

Change Log

Washington DNR Timber Sales Program

Updated information is being provided for Clutch timber sale #30-104443 documents as follows:

Documents amended:

Brief Description	DATE
Notice – Remarks now include information regarding the DNR Watershed Resilience Program and its Large Wood Supply Initiative	10/31/2024 WC
Contract – H141 additional language regarding transportation of root wads and trees with root wads attached.	10/31/2024 WC



TIMBER NOTICE OF SALE

SALE NAME: CLUTCH VRH VDT

AGREEMENT NO: 30-104443

AUCTION: November 20, 2024 starting at 10:00 a.m., **COUNTY:** Snohomish
Northwest Region Office, Sedro Woolley, WA

SALE LOCATION: Sale located approximately 11 miles southeast of Granite Falls, WA.

**PRODUCTS SOLD
AND SALE AREA:**

All timber bounded by white timber sale boundary tags, adjacent young stands and the PK-51 Road, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, and forest products tagged out by yellow leave tree area tags in Unit #1.

All timber bounded by white timber sale boundary tags, adjacent young stands and the PK-51 Road, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, forest products tagged out by blue special management tags (RMZs), and forest products tagged out by yellow leave tree area tags in Units #2 and #3.

All timber bounded by white timber sale boundary tags and the PK-51 Road, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, forest products tagged out by blue special management tags (Variable Density Thinning/RMZs), and forest products tagged out by yellow leave tree area tags in Unit #4.

All timber as described for removal in Schedule B located in the Variable Density Thinning and RMZ thinning areas (beyond the blue special management tags up to the white timber sale boundary tags) within Units #2, #3 and #4.

All timber bounded by orange right-of-way tags and, except that title to the timber within the right-of-way associated with areas of road construction is not conveyed to the Purchaser unless the road segment is actually constructed, except as described for removal in Schedule B.

All forest products above located on part(s) of Sections 4 and 5 all in Township 29 North, Range 8 East, W.M., containing 149 acres, more or less.

CERTIFICATION: This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: BVC-SFIFM-018227)

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade								
				1P	2P	3P	SM	1S	2S	3S	4S	UT
Hemlock	18.2		4,928						2,882	1,848	168	30
Douglas fir	23.1	7	717						538	151	19	9
Silver fir	17.7		239						100	118	21	
Redcedar	20		13							13		
Red alder	14		3									3
Sale Total			5,900									

MINIMUM BID: \$1,114,000.00

BID METHOD: Sealed Bids



TIMBER NOTICE OF SALE

PERFORMANCE

SECURITY: \$100,000.00 **SALE TYPE:** Lump Sum
EXPIRATION DATE: March 31, 2027 **ALLOCATION:** Export Restricted
BID DEPOSIT: \$111,400.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Cable OR tethered equipment (See below for restrictions); shovel, "6-wheeled rubber-tired skidders with over-the-tire tracks spanning both sets of rear tires" (See below for restrictions) or tracked equipment on sustained slopes 35% or less; self-leveling equipment on sustained slopes 55% or less (See below for restrictions).

Prior written approval of the Contract Administrator is required before tethered or self-leveling equipment may be used. If ground disturbance is causing excessive damage, as determined by the Contract Administrator, the use of this equipment will no longer be authorized.

Purchaser must obtain prior written approval from the Contract Administrator for areas as to where “6 wheeled rubber-tired skidders with over-the-tire tracks spanning both sets of rear tires” can operate (Use shall not be allowed in Unit #8). If ground disturbance is causing excessive damage, as determined by the Contract Administrator, the equipment will no longer be authorized. Falling and Yarding will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator (THIS PERTAINS TO GROUND-BASED EQUIPMENT ONLY) to reduce soil damage and erosion.

ROADS: 31.60 stations of required construction. 66.30 stations of optional construction. 529.10 stations of required prehaul maintenance. 66.30 stations of abandonment, if built.

Rock may be obtained from the following source(s) on State land at no charge to the Purchaser: PK-24 Hard Rock Pit at station 129+20 of the PK-ML Road. PK-3104 Hard Rock Pit at station 19+30 of the PK-31 Road. PK-5114 Gravel Pit at station 73+60 of the PK-51 Road.

Purchaser shall provide an excavator with operator for exploration of rock at the following sites: Station 1+60 of the PK-2157-01 Road. Station 3+30 to 7+00 of the PK-5116 Road.

Development of existing rock sources will involve clearing, stripping, drilling, shooting, and processing rock to generate riprap and 3-inch-minus ballast rock.

An estimated total quantity of rock needed for this proposal: 285 cubic yards of riprap and 8,150 cubic yards of ballast rock.

Road work and the hauling of rock will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator to reduce soil damage and siltation. The hauling of forest products will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator to reduce soil damage and siltation.

ACREAGE DETERMINATION



TIMBER NOTICE OF SALE

CRUISE METHOD: Acres determined by GPS traverse. Cruise was conducted via variable plot sample type. See Cruise Narrative for further details. Shapefiles of units are available upon request, and on the DNR website after the BNR meeting in which the sale is presented.

FEES: \$100,300.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS:

1. Intermediate supports may be necessary in Unit #4.
2. Falling and yarding in the RMZ thinning areas shall not be permitted during the bark slippage season unless authorized in writing by the Contract Administrator. This season is estimated to run from April 1 to July 15, but may vary dependent on weather conditions. If the permission is granted to operate during the bark slippage season the Purchaser shall be required to provide a plan outlining mitigation measures.
3. The DNR Watershed Resilience Program, under WRAP (Snohomish "Watershed Resilience Action Plan") LWSI (Large Wood Supply Initiative) is seeking to purchase forest products (whole logs and whole logs with root wads attached), from this sale's successful Purchaser. DNR State Lands would authorize the Purchaser of this sale to transport these described forest products with delivery to a location off site. The DNR, State Uplands, may provide authorization to store these forest products on State lands at no charge to the Purchaser. Selling forest products for this purpose from this timber sale is solely at the discretion of the Purchaser and to be between the Purchaser and the DNR Watershed Resilience Program. These forest products will be used in habitat restoration projects implemented throughout the Snohomish Basin to benefit salmon and steelhead. Contact Matthew Steinwurtzel, Watershed Restoration Support Specialist, at (360) 890-5311 for forest products questions regarding this program.

Schedule B
Thinning Prescription

Unit 2 RMZ

- Thin from below, leaving a minimum of 93-95 trees per acre maintained at uniform spacing throughout the unit.
- Only live trees 8 inches or greater in DBH shall be used to calculate trees per acre.

To accomplish this prescription, fallers shall harvest species in the following order until the TPA target is met:

1. Pacific silver fir up to 22 inches DBH.
2. Western hemlock up to 12 inches DBH.

Unit 3 RMZ

- Thin from below, leaving a minimum of 95-100 trees per acre maintained at uniform spacing throughout the unit.
- Only live trees 8 inches or greater in DBH shall be used to calculate trees per acre.

To accomplish this prescription, fallers shall harvest species in the following order until the TPA target is met:

1. Pacific silver fir up to 18 inches DBH.
2. Western hemlock up to 16 inches DBH.

Unit 4 VDT

- Thin from below, leaving a minimum of 97-100 trees per acre maintained at uniform spacing throughout the unit.
- Only live trees 8 inches or greater in DBH shall be used to calculate trees per acre.

To accomplish this prescription, fallers shall harvest species in the following order until the TPA target is met:

1. Cut all Pacific silver fir.
2. Western hemlock to 15 inches DBH.
3. Douglas-fir to 15 inches DBH.

Unit 4 RMZ

- Thin from below, leaving a minimum of 97-100 trees per acre maintained at uniform spacing throughout the unit.
- Only live trees 8 inches or greater in DBH shall be used to calculate trees per acre.

To accomplish this prescription, fallers shall harvest species in the following order:

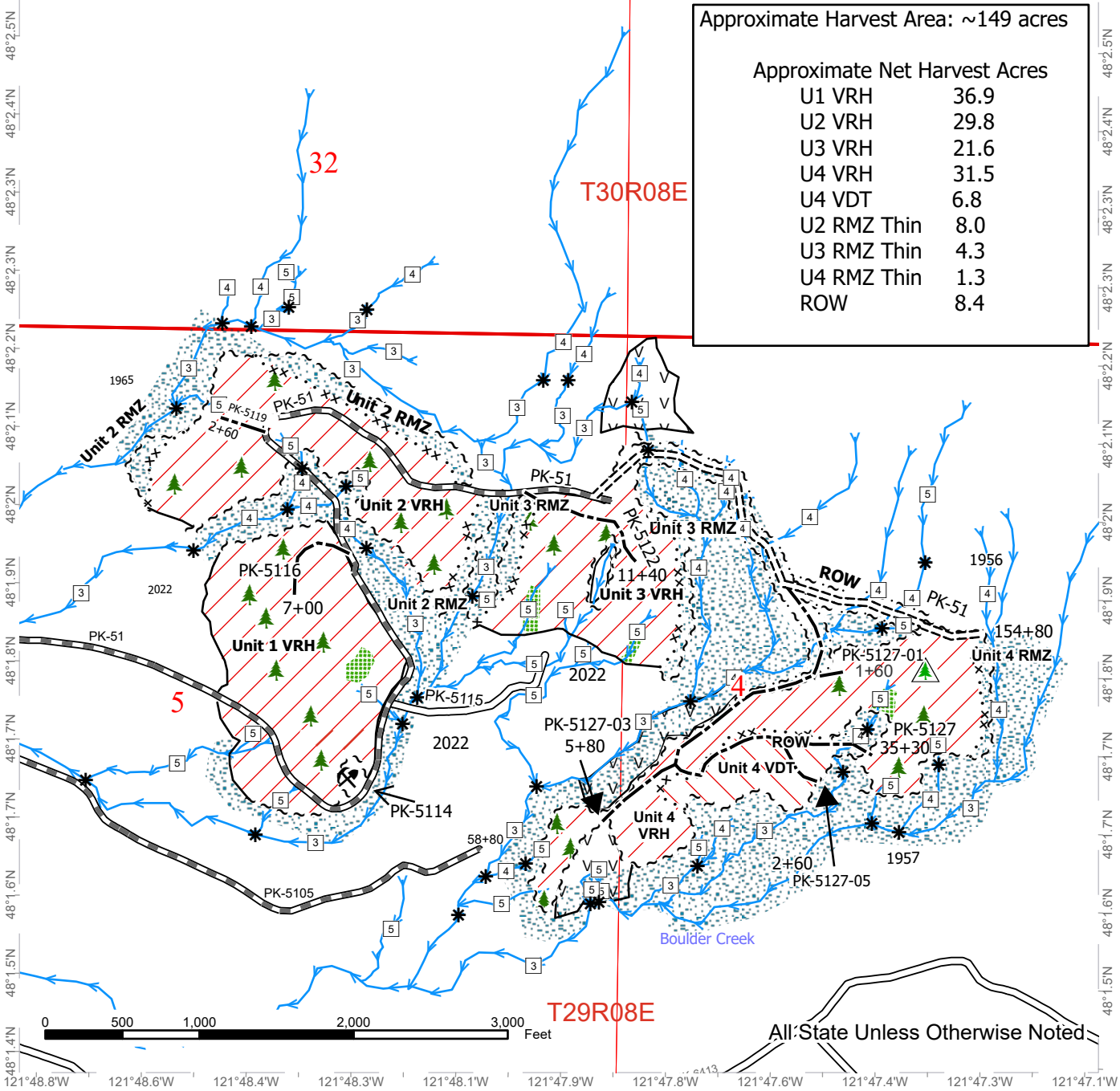
1. Cut all Pacific silver fir.
2. Western hemlock to 15 inches DBH.
3. Douglas-fir to 15 inches DBH.

TIMBER SALE MAP

SALE NAME: CLUTCH VRH VDT
AGREEMENT #: 30-104443
TOWNSHIP(S): T29R8E
TRUST(S): Agricultural School (4), Common School and Indemnity (3)

REGION: Northwest Region
COUNTY(S): Snohomish County
ELEVATION RGE: 1160-1720

121°48.8'W 121°48.6'W 121°48.4'W 121°48.3'W 121°48.1'W 121°47.9'W 121°47.8'W 121°47.6'W 121°47.4'W 121°47.3'W



Approximate Harvest Area: ~149 acres

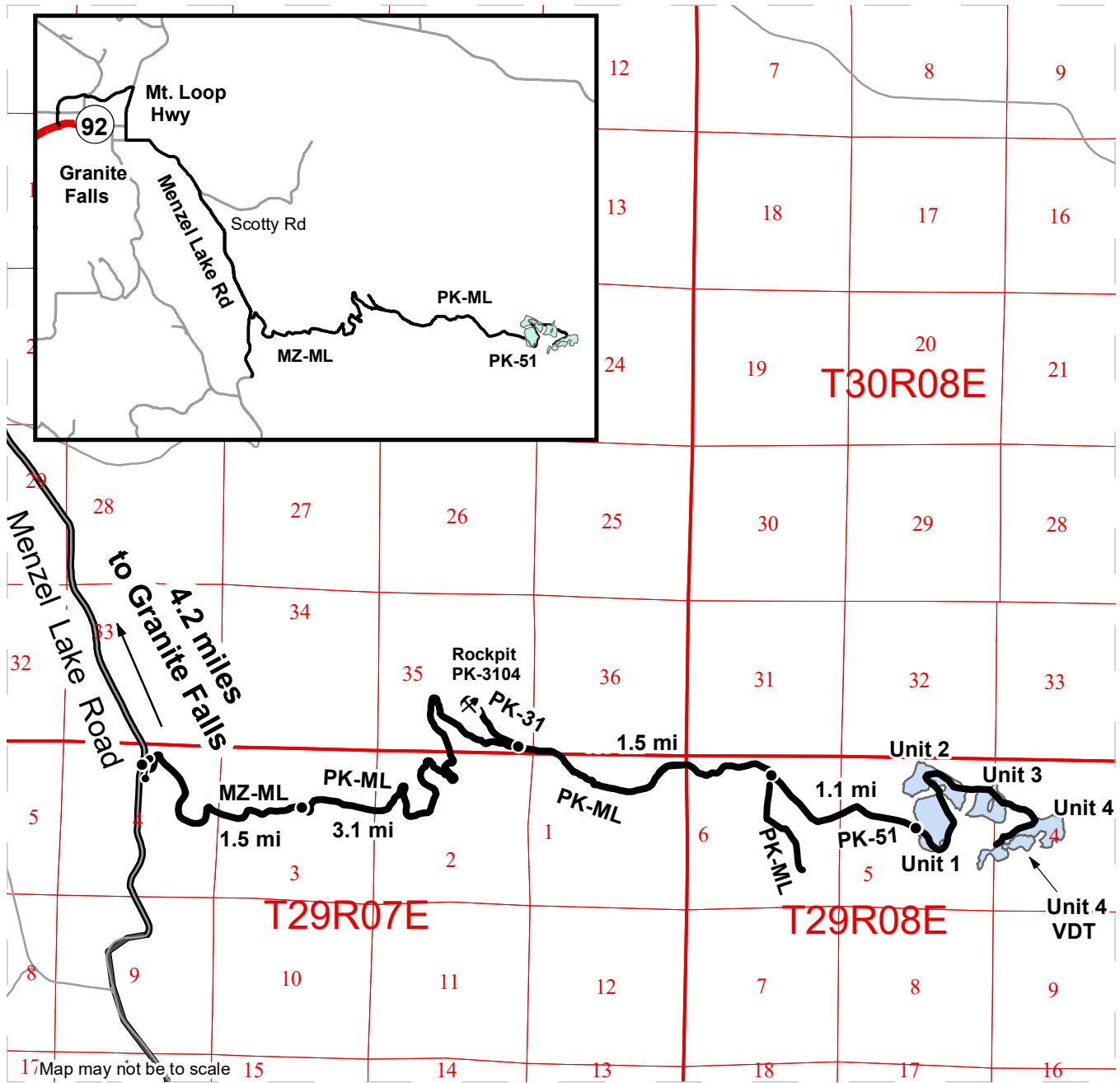
Approximate Net Harvest Acres	
U1 VRH	36.9
U2 VRH	29.8
U3 VRH	21.6
U4 VRH	31.5
U4 VDT	6.8
U2 RMZ Thin	8.0
U3 RMZ Thin	4.3
U4 RMZ Thin	1.3
ROW	8.4

Variable Retention Harvest	Young Stand Edge	Non-Tradeable Leave Trees	Riparian Mgt Zone
Variable Density Thinning	Existing Roads	Streams	Equipment Exclusion Zone
Sale Boundary Tags	Required Pre-Haul Maintenance	Stream Type 3	Rock Pit
Special Mgmt Area	Required Construction	Stream Type 4	
Right of Way Tags	Optional Construction	Stream Type 5	
Leave Tree Area <1/4-acre	Stream Break	Leave Tree Area	

DRIVING MAP

SALE NAME: Clutch
AGREEMENT#: 30-104443
TOWNSHIP(S): T29R7E, T30R7E, T30R8E
TRUST(S): Common School and Indemnity (3), Agricultural School (4)

REGION: Northwest Region
COUNTY(S): Snohomish
ELEVATION RGE: 1180-1720



- Haul Route
- Distance Indicator
- Gate (F-1-3 Key)
- Rock Pit
- State Highway
- Other Road

DRIVING DIRECTIONS:

From the intersection of MTN Loop HWY and Menzel Lake Road in Granite Falls, travel 4.2 miles south along Menzel Lake Road to the Menzel Lake Main Line (MZ-ML) where you will arrive at a gate (F-1-3 key required).

From the gate, drive 1.5 miles east, staying right at the fork to continue on the PK-ML. From this junction, travel 3.1 miles east along PK-ML to the Junction of PK-31 and PK-ML. Continue along PK-ML for 1.5 miles to the junction of PK-51 and PK-ML.

Unit(s) 1,2,3,4:
From the junction of PK-ML and PK-51, travel east for 1.1 miles where you will enter Unit 1. Stay along PK-51 to enter Units 2, 3, and 4.



**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

**BILL OF SALE AND CONTRACT FOR
FOREST PRODUCTS**

Export Restricted Lump Sum AGREEMENT NO. 30-0104443

SALE NAME: CLUTCH VRH VDT

**THE STATE OF WASHINGTON DEPARTMENT OF NATURAL
RESOURCES, HEREINAFTER ACTING SOLELY, IN ITS PROPRIETARY
CAPACITY, STATE, AND PURCHASER, AGREE AS FOLLOWS:**

Section G: General Terms

G-001 Definitions

The following definitions apply throughout this contract;

Bill of Sale and Contract for Forest Products: Contract between the Purchaser and the State, which sets forth the procedures and obligations of the Purchaser in exchange for the right to remove forest products from the sale area. The Bill of Sale and Contract for Forest Products may include a Road Plan for any road construction or reconstruction, where applicable.

Contract Administrator: Region Manager's designee responsible for assuring that the contractual obligations of the Purchaser are met.

Forest Product: Any material derived from the forest for commercial use.

Purchaser: The company or individual that has entered into a Bill of Sale and Contract for Forest Products with the State for the right to harvest and remove forest products from the timber sale area.

Road Construction: Includes building new and maintaining existing forest roads and associated work that may be optional or required as described in the Road Plan.

State: The Washington State Department of Natural Resources, landowner and seller of Forest Products from the timber sale area. The State is represented by the Region Manager as designated on the contract signature page. Contractual obligations to the State are enforced by the Region Manager or the designated Contract Administrator.

Subcontractor: Individual or company employed by the Purchaser to perform a portion or all of the services required by The Bill of Sale and Contract for Forest Products. The Purchaser is responsible for independently negotiating, procuring and paying for all subcontracted services rendered.

G-011 Right to Remove Forest Products and Contract Area

Purchaser was the successful bidder on November 20, 2024 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber bounded by white timber sale boundary tags, adjacent young stands and the PK-51 Road, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, and forest products tagged out by yellow leave tree area tags in Unit #1.

All timber bounded by white timber sale boundary tags, adjacent young stands and the PK-51 Road, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, forest products tagged out by blue special management tags (RMZs), and forest products tagged out by yellow leave tree area tags in Units #2 and #3.

All timber bounded by white timber sale boundary tags and the PK-51 Road, except cedar salvage (cedar snags, preexisting dead and down cedar trees and cedar logs), trees marked with blue paint on the bole and root collar, forest products tagged out by blue special management tags (Variable Density Thinning/RMZs), and forest products tagged out by yellow leave tree area tags in Unit #4.

All timber as described for removal in Schedule B located in the Variable Density Thinning and RMZ thinning areas (beyond the blue special management tags up to the white timber sale boundary tags) within Units #2, #3 and #4.

All timber bounded by orange right-of-way tags and, except that title to the timber within the right-of-way associated with areas of road construction is not conveyed to the Purchaser unless the road segment is actually constructed, except as described for removal in Schedule B.

All forest products described above located on approximately 149 acres on part(s) of Sections 4, and 5 all in Township 29 North, Range 8 East W.M. in Snohomish County(s) as designated on the sale area and as shown on the attached timber sale map.

All forest products described above from the bole of the tree that meet or exceed 2 inches diameter inside bark on the small end are eligible for removal. Above ground components of a tree that remain as by-products after the manufacture of logs, including but not limited to tree tops, branches, limbs, needles, leaves, stumps, are not eligible for removal under the terms of this contract.

Forest products purchased under a contract that is designated as export restricted shall not be exported until processed. Forest products purchased under a contract that is designated as exportable may be exported prior to processing.

G-020 Inspection By Purchaser

Purchaser hereby warrants to the State that they have had an opportunity to fully inspect the sale area and the forest products being sold. Purchaser further warrants to the State that they enter this contract based solely upon their own judgment of the value of the forest products, formed after their own examination and inspection of both the timber sale area and the forest products being sold. Purchaser also warrants to the State that they enter this contract without any reliance upon the volume estimates, acreage estimates, appraisals, pre-bid documentation, or any other representations by the State Department of Natural Resources.

G-025 Schedules

The following attached schedules are hereby incorporated by reference:

Schedule	Title
B	Thinning Prescription

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to March 31, 2027.

G-040 Contract Term Adjustment - No Payment

Purchaser may request an adjustment in the contract term. A claim must be submitted in writing and received by the State within 30 days after the start of interruption or delay. The claim must also indicate the actual or anticipated length of interruption or delay. The State may grant an adjustment without charge only if the cause for contract term adjustment is beyond Purchaser's control. The cause must be one of the following and the adjustment may be granted only if operations or planned operations under this contract are actually interrupted or delayed:

- a. Road and bridge failures which deny access.
- b. Access road closures imposed by road owner.
- c. Excessive suspensions as provided in clause G-220.
- d. Regulatory actions not arising from Purchaser's failure to comply with this contract which will prevent timber harvest for a period less than 6 months.

G-051 Contract Term Extension - Payment

Extensions of this contract term may be granted only if, in the judgment of the State, Purchaser is acting in good faith and is endeavoring to remove the forest products conveyed. The term of this contract may be extended for a reasonable time by the State if all of the following conditions are satisfied:

- a. A written request for extension of the contract term must be received prior to the expiration date of the contract.
- b. Completion of all required roads and compliance with all contract and regulatory requirements.
- c. For the first extension, not to exceed 1 year, payment of at least 25 percent of the total contract price.

For the second extension, not to exceed 1 year, payment of at least 90 percent of the total contract price.

The payments shall not include the initial deposit which shall be held according to the provisions of RCW 79.15.100.

- d. Payment of an amount based on 12 percent interest per annum on the unpaid portion of the total contract price.

All payments, except the initial deposit, will be deducted from the total contract price to determine the unpaid portion of the contract.

- e. Payment of \$591.00 per acre per annum for the acres on which an operating release has not been issued the Variable Retention Harvest areas. Payment of \$83.00 per acre per annum for the acres on which an operating release has not been issued in in Variable Density Thinning (VDT) Unit #4, and the RMZ Thinning areas in Unit #2, #3 and #4.
- f. In no event will the extension charge be less than \$200.00.
- g. Extension payments are non-refundable.

G-053 Surveys - Sensitive, Threatened, Endangered Species

Whenever the State determines that a survey for sensitive, threatened, or endangered species is prudent, or when Purchaser determines a survey is prudent and the State agrees, Purchaser shall perform such surveys at Purchaser's expense and to the standards required by the State. The survey information shall be supplied to the State.

G-060 Exclusion of Warranties

The PARTIES AGREE that the IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE and ALL OTHER WARRANTIES

EXPRESSED OR IMPLIED ARE EXCLUDED from this transaction and shall not apply to the goods sold. For example, THE FOLLOWING SPECIFIC MATTERS ARE NOT WARRANTED, and are EXCLUDED from this transaction:

- a. The MERCHANTABILITY of the forest products. The use of the term "merchantable" in any document is not intended to vary the foregoing.
- b. The CONDITION of the forest products. The forest products will be conveyed "AS IS."
- c. The ACREAGE contained within any sale area. Any acreage descriptions appearing in the timber notice of sale, timber sale contract, or other documents are estimates only, provided solely for administrative and identification purposes.
- d. The VOLUME, QUALITY, OR GRADE of the forest products. The State neither warrants nor limits the amount of timber to be harvested. The descriptions of the forest products to be conveyed are estimates only, made solely for administrative and identification purposes.
- e. The CORRECTNESS OF ANY SOIL OR SURFACE CONDITIONS, PRE-SALE CONSTRUCTION APPRAISALS, INVESTIGATIONS, AND ALL OTHER PRE-BID DOCUMENTS PREPARED BY OR FOR THE STATE. These documents have been prepared for the State's appraisal purposes only.
- f. THAT THE SALE AREA IS FREE FROM THREATENED OR ENDANGERED SPECIES or their habitat. The State is not responsible for any interference with forestry operations that result from the presence of any threatened or endangered species, or the presence of their habitat, within the sale area.
- g. THAT THE FORESTRY OPERATIONS to be performed under this contract WILL BE FREE FROM REGULATORY ACTIONS by governmental agencies. The State is not responsible for actions to enforce regulatory laws, such as the Washington Forest Practices Act (chapter 76.09 RCW), taken by the Department of Natural Resources or any other agency that may affect the operability of this timber sale.
- h. Items contained in any other documents prepared for or by the State.

