

**TIMBER NOTICE OF SALE**

**SALE NAME:** MAUDIFIED VDT VRH

**AGREEMENT NO:** 30-093480

**AUCTION:** May 25, 2016 starting at 10:00 a.m.,  
Olympic Region Office, Forks, WA

**COUNTY:** Jefferson

**SALE LOCATION:** Sale located approximately 29 miles southeast of Forks, WA

**PRODUCTS SOLD  
AND SALE AREA:**

All timber as described in Schedule D for Units 1, 2, 3, and 5; except those trees as described in Schedule C, downed red cedar, or any trees that have been on the ground for five years or more (five years is defined by more than 1.5 inches of sap rot), bounded by timber sale boundary tags, double blue painted slashes, special management unit boundary tags, C-2870 Road, C-2876 Road, and C-3000 Road in Unit 1; timber sale boundary tags, double blue painted slashes, and special management unit boundary tags in Unit 2; timber sale boundary tags, double blue painted slashes, special management unit boundary tags, C-2800 Road, C-2860 Road, C-2860.1 Road and the C-3000 Road in Unit 3; timber sale boundary tags, double blue painted slashes, special management unit boundary tags, C-2800 Road and the C-2840 Road in Unit 5.

All timber bounded by special management unit boundary tags.

All timber, except trees marked with a band of blue paint or bounded out by leave tree area tags, bounded by timber sale boundary tags, leave tree area tags, C-2800 Road, C-2840 Road, and the C-2841 Road in Unit 4.

Located on part(s) of Sections 9, 16, 17 and 18 all in Township 25 North, Range 11 West, W.M., containing 269 acres, more or less.

**CERTIFICATION:** This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: BV-SFIS-US09000572)

**ESTIMATED SALE VOLUMES AND QUALITY:**

Species	Avg Ring DBH	Ring Count	Total MBF	Total Tons	Price \$/Ton	MBF by Grade								
						1P	2P	3P	SM	1S	2S	3S	4S	UT
Hemlock	11.4	5	1,521	14,776	\$1.00				2		28	671	792	28
Douglas fir	11.1	4	914	8,516	\$1.00						58	382	474	
Red alder	9.1		93	719	\$2.00							1	92	
Spruce	9.5		25	218	\$1.00								25	
Silver fir	10.4		13	99	\$1.00							7	6	
Sale Total			2,566	24,328										

**MINIMUM BID:** \$1.00/ton (est. value \$25,000.00)

**BID METHOD:** Sealed Bids

**PERFORMANCE**

**SECURITY:** \$5,000.00

**SALE TYPE:** Tonnage Scale

**EXPIRATION DATE:** October 31, 2018

**ALLOCATION:** Export Restricted

**BIDDABLE SPECIES:** Spruce, Silver fir, Hemlock, Douglas fir combined.

**BID DEPOSIT:** \$2,500.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

**HARVEST METHOD:** 59% Cable/41% Ground. 30' Equipment Limitation Zones on all typed waters. As indicated on the timber sale maps in portions of Units 1, 2 and 3, there will be no operations (other than haul)

## TIMBER NOTICE OF SALE

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one hour before to two hours after official sunrise and from one hour before to one hour after official sunset from April 1 through September 23 for marbled murrelet restrictions.

**ROADS:**

8.50 stations of optional construction. 120.20 stations of required pre-haul maintenance. 173.55 stations of optional pre-haul maintenance. 6.3 stations of required deactivation. All activities (other than haul) are restricted on portions of the C-2800, C-2880, C-3000, C-3014 and the C-3014.1 Roads one hour before to two hours after official sunrise and from one hour before to one hour after official sunset from April 1 through September 23 for marbled murrelet restrictions - see road plan for details. Rock haul, timber haul, pre-haul maintenance and road construction will not be permitted from October 15 to April 15 unless authorized in writing by the Contract Administrator on the C-2881.

**ACREAGE DETERMINATION**

**CRUISE METHOD:** Sale area was 100% GPS'd. Sale units were cruised using a variable plot sample.

**FEES:**

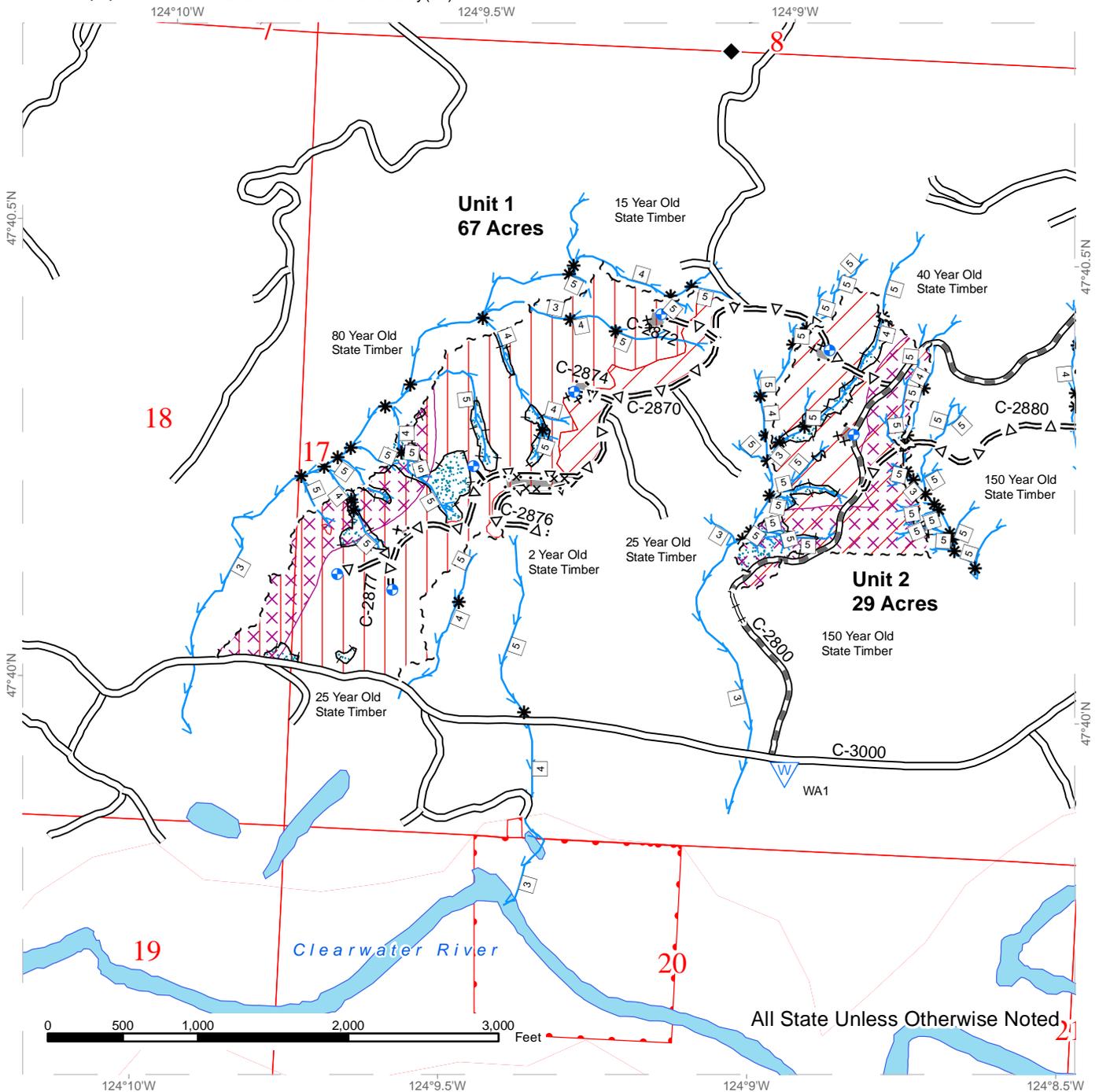
\$45,547.00 is due on day of sale. \$0.95 per ton is due upon removal. These are in addition to the bid price.

**SPECIAL REMARKS:** None.

# TIMBER SALE MAP

**SALE NAME:** MAUDIFIED VDT VRH  
**AGREEMENT #:** 30-093480  
**TOWNSHIP(S):** T25R11W  
**TRUST(S):** Common School and Indemnity(03)

**REGION:** Olympic Region  
**COUNTY(S):** JEFFERSON  
**ELEVATION RGE:** 339-1256



All State Unless Otherwise Noted

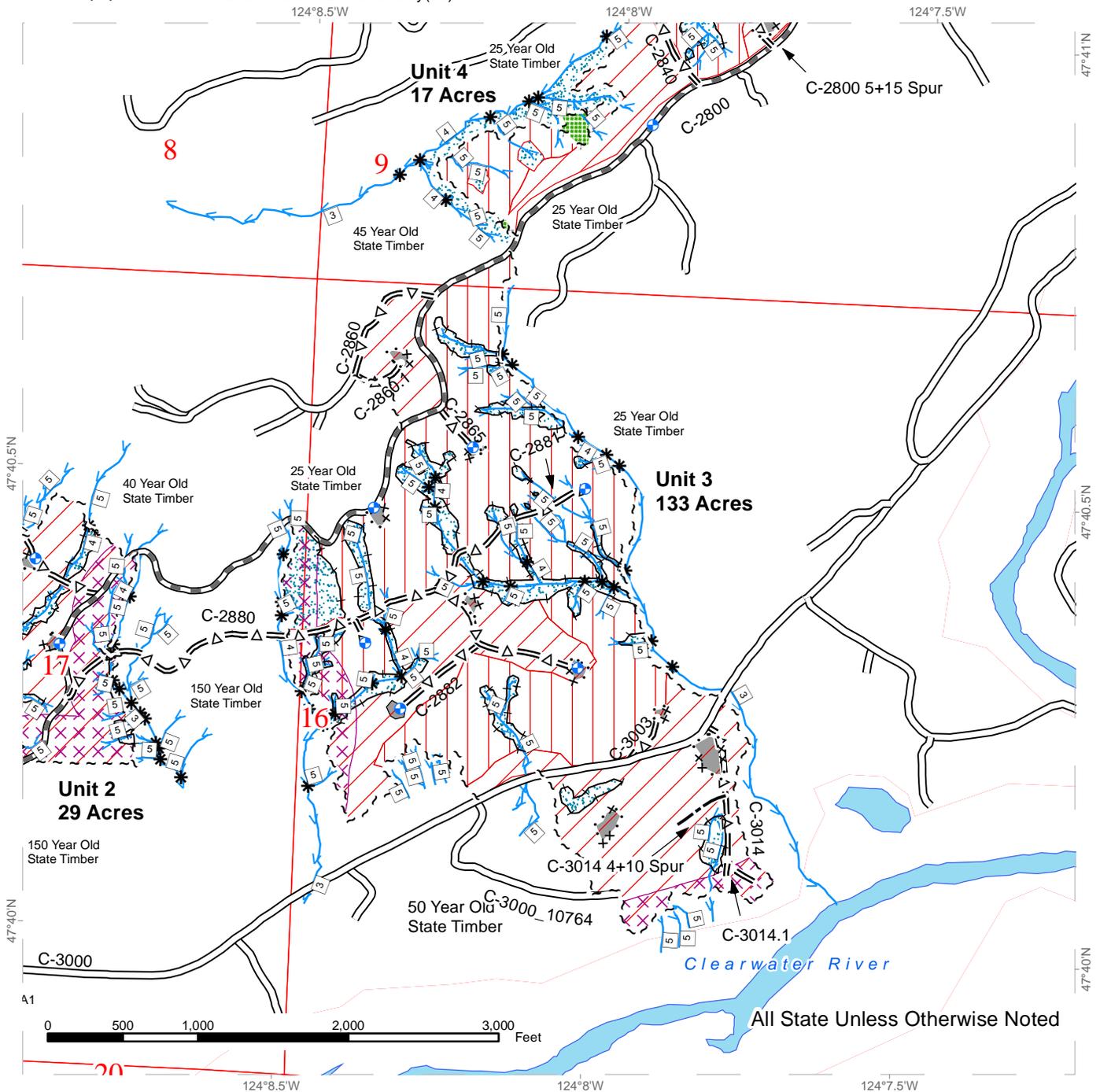
~ ~ ~ Timber Sale Boundary Tags	Streams	Cable
—+— Double Blue Paint Slash	Existing Roads	Even-Aged Gap
... x Special Management Area	Optional Construction	Riparian Management Zone/Skip
□ Stream Type	Optional Prehaul Maintenance	Monumented Corners
* Stream Type Break	Required Prehaul Maintenance	Section Lines
W Waste Area	Required Reconstruction	DNR Managed Lands
⊕ Landing	Timing Restrictions	Open Water
	Ground	



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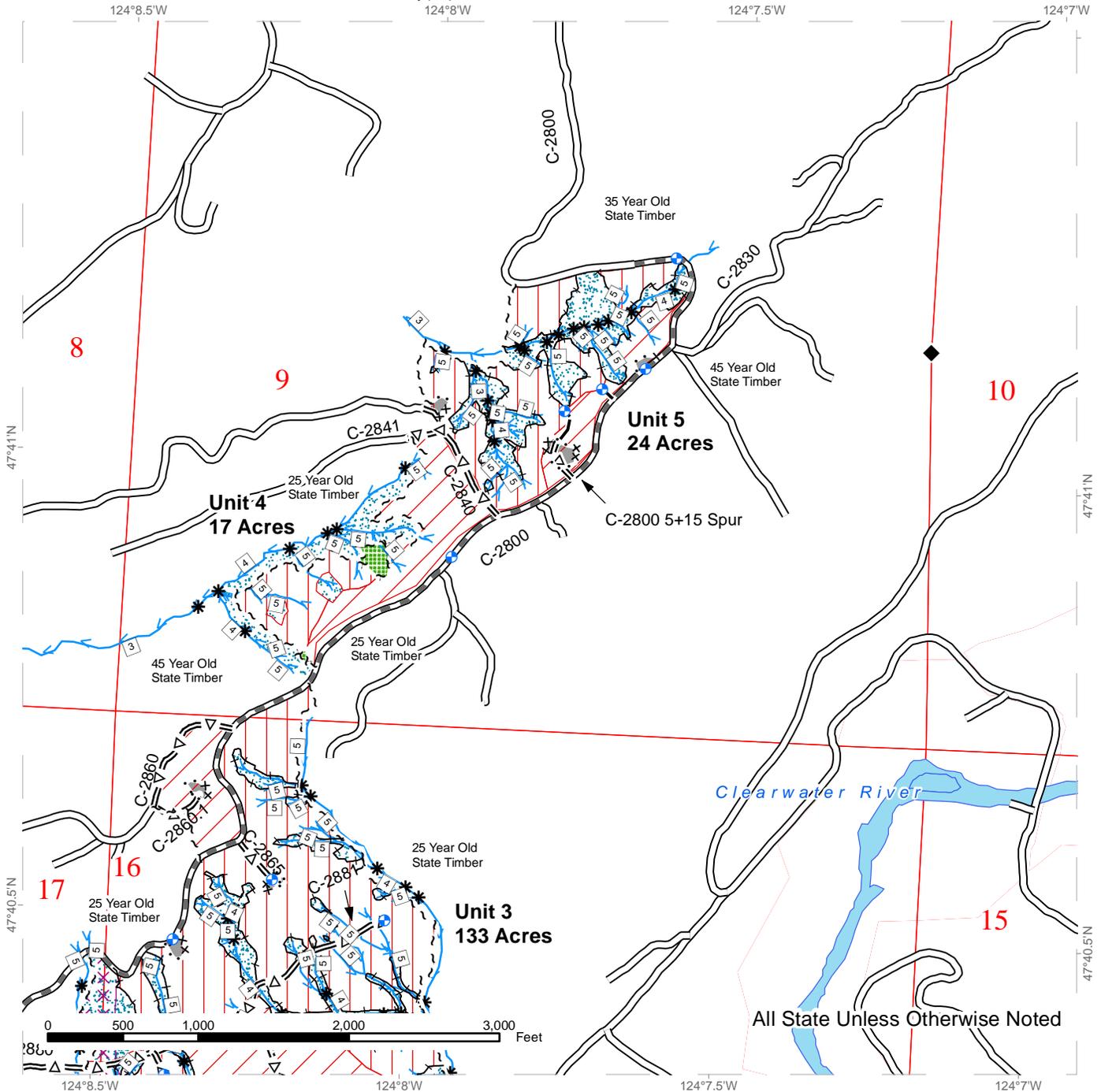


~ ~ ~ Timber Sale Boundary Tags	→ Streams	□ Cable
— Double Blue Paint Slash	— Existing Roads	■ Even-Aged Gap
· · · · · Special Management Area	— Optional Construction	■ Leave Tree Area
⌈ ⌋ Leave Tree Tags	≡ Δ ≡ Optional Prehaul Maintenance	⊙ Riparian Management Zone/Skip
□ Stream Type	▬ Required Prehaul Maintenance	◆ Monumented Corners
* Stream Type Break	▬ Required Reconstruction	□ Section Lines
⊙ Waste Area	⊗ Timing Restrictions	□ DNR Managed Lands
⊙ Landing	▨ Ground	■ Open Water

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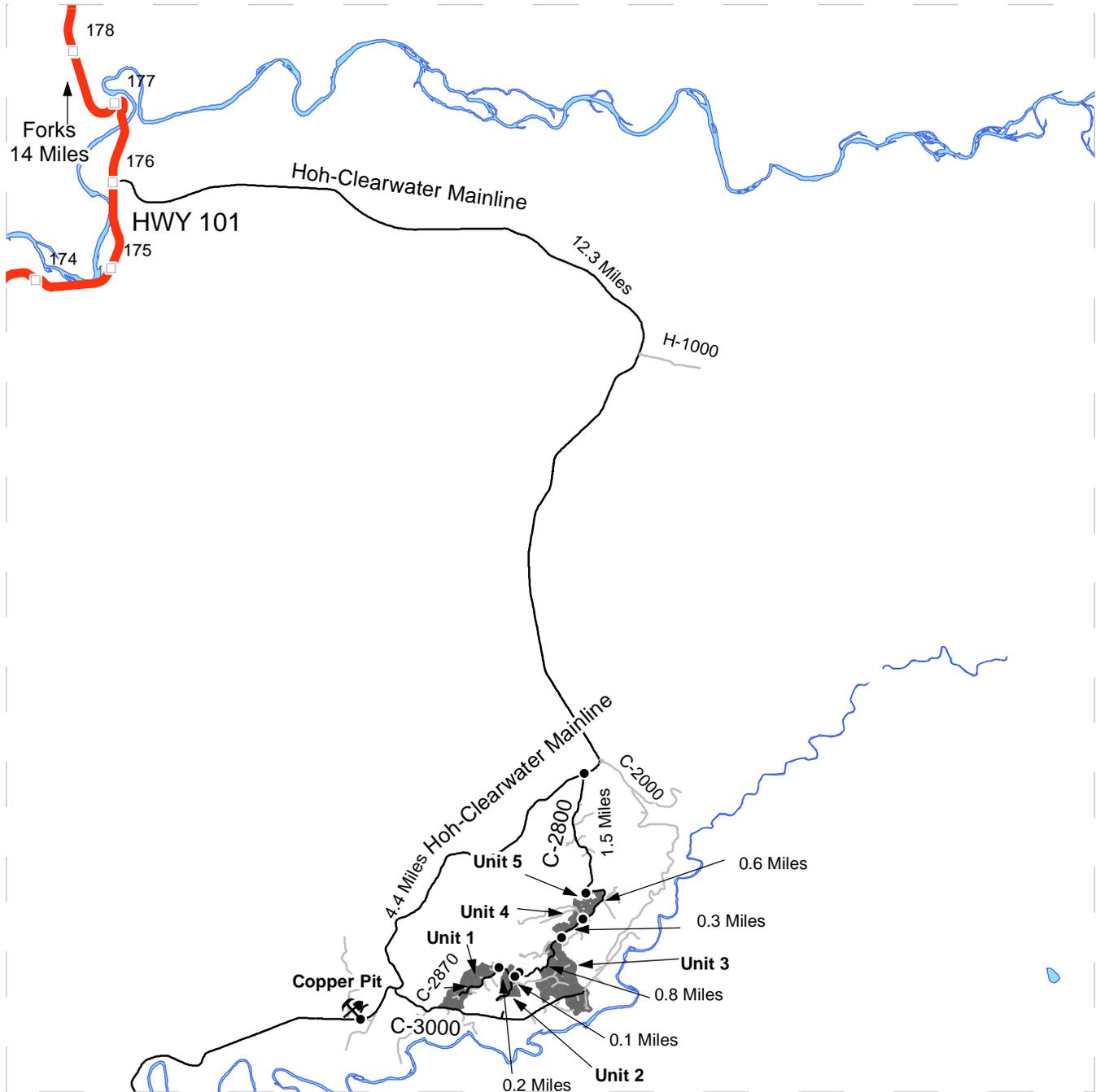
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* Stream Type Break	▬▬▬ Required Reconstruction	□ Section Lines
W Waste Area	× × × Timing Restrictions	□ DNR Managed Lands
⊕ Landing	Ground	Open Water



# DRIVING MAP

**SALE NAME:** MAUDIFIED VDT VRH  
**AGREEMENT#:** 30-093480  
**TOWNSHIP(S):** T25R11W  
**TRUST(S):** Common School and Indemnity(3)

**REGION:** Olympic Region  
**COUNTY(S):** JEFFERSON  
**ELEVATION RGE:** 339-1256



	Timber Sale Unit
	Highways
	Haul Route
	Other Route
	Milepost Markers
	Distance Indicator
	Existing Rock Pit

**Unit 5:** From Forks, drive 14 miles south on US 101 and turn east on the Hoh-Clearwater Mainline. Continue 12.3 miles and turn left onto the C-2800. Continue for 1.5 miles and unit 5 will be on the right.

**Unit 4:** From unit 5, continue 0.6 miles to reach unit 4.

**Unit 3:** From unit 4, continue 0.3 miles to reach unit 3.

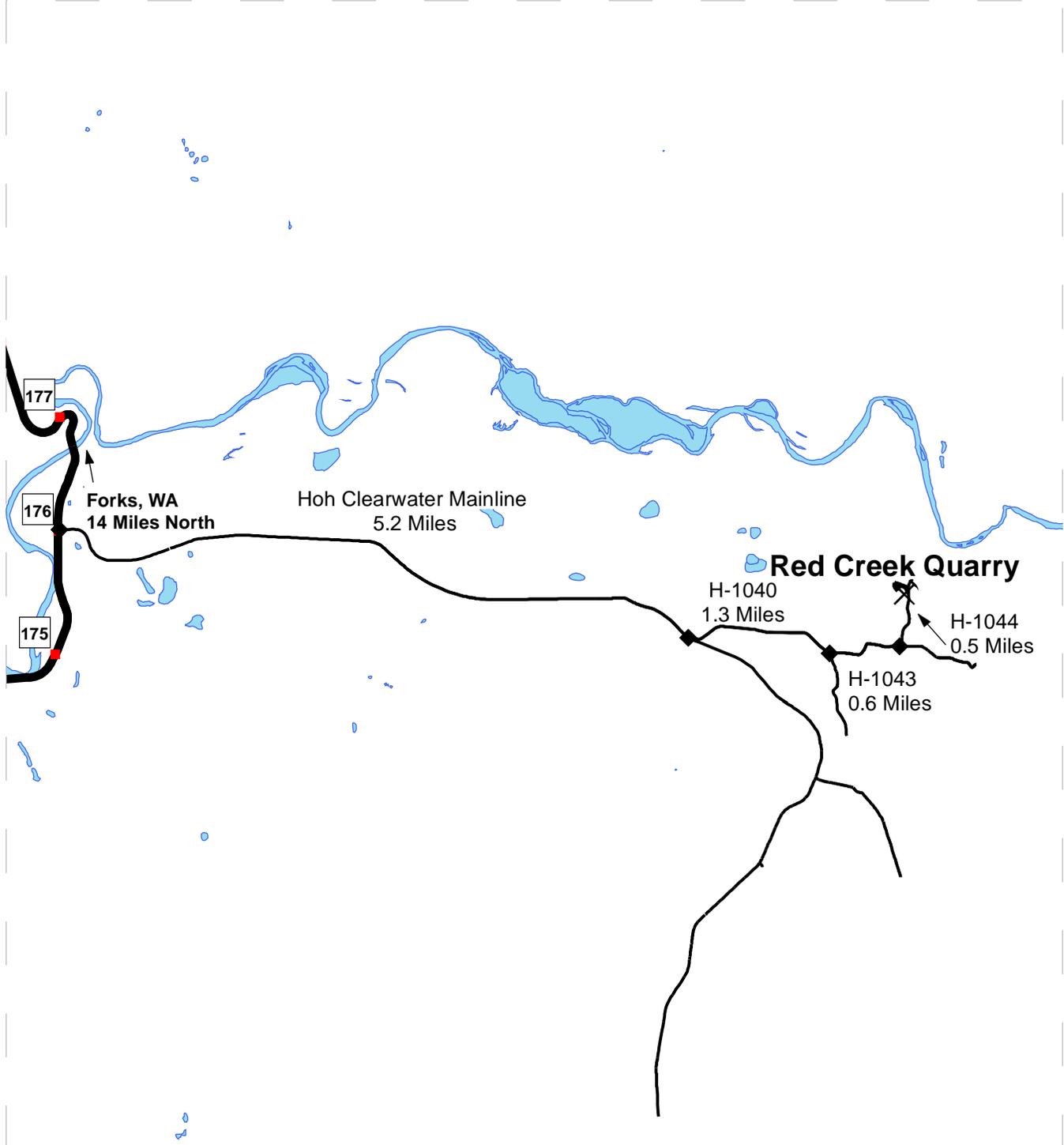
**Unit 2:** From unit 3, continue 0.8 miles to reach unit 2.

**Unit 1:** From unit 2, continue 0.1 miles to the C-2870. Turn right and continue 0.2 miles to reach unit 1.

**Copper Pit:** From the Hoh-Clearwater Mainline/C-2800 junction, head south on the Hoh-Clearwater Mainline for 4.4 miles and turn right onto the Copper Pit Road.



**DRIVING MAP: Red Creek Quarry**



**DRIVING DIRECTIONS:**

From Forks: Head south approximately 14 miles to mile post 176 on US 101, and turn left onto the Hoh-Clearwater Mainline. Head east approximately 5.2 miles to the H-1040 and continue 1.3 miles and turn left onto the H-1043. Continue along the H-1043 0.6 miles and turn left onto the H-1044, go 0.5 miles and Red Creek Quarry is on the left.

**STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES**

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

**Export Restricted Tonnage Scale AGREEMENT NO. 30-093480**

**SALE NAME: MAUDIFIED VDT VRH**

**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 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-010 Products Sold and Sale Area

Purchaser was the successful bidder on May 25, 2016 and the sale was confirmed on \_\_\_\_\_. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase, cut, and remove the following forest products: All timber as described in Schedule D for Units 1, 2, 3, and 5; except those trees as described in Schedule C, downed red cedar, or any trees that have been on the ground for five years or more (five years is defined by more than 1.5 inches of sap rot), bounded by timber sale boundary tags, double blue painted slashes, special management unit boundary tags, C-2870 Road and the C-2876 Road in Unit 1; timber sale boundary tags, double blue painted slashes, and special management unit boundary tags in Unit 2; timber sale boundary tags, double blue painted slashes, special management unit boundary tags, C-2800 Road, C-2860 Road, and the C-3000 Road in Unit 3; timber sale boundary tags, double blue painted slashes, special management unit boundary tags, C-2800 Road and the C-2840 Road in Unit 5;

All timber, except trees marked with a band of blue paint or bounded out by leave tree area tags, bounded by timber sale boundary tags, leave tree area tags, C-2800 Road, C-2840 Road, and the C-2841 Road in Unit 4, located on approximately 269 acres on part(s) of Sections 9, 16, 17, and 18 all in Township 25 North, Range 11 West W.M. in Jefferson County(s) as shown on the attached timber sale map and as designated on the sale area.

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
A	SLASH PILING SPECS
B	GREEN TREE RETENTION PLAN - UNIT 4 ONLY
C	LEAVE TREE SELECTION CRITERIA
D	CUT TREE SELECTION CRITERIA
E	UNIT TARGET TABLE

G-030 Contract Term

Purchaser shall remove the forest products conveyed and complete all work required by this contract prior to October 31, 2018.

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-050 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 contract value based on the contract payment rate and advertised volume.

For the second extension, not to exceed 1 year, payment of at least 90 percent of the contract value based on the contract payment rate base and advertised volume.

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 timber value of the contract.

To determine the unpaid portion of the contract, multiply the contract payment rate for each item by the remaining volume for each item based on the volumes from the Timber Notice of Sale. In addition, all cash deposits that can be used for timber payments, except the initial deposit, will be deducted from the unpaid portion of the contract.

- e. Payment of \$3.00 per acre per annum for the acres on which an operating release has not been issued.
- 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-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. 812521 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, PRT-812521 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-090 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, added forest products become a part of this contract and shall be paid for at the same rate and manner as other forest products under this contract.

G-100 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 shall be paid for at the same rate and manner as other forest products under this contract.

G-105 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 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 same rate and manner as other forest products under this contract.

G-110 Title and Risk of Loss

Title to the forest products conveyed passes at confirmation of the sale. Purchaser bears the risk of loss of or damage to and has an insurable interest in the forest products

in this contract from the time of confirmation of the sale of forest products. In the event of loss of or damage to the forest products after passage of title, whether the cause is foreseeable or unforeseeable, the forest products shall be paid for by Purchaser. Breach of this contract shall have no effect on this provision. Title to the forest products not removed from the sale area within the period specified in this contract shall revert to the State as provided in RCW 79.15.100.

G-116 Sustainable Forestry Initiative® (SFI) Certification

Forest products purchased under this contract are certified as being in conformance with the Sustainable Forestry Initiative program Standard under certificate number: BV-SFIS-US09000572.

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® program 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.

Road is defined as the road bed, including but not limited to its component parts, such as 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. 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.

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 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 Forks, 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 post office address:

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 Operation

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; Hoh-Clearwater Mainline, C-2800, C-2840, C-2841, C-2860, C-2860.1, C-2865, C-2870, C-2872, C-2874, C-2876, C-2877, C-2880, C-2881, C-2882, C-3000, C-3003, C-3014, and pit access roads. 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 C-2800 or C-3000 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.

## Section P: Payments and Securities

## P-010 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 the 'Payment for Forest Products' clause, 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-024 Payment for Forest Products

Purchaser agrees to pay the following rate per ton for forest products conveyed plus \$45,547.00 on day of sale and \$0.95 per ton upon removal in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause.

## DATA MISSING

Species that are conveyed but are not listed in the table above shall be paid for at a rate to be determined by the State.

## P-027 Payment for Removal of Optional Forest Products

Purchaser agrees to pay the rate of DATA MISSING per ton for forest products approved for removal from the sale area under clause H-157.

## P-040 Weighing and Scaling Costs

Purchaser agrees to pay for all scaling and weighing costs for logs and other products sold under this contract. Purchaser also agrees to pay for all costs associated with the transmission and reporting of scale or weight data.

## 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-052 Payment Procedure

If a third party Log and Load Reporting Service (LLRS) is required by this contract the State will compute and forward to the Purchaser statements of charges provided for in the contract. Purchaser shall deliver payment to the Olympic region office on or before the date shown on the billing statement.

If a third party LLRS is not required by this contract, Purchaser shall pay for forest products removed on a monthly basis. Payments will be submitted to the Olympic region office on or before the fourteenth of the month following the month in which the timber was removed or, according to an alternate payment schedule as approved by the State with at least one payment each month for timber removed. The alternate payment schedule, once approved by the State, shall become part of this contract and may be changed only with written approval of the State.

Payment will be based on the contract rate multiplied by the tons (tonnage contracts) or volume (mbf contracts) removed during the month or payment period. Included with the payment will be a summary report along with all related load tickets and the corresponding certified weight tickets for the payment period. The summary report will be generated using a computer spreadsheet and list the load tickets in ascending numerical order with the corresponding ticket number and weight or volume for each load.

P-070 Payment for Products: Damage, Theft, Loss or Mismatch

Forest products included in this agreement which are destroyed, damaged, stolen, lost, or mismatched shall be paid for by Purchaser on demand of the State. The rates contained in clause P-024 shall apply.

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 \$0.00. 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 L: Log Definitions and Accountability

L-060 Load Tickets

Purchaser shall complete and use load tickets as directed by the Contract Administrator and, if required, use other identification as directed by the State to ensure accounting of forest products removed from the sale area. A load ticket must be fixed, as designated by the Contract Administrator, to each truck and trailer load prior to leaving the landing.

Purchaser shall account for all load tickets issued by the Contract Administrator. The State may treat load tickets not accounted for as lost forest products. All costs associated with computing the billings for lost loads shall be borne by Purchaser.

L-071 Log and Load Reporting Service

This contract requires the use of a State approved third party Log and Load Reporting Service (LLRS). Purchaser shall ensure log volume measurement data and/or load and weight data is received by the LLRS within one business day of logs being measured or weighed. Purchaser agrees to pay the LLRS for log and load data supplied to the State.

If during the term of this contract, the State discontinues use of the LLRS, the State will notify the Purchaser in writing and the Purchaser will then be responsible to send log scale and/or weight information to the State.

L-110 State Approval of Log Scaling and Weighing Locations

Forest Product measurement and weighing facilities required by this contract must be approved by the State. Forest products sold under the contract which require log scaling shall be scaled, measured, or counted by a State approved third party log scaling organization. Forest products sold under the contract which require weighing shall be weighed at a location that meets Washington State Department of Agriculture approval.

Prior to forest products being hauled, the Contract Administrator must authorize in writing the use of State approved measurement and/or weighing facilities that are at or en-route to final destinations. Forest products from this sale shall be measured or weighed at facilities, which are currently approved for use by the State and are currently authorized for this sale. The State reserves the right to verify load volume and weights with State employees or contractors at the State's own expense. The State reserves the right to revoke the authorization of previously approved measurement locations.

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-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 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 or 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 100 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 area, 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 'Trespass and Unauthorized Activity' clause. Purchaser is required to leave all cut or damaged reserve trees on site.

#### H-015 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. Skid trails 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. Skid trail location will be pre-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. 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 12 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-030 Timber Falling  
Trees shall be felled and logs shall be bucked to obtain the greatest practicable utilization of forest products and other valuable materials conveyed.
- H-035 Fall Trees Into Sale Area  
Trees shall be felled into the sale area unless otherwise approved by the Contract Administrator.
- H-050 Rub Trees  
Trees designated for cutting along skid trails and cable corridors shall be left standing as rub trees until all timber that is tributary to the skid trail or cable corridor has been removed.
- H-052 Branding and Painting  
Forest products shall be branded with a brand furnished by the State prior to removal from the landing. 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-060 Skid Trail Locations  
Locations of skid trails must be marked by Purchaser and approved by the Contract Administrator prior to the felling of timber.
- 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 by cable and ground methods unless authority to use other equipment is granted in writing by the State.

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-127 Tailholds on Private Land

If Purchaser chooses to tailhold on private property, Purchaser shall obtain permit(s) and assumes responsibility for all costs and damages associated with the permit(s). Purchaser must provide the State with a copy of the executed permit(s) or a letter from the landowner indicating that a satisfactory tailhold permit(s) has been consummated between Purchaser and the landowner.

