WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES

TIMBER NOTICE OF SALE

***SALE NAME**: SPRUCED UP* ***AGREEMENT NO**: 30-98878*

AUCTION: May 27, 2020 starting at 10:00 a.m., Olympic Region Office, Forks, WA **COUNTY:** Clallam

SALE LOCATION: Sale located approximately 5 miles northwest of Forks, WA

PRODUCTS SOLD AND SALE AREA: All timber, except trees marked with a band of blue paint bounded out by leave tree area tags; or bounded by timber sale boundary tags and the 59 road in Unit 1; timber sale boundary tags and the D-2030 road in Unit 2 ; timber sale boundary tags, timber type change and property line in Unit 3; timber sale boundary tags, D-5100 road, D-2200 road, timber type change and property line tags in Unit 4; timber sale boundary tags, D-2007 road and timber type change Unit 5 ; timber sale boundary tags and the D-2000 road in Unit 6; timber sale boundary tags, D-2000 road and the D-2000.7 road in Unit 7; timber sale boundary tags, D-2000 road and property line in Unit 8; timber sale boundary tags, timber type change, D-2000 and the D-2010 road in Unit 9; all timber bounded out by right-of-way tags on part(s) of Sections 2, 23, 24, 25 and 26 all in Township 29 North, Range 14 West, Sections 3 all in Township 29 North, Range 13 West, W.M., containing 255 acres, more or less.

CERTIFICATION: This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: PwC-SFIFM-513)

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade 1P	2P	3P	SM	1S	2S	3S	4S	UT
Hemlock	14.5	5	3,130						1,161	1,414	518	37
Spruce	19.6	3	2,259						1,609	524	126	
Douglas fir	15.6	5	1,905						465	1,065	348	27
Red alder	12.9		378					29	45	100	167	37
Sale Total			7,672									

MINIMUM BID: $1,189,000.00 **BID METHOD:** Sealed Bids

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

EXPIRATION DATE: September 30, 2022 **ALLOCATION:** Export Restricted

BID DEPOSIT: $118,900.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Ground-85% Cable 15%. No rubber tired skidders will be allowed unless skid trail, rutting requirements and a harvest plan is submitted and approved.

ROADS: 36.33 stations of optional construction. 71.48 stations of optional reconstruction. 652.05 stations of optional prehaul maintenance. 19.35 stations of decommissioning. Bridge construction on the D-2031 stations 15+25 and stations 23+50 is restricted from October 1- June 30.

All road work, right-of-way timber falling and yarding, rock pit operations, or operation of heavy equipment on the D-2000, Milepost 8.9, must be performed during the limited operating period if implemented during the nesting season. The limited operating period runs from two hours after sunrise to two hours before sunset, between April 1 through September 23. This restriction does not apply to the hauling of timber, rock, or equipment.

ACREAGE DETERMINATION

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

FEES: $130,424.00 is due on day of sale. $9.00 per MBF is due upon removal. These are in addition to the bid price.

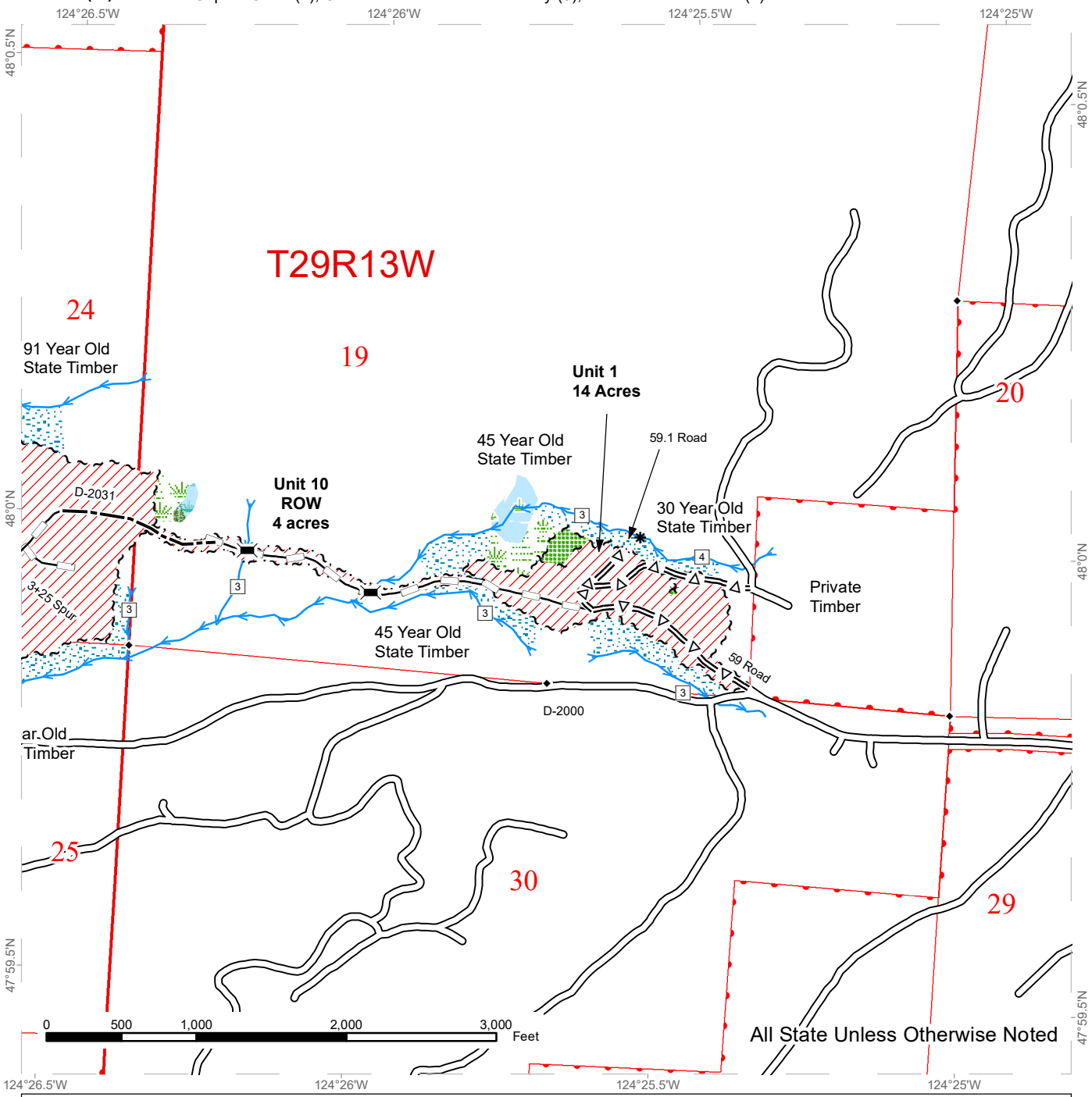
SPECIAL REMARKS: There are locked gates on the Loop Pit Access Road- contact Olympic Region Dispatch Center at 360-374-2811 to obtain a AA-1 key.

Purchaser shall supply and construct two bridges. See Road Plan for details.

TIMBER SALE MAP

SALE NAME: SPRUCED UP
AGREEMENT #: 30-098878
TOWNSHIP(S): T29R13W, T29R14W
TRUST(S): Capitol Grant (7), Common School and Indemnity (3), State Forest Transfer (1)

REGION: Olympic Region
COUNTY(S): Clallam
ELEVATION RGE: 200'-600'



Variable Retention Harvest	Township/Range Lines	Optional Construction
Leave Tree Area	Property Line	Optional Reconstruction
Riparian Management Zone	Timber Sale Boundary Tags	Streams
Wetlands - Non-Forested	Leave Tree Tags	Stream Type
Forested Wetland	Right of Way Tags	Stream Type Break
Wetland Management Zone	Existing Roads	Bridge
Section Lines	Optional Pre-Haul Maintenance	Survey Monument

N

Prepared By: adan490

Modification Date: mpff490 1/22/2020

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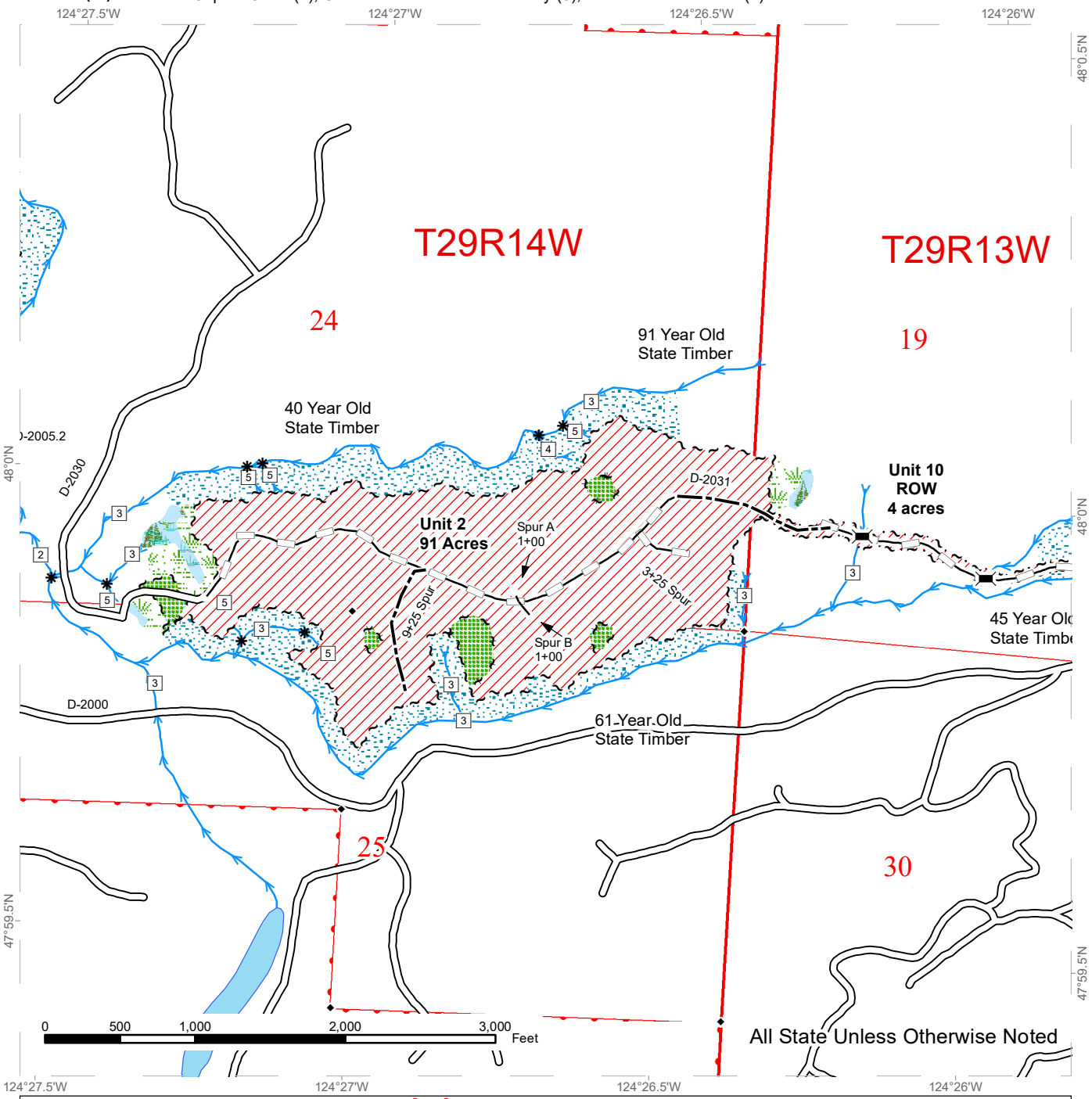

Variable Retention Harvest	Property Line	Optional Reconstruction
Leave Tree Area	Open Water	Streams
Riparian Management Zone	Timber Sale Boundary Tags	Stream Type
Forested Wetland	Leave Tree Tags	Stream Type Break
Wetland Management Zone	Right of Way Tags	Bridge
Section Lines	Existing Roads	Survey Monument
Township/Range Lines	Optional Construction	

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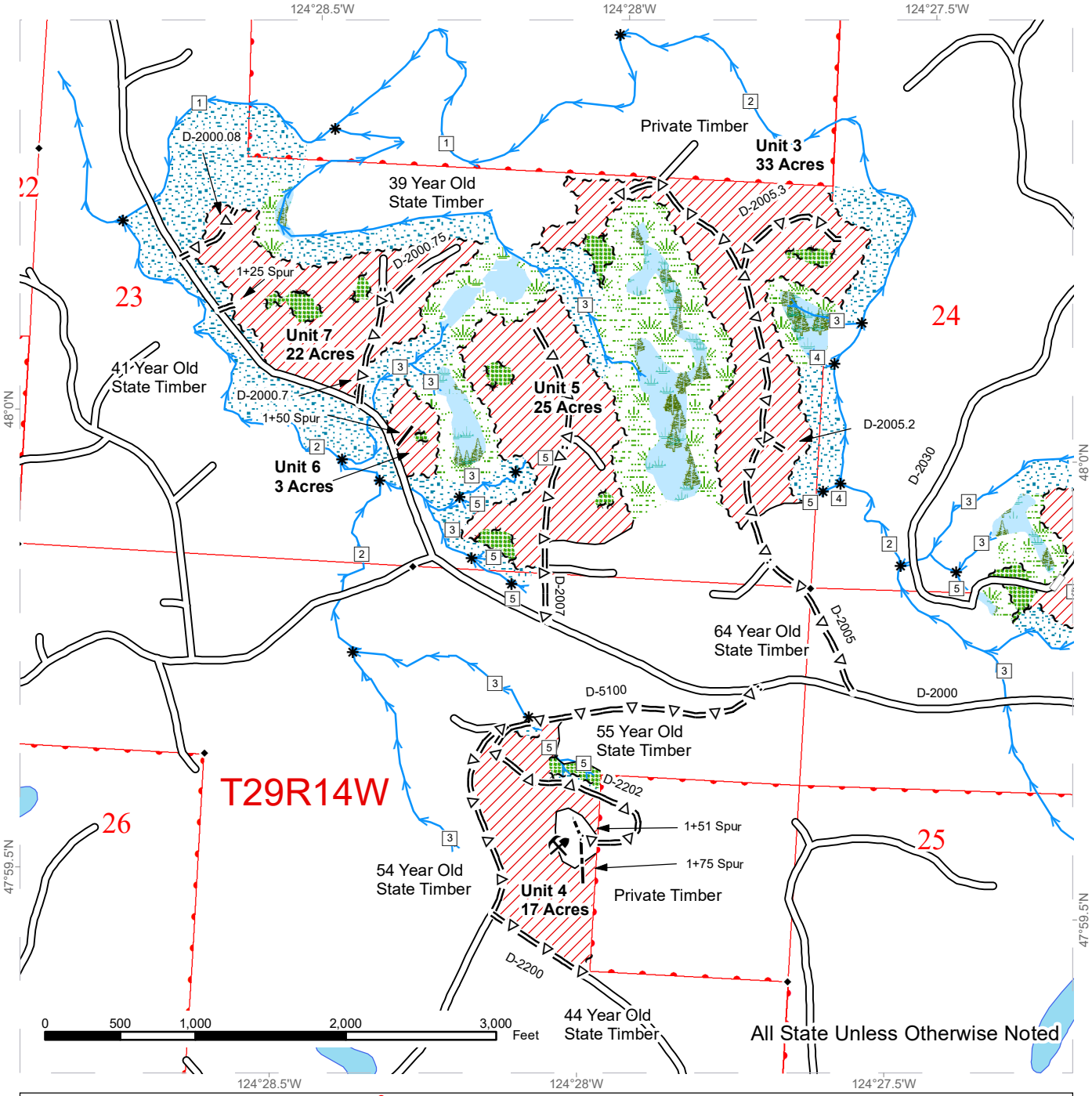

Variable Retention Harvest	Property Line	Optional Reconstruction
Leave Tree Area	Open Water	Streams
Riparian Management Zone	Timber Sale Boundary Tags	Stream Type
Wetlands - Non-Forested	Leave Tree Tags	Stream Type Break
Forested Wetland	Timber Type Change	Rock Pit
Wetland Management Zone	Existing Roads	Survey Monument
Section Lines	Optional Pre-Haul Maintenance	
Township/Range Lines	Optional Construction	

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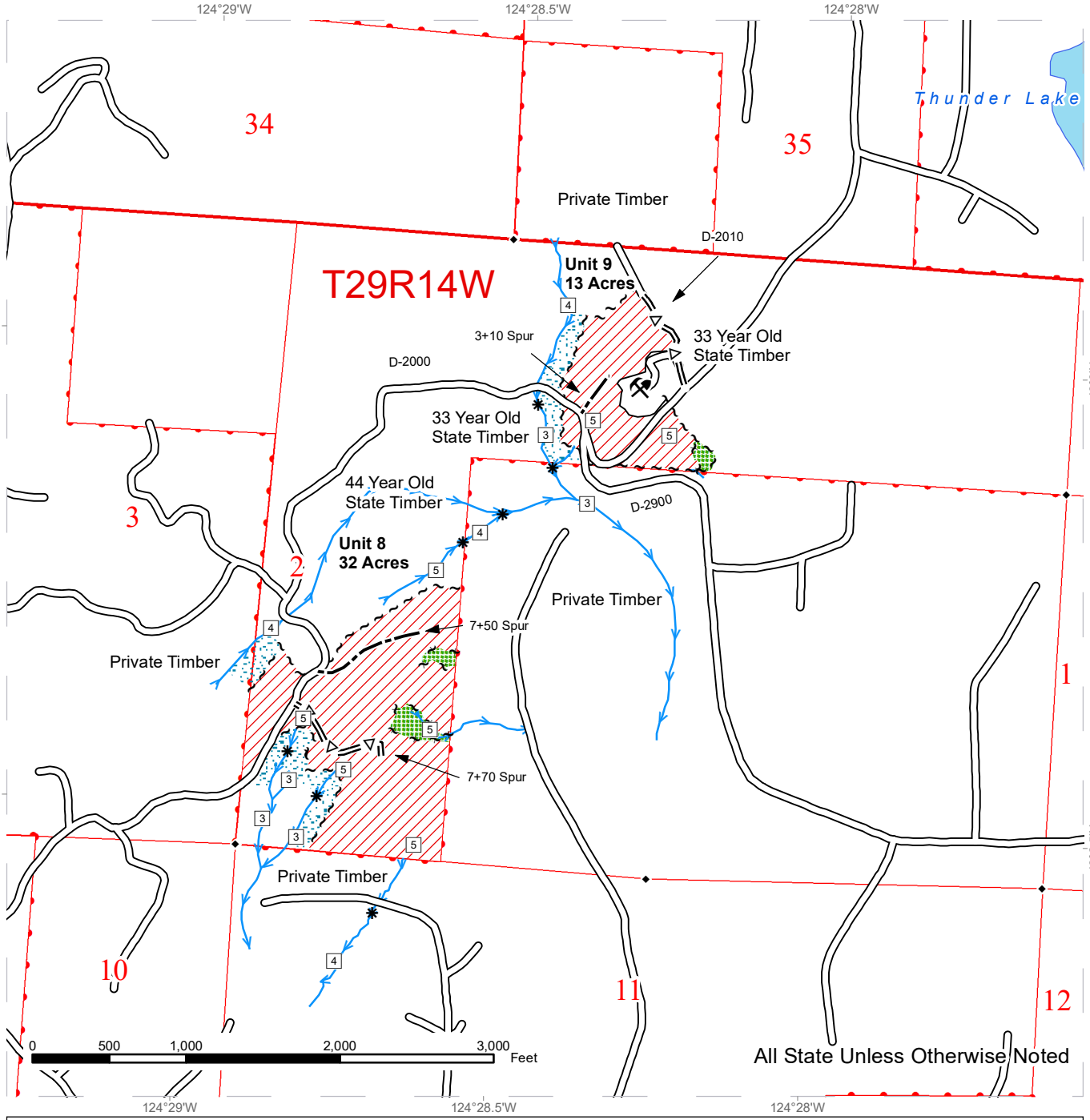

	Variable Retention Harvest	~~~~	Timber Sale Boundary Tags	3	Stream Type
	Leave Tree Area	~ ~ ~	Leave Tree Tags	✱	Stream Type Break
	Riparian Management Zone	——	Timber Type Change		Rock Pit
	Section Lines		Existing Roads	◆	Survey Monument
	Township/Range Lines	=△=	Optional Pre-Haul Maintenance		
	Property Line	—·—	Optional Construction		
	Open Water	→	Streams		

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DRIVING MAP

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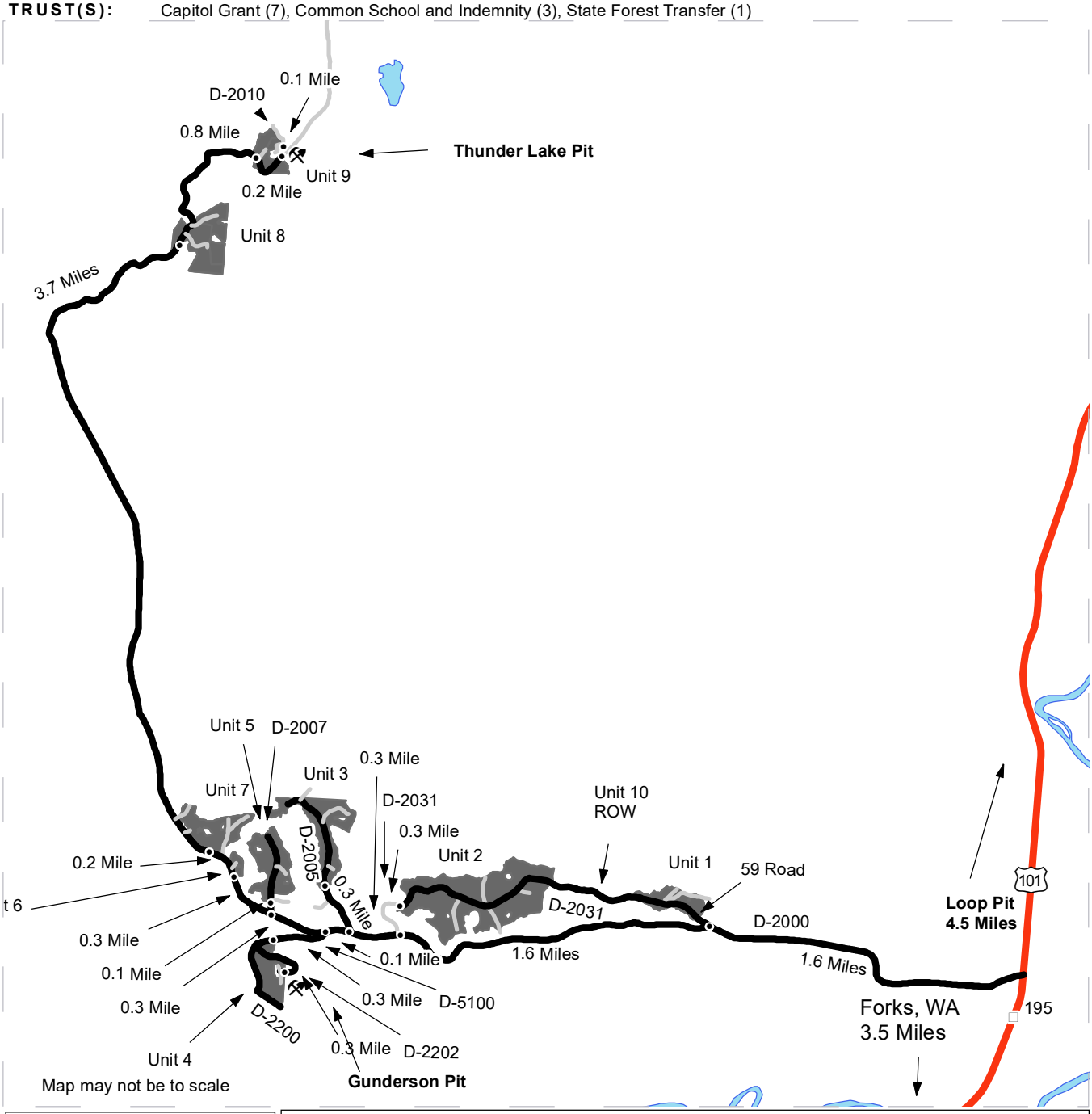

- Timber Sale Unit
- Open Water
- Haul Route
- Other Route
- Highway
- Rock Pit
- Mile Post Marker
- Distance Indicator

Unit 1: From Forks, WA head North on Highway 101 for 3.5 miles and turn left onto the D-2000. Continue on the D-2000 for 1.6 miles. Turn right on the 59 Road and enter Unit 1.
Unit 2: From the D-2000/59 Road Jct, continue west on the D-2000 for 1.6 miles. Walk in on the D-2031 to the right for 0.3 mile.
Unit 3: From the D-2000/D-2031 Jct, continue west on the D-2000 for 0.3 mile. Turn right on the D-2005 for 0.3 mile.
Unit 4: From the D-2000/D-2005 Jct, continue west on the D-2000 for 0.1 mile. Turn left on the D-5100 for 0.3 mile.
Unit 5: From the D-2000/D-5100 Jct, continue west on the D-2000 for 0.3 mile. Turn right on the D-2007 for 0.1 mile.
Unit 6: From the D-2000/D-2007 Jct, continue west on the D-2000 for 0.3 mile.
Unit 7: From Unit 6, continue west on the D-2000 for 0.2 mile.
Unit 8: From Unit 7, continue west on the D-2000 for 3.7 miles.
Unit 9: From Unit 8, continue west on the D-2000 for 0.8 mile.
Gunderson Pit: From Unit 4, turn left on the D-2202 for 0.3 mile.
Thunder Lake Pit: From Unit 9, continue on the D-2000 for 0.2 mile. Turn left on the D-2010 and continue for 0.1 mile.
Loop Pit: From the D-2000/Hwy 101 Jct head North on Highway 101 for 4.5 miles then turn right.

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Prepared By: adan490

Modification Date: mpff490 1/24/2020

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

BILL OF SALE AND CONTRACT FOR FOREST PRODUCTS

Export Restricted Lump Sum AGREEMENT NO. 30-098878

SALE NAME: SPRUCED UP

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

Section G: General Terms

G-001 Definitions

The following definitions apply throughout this contract;

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

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

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

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

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

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

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

G-011 Right to Remove Forest Products and Contract Area

Purchaser was the successful bidder on May 27, 2020 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 trees marked with a band of blue paint bounded out by leave tree area tags; or bounded by timber sale boundary tags and the 59 Road in Unit 1; timber sale boundary tags and the D-2030 Road in Unit 2 ; timber sale boundary tags, timber type change and property line in Unit 3; timber sale boundary tags, D-5100 Road, D-2200 Road, timber type change and property line tags in Unit 4; timber sale boundary tags,D-2007 Road and timber type change Unit 5 ; timber sale boundary tags and the D-2000 Road in Unit 6; timber sale boundary tags, D-2000 and the D-2000.7 road in Unit 7; timber sale boundary tags, D-2000 road and property line in Unit 8; timber sale boundary tags, timber type change, D-2000 and the D-2010 road in Unit 9; all timber bounded out by right-of-way tags, located on approximately 255 acres on part(s) of Sections 2, 23, 24, 25, and 26 all in Township 29 North, Range 14 West, Section 3 in Township 29 North, Range 13 West W.M. in Clallam County(s) as designated on the sale area and as shown on the attached timber sale map.

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

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

G-020 Inspection By Purchaser

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

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

G-025 Schedules

The following attached schedules are hereby incorporated by reference:

Schedule	Title
A	SLASH PILING SPECS
B	GREEN TREE RETENTION PLAN

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to September 30, 2022.

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 $730.00 per acre per annum for the acres on which an operating release has not been issued.

f. In no event will the extension charge be less than $200.00.

g. Extension payments are non-refundable.

G-053 Surveys - Sensitive, Threatened, Endangered Species

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

G-060 Exclusion of Warranties

The PARTIES AGREE that the IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE and ALL OTHER WARRANTIES EXPRESSED OR IMPLIED ARE EXCLUDED from this transaction and shall not apply to the goods sold. For example, THE FOLLOWING SPECIFIC MATTERS ARE NOT WARRANTED, and are EXCLUDED from this transaction:

a. The MERCHANTABILITY of the forest products. The use of the term "merchantable" in any document is not intended to vary the foregoing.

b. The CONDITION of the forest products. The forest products will be conveyed "AS IS."

c. The ACREAGE contained within any sale area. Any acreage descriptions appearing in the timber notice of sale, timber sale contract, or other documents are estimates only, provided solely for administrative and identification purposes.

d. The VOLUME, QUALITY, OR GRADE of the forest products. The State neither warrants nor limits the amount of timber to be harvested. The descriptions of the forest products to be conveyed are estimates only, made solely for administrative and identification purposes.

e. The CORRECTNESS OF ANY SOIL OR SURFACE CONDITIONS, PRE-SALE CONSTRUCTION APPRAISALS, INVESTIGATIONS, AND ALL OTHER PRE-BID DOCUMENTS PREPARED BY OR FOR THE STATE. These documents have been prepared for the State's appraisal purposes only.

f. THAT THE SALE AREA IS FREE FROM THREATENED OR ENDANGERED SPECIES or their habitat. The State is not responsible for any interference with forestry operations that result from the presence of any threatened or endangered species, or the presence of their habitat, within the sale area.

g. THAT THE FORESTRY OPERATIONS to be performed under this contract WILL BE FREE FROM REGULATORY ACTIONS by governmental agencies. The State is not responsible for actions to enforce regulatory laws, such as the Washington Forest Practices Act (chapter 76.09 RCW), taken by the Department of Natural Resources or any other agency that may affect the operability of this timber sale.

h. Items contained in any other documents prepared for or by the State.

G-062 Habitat Conservation Plan

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

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

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

G-063 Incidental Take Permit Notification Requirements

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

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

c. Purchaser shall refer to a specific ITP number, ITP TE812521-1 or ITP 1168 (copies which are located in the region office) in all correspondence and reports concerning permit activities.

d. Provisions and requirements of the ITP shall be clearly presented and explained to Purchaser by Contract Administrator during the Pre-Work Conference as per contract clause G-330. All applicable provisions of the ITP and this schedule must be presented and clearly explained by Purchaser to all authorized officers, employees, contractors, or agents of Purchaser conducting authorized activities in the timber sale area. Any questions Purchaser may have about the ITP should be directed to the Contract Administrator.

G-064 Permits

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

G-065 Regulatory Disclaimer

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

G-066 Governmental Regulatory Actions

a. Risk

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

b. Sale Area

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

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

c. Adjustment of Price

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

G-070 Limitation on Damage

In the event of a breach of any provision of this contract by the State, the exclusive remedy available to Purchaser will be limited to a return of the initial deposit, unapplied payments, and credit for unamortized improvements made by Purchaser.

The State shall not be liable for any damages, whether direct, incidental or consequential.

G-080 Scope of State Advice

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

G-091 Sale Area Adjustment

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

G-101 Forest Products Not Designated

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

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: PwC-SFIFM-513.

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 via endorsement on all general liability, excess, umbrella, and property insurance policies.

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

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

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

Commercial General Liability (CGL) Insurance. Purchaser shall maintain general liability (CGL) insurance, and, if necessary, commercial umbrella insurance with a limit of not less than $1,000,000.00 per each occurrence. If such CGL insurance contains aggregate limits, the General Aggregate limit shall be at least twice the "each occurrence" limit. CGL insurance shall have products-completed operations aggregate limit of at least two times the "each occurrence" limit. CGL coverage shall include a Logging and Lumbering Endorsement (i.e. Logger’s Broad-Form) to cover the events

that include, but are not limited to, fire suppression expenses, accidental timber trespasses, and wildfire property damage with limits of not less than $2,000,000.00 each occurrence.

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

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

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

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

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

G-160 Agents

The State's rights and duties will be exercised by the Region Manager at Forks, Washington. The Region Manager will notify Purchaser in writing who is responsible for administering the contract. The Region Manager has sole authority to waive,

modify, or amend the terms of this contract in the manner prescribed in clause G-180. No agent, employee, or representative of the State has any authority to bind the State to any affirmation, representation, or warranty concerning the forest products conveyed beyond the terms of this contract.

