

PART III: EXHIBITS

State Timber Sale Contract
No. 341-05-77
Maple Sunday

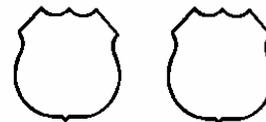
EXHIBIT B

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.: 341-05-77

(2) Sale Name: Maple Sunday

(3) Contract Expiration Date: October 1, 2007

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: _____

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Logging: _____

Phone: _____

Cell/Other

Phone: _____

Home: _____

Logging: _____

Phone: _____

Cell/Other

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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: _____

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.

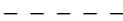
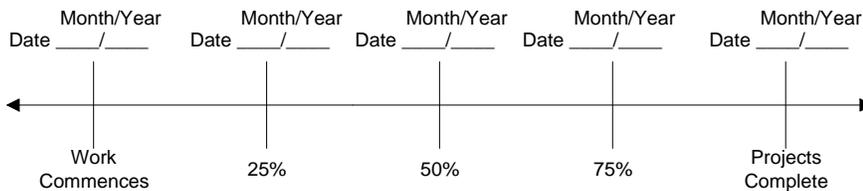
- | | |
|---|---|
|  | Cable landing, with numbers for sequence. |
|  | Tractor landing with alphabetical sequence. |
|  | Approximate setting boundary. |
|  | Spur truck roads. |
|  | Tractor yarding roads. |
|  | Temporary stream crossings. |

EXHIBIT B
 OPERATIONS PLAN

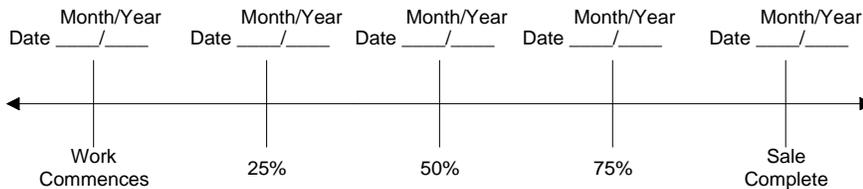
Completion Timeline

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: Forest Grove - 05 Phone 503-357-2191
 (State Forestry District)
 Address 801 Gales Cr. Rd., Forest Grove, OR
97116-1199

(4) PURCHASER: _____
 Address _____

(12) SALE NAME Maple Sunday

COUNTY Washington

(13) STATE CONTRACT NUMBER 341-05-77

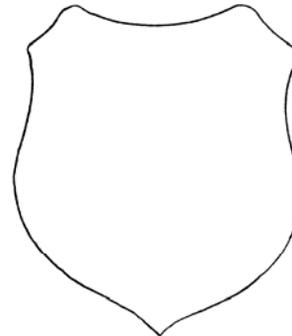
(14) SCALE: westside eastside cubic foot

(15) STATE BRAND REGISTRATION NUMBER _____

(16) BUREAU BRAND CODE NUMBER _____

(17) STATE BRAND INFORMATION:

(COMPLETE) 



(5) MINIMUM SCALING SPECIFICATIONS			CLASS		
SPECIES	SCALING DIAMETER INCHES	*NET SCALE VOLUME	PER MBF	** SUM	SUB
Conifers	--	10	X		
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:
 *Actual taper butt logs over 40' scaling length

(8) PENCIL BUCK
 back to Minimum Scaling Diameter _____

(9) ADD-BACK VOLUME --
 Deductions due to delay

(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: _____

(10) APPROVED SCALING LOCATIONS	Species	Yard	Truck

(20) REMARKS: _____

Operator's Name (Optional inclusion by District): _____

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

 State Forester's Representative

 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.

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
16 feet	12 feet	A to B	0+00 to 24+00	Ditch Required
16 feet	12 feet	C to D	0+00 to 14+45	Ditch Required
16 feet	12 feet	E to F	0+00 to 1+55	Ditch Required
16 feet	12 feet	G to H	0+00 to 14+92	Ditch Required
16 feet	12 feet	G to I	0+00 to 11+33	Ditch Required
16 feet	12 feet	J to K	0+00 to 9+55	Ditch Required
16 feet	12 feet	L to M	0+00 to 11+00	Ditch Required
14 feet	12 feet	L to M	11+00 to 51+97	Outsloped
16 feet	12 feet	N to O	0+00 to 8+80	Ditch Required
16 feet	12 feet	P to Q	0+00 to 10+52	Ditch Required
16 feet	12 feet	R to S	0+00 to 43+37	Ditch Required
16 feet	12 feet	T to U	0+00 to 25+35	Ditch Required
16 feet	12 feet	V to W	0+00 to 69+65	Ditch Required

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.