H-130 Hauling Schedule

The hauling of forest products will not be permitted on the C-2881 Road from October 15 to April 15 unless authorized in writing by the Contract Administrator.

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

1. While felling timber, two warning signs must be posted on the C-3000 Road.
2. Yarding equipment shall not cross live streams without an HPA.
3. Purchaser shall fully suspend whole logs over streams during logging operations.
4. The Purchaser shall notify all employees and contractors working on this sale that any danger tree, marked or unmarked, may be felled. Any felled marked danger tree shall be replaced with a suitable tree of similar size and species as approved by the Contract Administrator.

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:

As indicated on the timber sale maps for portions of Units 1, 2 and 3, there will be no operations (other than haul) from one hour before to two hours after official sunrise and from one hour before to one hour after official sunset from April 1 through September 23 for marbled murrelet restrictions.

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

H-150 Required Removal of Forest Products

Purchaser shall remove from the sale area and present for scaling or weighing all forest products conveyed in the G-010 clause that meet the following minimum dimensions:

Species	Net bd ft	Log length (ft)	Log dib
All	10	12	5

The State may treat failure to remove forest products left on the sale area that meet the above specifications as a breach of this contract. At the State's option, forest products that meet the above specifications and are left on the sale area may be scaled for volume or measured and converted to weight by the State or a third party scaling organization and billed to Purchaser at the contract payment rate. All costs associated with scaling, measuring and computing the billing will be borne by the Purchaser.

H-151 Required Harvesting Area

Unless otherwise authorized by the State, Purchaser is required to fall, yard and remove all forest products and other valuable materials conveyed and required to be removed under this contract within the percent slope and yarding distances listed below. The yarding distances are measured from all existing roads and those required roads constructed under this contract. Purchaser may yard beyond the required removal distances up to the designated sale boundaries. If Purchaser decides to yard beyond the required yarding distance, Purchaser must follow all requirements specified in this contract.

Yarding Method	Max Slope % Downhill	Slope Dist Downhill	Max Slope % Uphill	Slope Dist Uphill
Ground	40	1000	40	1000
Cable	90	1000	100	1000

Cable or aerial/helicopter equipment is permitted on all slopes. Cable or aerial/helicopter equipment may be used on any required harvest area of this sale where ground based equipment is not permitted or on designated ground based harvest areas where Purchaser does not choose to use ground based equipment.

H-157 Optional Removal of Forest Products Not Designated

If in the course of operations, Purchaser decides to remove forest products that are below the minimum designated removal specifications per the 'Required Removal of Forest Products' (H-150), the payment rates in clause P-027 shall apply.

Forest products designated as optional shall be decked separately from forest products designated as required for removal. Prior to removal from the sale area, optional forest products as described in this clause must be inspected and approved by the Contract Administrator. Optional forest products may not be mixed with forest products that are required for removal by this contract and shall be removed from the sale area in separate truck loads using load tickets specified by the Contract Administrator.

All material removed under this clause is subject to the same log and load accountability rules as defined in the Log Definitions and Accountability section of this contract. Purchaser shall follow the payment procedures as required in the P-052 clause and will submit a separate summary report for all forest products removed from the sale area under the authority of this clause.

H-160 Mismanufacture

Mismanufacture is defined as forest products remaining on the sale area that would have met the specifications in clause H-150 if bucking lengths had been varied to include such products.

The State may treat mismanufacture as a breach of this contract. At the State's option, forest products that are left on the sale area may be scaled for volume by the State or a third party scaling organization and billed to Purchaser at the contract payment rate. All costs associated with scaling and computing the billing will be borne by Purchaser.

H-180 Removal of Specialized Forest Products or Firewood

Prior to the removal of conveyed specialized forest products or firewood from the sale area, Purchaser and the State shall agree in writing to the method of accounting for/and removal of such products.

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-230 Tops and Limbs Outside the Sale Boundary

Tops and limbs outside the sale boundary as a result of Purchaser's operation shall be removed concurrently with the yarding operation unless otherwise directed by the Contract Administrator.

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 1/4/2016 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on C-2840, C-2841, C-2860, C-2860.1, C-2865, C-2870, C-2872, C-2874, C-2876, C-2877, C-2880, C-2881, C-2882, C-3003, C-3014, and all spurs associated with the sale units. 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 C-2800, C-3000 and pit access 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 State current Equipment Rate Schedule on file at the region and Olympia offices. The State shall reimburse Purchaser for said costs within 30 days of receipt and approval of the statement.

**C-080 Landing Locations Approved Prior to Construction**

Landings shall be marked by Purchaser and approved by the Contract Administrator prior to construction.

**C-140 Water Bars**

Purchaser shall, as directed by the Contract Administrator, construct water bars across haul roads, skid trails and fire trails as necessary to control soil erosion and water pollution.

**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**

During the "closed season", 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 any typed 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-110 Resource Protection**

No equipment may operate within 30' from any typed waters unless authority is granted in writing by the Contract Administrator.

**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.

**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 4 to 6 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, the Purchaser is responsible for notifying the following:

Appropriate Department of Ecology regional office (contact information below).

DNR Contract Administrator

ECY - Northwest Region:

1-425-649-7000

(Island, King, Kitsap, San Juan, Skagit, Snohomish, and Whatcom counties)

ECY - Southwest Region:

1-360-407-6300

(Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, and Wahkiakum counties)

ECY - Central Region:

1-509-575-2490

(Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, and Yakima counties)

ECY - Eastern Region:

1-509-329-3400

(Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, and Whitman counties)

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-010 Liquidated Damages

The clauses in the DAMAGES section of this contract provide for payments by Purchaser to the State for certain breaches of the terms of this contract. These payments are agreed to as liquidated damages and not as penalties. They are reasonable estimates of anticipated harm to the State 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.

## D-021 Failure to Remove Forest Products

Purchaser's failure to remove all or part of the forest products sold in this agreement prior to the expiration of the contract term results in substantial injury to the State. The value of the forest products sold at the time of breach is not readily ascertainable. Purchaser's failure to perform disrupts the State's management plans, the actual cost of which is difficult to assess. A resale involves additional time and expense and is not an adequate remedy. Therefore, Purchaser agrees to pay the State as liquidated damages a sum calculated using the following formula:

$$LD = .35V - ID - P + C + A$$

Where:

LD = Liquidated Damage value.

V = The unremoved value at the date of breach of contract. The value is determined by subtracting the removal tonnage to date from the cruised tonnage multiplied by the contract bid rates.

ID = Initial Deposit paid at date of contract that has not been applied to timber payments.

P = Advance payments received but not yet applied to specific contract requirements.

C = Charges assessed for contract requirements completed prior to breach of contract but not paid for.

A = Administrative Fee = \$2,500.00.

The above formula reflects the Purchaser's forfeiture of the initial deposit in accordance with clause P-010 by deducting the initial deposit from the amount owed. In no event shall the liquidated damages be less than zero. Interest on the liquidated damage is owed from the date of breach until final payment, calculated using the following formula: Interest =  $r \times LD \times N$ .

Where:

r = daily equivalent of an annual interest at current interest rate as established by WAC 332-100-030.

LD = Liquidated damage value.

N = Number of days from date of breach to date payment is received.

D-030 Inadequate Log Accountability

Removal of forest products from the sale area without adequate branding and/or valid load tickets attached to the load and scaling forest products in a location other than the facility approved by the State can result in substantial injury to the State. Failure to properly account for loads and scaling and/or weighing information can result in loss to the State. The potential loss from not having proper branding, ticketing, scaling and/or weighing location and accountability is not readily ascertainable. Purchaser's failure to perform results in a loss of log weight and scale accountability, increases the potential for unauthorized removal of forest products, and increases the State's administration costs, the actual costs of which are difficult to assess.

Enforcement actions for unauthorized removal of forest products for each improperly branded load, improperly ticketed load, lost or unaccounted for tickets, or use of a facility not authorized for this sale or improper submission of scaling data are impractical, expensive, time consuming and are not an adequate remedy. Therefore, Purchaser agrees to pay the State, as liquidated damages, a sum of \$100 each time a load of logs does not have branding as required in the contract, \$250 each time a load of logs does not have a load ticket as required by the contract, \$250 each time a load ticket has not been filled out as required by the plan of operations, \$250 each time a load is weighed or scaled at a location not approved as required under this contract, \$250 each time a log ticket summary report is not submitted properly, and if a third party Log and Load Reporting Service is required, \$250 each time scaling or weight data is not properly submitted to the Log and Load Reporting Service within 24 hours of log removal, and \$250 each time a ticket is either lost or otherwise unaccounted for.

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 \$500.00 per tree for all damaged trees in Units 1, 2, 3 and 5.

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 \$500.00 per tree for all damaged reserve trees that are not replaced in Unit 4.

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

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

\_\_\_\_\_  
Purchaser

\_\_\_\_\_  
Susan K. Trettevik  
Olympic Region Manager

Date: \_\_\_\_\_  
Address: \_\_\_\_\_

Date: \_\_\_\_\_

CORPORATE ACKNOWLEDGEMENT

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 A**  
**SLASH PILING SPECS**

Specifications for Slash Piling

The landings shall be piled by creating circular piles of slash and brush conforming to the following specifications:

1. Piles shall be a minimum of 12 feet tall by 8 feet wide to a maximum of 30 feet tall and 16 feet wide. Piles shall be cone shaped and stable.
2. Piles shall be free of topsoil, large rotten logs and large stumps. No material larger than 8 inches in diameter shall be piled. Any burnable material shall be well scattered.
3. Piles shall not be placed on large stumps or logs.
4. Piles shall be stacked a minimum of 50 feet from all unit boundaries, Riparian Management Zones, leave tree areas and any standing timber; a minimum of 100 feet from any public roads and highways; and a minimum of 200 feet from any structures.
5. Piling shall be completed using an approved hydraulic shovel and grapples.
6. Slash and displaced soil shall be removed from swales and natural drainage channels concurrent with yarding.
7. Slash generated during cable yarding shall be stacked in dirt free piles and shall not block or interfere with functioning of drainage structures, ditches, or stream channels.
8. Slash shall be placed in skid roads or ahead of machinery. Slash which accumulates on landings and/or roads shall be lopped and scattered within the harvest area or as designated by the Contract Administrator.

**Schedule B**  
**GREEN TREE RETENTION PLAN - UNIT 4 ONLY**

Leave the following as directed by the Contract Administrator:

1. All trees marked with a blue band of paint and all leave tree area clumps shall remain standing. The perimeter of the leave tree clumps are designated by Leave Tree Area tags. The tags face outward from the leave tree clumps.

Unit #	# of Individually Marked Trees	# of Clumps	# of Trees Clumped	Total # of Leave Trees
4	50	2	86	136

**Schedule C**  
**LEAVE TREE SELECTION CRITERIA**

1. Leave trees are defined as follows:
  - a. All trees greater than or equal to 24 inches in diameter at a 12 inch stump height.
  - b. Trees greater than or equal to 16 inches in diameter at a 12 inch stump height, with good form, shall only be felled if leaving them results in a residual stand of higher relative density than shown in the Unit Target Table (Schedule E).
  - c. All trees less than 16 inches in diameter at a 12 inch stump height needed to achieve relative densities as shown in the Unit Target Table (Schedule E).
  - d. All trees within the non-operational areas, i.e., RMZ and skip areas as shown on the timber sale map.
  
2. Leave trees shall be well distributed at the relative density and spacing shown in the Unit Target Table (Schedule E), and will consist of the largest diameter and best formed trees available.

Best form is defined as follows:

- a. Tallest Trees
  - b. Full Crowns
  - c. Straightest Boles
  - d. Smaller Diameter Limbs
- 
3. Leave trees will be identified by comparing their characteristics with other trees in the stand. Spacing will be varied to ensure the best trees available are left as leave trees. Felling of trees shall not result in creating an opening in the stand greater than 36 feet in diameter. If openings in the stand approach this diameter, then sufficient trees shall be left on the perimeter of the opening to maintain the target density or spacing (Unit Target Table - Schedule E).

**Schedule D**  
**CUT TREE SELECTION CRITERIA**

1. Cut trees are defined as all trees in the sale area, as shown on the timber sale maps that meet the following criteria:
  - a. All trees less than 16 inches in diameter at a 12 inch stump height provided that enough evenly distributed trees per acre remain to achieve the relative densities shown in the Unit Target Table (Schedule E).
  - b. All trees which are severely deformed, as defined below in part 2, provided that the remaining stand is not reduced below the relative densities shown in the Unit Target Table (Schedule E); or unless designated by the Contract Administrator for snag recruitment.
  - c. Those trees which are not defined as leave trees.
  
2. Severely deformed trees are defined as trees with one or more of the following characteristics:
  - a. Trees with three (3) or more tops.
  - b. Trees with a broken top.
  - c. Trees with two (2) tops if they twist around each other or are otherwise badly deformed.
  - d. Trees with basal scars or scars on the lower stem if visible soft decay is evident. Trees with scars that have healed over are not to be considered severely deformed.

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**Schedule E**  
**UNIT TARGET TABLE**

Unit	Acres	Approx. Stems/acre	Approx Spacing	Approx. Basal Area	RD
1	65	140	17 x 17'	180	45
2	28	140	17 x 17'	190	48
3	130	140	17 x 17'	190	48
5	23	125	19 x 19'	170	40



## 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 (specifically required by the contract) prior to haul*

#### EXCISE TAX EXEMPT ACTIVITIES

**Temporary Optional Construction:** **linear feet**  
*Optional roads to be constructed and then abandoned*

**Temporary Optional Reconstruction:** **linear feet**  
*Optional roads to be reconstructed and then abandoned*

**New Abandonment:** **linear feet**  
*Abandonment of roads constructed or reconstructed under the contract*

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 4/09)

## Cruise Narrative

<b>Sale Name:</b> Maudified	<b>Region:</b> Olympic
<b>Agreement #:</b> 30-093480	<b>District:</b> Coast
<b>Lead Cruiser:</b> Jason Michaud	<b>Completion Date:</b> 12/15/2015
<b>Other Cruisers:</b>	

### Unit acreage specifications:

Unit #	Cruised Acres	Cruised acres agree with sale acres? Y/N	If acres do not agree explain why.
1	65	Y	
1 gaps	1.5	Y	
2	28	Y	
2 gaps	0.5	Y	
3	130	Y	
3 gaps	3	Y	
4	17	Y	
5	23	Y	
5 gaps	1	Y	
<b>Total</b>	<b>269</b>	<b>Y</b>	

### Unit cruise specifications:

Unit #	Sample Type (VP,FP,ITS,100%)	Expansion Factor (baf,full/half)	Sighting Height (4.5', 16')	Grid Size (plot spacing)	Plot Ratio (cruise/count)	Number of plots
1	VP	54.45, 40	4.5', 16'	325X325	1:1	29
1 gaps	VP	54.45, 40	4.5', 16'	Unit 1 plots	1:1	29
2	VP	54.45, 40	4.5', 16'	250X250	1:1	21
2 gaps	VP	54.45, 40	4.5', 16'	Unit 2 plots	1:1	21
3	VP	54.45, 40	4.5', 16'	350X350	1:1	42
3 gaps	VP	54.45, 40	4.5', 16'	Unit 3 plots	1:1	42
4	VP	54.45, 40	4.5', 16'	250X250	1:1	12
5	VP	54.45, 40	4.5', 16'	225X225	1:1	19
5 gaps	VP	54.45, 40	4.5', 16'	Unit 5 plots	1:1	19

### Sale/Cruise Description:

<b>Minor species cruise intensity</b>	Minor species sampled using same cruise plots.				
<b>Minimum cruise spec:</b>	40% of Form Factor at 16 ft. D.O.B or 5 inch top or merchantable top				
<b>Average ring count:</b>	<b>DF =</b>	4	<b>WH =</b>	5	<b>SS =</b>

<b>Leave/take tree description:</b>	Leave tree clumps are bounded out with yellow tags, pink flashers and blue paint. Individual leave trees are marked with blue bands and two blue butt marks.
<b>Other conditions:</b>	Exterior boundaries are marked with white tags and pink flashers

<b>Sort Description:</b>	<p><b>HA</b>– Logs meeting the following criteria: Surface characteristics for a high quality A sort will have sound tight knots not to exceed 1 ½” in diameter, numbering not more than an average of one per foot of log length. May include logs with not more than two larger knots. Knots and knot indicators ½” in diameter and smaller shall not be a determining factor. Logs will have a growth ring count of 6 or more rings per inch in the outer third top end of the log. (minimum diameter 8”.)</p> <p><b>HB</b> – Logs meeting the following criteria: Surface characteristics for a B sort will have sound tight knots not to exceed 1 ½” in diameter. May include logs with not more than two larger knots up to 2 ½” in diameter. Logs will have a growth ring count of 6 or more rings per inch in the outer third to end of the log. (minimum diameter 8”.)</p> <p><b>R</b> – Logs meeting the following criteria: Gross diameter of 12 inches or greater, excessive knots greater than 2 ½ inches with recovery less than 65% of the net scale.</p>
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**Field Observations:**

The Maudified timber sale is located in T25N R11W sec 16 off of the C-2800 and C-3000 road systems. Units 1, 2, 3 and 5 are variable density thinning units. The major species in these units are western hemlock and Douglas-fir, with a small amount of red alder, Sitka spruce and silver fir. The main defect in the hemlock and Douglas-fir is sweep and forked tops. The main defect in the alder is sweep. Unit 4 is a variable retention harvest. The major species in this unit are also hemlock and Douglas-fir. The average bole length for these species is 57 feet. There are also pockets of alder present throughout this unit.

**Grants:** 03

**Prepared By:** Jason Michaud

Forester / Timber Cruiser

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																		
T025 R011 S09 TyU2 THRU T025 R011 S25 TyU5G				Project: <b>MAUD</b>										Page <b>1</b>								
				Acres <b>269.00</b>										Date <b>12/15/2015</b>			Time <b>7:56:27AM</b>					
Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
									4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
DF	D	2S		9	8.6	844	771	207										40	12	189	1.51	4.1
DF	D	3S		72	7.4	6,051	5,606	1,508	26	74					1		99	40	8	90	0.83	62.0
DF	D	4S		19	5.9	1,550	1,458	392	100					33	45	11	11	22	5	22	0.30	65.6
<b>DF Totals</b>				31	7.2	8,444	7,834	2,107	37	53	10			6	9	2	83	31	7	59	0.67	131.7
DF	T	D	2S	6	10.2	239	214	58		15	85					100	40	12	182	1.80	1.2	
DF	T	D	3S	42	6.4	1,520	1,422	382	72	28				5		95	39	7	66	0.60	21.6	
DF	T	D	4S	52	4.1	1,838	1,762	474	100					16	34	14	36	25	5	27	0.32	65.3
<b>DF Totals</b>				13	5.5	3,596	3,398	914	82	13	5			8	20	7	65	29	6	39	0.44	88.0
WH	A	SM		4	6.9	385	359	97								100	40	19	562	3.01	.6	
WH	D	2S		18	9.1	1,504	1,368	368		6	94					100	40	13	230	1.64	5.9	
WH	D	3S		61	6.2	5,121	4,803	1,292	9	90	2				2	98	40	9	110	0.89	43.5	
WH	D	4S		17	3.8	1,327	1,276	343	99	1				25	40	19	16	24	5	26	0.35	49.0
<b>WH Totals</b>				31	6.4	8,337	7,806	2,100	22	57	17	5		4	7	4	85	32	7	79	0.76	99.1
WH	T	A	SM		6.9	9	8	2								100	40	19	562	3.01	.0	
WH	T	D	2S	2	8.4	115	105	28		2	98			18		82	33	13	190	1.60	.6	
WH	T	D	3S	44	4.6	2,613	2,493	671	36	61	3				0	100	40	8	95	0.76	26.3	
WH	T	D	4S	52	3.0	3,032	2,943	792	100	0				11	20	13	56	29	5	32	0.33	90.9
WH	T	D	UT	2		105	105	28	100					100			19	5	20	0.20	5.3	
<b>WH Totals</b>				22	3.7	5,874	5,654	1,521	70	27	3	0		8	10	7	75	31	6	46	0.45	123.1
SF	T	D	3S	50		24	24	7		100						100	40	8	90	0.64	.3	
SF	T	D	4S	50		24	24	6	100					22		78	28	5	27	0.24	.9	
<b>SF Totals</b>				0		48	48	13	50	50				11		39	50	31	6	42	0.36	1.2
RA	D	3S		31	5.9	120	113	30		74	26			100			20	11	74	0.91	1.5	
RA	D	4S		69	4.8	256	243	65	78	22				3	29	68	30	6	39	0.43	6.3	
<b>RA Totals</b>				1	5.2	375	356	96	53	39	8			34	20	47		28	7	46	0.50	7.8
RA	T	D	3S		5.9	3	3	1		74	26			100			20	11	74	0.91	.0	
RA	T	D	4S	100	7.6	373	345	93	100	0				14	27	6	53	30	5	32	0.29	10.9
<b>RA Totals</b>				1	7.5	376	347	93	99	1	0			15	26	6	53	30	5	32	0.29	11.0
SS	T	D	4S	100		92	92	25	100					69	31		24	5	24	0.34	3.9	
<b>SS Totals</b>				0		92	92	25	100					69	31			24	5	24	0.34	3.9
<b>Totals</b>					5.9	27,143	25,536	6,869	47	42	10	1		7	10	5	78	31	6	55	0.58	465.7

Take Volumes  
DF- 914mbf  
WH- 1521mbf  
SF-13mbf  
RA-93mbf  
SS 25mbf

Total Take Volume-2566mbf

TC PSTATS		<b>PROJECT STATISTICS</b>								PAGE	1
		<b>PROJECT</b>				<b>MAUD</b>				DATE	12/15/2015
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
025	011	09	MAUD	U2	THR	269.00	234	1,271	S	W	
025	011	25	MAUD	U5G							
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			234	1271	5.4						
CRUISE			158	831	5.3	83,682	1.0				
DBH COUNT REFOREST COUNT			76	404	5.3						
BLANKS											
100 %											
<b>STAND SUMMARY</b>											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK-T		289	96.1	11.4	49	20.1	67.6	5,874	5,654	1,717	1,715
WHEMLOCK		98	51.4	16.2	66	18.3	73.5	8,337	7,806	2,430	2,428
DOUG FIR		126	69.4	15.5	65	23.2	91.3	8,444	7,834	2,730	2,733
DOUG FIR-T		259	72.5	11.1	48	14.7	49.0	3,596	3,398	1,111	1,111
R ALDER		12	5.9	11.9	48	1.3	4.6	375	356	109	109
R ALDER-T		37	10.9	9.1	43	1.6	4.9	376	347	97	98
PS FIR-T		4	.9	10.4	48	0.2	.5	48	48	13	13
S SPRUCE-T		6	3.9	9.5	32	0.6	1.9	92	92	31	32
<b>TOTAL</b>		<b>831</b>	<b>311.1</b>	<b>13.2</b>	<b>55</b>	<b>80.9</b>	<b>293.4</b>	<b>27,143</b>	<b>25,536</b>	<b>8,237</b>	<b>8,238</b>
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL	68.1	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		71.4	7.3	159	172	184					
WHEMLOCK-T		84.4	5.0	106	112	117					
DOUG FIR		38.5	3.5	127	131	136					
DOUG FIR-T		62.7	3.9	94	98	102					
R ALDER		49.8	15.0	62	73	84					
R ALDER-T		62.9	10.3	41	46	51					
PS FIR-T		66.0	37.7	44	70	96					
S SPRUCE-T		38.7	17.3	22	27	31					
<b>TOTAL</b>		<b>75.4</b>	<b>2.6</b>	<b>110</b>	<b>113</b>	<b>116</b>	<b>227</b>	<b>57</b>	<b>25</b>		
CL	68.1	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		53.7	5.5	51	53	56					
WHEMLOCK-T		73.6	4.4	34	35	37					
DOUG FIR		40.3	3.6	46	47	49					
DOUG FIR-T		67.4	4.2	34	35	37					
R ALDER		50.4	15.2	20	24	27					
R ALDER-T		70.9	11.6	13	14	16					
PS FIR-T		69.5	39.7	11	19	26					
S SPRUCE-T		67.7	30.2	7	10	13					
<b>TOTAL</b>		<b>67.4</b>	<b>2.4</b>	<b>37</b>	<b>38</b>	<b>39</b>	<b>182</b>	<b>45</b>	<b>20</b>		
CL	68.1	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK		192.7	12.6	45	51	58					
WHEMLOCK-T		184.2	12.0	85	96	108					
DOUG FIR		196.3	12.8	60	69	78					
DOUG FIR-T		243.0	15.9	61	73	84					
R ALDER		688.5	45.0	3	6	9					
R ALDER-T		708.4	46.3	6	11	16					
PS FIR-T		1136.9	74.3	0	1	2					

TC PSTATS		<b>PROJECT STATISTICS</b>							PAGE	2		
		<b>PROJECT</b>			<b>MAUD</b>				DATE	12/15/2015		
TWP	RGE	SC	TRACT	TYPE		ACRES			PLOTS	TREES	CuFt	BdFt
025	011	09	MAUD	U2	THR	269.00			234	1,271	S	W
025	011	25	MAUD	USG								
CL	68.1	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.			
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15			
S SPRUCE-T		1495.5	97.8	0	4	8						
<b>TOTAL</b>		<b>121.0</b>	<b>7.9</b>	<b>286</b>	<b>311</b>	<b>336</b>	<b>586</b>	<b>146</b>	<b>65</b>			
CL	68.1	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		205.4	13.4	64	74	83						
WHEMLOCK-T		167.5	10.9	60	68	75						
DOUG FIR		187.0	12.2	80	91	102						
DOUG FIR-T		199.1	13.0	43	49	55						
R ALDER		757.0	49.5	2	5	7						
R ALDER-T		676.3	44.2	3	5	7						
PS FIR-T		1049.4	68.6	0	1	1						
S SPRUCE-T		1495.5	97.8	0	2	4						
<b>TOTAL</b>		<b>108.8</b>	<b>7.1</b>	<b>273</b>	<b>293</b>	<b>314</b>	<b>473</b>	<b>118</b>	<b>53</b>			
CL	68.1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		225.2	14.7	6,657	7,806	8,956						
WHEMLOCK-T		171.4	11.2	5,021	5,654	6,288						
DOUG FIR		193.2	12.6	6,845	7,834	8,824						
DOUG FIR-T		199.5	13.0	2,955	3,398	3,841						
R ALDER		796.2	52.1	171	356	541						
R ALDER-T		704.3	46.0	188	347	507						
PS FIR-T		1069.0	69.9	15	48	82						
S SPRUCE-T		1495.5	97.8	2	92	182						
<b>TOTAL</b>		<b>116.0</b>	<b>7.6</b>	<b>23,600</b>	<b>25,536</b>	<b>27,473</b>	<b>539</b>	<b>135</b>	<b>60</b>			
CL	68.1	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		216.0	14.1	2,085	2,428	2,771						
WHEMLOCK-T		171.3	11.2	1,523	1,715	1,907						
DOUG FIR		188.1	12.3	2,397	2,733	3,069						
DOUG FIR-T		188.1	12.3	974	1,111	1,247						
R ALDER		779.2	50.9	54	109	165						
R ALDER-T		698.4	45.7	53	98	143						
PS FIR-T		1079.0	70.5	4	13	22						
S SPRUCE-T		1495.5	97.8	1	32	62						
<b>TOTAL</b>		<b>111.9</b>	<b>7.3</b>	<b>7,636</b>	<b>8,238</b>	<b>8,841</b>	<b>501</b>	<b>125</b>	<b>56</b>			
CL	68.1	COEFF		V_BAR/ACRE			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
WHEMLOCK		167.2	10.9	91	106	122						
WHEMLOCK-T		128.5	8.4	74	84	93						
DOUG FIR		122.9	8.0	75	86	97						
DOUG FIR-T		157.6	10.3	60	69	78						
R ALDER		796.2	52.1	37	77	117						
R ALDER-T		704.3	46.0	38	70	103						
PS FIR-T		1069.0	69.9	27	91	155						
S SPRUCE-T		1495.5	97.8	1	48	94						
<b>TOTAL</b>		<b>115.3</b>	<b>7.5</b>	<b>80</b>	<b>87</b>	<b>94</b>	<b>532</b>	<b>133</b>	<b>59</b>			

T025 R011 S25 TU1										T025 R011 S25 TU1				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
025	011	25	MAUD	U1	65.00	29	152	S	W					

S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre	
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
								4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
DF		DM 2S	14	6.7	1,535	1,432	93	100				100				40	12	196	1.76	7.3	
DF		DM 3S	68	8.4	7,196	6,592	428	11	89					2		98	40	9	98	0.94	67.1
DF		DM 4S	18	9.1	1,846	1,678	109	100					19	56	15	10	25	5	25	0.34	67.1
<b>DF</b>	<b>Totals</b>		44	8.3	10,577	9,702	631	25	61	15			3	11	3	83	33	7	69	0.78	141.6
DF	T	DM 3S	16		380	380	25	100								100	40	6	60	0.56	6.3
DF	T	DM 4S	84	2.5	1,946	1,898	123	100					10	22	18	50	30	5	34	0.35	56.5
<b>DF</b>	<b>T</b>	<b>Totals</b>	10	2.1	2,326	2,278	148	100					8	18	15	59	31	5	36	0.38	62.8
WH		DM 2S	23	10.3	1,236	1,108	72	100				100				40	13	237	1.70	4.7	
WH		DM 3S	53	9.4	2,784	2,523	164	16	84							100	40	8	90	0.79	28.0
WH		DM 4S	24	1.5	1,137	1,120	73	100					36	14	16	34	24	5	27	0.33	41.1
<b>WH</b>	<b>Totals</b>		22	7.9	5,156	4,751	309	32	45	23			8	3	4	84	31	7	64	0.67	73.9
WH	T	DM 3S	20		765	765	50	100								100	40	6	65	0.54	11.8
WH	T	DM 4S	68	2.0	2,689	2,635	171	100					3	24	11	61	30	5	33	0.32	79.5
WH	T	DM UT	12		425	425	28	100					100				19	5	20	0.20	21.3
<b>WH</b>	<b>T</b>	<b>Totals</b>	17	1.4	3,879	3,826	249	100					13	16	8	62	29	5	34	0.34	112.5
RA	T	DM 4S	100	4.0	783	751	49	100					26	36	12	26	28	5	27	0.26	27.4
<b>RA</b>	<b>T</b>	<b>Totals</b>	3	4.0	783	751	49	100					26	36	12	26	28	5	27	0.26	27.4
RA		DM 4S	100	2.1	569	557	36	81	19				5	52		43	26	5	32	0.33	17.4
<b>RA</b>	<b>Totals</b>		3	2.1	569	557	36	81	19				5	52		43	26	5	32	0.33	17.4
<b>Type</b>	<b>Totals</b>			6.1	23,290	21,865	1,421	51	37	12			8	13	5	74	31	6	50	0.55	435.6

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	MAUD		DATE	12/15/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
025	011	25	MAUD	U1	65.00	29	152	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		29	152	5.2						
CRUISE		22	110	5.0	21,338		.5			
DBH COUNT										
REFOREST										
COUNT		7	35	5.0						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	44	77.8	16.7	66	28.9	118.3	10,577	9,702	3,574	3,580
DOUG FIR-T	13	62.8	10.5	48	11.6	37.6	2,326	2,278	739	739
WHEMLOCK	18	42.3	14.8	61	13.2	50.7	5,156	4,751	1,539	1,538
WHEMLOCK-T	22	103.6	9.8	41	17.4	54.4	3,879	3,826	1,101	1,101
R ALDER	5	14.4	9.4	42	2.3	6.9	569	557	151	150
R ALDER-T	8	27.4	8.6	39	3.8	11.0	783	751	196	197
<b>TOTAL</b>	<b>110</b>	<b>328.3</b>	<b>12.5</b>	<b>51</b>	<b>78.9</b>	<b>278.9</b>	<b>23,290</b>	<b>21,865</b>	<b>7,300</b>	<b>7,306</b>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		34.5	5.3	140	148	156				
DOUG FIR-T		26.6	8.0	40	43	47				
WHEMLOCK		50.9	12.7	130	149	168				
WHEMLOCK-T		41.0	9.2	41	45	49				
R ALDER		68.5	34.1	34	52	70				
R ALDER-T		22.3	8.4	26	29	31				
<b>TOTAL</b>		<b>68.4</b>	<b>6.7</b>	<b>95</b>	<b>102</b>	<b>109</b>	<b>187</b>	<b>47</b>	<b>21</b>	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		32.9	5.1	52	55	58				
DOUG FIR-T		36.2	10.9	13	15	16				
WHEMLOCK		46.5	11.6	43	49	55				
WHEMLOCK-T		49.3	11.0	12	14	15				
R ALDER		84.4	42.0	9	15	22				
R ALDER-T		35.9	13.6	7	8	9				
<b>TOTAL</b>		<b>70.8</b>	<b>6.9</b>	<b>33</b>	<b>36</b>	<b>38</b>	<b>201</b>	<b>50</b>	<b>22</b>	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		79.5	15.0	66	78	89				
DOUG FIR-T		187.0	35.3	41	63	85				
WHEMLOCK		109.3	20.7	34	42	51				
WHEMLOCK-T		123.1	23.3	79	104	128				
R ALDER		311.7	58.9	6	14	23				
R ALDER-T		339.1	64.1	10	27	45				
<b>TOTAL</b>		<b>56.2</b>	<b>10.6</b>	<b>293</b>	<b>328</b>	<b>363</b>	<b>131</b>	<b>33</b>	<b>15</b>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		71.8	13.6	102	118	134				
DOUG FIR-T		164.9	31.2	26	38	49				
WHEMLOCK		118.1	22.3	39	51	62				
WHEMLOCK-T		125.4	23.7	42	54	67				

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	MAUD			DATE	12/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
025	011	25	MAUD	U1	65.00		29	152	S	W
CL: 68.1 %		COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER		312.7	59.1	3	7	11				
R ALDER-T		319.8	60.4	4	11	18				
<b>TOTAL</b>		<b>26.9</b>	<b>5.1</b>	<b>265</b>	<b>279</b>	<b>293</b>	<b>30</b>	<b>7</b>	<b>3</b>	
CL: 68.1 %		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR		74.1	14.0	8,343	9,702	11,061				
DOUG FIR-T		156.2	29.5	1,606	2,278	2,950				
WHEMLOCK		124.8	23.6	3,630	4,751	5,872				
WHEMLOCK-T		130.3	24.6	2,884	3,826	4,768				
R ALDER		320.8	60.6	219	557	894				
R ALDER-T		318.5	60.2	299	751	1,204				
<b>TOTAL</b>		<b>28.0</b>	<b>5.3</b>	<b>20,707</b>	<b>21,865</b>	<b>23,022</b>	<b>33</b>	<b>8</b>	<b>4</b>	
CL: 68.1 %		COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR		72.7	13.7	3,088	3,580	4,072				
DOUG FIR-T		152.6	28.8	526	739	953				
WHEMLOCK		124.0	23.4	1,178	1,538	1,899				
WHEMLOCK-T		134.1	25.3	822	1,101	1,380				
R ALDER		340.1	64.3	54	150	246				
R ALDER-T		308.8	58.4	82	197	312				
<b>TOTAL</b>		<b>26.4</b>	<b>5.0</b>	<b>6,941</b>	<b>7,306</b>	<b>7,670</b>	<b>29</b>	<b>7</b>	<b>3</b>	
CL: 68.1 %		COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR		34.3	6.5	71	82	94				
DOUG FIR-T		127.0	24.0	43	61	79				
WHEMLOCK		97.0	18.3	72	94	116				
WHEMLOCK-T		97.4	18.4	53	70	88				
R ALDER		320.8	60.6	32	81	130				
R ALDER-T		318.5	60.2	27	68	109				
<b>TOTAL</b>		<b>104.4</b>	<b>19.7</b>	<b>74</b>	<b>78</b>	<b>83</b>	<b>452</b>	<b>113</b>	<b>50</b>	

