

Oregon Department of Forestry

2600 State St Salem OR 97310 PART III: EXHIBITS

EXHIBIT B

TIMBER SALE OPERATIONS PLAN

(See page 2 for instructions)

Date Received by State):		(5) State B	rand Information (Co	mplete)
(1) Contract Number:	KL-341-2022-	GF8617-01			
(2) Sale Name:	Sugar Pine				
(3) Contract Expiration	Date: 10/22/20)25			
(4) Purchaser Name:					
(6) State Representative	es:				
Name		Circle One	Phone No.	Cell No.	Alt Phone
	L	ogging Projects Al	ı		
		ogging Projects Al	I		
	L	ogging Projects Al	1		
		ogging Projects Al			
(7) Purchaser Represer <u>Name</u>	ntatives:	Circle One	Phone No.	Cell No.	Alt Phone
<u>ivame</u>		ogging Projects A	11	1	1
		ogging Projects A			1
		ogging Projects A	_	1	
		ogging Projects A	_	1	-
			_	-	
		ogging Projects A	_		
		ogging Projects A	_		
	L	ogging Projects A			
8) Name of Subcontract Project No. Subcont	ors and Start Dat tractor Name.		Completion Date	<u>Cell No.</u>	Alt Phone
FTOJECT NO. SUBCOM	iracioi Name.	Start Date	1	<u> </u>	<u> </u>
		1	1		
		1	-		
		-	_		
] []		
	contractor Nam	<u>ne.</u>	Start Date	Cell No.	Alt Phone
ELLING					
'ARDING					
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.



Oregon Department of Forestry

2600 State St Salem OR 97310

PART III: EXHIBITS

EXHIBIT B INSTRUCTION SHEET FOR OPERATIONS PLAN

SUBMIT ONE COPY OF PLAN STATE

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

Explanation of Item No.(from Page 1)

- (5) All sales require you to use a brand furnished by STATE. If the State brand has not been assigned when the plan is submitted, it will be furnished and assigned later. Complete drawing. If more than one brand is assigned to the sale, complete both drawings.
- (6) The contract requires you to have a designated representative available on the sale area or work location who is authorized to receive in your behalf any notice or instruction given by STATE and to take action in regard to performance under the contract. If logging and project work is widely separated, a representative is required for each.
- (7) The STATE representative will be designated when your plan is approved and is the person who will inspect and issue instructions regarding performance.
- (8) Show names of subcontractors to be used for any or all phases of the operations. If subcontractors are not Known, or are changed later, give notification to the STATE representative prior to commencement of work by subcontractor.
- (9) 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 required by the timber sale contract. Provide spur road specifications
 - 3. Locations of proposed tractor yarding roads. Show if and how marked on the ground.
 - 4. Locations of temporary stream crossings.
 - 5. List the sequence of performing project work.
 - 6. Location of rock sources attach pit development plans.

() 1	Cable Landing, with numbers for sequence.
A	Tractor Landing with alphabetical sequence
	Approximate setting boundary.
#/	Spur truck roads.
	Tractor yarding roads.
X	Temporary stream crossings.



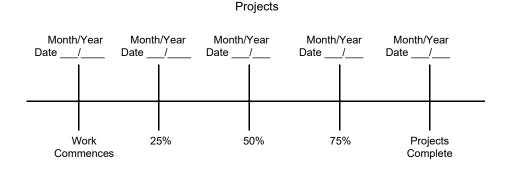
Oregon Department of Forestry

2600 State St Salem OR 97310

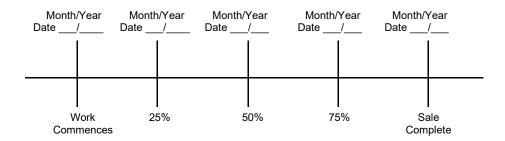
PART III: EXHIBITS EXHIBIT B OPERATIONS PLAN

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.



