WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

TIMBER NOTICE OF SALE

***SALE NAME**: DEER CREEK* ***AGREEMENT NO**: 30-093330*

AUCTION: November 17, 2016 starting at 10:00 a.m., **COUNTY:** Cowlitz
Pacific Cascade Region Office, Castle Rock, WA

SALE LOCATION: Sale located approximately 20 miles southeast of Toutle

PRODUCTS SOLD AND SALE AREA: All timber, except leave trees banded with a single ring of blue paint, areas bounded out by yellow Leave Tree Area tags, snags, and all down timber existing 3 years prior to the day of sale, bounded by: white "Timber Sale Boundary" tags, and pink flagging in Unit 1; white "Timber Sale Boundary" tags, pink flagging, reprod, and the 3021 road in Unit 2; white "Timber Sale Boundary" tags, pink flagging, and the 3021 road in Unit 3; white "Timber Sale Boundary" tags, pink flagging, blue "Special Management Unit Boundary" tags, and the 3021 road in Unit 4; white "Timber Sale Boundary" tags, pink flagging, and the 3023 road in Unit 6. All take trees marked with a single band of orange paint bounded by white "Timber Sale Boundary" tags, pink flagging, blue "Special Management Unit Boundary" tags and the 3021 road in Unit 5, and all trees bounded by orange "Right-of-Way Boundary" tags and orange flagging in Unit 7 on part(s) of Sections 5, 6, 7, 8 and 9 all in Township 9 North, Range 3 East, W.M., containing 114 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:

	Avg	Ring	Total	MBF by Grade								
Species	DBH	Count	MBF	1P	2P	3P	SM	1S	2S	3S	4S	UT
Douglas fir	18.3	7	2,071						1,079	810	139	43
Hemlock	14.7	7	1,227						316	652	206	53
Noble fir	17.3		113						47	41	9	16
Red alder	13.7		38						5		31	2
Maple	12		5								5	
Sale Total			3,454									

MINIMUM BID: $788,000.00 **BID METHOD:** Sealed Bids

PERFORMANCE SECURITY: $100,000.00 **SALE TYPE:** Lump Sum

EXPIRATION DATE: October 31, 2018 **ALLOCATION:** Export Restricted

BID DEPOSIT: $78,800.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Cable, Shovel and Track skidder. The sale is estimated to be harvested using 65% ground based equipment and 35% cable yarding systems. Ground based harvesting equipment is restricted to slopes of 35% and less. See Clause H-140 and the Wetland Management Zone Thinning Cutting Card for Unit #5 for further Harvesting Specifications. A detailed felling and yarding plan shall be required prior to any harvest

activities and approved in writing by the Contract Administrator. Within Unit 5, trees painted with two orange bands are designated for snag creation.

ROADS: 12.41 stations of required construction. 7.50 stations of required reconstruction. 38.38 stations of optional construction. 4.76 stations of optional reconstruction. 317.60 stations of required pre-haul maintenance. Rock used in accordance with the quantities in the ROCK LIST under this contract may be obtained at no cost to the Purchaser from the 2705B Rock Pit located in Section 08, Township 09 North, Range 03 East, W.M., the 2705B Rock Pit Stockpile located in Section 08, Township 09 North, Range 03 East W.M. and the 5-Way Pit Stockpile located in Section 15, Township09 North, Range 03 East W.M. Additional rock for this sale may be obtained from any commercial source at the Purchaser's expense. Additional rock sources will be subject to written approval by the Contract Administrator before their use. Road construction will not be permitted from September 30 to May 1 unless authorized in writing by the Contract Administrator Road construction activities on the 3020 road from station 64+10 to 69+18 will be restricted from September 30 to July 15.

ACREAGE DETERMINATION

CRUISE METHOD: The sale acres were determined by GPS. The sale area was cruised using a variable plot cruise method.

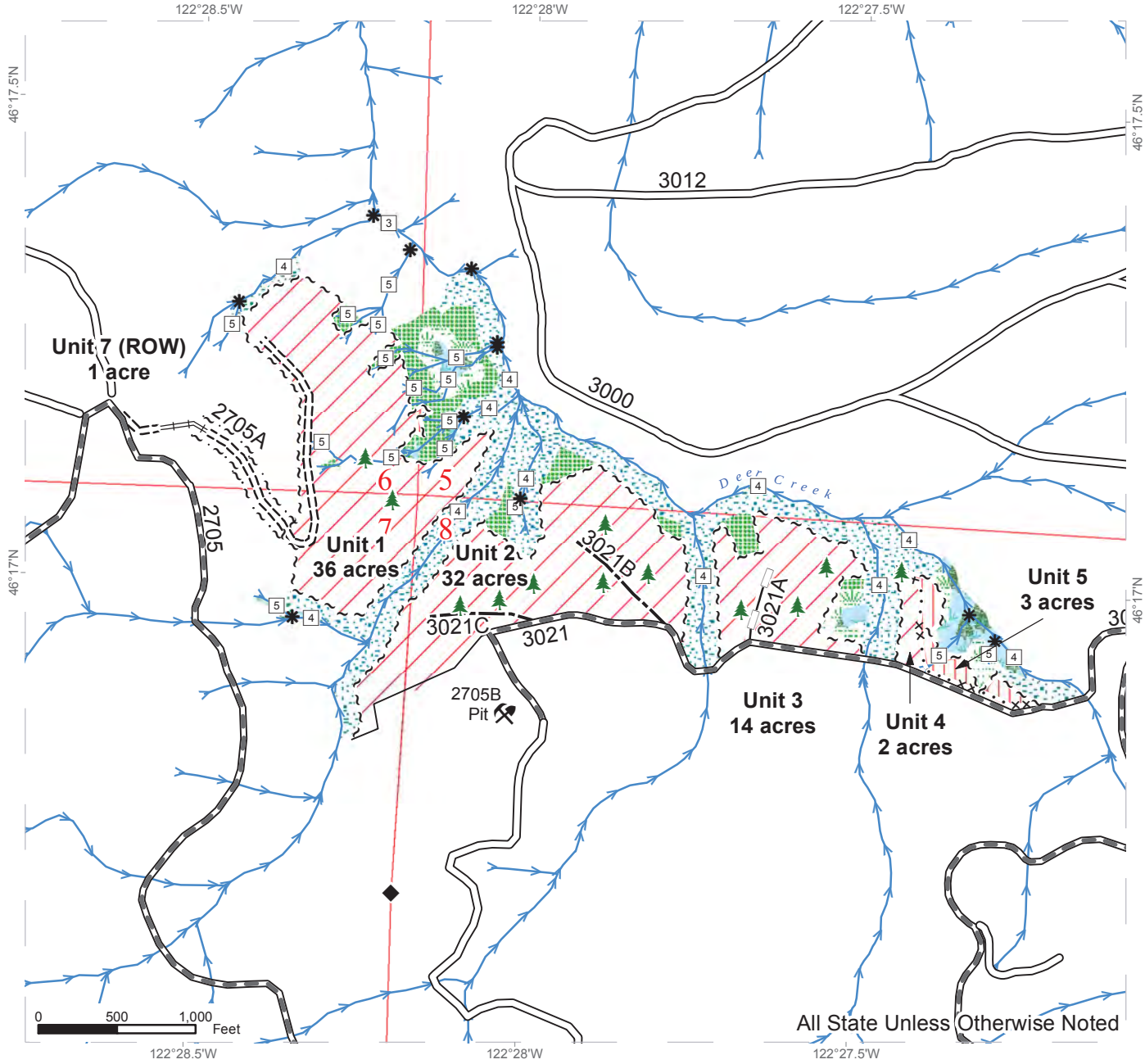
FEES: $61,308.00 is due on day of sale. $9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: This sale contains an estimated 1,253 MBF of higher quality Doug-fir 2 and 3 saw logs, 551 MBF of higher quality western hemlock 2 and 3 sawlogs, and 66 MBF of higher quality Noble fir 2 and 3 saw logs, derived from the cruise. See the Deer Creek Culvert Design Plan, located in the Road Plan, for detailed information regarding the Deer Creek stream crossing culvert installation.

TIMBER SALE MAP

SALE NAME: DEER CREEK
AGREEMENT #: 93330
TOWNSHIP(S): T09R03E
TRUST(S): Common School and Indemnity(3), Normal School(8), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): COWLITZ
ELEVATION RGE: 2075-2533



- Variable Retention Harvest
- Riparian Restoration
- Leave Tree Area
- Riparian Mgt Zone
- Forested Wetland
- Wetland Mgt Zone
- Streams
- Stream Type
- Stream Type Break
- Sale Boundary Tags
- Special Mgmt Area
- Right of Way Tags
- Reprod
- Leave Trees
- Existing Rock Pit
- Monumented Corners
- Existing Roads
- Required Pre-Haul Maintenance
- Required Construction
- Required Reconstruction
- Optional Construction
- Optional Reconstruction

N

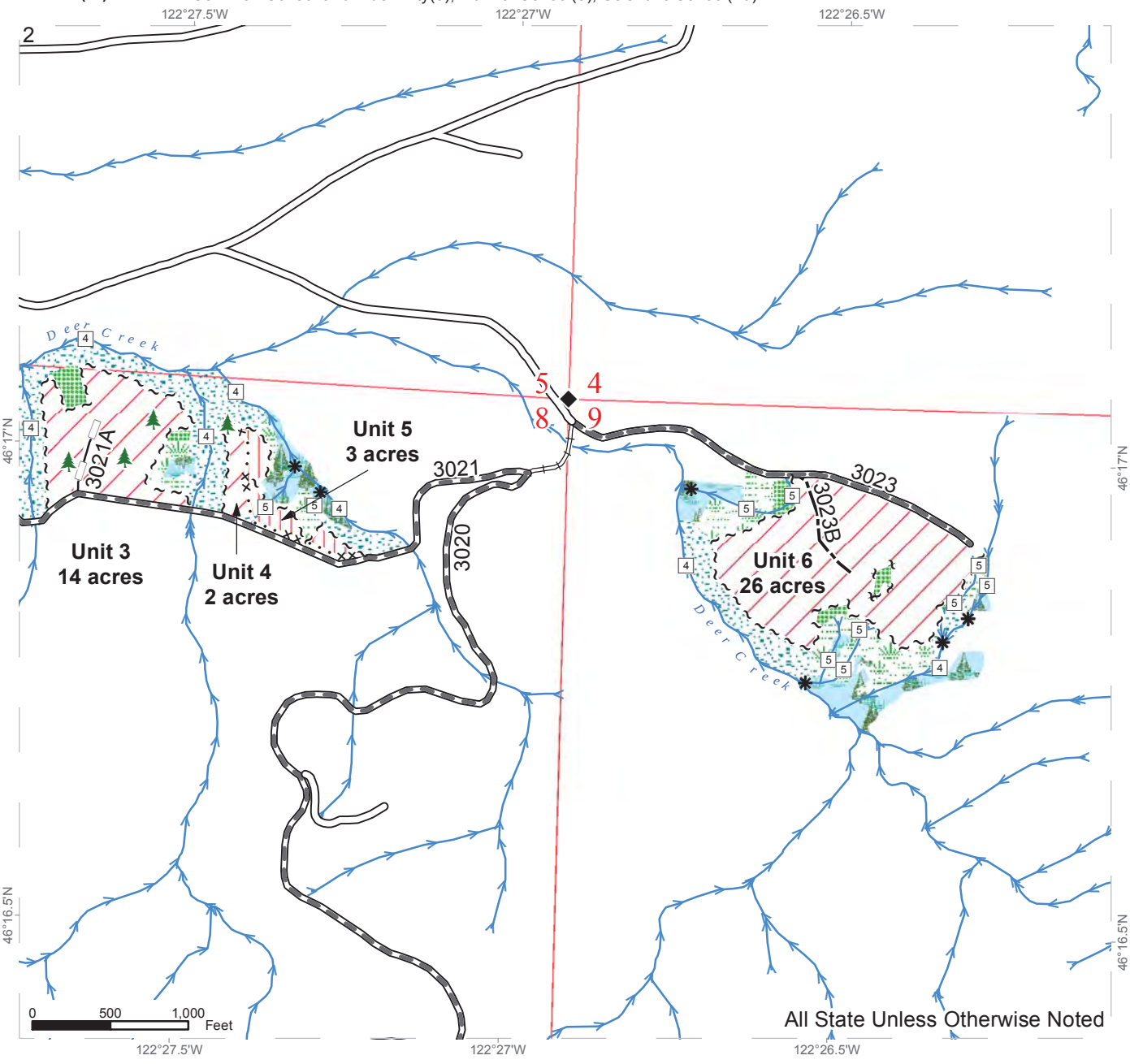
Prepared By: fbaz490 01/06/2016

Modification Date: 7/6/2016

TIMBER SALE MAP

SALE NAME: DEER CREEK
AGREEMENT #: 93330
TOWNSHIP(S): T09R03E
TRUST(S): Common School and Indemnity(3), Normal School(8), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): COWLITZ
ELEVATION RGE: 2075-2533



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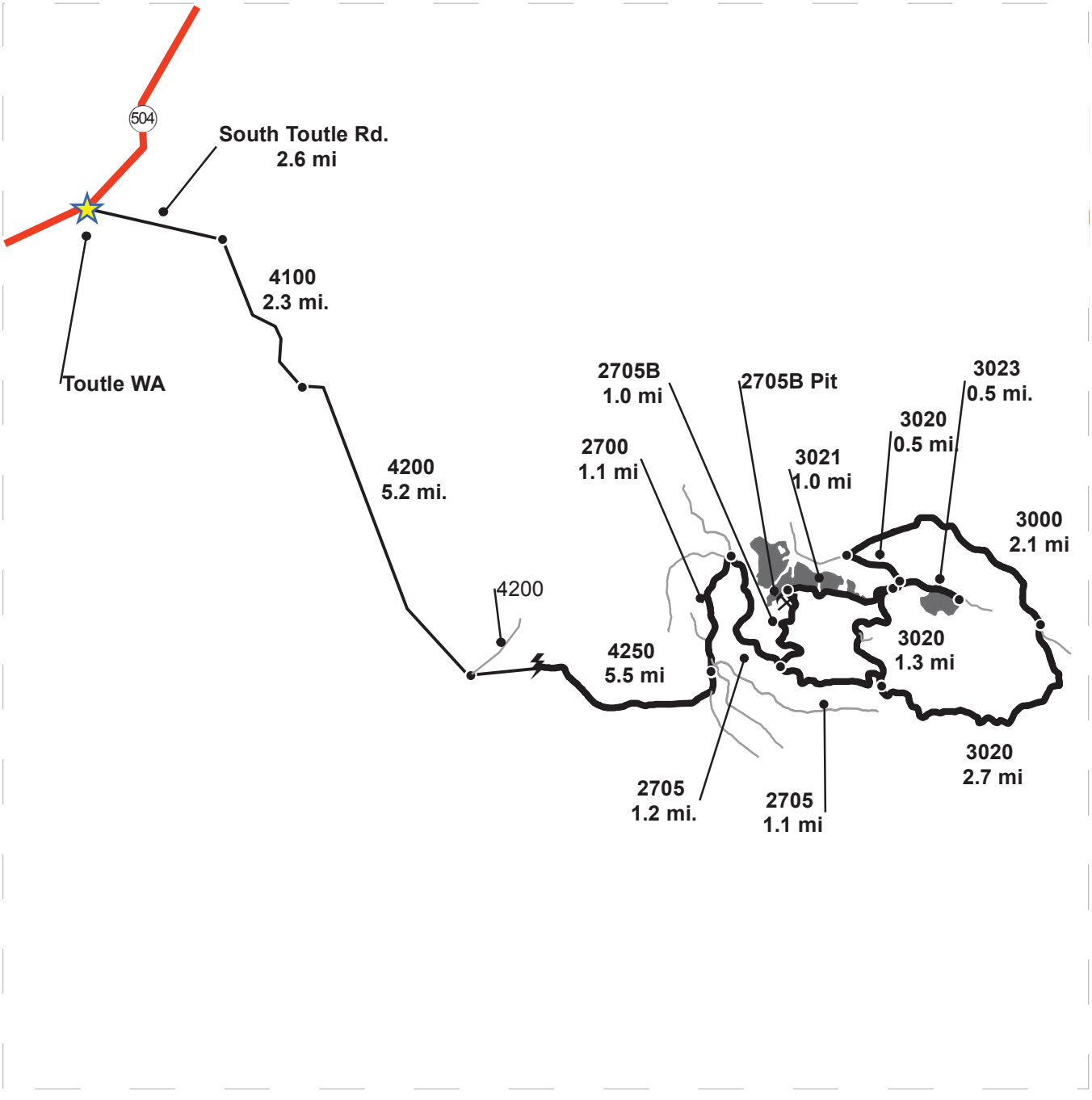
Prepared By: fbaz490 01/06/2016

Modification Date: 7/6/2016

DRIVING MAP

SALE NAME: DEER CREEK
AGREEMENT#: 30-093330
TOWNSHIP(S): T9R03E
TRUST(S): Common School and Indemnity(3), Normal School(8), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): COWLITZ
ELEVATION RGE: 690-1548



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

DRIVING DIRECTIONS:

From State Route 504 (milepost 10), turn south onto South Toutle Rd. Continue 2.6 miles and turn right onto the 4100 Rd. Drive 2.3 miles to the 4100/4200 intersection. Turn left onto the 4200 and continue 5.2 miles until reaching the 4200/4250 intersection. Turn right onto the 4250 and continue for 5.5 miles to the 4250/2700 intersection and turn left. Drive 1.1 miles to the 2700/2705 intersection and turn right onto the 2705. Continue on the 2705 for 1.2 miles.

To access Unit 1: The road to be constructed accessing the Unit will be on the left after .25 miles.

To access Units 2-5 and the 2705B Pit: Continue to the left onto the 2705B for 1.0 miles.The pit will be on the left. To access the Units make a right turn shortly after the 2705B pit onto the 3021, the Units will be on the left.
The Units will be on the left side of the road.

To access Unit 6: Continue on the 2705 for 1.1 miles. At the 2705/3020 junction turn right and drive for 2.7 miles. Turn left onto the 3000 and follow it for 2.1 miles to the 3020 road. Turn left onto the 3020 and drive for 0.5 miles. Turn left onto the 3023 for 0.5 miles, the Unit will be on the right.

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Prepared By: jhey490 01/06/2016

Modification Date: 1/26/2016

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

BILL OF SALE AND CONTRACT FOR FOREST PRODUCTS

Export Restricted Lump Sum AGREEMENT NO. 30-093330

SALE NAME: DEER CREEK

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-011 Right to Remove Forest Products and Contract Area

Purchaser was the successful bidder on November 17, 2016 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber, except leave trees banded with a single ring of blue paint, areas bounded out by yellow Leave Tree Area tags, snags, and all down timber existing 3 years prior to the day of sale, bounded by: white "Timber Sale Boundary" tags, and pink flagging in Unit 1; white "Timber Sale Boundary" tags, pink flagging, reprod, and the 3021 road in Unit 2; white "Timber Sale Boundary" tags, pink flagging, and the 3021 road in Unit 3; white "Timber Sale Boundary" tags, pink flagging, blue "Special Management Unit Boundary" tags, and the 3021 road in Unit 4; white "Timber Sale Boundary" tags, pink flagging, and the 3023 road in Unit 6. All take trees marked with a single band of orange paint bounded by white "Timber Sale Boundary" tags, pink flagging, blue "Special Management Unit Boundary" tags and the 3021 road in Unit 5, and all trees bounded by orange "Right-of-Way Boundary" tags and orange flagging in Unit 7, located on approximately 114 acres on part(s) of Sections 5, 6, 7, 8, and 9 all in Township 9 North, Range 3 East W.M. in Cowlitz County(s) as designated on the sale area and as shown on the attached timber sale map.

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

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

G-020 Inspection By Purchaser

Purchaser hereby warrants to the State that they have had an opportunity to fully inspect the sale area and the forest products being sold. Purchaser further warrants to the State that they enter this contract based solely upon their own judgment of the value of the forest products, formed after their own examination and inspection of both the

timber sale area and the forest products being sold. Purchaser also warrants to the State that they enter this contract without any reliance upon the volume estimates, acreage estimates, appraisals, pre-bid documentation, or any other representations by the State Department of Natural Resources.

G-031 Contract Term

Purchaser shall 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-051 Contract Term Extension - Payment

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

a. A written request for extension of the contract term must be received prior to the expiration date of the contract.

b. Completion of all required roads and compliance with all contract and regulatory requirements.

c. For the first extension, not to exceed 1 year, payment of at least 25 percent of the total contract price.

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

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

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

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

e. Payment of $668.00 per acre per annum for the acres on which an operating release has not been issued for Units, 1, 2, 3, 4, and 6. Payment of $95.00 per acre per annum for the acres on which an operating release has not been issued for Unit 5.

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-091 Sale Area Adjustment

The Parties may agree to adjustments in the sale area boundary. The cumulative changes to the sale area during the term of the contract shall not exceed more than four percent of the original sale area. If the sale area is increased, the added forest products become a part of this contract. The State shall determine the volume added and shall calculate the increase to the total contract price using the rates set forth in clause G-101, G-102, or G-103. If the sale area is reduced, the State shall determine the volume to be reduced. The State shall calculate the reduction to the total contract price using the rates set forth in clause G-101, G-102, or G-103.

G-101 Forest Products Not Designated

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

The pricing schedule has not been set for the sale.

G-106 Adding Naturally Damaged Forest Products

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

G-111 Title and Risk of Loss

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

G-116 Sustainable Forestry Initiative® (SFI) Certification

Forest products purchased under this contract are certified as being in conformance with the Sustainable Forestry Initiative 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 Castle Rock, 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; the 4100, 4200, 4250, 2700, 2705, 2705B, 2705A, 3000, 3020, 3021, 3021C, 3021B, 3021A, 3023, and 3023B. 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 2705, 3021, and 3023 roads, unless authority is granted in writing by the Contract Administrator.

G-380 Road Easement and Road Use Permit Requirements

Purchaser agrees to comply with the terms and conditions of the attached:

Easement between the State and Weyerhaeuser Company, dated 01/31/1967. Expires: Indefinitely.

Easement Supplement between the State and Weyerhaeuser Company, dated 03/01/1989. Expires Indefinite

G-430 Open Fires

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

G-450 Encumbrances

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

Easement, including the terms and provisions thereof,
For: Road
In Favor of: Weyerhaeuser Company
Disclosed by Application No.: 50-034209
Granted: 1/31/1967
Expires: Indefinite

Land Use License, including the terms and provisions thereof,
For: Stream Surveys
In Favor of: WA State Dept. of Ecology
Disclosed by Application No.: 60-PC1533
Granted: 7/1/2015
Expires: 10/15/2017

Section P: Payments and Securities

P-011 Initial Deposit

Purchaser paid DATA MISSING initial deposit, which will be maintained pursuant to RCW 79.15.100(3). If the operating authority on this contract expires without Purchaser's payment of the full amount specified in Clause P-020, the initial deposit will be immediately forfeited to the State, and will be offset against Purchaser's remaining balance due. Any excess initial deposit funds not needed to ensure full payment of the contract price, or not needed to complete any remaining obligations of the Purchaser existing after contract expiration, will be refunded to the Purchaser.

P-020 Payment for Forest Products

Purchaser agrees to pay the total, lump sum contract price of $92,394.00. The total contract price consists of a $0.00 contract bid price plus $92,394.00 in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause. Purchaser shall be liable for the entire purchase price, and will not be entitled to any refunds or offsets unless expressly stated in this contract.

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

P-045 Guarantee of Payment

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

P-050 Billing Procedure

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

P-080 Payment Account Refund

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

P-090 Performance Security

Purchaser agrees to furnish, within 30 days of the confirmation date, security acceptable to the State in the amount of $100,000.00. The Security provided shall guarantee performance of all provisions of this contract and payment of any damages caused by operations under this contract or resulting from Purchaser's noncompliance with any rule or law. Acceptable performance security may be in the form of a performance bond, irrevocable letter of credit, cash, savings or certificate of deposit account assignments, and must name the State as the obligee or beneficiary. A letter of credit must comply with Title 62A RCW, Article 5. Performance security must remain in full force over the duration of the contract length. Surety bonds issued shall conform to the issuance and rating requirements in clause G-150. The State shall retain the performance security pursuant to RCW 79.15.100. Purchaser shall not operate unless the performance security has been accepted by the State. If at any time the State decides that the security document or amount has become unsatisfactory, Purchaser agrees to suspend operations and, within 30 days of notification, to replace the security with one acceptable to the State or to supplement the amount of the existing security.

P-100 Performance Security Reduction

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

Section H: Harvesting Operations

H-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 100 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-035 Fall Trees Into Sale Area

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

H-040 Purchaser Harvest Plan

Purchaser shall, as part of the plan of operations, prepare an acceptable harvest plan for all harvest areas. The plan shall address the felling and yarding operations, which are part(s) of this contract. The harvest plan shall be approved by the Contract Administrator prior to beginning the harvest operation. Purchaser shall not deviate from the harvest plan without prior written approval by the Contract Administrator.

H-051 Branding and Painting

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

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

H-080 Snags Not to be Felled

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

H-120 Harvesting Equipment

Forest products sold under this contract shall be yarded using shovel, ground-based tracked equipment and cable systems, unless authority to use other equipment is granted in writing by the State.

H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

H-126 Tailholds on State Land

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

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

Only shovels with a low ground pressure (9 psi or less) track mounted machines with hydraulic boom and grapple will be allowed.

Shovel must be large enough to pick up one end of the largest log 35 feet from the machine.

Ground based harvest equipment is restricted to slopes of 35% and less.

Ground-based yarding equipment shall only operate during dry soil conditions.

Ground based equipment shall not operate within 25' of the white timber sale boundary tags within Unit 5.

Ground based equipment shall not operate within 25’ of the white timber sale boundary tags within Unit 5.

Within Unit 5, trees painted with two orange bands are designated for snag creation. Snags must be created mechanically or manually by topping the bole of the tree higher than 25 feet above ground level.

All tailhold settings must be pre-approved by the contract administrator.

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

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.

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 3/4/2016 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on the 2705A, 3021, 3021A, 3021B, 3021C, 3023, and 3023B roads. All work shall be completed to the specifications detailed in the Road Plan.

C-060 Designated Road Maintainer

If required by the State, Purchaser shall perform maintenance and replacement work as directed by the Contract Administrator on the 2700, 2705, 3020, 4100, 4200, and 4250 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-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 waters as a result of operations under this contract and which is identified by the Contract Administrator shall be removed and deposited in a stable position. Removal of slash or debris shall be accomplished in a manner that avoids damage to the natural stream bed and bank vegetation.

S-130 Hazardous Materials

a. Hazardous Materials and Waste - Regulatory Compliance

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

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-013 Liquidated Damages or Failure to Perform

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

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

D-040 Leave Tree Excessive Damage

When Purchaser's operations exceed the damage limits set forth in clause H-012, Leave Tree Damage Definition, the trees damaged result in substantial injury to the State. The value of the damaged leave trees at the time of the breach is not readily ascertainable. Therefore, Purchaser agrees to pay the State as liquidated damages at the rate of $250.00 per tree for all damaged trees in Unit 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 $1,000.00 per tree for all damaged reserve trees that are not replaced in Units 1, 2, 3, 4, and 6.

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

	STATE OF WASHINGTON DEPARTMENT OF NATURAL RESOURCES
_____	_____
Purchaser	Eric Wisch Pacific Cascade Region Manager
Date: _____	Date: _____
Address:	

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

STATE OF _____)
)
COUNTY OF _____)

On this _____ day of _____, 20___, before me personally appeared _____
_____ to me known to be the _____ of the corporation that executed the within and foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of the corporation, for the uses and purposes therein mentioned, and on oath stated that (he/she was) (they were) authorized to execute said instrument.

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

_____
Notary Public in and for the State of

_____

My appointment expires _____

Deer Creek TBS: Cutting Card for Wetland Management Zone Enhancement

Wetland Management Zone Thinning Cutting Card

Unit #5

• No equipment shall operate within 25 feet of the white Timber Sale Boundary tags.

• No western red cedar shall be harvested.

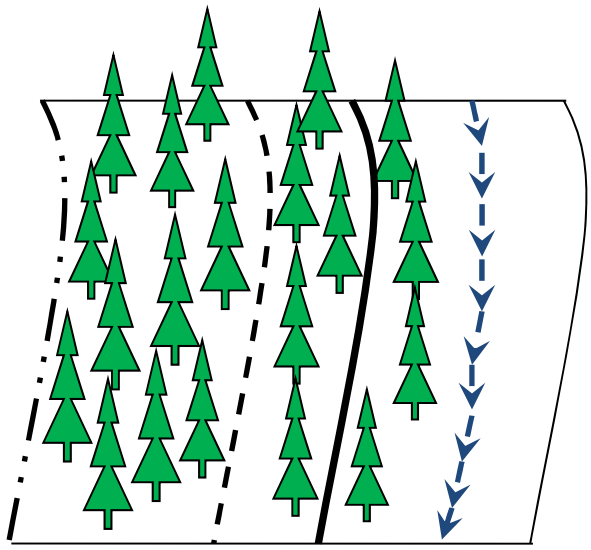
• All trees marked with a double band of orange paint and shall be created into snags. Snags may be created by girdling or with the use of mechanized equipment. Girdling shall expose the cambium the entire circumference of the tree for a width of no less than 3 inches. Snags created by mechanized equipment shall be at least25 feet tall and tops are to remain on site.

• All trees marked with a single band of orange paint are part of the sale volume and shall be felled and harvested.

• All snags felled for safety reasons must remain on-site and shall be left as close as possible to their original location.

• Skid roads shall be marked by the Purchaser and approved by the Contract Administrator prior to felling operations.

• Any un-painted trees that must be felled for operational reasons **must be approved by CA prior to felling** and will be paid for as additional volume.