TC		TSTNDSUMRdVBar															Stand Table Summary with RD, V-bar - Type														
Project															MAUD																
T025 R011 S25 TU1															T025 R011 S25 TU1																
Twp	Rge	Sec	Tract	Type	Acres					Plots		Sample Trees			Page:	1															
025	011	25	MAUD	U1	65.00					29		152			Date:	12/15/2014															
															Time:	7:58:59AM															
Spc	S	DBH	Sample	QMD	Total	Bole	Total	Avg	Avg	RD	V	Ht/D	Trees/	BA/	Gross Bd.	Def	Net	MBF													
	T	Class	Trees	DBH	Age	Ht.	Ht.	FF	CR		Bar		Acre	Acre	Ft. Acre	%	Bd. Ft. Acre														
DF		12	1	12.1	35	59	73	75		0.8	63	72.4	3.367	2.69	202	17	168	11													
DF		13	4	13.2	35	59	72	80		3.0	68	65.7	11.274	10.75	788	7	732	48													
DF		15	7	15.1	35	64	80	80		4.8	82	63.1	15.078	18.82	1,680	8	1,551	101													
DF		16	8	15.8	35	66	82	78		5.4	76	62.5	15.758	21.51	1,773	8	1,633	106													
DF		17	6	16.9	35	69	86	78		3.9	91	60.8	10.386	16.13	1,572	7	1,469	96													
DF		18	4	17.8	35	67	83	80		2.5	88	55.6	6.209	10.75	1,040	9	947	62													
DF		19	1	19.4	35	76	95	80		0.6	97	58.8	1.310	2.69	288	9	262	17													
DF		20	3	19.9	35	67	84	77		1.8	74	50.7	3.747	8.07	736	19	599	39													
DF		21	5	20.9	35	72	91	76		2.9	85	52.1	5.634	13.44	1,227	6	1,148	75													
DF		22	4	21.7	35	72	89	77		2.3	86	49.3	4.178	10.75	982	5	930	60													
DF		24	1	24.1	35	70	87	80		0.5	98	43.3	.849	2.69	289	9	263	17													
DF		Totals	44	16.7	35	66	82	79		28.9	82	58.7	77.789	118.29	10,577	8	9,702	631													
WH		10	1	9.8	35	45	54	86		0.9	76	66.1	5.377	2.82	215		215	14													
WH		11	1	11.1	35	52	63	85		0.8	60	68.1	4.191	2.82	168		168	11													
WH		13	2	13.0	35	62	76	87		1.6	103	70.1	6.071	5.63	580		580	38													
WH		14	5	14.0	35	62	76	85		3.8	96	65.7	13.258	14.08	1,404	4	1,353	88													
WH		16	2	15.8	35	62	76	80		1.4	87	57.9	4.114	5.63	512	4	492	32													
WH		17	1	17.3	35	67	82	86		0.7	104	56.9	1.725	2.82	311	6	293	19													
WH		18	1	17.5	35	67	82	83		0.7	96	56.2	1.686	2.82	304	11	270	18													
WH		21	4	20.8	35	74	91	83		2.5	92	52.4	4.753	11.27	1,283	19	1,033	67													
WH		22	1	21.5	35	75	93	85		0.6	123	51.9	1.117	2.82	380	9	346	23													
WH		Totals	18	14.8	35	61	75	85		13.2	94	60.5	42.291	50.69	5,156	8	4,751	309													
WH	T	8	5	7.9	35	29	32	87		4.4	66	49.0	36.781	12.38	814		814	53													
WH	T	9	3	8.9	35	34	39	83		2.5	54	52.8	17.357	7.42	454	12	401	26													
WH	T	10	1	10.0	35	40	47	86		0.8	55	56.4	4.538	2.47	136		136	9													
WH	T	11	7	11.0	35	52	62	86		5.2	78	68.2	26.378	17.32	1,350		1,350	88													
WH	T	12	4	11.9	35	55	66	84		2.9	74	66.9	12.894	9.90	731		731	47													
WH	T	13	2	12.7	35	58	70	81		1.4	80	66.1	5.627	4.95	394		394	26													
WH		Totals	22	9.8	35	41	48	85		17.4	70	58.5	103.575	54.45	3,879	1	3,826	249													
DF	T	9	4	8.9	35	42	50	79		3.9	52	67.3	26.488	11.55	600		600	39													
DF	T	10	1	10.3	35	45	54	79		0.9	69	62.9	4.992	2.89	200		200	13													
DF	T	11	3	10.7	35	48	58	80		2.6	58	64.7	13.830	8.67	553	9	505	33													
DF	T	12	3	11.9	35	56	68	81		2.5	68	68.7	11.161	8.67	594		594	39													
DF	T	13	2	12.9	35	57	70	76		1.6	66	64.7	6.330	5.78	380		380	25													
DF		Totals	13	10.5	35	48	57	79		11.6	61	65.7	62.800	37.55	2,326	2	2,278	148													
RA	T	7	2	7.2	35	31	35	81		1.0	71	58.5	9.779	2.76	196		196	13													
RA	T	9	5	9.2	35	42	49	87		2.3	65	63.8	15.016	6.90	482	6	450	29													
RA	T	10	1	9.8	35	55	66	89		0.4	76	80.8	2.633	1.38	105		105	7													
RA		Totals	8	8.6	35	39	46	85		3.8	68	63.6	27.429	11.03	783	4	751	49													
RA		7	1	7.0	35	35	40	88		0.5	75	68.6	5.161	1.38	103		103	7													
RA		9	2	9.0	35	38	44	84		0.9	67	58.3	6.176	2.76	185		185	12													
RA		12	1	11.7	35	60	73	88		0.4	107	74.9	1.847	1.38	148		148	10													
RA		15	1	14.5	35	60	73	79		0.4	87	60.4	1.203	1.38	132	9	120	8													
RA		Totals	5	9.4	35	42	49	86		2.3	81	62.4	14.387	6.90	569	2	557	36													
Totals			110	12.5	35	51	61	82		78.9	78	58.7	328.271	278.92	23,290	6	21,865	1,421													

T025 R011 S25 TU1G										T025 R011 S25 TU1G				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
025	011	25	MAUD	UIG	1.50	29	152	S	W					

Spp	S	So	Gr	%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log				Logs Per /Acre		
									Net BdFt	Def%	Gross	Net	Log Scale Dia.				Log Length					Ln Ft	Dia In
					4-7	8-11	12-15						16+	12-20	21-30	31-35	36-99						
DF	T	DM	2S	12	6.7	1,561	1,456	2	100				100				40	12	196	1.76	7.4		
DF	T	DM	3S	58	8.0	7,677	7,064	11	15	85					2	98	40	8	95	0.91	74.3		
DF	T	DM	4S	30	5.8	3,719	3,503	5	100					14	38	17	31	27	5	29	0.34	121.7	
<b>DF T Totals</b>				55	7.2	12,958	12,023	18	38	50	12			4	12	5	79	32	7	59	0.66	203.4	
WH	T	DM	2S	12	10.3	1,153	1,034	2	100				100				40	13	237	1.70	4.4		
WH	T	DM	3S	37	7.1	3,411	3,168	5	37	63						100	40	8	82	0.71	38.7		
WH	T	DM	4S	45	1.9	3,917	3,844	6	100				12	21	12	54	28	5	31	0.32	122.8		
WH	T	DM	UT	6		452	452	1	100				100				19	5	20	0.20	22.6		
<b>WH T Totals</b>				39	4.9	8,933	8,498	13	64	23	12			11	10	6	74	30	6	45	0.46	188.5	
RA	T	DM	4S	100	3.2	1,351	1,308	2	92	8			17	43	7	33	27	5	29	0.29	44.9		
<b>RA T Totals</b>				6	3.2	1,351	1,308	2	92	8			17	43	7	33	27	5	29	0.29	44.9		
<b>Type Totals</b>						6.1	23,242	21,829	33	52	37	11			8	13	5	74	31	6	50	0.55	436.7

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	MAUD			DATE	12/15/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
025	011	25	MAUD	UIG	1.50	29	152	S	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
				PLOTS	TREES	TREES	TREES				
TOTAL		29	152	5.2							
CRUISE		22	110	5.0	495		22.2				
DBH COUNT											
REFOREST											
COUNT		7	35	5.0							
BLANKS											
100 %											
<b>STAND SUMMARY</b>											
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
DOUG FIR-T	57	138.5	14.4	58	41.1	155.8	12,958	12,023	4,335	4,341	
WHEMLOCK-T	40	149.5	11.4	46	31.2	105.1	8,933	8,498	2,605	2,605	
R ALDER-T	13	41.8	8.9	40	6.0	17.9	1,351	1,308	347	347	
<b>TOTAL</b>	<b>110</b>	<b>329.8</b>	<b>12.5</b>	<b>50</b>	<b>79.0</b>	<b>278.9</b>	<b>23,242</b>	<b>21,829</b>	<b>7,287</b>	<b>7,293</b>	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %	COEFF	<b>SAMPLE TREES - BF</b>					# OF TREES REQ.	INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T	50.6	6.9	116	125	133						
WHEMLOCK-T	80.6	13.1	79	91	103						
R ALDER-T	64.2	18.5	31	38	45						
<b>TOTAL</b>	<b>68.4</b>	<b>6.7</b>	<b>95</b>	<b>102</b>	<b>109</b>	<b>187</b>	<b>47</b>	<b>21</b>			
CL: 68.1 %	COEFF	<b>SAMPLE TREES - CF</b>					# OF TREES REQ.	INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T	50.8	6.9	43	46	49						
WHEMLOCK-T	81.2	13.2	26	30	33						
R ALDER-T	80.5	23.2	8	11	13						
<b>TOTAL</b>	<b>70.8</b>	<b>6.9</b>	<b>33</b>	<b>36</b>	<b>38</b>	<b>201</b>	<b>50</b>	<b>22</b>			
CL: 68.1 %	COEFF	<b>TREES/ACRE</b>					# OF PLOTS REQ.	INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T	111.1	21.0	109	139	168						
WHEMLOCK-T	93.5	17.7	123	149	176						
R ALDER-T	325.9	61.6	16	42	68						
<b>TOTAL</b>	<b>55.2</b>	<b>10.4</b>	<b>295</b>	<b>330</b>	<b>364</b>	<b>126</b>	<b>32</b>	<b>14</b>			
CL: 68.1 %	COEFF	<b>BASAL AREA/ACRE</b>					# OF PLOTS REQ.	INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T	76.8	14.5	133	156	178						
WHEMLOCK-T	100.7	19.0	85	105	125						
R ALDER-T	313.1	59.2	7	18	29						
<b>TOTAL</b>	<b>26.9</b>	<b>5.1</b>	<b>265</b>	<b>279</b>	<b>293</b>	<b>30</b>	<b>7</b>	<b>3</b>			
CL: 68.1 %	COEFF	<b>NET BF/ACRE</b>					# OF PLOTS REQ.	INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T	73.6	13.9	10,350	12,023	13,696						
WHEMLOCK-T	112.5	21.3	6,690	8,498	10,305						
R ALDER-T	310.6	58.7	540	1,308	2,076						
<b>TOTAL</b>	<b>28.3</b>	<b>5.3</b>	<b>20,662</b>	<b>21,829</b>	<b>22,995</b>	<b>33</b>	<b>8</b>	<b>4</b>			
CL: 68.1 %	COEFF	<b>NET CUFT FT/ACRE</b>					# OF PLOTS REQ.	INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR-T	70.6	13.3	3,762	4,341	4,920						
WHEMLOCK-T	111.5	21.1	2,056	2,605	3,154						
R ALDER-T	314.1	59.4	141	347	553						

TC TSTATS				<b>STATISTICS</b>				PAGE	2	
				PROJECT	MAUD			DATE	12/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
<b>025</b>	<b>011</b>	<b>25</b>	<b>MAUD</b>	<b>UIG</b>	1.50		29	152	S	W
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
<b>TOTAL</b>		26.6	5.0	6,925	7,293	7,660	29	7	3	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR-T		32.6	6.2	66	77	88				
WHEMLOCK-T		86.6	16.4	64	81	98				
R ALDER-T		310.6	58.7	30	73	116				
<b>TOTAL</b>		104.2	19.7	74	78	82	450	112	50	

T025 R011 S09 TU2										T025 R011 S09 TU2				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
025	011	09	MAUD	U2	28.00	21	118	S	W					

S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre				
								Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/ Lf					
								4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf					
DF	DM	2S	4	20.8	563	446	12	100				100				40	13	190	2.17	2.3				
DF	DM	3S	77	8.3	7,830	7,180	201	21	79					100				40	8	93	0.88	77.2		
DF	DM	4S	19	5.3	1,797	1,702	48	100				47	43	10					21	5	21	0.28	79.6	
<b>DF</b>	<b>Totals</b>		37	8.5	10,190	9,328	261	34	61	5	9	8	2	82	30	7	59	0.70	159.1					
DF	T	DM	3S	51	8.2	2,348	2,154	60	84	16					100				40	7	62	0.56	34.7	
DF	T	DM	4S	49	2.3	2,052	2,005	56	100				47	12	41				23	5	25	0.31	80.4	
<b>DF</b>	<b>T</b>	<b>Totals</b>	17	5.5	4,399	4,159	116	92	8					23	6	72				28	6	36	0.42	115.1
WH	DM	2S	5	3.4	391	378	11	100				100				40	14	280	2.11	1.3				
WH	DM	3S	79	5.1	6,156	5,840	164	19	81					100				40	8	95	0.83	61.7		
WH	DM	4S	16	5.8	1,251	1,178	33	100				50	38	12					20	5	20	0.28	59.2	
<b>WH</b>	<b>Totals</b>		30	5.1	7,798	7,396	207	31	64	5	8	6	2	84	30	7	60	0.67	122.3					
WH	T	DM	3S	34	7.2	1,443	1,339	38	73	27					100				40	7	70	0.57	19.1	
WH	T	DM	4S	66	2,526		2,526	71	100				12	10				78	30	5	34	0.37	73.7	
<b>WH</b>	<b>T</b>	<b>Totals</b>	16	2.6	3,969	3,866	108	91	9					8	6				86	32	6	42	0.42	92.8
SF	T	DM	4S	100	176		176	5	100				100				31	5	30	0.24	5.9			
<b>SF</b>	<b>T</b>	<b>Totals</b>	1	176		176	5	100				100				31	5	30	0.24	5.9				
<b>Type Totals</b>				6.1	26,533	24,925	698	52	45	3	11	6	3	81	30	6	50	0.57	495.2					

TC TSTATS				STATISTICS						PAGE	1
				PROJECT	MAUD				DATE	12/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
025	011	09	MAUD	U2	28.00	21	118	S	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
				PLOTS	TREES	TREES	TREES				
TOTAL		21	118	5.6							
CRUISE		13	75	5.8	8,753		9				
DBH COUNT											
REFOREST											
COUNT		8	43	5.4							
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
DOUG FIR	30	79.6	16.0	66	27.8	111.5	10,190	9,328	3,380	3,380	
DOUG FIR-T	14	97.3	10.8	50	18.9	62.2	4,399	4,159	1,358	1,358	
WHEMLOCK	21	63.1	15.3	63	20.6	80.4	7,798	7,396	2,489	2,485	
WHEMLOCK-T	9	66.8	11.6	54	14.4	49.3	3,969	3,866	1,256	1,256	
PS FIR-T	1	5.9	9.0	40	0.9	2.6	176	176	44	44	
<b>TOTAL</b>	<b>75</b>	<b>312.6</b>	<b>13.4</b>	<b>58</b>	<b>83.6</b>	<b>306.0</b>	<b>26,533</b>	<b>24,925</b>	<b>8,528</b>	<b>8,523</b>	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	28.4	5.4		126	133	140					
DOUG FIR-T	51.6	14.3		43	51	58					
WHEMLOCK	36.6	8.4		123	134	145					
WHEMLOCK-T	38.2	13.5		52	60	68					
PS FIR-T											
<b>TOTAL</b>	<b>49.6</b>	<b>5.8</b>		<b>101</b>	<b>107</b>	<b>113</b>	<b>98</b>	<b>25</b>	<b>11</b>		
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	37.4	7.1		46	50	53					
DOUG FIR-T	53.7	14.9		15	17	20					
WHEMLOCK	31.7	7.3		41	45	48					
WHEMLOCK-T	32.6	11.5		17	20	22					
PS FIR-T											
<b>TOTAL</b>	<b>53.8</b>	<b>6.3</b>		<b>35</b>	<b>38</b>	<b>40</b>	<b>116</b>	<b>29</b>	<b>13</b>		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	98.3	22.0		62	80	97					
DOUG FIR-T	105.2	23.5		74	97	120					
WHEMLOCK	123.5	27.6		46	63	81					
WHEMLOCK-T	125.0	28.0		48	67	85					
PS FIR-T	458.3	102.5			6	12					
<b>TOTAL</b>	<b>39.4</b>	<b>8.8</b>		<b>285</b>	<b>313</b>	<b>340</b>	<b>65</b>	<b>16</b>	<b>7</b>		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	97.0	21.7		87	111	136					
DOUG FIR-T	100.9	22.6		48	62	76					
WHEMLOCK	120.5	26.9		59	80	102					
WHEMLOCK-T	125.6	28.1		35	49	63					
PS FIR-T	458.3	102.5			3	5					
<b>TOTAL</b>	<b>38.0</b>	<b>8.5</b>		<b>280</b>	<b>306</b>	<b>332</b>	<b>61</b>	<b>15</b>	<b>7</b>		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		

TC TSTATS				STATISTICS			PAGE	2		
				PROJECT	MAUD		DATE	12/15/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
025	011	09	MAUD	U2	28.00		21	118	S	W
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		93.2	20.9	7,383	9,328	11,273				
DOUG FIR-T		104.3	23.3	3,188	4,159	5,130				
WHEMLOCK		117.3	26.2	5,456	7,396	9,336				
WHEMLOCK-T		127.9	28.6	2,760	3,866	4,971				
PS FIR-T		458.3	102.5		176	357				
<b>TOTAL</b>		<b>34.7</b>	<b>7.8</b>	<b>22,988</b>	<b>24,925</b>	<b>26,862</b>	<b>51</b>	<b>13</b>	<b>6</b>	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15	
DOUG FIR		95.8	21.4	2,656	3,380	4,105				
DOUG FIR-T		105.8	23.7	1,037	1,358	1,679				
WHEMLOCK		118.4	26.5	1,827	2,485	3,143				
WHEMLOCK-T		126.1	28.2	902	1,256	1,610				
PS FIR-T		458.3	102.5		44	89				
<b>TOTAL</b>		<b>38.1</b>	<b>8.5</b>	<b>7,796</b>	<b>8,523</b>	<b>9,250</b>	<b>61</b>	<b>15</b>	<b>7</b>	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15	
DOUG FIR		63.5	14.2	66	84	101				
DOUG FIR-T		49.7	11.1	51	67	82				
WHEMLOCK		93.3	20.9	68	92	116				
WHEMLOCK-T				56	78	101				
PS FIR-T		458.3	102.5		68	138				
<b>TOTAL</b>		<b>134.5</b>	<b>30.1</b>	<b>75</b>	<b>81</b>	<b>88</b>	<b>760</b>	<b>190</b>	<b>84</b>	

TC		TSTNDSUMRdVBar		Stand Table Summary with RD, V-bar - Type														
Project														MAUD				
T025 R011 S09 TU2										T025 R011 S09 TU2								
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees			Page:	1							
025	011	09	MAUD	U2	28.00	21	118			Date:	12/15/2014							
										Time:	8:15:02AM							
Spc	S	DBH Class	Sample Trees	QMD DBH	Total Age	Bole Ht.	Total Ht.	Avg FF	Avg CR	RD	V Bar	Ht/D	Trees/Acre	BA/Acre	Gross Bd. Ft. Acre	Def %	Net Bd. Ft. Acre	MBF
DF		12	1	12.4	35	64	79	81		1.1	83	76.5	4.432	3.72	355	13	310	9
DF		13	2	13.1	35	62	77	81		2.0	85	70.7	7.881	7.43	631		631	18
DF		14	4	13.9	35	64	79	82		4.0	90	68.4	14.015	14.87	1,401	5	1,332	37
DF		15	4	15.0	35	63	78	79		3.8	78	62.3	12.169	14.87	1,278	10	1,156	32
DF		16	6	16.0	35	66	82	78		5.6	81	61.6	15.922	22.30	1,985	9	1,802	50
DF		17	5	17.2	35	67	84	78		4.5	88	58.4	11.544	18.58	1,687	3	1,641	46
DF		18	2	17.8	35	72	90	79		1.8	101	60.8	4.282	7.43	791	5	749	21
DF		19	1	19.2	35	70	87	78		0.8	90	54.4	1.848	3.72	333		333	9
DF		20	2	19.7	35	68	85	80		1.7	75	51.7	3.494	7.43	734	24	559	16
DF		21	1	20.5	35	70	87	74		0.8	74	50.9	1.621	3.72	340	19	276	8
DF		24	2	24.1	35	72	90	78		1.5	73	44.8	2.346	7.43	657	18	540	15
DF		Totals	30	16.0	35	66	82	79		27.8	84	61.1	79.555	111.49	10,190	8	9,328	261
WH		13	1	12.8	35	60	73	83		1.1	90	68.4	4.283	3.83	343		343	10
WH		14	4	13.7	35	60	73	81		4.1	77	63.6	14.871	15.31	1,292	8	1,185	33
WH		15	7	14.8	35	63	77	82		7.0	91	62.2	22.315	26.79	2,576	5	2,450	69
WH		16	3	16.3	35	66	81	78		2.8	92	59.5	7.957	11.48	1,141	7	1,061	30
WH		17	4	16.7	35	67	83	80		3.7	100	59.3	10.039	15.31	1,602	5	1,526	43
WH		18	1	17.6	35	65	80	84		0.9	101	54.5	2.266	3.83	385		385	11
WH		23	1	22.8	35	75	93	80		0.8	116	48.9	1.350	3.83	459	3	445	12
WH		Totals	21	15.3	35	63	78	81		20.6	92	60.9	63.080	80.38	7,798	5	7,396	207
DF	T	8	2	7.9	35	33	37	80		3.2	59	57.0	26.229	8.89	525		525	15
DF	T	10	2	10.0	35	53	65	79		2.8	54	77.6	16.148	8.89	480		480	13
DF	T	11	3	10.9	35	53	65	81		4.0	66	71.7	20.624	13.33	881		881	25
DF	T	12	2	11.8	35	57	70	80		2.6	59	71.3	11.623	8.89	576	10	521	15
DF	T	13	3	13.2	35	62	76	82		3.7	74	69.6	14.107	13.33	1,125	13	983	28
DF	T	14	2	13.8	35	62	77	83		2.4	87	66.5	8.559	8.89	813	5	770	22
DF		Totals	14	10.8	35	50	61	81		18.9	67	67.5	97.289	62.23	4,399	5	4,159	116
WH	T	10	1	10.2	35	48	57	86		1.7	70	67.1	9.646	5.47	386		386	11
WH	T	11	2	10.8	35	52	62	83		3.3	72	69.2	17.104	10.95	786		786	22
WH	T	12	5	12.0	35	56	68	84		7.9	81	67.9	34.856	27.37	2,226		2,226	62
WH	T	14	1	13.9	35	65	80	80		1.5	85	69.1	5.194	5.47	571	18	467	13
WH		Totals	9	11.6	35	54	66	84		14.4	78	68.0	66.801	49.26	3,969	3	3,866	108
SF	T	9	1	9.0	35	40	48	89		0.9	68	64.0	5.869	2.59	176		176	5
SF		Totals	1	9.0	35	40	48	89		0.9	68	64.0	5.869	2.59	176		176	5
Totals			75	13.4	35	58	70	81		83.6	81	63.0	312.594	305.96	26,533	6	24,925	698

<b>T025 R011 S09 TU2G</b>										<b>T025 R011 S09 TU2G</b>				
<b>Twp</b>	<b>Rge</b>	<b>Sec</b>	<b>Tract</b>	<b>Type</b>	<b>Acres</b>	<b>Plots</b>	<b>Sample Trees</b>	<b>CuFt</b>	<b>BdFt</b>					
<b>025</b>	<b>011</b>	<b>09</b>	<b>MAUD</b>	<b>U2G</b>	<b>.50</b>	<b>21</b>	<b>118</b>	<b>S</b>	<b>W</b>					

S Spp	So T	Gr rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre			
									Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/ Lf				
									4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf				
DF	T	DM	2S	3	20.8	598	474	0	100				100				40	13	190	2.17	2.5			
DF	T	DM	3S	70	8.3	10,404	9,541	5	33	67					100				40	8	85	0.79	112.9	
DF	T	DM	4S	27	3.8	3,732	3,589	2	100				47	28	5	20	22	5	23	0.30	155.9			
<b>DF T Totals</b>				54	7.7	14,734	13,604	7	50	47	3					12	7	1	79	30	6	50	0.60	271.3
WH	T	DM	2S	3	3.4	442	427	0	100				100				40	14	280	2.11	1.5			
WH	T	DM	3S	67	5.4	8,089	7,651	4	26	74					100				40	8	90	0.78	84.8	
WH	T	DM	4S	30	2.4	3,406	3,325	2	100				27	15	11	47	25	5	27	0.33	125.0			
<b>WH T Totals</b>				45	4.5	11,938	11,402	6	47	49	4					8	4	3	85	31	6	54	0.58	211.3
SF	T	DM	4S	100	176			176	0	100				100				31	5	30	0.24	5.9		
<b>SF T Totals</b>				1	176			176	0	100				100				31	5	30	0.24	5.9		
<b>Type Totals</b>					6.2	26,847	25,182	13	49	48	4					10	6	3	81	30	6	52	0.59	488.5

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	MAUD			DATE	12/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
025	011	09	MAUD	U2G	0.50	21	118	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		21	118	5.6						
CRUISE		13	75	5.8	150		49.9			
DBH COUNT										
REFOREST										
COUNT		8	43	5.4						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR-T	44	170.9	13.7	58	47.0	173.7	14,734	13,604	4,798	4,797
WHEMLOCK-T	30	124.0	13.8	60	34.8	129.6	11,938	11,402	3,801	3,797
PS FIR-T	1	5.9	9.0	40	0.9	2.6	176	176	44	44
<b>TOTAL</b>	<b>75</b>	<b>300.8</b>	<b>13.7</b>	<b>58</b>	<b>82.8</b>	<b>306.0</b>	<b>26,847</b>	<b>25,182</b>	<b>8,644</b>	<b>8,639</b>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR-T	48.8	7.4		98	106	114				
WHEMLOCK-T	49.3	9.3		101	111	121				
PS FIR-T										
<b>TOTAL</b>	<b>49.6</b>	<b>5.8</b>		<b>101</b>	<b>107</b>	<b>113</b>	<b>98</b>	<b>25</b>	<b>11</b>	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR-T	56.9	8.7		36	39	42				
WHEMLOCK-T	45.9	8.7		34	37	40				
PS FIR-T										
<b>TOTAL</b>	<b>53.8</b>	<b>6.3</b>		<b>35</b>	<b>38</b>	<b>40</b>	<b>116</b>	<b>29</b>	<b>13</b>	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR-T	99.4	22.2		133	171	209				
WHEMLOCK-T	105.4	23.6		95	124	153				
PS FIR-T	458.3	102.5			6	12				
<b>TOTAL</b>	<b>41.3</b>	<b>9.2</b>		<b>273</b>	<b>301</b>	<b>329</b>	<b>72</b>	<b>18</b>	<b>8</b>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR-T	93.3	20.9		137	174	210				
WHEMLOCK-T	105.8	23.7		99	130	160				
PS FIR-T	458.3	102.5			3	5				
<b>TOTAL</b>	<b>38.0</b>	<b>8.5</b>		<b>280</b>	<b>306</b>	<b>332</b>	<b>61</b>	<b>15</b>	<b>7</b>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR-T	91.3	20.4		10,824	13,604	16,384				
WHEMLOCK-T	102.1	22.8		8,797	11,402	14,007				
PS FIR-T	458.3	102.5			176	357				
<b>TOTAL</b>	<b>34.2</b>	<b>7.6</b>		<b>23,258</b>	<b>25,182</b>	<b>27,107</b>	<b>49</b>	<b>12</b>	<b>5</b>	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR-T	92.6	20.7		3,804	4,797	5,790				
WHEMLOCK-T	104.0	23.3		2,914	3,797	4,681				
PS FIR-T	458.3	102.5			44	89				

TC TSTATS				<b>STATISTICS</b>				PAGE	2	
				PROJECT	MAUD			DATE	12/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
<b>025</b>	<b>011</b>	<b>09</b>	<b>MAUD</b>	<b>U2G</b>	0.50		21	118	S	W
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
<b>TOTAL</b>		37.3	8.3	7,918	8,639	9,359	58	15	6	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR-T		51.0	11.4	62	78	94				
WHEMLOCK-T		48.1	10.8	68	88	108				
PS FIR-T		458.3	102.5		68	138				
<b>TOTAL</b>		136.3	30.5	76	82	89	781	195	87	



TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	MAUD			DATE	12/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
025	011	09	MAUD	U3	130.00	42	230	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		42	230	5.5						
CRUISE		24	123	5.1	41,231		.3			
DBH COUNT										
REFOREST										
COUNT		18	99	5.5						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK	35	58.8	16.8	69	22.1	90.8	11,031	10,336	3,129	3,127
WHEMLOCK-T	20	82.6	10.7	48	15.8	51.9	4,500	4,341	1,267	1,266
DOUG FIR	35	79.1	14.8	65	24.7	95.1	9,144	8,562	2,847	2,850
DOUG FIR-T	20	76.5	10.4	46	14.1	45.4	3,371	3,208	973	972
R ALDER	6	4.7	14.9	59	1.5	5.7	468	437	140	141
R ALDER-T	4	7.5	9.6	49	1.2	3.8	314	284	82	84
S SPRUCE-T	3	7.8	9.5	32	1.3	3.9	186	186	63	64
<b>TOTAL</b>	<i>123</i>	<i>317.2</i>	<i>13.1</i>	<i>56</i>	<i>81.9</i>	<i>296.5</i>	<i>29,014</i>	<i>27,354</i>	<i>8,501</i>	<i>8,504</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	83.5	14.1	186	217	248					
WHEMLOCK-T	73.1	16.8	58	70	82					
DOUG FIR	39.8	6.7	110	118	126					
DOUG FIR-T	51.6	11.8	45	51	56					
R ALDER	33.0	14.7	80	93	107					
R ALDER-T	35.4	20.2	32	40	48					
S SPRUCE-T	43.3	30.0	19	27	35					
<b>TOTAL</b>	<i>99.8</i>	<i>9.0</i>	<i>111</i>	<i>122</i>	<i>132</i>	<i>398</i>	<i>100</i>	<i>44</i>		
CL: 68.1 %	COEFF	SAMPLE TREES - CF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	63.6	10.8	57	64	70					
WHEMLOCK-T	73.2	16.8	17	21	24					
DOUG FIR	36.1	6.1	37	39	42					
DOUG FIR-T	57.9	13.3	14	16	18					
R ALDER	24.9	11.1	27	30	34					
R ALDER-T	38.5	22.0	9	12	14					
S SPRUCE-T	75.7	52.4	5	10	15					
<b>TOTAL</b>	<i>81.2</i>	<i>7.3</i>	<i>35</i>	<i>37</i>	<i>40</i>	<i>264</i>	<i>66</i>	<i>29</i>		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	96.1	14.8	50	59	68					
WHEMLOCK-T	122.2	18.9	67	83	98					
DOUG FIR	104.4	16.1	66	79	92					
DOUG FIR-T	151.4	23.4	59	77	94					
R ALDER	476.8	73.6	1	5	8					
R ALDER-T	482.4	74.4	2	8	13					
S SPRUCE-T	648.1	100.0	0	8	16					
<b>TOTAL</b>	<i>33.7</i>	<i>5.2</i>	<i>301</i>	<i>317</i>	<i>334</i>	<i>45</i>	<i>11</i>	<i>5</i>		
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	MAUD			DATE	12/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
025	011	09	MAUD	U3	130.00	42	230	S	W	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		101.5	15.7	77	91	105				
WHEMLOCK-T		111.1	17.1	43	52	61				
DOUG FIR		103.4	16.0	80	95	110				
DOUG FIR-T		132.3	20.4	36	45	55				
R ALDER		478.3	73.8	1	6	10				
R ALDER-T		508.6	78.5	1	4	7				
S SPRUCE-T		648.1	100.0	0	4	8				
<b>TOTAL</b>		<i>21.8</i>	<i>3.4</i>	<i>286</i>	<i>296</i>	<i>306</i>	<i>19</i>	<i>5</i>	<i>2</i>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		111.4	17.2	8,559	10,336	12,113				
WHEMLOCK-T		111.1	17.1	3,597	4,341	5,085				
DOUG FIR		105.6	16.3	7,167	8,562	9,957				
DOUG FIR-T		136.4	21.0	2,533	3,208	3,883				
R ALDER		507.2	78.3	95	437	780				
R ALDER-T		546.3	84.3	45	284	523				
S SPRUCE-T		648.1	100.0	0	186	371				
<b>TOTAL</b>		<i>32.5</i>	<i>5.0</i>	<i>25,981</i>	<i>27,354</i>	<i>28,726</i>	<i>42</i>	<i>11</i>	<i>5</i>	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		106.5	16.4	2,613	3,127	3,640				
WHEMLOCK-T		109.9	17.0	1,051	1,266	1,481				
DOUG FIR		103.6	16.0	2,394	2,850	3,306				
DOUG FIR-T		127.9	19.7	780	972	1,164				
R ALDER		474.2	73.2	38	141	245				
R ALDER-T		554.6	85.6	12	84	155				
S SPRUCE-T		648.1	100.0	0	64	128				
<b>TOTAL</b>		<i>28.7</i>	<i>4.4</i>	<i>8,127</i>	<i>8,504</i>	<i>8,881</i>	<i>33</i>	<i>8</i>	<i>4</i>	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		59.6	9.2	94	114	133				
WHEMLOCK-T				69	84	98				
DOUG FIR				75	90	105				
DOUG FIR-T		91.7	14.1	56	71	86				
R ALDER		507.2	78.3	17	77	136				
R ALDER-T		546.3	84.3	12	75	137				
S SPRUCE-T		648.1	100.0	0	48	96				
<b>TOTAL</b>		<i>174.6</i>	<i>26.9</i>	<i>88</i>	<i>92</i>	<i>97</i>	<i>1,219</i>	<i>305</i>	<i>135</i>	

