12	40%	98%	0
Annual Ryegrass	6	20%	98%	0
Perennial Ryegrass	9	30%	98%	0
White Dutch Clover	3	10%	98%	0

Fertilizer: Chemical analysis shall be 16-20-0 and shall be applied at the rate of 300 pounds per acre.

Seeding will be considered acceptable when all other specified requirements in Exhibits J and L have been completed and a healthy, uniform, close stand of grass has been established, unless otherwise approved in writing by STATE.

EXHIBIT K

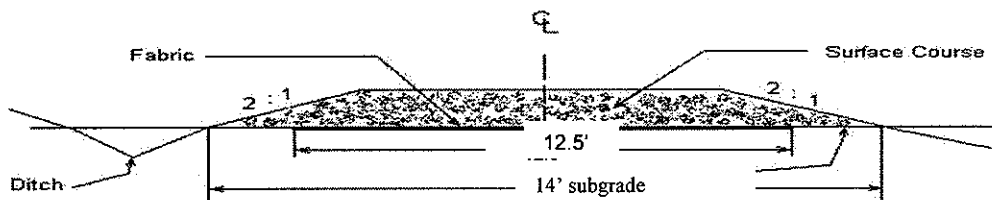
FABRIC SPECIFICATIONS

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 D4632
(2)	Puncture Strength	110 lbs.	ASTM D4833
(3)	Mullen Burst	600 lbs./in	ASTM D3786
(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. 341-06-45  
Clamson

EXHIBIT L

MULCHING

This work shall consist of furnishing and placing required mulch. Mulch shall consist of straw that is free of noxious weeds.

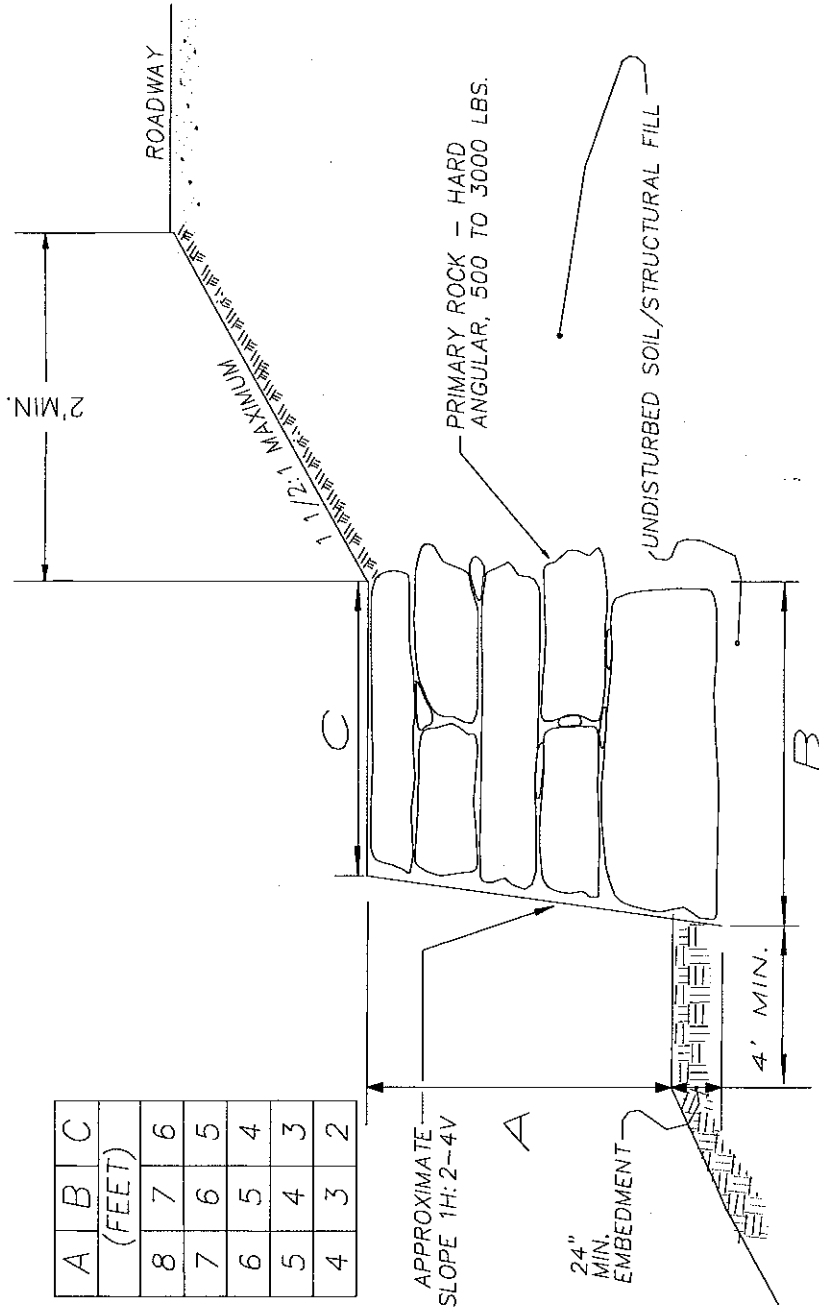
Mulching Period. Straw mulch shall be applied within 24 hours of spreading grass seed and fertilizer.