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

G-170 Assignment and Delegation

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

G-180 Modifications

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

G-190 Contract Complete

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

G-200 Notice

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

G-210 Violation of Contract
G-220 State Suspends Operations

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

G-210 Violation of Contract

a. If Purchaser violates any provision of this contract, the Contract Administrator, by written notice, may suspend those operations in violation. If the violation is capable of being remedied, Purchaser has 30 days after receipt of a suspension notice to remedy the violation. If the violation cannot be remedied (such as a violation of WAC 240-15-015) or Purchaser fails to remedy the violation within 30 days after receipt of a suspension notice, the

State may terminate the rights of Purchaser under this contract and collect damages.

b. If the contract expires pursuant to clause G-030 or G-031 without Purchaser having performed all its duties under this contract, Purchaser's right to operate is terminated and Purchaser shall not have the right to remedy the breach. This provision shall not relieve Purchaser of any payment obligations.

c. The State has the right to remedy the breach in the absence of any indicated attempt by Purchaser or if Purchaser is unable, as determined by the State, to remedy the breach. Any expense incurred by the State shall be charged to Purchaser and shall be paid within 30 days of receipt of billing.

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

G-220 State Suspends 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; D-2000, 59 Road, 59.1 Road, D-2031, D-2005, D-2005.3, D-2007, D-2000.7, D-2000.75, D-5100, D-2202, D-2200, D-2000.08, 7+70 Spur, D-2010, Loop Pit Access road. 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-350 Permanent Plots

There are permanent plot(s) located within the sale area. The aluminum tags at the base of the trees within the plot(s) shall not be removed or destroyed.

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 D-2000, 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 55-00050- Rayonier ITT

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:

DATA MISSING

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 $199,472.00. The total contract price consists of a $0.00 contract bid price plus $199,472.00 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-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 unit containing the damaged leave tree, as approved by the Contract Administrator. Purchaser may be required to pay liquidated damages for Excessive Reserve Tree Damage as detailed in clause D-041.

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

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-040 Purchaser Harvest Plan

Purchaser shall, as part of the plan of operations, prepare an acceptable harvest plan for utilizing rubber tired skidders in the sale area. The plan shall address the location and timing of desired use, 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 harvested and removed using ground and cable methods; with rubber tire skidders not allowed unless rutting requirements can be met and a harvest plan is submitted and approved. Authority to use other equipment or to operate outside the equipment specifications detailed above must be approved in writing by the State.

H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

1. Purchaser shall immediately repair all gate damage resulting from operations to an equal or better condition than existed at the time of the sale.

2. While felling timber, two Warning signs must be posted on the D-2000 road(s) for units 1, 6, 7, 8 and 9.

3. The Purchaser shall notify all employees and contractors working on this sale that any danger tree, marked or unmarked, may be felled. Any felled marked danger tree shall be replaced with a suitable tree of similar size and species as approved by the Contract Administrator.

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

H-142 Wildlife Timing Restrictions

The following wildlife timing restrictions apply to this contract and shall be in place in the locations shown on the attached timber sale map.

All road work, right-of-way timber falling and yarding, rock pit operations, or operation of heavy equipment on the D-2000, Milepost 8.9, must be performed during the limited operating period if implemented during the nesting season. The limited operating period runs from two hours after sunrise to two hours before sunset, between April 1 through September 23. This restriction does not apply to the hauling of timber, rock, or equipment.

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

H-190 Completion of Settings

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

H-220 Protection of Residual or Adjacent Trees

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

H-230 Tops and Limbs Outside the Sale Boundary

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

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 1/23/2020 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 59 Road, 59.1 Road, D-2031, 3+25 spur, A spur, B spur, 9+25 spur, 1+51 spur, 1+50 spur, 1+25 spur, 7+50 spur, 3+10 spur, D-2005, D-2005.3, D-2007, D-2000.7, D-2000.75, D-5100, D-2202, D-2200, D-2000.08, 7+70 Spur and the D-2010. 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 D-2000 and the Loop Pit Road all stations. Purchaser shall furnish a statement in a form satisfactory to the State showing the costs incurred while performing this work. Costs shall be based on the rates set forth in the equipment rate schedule on file at the Region office or Engineering Division in Olympia. The State shall reimburse Purchaser for said costs within 30 days of receipt and approval of the statement.

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-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-110 Resource Protection

No equipment may operate within 30 ft. of any typed water unless authority is granted in writing by the Contract Administrator.

S-120 Stream Protection

No timber shall be felled into, across, or yarded through any streams.

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

d. Hazardous Material Release Reporting

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

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

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

_____	_____
Purchaser	Mona Griswold
_____	Olympic Region Manager
Print Name	
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 _____

Schedule A
SLASH PILING SPECS

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

1. Piles shall be a minimum of 12 feet tall by 8 feet wide to a maximum of 30 feet tall and 16 feet wide. Piles shall be cone shaped and stable.

2. Piles shall be free of topsoil, large rotten logs and large stumps. No material larger than 8 inches in diameter shall be piled. Any burnable material shall be well scattered.

3. Piles shall not be placed on large stumps or logs.

4. Piles shall be stacked a minimum of 50 feet from all unit boundaries, Riparian Management Zones, leave tree areas and any standing timber; a minimum of 100 feet from any public roads and highways; and a minimum of 200 feet from any structures.

5. Piling shall be completed using an approved hydraulic shovel and grapples.

6. Slash and displaced soil shall be removed from swales and natural drainage channels concurrent with yarding.

7. Slash shall be placed in skid roads or ahead of machinery. Slash which accumulates on landings and/or roads shall be lopped and scattered within the harvest area or as designated by the Contract Administrator.

8. Slash generated during cable yarding shall be stacked in dirt free piles and shall not block roads or interfere with functioning of drainage structures, ditches, or stream channels.

Schedule B
GREEN TREE RETENTION PLAN

Leave the following as directed by the Contract Administrator:

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

Unit #	# of Individually Marked Trees	# of Clumps	# of Trees Clumped	Total # of Leave Trees
1	14	1	106	120
2	60	5	700	760
3	40	2	240	280
4	5	1	139	144
5	20	3	196	216
6	0	1	24	24
7	36	2	164	200
8	19	2	253	272
9	24	1	80	104

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

FOREST EXCISE TAX ROAD SUMMARY SHEET

Region: Olympic

Timber Sale Name: Spruced Up

Application Number: 30-0988

EXCISE TAX APPLICABLE ACTIVITIES

Construction: 3,633 **linear feet**
Road to be constructed (optional and required) but not abandoned

Reconstruction: 7105 **linear feet**
Road to be reconstructed (optional and required) but not abandoned

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

Decommission: 3045 **linear feet**
Road to be made undriveable but not officially abandoned.

Pre-Haul Maintenance: 65205 **linear feet**
Existing road to receive maintenance work (optional and required) prior to haul

EXCISE TAX EXEMPT ACTIVITIES

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

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

All parties must make their own assessment of the taxable or non-taxable status of any work performed under the timber sale 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 9/18)

Cruise Narrative

Sale Name:	Spruced Up	**Region:** Olympic	
Agree. #:	30-	**District:** Coast	
Lead cruiser:	Dakota Truitt	**Completion date:**	11/07/2019
Other cruisers on sale:			

Unit acreage specifications:

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
01	14	yes	
02	91	yes	
03	33	yes	
04	17	yes	
05	25	yes	
06	3	yes	
07	23	yes	
08	32	yes	
09	13	yes	
R/W	4	yes	
Total	255	yes	

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 (cruise:count)	Total number of plots
01	VP	54.45 BAF/ 40 BAF	4.5 ft	250x250	1:1	11
02	VP	54.45 BAF/ 40 BAF	4.5 ft	300x300	1:1	42
03	VP	54.45 BAF/ 40 BAF	4.5 ft	300x300	1:1	33
04	VP	54.45 BAF/ 40 BAF	4.5 ft	275x275	1:1	9
05	VP	62.5 BAF/ 40 BAF	4.5 ft	300x300	1:1	12
06	VP	54.45 BAF/ 40 BAF	4.5 ft	200x200	1:1	4
07	VP	54.45 BAF/ 40 BAF	4.5 ft	300x300	1:1	12
08	VP	54.45 BAF/ 40 BAF	4.5 ft	325x325	1:1	14
09	VP	54.45 BAF/ 40 BAF	4.5 ft	300x300	1:1	6
R/W	ITS	1:10= SS, RA, WH 1:5= DF		100%		2

Sale/Cruise Description:

Minor species cruise intensity:	Minor species sampled using same cruise plots. Red cedar and Red alder were cruised at a 40 BAF					
Minimum cruise spec:	40% of Form Factor at 16 ft. D.O.B. or 5 inch top or merchantable top					
Avg ring count by sp:	**DF** =	5	**WH** =	5	**SS** =	3
Leave/take tree description:	Leave tree areas are bounded out with yellow 'Leave Tree Area' tags, red flashers, and blue paint. Individual leave trees are marked with blue bands and two blue butt marks.					
Other conditions	Timber sale boundaries are marked with white tags, red flashers, blue paint, and pink flagging.					

Field observations:

Spruced Up is a 10-unit sale, 9 units of VRH, 1 unit of Right-of-Way, located in the Dickodochtedar and Upper Sol Duc admin units. Net harvest acres for the sale are 255 acres and has a total net volume of 7,672 MBF.

The volume is comprised of 41% Western hemlock (WH), 25% Douglas-fir (DF), 29% Sitka Spruce (SS), and 5% Red alder (RA). The average WH has a DBH of 14.5" and a bole height of 62', major defects were butt rot and bark seams. The average DF has a DBH of 15.6" and a bole height of 66', major defects were spike knots, double tops, and bear damage. The average SS has a DBH of 19.6" and a bole height of 74', major defects were butt rot from bear damage. The average RA has a DBH of 12.9" and a bole height of 47', major defects were double tops. Root rot was observed in small pockets of Western Hemlock throughout Unit 7.

This sale is 93% ground-based harvest and 7% cable-based harvest. Access to all units is very good.

Grants: 03/07/01

Prepared by: Dakota Truitt- State Lands Forester/ Timber Cruiser

TC PSTATS

PROJECT STATISTICS

PROJECT SPRUCE

PAGE 1
DATE 11/7/2019

TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
29N	13	19	SPRUCE	ROW	THR	255.00	124	663	S	W
29N	14W	26	SPRUCE	U4						

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	124	663	5.3		
CRUISE	64	343	5.4	52,702	.7
DBH COUNT					
REFOREST					
COUNT	60	315	5.3		
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
WHEMLOCK	150	95.9	14.5	62	28.9	110.2	12,918	12,274	3,523	3,523
DOUG FIR	93	57.9	15.6	66	19.5	76.8	7,974	7,470	2,348	2,348
S SPRUCE	67	28.8	19.6	74	13.6	60.3	9,069	8,859	2,330	2,330
R ALDER	33	24.1	12.9	47	6.1	21.7	1,779	1,482	489	489
TOTAL	*343*	*206.7*	*15.5*	*63*	*68.5*	*269.1*	*31,739*	*30,085*	*8,690*	*8,690*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL 68.1	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	137.7	12.4	84	96	108			
DOUG FIR	154.7	13.9	50	58	66			
S SPRUCE	172.3	15.5	24	29	33			
R ALDER	228.2	20.5	19	24	29			
TOTAL	*62.6*	*5.6*	*195*	*207*	*218*	*157*	*80*	*39*

CL 68.1	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	110.9	10.0	99	110	121			
DOUG FIR	144.3	13.0	67	77	87			
S SPRUCE	156.2	14.0	52	60	69			
R ALDER	223.3	20.1	17	22	26			
TOTAL	*43.0*	*3.9*	*259*	*269*	*280*	*74*	*38*	*18*

CL 68.1	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	111.8	10.0	11,042	12,274	13,507			
DOUG FIR	149.1	13.4	6,470	7,470	8,470			
S SPRUCE	163.4	14.7	7,559	8,859	10,159			
R ALDER	228.2	20.5	1,178	1,482	1,785			
TOTAL	*53.5*	*4.8*	*28,638*	*30,085*	*31,531*	*115*	*58*	*29*

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T29N R13W S19 TyROW
THRU
T29N R14W S26 TyU4

Project: **SPRUCE**

Acres **255.00**

Page **1**
Date **11/7/2019**
Time **12:55:32PM**

Spp	S T	So Grt ad	% 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	D	2S	37	6.6	4,875	4,552	1,161			87	13				100	38	13	231	1.64	19.7
WH	D	3S	45	4.7	5,818	5,546	1,414	33	67				1	1	99	36	8	86	0.69	64.4
WH	D	4S	16	2.3	2,077	2,030	518	100				10	30	23	36	28	5	29	0.34	69.0
WH	D	UT	2		147	147	37	100				26	58	16		11	5	7	0.14	21.8
WH	**Totals**		41	5.0	12,918	12,274	3,130	33	30	32	5	2	6	4	88	30	7	70	0.67	174.8
RA	D	S	7	58.7	274	113	29				100	100				20	22	188	3.18	.6
RA	D	2S	12	8.6	194	177	45			56	44		100			30	15	257	2.03	.7
RA	D	3S	26	3.0	403	391	100	29	59	12		11	75		14	31	8	70	0.69	5.6
RA	D	4S	45	14.1	764	656	167	77	23			22	57		21	28	6	33	0.44	20.0
RA	D	UT	10		145	145	37	100				40	11	48		17	5	14	0.25	10.2
RA	**Totals**		5	16.7	1,779	1,482	378	52	26	10	13	24	58	5	13	25	7	40	0.52	37.1
SS	D	2S	71	2.4	6,467	6,310	1,609			40	60	0	0		100	39	15	363	2.28	17.4
SS	D	3S	23	2.1	2,098	2,053	524	29	71			1	1	2	96	36	8	87	0.75	23.7
SS	D	4S	5	1.6	503	495	126	91	9			24	35	33	8	26	5	29	0.34	16.8
SS	D	UT	1		1	1	0	100					100			8	8	1	0.04	1.1
SS	**Totals**		29	2.3	9,069	8,859	2,259	12	17	29	43	2	2	2	94	33	9	150	1.18	59.0
DF	D	2S	24	4.3	1,905	1,823	465		5	88	8		5		95	37	13	213	1.65	8.6
DF	D	3S	56	6.9	4,487	4,175	1,065	21	79						100	36	9	95	0.84	43.8
DF	D	4S	18	7.4	1,477	1,368	349	99	1			16	21	18	44	29	5	29	0.35	46.4
DF	D	UT	2		104	104	27	100				18	1	82		10	5	11	0.37	9.6
DF	**Totals**		25	6.3	7,974	7,470	1,905	31	45	21	2	3	5	5	87	31	7	69	0.71	108.4
Totals				5.2	31,739	30,085	7,672	27	30	27	16	3	7	4	86	30	7	79	0.76	379.3

TC TSTATS

STATISTICS

PROJECT **SPRUCE**

DATE 11/7/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
29N	**14W**	**19**	**SPRUCE**	**U1**	14.00	11	52	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	11	52	4.7		
CRUISE	5	23	4.6	3,296	.7
DBH COUNT					
REFOREST COUNT	6	29	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
WHEMLOCK	9	97.1	13.7	69	26.8	99.0	13,810	13,590	3,355	3,355
DOUG FIR	10	86.9	12.9	45	22.0	79.2	5,634	5,083	1,820	1,820
R ALDER	3	45.7	12.1	42	10.5	36.4	2,748	2,647	753	753
S SPRUCE	1	5.7	31.0	105	5.3	29.7	7,253	7,140	1,481	1,481
TOTAL	*23*	*235.4*	*13.8*	*56*	*65.8*	*244.3*	*29,446*	*28,459*	*7,409*	*7,409*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	120.6	38.1	60	97	134			
DOUG FIR	163.0	51.5	42	87	132			
R ALDER	146.8	46.4	25	46	67			
S SPRUCE	222.5	70.3	2	6	10			
TOTAL	*39.3*	*12.4*	*206*	*235*	*265*	*68*	*35*	*17*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	122.5	38.7	61	99	137			
DOUG FIR	148.6	47.0	42	79	116			
R ALDER	143.0	45.2	20	36	53			
S SPRUCE	222.5	70.3	9	30	51			
TOTAL	*33.6*	*10.6*	*218*	*244*	*270*	*50*	*25*	*12*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	127.6	40.3	8,107	13,590	19,072			
DOUG FIR	137.2	43.4	2,877	5,083	7,289			
R ALDER	141.4	44.7	1,464	2,647	3,830			
S SPRUCE	222.5	70.3	2,117	7,140	12,162			
TOTAL	*68.6*	*21.7*	*22,285*	*28,459*	*34,633*	*207*	*106*	*52*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRUCE

Page 1
Date 11/7/2019
Time 12:35:10PM

T29N R14W S19 TU1

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
29N	14W	19	SPRUCE	U1	14.00	11	23	S	W

T29N R14W S19 TU1

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
WH		D	2S	19		2,696	2,696	38			100					100	40	13	262	1.52	10.3
WH		D	3S	64	2.5	8,810	8,589	120	38	62						100	36	8	90	0.63	95.1
WH		D	4S	9		1,276	1,276	18	100				24	61	15		25	5	27	0.26	47.7
WH		D	UT	8		1,029	1,029	14	100				60	40			20	6	22	0.26	45.7
WH	**Totals**			48	1.6	13,810	13,590	190	41	39	20		7	9	1	83	30	7	68	0.56	198.8
DF		D	2S	12		610	610	9			100					100	36	12	180	1.60	3.4
DF		D	3S	43	10.9	2,465	2,197	31	47	53						100	36	7	79	0.71	27.8
DF		D	4S	35	13.8	2,060	1,776	25	83	17			17	67	8	8	27	6	31	0.46	58.1
DF		D	UT	10		499	499	7	100				21		79		20	5	20	0.37	25.1
DF	**Totals**			18	9.8	5,634	5,083	71	59	29	12		8	23	10	58	28	6	44	0.57	114.3
RA		D	3S	38	9.1	1,116	1,015	14		100				100			30	10	100	0.81	10.1
RA		D	4S	35		926	926	13	33	67			100				19	7	30	0.41	30.9
RA		D	UT	27		706	706	10	100				14		86		26	5	23	0.34	30.3
RA	**Totals**			9	3.7	2,748	2,647	37	38	62			39	38	23		23	6	37	0.45	71.3
SS		D	2S	95		6,800	6,800	95			30	70				100	40	19	600	3.02	11.3
SS		D	3S	5	25.0	453	340	5		100				100			22	10	60	0.89	5.7
SS	**Totals**			25	1.6	7,253	7,140	100		5	29	67		5		95	34	16	420	2.56	17.0
Type Totals					3.4	29,446	28,459	398	34	31	19	17	8	13	5	74	28	7	71	0.65	401.4

TC TSTATS

STATISTICS

PROJECT **SPRUCE**

DATE 11/7/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
29N	14W	24	SPRUCE	U2	91.00	42	224	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	42	224	5.3		
CRUISE	21	113	5.4	18,594	.6
DBH COUNT					
REFOREST					
COUNT	21	111	5.3		
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
WHEMLOCK	45	61.7	17.0	75	23.6	97.2	13,503	13,128	3,556	3,557
DOUG FIR	30	66.0	15.1	68	21.0	81.7	8,578	8,114	2,536	2,537
S SPRUCE	28	43.3	17.4	72	17.1	71.3	10,401	10,263	2,693	2,693
R ALDER	10	33.4	12.8	45	8.3	29.9	2,054	1,887	635	635
TOTAL	*113*	*204.3*	*15.9*	*67*	*70.3*	*280.1*	*34,535*	*33,393*	*9,420*	*9,421*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	101.1	15.6	52	62	71			
DOUG FIR	140.2	21.6	52	66	80			
S SPRUCE	145.5	22.5	34	43	53			
R ALDER	208.6	32.2	23	33	44			
TOTAL	*48.6*	*7.5*	*189*	*204*	*220*	*95*	*48*	*24*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	100.9	15.6	82	97	112			
DOUG FIR	133.5	20.6	65	82	99			
S SPRUCE	131.2	20.2	57	71	86			
R ALDER	207.5	32.0	20	30	39			
TOTAL	*34.8*	*5.4*	*265*	*280*	*295*	*49*	*25*	*12*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	105.4	16.3	10,992	13,128	15,264			
DOUG FIR	137.1	21.2	6,397	8,114	9,831			
S SPRUCE	133.2	20.6	8,153	10,263	12,373			
R ALDER	209.4	32.3	1,277	1,887	2,497			
TOTAL	*45.4*	*7.0*	*31,052*	*33,393*	*35,733*	*83*	*42*	*21*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRUCE

Date 11/7/2019

Time 12:40:29PM

T29N R14W S24 TU2

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
29N	14W	24	SPRUCE	U2	91.00	42	113	S	W

T29N R14W S24 TU2

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
WH		D	2S	44	3.8	6,117	5,887	536			85	15				100	38	13	232	1.61	25.4
WH		D	3S	48	1.9	6,313	6,194	564	28	72					1	99	36	8	96	0.70	64.7
WH		D	4S	7	2.6	997	971	88	100				16	11	30	42	28	5	30	0.34	32.7
WH		D	UT	1		77	77	7	100				16		84		12	5	7	0.18	11.5
WH	**Totals**			39	2.8	13,503	13,128	1,195	21	34	38	7	1	1	3	95	33	8	98	0.81	134.3
DF		D	2S	9	5.3	788	747	68			100					100	37	13	227	1.70	3.3
DF		D	3S	66	4.3	5,609	5,369	489	8	92						100	37	9	114	0.96	47.1
DF		D	4S	22	9.1	2,002	1,821	166	100				2	19	24	54	34	5	34	0.34	53.8
DF		D	UT	3		178	178	16	100						100		9	5	11	0.40	16.6
DF	**Totals**			24	5.4	8,578	8,114	738	30	61	9		1	4	8	87	31	7	67	0.67	120.8
SS		D	2S	54	.8	5,620	5,574	507			46	54	0	0		99	39	15	388	2.41	14.4
SS		D	3S	36	1.9	3,735	3,664	333	21	79					1	99	36	8	93	0.73	39.5
SS		D	4S	10	2.1	1,046	1,025	93	94	6			23	40	25	11	26	5	29	0.32	35.9
SS		D	UT														4	8		0.00	1.7
SS	**Totals**			31	1.3	10,401	10,263	934	17	29	25	29	2	4	3	90	32	8	112	0.92	91.5
RA		D	2S	14	14.3	325	279	25			100			100			30	14	180	1.42	1.5
RA		D	3S	41		767	767	70	41	59				80		20	32	8	63	0.64	12.2
RA		D	4S	35	15.4	782	661	60	89	11			34	44		21	26	6	27	0.42	24.1
RA		D	UT	10		180	180	16	100				42		58		23	5	25	0.31	7.3
RA	**Totals**			6	8.1	2,054	1,887	172	57	28	15		16	63	5	16	27	7	42	0.51	45.2
Type Totals					3.3	34,535	33,393	3,039	24	39	26	12	2	6	4	87	32	8	85	0.76	391.8

TC TSTATS

STATISTICS

PROJECT **SPRUCE**

DATE 11/7/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
29N	**14W**	**23**	**SPRUCE**	**U3**	33.00	12	59	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	12	59	4.9		
CRUISE	6	30	5.0	5,550	.5
DBH COUNT					
REFOREST COUNT	6	29	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
WHEMLOCK	8	85.2	15.6	69	28.7	113.4	13,798	13,201	3,769	3,769
S SPRUCE	10	26.3	23.2	79	16.0	77.1	10,431	9,928	2,903	2,903
DOUG FIR	6	29.7	17.6	71	11.9	49.9	4,903	4,570	1,523	1,522
R ALDER	6	27.0	11.6	47	5.9	20.0	1,496	1,403	440	440
TOTAL	*30*	*168.2*	*16.9*	*68*	*63.5*	*260.5*	*30,628*	*29,103*	*8,635*	*8,634*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	108.1	32.6	57	85	113			
S SPRUCE	112.9	34.0	17	26	35			
DOUG FIR	128.8	38.8	18	30	41			
R ALDER	205.8	62.0	10	27	44			
TOTAL	*49.4*	*14.9*	*143*	*168*	*193*	*107*	*54*	*27*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	103.3	31.1	78	113	149			
S SPRUCE	110.4	33.3	51	77	103			
DOUG FIR	127.0	38.3	31	50	69			
R ALDER	200.0	60.3	8	20	32			
TOTAL	*30.0*	*9.0*	*237*	*260*	*284*	*39*	*20*	*10*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	103.1	31.1	9,101	13,201	17,301			
S SPRUCE	108.4	32.7	6,684	9,928	13,173			
DOUG FIR	125.0	37.7	2,848	4,570	6,293			
R ALDER	241.4	72.7	382	1,403	2,424			
TOTAL	*31.2*	*9.4*	*26,363*	*29,103*	*31,842*	*43*	*22*	*11*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRUCE

Date 11/7/2019

Time 12:41:49PM

T29N R14W S23 TU3

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
29N	14W	23	SPRUCE	U3	33.00	12	30	S	W

T29N R14W S23 TU3

Spp	ST	Sort	Grade	% 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
WH		D	2S	40	4.3	5,583	5,341	176			100					100	38	13	219	1.65	24.3
WH		D	3S	45	5.6	6,307	5,952	196	50	50				5		95	37	8	81	0.63	73.4
WH		D	4S	15		1,908	1,908	63	100				10	50	19	21	25	5	26	0.31	72.7
WH	**Totals**			45	4.3	13,798	13,201	436	37	23	40		1	9	3	86	32	7	77	0.70	170.4
SS		D	2S	85	4.6	8,847	8,443	279			44	56				100	39	15	321	2.22	26.3
SS		D	3S	14	6.6	1,486	1,388	46	55	45					16	84	38	7	66	0.73	21.0
SS		D	4S	1		97	97	3	100					100			26	7	40	0.67	2.4
SS	**Totals**			34	4.8	10,431	9,928	328	9	6	37	48		1	2	97	38	11	200	1.54	49.7
DF		D	2S	47		2,174	2,174	72		31	69					100	37	12	194	1.49	11.2
DF		D	3S	41	12.9	2,171	1,890	62	35	65						100	37	8	84	0.85	22.6
DF		D	4S	9	11.4	459	407	13	100					25	36	38	32	5	33	0.42	12.3
DF		D	UT	3		98	98	3	100				100				19	5	20	0.29	4.9
DF	**Totals**			16	6.8	4,903	4,570	151	26	41	33		2	2	3	92	34	8	90	0.87	51.0
RA		D	4S	90	6.8	1,369	1,276	42	47	53			7	77		16	29	6	40	0.43	32.1
RA		D	UT	10		127	127	4	100					100			30	5	30	0.29	4.2
RA	**Totals**			5	6.2	1,496	1,403	46	52	48			7	79		14	29	6	39	0.41	36.3
Type Totals					5.0	30,628	29,103	960	26	21	36	16	1	9	3	87	33	8	95	0.85	307.4

TC TSTATS

STATISTICS

PROJECT **SPRUCE**

DATE 11/7/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
29N	14W	26	SPRUCE	U4	17.00	9	41	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	9	41	4.6		
CRUISE	5	14	2.8	3,028	.5
DBH COUNT					
REFOREST COUNT	4	22	5.5		
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
WHEMLOCK	3	101.1	14.4	52	30.2	114.9	8,416	8,058	2,954	2,954
R ALDER	3	28.3	18.6	53	12.4	53.3	7,124	4,066	1,468	1,469
DOUG FIR	6	46.9	13.8	58	13.0	48.4	4,327	4,014	1,300	1,300
S SPRUCE	2	1.9	34.2	81	2.1	12.1	1,393	1,279	474	474
TOTAL	*14*	*178.1*	*15.3*	*54*	*58.4*	*228.8*	*21,259*	*17,416*	*6,196*	*6,197*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	166.5	58.8	42	101	161			
R ALDER	130.2	46.0	15	28	41			
DOUG FIR	174.8	61.8	18	47	76			
S SPRUCE	300.0	106.0		2	4			
TOTAL	*75.6*	*26.7*	*131*	*178*	*226*	*257*	*131*	*64*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	166.5	58.8	47	115	183			
R ALDER	129.9	45.9	29	53	78			
DOUG FIR	163.5	57.7	20	48	76			
S SPRUCE	300.0	106.0		12	25			
TOTAL	*54.2*	*19.1*	*185*	*229*	*273*	*132*	*67*	*33*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	166.5	58.8	3,317	8,058	12,798			
R ALDER	134.7	47.6	2,131	4,066	6,000			
DOUG FIR	163.9	57.9	1,691	4,014	6,337			
S SPRUCE	300.0	106.0		1,279	2,635			
TOTAL	*45.2*	*16.0*	*14,636*	*17,416*	*20,197*	*92*	*47*	*23*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRUCE

Date 11/7/2019

Time 12:43:18PM

T29N R14W S26 TU4

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
29N	14W	26	SPRUCE	U4	17.00	9	14	S	W

T29N R14W S26 TU4

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
WH		D	3S	65	6.3	5,646	5,288	90		100						100	36	8	83	0.80	63.6
WH		D	4S	35		2,770	2,770	47	100				26	20		54	25	5	27	0.45	101.1
WH		D	UT															5		0.00	37.4
WH	**Totals**			46	4.3	8,416	8,058	137	34	66			9	7		84	24	6	40	0.62	202.1
RA		D	S	41	58.7	4,107	1,697	29				100	100				20	22	188	3.18	9.0
RA		D	2S	29		1,161	1,161	20				100		100			30	21	570	4.54	2.0
RA		D	3S	15	10.0	699	629	11			100		100				20	12	90	1.28	7.0
RA		D	4S	15	50.0	1,157	579	10	100							100	36	6	30	0.63	19.3
RA		D	UT														10	6		0.00	28.3
RA	**Totals**			23	42.9	7,124	4,066	69	14		15	70	57	29		14	21	9	62	1.09	65.6
DF		D	3S	72	9.7	3,222	2,909	49		100						100	36	8	83	0.75	34.9
DF		D	4S	28		1,105	1,105	19	100				29	71			23	5	24	0.33	46.9
DF	**Totals**			23	7.2	4,327	4,014	68	28	72			8	19		72	29	6	49	0.55	81.7
SS		D	2S	93	8.6	1,313	1,200	20			12	88				100	39	17	450	4.21	2.7
SS		D	3S	7		79	79	1	100							100	40	7	70	0.83	1.1
SS	**Totals**			7	8.1	1,393	1,279	22	6		11	83				100	39	14	337	3.18	3.8
Type Totals					18.1	21,259	17,416	296	26	47	4	23	19	14		66	24	7	49	0.72	353.3

TC TSTATS

STATISTICS

PROJECT **SPRUCE**

DATE 11/7/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
29N	**14W**	**23**	**SPRUCE**	**U5**	25.00	12	48	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	12	48	4.0		
CRUISE	6	22	3.7	2,890	.8
DBH COUNT					
REFOREST COUNT	6	26	4.3		
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	9	60.2	17.8	72	24.7	104.2	11,065	10,338	3,429	3,429
WHEMLOCK	9	33.9	21.9	82	18.9	88.5	12,732	11,932	3,369	3,369
S SPRUCE	2	16.0	23.2	80	9.7	46.9	7,331	7,331	1,869	1,869
R ALDER	2	5.5	14.9	34	1.7	6.7	221	166	111	111
TOTAL	*22*	*115.6*	*19.8*	*75*	*55.4*	*246.3*	*31,348*	*29,767*	*8,778*	*8,778*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	96.6	29.1	43	60	78			
WHEMLOCK	138.3	41.7	20	34	48			
S SPRUCE	152.0	45.8	9	16	23			
R ALDER	346.4	104.4		6	11			
TOTAL	*31.0*	*9.3*	*105*	*116*	*126*	*42*	*21*	*10*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	93.4	28.2	75	104	133			
WHEMLOCK	136.1	41.0	52	89	125			
S SPRUCE	151.8	45.7	25	47	68			
R ALDER	346.4	104.4		7	14			
TOTAL	*40.2*	*12.1*	*216*	*246*	*276*	*70*	*36*	*18*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	94.7	28.5	7,388	10,338	13,288			
WHEMLOCK	136.2	41.0	7,034	11,932	16,830			
S SPRUCE	152.2	45.9	3,968	7,331	10,694			
R ALDER	346.4	104.4		166	338			
TOTAL	*52.4*	*15.8*	*25,070*	*29,767*	*34,464*	*119*	*61*	*30*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRUCE

Date 11/7/2019

Time 12:44:45PM

T29N R14W S23 TU5

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
29N	14W	23	SPRUCE	U5	25.00	12	22	S	W