G-061 Inadvertent Discovery of Cultural Resources

Purchaser acknowledges that cultural resources as defined in WAC 222-16-010 may exist within the timber sale area and that the existence and location of such resources may be unknown at the time this contract is executed. Purchaser has a duty to exercise due care in its operations and in the event any human skeletal remains are discovered by the Purchaser or the State during the course of operations Purchaser shall immediately halt operations and notify local law enforcement in the most expeditious

manner possible then notifying the Contract Administrator. In the event cultural resources are discovered by the Purchaser or the State during the course of operations Purchaser shall immediately halt operations and notify the Contract Administrator. Any potential resources shall not be removed or disturbed. Purchaser shall resume operations as directed in writing by the Contract Administrator.

G-062 Habitat Conservation Plan

The State has entered into a Habitat Conservation Plan (HCP) with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (the Services) to address state trust land management issues relating to compliance with the Federal Endangered Species Act. The activities to be carried out under this contract are located within the State's HCP area and are subject to the terms and conditions of the HCP, and the Services' Incidental Take Permit Nos. TE812521-1 and 1168 (collectively referred to as ITP), or as amended hereafter by the Services. The ITP authorizes the incidental take of certain federally listed threatened and endangered species, as specified in the ITP conditions. All HCP materials, including the ITP, are available for review at the State's Regional Offices and the administrative headquarters in Olympia, Washington.

By signing this contract, Purchaser agrees to comply with the terms and conditions of the ITP, and the HCP, which shall become terms of this contract. The State agrees to authorize the lawful activities of the Purchaser carried out pursuant to this contract, PROVIDED the Purchaser remains in compliance with the terms and conditions of both the HCP and ITP. The requirements set forth in this contract are intended to comply with the terms and conditions of the HCP and ITP. Accordingly, non-compliance with the terms and conditions of the HCP and ITP will render the authorization provided in this paragraph void, be deemed a breach of the contract and may subject Purchaser to liability for violation of the Endangered Species Act.

Any modifications to the contract shall be proposed in writing by Purchaser, shall continue to meet the terms and conditions of the HCP and ITP, and shall require the prior written approval of the Region Manager before taking effect.

G-063 Incidental Take Permit Notification Requirements

- a. Purchaser shall immediately notify the Contract Administrator of new locations of permit species covered by the Incidental Take Permits (ITP) that are discovered within the area covered by the State's Habitat Conservation Plan (HCP), including, but not limited to: locations of occupied murrelet habitat; spotted owl nest sites; wolves; grizzly bears; nests, communal roosts, or feeding concentrations of bald eagles; peregrine falcon nests; Columbian white-tailed deer; Aleutian Canada geese; Oregon silverspot butterflies; and additional stream reaches found to contain bull trout. Purchaser is required to notify the Contract Administrator upon discovery of any fish species found in streams or bodies of water classified as non-fish bearing. In all circumstances, notification must occur within a 24 hour time period.
- b. Upon locating any live, dead, injured, or sick specimens of any permit species covered by the ITP, Purchaser shall immediately notify the Contract

Administrator. Purchaser shall notify the Contract Administrator if there is any doubt as to the identification of a discovered permit species. Purchaser may be required to take certain actions to help the Contract Administrator safeguard the well-being of any live, injured or sick specimens of any permit species discovered, until the proper disposition of such specimens can be determined by the Contract Administrator. Any such requirements will be explained to Purchaser by the Contract Administrator during the Pre-Work Conference. In all circumstances, notification must occur within a 24 hour time period.

- c. Purchaser shall refer to a specific ITP number, ITP TE812521-1 or ITP 1168 (copies which are located in the region office) in all correspondence and reports concerning permit activities.
- d. Provisions and requirements of the ITP shall be clearly presented and explained to Purchaser by Contract Administrator during the Pre-Work Conference as per contract clause G-330. All applicable provisions of the ITP and this schedule must be presented and clearly explained by Purchaser to all authorized officers, employees, contractors, or agents of Purchaser conducting authorized activities in the timber sale area. Any questions Purchaser may have about the ITP should be directed to the Contract Administrator.

G-064 Permits

Purchaser is responsible for obtaining any permits not already obtained by the State that relate to Purchaser's operation. Forest Practice Application / Hydraulic Project Approval permits obtained by the State shall be transferred to Purchaser. Purchaser is responsible for all permits, amendments and renewals.

G-065 Regulatory Disclaimer

The State disclaims any responsibility for, or liability relating to, regulatory actions by any government agency, including actions pursuant to the Forest Practices Act, Ch. 76.09 RCW that may affect the operability of the timber sale.

G-066 Governmental Regulatory Actions

a. Risk

Purchaser shall be responsible for any increased operational costs arising from any applicable foreign or domestic governmental regulation or order that does not cause contract performance to become commercially impracticable or that does not substantially frustrate the purpose of the contract. If impracticability or frustration results from Purchaser's failure to comply with this contract, Purchaser shall remain responsible for payment of the total contract price notwithstanding the impracticability or frustration.

b. Sale Area

When portions of the sale area become subject to a foreign or domestic governmental regulation or order that will likely prevent timber harvest for a period that will exceed the expiration date of this contract, and Purchaser has complied with this contract, the following shall apply:

- i. RCW 79.15.140 shall govern all adjustments to the contract area.

c. Adjustment of Price

The State shall adjust the total contract price by subtracting from the total contract price an amount determined in the following manner: The State shall cause the timber sale area subject to governmental regulation or order to be measured. The State shall calculate the percentage of the total sale area subject to the governmental regulation or order. The State shall reduce the total contract price by that calculated percentage. However, variations in species, value, costs, or other items pertaining to the affected sale area will be analyzed and included in the adjustment if deemed appropriate by the State. The State will further reduce the total contract price by the reasonable cost of unamortized roads Purchaser constructed but was unable to fully use for removing timber. A reduction in total contract price terminates all of the Purchaser's rights to purchase and remove the timber and all other interest in the affected sale area.

G-070 Limitation on Damage

In the event of a breach of any provision of this contract by the State, the exclusive remedy available to Purchaser will be limited to a return of the initial deposit, unapplied payments, and credit for unamortized improvements made by Purchaser. The State shall not be liable for any damages, whether direct, incidental or consequential.

G-080 Scope of State Advice

No advice by any agent, employee, or representative of the State regarding the method or manner of performing shall constitute a representation or warranty that said method, manner or result thereof will conform to the contract or be suitable for Purchaser's purposes under the contract. Purchaser's reliance on any State advice regarding the method or manner of performance shall not relieve Purchaser of any risk or obligation under the contract. Purchaser retains the final responsibility for its operations under this contract and State shall not be liable for any injuries resulting from Purchaser's reliance on any State advice regarding the method or manner of performance.

G-091 Sale Area Adjustment

The Parties may agree to adjustments in the sale area boundary. The cumulative changes to the sale area during the term of the contract shall not exceed more than four percent of the original sale area. If the sale area is increased, the added forest products become a part of this contract. The State shall determine the volume added and shall

calculate the increase to the total contract price using the rates set forth in clause G-101, G-102, or G-103. If the sale area is reduced, the State shall determine the volume to be reduced. The State shall calculate the reduction to the total contract price using the rates set forth in clause G-101, G-102, or G-103.

G-101 Forest Products Not Designated

Any forest products not designated for removal, which must be removed in the course of operations authorized by the State, shall be approved and designated by the Contract Administrator. Added forest products become a part of this contract and the Scribner log scale volume, as defined by the Northwest Log Rules Advisory Group, shall be determined by the Contract Administrator. Added forest products shall be paid for at the following contract payment rates per Mbf Scribner log scale.

Contract Item	Appraised Price	Overbid Factor	Price	Fees	Contract Payment Rate
Douglas fir	\$240.55	0	\$0.00	\$9.00	\$9.00
Hemlock	\$181.02	0	\$0.00	\$9.00	\$9.00
Red alder	\$169.54	0	\$0.00	\$9.00	\$9.00
Redcedar	\$456.31	0	\$0.00	\$9.00	\$9.00
Silver fir	\$179.99	0	\$0.00	\$9.00	\$9.00
Other	\$239.04	0	\$0.00	\$9.00	\$9.00

G-106 Adding Naturally Damaged Forest Products

Any forest products not designated for removal that are seriously damaged by disease, insects or wind, or that may contribute seriously to the spread of insect or disease damage may be added to this sale by the State's Contract Administrator. Additions must be in unlogged areas of the sale and added volume shall not exceed an amount equal to 10 percent of the original advertised volume. Added forest products become a part of this contract and shall be paid for at the rate set forth in clause G-101, G-102 or G-103.

G-111 Title and Risk of Loss

Title to the forest products under this contract passes to the Purchaser after they are removed from the sale area, if adequate advance payment or payment security has been provided to the State under this contract. Purchaser bears all risk of loss of, or damage to, and has an insurable interest in, the forest products described in this contract from the time the sale is confirmed under RCW 79.15.120. Breach of this contract shall have no effect on this provision.

G-116 Sustainable Forestry Initiative® (SFI®) Certification

Forest products purchased under this contract are certified as being in conformance with the Sustainable Forestry Initiative 2022 Forest Management Standard under certificate number: BVC-SFIFM-018227.

Purchaser shall have at least one person regularly on-site during active operations that have completed training according to the requirements outlined within the SFI Standard. Purchaser shall designate in writing the name(s) of the individual(s) who will

be on-site and provide proof of their successful completion of an approved training program prior to active operations.

G-120 Responsibility for Work

All work, equipment, and materials necessary to perform this contract shall be the responsibility of Purchaser. Any damage to improvements, except as provided in clause G-121 or unless the State issues an operating release pursuant to clause G-280, shall be repaired promptly to the satisfaction of the State and at Purchaser's expense.

G-121 Exceptions

Exceptions to Purchaser's responsibility in clause G-120 shall be limited exclusively to the following. These exceptions shall not apply where road damage occurs due to Purchaser's failure to take reasonable precautions or to exercise sound forest engineering and construction practices.

The State will bear the cost to repair damages caused by a third party. In all other cases, the Purchaser shall bear responsibility for the costs as described below.

Road is defined as the road bed, including but not limited to its component parts, such as cut and fill slopes, subgrade, ditches, culverts, bridges, and cattle guards.

For the purposes of this clause, damage will be identified by the State and is defined as:

1. Failure of (a) required improvements or roads designated in clause C-050, or (b) required or optional construction completed to the point that authorization to haul has been issued;
2. Caused by a single event from forces beyond the control of Purchaser, its employees, agents, or invitees, including independent contractors; and
3. Includes, but is not limited to natural disasters such as earthquakes, volcanic eruptions, landslides, and floods.

The repair work identified by the State shall be promptly completed by Purchaser at an agreed price. The State may elect to accomplish repairs by means of State-provided resources.

For each event, Purchaser shall be solely responsible for the initial \$5,000 in repairs. For repairs in excess of \$5,000, the parties shall share equally the portion of costs between \$5,000 and \$15,000. The State shall be solely responsible for the portion of the cost of repairs that exceed \$15,000.

Nothing contained in clauses G-120 and G-121 shall be construed as relieving Purchaser of responsibility for, or damage resulting from, Purchaser's operations or negligence, nor shall Purchaser be relieved from full responsibility for making good any defective work or materials. Authorization to haul does not warrant that Purchaser

built roads are free from material defect and the State may require additional work, at Purchasers expense regardless of cost, to remedy deficiencies at any time.

G-140 Indemnity

To the fullest extent permitted by law, Purchaser shall indemnify, defend and hold harmless State, agencies of State and all officials, agents and employees of State, from and against all claims arising out of or resulting from the performance of the contract. "Claim" as used in this contract means any financial loss, claim, suit, action, damage, or expense, including but not limited to attorneys' fees, attributable for bodily injury, sickness, disease or death, or injury to or destruction of tangible property including loss of use resulting therefrom. Purchasers' obligations to indemnify, defend, and hold harmless includes any claim by Purchasers' agents, employees, representatives, or any subcontractor or its employees. Purchaser expressly agrees to indemnify, defend, and hold harmless State for any claim arising out of or incident to Purchasers' or any subcontractors' performance or failure to perform the contract. Purchasers' obligation to indemnify, defend, and hold harmless State shall not be eliminated or reduced by any actual or alleged concurrent negligence of State or its agents, agencies, employees and officials. Purchaser waives its immunity under Title 51 RCW to the extent it is required to indemnify, defend and hold harmless State and its agencies, officials, agents or employees.

G-150 Insurance

Purchaser shall, at its cost and expense, buy and maintain insurance of the types and amounts listed below. Failure to buy and maintain the required insurance may result in a breach and/or termination of the contract at State's option. State may suspend Purchaser operations until required insurance has been secured.

All insurance and surety bonds should be issued by companies admitted to do business within the State of Washington and have a rating of A-, Class VII or better in the most recently published edition of Best's Reports. If an insurer is not admitted, all insurance policies and procedures for issuing the insurance policies must comply with Chapter 48.15 RCW and 284-15 WAC.

The State of Washington, Department of Natural Resources region office of sale origin shall be provided written notice before cancellation or non-renewal of any insurance referred to therein, in accord with the following specifications:

1. Insurers subject to Chapter 48.18 RCW (admitted and regulated by the Insurance Commissioner): The insurer shall give the State 45 days advance notice of cancellation or non-renewal. If cancellation is due to non-payment of premium, the State shall be given 10 days advance notice of cancellation.
2. Insurers subject to Chapter 48.15 RCW (surplus lines): The State shall be given 20 days advance notice of cancellation. If cancellation is due to non-payment of premium, the State shall be given 10 days advance notice of cancellation.

Before starting work, Purchaser shall furnish State of Washington, Department of Natural Resources with a certificate(s) of insurance, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements specified in the contract. Insurance coverage shall be obtained by the Purchaser prior to operations commencing and continually maintained in full force until all contract obligations have been satisfied or an operating release has been signed by the State.

Purchaser shall include all subcontractors as insured under all required insurance policies, or shall furnish separate certificates of insurance and endorsements for each subcontractor. Subcontractor(s) must comply fully with all insurance requirements stated herein. Failure of subcontractor(s) to comply with insurance requirements does not limit Purchaser's liability or responsibility.

The State of Washington, Department of Natural Resources, its elected and appointed officials, agents and employees shall be named as an additional insured via endorsement on all general liability, excess, umbrella, and property insurance policies.

All insurance provided in compliance with this contract shall be primary as to any other insurance or self-insurance programs afforded to or maintained by State. Purchaser waives all rights against State for recovery of damages to the extent these damages are covered by general liability or umbrella insurance maintained pursuant to this contract.

By requiring insurance herein, State does not represent that coverage and limits will be adequate to protect Purchaser and such coverage and limits shall not limit Purchaser's liability under the indemnities and reimbursements granted to State in this contract.

The limits of insurance, which may be increased as deemed necessary by State of Washington, Department of Natural Resources, shall not be less than as follows:

Commercial General Liability (CGL) Insurance. Purchaser shall maintain general liability (CGL) insurance, and, if necessary, commercial umbrella insurance with a limit of not less than \$1,000,000.00 per each occurrence. If such CGL insurance contains aggregate limits, the General Aggregate limit shall be at least twice the "each occurrence" limit. CGL insurance shall have products-completed operations aggregate limit of at least two times the "each occurrence" limit. CGL coverage shall include a Logging and Lumbering Endorsement (i.e. Logger's Broad-Form) to cover the events that include, but are not limited to, fire suppression expenses, accidental timber trespasses, and wildfire property damage with limits of not less than \$2,000,000.00 each occurrence.

CGL insurance shall be written on Insurance Services Office (ISO) occurrence form CG 00 01 (or a substitute form providing equivalent coverage). All insurance shall cover liability arising out of premises, operations, independent contractors, products completed operations, personal injury and advertising injury, and liability assumed under an insured contract (including the tort liability of another party assumed in a business contract), and contain separation of insured (cross liability) condition.

Employer's Liability "Stop Gap" Insurance. Purchaser shall buy employers liability insurance, and, if necessary, commercial umbrella liability insurance with limits not less than \$1,000,000.00 each accident for bodily injury by accident or \$1,000,000.00 each employee for bodily injury by disease.

Workers' Compensation Coverage. Purchaser shall comply with all State of Washington workers' compensation statutes and regulations. Workers' compensation coverage shall be provided for all employees of Purchaser and employees of any subcontractor or sub-subcontractor. Coverage shall include bodily injury (including death) by accident or disease, which exists out of or in connection with the performance of this contract. Except as prohibited by law, Purchaser waives all rights of subrogation against State for recovery of damages to the extent they are covered by workers' compensation, employer's liability, commercial general liability, or commercial umbrella liability insurance.

If Purchaser, subcontractor or sub-subcontractor fails to comply with all State of Washington workers' compensation statutes and regulations and State incurs fines or is required by law to provide benefits to or obtain coverage for such employees, Purchaser shall indemnify State. Indemnity shall include all fines, payment of benefits to Purchaser or subcontractor employees, or their heirs or legal representatives, and the cost of effecting coverage on behalf of such employees.

Business Auto Policy (BAP). Purchaser shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit not less than \$1,000,000.00 per accident. Such insurance shall cover liability arising out of "Any Auto". Business auto coverage shall be written on ISO form CA 00 01, or substitute liability form providing equivalent coverage. If necessary the policy shall be endorsed to provide contractual liability coverage and cover a "covered pollution cost or expense" as provided in the 1990 or later editions of CA 00 01. Purchaser waives all rights against State for the recovery of damages to the extent they are covered by business auto liability or commercial umbrella liability insurance.

G-160 Agents

The State's rights and duties will be exercised by the Region Manager at Sedro-Woolley, Washington. The Region Manager will notify Purchaser in writing who is responsible for administering the contract. The Region Manager has sole authority to waive, modify, or amend the terms of this contract in the manner prescribed in clause G-180. No agent, employee, or representative of the State has any authority to bind the State to any affirmation, representation, or warranty concerning the forest products conveyed beyond the terms of this contract.

Purchaser is required to have a person on site during all operations who is authorized to receive instructions and notices from the State. Purchaser shall inform the State in writing who is authorized to receive instructions and notices from the State, and any limits to this person's authority.

G-170 Assignment and Delegation

No rights or interest in this contract shall be assigned by Purchaser without prior written permission of the State. Any attempted assignment shall be void and ineffective for all purposes unless made in conformity with this paragraph. Purchaser may perform any duty through a delegate, but Purchaser is not thereby relieved of any duty to perform or any liability. Any assignee or delegate shall be bound by the terms of the contract in the same manner as Purchaser.

G-180 Modifications

Waivers, modifications, or amendments of the terms of this contract must be in writing signed by Purchaser and the State.

G-190 Contract Complete

This contract is the final expression of the Parties' agreement. There are no understandings, agreements, or representations, expressed or implied, which are not specified in this contract.

G-200 Notice

Notices required to be given under the following clauses shall be in writing and shall be delivered to Purchaser's authorized agent or sent by certified mail to Purchaser's address of record:

G-210 Violation of Contract

G-220 State Suspends Operations

All other notices required to be given under this contract shall be in writing and delivered to the authorized agent or mailed to the Party's post office address. Purchaser agrees to notify the State of any change of address.

G-210 Violation of Contract

- a. If Purchaser violates any provision of this contract, the Contract Administrator, by written notice, may suspend those operations in violation. If the violation is capable of being remedied, Purchaser has 30 days after receipt of a suspension notice to remedy the violation. If the violation cannot be remedied (such as a violation of WAC 240-15-015) or Purchaser fails to remedy the violation within 30 days after receipt of a suspension notice, the State may terminate the rights of Purchaser under this contract and collect damages.
- b. If the contract expires pursuant to clause G-030 or G-031 without Purchaser having performed all its duties under this contract, Purchaser's right to operate is terminated and Purchaser shall not have the right to remedy the breach. This provision shall not relieve Purchaser of any payment obligations.
- c. The State has the right to remedy the breach in the absence of any indicated attempt by Purchaser or if Purchaser is unable, as determined by the State, to

remedy the breach. Any expense incurred by the State shall be charged to Purchaser and shall be paid within 30 days of receipt of billing.

- d. If Purchaser's violation is a result of a failure to make a payment when due, in addition to a. and b. above, interest shall accrue on the unpaid balance at 12 percent per annum, beginning the date payment was due.

G-220 State Suspends Operations

The Contract Administrator may suspend any operation of Purchaser under this contract when the State is suffering, or there is a reasonable expectation the State will suffer environmental, monetary, or other damage if the operation is allowed to continue.

Purchaser shall be in breach of this contract if the operation continues after the suspension notice or if the operation resumes without prior approval and notice from the Contract Administrator.

Purchaser may request a modification of a suspension within 30 days of the start of suspension through the dispute resolution process in clause G-240. If this process results in a finding that the suspension exceeded the time reasonably necessary to stop or prevent damage to the State, Purchaser is entitled to request a contract term adjustment under clause G-040.

If it reasonably appears that the damage that the State is suffering, or can reasonably be expected to suffer if the operation is allowed to continue, will prevent harvest for a period that will exceed 6 months, and Purchaser has complied with this contract, the provisions of clause G-066 shall govern just as if the harvest was prevented by an applicable foreign or domestic governmental regulation or order.

G-230 Unauthorized Activity

Any cutting, removal, or damage of forest products by Purchaser, its employees, agents, or invitees, including independent contractors, in a manner inconsistent with the terms of this contract or State law, is unauthorized. Such activity may subject Purchaser to liability for triple the value of said forest products under RCW 79.02.320 or RCW 79.02.300 and may result in prosecution under RCW 79.02.330 or other applicable statutes.

G-240 Dispute Resolution

The following procedures apply in the event of a dispute regarding interpretation or administration of this contract and the parties agree that these procedures must be followed before a lawsuit can be initiated.

- a. In the event of a dispute, Purchaser must make a written request to the Region Manager for resolution prior to seeking other relief.
- b. The Region Manager will issue a written decision on Purchaser's request within ten business days.

- c. Within ten business days of receipt of the Region Manager's decision, Purchaser may make a written request for resolution to the Deputy Supervisor - Uplands of the Department of Natural Resources.
- d. Unless otherwise agreed, a conference will be held by the Deputy Supervisor - Uplands within 30 calendar days of the receipt of Purchaser's request for review of the Region Manager's written decision. Purchaser and the Region Manager will have an opportunity to present their positions. The Deputy Supervisor - Uplands will issue a decision within a reasonable time of being presented with both Parties' positions.

G-250 Compliance with All Laws

Purchaser shall comply with all applicable statutes, regulations and laws, including, but not limited to; chapter 27.53 RCW, chapter 68.50 RCW, WAC 240-15 and WAC 296-54. Failure to comply may result in forfeiture of this contract.

G-260 Venue

This contract shall be governed by the laws of the State of Washington. In the event of a lawsuit involving this contract, venue shall be proper only in Thurston County Superior Court.

G-270 Equipment Left on State Land

All equipment owned or in the possession of Purchaser, its employees, agents, or invitees, including independent contractors, shall be removed from the sale area and other State land by the termination date of this contract. Equipment remaining unclaimed on State land 60 days after the expiration of the contract period is subject to disposition as provided by law. Purchaser shall pay to the State all costs of moving, storing, and disposing of such equipment. The State shall not be responsible for any damages to or loss of the equipment or damage caused by the moving, storing or disposal of the equipment.

G-280 Operating Release

An operating release is a written document, signed by the State and Purchaser, indicating that Purchaser has been relieved of certain rights or responsibilities with regard to the entire or a portion of the timber sales contract. Purchaser and State may agree to an operating release for this sale, or portion of this sale, prior to the contract expiration, when all contract requirements pertaining to the release area have been satisfactorily completed. Upon issuance of a release, Purchaser's right to cut and remove forest products on the released area will terminate.

G-310 Road Use Authorization

Purchaser is authorized to use the following State roads and roads for which the State has acquired easements and road use permits; MZ-ML, PK-ML, PK-31, PK-51, PK-5105, PK-5116, PK-5119, PK-5122, PK-5127, PK-5127-01, PK-5127-03, PK-5127-05. The State may authorize in writing the use of other roads subject to fees, restrictions, and prior rights.

G-330 Pre-work Conference

Purchaser shall arrange with the Contract Administrator to review this contract and to examine the sale area before beginning any operations. A plan of operations shall be developed and agreed upon by the Contract Administrator and Purchaser before beginning any operations. To the extent that the plan of operations is inconsistent with the contract, the terms of the contract shall prevail. State's acceptance and approval of Purchaser's plan of operations shall not be construed as any statement or warranty that the plan of operations is adequate for Purchaser's purposes or complies with applicable laws.

G-340 Preservation of Markers

Any legal land subdivision survey corners and witness objects are to be preserved. If such are destroyed or disturbed, the Purchaser shall, at the Purchaser's own expense, re-establish them through a licensed land surveyor in accordance with U.S. General Land Office standards. Corners and/or witness objects that must be disturbed or destroyed in the process of road construction or logging shall be adequately referenced and/or replaced in accordance with RCW 58.24.040(8). Such references must be approved by the Contract Administrator prior to removal of said corners and/or witness objects.

