

# Oregon Department of Forestry EXHIBIT C - SAWMILL GRADE (WESTSIDE SCALE) SCALING INSTRUCTIONS - LOCATION APPROVAL - BRAND INFORMATION Astoria - NWOA

(1) ORIG	GINAL REGISTRATI	_				(9)	SALE NAME:	Green Gold	
REV	ISION NUMBER _	000				_ (	COUNTY:	Clatsop	
CAN	CELLATION	☐ Dat	e <u> </u>			- (10)	STATE CONTI	RACT NUMBER:	
(2) TO:						<u>_</u>	AT-341-2021-V	V00741-01	
	(Third Par	rty Scaling Orgar	nization)			(11)	STATE BRAND	D REGISTRATION NU	MBER:
(3) FRO	M: Astoria	Phone <u>(503</u>	325-5	451		_			
	(State Forestry Distri	· ·				(12)	STATE BRANI	D INFORMATION:	
Addr						-			
	ASTORIA,OR 9	97103				_	<b>\</b>		
(4) PUR	CHASER:					_		(	
Maili	ng Address:					_	(		
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Phor	ne Number:					(40)	DAINT DECLU	750 V50 F	7
(5)	MINIMUM SCALII	NG SPECIFICA	ATIONS	•		1 ` ′	PAINT REQUIF	RED: YES ☑ ange	1
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Har	dwoods	10	)					S ALLOWED FOR	
*Ann	oly minimum volume tes	st to whole leas o	vor 40' \	Mostsid	lo	]   ME	CHANICAL DA	AMAGE	
	TSIDE SCALE:	st to whole logs o	VEI 40	v v estsid	ie	AD	D-BACK VOLU	ME - Deductions due to d	delay ☑
` '	Region 6 actual taper ru	le Logs over 40'				ОТН	IER :		
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	ROVED SCALING CATIONS	se	ģ	<del>S</del>	ght				
_	on the ODF Approved	Species	Yard	Truck	Weight				
LOCATIONS W	eb-site )	o				1 '	` '	nal inclusion by District):	
						(16)	SIGNATURES	:	
						-			
						ļ .	Purchaser or Au	thorized Representative	Date
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						_	State Forester R	Representative	Date
							State Forester R	Representative PRINT NAI	<u>————</u>



#### Oregon Department of Forestry EXHIBIT C - SAWMILL GRADE INSTRUCTIONS FOR FORM 343-307a (rev. 11/11) Astoria - NWOA

- (1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires logging and hauling to be complete, recall branding hammers, date and sign where indicated, write diagonally across page "CANCEL", and send to TPSO.
- (2) Designate Third Party Scaling Organization (TPSO).

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

Pacific Log Scaling & Grading Bureau, Inc. P.O.Box 23939, Portland, OR 97281 Phone: (503) 684-5599 Fax: (503) 639-4880

Email: PacLogScale@sol.com

- (3) State District office, address and phone.
- (4) Enter Purchaser's business name, address, and phone number as it appears on the Contract.
- (5) Minimum Scaling Specifications.
- (6) Westside Region 6 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) 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).
- (8) Show scaling locations only applicable to TPSO. Location name should appear as it does on the ODF Approved Scaling Location web site: http://www.odf.state.or.us/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.
- (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 (15).
- (13) Check yes for Paint Required and designate "Orange" for color. Non required removal volumes may sometimes require blue paint.
- (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.
- (15) Use this space to designate any weight conversion factors, per load volumes, 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.
- (16) Require purchaser to sign and date completed form in addition to State Forester Representative, sign and print name on the form.

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.



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

Astoria, NWOA

(1)	ORIGINAL	L REGISTR	ATION 🗆	Date	(9)	SALE NAME:	Green Gold		
	REVISION	NUMBER	000 🗆	Date		COUNTY:	Clatsop		
	CANCELL	ATION		Date	 (10)	STATE CONTRA	ACT NUMBER:		
(2)	TO:				_	AT-341-2021-W0	00741-01		
	_	(App	roved Pulp Proces	ssing Facility)	(11)	STATE BRAND	REGISTRATION NUMBI	ER:	
(3)	FROM:	Astoria	Phone	(503) 325-5451	(12)	STATE BRAND I	NFORMATION:		
		•	restry District)			<u></u>			
	Address:	92219 H\			_	<b> </b>	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
			A,OR 97103		-	) =	(		
(4)	PURCHAS	SER:			-				
(5)	Scaling Bu	ureau <b>(TPS</b> 0	O) Processing Weig	ht receipts:					
	Mailing Ad	ldress:	P.O. Box 709		(13)	REMARKS:			
			Forest Grove, C	PR 97116					
	Phone Nu	ımber:	(503) 359-447	4					
(6)	STATE De Sort:	efinition of	Approved Pulp		Ope	rator's Name (Opti	onal inclusion by District	):	
	• Top portion	on of the tre	e (tops).						
	ŭ		ter (Big End) greate	r	(14)	SIGNATURES:			
	than <u>8</u> in	iches marke	ed with blue paint.						
(7)			CESSING INSTRU		Purc	chaser or Authorize	ad Renresentative	Date	
			weighed in lieu of sc	aling.	ruic	maser of Additionize	a representative	24.0	
	One Ton	= 2000 lbs	(Short Ton).		<u> </u>				
	•		e a yellow Log Load	·	State	e Forester Represe	entative	Date	
			ıck tare weight for e e weight receipt.	ach load shall be					
	<ul> <li>Weigher</li> </ul>	shall sign th	ne weight receipt.		Stat	e Forester Repres	entative PRINT NAME		
	<ul> <li>Weigher weight rec</li> </ul>		I the Log Load Rece	eipt number on the					
		nd mail then	the Weight receipt n weekly to the TPS						
(8)	TPSO PR	OCESSING	INSTRUCTIONS						
	• Submit d	data files da	ily (or each day of a	ctivity).					
	<ul> <li>Mail or d</li> </ul>	leliver scale	tickets weekly to O	DF Headquarters in					

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.

Distribution: ORIGINAL: Salem/ COPIES: TPSO, Approved Pulp Processing Location, Purchaser, District, Mgmt. Unit



## Oregon Department of Forestry EXHIBIT C - PULP SORT Instructions for Form 343-307b

Astoria, NWOA

- (1) **Must Complete.** Check appropriate box. REVISION NUMBER requires comments in the Remarks Section(13). CANCELLATION requires logging and hauling to be complete, recall branding hammers, date and sign where indicated, write diagonally across page "CANCEL", and send to TPSO.
- (2) **Must Complete.** Approved Pulp Processing Facility. Write in as written in the Approved Log Delivery Location <a href="http://www.odf.state.or.us/DIVSIONS/management/asset">http://www.odf.state.or.us/DIVSIONS/management/asset</a> management/ScalingLocation.asp
- (3) Must Complete. State Forestry District and District Phone Number.
- (4) Must Complete. Purchaser's business name as it appears on the Contract.
- (5) Must Complete. 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: <a href="mailto:yamhilllog@frontier.com">yamhilllog@frontier.com</a>

Pacific Log Scaling & Grading Bureau, Inc. P.O.Box 23939, Portland, OR 97281 Phone: (503) 684-5599 Fax: (503) 639-4880 Email: PacLogScale@sol.com

- (6) **Must Complete.** Big end log not to exceed <u>8</u> inches. 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 <u>8</u> inches. When conifer and hardwood removal specifications are different, use the smaller removal diameter to determine this specification.
- (7) Must Complete. Enter sale name and county. If more than one county write in all the counties that the sale is located in.
- (8) Must Complete. Enter sale Contract number.
- (9) Must Complete. Enter Oregon's State Brand Registry Number (REQUIRED).
- (10) **Must Complete.** 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).
- (11) Use this section to list any special instructions or the reason for any revisions in section item(1).
- (12) **Must Complete.** Purchaser required to sign and date completed form in addition to State Forester Representative, sign <u>and</u> print name on the form.

**Salem Distribution Instructions:** Original will be mailed to Salem after it is electronically scanned and placed in the Salem transfer drive \\WPODFFILL01\Transfer\Scaling|nstructions or e-mailed directly to <a href="mailed-directly-scaling-dodf.state.or.us.">scaling@odf.state.or.us.</a>. Scaling instructions for each brand should be scanned separately, for each approved TPSO.