T29N R14W S23 TU5

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		D	2S	48	9.3	5,472	4,963	124			77	23				100	39	14	248	2.04	20.0
DF		D	3S	43	4.6	4,706	4,488	112	44	56						100	36	8	75	0.74	60.2
DF		D	4S	9		887	887	22	100				47	22		31	21	5	20	0.24	43.4
DF		D	UT															6		0.00	16.0
DF	**Totals**			35	6.6	11,065	10,338	258	28	24	37	11	4	2		94	28	8	74	0.89	139.6
WH		D	2S	77	8.0	10,042	9,243	231			89	11				100	38	14	272	1.92	33.9
WH		D	3S	23		2,690	2,690	67	43	57					9	91	36	8	79	0.72	33.9
WH		D	UT														10	6		0.00	15.6
WH	**Totals**			40	6.3	12,732	11,932	298	10	13	69	9			2	98	32	10	143	1.26	83.4
SS		D	2S	83		6,120	6,120	153				100				100	38	16	383	2.21	16.0
SS		D	3S	17		1,211	1,211	30	39	61						100	38	8	76	0.85	16.0
SS	**Totals**			25		7,331	7,331	183	6	10		83				100	38	12	229	1.54	32.0
RA		D	4S	100	25.0	221	166	4	100					100			30	6	30	0.67	5.5
RA	**Totals**			1	25.0	221	166	4	100					100			30	6	30	0.67	5.5
Type Totals					5.0	31,348	29,767	744	16	16	40	28	1	1	1	97	30	9	114	1.11	260.5

TC TSTATS

STATISTICS

PAGE 1

PROJECT **SPRUCE**

DATE 11/7/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
29N	**14W**	**23**	**SPRUCE**	**U6**	3.00	4	17	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	4	17	4.3		
CRUISE	3	12	4.0	477	2.5
DBH COUNT					
REFOREST COUNT	1	5	5.0		
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
WHEMLOCK	7	114.0	14.0	59	32.7	122.5	13,560	12,984	3,684	3,684
DOUG FIR	5	45.1	21.0	80	23.7	108.9	13,219	12,906	3,725	3,725
TOTAL	*12*	*159.0*	*16.3*	*65*	*57.3*	*231.4*	*26,780*	*25,890*	*7,409*	*7,409*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	76.2	43.6	64	114	164			
DOUG FIR	87.8	50.2	22	45	68			
TOTAL	*45.8*	*26.2*	*117*	*159*	*201*	*110*	*56*	*27*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	55.9	32.0	83	123	162			
DOUG FIR	91.3	52.2	52	109	166			
TOTAL	*35.3*	*20.2*	*185*	*231*	*278*	*65*	*33*	*16*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	55.0	31.5	8,897	12,984	17,071			
DOUG FIR	89.5	51.2	6,299	12,906	19,514			
TOTAL	*38.7*	*22.1*	*20,166*	*25,890*	*31,614*	*78*	*40*	*20*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRUCE

Date 11/7/2019

Time 12:47:47PM

T29N R14W S23 TU6

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
29N	14W	23	SPRUCE	U6	3.00	4	12	S	W

T29N R14W S23 TU6

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
WH		D	2S	41	1.4	5,477	5,402	16			100					100	36	13	217	1.52	24.9
WH		D	3S	38	2.3	5,020	4,906	15	37	63						100	36	8	85	0.68	57.9
WH		D	4S	21	12.6	3,063	2,676	8	100				9	42	13	37	27	5	25	0.32	106.4
WH	**Totals**			50	4.3	13,560	12,984	39	35	24	42		2	9	3	87	31	7	69	0.63	189.2
DF		D	2S	59	1.3	7,837	7,735	23			71	29		25		75	35	14	245	2.01	31.6
DF		D	3S	35	4.6	4,614	4,403	13	25	75						100	36	8	98	0.80	45.1
DF		D	4S	6		768	768	2	100					30		70	31	5	36	0.35	21.1
DF		D	UT														9	7		0.00	5.5
DF	**Totals**			50	2.4	13,219	12,906	39	15	26	43	17		17		83	33	9	125	1.09	103.3
Type Totals					3.3	26,780	25,890	78	25	25	42	9	1	13	1	85	32	8	89	0.80	292.4

TC TSTATS

STATISTICS

PROJECT SPRUCE

DATE 11/7/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
29N	14W	23	SPRUCE	U7	23.00	12	62	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	12	62	5.2		
CRUISE	6	26	4.3	3,509	.7
DBH COUNT					
REFOREST COUNT	6	36	6.0		
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
S SPRUCE	10	51.3	23.5	87	31.8	154.3	27,324	26,458	6,532	6,532
WHEMLOCK	10	82.9	14.9	59	25.9	99.8	11,940	9,998	3,177	3,178
DOUG FIR	4	7.9	20.6	81	4.0	18.2	1,886	1,589	630	630
R ALDER	2	10.4	10.8	49	2.0	6.7	450	450	149	149
TOTAL	*26*	*152.6*	*18.3*	*69*	*65.2*	*278.9*	*41,599*	*38,495*	*10,489*	*10,490*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
S SPRUCE	101.5	30.6	36	51	67			
WHEMLOCK	95.1	28.7	59	83	107			
DOUG FIR	233.6	70.4	2	8	13			
R ALDER	250.7	75.6	3	10	18			
TOTAL	*44.0*	*13.2*	*132*	*153*	*173*	*84*	*43*	*21*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
S SPRUCE	99.6	30.0	108	154	201			
WHEMLOCK	95.4	28.8	71	100	129			
DOUG FIR	233.5	70.4	5	18	31			
R ALDER	233.5	70.4	2	7	11			
TOTAL	*37.9*	*11.4*	*247*	*279*	*311*	*63*	*32*	*16*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
S SPRUCE	100.1	30.2	18,478	26,458	34,437			
WHEMLOCK	105.3	31.7	6,826	9,998	13,170			
DOUG FIR	249.6	75.2	394	1,589	2,784			
R ALDER	242.5	73.1	121	450	779			
TOTAL	*56.6*	*17.0*	*31,934*	*38,495*	*45,057*	*139*	*71*	*35*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRUCE

Date 11/7/2019

Time 12:50:58PM

T29N R14W S23 TU7

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
29N	14W	23	SPRUCE	U7	23.00	12	26	S	W

T29N R14W S23 TU7

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
SS		D	2S	84	3.7	23,185	22,319	513			42	58				100	39	15	354	2.14	63.1
SS		D	3S	14		3,790	3,790	87	31	69			4			96	35	8	89	0.79	42.5
SS		D	4S	2		349	349	8	35	65			100				14	8	23	0.51	15.0
SS		D	UT														11	8		0.00	4.7
SS	**Totals**			69	3.2	27,324	26,458	609	5	11	36	49	2			98	34	12	211	1.55	125.1
WH		D	2S	45	17.4	5,515	4,557	105			100					100	36	12	160	1.25	28.5
WH		D	3S	29	25.4	3,866	2,882	66	27	73						100	36	9	87	0.84	33.1
WH		D	4S	19		1,881	1,881	43	100					19	31	50	34	5	40	0.48	47.3
WH		D	UT	7		678	678	16	100					100			16	5	20	0.24	34.3
WH	**Totals**			26	16.3	11,940	9,998	230	33	21	46			10	6	84	30	7	70	0.73	143.2
DF		D	2S	35		563	563	13			100					100	40	14	290	1.52	1.9
DF		D	3S	51	25.3	1,086	811	19	14	86						100	38	10	103	1.43	7.9
DF		D	4S	14	9.4	237	215	5	100							100	37	5	36	0.38	5.9
DF	**Totals**			4	15.8	1,886	1,589	37	21	44	35					100	38	9	101	1.06	15.7
RA		D	4S	100		450	450	10	100					37		63	37	6	43	0.39	10.4
RA		D	UT														3	5		0.00	10.4
RA	**Totals**			1		450	450	10	100					37		63	20	5	22	0.36	20.8
Type Totals					7.5	41,599	38,495	885	14	15	38	33	1	3	2	94	31	9	126	1.10	305.0

TC TSTATS

STATISTICS

PROJECT SPRUCE

DATE 11/7/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
29N	14W	2	SPRUCE	U8	32.00	14	73	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	14	73	5.2		
CRUISE	7	38	5.4	10,035	.4
DBH COUNT					
REFOREST COUNT	7	35	5.0		
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
WHEMLOCK	21	189.9	11.9	53	42.8	147.8	12,037	11,350	3,629	3,625
DOUG FIR	11	80.1	14.6	65	24.4	93.3	10,125	9,796	2,756	2,755
S SPRUCE	4	23.1	14.7	48	7.1	27.2	2,182	2,154	727	727
R ALDER	2	20.6	10.1	57	3.6	11.4	1,099	1,028	283	283
TOTAL	*38*	*313.6*	*12.8*	*56*	*78.2*	*279.8*	*25,442*	*24,328*	*7,395*	*7,390*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	90.1	25.0	142	190	237			
DOUG FIR	149.0	41.3	47	80	113			
S SPRUCE	187.9	52.1	11	23	35			
R ALDER	218.3	60.5	8	21	33			
TOTAL	*39.1*	*10.8*	*280*	*314*	*348*	*66*	*34*	*16*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	88.4	24.5	112	148	184			
DOUG FIR	138.1	38.3	58	93	129			
S SPRUCE	171.0	47.4	14	27	40			
R ALDER	213.9	59.3	5	11	18			
TOTAL	*36.6*	*10.2*	*251*	*280*	*308*	*58*	*29*	*14*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	97.7	27.1	8,274	11,350	14,426			
DOUG FIR	134.7	37.3	6,138	9,796	13,454			
S SPRUCE	175.0	48.5	1,109	2,154	3,198			
R ALDER	218.3	60.5	406	1,028	1,651			
TOTAL	*43.9*	*12.2*	*21,366*	*24,328*	*27,291*	*83*	*42*	*21*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRUCE

Date 11/7/2019

Time 12:52:47PM

T29N R14W S2 TU8

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
29N	14W	2	SPRUCE	U8	32.00	14	38	S	W

T29N R14W S2 TU8

Spp	ST	Sort	Grade	% 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
WH		D	3S	65	5.5	7,921	7,489	240	48	52						100	36	7	70	0.61	106.3
WH		D	4S	35	6.2	4,115	3,861	124	100				12	30	23	36	26	5	26	0.33	150.9
WH		D	UT														10	5		0.00	49.1
WH	**Totals**			47	5.7	12,037	11,350	363	65	35			4	10	8	78	27	6	37	0.44	306.3
DF		D	2S	25	1.3	2,563	2,530	81			100					100	37	13	205	1.41	12.3
DF		D	3S	59	4.3	5,956	5,702	182	51	49						100	36	8	77	0.63	74.5
DF		D	4S	16	2.6	1,606	1,564	50	100				61	5	12	21	20	5	21	0.29	73.3
DF	**Totals**			40	3.2	10,125	9,796	313	46	29	26		10	1	2	87	29	7	61	0.60	160.2
SS		D	2S	52	2.4	1,157	1,129	36			100					100	36	12	195	1.75	5.8
SS		D	3S	18		393	393	13	100							100	36	6	60	0.63	6.6
SS		D	4S	30		632	632	20	100					13	87		33	5	38	0.39	16.5
SS	**Totals**			9	1.3	2,182	2,154	69	48		52			4	25	71	34	7	75	0.74	28.8
RA		D	4S	80	7.9	893	823	26	100					100			30	6	40	0.38	20.6
RA		D	UT	20		206	206	7	100				100				13	5	10	0.18	20.6
RA	**Totals**			4	6.4	1,099	1,028	33	100				20	80			21	6	25	0.32	41.1
Type Totals					4.4	25,442	24,328	779	57	28	15		7	9	7	78	27	6	45	0.50	536.5

TC TSTATS

STATISTICS

PAGE 1

PROJECT **SPRUCE**

DATE 11/7/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
29N	**14W**	**02**	**SPRUCE**	**U9**	13.00	6	39	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	6	39	6.5		
CRUISE	3	17	5.7	4,852	.4
DBH COUNT					
REFOREST COUNT	3	22	7.3		
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	10	106.5	17.2	70	41.5	172.4	19,550	17,569	5,414	5,414
WHEMLOCK	7	266.7	10.6	49	50.2	163.3	15,229	14,412	4,143	4,141
TOTAL	*17*	*373.3*	*12.8*	*55*	*93.7*	*335.8*	*34,779*	*31,981*	*9,557*	*9,555*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	119.9	53.4	50	107	163			
WHEMLOCK	111.2	49.6	135	267	399			
TOTAL	*52.1*	*23.2*	*287*	*373*	*460*	*129*	*66*	*32*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	118.9	53.0	81	172	264			
WHEMLOCK	103.3	46.0	88	163	239			
TOTAL	*27.9*	*12.4*	*294*	*336*	*378*	*37*	*19*	*9*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR	119.4	53.2	8,223	17,569	26,914			
WHEMLOCK	101.2	45.1	7,913	14,412	20,911			
TOTAL	*33.6*	*15.0*	*27,187*	*31,981*	*36,774*	*54*	*28*	*13*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRUCE

Date 11/7/2019

Time 12:54:16PM

T29N R14W S02 TU9

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
29N	14W	02	SPRUCE	U9	13.00	6	17	S	W

T29N R14W S02 TU9

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		D	2S	32	4.1	6,040	5,793	75			100			23		77	33	12	174	1.43	33.3
DF		D	3S	47	14.9	9,643	8,203	107	5	95						100	36	10	113	0.93	72.5
DF		D	4S	21	7.6	3,866	3,573	46	100				2		23	74	34	5	36	0.42	98.9
DF		**Totals**		55	10.1	19,550	17,569	228	22	45	33		0	7	5	87	35	8	86	0.76	204.7
WH		D	2S	18	23.9	3,417	2,600	34				100				100	40	17	350	2.23	7.4
WH		D	3S	17		2,573	2,573	33		100						100	36	10	130	1.25	19.8
WH		D	4S	65		9,239	9,239	120	100					37	29	34	33	5	36	0.31	259.3
WH		D	UT														8	5		0.00	31.3
WH		**Totals**		45	5.4	15,229	14,412	187	64	18		18		24	18	58	31	6	45	0.43	317.8
Type Totals					8.0	34,779	31,981	416	41	33	18	8	0	15	11	74	32	7	61	0.57	522.5

TC TSTATS

STATISTICS

PROJECT **SPRUCE**

DATE 11/7/2019

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
29N	**13W**	**19**	**SPRUCE**	**ROW**	4.00	2	48	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	2	48	24.0		
CRUISE	2	48	24.0	470	10.2
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
WHEMLOCK	31	77.5	16.2	68	27.5	110.5	14,200	13,675	3,716	3,717
S SPRUCE	10	25.0	16.0	58	8.7	34.7	3,800	3,750	1,070	1,070
R ALDER	5	12.5	15.0	57	3.9	15.3	1,675	1,550	423	423
DOUG FIR	2	2.5	11.8	50	0.6	1.9	163	150	45	45
TOTAL	*48*	*117.5*	*15.9*	*64*	*40.7*	*162.4*	*19,838*	*19,125*	*5,254*	*5,255*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL: 68.1 %	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	13.7	12.8	68	78	87			
S SPRUCE	28.3	26.5	18	25	32			
R ALDER	84.9	79.5	3	13	22			
DOUG FIR	141.4	132.6		3	6			
TOTAL	*3.0*	*2.8*	*114*	*118*	*121*	*1*	*0*	*0*

CL: 68.1 %	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	9.2	8.6	101	111	120			
S SPRUCE	54.6	51.1	17	35	52			
R ALDER	74.3	69.6	5	15	26			
DOUG FIR	141.4	132.6		2	4			
TOTAL	*23.3*	*21.8*	*127*	*162*	*198*	*38*	*19*	*10*

CL: 68.1 %	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
WHEMLOCK	14.7	13.8	11,786	13,675	15,564			
S SPRUCE	75.4	70.7	1,099	3,750	6,401			
R ALDER	77.6	72.7	423	1,550	2,677			
DOUG FIR	141.4	132.6		150	349			
TOTAL	*30.5*	*28.6*	*13,657*	*19,125*	*24,593*	*65*	*33*	*16*

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: SPRUCE

Date 11/7/2019

Time 12:31:21PM

T29N R13W S19 TROW **T29N R13W S19 TROW**

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
29N	13W	19	SPRUCE	ROW	4.00	2	48	S	W

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
WH		D	2S	45	3.1	6,475	6,275	25			78	22				100	37	14	279	1.84	22.5
WH		D	3S	42	3.8	5,900	5,675	23	26	74						100	36	8	91	0.73	62.5
WH		D	4S	12	5.9	1,700	1,600	6	100				11	41	16	33	27	5	29	0.33	55.0
WH		D	UT	1		125	125	1	100					100			12	6	7	0.13	17.5
WH	**Totals**			72	3.7	14,200	13,675	55	23	31	36	10	1	6	2	91	31	8	87	0.77	157.5
SS		D	2S	33		1,250	1,250	5			100					100	36	14	250	1.60	5.0
SS		D	3S	55	1.2	2,075	2,050	8	15	85						100	36	9	103	0.87	20.0
SS		D	4S	10	6.3	400	375	2	100				27	73			21	5	21	0.35	17.5
SS		D	UT	2		75	75	0	100					100			26	5	30	0.29	2.5
SS	**Totals**			20	1.3	3,800	3,750	15	20	47	33		3	9		88	30	8	83	0.80	45.0
RA		D	3S	79	9.3	1,350	1,225	5		69	31			100			30	10	98	0.83	12.5
RA		D	4S	21		325	325	1	100				31	69			24	5	26	0.38	12.5
RA	**Totals**			8	7.5	1,675	1,550	6	21	55	24		6	94			27	8	62	0.63	25.0
DF		D	3S	58	12.5	100	88	0		100						100	36	8	70	0.64	1.3
DF		D	4S	17		25	25	0	100				100				19	5	20	0.24	1.3
DF		D	UT	25		38	38	0	100					100			29	5	30	0.29	1.3
DF	**Totals**			1	7.7	163	150	1	42	58			17	25		58	28	6	40	0.43	3.8
Type Totals					3.6	19,838	19,125	77	23	36	34	7	2	14	1	83	30	8	83	0.76	231.3

TC PSPCTLTCM

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

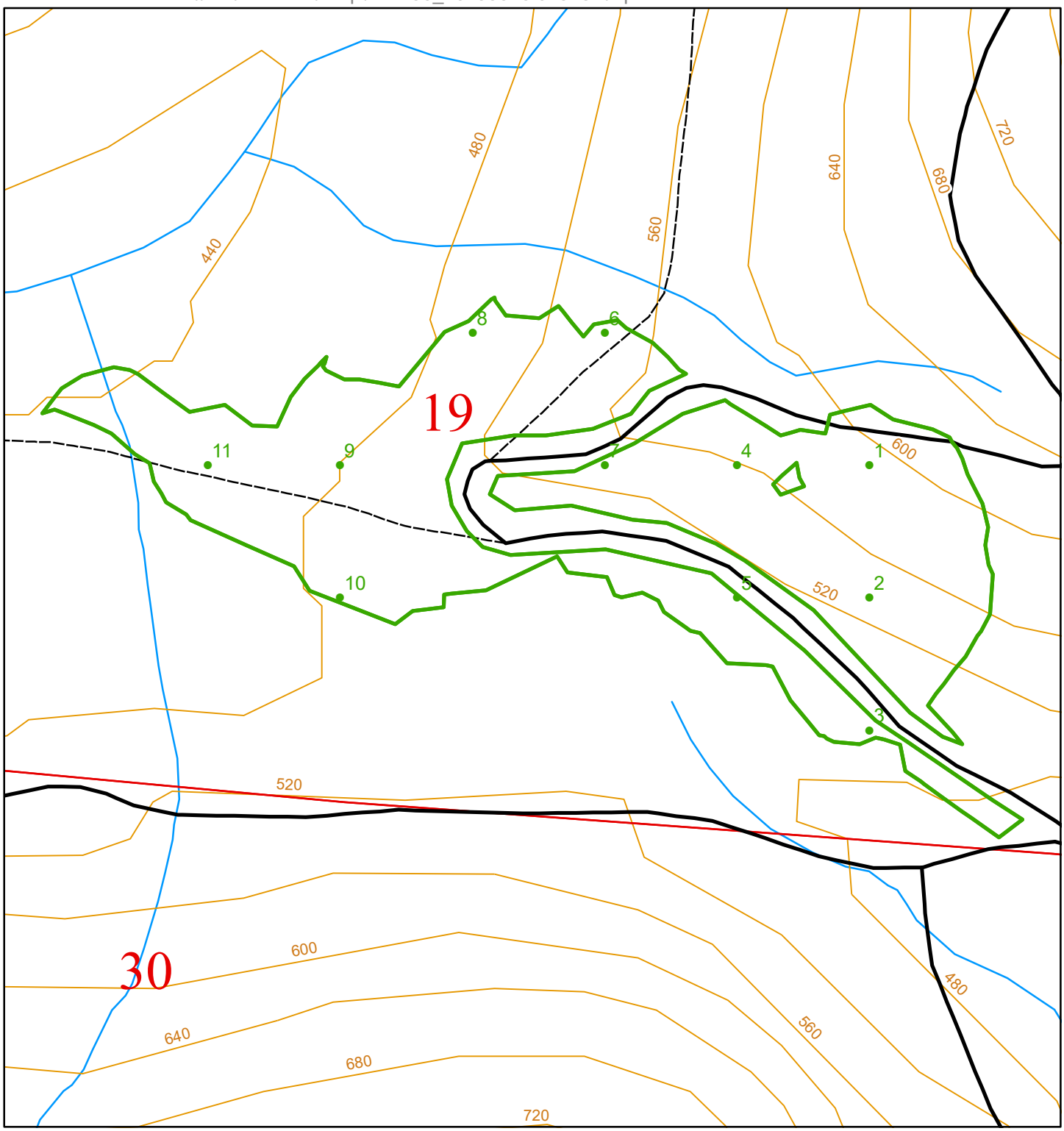
T29N R13W S19 TyRO	4.0
T29N R14W S02 TyU9	13.0
T29N R14W S26 TyU4	17.0

Project SPRUCE
Acres 255.00

Page No 1
Date: 11/7/2019
Time 12:55:46PM

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
WHEMLOCK		24,454	44,575	28,750	36.74	20.15	0.68	8,984	8,983	3,294	3,130
S SPRUCE		7,338	15,048	15,448	80.97	39.48	1.16	5,941	5,941	2,313	2,259
DOUG FIR		14,776	27,630	17,063	40.52	21.67	0.71	5,987	5,987	2,033	1,905
R ALDER		6,135	9,459	3,431	20.33	13.19	0.53	1,248	1,247	454	378
Totals		52,702	96,712	64,691	42.05	22.91	0.76	22,160	22,159	8,094	7,672

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
A	6,135	9,459	3,431	20.33	13.19	0.53	1,248	1,247	454	378
B	24,454	44,575	28,750	36.74	20.15	0.68	8,984	8,983	3,294	3,130
D	14,776	27,630	17,063	40.52	21.67	0.71	5,987	5,987	2,033	1,905
O	7,338	15,048	15,448	80.97	39.48	1.16	5,941	5,941	2,313	2,259
Totals	52,702	96,712	64,691	42.05	22.91	0.76	22,160	22,159	8,094	7,672



Cruiser Sample Point Locations

LAYER NAME:	unit1	Township:	T29R13W
POLY ID:	1	Total Sample Points:	11
Acres:	14	Spacing Between Points:	250
		Point Rotation Degrees:	0

N

0 90 180 360 540 720 Feet

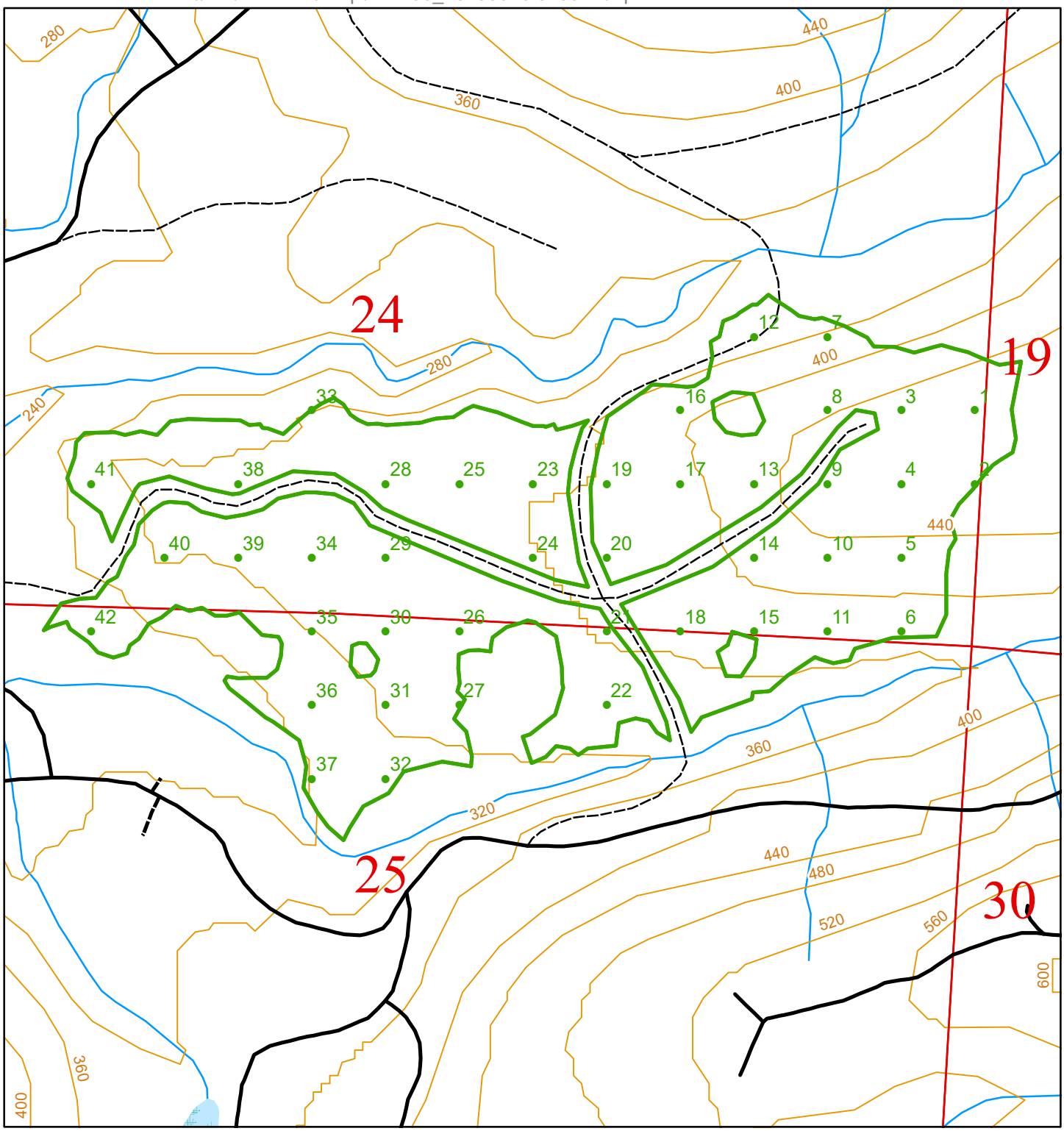
Scale 1:3,200

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Sep 16, 2019 07:35 AM



Cruiser Sample Point Locations

LAYER NAME:	u2	Township:	T29R14W, T29R13W
POLY ID:	1	Total Sample Points:	42
Acres:	91	Spacing Between Points:	300
		Point Rotation Degrees:	0

N

0 200 400 800 1,200 1,600 Feet

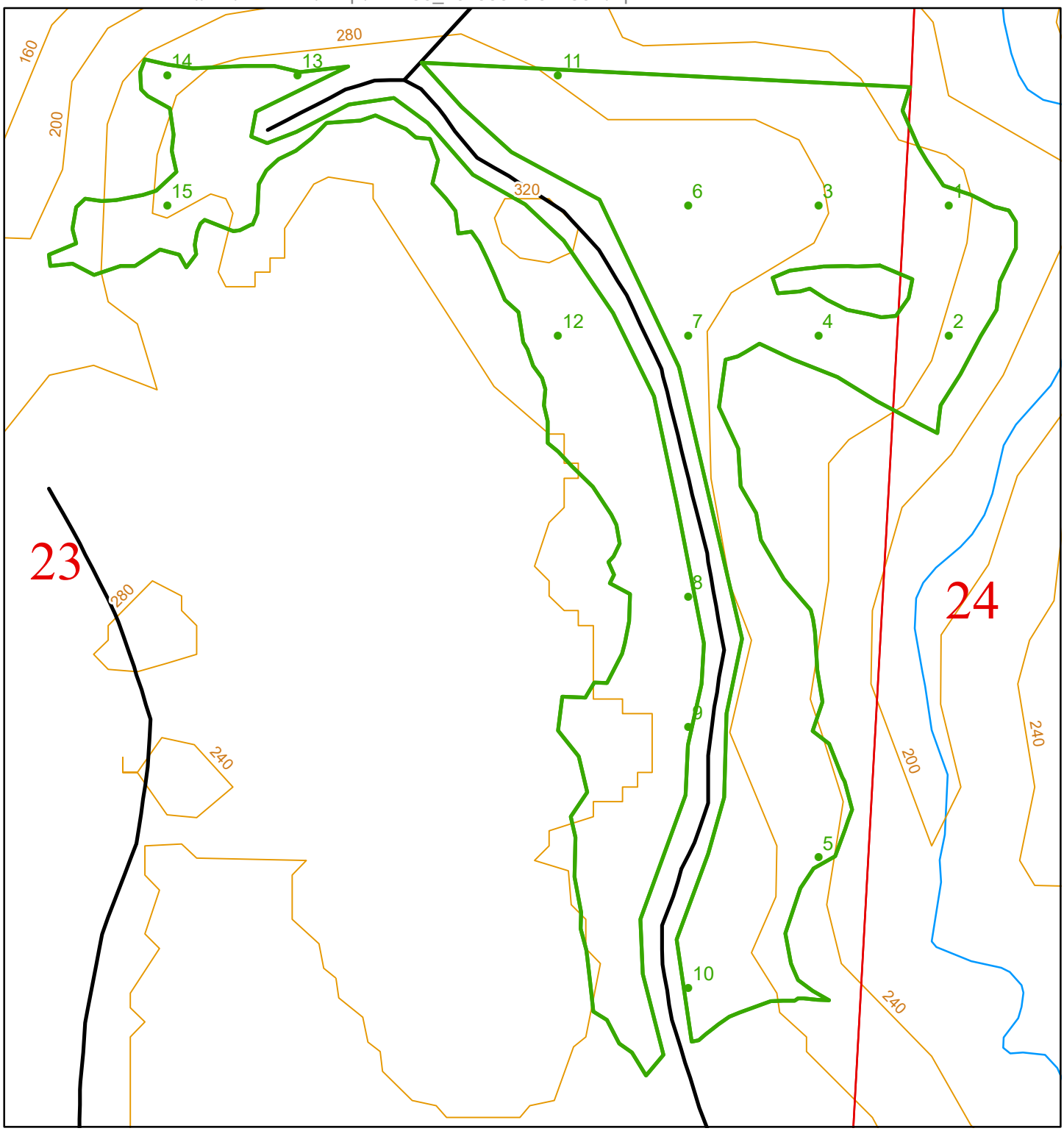
Scale 1:6,900

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Sep 16, 2019 07:39 AM



Cruiser Sample Point Locations

LAYER NAME:	u3	Township:	T29R14W
POLY ID:	1	Total Sample Points:	15
Acres:	33	Spacing Between Points:	300
		Point Rotation Degrees:	0