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, PURCHASER's 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



Oregon Department of Forestry EXHIBIT C - SAWMILL GRADE (EASTSIDE SCALE) SCALING INSTRUCTIONS - LOCATION APPROVAL - BRAND INFORMATION Klamath-Lake - EOA

(1) (2) (3)	FROM: Klamath-L (State Forestr Address: 3200 D	hird Party ake y District) ELAP RD	□ Date □ Date Scaling Organi Phone (54				(9) SALE NAME: Sugar Pine COUNTY: Klamath (10) STATE CONTRACT NUMBER: KL-341-2022-GF8617-01 (11) STATE BRAND REGISTRATION NUMBER: (12) STATE BRAND INFORMATION:	
(+)	Mailing Address: Phone Number:							
(5)	MINIMUM SC	CALING	SPECIFICAT	IONS			(13) PAINT REQUIRED: YES ☑ COLOR: Orange	
	SPECIES	M	IINIMUM NET	VOL	UME		(14) SPECIAL REQUESTS (Check appl	icable)
	Conifers		10				PEELABLE CULL (all species)	
	Hardwoods		10				NO DEDUCTIONS ALLOWED FOR	\square
							MECHANICAL DAMAGE	
	*Apply minimum volui		whole logs ove	r 20' E	astside)	PENCIL BUCK	
(6)	EASTSIDE SCALE:		a 1 foot multiple	o with	4 inch	oo of	ADD-BACK VOLUME - Deductions due to delay	\square
	*Log lengths will be minimum trim.		·	s, with	4 Inch	es or	OTHER:	
	*Use Region 6 actual t	taper rule.	. Logs over 40'.	YES	S N	0	(15) REMARKS :	
(7)	Weight Scale Samp	ole			5	Z		
(as	APPROVED SCALI LOCATIONS shown on the ODF App ations web-site)		Species	Yard	Truck	Weight	Operator's Name (Optional inclusion by District): (16) SIGNATURES:	
							Purchaser or Authorized Representative D	ate
							State Forester Representative	ate
							State Forester Representative PRINT NAME	



Oregon Department of Forestry EXHIBIT C - SAWMILL GRADE INSTRUCTIONS FOR EXHIBIT C Klamath-Lake - EOA

Pacific Rim Log Scaling Bureau, Inc.

Yamhill Log Scaling & Grading Bureau

P.O.Box 709, Forest Grove, OR 97116

Email: yamhilllog@frontier.com

Email: office@prlsb.com

8288 28th Court North East, Lacey, WA 98516

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

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

- Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires logging and hauling to be complete, recall branding hammers.
- Designate Third Party Scaling Organization (TPSO). (2)

Columbia River Log Scaling & Grading Bureau P.O.Box 7002, Eugene, OR 97401 Phone: (541) 342-6007 Fax: (541) 342-2631

Email: services@crls.com

Mountain Western Log Scaling & Grading Bureau

P.O.Box 580, Roseburg, OR 97470

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

Northwest Log Scalers Inc.

6137 NE 63rd St, Vancouver, WA, 98661

Phone: (360) 553-7212 ext. 4 Fax:(360) 553-7213

Email: info@nwlogscalers.com

State District office, address and phone.

- (4) Enter Purchaser's business name, address, and phone number as it appears on the Contract.
- Minimum Scaling Specifications. Scaling diameter inches is used for pencil buck minimum diameter. (5)
- Eastside Region 6 actual taper segment scale. Check Yes or No. Special Service Rules on file with TPSO. See: Segment Scaling and (6) Grading of Long Logs - All Species - State Forestry Department Scaling Practices (Northwest Log Rules Eastside). Items with * follow U.S. Forest Service Eastside rules.
- Weight Scale Sample Check box if sale is to be a Weight Scale Sample. All specifies for handling, scaling and processing will be attached or explained in the Remarks section item (15).
- Show scaling locations only applicable to TPSO. Location name should appear as it does on the ODF Approved Scaling Location web site: https://apps.odf.oregon.gov/Divisions/management/asset management/scalinglocation.asp Locations with scaling and processing directions specific to their location should be on a separate form. Species should be identified if not capable of receiving "all" species. Check appropriate box for either: yard, truck scale, or weight. Refer to the web site listed above for the locations approval status.
- (9)Enter sale name and county.
- Enter sale Contract number. (10)
- Enter Oregon's State Brand Registry Number (REQUIRED). (11)
- Show brand assigned to timber sale. One brand only. If more than one brand is assigned to the sale: (1) make a separate form for each brand (12)and (2) on each form, explain and show other brand(s) in the Remarks section item (15).
- Check yes for Paint Required and designate "Orange" for color. Non required removal volumes may sometimes require blue paint. (13)
- (14)Special Requests. These are requests that will be applied to ODF timber sales. All boxes applicable to the timber sales designated in the Exhibit C form must be "marked". If "Other" is indicated, it must contain a description and any necessary comments.
- Use this space to designate any weight scale sample instructions or any other explanations to clarify scaling, processing and/or mailing requirements. If additional scaling locations are approved, revise original or current form showing all (old and new) locations. Check REVISION box at top of form and explain under remarks. Route as indicated.
- Require purchaser to sign and date completed form in addition to State Forester Representative, sign and print name on the form. Signatures not required on revisions.