Distribution(See specific instructions on pg.2): ORIGINAL: Salem/ COPIES: TPSO, Approved Pulp Processing Location,
Purchaser, District, Mgmt. Unit

EXHIBIT D
FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STATION TO STATION	DRAINAGE
16 feet	12 feet	2A to 2B	0+00 to 4+50	Crowned/Ditch
16 feet	12 feet	2C to 2D	0+00 to 2+30	Crowned/Ditch
16 feet	12 feet	2E to 2F	0+00 to 2+00	Crowned/Ditch
16 feet	12 feet	2G to 2H	0+00 to 1+20	Crowned/Ditch
14 feet	N/A	3A to 3B	0+00 to 6+85	Outsloped
16 feet	12 feet	4A to 4B	0+00 to 21+20	Crowned/Ditch
16 feet	12 feet	I1 to I2	0+00 to 129+75	Crowned/Ditch
16 feet	12 feet	13 to 14	0+00 to 148+50	Crowned/Ditch
16 feet	12 feet	15 to 16	0+00 to 357+00	Crowned/Ditch
16 feet	12 feet	17 to 18	0+00 to 93+30	Crowned/Ditch
16 feet	12 feet	I9 to I10	0+00 to 41+20	Crowned/Ditch
16 feet	12 feet	I11 to I12	0+00 to 4+45	Crowned/Ditch
16 feet	12 feet	I13 to I14	0+00 to 29+85	Crowned/Ditch
16 feet	12 feet	I15 to I16	0+00 to 5+40	Crowned/Ditch
16 feet	12 feet	I17 to I18	0+00 to 21+80	Crowned/Ditch
16 feet	12 feet	I19 to I20	0+00 to 58+20	Crowned/Ditch
16 feet	12 feet	I21 to I22	0+00 to 8+00	Crowned/Ditch
16 feet	12 feet	123 to 124	0+00 to 1+50	Crowned/Ditch

<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.

All danger trees, leaners, and Snags outside the clearing limits which could fall and hit the road shall be felled.

#### **CLEARING CLASSIFICATION.**

New Construction - Where clearing limits have not been marked, the clearing limits shall extend 5 feet back of the top of the cutslope and 5 feet out from the toe of the fill slope, or as directed by STATE.

Improvement - The "Road Brushing Specifications in Exhibit I shall apply.

State Timber Sale Contract No. AT-341-2021-W00741-01 Green Gold

#### **EXHIBIT D**

#### FOREST ROAD SPECIFICATIONS

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 cut slopes shall be removed. Grubbing debris shall not be placed or permitted to remain in or under any road embankment sections.

#### **GRUBBING CLASSIFICATION.**

New construction - from the top of the cut slope 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.

<u>CLEARING AND GRUBBING DISPOSAL</u>. Clearing and grubbing debris shall not be placed or permitted to remain in or under any road embankment sections. Clearing and grubbing debris shall be left in a stable location, and not left lodged against standing trees. Clearing and grubbing debris may be scattered through openings in the timber outside of the cleared right-of-way, except for the following areas where debris shall be fully contained and hauled to a designated waste area:

- · Where end-haul is required
- On side slopes exceeding 50 percent
- On unstable areas
- In any stream channel (Type F, N or D) or where material may enter the stream channel.

Clearing, grubbing, and associated disposal shall be completed prior to subgrade approval.

<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.

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

Unless road 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.

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.

#### FOREST ROAD SPECIFICATIONS

<u>ROAD WIDTH LIMITATIONS</u>. 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.

<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, outsloped, or insloped at 4 to 6 percent as shown on the "Forest Road Specifications" table in this Exhibit.

<u>Ditch</u>. Construct V shaped ditch 3 feet wide and to a depth of 1 foot below subgrade.

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

<u>TURNOUTS</u>. Increase roadbed width an additional 8 feet for both subgrade and surfacing. Length shall be at least 50 feet, or as staked on the ground, plus 25-foot approaches at each end.

Location: Intervisible but not greater than 750 feet apart and as marked in the field.

<u>SLOPES</u>	<u>Cut Slopes</u>	<u>Fill Slopes</u>
Solid Rock	Vertical to ¼ :1	
Fractured Rock	1/2 :1	
Soil - side slopes 50% and over	<sup>3</sup> ⁄ <sub>4</sub> :1	1½:1
Soil - side slopes less than 50%	1 :1	1½:1

Top of cut slope shall be rounded.

<u>LANDINGS</u>. Landings shall be constructed as posted in the field, no less than 50 feet wide and no more than 70 feet wide unless otherwise approved by STATE. Surface is to be crowned for drainage with general grade no more than 3 percent. Surface as shown in the "Road Surfacing" table in this Exhibit.

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

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

#### FOREST ROAD SPECIFICATIONS

#### GENERAL ROAD CONSTRUCTION INSTRUCTIONS:

- (1) <u>Timber Removal</u>. Remove all trees within posted Right-of-Way Boundary or individually marked with an orange "C", as specified in Section 2210, Designated Timber.
- (2) <u>Excavated Materials</u>. Excavated materials shall be utilized for road construction and hauled in where necessary. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with this Exhibit.
- (3) <u>Drainage Ditches</u>. Construct ditchlines, including ditchouts, as directed by STATE. Cut slopes of ditchlines and ditchouts shall not exceed a 1:1 slope. Construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE.
- (4) <u>Culvert Installation</u>. Culverts in live streams shall be installed with the inlet and outlet on grade with the stream bottom, unless otherwise specified in writing. Fill construction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with this Exhibit. STATE may require the use of crushed rock for culvert bedding.
- (5) Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic-yard, track-mounted excavator.
- (6) <u>Subgrade Preparation and Application of Surfacing Rock.</u>
  - (a) Complete culvert installations, drainage ditches, ditchouts, fill construction, and other specified work prior to the application of surfacing rock.
  - (b) Subgrade shall be crowned, outsloped, or insloped at 4 to 6 percent.
  - (c) Upon completion of above required work, apply, process, and compact surfacing rock in accordance with specifications in the "Compaction and Processing Requirements" in this Exhibit. Final road surface shall be crowned, outsloped, or insloped at 4 to 6 percent.

#### SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	Work Description
2A to 2B	0+00	Install 18" x 30' CPP culvert.
	0+20	Begin ripping rock.
	1+10	End ripping rock.
	3+00	Construct truck turnaround.
	4+50	Construct landing. Construct ditchout.

#### FOREST ROAD SPECIFICATIONS

#### SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

Segment	<u>Station</u>	Work Description
2C to 2D	0+00	Install 18" x 30' CPP culvert. Begin ripping rock.
	1+00	End ripping rock.
	2+30	Construct landing.
2E to 2F	0+00	Install 18" x 30' CPP culvert.
	1+70	Construct truck turnaround.
	2+00	Construct landing.
2G to 2H	0+00	Install 18" x 30' CPP culvert.
	1+20	Construct landing.
3A to 3B	0+00	Install 18" x 30' CPP culvert.
	0+50	Construct roadside landing.
	3+15	Construct roadside landing.
	6+85	Construct landing.
4A to 4B	0+00	Begin clearing vegetation off existing road prism following CLEARING CLASSIFICATION this exhibit. Begin ditch construction and spot subgrade prep. Scatter waste onsite.
	4+75	Install 18" x 30' CPP culvert.
	9+65	Install 18" x 30' CPP culvert.
	16+60	Install 18" x 30' CPP culvert.
	21+20	End clearing vegetation off existing road prism following CLEARING CLASSIFICATION this exhibit. End ditch construction and spot subgrade prep.