Type 3 Stream

White Timber Sale Boundary Tags

25 Foot Equipment Exclusion Zone

Blue Special Management Boundary Tags

Single Band Orange Paint-Trees to Cut and Remove

Double Band Orange Paint -Snag Creation

WASHINGTON STATE DEPARTMENT OF
Natural Resources
Peter Goldmark - Commissioner of Public Lands

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

FOREST EXCISE TAX ROAD SUMMARY SHEET

Region: Pacific Cascade

Timber Sale Name: DEER CREEK

Application Number: 30- 093330

EXCISE TAX APPLICABLE ACTIVITIES

Construction: 5,079 **linear feet**
Road to be constructed (optional and required) but not abandoned

Reconstruction: 1,226 **linear feet**
Road to be reconstructed (optional and required) but not abandoned

Abandonment: 0 **linear feet**
Abandonment of existing roads not reconstructed under the contract

Decommission: 0 **linear feet**
Road to be made undriveable but not officially abandoned.

Pre-Haul Maintenance: 31,760 **linear feet**
Existing road to receive maintenance work (specifically required by the contract) prior to haul

EXCISE TAX EXEMPT ACTIVITIES

Temporary Optional Construction: 0 **linear feet**
Optional roads to be constructed and then abandoned

Temporary Optional Reconstruction: 0 **linear feet**
Optional roads to be reconstructed and then abandoned

New Abandonment: 0 **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 contact. 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 6/13)

PRE-CRUISE NARRATIVE

Sale Name: Deer Creek VRH	Region: **Pacific Cascade**
Agreement #: 30-093330	District: St. Helens
Contact Forester: Jacob Harvey Phone / Location: 360 703 4896 Castle Rock, WA	County(s): Cowlitz, Choose a county
Alternate Contact: Chris Wills Phone / Location: 360 751 0764	Other information: Click here to enter text.

Type of Sale: Lump Sum	
Harvest System: Ground based Click here to enter text.	75%
Harvest System: Uphill Cable Click here to enter text.	25%
Harvest System: Select harvest system Click here to enter text.	Click here to enter percent sale acres.

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit # Harvest R/W or RMZ WMZ	Legal Description (Enter only one legal for each unit) Sec/Twp/Rng	Grant or Trust	Gross Proposal Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determination (List method and error of closure if applicable)
				RMZ/ WMZ Acres	Leave Tree Acres	Existing Road Acres	Other Acres (describe)		
1	Sec. 5 T09N R03E Sec. 6 T09N R03E Sec. 7 T09N R03E Sec. 8 T09N R03E	03, 08, 10	57	14	7	0	0	36	Combination
2	Sec. 5 T09N R03E Sec. 7 T09N R03E Sec. 8 T09N R03E	03, 08, 10	50	16	2	0	0	32	Combination
3	Sec. 8 T09R03E	08	24	9	1	0	0	14	Combination
4	Sec. 8 T09R03E	08	6	4	0	0	0	2	Combination
5	Sec. 8 T09R03E	08	9	6	-----	-----	-----	3	Combination
6	Sec. 9 T09R03E	03	49	21	2	0	0	26	Combination
7 (ROW)	Sec. 9 T09R03E	03, 08	1	0	0	0	0	1	Combination
TOTAL ACRES			196	70	12	0	0	114	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1	Bounded by white "Timber Sale Boundary" tags with pink flagging, Retention Trees marked with blue paint or yellow "Leave Tree Area" tags with pink flagging.	Variable Retention Harvest	6 painted leave trees; one clump of 21 behind yellow leave tree tags; all others (~650) behind white TBS tags.
2	Bounded by white "Timber Sale Boundary" tags with pink flagging, reprod marked with pink flagging, and the 3021 Road, Retention Trees marked with blue paint.	Variable Retention Harvest	38 painted leave trees, remainder (238) behind white TBS tags.
3	Bounded by white "Timber Sale Boundary" tags with pink flagging and the 3021 Road, Retention Trees marked with blue paint or yellow "Leave Tree Area" tags with pink flagging.	Variable Retention Harvest	23 blue painted leave trees, 26 behind white timber sale boundary tags, and 71 within yellow leave tree tags.
4	Bounded by white "Timber Sale Boundary" tags with pink flagging, blue "Special Management" tags with pink flagging, and the 3021 Road. Retention Trees marked with blue paint. (Separating Unit 4 from Unit 5).	Variable Retention Harvest	16 blue painted leave trees in back corner of unit.
5	Bounded by white "Timber Sale Boundary" tags with pink flagging, 3021 Road and Unit 5 VRH. Take Trees marked with orange paint.	Thinning	100% marked with one orange band for take trees, two orange bands for snag creation.
6	Bounded by white "Timber Sale Boundary" tags with pink flagging and the 3023 Road, Retention Trees bounded by yellow "Leave Tree Area" tags with pink flagging.	Variable Retention Harvest	207 leave trees behind white timber sale tags and pink ribbon; 42 surrounded by yellow leave tree tags.
7 (ROW)	Bounded by white "Timber Sale Boundary" tags and "Right-of-Way" tags with pink flagging.	ROW	N/A

OTHER PRE-CRUISE INFORMATION:

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
1	DF/WH 30 MBF/AC	Access via 4100 Road to the 4200 to the 4250 to the 2700 to the 2705. A future road accessing the unit will be on the left after .4 miles.	See Logging Plan maps and driving maps.
2	DF/WH 30 MBF/AC	Access via 4100 Road to the 4200 to the 4250 to the 2700 to the 2705 to the 2705B to the 3021. The Unit will be immediately to the left.	See Logging Plan maps and driving maps.
3	DF/HM 30 MBF/AC	Access via 4100 Road to the 4200 to the 4250 to the 2700 to the 2705 to the 2705B to the 3021 for .25 miles, the Unit will be on the left side of the road.	See Logging Plan maps and driving maps.
4	DF/HM 30 MBF/AC	Access via 4100 Road to the 4200 to the 4250 to the 2700 to the 2705 to the 2705B to the 3021 Road for .75 miles, the Unit will be on the left side of the road.	See Logging Plan maps and driving maps.
5	DF/HM 5 MBF/AC	Access via 4100 Road to the 4200 to the 4250 to the 2700 to the 2705 to the 2705B to the 3021 for .75 miles, the Unit will be on the left side of the road.	See Logging Plan maps and driving maps.
6	DF/HM 30 MBF/AC	Access via 4100 Road to the 4200 to the 4250 to the 2700 to the 2705 to the 3020 to the 3000 back on to the 3020 (there was a stream crossing pulled this is the opposite side) to the 3023. Follow the 3023 Road for .25 miles, the Unit will be on the right.	See Logging Plan maps and driving maps.
7 (ROW)	DF/HM 1 MBF/AC	Access via 4100 Road to the 4200 to the 4250 to the 2700 to the 2705. A future road accessing the unit will be on the left after .4 miles.	See Logging Plan maps and driving maps.
TOTAL MBF	3,350 MBF		

REMARKS:

Prepared By: Jacob Harvey Date: 1/25/16	Title: Forester 1	CC:

Cruise Narrative

Sale Name: Deer Creek VRH	**Region:** Pacific Cascade
App. #: 30-093330	**District:** St. Helens
Lead Cruiser: Bryce Frank	**Completion date:** 3-2-2016
Other Cruisers: n/a	

Unit acreage specifications:

Unit	Acreage	Cruised acres agree with sale acres?	If acres do not agree then explain why.
1	36	Yes	
2	32	Yes	
3	14	Yes	
4	2	Yes	
5	3	Yes	
6	26	Yes	
7 ROW	1	Yes	
Total	114		

Unit cruise specifications:

Unit #	Sample type (VP, FP, ITS,100%)	Expansion factor (BAF, full/ half)	Sighting height (4.5 ft, 16 ft.)	Grid size (Plot spacing or % of area)	Plot ratio (Cru./Tally)	Total number of plots
1	VP	54.44	4.5 ft.	220' x 220'	1:1	33
2	VP	54.44	4.5 ft.	220' x 220'	1:1	29
3	VP	46.94	4.5 ft.	208' x 208'	Cruise All	14
4	VP	40	4.5 ft.	148' x 148'	Cruise All	4
5	VP	27.78	4.5 ft.	148' x 148'	Cruise All	6
6	VP	46.94	4.5 ft.	220' x 220'	1:1	23
7 ROW	ITS	DF: 1.94 WH, RA: 2 NF: 1	4.5 ft.	n/a	n/a	n/a

Sale/Cruise Description:

Minor species cruise intensity:	Cruised on appropriate plots.					
Minimum cruise spec:	40% 0f Form- Factor at 16 feet D.O.B or 5 inch Top, and merchantable top.					
Avg. ring count by sp:	**DF** =	7	**WH** =	7	**SS** =	n/a
Leave/take tree description:	Leave tree clumps are bounded with yellow "Leave Tree Area" tags and pink flagging, individual leave trees are marked with a single band of blue paint.					

Sort Description:	**HA**– 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. (min dia 8".) **HB** – 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. (min dia 8".) **R** – 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.
Status Description:	**D** – Logs classified as merchantable dead timber.

Field observations:

Deer Creek VRH - consists of 5 VRH units and 1 thinning unit. In total, Deer Creek VRH consists of 114 net harvest acres and **3,454 mbf**.

Units 1, 2, 3 and 6 are all very similar units with regards to timber. All three units exhibit signs of previous thinning operations in areas alongside the main roads, but denser unmanaged Western Hemlock (WH) stands exist as well. This mosaic of management created a higher degree of variability with regards to the quantity and quality of timber. The bulk of the volume in these units is in Douglas-fir (DF) and WH B-sort, with a fairly even mixture of 2-saw and 3-saw. Some minor amounts of A-sort was found, but it was not a significant source of volume. Average diameter and bole length for DF were 18.4 inches and 79 feet respectively. Average diameter and bole length for WH were 14.6 inches and 68 feet respectively. Defect was notable at 3% in these species and consisted of butt rot, spike knots, split tops and sweep. Noble fir (NF) was sparse in these units, accounting for only 3% of the total volume. Red alder (RA) and Bigleaf Maple (BM) are also present, but in very minor amounts.

Unit 7 ROW is a small 1 acre strip to the west of Unit 1 and connects it to the 2705. It consists of 13 mbf of DF and WH, all similar in diameter (12 to 20 inches) and height (55 to 100 feet merchantable). Defect was minor in this unit, but present in split tops and sweep.

Unit 4 is a small VRH unit to the east of Unit 3 that consists of relatively heavier volumes per acre and has similar timber as described above.

Unit 5 is directly adjacent to Unit 4 and to the east. Due to the thinning, volumes in this unit are relatively low and consist of 12 to 16 inch DF and WH with bole lengths of 50 to 80 feet.

Access to all units is adequate except for Unit 1 which must be accessed by foot either from the west off the 2705 or from the south through Unit 2. Units 2, 3, 4 and 5 are all off the 3021. Unit 6 is currently only accessible by driving around on the 3020 to the 3000 and then to the 3023.

Grant: 03,08,10 **Prepared by: Bryce Frank** **Title: Timber Cruiser**

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T09N R03E S06 Ty00U1
THRU
T09N R03E S06 TyROW7

Project: DEERCREE
Acres 114.00

Date 4/18/2016
Time 3:31:25PM

Spp	ST	So Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
WH		CU CU		100.0	68											3	9		0.00	16.3
WH		HA 3S	2		260	260	30		100					26	74	38	10	141	0.95	1.8
WH		HB 2S	10	4.1	1,170	1,122	128			84	16			9	91	39	13	256	1.71	4.4
WH		HB 3S	32	3.7	3,576	3,444	393		100					33	67	36	10	119	0.89	29.0
WH		D 2S	16	6.3	1,762	1,651	188			51	49			15	85	39	15	317	2.21	5.2
WH		D 3S	18	.8	2,039	2,022	231	81	19				3	30	67	37	7	67	0.55	30.1
WH		D 4S	17	1.8	1,839	1,806	206	99	1			16	34	18	32	28	5	29	0.31	61.3
WH		D UT	5		461	461	53	78	2	12	8	20	22		58	32	6	45	0.46	10.1
WH	**Totals**		36	3.7	11,175	10,766	1,227	35	38	17	10	3	7	23	66	30	7	68	0.64	158.3
DF		CU CU		100.0	19											2	10		0.00	15.5
DF		HA 2S	4		882	882	101			100					100	40	14	271	1.75	3.3
DF		HA 3S	2		382	382	44		100						100	40	10	141	0.93	2.7
DF		HB 2S	32	1.4	5,754	5,671	646			84	16			1	99	40	13	267	1.72	21.3
DF		HB 3S	22	1.8	4,129	4,055	462		100					23	77	37	9	119	0.85	34.1
DF		D 2S	16	7.4	3,142	2,910	332			57	43	0	4	5	92	39	15	305	2.07	9.6
DF		D 3S	15	1.3	2,699	2,664	304	56	44			0		27	73	37	7	78	0.64	34.3
DF		D 4S	6	.4	1,227	1,223	139	99	1			36	27	21	16	23	5	26	0.32	47.7
DF		D UT	3		378	378	43	41		39	20	50	13		36	21	6	44	0.50	8.6
DF	**Totals**		60	2.4	18,613	18,166	2,071	16	31	41	12	4	3	12	82	30	9	103	0.92	176.9
NF		HA 3S	5		51	51	6		100						100	40	11	180	1.03	.3
NF		HB 2S	25		250	250	28			1	99				100	40	19	596	2.92	.4
NF		HB 3S	28	2.2	283	277	32		100					24	76	37	9	110	0.83	2.5
NF		D 2S	16	3.1	168	163	19			100				41	59	37	14	244	1.60	.7
NF		D 3S	2		22	22	3	58	42			42		58		26	8	54	0.76	.4
NF		D 4S	9		82	82	9	88	12			43	57			23	5	27	0.33	3.1
NF		D UT	15		147	147	17	23		39	38	77	23			22	9	62	0.69	2.4
NF	**Totals**		3	1.1	1,002	991	113	12	35	22	31	16	8	15	61	29	9	102	0.87	9.7
RA		CU CU															7		0.00	.5
RA		D UT	6		21	21	2	8	92			97		3		15	8	20	0.49	1.1
RA		D 2S	14	6.7	50	46	5			100			100			30	12	140	1.38	.3
RA		D 4S	46	15.5	182	154	18		100			0	100			28	9	54	0.72	2.9
RA		D 4S	34	3.9	118	114	13	100				41			59	27	5	30	0.38	3.8
RA	**Totals**		1	9.7	372	335	38	34	52	14		20	60	0	20	25	7	40	0.57	8.5
BM		CU CU															6		0.00	.7
BM		D 4S	100		40	40	5	100							100	40	6	60	0.49	.7
BM	**Totals**		0		40	40	5	100							100	20	6	30	0.49	1.3
Totals				2.9	31,202	30,298	3,454	23	34	32	12	4	5	16	75	30	8	85	0.79	354.7

TC PSTATS

PROJECT STATISTICS

PROJECT DEERCREE

DATE 4/18/2016

TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
09N	03E	06	DEERCREE	00U1	THR	114.00	111	560	S	W
09N	03E	06	DEERCREE	ROW7						

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	111	560	5.0		
CRUISE	69	365	5.3	18,742	1.9
DBH COUNT					
REFOREST					
COUNT	42	191	4.5		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	226	74.0	18.3	79	31.7	135.8	18,613	18,166	4,904	4,899
WHEMLOCK	120	80.5	14.7	68	24.7	94.5	11,175	10,766	3,023	3,010
NOBLE F	9	4.6	17.3	66	1.8	7.5	1,002	991	244	244
R ALDER	9	4.7	13.7	50	1.3	4.8	372	335	118	119
BL MAPLE	1	.7	12.0	51	0.2	.5	40	40	13	13
TOTAL	*365*	*164.4*	*16.5*	*72*	*59.9*	*243.0*	*31,202*	*30,298*	*8,302*	*8,284*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

SAMPLE TREES - BF

CL 68.1 SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	45.3	3.1	325	336	346			
WHEMLOCK	66.7	6.1	192	205	217			
NOBLE F	93.9	33.2	256	383	510			
R ALDER	49.8	17.6	60	72	85			
BL MAPLE								
TOTAL	*59.3*	*3.1*	*276*	*285*	*294*	*141*	*35*	*16*

SAMPLE TREES - CF

CL 68.1 SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	39.2	2.7	87	90	92			
WHEMLOCK	65.2	5.9	54	58	61			
NOBLE F	81.8	28.9	63	88	113			
R ALDER	44.6	15.7	22	26	30			
BL MAPLE								
TOTAL	*52.7*	*2.8*	*75*	*77*	*79*	*111*	*28*	*12*

TREES/ACRE

CL 68.1 SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	90.3	8.6	68	74	80			
WHEMLOCK	136.8	13.0	70	81	91			
NOBLE F	360.6	34.2	3	5	6			
R ALDER	381.3	36.2	3	5	6			
BL MAPLE	1053.6	99.9	0	1	1			
TOTAL	*68.1*	*6.5*	*154*	*164*	*175*	*185*	*46*	*21*

BASAL AREA/ACRE

CL 68.1 SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	85.8	8.1	125	136	147			
WHEMLOCK	124.6	11.8	83	94	106			
NOBLE F	329.9	31.3	5	7	10			
R ALDER	372.1	35.3	3	5	6			
BL MAPLE	1053.6	99.9	0	1	1			
TOTAL	*51.7*	*4.9*	*231*	*243*	*255*	*107*	*27*	*12*

PROJECT STATISTICS

PROJECT DEERCREE

TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
09N	03E	06	DEERCREE	00U1	THR	114.00	111	560	S	W
09N	03E	06	DEERCREE	ROW7						

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	89.3	8.5	16,627	18,166	19,705			
WHEMLOCK	127.9	12.1	9,460	10,766	12,071			
NOBLE F	344.7	32.7	667	991	1,315			
R ALDER	383.6	36.4	213	335	457			
BL MAPLE	1053.6	99.9	0	40	80			
TOTAL	*53.4*	*5.1*	*28,764*	*30,298*	*31,831*	*114*	*28*	*13*

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	88.0	8.3	4,491	4,899	5,308			
WHEMLOCK	126.0	12.0	2,650	3,010	3,369			
NOBLE F	338.8	32.1	166	244	322			
R ALDER	380.8	36.1	76	119	161			
BL MAPLE	1053.6	99.9	0	13	26			
TOTAL	*52.5*	*5.0*	*7,872*	*8,284*	*8,697*	*110*	*28*	*12*

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	59.5	5.6	122	134	145			
WHEMLOCK	76.8	7.3	100	114	128			
NOBLE F	193.3	18.3	89	132	176			
R ALDER	335.2	31.8	45	70	96			
BL MAPLE	1053.6	99.9	0	76	153			
TOTAL	*66.7*	*6.3*	*118*	*125*	*131*	*178*	*44*	*20*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: DEERCREE

Date 4/18/2016

Time 3:29:42PM

T09N R03E S06 T00U1

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
09N	03E	06	DEERCREE	00U1	36.00	33	80	S	W

T09N R03E S06 T00U1

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		CU	CU														2	11		0.00	19.5
DF		HA	2S	3		651	651	23			100					100	40	13	264	1.64	2.5
DF		HA	3S	5		739	739	27		100						100	40	9	127	0.81	5.8
DF		HB	2S	30	1.4	5,235	5,163	186			93	7				100	40	13	251	1.63	20.6
DF		HB	3S	32	1.5	5,437	5,354	193		100					23	77	37	9	114	0.81	46.9
DF		DM	2S	1	20.8	257	203	7			100					100	40	13	190	1.78	1.1
DF		DM	3S	18	.4	3,092	3,079	111	77	23					24	76	38	7	71	0.53	43.5
DF		DM	4S	9		1,509	1,509	54	100				37	32	10	21	22	5	23	0.28	64.8
DF		DM	UT	2		205	205	7	60		40		40	60			20	6	28	0.42	7.3
DF	**Totals**			55	1.3	17,124	16,903	609	24	40	34	2	4	4	13	80	29	8	80	0.73	211.9
WH		CU	CU		100.0	18											1	6		0.00	19.9
WH		HA	3S	3		381	381	14		100						100	40	10	150	0.97	2.5
WH		HB	2S	6	7.7	751	693	25			45	55			45	55	35	14	268	2.01	2.6
WH		HB	3S	28	1.3	3,462	3,417	123		100					13	87	38	10	136	0.92	25.2
WH		DM	2S	6	10.8	785	700	25			100					100	40	15	294	2.06	2.4
WH		DM	3S	29		3,517	3,517	127	93	7					16	84	39	7	66	0.46	53.3
WH		DM	4S	21	2.2	2,485	2,430	87	100				20	39	6	36	27	5	29	0.27	85.2
WH		DM	UT	7		802	802	29	79		21		21	30		49	31	6	51	0.44	15.7
WH	**Totals**			39	2.1	12,201	11,940	430	53	34	10	3	6	10	12	72	30	7	58	0.51	206.9
RA		CU	CU															7		0.00	1.5
RA		DM	UT	11		62	62	2		100			100				14	8	20	0.50	3.1
RA		DM	2S	27	6.7	157	147	5			100			100			30	12	140	1.38	1.0
RA		DM	4S	19	20.0	131	105	4		100				100			25	8	40	0.57	2.6
RA		DM	4S	43	5.9	249	235	8	100				9			91	36	6	42	0.44	5.6
RA	**Totals**			2	8.6	600	549	20	43	31	27		15	46		39	25	7	39	0.56	13.9
NF		HB	2S	55		785	785	28				100				100	40	19	604	2.96	1.3
NF		HB	3S	15	8.3	236	217	8		100						100	40	9	110	0.92	2.0
NF		DM	2S	21		304	304	11			100					100	40	13	234	1.44	1.3
NF		DM	3S	2		30	30	1		100			100				17	10	60	0.81	.5
NF		DM	4S	7		91	91	3	65	35			35	65			27	6	33	0.35	2.8
NF	**Totals**			5	1.4	1,446	1,426	51	4	20	21	55	4	4		92	34	10	182	1.25	7.8
BM		CU	CU															6		0.00	2.1
BM		DM	4S	100		126	126	5	100							100	40	6	60	0.49	2.1
BM	**Totals**			0		126	126	5	100							100	20	6	30	0.49	4.2
Type Totals					1.8	31,497	30,944	1,114	35	36	24	5	5	7	12	77	29	7	70	0.63	444.8

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Species, Sort Grade - Board Foot Volumes (Type)

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T09N R03E S06 T00U2

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
09N	03E	06	DEERCREE	00U2	32.00	29	66	S	W

T09N R03E S06 T00U2

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		CU	CU		100.0	12											2	8		0.00	7.7
DF		HA	2S	5		874	874	28			100					100	40	15	360	2.18	2.4
DF		HA	3S	2		388	388	12		100						100	40	11	180	1.21	2.2
DF		HB	2S	20	.3	3,395	3,384	108			73	27				100	40	14	284	1.80	11.9
DF		HB	3S	22	2.5	3,860	3,762	120		100					13	87	38	10	144	1.01	26.0
DF		DM	2S	26	8.4	4,837	4,433	142			64	36		8	6	86	38	15	285	1.97	15.6
DF		DM	3S	13	.4	2,108	2,099	67	34	66					33	67	37	8	93	0.74	22.6
DF		DM	4S	6	1.4	1,097	1,081	35	100				25	19	38	18	26	6	31	0.39	35.2
DF		DM	UT	6		918	918	29	31		47	22	53			47	21	7	52	0.59	17.5
DF	**Totals**			54	3.1	17,489	16,939	542	12	33	39	16	4	3	11	81	31	9	120	1.04	141.1
WH		CU	CU		100.0	132											2	10		0.00	21.1
WH		HB	2S	9	3.4	1,187	1,147	37			100					100	40	13	248	1.65	4.6
WH		HB	3S	37	6.7	5,042	4,704	151		100					46	54	35	9	105	0.82	44.6
WH		DM	2S	25	5.5	3,287	3,105	99			25	75			13	87	39	16	367	2.50	8.5
WH		DM	3S	10	2.7	1,312	1,277	41	55	45				13	33	54	34	7	71	0.75	17.9
WH		DM	4S	15		1,821	1,821	58	98	2			10	30	20	40	29	5	31	0.33	58.2
WH		DM	UT	4		488	488	16	93	7				7		93	39	6	45	0.50	10.8
WH	**Totals**			40	5.5	13,269	12,541	401	23	43	15	19	2	6	27	66	29	8	76	0.76	165.7
NF		HB	3S	66		739	739	24		100					32	68	36	9	110	0.79	6.7
NF		DM	4S	15		168	168	5	100				40	60			23	5	25	0.31	6.7
NF		DM	UT	19		202	202	6			100		100				12	12	60	1.09	3.4
NF	**Totals**			4		1,109	1,109	35	15	67	18		24	9	21	45	26	8	66	0.65	16.8
RA		DM	4S	75	14.3	492	421	13		100				100			30	9	60	0.77	7.0
RA		DM	4S	25		140	140	4	100				100				20	5	20	0.29	7.0
RA	**Totals**			2	11.1	632	562	18	25	75			25	75			25	7	40	0.58	14.0
Type Totals					4.1	32,498	31,151	997	17	39	28	16	4	6	18	72	30	8	92	0.87	337.7

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Species, Sort Grade - Board Foot Volumes (Type)

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T09N R03E S06 T00U3

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
09N	03E	06	DEERCREE	00U3	14.00	14	69	S	W

T09N R03E S06 T00U3

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		CU	CU		100.0	36											3	11		0.00	26.9
DF		HA	2S	1		335	335	5			100					100	40	13	240	1.66	1.4
DF		HA	3S	1		319	319	4		100						100	40	10	150	1.06	2.1
DF		HB	2S	35	2.4	9,545	9,319	130			79	21			5	95	39	14	268	1.73	34.7
DF		HB	3S	15	1.8	4,025	3,951	55		100					29	71	37	9	114	0.81	34.8
DF		DM	2S	26	5.6	7,504	7,084	99			55	45			6	94	39	15	324	2.12	21.9
DF		DM	3S	15	4.2	4,124	3,953	55	36	64			1		30	69	37	8	83	0.71	47.4
DF		DM	4S	5		1,344	1,344	19	95	5			44	16	40		22	6	27	0.35	49.5
DF		DM	UT	2		324	324	5	51			49	71	29			22	7	42	0.44	7.8
DF Totals				86	3.4	27,557	26,629	373	11	26	43	20	3	1	14	81	30	10	118	1.06	226.4
WH		CU	CU														5	14		0.00	2.4
WH		HB	2S	9	6.5	452	423	6				100				100	40	17	430	2.63	1.0
WH		HB	3S	24	4.3	1,137	1,088	15		100					39	61	37	10	132	0.94	8.2
WH		DM	2S	26	8.1	1,269	1,166	16			100				15	85	38	14	254	1.84	4.6
WH		DM	3S	16	2.8	772	750	11	60	40					49	51	35	8	78	0.67	9.7
WH		DM	4S	12		526	526	7	100				29	22	12	37	27	5	30	0.34	17.6
WH		DM	UT	13		559	559	8	48			52	52	22		26	25	5	32	0.41	17.3
WH Totals				14	4.3	4,715	4,513	63	28	31	26	16	10	5	23	62	29	7	74	0.72	60.7
Type Totals					3.5	32,272	31,141	436	13	27	41	20	4	2	16	79	30	9	108	0.99	287.1

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Species, Sort Grade - Board Foot Volumes (Type)

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T09N R03E S06 T00U4

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
09N	03E	06	DEERCREE	00U4	2.00	4	30	S	W

T09N R03E S06 T00U4

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		CU	CU		100.0	656											2	9		0.00	43.5
DF		HB	2S	40	1.8	17,252	16,950	34			80	20				100	40	14	274	1.77	61.8
DF		HB	3S	21	1.4	8,785	8,662	17		100					13	87	39	9	109	0.79	79.8
DF		DM	2S	17	4.4	7,233	6,916	14			22	78	11			89	37	15	324	2.12	21.4
DF		DM	3S	12	.5	5,175	5,148	10	31	69						100	40	8	97	0.78	52.8
DF		DM	4S	7		2,871	2,871	6	94	6			25	34	24	18	25	5	28	0.31	101.7
DF		DM	UT	3		905	905	2	100							100	38	5	40	0.29	22.6
DF Totals				100	3.3	42,878	41,452	83	13	30	37	21	3	2	4	90	31	9	108	0.94	383.6
Type Totals					3.3	42,878	41,452	83	13	30	37	21	3	2	4	90	31	9	108	0.94	383.6

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T09N R03E S06 T00U5

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
09N	03E	06	DEERCREE	00U5	3.00	6	17	S	W

T09N R03E S06 T00U5

Spp	ST	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		CU	CU														3	11		0.00	20.8
DF		HB	2S	8		590	590	2				100				100	40	16	400	2.27	1.5
DF		HB	3S	53	2.1	3,664	3,588	11		100						100	40	9	119	0.83	30.2
DF		DM	2S	5	10.0	424	382	1			100					100	40	12	180	1.48	2.1
DF		DM	3S	16	3.8	1,131	1,087	3	44	56					56	44	34	8	76	0.68	14.3
DF		DM	4S	18		1,181	1,181	4	100				21	45		34	26	5	28	0.29	42.3
DF		**Totals**		80	2.3	6,990	6,828	20	24	61	6	9	4	8	9	80	27	8	61	0.64	111.1
WH		CU	CU															6		0.00	5.9
WH		HB	2S	26	8.3	509	467	1			100					100	40	13	220	1.55	2.1
WH		HB	3S	26	5.6	472	445	1		100						100	40	11	170	1.21	2.6
WH		DM	3S	27		460	460	1	100						23	77	39	6	57	0.51	8.0
WH		DM	4S	21		359	359	1	100					22		78	37	5	37	0.40	9.6
WH		**Totals**		20	3.8	1,800	1,731	5	47	26	27			5	6	89	30	7	61	0.65	28.3
Type Totals					2.6	8,790	8,559	26	29	54	10	7	3	7	8	82	28	8	61	0.64	139.4

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Species, Sort Grade - Board Foot Volumes (Type)

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T09N R03E S06 T00U6

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
09N	03E	06	DEERCREE	00U6	26.00	24	72	S	W