N

0 112.5 225 450 675 900 Feet

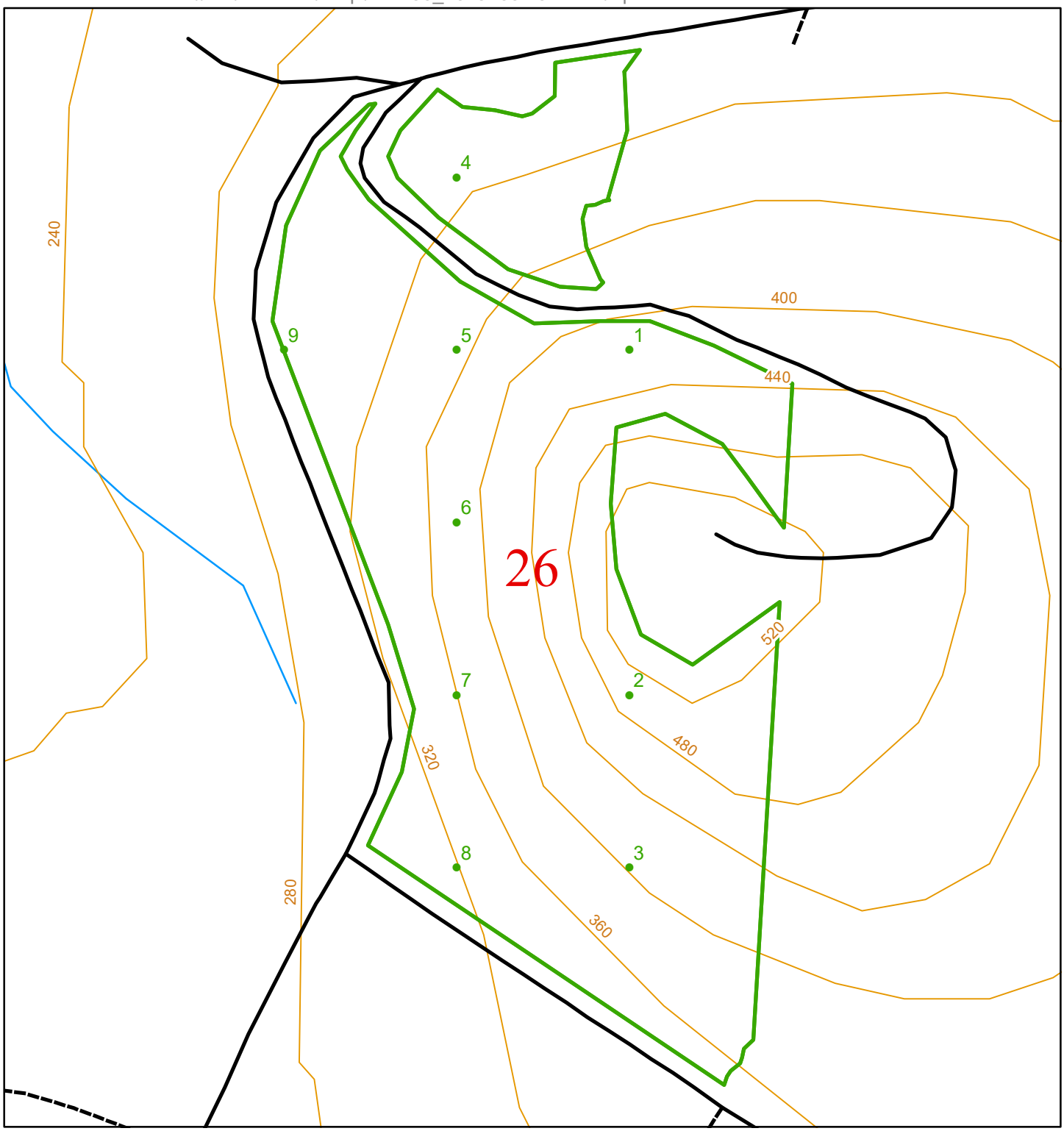
Scale 1:3,900

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Sep 16, 2019 07:43 AM



Cruiser Sample Point Locations

LAYER NAME:	unit4	Township:	T29R14W
POLY ID:	1	Total Sample Points:	9
Acres:	17	Spacing Between Points:	275
		Point Rotation Degrees:	0

N

0 75 150 300 450 600 Feet

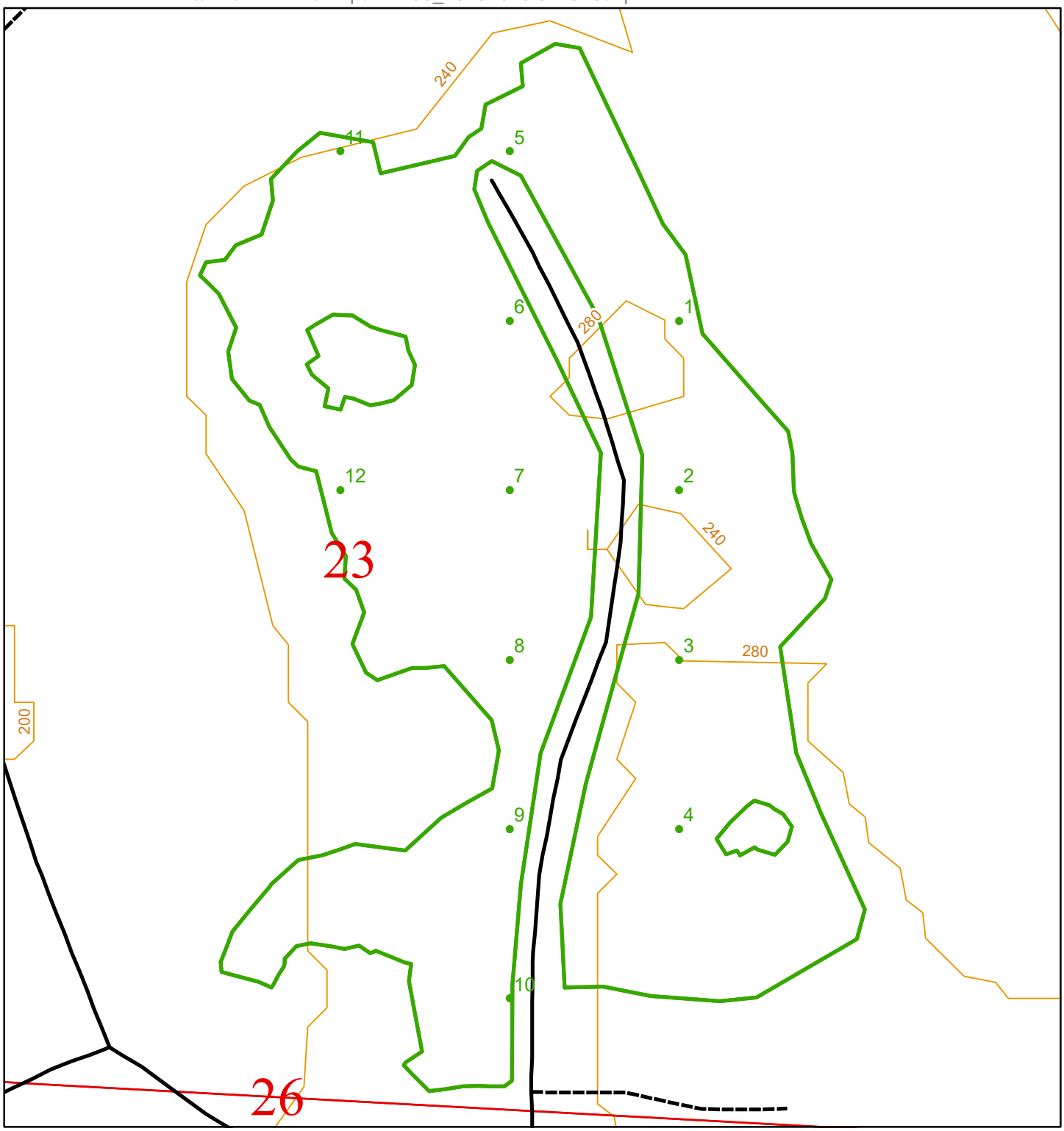
Scale 1:2,700

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Oct 02, 2019 07:12 AM



Cruiser Sample Point Locations

LAYER NAME:	unit5	Township:	T29R14W
POLY ID:	1	Total Sample Points:	12
Acres:	25	Spacing Between Points:	300
		Point Rotation Degrees:	0

N

0 87.5 175 350 525 700 Feet

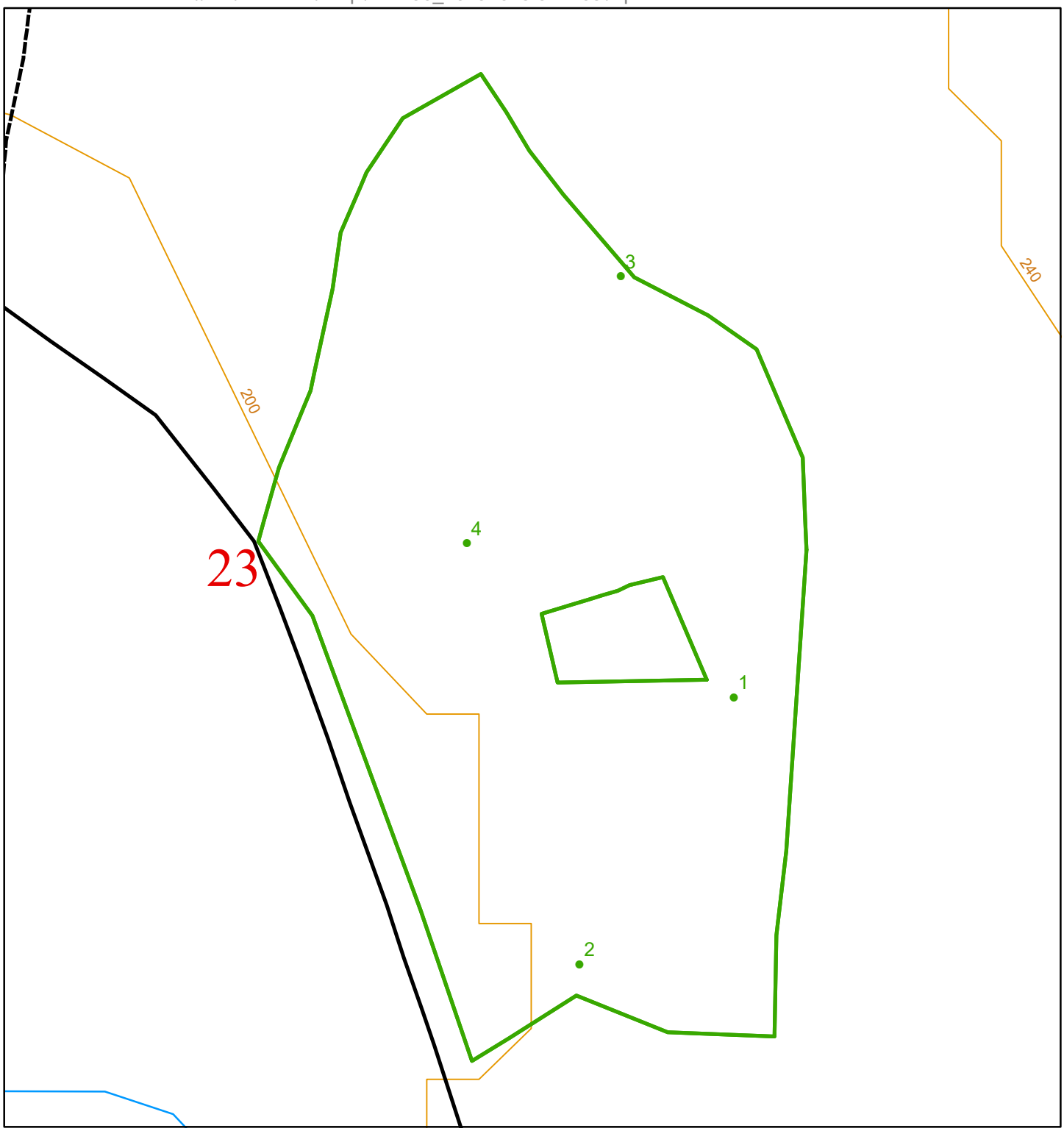
Scale 1:3,000

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Oct 23, 2019 07:19 AM



Cruiser Sample Point Locations

LAYER NAME:	unit6	Township:	T29R14W
POLY ID:	1	Total Sample Points:	4
Acres:	3	Spacing Between Points:	200
		Point Rotation Degrees:	30

N

0 30 60 120 180 240 Feet

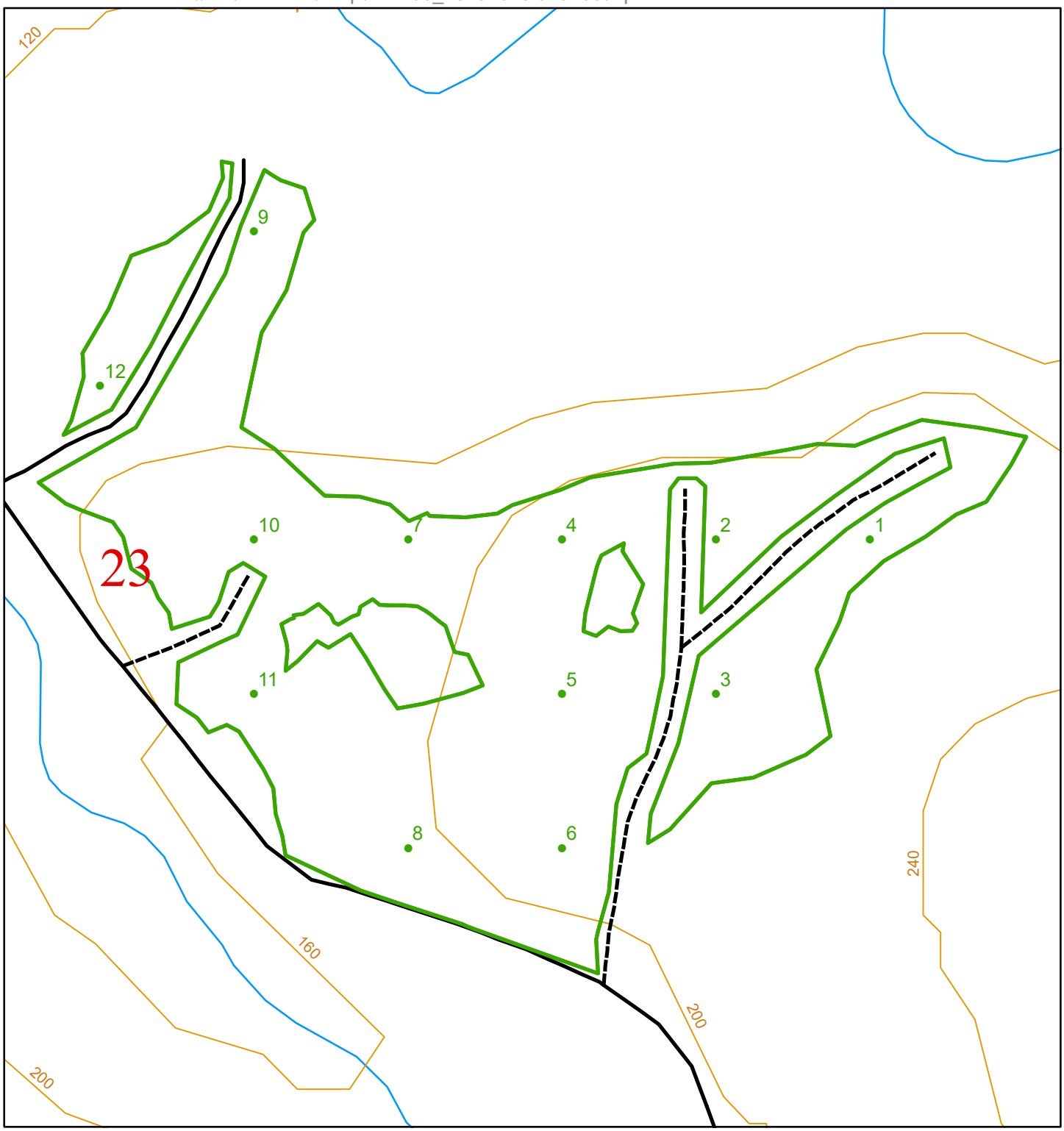
Scale 1:1,100

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Oct 23, 2019 07:27 AM



Cruiser Sample Point Locations

LAYER NAME:	unit 7	Township:	T29R14W
POLY ID:	1	Total Sample Points:	12
Acres:	23	Spacing Between Points:	300
		Point Rotation Degrees:	0

N

0 95 190 380 570 760 Feet

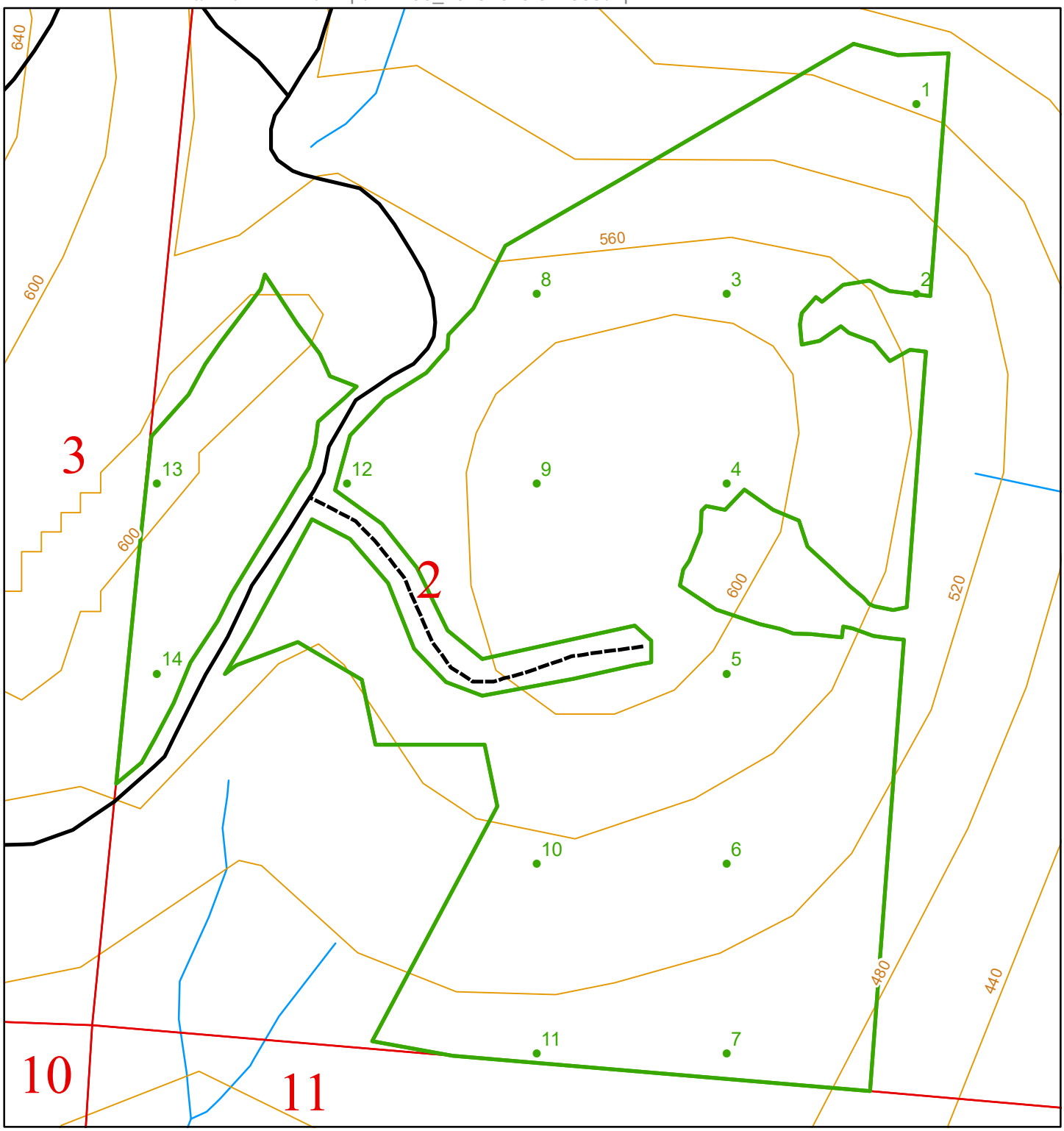
Scale 1:3,300

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Oct 23, 2019 07:54 AM



Cruiser Sample Point Locations

LAYER NAME:	unit8	Township:	T29R14W
POLY ID:	1	Total Sample Points:	14
Acres:	32	Spacing Between Points:	325
		Point Rotation Degrees:	0

N

0 80 160 320 480 640 Feet

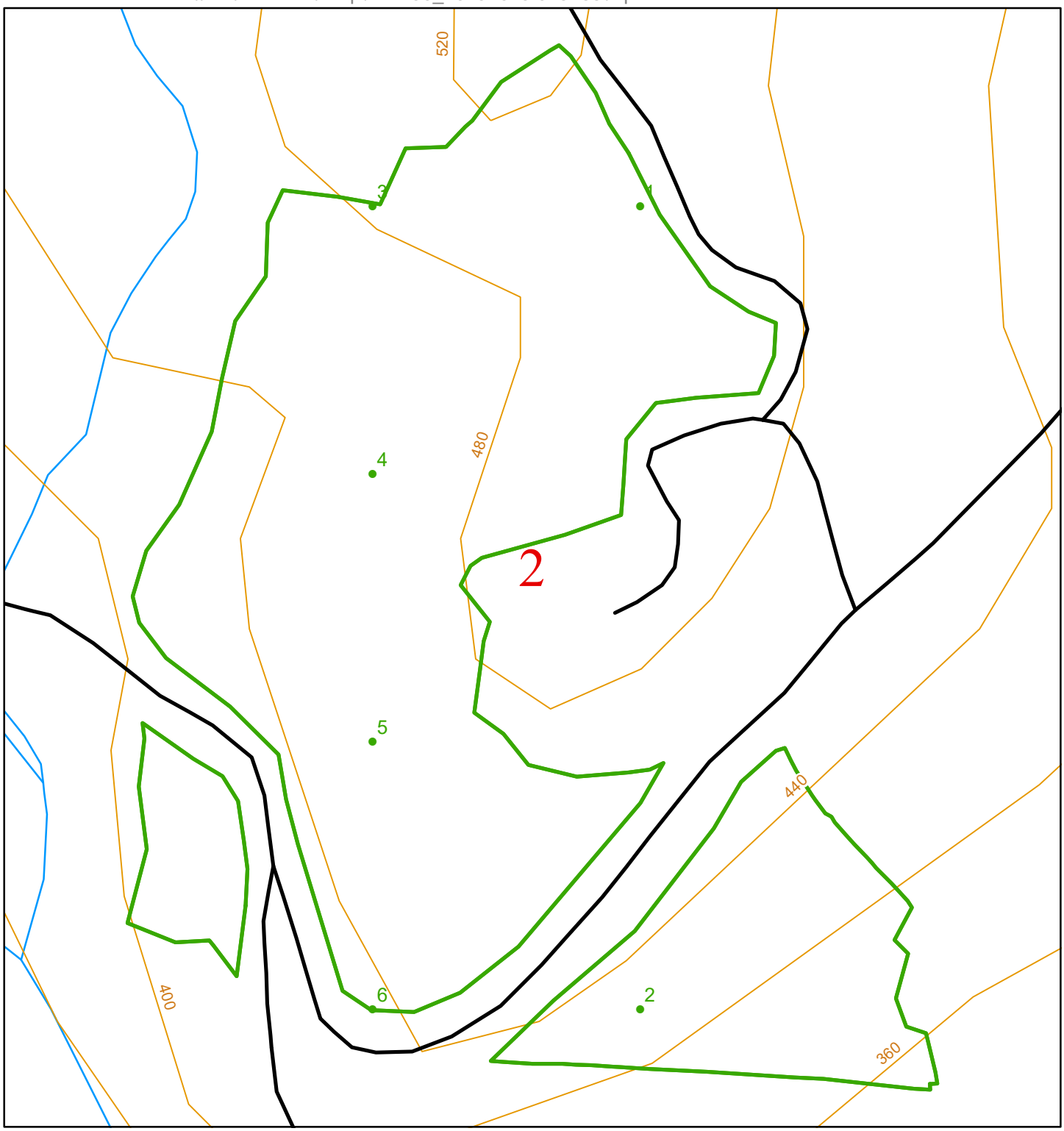
Scale 1:2,900

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Oct 29, 2019 07:46 AM



Cruiser Sample Point Locations

LAYER NAME:	unit9	Township:	T29R14W
POLY ID:	1	Total Sample Points:	6
Acres:	13	Spacing Between Points:	300
		Point Rotation Degrees:	0

N

0 55 110 220 330 440 Feet

Scale 1:1,900

Legend

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

Washington State Department of Natural Resources
Hilary Franz, Commissioner of Public Lands

Oct 29, 2019 07:53 AM

Forest Practices Application/Notification

Notice of Decision

FPA/N No: 2616359
Effective Date: 3/6/2020
Expiration Date: 3/6/2023
Shut Down Zone: 650
EARR Tax Credit: ☒ Eligible ☐ Non-eligible
Reference: Spruced Up

Decision

☐ **Notification** Operations shall not begin before the effective date.

☒ **Approved** This Forest Practices Application is subject to the conditions listed below.

☐ **Disapproved** This Forest Practices Application is disapproved for the reasons listed below.

☐ **Closed** Applicant has withdrawn approved FPA/N

FPA/N Classification

☐ Class II ☐ Class III ☐ Class IVG ☒ Class IVS

Number of Years Granted on Multi-Year Request

☐ 4 yrs ☐ 5 yrs

Conditions on Approval / Reasons for Disapproval

Timing Limitations on Type S and F water(s): All work below the ordinary high water line shall only occur between July 1 and September 30.

Issued By: Elliot Mann **Region:** Olympic

Title: Forest Practice Forester **Date:** 3/6/2020

Copies to: ☐ Landowner, Timber Owner and Operator.

Issued in person: ☒ Landowner ☐ Timber Owner ☐ Operator **By:** Chelsea Drum 3-6-2020

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 Olympic Region 411 Tillicum Lane Forks, WA 98331

Other Applicable Laws

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

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

Use the "Notice of Transfer of Approved Forest Practices Application/Notification" form. This form is available at region offices and on the Forest Practices website: http://www.dnr.wa.gov/businesspermits/forestpractices. Notify DNR of new Operators within 48 hours.

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

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

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

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

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

DNR affidavit of mailing:

On this day 3/6/2020, I placed in the United States mail at Forks, WA, postage paid, a true and accurate copy of this document. Notice of Decision FPA #2616359

Chelsea Drum
(Printed name)

(Signature)

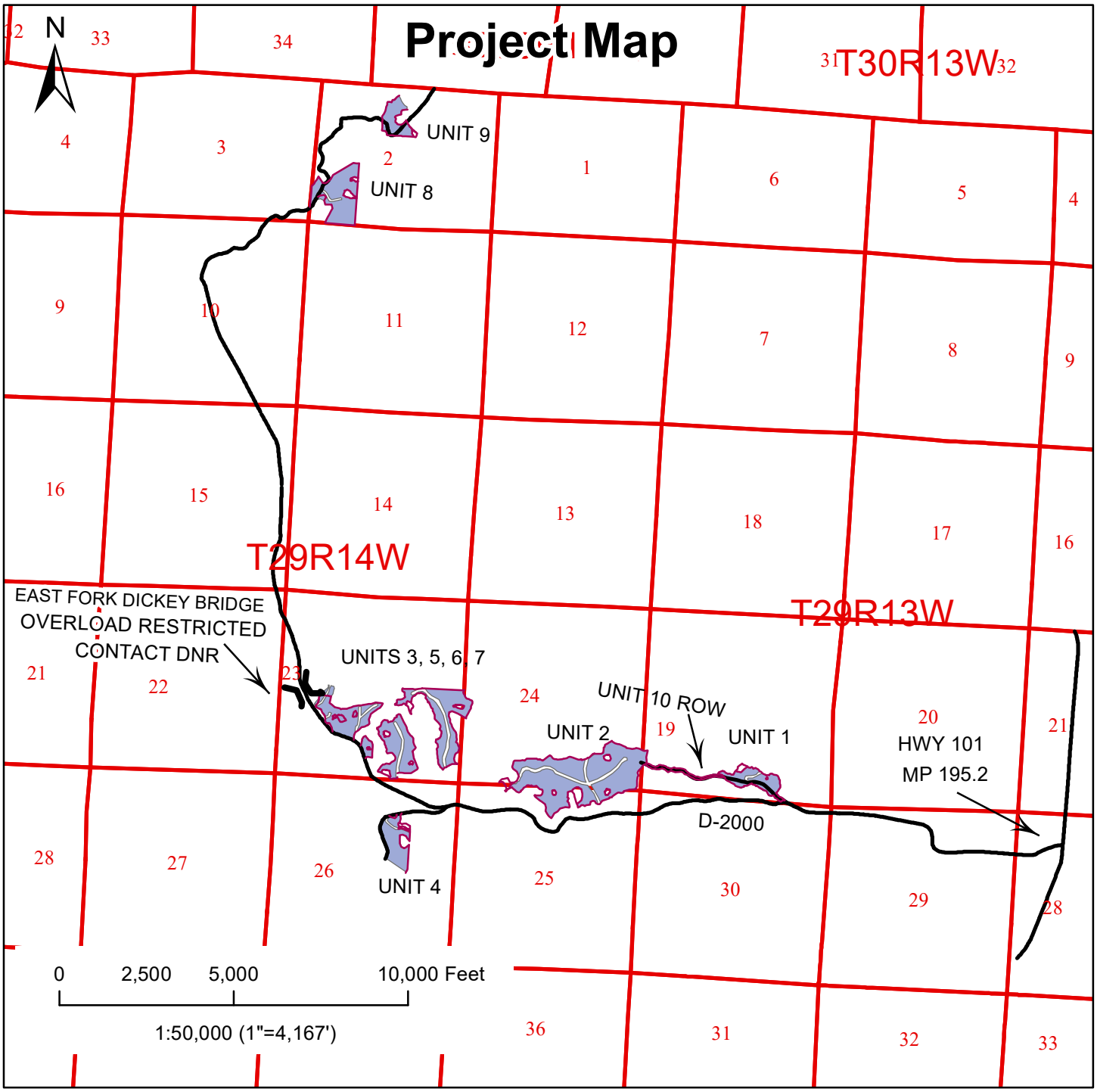
STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