Oregon Department of Forestry EXHIBIT C - PULP SORT PROCESSING INSTRUCTIONS - LOCATION APPROVAL BRAND INFORMATION

Klamath-Lake, EOA

(1)	ORIGINAL REGISTRATION	(9) SALE NAME: Sugar Pine
	REVISION NUMBER 000 Date	COUNTY: Klamath
	CANCELLATION Date	(10) STATE CONTRACT NUMBER:
(2)	TO:	KL-341-2022-GF8617-01
	(Approved Pulp Processing Facility)	(11) STATE BRAND REGISTRATION NUMBER:
(3)	FROM: Klamath-Lake Phone (541) 883-5681 (State Forestry District)	(12) STATE BRAND INFORMATION:
	Address: 3200 DELAP RD	
	KLAMATH FALLS,OR 97601	_) ^ (
(4)	PURCHASER:	
(5)	Scaling Bureau (TPSO) Processing Weight receipts:	
	Mailing Address:	(13) REMARKS :
	Phone Number:	
(6)	STATE Definition of Approved Pulp Sort:	Operator's Name (Optional inclusion by District):
	• Top portion of the tree (tops).	
	All logs with a diameter (Big End) greater	(14) SIGNATURES:
	than <u>10</u> inches marked with blue paint.	
(7)	PULP FACILITY PROCESSING INSTRUCTIONS:	Purchaser or Authorized Representative Date
	Pulp loads shall be weighed in lieu of scaling.	i dichasel of Additionized Representative
	• One Ton = 2000 lbs (Short Ton).	
	Pulp loads shall have a yellow Log Load Receipt attached	State Forester Representative Date
	 Gross weight and truck tare weight for each load shall be machine printed on the weight receipt. 	
	Weigher shall sign the weight receipt.	State Forester Representative PRINT NAME
	 Weigher shall record the Log Load Receipt number on the weight receipt. 	
	• Weigher shall attach the Weight receipt to the Log Load Receipt and mail them weekly to the TPSO processing the Weight receipt.	
(8)	TPSO PROCESSING INSTRUCTIONS	
	Submit data files daily (or each day of activity).	
	Mail or deliver scale tickets weekly to ODF Headquarters	n

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

General Distribution: TPSO, Approved Scaling Locations and Purchaser.



Oregon Department of Forestry EXHIBIT C - PULP SORT INSTRUCTIONS FOR EXHIBIT C

Klamath-Lake, EOA

- (1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires logging and hauling to be complete, recall branding hammers.
- (2) Approved Pulp Processing Facility. Write in as written in the Approved Log Delivery Location https://apps.odf.oregon.gov/Divisions/management/asset management/scalinglocation.asp
- (3) State District office, address and phone.
- (4) Enter Purchaser's business name, address, and phone number as it appears on the Contract.
- (5) Third Party Scaling Organization that will be processing the weight tickets, mailing address, and phone number.

Columbia River Log Scaling & Grading Bureau P.O.Box 7002, Eugene, OR 97401 Phone: (541) 342-6007 Fax: (541) 342-2631

Email: services@crls.com

Mountain Western Log Scaling & Grading Bureau P.O.Box 580, Roseburg, OR 97470 Phone: (541) 673-5571 Fax: (541) 672-6381 Email: info@southernoregonlogscaling.com

Northwest Log Scalers Inc. 6137 NE 63rd St, Vancouver, WA, 98661 Phone: (360) 553-7212 ext. 4 Fax:(360) 553-7213 Email: info@nwlogscalers.com Pacific Rim Log Scaling Bureau, Inc. 8288 28th Court North East, Lacey, WA 98516 Phone: (360) 528-8710 Fax: (360) 528-8718 Email: office@prlsb.com

Yamhill Log Scaling & Grading Bureau P.O.Box 709, Forest Grove, OR 97116 Phone: (503) 359-4474 Fax: (503) 359-4476 Email: yamhilllog@frontier.com