Application Rates for Mulch

Place straw mulch to a reasonably uniform thickness of  $\frac{3}{4}$  to  $1\frac{1}{4}$  inches. This rate requires between 1 and  $1\frac{1}{2}$  tons of dry mulch per acre.

EXHIBIT M

FILL SLOPE STABILIZATION  
 NTS

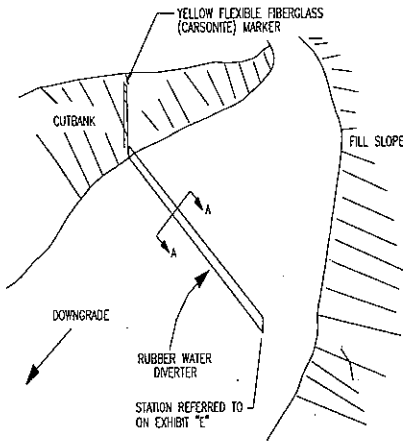


ALL ROCKS TO BE SOUND, UNWEATHERED ANGULAR ROCK. PRIMARY ROCK SHALL BE 500-3000 LBS AND SHALL NOT BE MOVABLE WITH A PRY BAR. ROCKS SHALL BE TIGHTLY NESTED (LOCKED TOGETHER) WITH ALTERNATING JOINTS AND WITH LARGER ROCKS AT BOTTOM. RIPRAP SHALL BE FREE DRAINING THROUGH SMALLER RIPRAP FILLED VOIDS. EACH ROCK SHOULD REST ON AT LEAST TWO ROCKS BELOW IT.

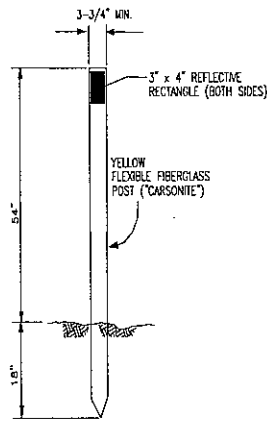
EXHIBIT N  
 RUBBER WATER DIVERTER

GENERAL NOTES

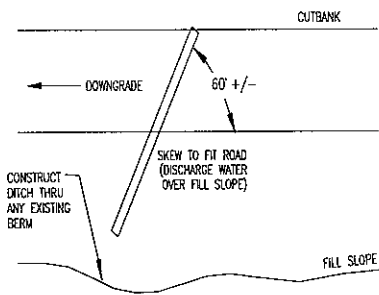
1. CONVEYOR BELTING: 3 OR 5 PLY, 600 Lb. TENSILE STRENGTH PER INCH OF WIDTH, NYLON FABRIC, 3/8" x 1/8" COVERING, 26" x 16'.
2. TIMBER: (4" x 8") nom. x 16'  
 TIMBER SHALL BE PRESSURE TREATED (GROUND CONTACT TYPE).  
 4" SIDE OF TIMBER SHALL BE INSTALLED VERTICALLY AS ILLUSTRATED IN SECTION A-A.
3. GALVANIZED LAG SCREWS: 3/8" x 3"-(8 EACH) WITH 3/8" GALVANIZED WASHERS (23" SPACING FOR SCREWS).
4. MARKER: 72" LONG CARSONITE MODEL CRM-375 WITH 3" x 4" REFLECTOR ON EACH SIDE OR APPROVED EQUIVALENT.
5. BACKFILL MATERIAL SHALL BE PLACED IN 4" COMPACTED LIFTS, DENSITY SHALL EXCEED THE DENSITY OF THE SURROUNDING ROAD SURFACE MATERIAL.