G-360 Road Use Reservation

The State shall have the right to use, without charge, all existing roads and any road constructed or reconstructed on State lands by Purchaser under this contract. The State may extend such rights to others. If the State grants such rights to others, the State shall require performance or payment, as directed by the State, for their proportionate share of maintenance based on their use.

G-370 Blocking Roads

Purchaser shall not block the PK-ML and PK-51 roads, unless authority is granted in writing by the Contract Administrator.

G-430 Open Fires

Purchaser shall not set, or allow to be set by Purchaser's employees, agents, invitees and independent contractors, any open fire at any time of the year without first obtaining permission, in writing, from the Contract Administrator.

G-450 Encumbrances

This contract and Purchaser's activities are subject to the following:

No Encumbrances of Record

Section P: Payments and Securities**P-011 Initial Deposit**

Purchaser paid DATA MISSING initial deposit, which will be maintained pursuant to RCW 79.15.100(3). If the operating authority on this contract expires without Purchaser's payment of the full amount specified in Clause P-020, the initial deposit will be immediately forfeited to the State, and will be offset against Purchaser's

remaining balance due. Any excess initial deposit funds not needed to ensure full payment of the contract price, or not needed to complete any remaining obligations of the Purchaser existing after contract expiration, will be refunded to the Purchaser.

P-020 Payment for Forest Products

Purchaser agrees to pay the total, lump sum contract price of \$153,400.00. The total contract price consists of a \$0.00 contract bid price plus \$153,400.00 in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause. Purchaser shall be liable for the entire purchase price, and will not be entitled to any refunds or offsets unless expressly stated in this contract.

THE PURCHASE PRICE SHALL NOT BE AFFECTED BY ANY FACTORS, INCLUDING: the amount of forest products actually present within the contract area, the actual acreage covered by the contract area, the amount or volume of forest products actually cut or removed by purchaser, whether it becomes physically impossible or uneconomic to remove the forest products, and whether the subject forest products have been lost or damaged by fire or any other cause. The only situations Purchaser may not be liable for the full purchase price are governed by clause G-066, concerning governmental regulatory actions taken during the term of the contract.

P-045 Guarantee of Payment

Purchaser will pay for forest products prior to cutting or will guarantee payment by posting an approved payment security. The amount of cash or payment security shall be determined by the State and shall equal or exceed the value of the cutting proposed by Purchaser.

P-050 Billing Procedure

The State will compute and forward to Purchaser statements of charges provided for in the contract. Purchaser shall deliver payment to the State on or before the date shown on the billing statement.

P-080 Payment Account Refund

Advance payments made under P-045 or P-045.2 remaining on account above the value for the charges shall be returned to Purchaser within 30 days following the final report of charges. Refunds not made within the 30 day period will accrue interest at the interest rate, as established by WAC 332-100-030, computed on a daily basis until paid.

P-090 Performance Security

Purchaser agrees to furnish, within 30 days of the confirmation date, security acceptable to the State in the amount of \$100,000.00. The Security provided shall guarantee performance of all provisions of this contract and payment of any damages caused by operations under this contract or resulting from Purchaser's noncompliance with any rule or law. Acceptable performance security may be in the form of a performance bond, irrevocable letter of credit, cash, savings or certificate of deposit account assignments, and must name the State as the obligee or beneficiary. A letter of credit must comply with Title 62A RCW, Article 5. Performance security must remain in full force over the duration of the contract length. Surety bonds issued shall conform

to the issuance and rating requirements in clause G-150. The State shall retain the performance security pursuant to RCW 79.15.100. Purchaser shall not operate unless the performance security has been accepted by the State. If at any time the State decides that the security document or amount has become unsatisfactory, Purchaser agrees to suspend operations and, within 30 days of notification, to replace the security with one acceptable to the State or to supplement the amount of the existing security.

P-100 Performance Security Reduction

The State may reduce the performance security after an operating release has been issued if the State determines that adequate security exists for any remaining obligations of Purchaser.

Section H: Harvesting Operations

H-001 Operations Outside the Sale Boundaries

No operations shall occur outside the sale boundaries, as described within the contract, unless approved in writing by the State.

H-010 Cutting and Yarding Schedule

Felling and Yarding will not be permitted from November 1 to March 31 BY GROUND-BASED EQUIPMENT unless authorized in writing by the Contract Administrator.

H-011 Certification of Fallers and Yarder Operators

All persons engaged in the felling and yarding of timber must receive certification in writing from the Contract Administrator. Certification may be revoked when the Contract Administrator determines that non-compliance of leave tree selection criteria or cut tree selection criteria is occurring, or excessive damage to leave trees or skid trails is occurring.

Excessive damage for leave trees is defined in clause H-012.

Excessive damage for reserve trees is defined in clause H-013.

Excessive skid trail damage is defined in clause H-015 or H-016.

When leave tree damage exceeds the limits set forth in clause H-012,

Purchaser shall be subject to liquidated damages (clause D-040)

When reserve tree damage exceeds the limits set forth in clause H-013,

Purchaser shall be subject to liquidated damages (clause D-041).

H-012 Leave Tree Damage Definition

Leave trees are trees required for retention within the sale boundary. Purchaser shall protect leave trees from being cut, damaged, or removed during operations.

Leave tree damage exists when more than 5 percent of the leave trees are damaged in a unit and when one or more of the following criteria occur as a result of Purchaser's operation, as determined by the Contract Administrator:

- a. A leave tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 20 square inches.
- b. A leave tree top is broken or the live crown ratio is reduced below 30 percent.
- c. A leave tree has more than 1/3 of the circumference of its root system injured such that the cambium layer is exposed.

If the Contract Administrator determines that a leave tree has been cut or damaged, the Purchaser may be required to pay liquidated damages for Excessive Leave Tree Damage as detailed in clause D-040.

H-013 Reserve Tree Damage Definition

Reserve trees are trees required and designated for retention within the sale boundary. Purchaser shall protect reserve trees from being cut, damaged, or removed during operations.

Reserve tree damage exists when one or more of the following criteria occur as a result of Purchaser's operation, as determined by the Contract Administrator:

- a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 200 square inches.
- b. A reserve tree top is broken or the live crown ratio is reduced below 30 percent.
- c. A reserve tree has more than 1/3 of the circumference of its root system injured such that the cambium layer is exposed.

If the Contract Administrator determines that a reserve tree has been cut or damaged, the Purchaser shall provide a replacement reserve tree of like condition, size, and species within the sale unit containing the damaged leave tree, as approved by the Contract Administrator. Purchaser may be required to pay liquidated damages for Excessive Reserve Tree Damage as detailed in clause D-041.

Removal of designated reserve trees from the sale area is unauthorized, and may invoke the use of the G-230 'Unauthorized Activity' clause. Purchaser is required to leave all cut or damaged reserve trees on site.

H-016 Skid Trail Requirements

A skid trail is defined as an area that is used for more than three passes by any equipment.

Purchaser shall comply with the following during the yarding operation:

- a. A skid trail will not exceed 12 feet in width, including rub trees.

- b. Skid trails shall not cover more than 15 percent of the total acreage on one unit.
- c. Location of the skid trails must be marked by Purchaser and approved by the Contract Administrator.
- d. Except for rub trees, skid trails shall be felled and yarded prior to the felling of adjacent timber.
- e. Rub trees shall be left standing until all timber tributary to the skid trail has been removed.
- f. Excessive soil damage is not permitted. Excessive soil damage is described in clause H-017.
- g. Purchaser will not have more than two skid trails open to active skidding at any one time. All other skid trails used for skidding timber will be closed.
- h. Once a skid trail is closed, Purchaser will not reopen a skid trail unless approved in writing by the Contract Administrator.
- i. Skid trails will be water barred at the time of completion of yarding, if required by the Contract Administrator.

Purchaser shall not deviate from the requirements set forth in this clause without prior written approval from the Contract Administrator.

H-017 Preventing Excessive Soil Disturbance

Operations may be suspended when soil rutting exceeds 8 inches as measured from the natural ground line. To reduce soil damage, the Contract Administrator may require water bars to be constructed, grass seed to be placed on exposed soils, or other mitigation measures. Suspended operations shall not resume unless approval to do so has been given, in writing, by the Contract Administrator.

H-035 Fall Trees Into Sale Area

Trees shall be felled into the sale area unless otherwise approved by the Contract Administrator.

H-051 Branding and Painting

Purchaser shall provide a State of Washington registered log brand, acceptable to the State, unless the State agrees to furnish the brand. All purchased timber shall be branded in a manner that meets the requirements of WAC 240-15-030(2)(a)(i). All timber purchased under a contract designated as export restricted shall also be painted in a manner that meets the requirements of WAC 240-15-030(2)(a)(ii).

For pulp loads purchased under a contract designated as export restricted, Purchaser shall brand at least 3 logs with legible brands at one end. Also, 10 logs shall be painted at one end with durable red paint.

H-080 Snags Not to be Felled

Snags not required to be felled for safety reasons may be left standing. Snags felled for safety reasons shall not be removed and must remain where felled.

H-110 Stump Height

Trees shall be cut as close to the ground as practicable. Stump height shall not exceed 12 inches in height measured on the uphill side, or 2 inches above the root collar, whichever is higher.

H-120 Harvesting Equipment

Forest products sold under this contract shall be harvested and removed using cable or tethered equipment (See H-141 for restrictions); shovel, "6-wheeled rubber-tired skidders with over-the-tire tracks spanning both sets of rear tires" (Use shall not be allowed in Unit #8, also, see H-141 for restrictions) or tracked equipment on sustained slopes 35% or less; self-leveling equipment on sustained slopes 55% or less (See H-141 for restrictions). Authority to use other equipment or to operate outside the equipment specifications detailed above must be approved in writing by the State.

H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

H-126 Tailholds on State Land

If Purchaser tailholds on State land, methods to minimize damage to live trees outside the sale area shall be employed and must be approved in writing by the Contract Administrator.

H-130 Hauling Schedule

The hauling of forest products will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator.

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

A. The following types of equipment are considered ground-based equipment:

SHOVEL is defined as a low ground pressure track-mounted machine with hydraulic boom and grapple capable of picking up one end of the largest log 25 feet from the center of the machine.

FELLER-BUNCHER/HARVESTER is defined as a track mounted machine with hydraulic boom and cutter head capable of felling, bucking, limbing, and decking logs in one operation.

FORWARDER is defined as a track or rubber tire machine used for transporting logs to a landing by use of a bunk with self loading boom in which logs are carried free of the ground.

RUBBER-TIRED SKIDDER is defined as a skidder mounted on rubber tires used to drag logs to a landing. Logs are generally pulled in groups of six or less, with one end on the ground.

TRACKED SKIDDER is defined as any tracked tractor or skidder, fixed or articulated, used to drag logs to landings. Logs are generally pulled in groups of six or less, with one end on the ground.

- B. Equipment shall remain at least 30 feet from all water courses or areas of wet/soft soils, except as necessary to cross at approved locations. Water course crossing structures must be approved by the Contract Administrator.
- C. When yarding and loading operations are occurring simultaneously, an additional shovel shall be required for loading to avoid extra trips to the landing. Shovel yarding shall not be allowed to create ruts or soil puddling. Shovel routes should be dispersed to prevent creation of definable trails.
- D. An on-site pre-work meeting that includes the Contract Administrator and Purchaser will be required after operations have been disrupted (leading to a cessation of operations) or operations moved off site for a period of more than two weeks before any activities resume on site.
- E. Falling and yarding shall occur away from all scattered leave trees, leave tree areas, and typed waters where possible. Avoid parallel cable yarding in, across, or adjacent to stream channels where possible.
- F. All Type 5 streams shall have a 30-foot equipment limitation zone measured from each bank, except as necessary to cross at approved locations. The Purchaser shall mark, and the Contract Administrator shall review for approval of, all Type 5 stream crossings. The limited crossings shall be as close to perpendicular as possible.
- G. Temporary log crossings and their location are required for typed water crossings during yarding or road construction operations and must be approved in writing by the Contract Administrator. Streambeds and banks shall be protected by the use of log puncheon or other approved structures at these crossing points and removed upon the completion of yarding activities.
- H. Intermediate supports, if necessary for yarding, shall be marked by the Purchaser and approved by the Contract Administrator prior to felling unit timber.

I. Except for any non-tradeable leave trees, leave trees may be exchanged for unmarked trees of similar size, species, and wildlife characteristics upon prior written approval by the Contract Administrator.

J. If tethered equipment is requested by Purchaser, prior approval for areas of use must be approved in writing by the Contract Administrator.

K. Purchaser must close and lock the DNR gate on the MZ-ML Road at the end of each day.

L. No tops or limbs shall be allowed to accumulate on any landings. Tops and limbs shall be redistributed in the unit to the satisfaction of the Contract Administrator.

M. A 48 hour (2 business-day) notice is required to Forest Practices and the Contract Administrator prior to commencing road construction on the PK-51 Road.

N. Falling and yarding in the RMZ thinning areas shall not be permitted during the bark slippage season unless authorized in writing by the Contract Administrator. This season is estimated to run from April 1 to July 15, but may vary dependent on weather conditions. If the permission is granted to operate during the bark slippage season the Purchaser shall be required to provide a plan outlining mitigation measures.

Permission to do otherwise must be granted in writing by the Contract Administrator.

H-141 Additional Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

A. A copy of the timber sale map, contract, and the FPA shall be present on site during active operations.

B. Purchaser must obtain prior written approval from the Contract Administrator for areas as to where to utilize rubber-tired skidder, self-leveling or tethered equipment prior to use. If ground disturbance is causing excessive damage, as determined by the Contract Administrator, the equipment will no longer be authorized.

C. There are two non-tradeable leave trees in Unit 4. These two trees are large DBH redcedars. These two leave trees cannot be traded.

D. No operations are permitted within the equipment exclusion zone. See Timber Sale Map for location.

E. All trees 60 inches Diameter at Breast Height (DBH) and greater shall not be felled unless for safety reasons. Written approval from the State is required prior to cutting any trees 60 inches DBH or greater. If trees 60 inches DBH or greater needs to be felled for safety or operational restrictions. Trees will be left in place where felled.

F. Root wads from within the right-of-way associated with roads constructed with this timber sale may be authorized to be transported off site to a location as designated by the Contract Administrator, in writing. To transport the root wads offsite, a separate plan of operations must be submitted to the Contract Administrator in writing and authorized prior to initiating this work.

G. Trees with root wads attached from within the right-of-way associated with roads constructed with this timber sale may be authorized to be transported off site to a location as designated by the Contract Administrator, in writing. To harvest and transport the trees with root wads offsite, a separate plan of operations must be submitted to the Contract Administrator in writing and authorized prior to initiating this work.

H. A limited number of trees with root wads attached from within the Units: To harvest trees with roots and transport offsite, a separate plan of operations must be submitted to the Contract Administrator in writing and authorized prior to initiating this work. These trees may be transported off site to a location as designated by the Contract Administrator, in writing.

Permission to do otherwise must be granted in writing by the State.

H-190 Completion of Settings

Operations begun on any setting of the sale area shall be completed before any operation begins on subsequent settings unless authorized in writing by the Contract Administrator.

H-220 Protection of Residual or Adjacent Trees

Unless otherwise specified by this contract, the Contract Administrator shall identify damaged adjacent or leave trees that shall be paid for according to clause G-230.

H-240 Lop and Scatter

The tops of all felled trees shall be lopped and slash scattered away from leave trees .

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 10/10/2023 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on the PK-51, PK-5105, PK-5116, PK-5119, PK-5122, PK-5127, PK-5127-01, PK-5127-03, PK-5127-05 roads. All work shall be completed to the specifications detailed in the Road Plan.

C-060 Designated Road Maintainer

If required by the State, Purchaser shall perform maintenance and replacement work as directed by the Contract Administrator on the MZ-ML, PK-ML, PK-31 roads. Purchaser shall furnish a statement in a form satisfactory to the State showing the costs

incurred while performing this work. Costs shall be based on the rates set forth in the equipment rate schedule on file at the Region office or Engineering Division in Olympia. The State shall reimburse Purchaser for said costs within 30 days of receipt and approval of the statement.

Section S: Site Preparation and Protection

S-001 Emergency Response Plan

An Emergency Response Plan (ERP) shall be provided to the Contract Administrator containing but not limited to, valid contact numbers and procedures for medical emergencies, fire, hazardous spills, forest practice violations and any unauthorized or unlawful activity on or in the vicinity of the sale area. The Contract Administrator and the State shall be promptly notified whenever an incident occurs requiring an emergency response.

The ERP must be presented for inspection at the prework meeting and kept readily available to all personnel, including subcontractors, on site during active operations.

S-010 Fire Hazardous Conditions

Purchaser acknowledges that operations under this Contract may increase the risk of fire. Purchaser shall conduct all operations under this agreement following the requirements of WAC 332-24-005 and WAC 332-24-405 and further agrees to use the highest degree of care to prevent uncontrolled fires from starting.

In the event of an uncontrolled fire, Purchaser agrees to provide equipment and personnel working at the site to safely and effectively engage in first response fire suppression activity.

Purchaser's failure to effectively engage in fire-safe operations is considered a breach and may result in suspension of operations.

S-030 Landing Debris Clean Up

Landing debris shall be disposed of in a manner approved in writing by the Contract Administrator.

S-035 Logging Debris Clean Up

Slash and debris created from harvest activities shall be treated in a manner approved in writing by the Contract Administrator.

S-050 Cessation of Operations for Low Humidity

When the humidity is 30 percent or lower on the sale area, all operations must cease unless authority to continue is granted by the State in writing.

S-060 Pump Truck or Pump Trailer

Purchaser shall provide a fully functional pump truck or pump trailer equipped to meet the specifications of WAC 332-24-005 and WAC 332-24-405 during the "closed season" or as extended by the State and shall provide trained personnel to operate this equipment on the sale area during all operating periods.

S-100 Stream Cleanout

Slash or debris which enters all streams as a result of operations under this contract and which is identified by the Contract Administrator shall be removed and deposited in a stable position. Removal of slash or debris shall be accomplished in a manner that avoids damage to the natural stream bed and bank vegetation.

S-130 Hazardous Materials

a. Hazardous Materials and Waste - Regulatory Compliance

Purchaser is responsible for understanding and complying with all applicable local, state, and federal hazardous material/waste laws and regulations for operations conducted under this contract. Such regulations pertain to, but may not be limited to, hazardous material storage, handling and transport, personnel protection, release notification and emergency response, cleanup, and waste disposal.

Purchaser shall be responsible for restoring the site in the event of a spill or other releases of hazardous material/waste during operations conducted under this contract.

b. Hazardous Materials Spill Prevention

All operations shall be conducted in a manner that avoids the release of hazardous materials, including petroleum products, into the environment (water, air or land).

c. Hazardous Materials Spill Containment, Control and Cleanup

If safe to do so, Purchaser shall take immediate action to contain and control all hazardous material spills. Purchaser shall ensure that enough quick response spill kits capable of absorbing 10 gallons of oil, coolant, solvent or contaminated water are available on site to quickly address potential spills from any piece of equipment at all times throughout active operations. If large quantities of bulk fuel/other hazardous materials are stored on site, Purchaser must be able to effectively control a container leak and contain & recover a hazmat spill equal to the largest single on site storage container volume. (HAZWOPER reg. 29CFR 1910.120 (j) (1) (vii)).

d. Hazardous Material Release Reporting

Releases of oil or hazardous materials to the environment must be reported according to the State Department of Ecology (ECY). It is the responsibility of the Purchaser to have all emergency contact information readily available and a means of remote communication for purposes of quick notification. In the event of a spill covered in part a., the Purchaser is responsible for immediately notifying all the following:

- Department of Emergency Management at 1-800-258-5990
- National Response Center at 1-800-424-8802
- Appropriate Department of Ecology (ECY) at 1-800-645-7911
- DNR Contract Administrator

S-131 Refuse Disposal

As required by RCW 70.93, All Purchaser generated refuse shall be removed from state lands for proper disposal prior to termination of this contract. No refuse shall be burned, buried or abandoned on state forest lands. All refuse shall be transported in a manner such that it is in compliance with RCW 70.93 and all loads or loose materials shall be covered/secured such that these waste materials are properly contained during transport.

Section D: Damages

D-013 Liquidated Damages or Failure to Perform

The following clauses provide for payments by Purchaser to the State for breaches of the terms of this contract other than failure to perform. These payments are agreed to as liquidated damages and not as penalties. They are reasonable estimates of anticipated harm to the State, which will be caused by Purchaser's breach. These liquidated damages provisions are agreed to by the State and Purchaser with the understanding of the difficulty of proving loss and the inconvenience or infeasibility of obtaining an adequate remedy. These liquidated damages provisions provide greater certainty for the Purchaser by allowing the Purchaser to better assess its responsibilities under the contract.

Clause P-020 governs Purchaser's liability in the event Purchaser fails to perform any of the contract requirements other than the below liquidated damage clauses without written approval by the State. Purchaser's failure to pay for all or part of the forest products sold in this contract prior to expiration of the contract term results in substantial injury to the State. Therefore, Purchaser agrees to pay the State the full lump sum contract price in P-020 in the event of failure to perform.

D-040 Leave Tree Excessive Damage

When Purchaser's operations exceed the damage limits set forth in clause H-012, Leave Tree Damage Definition, the trees damaged result in substantial injury to the State. The value of the damaged leave trees at the time of the breach is not readily ascertainable. Therefore, Purchaser agrees to pay the State as liquidated damages at the rate of \$250.00 per tree for all damaged trees in the Variable Density Thinning area.

D-041 Reserve Tree Excessive Damage

When Purchaser's operations exceed the damage limits set forth in clause H-013, Reserve Tree Damage Definition, and when the Contract Administrator determines that a suitable replacement for a damaged reserve tree is not possible, the damaged trees result in substantial injury to the State. The value of the damaged reserve trees at the time of the breach is not readily ascertainable. Therefore, the Purchaser agrees to pay

the State as liquidated damages at the rate of \$1,000.00 per tree for all damaged reserve trees that are not replaced in the Variable Retention Harvest area.

SIGNATURES

This agreement may be executed in any number of counterparts (including by electronic mail in portable document format (.pdf), or by facsimile) each of which shall be deemed an original but all of which, when taken together, shall constitute one and the same Agreement binding on all parties.

IN WITNESS WHEREOF, the Parties hereto have entered into this contract.

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Purchaser

Jay Guthrie
Northwest Region Manager

Print Name

Date: _____
Address: _____

Date: _____

CORPORATE ACKNOWLEDGEMENT
(Required for both LLC and Inc. Entities)

STATE OF _____)

COUNTY OF _____)

On this _____ day of _____, 20____, before me personally appeared _____

_____ to me known to be the _____ of the corporation that executed the within and foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of the corporation, for the uses and purposes therein mentioned, and on oath stated that (he/she was) (they were) authorized to execute said instrument.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public in and for the State of

My appointment expires _____

Schedule B
Thinning Prescription

Unit 2 RMZ

- Thin from below, leaving a minimum of 93-95 trees per acre maintained at uniform spacing throughout the unit.
- Only live trees 8 inches or greater in DBH shall be used to calculate trees per acre.

To accomplish this prescription, fallers shall harvest species in the following order until the TPA target is met:

1. Pacific silver fir up to 22 inches DBH.
2. Western hemlock up to 12 inches DBH.

Unit 3 RMZ

- Thin from below, leaving a minimum of 95-100 trees per acre maintained at uniform spacing throughout the unit.
- Only live trees 8 inches or greater in DBH shall be used to calculate trees per acre.

To accomplish this prescription, fallers shall harvest species in the following order until the TPA target is met:

1. Pacific silver fir up to 18 inches DBH.
2. Western hemlock up to 16 inches DBH.

Unit 4 VDT

- Thin from below, leaving a minimum of 97-100 trees per acre maintained at uniform spacing throughout the unit.
- Only live trees 8 inches or greater in DBH shall be used to calculate trees per acre.

To accomplish this prescription, fallers shall harvest species in the following order until the TPA target is met:

1. Cut all Pacific silver fir.
2. Western hemlock to 15 inches DBH.
3. Douglas-fir to 15 inches DBH.

Unit 4 RMZ

- Thin from below, leaving a minimum of 97-100 trees per acre maintained at uniform spacing throughout the unit.
- Only live trees 8 inches or greater in DBH shall be used to calculate trees per acre.

To accomplish this prescription, fallers shall harvest species in the following order:

1. Cut all Pacific silver fir.
2. Western hemlock to 15 inches DBH.
3. Douglas-fir to 15 inches DBH.



WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
FOREST EXCISE TAX ROAD SUMMARY SHEET

Region:

Timber Sale Name:

Application Number:

EXCISE TAX APPLICABLE ACTIVITIES

Construction: **linear feet**
Road to be constructed (optional and required) but not abandoned

Reconstruction: **linear feet**
Road to be reconstructed (optional and required) but not abandoned

Abandonment: **linear feet**
Abandonment of existing roads not reconstructed under the contract

Decommission: **linear feet**
Road to be made undriveable but not officially abandoned.

Pre-Haul Maintenance: **linear feet**
Existing road to receive maintenance work (optional and required) prior to haul

EXCISE TAX EXEMPT ACTIVITIES

Temporary Construction: **linear feet**
Roads to be constructed (optional and required) and then abandoned

Temporary Reconstruction: **linear feet**
Roads to be reconstructed (optional and required) and then abandoned

All parties must make their own assessment of the taxable or non-taxable status of any work performed under the timber sale contract. The Department of Revenue bears responsibility for determining forest road excise taxes. The Department of Natural Resources developed this form to help estimate the impact of forest excise taxes. However, the information provided may not precisely calculate the actual amount of taxes due. The Department of Revenue is available for consultation by calling 1.800.548.8829.