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

CLEARING AND GRUBBING DISPOSAL. Scatter 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.

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

Ditch. Construct "V" ditch 2 feet wide and to a depth of 1 foot below subgrade. Subgrade shall be crowned at 4 to 6 percent. Construct ditchouts away from subgrade.

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 25 feet, or as staked on the ground, plus 25-foot approaches at each end.

Location: Intervisible but not greater than 750 feet.

GRADING

	<u>Back Slopes</u>	<u>Fill Slopes</u>
Rock	Vertical to 1/4:1	Not steeper
Common - side slopes 50% and over	1/2:1	than 1½:1
Common - side slopes less than 50%	3/4:1	
Common - turnpike (level) section	2:1	

Top of cutslope shall be rounded.

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

TURNAROUNDS. Increase subgrade width an additional 20 feet for a length of 20 feet.

EXHIBIT D

ROAD CONSTRUCTION AND IMPROVEMENT INSTRUCTIONS

<u>SEGMENT</u>	<u>STATION</u>	<u>WORK DESCRIPTION</u>
A to B	0+00	Point A. Begin road construction
	7+80	Drift material ahead to 8+75 to fill low spot.
	9+80	Drift material back to 8+75 to fill low spot.
	15+40	Drift material back 60 to 100 feet to ease grade.
	19+50	Install Culvert No. 1 (18" X 28').
	19+62	Construct landing to left.
	22+45	Install Culvert No. 2 (18" X 26').
	24+00	Point B. Construct landing.
C to D	0+00	Point C. Begin road construction.
	14+45	Point D. Construct landing.
E to F	0+00	Point E. Begin road construction.
	1+55	Point F. End road construction.
G to H	0+00	Point G. Begin road construction.
	0+30	Install Culvert No. 3 (18" X 28').
	14+92	Point H. Construct landing.
G to I	0+00	Point G. Begin road construction.
	2+00	Junction with J to K to left.
	5+70	Install Culvert No. 4 (18"x 28').
	11+33	Point I. Construct landing.

EXHIBIT D

ROAD CONSTRUCTION AND IMPROVEMENT INSTRUCTIONS

<u>SEGMENT</u>	<u>STATION</u>	<u>WORK DESCRIPTION</u>
J to K	0+00	Point J. Begin road construction.
	3+00	Drift material down to 3+60 to fill low spot.
	3+60	Install Culvert No. 5 (18" X 30').
	9+55	Point K. Construct landing.
L to M	0+00	Point L. Begin road construction. Construct 2-way junction.
	11+00	Ridgetop road construction. Outslope road.
	12+88	Junction with spur N to O to right.
	13+44	Spur enters onto old road.
	18+90	Junction with spur P to Q to right.
	24+00	Spur enters onto old RR grade.
	45+65	Spur leaves old RR grade.
	47+15	Spur enters back onto old RR grade. Junction w/ spur R to S to right.
	50+68	Begin shoefly construction to left.
51+97	Point M. End construction. Junction with spur V to W.	
N to O	0+00	Point N. Begin road construction. Construct 2-way junction.
	8+80	Point O. Construct landing.
P to Q	0+00	Point P. Begin road construction. Construct 2-way junction.
	10+52	Point Q. Construct landing.
R to S	0+00	Point R. Begin road reconstruction.
	6+75	Install Culvert No. 6 (18" X 48').
	16+68	Junction with spur T to U to right.
	24+09	Holes in road. Dig out and fill holes with common material from bank.