T09N R03E S06 T00U6

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		CU	CU														1	10		0.00	11.1
DF		HA	2S	10		1,713	1,713	45			100					100	40	13	240	1.63	7.1
DF		HB	2S	42	1.5	7,122	7,019	182			86	14				100	40	14	271	1.74	25.9
DF		HB	3S	14	1.2	2,495	2,465	64		100					45	55	36	9	104	0.82	23.6
DF		DM	2S	16	6.7	2,784	2,598	68			50	50				100	40	15	348	2.32	7.5
DF		DM	3S	13	1.0	2,144	2,122	55	67	33					24	76	38	7	70	0.66	30.3
DF		DM	4S	5		835	835	22	100				48	32	9	10	20	6	23	0.32	36.0
DF	**Totals**			55	2.0	17,094	16,752	436	14	19	54	14	2	2	10	86	31	9	118	1.07	141.5
WH		CU	CU		100.0	109											8	10		0.00	15.9
WH		HA	3S	4		613	613	16		100					48	52	36	10	134	0.93	4.6
WH		HB	2S	18	2.5	2,276	2,218	58			100					100	40	13	245	1.59	9.0
WH		HB	3S	32	1.7	3,981	3,912	102		100					37	63	36	10	121	0.95	32.4
WH		DM	2S	14	4.9	1,882	1,790	47			61	39			28	72	37	14	274	1.96	6.5
WH		DM	3S	16	1.0	1,965	1,946	51	76	24				2	60	38	35	7	65	0.61	29.8
WH		DM	4S	16	3.4	2,041	1,971	51	100				13	33	36	17	28	5	29	0.33	68.0
WH	**Totals**			41	3.2	12,866	12,449	324	28	40	27	6	2	6	33	59	30	8	75	0.71	166.3
NF		HA	3S	22		222	222	6		100						100	40	11	180	1.03	1.2
NF		DM	2S	30	7.1	316	294	8			100				100		32	15	260	1.93	1.1
NF		DM	3S	5		56	56	1	100						100		31	7	50	0.75	1.1
NF		DM	4S	3		25	25	1	100				100				19	6	20	0.43	1.2
NF		DM	UT	40		395	395	10	38			63	63	38			28	7	64	0.58	6.2
NF	**Totals**			3	2.2	1,015	992	26	23	22	30	25	27	15	35	22	29	8	91	0.81	10.9
Type Totals					2.5	30,974	30,193	785	20	28	42	11	3	4	20	73	30	8	95	0.88	318.7

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Species, Sort Grade - Board Foot Volumes (Type)

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T09N R03E S06 TROW7

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
09N	03E	06	DEERCREE	ROW7	1.00	1	31	S	W

T09N R03E S06 TROW7

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 5-7	8-11	12-15	16+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
DF		CU	CU															6		0.00	3.9
DF		HB	2S	43	1.0	3,764	3,725	4			100					100	40	13	240	1.64	15.5
DF		HB	3S	19		1,688	1,688	2		100						100	40	11	174	1.17	9.7
DF		DM	2S	11	11.5	1,016	900	1			27	73				100	40	15	306	2.11	2.9
DF		DM	3S	19	3.4	1,720	1,661	2	43	57					57	43	36	8	74	0.66	22.3
DF		DM	4S	8		621	621	1	100				16	28	44	12	27	5	30	0.36	20.4
DF	**Totals**			63	2.4	8,808	8,595	9	16	31	46	8	1	2	14	83	33	9	115	0.99	74.8
WH		CU	CU														3	15		0.00	2.0
WH		HB	2S	30	3.1	1,280	1,240	1			35	65				100	40	15	310	1.98	4.0
WH		HB	3S	20		840	840	1		100					21	79	37	10	140	0.97	6.0
WH		DM	2S	19	5.0	800	760	1			100					100	40	12	190	1.38	4.0
WH		DM	3S	15	3.1	640	620	1	55	45					55	45	35	8	78	0.73	8.0
WH		DM	4S	10		400	400	0	100				20	50	30		26	5	29	0.38	14.0
WH		DM	UT	6		240	240	0			100		100				14	15	120	1.70	2.0
WH	**Totals**			30	2.4	4,200	4,100	4	18	27	35	20	8	5	16	72	30	9	103	0.94	40.0
RA		DM	UT	40		200	200	0	100				60		40		22	5	25	0.33	8.0
RA		DM	4S	60	6.3	320	300	0		100			27	73			27	8	50	0.77	6.0
RA	**Totals**			4	3.8	520	500	1	40	60			40	44	16		24	6	36	0.54	14.0
NF		HB	2S	68		240	240	0			100					100	40	13	240	1.25	1.0
NF		HB	3S	26		90	90	0		100					100		32	9	90	0.68	1.0
NF		DM	4S	6		20	20	0	100				100				20	6	20	0.32	1.0
NF	**Totals**			3		350	350	0	6	26	69		6		26	69	31	9	117	0.85	3.0
Type Totals					2.4	13,878	13,545	14	17	31	42	11	5	4	15	76	31	9	103	0.93	131.8

STATISTICS

PROJECT DEERCREE

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
09N	03E	06	DEERCREE	00U1	36.00	33	146	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	33	146	4.4		
CRUISE	18	80	4.4	7,408	1.1
DBH COUNT					
REFOREST					
COUNT	15	62	4.1		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	45	85.8	16.5	80	31.3	127.0	17,124	16,903	4,521	4,521
WHEMLOCK	27	106.4	12.8	70	26.7	95.7	12,201	11,940	3,147	3,142
R ALDER	4	8.3	13.5	48	2.2	8.2	600	549	191	191
NOBLE F	3	3.3	21.5	84	1.8	8.2	1,446	1,426	334	334
BL MAPLE	1	2.1	12.0	51	0.5	1.6	126	126	41	41
TOTAL	*80*	*205.8*	*14.6*	*73*	*62.9*	*240.9*	*31,497*	*30,944*	*8,234*	*8,229*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL: 68.1 % SD: 1.0

SAMPLE TREES - BF

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	44.2	6.8	247	265	284			
WHEMLOCK	71.7	14.1	144	167	191			
R ALDER	67.7	38.7	49	80	111			
NOBLE F	77.6	53.7	313	677	1,040			
BL MAPLE								
TOTAL	*75.3*	*8.6*	*215*	*235*	*255*	*226*	*57*	*25*

CL: 68.1 % SD: 1.0

SAMPLE TREES - CF

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	38.7	6.0	66	70	75			
WHEMLOCK	74.9	14.7	39	46	53			
R ALDER	59.2	33.8	19	29	38			
NOBLE F	67.7	46.8	79	148	217			
BL MAPLE								
TOTAL	*64.2*	*7.3*	*57*	*62*	*66*	*165*	*41*	*18*

CL: 68.1 % SD: 1.0

TREES/ACRE

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	84.7	14.7	73	86	98			
WHEMLOCK	120.9	21.0	84	106	129			
R ALDER	258.3	44.9	5	8	12			
NOBLE F	314.4	54.7	1	3	5			
BL MAPLE	574.5	99.9	0	2	4			
TOTAL	*60.2*	*10.5*	*184*	*206*	*227*	*145*	*36*	*16*

CL: 68.1 % SD: 1.0

BASAL AREA/ACRE

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	84.8	14.8	108	127	146			
WHEMLOCK	118.2	20.6	76	96	115			
R ALDER	240.3	41.8	5	8	12			
NOBLE F	291.5	50.7	4	8	12			
BL MAPLE	574.5	99.9	0	2	3			
TOTAL	*46.3*	*8.0*	*221*	*241*	*260*	*85*	*21*	*9*

STATISTICS

PROJECT **DEERCREE**

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
09N	**03E**	**06**	**DEERCREE**	**00U1**	36.00	33	146	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

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	88.3	15.4	14,307	16,903	19,500			
WHEMLOCK	122.6	21.3	9,394	11,940	14,486			
R ALDER	250.4	43.6	310	549	788			
NOBLE F	297.6	51.8	688	1,426	2,164			
BL MAPLE	574.5	99.9	0	126	252			
TOTAL	*48.7*	*8.5*	*28,321*	*30,944*	*33,567*	*95*	*24*	*11*

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	86.4	15.0	3,842	4,521	5,201			
WHEMLOCK	120.5	21.0	2,484	3,142	3,800			
R ALDER	242.2	42.1	110	191	271			
NOBLE F	292.8	50.9	164	334	504			
BL MAPLE	574.5	99.9	0	41	82			
TOTAL	*47.3*	*8.2*	*7,552*	*8,229*	*8,906*	*89*	*22*	*10*

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	38.6	6.7	113	133	154			
WHEMLOCK	19.0	3.3	98	125	151			
R ALDER	221.6	38.5	38	67	95			
NOBLE F	184.8	32.1	83	173	262			
BL MAPLE	574.5	99.9	0	76	153			
TOTAL	*180.1*	*31.3*	*118*	*128*	*139*	*1,295*	*324*	*144*

STATISTICS

PROJECT DEERCREE

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
09N	03E	06	DEERCREE	00U2	32.00	29	138	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	29	138	4.8		
CRUISE	14	66	4.7	5,172	1.3
DBH COUNT					
REFOREST					
COUNT	15	72	4.8		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	33	67.7	18.5	75	29.3	125.8	17,489	16,939	4,544	4,539
WHEMLOCK	30	80.2	16.3	66	28.8	116.4	13,269	12,541	3,675	3,646
NOBLE F	2	6.7	16.0	68	2.3	9.4	1,109	1,109	282	282
R ALDER	1	7.0	14.0	54	2.0	7.5	632	562	200	202
TOTAL	*66*	*161.6*	*17.1*	*69*	*62.6*	*259.1*	*32,498*	*31,151*	*8,701*	*8,670*

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	40.4	7.1	326	351	376			
WHEMLOCK	67.5	12.5	201	229	258			
NOBLE F	12.9	12.0	145	165	185			
R ALDER								
TOTAL	*55.9*	*6.9*	*265*	*285*	*305*	*125*	*31*	*14*

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	35.8	6.3	88	94	100			
WHEMLOCK	66.3	12.3	58	67	75			
NOBLE F	23.9	22.4	33	42	51			
R ALDER								
TOTAL	*52.4*	*6.5*	*74*	*79*	*84*	*109*	*27*	*12*

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	112.9	21.3	53	68	82			
WHEMLOCK	121.8	23.0	62	80	99			
NOBLE F	349.0	65.9	2	7	11			
R ALDER	319.8	60.4	3	7	11			
TOTAL	*58.8*	*11.1*	*144*	*162*	*180*	*143*	*36*	*16*

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	104.8	19.8	101	126	151			
WHEMLOCK	109.5	20.7	92	116	140			
NOBLE F	349.0	65.9	3	9	16			
R ALDER	319.8	60.4	3	8	12			
TOTAL	*47.9*	*9.0*	*236*	*259*	*282*	*95*	*24*	*11*

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	107.3	20.3	13,507	16,939	20,370			
WHEMLOCK	110.4	20.8	9,928	12,541	15,154			
NOBLE F	349.3	66.0	378	1,109	1,841			
R ALDER	319.8	60.4	223	562	901			
TOTAL	*49.7*	*9.4*	*28,229*	*31,151*	*34,073*	*102*	*26*	*11*

STATISTICS

PROJECT **DEERCREE**

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
09N	**03E**	**06**	**DEERCREE**	**00U2**	32.00	29	138	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

DOUG FIR	106.5	20.1	3,626	4,539	5,452			
WHEMLOCK	110.5	20.9	2,885	3,646	4,407			
NOBLE F	350.0	66.1	96	282	469			
R ALDER	319.8	60.4	80	202	324			
TOTAL	*48.6*	*9.2*	*7,874*	*8,670*	*9,465*	*98*	*24*	*11*

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			107	135	162			
WHEMLOCK	45.0	8.5	85	108	130			
NOBLE F	117.8	22.2	40	118	196			
R ALDER	91.7	17.3	30	75	120			
TOTAL	*212.1*	*40.0*	*109*	*120*	*132*	*1,861*	*465*	*207*

STATISTICS

PROJECT DEERCREE

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
09N	03E	06	DEERCREE	00U3	14.00	14	69	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	14	69	4.9		
CRUISE	14	69	4.9	1,696	4.1
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	57	84.9	20.3	83	42.4	191.1	27,557	26,629	7,089	7,079
WHEMLOCK	12	36.2	14.3	66	10.7	40.2	4,715	4,513	1,277	1,275
TOTAL	*69*	*121.2*	*18.7*	*78*	*53.5*	*231.3*	*32,272*	*31,141*	*8,365*	*8,354*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

SAMPLE TREES - BF

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	42.9	5.8	382	405	429			
WHEMLOCK	73.8	22.2	186	239	292			
TOTAL	*49.2*	*6.1*	*352*	*375*	*398*	*97*	*24*	*11*

SAMPLE TREES - CF

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	35.2	4.8	101	106	111			
WHEMLOCK	67.7	20.4	53	66	80			
TOTAL	*41.9*	*5.2*	*93*	*99*	*104*	*70*	*18*	*8*

TREES/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	64.8	18.0	70	85	100			
WHEMLOCK	225.5	62.5	14	36	59			
TOTAL	*66.5*	*18.4*	*99*	*121*	*143*	*190*	*48*	*21*

BASAL AREA/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	69.8	19.3	154	191	228			
WHEMLOCK	157.6	43.6	23	40	58			
TOTAL	*56.0*	*15.5*	*195*	*231*	*267*	*135*	*34*	*15*

NET BF/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	70.3	19.5	21,445	26,629	31,813			
WHEMLOCK	144.9	40.2	2,701	4,513	6,325			
TOTAL	*57.3*	*15.9*	*26,201*	*31,141*	*36,082*	*141*	*35*	*16*

NET CUFT FT/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	71.0	19.7	5,688	7,079	8,471			
WHEMLOCK	143.0	39.6	770	1,275	1,780			
TOTAL	*58.5*	*16.2*	*7,001*	*8,354*	*9,708*	*147*	*37*	*16*

V-BAR/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	70.3	19.5	112	139	166			
WHEMLOCK	144.9	40.2	67	112	157			
TOTAL	*57.3*	*15.9*	*113*	*135*	*156*	*141*	*35*	*16*

STATISTICS

PROJECT DEERCREE

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
09N	03E	06	DEERCREE	00U4	2.00	4	30	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	4	30	7.5		
CRUISE	4	30	7.5	321	9.3
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	30	160.6	18.5	83	69.7	300.0	42,878	41,452	11,294	11,187
TOTAL	*30*	*160.6*	*18.5*	*83*	*69.7*	*300.0*	*42,878*	*41,452*	*11,294*	*11,187*

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	34.3	6.7	353	379	404			
TOTAL	*34.3*	*6.7*	*353*	*379*	*404*	*49*	*12*	*5*

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	27.4	5.4	95	101	106			
TOTAL	*27.4*	*5.4*	*95*	*101*	*106*	*31*	*8*	*3*

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	49.8	28.5	115	161	206			
TOTAL	*49.8*	*28.5*	*115*	*161*	*206*	*130*	*32*	*14*

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	17.2	9.8	270	300	330			
TOTAL	*17.2*	*9.8*	*270*	*300*	*330*	*15*	*4*	*2*

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	10.6	6.0	38,947	41,452	43,957			
TOTAL	*10.6*	*6.0*	*38,947*	*41,452*	*43,957*	*6*	*1*	*1*

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	12.1	6.9	10,413	11,187	11,961			
TOTAL	*12.1*	*6.9*	*10,413*	*11,187*	*11,961*	*8*	*2*	*1*

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	10.6	6.0	130	138	147			
TOTAL	*10.6*	*6.0*	*130*	*138*	*147*	*6*	*1*	*1*

STATISTICS

PROJECT DEERCREE

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
09N	03E	06	DEERCREE	00U5	3.00	6	17	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	6	17	2.8		
CRUISE	6	17	2.8	186	9.1
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	13	44.4	15.8	73	15.2	60.2	6,990	6,828	1,917	1,916
WHEMLOCK	4	17.7	13.9	58	5.0	18.5	1,800	1,731	559	559
TOTAL	*17*	*62.1*	*15.2*	*69*	*20.2*	*78.7*	*8,790*	*8,559*	*2,476*	*2,476*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

SAMPLE TREES - BF

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	73.3	21.1	147	187	226			
WHEMLOCK	77.8	44.5	79	143	206			
TOTAL	*73.4*	*18.3*	*144*	*176*	*209*	*229*	*57*	*25*

SAMPLE TREES - CF

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	60.1	17.3	42	51	60			
WHEMLOCK	72.0	41.1	26	44	63			
TOTAL	*60.8*	*15.2*	*42*	*50*	*57*	*157*	*39*	*17*

TREES/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	94.3	42.0	26	44	63			
WHEMLOCK	100.1	44.6	10	18	26			
TOTAL	*44.5*	*19.8*	*50*	*62*	*74*	*94*	*24*	*10*

BASAL AREA/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	84.7	37.7	37	60	83			
WHEMLOCK	77.5	34.5	12	19	25			
TOTAL	*52.0*	*23.1*	*61*	*79*	*97*	*128*	*32*	*14*

NET BF/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	93.4	41.6	3,989	6,828	9,666			
WHEMLOCK	85.9	38.2	1,069	1,731	2,394			
TOTAL	*69.8*	*31.1*	*5,898*	*8,559*	*11,221*	*232*	*58*	*26*

NET CUFT FT/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	91.0	40.5	1,140	1,916	2,693			
WHEMLOCK	81.6	36.3	356	559	762			
TOTAL	*63.4*	*28.2*	*1,777*	*2,476*	*3,174*	*191*	*48*	*21*

V-BAR/ACRE

CL: 68.1 % SD: 1.0

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	93.4	41.6	66	113	161			
WHEMLOCK	85.9	38.2	58	93	129			
TOTAL	*69.8*	*31.1*	*75*	*109*	*143*	*232*	*58*	*26*

STATISTICS

PROJECT DEERCREE

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
09N	03E	06	DEERCREE	00U6	26.00	24	129	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	24	129	5.4		
CRUISE	12	72	6.0	3,899	1.8
DBH COUNT					
REFOREST					
COUNT	12	57	4.8		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	31	57.9	20.2	79	28.7	129.1	17,094	16,752	4,647	4,647
WHEMLOCK	38	84.8	15.7	67	28.7	113.4	12,866	12,449	3,579	3,563
NOBLE F	3	7.3	15.7	52	2.5	9.8	1,015	992	257	257
TOTAL	*72*	*150.0*	*17.6*	*71*	*60.2*	*252.3*	*30,974*	*30,193*	*8,483*	*8,467*

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

SD: 1.0

	VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	35.6	6.6	331	354	377			
WHEMLOCK	62.0	10.0	181	201	222			
NOBLE F	78.2	54.1	113	247	380			
TOTAL	*54.7*	*6.5*	*250*	*268*	*285*	*120*	*30*	*13*

CL: 68.1 % COEFF

SAMPLE TREES - CF

SD: 1.0

	VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	31.8	5.9	91	97	103			
WHEMLOCK	58.9	9.6	52	57	63			
NOBLE F	72.3	50.0	31	62	92			
TOTAL	*51.1*	*6.1*	*70*	*74*	*79*	*104*	*26*	*12*

CL: 68.1 % COEFF

TREES/ACRE

SD: 1.0

	VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	63.4	13.2	50	58	66			
WHEMLOCK	109.1	22.7	66	85	104			
NOBLE F	235.7	49.1	4	7	11			
TOTAL	*54.1*	*11.3*	*133*	*150*	*167*	*122*	*31*	*14*

CL: 68.1 % COEFF

BASAL AREA/ACRE

SD: 1.0

	VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	64.6	13.5	112	129	146			
WHEMLOCK	98.3	20.5	90	113	137			
NOBLE F	199.1	41.5	6	10	14			
TOTAL	*36.3*	*7.6*	*233*	*252*	*271*	*55*	*14*	*6*

CL: 68.1 % COEFF

NET BF/ACRE

SD: 1.0

	VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	70.6	14.7	14,289	16,752	19,215			
WHEMLOCK	103.5	21.6	9,765	12,449	15,134			
NOBLE F	212.5	44.3	553	992	1,432			
TOTAL	*38.6*	*8.0*	*27,768*	*30,193*	*32,619*	*62*	*15*	*7*

CL: 68.1 % COEFF

NET CUFT FT/ACRE

SD: 1.0

	VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	68.9	14.4	3,980	4,647	5,314			
WHEMLOCK	100.8	21.0	2,815	3,563	4,311			
NOBLE F	205.8	42.9	147	257	368			
TOTAL	*37.5*	*7.8*	*7,805*	*8,467*	*9,129*	*59*	*15*	*7*

STATISTICS

PROJECT **DEERCREE**

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
09N	**03E**	**06**	**DEERCREE**	**00U6**	26.00	24	129	S	W

CL: 68.1 % COEFF **V-BAR/ACRE** # OF PLOTS REQ. INF. POP.
SD: 1.0 VAR. S.E.% LOW AVG HIGH 5 10 15

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			111	130	149			
WHEMLOCK	74.2	15.5	86	110	133			
NOBLE F	158.6	33.0	57	101	146			
TOTAL	*170.0*	*35.4*	*110*	*120*	*129*	*1,205*	*301*	*134*

STATISTICS

PROJECT **DEERCREE**

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
09N	**03E**	**06**	**DEERCREE**	**ROW7**	1.00	1	31	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	1	31	31.0		
CRUISE	1	31	31.0	59	52.5
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	17	32.0	19.5	80	15.1	66.5	8,808	8,595	2,440	2,440
WHEMLOCK	9	18.0	18.5	71	7.8	33.5	4,200	4,100	1,143	1,142
R ALDER	4	8.0	13.1	50	2.1	7.4	520	500	180	180
NOBLE F	1	1.0	18.0	95	0.4	1.8	350	350	78	78
TOTAL	*31*	*59.0*	*18.4*	*73*	*25.4*	*109.2*	*13,878*	*13,545*	*3,840*	*3,840*

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	33.6	8.4	248	271	293			
WHEMLOCK	49.2	17.4	188	228	267			
R ALDER	27.3	15.6	53	63	72			
NOBLE F								
TOTAL	*48.6*	*8.7*	*213*	*234*	*254*	*94*	*24*	*10*

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	32.1	8.0	70	77	83			
WHEMLOCK	47.2	16.7	53	63	74			
R ALDER	28.3	16.1	19	22	26			
NOBLE F								
TOTAL	*45.3*	*8.1*	*60*	*66*	*71*	*82*	*20*	*9*

TC PSPCTLTCM

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

T09N R03E S06 Ty00U1	36.0
T09N R03E S06 Ty00U2	32.0
T09N R03E S06 TyROW	1.0

Project DEERCREE
Acres 114.00

Page No 1
Date: 4/18/2016
Time 3:29:43PM

Species	S T	Total Trees	Total Logs	Total Tons	Net Cubic Ft/ Tree	Net Cubic Ft/ Log	CF/ LF	Total CCF Gross	Total CCF Net	Total MBF Gross	Total MBF Net
DOUG FIR		8,434	18,404	15,932	66.22	30.35	0.93	5,590	5,585	2,122	2,071
WHEMLOCK		9,178	16,191	11,028	37.38	21.19	0.65	3,446	3,431	1,274	1,227
NOBLE F		524	1,106		53.10	25.14	0.87	278	278	114	113
R ALDER		531	912	370	25.46	14.82	0.57	135	135	42	38
BL MAPLE		76	76	39	19.63	19.63	0.49	15	15	5	5
Totals		18,742	36,688	27,369	50.39	25.74	0.79	9,464	9,444	3,557	3,454

Wood Type Species	Total Trees	Total Logs	Total Tons	Net Cubic Ft/ Tree	Net Cubic Ft/ Log	CF/ LF	Total CCF Gross	Total CCF Net	Total MBF Gross	Total MBF Net
C	18,136	35,701	26,960	51.25	26.03	0.80	9,315	9,294	3,510	3,411
H	606	987	409	24.74	15.19	0.56	149	150	47	43
Totals	18,742	36,688	27,369	50.39	25.74	0.79	9,464	9,444	3,557	3,454

WASHINGTON STATE DEPARTMENT OF
Natural Resources
Peter Goldmark - Commissioner of Public Lands

FPA/N No: 2932145
Effective Date: 08/15/2016
Expiration Date: 08/15/2019
Shut Down Zone: 660
EARR Tax Credit: [x] Eligible [ ] Non-eligible
Reference: Deer Creek TBS
30-093330

Forest Practices Application/Notification
Notice of Decision

Decision

[ ] Notification	Operations shall not begin before the effective date.
[x] Approved	This Forest Practices Application is subject to the conditions listed below.
[ ] Disapproved	This Forest Practices Application is disapproved for the reasons listed below.
[ ] Closed	Applicant has withdrawn FPA/N.

FPA/N Classification

[ ] Class II [ ] Class III [ ] Class IVG [x] Class IVS

Number of Years Granted on Multi-Year Request

[ ] 4 years [ ] 5 years

Conditions on Approval / Reasons for Disapproval

No additional conditions.

Issued By: Jon Byerly **Region:** Pacific Cascade

Title: Forest Practices Forester **Date:** 08/15/2016

Copies to: **[ ] Landowner, Timber Owner and Operator.**

Issued in person: **[x] Landowner [x]Timber Owner [x] Operator By:** Jacqui Sahr

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.eluho.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
Pacific Cascade Region
Po Box 280
Castle Rock WA 98611

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:

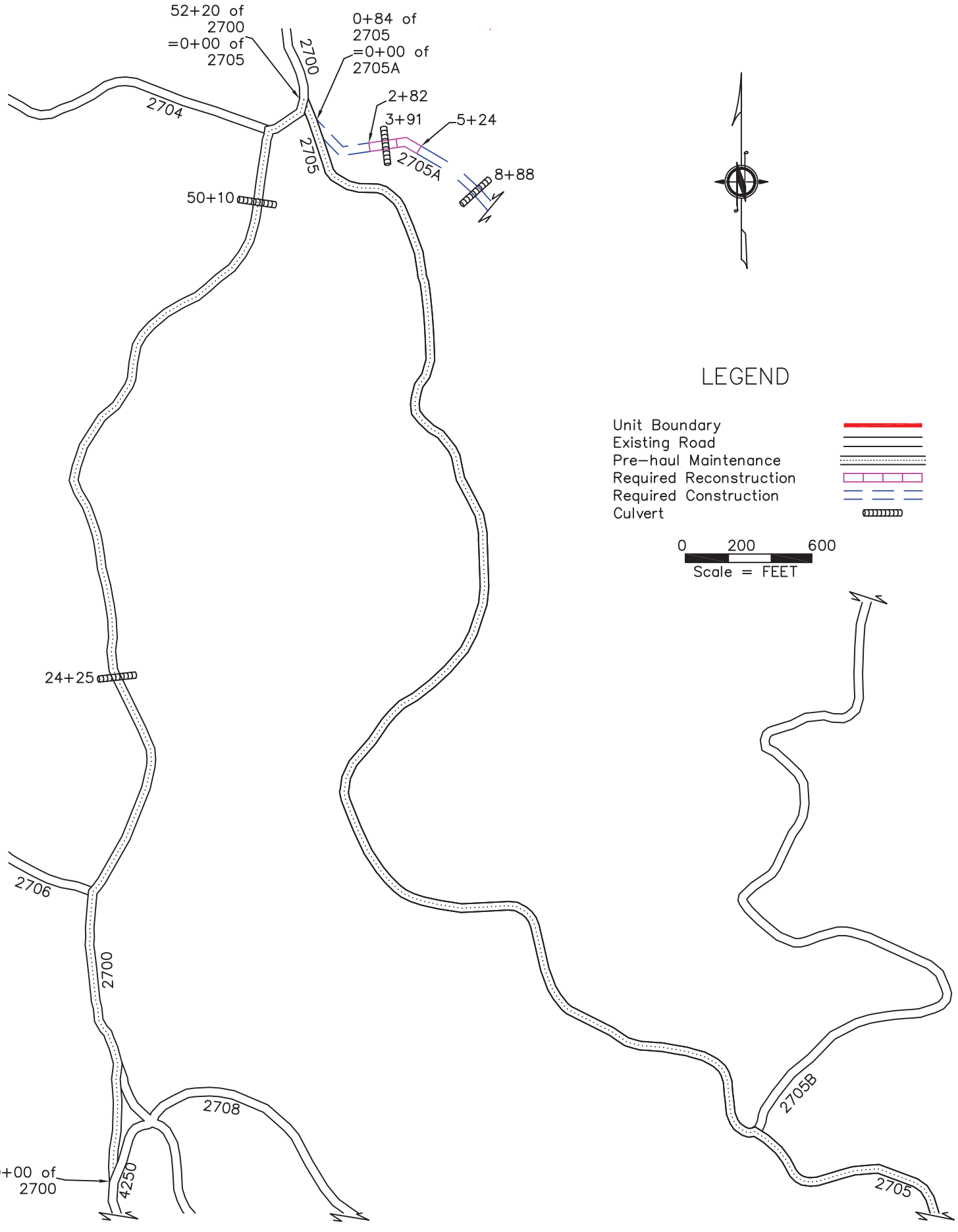
On this day_____, I placed in the United States mail at Castle Rock, WA,
(date) (post office location)
postage paid, a true and accurate copy of this document. Notice of Decision FPA #_____