TC		TSTNDSUMRdVBar															Stand Table Summary with RD, V-bar - Type														
Project															MAUD																
T025 R011 S09 TU3															T025 R011 S09 TU3																
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:	1							Date:	12/15/2014														
025	011	09	MAUD	U3	130.00	42	230	Time:	8:19:09AM																						
Spc	S	DBH	Sample	QMD	Total	Bole	Total	Avg	Avg	RD	V	Ht/D	Trees/	BA/	Gross Bd.	Def	Net	MBF													
	T	Class	Trees	DBH	Age	Ht.	Ht.	FF	CR		Bar		Acre	Acre	Ft. Acre	%	Bd. Ft. Acre														
WH		13	3	13.1	35	60	74	86		2.2	92	67.5	8.329	7.78	746	4	719	93													
WH		14	1	14.2	35	64	78	86		0.7	100	65.9	2.358	2.59	259		259	34													
WH		15	6	14.8	35	63	78	83		4.0	94	62.8	12.976	15.56	1,568	7	1,460	190													
WH		16	5	16.0	35	69	85	83		3.2	112	63.5	9.318	12.96	1,487	3	1,449	188													
WH		17	4	16.9	35	69	86	84		2.5	115	60.7	6.624	10.37	1,223	3	1,190	155													
WH		18	4	18.0	35	72	89	81		2.4	106	59.3	5.854	10.37	1,185	7	1,098	143													
WH		19	3	18.9	35	71	88	78		1.8	98	56.0	4.008	7.78	842	10	762	99													
WH		20	5	20.2	35	84	105	82		2.9	128	62.5	5.803	12.96	1,812	8	1,662	216													
WH		21	2	20.8	35	72	89	85		1.1	118	51.6	2.199	5.19	668	8	614	80													
WH		25	1	25.3	35	105	132	85		0.5	206	62.6	.743	2.59	572	6	535	70													
WH		29	1	28.7	35	118	149	85		0.5	227	62.3	.577	2.59	669	12	589	77													
WH		Totals	35	16.8	35	69	85	83		22.1	114	61.0	58.789	90.75	11,031	6	10,336	1,344													
DF		12	5	12.2	35	60	74	79		3.8	81	73.4	16.493	13.33	1,116	3	1,084	141													
DF		13	5	13.1	35	63	77	79		3.7	85	70.9	14.255	13.33	1,166	2	1,139	148													
DF		14	4	14.1	35	64	79	80		2.8	78	66.6	9.773	10.67	927	10	830	108													
DF		15	5	14.9	35	64	80	80		3.5	84	64.1	10.971	13.33	1,207	7	1,117	145													
DF		16	4	16.0	35	68	84	80		2.7	90	63.5	7.668	10.67	1,053	9	958	124													
DF		17	6	16.9	35	70	84	80		4.3	104	59.8	11.356	17.72	1,975	7	1,845	240													
DF		18	3	18.1	35	71	89	79		1.9	97	58.8	4.479	8.00	806	4	777	101													
DF		19	3	19.0	35	78	98	80		1.8	102	62.1	4.081	8.00	893	9	813	106													
DF		Totals	35	14.8	35	65	81	80		24.7	90	65.2	79.075	95.06	9,144	6	8,562	1,113													
WH	T	8	1	7.6	35	25	27	85		0.9	63	42.6	8.230	2.59	165		165	21													
WH	T	9	4	8.7	35	40	47	85		3.5	79	64.8	25.084	10.37	873	6	818	106													
WH	T	10	3	10.2	35	50	60	85		2.4	71	70.9	13.711	7.78	548		548	71													
WH	T	11	3	10.7	35	54	65	83		2.4	75	73.5	12.463	7.78	580		580	75													
WH	T	12	3	11.9	35	58	71	81		2.3	81	71.7	10.089	7.78	631		631	82													
WH	T	13	2	12.9	35	61	75	84		1.4	88	69.2	5.682	5.19	484	6	455	59													
WH	T	15	2	14.9	35	65	80	85		1.3	111	64.8	4.285	5.19	621	7	578	75													
WH	T	17	1	17.1	35	72	89	82		0.6	107	62.5	1.626	2.59	293	6	276	36													
WH	T	18	1	18.1	35	68	84	85		0.6	112	55.7	1.451	2.59	305	5	290	38													
WH		Totals	20	10.7	35	48	58	84		15.8	84	64.9	82.621	51.86	4,500	4	4,341	564													
DF	T	8	4	8.1	35	34	40	81		3.2	55	58.6	25.241	9.08	564	11	503	65													
DF	T	9	2	8.8	35	36	42	80		1.5	70	56.9	10.631	4.54	319		319	41													
DF	T	10	1	10.0	35	42	50	88		0.7	73	60.0	4.160	2.27	166		166	22													
DF	T	11	3	10.7	35	52	64	81		2.1	75	71.7	10.984	6.81	508		508	66													
DF	T	12	4	12.1	35	56	69	79		2.6	72	68.9	11.371	9.08	680	4	653	85													
DF	T	13	5	12.9	35	60	74	81		3.2	76	68.5	12.428	11.34	943	8	867	113													
DF	T	16	1	15.5	35	63	78	80		0.6	84	60.4	1.731	2.27	190		190	25													
DF		Totals	20	10.4	35	46	55	81		14.1	71	63.1	76.546	45.38	3,371	5	3,208	417													
RA		14	2	14.1	35	58	70	80		0.5	78	59.6	1.757	1.90	158	6	149	19													
RA		15	2	14.8	35	60	73	84		0.5	75	59.2	1.594	1.90	151	5	143	19													
RA		16	2	15.8	35	58	70	81		0.5	76	53.3	1.392	1.90	159	9	145	19													
RA		Totals	6	14.9	35	59	71	82		1.5	77	57.4	4.743	5.71	468	7	437	57													
RA	T	9	2	8.8	35	44	52	80		0.6	70	71.3	4.525	1.90	133		133	17													
RA	T	11	2	10.7	35	56	68	86		0.6	79	76.5	3.024	1.90	181	17	151	20													
RA		Totals	4	9.6	35	49	59	82		1.2	75	73.2	7.549	3.81	314	10	284	37													
SS	T	8	1	8.3	35	30	34	78		0.4	53	49.2	3.450	1.30	69		69	9													

**Stand Table Summary with RD, V-bar - Type**

**Project MAUD**

**T025 R011 S09 TU3**

**T025 R011 S09 TU3**

**Twp Rge Sec Tract**  
**025 011 09 MAUD**

**Type Acres Plots Sample Trees**  
**U3 130.00 42 230**

**Page: 2**  
**Date: 12/15/2011**  
**Time: 8:19:09AM**

Spc	S T	DBH Class	Sample Trees	QMD DBH	Total Age	Bole Ht.	Total Ht.	Avg FF	Avg CR	RD	V Bar	Ht/D	Trees/ Acre	BA/ Acre	Gross Bd. Ft. Acre	Def %	Net Bd. Ft. Acre	MBF
SS	T	9	1	9.0	35	30	34	77		0.4	45	45.3	2.935	1.30	59		59	8
SS	T	13	1	12.8	35	41	49	74		0.4	45	45.9	1.451	1.30	58		58	8
SS		Totals	3	9.5	35	32	37	77		1.3	48	46.3	7.836	3.89	186		186	24
Totals			123	13.1	35	56	68	82		81.9	92	62.0	317.158	296.45	29,014	6	27,354	3,556



TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	MAUD		DATE	12/15/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
025	011	09	MAUD	U3G	3.00	42	230	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		42	230	5.5						
CRUISE		24	123	5.1	964		12.8			
DBH COUNT										
REFOREST										
COUNT		18	99	5.5						
BLANKS										
100 %										
<b>STAND SUMMARY</b>										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK-T	55	141.4	13.6	57	38.7	142.6	15,531	14,677	4,395	4,393
DOUG FIR-T	55	159.9	12.7	55	39.4	140.3	12,395	11,663	3,774	3,776
R ALDER-T	10	12.3	11.9	53	2.8	9.5	782	721	222	225
S SPRUCE-T	3	7.8	9.5	32	1.3	3.9	186	186	63	64
<b>TOTAL</b>	<i>123</i>	<i>321.4</i>	<i>13.0</i>	<i>55</i>	<i>82.2</i>	<i>296.4</i>	<i>28,894</i>	<i>27,247</i>	<i>8,455</i>	<i>8,458</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	<b>SAMPLE TREES - BF</b>				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK-T	99.9	13.5		142	164	186				
DOUG FIR-T	55.7	7.5		87	94	101				
R ALDER-T	51.1	17.0		60	72	84				
S SPRUCE-T	43.3	30.0		19	27	35				
<b>TOTAL</b>	<i>99.8</i>	<i>9.0</i>		<i>111</i>	<i>122</i>	<i>132</i>	<i>398</i>	<i>100</i>	<i>44</i>	
CL:	68.1 %	COEFF	<b>SAMPLE TREES - CF</b>				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK-T	81.7	11.0		43	48	53				
DOUG FIR-T	54.7	7.4		29	31	33				
R ALDER-T	49.6	16.5		19	23	27				
S SPRUCE-T	75.7	52.4		5	10	15				
<b>TOTAL</b>	<i>81.2</i>	<i>7.3</i>		<i>35</i>	<i>37</i>	<i>40</i>	<i>264</i>	<i>66</i>	<i>29</i>	
CL:	68.1 %	COEFF	<b>TREES/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK-T	88.5	13.7		122	141	161				
DOUG FIR-T	103.9	16.0		134	160	186				
R ALDER-T	480.2	74.1		3	12	21				
S SPRUCE-T	648.1	100.0		0	8	16				
<b>TOTAL</b>	<i>31.0</i>	<i>4.8</i>		<i>306</i>	<i>321</i>	<i>337</i>	<i>38</i>	<i>10</i>	<i>4</i>	
CL:	68.1 %	COEFF	<b>BASAL AREA/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK-T	89.6	13.8		123	143	162				
DOUG FIR-T	94.8	14.6		120	140	161				
R ALDER-T	489.2	75.5		2	10	17				
S SPRUCE-T	648.1	100.0		0	4	8				
<b>TOTAL</b>	<i>21.7</i>	<i>3.4</i>		<i>286</i>	<i>296</i>	<i>306</i>	<i>19</i>	<i>5</i>	<i>2</i>	
CL:	68.1 %	COEFF	<b>NET BF/ACRE</b>				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK-T	98.1	15.1		12,454	14,677	16,900				
DOUG FIR-T	96.4	14.9		9,928	11,663	13,398				
R ALDER-T	521.5	80.5		141	721	1,302				
S SPRUCE-T	648.1	100.0		0	186	371				
<b>TOTAL</b>	<i>32.7</i>	<i>5.0</i>		<i>25,872</i>	<i>27,247</i>	<i>28,623</i>	<i>43</i>	<i>11</i>	<i>5</i>	

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	MAUD			DATE	12/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
025	011	09	MAUD	U3G	3.00		42	230	S	W
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK-T		95.6	14.7	3,745	4,393	5,041				
DOUG FIR-T		94.6	14.6	3,225	3,776	4,328				
R ALDER-T		498.1	76.9	52	225	398				
S SPRUCE-T		648.1	100.0	0	64	128				
<b>TOTAL</b>		28.6	4.4	8,084	8,458	8,832	33	8	4	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK-T		32.6	5.0	87	103	119				
DOUG FIR-T				71	83	95				
R ALDER-T		521.5	80.5	15	76	137				
S SPRUCE-T		648.1	100.0	0	48	96				
<b>TOTAL</b>		174.0	26.8	87	92	97	1,211	303	135	



TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	MAUD			DATE	12/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
025	011	25	MAUD	U4	17.00	12	69	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		12	69	5.8						
CRUISE		12	69	5.8	3,780		1.8			
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
<b>STAND SUMMARY</b>										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK-T	49	170.4	15.5	63	56.5	222.3	22,976	21,554	6,916	6,896
DOUG FIR-T	19	47.8	18.2	68	20.2	86.2	7,636	6,787	2,696	2,699
R ALDER-T	1	4.1	12.2	53	1.0	3.3	287	205	86	86
<b>TOTAL</b>	<b>69</b>	<b>222.3</b>	<b>16.0</b>	<b>64</b>	<b>77.9</b>	<b>311.9</b>	<b>30,900</b>	<b>28,546</b>	<b>9,698</b>	<b>9,681</b>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	<b>SAMPLE TREES - BF</b>				<b># OF TREES REQ.</b>		<b>INF. POP.</b>		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	39.5	5.6	136	144	153					
DOUG FIR-T	40.5	9.5	153	169	186					
R ALDER-T										
<b>TOTAL</b>	<b>41.2</b>	<b>5.0</b>	<b>143</b>	<b>150</b>	<b>157</b>	<b>68</b>	<b>17</b>	<b>8</b>		
CL: 68.1 %	COEFF	<b>SAMPLE TREES - CF</b>				<b># OF TREES REQ.</b>		<b>INF. POP.</b>		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	40.2	5.7	44	47	49					
DOUG FIR-T	39.3	9.3	62	68	74					
R ALDER-T										
<b>TOTAL</b>	<b>44.6</b>	<b>5.4</b>	<b>49</b>	<b>52</b>	<b>55</b>	<b>80</b>	<b>20</b>	<b>9</b>		
CL: 68.1 %	COEFF	<b>TREES/ACRE</b>				<b># OF PLOTS REQ.</b>		<b>INF. POP.</b>		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	43.7	13.2	148	170	193					
DOUG FIR-T	76.1	22.9	37	48	59					
R ALDER-T	346.4	104.4	4	8						
<b>TOTAL</b>	<b>37.1</b>	<b>11.2</b>	<b>197</b>	<b>222</b>	<b>247</b>	<b>60</b>	<b>15</b>	<b>7</b>		
CL: 68.1 %	COEFF	<b>BASAL AREA/ACRE</b>				<b># OF PLOTS REQ.</b>		<b>INF. POP.</b>		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	38.3	11.5	197	222	248					
DOUG FIR-T	78.3	23.6	66	86	107					
R ALDER-T	346.4	104.4	3	7						
<b>TOTAL</b>	<b>16.8</b>	<b>5.1</b>	<b>296</b>	<b>312</b>	<b>328</b>	<b>12</b>	<b>3</b>	<b>1</b>		
CL: 68.1 %	COEFF	<b>NET BF/ACRE</b>				<b># OF PLOTS REQ.</b>		<b>INF. POP.</b>		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	42.0	12.7	18,826	21,554	24,282					
DOUG FIR-T	78.0	23.5	5,192	6,787	8,381					
R ALDER-T	346.4	104.4	205	420						
<b>TOTAL</b>	<b>21.8</b>	<b>6.6</b>	<b>26,669</b>	<b>28,546</b>	<b>30,422</b>	<b>21</b>	<b>5</b>	<b>2</b>		
CL: 68.1 %	COEFF	<b>NET CUFT FT/ACRE</b>				<b># OF PLOTS REQ.</b>		<b>INF. POP.</b>		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	42.1	12.7	6,021	6,896	7,771					
DOUG FIR-T	80.0	24.1	2,048	2,699	3,349					
R ALDER-T	346.4	104.4	86	176						

TC TSTATS				<b>STATISTICS</b>				PAGE	2	
				PROJECT	MAUD			DATE	12/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
<b>025</b>	<b>011</b>	<b>25</b>	<b>MAUD</b>	<b>U4</b>	17.00		12	69	S	W
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
<b>TOTAL</b>		19.3	5.8	9,118	9,681	10,245	16	4	2	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK-T		42.0	12.7	85	97	109				
DOUG FIR-T		78.0	23.5	60	79	97				
R ALDER-T		346.4	104.4		62	126				
<b>TOTAL</b>		21.6	6.5	86	92	98	20	5	2	

**T025 R011 S25 TU5** **T025 R011 S25 TU5**  
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt  
 025 011 25 MAUD U5 23.00 19 101 S W

S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre		
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf			
								4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99							
WH	DM	2S	3	8.3	449	412	9	100				100				40	13	220	1.68	1.9		
WH	DM	3S	81	5.2	8,918	8,455	194	4	86	10	100				40	9	119	0.96	71.0			
WH	DM	4S	16	8.4	1,729	1,583	36	100				29	71	100				23	5	23	0.33	69.2
<b>WH Totals</b>			43	5.8	11,097	10,450	240	18	70	12	4	11	85		32	7	74	0.75	142.1			
WH	T	DM	3S	46	4.9	3,295	3,134	72	68	32	100				40	7	70	0.61	44.5			
WH	T	DM	4S	54	3,550		3,550	82	100				11	18	9	62	29	5	33	0.33	107.5	
<b>WH T Totals</b>			28	2.3	6,844	6,684	154	85	15	100				6	10	5	80	32	6	44	0.43	152.0
DF	DM	2S	5	15.0	271	230	5	100				100				40	12	170	1.82	1.4		
DF	DM	3S	67	8.0	3,262	3,000	69	16	84	100				40	8	101	0.93	29.6				
DF	DM	4S	28	1.8	1,253	1,230	28	100				11	25	17	47	29	5	30	0.36	41.0		
<b>DF Totals</b>			18	6.8	4,785	4,459	103	38	57	5	3	7	5	85	34	7	62	0.67	71.9			
DF	T	DM	3S	42	4.4	981	938	22	100				100				40	7	64	0.58	14.6	
DF	T	DM	4S	58	6.5	1,354	1,266	29	100				9	37	17	37	28	5	29	0.36	43.7	
<b>DF T Totals</b>			9	5.6	2,334	2,204	51	100				5	21	10	64	31	6	38	0.43	58.3		
SF	T	DM	3S	81	271		271	6	100				100				40	8	90	0.64	3.0	
SF	T	DM	4S	19	60		60	1	100				100				20	5	20	0.24	3.0	
<b>SF T Totals</b>			1	332		332	8	18	82	100				18	82		30	7	55	0.50	6.0	
RA	DM	4S	100	14.3	136	116	3	100				100				40	7	60	0.67	1.9		
<b>RA Totals</b>			0	14.3	136	116	3	100				100				40	7	60	0.67	1.9		
<b>Type Totals</b>				5.0	25,528	24,246	558	48	46	6	5	11	3	82	32	6	56	0.58	432.2			

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	MAUD			DATE	12/15/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
025	011	25	MAUD	U5	23.00	19	101	S	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
				PLOTS	TREES	TREES	TREES				
TOTAL		19	101	5.3							
CRUISE		14	73	5.2	6,680		1.1				
DBH COUNT											
REFOREST											
COUNT		5	25	5.0							
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK	24	72.9	16.3	65	26.2	106.0	11,097	10,450	3,354	3,353	
WHEMLOCK-T	20	117.9	11.4	52	24.6	83.1	6,844	6,684	2,104	2,102	
DOUG FIR	17	47.8	15.2	62	15.4	60.2	4,785	4,459	1,620	1,620	
DOUG FIR-T	10	46.9	11.6	48	10.1	34.4	2,334	2,204	774	774	
PS FIR-T	1	3.0	13.2	66	0.8	2.9	332	332	91	91	
R ALDER	1	1.9	14.1	53	0.6	2.1	136	116	52	52	
<b>TOTAL</b>	<b>73</b>	<b>290.4</b>	<b>13.5</b>	<b>56</b>	<b>78.6</b>	<b>288.7</b>	<b>25,528</b>	<b>24,246</b>	<b>7,995</b>	<b>7,993</b>	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	30.5	6.4		143	153	162					
WHEMLOCK-T	41.6	9.5		57	64	70					
DOUG FIR	56.8	14.2		98	114	130					
DOUG FIR-T	41.8	13.9		44	51	58					
PS FIR-T											
R ALDER											
<b>TOTAL</b>	<b>57.6</b>	<b>6.7</b>		<b>96</b>	<b>103</b>	<b>110</b>	<b>133</b>	<b>33</b>	<b>15</b>		
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	29.3	6.1		46	49	52					
WHEMLOCK-T	44.7	10.3		18	20	22					
DOUG FIR	58.4	14.6		36	42	48					
DOUG FIR-T	43.5	14.5		15	18	21					
PS FIR-T											
R ALDER											
<b>TOTAL</b>	<b>58.0</b>	<b>6.8</b>		<b>32</b>	<b>35</b>	<b>37</b>	<b>134</b>	<b>34</b>	<b>15</b>		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	94.3	22.2		57	73	89					
WHEMLOCK-T	86.3	20.3		94	118	142					
DOUG FIR	104.9	24.7		36	48	60					
DOUG FIR-T	165.1	38.9		29	47	65					
PS FIR-T	435.9	102.8			3	6					
R ALDER	435.9	102.8			2	4					
<b>TOTAL</b>	<b>28.8</b>	<b>6.8</b>		<b>271</b>	<b>290</b>	<b>310</b>	<b>35</b>	<b>9</b>	<b>4</b>		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK	97.5	23.0		82	106	130					
WHEMLOCK-T	76.8	18.1		68	83	98					
DOUG FIR	89.9	21.2		47	60	73					
DOUG FIR-T	151.2	35.7		22	34	47					

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	MAUD			DATE	12/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
025	011	25	MAUD	U5	23.00		19	101	S	W
CL:	68.1 %	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
PS FIR-T		435.9	102.8		3	6				
R ALDER		435.9	102.8		2	4				
<b>TOTAL</b>		<b>24.3</b>	<b>5.7</b>	<b>272</b>	<b>289</b>	<b>305</b>	<b>25</b>	<b>6</b>	<b>3</b>	
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		101.1	23.8	7,958	10,450	12,942				
WHEMLOCK-T		75.3	17.8	5,497	6,684	7,872				
DOUG FIR		90.4	21.3	3,508	4,459	5,410				
DOUG FIR-T		146.1	34.5	1,445	2,204	2,963				
PS FIR-T		435.9	102.8		332	673				
R ALDER		435.9	102.8		116	236				
<b>TOTAL</b>		<b>35.3</b>	<b>8.3</b>	<b>22,229</b>	<b>24,246</b>	<b>26,263</b>	<b>53</b>	<b>13</b>	<b>6</b>	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		99.5	23.5	2,567	3,353	4,140				
WHEMLOCK-T		74.0	17.5	1,735	2,102	2,469				
DOUG FIR		90.0	21.2	1,276	1,620	1,963				
DOUG FIR-T		144.2	34.0	511	774	1,037				
PS FIR-T		435.9	102.8		91	185				
R ALDER		435.9	102.8		52	106				
<b>TOTAL</b>		<b>32.3</b>	<b>7.6</b>	<b>7,384</b>	<b>7,993</b>	<b>8,601</b>	<b>44</b>	<b>11</b>	<b>5</b>	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK		35.9	8.5	75	99	122				
WHEMLOCK-T		33.8	8.0	66	80	95				
DOUG FIR		60.3	14.2	58	74	90				
DOUG FIR-T		125.6	29.6	42	64	86				
PS FIR-T		435.9	102.8		116	235				
R ALDER		435.9	102.8		55	112				
<b>TOTAL</b>		<b>112.4</b>	<b>26.5</b>	<b>77</b>	<b>84</b>	<b>91</b>	<b>534</b>	<b>133</b>	<b>59</b>	

TC		TSTNDSUMRdVBar		Stand Table Summary with RD, V-bar - Type														
Project														MAUD				
T025 R011 S25 TU5										T025 R011 S25 TU5								
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:	1		Date:	12/15/2014						
025	011	25	MAUD	U5	23.00	19	101	Time:	8:31:08AM									
Spc	S	DBH Class	Sample Trees	QMD DBH	Total Age	Bole Ht.	Total Ht.	Avg FF	Avg CR	RD	V Bar	Ht/D	Trees/Acre	BA/Acre	Gross Bd. Ft. Acre	Def %	Net Bd. Ft. Acre	MBF
WH		13	1	12.8	35	63	77	85		1.2	101	72.2	4.944	4.42	445		445	10
WH		14	3	14.0	35	62	75	85		3.5	93	64.4	12.345	13.25	1,358	9	1,235	28
WH		15	2	14.9	35	63	77	82		2.3	74	62.2	7.251	8.84	724	10	651	15
WH		16	4	16.0	35	63	77	84		4.4	94	57.7	12.584	17.67	1,762	5	1,665	38
WH		17	7	17.0	35	68	83	83		7.5	110	58.6	19.528	30.93	3,487	2	3,403	78
WH		18	3	17.8	35	67	82	78		3.1	89	55.5	7.703	13.25	1,288	8	1,184	27
WH		19	3	19.1	35	70	86	84		3.0	106	53.8	6.661	13.25	1,510	7	1,399	32
WH		21	1	20.8	35	72	89	85		1.0	106	51.3	1.872	4.42	524	11	468	11
WH		Totals	24	16.3	35	65	80	83		26.2	99	58.8	72.888	106.03	11,097	6	10,450	240
WH	T	9	2	8.9	35	35	40	89		2.8	69	53.9	19.244	8.31	577		577	13
WH	T	10	4	10.1	35	49	59	86		5.2	72	70.6	29.883	16.62	1,195		1,195	27
WH	T	11	2	10.8	35	55	67	86		2.5	77	74.2	12.984	8.31	641		641	15
WH	T	12	6	12.0	35	56	68	82		7.2	81	68.7	31.969	24.93	2,072	2	2,021	46
WH	T	13	2	13.0	35	61	75	83		2.3	91	68.9	8.948	8.31	760		760	17
WH	T	14	3	14.0	35	62	76	83		3.3	96	65.0	11.608	12.47	1,274	6	1,197	28
WH	T	15	1	15.3	35	58	71	77		1.1	70	55.7	3.255	4.16	325	10	293	7
WH		Totals	20	11.4	35	52	63	85		24.6	80	66.1	117.891	83.11	6,844	2	6,684	154
DF		12	4	11.7	35	53	65	79		4.1	57	66.8	18.906	14.16	845	5	801	18
DF		14	1	13.5	35	60	74	79		1.0	80	65.8	3.561	3.54	285		285	7
DF		16	5	16.3	35	64	79	79		4.4	65	58.5	12.248	17.70	1,248	8	1,150	26
DF		17	2	16.8	35	67	83	79		1.7	87	58.8	4.572	7.08	663	7	617	14
DF		18	2	17.7	35	74	93	81		1.7	105	63.2	4.121	7.08	762	3	741	17
DF		20	1	20.1	35	70	87	77		0.8	86	51.9	1.607	3.54	337	10	305	7
DF		21	1	21.1	35	72	90	76		0.8	74	51.2	1.458	3.54	306	14	262	6
DF		22	1	21.9	35	76	95	77		0.8	84	52.1	1.353	3.54	338	12	298	7
DF		Totals	17	15.2	35	62	76	79		15.4	74	60.0	47.826	60.18	4,785	7	4,459	103
DF	T	10	2	10.3	35	38	45	81		2.1	52	52.4	11.890	6.88	357		357	8
DF	T	11	2	10.7	35	35	41	80		2.1	48	46.4	11.017	6.88	385	15	328	8
DF	T	12	3	11.8	35	56	69	80		3.0	74	70.8	13.680	10.32	812	5	769	18
DF	T	13	1	12.6	35	63	78	80		1.0	81	74.3	3.972	3.44	278		278	6
DF	T	14	2	14.1	35	60	75	79		1.8	69	63.6	6.298	6.88	503	6	472	11
DF		Totals	10	11.6	35	48	58	80		10.1	64	60.1	46.857	34.39	2,334	6	2,204	51
SF	T	13	1	13.2	35	66	82	85		0.8	116	74.5	3.016	2.87	332		332	8
SF		Totals	1	13.2	35	66	82	85		0.8	116	74.5	3.016	2.87	332		332	8
RA		14	1	14.1	35	53	64	82		0.6	55	54.5	1.942	2.11	136	14	116	3
RA		Totals	1	14.1	35	53	64	82		0.6	55	54.5	1.942	2.11	136	14	116	3
Totals			73	13.5	35	56	69	83		78.6	84	61.1	290.420	288.68	25,528	5	24,246	558

T025 R011 S25 TU5G										T025 R011 S25 TU5G				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
025	011	25	MAUD	USG	1.00	19	101	S	W					

S So Gr Twp Rt Ad	%	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
						Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/	
						4-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
WH T DM 2S	2	8.3	437	401	0	100				100				40	13	220	1.68	1.8
WH T DM 3S	67	5.1	12,085	11,469	11	22	71	7		100				40	8	100	0.82	115.2
WH T DM 4S	31	2.6	5,355	5,213	5	100				16	34	6	44	25	5	28	0.33	188.7
<b>WH T Totals</b>	71	4.4	17,877	17,083	17	45	47	7		5	10	2	83	31	6	56	0.58	305.7
DF T DM 2S	3	15.0	268	228	0	100				100				40	12	170	1.82	1.3
DF T DM 3S	59	7.2	4,226	3,923	4	36	64			100				40	8	89	0.81	44.1
DF T DM 4S	38	4.3	2,618	2,506	3	100				10	31	17	42	28	5	29	0.36	85.0
<b>DF T Totals</b>	28	6.4	7,112	6,657	7	59	38	3		4	12	6	78	32	6	51	0.57	130.4
SF T DM 3S	81		271	271	0	100				100				40	8	90	0.64	3.0
SF T DM 4S	19		60	60	0	100				100				20	5	20	0.24	3.0
<b>SF T Totals</b>	1		332	332	0	18	82			18			82	30	7	55	0.50	6.0
RA T DM 4S	100	14.3	136	116	0	100				100				40	7	60	0.67	1.9
<b>RA T Totals</b>	0	14.3	136	116	0	100				100				40	7	60	0.67	1.9
<b>Type Totals</b>		5.0	25,457	24,188	24	49	45	6		5	11	3	82	31	6	54	0.57	444.1

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	MAUD			DATE	12/15/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
025	011	25	MAUD	U5G	1.00	19	101	S	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
				PLOTS	TREES	TREES	TREES				
TOTAL		19	101	5.3							
CRUISE		14	73	5.2	293		24.9				
DBH COUNT											
REFOREST											
COUNT		5	25	5.0							
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
WHEMLOCK-T	44	192.9	13.4	57	51.7	189.1	17,877	17,083	5,440	5,437	
DOUG FIR-T	27	95.0	13.5	55	25.7	94.6	7,112	6,657	2,391	2,391	
PS FIR-T	1	3.0	13.2	66	0.8	2.9	332	332	91	91	
R ALDER-T	1	1.9	14.1	53	0.6	2.1	136	116	52	52	
<b>TOTAL</b>	<b>73</b>	<b>292.9</b>	<b>13.4</b>	<b>56</b>	<b>78.7</b>	<b>288.7</b>	<b>25,457</b>	<b>24,188</b>	<b>7,974</b>	<b>7,972</b>	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	52.6	7.9		103	112	121					
DOUG FIR-T	67.1	13.2		79	91	103					
PS FIR-T											
R ALDER-T											
<b>TOTAL</b>	<b>57.6</b>	<b>6.7</b>		<b>96</b>	<b>103</b>	<b>110</b>	<b>133</b>	<b>33</b>	<b>15</b>		
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	52.4	7.9		33	36	39					
DOUG FIR-T	69.2	13.6		28	33	37					
PS FIR-T											
R ALDER-T											
<b>TOTAL</b>	<b>58.0</b>	<b>6.8</b>		<b>32</b>	<b>35</b>	<b>37</b>	<b>134</b>	<b>34</b>	<b>15</b>		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	70.5	16.6		161	193	225					
DOUG FIR-T	123.8	29.2		67	95	123					
PS FIR-T	435.9	102.8			3	6					
R ALDER-T	435.9	102.8			2	4					
<b>TOTAL</b>	<b>31.8</b>	<b>7.5</b>		<b>271</b>	<b>293</b>	<b>315</b>	<b>43</b>	<b>11</b>	<b>5</b>		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	67.4	15.9		159	189	219					
DOUG FIR-T	97.6	23.0		73	95	116					
PS FIR-T	435.9	102.8			3	6					
R ALDER-T	435.9	102.8			2	4					
<b>TOTAL</b>	<b>24.3</b>	<b>5.7</b>		<b>272</b>	<b>289</b>	<b>305</b>	<b>25</b>	<b>6</b>	<b>3</b>		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
WHEMLOCK-T	69.7	16.4		14,276	17,083	19,889					
DOUG FIR-T	90.8	21.4		5,232	6,657	8,082					
PS FIR-T	435.9	102.8			332	673					
R ALDER-T	435.9	102.8			116	236					
<b>TOTAL</b>	<b>33.8</b>	<b>8.0</b>		<b>22,260</b>	<b>24,188</b>	<b>26,115</b>	<b>48</b>	<b>12</b>	<b>5</b>		

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	MAUD			DATE	12/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
025	011	25	MAUD	U5G	1.00		19	101	S	W
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK-T		68.6	16.2	4,557	5,437	6,317				
DOUG FIR-T		90.6	21.4	1,880	2,391	2,902				
PS FIR-T		435.9	102.8		91	185				
R ALDER-T		435.9	102.8		52	106				
<b>TOTAL</b>		<b>30.6</b>	<b>7.2</b>	<b>7,396</b>	<b>7,972</b>	<b>8,547</b>	<b>40</b>	<b>10</b>	<b>4</b>	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
WHEMLOCK-T				75	90	105				
DOUG FIR-T		58.8	13.9	55	70	85				
PS FIR-T		435.9	102.8		116	235				
R ALDER-T		435.9	102.8		55	112				
<b>TOTAL</b>		<b>111.0</b>	<b>26.2</b>	<b>77</b>	<b>84</b>	<b>90</b>	<b>521</b>	<b>130</b>	<b>58</b>	

**Species Summary - Trees, Logs, Tons, CCF, MBF**

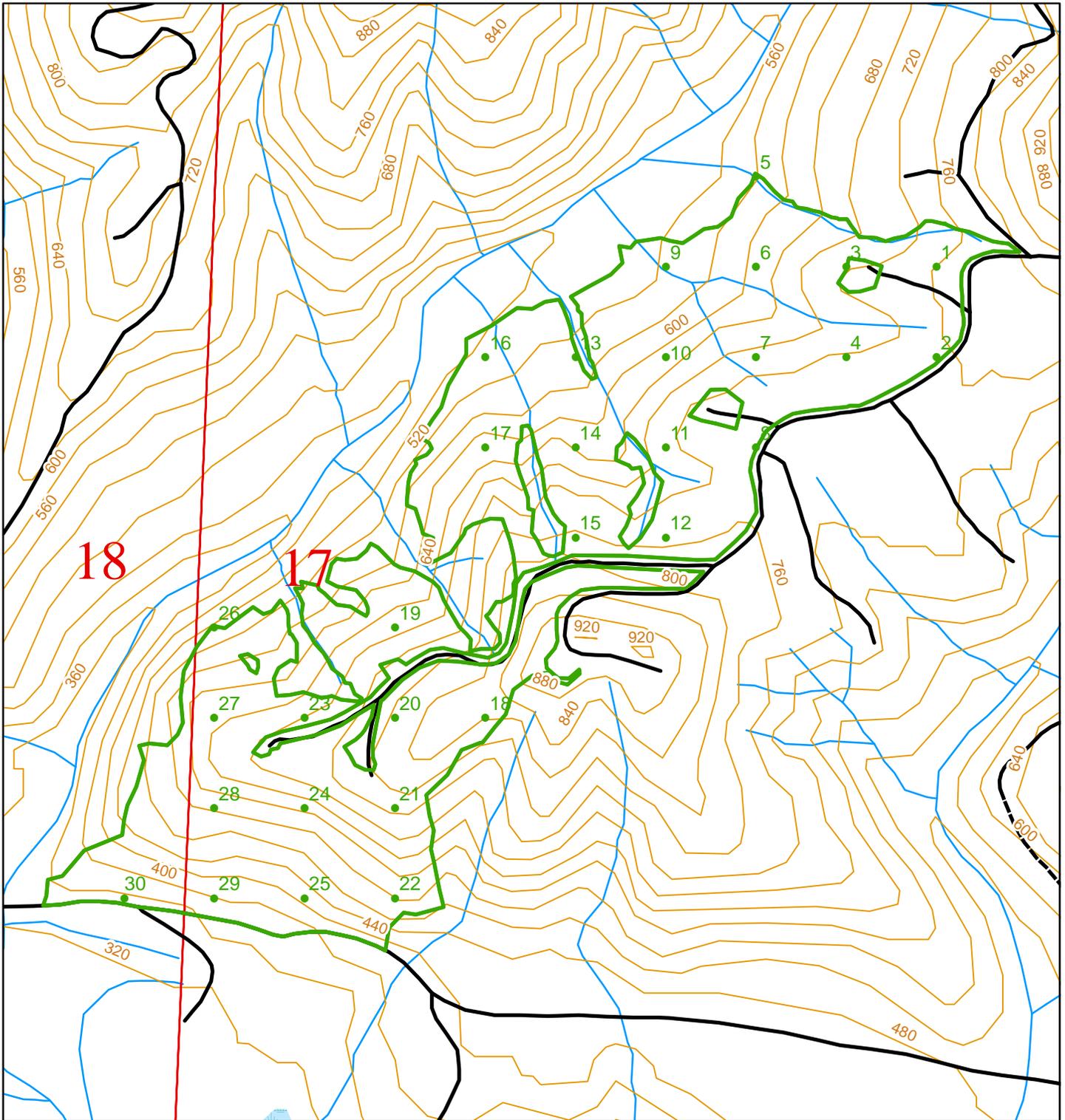
T025 R011 S09 TyU2	28.0
T025 R011 S09 TyU2G	.5
T025 R011 S25 TyU5G	1.0