EXHIBIT D

ROAD CONSTRUCTION AND IMPROVEMENT INSTRUCTIONS

<u>SEGMENT</u>	<u>STATION</u>	<u>WORK DESCRIPTION</u>
R to S (Cont.)	24+50	Install Culvert No. 7 (18" X 52').
	27+50	Widen road, full bench. Drift material down to 29+20.
	29+20	End full bench. Push material to side of road.
	31+16	Install Culvert No. 8 (18" X 44').
	36+87	Install Culvert No. 9 (18" X 36').
	37+55	Dig into bank to ease curve.
R to S	39+82	Install Culvert No. 10 (18" X 30').
	40+50	Install Culvert No. 11 (24" X 46'). Remove logs and replace fill.
	43+37	Point S. Construct landing.
T to U	0+00	Point T. Begin road construction. Install Culvert No. 12 (18" X 34') across junction.
	6+20	Install Culvert No. 13 (18" X 34').
	23+40	Drift material ahead 100' to ease grade.
	25+35	Point U. Construct landing.
V to W	0+00	Begin road reconstruction. Install Culvert No. 14 (18" X 28').
	7+57	Install Culvert No. 15 (18" X 28').
	15+15	Install Culvert No. 16 (18" X 30').
	21+15	Install Culvert No. 17 (24" X 32').
	22+57	Install Culvert No. 18 (24" X 32').
	23+30	Install Culvert No. 19 (18" X 26').
	32+71	Install Culvert No. 20 (18" X 38').
	37+50	Install Culvert No. 21 (24" X 28').

EXHIBIT D

ROAD CONSTRUCTION AND IMPROVEMENT INSTRUCTIONS

<u>SEGMENT</u>	<u>STATION</u>	<u>WORK DESCRIPTION</u>
V to W (Cont.)	46+39	Install Culvert No. 22 (18" X 28').
	55+60	Remove old gate, salvage if possible and place near Point W. Junction with L to M shoefly to right.
	57+15	Junction with spur L to M to right.
	59+00	Concrete jersey and logs blocking road. Remove and place near Point W.
	69+65	Point W. End construction with tie into Stimson road. Block road with tank trap and concrete jersey when rock haul is complete.

EXHIBIT D
END-HAULING REQUIREMENTS

POINT	WASTE AREA TREATMENT
X	1, 2

End-Haul Areas General Requirements

Material shall not be intentionally side cast.

Clearing and grubbing debris shall be end-hauled.

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

Containment

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

Trees 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

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

Waste Area Treatment

- (1) Deposit at waste area, spread evenly, compact, and provide adequate drainage.
- (2) Pile woody debris separate from other waste material.

EXHIBIT E
 ROAD SURFACING

TYPE OF ROCK	SIZE OF ROCK	COMPACTED DEPTH	POINT TO POINT	STATION TO STATION	APPROX. TOTAL TRUCK MEASURE VOLUME
Crushed	3"-0"	10"	A to B	0+00 to 24+00	1,344 CY
Crushed	3"-0"	10"	C to D	0+00 to 14+45	809 CY
Crushed	3"-0"	10"	E to F	0+00 to 1+55	87 CY
Crushed	3"-0"	10"	G to H	0+00 to 14+92	836 CY
Crushed	3"-0"	10"	G to I	0+00 to 11+33	635 CY
Crushed	3"-0"	10"	J to K	0+00 to 9+55	535 CY
Crushed	3"-0"	10"	L to M	0+00 to 51+97	2,910 CY
Crushed	3"-0"	10"	N to O	0+00 to 8+80	493 CY
Crushed	3"-0"	10"	P to Q	0+00 to 10+52	589 CY
Crushed	3"-0"	10"	R to S	0+00 to 43+37	2,429 CY
Crushed	3"-0"	10"	T to U	0+00 to 25+35	1,420 CY
Crushed	3"-0"	6"	V to W	0+00 to 69+65	2,298 CY
Crushed	3"-0"	10"	X	0+00 to 1+00	56 CY
			NO. OF CURVES	POINT TO POINT	
Crushed	3"-0"	10"	4	A to B	60 CY
Crushed	3"-0"	10"	3	C to D	45 CY
Crushed	3"-0"	10"	1	E to F	15 CY
Crushed	3"-0"	10"	2	G to H	30 CY
Crushed	3"-0"	10"	2	G to I	30 CY
Crushed	3"-0"	10"	3	J to K	45 CY
Crushed	3"-0"	10"	6	L to M	90 CY
Crushed	3"-0"	10"	2	N to O	30 CY
Crushed	3"-0"	10"	3	P to Q	45 CY
Crushed	3"-0"	10"	5	R to S	75 CY
Crushed	3"-0"	10"	4	T to U	60 CY
Crushed	3"-0"	10"	14	V to W	126 CY