(Revised 9/18)

PRE-CRUISE NARRATIVE

Sale Name: Clutch	Region: Northwest
Agreement #: 30-104443	District: Cascade
Contact Forester: Shane McKinley Phone / Location: 360-722-9599	County(s): Snohomish
Alternate Contact: Cameron Eskeberg Phone / Location: 360-708-6380	Other information:

Type of Sale: Lump Sum	
Harvest System: Ground based	70%
Harvest System: Uphill Cable	30%

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit # Harvest R/W or RMZ WMZ	Legal Description (Enter only one legal for each unit) Sec/Twp/Rng	Grant or Trust	Gross Proposal Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determination (List method and error of closure if applicable)
				RMZ/ WMZ Acres	Leave Tree Acres	Existing Road Acres	Other Acres (describe)		
Unit 1 VRH	T29R08E / Sec 5	04	38.7		1.8			36.9	GPS (Garmin)
Unit 2 VRH	T29R08E / Sec 5	04	31.0		1.2			29.8	GPS (Garmin)
Unit 3 VRH	T29R08E / Sec 4,5	03, 04	23.2		1.6			21.6	GPS (Garmin)
Unit 4 VRH	T29R08E / Sec 4, 5	03, 04	32.5		1.0			31.5	GPS (Garmin)
Unit 4 VDT	T29R08E / Sec 4	03	6.8					6.8	GPS (Garmin)
Unit 2 RMZ THIN	T29R08E / Sec 5	04	8.0					8.0	GPS (Garmin)
UNIT 3 RMZ THIN	T29R08E / Sec 4, 5	03, 04	4.3					4.3	GPS (Garmin)
UNIT 4 RMZ THIN	T29R08E / Sec 4	03	1.3					1.3	GPS (Garmin)
ROW	T29R08E / Sec 4	03	8.4					8.4	Combination
TOTAL ACRES			154.2		5.6			148.6	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit#	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
Unit 1 (VRH)	Variable Retention Harvest (VRH). Take all trees to the north and south bounded by white "Timber Sale Boundary" tags and pink flagging. Take all trees to the west bounded by pink flagging and a young stand type break. Take all trees to the east bounded by PK-51 road. Leave tree areas are marked with yellow "Leave Tree Area" tags and individual trees are marked with a single band of blue paint.		Clumped: 292 Scattered: 18 Total: 310
Unit 2 (VRH)	Variable Retention Harvest (VRH). Take all trees bounded by white "Timber Sale Boundary" tags and pink flagging. Leave tree areas are marked with yellow "Leave Tree Area" tags and individual trees are marked with a single band of blue paint. Thin all timber following the prescription in Schedule B, bounded by white "Timber Sale Boundary" tags and blue "Special Management Unit" tags to the north, east and west.		Clumped: 225 Scattered: 25 Total: 250
Unit 3 (VRH)	Variable Retention Harvest (VRH). Take all trees bounded by white "Timber Sale Boundary" tags and pink flagging. Leave tree areas are marked with yellow "Leave Tree Area" tags and individual trees are marked with a single band of blue paint. Thin all timber following the prescription in Schedule B, bounded by white "Timber Sale Boundary" tags and blue "Special Management Unit" tags to the east and west.		Clumped: 188 Scattered: 6 Total: 194
Unit 4 (VRH)	Variable Retention Harvest (VRH). Take all trees bounded by white "Timber Sale Boundary" tags and pink flagging. Leave tree areas are marked with yellow "Leave		Clumped: 236 Scattered: 25 Total: 261

	Tree Area” tags and individual trees are marked with a single band of blue paint. Thin all timber following the prescription in Schedule B, bounded by white “Timber Sale Boundary” tags and blue “Special Management Unit” tags to the east.		There are (2) double banded non-tradable leave trees in U4 VRH.
Unit 4 (VDT)	Variable Density Thin (VDT). Thin all timber following the prescription in Schedule B, bounded by white “Timber Sale Boundary” tags and blue “Special Management Unit” tags.		
ROW 1	Right-of-Way areas are tagged along abandoned roads to be re-opened.		

OTHER PRE-CRUISE INFORMATION:

Unit#	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
U1 VRH	WH, DF / 1,554	See Driving Directions	See driving and traverse maps
U2 VRH	WH, DF / 1,377	See Driving Directions	See driving and traverse maps
U3 VRH	WH, SF / 1,011	See Driving Directions	See driving and traverse maps
U4 VRH	WH, DF / 1,496	See Driving Directions	See driving and traverse maps
U4 VDT	WH, SF / 80	See Driving Directions	See driving and traverse maps
U2 RMZ THIN	SF, WH / 69	See Driving Directions	See driving and traverse maps
U3 RMZ THIN	SF, WH / 42	See Driving Directions	See driving and traverse maps
U4 RMZ THIN	WH / 11	See Driving Directions	See driving and traverse maps
ROW 1	WH, DF / 260	See Driving Directions	See driving and traverse maps
TOTAL MBF	5,900 (MBF)	See Driving Directions	

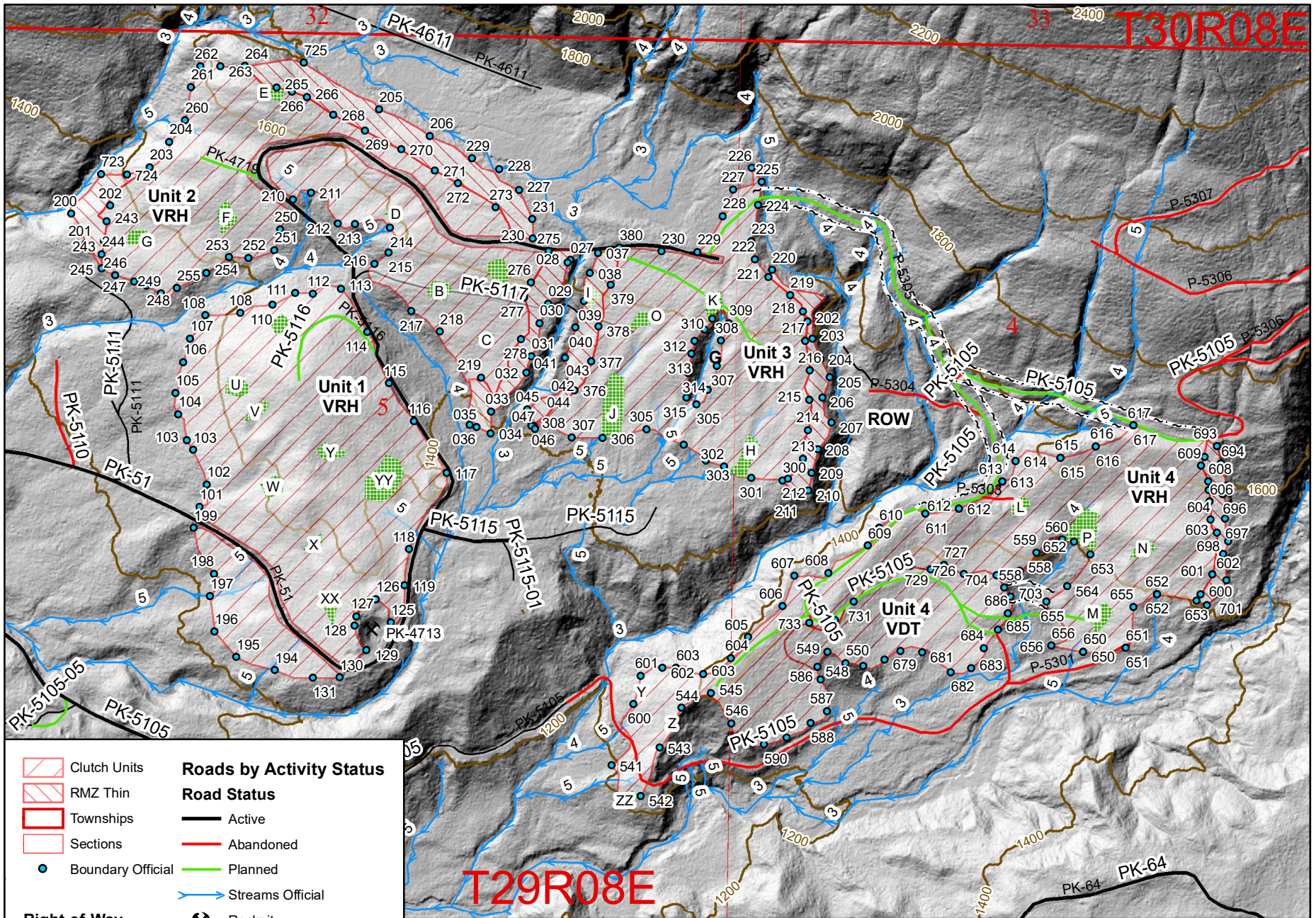
REMARKS:

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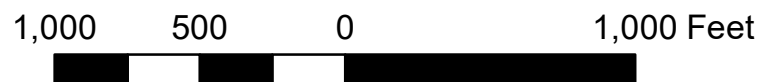
Prepared By: Shane McKinley Date: 08/24/23	Title: NRS II	CC: Cameron Eskeberg
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Clutch TS

T29 R08 E Sec. 22, 23, 25
Cascade District, Starbird Unit

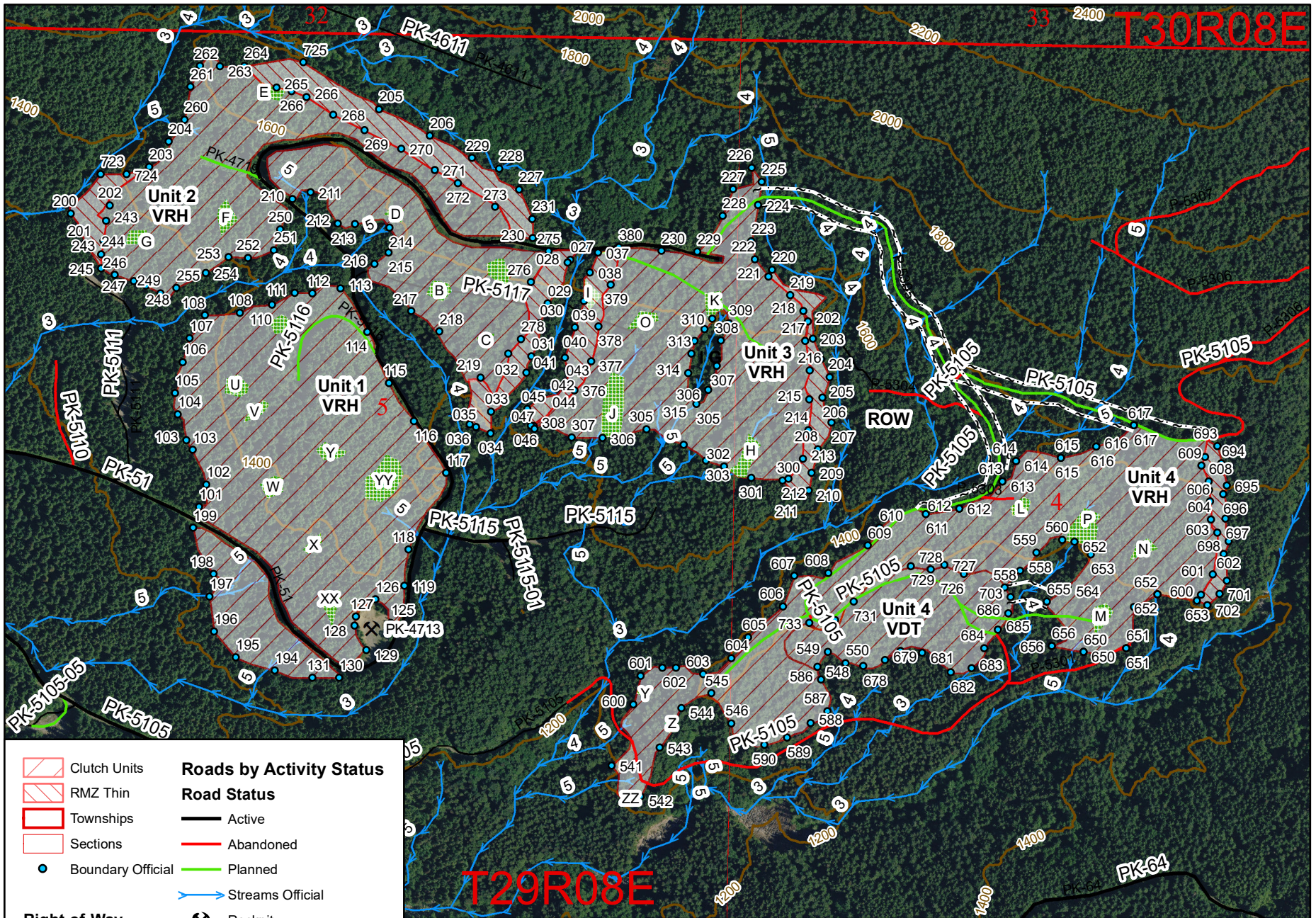


	Clutch Units	Roads by Activity Status	
	RMZ Thin	Road Status	
	Townships		Active
	Sections		Abandoned
	Boundary Official		Planned
Right-of-Way			Streams Official
	both sides		Rockpit
	single sided		LTA Official

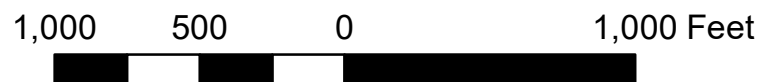


Clutch TS

T29 R08 E Sec. 22, 23, 25
Cascade District, Starbird Unit



	Clutch Units	Roads by Activity Status	
	RMZ Thin	Road Status	
	Townships		Active
	Sections		Abandoned
	Boundary Official		Planned
Right-of-Way			Streams Official
	both sides		Rockpit
	single sided		LTA Official



Timber Sale Cruise Report Clutch - NW

Sale Name: CLUTCH
Sale Type: LUMP SUM
Region: NORTHWEST
District: CASCADE
Lead Cruiser: Matt Llobet
Other Cruisers: Bailey Vos

Clutch is a four unit timber sale located 4.2 miles south of Granite Falls, off the Menzel Lake Main Line. The sale ranges from 1180 feet to 1720 feet in elevation. Forest roads provide good road access to units 1-3, while unit 4 requires a short hike-in.

All VHR and ROW units were cruised using a 62.5/40 BAF and a 1:1 sample ratio was applied. The RMZ units were cruised using 1/20th acre fix plots and a cruise-all sample was applied. The smallest merchantable tree cruised throughout the sale had a DBH of 7.0 inches and 5.0 inches at 16 feet.

Conifer log lengths were cruised in 2 foot multiples - maximizing 32-40 ft. lengths. Hardwood log lengths were cruised in 10 foot multiples - no longer than 30 feet long.

The stand characteristics throughout Clutch showed a uniform timber type with Western Hemlock (84%) being the dominant species. The terrain throughout was mild, making for straightforward operator ground. Clutch cruised out at 42,812 bf per acre and all live timber showed excellent form. The species composition consists of Western Hemlock, Douglas fir, and Pacific Silver fir. The WH and SF made up 91% of the unit volume and the DF carried the 9% of the unit volume.

Approximately 30% of the sale is up-hill cable harvest and the other 70% percent is ground base harvest. All four units consist of an open understory with mild terrain.

Timber Sale Notice Volume (MBF)

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	18.2			4,928	2,882	1,848	168	30
DF	23.1	7.0		717	538	151	19	9
SF	17.7			239	100	118	21	
RC	20.0			13		13		
RA	14.0			3			3	
ALL	18.4	7.0		5,900	3,519	2,130	211	39

Timber Sale Notice Weight (tons)

Sp	Tons by Grade				
	All	2 Saw	3 Saw	4 Saw	Utility
WH	40,284	21,556	16,709	1,744	276
DF	4,909	3,422	1,243	171	73

Sp	Tons by Grade				
	All	2 Saw	3 Saw	4 Saw	Utility
SF	1,855	707	946	202	
RC	135		135		
RA	33			33	
ALL	47,216	25,685	19,033	2,150	349

Timber Sale Overall Cruise Statistics

BA (sq ft/acre)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR SE (%)	Net Vol (bf/acre)	Vol SE (%)
273.1	3.0	156.9	1.3	42,812	3.3

Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
CLUTCH U1	B2C: VR, 2 BAF (62.5, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	36.9	38.7	22	13	0
CLUTCH U2	B2C: VR, 2 BAF (62.5, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	29.8	30.9	26	15	0
CLUTCH U3	B2C: VR, 2 BAF (62.5, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	21.6	23.2	19	11	1
CLUTCH U4	B2C: VR, 2 BAF (62.5, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	31.5	32.6	25	12	0
CLUTCH U4	B2: VR, 2 BAF (62.5, 40 for some species) Measure All, Sighting Ht = 4.5 ft	6.8	6.8	8	8	0
CLUTCH U2 RMZ	FX: FR plots (20 tree / acre expansion)	8.0	8.1	3	3	0
CLUTCH U3 RMZ	FX: FR plots (20 tree / acre expansion)	4.3	4.2	4	4	0
CLUTCH U4 RMZ	FX: FR plots (20 tree / acre expansion)	1.3	1.3	2	2	0
CLUTCH ROW	B2: VR, 2 BAF (62.5, 40 for some species) Measure All, Sighting Ht = 4.5 ft	8.4	8.3	12	12	0
All		148.6	154.0	121	80	1

Timber Sale Log Grade x Sort Summary

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
DF	LIVE	2 SAW	Domestic	15.9	39	3,652	3,621	0.9	3,421.6	538.0
DF	LIVE	3 SAW	Domestic	9.5	34	1,018	1,016	0.3	1,243.1	150.9
DF	LIVE	4 SAW	Domestic	7.3	22	126	125	0.7	171.4	18.6
DF	LIVE	CULL	Cull	18.1	7	172	0	100.0	0.0	0.0
DF	LIVE	UTILITY	Pulp	9.2	38	61	61	0.0	73.2	9.1
RA	LIVE	4 SAW	Domestic	8.9	30	22	22	0.0	33.1	3.3
RC	LIVE	3 SAW	Domestic	9.6	37	94	90	3.5	134.8	13.4
SF	LIVE	2 SAW	Domestic	14.8	40	692	671	3.1	707.5	99.7
SF	LIVE	3 SAW	Domestic	9.5	36	810	795	1.8	946.1	118.2
SF	LIVE	4 SAW	Domestic	5.7	26	140	140	0.0	201.8	20.8
WH	LIVE	2 SAW	Domestic	14.8	39	19,526	19,393	0.7	21,555.6	2,881.7
WH	LIVE	3 SAW	Domestic	8.8	36	12,507	12,435	0.6	16,708.6	1,847.9
WH	LIVE	4 SAW	Domestic	6.2	24	1,137	1,130	0.6	1,743.8	167.9
WH	LIVE	CULL	Cull	19.7	10	15	0	100.0	0.0	0.0
WH	LIVE	UTILITY	Pulp	6.5	24	202	202	0.0	275.7	30.1

Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	5 - 7	LIVE	Domestic	6.3	28	163	0.0	207.3	24.3
DF	8 - 11	LIVE	Pulp	8.0	40	36	0.0	49.8	5.3
DF	8 - 11	LIVE	Domestic	9.9	34	978	0.3	1,207.3	145.3
DF	8 - 11	LIVE	Cull	11.5	6	0	100.0	0.0	0.0
DF	12 - 15	LIVE	Domestic	14.2	39	1,501	1.7	1,513.9	223.1
DF	16 - 19	LIVE	Domestic	17.7	40	1,482	0.3	1,375.4	220.2
DF	16 - 19	LIVE	Cull	18.7	8	0	100.0	0.0	0.0
DF	16 - 19	LIVE	Pulp	18.8	24	25	0.0	23.3	3.8
DF	20+	LIVE	Domestic	21.9	40	637	0.3	532.3	94.7
DF	20+	LIVE	Cull	23.0	10	0	100.0	0.0	0.0
RA	5+	LIVE	Domestic	8.9	30	22	0.0	33.1	3.3
RC	5+	LIVE	Domestic	9.5	37	90	3.5	134.8	13.4
SF	5 - 7	LIVE	Domestic	6.1	29	212	0.0	295.9	31.5
SF	8 - 11	LIVE	Domestic	10.2	37	723	1.9	852.0	107.5
SF	12 - 15	LIVE	Domestic	13.5	40	418	3.2	478.9	62.1
SF	16 - 19	LIVE	Domestic	19.7	40	183	0.0	164.7	27.2
SF	20+	LIVE	Domestic	21.6	40	70	10.0	63.9	10.4
WH	5 - 7	LIVE	Pulp	5.2	22	82	0.0	97.5	12.2

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
WH	5 - 7	LIVE	Domestic	6.4	30	3,735	0.2	5,480.0	555.0
WH	8 - 11	LIVE	Pulp	8.5	23	26	0.0	48.5	3.9
WH	8 - 11	LIVE	Domestic	9.7	36	9,770	0.7	12,887.2	1,451.8
WH	12 - 15	LIVE	Domestic	13.7	39	11,903	0.5	14,053.1	1,768.8
WH	12 - 15	LIVE	Pulp	14.8	40	94	0.0	129.7	14.0
WH	16 - 19	LIVE	Domestic	17.7	40	5,971	0.6	6,133.3	887.3
WH	16 - 19	LIVE	Cull	19.7	10	0	100.0	0.0	0.0
WH	20+	LIVE	Domestic	21.8	37	1,578	2.3	1,454.4	234.5

Cruise Unit Report CLUTCH U1

Unit Sale Notice Volume (MBF): CLUTCH U1

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
WH	18.9			1,398	877	506	15
DF	20.0			144	86	54	3
SF	16.0			13		10	2
ALL	19.0			1,554	963	570	21

Unit Cruise Design: CLUTCH U1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (62.5, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	36.9	38.7	22	13	0

Unit Cruise Summary: CLUTCH U1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	46	80	3.6	0
DF	6	8	0.4	0
SF	1	1	0.0	0
ALL	53	89	4.0	0

Unit Cruise Statistics: CLUTCH U1

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	227.3	49.2	10.5	166.7	16.7	2.5	37,890	51.9	10.8
DF	22.7	233.1	49.7	171.3	16.8	6.9	3,893	233.7	50.2
SF	2.8	469.0	100.0	119.6	0.0	0.0	340	469.0	100.0
ALL	252.8	32.8	7.0	166.6	16.9	2.3	42,123	36.9	7.4

Unit Summary: CLUTCH U1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	6	ALL	20.0	87	113	4,092	3,893	4.9	10.4	22.7	5.1	143.7
SF	LIVE	CUT	1	ALL	16.0	67	84	340	340	0.0	2.0	2.8	0.7	12.5

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	46	ALL	18.9	82	103	38,269	37,890	1.0	116.7	227.3	52.3	1,398.1
ALL	LIVE	CUT	53	ALL	18.9	82	104	42,701	42,123	1.4	129.1	252.8	58.1	1,554.3
ALL	ALL	ALL	53	ALL	18.9	82	104	42,701	42,123	1.4	129.1	252.8	58.1	1,554.3

Cruise Unit Report CLUTCH U2

Unit Sale Notice Volume (MBF): CLUTCH U2

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	17.6			1,323	740	505	56	23
DF	24.5			43	35	8		
RC	20.0			11		11		
ALL	17.7			1,377	775	523	56	23

Unit Cruise Design: CLUTCH U2

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (62.5, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	29.8	30.9	26	15	0

Unit Cruise Summary: CLUTCH U2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	60	117	4.5	0
DF	1	4	0.2	0
RC	3	3	0.1	0
ALL	64	124	4.8	0

Unit Cruise Statistics: CLUTCH U2

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	281.3	35.7	7.0	157.9	20.1	2.6	44,401	41.0	7.5
DF	9.6	398.2	78.1	150.6	0.0	0.0	1,448	398.2	78.1
RC	4.6	509.9	100.0	77.1	41.8	24.1	356	511.6	102.9
ALL	295.5	30.9	6.1	156.4	22.8	2.9	46,205	38.4	6.7

Unit Summary: CLUTCH U2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	1	ALL	24.5	80	101	1,448	1,448	0.0	2.9	9.6	1.9	43.1
RC	LIVE	CUT	3	ALL	20.0	53	67	372	356	4.4	2.1	4.6	1.0	10.6

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	60	ALL	17.6	77	97	44,688	44,401	0.6	166.5	281.3	67.0	1,323.1
ALL	LIVE	CUT	64	ALL	17.8	77	96	46,508	46,205	0.7	171.5	295.5	70.0	1,376.9
ALL	ALL	ALL	64	ALL	17.8	77	96	46,508	46,205	0.7	171.5	295.5	70.0	1,376.9

Cruise Unit Report CLUTCH U3

Unit Sale Notice Volume (MBF): CLUTCH U3

Sp	DBH	Rings/In	Age	MBF Volume by Grade				Utility
				All	2 Saw	3 Saw	4 Saw	
WH	19.2			988	681	277	29	1
SF	29.3			17	16	1		
DF	14.7			5				5
ALL	19.2			1,011	696	278	29	7

Unit Cruise Design: CLUTCH U3

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (62.5, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	21.6	23.2	19	11	1

Unit Cruise Summary: CLUTCH U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	50	78	4.1	0
SF	1	1	0.1	0
DF	1	1	0.1	0
ALL	52	80	4.2	0