**Project MAUD**  
**Acres 269.00**

**Page No 1**  
**Date: 12/15/2015**  
**Time 8:41:39AM**

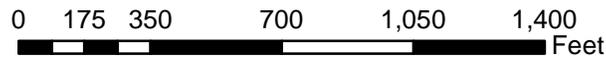
Species	s T	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
		Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
DOUG FIR		18,664	35,427	20,930	39.39	20.75	0.68	7,344	7,351	2,272	2,107
WHEMLOCK		13,834	26,656	20,914	47.21	24.50	0.76	6,536	6,532	2,243	2,100
WHEMLOCK	T	25,855	33,117	14,776	17.84	13.93	0.45	4,618	4,613	1,580	1,521
DOUG FIR	T	19,515	23,680	8,516	15.31	12.62	0.44	2,988	2,988	967	914
R ALDER		1,596	2,099	804	18.38	13.98	0.50	292	293	101	96
R ALDER	T	2,936	2,947	719	8.99	8.95	0.30	261	264	101	93
S SPRUCE	T	1,042	1,042	218	8.14	8.14	0.34	84	85	25	25
PS FIR	T	240	312	99	14.39	11.05	0.36	34	34	13	13
<b>Totals</b>		83,682	125,281	66,977	26.48	17.69	0.58	22,158	22,160	7,301	6,869

Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
C	79,150	120,234	65,455	27.29	17.97	0.59	21,604	21,603	7,099	6,680
H	4,532	5,046	1,522	12.30	11.04	0.38	554	557	202	189
<b>Totals</b>	83,682	125,281	66,977	26.48	17.69	0.58	22,158	22,160	7,301	6,869



**Cruiser Sample Point Locations**

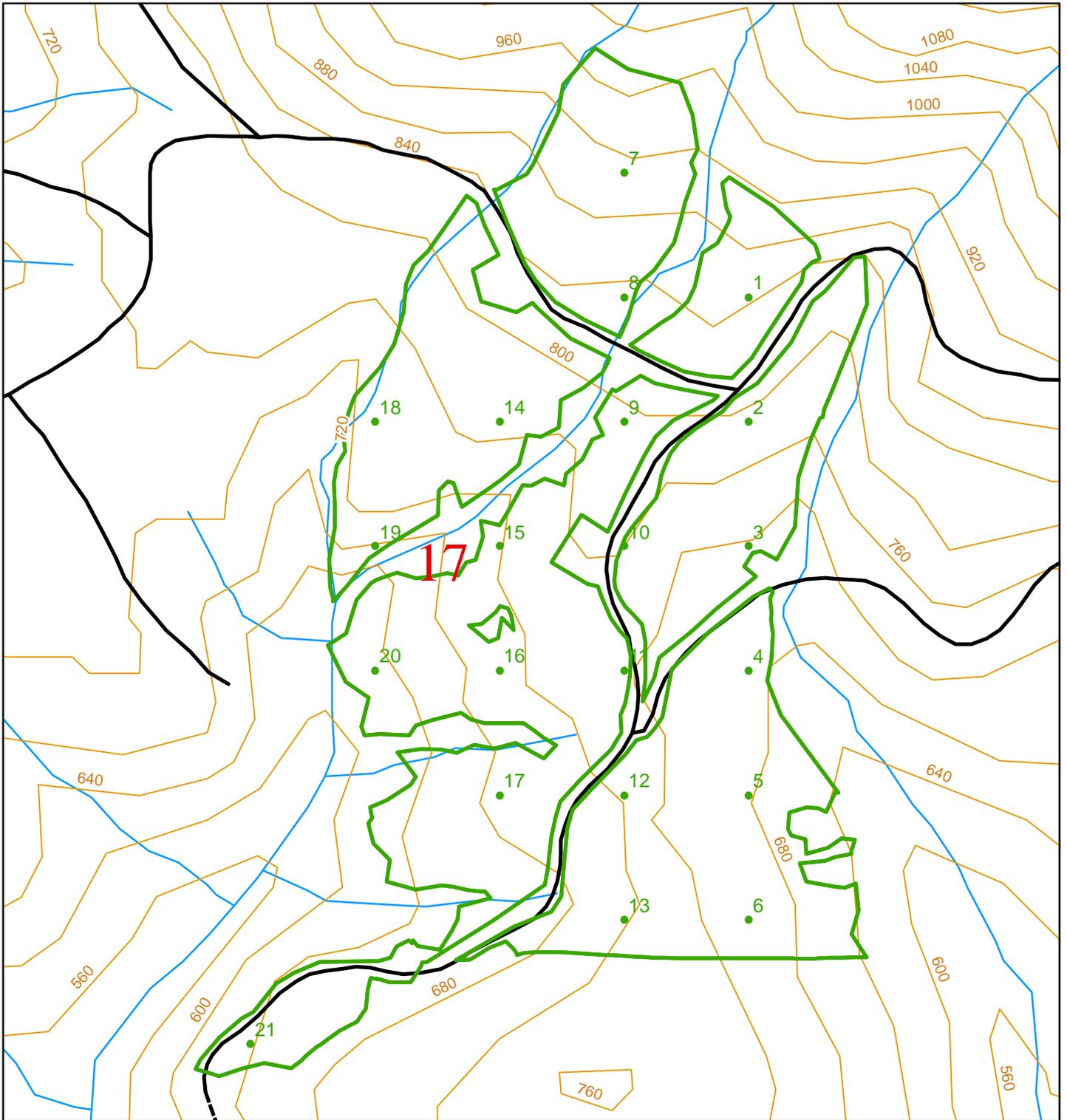
LAYER NAME:	maudified_vdt_unit_1	Township:	T25R11W
POLY ID:	1	Total Sample Points:	30
Acres:	66	Spacing Between Points:	325
		Point Rotation Degrees:	0



Scale 1:6,100

**Legend**

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



**Cruiser Sample Point Locations**

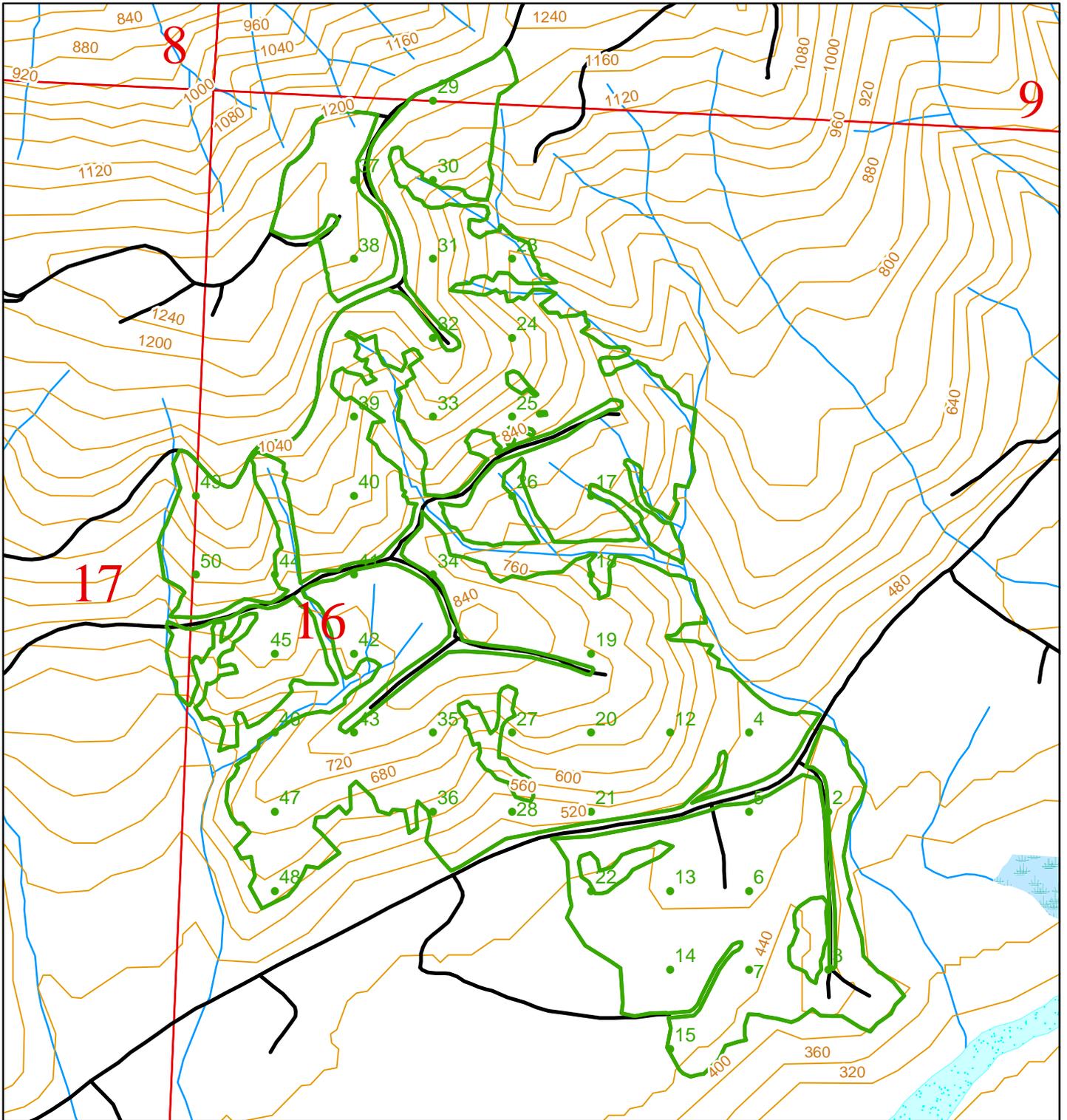
LAYER NAME:	maudified_vdt_unit_2	Township:	T25R11W
POLY ID:	1	Total Sample Points:	21
Acres:	28	Spacing Between Points:	250
		Point Rotation Degrees:	0



Scale 1:3,400

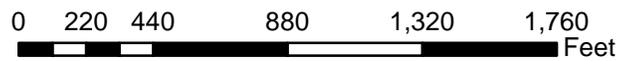
**Legend**

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot

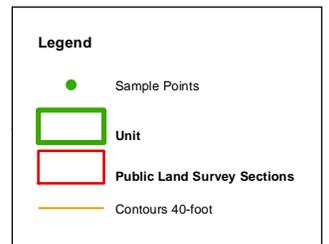


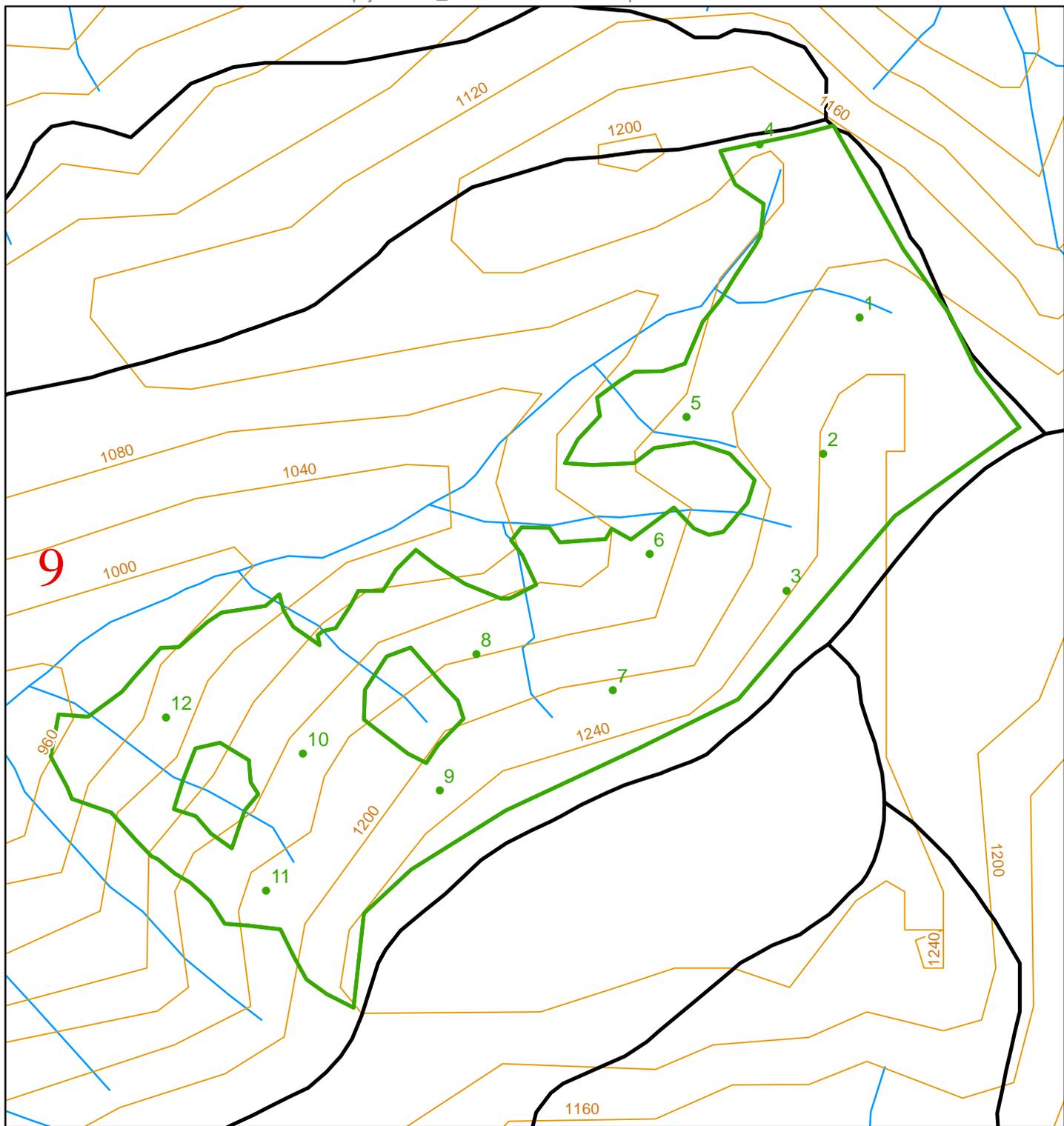
### Cruiser Sample Point Locations

LAYER NAME: maudified_vdt_unit_3.1	Township: T25R11W
POLY ID: 1	Total Sample Points: 51
Acres: 138	Spacing Between Points: 350
	Point Rotation Degrees: 0



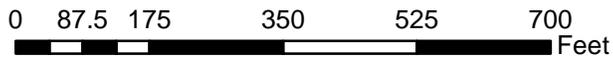
Scale 1:7,500





**Cruiser Sample Point Locations**

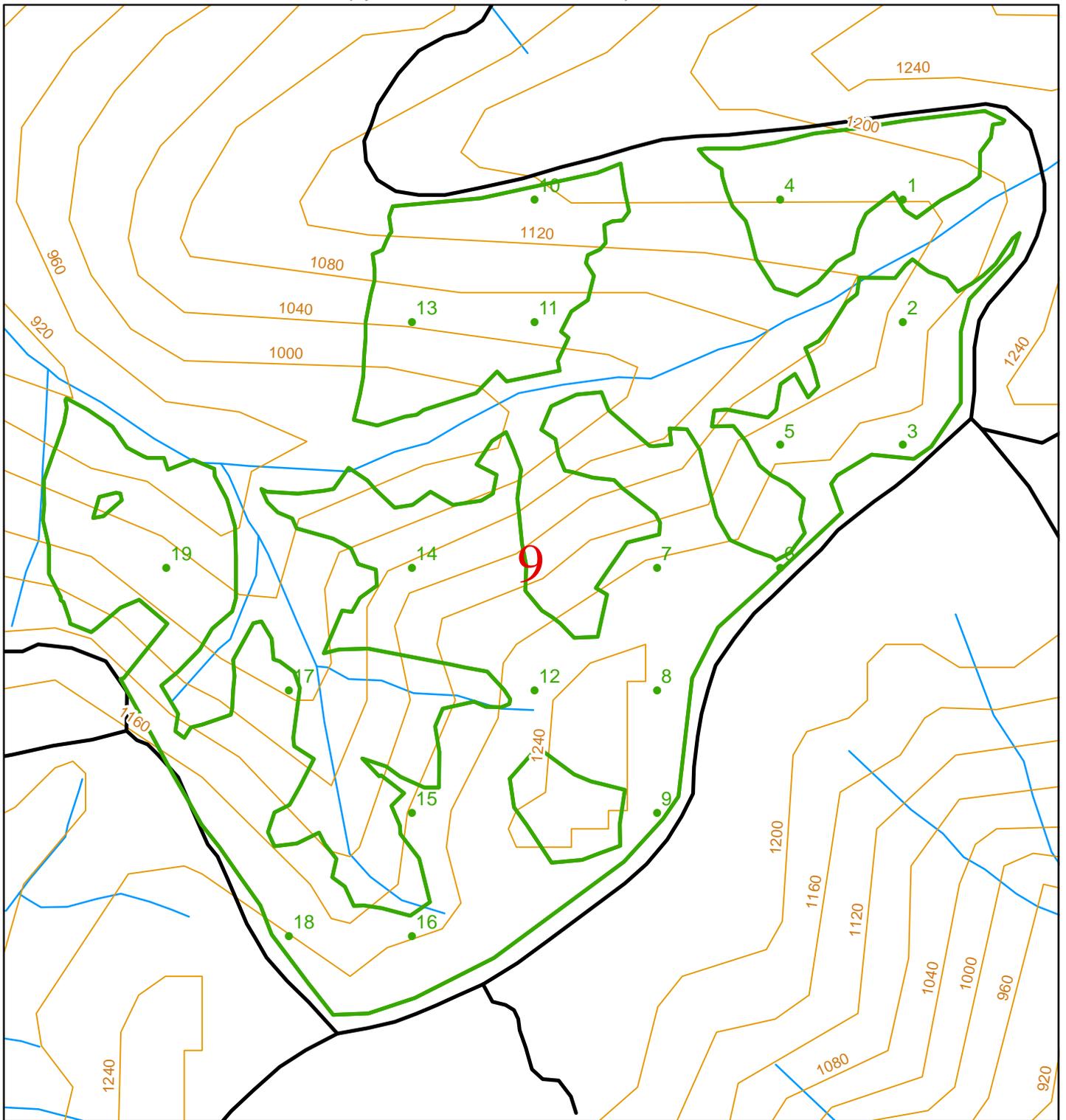
LAYER NAME:	maudified_vdt_unit_4	Township:	T25R11W
POLY ID:	1	Total Sample Points:	12
Acres:	18	Spacing Between Points:	250
		Point Rotation Degrees:	15



Scale 1:3,000

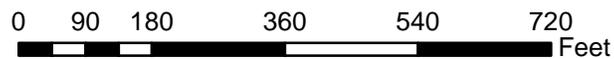
**Legend**

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



### Cruiser Sample Point Locations

LAYER NAME:	maudified_vdt_unit_5	Township:	T25R11W
POLY ID:	1	Total Sample Points:	19
Acres:	23	Spacing Between Points:	225
		Point Rotation Degrees:	0



Scale 1:3,100

**Legend**

- Sample Points
- Unit
- Public Land Survey Sections
- Contours 40-foot



**Appeal Information**

You have thirty (30) days to appeal this Decision and any related State Environmental Policy Act determinations to the Pollution Control Hearings Board in writing at the following addresses:

**Physical address: 1111 Israel Rd. SW, Ste 301, Tumwater, WA 98501**

**Mailing address: P.O. BOX 40903, OLYMPIA, WA 98504-0903**

Information regarding the Pollution Control Hearings Board can be found at: <http://www.eho.wa.gov/>

At the same time you file an appeal with the Pollution Control Hearings Board, also send a copy of the appeal to the Department of Natural Resources' region office and the Office of the Attorney General at the following addresses:

Office of the Attorney General  
Natural Resources Division  
1125 Washington Street SE  
PO Box 40100  
Olympia, WA 98504-0100

And

Department Of Natural Resources  
Olympic Region  
411 Tillicum Lane  
Forks, WA 98331

**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: <http://www.dnr.wa.gov/businesspermits/forestpractices>. Notify DNR of new Operators within 48 hours.

**Continuing Forest Land 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 forest land 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 land 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 forest land obligation, the seller must pay the buyer's costs related to continuing forest land obligations, including all legal costs and reasonable attorneys' fees incurred by the buyer in enforcing the continuing forest land obligation against the seller.

Failure by the seller to send the required notice to the 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 forest land obligation prior to sale.

**DNR affidavit of mailing:**

On this day _____,	I placed in the United States mail at _____,	Forks	_____	WA,
(date)			(post office location)	
postage paid, a true and accurate copy of this document. Notice of Decision FPA # _____				
_____	_____			
(Printed name)		(Signature)		