EXHIBIT E
 ROAD SURFACING

TYPE OF ROCK	SIZE OF ROCK	COMPACTED DEPTH	NO. OF T.O.	POINT TO POINT	APPROX. TOTAL TRUCK MEASURE VOLUME
TURNOUTS					
Crushed	3"-0"	10"	3	A to B	84 CY
Crushed	3"-0"	10"	2	C to D	56 CY
Crushed	3"-0"	10"	2	G to H	56 CY
Crushed	3"-0"	10"	1	G to I	28 CY
Crushed	3"-0"	10"	1	J to K	28 CY
Crushed	3"-0"	10"	6	L to M	168 CY
Crushed	3"-0"	10"	1	N to O	28 CY
Crushed	3"-0"	10"	1	P to Q	28 CY
Crushed	3"-0"	10"	5	R to S	140 CY
Crushed	3"-0"	10"	3	T to U	84 CY
Crushed	3"-0"	10"	9	V to W	153 CY
LANDINGS			NO. OF LDGS.	LOCATION	
Crushed	3"-0"	10"	1	Sta. 19+62 A to B	100 CY
Crushed	3"-0"	10"	1	Point B	100 CY
Crushed	3"-0"	10"	1	Point D	100 CY
Crushed	3"-0"	10"	1	Point H	100 CY
Crushed	3"-0"	10"	1	Point I	100 CY
Crushed	3"-0"	10"	1	Point K	100 CY
Crushed	3"-0"	10"	1	Point O	100 CY
Crushed	3"-0"	10"	1	Point Q	100 CY
Crushed	3"-0"	10"	1	Point S	100 CY
Crushed	3"-0"	10"	1	Point U	100 CY
JUNCTIONS			NO. OF JCTS.		
Crushed	3"-0"	10"	1	Point L	45 CY
Crushed	3"-0"	10"	1	Point M	67 CY
Crushed	3"-0"	10"	1	Point N	36 CY
Crushed	3"-0"	10"	1	Point P	45 CY

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

On road segments with multiple gradations of crushed rock, the coarser gradation shall be spread and processed prior to spreading the finer gradation rock.

Turnouts and Turnarounds shall be rocked concurrently with the road.

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

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 E. 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.

<u>For 3"-0"</u>	Passing	3½" sieve	100%
	Passing	3" sieve	95-100%
	Passing	1½" sieve	55-75%
	Passing	¼" sieve	30-45%

Of the fraction passing 1/4" sieve, 40% to 60% shall pass the No. 10 sieve.

For 24"-6" Riprap 50 percent or more of the material shall measure at least 24 inches in one dimension. Material shall be clean, well graded, and free of 2"-0" fines.

Control of riprap gradation shall be by visual inspection by STATE.

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

The rock shall meet the quality and size specifications in Exhibit E. A sample of the rock shall be supplied to STATE for testing and approval prior to spreading or stockpiling. 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 depth measurement. STATE shall be given 24 hours' notice prior to rocking.

Depth Measurement. Surfacing 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 1.3 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 E. The average depth for each road segment shall be the specified depth or greater.

Junctions shall have a surfaced area of at least 20 square yards each at the compacted depths specified in Exhibit E.

Turnouts shall have a surfaced area of at least 70 square yards each at the depths shown in Exhibit E.

Landings shall have a surfaced area of at least 280 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:

Subgrade shall be crowned at 4 to 6 percent unless otherwise specified.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All segments	1

Fills. Embankments and fills shall be placed in (approximately) horizontal layers not more than 8 inches in depth. Each layer shall be separately, and thoroughly, compacted. Compaction equipment shall be operated over the entire width of each layer until visible deformation of the layers ceases 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 segments	1, 2, 3, 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 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 segments	1

EXHIBIT E

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) 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.
- (3) 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.

- (4) Crawler Tractors. D-7 Caterpillar or equivalent or larger.

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 staked, they shall extend for a distance of at least 20 feet beyond the developed rock source. Overburden and woody debris shall be hauled to a designated waste area. 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. Said bench shall be easily accessible with tractors.
- (4) Blasting shall be accomplished using timing devices, delay charges, low intensity shots, or other suitable means to contain as much material as possible in the rock pit prism.
- (5) Pit face shall be developed in a uniform manner.
- (6) Oversized material that is produced or encountered during development shall be broken down and utilized for crushing.
- (7) 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.
- (8) 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 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 shall be constructed of corrugated galvanized or aluminized steel. Corrugated polyethylene may be used for sizes up to 36 inches in diameter. 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.

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 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" 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 a 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.