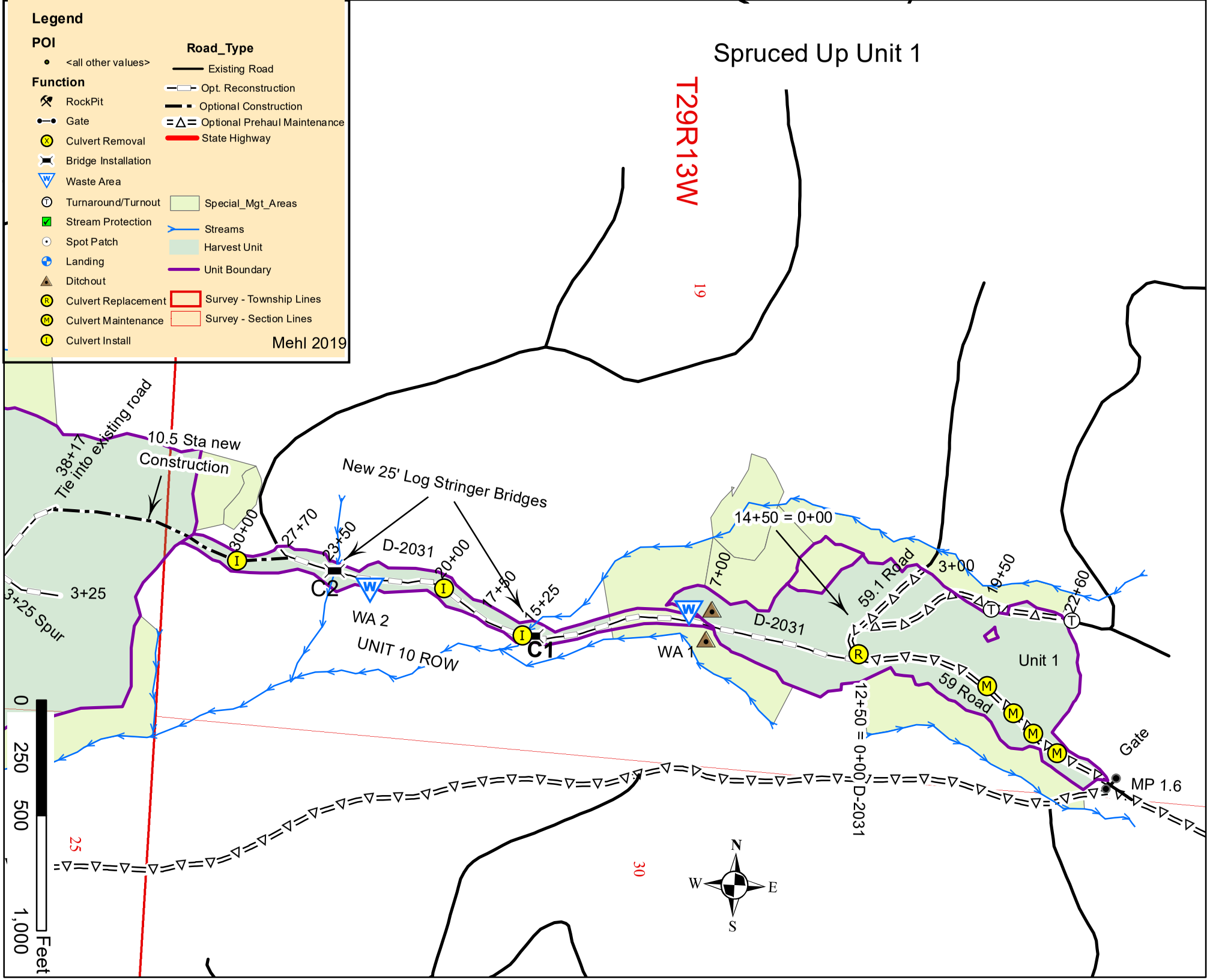
SPRUCED UP TIMBER SALE ROAD PLAN

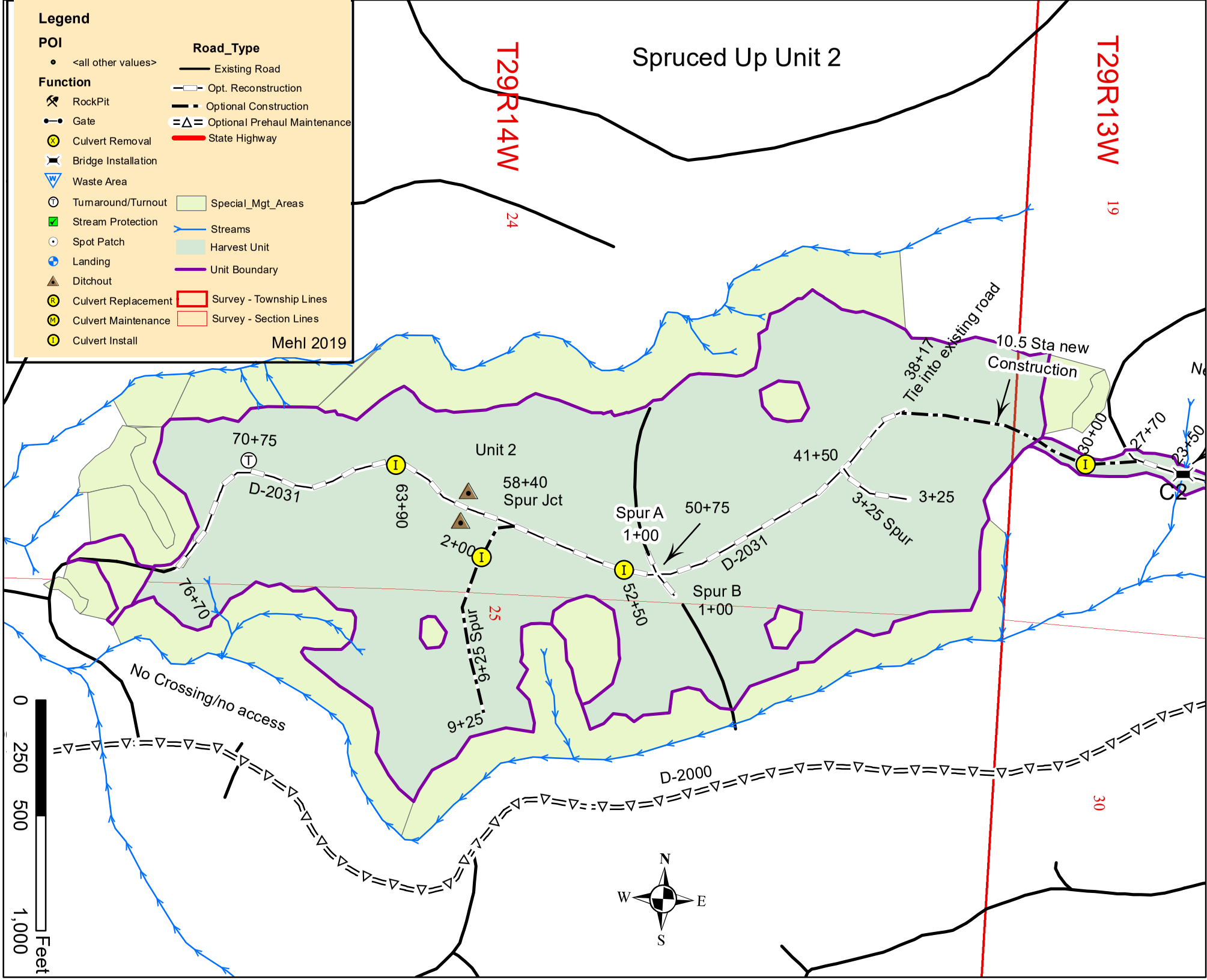
CLALLAM COUNTY
COAST DISTRICT

AGREEMENT NO.: 30-098878 DISTRICT ENGINEER: BILL MEHL

DATE: MARCH 10, 2020 DRAWN AND COMPILED BY: BILL MEHL




Spruced Up Unit 1
Legend
POI
<all other values>
Function
RockPit
Gate
Culvert Removal
Bridge Installation
Waste Area
Turnaround/Turnout
Stream Protection
Spot Patch
Landing
Ditchout
Culvert Replacement
Culvert Maintenance
Culvert Install
Road_Type
Existing Road
Opt. Reconstruction
Optional Construction
Optional Prehaul Maintenance
State Highway
Special_Mgt_Areas
Streams
Harvest Unit
Unit Boundary
Survey - Township Lines
Survey - Section Lines
Mehl 2019
T29R13W
19
25
30
10.5 Sta new Construction
38+17 Tie into existing road
New 25' Log Stringer Bridges
30+00
27+70
23+50
20+00
17+50
15+25
14+50 = 0+00
7+00
3+00
19+50
22+60
12+50 = 0+00
3+25
3+25 Spur
D-2031
59.1 Road
59 Road
C2
C1
WA 2
WA 1
UNIT 10 ROW
Unit 1
Gate
MP 1.6
N
S
E
W
0
250
500
1,000
Feet


Legend
POI
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Function
RockPit
Gate
Culvert Removal
Bridge Installation
Waste Area
Turnaround/Turnout
Stream Protection
Spot Patch
Landing
Ditchout
Culvert Replacement
Culvert Maintenance
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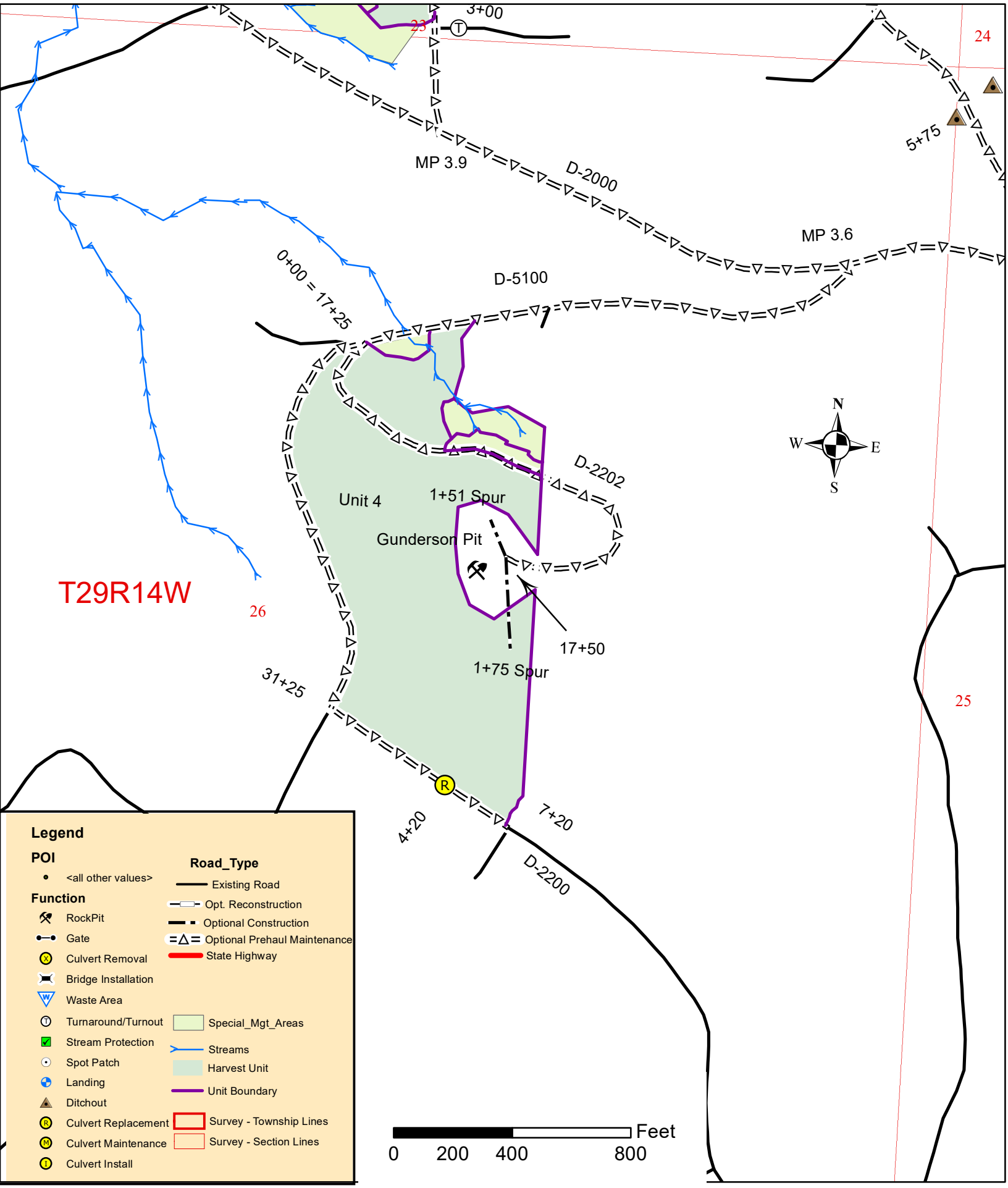
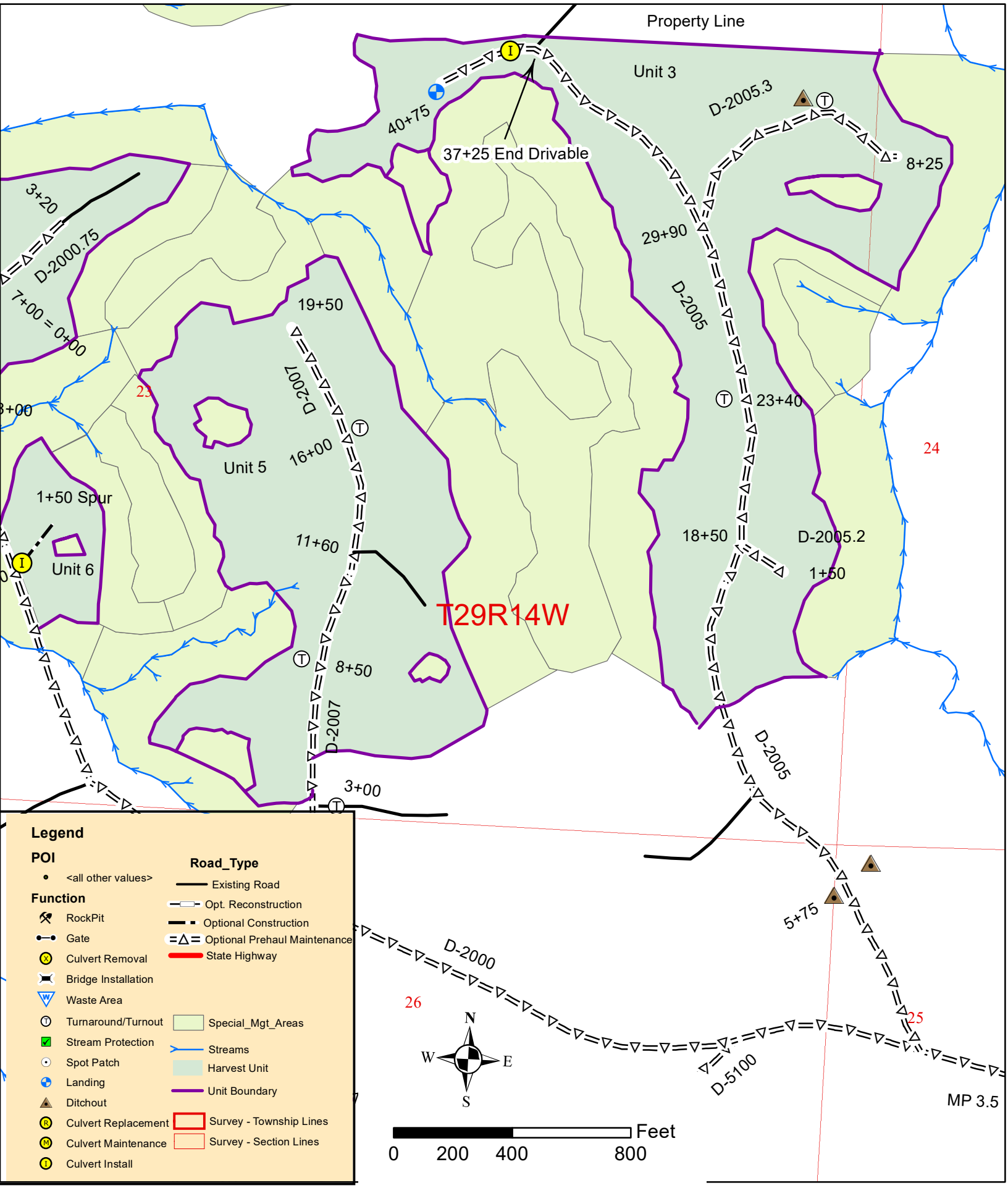
Road_Type
Existing Road
Opt. Reconstruction
Optional Construction
Optional Prehaul Maintenance
State Highway
Special_Mgt_Areas
Streams
Harvest Unit
Unit Boundary
Survey - Township Lines
Survey - Section Lines
Mehl 2019
Spruced Up Unit 2
T29R14W
T29R13W
24
19
25
30
Unit 2
70+75
D-2031
63+90
58+40
Spur Jct
2+00
Spur A
1+00
50+75
52+50
Spur B
1+00
D-2031
41+50
3+25
3+25 Spur
38+17
Tie into existing road
10.5 Sta new
Construction
30+00
27+70
23+50
C2
76+70
9+25 Spur
9+25
No Crossing/no access
D-2000
0
250
500
1,000
Feet
N
S
E
W

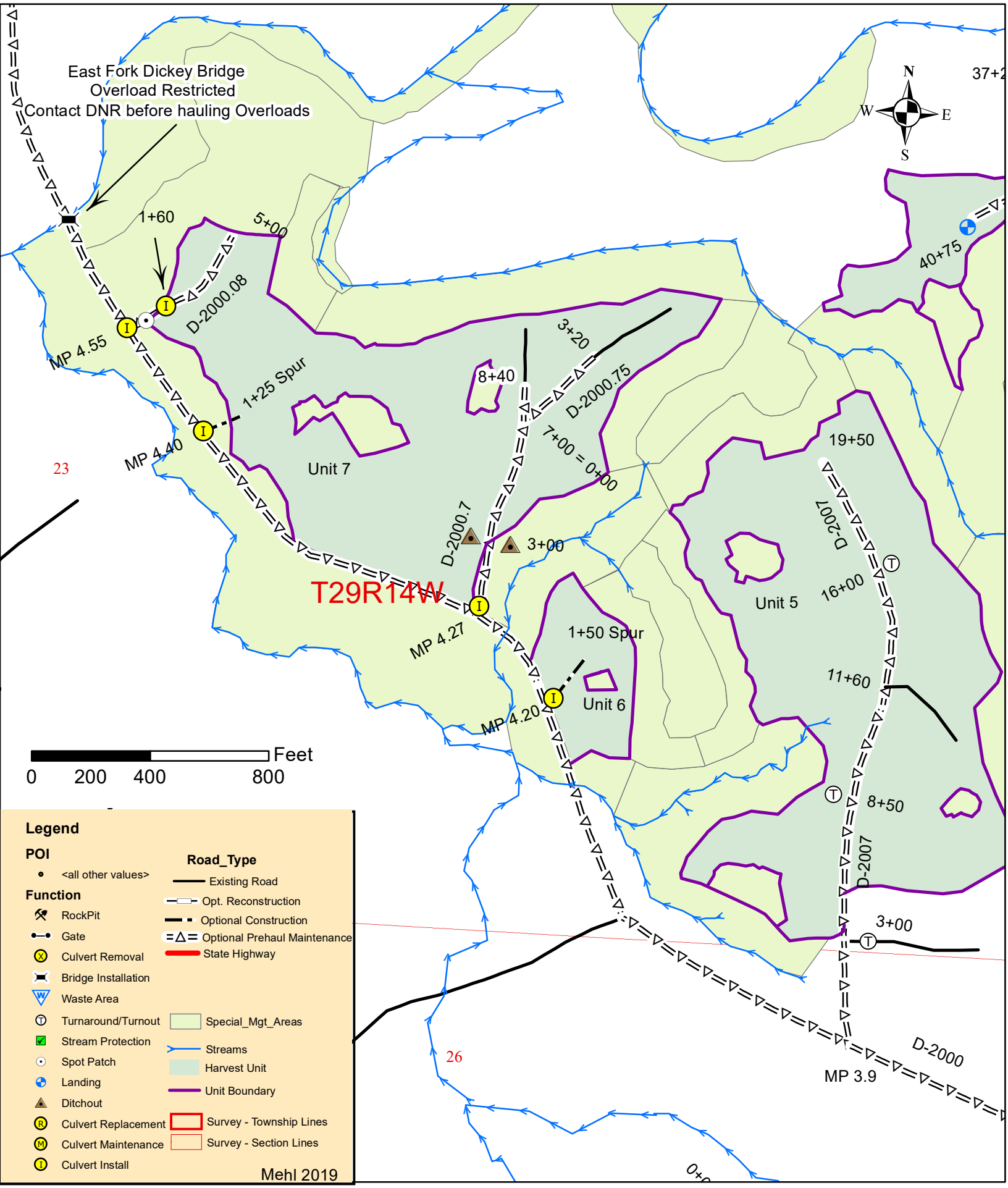
Spruced Up Unit 4



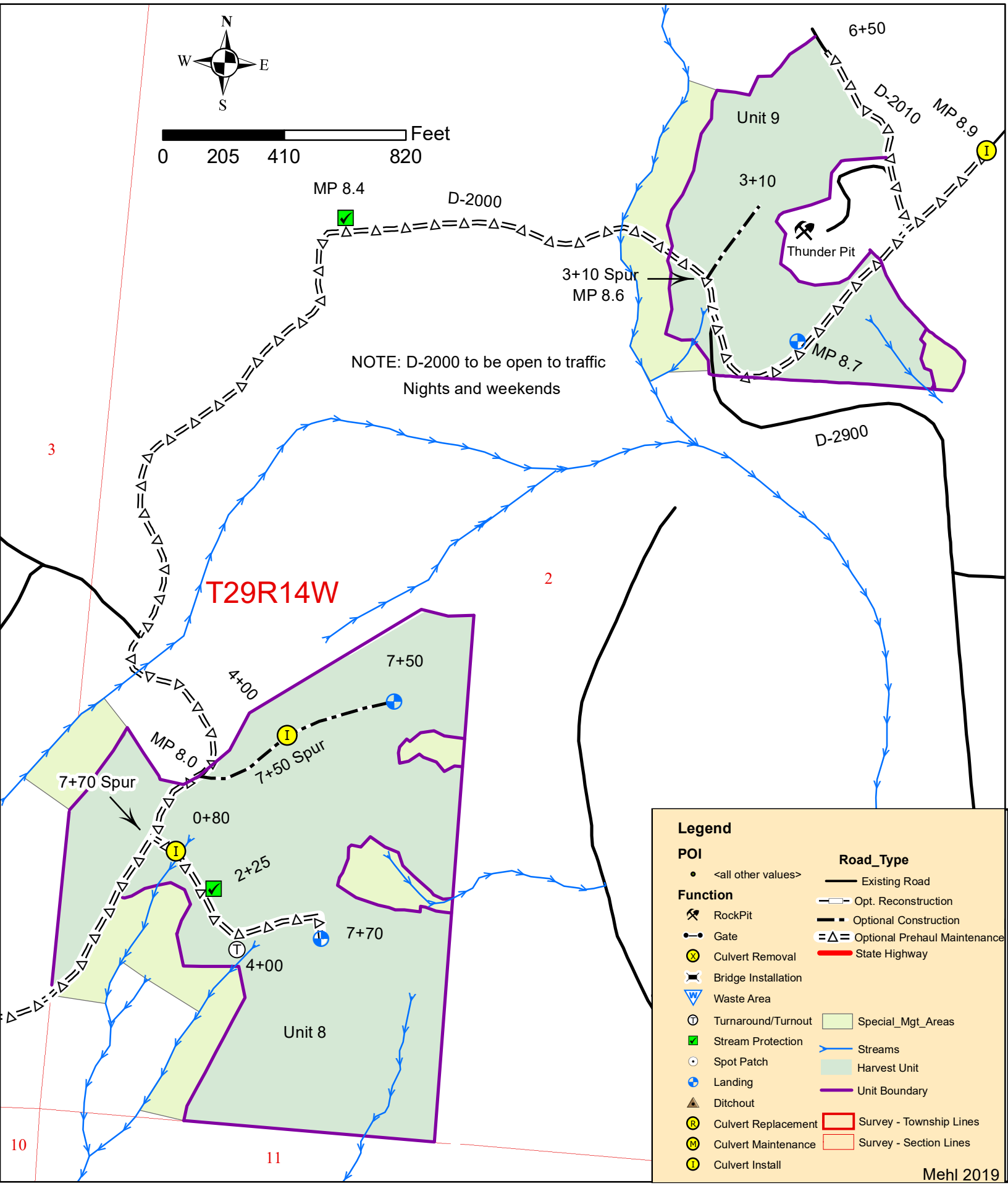
Spruced Up Units 3 & 5



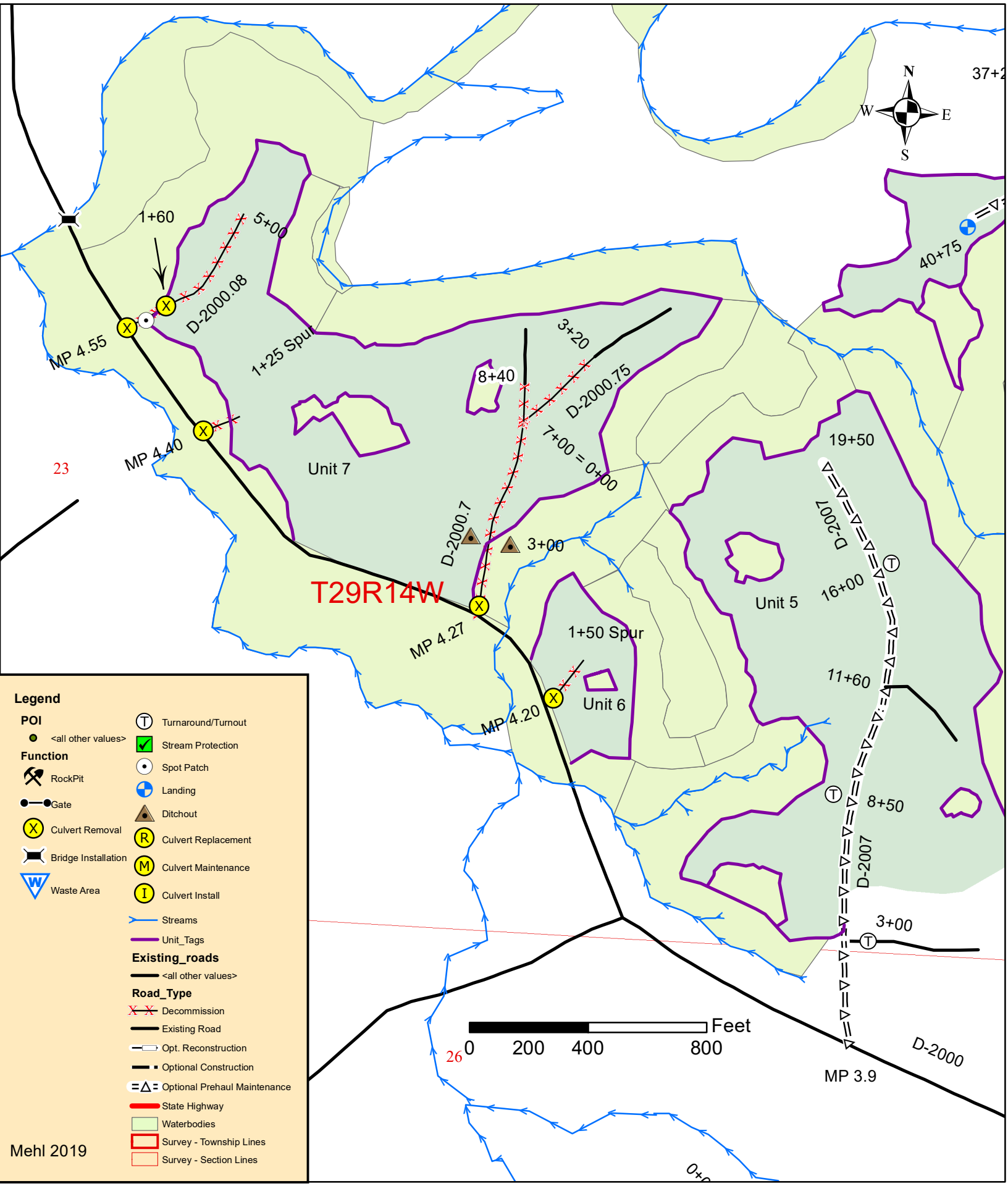
Spruced Up Units 5, 6, & 7



Spruced Up Units 8 & 9



Spruced Up Road Decommisioning



STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

SPRUCED UP TIMBER SALE ROAD PLAN
CLALLAM COUNTY
COAST DISTRICT

AGREEMENT NO.: 30-098878 DISTRICT ENGINEER: BILL MEHL

DATE: MARCH 10, 2020 DRAWN & COMPILED BY: BILL MEHL

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.

0-3 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
D-2000	469.90	Pre-haul Maintenance
59 Road	22.60	Pre-haul Maintenance
59.1 Road	3.00	Pre-haul Maintenance
D-2031	66.23	Reconstruction
D-2031	10.47	Construction
D-2005	40.75	Pre-haul Maintenance
D-2005.2	1.50	Pre-haul Maintenance
D-2005.3	8.25	Pre-haul Maintenance
D-2007	19.50	Pre-haul Maintenance
D-2200	7.00	Pre-haul Maintenance
D-2202	17.50	Pre-haul Maintenance
D-2000.7	8.40	Pre-haul Maintenance
D-2000.75	3.20	Pre-haul Maintenance
D-2000.08	5.00	Pre-haul Maintenance
D-5100	31.25	Pre-haul Maintenance
D-2010	6.50	Pre-haul Maintenance
9+25 Spur	9.25	Construction
7+70 Spur	7.70	Pre-haul Maintenance
7+50 Spur	7.50	Construction
3+25 Spur	3.25	Reconstruction
3+10 Spur	3.10	Construction
1+75 Spur	1.75	Construction
1+50 Spur	1.50	Construction
1+51 Spur	1.51	Construction
1+25 Spur	1.25	Construction
Spur A	1.00	Reconstruction
Spur B	1.00	Reconstruction

0-4 CONSTRUCTION

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

Road	Stations	Requirements
D-2031	27+70 – 38+17	See below
9+25 Spur	0+00 – 9+25	See below
7+50 Spur	0+00 – 7+50	See below
3+10 Spur	0+00 – 3+10	See below
1+75 Spur	0+00 – 1+75	See below
1+50 Spur	0+00 - 1+50	See below
1+51 Spur	0+00 – 1+51	See below
1+25 Spur	0+00 – 1+25	See below
Total:	***36.33 Sta***	

Construction includes, but is not limited to:
Clearing, grubbing, right-of-way debris disposal, excavation and/or embankment to subgrade, end hauling material for construction, compacting road surfaces, constructing ditchlines, constructing ditchouts, constructing turnouts and turnarounds, curve widening, acquisition and installation of drainage structures, application of rock, spreading grass seed and hay.

0-5 RECONSTRUCTION

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

Road	Stations	Requirements
D-2031	0+00 -27+70; 38+17 – 76+70	See below plus 2 log stringer bridges.
3+25 Spur	0+00 – 3+25	See below
Spur A	0+00 – 1+00	See below
Spur B	0+00 – 1+00	See below
Total:	***71.05 Sta***	See below

Reconstruction includes, but is not limited to:
Installing additional culvert, realigning road segments, application of rock, removing culverts, brushing, ditch cleaning and adding ditchouts.

0-6 PRE-HAUL MAINTENANCE

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

Road	Stations	Requirements
D-2000	469.90	Maintain erosion control structures in accordance with Clause 2-8 and as directed by Contract Administrator. Install sediment control structures in accordance with 8-1 and 2-7. Clean or install culverts in accordance with Clause 2-6, 4-38 and Culvert List.
59 Road	22.60	Grade and shape road in accordance with Clause 2-5. Install/replace/maintain culverts

		in accordance with Culvert List and Clause 2-6. Brush road in accordance with Clause 3-1 and Brushing Detail. Apply rock in accordance with Rock List.
59.1 Road	3.00	Remove all vegetative material with a minimum loss of rock in accordance with Clause 2-9 and 3-23. Grade and shape road in accordance with Clause 2-5. Construct and/or clean ditches in accordance with Clause 2-7, 4-37, and 4-38.
D-2005	40.75	Grade and shape road in accordance with Clause 2-5. Install/replace/maintain culverts in accordance with Culvert List. Brush road in accordance with Clause 3-1 and Brushing Detail. Construct ditch outs in accordance with Clause 4-29 and 4-38. Apply rock in accordance with Rock List.
D-2005.2	1.50	Brush road in accordance with Clause 3-1 and Brushing Detail. Grade and shape road in accordance with Clause 2-5.
D-2005.3	8.25	Remove all vegetative material with a minimum loss of rock in accordance with Clause 2-9 and 3-23. Grade and shape road in accordance with Clause 2-5. Construct and/or clean ditches in accordance with Clause 2-7, 4-37, and 4-38. Construct ditch outs in accordance with Clause 4-29 and 4-38. Apply rock in accordance with Rock List.
D-2007	19.50	Grade and shape road in accordance with Clause 2-5. Brush road in accordance with Clause 3-1 and Brushing Detail. Apply rock in accordance with Rock List.
D-2200	7.00	Grade and shape road in accordance with Clause 2-5. Construct and/or clean ditches in accordance with Clause 2-7, 4-37, and 4-38. Install culvert in accordance with culvert list. Apply rock in accordance with Rock List.
D-2202	17.50	Brush road in accordance with Clause 3-1 and Brushing Detail. Grade and shape road in accordance with Clause 2-5. Construct and/or clean ditches in accordance with Clause 2-7, 4-37, and 4-38. Apply rock in accordance with Rock List.
D-2000.7	8.40	Remove all vegetative material with a minimum loss of rock in accordance with Clause 2-9 and 3-23. Grade and shape road in accordance with Clause 2-5. Construct and/or clean ditches in accordance with

		Clause 2-7, 4-37, and 4-38. Construct ditch outs in accordance with Clause 4-29 and 4-38. Brush road in accordance with Clause 3-1. Install culvert in accordance with culvert list. Apply rock in accordance with Rock List.
D-2000.75	3.20	Remove all vegetative material with a minimum loss of rock in accordance with Clause 2-9 and 3-23. Apply rock in accordance with Rock List.
D-2000.08	5.00	Brush road in accordance with Clause 3-1 and Brushing Detail. Grade and shape road in accordance with Clause 2-5. Construct and/or clean ditches in accordance with Clause 2-7, 4-37, and 4-38. Install culverts in accordance with culvert list. Apply rock in accordance with Rock List.
D-5100	31.25	Grade and shape road in accordance with Clause 2-5 and/or as directed by Contract Administrator.
D-2010	6.50	Brush road in accordance with Clause 3-1 and Brushing Detail. Grade and shape road in accordance with Clause 2-5. Construct and/or clean ditches in accordance with Clause 2-7, 4-37, and 4-38. Apply rock in accordance with Rock List.
7+70 Spur	7.70	Remove all vegetative material with a minimum loss of rock in accordance with Clause 2-9 and 3-23. Grade and shape road in accordance with Clause 2-5. Construct and/or clean ditches in accordance with Clause 2-7, 4-37, and 4-38. Install sediment control structures in accordance with 8-1 and 2-7. Install culvert in accordance with culvert list. Apply rock in accordance with Rock List.
Total:	652.05	

Maintenance includes, but is not limited to:
Brushing right-of-way, right-of-way debris disposal, cleaning ditches, constructing ditches, installing additional culverts, widening road segments, constructing headwalls, cleaning culvert inlets and outlets, cross drain culvert replacement, installing erosion control materials and sediment removal structures, spot rocking, grading and shaping existing road surface and turnouts, constructing additional turnouts, compaction of road surface, application of rock, acquisition and application of grass seed and hay.

0-7 POST-HAUL MAINTENANCE

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

0-9 DECOMMISSIONING

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

0-12 DEVELOP ROCK SOURCE

The Purchaser shall develop a rock source called Loop Tavern Pit. Development will involve drilling and shooting oversize boulders to a size small enough to be run through a crusher, and crushing 10,000 cubic yards of 6" jaw run. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

0-13 STRUCTURES

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

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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

1-5 DESIGN DATA

Design data is available upon request at the Department of Natural Resources Olympic Region Office in Forks, WA.