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

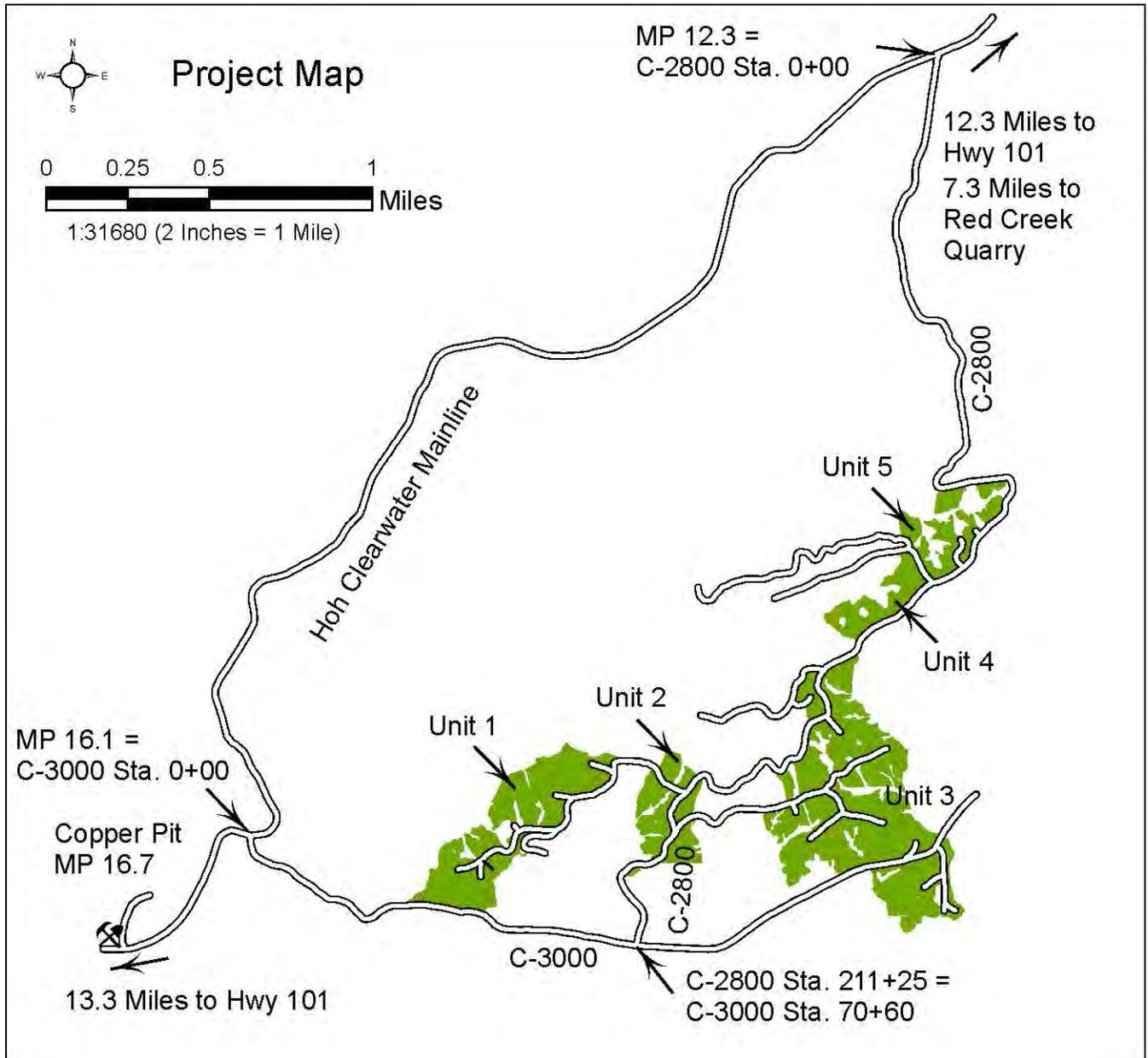
MAUDIFIED TIMBER SALE ROAD PLAN  
JEFFERSON COUNTY  
COAST DISTRICT

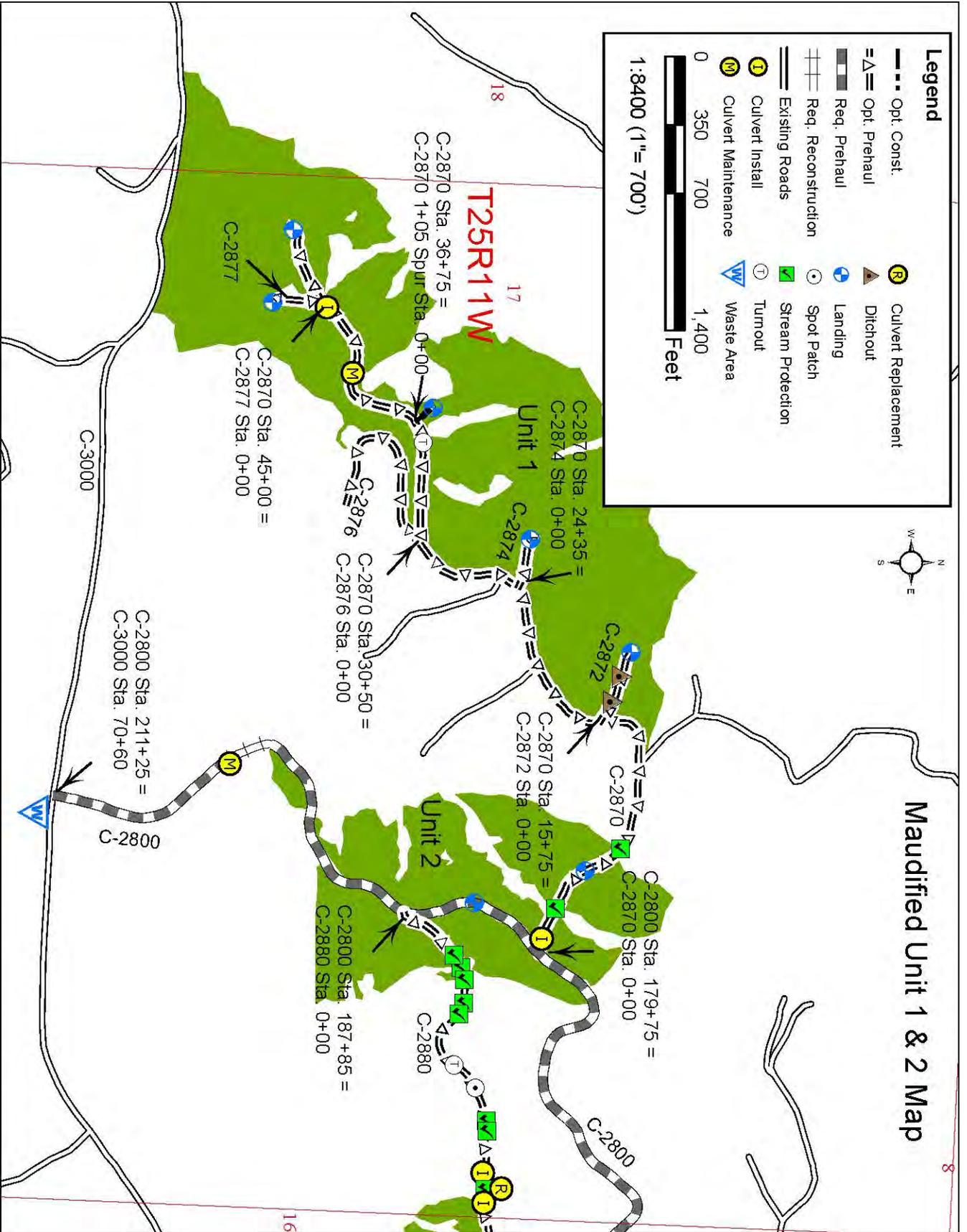
AGREEMENT NO.: 30-093480

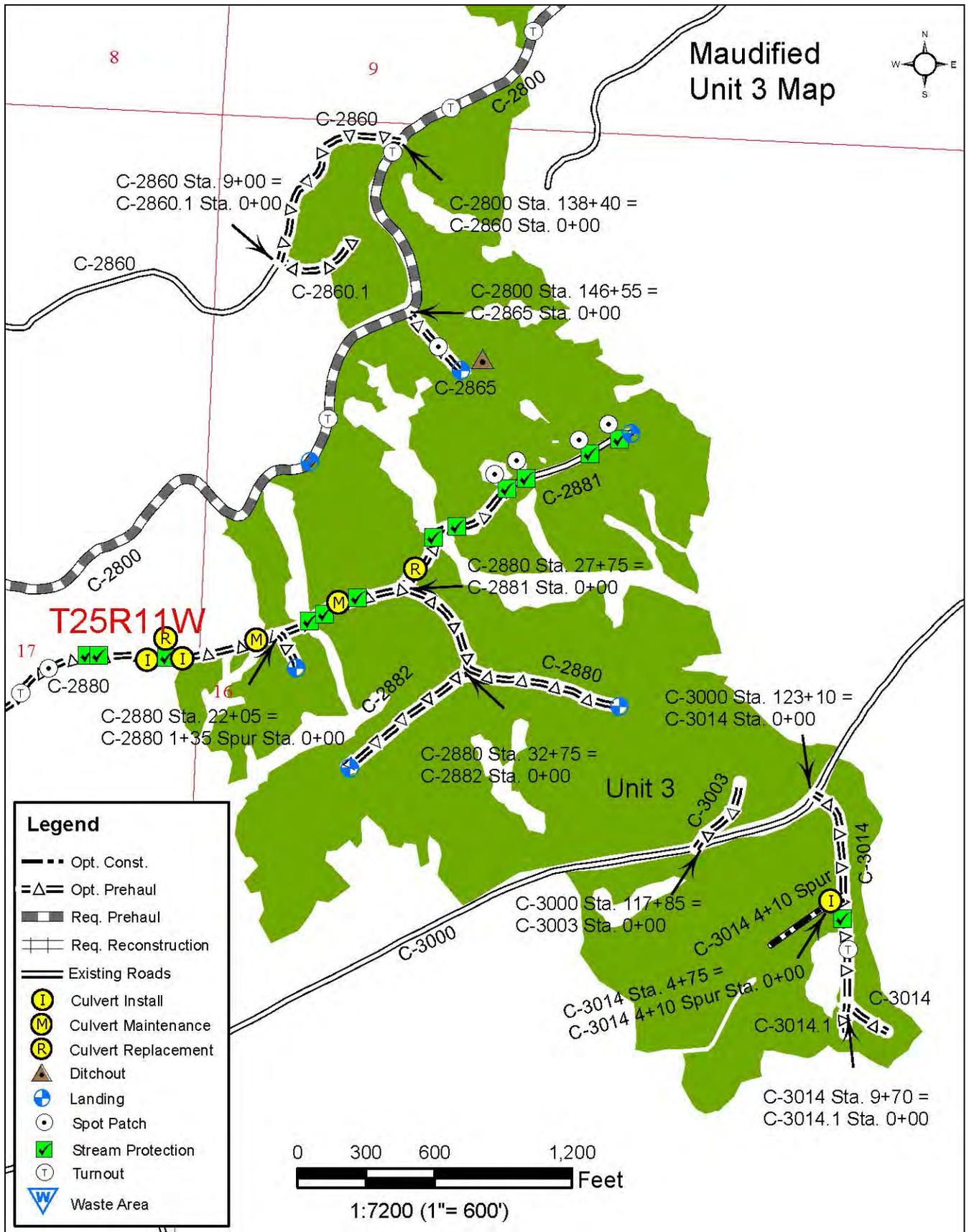
DISTRICT ENGINEER: BILL MEHL

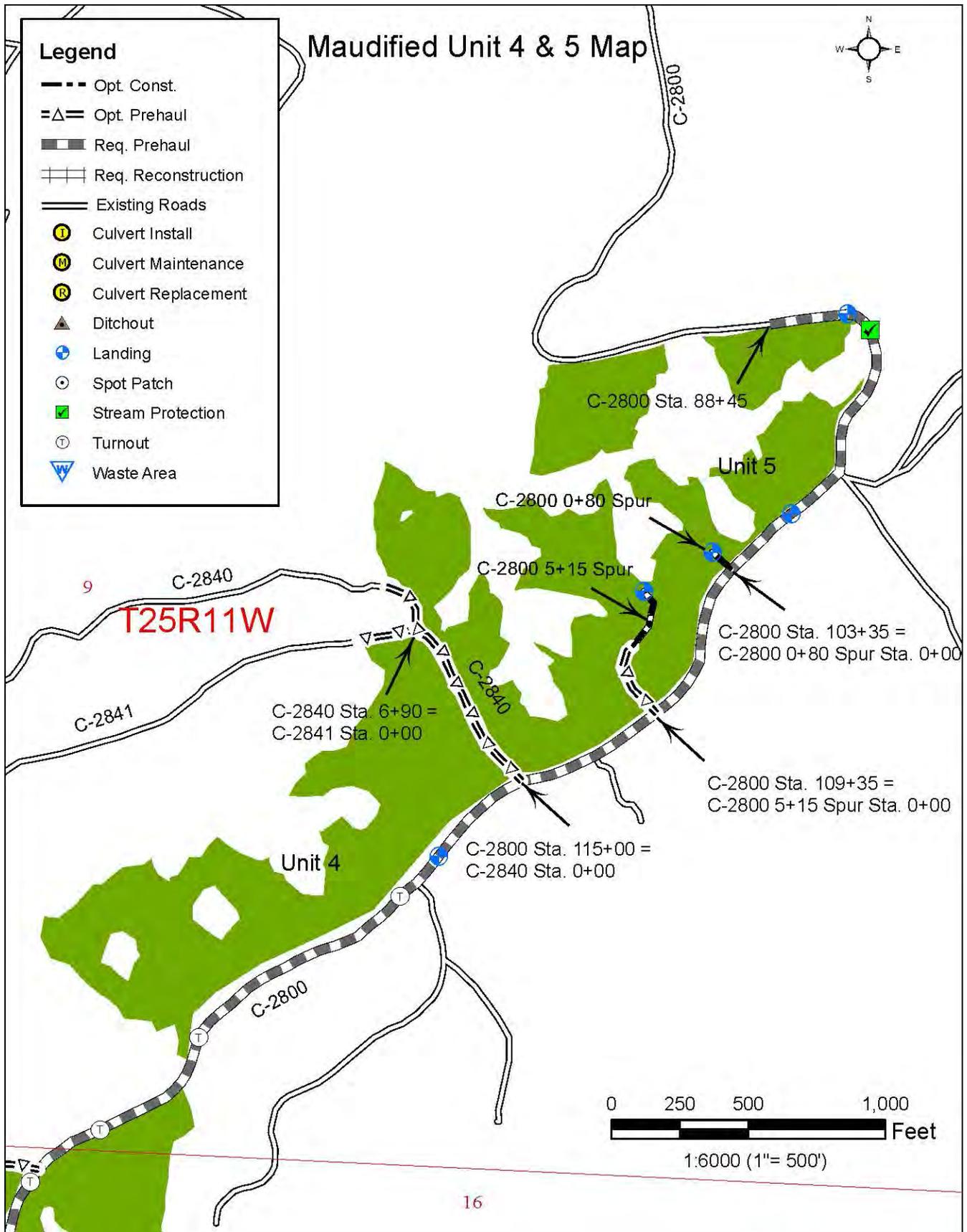
DATE: JANUARY 4, 2016

DRAWN & COMPILED BY: GREG ELLIS

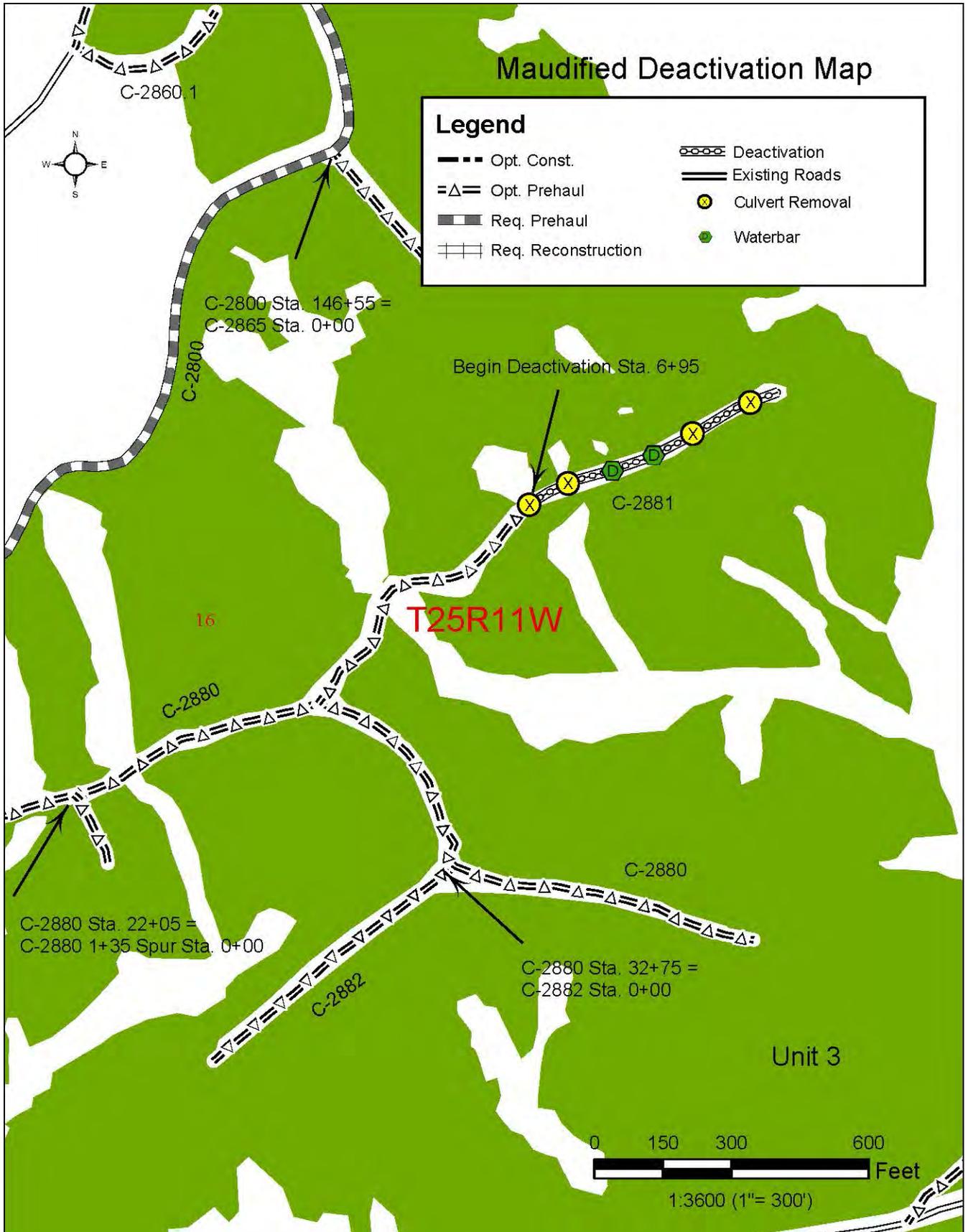








# Maudified Deactivation Map



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>
C-2800	88+45 – 211+25	Pre-Haul Maintenance/Reconstruction

**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>
C-2800 0+80 Spur	0+00 – 0+80	Construction
C-2800 5+15 Spur	0+00 – 2+60	Pre-Haul Maintenance
C-2800 5+15 Spur	2+60 – 5+15	Construction
C-2840	0+00 – 8+90	Pre-Haul Maintenance
C-2841	0+00 – 2+15	Pre-Haul Maintenance
C-2860	0+00 – 9+00	Pre-Haul Maintenance
C-2860.1	0+00 – 3+60	Pre-Haul Maintenance
C-2865	0+00 – 3+30	Pre-Haul Maintenance
C-2870	0+00 – 49+50	Pre-Haul Maintenance
C-2870 1+05 Spur	0+00 – 1+05	Construction
C-2872	0+00 – 4+30	Pre-Haul Maintenance
C-2874	0+00 – 2+75	Pre-Haul Maintenance
C-2876	0+00 – 8+25	Pre-Haul Maintenance
C-2877	0+00 – 2+85	Pre-Haul Maintenance
C-2880	0+00 – 39+25	Pre-Haul Maintenance
C-2880 1+35 Spur	0+00 – 1+35	Pre-Haul Maintenance
C-2881	0+00 – 13+25	Pre-Haul Maintenance
C-2882	0+00 – 6+85	Pre-Haul Maintenance
C-3003	0+00 – 3+15	Pre-Haul Maintenance
C-3014	0+00 – 11+50	Pre-Haul Maintenance
C-3014 4+10 Spur	0+00 – 4+10	Construction
C-3014.1	0+00 – 1+00	Pre-Haul Maintenance

**0-4 CONSTRUCTION**

This project includes, but is not limited to the following construction requirements:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
C-2800 0+80 Spur	0+00 – 0+80	See Below
C-2800 5+15 Spur	2+60 – 5+15	See Below

C-2870 1+05 Spur	0+00 – 1+05	See Below
C-3014 4+10 Spur	0+00 – 4+10	See Below

Construction includes, but is not limited to:

Clearing, grubbing, right-of-way debris disposal, excavation and/or embankment to subgrade, end hauling material for construction, constructing ditchlines, constructing ditchouts, constructing turnouts and turnarounds, curve widening, acquisition and installation of drainage structures, application of rock, compaction, spreading grass seed and hay.

#### 0-5 RECONSTRUCTION

This project includes, but is not limited to the following reconstruction requirements:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
C-2800	200+25 – 202+85	Widen road into hillside as marked in the field and per attached drawing, endhaul waste material as per Clause 4-37, apply rock as per Rock List, construct ditch line, grade and compact existing and new road surface.

Reconstruction includes, but is not limited to:

Installing additional culverts, realigning road segments, application of rock, removing culverts.

#### 0-6 PRE-HAUL MAINTENANCE

This project includes, but is not limited to the following prehaul maintenance requirements:

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
C-2800	88+45 – 211+25 (excluding 200+25 – 202+85)	Grade, shape and compact existing running surface as directed by contract administrator, apply rock as per rock list, clean/construct ditch lines, add turnouts and repair road at slide location.
C-2800 5+15 Spur	0+00 – 2+60	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list.
C-2840	0+00 – 8+90	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list, clean/construct ditch lines in accordance with Clause 2-7, and Brush Road.
C-2841	0+00 – 2+15	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running

		surface, apply rock as per Rock list, and clean/construct ditch lines in accordance with Clause 2-7.
C-2860	0+00 – 9+00	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list, and Brush Road.
C-2860.1	0+00 – 3+60	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface and apply rock as per Rock list.
C-2865	0+00 – 3+30	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list, and clean/construct ditch lines in accordance with Clause 2-7.
C-2870	0+00 – 49+50	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list, install culvert as per culvert list and add turnout.
C-2872	0+00 – 4+30	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list, clean/construct ditch lines in accordance with Clause 2-7.
C-2874	0+00 – 2+75	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list.
C-2876	0+00 – 8+25	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list.
C-2877	0+00 – 2+85	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list.

C-2880	0+00 – 39+25	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list, install culverts as per culvert list, clean/construct ditch lines in accordance with Clause 2-7, and add turnout.
C-2880 1+35 Spur	0+00 – 1+35	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list.
C-2881	0+00 – 13+25	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list, install culverts as per culvert list and clean/construct ditch lines in accordance with Clause 2-7.
C-2882	0+00 – 6+85	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface and apply rock as per Rock list.
C-3003	0+00 – 3+15	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list and clean/construct ditch lines in accordance with Clause 2-7.
C-3014	0+00 – 11+50	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface, apply rock as per Rock list and clean/construct ditch lines in accordance with Clause 2-7.
C-3014.1	0+00 – 1+00	Remove all vegetative material with a minimum loss of rock and dispose of in accordance with Clause 4-38, grade, shape and compact existing running surface and apply rock as per Rock list.

Maintenance includes, but is not limited to:

Brushing right-of-way, right-of-way debris disposal, cleaning ditches, constructing ditches, installing additional culverts, widening road segments, constructing headwalls, cleaning culvert inlets and outlets, cross drain culvert replacement, installing erosion control materials and

sediment removal structures, spot rocking, grading and shaping existing road surface and turnouts, constructing additional turnouts, compaction of road surface, application of rock, acquisition and application of grass seed and hay.

**0-7 POST-HAUL MAINTENANCE**

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

**0-9 DEACTIVATION**

This project includes, but is not limited to deactivation listed in Clause 9-20 ROAD DEACTIVATION.

**0-13 STRUCTURES**

The Purchaser shall acquire and install all structures. Requirements for these structures are listed in Section 7 Structures.

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 shall be submitted, in writing, to the Contract Administrator for consideration. The State must approve the submitted plans before road work begins.

**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**

Unless controlled by construction stakes or design data (plan, profile, and cross-sections), road work shall be performed in accordance with the dimensions shown on the Typical Section Sheet and the specifications within this Road Plan.

**1-6 ORDER OF PRECEDENCE**

Any conflict or inconsistency in this Road Plan shall 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.

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**

The Purchaser is responsible for the repair or replacement of all materials, roadway infrastructure, and road components damaged during roadwork or operation activities. Repairs and replacements shall be directed by the Contract Administrator. Repairs to structural materials will be made according to the manufacturer's recommendation, and shall not begin without written approval from the Contract Administrator.

**1-9 DAMAGED METALLIC COATING**

Any 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.

**1-10 WSDOT STANDARD SPECIFICATION REFERENCE**

References in this road plan to "WSDOT Standard Specifications" mean the Washington State Department of Transportation's Standard Specifications for Road, Bridge, and Municipal Construction 2012 (M41-10).

**1-11 FPA/HPA REQUIREMENTS**

The following work is subject to requirements under a Forest Practice Hydraulics Project Approval issued by the State of Washington.

<u>Road</u>	<u>Stations</u>	<u>Work Type</u>
C-2880	17+00	Culvert Replacement
C-2881	5+80 – 12+10	Culvert removal from live streams

**1-12 SURVEY MONUMENTS**

At no time during construction, reconstruction, or maintenance shall survey monuments, witness trees, or bearing trees be disturbed or damaged. If damaged or disturbed, Purchaser shall hire a licensed land surveyor to repair, replace, and/or reset them.

**1-14 NON-SALE ASSOCIATED CLOSURE**

Culvert and fill replacement work is currently scheduled to take place on the Hoh Clearwater Mainline (approximately MP 22.3) sometime during the hydraulic seasons of 2016, which may result in the road being closed for the whole hydraulic season. State shall give at least 2 weeks notice to Purchaser before closure begins.

Culvert and fill replacement work is currently scheduled to take place on the C-3000 sometime during the hydraulic seasons of 2017 through 2018, which may result in the road being closed for the whole hydraulic season. State shall give at least 2 weeks notice to Purchaser before closure begins.

## SUBSECTION ROAD MARKING

### 1-15 ROAD MARKING

Road work must be in accordance with the State's marked location. All road work is marked as follows:

- Orange ribbon and paint for construction centerlines.
- Construction stakes for everything else.

### 1-16 CONSTRUCTION STAKES SET BY STATE

Purchaser shall perform work on the following road(s) in accordance with the construction stakes and reference points set in the field for grade and alignment.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
C-2800	200+25 – 202+85	Top of Cut and Centerline Stakes

### 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.

## SUBSECTION TIMING

### 1-20 COMPLETE BY DATE

Purchaser shall complete pre-haul road work before the start of timber haul.

### 1-21 HAUL APPROVAL

The Purchaser shall not use roads under this Road Plan without written approval from the Contract Administrator.

### 1-22 WORK NOTIFICATIONS

On all roads, the Purchaser shall notify the Contract Administrator a minimum of 3 calendar days before work begins.

### 1-23 ROAD WORK PHASE APPROVAL

Written approval by Contract Administrator needs to be given at these phases of road work:

- Subgrade approval
- Drainage installation
- Subgrade compaction
- Rock application
- Rock compaction

**SUBSECTION RESTRICTIONS**

**1-25 ACTIVITY TIMING RESTRICTION**

On the following road(s), the specified activities are not permitted 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>
C-2881	All	All	October 15 <sup>th</sup> – April 15 <sup>th</sup>

**1-26 OPERATING DURING CLOSURE PERIOD**

If permission is granted to operate during a closure period listed in Clause 1-25 Activity Timing Restriction, the Purchaser shall provide a maintenance plan to include further protection of State resources. The Contract Administrator must approve the maintenance plan in writing, and preventative measures shall be put in place, before operation in the closure period. The Purchaser shall be 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 shall be developed. All parties shall follow this plan.

**1-27 TIMING RESTRICTION FOR MARBLED MURRELET**

On the following road(s), any road work, right-of-way timber falling and yarding, rock pit operations, or operation of heavy equipment is not permitted from one hour before official sunrise to two hours after official sunrise, and from one hour before official sunset to one hour after official sunset from April 1 through September 23. This restriction does not apply to the hauling of timber, rock, or equipment.

<u>Road</u>	<u>Stations</u>
C-2800	159+45 – 181+15, 184+40 – 211+25
C-2880	0+00 – 19+50
C-3000	0+00 – 36+25, 72+25 – 94+10
C-3014	9+50 – 11+50
C-3014.1	0+00 – 1+00

**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 shall suspend road work or hauling of right-of-way timber, forest products, or rock under the following conditions:

- 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, the Purchaser will be required to cease operations, or perform

corrective maintenance or repairs, subject to specifications within this Road Plan. Before and during any suspension, the Purchaser shall protect the work from damage or deterioration.

**1-33 SNOW PLOWING RESTRICTION**

On all roads, snow plowing shall be permitted only after the execution of a Snow Plowing Agreement, which is available from the Contract Administrator upon request. Purchaser shall request a Snow Plowing Agreement each time plowing occurs. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

SUBSECTION OTHER INFRASTRUCTURE

**1-41 REQUIREMENTS FOR PAVED ROAD APPROACHES**

Requirements for the C-2800 to the C-3000 and Hoh Clearwater mainline road approaches:

Purchaser shall build up approaches to allow a smooth grade transition between the C-2800 and C-3000/Hoh Clearwater mainline roads. The top of the C-2800 road surfacing must be kept level with the surface of the C-3000/Hoh Clearwater mainline roads at all times. The surface of the C-2800 approach must slope up from the edge of the C-3000/Hoh Clearwater mainline roads at the rate of no more than 2%, unless otherwise directed by the Contract Administrator.

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.

**2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER**

Purchaser may be required to perform maintenance on roads listed in Contract Clause C-060 DESIGNATED ROAD MAINTAINER as directed by the Contract Administrator. Purchaser shall maintain roads in accordance with FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

**2-4 PASSAGE OF LIGHT VEHICLES**

Purchaser shall maintain the following road(s) in a condition that will allow the passage of light administrative vehicles.

<u>Road</u>	<u>Stations</u>
C-2800	All

**2-5 MAINTENANCE GRADING – EXISTING ROAD**

On the following road(s), a grader shall be used to shape the existing surface.

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
C-2800	88+45 – 211+25	Grade, shape, compact and remove shoulder vegetation as required by contract administrator.
C-2800 5+15 Spur	0+00 – 2+60	Grade, shape, compact and remove shoulder vegetation.
C-2840	0+00 – 8+90	Grade, shape, compact and remove shoulder vegetation.
C-2841	0+00 – 2+15	Grade, shape, compact and remove shoulder vegetation.
C-2860	0+00 – 9+00	Grade, shape, compact and remove shoulder vegetation.
C-2860.1	0+00 – 3+60	Grade, shape, compact and remove shoulder vegetation.
C-2865	0+00 – 3+30	Grade, shape, compact and remove shoulder vegetation.
C-2870	0+00 – 49+50	Grade, shape, compact and remove shoulder vegetation as required by contract administrator.
C-2872	0+00 – 4+30	Grade, shape, compact and remove shoulder vegetation.
C-2874	0+00 – 2+75	Grade, shape, compact and remove shoulder vegetation.
C-2876	0+00 – 8+25	Grade, shape, compact and remove shoulder vegetation.
C-2877	0+00 – 2+85	Grade, shape, compact and remove shoulder vegetation.
C-2880	0+00 – 39+25	Grade, shape, compact and remove shoulder vegetation.
C-2880 1+35 Spur	0+00 – 1+35	Grade, shape, compact and remove shoulder vegetation.
C-2881	0+00 – 13+25	Grade, shape, compact and remove shoulder vegetation.
C-2882	0+00 – 6+85	Grade, shape, compact and remove shoulder vegetation.
C-3003	0+00 – 3+15	Grade, shape, compact and remove shoulder vegetation.
C-3014	0+00 – 11+50	Grade, shape, compact and remove shoulder vegetation.
C-3014.1	0+00 – 1+00	Grade, shape, compact and remove shoulder vegetation.

**2-6 CLEANING CULVERTS**

On the following road(s), all inlets and outlets of culverts shall be cleaned before the start of timber haul and shall be subject to the written approval of the Contract Administrator.

<u>Road</u>	<u>Stations</u>
C-2800	202+75
C-2870	41+20
C-2880	21+00

**2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS**

On the following road(s), Purchaser shall clean and/or construct the ditches, headwalls, and catch basins. Work shall be completed before the start of timber haul and shall be done in accordance with the Typical Section Sheet. Pulling ditch material across the road or mixing in with the road surface will not be allowed. Ditchlines, headwalls, and catch basins shall not encroach into the existing road.

<u>Road</u>	<u>Stations</u>	<u>Left or Right</u>	<u>Comments</u>
C-2800	180+25 – 181+25	Right	Ditching
C-2840	0+00 – 8+90	Left	Ditching
C-2841	0+00 – 2+15	Right	Ditching
C-2865	0+00 – 3+30	Left	Ditching
C-2872	0+25 – 2+70	Right	Ditching
C-2872	1+25 – 1+40	Left	Ditching
C-2880	0+00 – 2+00	Left	Ditching
C-2880	3+40	Left	Catch Basin
C-2880	4+80	Left	Catch Basin
C-2880	6+70	Left	Catch Basin
C-2880	14+00	Left	Catch Basin
C-2880	24+15	Left	Catch Basin
C-2880	25+40	Left	Catch Basin
C-2880	13+75 – 15+00	Left	Ditching
C-2881	2+00 – 2+75	Left	Ditching
C-2881	2+50	Left	Catch Basin
C-2881	3+85	Left	Catch Basin
C-3003	0+00 – 3+15	Left	Ditching
C-3014	1+00 – 4+75	Right	Ditching
C-3014	6+00	Right	Catch Basin

**2-9 REMOVING VEGETATIVE MATERIAL**

On the following road(s), Purchaser shall remove all vegetative material, dirt, mud, and other debris on the existing road surface with a minimum loss of rock. Material removed shall be disposed of in accordance with Clause 4-36 through Clause 4-38.

<u>Road</u>	<u>Stations</u>
C-2800 5+15 Spur	0+00 – 2+60
C-2860.1	0+00 – 3+60
C-2865	0+00 – 3+30
C-2870	30+50 – 49+50
C-2872	0+00 – 4+30
C-2874	0+00 – 2+75
C-2877	0+00 – 2+85
C-2880	0+00 – 39+25
C-2880 1+35 Spur	0+00 – 1+35
C-2881	0+00 – 13+25
C-2882	0+00 – 6+85
C-3003	0+00 – 3+15
C-3014	0+00 – 11+50
C-3014.1	0+00 – 1+00

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

SUBSECTION BRUSHING

**3-1 BRUSHING**

On the following road(s), vegetative material up to 5 inches in diameter, including limbs, shall be cut as shown on the Brushing Detail. Brushing shall be achieved by mechanical cutting of brush, trees, and branches. Root systems and stumps of cut vegetation shall not be disturbed unless directed by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
C-2840	0+00 – 8+90
C-2860	0+00 – 9+00

**3-3 BRUSH REMOVAL**

Remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets. Brush should be disposed of so that it will not fall back onto the road prism.

SUBSECTION CLEARING

**3-5 CLEARING**

Purchaser shall fall all vegetative material larger than 5 inches DBH or over 15 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.

**3-7 RIGHT-OF-WAY DECKING**

Deck all merchantable right-of-way timber. Decks shall be parallel to the road centerline and placed within the cleared right-of-way. Decks shall be free of dirt, limbs and other right-of-way debris, and removable by standard log loading equipment.

**3-8 PROHIBITED DECKING AREAS**

Right-of-way timber shall not be decked 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 unless approved by the Contract Administrator.

## SUBSECTION GRUBBING

### 3-10 GRUBBING

Remove all stumps between the grubbing limits specified on the Typical Section Sheet. Those stumps outside the grubbing limits but with undercut roots shall also be removed. Stump removal shall be accomplished using a hydraulic mounted excavator unless authorized, in writing, by the Contract Administrator. Grubbing shall be completed before starting excavation and embankment.

### 3-12 STUMP PLACEMENT

Grubbed stumps shall be placed outside of the clearing limits, as directed by the Contract Administrator and in compliance with all other clauses in this road plan. Stumps shall be positioned upright with root wads in contact with the forest floor and on stable locations.

### 3-13 STUMPS FOR PUNCHEON MATERIAL

On the following road(s), stumps from within the grubbing limits may be overturned and driven flush with the ground surface for use as subgrade puncheon material.

<u>Road</u>	<u>Stations</u>
C-2800 0+80 Spur	0+00 – 0+80
C-2800 5+15 Spur	2+60 – 5+15
C-2870 1+05 Spur	0+00 – 1+05
C-3014 4+10 Spur	0+00 – 4+10

## SUBSECTION ORGANIC DEBRIS

### 3-20 ORGANIC DEBRIS DEFINITION

Organic debris is defined as all vegetative material not eligible for removal by Contract Clauses 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 grubbing Typical Section Sheet.

### 3-21 DISPOSAL COMPLETION

All disposal of organic debris, shall be completed before the application of rock.

### 3-23 PROHIBITED DISPOSAL AREAS

Organic debris shall not be deposited in the following areas:

- Within 5 feet of a cross drain culvert.
- Within 50 feet of a live stream, or wetland.
- On road subgrades road prism excavation and embankment slopes.
- On slopes greater than 45%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush will fall into the ditch or onto the road surface.
- Against standing timber.

**3-24 BURYING ORGANIC DEBRIS RESTRICTED**

Organic debris shall not be buried unless otherwise stated in this Road Plan.

**3-25 SCATTERING ORGANIC DEBRIS**

Organic debris shall be scattered outside of the grubbing limits in accordance with Clause 3-23 unless otherwise detailed in this Road Plan and as directed by the Contract Administrator.

**SECTION 4 – EXCAVATION**

**4-1 EXCAVATOR CONSTRUCTION**

All roads shall be constructed, reconstructed, and maintained using a track mounted hydraulic excavator unless stated otherwise within this Road Plan, or permission to do otherwise is granted in writing by the Contract Administrator.

**4-2 PIONEERING**

Pioneering shall not extend past construction that will be completed during the current construction season. Pioneering shall not extend more than 1000 feet beyond completed construction unless approved in writing by the Contract Administrator. In addition, the following actions shall be taken as pioneering progresses:

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

**4-3 ROAD GRADE AND ALIGNMENT STANDARDS**

The following road grade and alignment standards shall be followed:

- Grade and alignment shall have smooth continuity, without abrupt changes in direction.
- Maximum grade shall not exceed 18 percent favorable and 16 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Sag vertical curves shall not have a grade change greater than 5% in 100 feet.
- Crest vertical curves shall not have a grade change greater than 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.

The following standards for switchbacks shall be followed:

- Adverse grades on switchbacks shall not exceed 10%.
- Favorable grades through switchbacks shall not exceed 12%.
- Transition grades entering and leaving switchbacks shall not exceed a 5% grade change.
- Transition grades required to meet switchback grade limitations shall be constructed on the tangents preceding and departing from the switchbacks.

**4-5 CUT SLOPE RATIO**

Unless construction staked or designed excavation slopes shall be constructed no steeper than shown on the following table:

<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**

Unless construction staked or designed embankment slopes shall be constructed no steeper than shown on the following table:

<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**

Excavation and embankment slopes shall be constructed 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.

**4-12 FULL BENCH CONSTRUCTION**

On all roads, where side slopes exceed 45%, full bench construction shall be utilized for the entire subgrade width.

**SUBSECTION INTERSECTIONS, TURNOUTS AND TURNAROUNDS**

**4-21 TURNOUTS**

Turnouts shall be intervisible with maximum of 1,000 feet between turnouts unless shown otherwise on drawings. Locations shall be adjusted to fit the final subgrade alignment and sight distances. Turnout locations shall be subject to written approval by the Contract Administrator.

**4-22 TURNAROUNDS**

Turnarounds shall be no larger than 50 feet long and 30 feet wide. Locations shall be subject to written approval by the Contract Administrator.

SUBSECTION DITCH CONSTRUCTION

**4-25 DITCH CONSTRUCTION AND RECONSTRUCTION**

The Purchaser shall construct ditches into the subgrade as specified on the Typical Section Sheet. Excavated slopes shall be consistent with Clause 4-5 Cut Slope Ratio. Ditches shall be constructed concurrently with construction of the subgrade.

**4-27 DITCH WORK – MATERIAL USE PROHIBITED**

On all roads, pulling ditch material across the road or mixing in with the road surface will not be allowed. Excavated material shall be disposed of as specified in Clause 4-36 through Clause 4-38.

**4-28 DITCH DRAINAGE**

Ditches must drain to cross-drain culverts or ditchouts.

**4-29 DITCHOUTS**

Ditchouts shall be constructed at locations shown on the list below, and as needed to fit as built conditions. Ditchouts shall be constructed in a manner that diverts ditch water onto the forest floor and shall have excavation backslopes no steeper than a 1:1 ratio. L or R denotes ditchout left or ditchout right heading in.

<u>Road</u>	<u>Stations</u>	<u>Left or Right</u>
C-2865	3+30 (approx. 25')	Left
C-2872	1+40 (approx. 15')	Left
C-2872	2+70 (approx. 20')	Right

SUBSECTION WASTE MATERIAL (DIRT)

**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 45% if the waste material is compacted and free of organic debris. On side slopes greater than 45%, 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**

Waste material shall be deposited in the listed designated areas. The amount of material to be contained in a waste area shall be at the discretion of the Contract Administrator.

Note: All amount values are estimated bank yards.

<u>Waste Area Location</u>	<u>Waste Generated From Road</u>	<u>Waste Generated at Stations</u>	<u>Estimated Volume</u>
Spur off C-3000	C-2800	198+75 – 201+00	1000

**4-38 PROHIBITED WASTE DISPOSAL AREAS**

Waste material shall not be deposited in the following areas:

- Within 5 feet of a cross drain culvert.
- Within 50 feet of a live stream or wetland.
- Within a riparian management zone.
- On side slopes steeper than 45%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Within the operational area for cable landings.
- Against standing timber.

**4-39 WASTE AREA COMPACTION**

Excavated material may be deposited adjacent to the road prism on side slopes up to 45% if the waste material is compacted and free of debris. On side slopes of 45% or more, all excavation shall be end hauled or pushed to designated waste areas. All waste material shall be compacted. The minimum acceptable compaction is achieved by placing embankments in 2 foot or shallower lifts and routing excavation equipment over the entire width of the lifts, with the exception of side hill embankments too narrow to accommodate excavation equipment which may be placed by end-dumping or sidecasting until sufficiently wide to support the equipment.

SUBSECTION BORROW

**4-46 BALLAST MATERIAL**

Ballast Material shall consist of soil, and/or aggregate that is non-plastic and shall contain no more than 5% clay, organic debris, or trash by volume. The material is considered non-plastic if the fines (passes the U.S. #40 sieve) in the sample cannot be rolled between the hand and a smooth surface into a thread at any moisture content.

**4-47 NATIVE MATERIAL**

Native material shall be excavated material free of organic debris, trash, and rocks greater than 12" in any dimension.

**4-49 BALLAST SOURCE**

Ballast may be obtained from the listed ballast source(s). Development of the ballast source shall be in accordance with Ballast Source Detail.

<u>Source</u>	<u>Location</u>	<u>Yards</u>
Copper Pit	Hoh Clearwater Mainline	7670

## SUBSECTION SHAPING

### **4-55 ROAD SHAPING**

The road subgrade and surface shall be shaped as shown on the Typical Section Sheet. The subgrade and surface shape shall ensure runoff in an even, un-concentrated manner, and shall be uniform, firm, and rut-free.

### **4-56 DRY WEATHER SHAPING**

At any time of year, the Contract Administrator may require the application of water to facilitate shaping activities. The method of water application is subject to written approval by the Contract Administrator.

## SUBSECTION COMPACTION

### **4-60 FILL COMPACTION**

Purchaser shall compact all embankment and waste material in accordance with the Compaction List by routing equipment over the entire width of each lift. A plate compactor must be used for areas specifically requiring keyed embankment construction, and embankment segments too narrow to accommodate equipment.

### **4-61 SUBGRADE COMPACTION**

Purchaser shall compact constructed and reconstructed subgrades in accordance with the Compaction List by routing equipment over the entire width, except ditch. Purchaser shall obtain written approval from the Contract Administrator for subgrade compaction before placement of rock.

### **4-62 DRY WEATHER COMPACTION**

At any time of the year, the Contract Administrator may require the application of water to facilitate compaction activities. The method of water application is subject to written approval by the Contract Administrator.

### **4-63 EXISTING SURFACE COMPACTION**

Purchaser shall compact maintained road surfaces in accordance with the Compaction List by routing equipment over the entire width.

### **4-64 WASTE MATERIAL COMPACTION**

All waste material shall be compacted by running equipment over it or bucket tamping.

### **4-65 CULVERT BACKFILL COMPACTION**

Culvert backfills shall be accomplished by using a jumping jack compactor, performing at least 2 passes per lift, in lifts not to exceed 8 inches.

### **4-66 COMPACTION BY METHOD**

Compaction shall consist of three complete passes over the entire width of each lift with a vibratory drum roller weighing a minimum of 6,000 pounds at a maximum operating speed of 3 mph. For embankment segments too narrow to accommodate a drum roller, a plate compactor shall be used.

## SECTION 5 – DRAINAGE

### 5-3 PUNCHEON PLACEMENT

On the following road(s), puncheon can be utilized in the construction of the subgrade with the approval of the Contract Administrator. Puncheon shall consist of logs of at least 4 inches in diameter and shall be at least 17 feet long.

Road	Stations
C-2800 0+80 Spur	0+00 – 0+80
C-2800 5+15 Spur	2+60 – 5+15
C-2870 1+05 Spur	0+00 – 1+05
C-3014 4+10 Spur	0+00 – 4+10

## SUBSECTION CULVERTS

### 5-5 CULVERTS

Culverts shall be installed as part of this contract. Culverts shall be installed concurrently with subgrade work and shall be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the Culvert List. Culvert, downspout, and flume lengths shall be adjusted to fit as-built conditions and shall not terminate directly on unprotected soil. Culverts shall be new and meet the material specifications in Clauses 10-15 through 10-23.

### 5-11 UNUSED MATERIALS STATE PROPERTY

On required roads, any materials listed on the Culvert List and Rock List that are not installed shall become the property of the State. Purchaser shall stockpile materials as directed by the Contract Administrator.

## SUBSECTION CULVERT INSTALLATION

### 5-15 CULVERT INSTALLATION

Installation shall be in accordance with the Typical Cross Drain Culvert Installation Detail, Typical Type Ns Np Culvert Installation Detail, 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". Corrugated Polyethylene pipe shall be installed in a manner consistent with the manufacturer's recommendations.

### 5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

Installation of culverts 30 inches in diameter and over shall be subject to written approval by the District Engineer or their designee before backfilling.

**5-17 CROSS DRAIN SKEW AND SLOPE**

Cross drains on road grades in excess of 3% shall 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. Where the cross drain is at the low point in the road, culverts shall not be skewed. Cross drain culverts shall 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 shall be installed with a depth of cover of not less than 18 inches of compacted depth over the top of the culvert at the shallowest point. Stream crossing culverts shall be installed with a depth of cover specified in the Engineer's design, Type Ns Np Typical Detail Sheet, or to the minimum depth recommended by the culvert manufacturer for the type of cover material over the pipe, whichever is greater.