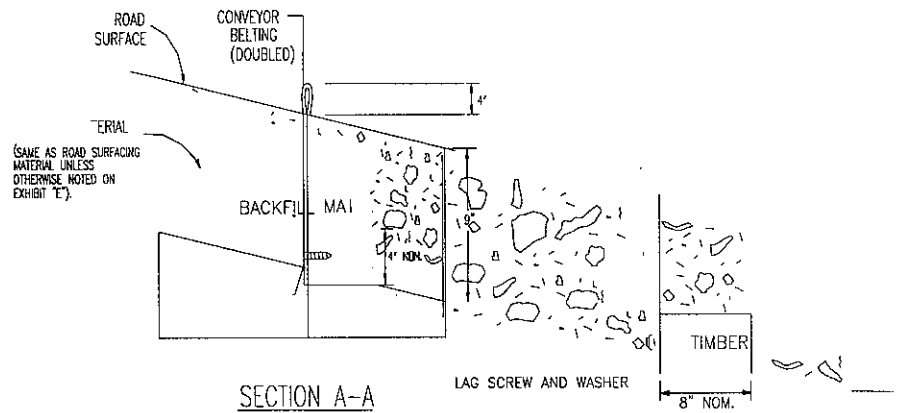
INSTALLATION DETAIL



MARKER



SKEW DIAGRAM (PLAN VIEW)



SECTION A-A

EXHIBIT O

SPECIFICATIONS FOR ROAD VACATING

Between Points C to D, E to F, G to H, I to J, K to L, and all non-project road segments:

Construct waterbars so that water is carried across the road and deposited on stable locations. Waterbars shall be angled across the road, deep enough to intercept water from any road ditchline and carry it across the road, and spaced as shown in Exhibit H.

Grass seed and mulch all closed road surfaces, including all turnouts and turnarounds, and all disturbed soil along the road according to the specifications in Exhibits J and L.

PURCHASER shall close road by constructing a tank trap as specified in Exhibit H at the beginning of such roads.

PURCHASER shall scatter logging or grubbing debris on road prism as instructed by STATE.

After the completion of all logging activities on road segment I to J, remove culverts and fill material from stream channels. Reestablish the original stream channel grade and orientation. Excavate channel banks to 1 ½ : 1 side slopes and place and compact excavated material in a stable location at a slope no greater than 1 ½ : 1. Divert all live water during the vacating process. Notify STATE 24 hours prior to removal of fills. Use reasonable precautions to prevent damage and haul the removed culvert to the culvert storage facility at the Tillamook District Office.



## PART IV: OTHER INFORMATION



Oregon Department of Forestry

### WRITTEN PLAN

**SALE NAME:** Clamson 341-06-45

**PROTECTED WATERS:** Cook Creek, and Hanson Creek are Type F streams.

**Definitions:** Stream buffer: 100 feet horizontal distance from the stream bank of Type F.

**LOCATION:** Portions of Sections 6, and 7, T2N, R8W, and Portions of Section 1, T2N, R9W, W.M., Tillamook County.

**Activity:** Cable lines across stream

**Protection measures:**

- Trees outside the timber sale boundary are reserved from cutting, except as approved by ODF to facilitate logging operations. Trees felled within these zones will be left for down wood.
- Trees that enter Type F streams will be left for down wood.
- Cable corridors will be at least of 100 feet apart where they extend over or through the Type F stream and buffer.

**Date:** February, 2006

**Prepared by:** Colleen Kiser

State Timber Sale Contract  
No. 341-06-45  
Clamson

## WRITTEN PLAN

### Clamson Timber Sale

Protected Waters: Clammer Creek and Cook Creek, type F streams, and unnamed tributaries.

Location: SE ¼ of Sec. 1, T2N, R9W, W.M. & SW ¼ of Sec. 6 & NW ¼ of Sec. 7, T2N, R8W, W.M.

Activities: Road reconstruction, road construction, riprap placement, and fill placement.

Protection Measures: Work will not be allowed from October 16 through April 30 without STATE's prior approval and "Outside Project Period Guidelines" are established. No activity within 100 feet of the protected waters or in-stream activity will be conducted before July 1 or after September 15 without prior approval from the Oregon Department of Fish and Wildlife.

Stream crossings have been sized for a 100-year flow event and for possible debris passage using Peak Flow. Fill material will be placed in 8-inch lifts and compacted with a tamper. Fill slopes will be constructed at a 1 ½ to 1 fill width-to-height ratio. Machine activity in the stream will be kept to a minimum. Disturbance of existing vegetation will be kept to a minimum. All practical erosion control measures will be taken to minimize sedimentation to waters of the State. The vacated road segments will be blocked, water barred, seeded with grass, straw mulched, and logging debris scattered on road prism.

All other areas of disturbed soil resulting from project work, including fill slopes, cut banks, and waste areas will be grass seeded, fertilized, and mulched upon completion of work.

Prepared By: Vanessa M. Stone  
Road Specialist

Date: December 20, 2005