- 5 of 34- Version May 2018

#### FOREST ROAD SPECIFICATIONS

#### GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- (1) <u>Timber Removal</u>. Remove all trees within posted Right-of-Way Boundary or individually marked with an orange "C", as specified in Section 2210, Designated Timber.
- (2) Roadside Brushing. Conduct roadside brushing as specified in Exhibit I.
- (3) <u>Excavated Materials</u>. Excavated materials shall be utilized for road and fill construction and hauled in where necessary. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with Exhibit D.
- (4) <u>Bank Slough Removal</u>. Excavate all bank slough. Bank slough material shall not be pulled across existing surfacing rock. Excavated material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A.
- (5) <u>Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal</u>. Existing culvert geometry shall be modified to provide for optimum drainage and culvert performance. Modifications may include, skewing the culvert and/or installing the culvert at gradients equal to or exceeding the drainage (or ditch) gradient. Where fill reconstruction or culvert replacement is specified, fills shall be excavated to natural stream course levels. All woody debris encountered during fill excavation shall be removed. Fill reconstruction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Unsuitable backfill material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with this Exhibit.
- (6) <u>Culvert Cleaning and Repairs</u>. Remove all debris from inside all existing culverts on the road improvement segment, as directed by STATE. Damaged culvert inlets and/or outlets shall be repaired by opening them with a hydraulic jack, or cutting off the culvert end to allow for free passage of water at peak flow levels.
- (7) <u>Drainage Ditches</u>. Restore or construct ditchlines, including ditchouts, as directed by STATE. Clean out all culvert inlets and outlets for a 10-foot radius. Re-establish or construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas.
- (8) Rock Ditch Filter. Construct rock ditch filters as directed by STATE. Excavate a one foot deep, tapered sump on the upslope side, adjacent to the rock ditch filter. Excavated material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A. Construct each rock ditch filter with clean drain rock (6"-4" pit-run rock) and placed at a 2:1 slope within the specified ditch. Construct the center of the rock ditch filter at least 6 inches lower than the ends, to act as a spillway for runoff and to prevent water from flowing around the filter. Space the filters so that the bottom elevation of the upper filter is the same as the top center elevation of the next filter. Rock ditch filter dimensions shall be as shown on the "Typical Rock Ditch Filter" exhibit or as directed by STATE. Locations of the filters shall be determined by STATE.
- (9) <u>Fill Armor and Energy Dissipator Construction</u>. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit H.
- (10) <u>Equipment</u>. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.

#### FOREST ROAD SPECIFICATIONS

#### GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

- (11) <u>Waste areas</u> shall be uniformly sloped and compacted for drainage Designated Waste materials shall be seeded and mulched in accordance with specifications in Exhibit K.
- (12) <u>Subgrade Preparation and Application of Surfacing Rock</u>.
  - (a) Complete culvert installations, drainage ditches, fill reconstruction, ditchouts, and other specified work prior to the application of new surfacing rock.
  - (b) Cut out all potholes and/or washboard sections from the existing surfacing.
  - (c) Apply required patching and leveling rock, as directed by STATE.
  - (d) Process (grade and mix) the existing surface and added base rock. Provide for a crown, outslope, or inslope of 4 to 6 percent, and compact in accordance to the "Compaction and Processing Requirements" in this Exhibit.
  - (e) Upon completion of above required work, apply, process, and compact surfacing rock in accordance to this Exhibit.

#### SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	Work Description
13 to 14	64+65	Install 18"x30' CPP culvert. Utilize 3/4"-0" crushed rock for bedding and backfill. Utilize 24"-6" riprap for outlet energy dissipator. Install culvert marker.
	66+90	Install 18"x30' CPP culvert. Utilize 3/4"-0" crushed rock for bedding and backfill. Utilize 24"-6" riprap for outlet energy dissipator. Install culvert marker.
	67+25	Install a series of three rock ditch filters.
	68+65	Install 18"x30' CPP culvert. Utilize 3/4"-0" crushed rock for bedding and backfill. Utilize 24"-6" riprap for outlet energy dissipator. Install culvert marker.
	78+00	Install 18"x30' CPP culvert. Utilize 3/4"-0" crushed rock for bedding and backfill. Utilize 24"-6" riprap for outlet energy dissipator. Install culvert marker.
	143+25	Center of bridge. Clean bridge deck. Clean bridge approach and wing walls. Expose top of wing walls a minimum of 2 feet. Scatter waste on site as directed by STATE.
15 to 16	243+45	Install 18"x30' CPP culvert. Utilize 3/4"-0" crushed rock for bedding and backfill. Utilize 24"-6" riprap for outlet energy dissipator. Install culvert marker.
	244+10	Install a series of three rock ditch filters.
	244+60	Install a series of three rock ditch filters.
	244+75	Install 18"x30' CPP culvert. Utilize 3/4"-0" crushed rock for bedding and backfill. Utilize 24"-6" riprap for outlet energy dissipator. Install culvert marker.
	326+55	Install 18"x30' CPP culvert. Utilize 3/4"-0" crushed rock for bedding and backfill. Utilize 24"-6" riprap for outlet energy dissipator. Install culvert marker.

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#### FOREST ROAD SPECIFICATIONS

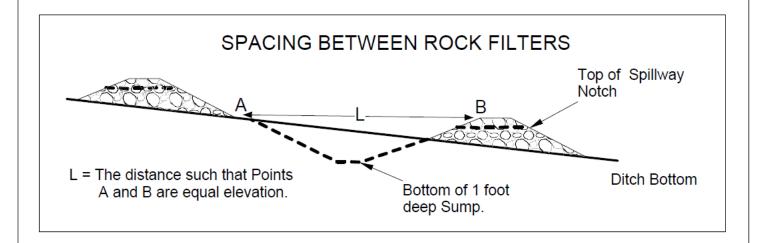
#### SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

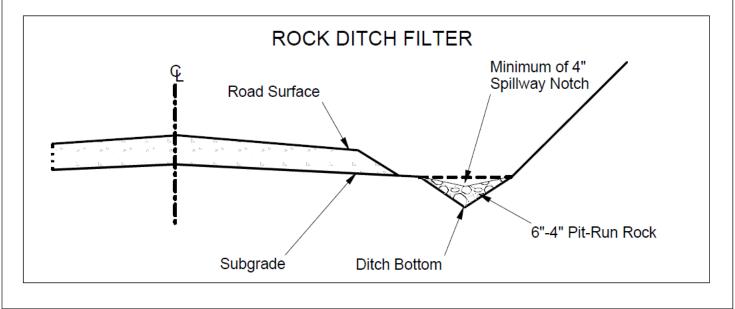
15 to 16	327+70	Install a series of three rock ditch filters.
	329+10	Install a series of three rock ditch filters.
17 to 18	17+20	Install a series of three rock ditch filters.
	33+30	Install a series of three rock ditch filters.
	45+20	Install a series of three rock ditch filters.
	69+65	Install 18"x30' CPP culvert. Utilize 3/4"-0" crushed rock for bedding and backfill. Utilize 24"-6" riprap for outlet energy dissipator. Install culvert marker.
	70+35	Install a series of three rock ditch filters.
	79+75	Begin ditchline reestablishment. Haul waste to waste area at 83+50 as directed by STATE.
	83+50	End ditchline reestablishment.
	89+85	Install a series of three rock ditch filters.
19 to 110	34+50	Clear alder and improve roadside landing. Scatter waste onsite as directed by STATE.
I13 to I14	4+45	Begin sod removal. Utilize grader and backhoe, scatter waste onsite as directed by STATE.
	10+80	End sod removal.
	16+10	Improve roadside landing. Clear vegetation and level roadside surface. Scatter waste onsite as directed by STATE.
	18+20	Improve roadside landing. Clear vegetation and level roadside surface. Scatter waste onsite as directed by STATE.
I17 to I18	1+40	Begin sod removal. Utilize grader and backhoe, scatter waste onsite as directed by STATE.
	21+80	End sod removal.
124 to 124	1+50	Utilize excavator to clear alder and slash from landing.