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

FOREST ROAD SPECIFICATIONS

CONSTRUCTION

SUBGRADE WIDTH	RUNNING WIDTH	POINT TO POINT	DRAINAGE
15 feet	12 feet	3E to 3F	Shape to Drain
15 feet	12 feet	S to W	Shape to Drain
15 feet	12 feet	A to B	Shape to Drain
15 feet	12 feet	2P to 2Q	Shape to Drain
15 feet	12 feet	C to D	Shape to Drain
15 feet	12 feet	J to L	Shape to Drain
15 feet	12 feet	2L to 2O	Shape to Drain
15 feet	12 feet	2B to 2E	Shape to Drain
15 feet	12 feet	2X to 3A	Shape to Drain
15 feet	12 feet	E to G	Shape to Drain
15 feet	12 feet	S to T	Shape to Drain
15 feet	12 feet	M to N	Shape to Drain
15 feet	12 feet	3I to 3J	Shape to Drain
15 feet	12 feet	I to K	Shape to Drain
15 feet	12 feet	3G to 3H	Shape to Drain
15 feet	12 feet	2H to 2I	Shape to Drain
15 feet	12 feet	Z to 2A	Shape to Drain
15 feet	12 feet	2T to 2U	Shape to Drain
15 feet	12 feet	2V to 2W	Shape to Drain
15 feet	12 feet	Q to R	Shape to Drain

FOREST ROAD SPECIFICATIONS

CONSTRUCTION

SUBGRADE WIDTH	RUNNING WIDTH	POINT TO POINT	DRAINAGE
15 feet	12 feet	V to X	Shape to Drain
15 feet	12 feet	2R to 2S	Shape to Drain
15 feet	12 feet	3C to 3D	Shape to Drain
15 feet	12 feet	F to H	Shape to Drain
15 feet	12 feet	U to Y	Shape to Drain
15 feet	12 feet	2Y to 2Z	Shape to Drain
15 feet	12 feet	2F to 2G	Shape to Drain
15 feet	12 feet	O to P	Shape to Drain
15 feet	12 feet	3B to 3L	Shape to Drain
15 feet	12 feet	2J to 2K	Shape to Drain
15 feet	12 feet	2C to 2D	Shape to Drain
15 feet	12 feet	2M to 2N	Shape to Drain
15 feet	12 feet	3K	Shape to Drain

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

Where clearing limits have not been marked, the clearing limits shall extend 4 feet back of the top of the cutslope and 4 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.

FOREST ROAD SPECIFICATIONS

For road segments with abundant down trees across the road surface this material will be removed and piled to burn in stand openings adjacent to the right of way prior to grubbing work.

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 left lodged against standing trees.

GRUBBING CLASSIFICATION.

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

<u>CLEARING AND GRUBBING DISPOSAL</u>. Scatter in stable locations through openings in the timber outside of the cleared right-of-way, except areas where end-haul is required. In areas where end-haul is required, clearing and grubbing debris shall be fully contained and hauled to a designated waste area. Clearing and grubbing debris shall be left in a stable location, and not left lodged against standing trees.

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

Unless road plans show otherwise, all roads shall be on a balanced cross section, except when the slope is over 60 percent, the road shall be on full bench for the width specified.

Suitable excavated material shall be used for the formation of fills, shoulders, and drainage structure backfills. Embankment materials shall be free of woody debris, brush, muck, sod, frozen material, and other deleterious materials.

Sidecast includes any road generated excess excavation material which is not essential as part of the road prism, is not compacted, and is below the roadway. Sidecast shall not be placed where it will enter a stream course. Leaving sidecast below the road is only permissible if specifically allowed in "Full Bench and End Haul Requirements" in this Exhibit.

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

<u>ROAD WIDTH LIMITATIONS</u>. PURCHASER shall obtain advance written approval from STATE to construct the road to a greater width than specified.

<u>Curve Widening</u>. Widen the inside shoulder of all curves as specified in the plans or as follows: 400 divided by the radius of the curve equals the amount of extra width.

DRAINAGE

<u>Subgrade</u>. Subgrade shall be crowned insloped at 4 to 6 percent as shown on the "Forest Road Specifications" table in this Exhibit.

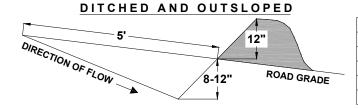
FOREST ROAD SPECIFICATIONS

<u>Ditchouts</u>. Construct ditchouts to drain away from subgrade at locations marked in the field or as directed by STATE.

EXHIBIT E

WATERBAR SPECIFICATIONS

PROFILE



SPACING OF WATERBARS				
ROAD GRADE	DISTANCE			
< 6 %	400'			
6 - 10 %	200'			
11 - 15 %	150'			
> 15 %	100'			

CROSS SECTION

DITCHED

OUTSLOPED

TOP OF WATERBAR

ROAD GRADE

BOTTOM OF WATERBAR

BOTTOM OF WATERBAR

BOTTOM OF WATERBAR

CONSTRUCT DITCHOUT THRU ANY EXISTING BERM. CROSS DRAINAGE GRADIENT MINIMUM 3%.