_____ _____
(Printed name) (Signature)

DEER CREEK

ROAD PLAN MAP

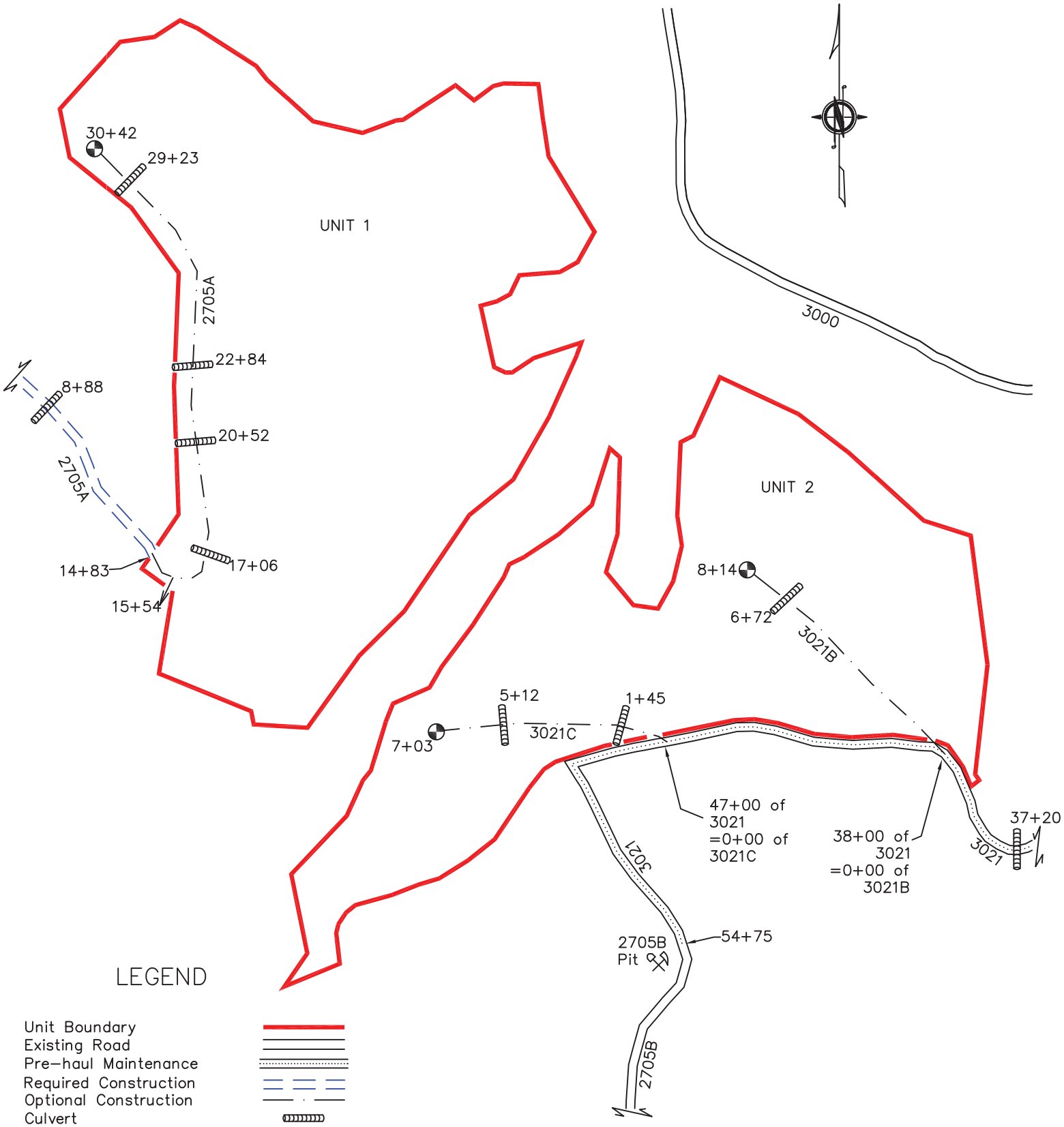
Map page 1 of 4



DEER CREEK

ROAD PLAN MAP

Map page 2 of 4



LEGEND

- Unit Boundary
- Existing Road
- Pre–haul Maintenance
- Required Construction
- Optional Construction
- Culvert
- Landing
- Ditch Out
- Rock Source

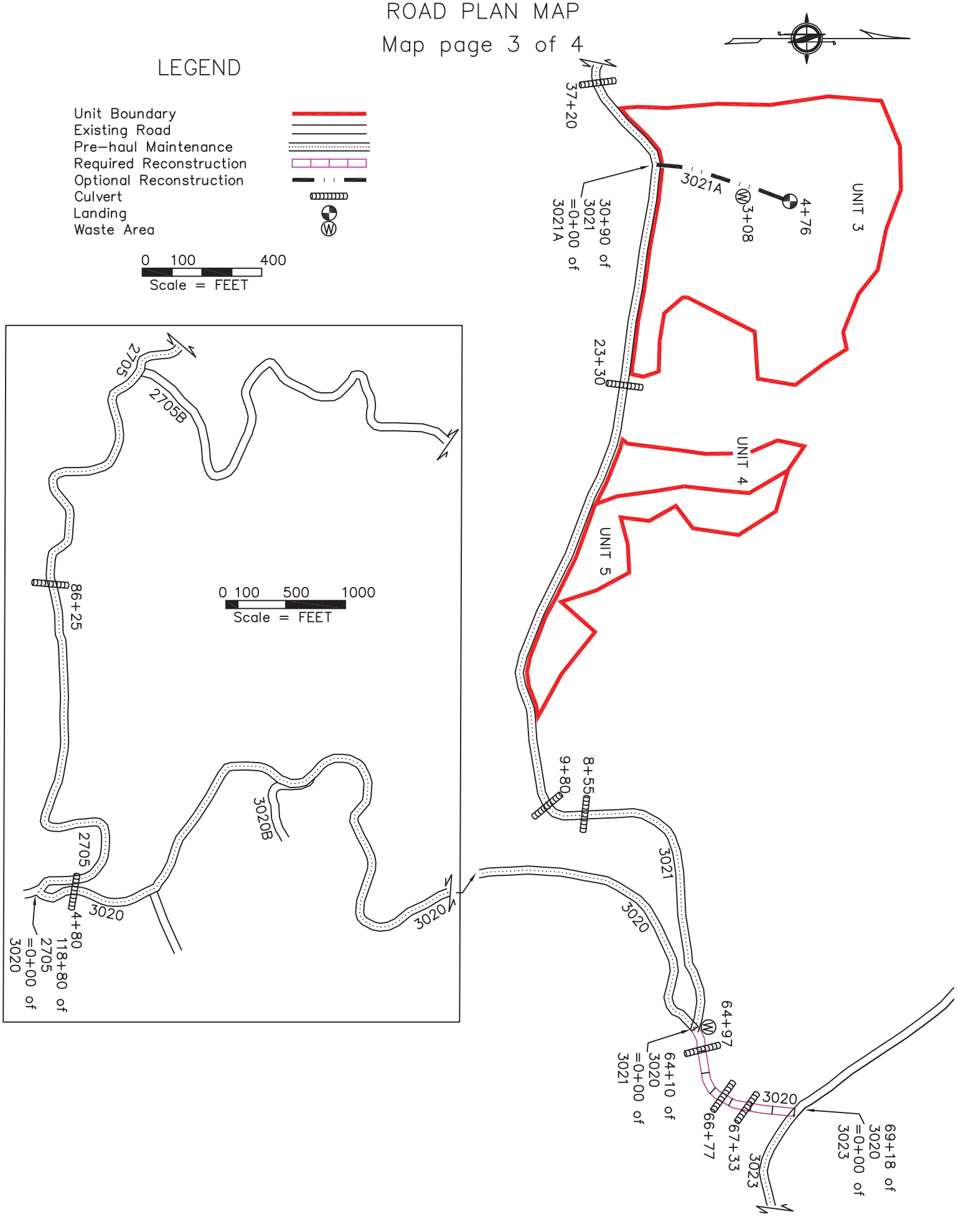
0 100 400

Scale = FEET

DEER CREEK

ROAD PLAN MAP

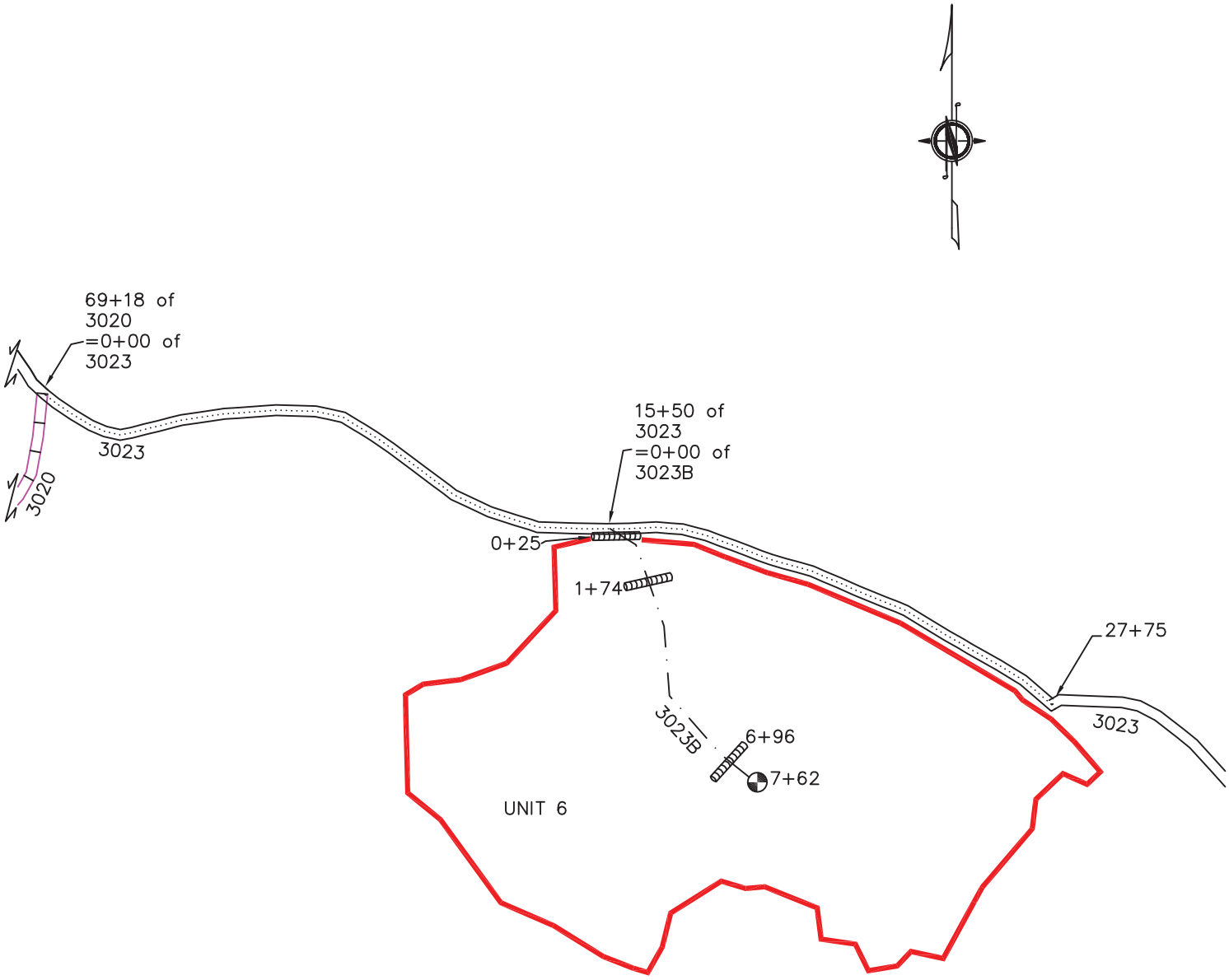
Map page 3 of 4



DEER CREEK

ROAD PLAN MAP

Map page 4 of 4



LEGEND

Unit Boundary
Existing Road
Pre-haul Maintenance
Required Reconstruction
Optional Construction
Culvert
Landing

0 100 400
Scale = FEET

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

DEER CREEK ROAD PLAN
COWLITZ COUNTY
ST. HELENS DISTRICT

AGREEMENT NO.: 30-093330 STAFF ENGINEER: RICH WALLMOW

DATE: 03/04/2016 DRAWN & COMPILED BY: ALICIA COMPTON
DATE MODIFIED: 06/16/2016

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.

Road	Stations	Type
2700	0+00 to 52+20	Pre-haul Maintenance
2705	0+00 to 118+80	Pre-haul Maintenance
2705A	0+00 to 2+82	Construct
	2+82 to 5+24	Reconstruct
	5+24 to 14+83	Construct
3020	0+00 to 64+10	Pre-haul Maintenance
	64+10 to 69+18	Reconstruct
3021	0+00 to 54+75	Pre-haul Maintenance
3023	0+00 to 27+75	Pre-haul Maintenance

0-3 OPTIONAL ROADS

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

Road	Stations	Type
2705A	14+83 to 30+42	Construct
3021A	0+00 to 4+76	Reconstruct
3021B	0+00 to 8+14	Construct
3021C	0+00 to 7+03	Construct
3023B	0+00 to 7+62	Construct

0-4 CONSTRUCTION

Construction includes, but is not limited to: clearing; grubbing; right-of-way debris disposal; excavation and/or embankment to subgrade; landing construction; acquisition and installation of drainage structures; acquisition, manufacture, and application of rock.

0-5 RECONSTRUCTION

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

Road	Stations	Requirements
2705A	2+82 to 5+24	Widen subgrade to the dimensions shown on the Typical Section Sheet. Construct ditches and culvert catch basins. Install culvert as shown on the Culvert List. Grade and shape existing road surface. Apply rock as shown on the Rock List. Grade, shape and compact the applied rock.
3020	64+10 to 69+18	Brush road in accordance with clause 3-1. Clean ditches. Reconstruct road to dimensions shown on the Typical Section Sheet and Deer Creek Road Design. Install culverts as shown on the Culvert List. Grade and shape existing road surface. Apply rock as shown on the Rock List. Grade, shape and compact the applied rock.
	67+33	Install corrugated steel pipe arch in accordance with Deer Creek design.
3021A	0+00 to 4+76	Widen subgrade to the dimensions shown on the Typical Section Sheet. Construct ditches. Grade and shape existing road surface. Apply spot rock as shown on the Rock List. Grade, shape and compact the applied rock.

0-6 PRE-HAUL MAINTENANCE

This project includes, but is not limited to the following pre-haul maintenance requirements:

Road	Stations	Requirements
2700	0+00 to 52+20	Clean ditches and culverts. Install culverts as shown in Culvert List. Grade and shape existing road surface prior to rock application. Apply spot rock as shown in Rock List. Grade, shape and compact the applied rock.
2705	0+00 to 62+90	Grade and shape existing road surface prior to rock application. Apply spot rock as shown in Rock List. Grade, shape and compact the applied rock.
	62+90 to 118+80	Brush road in accordance with clause 3-1. Clean ditches, culverts, and sediment ponds. Install culvert as shown in Culvert List. Grade and shape existing road surface prior to rock application. Apply spot rock as shown in Rock List. Grade, shape and compact the applied rock.
	78+38 to 79+80	Armor right ditch line with rock in accordance with clause 8-6. Construct rock berm on right in accordance with clause 8-7.
3020	0+00 to 64+10	Brush road in accordance with clause 3-1. Install culvert as shown in Culvert List. Grade and shape existing road surface prior to rock application. Apply spot rock as shown in Rock List. Grade, shape and compact the applied rock.
	46+90 to 48+20	Construct rock berm on both sides in accordance with clause 8-7.
3021	0+00 to 54+75	Brush road in accordance with clause 3-1. Install culverts as shown in Culvert List. Clean ditches and culverts. Grade and shape existing road surface prior to rock application. Apply spot rock as shown in Rock List. Grade, shape and compact the applied rock.
	9+30 to 10+00; 22+80 to 23+80	Construct rock berm on both sides in accordance with clause 8-7.
	9+80	Replace log puncheon with culvert as shown in Culvert List.
	23+30	Replace culvert as shown in Culvert List.
3023	0+00 to 27+75	Brush road in accordance with clause 3-1. Grade and shape existing road surface prior to rock application. Apply spot rock as shown in Rock List. Grade, shape and compact the applied rock.

0-12 DEVELOP ROCK SOURCE

Purchaser shall develop an existing rock source. Rock source development will involve clearing, stripping, drilling, shooting, and manufacturing rock. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

Purchaser shall perform road work in accordance with the dimensions shown on the TYPICAL SECTION SHEET and the specifications within this road plan, unless controlled by construction stakes or design data (plan, profile, and cross-sections).

1-4 ROAD TOLERANCES

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

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

1-6 ORDER OF PRECEDENCE

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

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

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

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

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

1-9 DAMAGED METALLIC COATING

Any 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.

1-15 ROAD MARKING

Purchaser shall perform road work in accordance with the state's marked location. All road work is marked as follows:

- Centerline construction stakes, orange paint, orange flagging and RP's for new construction.
- Orange paint and RP's on trees along reconstruction and pre-haul maintenance.

1-16 CONSTRUCTION STAKES SET BY STATE

Purchaser shall perform work in accordance with the construction stakes and reference points set in the field for grade and alignment. Reconstruction of existing road grades must conform to the original location except where construction staked or designed.

Road	Stations
3020	67+33

1-18 REFERENCE POINT DAMAGE

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

1-21 HAUL APPROVAL

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

1-22 WORK NOTIFICATIONS

Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before work begins.

1-23 ROAD WORK PHASE APPROVAL

Purchaser shall obtain written approval from the Contract Administrator upon completion of each of the following phases of road work:

- Subgrade construction, subgrade compaction and drainage installation
- Rock application and compaction

1-25 ACTIVITY TIMING RESTRICTION

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

Road	Stations	Activity	Closure Period
All Roads, except 3020 (64+10 to 69+18)	All	Road Work	September 30 to May 1
3020	64+10 to 69+18	Road Work	September 30 to July 15

1-26 OPERATING DURING CLOSURE PERIOD

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

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

- Wheel track rutting exceeds 6 inches on pit run, jaw run, or native surface roads.
- Wheel track rutting exceeds 4 inches on crushed rock roads.
- Surface or base stability problems persist.

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

1-33 SNOW PLOWING RESTRICTION

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

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

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

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

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 roads in a condition that will allow the passage of light administrative vehicles.

2-5 MAINTENANCE GRADING – EXISTING ROAD

On the following roads, Purchaser shall use a grader to shape the existing surface before timber haul, other than right-of-way timber.

Road	Stations
2700	0+00 to 52+20
2705	0+00 to 118+80
3020	0+00 to 69+18
3021	0+00 to 54+75
3023	0+00 to 27+75

2-6 CLEANING CULVERTS

On the following roads, Purchaser shall clean the inlets and outlets of all culverts and shall obtain written approval from the Contract Administrator before rock and/or timber haul.

Road	Stations
2700	0+00 to 52+20
2705	62+90 to 118+80
3021	0+00 to 54+75

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

On the following roads, Purchaser shall clean ditches, headwalls, and catchbasins. Work must be completed before rock and/or timber haul and must be done in accordance with the TYPICAL SECTION SHEET. Pulling ditch material across the road or mixing in with the road surface is not allowed.

Road	Stations
2700	0+00 to 52+20
2705	62+90 to 118+80
3020	64+10 to 69+18
3021	0+00 to 54+75

2-8 **MAINTAINING EROSION CONTROL STRUCTURES**

On the following road, Purchaser shall clean and maintain all erosion control structures. Work must be completed before rock application and must be done in accordance with the SETTLING POND DETAIL.

Road	Stations
2705	62+90 to 118+80

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-1 BRUSHING

On the following roads, Purchaser shall cut vegetative material up to 5 inches in diameter, including limbs, as shown on the BRUSHING SECTION DETAIL. Brushing must be achieved by mechanical cutting of brush, trees, and branches. Root systems and stumps of cut vegetation may not be disturbed unless directed by the Contract Administrator. Purchaser shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

Road	Stations
2705	62+90 to 118+80
3020	0+00 to 69+18
3021	0+00 to 54+75
3023	0+00 to 27+75

3-5 CLEARING

Purchaser shall fall all vegetative material larger than 2 inches DBH or over 4 feet high between the marked right-of-way boundaries and within waste and debris areas, or if not marked in the field, between the clearing limits specified on the TYPICAL SECTION SHEET. Clearing must be completed before starting excavation and embankment.

3-8 PROHIBITED DECKING AREAS

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

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

3-10 GRUBBING

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

3-12 STUMP PLACEMENT

Purchaser shall place grubbed stumps adjacent to the road shoulder and in compliance with all other clauses in this road plan.

3-14 STUMPS WITHIN DESIGNATED WASTE AREAS

Purchaser is not required to remove stumps within waste areas if they are cut flush with the ground.

3-20 ORGANIC DEBRIS DEFINITION

Organic debris is defined as all vegetative material not eligible for removal by Contract Clause G-010 PRODUCTS SOLD AND SALE AREA, that is larger than one cubic foot in volume within the grubbing limits.

3-21 DISPOSAL COMPLETION

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

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

Waste areas for organic debris are located as listed below or within the cleared right-of-way or in natural openings.

Road	Requirements
3020	64+10 on left.
3021A	3+08 on right.

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

- Within 15 feet of a cross drain culvert.
- Within 50 feet of a live stream, or wetland.
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 50%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush can fall into the ditch or onto the road surface.
- Against standing timber.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

Purchaser shall scatter organic debris outside of the grubbing limits and in natural openings. Where natural openings are unavailable or restrictive, alternate debris disposal methods are subject to the written approval of the Contract Administrator.

SECTION 4 – EXCAVATION

4-2 PIONEERING

Pioneering may not extend past construction that will be completed during the current construction season. In addition, the following actions must be taken as pioneering progresses:

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Purchaser shall follow these standards for road grade and alignment:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 12 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 5% in 100 feet.
- Maximum grade change for crest vertical curves is 4% in 100 feet.

4-4 SWITCHBACK STANDARDS

A switchback is defined as a curved segment of road between a beginning and end of the same curve, where the change of traffic travel direction is greater than 90 degrees. Purchaser shall follow these standards for switchbacks:

- Maximum adverse grades for switchbacks is 12% of the curve radius.
- Maximum favorable grades for switchbacks is 12%.
- Maximum transition grades entering and leaving switchbacks is a 5% grade change.

Transition grades required to meet switchback grade limitations must be constructed on the tangents preceding and departing from the switchbacks.

4-5 CUT SLOPE RATIO

Purchaser shall construct excavation slopes no steeper than shown on the following table:

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

4-6 EMBANKMENT SLOPE RATIO

Purchaser shall construct embankment slopes no steeper than shown on the following table:

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

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

4-10 WIDEN THE EXISTING SUBGRADE

On the following roads, Purchaser shall widen the subgrade and fill slopes to the dimensions shown on the TYPICAL SECTION SHEET. If necessary, Purchaser shall reconstruct excavation slopes to provide sufficient width for the road surface and any ditches.

Road	Stations
2705A	2+82 to 5+24
3020	64+10 to 69+18
3021A	0+00 to 4+76

4-22 TURNAROUNDS

Purchaser shall construct turnarounds as designated on the ROCK LIST. Turnarounds must be no larger than 30 feet long and 30 feet wide.

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

Purchaser shall construct ditchouts as identified, as needed and as directed by the Contract Administrator. Ditchouts must be constructed in a manner that diverts ditch water onto the forest floor and must have excavation backslopes no steeper than a 1:1 ratio.

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

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

4-37 WASTE AREA LOCATION

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

Road	Waste Area Location	Comments
3020	64+10 on left.	On left.
3021A	3+08 on right.	On right.

4-38 PROHIBITED WASTE DISPOSAL AREAS

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

- Within 15 feet of a cross drain culvert.
- Within 50 feet of a live stream or wetland.
- On side slopes steeper than 50%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Against standing timber.

4-47 NATIVE MATERIAL

Native material consists of naturally occurring material that is free of organic debris, trash, and rocks greater than 6 inches in any dimension.

4-55 ROAD SHAPING

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

4-60 FILL COMPACTION

Purchaser shall compact all embankment and waste material in accordance with the COMPACTION LIST by routing equipment over the entire width of each lift. Waste material may be placed by end-dumping or sidecasting until sufficiently wide enough to support the 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.

4-63 EXISTING SURFACE COMPACTION

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

SECTION 5 – DRAINAGE

5-5 CULVERTS

Purchaser shall install culverts as part of this contract. Culverts must 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, except as listed in Clause 5-6, and meet the material specifications in Clauses 10-15 through 10-23.

5-6 USED CULVERT MATERIAL

Purchaser may install used culverts on the following roads. All other roads must have new culverts installed.

Road	Stations
3021B	0+00 to 8+14
3021C	0+00 to 7+03
3023B	0+00 to 7+62

5-8 BEVELED ENDS

The following culverts must have the inlet end beveled as specified below.

Road	Stations	Bevel Type	Comments
3020	67+33	1 1/2:1	One-half culvert diameter as shown in Deer Creek Channel Profile View.
3021	9+80, 23+30	1:1	One-half culvert diameter.

5-9 CULVERT MARKER INSTALLATION

Purchaser shall install culvert markers in accordance with the CULVERT MARKER INSTALLATION DETAIL.

5-11 UNUSED MATERIALS STATE PROPERTY

On required roads, any materials listed on the CULVERT LIST that are not installed will become the property of the state. Purchaser shall stockpile materials in the 4250 Pit or as directed by the Contract Administrator.

5-15 CULVERT INSTALLATION

Culvert installation shall be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL and the National Corrugated Metal Pipe Association's "Installation Manual for Corrugated Steel Drainage Structures" or the Corrugated Polyethylene Pipe Association's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings". Corrugated Polyethylene pipe must be installed in a manner consistent with the manufacturer's recommendations.

5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

Purchaser shall obtain written approval from the Contract Administrator for the installation of culverts 30 inches in diameter and over before backfilling.

5-17 CROSS DRAIN SKEW AND SLOPE

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

5-18 CULVERT DEPTH OF COVER

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

5-20 ENERGY DISSIPATERS

The type of energy dissipater and the amount of material must be consistent with the specifications on the CULVERT LIST, except for temporary culverts. Placement must be by zero-drop-height method only. Energy dissipater installation is subject to approval by the Contract Administrator.

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all culverts on the CULVERT LIST that specify placement of rock, except for temporary culverts. Rock may not restrict the flow of water into culvert inlets or catch basins.

5-27 ARMORING FOR STREAM CROSSING CULVERTS

At the following culverts, Purchaser shall place LIGHT LOOSE RIP RAP or HEAVY LOOSE RIP RAP immediately following construction of the embankment. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the CULVERT LIST or as directed by the Contract Administrator. Rock may not restrict the flow of water into culvert inlets or catch basins.

Road	Stations	Rock Type
3020	67+33	Heavy Loose Rip Rap
3021	9+80, 23+30	Light Loose Rip Rap

SECTION 6 – ROCK AND SURFACING

6-2 ROCK SOURCE ON STATE LAND

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

Source	Location
2705B	Sec. 8, T9N R3E

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 stockpiles on state land at no charge to the Purchaser. Purchaser shall not remove additional yardage, without prior written approval from the Contract Administrator. Other stockpiles may not be used, without prior written approval from the Contract Administrator.

Source	Location	Rock Type	Comments
2705B Pit Stockpile	Sec. 8, T9N R3E	1 ½" or 2 ½" Crushed Rock	
5-Way Pit Stockpile	Sec. 15, T9N R3E	2 ½" Crushed Rock	Removals approved by CA.

6-5 ROCK FROM COMMERCIAL SOURCE

Rock used in accordance with the quantities on the ROCK LIST may be obtained from commercial source at the Purchaser's expense. Rock sources are subject to written approval by the Contract Administrator before their use. Purchaser shall submit laboratory Los Angeles Rattler test for the rock to be used to the Contract Administrator.

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

Purchaser shall conduct rock source development and use at the following sources, in accordance with the written ROCK SOURCE DEVELOPMENT PLAN prepared by the state and included in this road plan. Upon completion of operations, the rock source must be left in the condition specified in the ROCK SOURCE DEVELOPMENT PLAN, and approved in writing by the Contract Administrator. Purchaser shall notify the Contract Administrator a minimum of 5 days before starting any operations in the rock source.

Source
2705B Pit

6-13 ROCK EXPLORATION

Purchaser shall provide an excavator with operator for up to 8 hours of exploration of rock and other related work as directed by the Contract Administrator at the following sites.

Site	Location
2705B Pit	As directed.

6-20 ROCK GRADATION TYPES

Purchaser shall manufacture rock in accordance with the types and amounts listed in the ROCK LIST. Rock must meet the following specifications for gradation and uniform quality when placed in hauling vehicles**.**

6-22 FRACTURE REQUIREMENT FOR ROCK

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

6-41 SELECT PIT RUN ROCK

No more than 50 percent of the rock may be larger than 8 inches in any dimension and no rock may be larger than 12 inches in any dimension. Select Pit Run rock may not contain more than 5 percent by weight of organic debris, dirt, and trash. Rock may require processing to meet this specification.

6-44 STREAM SIMULATION ROCK

Stream simulation rock must be manufactured on site or in a rock pit by mixing the components shown below with an excavator or front-end loader.

1 part heavy loose riprap
1 part pit run
1 part fines

6-50 LIGHT LOOSE RIP RAP

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

At Least/Not More Than	Size Range
80% / 90%	12”-30”
10% / 20%	3”- 12”

6-51 HEAVY LOOSE RIP RAP

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

At Least/Not More Than	Size Range
30% / 90%	36”- 54”
70% / 90%	24”- 42”
10% / 30%	3”- 8”

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

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

6-56 ROCK MEASURMENT BY TRUCK VOLUME

Measurement of culvert armoring, culvert bedding, rock berms, energy dissipaters, and landing rock is on a cubic yard truck measure basis. The Contract Administrator will measure each truck box before rock hauling. An average of such volumes for each truck will be used to tally the volume hauled. The Contract Administrator may periodically require that a load be flattened off and its volume calculated. Purchaser shall maintain load tally sheets for each truck and shall give them to the Contract Administrator on a weekly basis during rocking operations.

6-70 APPROVAL BEFORE ROCK APPLICATION

Purchaser shall obtain written approval from the Contract Administrator for subgrade construction and drainage installation 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. Road surfaces shall be compacted in accordance with the COMPACTION LIST by routing equipment over the entire width.

6-73 ROCK FOR WIDENED PORTIONS

Purchaser shall apply rock to turnarounds and areas with curve widening to the same depth and specifications as the traveled way, unless otherwise specified in the ROCK LIST.

6-75 OPTIONAL ROCK EXCEPTION

On the following roads, if hauling takes place from May 1 to September 30, the Purchaser may provide and place less rock than shown In the ROCK LIST, as approved in writing by the Contract Administrator.

If less rock is applied, the Purchaser shall submit a written plan, for approval, describing how these roads shall be constructed, used, maintained, and treated post-haul. The Purchaser shall meet post-haul specifications in Section 9 POST-HAUL ROAD WORK, or other conditions of the approved plan as required by the Contract Administrator.