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EXHIBIT D

TYPICAL ROCK DITCH FILTER





ROAD SEGME	NT: 1A			POINT TO P	CINT	Sta. to S	Sta.	
KO/KD GEGINIE				1A	•	0+00	TOTAL	
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (0	CY)	Number of		VOLUME (CY)
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	1	11
Roadside								
Landings	6"-0" pit-run	0+00	N/A	landing		landings	1	55
Total Rock for F				1A				66
ROAD SEGME	NT: 1B	1		POINT TO P	OINT	Sta. to S		
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (C	CY)		0+00 Number of	
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	1	11
Roadside Landings	6"-0" pit-run	0+00	N/A	landing	55	landings	1	55
Total Rock for F	Road Segment:			1E	}			66
<b>ROAD SEGME</b>	NT: 1C			POINT TO P	TNIO	Sta. to S	Sta.	
				1C		0+00	)	TOTAL
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) Per		Number of		VOLUME (CY)
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	1	11
Roadside								
Landings	6"-0" pit-run	0+00	N/A	landing	55	landings	1	55
Total Rock for F				10				66
<b>ROAD SEGME</b>	NT: 1D			POINT TO P	OINT	Sta. to S	Sta.	
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (0	CY)	0+00 Numbe of		TOTAL VOLUME (CY)
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	1	11
Roadside								
Landings	6"-0" pit-run	0+00	N/A	landing		landings	1	55
Total Rock for F				10				66
ROAD SEGMENT: 1E				POINT TO P	TNIO	Sta. to S		
Application	Rock Size and Type	Location	Depth of Rock (inches)		1E 0+00  lume (CY) Number			TOTAL VOLUME (CY)
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	1	11
Roadside								
Landings	6"-0" pit-run	0+00	N/A	landing		landings	1	55
Total Rock for F	Road Segment:			1E	:			66

ROAD SEGME	NT· 2A to 2B			POINT TO P	OINT	Sta. to	Sta		
NOAD CLOINE	IVI. ZA to ZB		Depth of			0+00 to 4		TOTAL VOLUME	
Application	Rock Size	Location	Rock	Volume (CY)			Number		
Application	and Type	Location	(inches)	Per	, i )	Of		(CY)	
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	1	11	
Base Rock	4"-0" crushed	0+00 - 4+50	1N/A 8	station	50	stations		225	
base Rock	4 -0 Crusned	0+00 - 4+50	0	Station	50		4.50	223	
Turnarounds	4"-0" crushed	3+00	8	turnaround	13	turnaroun ds	1	13	
Landings	6"-0" pit-run	4+50	N/A	landing		landings	1	88	
Total Rock for F				2A t	o 2B			337	
ROAD SEGME		POINT TO P		Sta. to	Sta.				
			Depth of			0+00 to 2		TOTAL	
Application	Rock Size	Location	Rock	Volume (C		Numb		VOLUME (CY)	
	and Type		(inches)			of			
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	1	11	
Base Rock	4"-0" crushed	0+00 - 2+30	8	station	50	stations	2.30	115	
Landings	6"-0" pit-run	2+30	N/A	landing	88	landings	1	88	
Total Rock for F					o 2D			214	
<b>ROAD SEGME</b>				POINT TO POINT		Sta. to Sta.			
	D 1 0:		Depth of	2E to 2F	=	0+00 to 2	TOTAL		
Application	Rock Size	Location	Rock	Volume (0	CY)	Number Of		VOLUME (CY)	
• •	And Type		(inches)	Per	,				
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	1	11	
Base Rock	4"-0" crushed	0+00 - 2+00	8	station	50	stations	2.00	100	
						turnaroun			
Turnarounds	4"-0" crushed	1+70	8	turnaround	13	ds	1	13	
Landings	6"-0" pit-run	2+00	N/A	landing	88	landings	1	88	
Total Rock for F	Road Segment:			2E t	o 2F			212	
<b>ROAD SEGME</b>	NT: 2G to 2H		POINT TO POINT Sta. to Sta.						
	D I - O'		Depth of	2G to 2H	1	0+00 to	1+20	TOTAL	
Application	Rock Size	Location	Rock	Volume (0	CY)	Numb	er	VOLUME	
• •	And Type		(inches)	Per`	,	Of		(CY)	
Junction Rock	1 1/2"-0" crushed	0+00	N/A	load	11	loads	1	11	
Base Rock	4"-0" crushed	0+00 - 1+20	8	station	50	stations	1.20	60	
Landings	6"-0" pit-run	1+20	N/A	landing		landings	1	88	
Total Rock for F				2G t	o 2H			159	
ROAD SEGME	NT: 3A to 3B			POINT TO P	OINT	Sta. to	Sta.	TOTAL	
	Rock Size		Depth of	3A to 3E	3	0+00 to 6	3+85	TOTAL VOLUME	
Application	And Type	Location	Rock	Volume (CY)		Numb	er	(CY)	
	And Type		(inches)	Per		Of		(01)	
Junction Rock	4"-0" crushed	0+00 - 1+00	8	station	50	stations	1	50	
Roadside									
Landings	6"-0" pit-run	0+50, 3+15	N/A	landing	55	landings	2	110	
Landings	6"-0" pit-run	6+85	N/A	landing	88	landings	1	88 248	
Total Rock for F	Road Segment:			3A t	o 3B				

ROAD SEGME	NT: 4A to 4B			POINT TO P	OINT	Sta. to	Sta	
NO/ND GEGINE	47(10 45	Depth	4A to 4E		0+00 to 2		TOTAL	
Application	Rock Size and Type	Location	of Rock (inches)	Volume (C		Numb Of	-	VOLUME (CY)
Junction Rock	4"-0" crushed	0+00-1+00	N/A	station	50	stations	1.00	50
Landings	6"-0" pit-run	21+20	N/A	landing	88	landings	1	88
Total Rock for F	Road Segment:			4A 1	to 4B			138
<b>ROAD SEGME</b>	NT: I1 to I2			POINT TO P	OINT	Sta. to	Sta.	
			Depth	I1 to I2		0+00 to 12	29+75	TOTAL
Application	Rock Size and Type	Location	of Rock (inches)	Volume (C	Y)	Numb Of	er	VOLUME (CY)
Surfacing	1 1/2"-0" crushed	0+00 - 32+90	3	station	19	stations	32.90	625
Turnouts	1 1/2"-0" crushed	22+20	N/A	turnout	11	turnouts	1	11
Junctions Surfacing	1 1/2"-0" crushed 3/4"-0" crushed	0+50, 2+05, 10+50, 18+05, 25+75, 26+90, 32+30 32+90 - 129+75 34+85, 36+75, 38+00, 45+85,	N/A 3	junction station	11 19	junctions stations	7 96.85	77 1,840
Turnouts	3/4"-0" crushed	49+20, 54+15, 58+60, 63+20, 65+65, 74+35, 77+65, 81+00, 99+65, 102+20, 108+40, 109+65, 114+70, 116+00	N/A	turnout	11	turnouts	18	198
Turriouts	3/4 -0 Grasiled	39+70, 47+65, 60+05, 70+95, 83+70, 87+60, 89+00, 93+10, 94+95, 122+60,	IWA	turnout	11	tumouts	10	190
Junctions	3/4"-0" crushed	129+55	N/A	junction	11	junctions	11	121
Total Rock for F	Road Segment:			I1 t	to I2			2,872

ROAD SEGME	ROAD SEGMENT: 13 to 14					Sta. to	Sta.	TOTAL
			Depth	13 to 14	13 to 14 1 0±00 to 148±50 1 5 5		VOLUME	
Application	Rock Size and Type	Location	of Rock (inches)	Volume (CY) Per		Number Of		(CY)
Surfacing	1 1/2"-0" crushed	0+00 to 148+50	4	station	25	stations	148.50	3,713
		7+00, 11+15,						
		28+35, 31+70,						
		34+65, 41+65,						
		48+95, 62+50,						
		69+55, 80+35,						
		85+40, 94+50,						
		106+20, 108+40,						
		115+80, 123+30,						
		130+50, 137+25,						
Turnouts	1 1/2"-0" crushed	142+00, 144+00	N/A	turnout	11	turnouts	20	220
Turnout								
Improvement	1 1/2"-0" crushed	123+30	N/A	turnout	11	turnouts	1	11
		8+10, 16+70, 18+05, 45+70, 55+90, 93+50,						
		98+25, 121+20,						
1	4.4/011.011	126+60, 134+00,	N1/A		4.4		4.4	404
Junctions	1 1/2"-0" crushed	148+50	N/A	junction	11	junctions	11	121
Additional	4 4 /011 011	55+90, 121+20,	N1/A		4.4		0	00
Junction Rock	1 1/2"-0" crushed	148+50	N/A	junction	11	junctions	3	33
Culvert Bedding and	0/48 08	64+65, 66+90,	N.//A					470
Backfill	3/4"-0" crushed	68+65, 78+00	N/A	culvert	44	culverts	4	176
Culvert Energy	0.411.011	64+65, 66+90,	N1/A	.11 1 4	00		4	00
Dissipator	24"-6" riprap	68+65, 78+00	N/A	dissipator	22	dissipator	4	88
Rock Ditch	011 411 14	07:05	N1/A	3 filter		3 filter	4	44
Filters	6"-4" pit-run	67+25	N/A	series		series	1	11
Total Rock for F	Road Segment:			13	3 to 14	ļ		4,373