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

Dia.	Steel Pipe Gauge	Band Gauges	Band Widths (")			Hugger Band Widths (")	
			Annular	Helical	Dimpled	Annular	Helical
12-15	16	16	7	12	12	13 1/8	10 1/2
18-24	16	16	12	12	12	13 1/8	10 1/2
30-36	16	16	12	12	12	13 1/8	10 1/2
42	14	16	12	12	NA	13 1/8	10 1/2
48	14	16	24	24	NA	13 1/8	10 1/2
54	14	16	24	24	NA	13 1/8	10 1/2
60	12	16	24	24	NA	13 1/8	10 1/2
66-72	12	16	24	24	NA	13 1/8	10 1/2
78	12	16	24	24	NA	13 1/8	10 1/2
84	12	16	24	24	NA	14 3/4	10 1/2
90-120	12	16	26	26	NA	NA	NA

Culverts larger than 60" in diameter shall have 3" x 1" corrugations.

Polyethylene culverts shall be double walled and meet the requirements of AASHTO M-294-901, Type S.

EXHIBIT G
 CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	ROAD SEGMENT POINT TO POINT	STATION
1	18	28	A to B	19+50
2	18	26	A to B	22+45
3	18	28	G to H	0+30
4	18	28	G to I	5+70
5	18	30	J to K	3+60
6	18	48	R to S	6+75
7	18	52	R to S	24+50
8	18	44	R to S	31+16
9	18	36	R to S	36+87
10	18	30	R to S	39+82
11	24	46	R to S	40+50
12	18	34	T to U	0+00
13	18	34	T to U	6+20
14	18	28	V to W	0+00
15	18	28	V to W	7+57
16	18	30	V to W	15+15
17	24	32	V to W	21+15
18	24	32	V to W	22+57
19	18	26	V to W	23+30
20	18	38	V to W	32+71
21	24	28	V to W	37+50
22	18	28	V to W	46+39

The intake ends of culverts shall be marked by driving or placing steel posts within 6 inches of the downgrade side. Posts shall be painted with a rust-resistant paint and be a minimum of 5 feet long, with the spade driven 2 feet into the ground.

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

Polyethylene Culverts shall be constructed of corrugated, double-walled polyethylene.

Tamping is required.

All metal culverts scheduled for replacement shall be removed from STATE land.

EXHIBIT H

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 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. 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>
Highland Bentgrass	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.

EXHIBIT I

LOG FILL REPLACEMENT SPECIFICATIONS

PILE DRIVING AND EXCAVATION

Drive eleven (11) HP10x42 pilings, 30 feet long, vertically into the ground approximately 13 feet from the center of the existing road. Piling shall be driven through the existing road fill on nine (9) foot centers, and shall be driven to refusal or the full depth. If refusal is encountered, piling shall be trimmed off two (2) feet above existing ground level.

After the pilings have been driven, the existing fill shall be removed and end-hauled to Waste Area No. 1 at the location marked in the field and shown on Exhibit A. Logs and common material shall be separated. The bottom of the excavation shall be sloped down towards the area of highest water concentration to facilitate drainage.

FILL CONSTRUCTION AND DEADMAN INSTALLATION

Weld 4"x4" galvanized angle iron horizontally between the three (3) H pilings that are at the lowest point of the excavation. Weld the pieces approximately two (2) feet above excavated ground level. Drive four (4) sections of 4"x4" galvanized angle iron vertically into the ground on two (2) foot centers, between each piling and next to the horizontal angle iron pieces. Weld all sections of angle iron together. Angle iron may be obtained from the STATE.

4" X 10" X 10' pressure treated boards shall be placed horizontally between all piling. Boards shall be placed to a height sufficient to contain the reconstructed fill. Cut boards as necessary to fit snugly between the flanges on the H pilings. ½" diameter U-bolts shall be bolted and tack welded onto all H pilings at approximately four (4) and twelve (12) feet above excavated ground level. These will be for attaching the wire rope that will tie back the deadmen.

Place a layer of two (2) to three (3) foot diameter boulders, approximately four (4) feet deep, in the bottom of the excavation. The boulders shall be obtained from the Barney Pit. Once boulders are in place, the deadmen shall be placed and tied to the H pilings with cable. The deadmen shall be HP10x42 piling. All driven H pilings shall be attached to a deadman. The cables used for the deadman shall be 5/8^{ths} inch wire rope with an eye in one end. The eye shall be fastened to the u-bolts that are attached to the pilings and the other end of the wire rope shall be wrapped twice around the deadmen and connected with three (3) cable clamps. Another layer of rock shall now be added on top of the deadmen and boulders. This rock shall be smaller in size and may be obtained from the Sad Sunday Pit. The rock shall get progressively smaller as the fill layers are placed. At approximately twelve (12) feet from excavated ground level, the second set of deadmen shall be anchored into the H pilings. Continue to add rock above deadmen to complete fill. The fill shall be brought up to the level of the existing road prior to excavation.