Road	Stations
3021A	0+00 to 4+76
3021B	0+00 to 8+14
3021C	0+00 to 7+03
3023B	0+00 to 7+62

SECTION 7 – STRUCTURES

7-6 STREAM CROSSING INSTALLATION

Purchaser shall install stream crossing structures in accordance with the manufacturer's requirements, Forest Practice Permit, Deer Creek Culvert Design and Lifting Lug Detail.

7-7 BANK PROTECTION FOR STREAM CROSSING STRUCTURES

Bank protection must be designed and constructed to prevent the undermining of the structure.

7-17 INSTALLATION PRODUCTION SCHEDULE

Purchaser shall provide the Contract Administrator or their designee, with a production schedule showing projected completion dates for the following items before starting construction of the structure. Production schedule must include:

- stream diversion
- excavation and culvert bedding
- placement of structure and grade control rock
- backfill compaction, rock application and compaction

7-18 INSTALLATION STAGE ACCEPTANCE

Purchaser shall ensure that all materials and procedures used during construction comply with the design. Purchaser shall obtain written approval from the Contract Administrator or their designee, for each stage of construction, listed in Clause 7-17 INSTALLATION PRODUCTION SCHEDULE, before starting construction on the next stage.

7-19 INSTALLATION FINAL ACCEPTANCE

Purchaser shall notify the Contract Administrator in writing when each structure is complete.

7-55 LARGE CULVERT INSTALLATION

Purchaser shall provide and install a large culvert in accordance with the Deer Creek Design.

Road	3020
Station	67+33
Type	CSP Pipe Arch*
Material and Coating Type*	Aluminized Steel
Minimum Water Opening (sq.ft.)	107 sq. ft.
Span (nominal dimension)	14 ft. 3 in.
Rise (nominal dimension)	9 ft. 2 in.
Length	65 ft.
Corrugations	3” x 1” or 5” x 1”
Gauge	10

* Corrugated Steel Pipe Arch (Squashed 12’ Round Culvert) as shown in Deer Creek Design

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

Purchaser shall install steel pipe, pipe arches, and structural plate culverts in accordance with the National Corrugated Steel Pipe Association "Installation Manual for Corrugated Steel Pipe, Pipe Arches, and Structural Plate.” Installation is 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.

7-57 CULVERT SHAPE CONTROL

Purchaser shall monitor the culvert shape during backfill and compaction. Special attention must be paid to maintaining the structure’s rise dimensions, concentricity, and smooth uniform curvature. If compaction methods are resulting in peaking or deflection of the culvert, Purchaser shall modify the compaction method to achieve the appropriate end result.

SECTION 8 – EROSION CONTROL

8-1 SEDIMENT CONTROL

Sediment control shall be accomplished using sediment traps, silt fences, settling ponds, or other methods as approved, in writing, by the Contract Administrator.

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a 6-inch layer of straw or hay to all exposed soils within 50 feet of a stream or wetland. Soils must be covered before the first anticipated storm event. Soils may not sit exposed during any rain event.

8-6 DITCH ARMOR

On the following road, Purchaser shall armor ditch lines with machine placed, Select Pit Run rock in accordance with the ROCK LIST.

Road	Stations
2705	78+38 to 79+80

8-7 ROAD SHOULDER BERM INSTALLATION

On the following roads, Purchaser shall construct berms on the road shoulders as shown on the ROAD SURFACE SHOULDER BERM DETAIL.

Road	Stations	Remarks
2705	78+38 to 79+80	On right.
3020	46+90 to 48+20	Both sides.
	67+01 to 67+65	Both sides.
3021	9+30 to 10+00	Both sides.
	22+80 to 23+80	Both sides.

8-15 REVEGETATION

On the following roads, Purchaser shall spread seed on all exposed soils resulting from road work activities. Cover all exposed soils using manual dispersion. Other methods of covering must be approved in writing by the Contract Administrator. Required seed not spread by the termination of this contract will become the property of the state.

Road	Location	Qty (lbs)*	Type
2705A	0+00 to 30+42	76	Seed
3020	64+10 to 69+18	10	Seed
3021	9+30 to 10+30	5	Seed
	22+80 to 23+80	5	Seed
3021A	0+00 to 4+76	9	Seed
3021B	0+00 to 8+14	20	Seed
3021C	0+00 to 7+03	18	Seed
3020 & 3021A	Waste Areas	10	Seed

*Quantities are estimates only. Actual quantities may vary and are the responsibility of the Purchaser.

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the seed.

8-17 REVEGETATION TIMING

Purchaser shall revegetate after road work is completed between March 15 and September 15. Soils may not be allowed to sit exposed for longer than one month without receiving revegetation treatment, unless otherwise approved in writing by the Contract Administrator.

8-18 PROTECTION FOR SEED

Purchaser shall provide a protective cover for seed on all exposed soils within 50 feet of streams or wetlands. The protective cover may consist of straw or hay.

8-19 ASSURANCE FOR SEEDED AREA

Purchaser shall ensure the growth of a uniform and dense crop (at least 50% coverage) of 2-inch tall grass. Purchaser shall reapply the grass seed in areas that have failed to germinate or have been damaged through any cause. Restore eroded or disturbed areas, clean up and properly dispose of eroded materials, and reapply the grass seed at no addition cost to the state.

8-25 GRASS SEED

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

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

Kind and Variety of Seed in Mixture	% by Weight
Perennial Rye	35-45
Red Fescue	30-40
Highland Bent	5-15
White Clover	10-20
Inert and Other Crop	0.5

SECTION 9 – POST-HAUL ROAD WORK

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

9-5 POST-HAUL MAINTENANCE

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

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-11 LANDING EMBANKMENT

Purchaser shall slope landing embankments to the original construction specifications.

SECTION 10 MATERIALS

10-15 CORRUGATED STEEL CULVERT

Metallic coated steel culverts must meet AASHTO M-36 (ASTM A-760) specifications. Culverts must be galvanized (zinc coated meeting AASHTO M-218) except culverts over 24 inches must be aluminized (aluminum type 2 coated meeting AASHTO M-274).

10-16 CORRUGATED ALUMINUM CULVERT

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

10-17 CORRUGATED PLASTIC CULVERT

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

10-21 METAL BAND

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

10-22 PLASTIC BAND

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

10-23 RUBBER CULVERT GASKETS

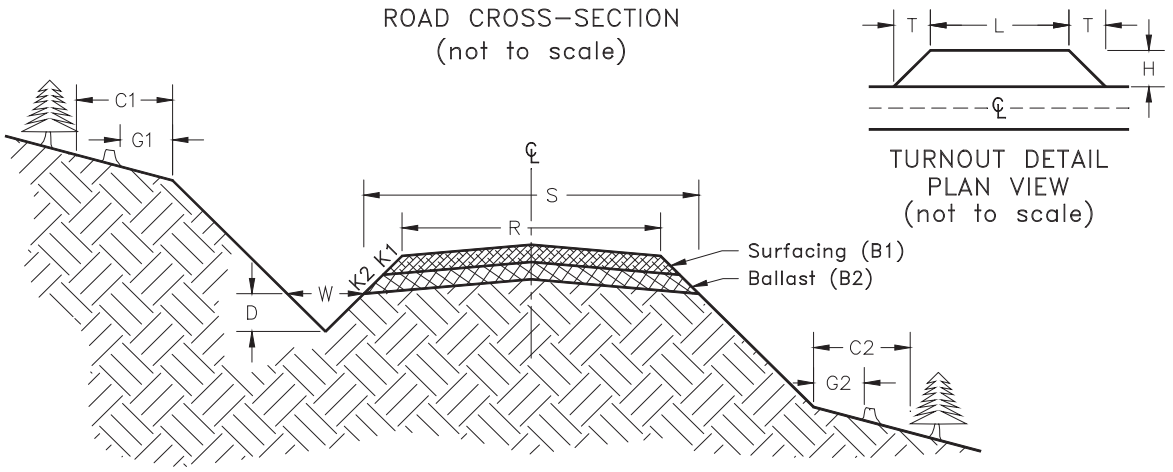
Rubber gaskets must be continuous closed cell, synthetic expanded rubber gaskets conforming to the requirements of ASTM D 1056. Rubber gaskets must be used with all corrugated metal pipe coupling bands.

10-24 GAGE AND CORRUGATION

Unless otherwise stated in the engineer's design or Culvert List, metal culverts must conform to the following specifications for gage and corrugation as a function of diameter.

Diameter	Gage	Corrugation
18"	16 (0.064")	$2\ ^{2}/_{3}$" X $^{1}/_{2}$"
24" to 48"	14 (0.079")	$2\ ^{2}/_{3}$" X $^{1}/_{2}$"
54" to 96"	14 (0.079")	3" X 1"

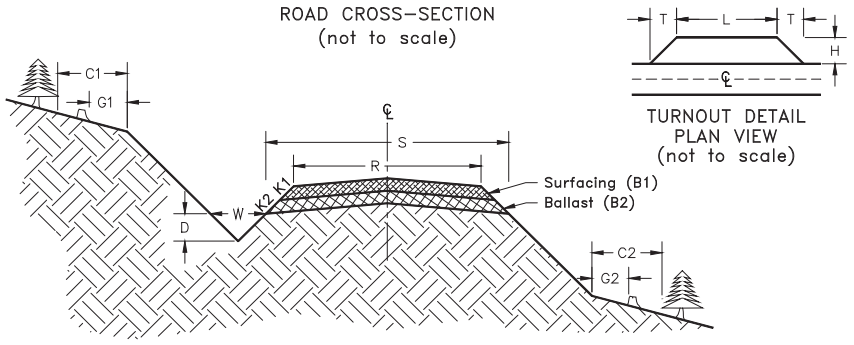
TYPICAL SECTION SHEET



Road Number	From Station	To Station	Tolerance Class	Subgrade Width	Road Width	Ditch Width	Ditch Depth	Crown in. @ CL	Grubbing Limits		Clearing Limits	
				S	R	W	D		G1	G2	C1	C2
2700	0+00	52+20	A	-	12’	3’	1’	4	-	-	-	-
2705	0+00	62+90	A	-	12’	-	-	4	-	-	-	-
	62+90	118+80	A	-	12’	3’	1’	4	-	-	-	-
2705A	0+00	2+82	C	18’	12’	3’	1’	4	5’	5’	10’	10’
	2+82	5+24	C	16’	12’	3’	1’	4	5’	5’	10’	10’
	5+24	14+83	C	18’	12’	3’	1’	4	5’	5’	ROW Tags	
	14+83	30+42	C	18’	12’	3’	1’	4	5’	5’	10’	10’
3020	0+00	66+40	A	-	12’	-	-	4	-	-	-	-
	66+40	67+05	A	16’	12’	3’	1’	4	-	-	-	-
	67+05	67+69	A	24’	18’	3’	1’	4	5’	5’	10’	10’
	67+69	68+16	A	16’	12’	3’	1’	4	-	-	-	-
	68+16	69+18	A	-	12’	3’	1’	4	-	-	-	-
3021	0+00	54+75	A	-	12’	3’	1’	4	-	-	-	-
3021A	0+00	4+76	C	14’	12’	2’	1’	4	2’	2’	5’	5’
3021B	0+00	8+14	C	16’	12’	3’	1’	4	5’	5’	10’	10
3021C	0+00	7+03	C	16’	12’	3’	1’	4	5’	5’	10’	10’
3023	0+00	27+75	A	-	12’	-	-	4	-	-	-	-
3023B	0+00	7+62	C	16’	12’	3’	1’	4	5’	5’	10’	10’

ROW Tags = Right-of-Way Tags

ROCK LIST
(Page 1 of 3)



SELECT PIT RUN

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout Length	Turnout Width	Turnout Taper
			K2	B2				2705B	L	H	T
2700	Energy Dissipator						2				
2705	Energy Dissipator						1				
	Ditch Armor (78+38 to 79+80)						10				
2705A	0+00	2+82	1 ½:1	15”	81	2.82	228				
	Junction						15				
	Curve Widening						8				
	2+82	5+24	1 ½:1	8”	40	2.42	97				
	Curve Widening						3				
	5+24	30+42	1 ½:1	15”	81	25.18	2040				
	Turnaround (1)						43				
	Curve Widening						71				
	Landings @ 18+33, 23+74, 30+42						210				
	Energy Dissipator						6				
3020	67+05	67+69	1 ½:1	18”	170	0.64	109				
	Energy Dissipator						3				
3021	9+80, 23+30						120				
	Energy Dissipator						2				
*3021A	Spot Rock (0+00 to 4+76)						150				
*3021B	0+00	8+14	1 ½:1	12”	63	8.14	513				
*	Turnaround (1)						34				
*	Curve Widening						18				
*	Junction						12				
*	Landing @ 8+14						50				
*	Energy Dissipator						1				
*3021C	0+00	7+03	1 ½:1	12”	63	7.03	443				
*	Turnaround (1)						34				
*	Curve Widening						16				
*	Junction						12				
*	Landing @ 7+03						50				
	Energy Dissipator						2				
*3023B	0+00	7+62	1 ½:1	12”	63	7.62	480				
*	Turnaround (1)						34				
*	Curve Widening						17				
*	Junction						12				
*	Landing @ 7+62						50				
*	Energy Dissipator						3				

*Optional Rock: If Contractor elects to haul on optional rock roads in dry weather, the depth listed above is recommended but not required.

Required SELECT PIT RUN Total: 2,968 Cubic Yards
Optional SELECT PIT RUN Total: 1,931 Cubic Yards

ROCK LIST
(Page 2 of 3)

2 ½ INCH MINUS

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout Length	Turnout Width	Turnout Taper
			K2	B2				2705B	L	H	T
2705	Spot Rock (0+00 to 63+35)						200				
	Rock Berm (78+38 to 79+80)						10				
	Culvert Backfill (86+25)						20				
2705	Spot Rock (63+35 to 118+80)						400				
3020	Spot Rock (0+00 to 64+10)						160				
3021	9+30	10+30	1 ½:1	6”	30	1.00	30				
	Rock Berm (9+30 to 10+00)						10				
	22+80	23+80	1 ½:1	6”	30	1.00	30				
	Rock Berm (22+80 to 23+80)						15				
	Spot Rock (0+00 to 54+75)						240				
	Culvert Backfill						100				
3023	Spot Rock (0+00 to 27+75)						100				

*Optional Rock: If Contractor elects to haul on optional rock roads in dry weather, the depth listed above is recommended but not required.

Required 2 ½ INCH MINUS Crushed Total: 1,315 Cubic Yards

1 ½ INCH MINUS

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout Length	Turnout Width	Turnout Taper
			K2	B2				2705B	L	H	T
2700	Spot Rock (0+00 to 52+20)						200				
	Culvert Backfill @ 24+25, 50+10						40				
3020	18+60	22+00	1 ½:1	6”	30	3.40	102				
	46+90	48+20				1.30	39				
	64+10	67+05	1 ½:1	6”	30	2.95	89				
	67+05	67+69	1 ½:1	6”	45	0.64	29				
	67+69	69+18		6”	30	1.49	45				
	Culvert Backfill @ 4+80, 64+97, 66+77						40				
	CSP Arch Culvert Bedding (67+33)						100				
	Rock Berm (46+90 to 48+20)						15				
	Rock Berm (67+01 to 67+65)						14				

Required 1 ½ INCH MINUS Crushed Total: 713 Cubic Yards

ROCK LIST
(Page 3 of 3)

LIGHT LOOSE RIP RAP
(Fill Slope Armor)

Road Number	Station	C.Y. Total	Rock Source
			2705B
3021	4+80, 64+97	80	

TOTAL 80 Cubic Yard

HEAVY LOOSE RIP RAP

Road Number	Station	C.Y. Total	Rock Source
			2705B
3020	67+33 (Fill Slope Armor)	200	

TOTAL 200 Cubic Yard

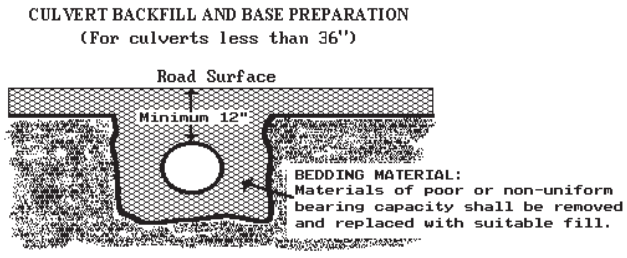
STREAM SIMULATION ROCK

Road Number	Station	C.Y. Total	Rock Source
			2705B
3020	67+33 (Grade Control Checks)	40	

TOTAL 40 Cubic Yard

CULVERT LIST

Road Number	Location	Length (ft) Dia	Culvert	Downspt	Flume	(C.Y.) Inlet	Outlet	Type	Backfill Material	Placement Method	Const. Staked	Remarks
2700	24+25	18”	35			½	½	SP	CR	ZDH		
	50+10	18”	40			½	½	SP	CR	ZDH		
2705	86+25	18”	30			½	½	SP	CR	ZDH		
2705A	3+91	18”	30			½	½	SP	NT	ZDH		
	8+88	18”	30			½	½	SP	NT	ZDH		
	15+54											Ditchout Right
	17+06	18”	30			½	½	SP	NT	ZDH		
	20+52	18”	40			½	½	SP	NT	ZDH		
	22+84	18”	30			½	½	SP	NT	ZDH		
.	29+23	18”	40			½	½	SP	NT	ZDH		
3020	4+80	18”	30			½	½	SP	CR	ZDH		
	64+97	18”	40			½	½	SP	CR	ZDH		
	66+77	18”	40			½	½	SP	CR	ZDH		
	67+33	*	65					HL	CR/NT	ZDH		Np Stream/Type 4, *14’ 3” X 9’ 2” (nominal), 10 Gauge Aluminized
3021	8+55	18”	30			½	½	SP	CR	ZDH		
	9+80	48”	50			20	25	LL	CR/NT	ZDH		Np Stream/Type 4, 12 Gauge Aluminized
	23+30	72”	50			15	20	LL	CR/NT	ZDH		Np Stream/Type 4, 12 Gauge Aluminized
	37+20	18”	30			½	½	SP	CR	ZDH		
3021B	6+72	18”	30			½	½	SP	NT	ZDH		
3021C	1+45	18”	30			½	½	SP	NT	ZDH		
	5+12	18”	40			½	½	SP	NT	ZDH		
3023B	0+25	18”	40			½	½	SP	NT	ZDH		
	1+74	18”	30			½	½	SP	NT	ZDH		
	6+96	18”	30			½	½	SP	NT	ZDH		



Key:

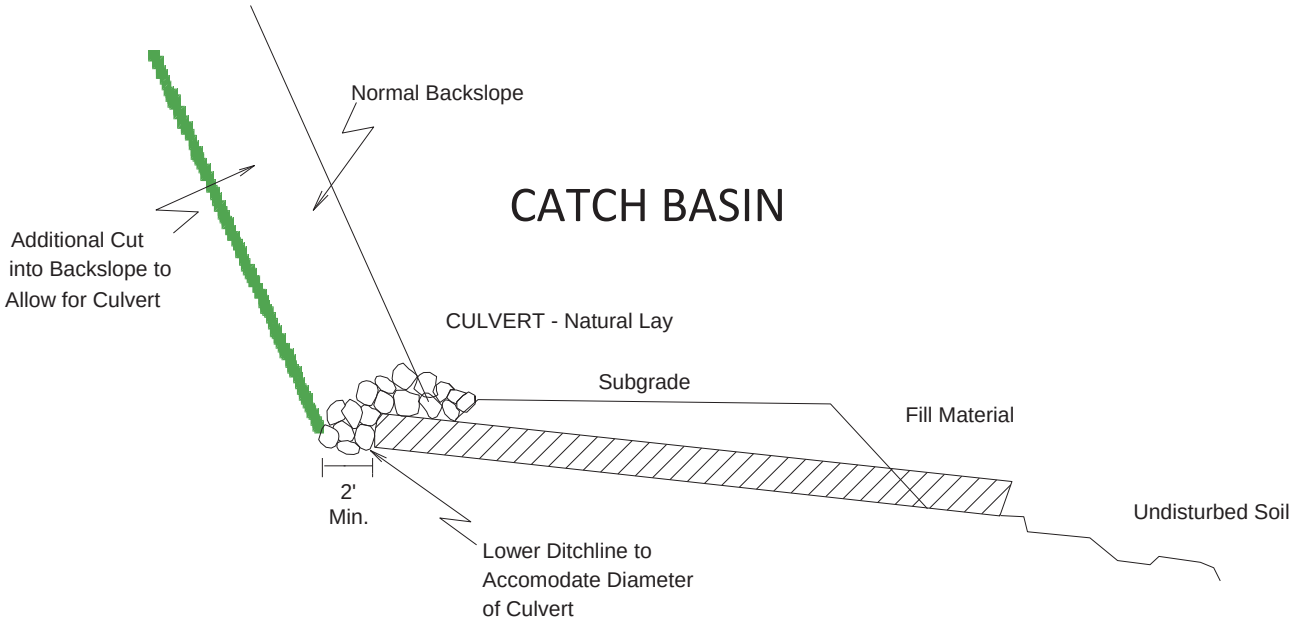
CR - Crushed Rock
NT - Native (bank run)
SP - Select Pit Run
HL - Heavy Loose Riprap
LL - Light Loose Riprap
Flume - Half round pipe
Downspout - Full round pipe
ZDH - Zero Drop Height

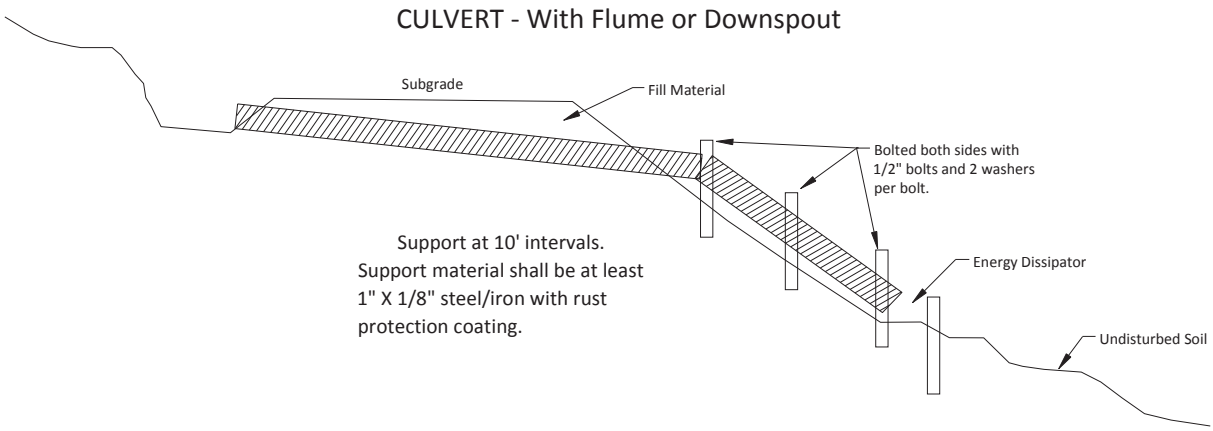
COMPACTION LIST

Road	From Station	To Station	Type	Max Depth Per Lift (inches)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)	Maximum Amount of Deflection (inches)
All Roads			Subgrade	12	Vibratory Smooth Drum	14000	4	3	2
All Roads			Fill	24	Vibratory Smooth Drum	14000	4	3	2
All Roads			Waste Area	24	Excavation	28,000	-	-	4
All Roads			Pre-haul Surface	6	Vibratory Smooth Drum	14000	5	3	1
All Roads			Rock	12	Vibratory Smooth Drum	14000	5	3	1

CULVERT AND DRAINAGE SPECIFICATION DETAIL

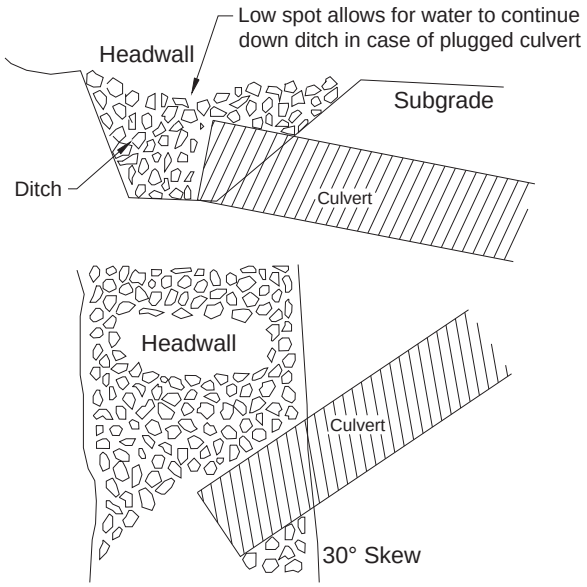
(Page 1 of 3)





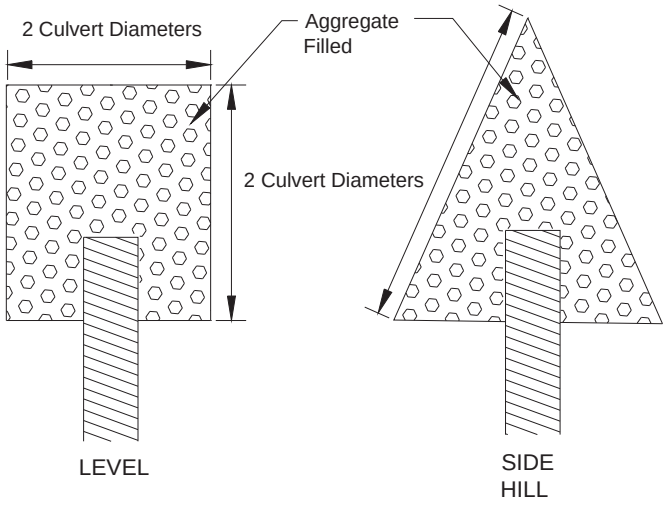
Proper preparation of foundation and placement of bedding material shall precede the installation of all culvert pipe. This includes necessary leveling of the native trench bottom and compaction of required bedding material to form a uniform dense unyielding base. The backfill material shall be placed so that the pipe is uniformly supported along the barrel.

HEADWALLS



Headwalls to be constructed of material that will resist erosion.

ENERGY DISSIPATORS



Dissipator Specifications:
Depth: 1 culvert diameter
Aggregate: as specified in the CULVERT LIST.

POLYETHYLENE PIPE INSTALLATION

INSTALLATION REQUIREMENTS:

1. Crushed stone, gravel, or compacted soil backfill material shall be used as the bedding and envelope material around the culvert. The aggregate size shall not exceed 1/6 pipe diameter or 4" diameter, whichever is smaller.

2. The corrugated pipe shall be laid on grade, on a layer of bedding material as shown for the two types of installations. If native soil is used as the bedding and backfill material, it shall be well compacted in six inch layers under the haunches, around the sides and above the pipe to the recommended minimum height of cover.

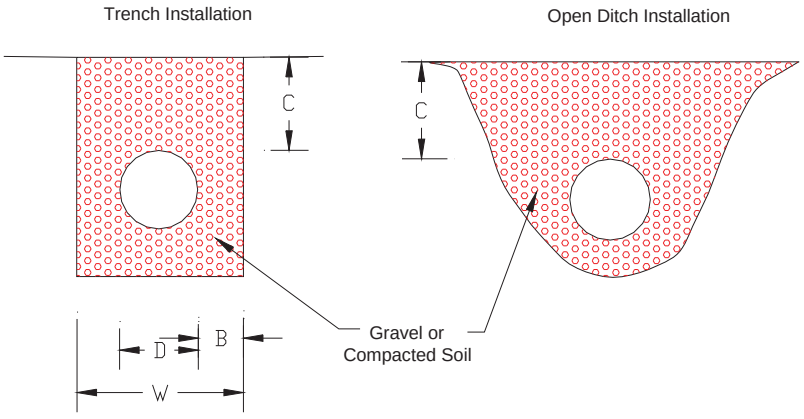
3. Either crushed aggregate or flexible (asphalt) pavement may be laid as part of the minimum cover requirements.

4. Site conditions and availability of bedding materials often dictate the type of installation method used.

5. The load bearing capability of flexible conduits is dependent on the type of backfill material used and the degree of compaction achieved. Crushed stone and gravel backfill materials typically reach a compaction level of 90-95% AASHTO standard density without compaction. When native soils are used as backfill material, a compaction level of 85% is required. This minimum compaction can be achieved by either hand or mechanical tamping.

MINIMUM DIMENSIONS

Trench or Open Ditch Installation



Nominal Diameter	Minimum Thickness	Minimum Cover	Min. Trench Width
D	B	C	W
18"	6"	12"	36"
24"	6"	12"	42"
30"	6"	12"	48"
36"	6"	12"	54"

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 up to 100 cubic yards in volume from ditches and the roadway. Repair fill-failures, in accordance with Clause 4-6 EMBANKMENT SLOPE RATIO, with selected material or material approved by the Contract Administrator. Remove overhanging material from the top of cut slopes.
- Waste material from slides or other sources shall be placed and compacted in stable locations identified in the road plan or approved by the Contract Administrator, so that sediment will not deliver to any streams or wetlands.
- Slide material and debris shall not be mixed into the road surface materials, unless approved by the Contract Administrator.