1-6 ORDER OF PRECEDENCE

Any conflict or inconsistency in this Road Plan shall be resolved by giving the documents precedence in the following order:

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

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

1-7 TEMPORARY ROAD CLOSURE

The Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before the closure of any road. Road work shall not close any road for more than 3 consecutive days.

Road	Number of Allowable Closed Days
D-2000	Allow for hourly passage/& after hours traffic

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

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

1-9 DAMAGED METALLIC COATING

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

1-10 WSDOT STANDARD SPECIFICATION REFERENCE

References in this road plan to "WSDOT Standard Specifications" mean the Washington State Department of Transportation's Standard Specifications for Road, Bridge, and Municipal Construction 2018 (M41-10).

1-11 FPHP REQUIREMENTS

The following work is subject to requirements under a Forest Practice Hydraulics Project Approval issued by the State of Washington. Work to be done between July 1 and September 30th.

FPA Crossing Identifier	Road	Stations	Work Type
C1	D-2031	15+25	Bridge Installation
C2	D-2031	23+50	Bridge Installation

1-12 SURVEY MONUMENTS

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

SUBSECTION ROAD MARKING

1-15 ROAD MARKING

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

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

1-16 CONSTRUCTION STAKES SET BY STATE

Purchaser shall perform work on the following road(s) in accordance with the 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	Type
D-2031	15+25	Bridge Installation
D-2031	23+50	Bridge Installation

1-18 REFERENCE POINT DAMAGE

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

SUBSECTION TIMING

1-20 COMPLETE BY DATE

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

1-21 HAUL APPROVAL

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

1-22 WORK NOTIFICATIONS

On all roads, the Purchaser shall notify the Contract Administrator a minimum of 3 calendar days before work begins. Contact DNR Engineer 3 days before starting bridge project.

1-23 ROAD WORK PHASE APPROVAL

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

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

SUBSECTION RESTRICTIONS

1-25 ACTIVITY TIMING RESTRICTION

On the following road(s), the specified activities are not permitted during the listed closure period(s) unless authorized in writing by the Contract Administrator.

Road	Stations	Activity	Closure Period
D-2031	15+25	Bridge Installation	October 1st – June 30th
D-2031	23+50	Bridge Installation	October 1st – June 30th

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period listed in Clause 1-25 Activity Timing Restriction, the Purchaser shall provide a maintenance plan to include further protection of State resources. The Contract Administrator must approve the maintenance plan in writing, and preventative measures shall be put in place, before operation in the closure period. The Purchaser shall be required to maintain all haul roads at their own expense including those listed in Contract Clause C-060 Designated Road Maintainer. If other operators are using, or desire to use these designated maintainer roads, a joint operating plan shall be developed. All parties shall follow this plan.

1-27 LIMITED OPERATING PERIOD FOR MARBLED MURRELET

On the following road(s), any road work, right-of-way timber falling and yarding, rock pit operations, or operation of heavy equipment must be performed during the limited operating period if implemented during the nesting season. The limited operating period runs from two hours after sunrise to two hours before sunset between April 1 through September 23. This restriction does not apply to the hauling of timber, rock, or equipment.

Road	Stations
D-2000	Milepost 8.9 culvert installation

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

In accordance with Contract Clause G-220 State Suspends Operation, the Contract Administrator shall suspend road work or hauling of right-of-way timber, forest products, or rock under the following conditions:

- In the opinion of the Contract Administrator excessive road damage or rutting may occur.

Operations must stop unless authority to continue working or hauling is granted, in writing, by the Contract Administrator. In the event that surface or base stability problems persist, the Purchaser will be required to cease operations, or perform corrective maintenance or repairs, subject to specifications within this Road Plan. Before

and during any suspension, the Purchaser shall protect the work from damage or deterioration.

1-32 BRIDGE AND ASPHALT SURFACE RESTRICTION

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

If tracked equipment is used on bridge or asphalt surfaces, Purchaser shall immediately cease all road work and hauling operations. Any dirt, rock, or other material tracked or spilled on bridge or asphalt surface(s) shall be removed immediately. Any damage to the surface(s) shall be repaired at the Purchaser's expense as directed by the Contract Administrator.

1-33 SNOW PLOWING RESTRICTION

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

SUBSECTION OTHER INFRASTRUCTURE

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

At existing road approaches to county roads and state highways, any mud, dirt, rock or other material tracked or spilled on the asphalt surface shall be removed immediately by the Purchaser.

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

The following county roads and state highways are affected by this sale:

Road Name
Hwy 101

1-41 REQUIREMENTS FOR PAVED ROAD APPROACHES

Requirements for the paved road approaches:

Purchaser shall build up approaches to allow a smooth grade transition. The top of the rock road surfacing must be kept level with the surface of the paved roads at all times.

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

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

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

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

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

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

C-060 Designated Roads

Road	Stations
D-2000	All
Loop Pit Access	All

2-4 PASSAGE OF LIGHT VEHICLES

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

Road	Stations
D-2000	All, night and weekends

2-5 MAINTENANCE GRADING – EXISTING ROAD

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

Road	Stations	Requirements
D-2005	0+00 - 37+25	Grade, shape, and remove shoulder and surface vegetation
D-2000.7	0+00 – 8+40	Grade, shape, and remove shoulder and surface vegetation
D-2202	0+00 – 17+50	Grade, shape, and remove shoulder and surface vegetation
D-2005.2	0+00 – 1+50	Grade, shape, and remove shoulder and surface vegetation
D-2007	0+00 – 19+50	Grade, shape, and remove shoulder and surface vegetation
D-2000	396+00 – 470+00	Grade/shape as needed during harvest activities
D-2000	0+00 – 470+00	Posthaul grading as directed by C/A

2-6 CLEANING CULVERTS

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

Road	Stations
59 Road	0+00 – 12+00
D-2000	As directed by C/A

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

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

Road	Stations	Left or Right	Comments
D-2005.3	0+00 – 8+25	L	Ditching
D-2000.7	0+10 – 7+00	L & R	Ditching
D-2202	10+50 – 13+50	R	Ditching
D-2031	0+00 – 7+00	L & R	Ditching
D-2031	15+75 – 17+50	R	Ditching
D-2010	0+00 – 6+50	L & R	Ditching
D-2000.08	0+00 – 5+00	R	Ditching
D-2200	As Directed by C/A	R	Ditching
D-59.1	As Directed by C/A	R	Ditching

2-8 MAINTAINING EROSION CONTROL STRUCTURES

On the following road(s), Purchaser shall clean and maintain all erosion control devices. Work shall be completed before the start of timber haul and shall be done in accordance with all pertaining clauses contained in this Road Plan. Excavated material shall be disposed of in accordance with Clause 4-35 through Clause 4-38.

Road	Stations	Work Needed
D-2000	0+00 – 470+00	As directed by C/A

2-9 REMOVING VEGETATIVE MATERIAL

On the following road(s), Purchaser shall remove all vegetative material, dirt, mud, and other debris on the existing road surface with a minimum loss of rock. Material removed shall be disposed of in accordance with Clause 3-21 through Clause 3-25 and Clause 4-36 through Clause 4-38.

Road	Stations
D-2010	2+00 – 6+50
7+70 Spur	0+00 – 7+70
D-2000.75	0+00 – 3+20

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

SUBSECTION BRUSHING

3-1 BRUSHING

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

Road	Stations
D-2031	0+00 -27+70, 38+17 – 76+70
D-2202	0+00 – 17+00
59 Road	0+00 – 22+60

D-2005	0+00 - 37+25
1+25 Spur	0+00 – 1+25
D-2000.7	0+00 – 8+40
D-2005.2	0+00 – 1+50
D-2007	0+00 – 19+50
D-2000.08	0+00 – 5+00
D-2010	2+00 – 6+50

3-2 BRUSHING RESTRICTION

Pulling, digging, pushing over, and other non-cutting methods used for vegetation removal shall not be used for brushing. Excavator buckets, log loaders and similar equipment shall not be used for brushing.

3-3 BRUSH REMOVAL

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

SUBSECTION CLEARING

3-5 CLEARING

Purchaser shall fall all vegetative material larger than 5 inches DBH or over 15 feet high between the marked right-of-way boundaries or if not marked in the field, between the clearing limits specified on the TYPICAL SECTION SHEET. Clearing must be completed before starting excavation and embankment.

3-7 RIGHT-OF-WAY DECKING

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

3-8 PROHIBITED DECKING AREAS

Right-of-way timber shall not be decked in the following areas:

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

SUBSECTION GRUBBING

3-10 GRUBBING

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

3-12 STUMP PLACEMENT

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

SUBSECTION ORGANIC DEBRIS

3-20 ORGANIC DEBRIS DEFINITION

Organic debris is defined as all vegetative material not eligible for removal by Contract Clauses G-010 Products Sold And Sale Area or G-011 Right To Remove Forest Products And Contract Area, that is larger than one cubic foot in volume within the grubbing Typical Section Sheet.

3-21 DISPOSAL COMPLETION

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

3-23 PROHIBITED DISPOSAL AREAS

Organic debris shall not be deposited in the following areas:

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

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

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

SUBSECTION PILE

3-31 PILING

Organic debris shall be piled no closer than 20 feet from standing timber and no higher than 20 feet in areas specified in Clause 3-22 Designated Waste Area For Organic Debris. Piles shall be free of rock and soil.

SECTION 4 – EXCAVATION

4-1 EXCAVATOR CONSTRUCTION

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

4-2 PIONEERING

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

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

The following road grade and alignment standards shall be followed:

- Grade and alignment shall have smooth continuity, without abrupt changes in direction.
- Maximum grade shall not exceed 18 percent favorable and 16 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Sag vertical curves shall not have a grade change greater than 5% in 100 feet.
- Crest vertical curves shall not have a grade change greater than 4% in 100 feet.

4-4 SWITCHBACK STANDARDS

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

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

4-5 CUT SLOPE RATIO

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

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

Unless construction staked or designed embankment slopes shall be constructed 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

Excavation and embankment slopes shall be constructed to a uniform line and left rough for easier revegetation.

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

Embankment widening shall be applied equally to both sides of the road to achieve the required width.

4-12 FULL BENCH CONSTRUCTION

Where side slopes exceed 45%, Purchaser shall use full bench construction for the entire subgrade width except as construction staked or designed.

SUBSECTION INTERSECTIONS, TURNOUTS AND TURNAROUNDS

4-21 TURNOUTS

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

4-22 TURNAROUNDS

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

SUBSECTION DITCH CONSTRUCTION

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-27 DITCH WORK – MATERIAL USE PROHIBITED

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

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

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

Road	Stations	Side
D-2031	7+00	L & R
D-2031	59+50	L & R
D-2005	5+75	L & R
D-2005.3	4+70	L
D-2000.7	3+00	L & R

SUBSECTION WASTE MATERIAL (DIRT)

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

Purchaser may sidecast waste material on side slopes up to 45% if the waste material is compacted and free of organic debris. On side slopes greater than 45%, all waste material must be end hauled or pushed to the designated embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

4-37 WASTE AREA LOCATION

Waste material shall be deposited in the listed designated areas. The amount of material to be contained in a waste area shall be at the discretion of the Contract Administrator**.** Note: All amount values are estimated bank yards.

Waste Area Location	Waste Generated From Road	Waste Generated at Stations	Estimated Volume
D-2031 Sta 8+00	D-2031	15+25	100 CY
D-2031 Sta 21+90	D-2031	23+50	100 CY

4-38 PROHIBITED WASTE DISPOSAL AREAS

Waste material shall not be deposited in the following areas:

- Within 5 feet of a cross drain culvert.
- Within 50 feet of a live stream or wetland.
- Within a riparian management zone.
- On side slopes steeper than 45%.
- In locations that interfere with the construction of the road prism.

- In locations that impede drainage.
- Within the operational area for cable landings.
- Against standing timber.

4-39 WASTE AREA COMPACTION

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

SUBSECTION BORROW

4-45 SELECT BORROW

Select borrow shall consist of granular material, either naturally occurring or processed, and shall contain no more than 5% clay, organic debris, or trash by volume.

4-46 COMMON BORROW

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

4-47 NATIVE MATERIAL

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

4-48 BORROW MATERIAL

Borrow material shall contain no more than 5% clay, organic debris, or trash by volume.

SUBSECTION SHAPING

4-55 ROAD SHAPING

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

4-56 DRY WEATHER SHAPING

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

SUBSECTION COMPACTION

4-60 FILL COMPACTION

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

4-61 SUBGRADE COMPACTION

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

4-62 DRY WEATHER COMPACTION

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

4-63 EXISTING SURFACE COMPACTION

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

4-64 WASTE MATERIAL COMPACTION

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

4-65 CULVERT BACKFILL COMPACTION

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

4-66 COMPACTION BY METHOD

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

SECTION 5 – DRAINAGE

5-3 PUNCHEON PLACEMENT

On the following road(s), puncheon may be utilized in the subgrade on the following road. Puncheon shall consist of logs of at least 4 inches in diameter and shall be at least 17 feet long.

Road	Stations
9+25 Spur	1+50 – 2+50
D-2005	37+25 – 40+75
D-2005.3	2+75 – 3+25
D-2000.75	0+00 – 3+20
Spur A	0+00 – 1+00

5-4 PUNCHEON RESTRICTED

At no time shall puncheon be used in the subgrade, unless approved by the Contract Administrator or as listed in Clause 5-3.

SUBSECTION CULVERTS

5-5 CULVERTS

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

5-11 UNUSED MATERIALS STATE PROPERTY

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

5-12 CONTINGENCY CULVERTS

The following culverts will be supplied by the Purchaser and will be available for installation on any road listed in the TYPICAL SECTION SHEET as directed by the Contract Administrator. Unused pipes will be brought to DNR culvert yard in Forks.

Road	Size
As Directed by C/A	(2) 18” x 30’

SUBSECTION CULVERT INSTALLATION

5-15 CULVERT INSTALLATION

Installation shall be in accordance with the Typical Cross Drain Culvert Installation Detail, Typical Type Ns Np Culvert Installation Detail**,** the National Corrugated Metal Pipe Association’s "Installation Manual for Corrugated Steel Drainage Structures"**,** and the Corrugated Polyethylene Pipe Association’s “Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings”. Corrugated Polyethylene pipe shall be installed in a manner consistent with the manufacturer’s recommendations.

5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

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

5-17 CROSS DRAIN SKEW AND SLOPE

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

5-18 CULVERT DEPTH OF COVER

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

SUBSECTION ENERGY DISSIPATERS

5-20 ENERGY DISSIPATERS

Energy dissipaters shall be installed to prevent erosion and are subject to approval by the Contract Administrator. Rock shall weigh at least 10 pounds and be placed by zero-drop-height method. Energy dissipater shall extend a minimum of ¾ foot to each side of the culvert at the outlet and a minimum of 2 feet beyond the outlet.

SUBSECTION CATCH BASINS, HEADWALLS, AND ARMORING

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

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

SECTION 6 – ROCK AND SURFACING

SUBSECTION ROCK SOURCE

6-2 ROCK SOURCE ON STATE LAND

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

Source	Location	Rock Type
Thunder Pit	T29N R14W Sec. 2	8” Jaw Run, Oversize
Loop Pit	T29N R13W Sec. 3	6” Jaw Run, 1 ¼” Minus Crushed, Pit Run
Gunderson Pit	T29N R14W Sec. 26	Pit Run

6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE

Rock used in accordance with the quantities on the Rock List may be obtained from the following existing stockpile(s) on state land at no charge to the Purchaser. Purchaser shall remove no more than 550 cubic yards of 1 1/4” minus crushed rock, unless authorized by the Contract Administrator.

Source	Location	Quantity (yd^3)
8” Jaw Run	Thunder Pit	750 yd^3
6” Jaw Run	Loop Pit	6970 yd^3

1 1/4 ” Minus Crushed	Loop Pit	550 yd^3

6-5 ROCK FROM COMMERCIAL SOURCE

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

SUBSECTION ROCK SOURCE DEVELOPMENT

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

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

6-12 ROCK SOURCE SPECIFICATIONS

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

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

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

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

6-15 REQUIRED ROCK SOURCE WORK

The following rock source work is required. Work is to be done according to the approved Rock Source Development And Reclamation Plan and as directed by the Contract Administrator.

Site	Requirements
Loop Tavern	Reduce marked oversize boulders to a size that can be crushed. Crush 10,000 CY jaw run

SUBSECTION ROCK MANUFACTURE

6-20 ROCK GRADATION TYPES

Purchaser shall manufacture rock in accordance with the types and amounts listed in the Manufacturing List. Rock shall meet the following specifications for gradation and uniform quality during manufacture and placement into a stockpile. Purchaser shall supply a sieve analysis upon request from the Contract Administrator.

Rock Type	Amount
6” Jaw Run	10,000 CY

6-22 FRACTURE REQUIREMENT FOR ROCK

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

6-23 ROCK CRUSHING OPERATIONS

Rock crushing operations shall conform to the following specifications:

- Operations and placement of oversize material shall be conducted in or near the rock source site, as approved in writing by the Contract Administrator.
- The crushing operation shall be concluded within 30 working days from the time it begins.
- All testing and operations shall be performed in accordance with 6-24 Rock Crushing Compliance Procedure.
- The Purchaser may use commercial testing lab to produce sieve analysis.

6-24 ROCK CRUSHING COMPLIANCE PROCEEDURE

Phase I. Equipment Adjustment

Step 1:

At start up of crushing operations, the Purchaser will notify the Contract Administrator when the rock meets the gradation specifications in the contract. None of the rock crushed during this calibration period will be counted toward the amount required to be crushed, and this rock must be kept separate from accepted rock crushed later.

Step 2:

The Purchaser will test the rock. Two samples will be taken. If the rock meets specifications, crushing may begin. If the rock does not meet specifications, return to Step 1.

Phase II. Production

Step 3:
The Purchaser will continue periodic testing to ensure that rock stays in spec. Testing will take place according to the following schedule:
• After the first 500 yards
• After every 2,000 yards thereafter.

a) Any time a sample is out of spec, but is within 5%*, the Purchaser will be notified and a second sample will be taken later in the day. If the second sample meets specifications, the rock crushed during that day will be accepted. If the second sample also fails to meet spec, none of the rock crushed since the last acceptable test will be counted toward the amount to be crushed.
b) Any time a sample is out of spec and is more than 5% off in any category, none of the rock crushed since the last acceptable test will be accepted and that rock must be kept separate from the stockpile. Return to Step 1.
c) Purchaser is strongly encouraged to take their own samples regularly and keep their operations in spec to avoid unnecessary expenses.
• The 5% will be applied only to sieve specs for 2" to ¼"; rock that is out of spec in larger sizes must be kept separate from the acceptable rock.

SUBSECTION ROCK GRADATIONS

6-25 FINES

% Passing U.S. #40 sieve	100%
% Passing U.S. #200 sieve	0%

The portion of aggregate retained on the No. 200 sieve may not contain more than 0.2 percent organic debris and trash. All percentages are by weight.

6-29 1 ½-INCH MINUS CRUSHED ROCK

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

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

6-39 6-INCH JAW RUN ROCK

% Passing 6" in one dimension	100%
% Passing 3" square sieve	45 - 65%

Rock shall not contain more than 5% organic debris and trash. All percentages are by weight.

6-50 LIGHT LOOSE RIP RAP

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

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

6-52 OVERSIZE

% Passing 8” square sieve 100%
% Passing 4” square sieve 0%

Rock shall not contain more than 5 percent vegetative debris or trash. All percentages are by weight.

SUBSECTION ROCK MEASUREMENT

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of specified rock depths are defined as the compacted depth(s) using the compaction methods required in this Road Plan. Estimated quantities specified in the Rock List are estimated truck yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction.

SUBSECTION ROCK APPLICATION

6-70 APPROVAL BEFORE ROCK APPLICATION

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

6-71 ROCK APPLICATION

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

6-72 ROCK APPLICATION AFTER HAULING

On the following road(s), upon completion of all hauling operations, Purchaser shall apply 1 1/4” minus crushed rock in accordance with the quantities shown on the Rock List.

Road	Stations	Amount
D-2000	As directed by C/A	200 yd^3

6-73 ROCK FOR WIDENED PORTIONS

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

6-78 ROCK FOR SPOT PATCHING

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

SECTION 7 – STRUCTURES

SUBSECTION STREAM CROSSING STRUCTURES GENERAL

7-5 STRUCTURE DEBRIS

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

7-6 STREAM CROSSING INSTALLATION

Installation of stream crossing structures shall be in accordance with the manufacturer's requirements, and as directed by the District Engineer or their designee.

7-7 BANK PROTECTION FOR STREAM CROSSING STRUCTURES

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

SUBSECTION ACCEPTANCE

7-20 REQUIRED NOTIFICATION AND APPROVAL

Purchaser shall provide the District engineer or their designee 3 day notification prior to beginning road work on the D-2031. Purchaser shall receive approval for completed road work on the D-2031 roads from the District engineer or their designee prior to log haul on those roads.

SUBSECTION BRIDGE INSTALLATION

7-45 PURCHASER SUPPLIED BRIDGE

On the following road(s), the Purchaser shall supply and construct each bridge, listed below, in accordance with this Road Plan. Refer to design sheets for details.

Road	Station	Length (ft)	W.B.S.R.[1] (ft)	Loading/ Deflection Ratio	Type	Vert.Clear[2] (ft)	Hor. Align[3]
D-2031	15+12	25’	14’	U-80	Log Stringer	7’	P.P

D-2031	23+53	25’	14’	U-80	Log Stringer	5’	P.P

[1]W.B.S.R. = Width between shear rails.
[2]Vertical clearance shall be measured from 100 year flood level.
[3]Horizontal alignment: P.P. = on the attached plan/profile, C.S. = according to construction stakes on the ground.

7-50 LOG BRIDGE CONSTRUCTION

Purchaser shall construct a log stringer bridge in accordance with this plan. Refer to LOG BRIDGE design sheet for details. Spruce timber for the manufacture of stringers and cribbing is available from within the sale area. Bridges will be left in place after Purchaser completes road use.

Bridge delineators shall be installed and shall consist of four reflective striped delineators mounted on each bridge. Mounting may consist of post and bolt or other Owner approved means of attachment. One delineator shall be installed at each end of each bridge guard rail or curb, and shall be installed with the reflector stripes angled downward and guiding traffic towards the center of the bridge.

7-51 EMBANKMENT RETENTION

Embankment retention methods shall be provided to ensure that bridge approach embankments are stable, contained, and do not encroach on the stream channel.

SECTION 8 – EROSION CONTROL

8-1 SEDIMENT CONTROL STRUCTURES

On the following road(s), Purchaser shall install sediment control structures as listed below.

Road	Stations	Comments
D-2000	444+50 (MP 8.4)	100’ Silt Fence on right
7+70 Spur	2+25	Settling pond Left

8-2 PROTECTION FOR EXPOSED SOIL

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

SUBSECTION REVEGETATION

8-15 REVEGETATION

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

8-16 REVEGETATION SUPPLY

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

8-17 REVEGETATION TIMING

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

8-18 PROTECTION FOR SEED

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

8-19 ASSURANCE FOR SEEDED AREA

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

SUBSECTION SEED, FERTILIZER, AND MULCH

8-25 GRASS SEED

Purchaser shall evenly spread the seed mixture listed below on all exposed soils at a rate of 60 pounds per acre of exposed soil.

Seed Species	% by Weight
• Perennial Ryegrass	40.00
• Creeping Red Fescue	40.00
• White Dutch Clover	10.00
• Colonial Bentgrass	10.00

Grass seed shall 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

SECTION 9 – POST-HAUL ROAD WORK

SUBSECTION STRUCTURES

9-3 REMOVAL OF CULVERT MATERIAL FROM STATE LAND

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

SUBSECTION POST-HAUL MAINTENANCE

9-5 POST-HAUL MAINTENANCE

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

Road	Stations	Additional Requirements
All	All	Clean culverts, clean ditches, grade road shape and compact as directed by the Contract Administrator
D-2000	396+00 – 470+00	Grade, shape, add post haul rock as per Clause 6-72.
D-2000	All	Apply post haul rock as per Clause 6-72 and contract administrator.

SUBSECTION POST-HAUL LANDING MAINTENANCE

9-10 LANDING DRAINAGE

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

9-11 LANDING EMBANKMENT

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

SUBSECTION DECOMMISSIONING AND ABANDONMENT

9-20 ROAD DECOMMISSIONING

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

Road	Stations	Type
D-2000.08	0+00 – 5+00	Light Decommissioning
1+25 Spur	0+00 – 1+25	Light Decommissioning
D-2000.7	0+00 – 8+40	Light Decommissioning
D-2007.75	0+00 – 3+20	Light Decommissioning
1+50 Spur	0+00 – 1+50	Light Decommissioning
Total:	19.35 Sta	

9-22 LIGHT DECOMMISSIONING

Decommissioning shall consist of:

1. Remove all culverts. Resulting back slopes shall be 1:1 or shallower for cross drains and 1.5:1, or as specified in approved drawings, for all live stream culvert removals. Material removed shall be placed on the roadbed and compacted, with slopes of 2:1 or shallower, or end-hauled to designated waste areas. Culverts removed shall become the property of the Purchaser and removed from State land.

2. Construct non-drivable water bars as directed by the Contract Administrator. On grades in excess of 3%, non-drivable water bars shall be skewed 30 degrees from the perpendicular of the road centerline.

3. Restore all ditchouts to drain water.

4. Repair or construct ditchlines.

5. Remove any berms, except as directed.

6. Restoration of natural stream channels across road prism, as directed by the Contract Administrator.

7. Removing all fill material as approved by the Contract Administrator.

8. All material from fill removals, culvert removals, and bridge removals shall be placed on roadbed and compacted, except that material listed in Clause 4-37.

9. Purchaser shall furnish and apply grass seed to all areas of exposed soil, including but not limited to: water bars, waste piles, and culvert removal sites. Grass seed shall be applied at a rate of 60 pounds per acre.

10. Block road to vehicular traffic using logs, slash, and stumps, as directed by the Contract Administrator.

SECTION 10 MATERIALS

SUBSECTION GEOTEXTILES

10-2 GEOTEXTILE FOR SEPARATION

Geotextiles shall meet the following minimum requirements for strength and property qualities, and shall be designed by the manufacturer to be used for separation. Material shall be free of defects, cuts, and tears.

	ASTM Test	Requirements
Type	--	Non-woven
Apparent opening size	D 4751	No. 30 max
Water permittivity	D 4491	0.02 sec^{-1}
Grab tensile strength	D 4632	160 lb
Grab tensile elongation	D 4632	>= 50%
Puncture strength	D 6241	310 lb
Tear strength	D 4533	50 lb
Ultraviolet stability	D 4355	50% retained after 500 hours of exposure

10-6 GEOTEXTILE FOR TEMPORARY SILT FENCE

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

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

SUBSECTION CULVERTS

10-15 CORRUGATED STEEL CULVERT

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

10-16 CORRUGATED ALUMINUM CULVERT

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

10-17 CORRUGATED PLASTIC CULVERT

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

10-18 CORRUGATED STEEL STRUCTURAL PLATE

Structural plate culverts shall be galvanized steel meeting AASHTO M-167 (ASTM A-761) specifications.

10-19 CORRUGATED ALUMINUM STRUCTURAL PLATE

Structural plate culverts shall be aluminum alloy meeting AASHTO M-219 (ASTM A-746) specifications.

10-20 FLUME AND DOWNSPOUT

Downspouts and flumes shall meet the AASHTO specification designated for the culvert. Plastic downspouts and flumes shall be Type S – double walled with a corrugated exterior and smooth interior.

10-21 METAL BAND

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

10-22 PLASTIC BAND

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

10-23 RUBBER CULVERT GASKETS

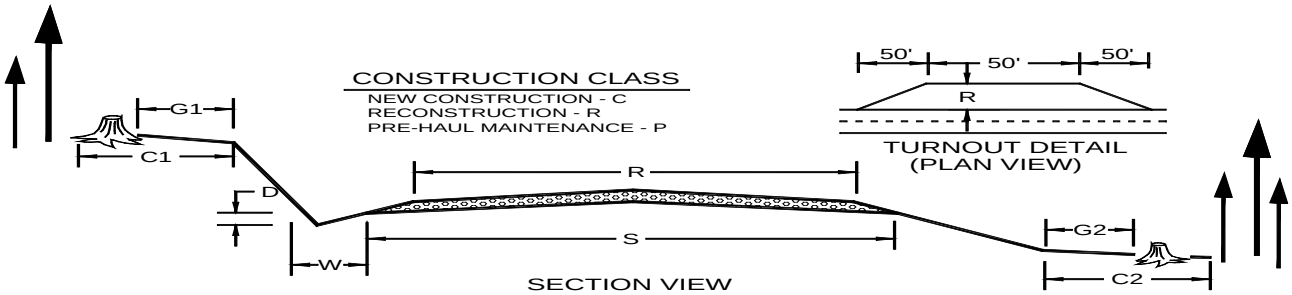
Rubber gaskets must be continuous closed cell, synthetic expanded rubber gaskets conforming to the requirements of ASTM D 1056. Rubber gaskets must be used with all corrugated metal pipe coupling bands.