Unit Cruise Statistics: CLUTCH U3

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	256.6	41.3	9.5	178.3	19.2	2.7	45,748	45.5	9.9
SF	3.3	435.9	100.0	240.1	0.0	0.0	790	435.9	100.0
DF	3.3	435.9	100.0	74.7	0.0	0.0	246	435.9	100.0
ALL	263.2	40.0	9.2	177.8	21.1	2.9	46,784	45.3	9.6

Unit Summary: CLUTCH U3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	1	ALL	14.7	50	55	246	246	0.0	2.8	3.3	0.9	5.3
SF	LIVE	CUT	1	ALL	29.3	111	143	843	790	6.3	0.7	3.3	0.6	17.1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	50	ALL	18.8	82	103	45,944	45,748	0.4	133.1	256.6	59.2	988.2
ALL	LIVE	CUT	52	ALL	18.8	81	102	47,033	46,784	0.5	136.6	263.2	60.6	1,010.5
ALL	ALL	ALL	52	ALL	18.8	81	102	47,033	46,784	0.5	136.6	263.2	60.6	1,010.5

Cruise Unit Report CLUTCH U4

Unit Sale Notice Volume (MBF): CLUTCH U4

Sp	DBH	Rings/In	Age	MBF Volume by Grade				Utility
				All	2 Saw	3 Saw	4 Saw	
WH	17.7			978	517	414	41	6
DF	23.9			387	317	59	10	
SF	17.0			131	55	67	9	
ALL	18.6			1,496	889	540	61	6

Unit Cruise Design: CLUTCH U4

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (62.5, 40 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	31.5	32.6	25	12	0

Unit Cruise Summary: CLUTCH U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	32	81	3.2	0
DF	13	27	1.1	0
SF	7	12	0.5	0
ALL	52	120	4.8	0

Unit Cruise Statistics: CLUTCH U4

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	202.5	60.0	12.0	153.4	16.4	2.9	31,061	62.2	12.3
DF	67.5	171.0	34.2	181.8	30.3	8.4	12,275	173.6	35.2
SF	30.0	233.9	46.8	139.0	19.6	7.4	4,169	234.7	47.4
ALL	300.0	27.6	5.5	158.4	23.6	3.3	47,505	36.3	6.4

Unit Summary: CLUTCH U4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	13	ALL	23.9	92	118	12,672	12,275	3.1	21.7	67.5	13.8	386.7
SF	LIVE	CUT	7	ALL	17.0	72	91	4,271	4,169	2.4	19.0	30.0	7.3	131.3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	32	ALL	17.7	78	97	31,188	31,061	0.4	118.5	202.5	48.1	978.4
ALL	LIVE	CUT	52	ALL	18.6	79	99	48,132	47,505	1.3	159.2	300.0	69.2	1,496.4
ALL	ALL	ALL	52	ALL	18.6	79	99	48,132	47,505	1.3	159.2	300.0	69.2	1,496.4

Cruise Unit Report CLUTCH U4

Unit Sale Notice Volume (MBF): CLUTCH U4

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
WH	13.2			48		40	8
SF	16.3			28	16	9	3
DF	9.5			4			4
ALL	13.5			80	16	49	15

Unit Cruise Design: CLUTCH U4

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (62.5, 40 for some species) Measure All, Sighting Ht = 4.5 ft	6.8	6.8	8	8	0

Unit Cruise Summary: CLUTCH U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
RC		1	0.1	0
WH	7	23	2.9	0
DF	1	10	1.3	0
SF	4	4	0.5	0
ALL	12	38	4.8	0

Unit Cruise Statistics: CLUTCH U4

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
RC	5.0	282.8	100.0						
WH	179.7	29.0	10.3	129.9	10.4	3.9	23,340	30.8	11.0
DF	78.1	56.6	20.0	69.1	0.0	0.0	5,396	56.6	20.0
SF	31.3	106.9	37.8	132.1	39.3	19.7	4,127	113.9	42.6
ALL	294.1	20.8	7.4	113.7	29.9	8.6	33,432	36.4	11.3

Unit Summary: CLUTCH U4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	1	ALL	9.5	50	61	540	540	0.0	15.9	7.8	2.5	3.7
DF	LIVE	LEA	9	ALL	22.1	92	117	4,857	4,857	0.0	26.4	70.3	15.0	33.0
RC	LIVE	LEA	1	ALL	22.0	64	80				1.9	5.0	1.1	
SF	LIVE	CUT	4	ALL	16.3	68	86	4,261	4,127	3.1	21.6	31.3	7.7	28.1
WH	LIVE	CUT	7	ALL	13.2	67	83	7,103	7,103	0.0	57.5	54.7	15.1	48.3
WH	LIVE	LEA	16	ALL	18.9	82	103	16,237	16,237	0.0	64.2	125.0	28.8	110.4
ALL	LIVE	CUT	12	ALL	13.5	64	80	11,904	11,771	1.1	95.0	93.8	25.3	80.0
ALL	LIVE	LEA	26	ALL	19.9	85	106	21,093	21,093	0.0	92.5	200.3	44.8	143.4
ALL	ALL	ALL	38	ALL	17.0	74	93	32,998	32,864	0.4	187.5	294.1	70.1	223.5

Cruise Unit Report CLUTCH U2 RMZ

Unit Sale Notice Volume (MBF): CLUTCH U2 RMZ

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
SF	17.1			35	13	19	3
WH	10.8			34		28	6
ALL	12.7			69	13	47	9

Unit Cruise Design: CLUTCH U2 RMZ

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
FX: FR plots (20 tree / acre expansion)	8.0	8.1	3	3	0

Unit Cruise Summary: CLUTCH U2 RMZ

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	9	20	6.7	0
SF	3	6	2.0	0
ALL	12	26	8.7	0

Unit Cruise Statistics: CLUTCH U2 RMZ

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	157.2	15.7	9.1	112.0	7.1	2.4	17,607	17.3	9.4
SF	97.6	91.2	52.7	135.4	15.7	9.0	13,215	92.6	53.4
ALL	254.8	25.2	14.6	120.9	12.1	3.5	30,822	28.0	15.0

Unit Summary: CLUTCH U2 RMZ

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
SF	LIVE	CUT	3	ALL	17.1	77	97	4,333	4,333	0.0	20.1	32.0	7.7	34.7
SF	LIVE	LEA	3	ALL	24.5	93	120	8,882	8,882	0.0	20.0	65.6	13.3	71.1
WH	LIVE	CUT	9	ALL	10.8	59	72	4,260	4,260	0.0	59.8	38.0	11.6	34.1
WH	LIVE	LEA	11	ALL	17.3	79	99	13,347	13,347	0.0	73.0	119.2	28.7	106.8
ALL	LIVE	CUT	12	ALL	12.7	64	79	8,593	8,593	0.0	79.9	70.0	19.3	68.7
ALL	LIVE	LEA	14	ALL	19.1	82	103	22,228	22,228	0.0	93.0	184.8	41.9	177.8
ALL	ALL	ALL	26	ALL	16.4	74	92	30,822	30,822	0.0	172.9	254.8	61.2	246.6

Cruise Unit Report CLUTCH U3 RMZ

Unit Sale Notice Volume (MBF): CLUTCH U3 RMZ

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
WH	11.9			33	4	24	5
SF	14.4			9		7	2
ALL	12.4			42	4	31	7

Unit Cruise Design: CLUTCH U3 RMZ

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
FX: FR plots (20 tree / acre expansion)	4.3	4.2	4	4	0

Unit Cruise Summary: CLUTCH U3 RMZ

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF		1	0.3	0
RC		1	0.3	0
WH	16	31	7.8	0
SF	3	4	1.0	0
ALL	19	37	9.3	0

Unit Cruise Statistics: CLUTCH U3 RMZ

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	5.3	200.0	100.0						
RC	7.0	200.0	100.0						
WH	233.9	54.1	27.1	124.6	31.2	7.8	29,133	62.5	28.2
SF	29.1	70.8	35.4	123.9	29.9	17.3	3,605	76.9	39.4
ALL	275.3	43.0	21.5	124.5	30.2	6.9	34,272	52.6	22.6

Unit Summary: CLUTCH U3 RMZ

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	LEA	1	ALL	14.0	56	80				5.0	5.3	1.4	
RC	LIVE	LEA	1	ALL	16.0	45	60				5.0	7.0	1.7	
SF	LIVE	CUT	3	ALL	14.4	53	74	2,115	2,115	0.0	15.1	17.1	4.5	9.1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
SF	LIVE	LEA	1	ALL	21.0	98	120	1,490	1,490	0.0	5.0	12.0	2.6	6.4
WH	LIVE	CUT	16	ALL	11.9	52	81	7,745	7,745	0.0	80.5	62.2	18.0	33.3
WH	LIVE	LEA	15	ALL	20.5	94	116	21,388	21,388	0.0	74.9	171.7	37.9	92.0
ALL	LIVE	CUT	19	ALL	12.3	52	80	9,860	9,860	0.0	95.6	79.2	22.5	42.4
ALL	LIVE	LEA	18	ALL	20.0	90	111	22,878	22,878	0.0	89.9	196.0	43.7	98.4
ALL	ALL	ALL	37	ALL	16.5	70	95	32,738	32,738	0.0	185.5	275.3	66.2	140.8

Cruise Unit Report CLUTCH U4 RMZ

Unit Sale Notice Volume (MBF): CLUTCH U4 RMZ

Sp	DBH	Rings/In	Age	MBF Volume by Grade		
				All	3 Saw	4 Saw
WH	13.6			11	8	2
ALL	13.6			11	8	2

Unit Cruise Design: CLUTCH U4 RMZ

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
FX: FR plots (20 tree / acre expansion)	1.3	1.3	2	2	0

Unit Cruise Summary: CLUTCH U4 RMZ

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF		1	0.5	0
WH	6	14	7.0	0
ALL	6	15	7.5	0

Unit Cruise Statistics: CLUTCH U4 RMZ

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	28.9	141.4	100.0						
WH	215.0	6.4	4.5	134.5	10.3	4.2	28,909	12.1	6.2
ALL	243.8	22.4	15.8	134.5	10.3	4.2	32,789	24.6	16.4

Unit Summary: CLUTCH U4 RMZ

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	LEA	1	ALL	23.0	97	124				10.0	28.9	6.0	
WH	LIVE	CUT	6	ALL	13.6	69	85	8,090	8,090	0.0	59.6	60.2	16.3	10.5
WH	LIVE	LEA	8	ALL	18.8	84	105	20,819	20,819	0.0	80.3	154.8	35.7	27.1
ALL	LIVE	LEA	9	ALL	19.3	85	107	20,819	20,819	0.0	90.3	183.7	41.7	27.1
ALL	LIVE	CUT	6	ALL	13.6	69	85	8,090	8,090	0.0	59.6	60.2	16.3	10.5
ALL	ALL	ALL	15	ALL	17.3	78	98	28,909	28,909	0.0	149.9	243.8	58.0	37.6

Cruise Unit Report CLUTCH ROW

Unit Sale Notice Volume (MBF): CLUTCH ROW

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
DF	24.4	7.0		134	99	30	1	4
WH	16.8			113	63	46	5	
SF	17.0			6		5	1	
RA	14.0			3			3	
RC	19.9			3		3		
ALL	19.3	7.0		260	162	83	11	4

Unit Cruise Design: CLUTCH ROW

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2: VR, 2 BAF (62.5, 40 for some species) Measure All, Sighting Ht = 4.5 ft	8.4	8.3	12	12	0

Unit Cruise Summary: CLUTCH ROW

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	18	19	1.6	1
WH	18	18	1.5	0
SF	1	1	0.1	0
RA	2	2	0.2	0
RC	2	2	0.2	0
ALL	41	42	3.5	1

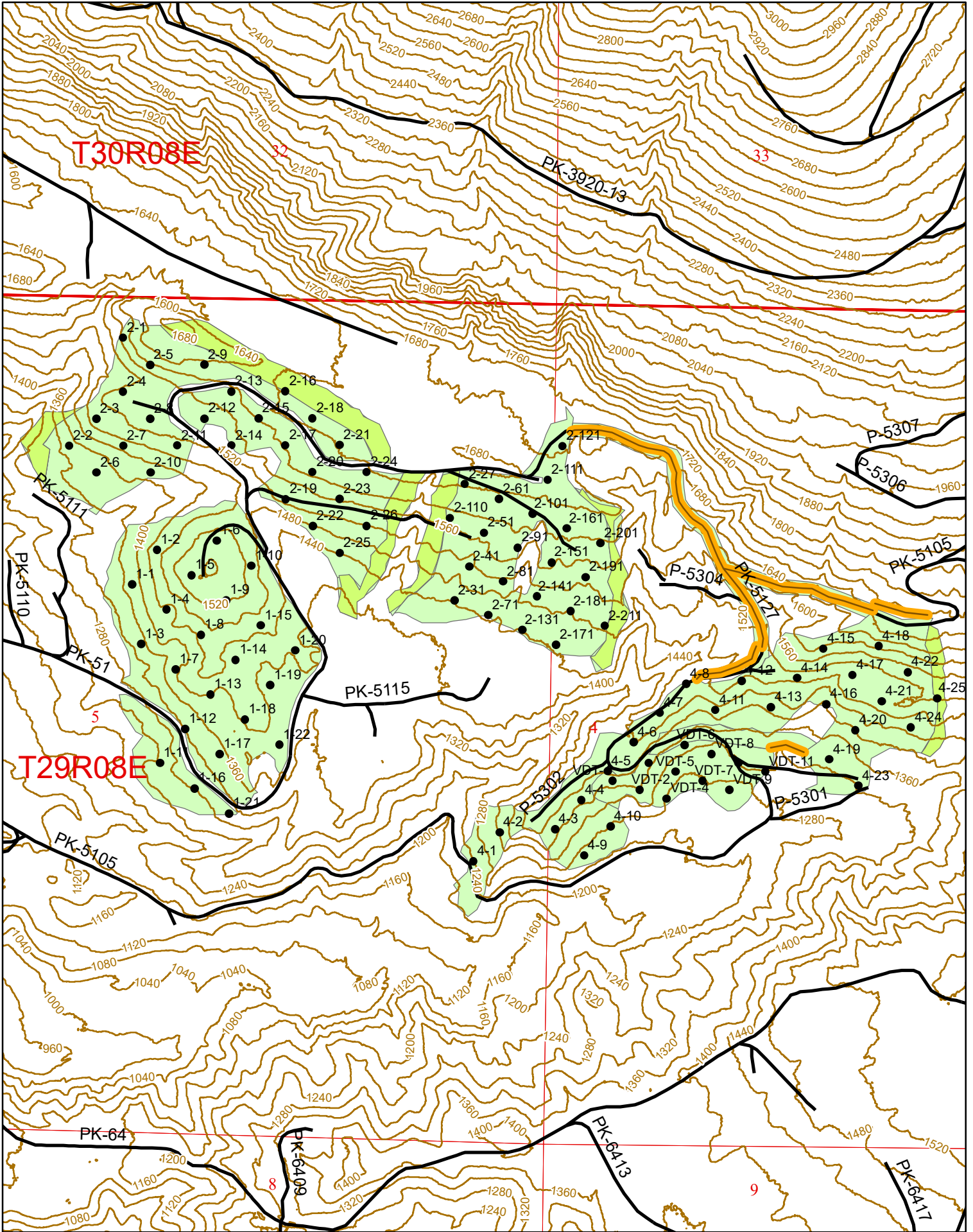
Unit Cruise Statistics: CLUTCH ROW

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	99.0	98.8	28.5	161.5	26.4	6.2	15,981	102.3	29.2
WH	93.8	137.8	39.8	144.1	21.7	5.1	13,505	139.5	40.1
SF	5.2	346.4	100.0	135.8	0.0	0.0	707	346.4	100.0
RA	6.7	233.5	67.4	59.7	13.7	9.7	398	234.0	68.1
RC	6.7	233.5	67.4	50.5	6.4	4.5	337	233.6	67.6
ALL	211.3	45.0	13.0	146.4	31.7	5.0	30,928	55.1	13.9

Unit Summary: CLUTCH ROW

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	18	ALL	24.4	92	117	17,270	15,981	7.5	30.5	99.0	20.0	134.2
RA	LIVE	CUT	2	ALL	14.0	47	57	398	398	0.0	6.2	6.7	1.8	3.3
RC	LIVE	CUT	2	ALL	19.9	50	61	337	337	0.0	3.1	6.7	1.5	2.8
SF	LIVE	CUT	1	ALL	17.0	75	95	707	707	0.0	3.3	5.2	1.3	5.9
WH	LIVE	CUT	18	ALL	16.8	74	94	13,861	13,505	2.6	60.9	93.8	22.9	113.4
ALL	LIVE	CUT	41	ALL	19.3	77	98	32,572	30,928	5.0	104.0	211.3	47.4	259.8
ALL	ALL	ALL	41	ALL	19.3	77	98	32,572	30,928	5.0	104.0	211.3	47.4	259.8

Clutch TS - NW





Forest Practices Application/Notification Notice of Decision

FPA/N No: 2819482

Effective Date: 8/27/2024

Expiration Date: 8/27/2027

Shut Down Zone: 656/658

EARR Tax Credit: Eligible Non-eligible

Reference: Clutch

Decision

- Notification Accepted** Operations shall not begin before the effective date.
- Approved** This Forest Practices Application is subject to the conditions listed below.
- Disapproved** This Forest Practices Application is disapproved for the reasons listed below.
- Withdrawn** Applicant has withdrawn the Forest Practices Application/Notification (FPA/N).
- Closed** All forest practices obligations are met.

FPA/N Classification

- Class II
- Class III
- Class IVG
- Class IVS

Number of Years Granted on Multi-Year Request

- 4 years
- 5 years

Conditions on Approval/Reasons for Disapproval

Issued By: Bryent Daugherty

Region: Northwest Region

Title: Resource Protection Forester

Date: 8/27/2024

Copies to: Landowner, Timber Owner, and Operator

Issued in person: LO TO OP By: Alta Schmidt Date: 8/27/2024

Appeal Information

You have thirty (30) days to **file** (i.e., **actually deliver**) an appeal in writing of this Decision and any related State Environmental Policy Act (SEPA) determinations to the Pollution Control Hearings Board, the Attorney General's Office, and the Department of Natural Resources' region office. See [RCW 76.09.205](http://www.wa.gov/RCW76.09.205). The appeal period starts when the applicant receives this decision, which usually happens electronically on the date indicated below.

You must file your appeal at all three addresses below:

Pollution Control Hearings Board	Office of the Attorney General Natural Resources Division	Department Of Natural Resources Northwest Region
<u>Physical Address</u> 1111 Israel Road SW Suite 301 Tumwater, WA 98501 <u>Mailing address</u> Post Office Box 40903 Olympia, WA 98504-0903	<u>Physical Address</u> 1125 Washington Street, SE Olympia, WA 98504 <u>Mailing Address</u> Post Office Box 40100 Olympia, WA 98504-0100	<u>Physical Address</u> 919 North Township Street Sedro-Woolley, WA 98284 <u>Mailing Address</u> 919 North Township Street Sedro-Woolley, WA 98284

Information regarding the Pollution Control Hearings Board can be found at: <https://eluh0.wa.gov/>

Other Applicable Laws

Operating as described in this application/notification does not ensure compliance with the Endangered Species Act, or other federal, state, or local laws.

Transfer of Forest Practices Application/Notification (WAC 222-20-010)

Use the "Notice of Transfer of Approved Forest Practices Application/Notification" form. This form is available at region offices and on the Forest Practices website <https://www.dnr.wa.gov/programs-and-services/forest-practices/review-applications-fpars/forest-practices-forms-and>. Notify DNR of new Operators within 48 hours.

Continuing Forestland Obligations (RCW 76.09.060, RCW 76.09.070, RCW 76.09.390, and WAC 222-20-055)

Obligations include reforestation, road maintenance and abandonment plans, conversions of forestland to non- forestry use and/or harvest strategies on perennial non-fish habitat (Type Np) waters in Eastern Washington.

Before the sale or transfer of land or perpetual timber rights subject to continuing forest and obligations, the seller must notify the buyer of such an obligation on a form titled "Notice of Continuing Forest Land Obligation". The seller and buyer must both sign the "Notice of Continuing Forest Land Obligation" form and send it to the DNR Region Office for retention. This form is available at DNR region offices.

If the seller fails to notify the buyer about the continuing forestland obligation, the seller must pay the buyer's costs related to continuing forestland obligations, including all legal costs and reasonable attorneys' fees incurred by the buyer in enforcing the continuing forestland obligation against the seller.

Failure by the seller to send the required notice to DNR at the time of sale will be prima facie evidence in an action by the buyer against the seller for costs related to the continuing forestland obligation prior to sale.

DNR Declaration of Mailing

I Choose an item., caused the Notice of Decision for FPA/N No. _____ To be placed in the United States mail at **Sedro-Woolley, WA**; postage paid. I declare under penalty of perjury of the laws of the State of Washington, that the foregoing is true and correct.

(Date)

(City & State where signed)

(Signature)



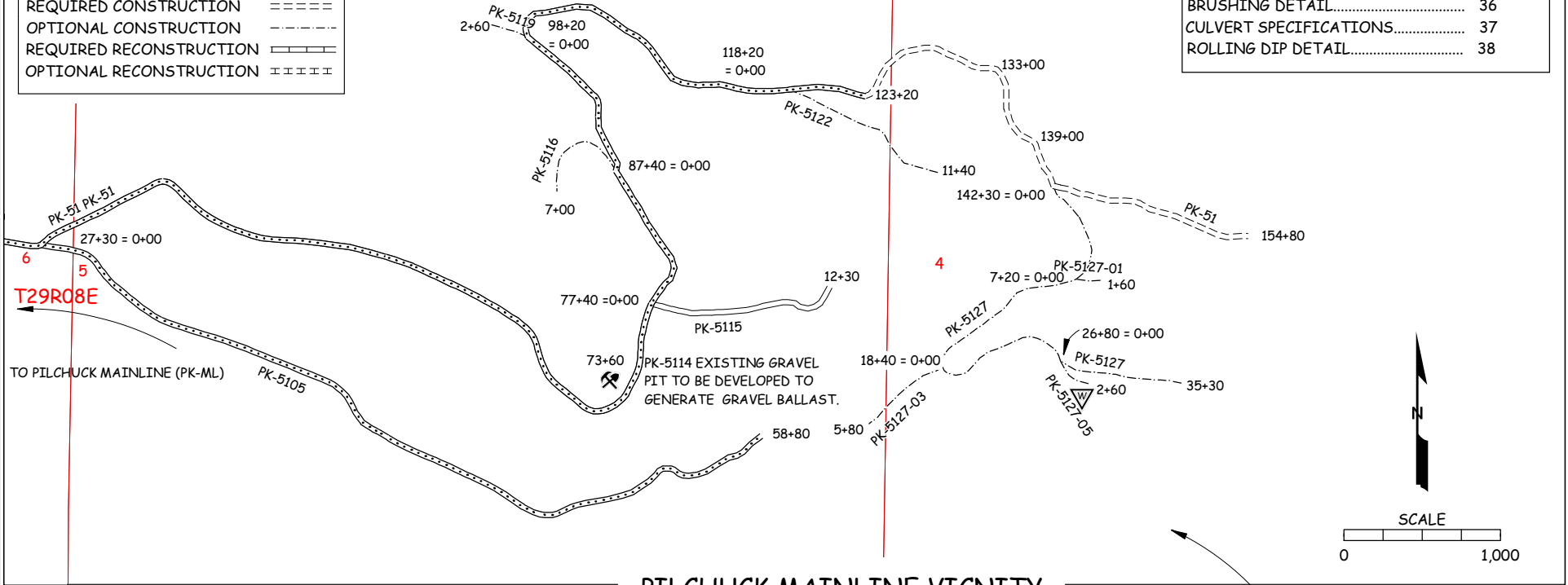
ROAD PLAN AND SPECIFICATIONS #30-104443 CLUTCH TIMBER SALE

SHEET INDEX

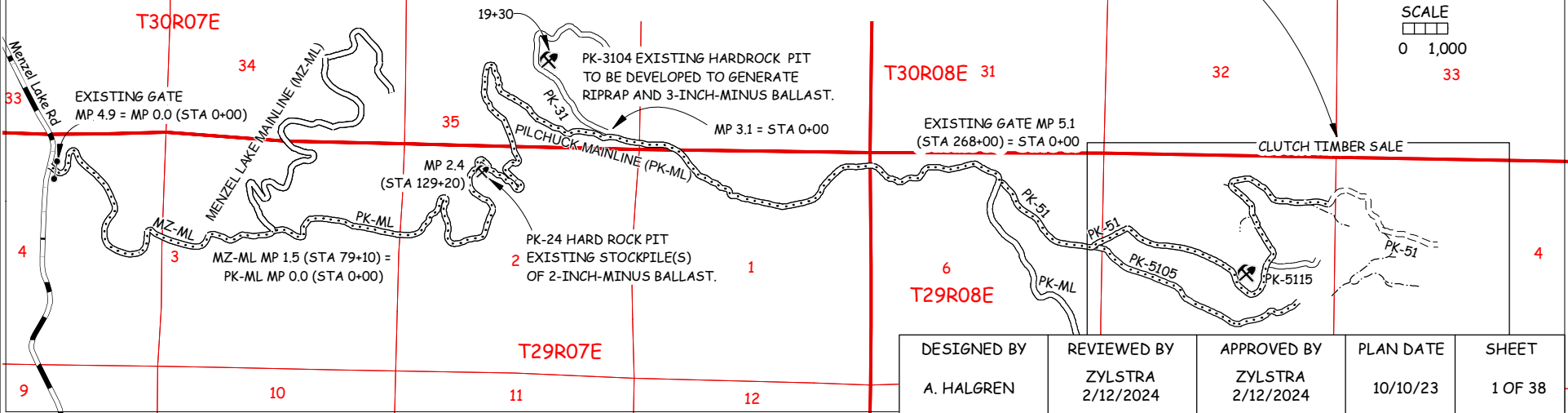
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LEGEND

PRE-HAUL MAINTENANCE	-----
REQUIRED CONSTRUCTION	=====
OPTIONAL CONSTRUCTION	- - - - -
REQUIRED RECONSTRUCTION	=====
OPTIONAL RECONSTRUCTION	-----



PILCHUCK MAINLINE VICINITY



DESIGNED BY	REVIEWED BY	APPROVED BY	PLAN DATE	SHEET
A. HALGREN	ZYLSTRA 2/12/2024	ZYLSTRA 2/12/2024	10/10/23	1 OF 38

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

CLUTCH TIMBER SALE ROAD PLAN
SNOHOMISH COUNTY
CASCADE DISTRICT
NORTHWEST REGION

AGREEMENT NO.: 30-104443

STAFF ENGINEER: A. HALGREN

DATE OCTOBER 10, 2023

SECTION 0 – SCOPE OF PROJECT

0-1 ROAD PLAN SCOPE

Clauses in this road plan apply to all road related work, including landings and rock source development, unless otherwise noted.