Surface

- Grade 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

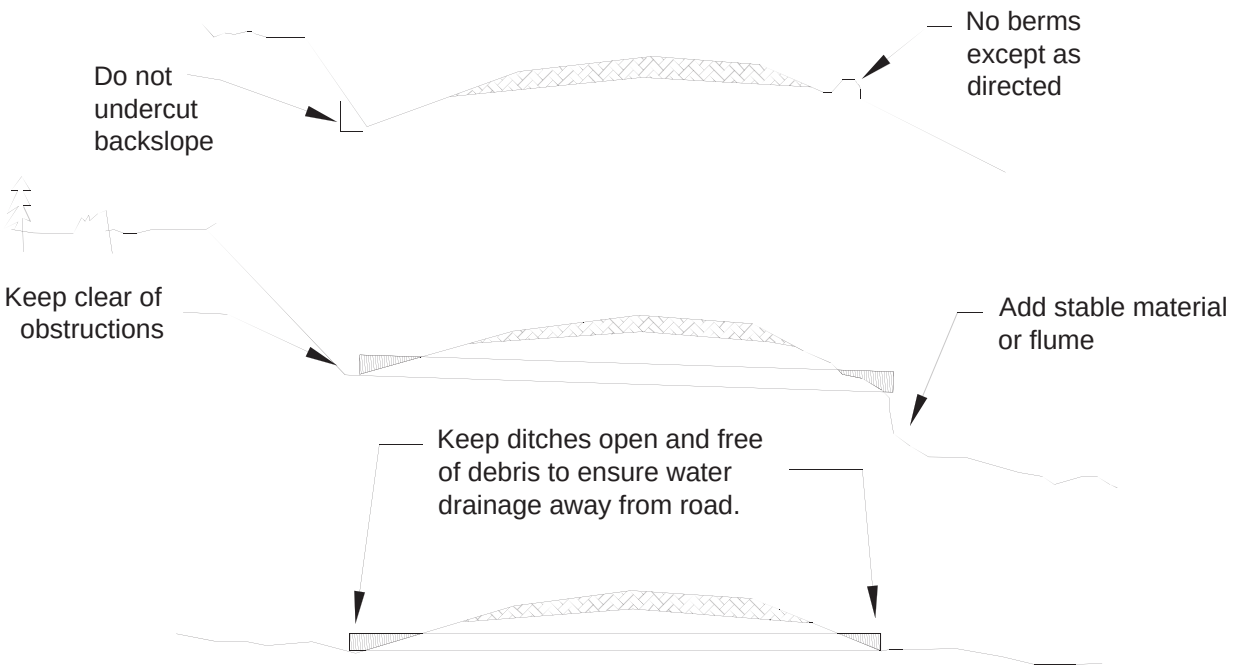
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

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

Debris

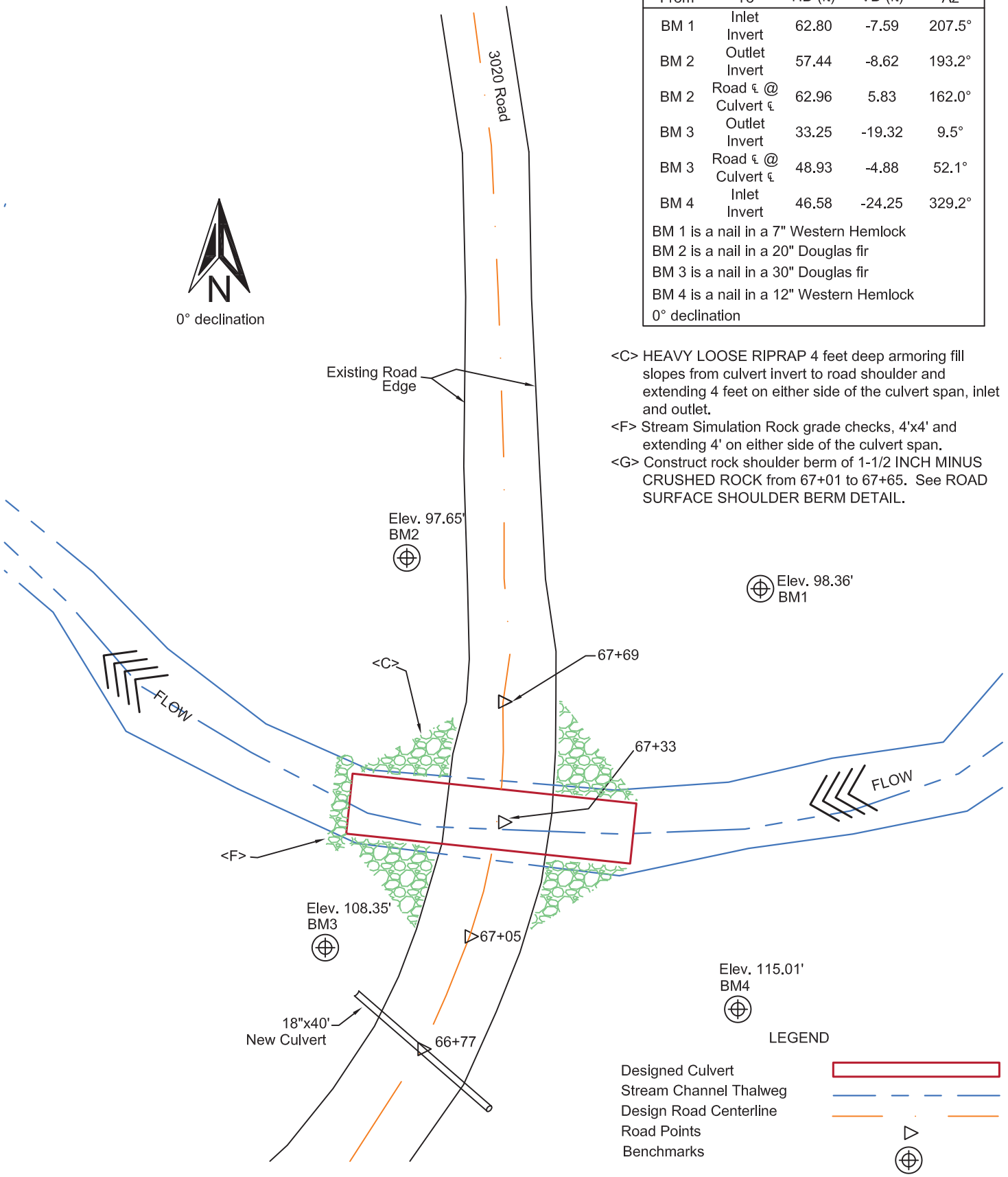
- Remove fallen timber, limbs, and stumps from the slopes, roadway, ditchlines, and culvert inlets.



Benchmark Information				
From	To	HD (ft)	VD (ft)	Az
BM 1	Inlet Invert	62.80	-7.59	207.5°
BM 2	Outlet Invert	57.44	-8.62	193.2°
BM 2	Road ℄ @ Culvert ℄	62.96	5.83	162.0°
BM 3	Outlet Invert	33.25	-19.32	9.5°
BM 3	Road ℄ @ Culvert ℄	48.93	-4.88	52.1°
BM 4	Inlet Invert	46.58	-24.25	329.2°

BM 1 is a nail in a 7" Western Hemlock
BM 2 is a nail in a 20" Douglas fir
BM 3 is a nail in a 30" Douglas fir
BM 4 is a nail in a 12" Western Hemlock
0° declination

<C> HEAVY LOOSE RIPRAP 4 feet deep armoring fill slopes from culvert invert to road shoulder and extending 4 feet on either side of the culvert span, inlet and outlet.
<F> Stream Simulation Rock grade checks, 4'x4' and extending 4' on either side of the culvert span.
<G> Construct rock shoulder berm of 1-1/2 INCH MINUS CRUSHED ROCK from 67+01 to 67+65. See ROAD SURFACE SHOULDER BERM DETAIL.



DEER CREEK
PLAN VIEW
Drawn By: Alicia Compton
Designed By: Brett Wallachy

WASHINGTON STATE DEPARTMENT OF Natural Resources
Peter Goldmark - Commissioner of Public Lands

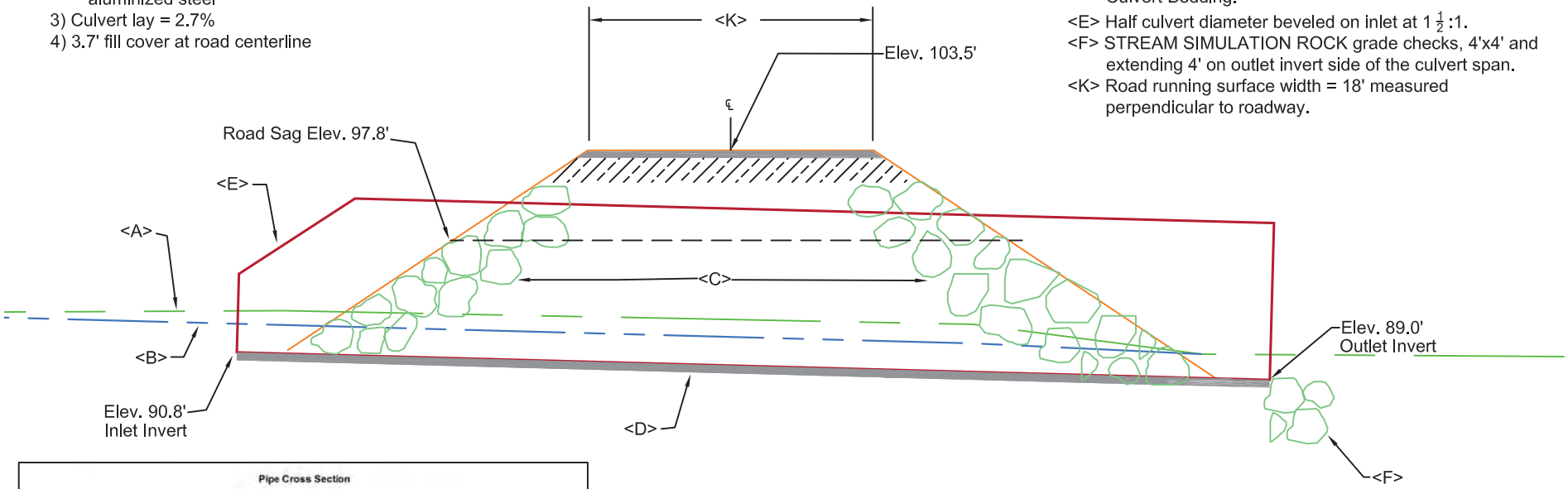
Date: 01 APRIL 2016
Sheet 1 of 3

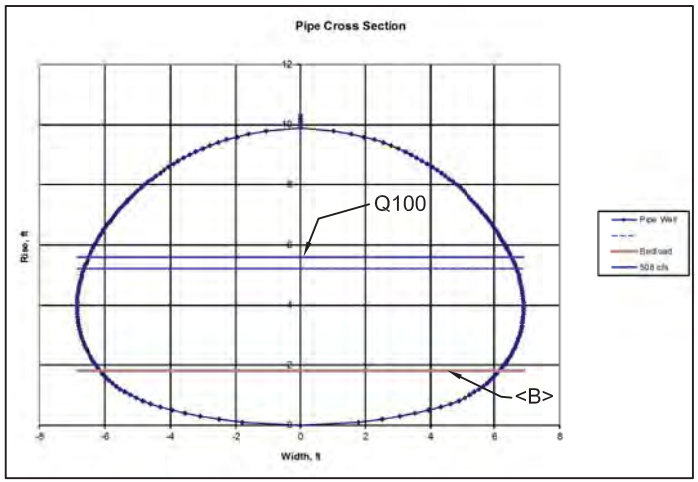
30 feet

PROFILE - CENTERLINE OF CULVERT

Note:
1) Crown at centerline not shown
2) Culvert Dimensions:
Span 171" x Rise 110" x Length 65'
3" x 1" OR 5" X 1" corrugations, 10 gauge aluminized steel
3) Culvert lay = 2.7%
4) 3.7' fill cover at road centerline

<A> Existing stream grade.
<B> Expected stream regrade.
<C> HEAVY LOOSE RIPRAP applied to fill slopes from culvert invert to road shoulder and extending 4 feet on either side of the culvert span, inlet and outlet to a minimum depth of 4 feet.
<D> 6 inches of 1-1/2 INCH MINUS CRUSHED ROCK Culvert Bedding.
<E> Half culvert diameter beveled on inlet at 1 $\frac{1}{2}$:1.
<F> STREAM SIMULATION ROCK grade checks, 4'x4' and extending 4' on outlet invert side of the culvert span.
<K> Road running surface width = 18' measured perpendicular to roadway.





DEER CREEK
CHANNEL PROFILE VIEW
Drawn By: Alicia Compton
Designed By: Brett Wallachy

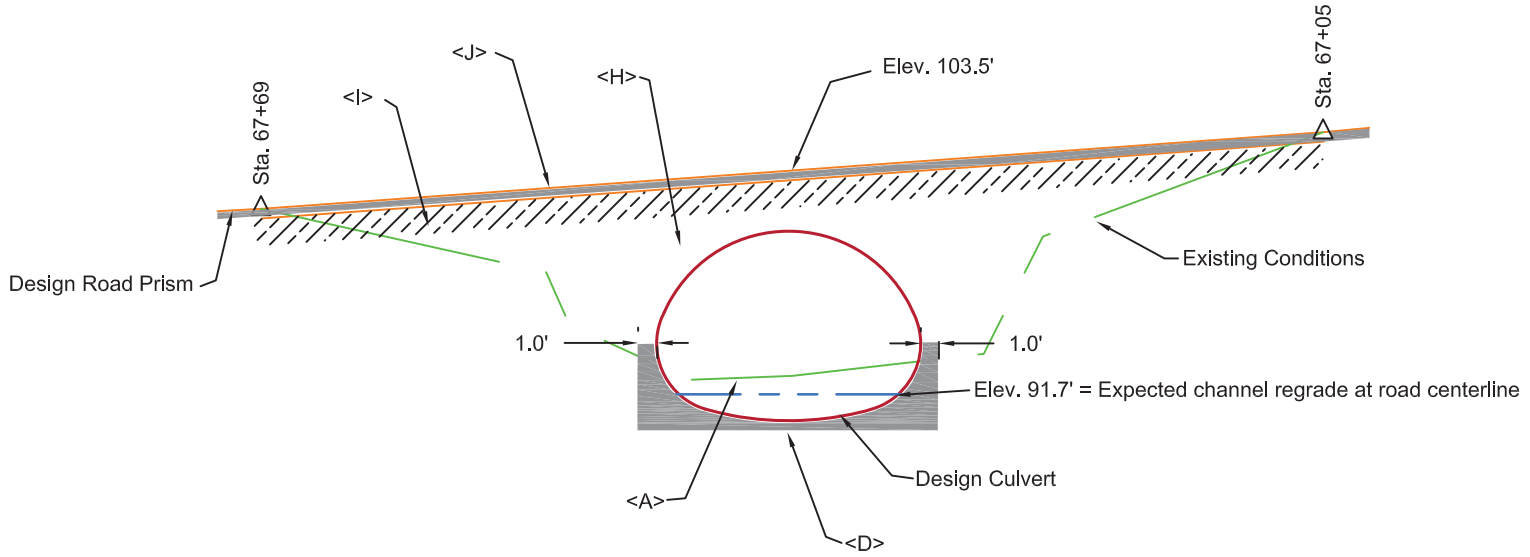
WASHINGTON STATE DEPARTMENT OF Natural Resources
Peter Goldmark - Commissioner of Public Lands

Date: 01 APRIL 2016
Sheet 2 of 3

10 feet

DEER CREEK 30-093330 MODIFIED DATE: JUNE 16, 2016 Page 35 of 44

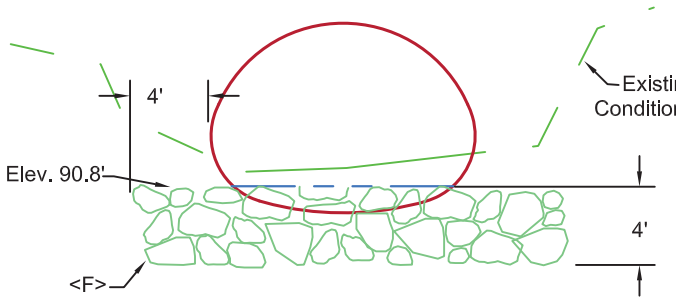
Cross Section - Road View
Looking Upstream



Note:
1) Crown at centerline not shown
2) Culvert Dimensions:
Span 171" x Rise 110" x Length 65'
3" x 1" OR 5" X 1" corrugations, 10 gauge aluminized steel
3) Culvert lay = 2.7%

<A> Existing stream grade Elev. 92.8'.
<D> 6 inch layer of 1 $\frac{1}{2}$ INCH MINUS CRUSHED ROCK.
<F> STREAM SIMULATION ROCK grade check, 4'x 4' and extending 4 feet on either side of culvert span.
<H> Remainder of backfill is NATIVE MATERIAL.
<I> 18 inch layer of SELECT PIT RUN.
<J> 6 inch layer of 1 $\frac{1}{2}$ INCH MINUS CRUSHED ROCK.

OUTLET GRADE CHECK DETAIL
NO SCALE



DEER CREEK
CROSS SECTION VIEW
Drawn By: Alicia Compton
Designed By: Brett Wallachy

WASHINGTON STATE DEPARTMENT OF Natural Resources
Peter Goldmark - Commissioner of Public Lands

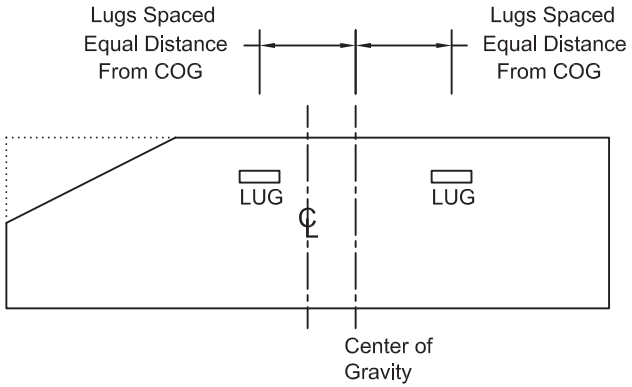
Date: 01 APRIL 2016
Sheet 3 of 3

10 feet

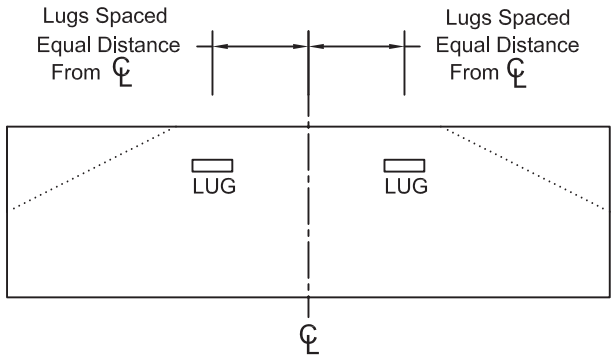
DEER CREEK 30-093330 MODIFIED DATE: JUNE 16, 2016 Page 36 of 44

LIFTING LUG DETAIL

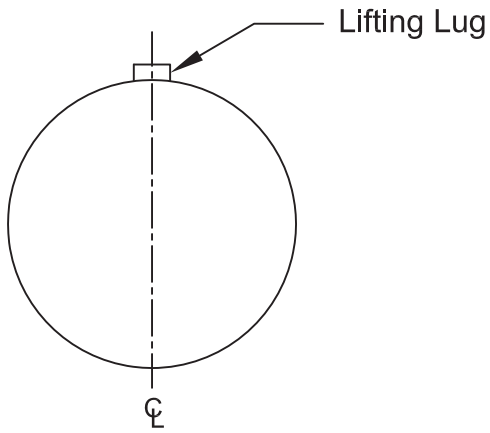
LONGITUDINAL SPACING SINGLE BEVEL



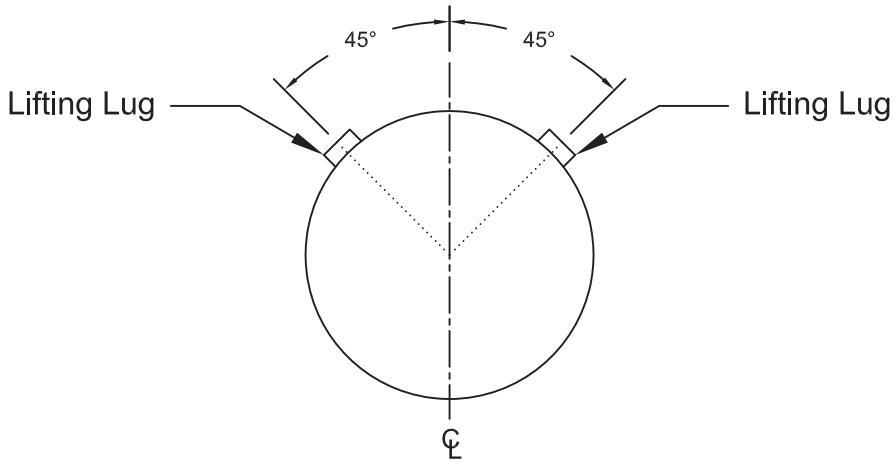
LONGITUDINAL SPACING DUAL OR NO BEVEL



2-LUG ARRANGEMENT CULVERT CROSS-SECTION



4-LUG ARRANGEMENT CULVERT CROSS SECTION



MTM June 8, 2012

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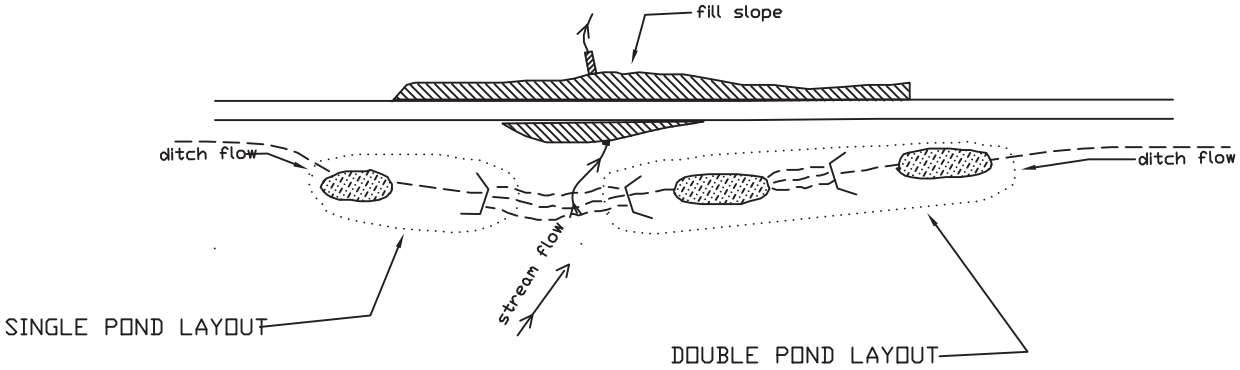
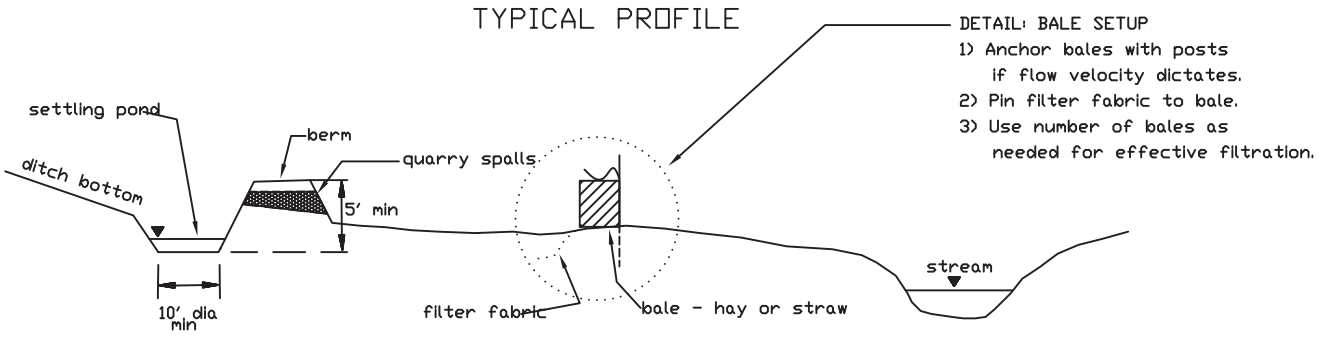
SETTLING POND DETAIL