10-24 GAGE AND CORRUGATION

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

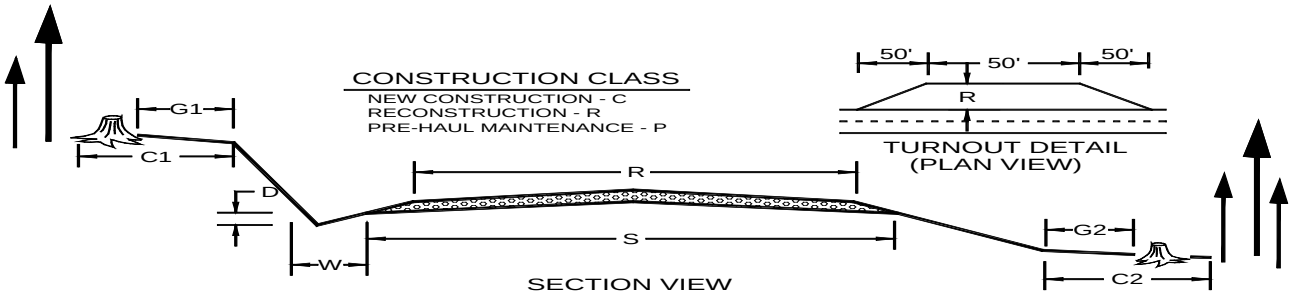
Diameter	Gage	Corrugation
18"	16 (0.064”)	2 $^{2}/_{3}$" X $^{1}/_{2}$"
24" to 42"	14 (0.079”)	2 $^{2}/_{3}$" X $^{1}/_{2}$"
48” to 54”	12	3” X 1”
60” +	10	5” X 1”

TYPICAL SECTION SHEET



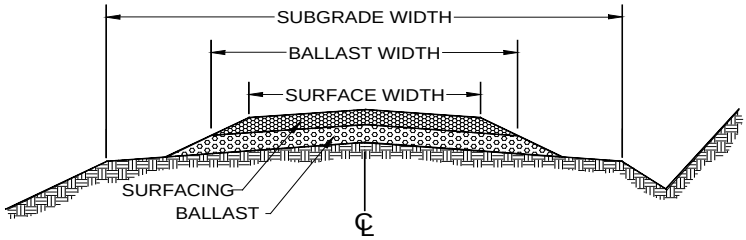
ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS		SUBGRADE WIDTH (S)	ROAD WIDTH (R)	CROWN AT CL (in)	DITCH WIDTH (W)	DITCH DEPTH (D)	GRUBBING CUT BANK (G1)	GRUBBING FILL TOE (G2)	ROAD CUT CLEARING (C1)	ROAD FILL CLEARING (C2)
D-2000	0+00	470+00	P			16’	3”	3’	1’				
D-2000.08	0+00	5+00	P			12’	3”	3’	1’				
D-2000.7	0+00	8+40	P			12’	3”	3’	1’				
D-2000.75	0+00	3+20	P			12’	3”	3’	1’				
D-2005	0+00	40+75	P			12’	3”	3’	1’				
D-2005.2	0+00	1+50	P			12’	3”	3’	1’				
D-2005.3	0+00	8+25	P			12’	3”	3’	1’				
D-2007	0+00	19+50	P			12’	3”	3’	1’				
D-2010	0+00	6+50	P			12’	3”	3’	1’				
D-2031	0+00	27+70	R		17’	12’	3”	3’	1’	3’	5’	10’	5’
D-2031	27+70	38+17	C		17’	12’	3”	3’	1’	3’	5’	10’	5’
D-2031	38+17	76+70	R		17’	12’	3”	3’	1’	3’	5’	10’	5’
D-2200	0+00	7+20	P			12’	3”	3’	1’				
D-2202	0+00	17+50	P			12’	3”	3’	1’				
D-5100	0+00	31+20	P			12’	3”	3’	1’				
Spur A	0+00	1+00	R		17’	12’	3”	3’	1’	3’	5’	10’	5’
Spur B	0+00	1+00	R		17’	12’	3”	3’	1’	3’	5’	10’	5’
1+25 Spur	0+00	1+25	P			12’	3”	3’	1’				
1+50 Spur	0+00	1+50	C		17’	12’	3”	3’	1’	3’	5’	10’	5’
1+51 Spur	0+00	1+51	C		17’	12’	3”	3’	1’	3’	5’	10’	5’
1+75 Spur	0+00	1+75	C		17’	12’	3”	3’	1’	3’	5’	10’	5’
3+10 Spur	0+00	3+10	C		17’	12’	3”	3’	1’	3’	5’	10’	5’
3+25 Spur	0+00	3+25	R		17’	12’	3”	3’	1’	3’	5’	10’	5’
59 Road	0+00	22+60	P			12’	3”	3’	1’				

TYPICAL SECTION SHEET CONTINUED



ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS		SUBGRADE WIDTH (S)	ROAD WIDTH (R)	CROWN AT CL (in)	DITCH WIDTH (W)	DITCH DEPTH (D)	GRUBBING CUT BANK (G1)	GRUBBING FILL TOE (G2)	ROAD CUT CLEARING (C1)	ROAD FILL CLEARING (C2)
59.1 Road	0+00	3+00	P			12’	3”	3’	1’				
7+50 Spur	0+00	7+50	C		17’	12’	3”	3’	1’	3’	5’	10’	5’
7+70 Spur	0+00	7+70	P			12’	3”	3’	1’				
9+25 Spur	0+00	9+25	C		17’	12’	3”	3’	1’	3’	5’	10’	5’

ROCK LIST SHEET



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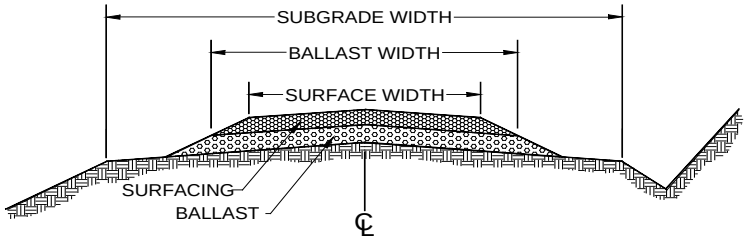
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources= 1: Loop Pit Jaw Run, 2: Loop Pit 1 ¼" minus, 3: Loop Pit Light Loose Rip Rap, 4: Thunder Pit Jaw Run, 5: Gunderson Pit Pitrun, 6: Loop Pit Pitrun

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd^3/sta)	Pitrun SUBTOTAL(yd^3)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd^3/sta)	Crushed Subtotal(yd^3)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd^3)
59 Road	0+00	22+60							1	12	6	35	790		
culvert	12+00								1				20		
D-2031															
Lift	0+00	27+70							1	12	6	35	970		
Bridge	15+12								1				100	3	100
Culvert	15+75								1				20		
Culvert	20+00								1				20		
Bridge	23+53								1				100	3	100
Lift	27+70	38+17	17	6	12	18	110	1160							
Culvert	30+00								1				20		
Lift	38+17	76+70							1	12	12	70	2700		
Culvert	52+50								1				20		
Culvert	63+90								1				20		
Turnout	70+75								1				40		
3+25 Spur															
Lift	0+00	3+25	17	6	12	8	45	150							
Spur A	0+00	1+00	17	6	12	18	110	110							
Spur B	0+00	1+00	17	6	12	18	110	110							
Totals:								1530					4820		200

ROCK LIST SHEET CONTINUED



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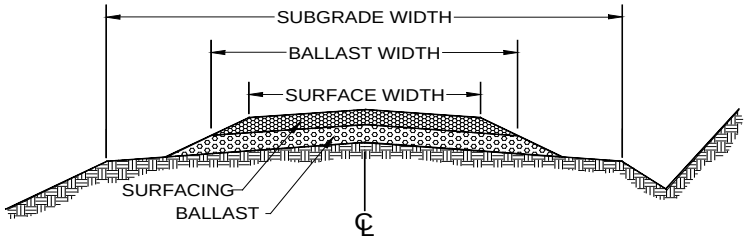
ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd^3/sta)	Pitrun SUBTOTAL(yd^3)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd^3/sta)	Crushed Subtotal(yd^3)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd^3)
9+25 Spur															
Lift	0+00	9+25	17	6	12	18	110	1020							
Culvert	2+00								1				20		
D-2005															
Misc + culvert									1				120		
Lift	37+25	40+75		6	12	12	70	250							
D-2005.3															
Lift	0+00	8+25		6	12	12	70	580							
D-2202															
Lift	0+00	17+50							1	12	6	35	610		
D-5100															
Misc									2				20		
D-2200															
culvert									2				20		
1+75 Spur															
Lift	0+00	1+75	17	5	12	24	155	270							
1+51 Spur															
Lift	0+00	1+51	17	5	12	24	155	230							
D-2007	0+00	16+00							1	12	8	45	720		
Lift	16+00	19+50							1	12	12	70	250		
Totals:								2350					1760		

ROCK LIST SHEET CONTINUED



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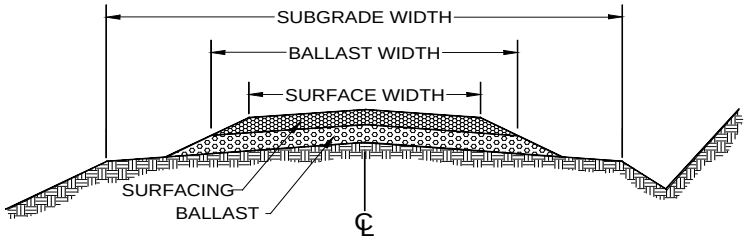
ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd^3/sta)	Pitrun SUBTOTAL(yd^3)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd^3/sta)	Crushed Subtotal(yd^3)	Oversize/ Rip Rap Source	Oversize/Rip Rap Quantity(yd^3)
1+50 Spur															
Lift	0+00	1+50	17	6	12	18	110	170							
Culvert	0+15			6				20							
D-2000.7															
Lift	0+00	8+40							1	12	1	70	590		
Culvert	0+10								1				20		
D-2000.75															
Lift	0+00	3+20		6	12	18	110	350							
1+25 Spur															
Lift	0+00	1+25	17	6	12	18	110	140							
Culvert	0+10			6				20							
D-2000.08															
Lift	0+00	5+00							1	12	6	35	180		
Culvert	0+10								1				20		
Culvert	1+60								1				20		
7+70 Spur															
Lift	0+00	7+70							1	12	8	45	350		
Culvert	0+80								1				40		
Totals:								700					1220		

ROCK LIST SHEET CONTINUED



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ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd^3/sta)	Pitrun SUBTOTAL(yd^3)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity (yd^3/sta)	Crushed Subtotal(yd^3)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd^3)
7+50 Spur															
Ballast	0+00	7+50	17	4	14	12	70	530							
Lift	0+00	7+50							1	1	6	35	260		
Culvert	4+00								1				20		
3+10 Spur															
Ballast	0+00	3+10	17	4	14	12	70	220							
Lift	0+00	3+10							1	12	6	35	110		
D-2010															
Lift	0+00	2+00							2	1	6	35	70		
	2+00	6+50							1	1	12	70	320		
D-2000															
Misc									2				200		
Culvert	470+00								2				40		
Post Haul									2				200		
Totals:							Thunder Pit: 750						1220		
Grand Totals:							Loop Pit Pitrun: 4300; Railroad Pit: 500						Loop Jaw & Crushed: 8800		200

CULVERT LIST

ROAD NAME	STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)		RIP RAP - INLET (cy)	RIP RAP – OUTLET (cy)	BACKFILL MATERIAL	NOTES
1+25 Spur	0+10	18	40					PR	Intersection
1+50 Spur	0+15	18	40					PR	Intersection
7+50 Spur	4+00	18	30					PR	New Cross drain
7+70 Spur	0+80	18	30					PR	Intersection
9+25 Spur	2+00	18	26					PR	New Cross drain
D-2000	470+00	18	30					CR	New Cross drain (Murrelet restrictions apply)
D-2000.08	0+10	18	50					PR	Intersection
D-2000.08	1+60	18	26					PR	New Cross drain
D-2000.7	0+10	18	50					PR	Intersection
D-2031	15+75	18	30					PR	New Cross drain
D-2031	20+00	18	26					PR	New Cross drain
D-2031	30+00	18	26					PR	New Cross drain
D-2031	52+50	18	30					PR	New Cross drain
D-2031	63+90	18	26					PR	New Cross drain
59 Road	12+50	18	30					PR	Replacement
D-2200	4+20	18	30					PR	Replacement
59 Road	2+20								Clean Inlet/outlet
59 Road	3+15								Clean Inlet/outlet
59 Road	4+90								Clean Inlet/outlet
59 Road	7+25								Clean Inlet/outlet
D-2005	37+50	18	30						New Cross drain
Contingency	(2)	18	30						To be installed per C/A

All rip rap shall be Oversize unless specified in the Rock List, or in the field.
All backfill shall be native material (NT) unless specified otherwise. CR= 1 ¼"- crushed rock, PR = pit run.

FISH STREAM WORK PROVISIONS

TIMING LIMITATIONS: Bridge projects on the D-2031 road may begin July 1 and shall be completed by September 30.

1. Work shall conform to plans and specifications in the road plan.

2. Prior to the commencement of in-stream work, the Purchaser shall isolate the work area in a manner that fish cannot enter the work area, capture and safely move fish and other fish life from the work area. The Purchaser shall have fish capture and transportation equipment ready and on the job site. Captured fish shall be immediately and safely transferred to free-flowing water downstream of the work area.

TEMPORARY STREAM FLOW BYPASS

3. All in-stream work shall be conducted in the dry or in isolation from the stream flow by the installation of a bypass flume/pipe or by pumping the flow around the work area, back into the stream below the work area. Waste water pumped from within the work area shall terminate on the forest floor, sufficient distance from the stream to filter sediment prior to entering the stream.

4. The temporary bypass to divert flow around the work area shall be in place prior to initiation of other work in the wetted perimeter.

5. A sandbag revetment or similar device shall be installed at the bypass inlet to divert the entire flow through the bypass.

6. The bypass shall be of sufficient size to pass all flows and debris for the duration of the project.

7. If a pump is used for diverting water from the stream where fish are present, as per RCW 77.57.010 and 77.57.070, the pump intake shall be equipped with a fish guard to prevent passage of fish into the diversion pump. The pump intake shall be screened with 1/8 inch mesh to prevent fish from entering the pump. Velocity through the screened intake shall be less than 0.4 feet per second. Screens shall be maintained to prevent injury or entrapment of juvenile fish.

WATER QUALITY

8. Extreme care shall be taken to ensure that no petroleum products, hydraulic fluid, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into the stream.

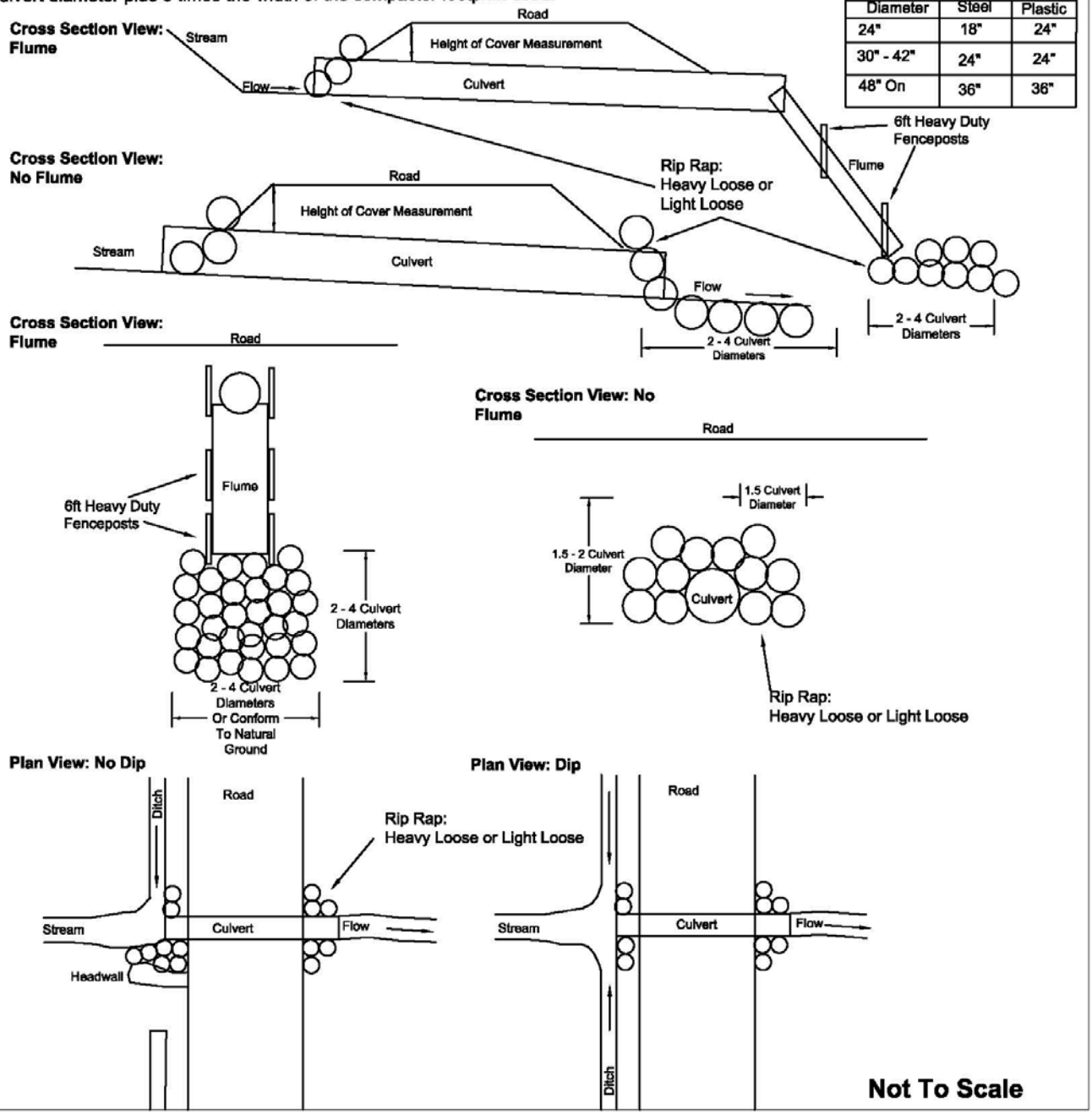
COMPACTION LIST

Road	Stations	Type	Max Depth Per Lift (inches)	Equipment Type	Minimum Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
All	All	Culvert Backfill	8	Jumping Jack		3	
Construction	All	Subgrade	6	Vibratory Smooth Drum Roller	6000	2	3
Pre-Haul Maintenance	All	Pre-haul Surface					
Construction, Pre-Haul Maintenance, Post-Haul Maintenance	All	Rock					
Post-Haul Maintenance	All	Post-haul Surfaces					

Typical Type Ns, Np Culvert Installation Detail Sheet.

-Water shall be diverted away from the work site before any "in stream" work begins, and shall continue until culvert installation is complete.
-Culvert lay shall match stream gradient up to 5%.
-Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.
-Rip rap shall be placed using a "zero height drop method", and shall be set in conjunction with the culvert installation.
-Rip rap shall be placed at headwalls, along the fill at the inlet, and at the end off flumes in accordance with this Detail. On culverts with no flume rip rap shall be placed along the fill at the outlet, unless there is stream drop or it is called for in the Road Plan, at which point it will be installed as an energy dissipater at the end of the culvert as specified in this Detail. All rip rap distance to be determined by the Contract Administrator or the District Engineer.
-Backfill compaction shall be achieved using a jumping jack, walk behind vibratory roller, or plate compactor on lifts not to exceed 8in. 3 complete passes per lift is required for compaction. Backfill shall be placed and compacted evenly on both sides of the culvert. Care shall be taken to ensure adequate compaction of backfill material under the haunches of the pipe. Excavation trench width shall be at least culvert diameter plus 3 times the width of the compactor footprint used.

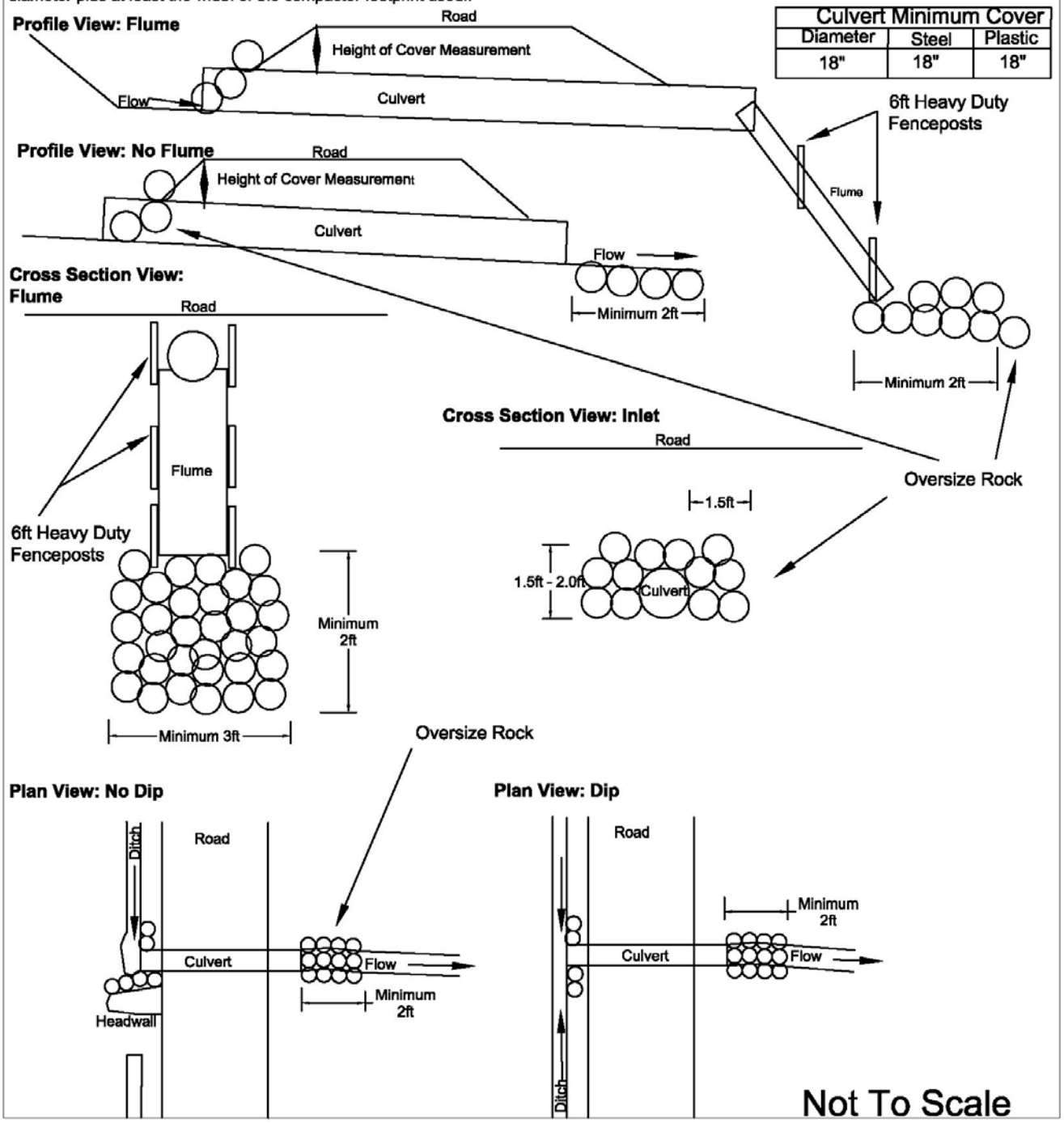
Culvert Minimum Cover		
Diameter	Steel	Plastic
24"	18"	24"
30" - 42"	24"	24"
48" On	36"	36"



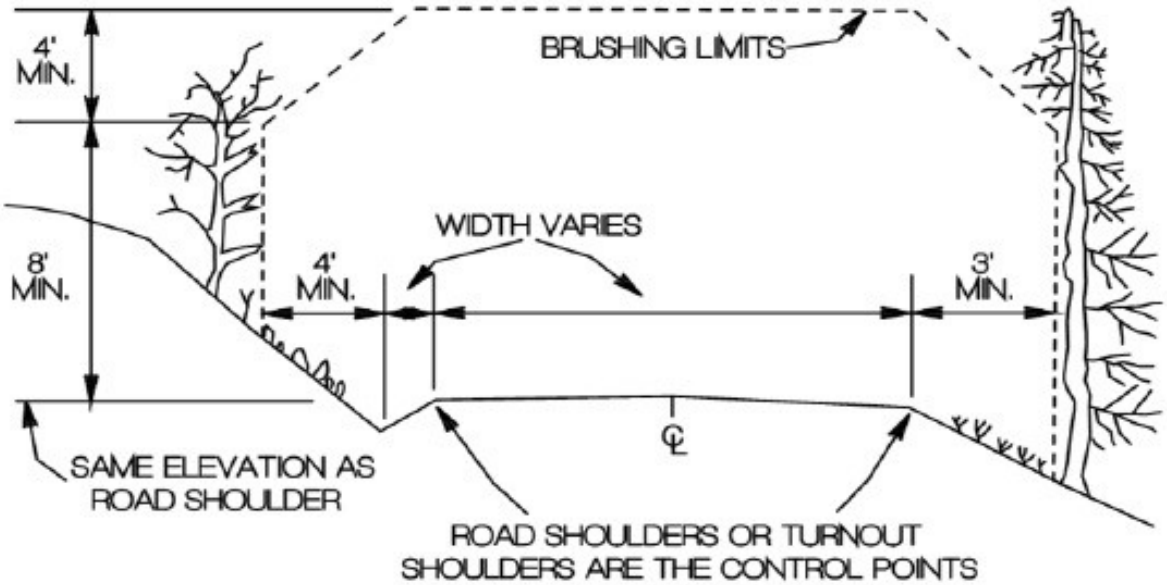
Typical Cross Drain Culvert Installation Detail Sheet

-Culvert lay shall not exceed 10%.
-Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.
-Oversize shall be placed using a "zero height drop method", and shall be set in conjunction with the culvert installation.
-Oversize shall be placed at headwalls, along the fill at the inlet, and at the end off flumes in accordance with this Detail. On culverts with no flume oversize shall be placed at the outlet as an energy dissipater as specified in this Detail. All oversize distance to be determined by the Contract Administrator.
-Backfill compaction for installations on existing roads shall be achieved using a jumping jack, or plate compactor on lifts not to exceed 8in. 3 complete passes per lift is required for compaction. Backfill shall be placed and compacted evenly on both sides of the culvert. Care shall be taken to ensure adequate compaction of backfill material under the haunches of the pipe. Excavation trench width shall be at least culvert diameter plus at least the width of the compactor footprint used..

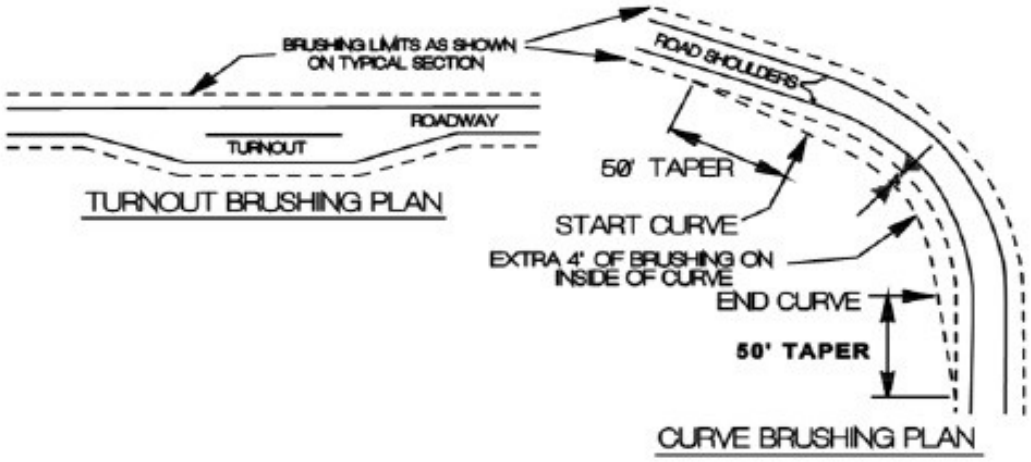
Culvert Minimum Cover		
Diameter	Steel	Plastic
18"	18"	18"



BRUSHING DETAIL



TYPICAL BRUSHING LIMITS SECTION

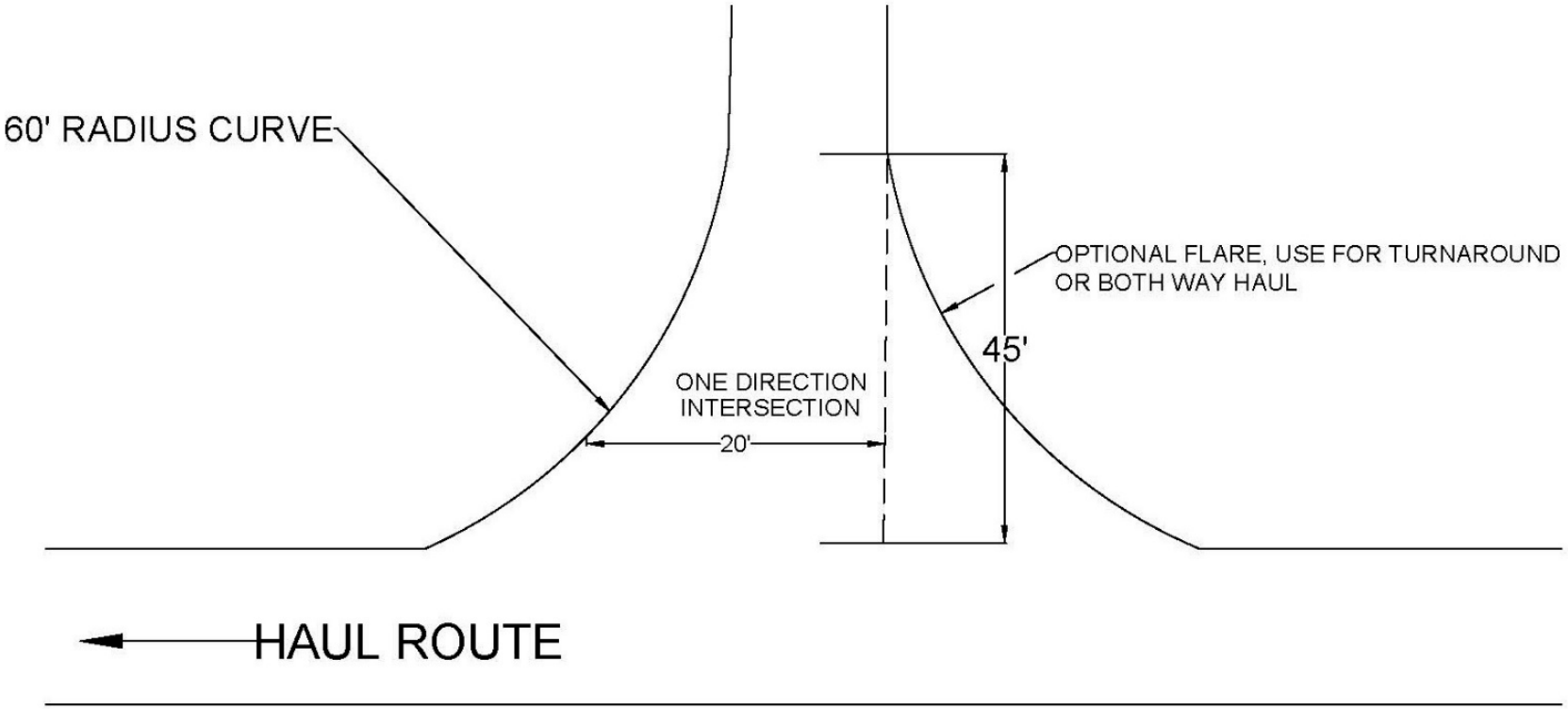


TURNOUT BRUSHING PLAN

CURVE BRUSHING PLAN

1.) ALL VEGETATION WITHIN THE BRUSHING LIMITS SHALL BE CUT TO WITHIN 8" OF THE GROUND, UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.
2.) ALL BRUSH, TREES, LIMBS, ETC. SHALL BE REMOVED FROM THE ROAD SURFACE.
3.) ALL BRUSH, TREES, LIMBS, ETC. THAT MAY RESTRICT THE FLOW OF WATER SHALL BE REMOVED FROM THE DITCH LINE.
4.) ALL DEBRIS THAT MAY ROLL OR MIGRATE INTO THE DITCHLINE SHALL BE REMOVED.

TYPICAL INTERSECTION



NOT TO SCALE

SUMMARY - Road Development Costs

SALE NAME: Spruced Up | CONTRACT#: 30-098878 | REGION: Olympic | DISTRICT: Coast

LEGAL DESCRIPTION: 0

ROAD NAME:			D-2031	9+25 Spur	7+50 Spur	3+10 Spur	1+75 Spur	1+50 Spur	1+51 Spur	1+25 Spur	D-2031	3+25 Spur	Spur A	TOTAL:	TOTAL SHEET #2-4
ROAD TYPE:			Construction	Construction	Construction	Construction	Construction	Construction	Construction	Construction	Recon.	Recon.	Recon.		
			0	0	0	0	0	0	0	0	0	0	0		
NUMBER OF STATIONS:			10	9	8	3	2	2	2	1	66	3	1	106.38	1,123.05
SIDESLOPE:			5%	5%	20%	5%	20%	10%	40%	10%	10%	10%	5%		5%
CLEARING AND GRUBBING:			$1,456	$1,286	$1,043	$431	$125	$209	$172	$174	$5,626	$278	$71	$10,871	$71
ROAD BRUSHING:			$0	$0	$0	$0	$0	$0	$0	$0	$900	$0	$0	$900	$2,175
EXCAVATION AND FILL:			$1,479	$1,307	$1,695	$438	$396	$254	$2,725	$212	$11,153	$551	$141	$20,350	$141
ROAD GRADING:			$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,068
DITCH CLEANING/CONSTRUCTION:			$0	$0	$0	$0	$0	$0	$0	$0	$2,566	$0	$0	$2,566	$1,513
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:															
PitRun:	5549	5,550	1,160	1,020	530	220	270	190	230	160	0	150	110	4,039	1,510
			$12,328	$10,644	$4,065	$1,582	$1,811	$2,386	$1,829	$2,048	$0	$1,756	$1,176		$18,410
Jaw/Crushed:	8798	8,800	0	20	280	110	0	0	0	0	4,010	0	0	4,419	4,379
			$0	$209	$4,039	$1,618	$0	$0	$0	$0	$41,864	$0	$0		$52,452
Oversize:	200	200	0	0	0	0	0	0	0	0	200	0	0	200	$0
	14,547	14,550	$0	$0	$0	$0	$0	$0	$0	$0	$2,206	$0	$0	$2,206	0
CULVERTS AND FLUMES:			$572	$572	$660	$0	$0	$880	$0	$880	$2,640	$0	$0	$6,204	$7,392
STRUCTURES:			$0	$0	$0	$0	$0	$0	$0	$0	$32,000	$0	$0	$32,000	$0
MISC. EXPENSES:			$61	$54	$44	$18	$10	$9	$9	$7	$541	$19	$0	$772	$2,623
OVERHEAD:			$1,431	$1,266	$1,039	$368	$211	$336	$426	$299	$7,960	$208	$111	$13,655	$7,229
TOTAL COSTS:			$17,327	$15,338	$12,585	$4,455	$2,552	$4,074	$5,161	$3,620	$107,456	$2,813	$1,499	$176,880	$96,073
COST PER STATION:			$1,655	$1,658	$1,678	$1,437	$1,458	$2,716	$3,418	$2,896	$1,633	$865	$1,499	$1,663	$85.55

MOBILIZATION: $6,900

ROAD DECOMMISSIONING AND ABANDONMENT COSTS: $2,099

Pit Work $80,000

Road Standard	Const.	Reconst.	Prehaul	Posthaul			
Total Costs =	$65,112	$113,268	$90,080	$4,493		TOTAL (All Roads) =	$369,152
Total Sta. =	36	71	652	470		SALE VOLUME MBF =	7,672
Cost per Sta. =	$1,792	$1,594	$138	$10		TOTAL COST PER MBF =	$48.12
Compiled by:	Bill Mehl					TOTAL COST PER STATION=	$300.26
						Date:	3/12/2020

NOTE: This appraisal has no allowance for profit and risk.