0-2 REQUIRED ROADS

The specified work on the following roads is required.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
MZ-ML	0+00 to 79+10	MAINTENANCE
PK-ML	0+00 to 268+00	MAINTENANCE
PK-51	0+00 TO 123+20	MAINTENANCE
PK-51	123+20 TO 154+80	CONSTRUCTION
PK-5105	0+00 TO 58+80	MAINTENANCE

0-3 OPTIONAL ROADS

The specified work on the following roads is not required. Any optional roads built by the Purchaser must meet all the specifications in the road plan.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
PK-5116	0+00 TO 7+00	CONSTRUCTION
PK-5119	0+00 TO 2+60	CONSTRUCTION
PK-5122	0+00 TO 11+40	CONSTRUCTION
PK-5127	0+00 TO 35+30	CONSTRUCTION
PK-5127-01	0+00 TO 1+60	CONSTRUCTION
PK-5127-03	0+00 TO 5+80	CONSTRUCTION
PK-5127-05	0+00 TO 2+60	CONSTRUCTION

0-4 CONSTRUCTION

Construction includes, but is not limited to clearing, grubbing, excavation and embankment to sub-grade, full bench sidecast, full bench end-haul, landing and turnout construction, culvert installation, geotextile installation, drill and shoot, application of 3-inch-minus ballast rock, and application of Shot Rock.

0-5 RECONSTRUCTION

Reconstruction includes, but is not limited to blading, shaping, and ditching the road surface, brushing, clearing, grubbing, culvert installation, application of 3-inch-minus ballast rock, and application of Shot Rock.

0-6 PRE-HAUL MAINTENANCE

Pre-haul maintenance includes, but is not limited to blading, shaping, and ditching the road surface, waterbar removal, brushing, existing culvert clean out, and application of 3-inch-minus ballast rock.

0-7 POST-HAUL MAINTENANCE

This project includes post-haul road maintenance listed in Clause 9-5 POST-HAUL MAINTENANCE.

0-10 ABANDONMENT

This project includes abandonment listed in Clause 9-21 ROAD ABANDONMENT.

0-12 DEVELOP ROCK SOURCE

Purchaser may develop new rock sources. Rock source development will involve clearing, stripping, drilling, shooting, and processing rock to generate riprap, 3-inch-minus ballast or surfacing. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

If the Purchaser desires a change from this road plan including, but not limited to, relocation, extension, change in design, or adding roads; a revised road plan must be submitted in writing to the Contract Administrator for consideration. Before work begins, Purchaser shall obtain approval from the State for any submitted plan that changes the scope of work or environmental condition from the original road plan.

1-2 UNFORESEEN CONDITIONS

Quantities established in this road plan are minimum acceptable values. Additional quantities required by the state due to unforeseen conditions, or Purchaser's choice of construction season or techniques will be at the Purchaser's expense. Unforeseen conditions include, but are not limited to, solid subsurface rock, subsurface springs, saturated ground, and unstable soils.

1-3 ROAD DIMENSIONS

Purchaser shall perform road work in accordance with the dimensions shown on the TYPICAL SECTION SHEET and the specifications within this road plan.

1-4 ROAD TOLERANCES

Contractor shall perform road work within the tolerances listed below. The tolerance class for each road is listed on the TYPICAL SECTION SHEET.

<u>Tolerance Class</u>	<u>A</u>	<u>B</u>	<u>C</u>
Road and Subgrade Width (feet)	+1.5	+1.5	+2.0
Subgrade Elevation (feet +/-)	0.5	1.0	2.0
Centerline alignment (feet lt./rt.)	1.0	1.5	3.0
Bridge Elevation (feet)	±0.25		

1-5 DESIGN DATA

Switchback design data is available upon request at the Department of Natural Resources Northwest Region Office in Sedro Woolley, WA.

1-6 ORDER OF PRECEDENCE

Any conflict or inconsistency in the road plan will be resolved by giving the documents precedence in the following order:

1. Addenda.
2. Designs or Plans. On designs and plans, figured dimensions shall take precedence over scaled dimensions.
3. Road Plan Clauses.
4. Typical Section Sheet.
5. Standard Lists.
6. Standard Details.
7. Road Plan maps.

In case of any ambiguity or dispute over interpreting the road plan, the Contract Administrator's or designee's decision will be final.

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

Purchaser shall repair or replace all materials, roadway infrastructure, and road components damaged during road work or operation activities. The Contract Administrator will direct repairs and replacements. Repairs to structural materials must be made in accordance with the manufacturer’s recommendation, and may not begin without written approval from the Contract Administrator.

1-9 DAMAGED METALLIC COATING

Any cut ends, or damaged galvanized or aluminized coating on existing or new bridge components, culverts, downspouts, and flumes must be cleaned and treated with a minimum of two coats of zinc rich paint or cold galvanizing compound.

1-18 REFERENCE POINT DAMAGE

Purchaser shall reset reference points (RPs) that were moved or damaged at any time during construction to their original locations. Excavation and embankment may not proceed on road segments controlled by said RPs until Purchaser resets all moved or damaged RPs.

1-21 HAUL APPROVAL

Purchaser shall not use roads under this road plan for any hauling other than timber cut on the right-of-way, without written approval from the Contract Administrator.

1-25 ACTIVITY TIMING RESTRICTION

The specified activities are not allowed during the listed closure period(s) unless authorized in writing by the Contract Administrator.

<u>Road</u>	<u>Stations</u>	<u>Activity</u>	<u>Closure Period</u>
ALL		Rock hauling, construction, reconstruction, or abandonment	November 1 to March 31

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION, Purchaser shall provide a maintenance plan to include further protection of state resources. Purchaser shall obtain written approval from the Contract Administrator for the maintenance plan, and shall put preventative measures in place before operating during the closure period. Purchaser is required to maintain all haul roads at their own expense including those listed in Contract Clause C-060 DESIGNATED ROAD MAINTAINER. If other operators are using, or desire to use these designated maintainer roads, a joint operating plan must be developed. All parties shall follow this plan.

1-29 SEDIMENT RESTRICTION

Purchaser shall not allow silt-bearing runoff to enter any streams.

1-30 CLOSURE TO PREVENT DAMAGE

In accordance with Contract Clause G-220 STATE SUSPENDS OPERATION, the Contract Administrator will suspend road work or hauling right-of-way timber, forest products, or rock under the following conditions:

- Wheel track rutting exceeds 4 inches on crushed rock roads.
- Surface or base stability problems persist.
- Weather is such that satisfactory results cannot be obtained in an area of operations.
- When, in the opinion of the Contract Administrator excessive road damage or rutting may occur.

Operations must stop unless authority to continue working or hauling is granted in writing by the Contract Administrator. In the event that surface or base stability problems persist, Purchaser shall cease operations, or perform corrective maintenance or repairs, subject to specifications within this road plan. Before and during any suspension, Purchaser shall protect the work from damage or deterioration.

1-32 BRIDGE SURFACE RESTRICTION

The use of metal tracked equipment is not allowed on concrete or wood-deck bridge surfaces at any time. If Purchaser must run equipment on bridge surfaces, then rubber tired equipment or other methods, approved in writing by Contract Administrator, must be used.

If tracked equipment is used on concrete or wood-deck bridge surfaces, Purchaser shall immediately cease all road construction and hauling operations. Purchaser shall remove any dirt, rock, or other material tracked or spilled on the bridge surface(s) and have surface(s) evaluated by the District Engineer or their designee for any damage caused by transporting equipment. Any damage to the surface(s) will be repaired, at the Purchaser's expense, as directed by the Contract Administrator.

1-33 SNOW PLOWING RESTRICTION

Snowplowing will be allowed after the execution of a SNOW PLOWING AGREEMENT, which is available from the Contact Administrator upon request. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

Purchaser shall immediately remove any mud, dirt, rock, or other material tracked or spilled on to county roads and state highways.

If additional damage to the surface, signs, guardrails, etc. occurs then the damage will be repaired, at the Purchaser's expense, as directed by the Contract Administrator when authorized by the county or WSDOT.

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

Purchaser shall maintain all roads used under this contract in accordance with the FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS for the entire term of this contract. Maintenance is required even during periods of inactivity.

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

Purchaser shall perform maintenance on roads listed in Contract Clause C-050 PURCHASER ROAD MAINTENANCE AND REPAIR in accordance with FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

2-5 MAINTENANCE GRADING – EXISTING ROAD

On the roads indicated in the TYPICAL SECTION, Purchaser shall use a grader to shape the existing surface before application of rock or timber haul.

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-1 BRUSHING

On roads indicated in the TYPICAL SECTION, Purchaser shall cut vegetative material up to 6 inches in diameter, including limbs, as shown on the BRUSHING DETAIL. Brushing must be achieved by mechanical cutting of brush, trees, and branches. Root systems and stumps of cut vegetation may not be disturbed unless directed by the Contract Administrator. Purchaser shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

3-5 CLEARING

Purchaser shall fall all vegetative material larger than 2 inches DBH or over 5 feet high between the marked right-of-way boundaries or if not marked in the field, between the clearing limits specified on the TYPICAL SECTION SHEET. Clearing must be completed before starting excavation and embankment.

3-8 PROHIBITED DECKING AREAS

Purchaser shall not deck right-of-way timber in the following areas:

- Within the grubbing limits.
- Within 50 feet of any stream.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- On slopes greater than 40%.
- Against standing trees.

3-10 GRUBBING

Purchaser shall remove all stumps between the grubbing limits specified on the TYPICAL SECTION SHEET and within waste and debris areas. Purchaser shall also remove stumps with undercut roots outside the grubbing limits. Grubbing must be completed before starting excavation and embankment.

3-20 ORGANIC DEBRIS DEFINITION

Organic debris is defined as all vegetative material not eligible for removal by Contract Clause G-010 PRODUCTS SOLD AND SALE AREA or G-011 RIGHT TO REMOVE FOREST PRODUCTS AND CONTRACT AREA, that is larger than one cubic foot in volume within the clearing limits as shown on the TYPICAL SECTION SHEET.

3-21 DISPOSAL COMPLETION

Purchaser shall remove organic debris from the road surface, ditchlines, and culvert inlets and outlets. Purchaser shall complete all disposal of organic debris before the application of rock.

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

Waste areas for organic debris are located at areas approved in writing by the Contract Administrator.

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream, or wetland
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 50%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush can fall into the ditch or onto the road surface.
- Against standing timber.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

Purchaser shall not bury organic debris unless otherwise stated in this plan.

3-25 SCATTERING ORGANIC DEBRIS

Purchaser shall scatter organic debris outside of the clearing limits in natural openings unless otherwise detailed in this road plan.

SECTION 4 – EXCAVATION

4-2 PIONEERING

Pioneering may not extend past construction that will be completed during the current construction season. Pioneering may not extend more than 500 feet beyond completed construction unless approved in writing by the Contract Administrator. In addition, the following actions must be taken as pioneering progresses:

- Drainage must be provided on all uncompleted construction.
- Road pioneering operations may not undercut the final cut slope or restrict drainage.
- Culverts at live stream crossings must be installed during pioneering operations prior to embankment.

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Purchaser shall follow these standards for road grade and alignment:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 15 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 5% in 100 feet.
- Maximum grade change for crest vertical curves is 4% in 100 feet.

4-4 SWITCHBACK STANDARDS

A switchback is defined as a curved segment of road between a beginning and end of the same curve, where the change of traffic travel direction is greater than 90 degrees.

Purchaser shall follow these standards for switchbacks:

- Maximum adverse grades for switchbacks is 10% of the switchback radius.
- Maximum favorable grades for switchbacks is 14% except as otherwise specified in clause 4-3 ROAD GRADE AND ALIGNMENT STANDARDS.
- Maximum transition grades entering and leaving switchbacks is a 6% grade change.
- Transition grades required to meet switchback grade limitations must be constructed on the tangents preceding and departing from the switchbacks.

4-5 CUT SLOPE RATIO

Purchaser shall construct excavation slopes no steeper than shown on the following table, unless construction staked or designed:

<u>Material Type</u>	<u>Excavation Slope Ratio</u>	<u>Excavation Slope Percent</u>
Common Earth (on side slopes up to 55%)	1:1	100
Common Earth (56% to 70% side slopes)	¾:1	133
Common Earth (on slopes over 70%)	½:1	200
Fractured or loose rock	½:1	200
Hardpan or solid rock	¼:1	400

4-6 EMBANKMENT SLOPE RATIO

Purchaser shall construct embankment slopes no steeper than shown on the following table, unless construction staked or designed:

<u>Material Type</u>	<u>Embankment Slope Ratio</u>	<u>Embankment Slope Percent</u>
Sandy Soils	2:1	50
Common Earth and Rounded Gravel	1½:1	67
Angular Rock	1¼:1	80

4-7 SHAPING CUT AND FILL SLOPE

Purchaser shall construct excavation and embankment slopes to a uniform line and left rough for easier revegetation.

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

- 6 feet for curves of 50 to 79 feet radius.
- 4 feet for curves of 80 to 100 feet radius.

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

- 2 feet for embankment heights at centerline of 2 to 6 feet.
- 4 feet for embankment heights at centerline of greater than 6 feet.

Purchaser shall apply embankment widening equally to both sides of the road to achieve the required width.

4-12 FULL BENCH CONSTRUCTION

On the following road(s), and where side slopes exceed 50% Purchaser shall use full bench construction for the entire subgrade width. If designated, Purchaser shall end haul waste material to the location specified in Clause 4-37 WASTE AREA LOCATION.

<u>Road</u>	<u>Full Bench Location</u>	<u>Comments</u>
PK-5127	28+60 to 29+80	

4-21 TURNOUTS

Purchaser shall construct turnouts intervisible with a maximum distance of 1,000 feet between turnouts unless otherwise shown on drawings. Locations may be adjusted to fit the final subgrade alignment and sight distances. Locations are subject to written approval by the Contract Administrator. Minimum dimensions are shown on the TYPICAL SECTION SHEET.

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

Purchaser shall construct or reconstruct ditches into the subgrade as specified on the TYPICAL SECTION SHEET. Ditches must be constructed concurrently with construction of the subgrade.

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

Purchaser shall construct ditchouts as identified on the MATERIALS LIST and as needed or as directed or approved by the Contract Administrator. Ditchouts must be constructed in a manner that diverts ditch water onto the forest floor and must have excavation backslopes no steeper than a 1:1 ratio. Locations may not be changed without written approval from the Contract Administrator.

4-35 WASTE MATERIAL DEFINITION

Waste material is defined as all dirt, rock, mud, or related material that is extraneous or unsuitable for construction material. Waste material, as used in Section 4 EXCAVATION, is not organic debris.

4-36 DISPOSAL OF WASTE MATERIAL

Purchaser may sidecast waste material on side slopes up to 50% if the waste material is compacted and free of organic debris. On side slopes greater than 50%, all waste material must be end hauled or pushed to the designated embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

4-37 WASTE AREA LOCATION

Purchaser shall deposit waste material in the listed designated area(s). Additional waste areas may also be identified or approved by the Contract Administrator. The amount of material allowed in a waste area is at the discretion of the Contract Administrator unless listed below.

<u>Road</u>	<u>Waste Area Location</u>
PK-5127-05	1+40 to 2+40

4-38 PROHIBITED WASTE DISPOSAL AREAS

Purchaser shall not deposit waste material in the following areas, except as otherwise specified in this plan:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream or wetland.
- Within a riparian management zone.
- On side slopes steeper than 50%.except as otherwise specified in this plan
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Against standing timber.
- Outside the clearing limits.

4-45 SELECT BORROW “GRAVEL BALLAST”

Select borrow consists of granular material, either naturally occurring or processed, and contains no more than 5% clay, organic debris, or trash by volume. Select borrow material must be free of rocks greater than 6 inches in any dimension.

4-55 ROAD SHAPING

Purchaser shall shape the subgrade and surface as shown on the TYPICAL SECTION SHEET. The subgrade and surface shape must ensure runoff in an even, un-concentrated manner, and must be uniform, firm, and rut-free.

4-60 FILL COMPACTION

Purchaser shall compact all embankment and waste material by routing equipment over the entire width of each lift.

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed and reconstructed subgrades by routing equipment over the entire width

4-70 SUBGRADE REINFORCEMENT

On the following road(s), Purchaser shall provide and install geotextile fabric. Subgrade reinforcement must be installed to a width that is 2 feet more than the subgrade width, including turnouts. Geotextile fabric must overlap by a minimum of 2 feet at all joints. The geotextile fabric must be covered with a minimum of 12 inches of compacted 3-inch-minus ballast rock. Purchaser shall apply rock in one-foot lift(s) over the geotextile in accordance with the manufacturer’s specifications. Geotextile fabric must meet the specifications in Clause 10-3 GEOTEXTILE FOR STABILIZATION.

<u>Road</u>	<u>Stations</u>
PK-51	129+30 TO 131+70
PK-5127	32+20 TO 33+50

SECTION 5 – DRAINAGE

5-5 CULVERTS

Purchaser shall install culverts as part of this contract. Culverts must be installed concurrently with subgrade work and must be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the MATERIALS LIST. Culvert, downspout, and flume lengths may be adjusted to fit as-built conditions and may not terminate directly on unprotected soil. Culverts may be new or used material and must meet the specifications in Clauses 10-15 through 10-24.

5-7 USED CULVERT MATERIAL

On temporary roads Purchaser may install used culverts. Purchaser shall obtain approval from the Contract Administrator for the quality of the used culverts before installation. Culverts must meet the specifications in Clauses 10-15 through 10-24.

5-12 UNUSED MATERIALS STATE PROPERTY

On required roads, any materials listed on the MATERIALS LIST that are not installed will become the property of the state. Purchaser shall stockpile materials as directed by the Contract Administrator.

5-13 CONTINGENCY CULVERTS

The following culverts will be supplied by the Purchaser and are available for installation as directed by the Contract Administrator.

<u>Road</u>	<u>Size</u>	<u>Quantity</u>
On any portion of road used for timber or rock haul.	18" culvert band	5
	18" x 32' culvert	1
	18" x 36' culvert	3
	18" x 40' culvert	1
	24" culvert band	1
	24" x 40' culvert	1

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL and the National Corrugated Metal Pipe Association's "Installation Manual for Corrugated Steel Drainage Structures" and the Corrugated Polyethylene Pipe Association's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings".

5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

Purchaser shall obtain written approval from the Contract Administrator for the installation of culverts 36 inches in diameter and over before backfilling.

5-17 CROSS DRAIN SKEW AND SLOPE

Cross drains, on road grades in excess of 3%, must be skewed at least 30 degrees from perpendicular to the road centerline, except where the cross drain is at the low point in the road culverts will not be skewed. Cross drain culverts must be installed at a slope steeper than the incoming ditch grade, but not less than 3% or more than 10%.

5-18 CULVERT DEPTH OF COVER

Cross drain culverts must be installed with a depth of cover of not less than 1 foot of compacted subgrade over the top of the culvert at the shallowest point. Stream crossing culverts must be installed with a depth of cover recommended by the culvert manufacturer for the type and size of the pipe.

5-20 ENERGY DISSIPATERS

Purchaser shall install energy dissipaters in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL. Energy dissipater installation is subject to approval by the Contract Administrator.

The type of energy dissipater and the amount of material must be consistent with the specifications listed on the CULVERT AND DRAINAGE SPECIFICATION DETAIL.

5-25 CATCH BASINS

Purchaser shall construct catch basins in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL. Minimum dimensions of catch basins are 2 feet wide and 4 feet long.

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts. Rock used for headwalls must weigh at least 50 pounds. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets. Minimum specifications require that rock be placed at a width of one culvert diameter on each side of the culvert opening, and to a height of one culvert diameter above the top of the culvert. Rock may not restrict the flow of water into culvert inlets or catch basins. No placement by end dumping or dropping of rock is allowed.

5-27 ARMORING FOR STREAM CROSSING CULVERTS

At STREAM culverts (indicated in the REMARKS of the MATERIALS LIST), Purchaser shall place rip rap in conjunction with construction of the embankment. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the MATERIALS LIST and CULVERT AND DRAINAGE SPECIFICATIONS or as directed by the Contract Administrator. Rock may not restrict the flow of water into culvert inlets or catch basins. Rock must be set in place by machine. Placement must be with a zero-drop-height only. No placement by end dumping or dropping of rock is allowed. Rip rap must meet the specifications in Clause 6-50 LIGHT LOOSE RIP RAP and 6-50 HEAVY LOOSE RIP RAP

5-31 ROLLING DIP CONSTRUCTION

Purchaser shall construct rolling dips in accordance with the ROLLING DIP DETAIL and as specified on the MATERIALS LIST. Rolling dips must be installed concurrently with construction of the subgrade and must be maintained in an operable condition.

SECTION 6 – ROCK AND SURFACING

6-2 ROCK SOURCE ON STATE LAND

Rock used in accordance with the quantities on the TYPICAL SECTION and MATERIALS LIST may be obtained from the following source(s) on state land at no charge to the Purchaser. Purchaser shall obtain written approval from the Contract Administrator for the use of material from any other source. If other operators are using, or desire to use the rock source(s), a joint operating plan must be developed. All parties shall follow this plan.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
PK-24 HARD ROCK PIT	STA 129+20 OF PK-ML ROAD	3-INCH-MINUS BALLAST, SHOT ROCK, RIPRAP
PK-3104 HARD ROCK PIT	STA 19+30 OF PK-31 ROAD	3-INCH-MINUS BALLAST, SHOT ROCK, RIPRAP
PK-5114 GRAVEL PIT	STA 73+60 OF PK-51 ROAD	SELECT BORROW GRAVEL BALLAST*

*For use ONLY on temporary road grades under 5%

6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE

Rock used in accordance with the quantities on the TYPICAL SECTION and MATERIALS LIST may be obtained from the following existing stockpile(s) on state land at no charge to the Purchaser. Purchaser shall not remove more than 1600 cubic yards of 2" MINUS BALLAST ROCK without prior written approval from the Contract Administrator. Other stockpiles may not be used without prior written approval from the Contract Administrator.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
PK-24 HARD ROCK PIT	STA 129+20 of the PK-ML	2-INCH-MINUS BALLAST*

*To be used exclusively for maintenance of the PK-ML and PK-51 roads.

6-5 ROCK FROM COMMERCIAL SOURCE

Rock used in accordance with the quantities on the TYPICAL SECTION and MATERIALS LIST may be obtained from any commercial source at the Purchaser's expense. Rock sources are subject to written approval by the Contract Administrator before their use.

6-11 ROCK SOURCE DEVELOPMENT PLAN BY PURCHASER

Purchaser shall conduct rock source development and use at the following sources, in accordance with a written ROCK SOURCE DEVELOPMENT PLAN to be prepared by the Purchaser. The plan is subject to written approval by the Contract Administrator before left in the condition specified in the ROCK SOURCE DEVELOPMENT PLAN, and approved in writing by the Contract Administrator.

<u>Source</u>	<u>Rock Type</u>
PK-3104 HARD ROCK PIT	3-INCH-MINUS BALLAST, RIPRAP
PK-5114 GRAVEL PIT	GRAVEL BALLAST
PK-24 HARD ROCK PIT	2-INCH-MINUS BALLAST (STOCKPILE)

Rock source development plans prepared by the Purchaser must show the following information:

- Rock source location.
- Rock source overview showing access roads, development areas, stockpile locations, waste areas, and floor drainage.
- Rock source profiles showing development areas, bench locations including widths, and wall faces including heights.

6-12 ROCK SOURCE SPECIFICATIONS

Rock sources must be in accordance with the following specifications:

- Pit walls may not be undermined or over steepened. The maximum slope of the walls must be consistent with recognized engineering standards for the type of material being excavated in accordance with the following table:

Material	Maximum Slope Ratio (Horiz. :Vert.)	Maximum Slope Percent
Sand	2:1	50
Gravel	1.5:1	67
Common Earth	1:1	100
Fractured Rock	0.5:1	200
Solid Rock	0:1	vertical

- Pit walls must be maintained in a condition to minimize the possibility of the walls sliding or failing.
- The width of pit benches must be a minimum of 1.5 times the maximum length of the largest machine used.
- The surface of pit floors and benches must be uniform and free-draining at a minimum 2% outslope gradient.
- All operations must be carried out in compliance with all regulations of the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- All vehicle access to the top of the pit faces must be blocked.

6-13 ROCK EXPLORATION

Purchaser shall provide an excavator with operator for exploration of rock at the following site(s).