SUBSECTION ENERGY DISSIPATERS

**5-20 ENERGY DISSIPATERS**

Energy dissipaters shall be installed to prevent erosion and are subject to approval by the Contract Administrator. Rock shall weigh at least 10 pounds and be placed by zero-drop-height method. Energy dissipater shall extend a minimum of  $\frac{3}{4}$  foot to each side of the culvert at the outlet and a minimum of 2 feet beyond the outlet.

SUBSECTION CATCH BASINS, HEADWALLS, AND ARMORING

**5-25 CATCH BASINS**

Catch basins shall be constructed to resist erosion. Approximate dimensions are 1-2 feet deep, 1-2 feet wide, and 2-4 feet long.

**5-26 HEADWALLS FOR CROSS DRAIN CULVERTS**

Headwalls shall be constructed in accordance with the Typical Cross Drain Culvert Installation Detail at all cross drain culverts that specify the placement of rock. Rock used for headwalls shall consist of oversize or quarry spall material. Rock shall be placed on shoulders, slopes, and around culvert inlets and outlets. Rock shall not restrict the flow of water into culvert inlets or catch basins. No end dumping of rock is allowed.

SUBSECTION SURFACE DRAINAGE

**5-30 DRIVABLE WATERBAR CONSTRUCTION**

Purchaser shall construct drivable waterbars in accordance with the DRIVABLE WATERBAR DETAIL and as marked in the field. Drivable waterbars must be installed concurrently with construction of the subgrade and must be maintained in an operable condition.

<u>Road</u>	<u>Stations</u>
C-2800 5+15 Spur	0+05
C-2840	8+90
C-2841	2+15
C-2881	8+90
C-2881	9+95

SECTION 6 – ROCK AND SURFACING

SUBSECTION ROCK SOURCE

**6-2 ROCK SOURCE ON STATE LAND**

Rock used in accordance with the quantities on the Rock List may be obtained from the following source(s) on state land at no charge to the Purchaser. Use of material from any other source must have prior written approval from the Contract Administrator. If other operators are using, or desire to use, the rock source(s), a joint operating plan shall be developed. All parties shall follow this plan. The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before starting any operations in the listed locations.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Copper Pit	T25 R11W Sec18	Ballast Material

**6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE**

Rock used in accordance with the quantities on the Rock List may be obtained from the following existing stockpile(s) on state land at no charge to the Purchaser. Purchaser shall remove no more than 900 cubic yards of 1 ½" minus crushed rock from Copper Pit. Purchaser shall remove no more than 540 cubic yards of Light Loose Rip Rap rock from Red Creek Quarry.

<u>Source</u>	<u>Location</u>	<u>Quantity (yd<sup>3</sup>)</u>
Copper Pit (Crushed Rock)	T25 R11W Sec 18	900 yd <sup>3</sup>
Red Creek Quarry (Light Loose Rip Rap)	T27 R11W Sec 34	540 yd <sup>3</sup>

**6-5 ROCK FROM COMMERCIAL SOURCE**

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

## SUBSECTION ROCK SOURCE DEVELOPMENT

### 6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

All rock source development and use shall be in accordance with a written Rock Source Development and Reclamation Plan prepared by the State and included in this Road Plan. Rock source operations shall be conducted as directed by the Contract Administrator and in accordance with the plan. Upon completion of operations, the rock source shall be left in the condition specified in the Rock Source Development and Reclamation Plan, and approved in writing by the Contract Administrator. The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before starting any operations in the rock source.

### 6-12 ROCK SOURCE SPECIFICATIONS

Rock sources shall be in accordance with the following unless otherwise specified in Rock Source Development and reclamation plan:

- Pit walls shall not be undermined or over-steepened. The maximum slope of the walls shall 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 shall be maintained in a condition to minimize the possibility of the walls sliding or failing.
- The width of pit benches shall be a minimum of 1.5 times the maximum length of the largest machine used.
- The surface of pit floors and benches shall be uniform and free-draining at a minimum 2% outslope gradient.
- All operations shall 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.
- Block all vehicle access to the top of the pit faces.

## SUBSECTION ROCK GRADATIONS

### 6-29 1 ½-INCH MINUS CRUSHED ROCK

% Passing 1 ½" square sieve	100%
% Passing 1" square sieve	50 - 85%
% Passing U.S. #4 sieve	30 - 50%
% Passing U.S. #40 sieve	16% maximum
% Passing U.S. #200 sieve	5% maximum

The portion of aggregate retained on the No. 4 sieve shall not contain more than 0.2% organic debris and trash. All percentages are by weight.

### 6-50 LIGHT LOOSE RIP RAP

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

<u>At Least/Not More Than</u>	<u>Weight Range</u>	<u>Size Range</u>
20% / 90%	300 lbs. to 1 ton	12" - 36"

## SUBSECTION ROCK MEASUREMENT

### 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 Rock List are estimated truck 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.

## SUBSECTION ROCK APPLICATION

### 6-70 APPROVAL BEFORE ROCK APPLICATION

Subgrade drainage installation including grading and compaction, shall be completed and approved in writing by the Contract Administrator, before rock application.

### 6-71 ROCK APPLICATION

Rock shall be applied in accordance with the specifications and quantities shown on the Rock List. Rock shall be spread, shaped, and compacted full-width concurrent with rock hauling operations. Rock shall be compacted in accordance with Compaction List, in lifts not to exceed 6 inches.

**6-72 ROCK APPLICATION AFTER HAULING**

On the following road(s), upon completion of all hauling operations, Purchaser shall apply 1 1/2" minus crushed rock in accordance with the quantities shown on the Rock List.

<u>Road</u>	<u>Stations</u>	<u>Amount</u>
C-2800	88+45 – 211+25	300 yd <sup>3</sup>

**6-73 ROCK FOR WIDENED PORTIONS**

Turnarounds, turnouts, and areas with curve widening shall have rock applied to the same depth and specifications as the traveled way.

**6-78 ROCK FOR SPOT PATCHING**

Rock for spot patching shall be applied before any grading is done and before any rock lifts are applied. Once applied, spot patches shall be graded into the existing running surface.

**SECTION 7 – STRUCTURES**

**SUBSECTION STREAM CROSSING STRUCTURES GENERAL**

**7-5 STRUCTURE DEBRIS**

The Purchaser shall ensure that debris from the installation or removal of structures does not enter any stream. Components removed from the existing structures(s) shall be placed at designated site(s), as directed in writing by the Contract Administrator. The Purchaser is responsible for maintaining a clean jobsite, with all materials stored away from any high water mark or other area presenting a risk of the materials entering a stream. Debris entering any stream shall be removed immediately and placed in the site(s) designated for stockpiling or disposal. The Purchaser is responsible for retrieving all material carried downstream from the jobsite by the stream current.

## SUBSECTION LARGE CULVERTS

### 7-55 LARGE CULVERT INSTALLATION

On the following road(s), Purchaser shall install large culverts as specified below. The installation of the culvert shall follow the appropriate detail sheet. Culvert designs shall meet or exceed the following specifications:

<u>Road</u>	C-2880
<u>Station</u>	17+00
<u>Type</u>	Steel
<u>Material and Coating Type*</u>	Galvanized
<u>Span (in.)</u>	36
<u>Rise (in.)</u>	36
<u>Length (ft.)</u>	40
<u>Depth of Cover Material (ft.)</u>	1.5 min
<u>Corrugations</u>	2 2/3" x 1/2"
<u>Gauge</u>	14

\* See Clause 10-15 Corrugated Steel Culvert or Clause 10-18 Corrugated Steel Structural Plate

### 7-56 STEEL PIPE, PIPE ARCH, AND STRUCTURAL PLATE INSTALLATION

Steel pipe, pipe arches, and structural plate culverts shall be installed according to the National Corrugated Pipe Association Installation Manual, and are subject to the inspection and approval of the Contract Administrator before placement and backfill. The latest edition of the NCSPA Installation Manual can be found at [www.ncspa.org](http://www.ncspa.org).

### 7-57 CULVERT SHAPE CONTROL

Purchaser shall monitor the culvert shape during backfill and compaction. Special attention shall be paid to maintaining the structure's rise dimensions, concentricity and smooth, uniform curvature. If compaction methods are resulting in peaking and/or deflection of the culvert, Purchaser shall, in consultation with the District Engineer or their designee, modify their compaction method to achieve the appropriate end-result. The National Corrugated Steel Pipe Association "Installation Manual for Corrugated Steel Pipe, Pipe Arches, and Structural Plate" includes guidance on how to monitor culvert shape control and recommends corrective actions to take when shape control problems arise.

SECTION 8 – EROSION CONTROL

**8-1 SEDIMENT CONTROL STRUCTURES**

On the following road(s), sediment control shall be accomplished as listed below.

<u>Road</u>	<u>Stations</u>	<u>Left or Right</u>	<u>Comments</u>
C-2800	92+80	Left and Right	Roadside crushed rock berms
C-2870	2+50	Left and Right	Roadside crushed rock berms
C-2870	7+30	Left and Right	Roadside crushed rock berm
C-2880	3+40	Left	Silt Fence
C-2880	4+00	Left and Right	Roadside crushed rock berm
C-2880	4+80	Left	Silt Fence
C-2880	6+15	Left and Right	Roadside crushed rock berm
C-2880	6+70	Left	Silt Fence
C-2880	13+45	Left and Right	Roadside crushed rock berm
C-2880	14+00	Left	Silt Fence
C-2880	17+00	Left and Right	Roadside crushed rock berm
C-2880	23+55	Left and Right	Roadside crushed rock berm
C-2880	24+15	Left	Silt Fence
C-2880	25+40	Left	Silt Fence
C-2881	2+50	Left	Silt Fence
C-2881	3+85	Left	Silt Fence
C-2881	6+95	Left and Right	Roadside crushed rock berm
C-2881	7+85	Left and Right	Roadside crushed rock berm
C-2881	10+95	Left and Right	Roadside crushed rock berm
C-2881	12+10	Left and Right	Roadside crushed rock berm
C-3014	6+00	Right	Silt Fence

**8-2 PROTECTION FOR EXPOSED SOIL**

Purchaser shall furnish and evenly spread a 3-inch layer of straw to all exposed soils at stream culvert installations. Soils shall not be allowed to sit exposed during any rain event.

SUBSECTION SLOPE STABILIZATION

**8-10 STABILIZE SLOPES – ROCK APPLICATION**

On the following road(s), Purchaser shall stabilize excavation and embankment slopes by applying rock as specified below. Rock must be set in place in conjunction with construction of the embankment. Rock must be applied in quantities specified in the Slide Detail Sheet to exposed soil on the excavated slopes to a minimum depth specified on the Slide Detail Sheet. Common Borrow must meet the specifications in Clause 4-49 BORROW SOURCE and 1 ½” Minus Crushed Rock must meet the specifications in Clause 6-29 1 ½-INCH MINUS CRUSHED ROCK.

<u>Road</u>	<u>Stations</u>	<u>Rock Type</u>
C-2800	200+25 – 202+85	Common Borrow
C-2800	200+25 – 202+85	1 ½” Minus Crushed Rock

**8-11 STABILIZE SLOPES – MATERIAL REMOVAL**

On the following road(s), Purchaser shall stabilize embankment slopes by removing approximately 1000 cubic yards of sidecast material/waste material. End haul all material to a waste area designated in Clause 4-37 WASTE AREA LOCATION or by the Contract Administrator. All work is subject to approval by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
C-2800	200+25 – 202+85

SUBSECTION REVEGETATION

**8-15 REVEGETATION**

Purchaser shall grass seed and hay mulch all exposed soils including, but not limited to, stream culverts, waste areas, sidecast pull back areas, stream crossing removals, bridge installations, and other areas directed by the Contract Administrator. Revegetation of exposed soils shall be accomplished by manual dispersal of grass seed unless otherwise detailed in this Road Plan. Other methods of revegetation must be approved in writing by the Contract Administrator.

**8-16 REVEGETATION SUPPLY**

All seed, mulch, hay, matting, etc. will be provided by the Purchaser.

**8-17 REVEGETATION TIMING**

Purchaser shall perform revegetation during the first available opportunity. Soils shall not be allowed to sit exposed for longer than one month without receiving revegetation treatment unless otherwise approved in writing by the Contract Administrator. Soils shall not be allowed to sit exposed during any rain event.

**8-18 PROTECTION FOR SEED**

Purchaser shall provide a protective cover over the revegetated area. The protective cover may consist of, but not be limited to, such items as dispersed hay mulch 3” thick or jute matting.

**8-19 ASSURANCE FOR SEEDED AREA**

The Purchaser shall be responsible to ensure a uniform and dense crop of grass. The Purchaser shall reapply the seed and/or mulch in areas that have been damaged through any cause, before approval from the Contract Administrator. The Purchaser shall restore eroded or disturbed areas, clean up and properly dispose of eroded materials, and reapply the seed and/or mulch at no additional cost to the state.

SUBSECTION SEED, FERTILIZER, AND MULCH

**8-25 GRASS SEED**

Purchaser shall evenly spread the seed mixture listed below on all exposed at a rate of 60 pounds per acre of exposed soil. Grass seed shall meet the following specifications:

1. Weed seed shall not exceed 0.5% by weight.
2. All seed species shall have a minimum 90% germination rate, unless otherwise specified.
3. Seed shall be furnished in standard containers the show the following information:
  - a) Common name of seed
  - b) Net weight
  - c) Percentage of purity
  - d) Percentage of germination
  - e) Percentage of weed seed and inert material
4. 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>	<u>Minimum % germination</u>
Perennial Rye	40	90
Red Fescue	40	90
Highland Bent	10	85
White Clover	10	90

SECTION 9 – POST-HAUL ROAD WORK

SUBSECTION STRUCTURES

**9-2 CULVERT REMOVAL FROM LIVE STREAM**

On the following road(s), Purchaser shall remove existing culverts from live streams and leave the resulting channel open with excavation slope and excavated channel width as specified. Excavated material shall be on existing road and compacted. Culvert removal from live streams shall be in accordance with the table below.

<u>Road</u>	<u>Stations</u>	<u>Excavated Channel Width</u>	<u>Slope Ratio</u>	<u>Comments</u>
C-2881	6+95	6' min.	2:1	See Typical Culvert Removal Sheet
C-2881	7+85	6' min.	2:1	See Typical Culvert Removal Sheet
C-2881	10+95	6' min.	2:1	See Typical Culvert Removal Sheet
C-2881	12+10	6' min.	2:1	See Typical Culvert Removal Sheet

**9-3 REMOVAL OF CULVERT MATERIAL FROM STATE LAND**

Culvert material removed from roads becomes the property of the Purchaser and must be removed from state land.

SUBSECTION POST-HAUL MAINTENANCE

**9-5 POST-HAUL MAINTENANCE**

Post-haul maintenance shall be performed in accordance with the Forest Access Road Maintenance Specifications and as specified below.

<u>Road</u>	<u>Stations</u>	<u>Additional Requirements</u>
All	All	Clean culverts, clean ditches, grade road shape and compact as directed by the Contract Administrator
C-2800	88+45 – 211+25	Apply post haul rock as per Clause 6-72.

SUBSECTION POST-HAUL LANDING MAINTENANCE

**9-10 LANDING DRAINAGE**

On all roads, Purchaser shall provide for drainage of the landing surface as approved in writing by the Contract Administrator.

**9-11 LANDING EMBANKMENT**

On all roads, landing embankments shall be sloped to original construction specifications.

SUBSECTION DEACTIVATION AND ABANDONMENT

**9-20 ROAD DEACTIVATION**

The following road(s) shall be deactivated by the Purchaser before the termination of this contract.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
C-2881	6+95 – 13+25	Light Deactivation

**9-22 LIGHT DEACTIVATION**

Deactivation shall consist of:

1. Removing all culverts. Resulting back slopes shall be 1:1 or shallower. Material removed shall be placed on the roadbed and compacted, with slopes of 2:1 or shallower. Culverts removed shall become the property of the Purchaser and removed from State land.
2. Construct non-drivable water bars as directed by the Contract Administrator. On grades in excess of 3%, non-drivable water bars shall be skewed 30 degrees from the perpendicular of the road centerline.
3. Restore all ditchouts to drain water.
4. Repair or construct ditchlines.
5. Remove any berms, except as directed.
6. Restoration of natural stream channels across road prism, as directed by the Contract Administrator.
7. Removing all fill material as approved by the Contract Administrator.
8. All material from fill removals, culvert removals, and bridge removals shall be placed on roadbed and compacted, except that material listed in Clause 4-37.
9. Purchaser shall furnish and apply grass seed to all areas of exposed soil, including but not limited to: water bars, waste piles, and culvert removal sites. Grass seed shall be applied at a rate of 60 pounds per acre.
10. Block road to vehicular traffic using logs, slash, and stumps, as directed by the Contract Administrator.

SECTION 10 MATERIALS

SUBSECTION GEOTEXTILES

**10-1 GEOTEXTILE FOR SUBSURFACE DRAINAGE**

Geotextiles shall meet the following minimum requirements for strength and property qualities, and shall be designed by the manufacturer to be used for drainage or filtration. Woven slit-film geotextiles will not be allowed. Material shall be free of defects, cuts, and tears.

	<u>ASTM Test</u>	<u>Requirements</u>
Type	--	Non-woven
Apparent opening size	D 4751	No. 80 max
Water permittivity	D 4491	0.3 sec <sup>-1</sup>
Grab tensile strength	D 4632	160 lb
Grab tensile elongation	D 4632	>= 50%
Puncture strength	D 6241	310 lb
Tear strength	D 4533	50 lb
Ultraviolet stability	D 4355	50% retained after 500 hours of exposure

**10-6 GEOTEXTILE FOR TEMPORARY SILT FENCE**

Geotextiles shall meet the following minimum requirements for strength and property qualities, and shall be designed by the manufacturer to be used for filtration. Woven slit-film geotextiles will not be allowed. Material shall be free of defects, cuts, and tears.

	<u>ASTM Test</u>	<u>Requirements</u>
Type	--	Unsupported between posts
Apparent opening size	D 4751	No. 30 max., No. 100 min.
Water permittivity	D 4491	0.02 sec <sup>-1</sup>
Grab tensile strength	D 4632	180 lb in machine direction, 100lb in cross-machine direction
Grab tensile elongation	D 4632	30% max. at 180 lb or more
Ultraviolet stability	D 4355	70% retained after 500 hours of exposure

SUBSECTION CULVERTS

**10-15 CORRUGATED STEEL CULVERT**

Metallic coated steel culverts shall meet AASHTO M-36 (ASTM A-760) specifications. Culverts shall be aluminized (aluminum type 2 coated meeting AASHTO M-274).

**10-17 CORRUGATED PLASTIC CULVERT**

Polyethylene culverts shall meet AASHTO M-294 specifications. Culverts shall be Type S – double walled with a corrugated exterior and smooth interior.

**10-21 METAL BAND**

Metal coupling and end bands shall meet the AASHTO specification designated for the culvert and shall have matching corrugations. On culverts 24 inches and smaller, bands shall have a minimum width of 12 inches. On culverts over 24 inches, bands shall have a minimum width of 24 inches.

**10-22 PLASTIC BAND**

Plastic coupling and end bands shall meet the AASHTO specification designated for the culvert. Only fittings supplied or recommended by the culvert manufacturer shall be used. Couplings shall be split coupling band. Split coupling bands shall have a minimum of four corrugations, two on each side of the pipe joint.

**10-23 RUBBER CULVERT GASKETS**

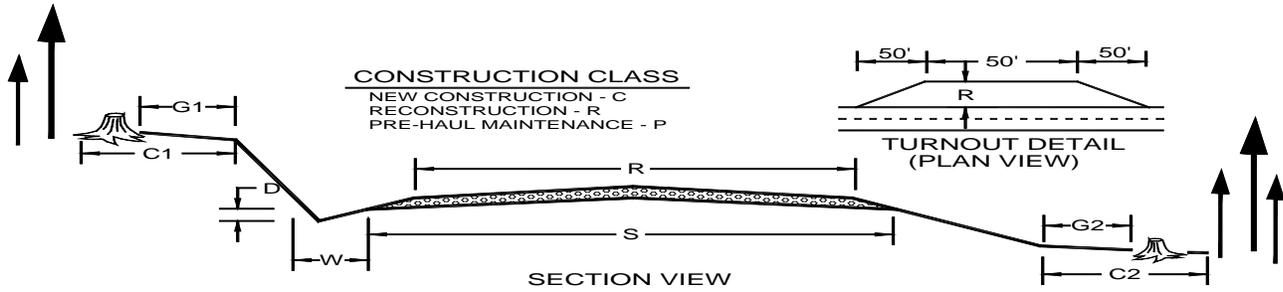
Rubber gaskets must be continuous closed cell, synthetic expanded rubber gaskets conforming to the requirements of ASTM D 1056. Rubber gaskets must be used with all corrugated metal pipe coupling bands.

**10-24 GAUGE AND CORRUGATION**

Metal culverts shall conform to the following specifications for gage and corrugation as a function of diameter.

<u>Diameter</u>	<u>Gauge</u>	<u>Corrugation</u>
18"	16 (0.064")	2 2/3" X 1/2"
24" to 42"	14 (0.079")	2 2/3" X 1/2"
48" to 54"	12	3" X 1" or 5" X 1"
60" +	10	3" x 1" or 5" X 1"

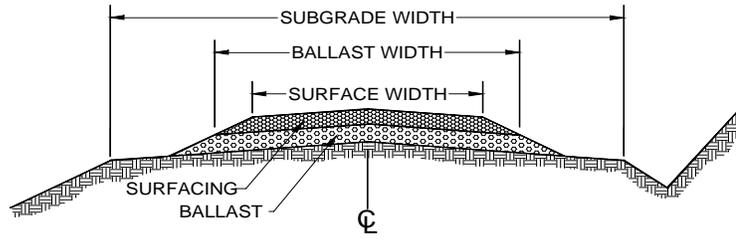
# TYPICAL SECTION SHEET



ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS	SUBGRADE WIDTH (S)	ROAD WIDTH (R)	CROWN AT CL (in)	DITCH WIDTH (W)	DITCH DEPTH (D)	GRUBBING CUT BANK (G1)	GRUBBING FILL TOE (G2)	ROAD CUT CLEARING (C1)	ROAD FILL CLEARING (C2)
C-2800	88+45	200+25	P		12'	3"	3'	1'				
C-2800	200+25	202+85	R		12'	-3/+3	3'	1'				
C-2800	202+85	211+25	P		12'	3"	3'	1'				
C-2800 0+80 Spur	0+00	0+80	C	17	12'	3"	3'	1'	5'	5'	10'	5'
C-2800 5+15 Spur	0+00	2+60	P		12'	3"	3'	1'				
C-2800 5+15 Spur	2+60	5+15	C	17	12'	3"	3'	1'	5'	5'	10'	5'
C-2840	0+00	8+90	P		12'	3"	3'	1'				
C-2841	0+00	2+15	P		12'	3"	3'	1'				
C-2860	0+00	9+00	P		12'	3"	3'	1'				
C-2860.1	0+00	3+60	P		12'	3"	3'	1'				
C-2865	0+00	3+30	P		12'	3"	3'	1'				
C-2870	0+00	49+50	P		12'	3"	3'	1'				
C-2870 1+05 Spur	0+00	1+05	C	17	12'	3"	3'	1'	5'	5'	10'	5'
C-2872	0+00	4+30	P		12'	3"	3'	1'				
C-2874	0+00	2+75	P		12'	3"	3'	1'				
C-2876	0+00	8+25	P		12'	3"	3'	1'				
C-2877	0+00	2+85	P		12'	3"	3'	1'				
C-2880	0+00	39+25	P		12'	3"	3'	1'				
C-2880 1+35 Spur	0+00	1+35	P		12'	3"	3'	1'				



# ROCK LIST SHEET

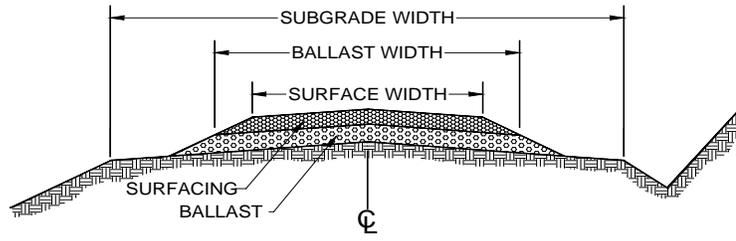


SECTION VIEW

1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Copper Pit Ballast, 2: Copper Pit 1 ½" minus, 3: Red Creek Quarry Light Loose Rip Rap

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd <sup>3</sup> /sta)	Pitrun SUBTOTAL(yd <sup>3</sup> )	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd <sup>3</sup> /sta)	Crushed Subtotal(yd <sup>3</sup> )	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd <sup>3</sup> )
<b>C-2800</b>															
Misc.	88+45	211+25							2				100		
Landing	91+50			1				50							
Rock Berms	92+30	93+30							2				10		
Landing	101+90			1				50							
Landing	118+75			1				50							
Turnout	120+70								2				20		
Turnout	130+10								2				20		
Turnout	135+40								2				20		
Turnout	138+40								2				20		
Turnout	153+40								2				20		
Landing	155+50			1				50							
Landing	184+05			1				50							
Sidecast	200+25	202+85		1				180	2				80	3	520
Post Haul	88+45	211+25							2				300		
<b>C-2800 0+80 Spur</b>															
Lift	0+00	0+80	17	1	12	18	110	90							
Landing	0+80			1				50							
<b>C-2800 5+15 Spur</b>															
Lift	0+00	2+60		1	12	6	35	90							
<b>Sub Totals:</b>								<b>660</b>					<b>590</b>		<b>520</b>

## ROCK LIST SHEET CONTINUED

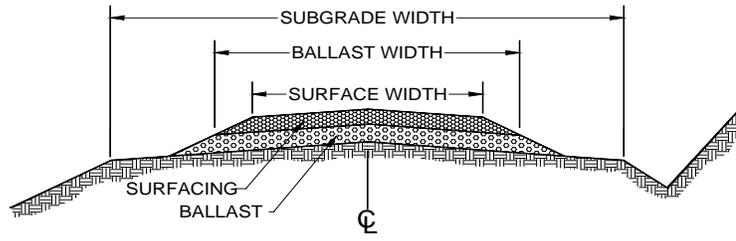


SECTION VIEW

1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
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5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Copper Pit Ballast, 2: Copper Pit 1 ½" minus, 3: Red Creek Quarry Light Loose Rip Rap

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd <sup>3</sup> /sta)	Pitrun SUBTOTAL(yd <sup>3</sup> )	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd <sup>3</sup> /sta)	Crushed Subtotal(yd <sup>3</sup> )	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd <sup>3</sup> )
<b>C-2800 5+15 Spur</b>															
Lift	2+60	5+15	17	1	12	18	110	280							
Landing	5+15			1				50							
<b>C-2840</b>															
Lift	0+00	8+90		1	12	6	35	320							
<b>C-2841</b>															
Lift	0+00	2+15		1	12	6	35	80							
<b>C-2860</b>															
Lift	0+00	9+00		1	12	6	35	320							
<b>C-2860.1</b>															
Lift	0+00	3+60		1	12	6	35	130							
<b>C-2865</b>															
Lift	0+00	3+30		1	12	6	35	120							
Spot Patch	2+10							20							
Landing	3+30			1				50							
<b>C-2870</b>															
Misc.	0+00	49+50							2				100		
Culvert	0+30			1				10	2				10		
Rock Berm	2+00	3+00							2				10		
Landing	5+00			1				50							
Rock Berm	6+80	7+80							2				10		
<b>Sub Totals:</b>								1430					130		

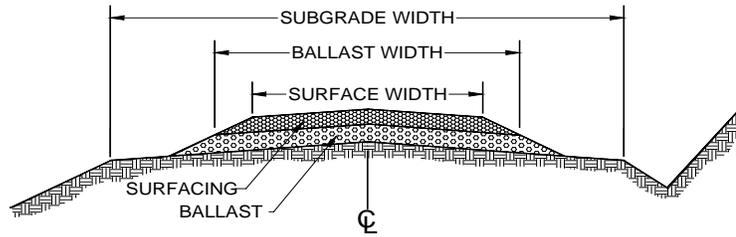
## ROCK LIST SHEET CONTINUED



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ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd <sup>3</sup> /sta)	Pitrun SUBTOTAL(yd <sup>3</sup> )	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd <sup>3</sup> /sta)	Crushed Subtotal(yd <sup>3</sup> )	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd <sup>3</sup> )
<b>C-2870 Cont.</b>															
Turnout	35+30			1			20								
Culvert	44+80			1			10		2				10		
Landing	49+50			1			50								
<b>C-2870 1+05 Spur</b>															
Lift	0+00	1+05	17	1	12	18	110	110							
Landing	1+05							50							
<b>C-2872</b>															
Lift	0+00	4+30		1	12	6	35	150							
<b>C-2874</b>															
Lift	0+00	2+75		1	12	6	35	100							
<b>C-2876</b>															
Misc.	0+00	8+25							2				50		
<b>C-2877</b>															
Lift	0+00	2+85		1	12	6	35	100							
Landing	2+85			1				50							
<b>C-2880</b>															
Lift	0+00	39+25		1	12	12	70	2740							
Rock Berm	3+50	4+50							2				10		
Rock Berm	5+65	6+65							2				10		
<b>Sub Totals:</b>								3380					80		

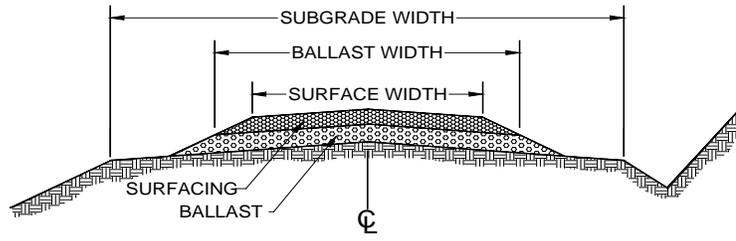
## ROCK LIST SHEET CONTINUED



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<b>C-2880 Cont.</b>															
Turnout	10+00			1				20							
Spot Patch	11+65			1				20							
Rock Berm	12+95	13+95							2				10		
Culvert	16+40			1				10	2				10		
Culvert	17+00			1				40	2				10	3	10
Rock Berm	16+50	17+50							2				10		
Culvert	18+00			1				10	2				10		
Rock Berm	23+05	24+05							2				10		
Landing	39+25			1				50							
<b>C-2880 1+35 Spur</b>															
Lift	0+00	1+35		1	12	6	35	50							
Landing	1+35							50							
<b>C-2881</b>															
Lift	0+00	13+25		1	12	6	35	470							
Culvert	0+95			1				10	2				10		
Rock Berm	6+45	7+45							2				10		
Spot Patch	6+95			1				10							
Rock Berm	7+35	8+35							2				10		
Spot Patch	7+85			1				10							
<b>Sub Totals:</b>								750				90	10		

## ROCK LIST SHEET CONTINUED



SECTION VIEW

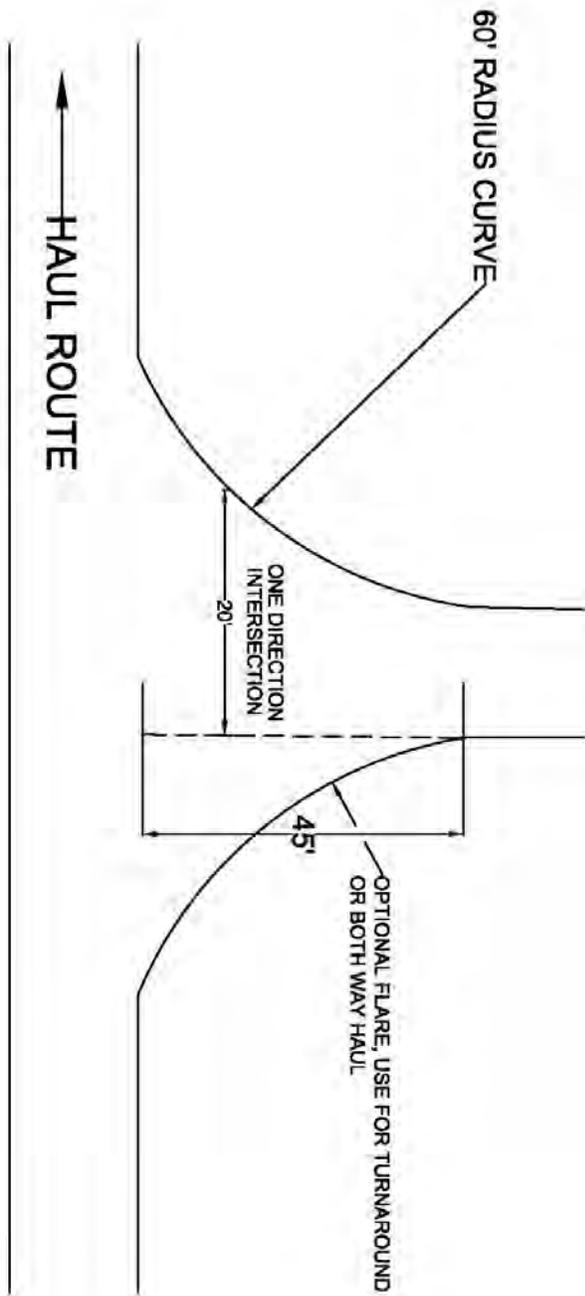
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<b>C-2881 Cont.</b>															
Rock Berm	10+45	11+45							2				10	3	10
Spot Patch	10+95			1				10							
Rock Berm	11+60	12+60							2				10		
Spot Patch	12+10			1				10							
Landing	13+25			1				50							
<b>C-2882</b>															
Lift	0+00	6+85		1	12	6	35	240							
Landing	6+85			1				50							
<b>C-3003</b>															
Lift	0+00	3+15		1	12	6	35	110							
<b>C-3014</b>															
Lift	0+00	11+50		1	12	6	35	400							
Turnout	7+20			1				20							
<b>C-3014 4+10 Spur</b>															
Lift	0+00	4+10	17	1	12	18	110	450							
Culvert	0+10							20							
<b>C-3014.1</b>															
Lift	0+00	1+00		1	12	6	35	40							
<b>Sub Totals:</b>								1400					20		10
<b>Totals:</b>								7620					910		540



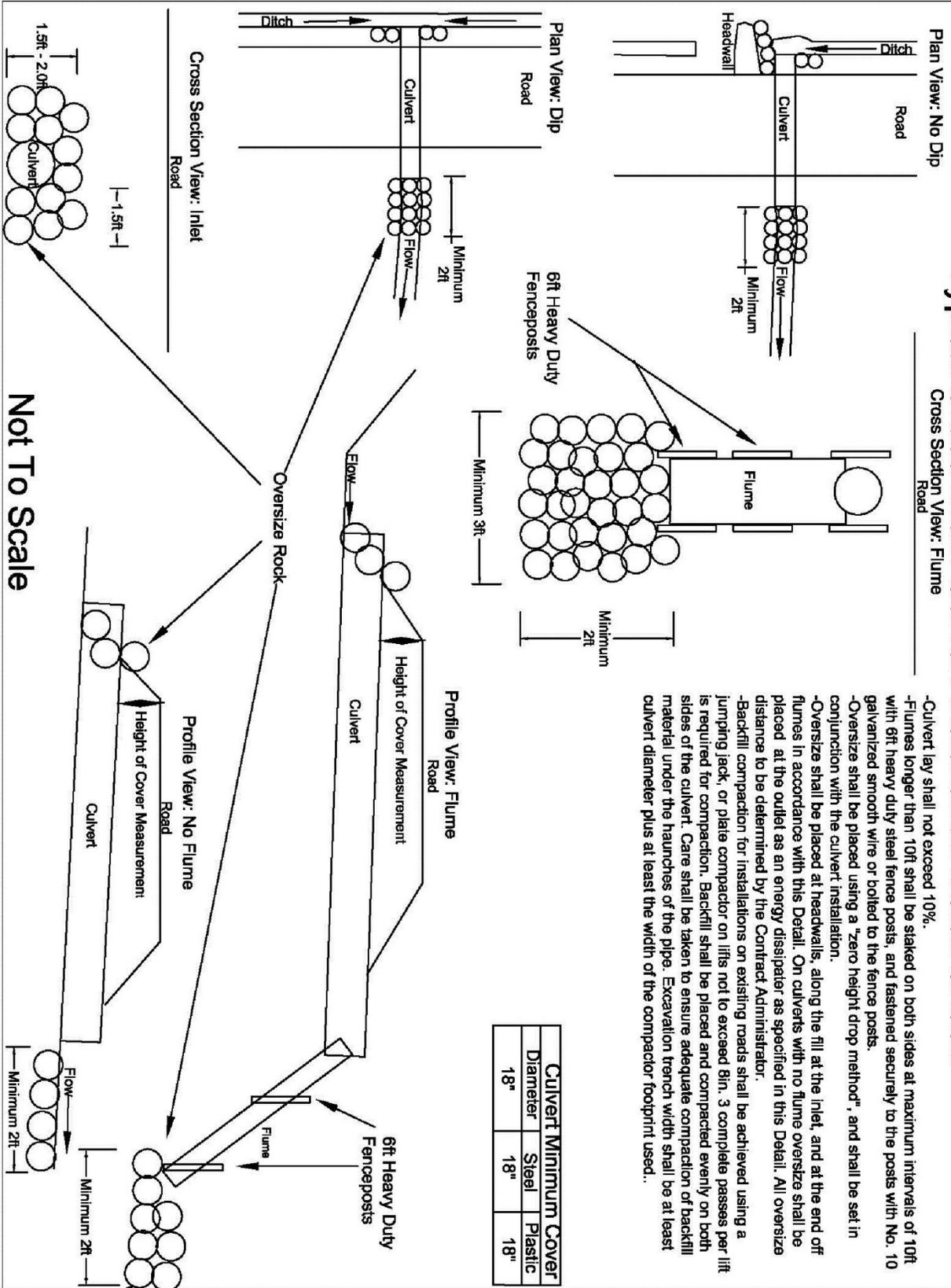


# TYPICAL INTERSECTION



NOT TO SCALE

# Typical Cross Drain Culvert Installation Detail Sheet.



-Culvert lay shall not exceed 10%.