NO SCALE

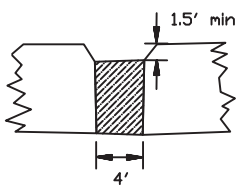
TYPICAL PLAN VIEW



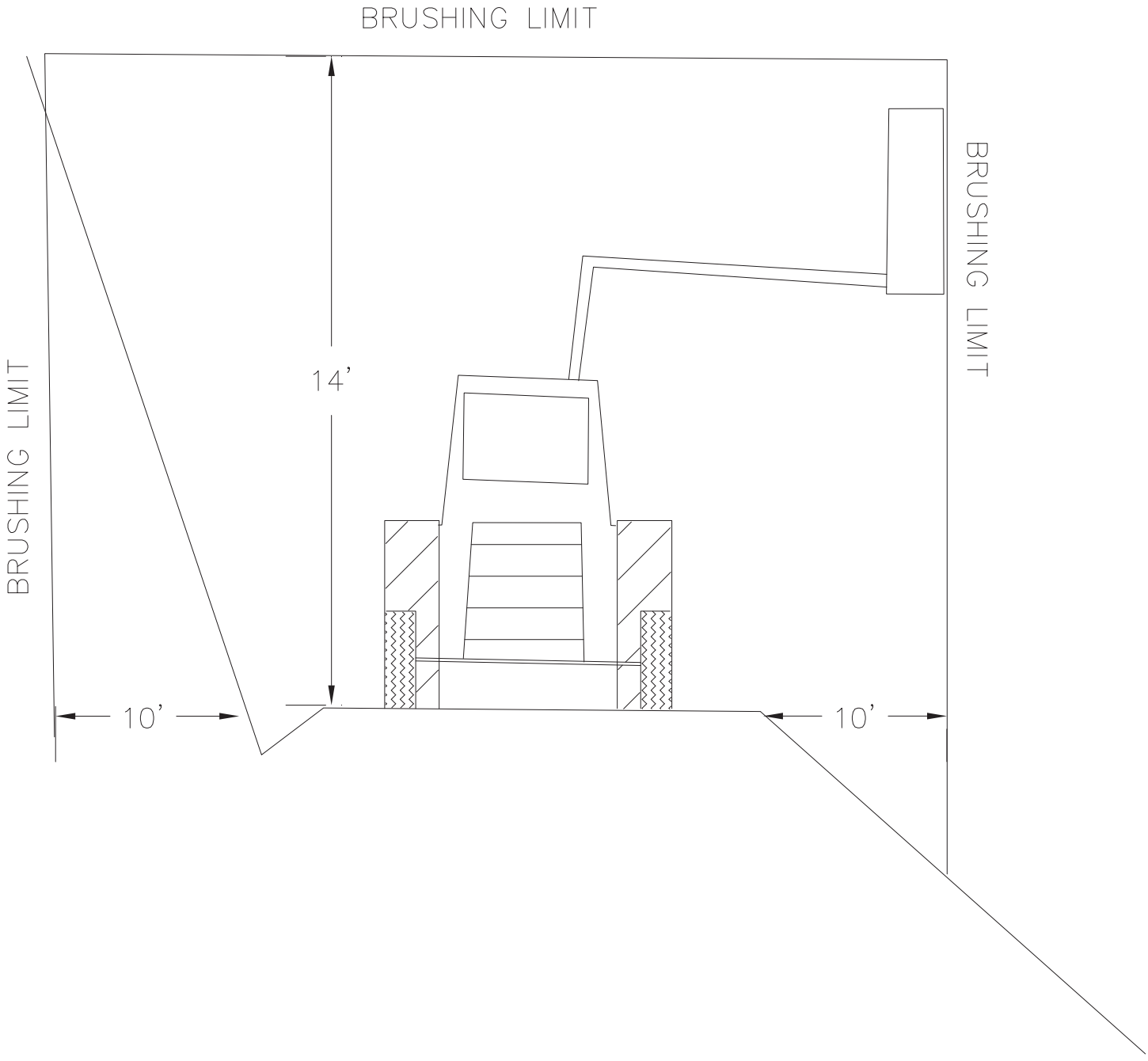
TYPICAL PROFILE



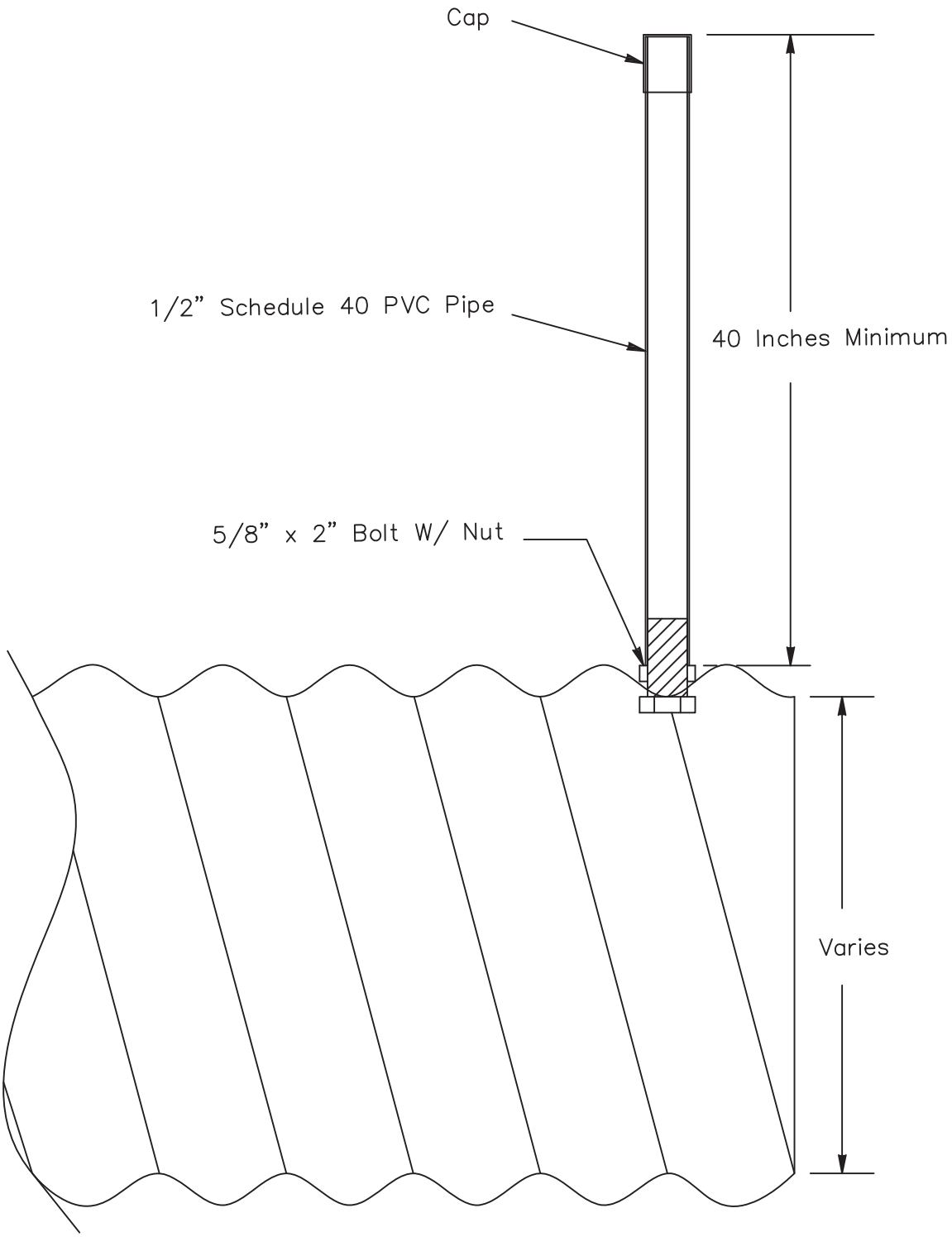
TYPICAL END VIEW OF OUTLET



BRUSHING SECTION DETAIL



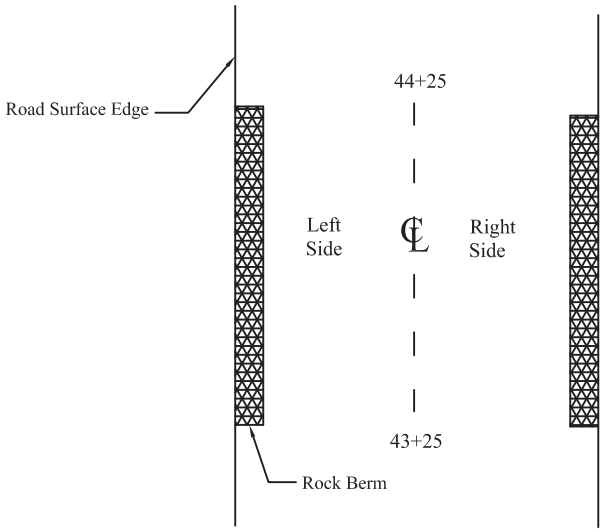
CULVERT MARKER INSTALLATION DETAIL



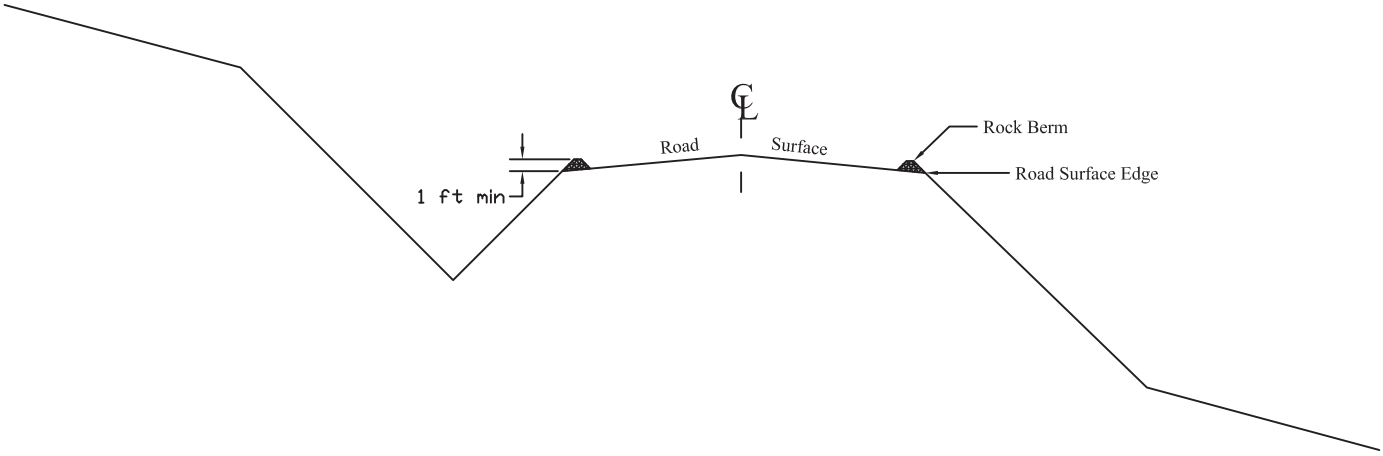
ROAD SURFACE SHOULDER BERM DETAIL

Not to Scale

PLAN VIEW



PROFILE VIEW



STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
PACIFIC CASCADE REGION

2705B PIT DEVELOPMENT PLAN

NW1/4 Sec. 08, T09N, R03E, W.M.

1. Process all shot rock and oversized rock (adjacent to access road on north side of pit) before moving into any undeveloped area. Develop rock in Area A, as shown on the 2705B PIT MAP. Development in any other area shall be approved in writing by the Contract Administrator.

2. All vegetation including stumps shall be cleared a minimum of 30 feet beyond the top of all working faces. The Contractor shall maintain a minimum of 20 foot wide stripped area from the pit face at all times.

3. Overburden shall be pushed or end hauled to the designated waste area and compacted. Minimal acceptable compaction is achieved by placing waste material in 2 foot or shallower lifts and routing excavation equipment over entire width of the lifts. Wasting in any other area shall be approved in writing by the Contract Administrator.

4. Root wads and organic debris larger than one cubic foot in volume shall be separated from overburden material and piled in the designated waste area.

5. Pit faces shall not exceed 30 feet in height and shall be sloped no steeper than ¼:1.

6. Working bench width shall be a minimum of 20 feet.

7. The pit floor shall have continuity of slope and be left in a smooth and neat condition. All knobs, bumps, or extrusions shall be removed to the designated floor level by excavation or drill and shoot techniques.

8. Oversize material remaining in the rock source at the conclusion of the timber sale shall not exceed 2 percent of the total volume mined for the sale. Placement of oversize material shall be placed in the southeast corner of the pit, or as approved in writing by the Contract Administrator. Oversize material is defined as rock fragments larger than two feet in any dimension.

9. At the end of operations, pit faces and walls shall be scaled and cleared of loose and overhanging material, benches shall have safety berms constructed or access blocked to highway vehicles. Upon completion of operations in the pit, the area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life.

10. All operations shall be carried out in compliance with all regulations of:
    a. Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations@ (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration.
    b. "Safety Standards for Construction Work" (296-155 WAC), Washington Department of Labor and Industries.

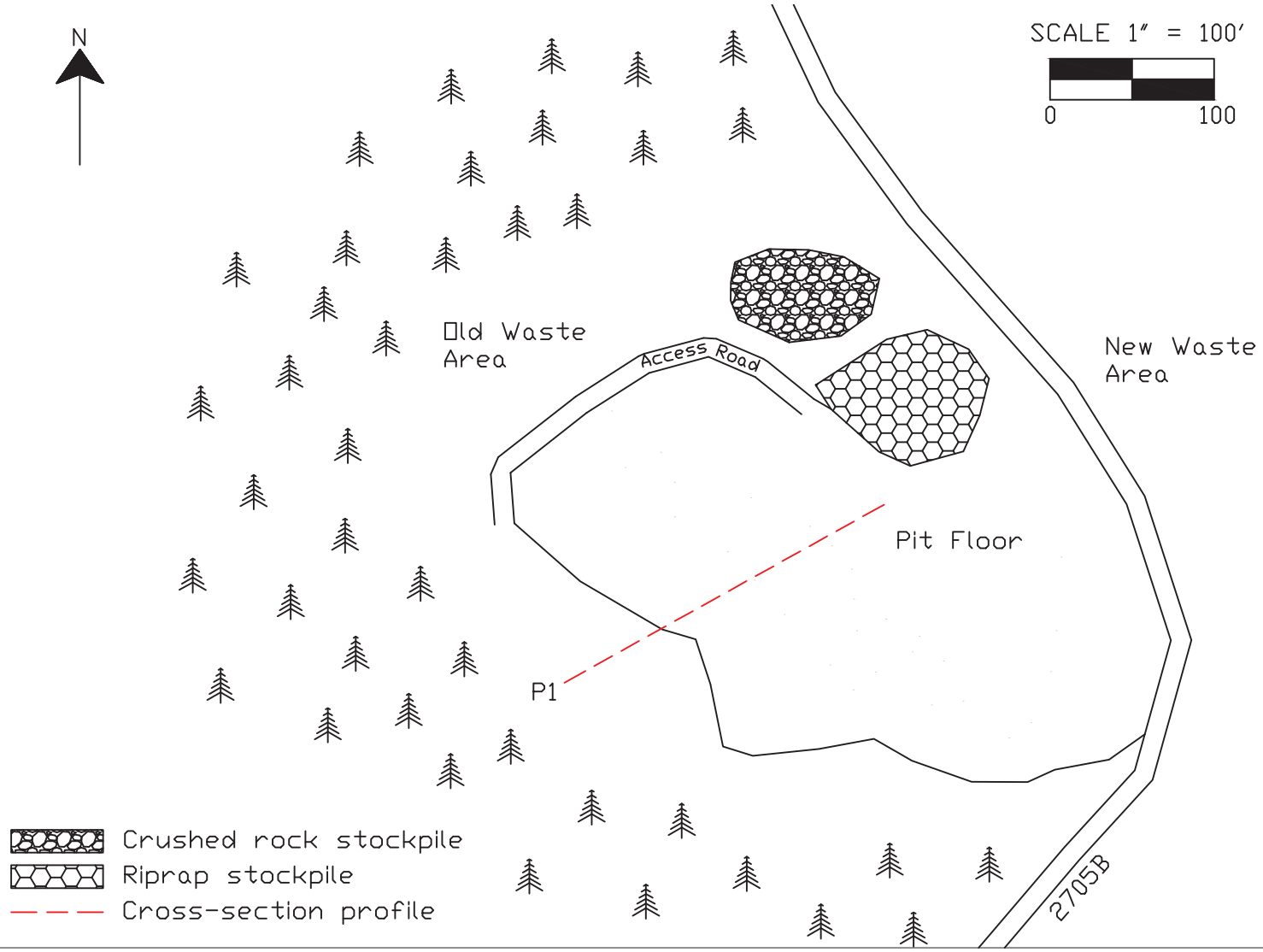
11. The Contractor shall submit an informational drilling and shooting plan to the Contract Administrator 5 working days prior to any drilling (Form #M-126PAC).

12. At the completion of rock source operations, Contractor shall ask Contract Administrator for written approval of final rock source condition and compliance with the terms of this plan.

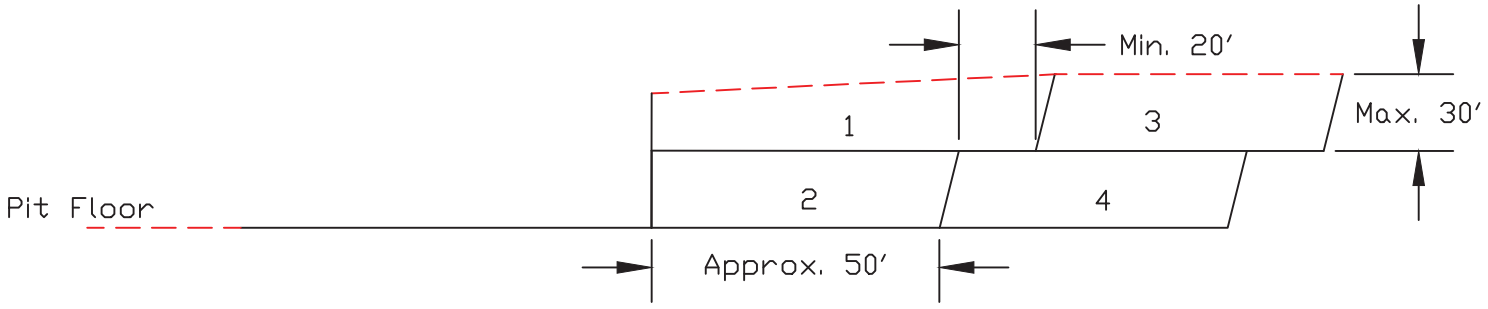
13. The pit area shall be worked and left in a condition that future operations may proceed in an orderly manner.

14. Upon completion of operations, the site shall be cleared of all temporary structures, equipment and rubbish, and shall be left in a neat and presentable condition.

2705B PIT MAP



TYPICAL WORK PROCEDURE



Reclaim rock in the sequence shown above. Process all shot rock before moving into the undeveloped area (1-4). Always maintain at least a 20 foot working bench and a maximum face height of 30 feet. All faces over 20 feet shall be sloped at no steeper than ¼:1. Waste unsuitable material in the New Waste Area or as directed by the Contract Administrator.

SUMMARY - Road Development Costs

REGION: Pacific Cascade
DISTRICT: St. Helens

SALE/PROJECT NAME: Deer Creek AGREEMENT #: 30-093330

ROAD NUMBERS:
Optional: 2705A (14+83 to 30+42), 3021A, 3021B, 3021C, 3023B
Required: 2700, 2705, 2705A (0+00 to 14+83), 3020, 3021, 3023

ROAD STANDARD:		Construction	Reconstruction	Maintenance
NUMBER OF STATIONS:		50.79	12.26	317.60
CLEARING & GRUBBING, EXCAVATION AND FILL, MISC.:		$14,286.89	$19,971.73	$16,027.47
ROAD ROCK:				
	Optional:	$12,184.46	$1,003.50	$0.00
	Required:	$24,352.18	$5,616.21	$7,649.53
	Total:	$36,536.64	$6,619.71	$7,649.53
STOCKPILE:		-	-	$0.00
CULVERTS AND FLUMES:		$6,156.00	$1,212.00	$19,602.25
STRUCTURES:		-	$22,957.82	-
MOBILIZATION:		$1,562.92	$2,184.81	$1,753.33
TOTAL COSTS:		$58,542.45	$52,946.07	$45,032.58
COST PER STATION:		$1,153	$4,319	$142
ROAD DEACTIVATION & ABANDONMENT COSTS:		$0.00	$0.00	$0

10% OVERHEAD AND GENERAL EXPENSE =	**$15,652.11**
TOTAL (All Roads) =	**$172,173.21**
TOTAL (Minus Optional Rock) =	**$158,985.25**
SALE VOLUME MBF =	**3,480**
TOTAL $/MBF =	**$49.48**
TOTAL $/MBF (Minus Optional Rock) =	**$45.69**

Profit and Risk costs are accounted on an individual basis.

Compiled by: Rich Wallmow Date: March 28, 2016

SUMMARY OF ROAD

Sale: **Deer Creek** Road: **2700**

Required Pre-Haul Maintenance-	52+20 stations 0.99 miles	Required Reconstruction -	0+00 stations 0.00 miles	Required Construction -	0+00 stations 0.00 miles
Required Abandonment-	0+00 stations 0.00 miles	Optional Reconstruction -	0+00 stations 0.00 miles	Optional Construction -	0+00 stations 0.00 miles

PRE-HAUL MAINTENANCE

MISC.

Grade and shape existing road surface -	52.20	stations @	$19.48	per station	$1,016.86	
				TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		**$1,016.86**

CULVERTS - MATERIALS & INSTALLATION

Culverts				
	75	LF of 18"	$1,136.25	
Culvert Stakes & Markers				
	2	markers	$16.00	
			TOTAL CULVERTS	**$1,136.25**

ROCK

Culvert Backfill	24+25, 50+10	40	cy. of	Crushed	@	$5.62	per c.y.=	$224.80
Spot Rock		200	cy. of	Crushed	@	$5.62	per c.y.=	$1,124.00
Energy Dissipator	See Culvert List	2	cy. of	Pit Run	@	$11.55	per c.y.=	$23.10
							TOTAL ROCK	**$1,371.90**

Required Pre-Haul Maintenance-	$3,525.01	Required Reconstruction -	$0.00	SUBTOTAL	**$3,525.01**
Required Abandonment-	$0.00	Optional Reconstruction -	$0.00		
Required Construction -	$0.00	Optional Construction -	$0.00	**TOTAL**	**$3,525.01**
Optional Rock?	NO			**COST PER STATION**	**$67.53**

SUMMARY OF ROAD

Sale: **Deer Creek** Road: **2705**

Required Pre-Haul Maintenance-	118+80	stations	Required Reconstruction -	0+00	stations	Required Construction -	0+00	stations
	2.25	miles		0.00	miles		0.00	miles
Required Abandonment-	0+00	stations	Optional Reconstruction -	0+00	stations	Optional Construction -	0+00	stations
	0.00	miles		0.00	miles		0.00	miles

PRE-HAUL MAINTENANCE

CLEARING

Roadside Brushing	1.06	miles	@	$1,120.00	per mile =	$1,187.20

EXCAVATION

Construct settling ponds -	8.00	@	$45.50	each	$364.00
Clean ditch-	55.97	stations @	$19.88	per station	$1,112.68

MISC.

Grade and shape existing road surface -	118.80	stations @	$19.48	per station	$2,314.22
Roll shaped road surface w/ vibratory roller prior to rocking -	118.80	stations @	$13.50	per station	$1,603.80

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **$6,581.90**

CULVERTS - MATERIALS & INSTALLATION

Culverts

30 LF of 18" $454.50

Culvert Stakes & Markers

1 markers $8.00

$8.00 TOTAL CULVERTS **$462.50**

ROCK

Culvert Backfill	86+25	20	cy. of	Crushed	@	$3.86	per c.y.=	$77.20
Rock Berm	78+38 to 79+8(	10	cy. of	Crushed	@	$3.86	per c.y.=	$38.60
Spot Rock		600	cy. of	Crushed	@	$3.86	per c.y.=	$2,316.00
Energy Dissipator	86+25	1	cy. of	Pit-Run	@	$8.03	per c.y.=	$8.03

TOTAL ROCK **$2,439.83**

Required Pre-Haul Maintenance-	$9,484.23	Required Reconstruction -	$0.00
Required Abandonment-	$0.00	Optional Reconstruction -	$0.00
Required Construction -	$0.00	Optional Construction -	$0.00
Optional Rock?	NO		

SUBTOTAL **$9,484.23**

TOTAL **$9,484.23**

COST PER STATION **$79.83**

SUMMARY OF ROAD

Sale: **Deer Creek** Road: **2705A**

Required Pre-Haul Maintenance-	0+00 stations 0.00 miles	Required Reconstruction -	2+42 stations 0.05 miles	Required Construction -	2+82 stations 0.05 miles
Required Abandonment-	0+00 stations 0.00 miles	Optional Reconstruction -	0+00 stations 0.00 miles	Optional Construction -	25+18 stations 0.48 miles

RECONSTRUCTION

CLEARING/GRUBBING						
Scattering Organic Debris	0.160	acres @	$918.00	per acre	$146.88	
EXCAVATION						
Side cast	0.160	acres @	$610.00	per acre	$97.60	
Pull and clean ditch-	2.42	stations @	$19.88	per station	$48.11	
Grade and shape subgrade -	2.42	stations @	$15.96	per station	$38.62	
MISC.						
Roll subgrade w/ vibratory roller prior to rocking -	2.42	stations @	$13.50	per station	$32.67	
Grass seed and fertilize -	6.00	lbs @	$2.80	per lbs	$16.80	
				TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		**$380.68**

CONSTRUCTION

CLEARING/GRUBBING						
Scattering Organic Debris	2.570	acres @	$918.00	per acre	$2,359.26	
Remove large stumps -	2.00	@	$90.00	each	$180.00	
EXCAVATION						
Road Construction Earthwork	28.00	sta. @	$93.33	per sta. =	$2,613.24	
Construct ditchouts -	1.00	@	$73.00	each	$73.00	
Grade and shape subgrade -	28.00	stations @	$15.96	per station	$446.88	
MISC.						
Roll subgrade w/ vibratory roller prior to rocking -	28.00	stations @	$13.50	per station	$378.00	
Construct turnaround @ sta. -	1.00	@	$90.00	each	$90.00	
Construct landing -	3.00	@	$285.00	each	$855.00	
Grass seed and fertilize -	70.00	lbs @	$2.80	per lbs	$196.00	
				TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		**$7,191.38**

CULVERTS - MATERIALS & INSTALLATION

Culverts			
200	LF of 18"	$3,030.00	
		$3,030.00	
Culvert Stakes & Markers			
6 markers		$48.00	
		$48.00	
		TOTAL CULVERTS	**$3,078.00**

ROCK

5+24	to	30+42	2,364	cy. of	Pit run	@	$9.34	per c.y.=	$22,079.76
2+82	to	5+24	100	cy. of	Pit Run	@	$8.85	per c.y.=	$885.00
0+00	to	2+82	251	cy. of	PitRun	@	$8.78	per c.y.=	$2,203.78
Energy Dissipator		See Culvert List	6	cy. of	Pit-Run	@	$11.44	per c.y.=	$68.64
								TOTAL ROCK	**$25,237.18**

Required Pre-Haul Maintenance-	$0.00	Required Reconstruction -	$1,720.68	SUBTOTAL	**$35,887.24**
Required Abandonment-	$0.00	Optional Reconstruction -	$0.00		
Required Construction -	$2,851.00	Optional Construction -	$31,315.56	**TOTAL**	**$35,887.24**
Optional Rock?	NO			**COST PER STATION**	**$1,179.73**

SUMMARY OF ROAD

Sale: **Deer Creek** Road: **3020**

Required Pre-Haul Maintenance-	64+10	stations	Required Reconstruction -	5+08	stations	Required Construction -	0+00	stations
	1.21	miles		0.10	miles		0.00	miles
Required Abandonment-	0+00	stations	Optional Reconstruction -	0+00	stations	Optional Construction -	0+00	stations
	0.00	miles		0.00	miles		0.00	miles

PRE-HAUL MAINTENANCE

CLEARING

Roadside Brushing	1.21	miles	@	$1,120.00	per mile =	$1,355.20

MISC.

Grade and shape existing road surface -	64.10	stations	@	$19.48	per station	$1,248.67
Roll shaped road surface w/ vibratory roller prior to rocking -	64.10	stations	@	$13.50	per station	$865.35

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **$3,469.22**

RECONSTRUCTION

CLEARING/GRUBBING

Scattering Organic Debris	0.120	acres	@	$918.00	per acre	$110.16
Construct waste areas -	2.00	hours	@	$280.00	per hour	$560.00

EXCAVATION

Clean ditch-	5.08	stations	@	$19.88	per station	$100.99
Grade and shape subgrade -	5.08	stations	@	$15.96	per station	$81.08

MISC.

Roll subgrade w/ vibratory roller prior to rocking -	5.08	stations	@	$13.50	per station	$68.58
Grass seed and fertilize -	10.00	lbs	@	$2.80	per lbs	$28.00

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **$948.81**

CULVERTS - MATERIALS & INSTALLATION

Culverts

110	LF of 18"	$1,666.50
		$1,666.50

Culvert Stakes & Markers

3 markers	$24.00
	$24.00

TOTAL CULVERTS **$1,690.50**

ROCK

Culvert Bedding/Backfill	See Culvert List	140	cy. of	Crushed	@	$4.51	per c.y.=	$631.40
Fill Armor	67+33	240	cy. of	Riprap	@	$6.14	per c.y.=	$1,473.60
Surface Rock	See Rock List	464	cy. of	Crushed	@	$4.51	per c.y.=	$2,092.64
Rock Berms	See Rock List	29	cy. of	Crushed	@	$4.33	per c.y.=	$125.57
68+89 to	69+53	109	cy. of	PitRun	@	$6.58	per c.y.=	$717.22
Energy Dissipator	See Rock List	3	cy. of	Pit-Run	@	$10.26	per c.y.=	$30.78

TOTAL ROCK **$5,071.21**

ADDITIONAL REQUIREMENTS

Corrugated Steel Pipe Arch (squashed pipe) - 14' 3" x 9'2" (nominal), 10 gaug	65.00	feet	@	$322.64	per foot	$20,971.60
Arch Bands	2.00		@	$645.48	each	$1,290.96
Gaskets	2.00		@	$150.72	each	$301.44
Installation of Pipe Arch	3.00	days	@	$4,500.00	per day	$13,500.00
Bevel Cut	1.00	cut	@	$193.82	per c.y.	$193.82
Lifting Lugs	8.00	each	@	$25.00	each	$200.00
Stream Diversion (Materials & Labor)	1.00		@	$3,000.00	each	$3,000.00
Mulch	20.00		@	$9.00	each	$180.00

TOTAL ADDITIONAL REQUIREMENTS **$39,637.82**

Required Pre-Haul Maintenance-	$4,901.78	Required Reconstruction -	$45,915.78
Required Abandonment-	$0.00	Optional Reconstruction -	$0.00
Required Construction -	$0.00	Optional Construction -	$0.00
Optional Rock?	NO		

SUBTOTAL **$50,817.56**

TOTAL **$50,817.56**

COST PER STATION **$734.57**

SUMMARY OF ROAD

Sale: **Deer Creek** Road: **3021**

Required Pre-Haul Maintenance-	54+75 stations 1.04 miles	Required Reconstruction -	0+00 stations 0.00 miles	Required Construction -	0+00 stations miles
Required Abandonment-	0+00 stations 0.00 miles	Optional Reconstruction -	0+00 stations 0.00 miles	Optional Construction -	0+00 stations 0.00 miles

PRE-HAUL MAINTENANCE

CLEARING						
Roadside Brushing	1.04	miles @	$1,120.00	per mile =	$1,164.80	
EXCAVATION						
Clean ditch-	49.75	stations @	$19.88	per station	$989.03	
MISC.						
Grade and shape existing road surface -	54.75	stations @	$19.48	per station	$1,066.53	
Roll shaped road surface w/ vibratory roller prior to rocking -	54.75	stations @	$13.50	per station	$739.13	
				TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		**$3,959.49**

CULVERTS - MATERIALS & INSTALLATION

Culverts					
60	LF of 18"	$909.00			
		$909.00	50	LF of 48"	$7,100.00
			50	LF of 72"	$9,500.00
					$16,600.00
Culvert Stakes & Markers					
2	markers	$16.00			
		$16.00		TOTAL CULVERTS	**$17,525.00**

ROCK

Culvert Backfill	See Culvert List	100	cy. of	Crushed	@	$3.46	per c.y.=	$346.00	
Fill Armor	0+00	80	cy. of	Riprap	@	$9.15	per c.y.=	$732.00	
Rock Berms	0+00	25	cy. of	Crushed	@	$3.46	per c.y.=	$86.50	
Spot Rock	0+00	300	cy. of	Crushed	@	$3.46	per c.y.=	$1,038.00	
Road Ballast	9+80, 23+30	120	cy. of	Pit-Run	@	$7.05	per c.y.=	$846.00	
Energy Dissipator	8+55, 37+20	2	cy. of	Pit-Run	@	$9.15	per c.y.=	$18.30	
								TOTAL ROCK	**$3,066.80**

ADDITIONAL REQUIREMENTS

Stream diversion -	2.00	@	$500.00	each	$1,000.00	
					TOTAL ADDITIONAL REQUIREMENTS	**$1,000.00**

Required Pre-Haul Maintenance-	$25,985.99	Required Reconstruction -	$0.00
Required Abandonment-	$0.00	Optional Reconstruction -	$0.00
Required Construction -	$0.00	Optional Construction -	$0.00
Optional Rock?	NO		

SUBTOTAL	**$25,985.99**
TOTAL	**$25,985.99**
COST PER STATION	**$474.63**

SUMMARY OF ROAD

Sale: **Deer Creek** Road: **3021A**

Required Pre-Haul Maintenance-	0+00 stations 0.00 miles	Required Reconstruction -	0+00 stations 0.00 miles	Required Construction -	0+00 stations 0.00 miles
Required Abandonment-	0+00 stations 0.00 miles	Optional Reconstruction -	4+76 stations 0.09 miles	Optional Construction -	0+00 stations 0.00 miles

RECONSTRUCTION

CLEARING/GRUBBING					
Scattering Organic Debris	0.110	acres @	$918.00	per acre	$100.98
EXCAVATION					
Side cast	0.100	acres @	$610.00	per acre	$61.00
Clean ditch-	4.76	stations @	$19.88	per station	$94.63
Grade and shape subgrade -	4.76	stations @	$15.96	per station	$75.97
MISC.					
Roll subgrade w/ vibratory roller prior to rocking -	4.76	stations @	$13.50	per station	$64.26
Reconstruct landing -	1.00	@	$142.50	each	$142.50
Grass seed and fertilize -	9.00	lbs @	$2.80	per lbs	$25.20
				TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.	**$564.54**

ROCK

Spot Rock	0+00	150	cy. of	Pit-Run	@	$6.69	per c.y.=	$1,003.50	
								TOTAL ROCK	**$1,003.50**

Required Pre-Haul Maintenance-	$0.00	Required Reconstruction -	$0.00		
Required Abandonment-	$0.00	Optional Reconstruction -	$1,568.04	SUBTOTAL	**$1,568.04**
Required Construction -	$0.00	Optional Construction -	$0.00		
Optional Rock?	YES			**TOTAL**	**$1,568.04**
				COST PER STATION	**$329.42**

SUMMARY OF ROAD

Sale: **Deer Creek** Road: **3021B**

Required Pre-Haul Maintenance-	0+00 stations 0.00 miles	Required Reconstruction -	0+00 stations 0.00 miles	Required Construction -	0+00 stations 0.00 miles
Required Abandonment-	0+00 stations 0.00 miles	Optional Reconstruction -	0+00 stations 0.00 miles	Optional Construction -	8+14 stations 0.15 miles

CONSTRUCTION

CLEARING/GRUBBING					
Scattering Organic Debris	0.750	acres @	$918.00	per acre	$688.50
Remove large stumps -	1.00	@	$90.00	each	$90.00
EXCAVATION					
Road Construction Earthwork	8.14	sta. @	$155.56	per sta. =	$1,266.26
Grade and shape subgrade -	8.14	stations @	$15.96	per station	$129.91
MISC.					
Roll subgrade w/ vibratory roller prior to rocking -	8.14	stations @	$13.50	per station	$109.89
Construct turnaround @ sta. -	1.00	@	$90.00	each	$90.00
Construct landing -	1.00	@	$285.00	each	$285.00
Grass seed and fertilize -	20	lbs @	$2.80	per lbs	$56.00