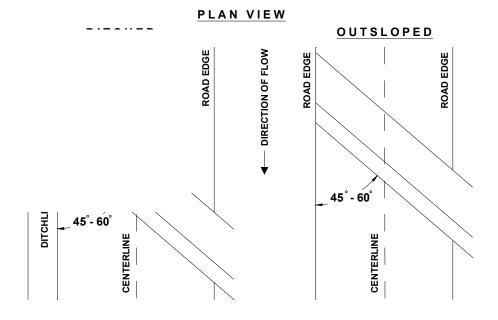


EXHIBIT F

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Description of Work to be Done

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

<u>Clearing</u> - Brush, logging Slash, and other debris shall be cleared from planting sites and piled in windrows or piles, so that 80 percent or more of the soil organic layer is exposed. All woody vegetation other than trees is defined as brush in this exhibit.

<u>Piles</u> - shall be located at least 30 feet apart and shall be no more than 30 feet long. Piles shall be located inside the project area designated for piling and shall be more than 30 feet from any edge or standing conifer tree. Piles shall be built to a height of 3 to 4 feet

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

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

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

EXHIBIT F

SPECIFICATIONS FOR BRUSH AND SLASH SHOVEL PILING

Equipment Type, Equipment Operation, and Conduct of Work

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

<u>Shovel</u> - shall be a track-mounted machine with a ground-pressure rating of not more than <u>6.8</u> PSI and a net horsepower of <u>70</u> or more. The machine shall be capable of a minimum horizontal reach of <u>26</u> feet and a minimum vertical reach of 16 feet.

- Excavator-shovel: Bucket shall be a hydraulically controlled, "clamshell-style bucket with rake arms,"
 with a 360-degree continuous rotation, and tooth length on rake arm shall be greater than 12 inches
 long, unless otherwise approved in writing by STATE. "Clamshell-style bucket with rake arms" shall
 be hydraulically controlled to operate bucket in a horizontal position for piling Slash.
- Log Loader shovel: Bucket shall be a hydraulically controlled, "clamshell-style bucket with rake arms," with a 360-degree continuous rotation, and tooth length on rake arm shall be greater than 12 inches long, unless otherwise approved in writing by STATE. "Clamshell-style bucket with rake arms" shall be hydraulically controlled to operate bucket in a vertical position for piling Slash.

Equipment	Rate	Hours	Appraised Value
Excavator	\$ 100.00 / hour	2,006	\$206,000.00
Log Loader	\$ 100.00 / hour	2,006	\$206,000.00

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

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

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

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

EXHIBIT G

TREE CLUMP GUIDE

Guide for Medium and Large Clumps

The goal of leaving clumps is to create or maintain variable spatial patterns in the treatment units. The targets should not be applied in a rigid manner, but instead used as "guard rails" to inform whether too little or too much variability is being created. Use existing tree and biophysical conditions to create variable patterns within and across treatment units and avoid trying to force the same density and variability on every acre. For example, medium and large clumps can be concentrated in areas where good leave tree candidates exist. Underlying variation in soils, topography, and disturbance processes can also be used to adjust clumping levels across a unit (e.g., leave more clumps on north-facing slopes).

Definitions:

- Aspen clump a group of at least 5 live aspen trees at least 5 feet tall within 30 feet of another aspen tree in the clump.
- Healthy/desirable tree fuller crown, darker foliage, and free of broken/forked tops, mistletoe or insect damage.
- Mature tree a tree that appears greater than 150 years old. Van Pelt rating system (Van Pelt 2008) would be used to identify trees over 150 years old.
- Medium clump a group of 5 to 9 trees within 20 feet of another tree in the clump.
- Large clump a group of 10 to 15 trees within 20 feet of another tree in the clump.
- Distances are measured slope distance to face of the tree.

Guide:

- 1. Leave one medium clump per 1 acre and one large clump per 3 acres.
- 2. Trees in a clump shall be all one species.
- 3. Medium clumps should generally be created using younger, desirable trees, but mature and/or large diameter trees may exist in this condition.
- 4. Large clumps should generally be created using healthy trees in close proximity, but mature and/or large diameter trees may exist in this condition.
- 5. Do not place a clump of young trees within 40 feet of a mature tree or within 60 feet of an aspen clump.