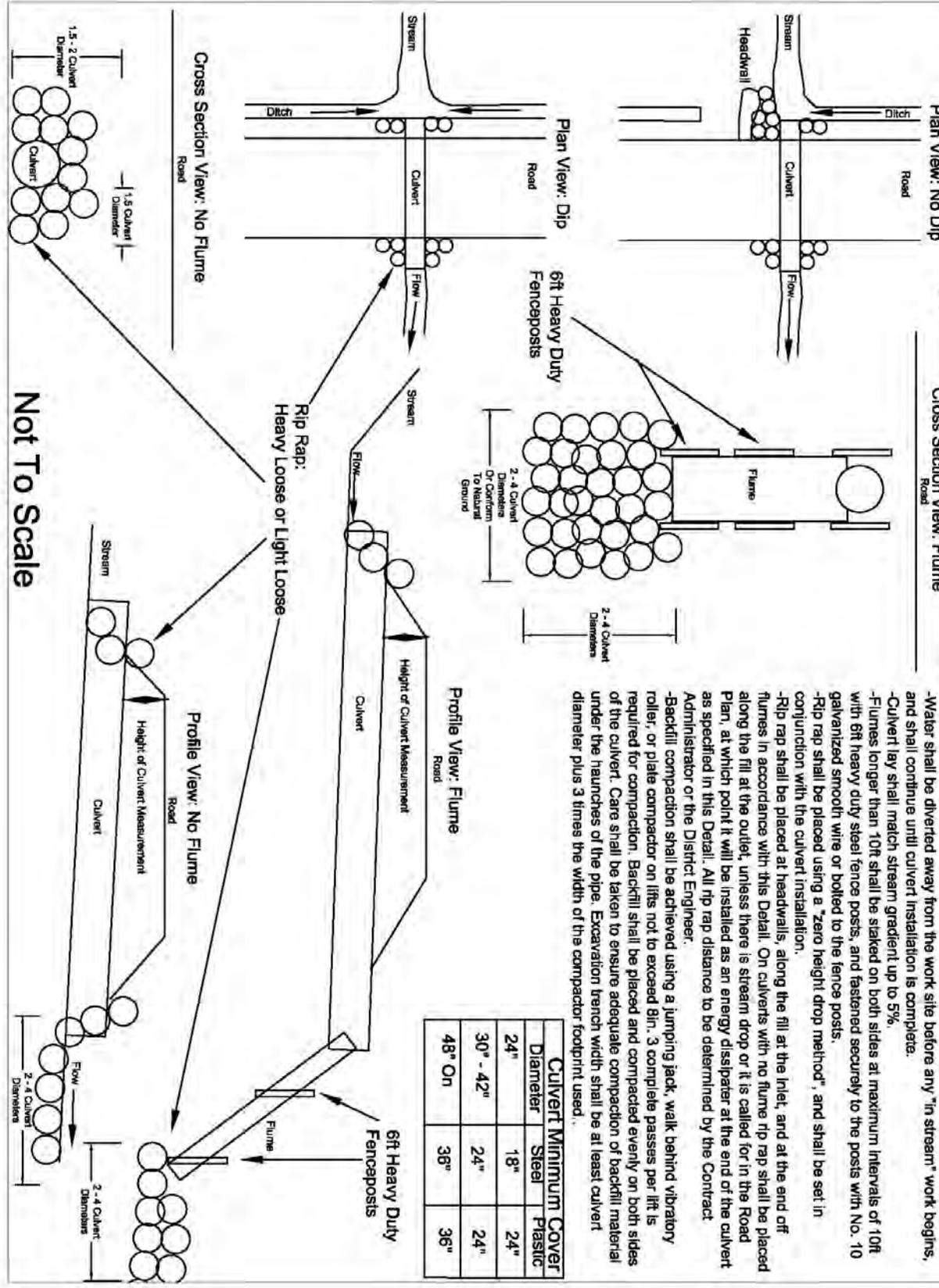
-Fumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.

-Oversize shall be placed using a "zero height drop method", and shall be set in conjunction with the culvert installation.

-Oversize shall be placed at headwalls, along the fill at the inlet, and at the end of fumes in accordance with this Detail. On culverts with no fume oversize shall be placed at the outlet as an energy dissipater as specified in this Detail. All oversize distance to be determined by the Contract Administrator.

-Backfill compaction for installations on existing roads shall be achieved using a jumping jack, or plate compactor on lifts not to exceed 8in. 3 complete passes per lift is required for compaction. Backfill shall be placed and compacted evenly on both sides of the culvert. Care shall be taken to ensure adequate compaction of backfill material under the haunches of the pipe. Excavation trench width shall be at least culvert diameter plus at least the width of the compactor footprint used.

# Typical Type Ns, Np Culvert Installation Detail Sheet.

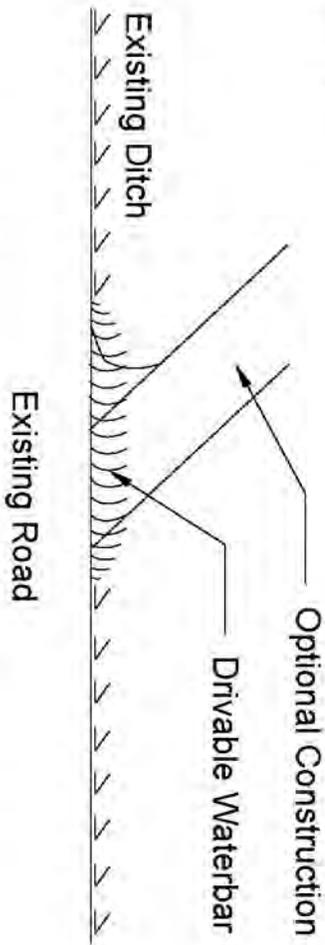


Culvert Minimum Cover			
Diameter	Steel	Plastic	
24"	18"	24"	
30" - 42"	24"	24"	
48" On	36"	36"	

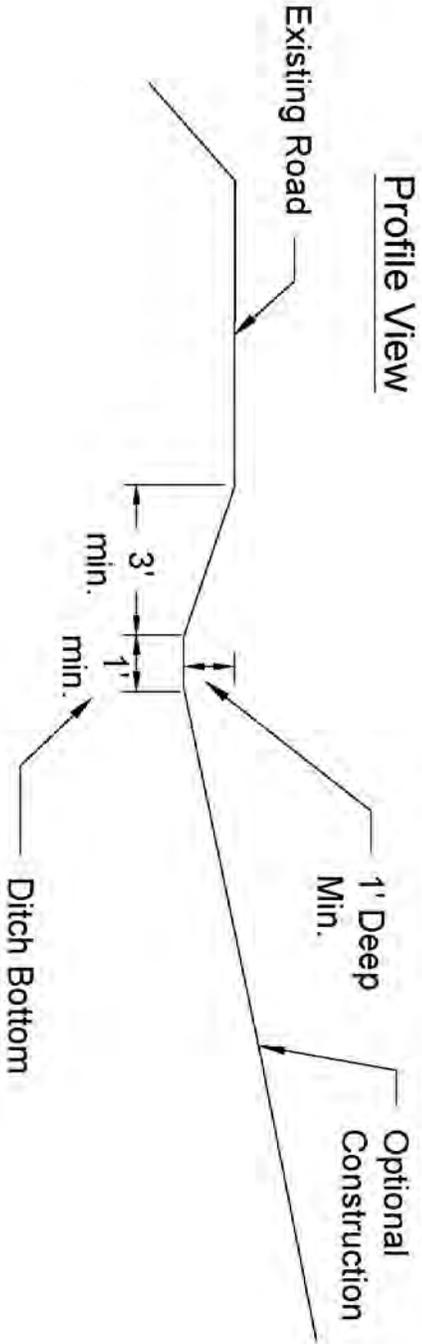
Not To Scale

# Drivable Waterbar Detail 1

## Plan View

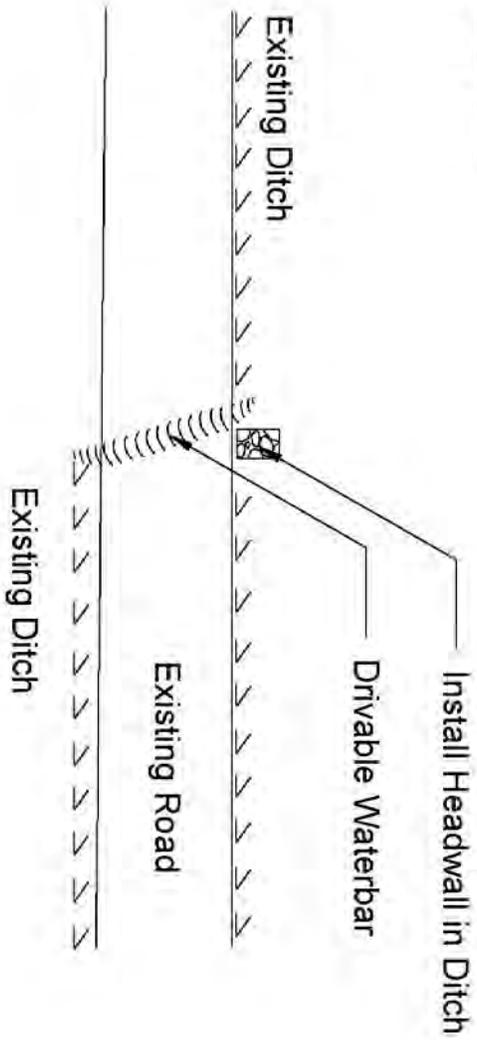


## Profile View

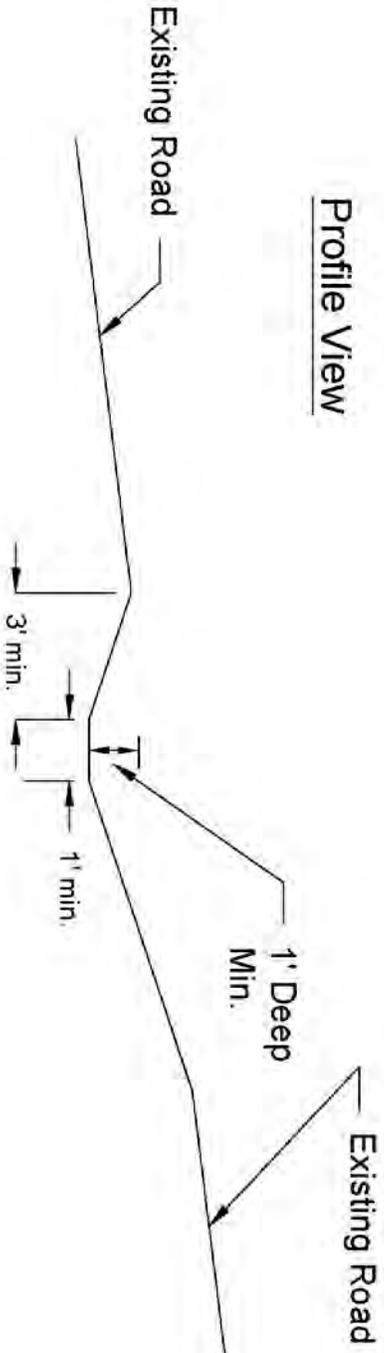


# Drivable Waterbar Detail 2

Plan View

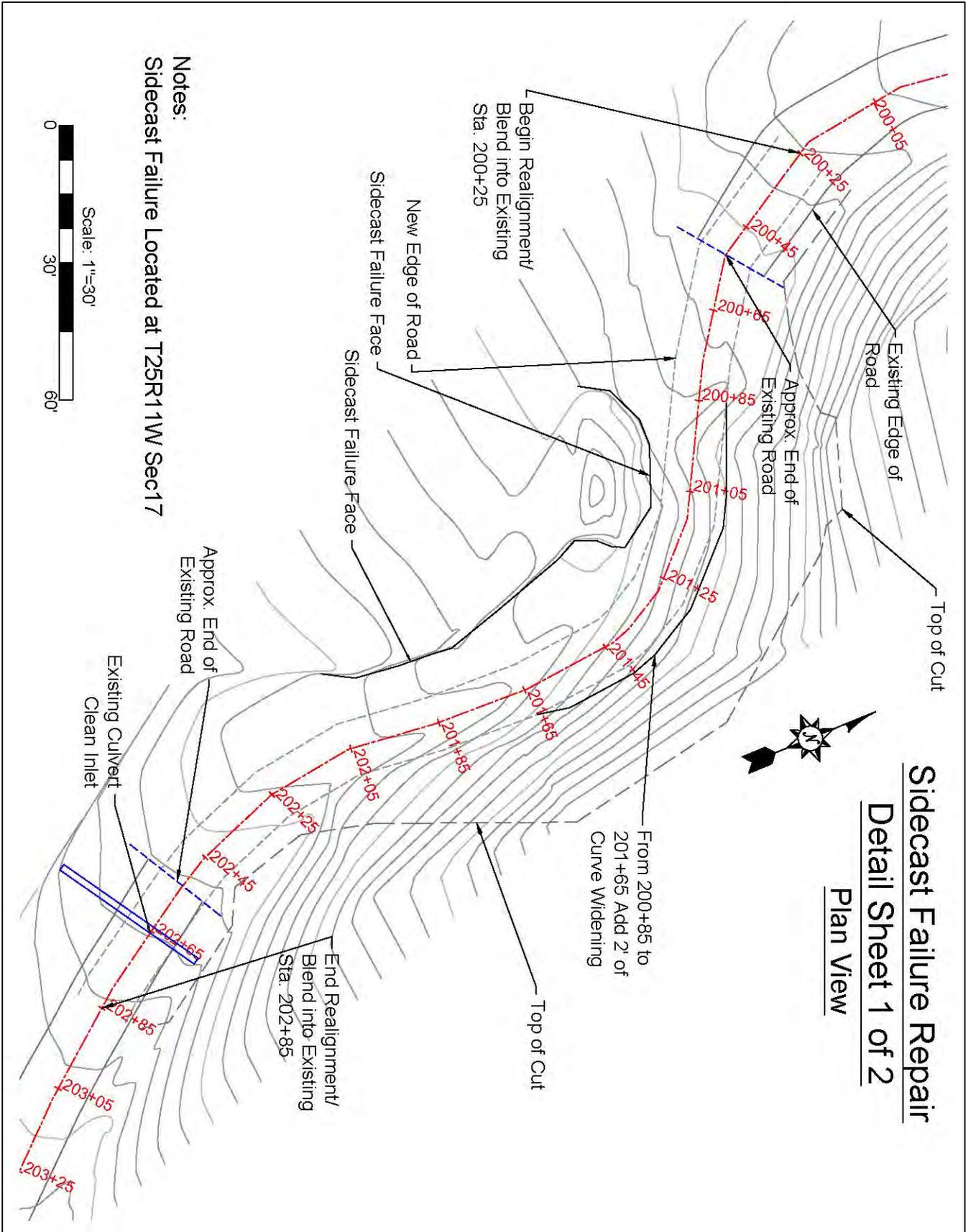


Profile View





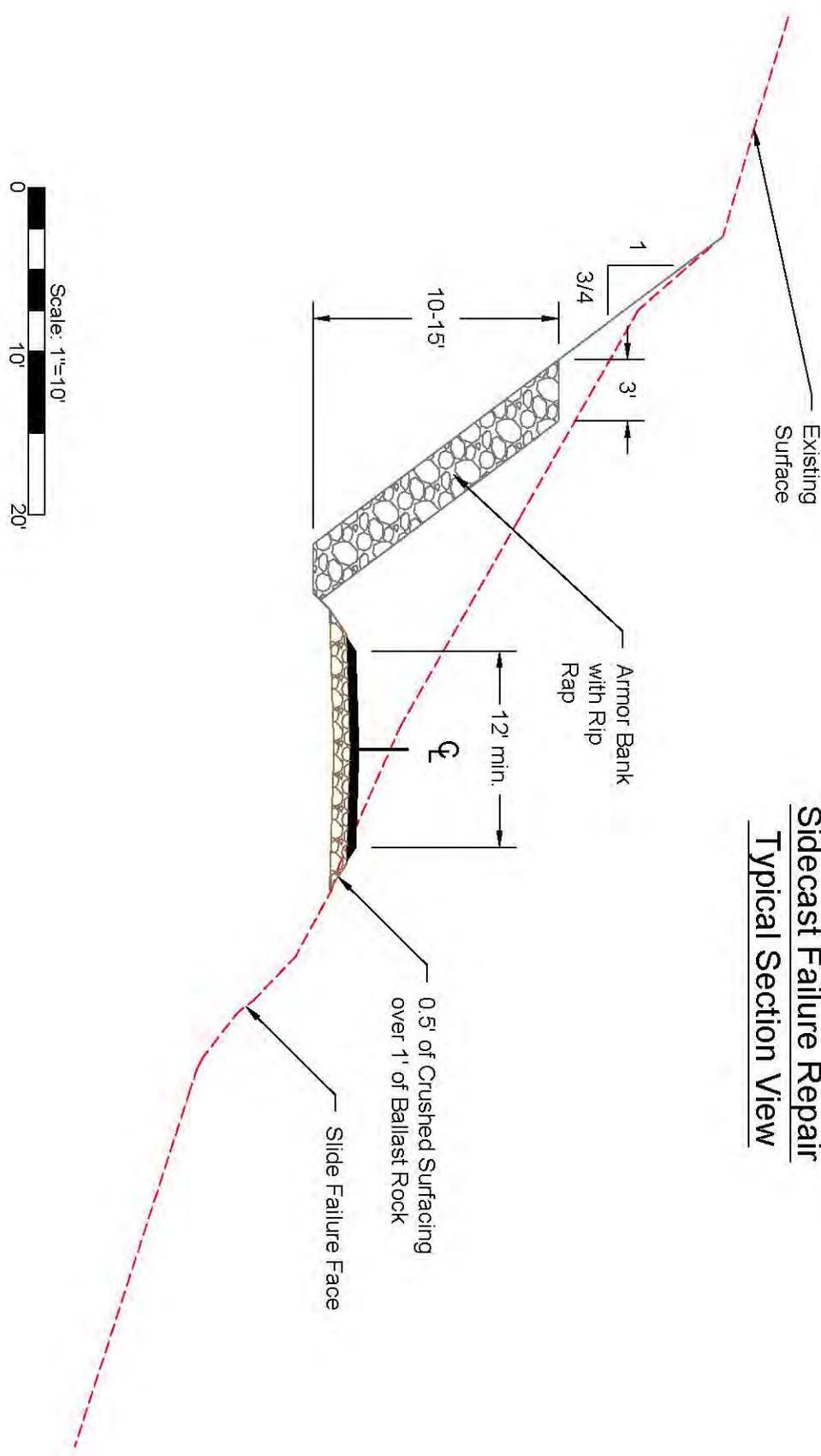
# Sidecast Failure Repair Detail Sheet 1 of 2 Plan View



**Notes:**  
Sidecast Failure Located at T25R1 1W Sec17

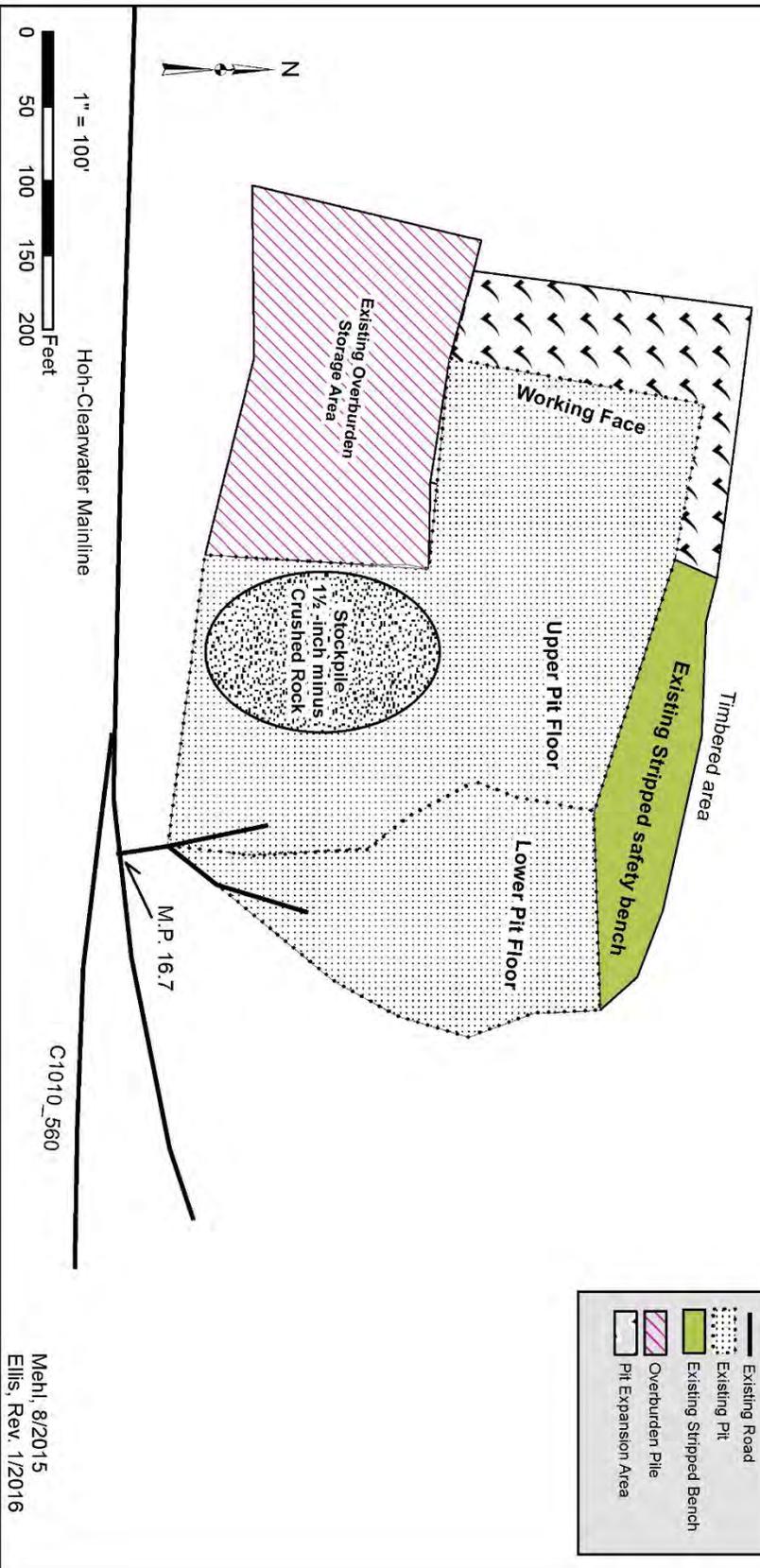
# Sidecast Failure Repair Detail Sheet 2 of 2

## Sidecast Failure Repair Typical Section View



**COPPER PIT PLAN**  
**T25N, R11W, Sec. 18**  
**T25N, R12W, Sec. 13**  
**8-14-2015**

Sec. 13, T25N, R12W  
 Sec. 18, T25N, R11W



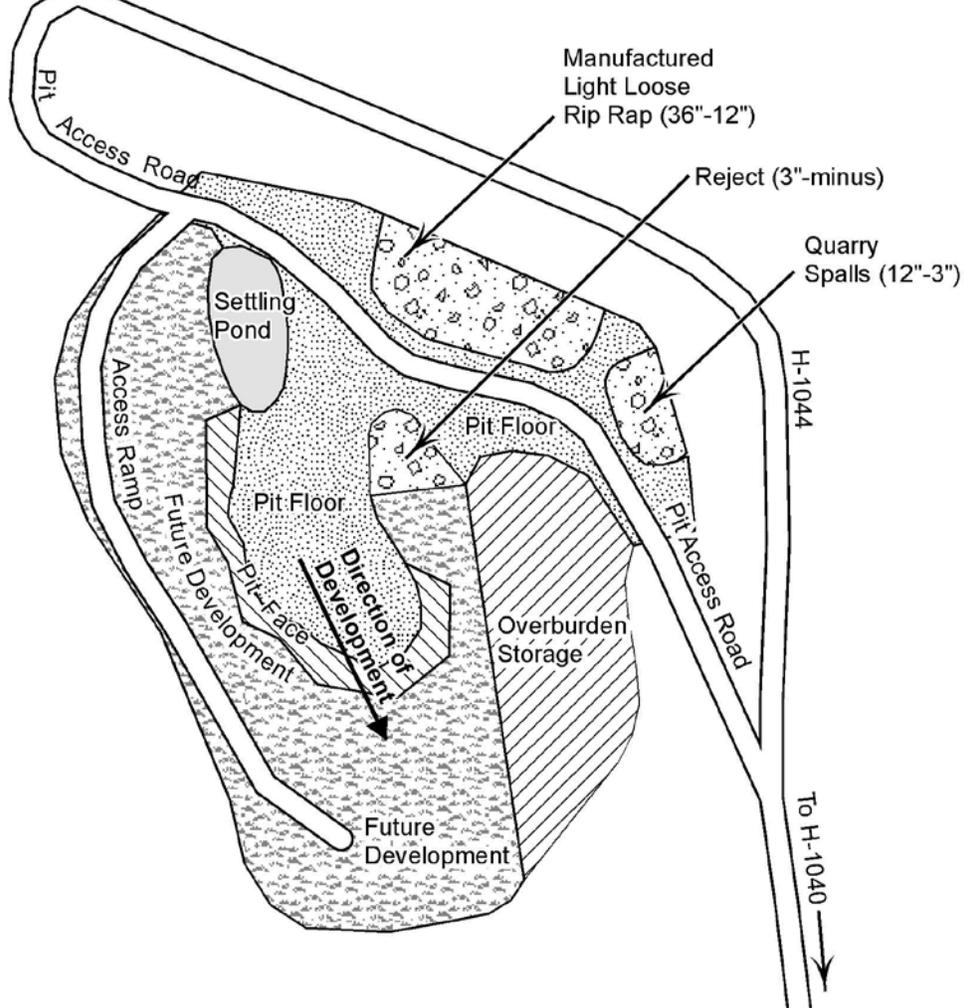
**Pit Development Plan**

1. Areas to be developed as directed by the Contract Administrator.
2. Waste and oversize material to be placed as directed by the Contract Administrator.
3. Suitable drainage shall be maintained at all times.
4. Working face height shall not exceed 15 feet.
5. Safety berms shall be installed as directed by the contract Administrator.

Legend	
	Existing Road
	Existing Pit
	Existing Stripped Bench
	Overburden Pile
	Pit Expansion Area

Mehl, 8/2015  
 Ellis, Rev. 1/2016

# Red Creek Quarry T27N R11W Sec34



## Rock Source Development Plan

1. Areas to be developed as directed by the Contract Administrator.
2. Waste material and oversize material shall be placed as directed by the Contract Administrator.
3. Suitable drainage shall be maintained at all times.
4. Pit floor shall slope down 2% toward pit entrance.
5. Removal from existing stockpiles shall be as directed by the Contract Administrator.

Not To Scale

8/31/15

### Legend

-  Pit Access Road
-  Stockpiles
-  Pit Face
-  Overburden Storage
-  Settling Pond
-  Future Development
-  Pit Floor



DEPARTMENT OF NATURAL RESOURCES

FORM 9-97REV 01-08

SUMMARY - Road Development Costs

SALE NAME: Maudified VDT CONTACT#: 30-093480 REGION: Olympic DISTRICT: Coast TOTAL SHEET #2  
 LEGAL DESCRIPTION: T25R11W

ROAD NAME:	0+80 Spur	5+15 Spur	1+05 Spur	4+10 Spur	C-2800	C-2800	5-15 Spur	C-2840	C-2841	C-2860	C-2860.1	TOTAL
ROAD TYPE:	Construction	Construction	Construction	Construction	Recon	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	TOTAL
NUMBER OF STATIONS:	1	3	1	4	3	120	3	9	2	9	4	157.55
SIDE SLOPE:	5%	5%	5%	20%	60%	0	0	0	0	0	0	147.30
CLEARING AND GRUBBING:	101	323	120	519	427	0	0	0	0	0	0	\$1,489
ROAD BRUSHING:	0	0	0	0	0	0	0	160	0	162	0	\$322
EXCAVATION AND FILL:	113	360	148	927	2,288	0	0	0	0	0	0	\$3,836
ROAD GRADING:	0	0	0	0	0	117	17	58	14	59	23	\$288
DITCH CLEANING/CONSTRUCTION:	0	0	0	0	0	39	0	347	84	0	0	\$470
ROCK TOTALS (Cul Yds.):												\$655
Ballast:	7617	7,620	1,413	3,206	1,488	4,301	1,174	2,308	898	3,157	803	\$23,016
Surface:	910	910	0	0	0	542	4,580	0	0	0	0	\$5,121
Oversize:	540	540	0	0	0	4,919	0	0	0	0	0	\$4,919
CULVERTS AND FLUMES:	0	0	0	0	0	880	0	0	0	0	0	\$880
STRUCTURES:	0	0	0	0	0	0	0	0	0	0	0	\$5,928
MISC. EXPENSES:	6	15	6	24	387	142	204	52	13	53	282	\$11,460
OVERHEAD:	163	390	176	663	1,208	575	90	302	73	264	124	\$1,183
TOTAL COSTS:	1,796	4,294	1,939	7,315	23,105	7,760	1,208	4,076	986	3,557	1,679	\$57,715
COST PER STATION:	0	2,245	1,939	1,846	1,784	8,886	65	468	458	459	395	\$366
MOBILIZATION:			\$6,450									\$0.00
ROAD DEACTIVATION AND ABANDONMENT COSTS:			\$1,591									\$0.00
Pl Work:			\$0									\$0.00

NOTE: This appraisal has no allowance for profit and risk.  
 Sheet 1 of 2  
 Plans to be furnished by: Greg Ellis

TOTAL (All Roads) = \$137,996  
 SALE VOLUME MBF = 2,566  
 TOTAL COST PER MBF = \$53.78  
 TOTAL COST PER STATION = \$452.67  
 Compiled by: Greg Ellis Date: 1/4/2016

Maudified Road Cost Sheet Risk

**SUMMARY - Road Development Costs**

SALE NAME: Maudified VDT CONTRACT# 30-093480  
 LEGAL DESCRIPTION: T25R11W

REGION: Olympic

DISTRICT: Coast

	C-2865	C-2870	C-2872	C-2874	C-2876	C-2877	C-2880	1-35 Spur	C-2881	C-2882	C-3003	C-3014	C-3014.1
ROAD NAME:	0	0	0	0	0	0	0	0	0	0	0	0	0
ROAD TYPE:	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul							
NUMBER OF STATIONS:	3	50	4	3	8	3	39	1	13	7	3	12	1
SIDESLOPE:	0	0	0	0	0	0	0	0	0	0	0	0	0
CLEARING AND GROUNDING:	0	0	0	0	0	0	0	0	0	0	0	0	0
ROAD BRUSHING:	0	0	0	0	0	0	0	0	0	0	0	0	0
EXCAVATION AND FILL:	0	0	0	0	0	0	0	0	0	0	0	0	0
ROAD GRADING:	21	39	28	18	13	19	255	9	86	45	20	75	7
DITCH CLEANING/CONSTRUCTION:	129	0	101	0	0	0	127	0	29	0	123	146	0
ROCK TOTALS (Cu Yds):	0	0	0	0	0	0	0	0	0	0	0	0	0
Ballast:	1,762	1,280	1,341	915	0	1,131	25,688	895	5,293	2,683	991	3,847	370
Surface:	0	1,245	0	0	450	0	691	0	452	0	0	0	0
Oversize:	0	0	0	0	0	0	122	0	124	0	0	0	0
CLVERTS AND PIPES:	0	1,628	0	0	0	0	3,508	0	792	0	0	0	0
STRUCTURES:	0	0	0	0	0	0	0	0	0	0	0	0	0
MISC. EXPENSES:	279	1,463	377	215	12	223	3,723	106	2,193	537	247	939	78
OVERHEAD:	175	452	148	92	38	110	2,729	81	718	261	111	401	36
TOTAL COSTS:	2,366	6,106	1,995	1,241	513	1,482	36,843	1,091	9,687	3,525	1,492	5,408	491
COST PER STATION:	717	123	464	451	62	520	939	808	731	515	474	470	491

## FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

### Cuts and Fills

- Maintain slope lines to a stable gradient compatible with the cut slope/fill slope ratios. Remove slides from ditches and the roadway. Repair fill-failures in accordance with Clause 4-6 Embankment Slope Ratio, and with 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, shape, and compact the road surface, turnouts, and shoulders to the original shape on the Typical Section Sheet, 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.