ROAD SEGMENT: 15 to 16			POINT TO	0	Sta. to	Sta.	TOTAL	
			Depth	I5 to I6		0+00 to 357+00		TOTAL VOLUME
Application	Rock Size and Type	Location	of Rock (inches)	Volume (C Per		Numb Of		(CY)
Surfacing	3/4"-0" crushed	0+00 to 148+90	4	station	25	stations	148.90	3,723
Y Junction								
Surfacing	3/4"-0" crushed	1+30	4	station	25	stations	1.00	25
		4+00, 15+60, 23+20, 27+75, 33+05, 39+25, 53+20, 56+10, 69+80, 76+10, 83+20, 88+55, 98+50, 102+45,						
		112+85, 123+30,						
		128+60, 132+55,						
Turnouts	3/4"-0" crushed	143+35	N/A	turnout	11	turnouts	19	209
		0+00, 27+75, 43+10, 89+50,						
Junctions	3/4"-0" crushed	95+00, 148+90	N/A	junction	11	junctions	6	66
Additional	0/4" 0"	05:00 440:00	NI/A	:4:	44		0	00
Junction Rock	3/4"-0" crushed	95+00, 148+90	N/A	junction		junctions	2	22
Surfacing	1 1/2"-0" crushed		4	station	25	stations	208.10	5,203
Turnouts	1 1/2"-0" crushed	153+80, 158+40, 164+15, 167+80, 170+70, 196+15, 198+70, 211+00, 214+70, 217+65, 222+65, 225+80, 228+50, 237+00, 245+90, 250+45, 277+05, 282+05, 285+50, 297+95, 303+60, 311+85, 312+95, 315+40, 320+35, 332+70, 333+75, 335+60, 346+60, 348+90, 355+00	N/A	turnout	11	turnouts	33	363
Junctions	1 1/2"-0" crushed	169+30, 177+05, 179+20, 182+80, 185+95, 188+75, 249+80, 255+50, 275+50, 296+50, 300+70, 305+20, 310+85, 356+15	N/A	junction		junctions	14	154

ROAD SEGME	NT: I5 to I6 <i>(conti</i>	nued)		POINT TO	0	Sta. to	Sta.	TOTAL
			Depth	I5 to I6		0+00 to 3	57+00	VOLUME
Application	Rock Size and Type	Location	of Rock (inches)	Volume (C Per	(Y:	Numb Of		(CY)
Culvert Bedding and Backfill	3/4"-0" crushed	243+45, 244+75, 326+55	N/A	culvert	44	culverts	3	132
Culvert Energy Dissipator	24"-6" riprap	243+45, 244+75, 326+55	N/A	dissipator	22	dissipator	3	66
Rock Ditch Filters	6"-4" pit-run	244+10, 244+60, 327+70, 329+10	N/A	3 filter series	11	3 filter series	4	44
Total Rock for F				POINT TO POINT	to 16	Sta. to	Sta.	10,006
			Depth	17 to 18		0+00 to 9	93+30	TOTAL VOLUME
Application	Rock Size and Type	Location	of Rock (inches)	Volume (C Per	(Y)	Numb Of	_	(CY)
Subgrade Leveling	4"-0" crushed	67+55, 70+80, 77+70	N/A	load	11	loads	3	33
Surfacing	4"-0" crushed	56+30 to 93+30 56+30, 60+65, 67+55, 72+50, 75+75, 79+75,	6	station	38	stations	37.00	1,406
Turnouts	4"-0" crushed	83+50, 92+10	N/A	turnout	22	turnouts	8	176
Junctions Culvert Bedding and	4"-0" crushed	62+05, 92+45	N/A	junction	11	junctions	2	22
Backfill	3/4"-0" crushed	69+65	N/A	culvert	44	culverts	1	44
Culvert Energy Dissipator	24"-6" riprap	69+65 17+20, 33+30,	N/A	dissipator	22	dissipator	1	22
Rock Ditch Filters	6"-4" pit-run	45+20, 70+35, 89+85	N/A	3 filter series	11	3 filter series	5	55
Total Rock for F	Road Segment:			17	to 18	3		1,758

#### ROAD SURFACING

ROAD SEGMENT: 19 to 110				POINT TO	0	Sta. to S	Sta.	TOTAL
			Depth	I9 to I10		0+00 to 4	1+20	TOTAL VOLUME
Application	Rock Size and Type	Location	of Rock (inches)	Volume (CY) Per		Number Of		(CY)
Subgrade		10+80, 16+00,	,					
Leveling	1 1/2"-0" crushed	28+75, 34+50	N/A	load	11	loads	4	44
Surfacing	1 1/2"-0" crushed	0+00 - 41+20	3	station	19	stations	41.20	783
		6+05, 10+80, 16+00, 22+70,						
Turnouts	1 1/2"-0" crushed	31+60, 37+60,	N/A	turnout	11	turnouts	6	66
Turnarounds	1 1/2"-0" crushed	40+45	N/A	turnaround	11	turnarounds	1	11
		2+65, 15+20,						
Junctions	1 1/2"-0" crushed	25+28	N/A	junction	11	junctions	3	33
Additional								
Junction Rock	1 1/2"-0" crushed	2+65,	N/A	junction	11	junctions	1	11
Roadside							_	
Landings	6"-0" pit-run	28+75, 34+50	N/A	landing	55	landings	2	110
Landings	6"-0" pit-run	41+20	N/A	landing		landings	1	88
Total Rock for I	Road Segment:				to 11	0		1,146
ROAD SEGME	NT: I11 to I12			POINT TO POINT		Sta. to Sta.		TOTAL
			Depth	I11 to I12	2	0+00 to 4	+45	VOLUME
Application	Rock Size and Type	Location	of Rock (inches)	Volume (C Per	(Y)	Numbe Of	er	(CY)
Surfacing	4"-0" crushed	0+00 - 4+45	3	station	19	stations	4.45	85
Turnouts	4"-0" crushed	1+40	N/A	turnout	11	turnouts	1	11
Landings	6"-0" pit run	4+45	N/A	landing	55	landings	1	55
	Road Segment:				to I			151
ROAD SEGME				POINT TO		Sta. to S	Sta.	
			Depth	I13 to I14	1	0+00 to 29	9+85	TOTAL VOLUME
Application	Rock Size and Type	Location	of Rock (inches)	Volume (C		Numbo Of		(CY)
Surfacing	4"-0" crushed	0+00 - 29+85	3	station	19	stations	29.85	567
Turnouts	4"-0" crushed	2+20, 5+65, 16+10, 18+20,	N/A	turnout	11	turnouts	4	44
Turnarounds	4"-0" crushed	27+70	N/A	turnaround	11	turnarounds	1	11
Junctions	4"-0" crushed	3+90, 25+30	N/A	junction	11	junctions	2	22
Traction Rock	3/4"-0" crushed	18+20 - 29+00	2	station	13	stations	10.80	140
Traction Rock Junctions	3/4"-0" crushed	25+30	N/A	junction	11	junctions	1	11
Roadside				-				
Landings	6"-0" pit-run	16+10, 18+20	N/A	landing		landings	2	110
Landings	6"-0" pit-run	29+85	N/A	landing	88	landings	1	88
Total Rock for Road Segment: I13 to I14				I13	to I	14		994