<u>Location</u>
STA 1+60 PK-5127-01
STA 3+30 to 7+00 PK-5116

6-14 DRILL AND SHOOT

Rock drilling and shooting must meet the following specifications:

- Oversize material remaining in the rock source at the conclusion of the timber sale may not exceed 5% of the total volume mined in that source.
- Oversize material is defined as rock fragments too large to be converted by the Purchaser to a size that will meet specifications used for the roads in this sale.
- Oversized rock that exceeds the maximum allowable amount must be left in a stable condition in full contact with the ground so that it does not present a fall hazard.
- Purchaser shall notify the Contract Administrator 7-21 working days before blasting operations.
- All operations must be carried out in compliance with the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and the Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- Purchaser shall block access roads and trails before blasting operations.

6-21 IN-PLACE PROCESSING

Purchaser may use in-place processing, such as a grid roller or other method, if suitable crushing can be demonstrated to meet the surfacing size-specified in Clause 6-38 4-INCH IN-PLACE ROCK. Purchaser shall remove any existing organic debris before the start of in-place crushing operations. The use of in-place processing methods is subject to written approval by the Contract Administrator.

6-22 FRACTURE REQUIREMENT FOR ROCK

A minimum of 50% by visual inspection of coarse aggregate must have at least one fractured face. Coarse aggregate is the material greater than 1/4-inch in size.

6-23 ROCK GRADATION TYPES

Purchaser shall provide rock in accordance with the types and amounts listed in the TYPICAL SECTION and MATERIALS LIST. Rock must meet the following specifications for gradation and uniform quality when placed in hauling vehicles or during manufacture and placement into a stockpile. The exact point of evaluation for conformance to specifications will be determined by the Contract Administrator.

6-34 3-INCH MINUS BALLAST ROCK

Ballast rock must be 100% equal to, or smaller than, 3 inches in at least one dimension.

Rock may contain no more than 5 percent organic debris, dirt, and trash. All percentages are by weight.

6-38 4-INCH IN-PLACE ROCK

4-inch in-place rock must have a minimum of 90 percent of the top 4 inches of the running surface pass a 4-inch square opening.

In-place rock may not contain organic debris and trash. No more than 50 percent of rock may be larger than 8 inches in any dimension and no rock may be larger than 12 inches in any dimension.

6-42 CLEAN ROCK, SHOT OR RIPPABLE BALLAST

No more than 50 percent of the rock by visual inspection may exceed 8 inches in any dimension and no rock may be larger than 8 inches in any dimension. Shot or Ripable Ballast rock may not contain more than 5 percent by weight of organic debris, dirt, and trash.

6-50 LIGHT LOOSE RIP RAP

Light loose rip rap must consist of angular, hard, sound, and durable stone. It must be free from segregation, seams, cracks, and other defects tending to destroy its resistance to weather. Light loose rip rap must be free of rock fines, soil, organic debris or other extraneous material, and must meet the following requirements:

<u>Quantity</u>	<u>Approximate Size Range</u>
20% to 90%	500 lbs. to 1 ton (18" - 28")
15% to 80%	50 lbs. to 500 lbs. (8" - 18")
10% to 20%	3 inch to 50 lbs. (3" - 8")

6-51 HEAVY LOOSE RIP RAP

Heavy loose rip rap must consist of angular, hard, sound, and durable stone. It must be free from segregation, seams, cracks, and other defects tending to destroy its resistance to weather. Heavy loose rip rap must be free of rock fines, soil, organic debris or other extraneous material, and must meet the following requirements:

<u>Quantity</u>	<u>Size Range</u>
30% to 90%	1 ton to 2 ton (28" - 36")
30% to 70%	500 lbs. to 1 ton (18" - 28")
20% to 50%	50 lbs. to 500 lbs. (8" - 18")
10% to 20%	3 inch to 50 lbs. (3" - 8")

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of specified rock depths, are defined as the compacted depth(s) using the compaction methods required in this road plan. Estimated quantities specified in the TYPICAL SECTION are loose yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements, and are not subject to reduction.

6-70 APPROVAL BEFORE ROCK APPLICATION

Purchaser shall obtain written approval from the Contract Administrator for culvert installation, ditch construction, ditch reconstruction, headwall construction, and headwall reconstruction before rock application.

6-71 ROCK APPLICATION

Purchaser shall apply rock in accordance with the specifications and quantities shown on the TYPICAL SECTION. Rock must be spread, shaped, and compacted full width concurrent with rock hauling operations. The Contract Administrator will direct locations for rock that is to be applied as spot patching. Road surfaces must be compacted in accordance with the TYPICAL SECTION by routing equipment over the entire width.

6-73 ROCK FOR WIDENED PORTIONS

Purchaser shall apply rock to turnarounds, turnouts, and areas with curve widening to the same depth and specifications as the traveled way.

SECTION 8 – EROSION CONTROL

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a 4-inch layer of straw to all exposed soils at culvert installations. Soils must be covered before the first anticipated storm event. Soils may not sit exposed during any rain event.

8-5 CHECK DAM

On the following road(s), Purchaser shall construct rock check dams every 4 vertical feet in the ditch. Check dams must be built with 3-inch minus ballast rock to a depth of 8 inches and a length of 4 feet.

<u>Road</u>	<u>Stations</u>	<u>Minimum Count</u>
PK-51	129+30 to 130+20	4
	131+70 to 133+60	6
	137+90 to 139+00	6
	149+50 to 151+50	5
PK-5127	3+30 to 4+30	2
	29+50 to 32+20	8

8-7 ROAD SHOULDER BERM INSTALLATION

On the following road(s), Purchaser shall construct berms on the road shoulder(s), as flagged in the field.

<u>Road</u>	<u>Stations</u>	<u>Remarks</u>
PK-5127	5+80	Construct a ditch and a berm at least 24" high across the end of the road to prevent surface and ditch water from draining south to the convergent topography bound out of the proposal. Work to be approved in writing by the Contract Administrator

8-15 REVEGETATION

Purchaser shall spread seed and fertilizer on all exposed soils within the grubbing limits resulting from road work activities. Cover all exposed soils using manual dispersal of grass seed and fertilizer. Other methods of covering must be approved in writing by the Contract Administrator.

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the grass seed and fertilizer as directed in clauses 8-25 GRASS SEED and 8-27 FERTILIZER.

8-17 REVEGETATION TIMING

Purchaser shall revegetate during the first available opportunity after road work is completed. Soils may not be allowed to sit exposed for longer than one month without receiving revegetation treatment unless otherwise approved in writing by the Contract Administrator.

8-18 PROTECTION FOR SEED

Purchaser shall provide a protective cover for seed if revegetation occurs between July 1 and March 31. The protective cover may consist of dispersed straw, jute matting, or clear plastic sheets. The protective cover requirement may be waived in writing by the Contract Administrator if Purchaser is able to demonstrate a revegetation plan that will result in the establishment of a uniform dense crop (at least 50% coverage) of 3-inch tall grass by October 31

8-19 ASSURANCE FOR SEEDED AREA

Purchaser shall ensure the growth of a uniform and dense crop (at least 50% coverage) of 3-inch tall grass. Purchaser shall reapply the grass seed and fertilizer in areas that have failed to germinate or have been damaged through any cause. Restore eroded or disturbed areas, clean up and properly dispose of eroded materials, and reapply the seed and fertilizer at no addition cost to the state.

8-25 GRASS SEED

Purchaser shall evenly spread the seed mixture listed below on all exposed soil inside the grubbing limits at a rate of 50 pounds per acre of exposed soil. Grass seed must meet the following specifications:

1. Weed seed may not exceed 0.5% by weight.
2. All seed species must have a minimum 90% germination rate, unless otherwise specified.
3. Seed must be certified.
4. Seed must be furnished in standard containers showing the following information:
 - a. Common name of seed
 - b. Net weight
 - c. Percent of purity
 - d. Percentage of germination
 - e. Percentage of weed seed and inert material
5. Seed must conform to the following mixture unless a comparable mix is approved in writing by the Contract Administrator.

<u>Kind and Variety of Seed in Mixture</u>	<u>% by Weight</u>
Creeping Red Fescue	50
Elf Perennial Rye Grass	25
Highland Colonial Bentgrass	15
White Clover	10
Inert and Other Crop	0.5

Do not use seed sources that have the label “other seeds”- these can contain invasive species.

Mulch with straw to achieve no more than 70% cover, evenly distributed, at a rate of 1.5 to 2 tons per acre.

8-27 FERTILIZER

Purchaser shall evenly spread the fertilizer listed below on all exposed soil inside the grubbing limits at a rate of 200 pounds per acre of exposed soil. Fertilizer must meet the following specifications:

<u>Chemical Component</u>	<u>% by Weight</u>
Nitrogen	16
Phosphorous	16
Potassium	16
Sulphur	3
Inerts	49

SECTION 9 – POST-HAUL ROAD WORK

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

Culverts removed from roads become the property of the Purchaser and must be removed from state land.

9-5 POST-HAUL MAINTENANCE

Purchaser shall perform post-haul maintenance in accordance with the FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-21 ROAD ABANDONMENT

Purchaser shall abandon the following before the termination of this contract:

<u>Road</u>	<u>Stations</u>	<u>Type</u>
PK-5116	0+00 TO 7+00	ABANDONMENT
PK-5119	0+00 TO 2+60	ABANDONMENT
PK-5122	0+00 TO 11+40	ABANDONMENT
PK-5127	0+00 TO 35+30	ABANDONMENT
PK-5127-01	0+00 TO 1+60	ABANDONMENT
PK-5127-03	0+00 TO 5+80	ABANDONMENT
PK-5127-05	0+00 TO 2+60	ABANDONMENT

9-22 ABANDONMENT

- Remove all ditch relief culverts. The resulting slopes must be 1:1 or flatter. Place and compact the removed fill material in a location that will not erode into any Type 1 through 5 waters or wetlands.
- Remove all culverts in natural drainages. The resulting slopes must be 1.5:1 or flatter. Strive to match the existing native stream bank gradient. The natural streambed width must be re-established. Place and compact the removed fill material in a location that will not erode into any Type 1 through 5 waters or wetlands.
- Transport all removed culverts off site. All removed culverts are the property of the Purchaser.
- Construct non-drivable waterbars at natural drainage points and at a spacing that will produce a vertical drop of no more than 20 feet between waterbars and with a maximum horizontal spacing of 400 feet.
- Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
- Key waterbars into the cut-slope to intercept the ditch. Waterbars must be outsloped to provide positive drainage. Outlets must be on stable locations.
- Inslope or outslope the road as appropriate.
- Remove bridges and other structures.
- Pull back unstable fill that has potential of failing and entering any Type 1 through 5 waters or wetlands. Place and compact removed material in a stable location.
- Remove berms except as designed.
- Block the road by constructing an aggressive barrier of dense interlocked large woody debris (logs, stumps, root wads, etc.) so that four wheel highway vehicles cannot pass the point of abandonment. Typical barrier dimensions are 10 feet high by 20 feet deep, spanning the entire road prism from top of cutslope to toe of fillslope. Long term effectiveness is the primary objective. If necessary construct a vehicular turn-around near the point of abandonment.
- Apply grass seed to all exposed soils resulting from the abandonment work and in accordance with Section 8 EROSION CONTROL.

SECTION 10 MATERIALS

10-3 GEOTEXTILE FOR STABILIZATION

Geotextiles must meet the following minimum requirements for strength and property qualities, and must be designed by the manufacturer to be used for stabilization or reinforcement, and filtration. Material must be free of defects, cuts, and tears.

	<u>ASTM Test</u>	<u>Requirements</u>
Type	--	Woven
Apparent opening size	D 4751	No. 40 max
Water permittivity	D 4491	0.10 sec ⁻¹
Grab tensile strength	D 4632	315 lb
Grab tensile elongation	D 4632	50%
Puncture strength	D 6241	620 lb
Tear strength	D 4533	112 lb
Ultraviolet stability	D 4355	50% retained after 500 hours of exposure

10-15 CORRUGATED STEEL CULVERT

Metallic coated steel culverts must meet AASHTO M-36 (ASTM A-760) specifications. Culverts must be galvanized (zinc coated meeting AASHTO M-218).

10-16 CORRUGATED ALUMINUM CULVERT

Aluminum culverts must meet AASHTO M-196 (ASTM A-745) specifications.

10-17 CORRUGATED PLASTIC CULVERT

Polyethylene culverts must meet AASHTO M-294 specifications, or ASTM F-2648 specifications for recycled polyethylene. Culverts must be Type S – double walled with a corrugated exterior and smooth interior.

10-21 METAL BAND

Metal coupling and end bands must meet the AASHTO specification designated for the culvert and must have matching corrugations. Culverts 24 inches and smaller must have bands with a minimum width of 12 inches. Culverts over 24 inches must have bands with a minimum width of 24 inches.

10-22 PLASTIC BAND

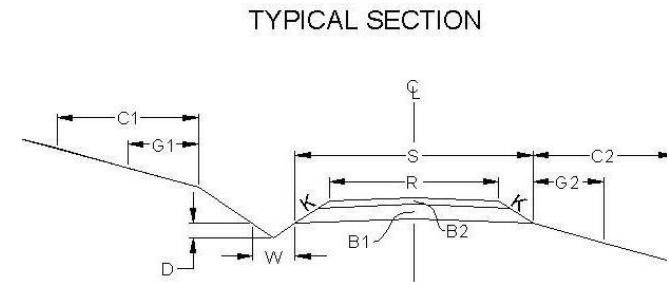
Plastic coupling and end bands must meet the AASHTO specification designated for the culvert. Only fittings supplied or recommended by the culvert manufacturer may be used.

10-24 GAUGE AND CORRUGATION

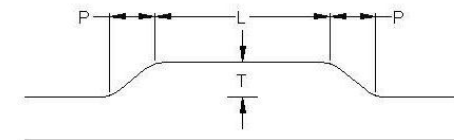
Unless otherwise stated, metal culverts must conform to the following specifications for gage and corrugation as a function of diameter.

<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>
18"	16 (0.064")	2 ² / ₃ " X 1/2"
24" to 48"	14 (0.079")	2 ² / ₃ " X 1/2"
54" to 96"	14 (0.079")	3" X 1"

ROAD #		MZ-ML	PK-ML	PK-51	PK-51 ^A
REQUIRED / OPTIONAL		REQUIRED	REQUIRED	REQUIRED	REQUIRED
CONSTRUCT / RECONSTRUCT		MAINTAIN	MAINTAIN	MAINTAIN	MAINTAIN
TOLERANCE CLASS (A/B/C)		C	C	C	C
STATION / MP TO		0+00	0+00	0+00	77+40
STATION / MP		79+10	268+00	77+40	123+20
ROAD WIDTH	R	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3
DITCH WIDTH	W	3	3	3	3
DITCH DEPTH	D	1	1	1	1
TURNOUT LENGTH	L	50	50	50	50
TURNOUT WIDTH	T	10	10	10	10
TURNOUT TAPER	P	25	25	25	25
GRUBBING	G1	-	-	-	-
	G2	-	-	-	-
CLEARING	C1	-	-	-	-
	C2	-	-	-	-
ROCK FILLSLOPE	K:1	-	-	-	-
❖ BALLAST DEPTH	B1	-	-	-	6
CUBIC YARDS / STATION		-	-	-	34
➤ TOTAL CY BALLAST		-	-	-	1560
❖ SURFACING DEPTH	B2				
CUBIC YARDS / STATION					
➤ TOTAL CY SURFACING					
➤ TOTAL CUBIC YARDS		-	-	-	1560
SUBGRADE WIDTH	S	-	-	-	-
BRUSHCUT (Y/N)		Y	Y	Y	Y
BLADE, SHAPE, & DITCH (Y/N)		N	N	N	Y ^A



TURNOUT DETAIL (PLAN VIEW)



SYMBOL NOTES

- ❖ Specified Rock Depth is FINISHED COMPACTED DEPTH in inches.
- Specified Rock Quantity is LOOSE MEASURE (Truck Cubic Yards) needed to accomplish specified FINISHED COMPACTED DEPTH. Rock quantities include volume for turnouts, curve widening and landings.
- A Maintenance requires removal of waterbars.
- B Proposed road is located on an abandoned grade.
- C Construction requires re-grading an abandoned road to meet requirement of clause 4-3 ROAD GRADE AND ALIGNMENT STANDARDS.

Rock Totals Summary

Type	Quantity (Cubic Yards)
Ballast	8150
Rip Rap	285

ROAD #		PK-51	PK-51 ^{BC}	PK-51 ^B	PK-5105	PK-5116 ^B	PK-5119 ^B	PK-5122	PK-5127 ^B	PK-5127 ^B
REQUIRED / OPTIONAL		REQUIRED	REQUIRED	REQUIRED	REQUIRED	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
CONSTRUCT / RECONSTRUCT		CONSTRUCT	CONSTRUCT	CONSTRUCT	MAINTAIN	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT
TOLERANCE CLASS (A/B/C)		C	C	C	C	C	C	C	C	C
STATION / MP TO		123+20	133+00	139+00	0+00	0+00	0+00	0+00	0+00	18+40
STATION / MP		133+00	139+00	154+80	58+80	7+00	2+60	<11+40	18+40	26+80
ROAD WIDTH	R	12	12	12	12	12	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3	3	3	3	3	3
DITCH WIDTH	W	3	3	3	3	2	2	2	2	2
DITCH DEPTH	D	1	1	1	1	1	1	1	1	1
TURNOUT LENGTH	L	50	50	50	50	25	25	25	25	25
TURNOUT WIDTH	T	10	10	10	10	10	10	10	10	10
TURNOUT TAPER	P	25	25	25	25	25	25	25	25	25
GRUBBING	G1	5	5	5	-	5	5	5	5	5
	G2	5	5	5	-	5	5	5	5	5
CLEARING	C1	10	10	10	-	10	10	10	10	10
	C2	10	10	10	-	10	10	10	10	10
ROCK FILLSLOPE	K:1	1 ½	1 ½	1 ½	-	1 ½	1 ½	1 ½	1 ½	1 ½
❖ BALLAST DEPTH	B1	18	18	12	-	12	6	12	6	12
CUBIC YARDS / STATION		114	114	72	-	72	34	72	34	72
➤ TOTAL CY BALLAST		1120	690	1140	-	510	90	830	630	610
❖ SURFACING DEPTH	B2									
CUBIC YARDS / STATION										
➤ TOTAL CY SURFACING										
➤ TOTAL CUBIC YARDS		1120	690	1140	-	510	90	830	630	610
SUBGRADE WIDTH	S	16.5	16.5	15.0	-	15.0	13.5	15.0	13.5	15.0
BRUSHCUT (Y/N)		N/A	N/A	N/A	Y	N/A	N/A	N/A	N/A	N/A
BLADE, SHAPE, & DITCH (Y/N)		N/A	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A

ROAD #		PK-5127	PK-5127-01 ^B	PK-5127-03 ^B	PK-5127-05 ^B				
REQUIRED / OPTIONAL		OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL				
CONSTRUCT / RECONSTRUCT		CONSTRUCT	CONSTRUCT	CONSTRUCT	CONSTRUCT				
TOLERANCE CLASS (A/B/C)		C	C	C	C				
STATION / MP TO		26+80	0+00	0+00	0+00				
STATION / MP		35+30	1+60	5+80	2+60				
ROAD WIDTH	R	12	12	12	12				
CROWN (INCHES @ C/L)		3	3	3	3				
DITCH WIDTH	W	2	2	2	2				
DITCH DEPTH	D	1	1	1	1				
TURNOUT LENGTH	L	25	25	25	25				
TURNOUT WIDTH	T	10	10	10	10				
TURNOUT TAPER	P	25	25	25	25				
GRUBBING	G1	5	5	5	5				
	G2	5	5	5	5				
CLEARING	C1	10	10	10	10				
	C2	10	10	10	10				
ROCK FILLSLOPE	K:1	1 ½	1 ½	1 ½	1 ½				
❖ BALLAST DEPTH	B1	12	6	6	6				
CUBIC YARDS / STATION		72	34	34	34				
➤ TOTAL CY BALLAST		620	60	200	90				
❖ SURFACING DEPTH	B2								
CUBIC YARDS / STATION									
➤ TOTAL CY SURFACING									
➤ TOTAL CUBIC YARDS		620	60	200	90				
SUBGRADE WIDTH	S	15.0	13.5	13.5	13.5				
BRUSHCUT (Y/N)		N/A	N/A	N/A	N/A				
BLADE, SHAPE, & DITCH (Y/N)		N/A	N/A	N/A	N/A				

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS		
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
												Diameter	Gage	Corrugation
PK-51	124+20	18	32	XX	-	-	2	3	L	NT	C			
	126+10	18	32	XX	-	-	2	3	L	NT	C			
	127+80	42	50	GM	-	-	8	12	L/H	NT	C	Type 4 stream		
	129+30	-	-	-	-	-	-	-	-	-	-	Start geotextile, check dams. See clauses 4-70 and 8-5		
	129+70	30	36	XX	-	-	5	7	L/H	NT	C	Type 4 stream		
	130+20	-	-	-	-	-	-	-	-	-	-	End check dams		
	131+70	24	36	XX	-	-	3	5	L/H	NT	C	End geotextile. Start checkdams, see clause 8-5.		
	133+00	36	36	GM	-	-	5	7	L/H	NT	C	Type 4 stream		
	133+60	-	-	-	-	-	-	-	-	-	-	End checkdams.		
	134+00	24	36	XX	-	-	3	5	L/H	NT	C	Above type 4 stream		
	134+80	18	32	XX	-	-	2	3	L	NT	C			
	135+30	24	36	XX	-	-	5	7	L/H	NT	C	Type 4 stream captured by abandoned road ditch.		
	136+10	24	36	XX	-	-	3	5	L/H	NT	C			
	137+90	18	40	XX	-	-	2	3	L	NT	C	Start checkdams		
	139+00	42	50	GM	-	-	8	12	L/H	SR	C	T4 stream. End checkdams. Install rolling dip, see 5-31.		
	141+20	24	36	XX	-	-	3	5	L/H	NT	C			
	142+00	18	40	XX	-	-	2	3	L	NT	C			
	144+50	18	32	XX	-	-	3	5	L	NT	C			
	146+30	18	32	XX	-	-	3	5	L	NT	C			
	147+70	42	36	XX	-	-	5	7	L/H	SR	C	Type 4 stream. Inner gorge, install rolling dip, see 5-31.		
	149+50	42	40	GM	-	-	8	12	L/H	NT	C	Type 4 stream. Start check dams see clause 8-5		

GM – Galvanized Metal PS – Polyethylene Pipe Single Wall PD – Polyethylene Pipe Dual Wall AM – Aluminized Metal C – Concrete XX – PD or GM
 H – Heavy Loose Riprap L – Light Loose Riprap SR – Shot Rock NT – Native (Bank Run) QS – Quarry Spalls

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS		
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:		
												Diameter	Gage	Corrugation
										18"	16	2 2/3" x 1/2"		
												24" – 48"	14	2 2/3" x 1/2"
												54" – 96"	14	3" x 1"
PK-51 (cont'd)	150+50	24	32	XX	-	-	3	5	L	NT	C	Above type 5 stream.		
	151+50	-	-	-	-	-	-	-	-	-	-	End checkdams.		
PK-5116	3+30	18	32	XX	-	-	2	3	L	NT	C			
PK-5122	4+70	18	32	XX	-	-	2	3	L	NT	C			
	6+80	18	36	XX	-	-	2	3	L	NT	C			
	7+40	24	50	XX	-	-	3	5	L	NT	C	Above type 5		
	11+40	-	-	-	-	-	-	-	-	-	-	Ditchout		
PK-5127	2+50	18	36	XX	-	-	2	3	L	NT	C			
	3+30	-	-	-	-	-	-	-	-	-	-	Start check dams, see clause 8-5.		
	4+30	48	40	GM	-	-	8	12	L/H	SR	C	T4 stream. End checkdams, install rolling dip, see 5-31.		
	9+80	-	-	-	-	-	-	-	-	-	-	Ditchout		
	15+50	18	36	XX	-	-	2	3	L	NT	C			
	18+50	18	36	XX	-	-	2	3	L	NT	C			
	21+60	18	32	XX	-	-	2	3	L	NT	C			
	25+10	24	36	XX	-	-	3	5	L/H	NT	C			
	27+30	18	40	XX	-	-	2	3	L	NT	C			
	28+60	-	-	-	-	-	-	-	-	-	-	Start full bench construction, see clause 4-12		
	29+80	-	-	-	-	-	-	-	-	-	-	End full bench. Start check dams, see clause 8-5		
	30+80	30	40	XX	-	-	5	7	L/H	NT	C			
	32+20	24	32	XX	-	-	3	5	L/H	NT	C	End check dams. Start geotextile, see clause 4-70.		
	33+50	-	-	-	-	-	-	-	-	-	-	End geotextile.		
PK-5127-03	5+80	-	-	-	-	-	-	-	-	-	-	Construct berm, see clause 8-7.		