The road shall be finished with approximately 56 cubic yards of 3"-0 crushed rock as specified in Exhibit E. This crushed rock may be obtained from the Barney Pit stockpile.

EXHIBIT I
LOG FILL REPLACEMENT

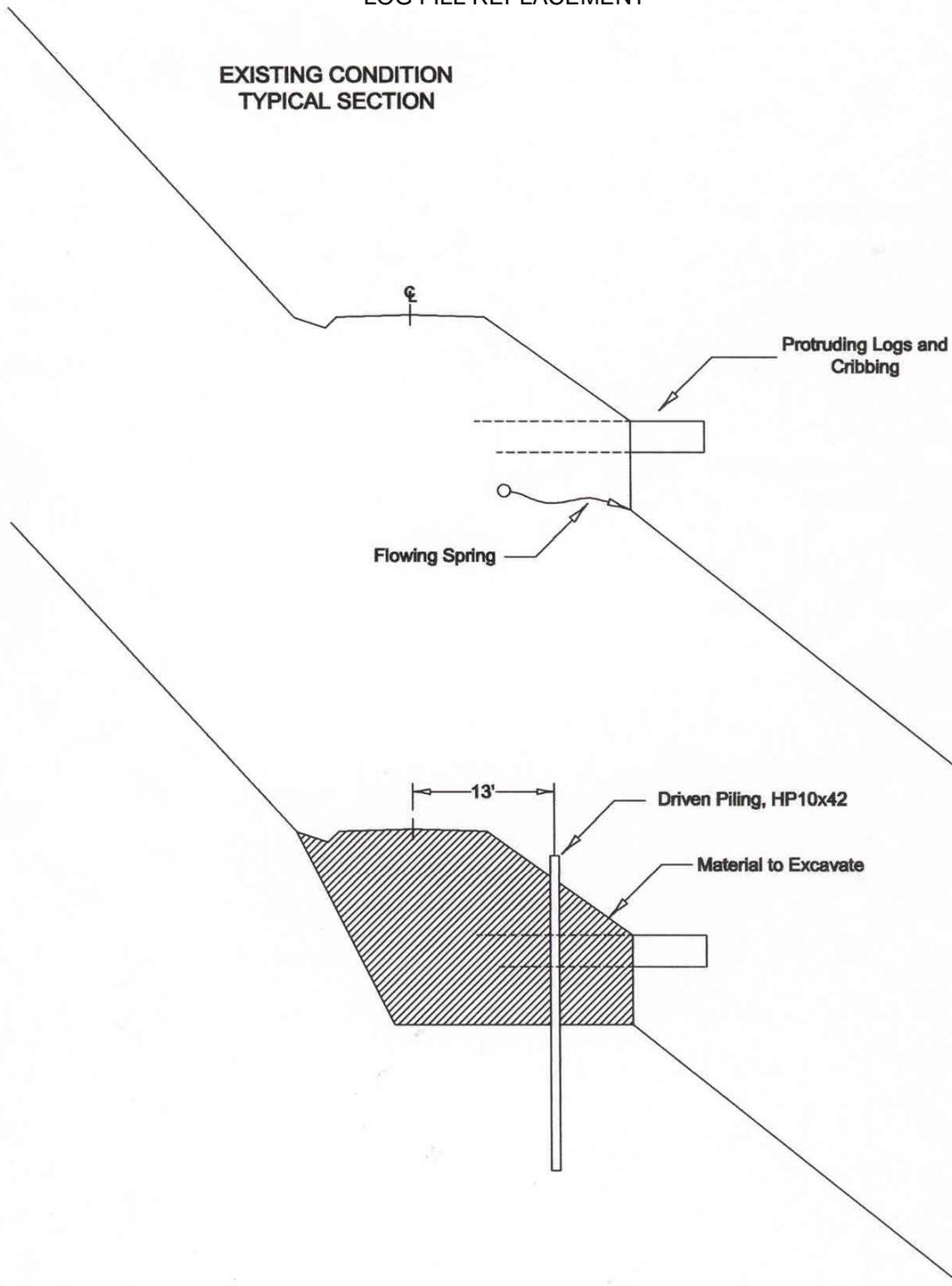


EXHIBIT I
LOG FILL REPLACEMENT