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ROAD SEGMENT: I15 to I16				POINT TO	0	Sta. to S	Sta.	TOTAL
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (C		0+00 to 5  Number		VOLUME (CY)
Surfacing	4"-0" crushed	0+00 - 5+40	3	station	19	stations	5.40	103
Turnouts	4"-0" crushed	1+45	N/A	turnout	11	turnouts	1	11
Turnarounds	4"-0" crushed	4+70	N/A	turnaround	11	turnarounds	1	11
Landings	6"-0" pit-run	5+40	N/A	landing	88	landings	1	88
Total Rock for F	Road Segment:			I15	to l'	16		213
ROAD SEGME	NT: I17 to I18			POINT TO POINT	0	Sta. to S	Sta.	TOTAL
			Depth	I17 to I18	3	0+00 to 2	1+80	TOTAL VOLUME
Application	Rock Size and Type	Location	of Rock (inches)	Volume (C	(Y)	Numbe Of	er	(CY)
Surfacing	4"-0" crushed	0+00 - 21+80	3	station	19	stations	21.80	414
Turnouts	4"-0" crushed	1+40, 6+50, 12+90, 16+80	N/A	turnout	11	turnouts	4	44
Turnarounds	4"-0" crushed	21+80	N/A	turnaround	11	turnarounds	1	11
Junctions	4"-0" crushed	9+15	N/A	junction	11	junctions	1	11
Total Rock for F	Road Segment:			,	' to I			480
ROAD SEGME				POINT TO	0	Sta. to S	Sta.	
Application	Rock Size and Type	Location	Depth of Rock	Volume (C		0+00 to 58		TOTAL VOLUME (CY)
			(inches)					
Surfacing	4"-0" crushed	0+00 - 58+20 2+40, 8+50, 18+20, 24+75, 26+20, 28+60, 31+95, 48+60,	3	station	19	stations	58.20	1,106
Turnouts	4"-0" crushed	52+10,	N/A	turnout	11	turnouts	9	99
Turnarounds	4"-0" crushed	57+30	N/A	turnaround	11	turnarounds	1	11
Junctions	4"-0" crushed	0+50, 12+75, 17+40, 28+60, 31+95, 41+30	N/A	junction	11	junctions	6	66
Traction Rock	3/4"-0" crushed	18+20-35+40, 41+80-43+55, 45+65-55+70 24+75, 26+20,	2	station	13	stations	29.00	377
Traction Rock Turnouts	3/4"-0" crushed	28+60, 31+95, 48+60, 52+10,	N/A	turnout		turnouts	6	66
Landings	6"-0" pit-run	58+20	N/A	landing	88	landings	1	88
ITatal Daak far [	Road Segment:			110	to 12	20		1,813

#### **ROAD SURFACING**

ROAD SEGME	NT: I21 to I22			POINT TO	0	Sta. to S	Sta.	TOTAL
			Depth	I21 to I22	2	0+00 to 8	+00	TOTAL VOLUME
Application	Rock Size and Type	Location	of Rock (inches)	Volume (C Per	(Y)	Numbe Of	er	(CY)
Surfacing	4"-0" crushed	0+00 - 8+00	3	station	19	stations	8.00	152
Turnouts	4"-0" crushed	1+95	N/A	turnout	11	turnouts	1	11
Landings	6"-0" pit-run	8+00	N/A	landing	88	landings	1	88
Total Rock for F	Road Segment:			I21	to I2	22		251
ROAD SEGMENT: I23 to I24			POINT TO	0	Sta. to S	Sta.	TOTAL	
			Depth	123 to 124	1	0+00 to 1	+50	VOLUME
Application	Rock Size and Type	Location	of Rock (inches)	Volume (C	(Y)	Numbe Of	er	(CY)
Surfacing	4"-0" crushed	0+00 - 1+50	4	station	25	stations	1.50	38
Landings	6"-0" pit-run	1+50	N/A	landing	88	landings	1	88
Total Rock for F	Road Segment:			I23 to I24			126	
ROAD SEGME	NT: I25			POINT TO POINT	0	Sta. to S	Sta.	TOTAL
			Depth	125		0+00		VOLUME
Application	Rock Size and Type	Location	of Rock (inches)	Volume (C Per	(Y)	Numbe Of	er	(CY)
Roadside Landings	6"-0" pit-run	0+00	N/A	landing	55	landings	1	55
Total Rock for F	Road Segment:				125			55

				4"-0"	1 1/2"-0"	3/4"-0"
ROCK TOTALS (CY)	24"-6" rr	6"-4" pr	6"-0"pr	crushed	crushed	crushed
25,874	176	110	1,771	5,090	11,577	7,150

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

State Timber Sale Contract No. AT-341-2021-W00741-01 Green Gold

#### **EXHIBIT D**

#### **ROCK ACCOUNTABILITY**

PURCHASER shall obtain subgrade approval from STATE prior to rocking. Rocking shall be limited to periods when weather conditions are acceptable to STATE and when sediment will not enter streams. Additional surfacing needed because of construction season or construction practice is not included in the preceding ROAD SURFACING table, and shall be furnished at PURCHASER expense.

Rock accountability shall be determined by the following methods, as directed by STATE. STATE shall be given 24 hours' notice prior to rocking.

Rock Checking. All rock spreading shall be done only when a STATE representative is present. STATE shall issue a receipt for each load delivered, and rock shall be measured without allowance for shrinkage or shakedown during hauling. Total truck measure volume for each road segment shall be as shown on Exhibit D. Deliver at least 500 cubic yards per 8-hour shift, unless otherwise approved by STATE. A penalty of \$10 for each 10 cubic yards which are not delivered during a single shift shall be billed, and payment shall be required prior to final acceptance of the project by STATE.

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

Depth shall be determined in the most compacted area of the surface cross section. The depth of compacted aggregates shall not vary more than 1 inch from the depth specified in the "Road Surfacing" table in Exhibit D. The average depth for each road segment shall be the specified depth or greater. If additional rock is required because of insufficient depth, the locations and volumes to be added shall be determined by STATE.

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

#### COMPACTION AND PROCESSING REQUIREMENTS

<u>Moisture Content</u>: Compaction must take place when moisture content of the materials being compacted is favorable for effective compaction as determined by STATE.

<u>Compaction Pass</u>: A pass is defined as traveling a road section forward and then backward over that same section.

<u>Subgrade</u>. Subgrade surfaces of the road segments listed below shall be graded and compacted. Compaction shall be accomplished by traveling all surfaces from shoulder to shoulder until the surface is smooth and hard and visible deformation ceases. At least 3 passes shall be made over the entire width and length of the road. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Subgrade shall be crowned, outsloped, or insloped at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	SUBGRADE COMPACTION OPTIONS
All road segments.	1

<u>Fills</u>. 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. At least 3 passes shall be made over the entire width and length of each layer.

Placing individual rocks or boulders with more depth than the allowed layer thickness shall be permitted, provided the embankment will accommodate them. Such rocks and boulders shall be at least 6 inches below the subgrade. They shall be carefully distributed and the voids filled with finer material, forming a dense and compacted mass. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

ROAD SEGMENT	FILLS COMPACTION OPTIONS
All road segments.	1 or 2

#### COMPACTION AND PROCESSING REQUIREMENTS

<u>Crushed Rock</u>. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of crushed rock shall be moistened or dried to uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 6 inches in depth. When more than 1 layer is required, each shall be shaped, compacted, and approved by STATE 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 until the surface is smooth and hard and visible deformation ceases. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

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

Rock shall be crowned, outsloped, or insloped at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	CRUSHED COMPACTION OPTIONS
All road segments requiring crushed rock.	1

<u>Pit-Run Rock</u>. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of pit-run rock shall be moistened or dried to uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 8 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. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Rock shall be crowned, outsloped, or insloped at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	PIT-RUN COMPACTION OPTIONS
All road segments requiring pit-run rock	1 or 3

#### COMPACTION EQUIPMENT OPTIONS

- (1) <u>Vibratory Rollers</u>. 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) <u>Rubber-Tired Skidders</u>. A rubber-tired skidder weighing a minimum of 20,000 pounds shall be operated over the fill layers so that the entire layered surface comes in contact with the tires. Skidders with oversized tires (high flotation) are not acceptable for compaction.
- (3) <u>Dozer</u>. A dozer/track-type tractor weighing a minimum of 45,000 pounds as directed by STATE shall be operated over the pit-run rock so that the entire surface comes in contact with the tracks.

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#### **EXHIBIT E**

#### **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, unless otherwise specified in the Contract. Culverts larger than 36 inches in diameter shall be constructed of corrugated aluminized Type 2 steel, unless otherwise specified in the Contract. Polyethylene culverts shall be double-walled and meet the requirements of AASHTO M-294-11, Type S, or ASTM F2648. Aluminized (Type 2) steel culverts shall meet the requirements of AASHTO M-36-03<sup>1</sup>."

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

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 specified in special instructions.

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

Culverts in live streams shall be installed with the inlet and outlet on grade with the stream bottom, unless otherwise specified in writing.