GM – Galvanized Metal

XX – PD or GM

H – Heavy Loose Riprap

L – Light Loose Riprap

SR – Shot Rock

NT – Native (Bank Run)

MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS										
ROAD #	QUANTITY	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			<p><u>Note:</u> Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Diameter</u></td> <td style="text-align: center;"><u>Gage</u></td> <td style="text-align: center;"><u>Corrugation</u></td> </tr> <tr> <td style="text-align: center;">18"</td> <td style="text-align: center;">16</td> <td style="text-align: center;">2 2/3" x 1/2"</td> </tr> <tr> <td style="text-align: center;">24" – 48"</td> <td style="text-align: center;">14</td> <td style="text-align: center;">2 2/3" x 1/2"</td> </tr> <tr> <td style="text-align: center;">54" – 96"</td> <td style="text-align: center;">14</td> <td style="text-align: center;">3" x 1"</td> </tr> </table>	<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>	18"	16	2 2/3" x 1/2"	24" – 48"	14	2 2/3" x 1/2"	54" – 96"
<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>																				
18"	16	2 2/3" x 1/2"																				
24" – 48"	14	2 2/3" x 1/2"																				
54" – 96"	14	3" x 1"																				
CONTINGENCY CULVERTS		See clause 5-13 CONTINGENCY CULVERTS for requirements:																				
	1	18	32	XX	-	-	-	-	-	-	-											
	3	18	36	XX	-	-	-	-	-	-	-											
	1	18	40	XX	-	-	-	-	-	-	-											
	1	24	40	XX	-	-	-	-	-	-	-											

GM – Galvanized Metal XX – PD or GM H – Heavy Loose Riprap L – Light Loose Riprap SR – Shot Rock NT – Native (Bank Run)

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Cuts and Fills

- Maintain slope lines to a stable gradient compatible with the construction materials. Remove slides from ditches and the roadway. Repair fill-failures, in accordance with Clause 4-6 EMBANKMENT SLOPE RATIO, with selected material or material approved by the Contract Administrator. Remove overhanging material from the top of cut slopes.
- Waste material from slides or other sources shall be placed and compacted in stable locations identified in the road plan or approved by the Contract Administrator, so that sediment will not deliver to any streams or wetlands.
- Slide material and debris shall not be mixed into the road surface materials, unless approved by the Contract Administrator.

Surface

- Grade and shape the road surface, turnouts, and shoulders to the original shape on the TYPICAL SECTION SHEET. Inslope or outslope as directed to provide a smooth, rut-free traveled surface and maintain surface water runoff in an even, unconcentrated manner.
- Blading shall not undercut the backslope or cut into geotextile fabric on the road.
- If required by the Contract Administrator, water shall be applied as necessary to control dust and retain fine surface rock.
- Surface material shall not be bladed off the roadway. Replace surface material when lost or worn away, or as directed by the Contract Administrator.
- Remove shoulder berms, created by grading, to facilitate drainage, except as marked or directed by the Contract Administrator.
- For roads with geotextile fabric: spread surface aggregate to fill in soft spots and wheel ruts (barrel spread) to prevent damage to the geotextile fabric.

Drainage

- Prevent silt bearing road surface and ditch runoff from delivering sediment to any streams or wetlands.
- Maintain rolling dips and drivable waterbars as needed to keep them functioning as intended.
- Maintain headwalls to the road shoulder level with material that will resist erosion.
- Maintain energy dissipaters at culvert outlets with non-erodible material or rock.
- Keep ditches, culverts, and other drainage structures clear of obstructions and functioning as intended.
- Inspect and clean culverts at least monthly, with additional inspections during storms and periods of high runoff. This shall be done even during periods of inactivity.

Preventative Maintenance

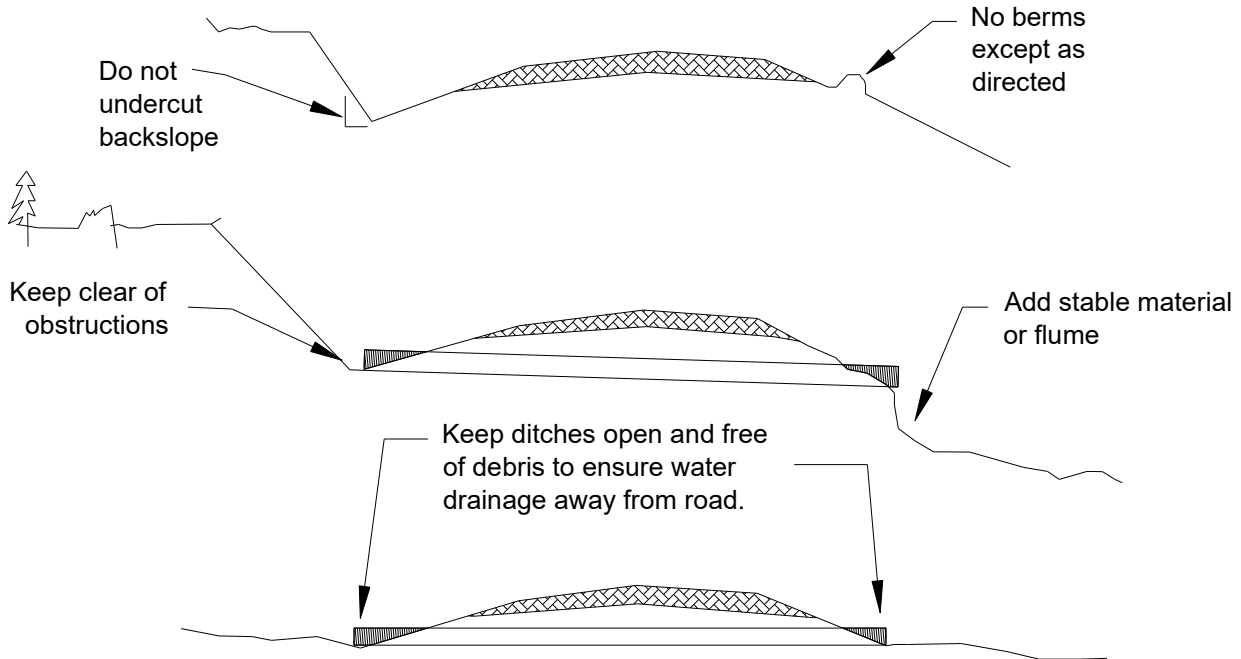
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

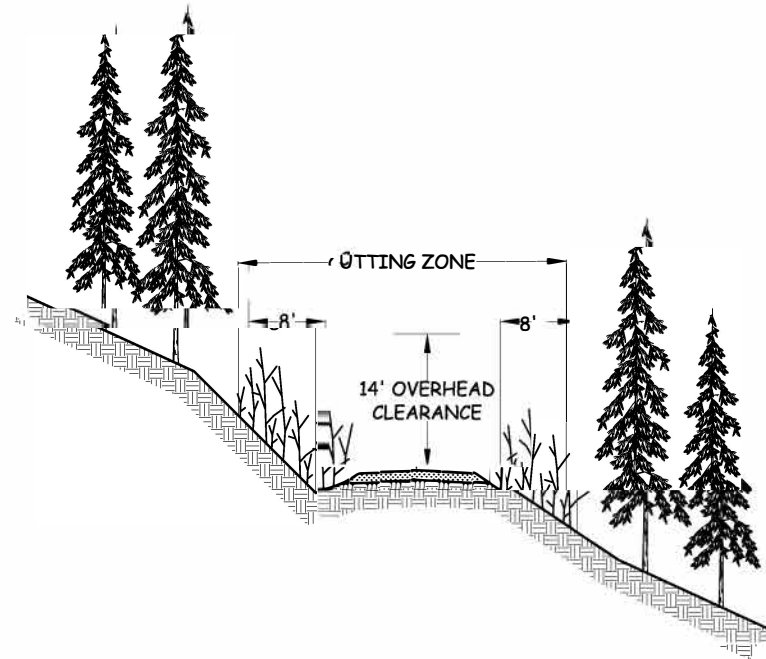
- At the conclusion of logging operations, ensure all conditions of these specifications have been met.

Debris

- Remove fallen timber, limbs, and stumps from the slopes, roadway, ditchlines, and culvert inlets.



ROAD BRUSHING DETAILS



SPECIFICATIONS

BRUSH SHALL BE CUT ON THE ROAD SURFACE AND 8 ft. BACK FROM ROAD DITCH AND OUTSIDE EDGE OF RUNNING SURFACE.

ON THE INSIDE OF SWITCHBACKS AND TIGHT CURVES, BRUSH SHALL BE CUT BACK 16 ft. FOR VISIBILITY.

ON TRUCK TURNOUTS, BRUSH SHALL BE CUT 8 ft. BACK FROM OUTSIDE EDGE.

BRUSH SHALL BE CUT TO PROVIDE AN OVERHEAD CLEARANCE OF 14 ft. ABOVE THE ROAD RUNNING SURFACE.

BRUSH SHALL BE CUT TO WITHIN 6 in. OF THE GROUND.

SLASH SHALL BE REMOVED FROM CUT SLOPES ABOVE THE ROAD AND SCATTERED ON EMBANKMENT SLOPES.

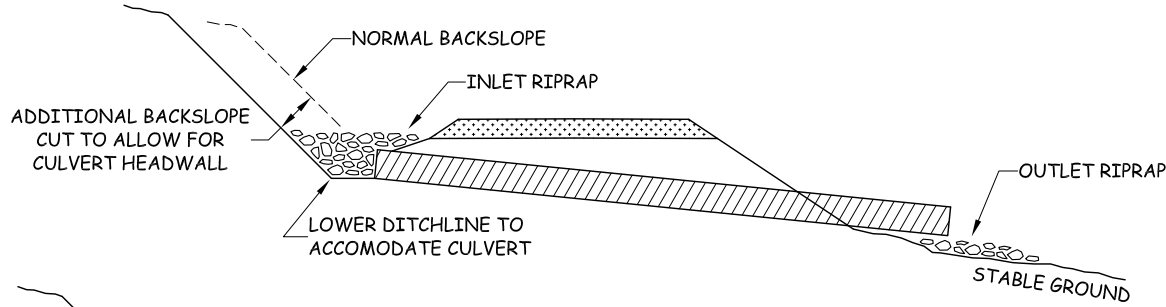
DITCHES SHALL BE CLEARED OF WOODY DEBRIS.

CULVERT INLETS AND OUTLETS SHALL BE CLEANED A MINIMUM DISTANCE OF TWO PIPE DIAMETERS AWAY.

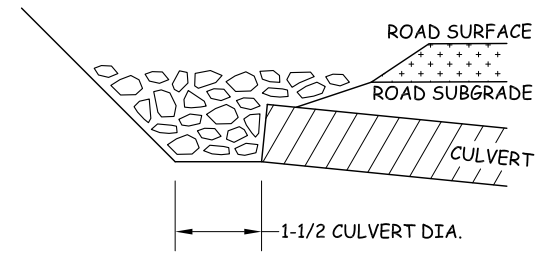
CONTRACT #	PROJECT	SHEET
30-104443	CLUTCH TIMBER SALE	36 OF 38

CULVERT AND DRAINAGE SPECIFICATIONS

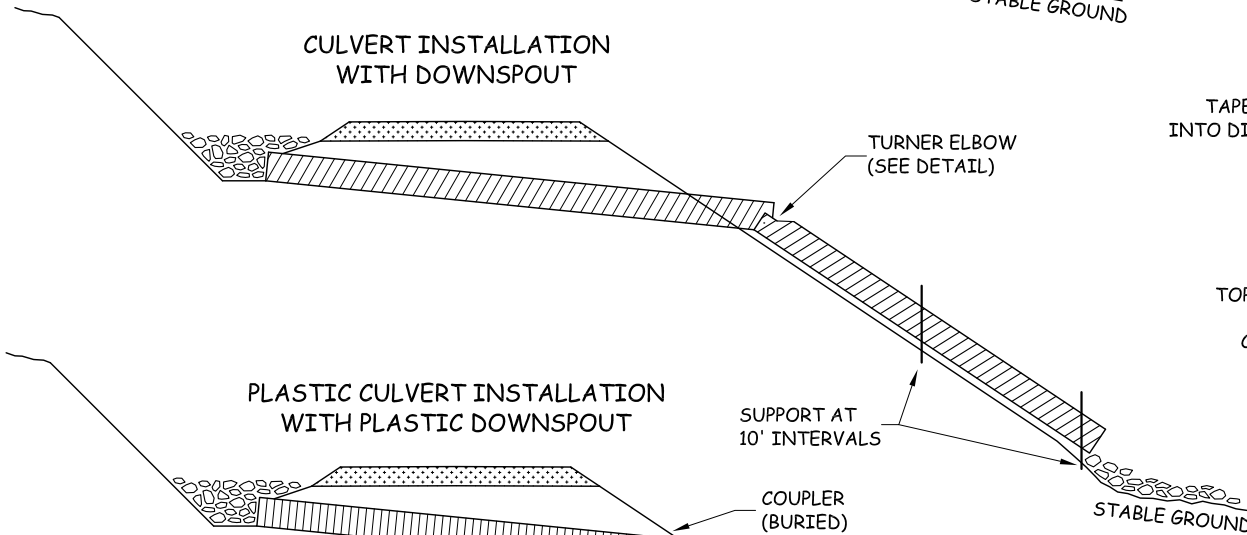
CULVERT INSTALLATION (TYPICAL)



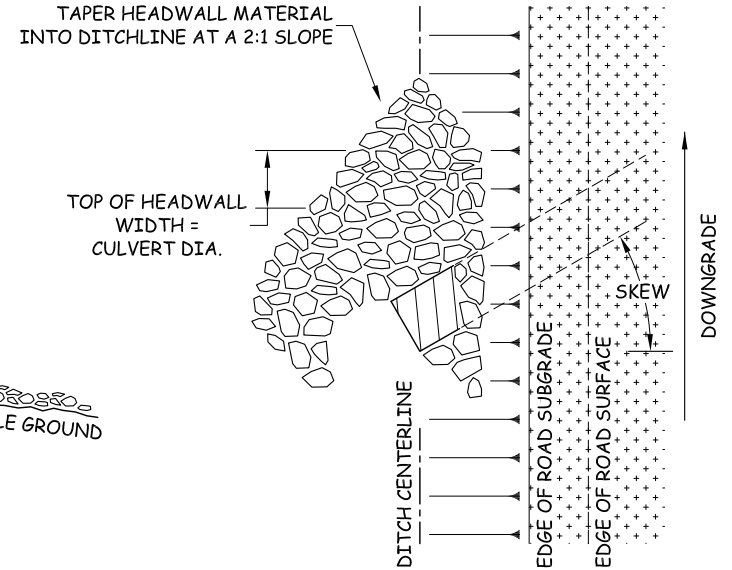
CULVERT HEADWALL - SECTION VIEW



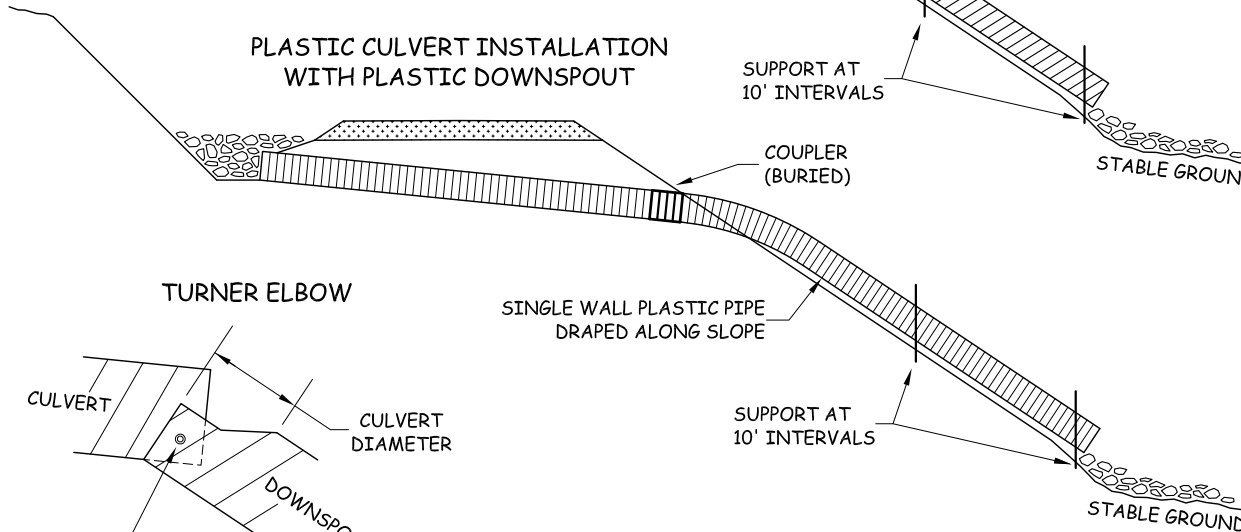
CULVERT INSTALLATION WITH DOWNSPOUT



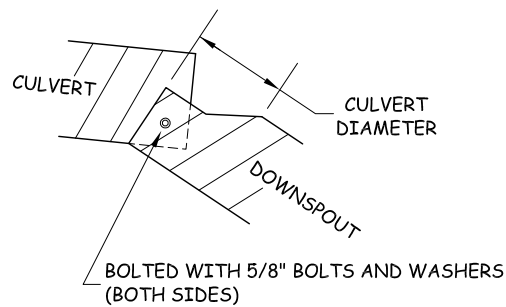
CULVERT HEADWALL - PLAN VIEW



PLASTIC CULVERT INSTALLATION WITH PLASTIC DOWNSPOUT



TURNER ELBOW

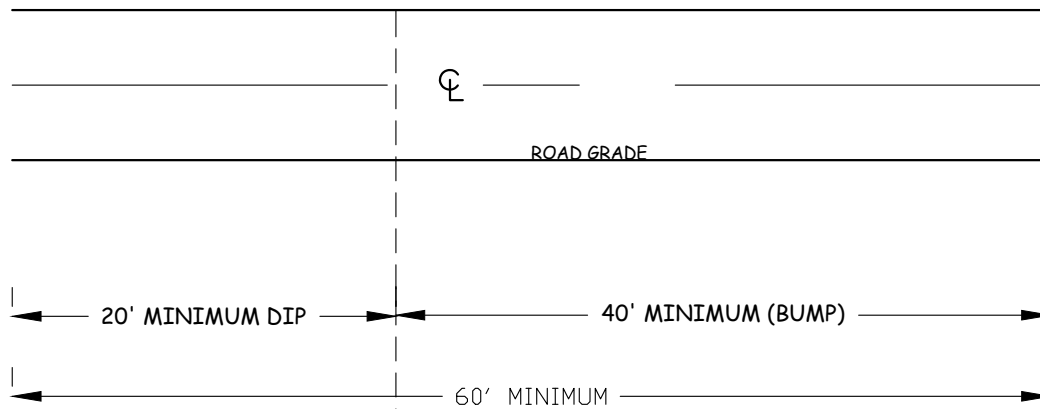


HEADWALL NOTE:
 HEADWALL TO BE CONSTRUCTED OF IMPERVIOUS MATERIAL THAT WILL RESIST EROSION AND ARMORED WITH RIPRAP QUANTITY SPECIFIED IN ROAD PLAN.

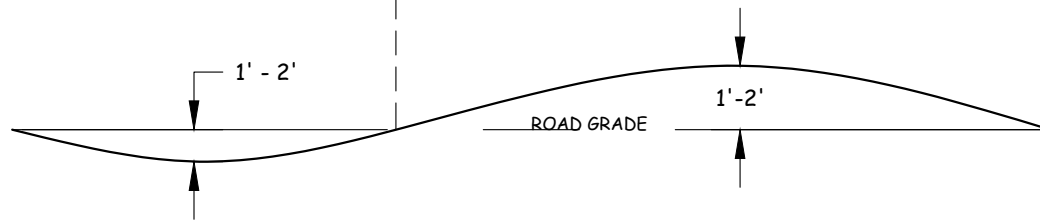
CONTRACT #	PROJECT	SHEET
30-104443	CLUTCH TIMBER SALE	37 OF 38

ROLLING DIP DETAIL

PLAN VIEW



PROFILE VIEW



CONTRACT # 30-104443	PROJECT CLUTCH TIMBER SALE	SHEET 38 OF 38
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SUMMARY - Road Development Costs

REGION: Northwest
DISTRICT: Cascade

SALE/PROJECT NAME:

Clutch Timber Sale

CONTRACT #: 30-104443

ROAD NUMBERS:

-

ROAD STANDARD:	Construction	Reconstruction	Maintenance
NUMBER OF STATIONS:	97.90	0.00	529.10
CLEARING & GRUBBING:	\$10,640	\$0	\$0
EXCAVATION AND FILL:	\$16,603	\$0	\$0
MISC. MAINTENANCE:	\$370	-	\$18,519
ROAD ROCK:	\$115,282	\$0	\$19,744
ROCK STOCKPILE PROD:	-	-	-
CULVERTS AND FLUMES:	\$39,693	\$0	\$0
STRUCTURES:	\$0	\$0	\$0
MOBILIZATION:	\$6,150	\$0	\$275
TOTAL COSTS:	\$188,737	\$0	\$38,537
COST PER STATION:	\$1,928	N/A	\$73
ROAD DEACTIVATION & ABANDONMENT COSTS:		\$5,684	

TOTAL (All Roads)	=	\$232,959	
SALE VOLUME MBF	=	4000	Precruise Estimate
TOTAL \$/MBF	=	\$58	

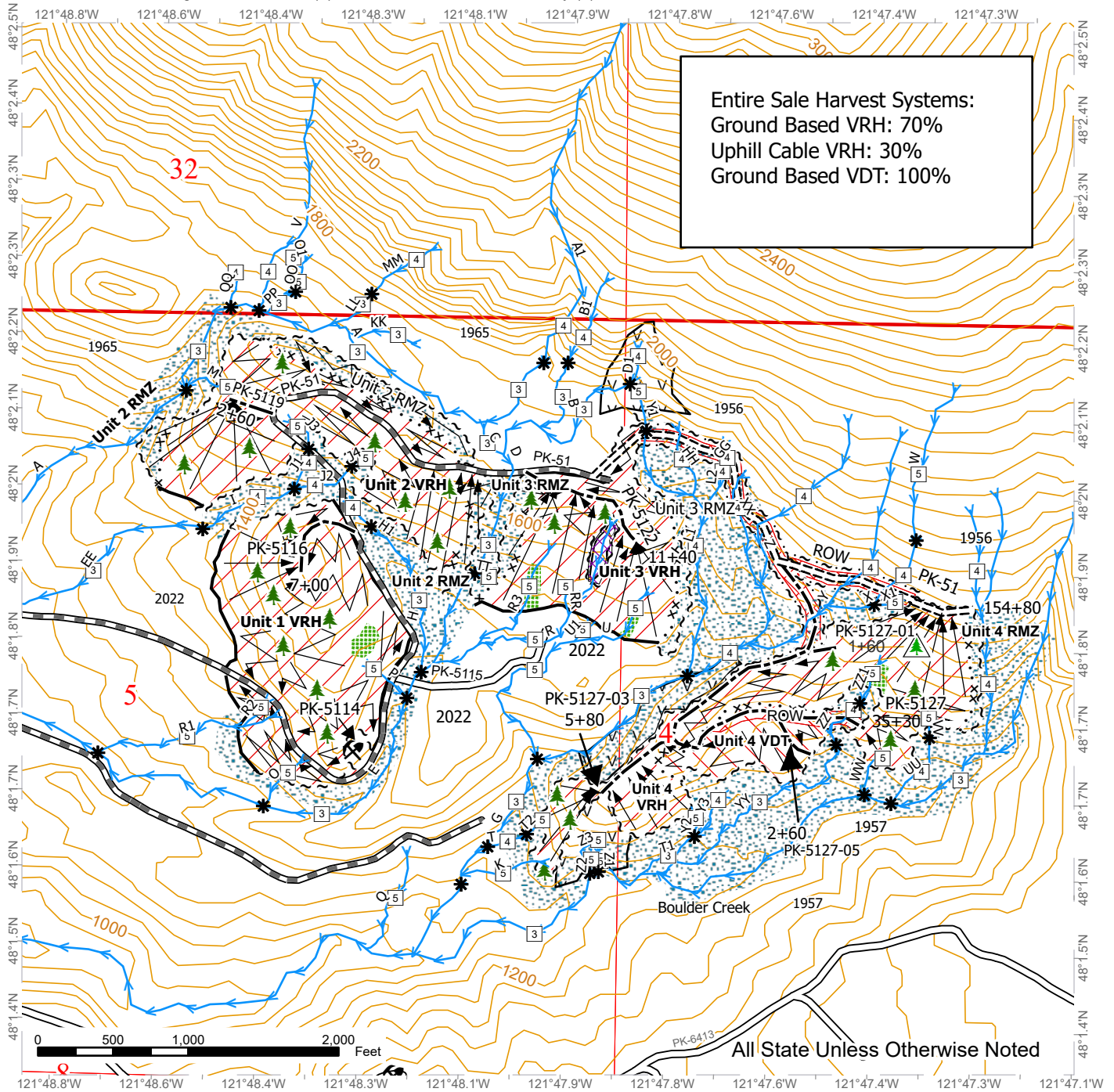
Compiled by: A. HALGREN

Date: 3/8/2024

LOGGING PLAN MAP

SALE NAME: CLUTCH VRH VDT
AGREEMENT#: 30-104443
TOWNSHIP(S): T29R8E
TRUST(S): Agricultural School (4), Common School and Indemnity (3)

REGION: Northwest Region
COUNTY(S): Snohomish
ELEVATION RGE: 1160-1720



Entire Sale Harvest Systems:
 Ground Based VRH: 70%
 Uphill Cable VRH: 30%
 Ground Based VDT: 100%

Variable Retention Harvest	Young Stand Edge	Stream Break	Contours 40-foot
Variable Density Thinning	Existing Roads	Streams	Leave Tree Area
Cable Harvest	Required Pre-Haul Maintenance	Leave Tree Area <1/4-acre	Riparian Mgt Zone
Ground Harvest	Required Construction	Non-Tradeable Leave Trees	Equipment Exclusion Zone
Sale Boundary Tags	Optional Construction	Inner Gorge	Rock Pit
Special Mgmt Area	Stream Type		
Right of Way Tags			