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **$2,715.56**

CULVERTS - MATERIALS & INSTALLATION

Culverts

30	LF of 18"	$454.50
		$454.50

Culvert Stakes & Markers

1	markers	$8.00
		$8.00

TOTAL CULVERTS **$462.50**

ROCK

Energy Dissipator	See culvert list	1	cy. of	Pit-Run	@	$8.66	per c.y.=	$8.66
0+00 to	8+14	627	cy. of	PitRun	@	$6.56	per c.y.=	$4,113.12

TOTAL ROCK **$4,121.78**

Required Pre-Haul Maintenance-	$0.00	Required Reconstruction -	$0.00
Required Abandonment-	$0.00	Optional Reconstruction -	$0.00
Required Construction -	$0.00	Optional Construction -	$7,299.84
Optional Rock?	YES		

SUBTOTAL **$7,299.84**

TOTAL **$7,299.84**

COST PER STATION **$896.79**

SUMMARY OF ROAD

Sale: **Deer Creek** Road: **3021C**

Required Pre-Haul Maintenance-	0+00 stations 0.00 miles	Required Reconstruction -	0+00 stations 0.00 miles	Required Construction -	0+00 stations 0.00 miles
Required Abandonment-	0+00 stations 0.00 miles	Optional Reconstruction -	0+00 stations 0.00 miles	Optional Construction -	7+03 stations 0.13 miles

CONSTRUCTION

CLEARING/GRUBBING						
Scattering Organic Debris	0.650	acres	@	$918.00	per acre	$596.70
EXCAVATION						
Road Construction Earthwork	7.03	sta.	@	$93.33	per sta. =	$656.11
Grade and shape subgrade -	7.03	stations	@	$15.96	per station	$112.20
MISC.						
Roll subgrade w/ vibratory roller prior to rocking -	7.03	stations	@	$13.50	per station	$94.91
Construct turnaround @ sta. -	1.00		@	$90.00	each	$90.00
Construct landing -	1.00		@	$285.00	each	$285.00
Grass seed and fertilize -	18	lbs	@	$2.80	per lbs	$50.40

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **$1,885.32**

CULVERTS - MATERIALS & INSTALLATION

Culverts

70	LF of 18"	$1,060.50	0	LF of 24"	$0.00
		$1,060.50			$0.00

Culvert Stakes & Markers

2	markers	$16.00
		$16.00

TOTAL CULVERTS **$1,076.50**

ROCK

0+00 to	7+03	555	cy. of	PitRun	@	$6.26	per c.y.=	$3,474.30
Energy Dissipator	See culvert list	2	cy. of	Pit-Run	@	$8.36	per c.y.=	$16.72

TOTAL ROCK **$3,491.02**

Required Pre-Haul Maintenance-	$0.00	Required Reconstruction -	$0.00
Required Abandonment-	$0.00	Optional Reconstruction -	$0.00
Required Construction -	$0.00	Optional Construction -	$6,452.84
Optional Rock?	YES		

SUBTOTAL **$6,452.84**

TOTAL **$6,452.84**

COST PER STATION **$917.90**

SUMMARY OF ROAD

Sale: **Deer Creek** Road: **3023**

Required Pre-Haul Maintenance-	27+75 stations 0.53 miles	Required Reconstruction -	0+00 stations 0.00 miles	Required Construction -	0+00 stations 0.00 miles
Required Abandonment-	0+00 stations 0.00 miles	Optional Reconstruction -	0+00 stations 0.00 miles	Optional Construction -	0+00 stations 0.00 miles

PRE-HAUL MAINTENANCE

CLEARING

Roadside Brushing			0.53	miles @	$800.00	per mile =	$424.00
MISC.							
Grade and shape existing road surface -			27.75	stations @	$19.48	per station	$540.57
						TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.	**$964.57**

ROCK

Spot Rock	0+00	100	cy. of	Crushed	@	$4.31	per c.y.=	$431.00
							TOTAL ROCK	**$431.00**

Required Pre-Haul Maintenance-	$1,395.57	Required Reconstruction -	$0.00
Required Abandonment-	$0.00	Optional Reconstruction -	$0.00
Required Construction -	$0.00	Optional Construction -	$0.00
Optional Rock?	NO		

SUBTOTAL	**$1,395.57**
TOTAL	**$1,395.57**
COST PER STATION	**$50.29**

SUMMARY OF ROAD

Sale: **Deer Creek** Road: **3023B**

Required Pre-Haul Maintenance-	0+00 stations 0.00 miles	Required Reconstruction -	0+00 stations 0.00 miles	Required Construction -	0+00 stations 0.00 miles
Required Abandonment-	0+00 stations 0.00 miles	Optional Reconstruction -	0+00 stations 0.00 miles	Optional Construction -	7+62 stations 0.14 miles

CONSTRUCTION

CLEARING/GRUBBING						
Scattering Organic Debris	0.700	acres	@	$918.00	per acre	$642.60
Remove large stumps -	3.00		@	$90.00	each	$270.00
EXCAVATION						
Road Construction Earthwork	7.62	sta.	@	$121.74	per sta. =	$927.66
Grade and shape subgrade -	7.62	stations	@	$15.96	per station	$121.62
MISC.						
Roll subgrade w/ vibratory roller prior to rocking -	7.62	stations	@	$13.50	per station	$102.87
Construct turnaround @ sta. -	1.00		@	$90.00	each	$90.00
Construct landing -	1.00		@	$285.00	each	$285.00
Grass seed and fertilize -	19.60	lbs	@	$2.80	per lbs	$54.88

TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC. **$2,494.63**

CULVERTS - MATERIALS & INSTALLATION

Culverts			
	100	LF of 18"	$1,515.00
			$1,515.00
Culvert Stakes & Markers			
	3	markers	$24.00
			$24.00

TOTAL CULVERTS **$1,539.00**

ROCK

0+00	to	7+62	593	cy. of	PitRun	@	$7.66	per c.y.= $4,542.38
Energy Dissipator		See culvert list	3	cy. of	Pit-Run	@	$9.76	per c.y.= $29.28

TOTAL ROCK **$4,571.66**

Required Pre-Haul Maintenance-	$0.00	Required Reconstruction -	$0.00
Required Abandonment-	$0.00	Optional Reconstruction -	$0.00
Required Construction -	$0.00	Optional Construction -	$8,605.29
Optional Rock?	YES		

SUBTOTAL **$8,605.29**

TOTAL **$8,605.29**

COST PER STATION **$1,129.30**

ROCK DEVELOPMENT COST SUMMARY

Pit:	2705B	Location:	Sec. 8, T9N R3E		
Sale:	**Deer Creek**		Road:	5209 c.y.	
Swell:	1.40		Stockpile:	c.y.	
Shrinkage	1.16		Total Truck Loads:	5209 c.y.	
Drill Pct.:	100%		In Place Total:	3721 c.y.	

Pit Development & Cleanup including Clearing and grubbing of Waste Area @ adjacent to pit, place overburden in Waste Area, spread and compact.	$3.97	/cu.yd	x	1300	cu.yds.	$5,161.00
Drill & Shoot:	$2.80	/cu.yd	x	3721	cu.yds.	$10,418.80
Push Rock:	$0.67	/cu.yd	x	5209	cu.yds.	$3,490.03
Load Dump Truck:	$0.56	/cu.yd	x	5209	cu.yds.	$2,917.04
					Subtotal	$21,986.87

TOTAL PRODUCTION COSTS $21,986.87

Base Cost= $4.22 Per Cu.Yd.

Road Segment	Haul Cost /cu.yd.	Proc Cost /cu.yd.	Base Cst. /cu.yd.	Cost /cu.yd.	Number Cu. Yds	Speed (Mi/hr.)	One-Way Dist (ft)	ROCK COST
2700 Energy Dissipator	$4.33	$3.00	$4.22	$11.55	2	13	13230	$23.10
2705 Energy Dissipator	$3.21	$0.60	$4.22	$8.03	1	15	9000	$8.03
2705A	$4.22	$0.90	$4.22	$9.34	2364	13	12815	$22,079.76
2705A	$3.73	$0.90	$4.22	$8.85	100	13	10928	$885.00
2705A	$3.66	$0.90	$4.22	$8.78	251	13	10656	$2,203.78
2705A Energy Dissipator	$4.22	$3.00	$4.22	$11.44	6	13	12815	$68.64
3020 Fill Armor	$1.32	$0.60	$4.22	$6.14	240	15	600	$1,473.60
3020	$1.46	$0.90	$4.22	$6.58	109	15	600	$717.22
3020 Energy Dissipator	$3.04	$3.00	$4.22	$10.26	3	13	8275	$30.78
3021 Fill Armor	$1.93	$3.00	$4.22	$9.15	80	13	4000	$732.00
3021 Road Ballast	$1.93	$0.90	$4.22	$7.05	120	13	4000	$846.00
3021 Energy Dissipator	$1.93	$3.00	$4.22	$9.15	2	13	4000	$18.30
3021A Spot Rock	$1.57	$0.90	$4.22	$6.69	150	13	2600	$1,003.50
3021B Energy Dissipator	$1.44	$3.00	$4.22	$8.66	1	13	2100	$8.66
3021B	$1.44	$0.90	$4.22	$6.56	627	13	2100	$4,113.12
3021C	$1.14	$0.90	$4.22	$6.26	555	13	950	$3,474.30
3021C Energy Dissipator	$1.14	$3.00	$4.22	$8.36	2	13	950	$16.72
3023B	$2.54	$0.90	$4.22	$7.66	593	13	6360	$4,542.38
3023B Energy Dissipator	$2.54	$3.00	$4.22	$9.76	3	13	6360	$29.28
				Total C.Y.	5209		Sub Total	$42,274.17

TOTAL ROCKING COSTS $42,274.17

ROCK DEVELOPMENT COST SUMMARY

Pit:	2705B	Location:	Sec. 8, T9N R3E
Sale:	**Deer Creek**	Road:	2028 c.y.
Swell:	1.40	Stockpile:	c.y.
Shrinkage	1.16	Total Truck Loads:	2028 c.y.
Drill Pct.:	0%	In Place Total:	1449 c.y.

Base Cost=	$0.56	Per Cu.Yd.	(Crushed Stockpiles)
	$3.23	Per Cu.Yd.	(Pit Run)

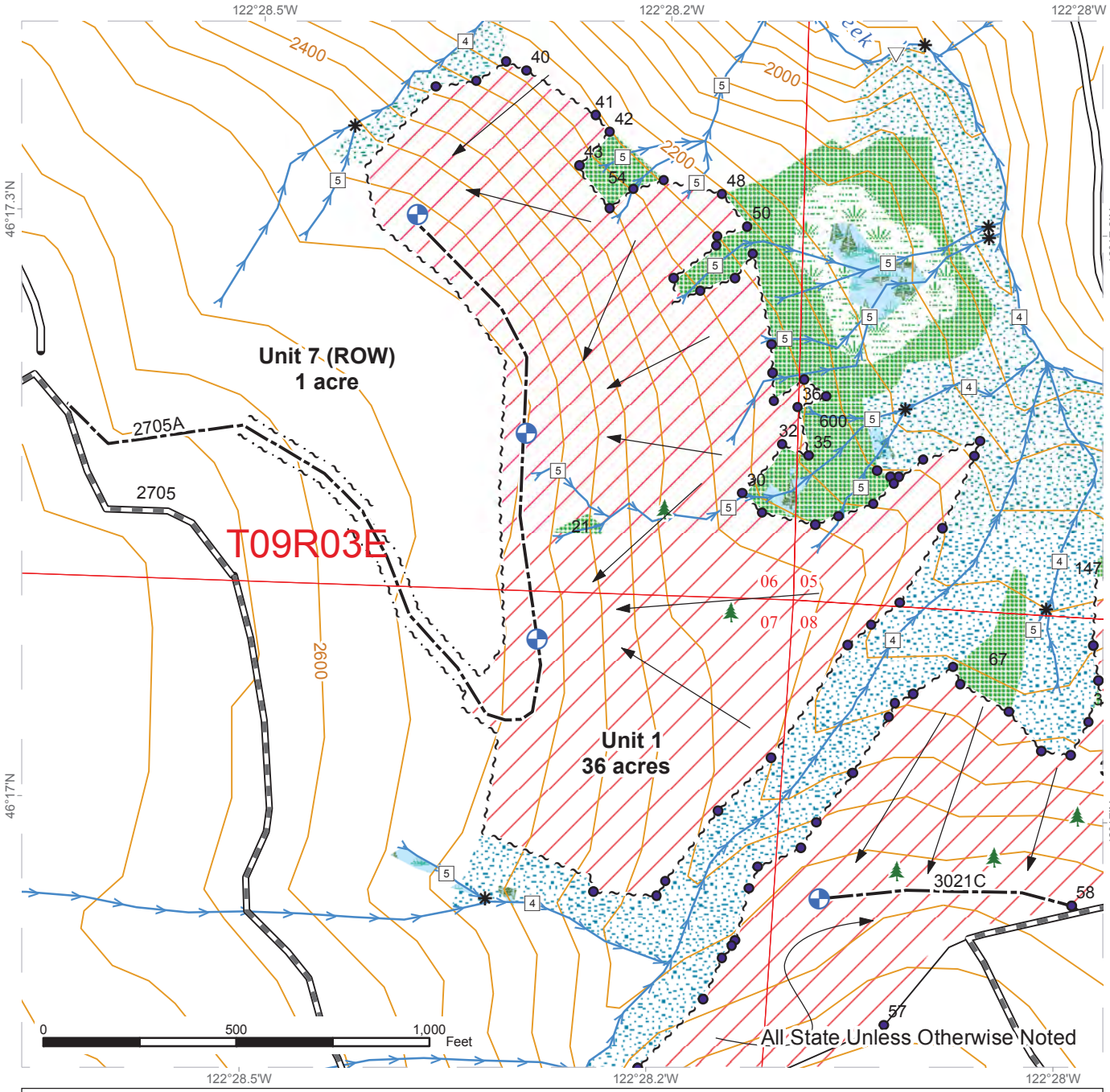
Road Segment	Haul Cost /cu.yd.	Proc Cost /cu.yd.	Base Cst. /cu.yd.	Cost /cu.yd.	Number Cu. Yds	Speed (Mi/hr.)	One-way Dist (ft)	ROCK COST
2700 Culvert Backfill	$4.16	$0.90	$0.56	$5.62	40	15	13230	$224.80
2700 Spot Rock	$4.16	$0.90	$0.56	$5.62	200	15	13230	$1,124.00
2705 Culvert Backfill	$2.40	$0.90	$0.56	$3.86	20	15	5400	$77.20
2705 Rock Berm	$2.40	$0.90	$0.56	$3.86	10	15	5400	$38.60
2705 Spot Rock	$2.40	$0.90	$0.56	$3.86	600	15	5400	$2,316.00
3020 Culvert Bedding/Backfill	$3.05	$0.90	$0.56	$4.51	140	15	8275	$631.40
3020 Surface Rock	$3.05	$0.90	$0.56	$4.51	464	15	8275	$2,092.64
3020 Rock Berms	$2.87	$0.90	$0.56	$4.33	29	15	7475	$125.57
3021 Culvert Backfill	$2.30	$0.60	$0.56	$3.46	100	15	4000	$346.00
3021 Rock Berms	$2.30	$0.60	$0.56	$3.46	25	15	4000	$86.50
3021 Spot Rock	$2.30	$0.60	$0.56	$3.46	300	15	4000	$1,038.00
3023 Spot Rock	$2.85	$0.90	$0.56	$4.31	100	15	7370	$431.00
				Total C.Y.	2028		Sub Total	$8,531.71

TOTAL ROCKING COSTS $8,531.71

LOGGING PLAN MAP

SALE NAME: DEER CREEK
AGREEMENT#: 30-093330
TOWNSHIP(S): T09R03E
TRUST(S): Common School and Indemnity(3), Normal School(8), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): COWLITZ
ELEVATION RGE: 2075-2533



- Cable Harvest
- Ground Harvest
- Forested Wetland
- Wetland Mgt Zone
- Riparian Mgt Zone
- Leave Tree Area
- Sale Boundary Tags
- Right of Way Tags
- Reprod
- Existing Roads
- Required Pre-Haul Maintenance
- Optional Construction
- Streams
- Stream Type
- Stream Type Break
- Leave Trees
- Landing - Proposed

N

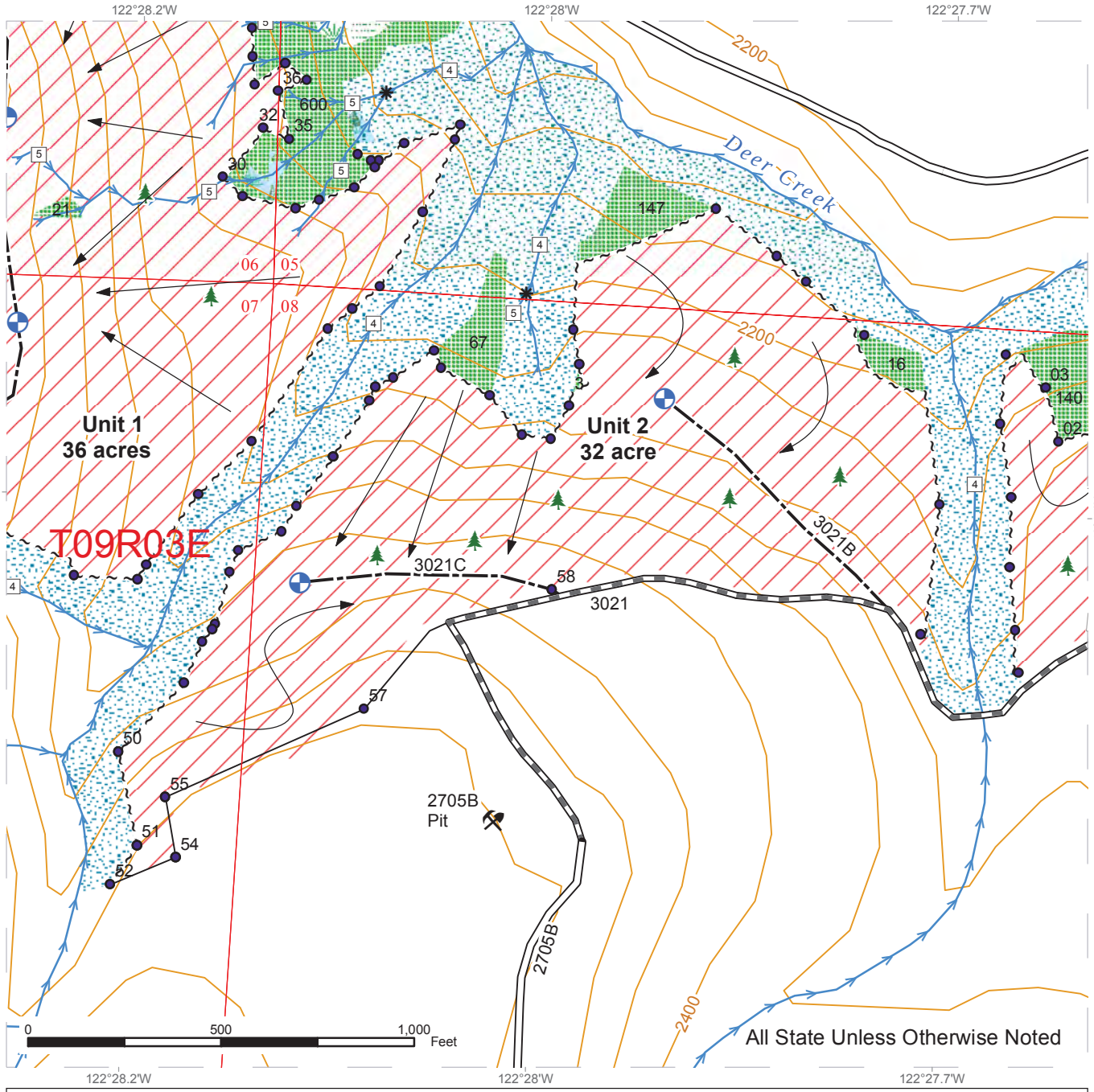
Prepared By: fbaz490 01/06/2016

Modification Date: 4/14/2016

LOGGING PLAN MAP

SALE NAME: DEER CREEK
AGREEMENT#: 30-093330
TOWNSHIP(S): T09R03E
TRUST(S): Common School and Indemnity(3), Normal School(8), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): COWLITZ
ELEVATION RGE: 2075-2533



- Cable Harvest
- Ground Harvest
- Forested Wetland
- Wetland Mgt Zone
- Riparian Mgt Zone
- Leave Tree Area
- Sale Boundary Tags
- Reprod
- Existing Roads
- Required Pre-Haul Maintenance
- Optional Construction
- Streams
- Stream Type
- Stream Type Break
- Leave Trees
- Landing - Proposed
- Existing Rock Pit

N

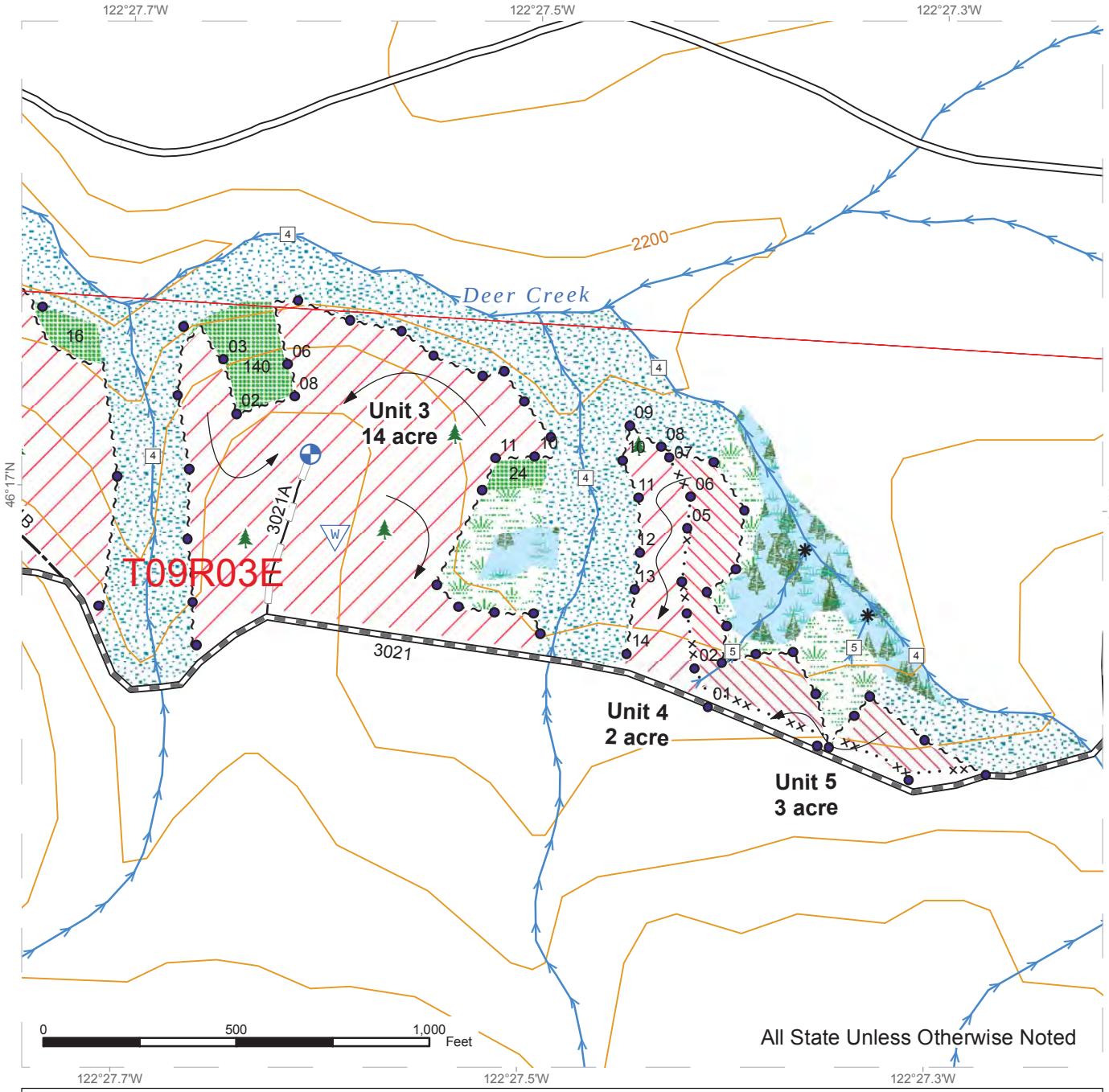
Prepared By: fbaz490 01/06/2016

Modification Date: 4/14/2016

LOGGING PLAN MAP

SALE NAME: DEER CREEK
AGREEMENT#: 30-093330
TOWNSHIP(S): T09R03E
TRUST(S): Common School and Indemnity(3), Normal School(8), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): COWLITZ
ELEVATION RGE: 2075-2533



- Cable Harvest
- Ground Harvest
- Forested Wetland
- Wetland Mgt Zone
- Riparian Mgt Zone
- Leave Tree Area
- Sale Boundary Tags
- Special Mgmt Area
- Existing Roads
- Required Pre-Haul Maintenance
- Optional Construction
- Optional Reconstruction
- Streams
- Stream Type
- Stream Type Break
- Leave Trees
- Waste Area
- Landing - Proposed

N

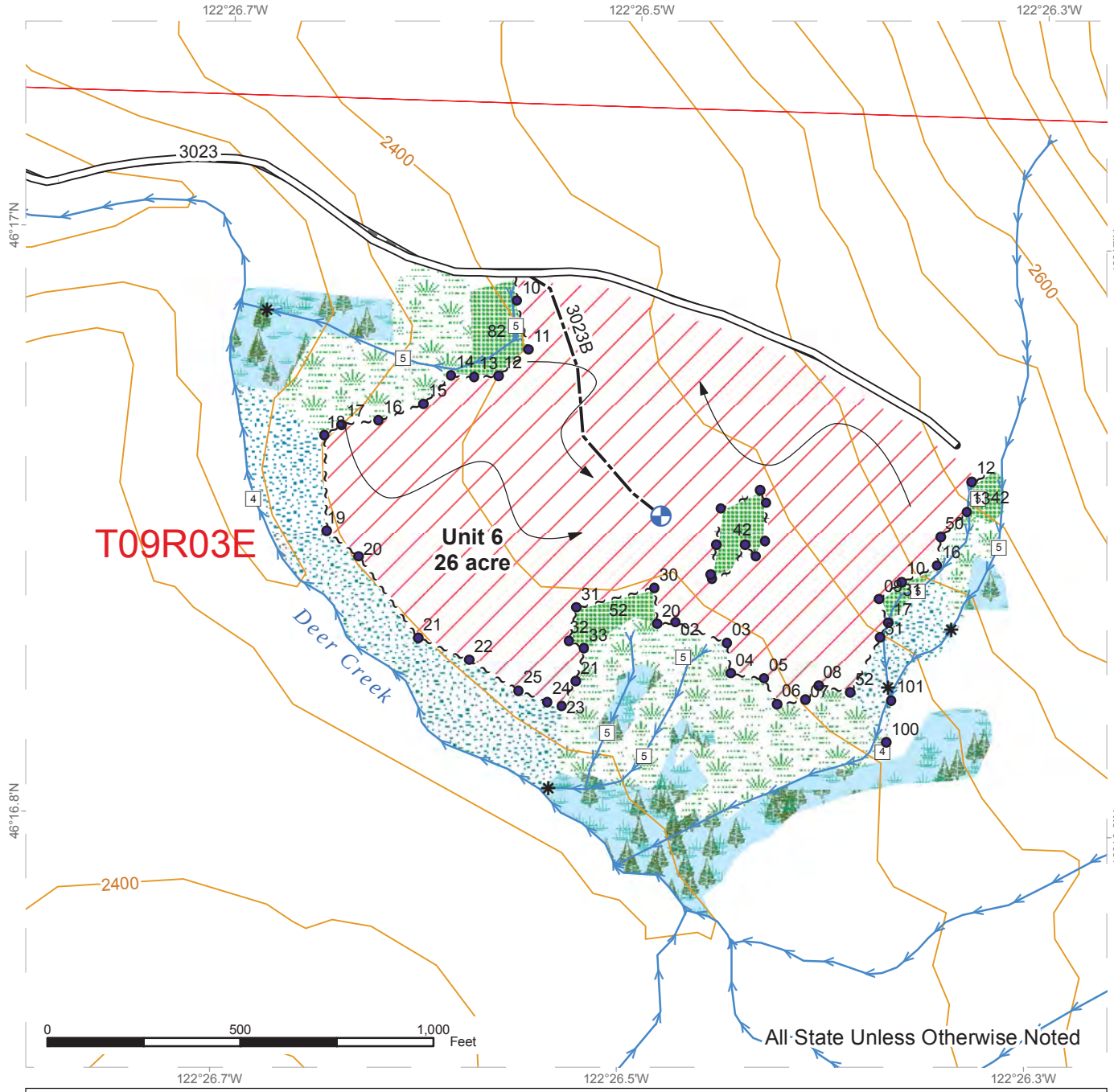
Prepared By: fbaz490 01/06/2016

Modification Date: 4/14/2016

LOGGING PLAN MAP

SALE NAME: DEER CREEK
AGREEMENT#: 30-093330
TOWNSHIP(S): T09R03E
TRUST(S): Common School and Indemnity(3), Normal School(8), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): COWLITZ
ELEVATION RGE: 2075-2533



- Cable Harvest
- Ground Harvest
- Forested Wetland
- Wetland Mgt Zone
- Riparian Mgt Zone
- Leave Tree Area
- Sale Boundary Tags
- Leave Tree Tags
- Existing Roads
- Required Pre-Haul Maintenance
- Optional Construction
- Streams
- Stream Type
- Stream Type Break
- Landing - Proposed

N

Prepared By: fbaz490 01/06/2016

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