#### **Cross Drain Culverts**

Cross drain culverts on road grades in excess of 3 percent shall be skewed at least 30 degrees from perpendicular to the road centerline, except that cross drain culverts at the low point of dips in roads shall not be skewed. Cross drains shall be skewed to fit the required culvert length to the road prism.

Cross drain culverts shall be installed at a slope steeper than the incoming ditch grade, but not less than 3 percent or greater than 10 percent.

#### **Disconnect Culverts**

The culvert inlet shall be located as close to the channel that it is disconnecting, while the culvert outlet shall be located as far from the channel as possible; discharge culvert outflow on the forest floor, allowing for filtration before the water enters the disconnected channel.

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

A bedding of crushed rock or rock crusher reject 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 culvert for culverts on road improvement.

Backfill shall consist of crushed rock on improvement segments and crushed rock, rock crusher reject, or job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the culvert on new construction segments.

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

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#### **EXHIBIT E**

#### **CULVERT SPECIFICATIONS**

Minimum height of cover over top of culvert to subgrade when road is to be rocked shall be as follows: 12" for culverts 18" to 36" and 18" for culverts 42" to 96", add 6" for roads which will not be rocked. Minimum vertical cover for other designs shall be as specified by STATE.

Lengths of individual culvert sections shall be not less than 10 feet, unless otherwise provided for in special instructions. The shortest culvert section length shall be placed at the inlet end.

The ends of each culvert shall be free of logs and debris which would restrict the free flow of water.

The intake end of cross drain and disconnect culverts shall be provided with a sediment catching basin 3 feet in diameter at the bottom. The outlet end of any culvert which would allow water to erode embankment soil shall be provided with an energy dissipator, half round, or other approved slope protection device. Construct lead-off ditches away from culvert outlets where the slope gradients restrict the free flow of water.

Culverts 24 inches in diameter or larger shall have 1:1 step beveled inlets.

Compaction by tamping utilizing a Vibratory Hand-Operated or Backhoe-Mounted Tamper is required for all culverts.

All culverts scheduled for replacement shall become property of the PURCHASER and be removed from STATE land and hauled to an approved refuse site in the same project period in which replacement occurred. Damaged culvert inlets and/or outlets shall be repaired by opening them with a hydraulic jack, or cutting off the culvert end to allow for free passage of water at peak flow levels.

The intake ends of culverts in fills less than 3 feet to the top of the culvert shall be marked by driving white fiberglass posts within 6 inches of the downgrade side. Posts shall be a minimum of 6 feet long and  $2\frac{1}{2}$  inches wide, with the spade driven 2 feet into the ground. Install a culvert marker at each existing culvert that is missing a marker that could be reached by a grader blade.

Energy Dissipators shall be installed within 72 hours of culvert installation, unless otherwise approved in writing by STATE. Steel posts used with half round installation shall be painted with rust preventative paint.

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

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

	Steel Culvert	<u>Thickn</u>	ess		Band W	idths (")
<u>Dia.</u>	<u>Gauge</u>	<u>Uncoated</u>	<u>Coated</u>	Band Gauges	<u>Annular</u>	<u>Helical</u>
			( + 111)			
18-36	16	(0.0598")	(0.064")	16	12	12

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

#### **EXHIBIT E**

#### **CULVERT LIST**

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	ROAD SEGMENT POINT TO POINT	STATION
1	18	30	CPP	2A to 2B	0+00
2	18	30	CPP	2C to 2D	0+00
3	18	30	CPP	2E to 2F	0+00
4	18	30	CPP	2G to 2H	0+00
5	18	30	CPP	3A to 3B	0+00
6	18	30	CPP	4A to 4B	4+75
7	18	30	CPP	4A to 4B	9+65
8	18	30	CPP	4A to 4B	16+60
9	18	30	CPP	13 to 14	64+65
10*	18	30	CPP	13 to 14	66+90
11*	18	30	CPP	13 to 14	68+65
12*	18	30	CPP	13 to 14	78+00
13*	18	30	CPP	15 to 16	243+45
14*	18	30	CPP	15 to 16	244+75
15*	18	30	CPP	15 to 16	326+55
16*	18	30	CPP	17 to 18	69+65

TOTAL LENGTHS BY DIAMETER		
18 INCH		
480		

ACSP = Aluminized, CPP = Polyethylene

<sup>\* =</sup> Ditch Disconnect Culvert

#### **EXHIBIT F**

#### ROCK QUARRY DEVELOPMENT AND USE

- 1. PURCHASER shall prepare a written development plan for the quarry area. The plan shall be submitted to STATE for approval prior to conducting any operation in quarry area. The plan shall include, but not be limited to:
  - (a) Location of benches and roads to benches.
  - (b) Disposal site for woody debris, overburden and reject material.
  - (c) Time lines for rock quarry use.
  - (d) Erosion Control measures.
- PURCHASER shall schedule and coordinate quarry and stockpile usage with other existing or planned activity requiring quarry or stockpile usage. PURCHASER shall notify STATE 5 days prior to the start of quarry development activities.
- 3. PURCHASER shall conduct the operations relative to the disposal of waste material in such manner that sediment, rock, or debris shall not be washed, conveyed, or otherwise deposited in any stream.
- 4. Benches shall be maintained/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 percent or less. There shall be a minimum of one bench with an access road to it. Said bench shall be easily accessible with tractors.
- 5. Quarry face shall be developed in a uniform manner. All quarry backslopes shall be left in a stable condition.
- 6. The quarry site shall be left in a condition free from overburden and debris. Access roads to the quarry, and the quarry floor, shall be cleared at the termination of use.
- 7. The quarry floor shall be developed to provide for drainage away from the quarry. All quarry and stockpile site drainage ditches shall be maintained. Ditches, culverts, waterbars and other direct conveyances of water from the quarry or stockpile sites shall be constructed to drain to the forest floor in locations that will provide filtration. Quarry access roads shall be cleared and blocked upon completion of quarry use as directed by STATE.
- 8. Proper winterization and storm-water control measures such as waterbarring, drainage, utilization of filter bales, mulching and/or blocking access shall be constructed and maintained to protect the watershed and Project Work, as directed by STATE.

#### EXHIBIT G

#### PIT-RUN AND RIPRAP ROCK SPECIFICATIONS

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

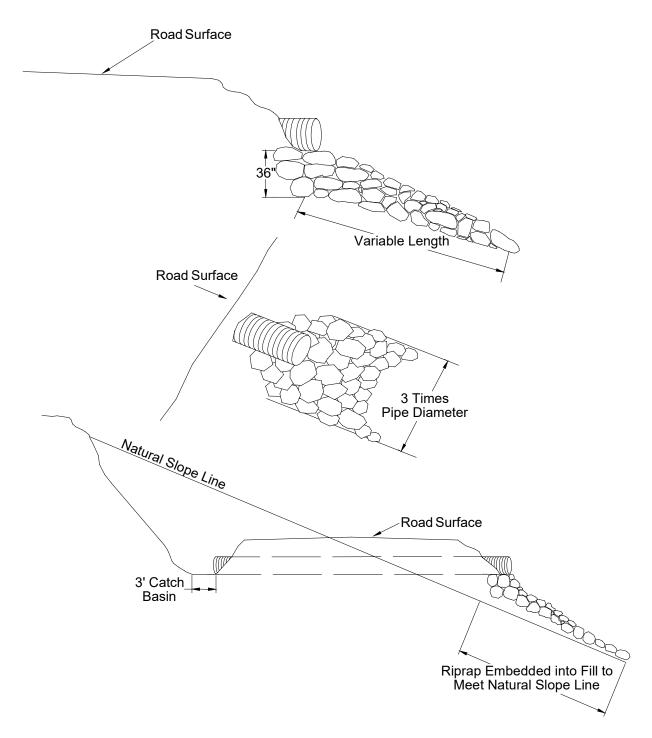
<u>For 6"-4" Pit-Run</u> A minimum of 50 percent of the material shall measure a minimum of 5 inches, measured in one dimension. Material shall be clean, well graded, and free of 3"-0" fines.

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

Control of gradation shall be by visual inspection by STATE.

EXHIBIT H

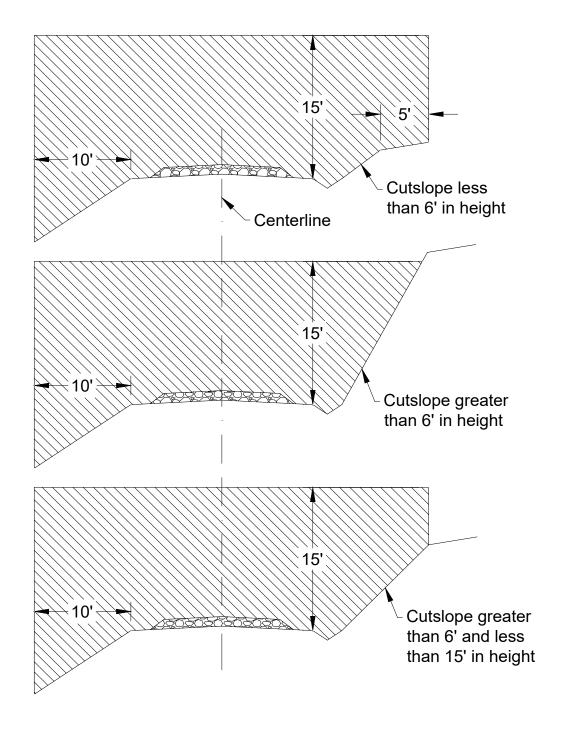
TYPICAL EMBEDDED ENERGY DISSIPATOR



Dissipator shall be installed prior to the installation of the culvert, unless approved by STATE.

EXHIBIT I

ROAD BRUSHING SPECIFICATIONS



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#### EXHIBIT I

#### ROAD BRUSHING SPECIFICATIONS

The minimum height of brushing shall be for all situations 15 feet from the road surface, and the minimum width of brushing on the down slope side of the road shall be 10 feet horizontal distance. The minimum width of brushing on the cutslope side of the road shall be dictated by the height of the cutslope as indicated in the three drawings above. In situations where sight distance is an issue brushing heights on the cutslope may vary from the above drawings, as directed by STATE.

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

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

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

Existing debris on the roadway, cutslope, ditchline, or catch basin shall be removed and treated. Debris shall be mulched or scattered downslope from the road or placed in other stable locations. Large non-merchantable debris, 6 inches or larger in diameter, shall be mulched or cut into lengths 6 feet or less to facilitate rapid decay, unless otherwise approved by STATE.

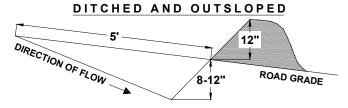
Merchantable blown down trees encountered shall be bucked in lengths as directed by STATE, and placed in locations acceptable to STATE, or pushed out of the road prism.

When spur roads to be brushed end with a landing, the landing is to be brushed as directed by STATE.

<u>CULVERT AND ROAD MARKER DAMAGES.</u> Culvert and road markers damaged, or any portion of a marker damaged from PURCHASER activities shall be replaced.

EXHIBIT J
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

TOP OF WATERBAR

ROAD GRADE

BOTTOM OF WATERBAR

BOTTOM OF WATERBAR

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

# DITCHED ROAD EDGE RO

#### **EXHIBIT K**

#### SEEDING AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed, fertilizer, and straw mulch. Straw mulch shall consist of straw that is free of noxious weeds. Apply seed, fertilizer, and straw mulch to all waste areas resulting from Project No. 1 and all waste areas and bare soils resulting from Project No. 2.

<u>Seeding Seasons</u>. Seeding shall be performed only from <u>March 1</u> through <u>June 15</u> and <u>August 15</u> through <u>October 31</u>. 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 within 24 hours of seeding and fertilizer application.

#### APPLICATION METHODS FOR SEED AND FERTILIZER

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

#### APPLICATION RATES FOR SEED AND FERTILIZER

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

SPECIES	MIXTURE	PURE LIVE SEED	GERMINATION
Annual Rye	33%	95%	>90%
Orchard Grass	33%	95%	>90%
Perennial Rye	34%	95%	>90%

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

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

#### APPLICATION RATES FOR MULCH

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

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#### **PART IV: OTHER INFORMATION**

### FOREST PRACTICES ACT "WRITTEN Plan" For Operations within 100 feet of Type F Stream

Located in Portions of the W ½ of Section 26, T5N, R6W, W.M., Clatsop County, Oregon.

**Landowner**: Oregon Department of Forestry

92219 Hwy 202 Astoria, OR 97103 (503) 325-5451

#### Protected Resources:

Stanley Creek

#### Specific Site Characteristics:

Approximately 500 feet downstream from Unit 1 Stanley Creek is classified as a medium Type F stream, according to ODFW stream surveys conducted in 1997. Cable lines may cross over this portion of the stream, but no harvesting will occur adjacent to or within the Type F riparian management area (RMA).

#### Tree and Vegetation Retention:

Vegetation within the buffer consists of a combination of conifers, hardwoods, and shrubs.

#### Resource Protection Practices:

Along the above-mentioned stream, as well as any other streams, the following practices are required under the timber sale contract, to protect the streams and streamside areas:

- No trees will be felled within stream buffers (RMA's), except as necessary in cable corridors.
- When cable logging is conducted nearby the RMA's, logging lines may cross, but shall not be lowered into the RMA's during yarding, except during rigging. During rigging the lines must be pulled out of the RMA's when changing corridors.
- Cable corridors must be at least 100 feet apart where they cross the RMA's.

regarding the operation	•	h the requirements in the Forest Practices A Fand D streams. I agree to the protection m	
listed on this plan:			
Submitted:		Date:	_
Purchas	er/Operator Contract Representative		

Original: Salem

CC: Operator, Purchaser, District file, Marketing Unit

State Timber Sale Contract No. AT-341-2021-W00741-01 Green Gold

#### **OREGON DEPARTMENT of FISH and WILDLIFE**



#### **FISH SCREENING PROGRAM**

## SMALL PUMP SCREEN SELF CERTIFICATION

The Oregon Water Resources Department in coordination and cooperation with the Oregon Department of Fish and Wildlife includes screen requirements on pumps to protect fish as a condition of many surface water and/or reservoir water right permits. This is done in accordance with ORS 537.153.

The Oregon Department of Fish and Wildlife does not usually inspect small pump screens at **pumped diversions less than 225 gpm** (gallons per minute), but furnishes the following fish screening criteria information to the water right permit holder:

Screen material open area must be at least 27% of the total wetted screen area.

Perforated plate: Openings shall not exceed 3/32 or 0.0938 inches (2.38 mm).

**Mesh/Woven wire screen:** Square openings shall not exceed 3/32 or 0.0938 inches (2.38 mm) in the narrow direction, e.g., 3/32 inch x 3/32 inch open mesh.

**Profile bar screen/Wedge wire:** Openings shall not exceed 0.0689 inches (1.75 mm) in the narrow direction.

**Screen area** must be large enough not to cause fish impact. Wetted screen area depends on the water flow rate and the water approach velocity. **Approach velocity** is the water velocity perpendicular to and approximately three inches in front of any part of the screen face.

**An Active pump screen** is a self-cleaning screen that has a proven cleaning system. The **screen approach velocity for active pump screens** shall not exceed 0.4 fps (feet per second) or 0.12 mps (meters per second). The wetted screen area in square feet is calculated by dividing the maximum water flow rate in cubic feet per second (1 cfs = 449 gpm) by 0.4 fps.

**A Passive pump screen** is a screen that has no cleaning system other than periodic manual cleaning. **Screen approach velocity for passive pump screens** shall not exceed 0.2 fps or 0.06 mps. The wetted screen area in square feet is calculated by dividing the maximum water flow rate by 0.2 fps.

For further information on fish screening please contact:

Oregon Department of Fish and Wildlife, Statewide Fish Screening Coordinator: 503.947.6229 Oregon Department of Fish and Wildlife, Screening Program Administrative Specialist: 503.947.6224

As evidence of having met fish screen installation requirements, please sign the certification and send to: Oregon Water Resources Department, Water Rights Section, 725 Summer Street NE, Suite A, Salem, OR 97301-1271.

**Certification:** I certify that my small pumped diversion of less than 225 gpm meets fish screening criteria, and that I will maintain it to comply with regulatory criteria. I also understand that should fish screening standards change, I may be required to modify my installation to meet applicable standards.

Applicant Signature:		Date: / / WRD I	File #:
Printed Name and Address:			
Phone: ()	Fax: ()		