Sheet 1 of 2

Plans to be furnished by: DNR

SUMMARY - Road Development Costs

SALE NAME: Spruced Up CONTRACT#: 30-098878 REGION: Olympic DISTRICT: Coast

LEGAL DESCRIPTION: 0

ROAD NAME:	Spur B	D-2000	59 Road	D-2005	D-2005.2	D-2005.3	D-2007	D-2200	D-2202	D-2000.7	D-2000.75	D-2000.08	D-5100	D-2010	7+70 Spur	59.1 Road	***D-2000***
ROAD TYPE:	Recon.	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	***Posthaul***
NUMBER OF STATIONS:	1	470	23	41	2	8	20	7	18	8	3	5	31	7	8	3	470
SIDESLOPE:	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CLEARING AND GRUBBING:	$71	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
ROAD BRUSHING:	$0	$0	$407	$734	$27	$100	$351	$0	$315	$151	$0	$90	$0	$0	$0	$0	$0
EXCAVATION AND FILL:	$141	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
ROAD GRADING:	$0	$1,300	$147	$265	$10	$312	$127	$0	$117	$55	$0	$33	$203	$0	$0	$0	$1,500
DITCH CLEANING/CONSTRUCTION	$0	$0	$0	$0	$0	$0	$0	$39	$117	$655	$0	$195	$0	$507	$0	$0	$0
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:																	
Ballast:	110	0	0	250	0	580	0	20	0	0	350	0	0	0	0	0	200
	$1,176	$0	$0	$3,023	$0	$7,047	$0	$248	$0	$0	$4,368	$0	$0	$0	$0	$0	$2,548
Surface:	0	240	810	120	0	0	970	0	610	610	0	220	20	390	390	0	0
	$0	$2,640	$7,606	$1,511	$0	$0	$11,553	$0	$7,314	$7,424	$0	$2,691	$243	$5,842	$5,628	$0	$0
Oversize:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CULVERTS AND FLUMES:	$0	$1,980	$660	$660	$0	$0	$0	$660	$0	$1,100	$0	$1,672	$0	$0	$660	$0	$0
STRUCTURES:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MISC. EXPENSES:	$0	$385	$96	$40	$0	$601	$0	$0	$0	$40	$225	$0	$0	$458	$567	$211	$0
OVERHEAD:	$111	$504	$713	$499	$3	$645	$962	$76	$629	$754	$367	$374	$36	$545	$548	$17	$445
TOTAL COSTS:	$1,499	$6,809	$9,629	$6,730	$40	$8,704	$12,993	$1,023	$8,492	$10,179	$4,961	$5,055	$482	$7,351	$7,404	$228	$4,493
COST PER STATION:	$1,499	$14	$426	$165	$26	$1,055	$666	$146	$485	$1,212	$1,550	$1,011	$15	$1,131	$962	$76	$10

	Total
Costs	$96,073
Stations	1123.05
Cost/station	$85.55

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Cuts and Fills

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

Surface

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

Drainage

- Prevent silt bearing road surface and ditch runoff from delivering sediment to any streams or wetlands.
- Maintain rolling dips and drivable waterbars as needed to keep them functioning as intended.
- Maintain culvert headwalls to a level slightly below the road shoulder with material that will resist erosion. This is to allow for culverts that are overtopped to keep the water in the ditchline.
- 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

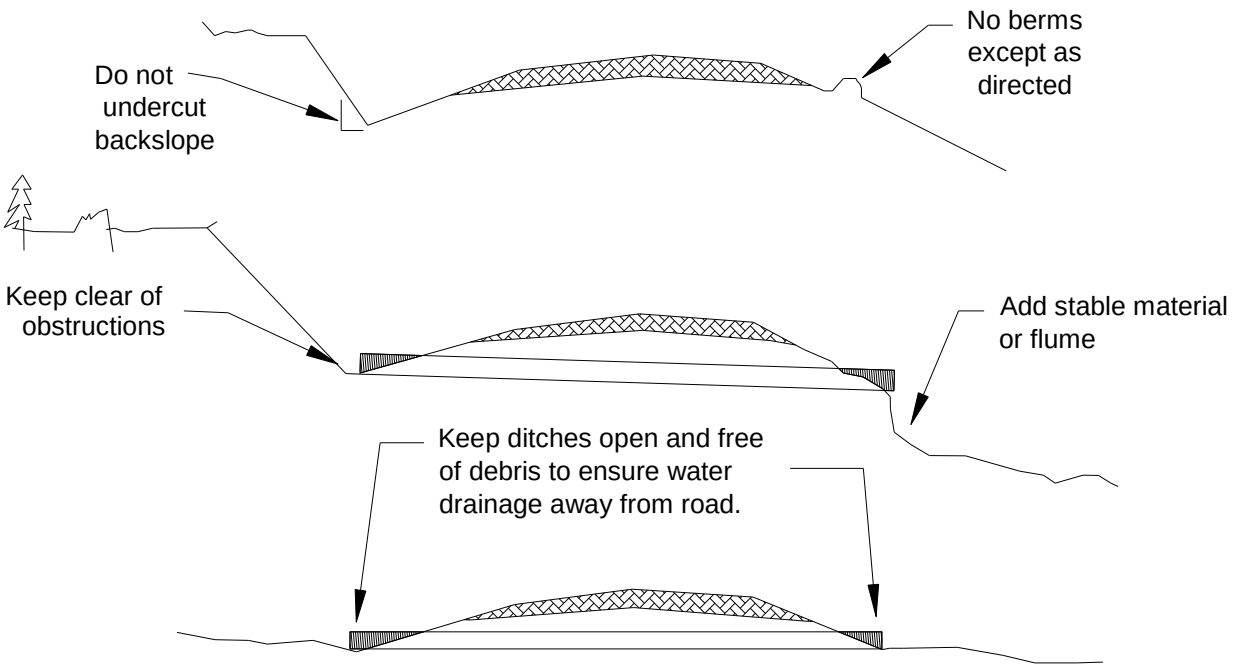
Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

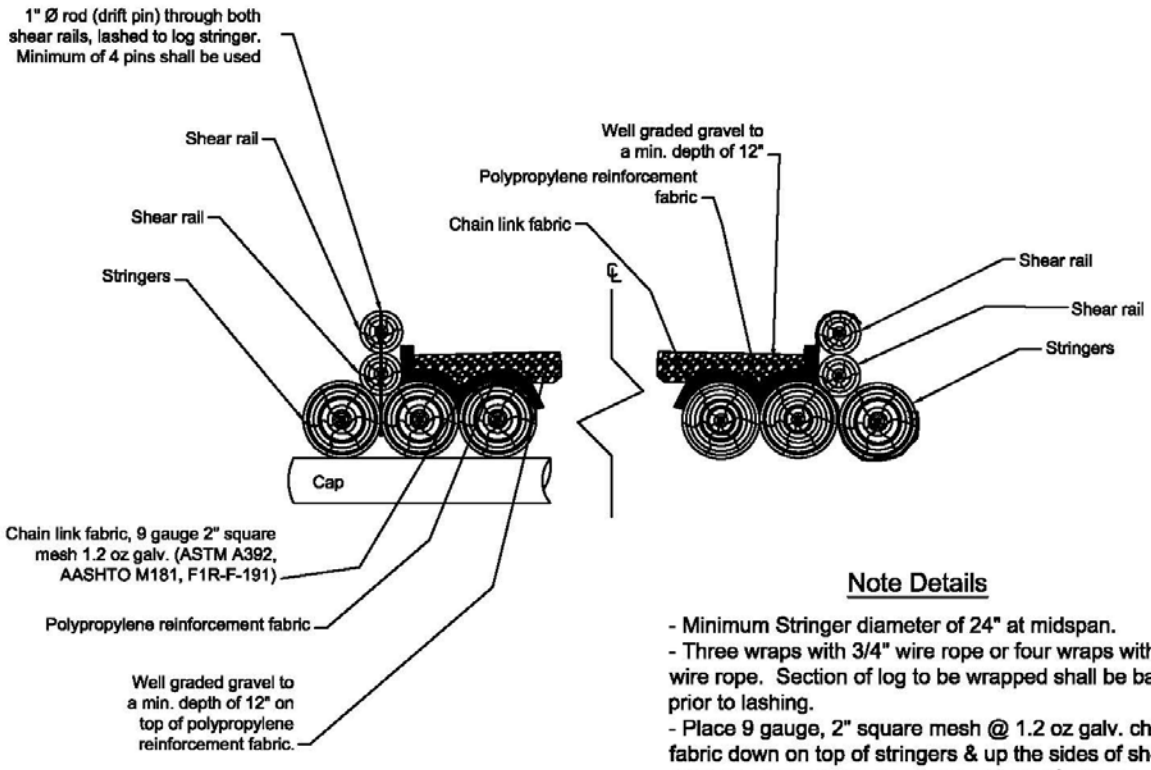
At the conclusion of logging operations, ensure all conditions of these specifications have been met.

Debris

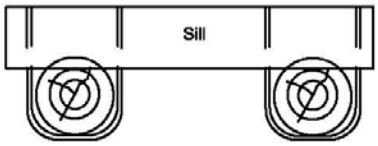
Remove fallen timber, limbs, and stumps from the slopes, roadway, ditchlines, and culvert inlets.



Bridge Surfacing & Shear Rail Details



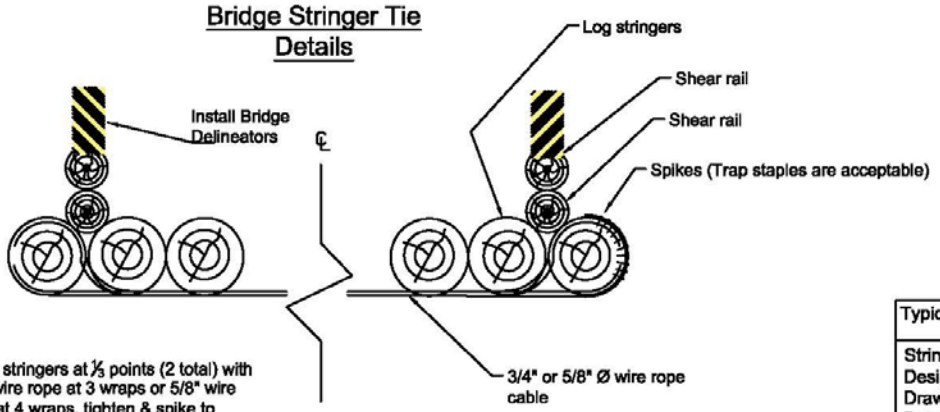
Lashing Detail



Note Details

- Minimum Stringer diameter of 24" at midspan.
- Three wraps with 3/4" wire rope or four wraps with 5/8" wire rope. Section of log to be wrapped shall be barked prior to lashing.
- Place 9 gauge, 2" square mesh @ 1.2 oz galv. chain link fabric down on top of stringers & up the sides of shear rails by min. 9" and over the ends to the top of the cap.
- After placement of chain link fabric, place polypropylene reinforcement fabric over the chain link fabric.
- Place well graded gravel over the polypropylene reinforcement fabric to a min. depth of 12". Finished surface elevation shall transition smoothly to road surface.
- Rail logs shall be selected and placed so that at least 15" are free and above the top of the gravel surfacing.

Bridge Stringer Tie Details



Wrap stringers at ⅓ points (2 total) with 3/4" wire rope at 3 wraps or 5/8" wire rope at 4 wraps, tighten & spike to stringers.

Typical Stringer Bridge
Stringer and Rail Details Designed By: Jed Nowak Drawn By: Jed Nowak Date: 10/30/2018

SPRUCED UP TIMBER SALE
SITE PLAN

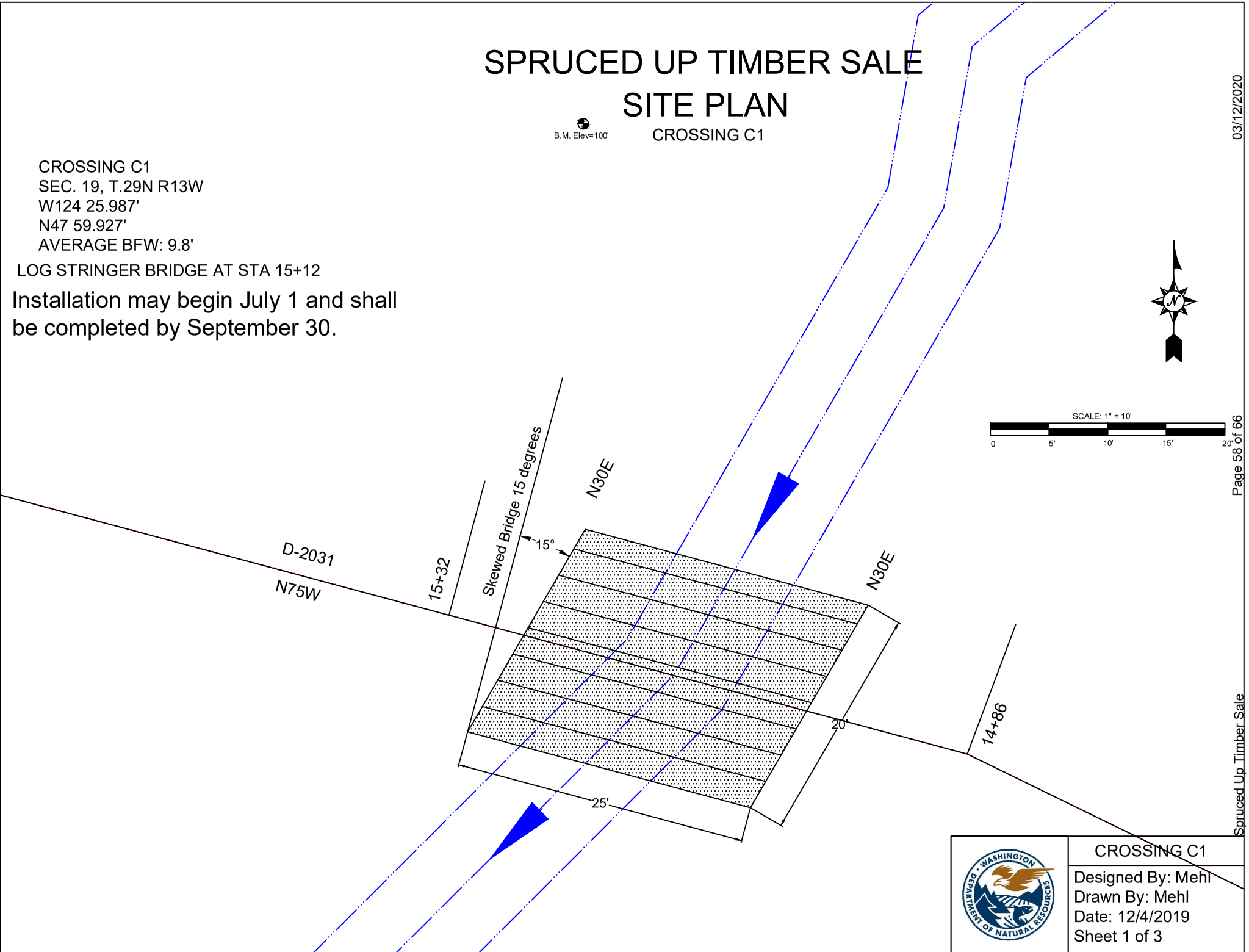
B.M. Elev=100'

CROSSING C1

CROSSING C1
SEC. 19, T.29N R13W
W124 25.987'
N47 59.927'
AVERAGE BFW: 9.8'

LOG STRINGER BRIDGE AT STA 15+12

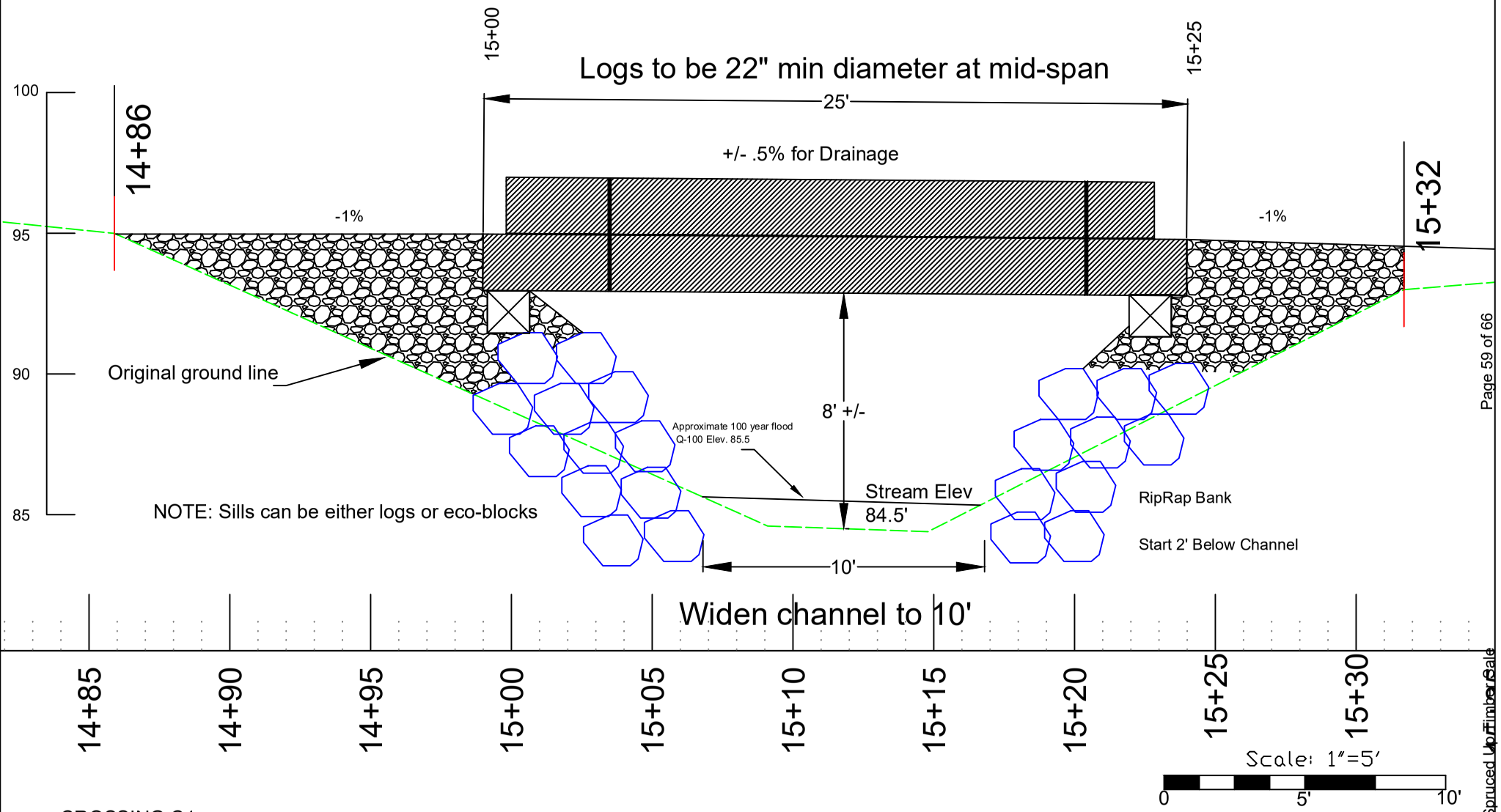
Installation may begin July 1 and shall be completed by September 30.



CROSSING C1
Designed By: Mehl Drawn By: Mehl Date: 12/4/2019 Sheet 1 of 3

SPRUCED UP TIMBER SALE
PROFILE VIEW

LOG STRINGER BRIDGE AT STA 15+12
CROSSING C1



Scale: 1"=5'
0 5' 10'

CROSSING C1
SEC. 19, T.29N R13W
W124 25.987'
N47 59.927'
AVERAGE BFW: 9.8'

Installation may begin July 1 and shall be completed by September 30.

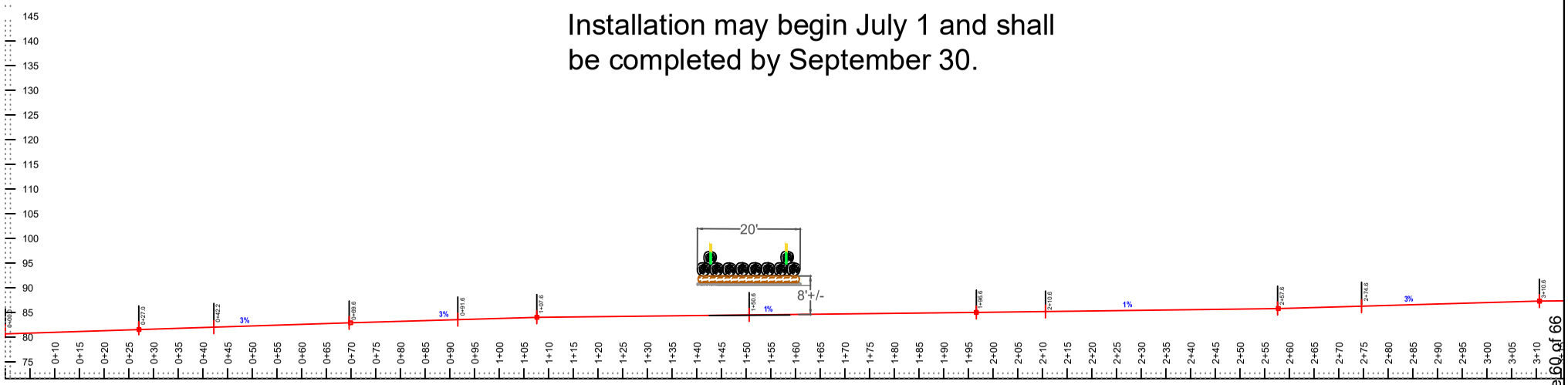
CROSSING C1
Designed By: Mehl Drawn By: Mehl Date: 12/4/2019 Sheet 2 of 3

SPRUCED UP TIMBER SALE
STREAM PROFILE VIEW

LOG STRINGER BRIDGE AT STA 15+12

CROSSING C1

Installation may begin July 1 and shall be completed by September 30.



Scale: 1"=30'

0 30' 60'

CROSSING C1
SEC. 19, T.29N R13W
W124 25.987'
N47 59.927'
AVERAGE BFW: 9.8'

CROSSING C1

Designed By: Bill Mehl
Drawn By: Bill Mehl
Date: 1-17-2020
Sheet 3 of 3

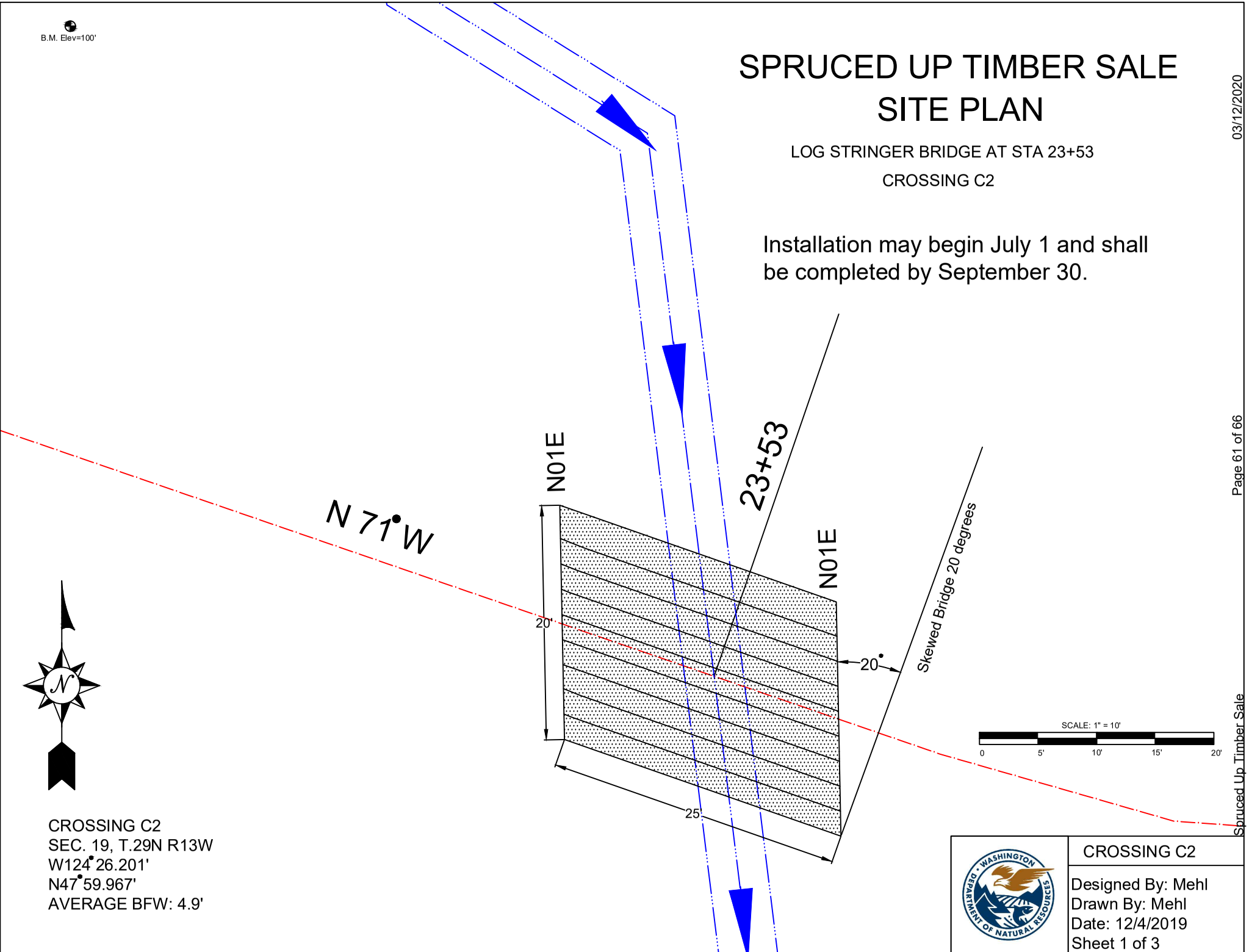
03/12/2020

SPRUCED UP TIMBER SALE
SITE PLAN

LOG STRINGER BRIDGE AT STA 23+53

CROSSING C2

Installation may begin July 1 and shall be completed by September 30.



CROSSING C2
SEC. 19, T.29N R13W
W124°26.201'
N47°59.967'
AVERAGE BFW: 4.9'

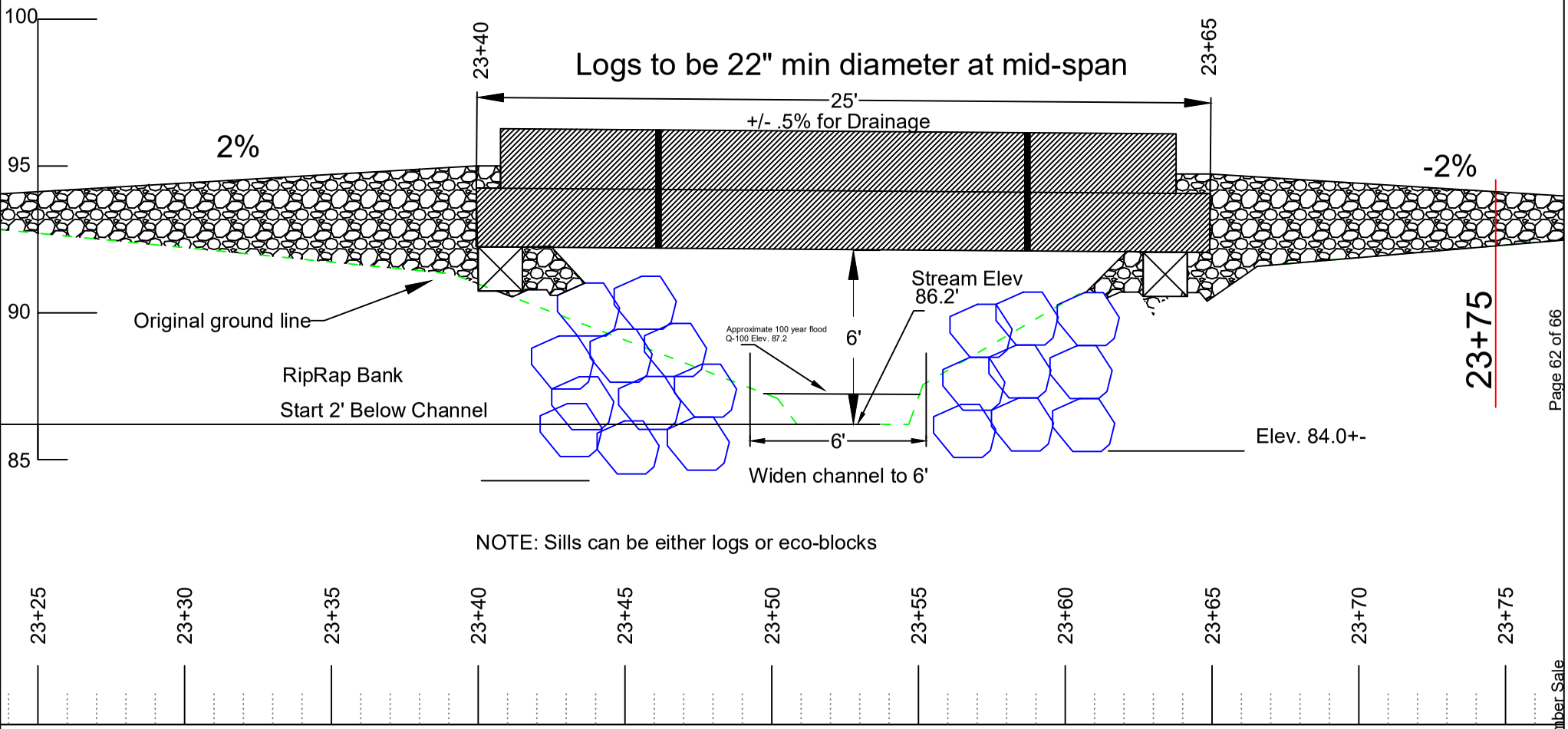
CROSSING C2

Designed By: Mehl
Drawn By: Mehl
Date: 12/4/2019
Sheet 1 of 3

SPRUCED UP TIMBER SALE
PROFILE VIEW

CROSSING C2

03/12/2020



Scale: 1"=5'

0 5' 10'

Page 62 of 66

Spruced Up Timber Sale
Contract No. 30-098878

CROSSING C2
SEC. 19, T.29N R13W
W124°26.201'
N47°59.967'
AVERAGE BFW: 4.9'

Installation may begin July 1 and shall be completed by September 30.

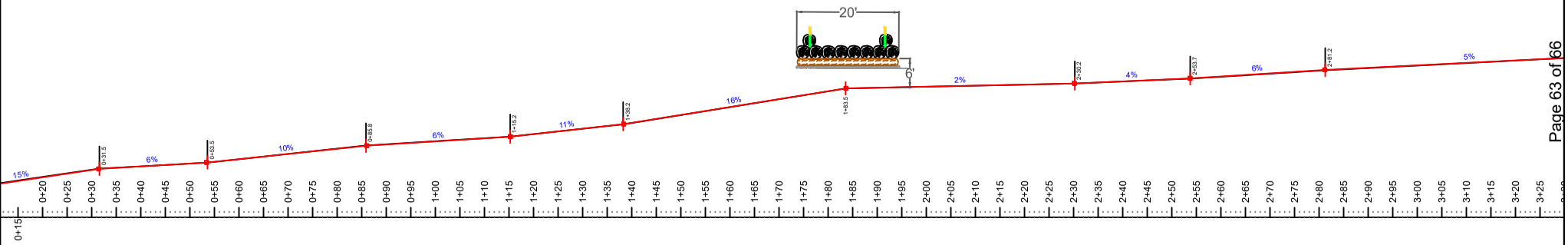
CROSSING C2
Designed By: Mehl Drawn By: Mehl Date: 12/4/2019 Sheet 2 of 3

SPRUCED UP TIMBER SALE
STREAM PROFILE VIEW

LOG STRINGER BRIDGE AT STA 23+50

CROSSING C2

Installation may begin July 1 and shall be completed by September 30.



Scale: 1"=30'

0 30' 60'

CROSSING C2
SEC. 19, T.29N R13W
W124°26.201'
N47°59.967'
AVERAGE BFW: 4.9'

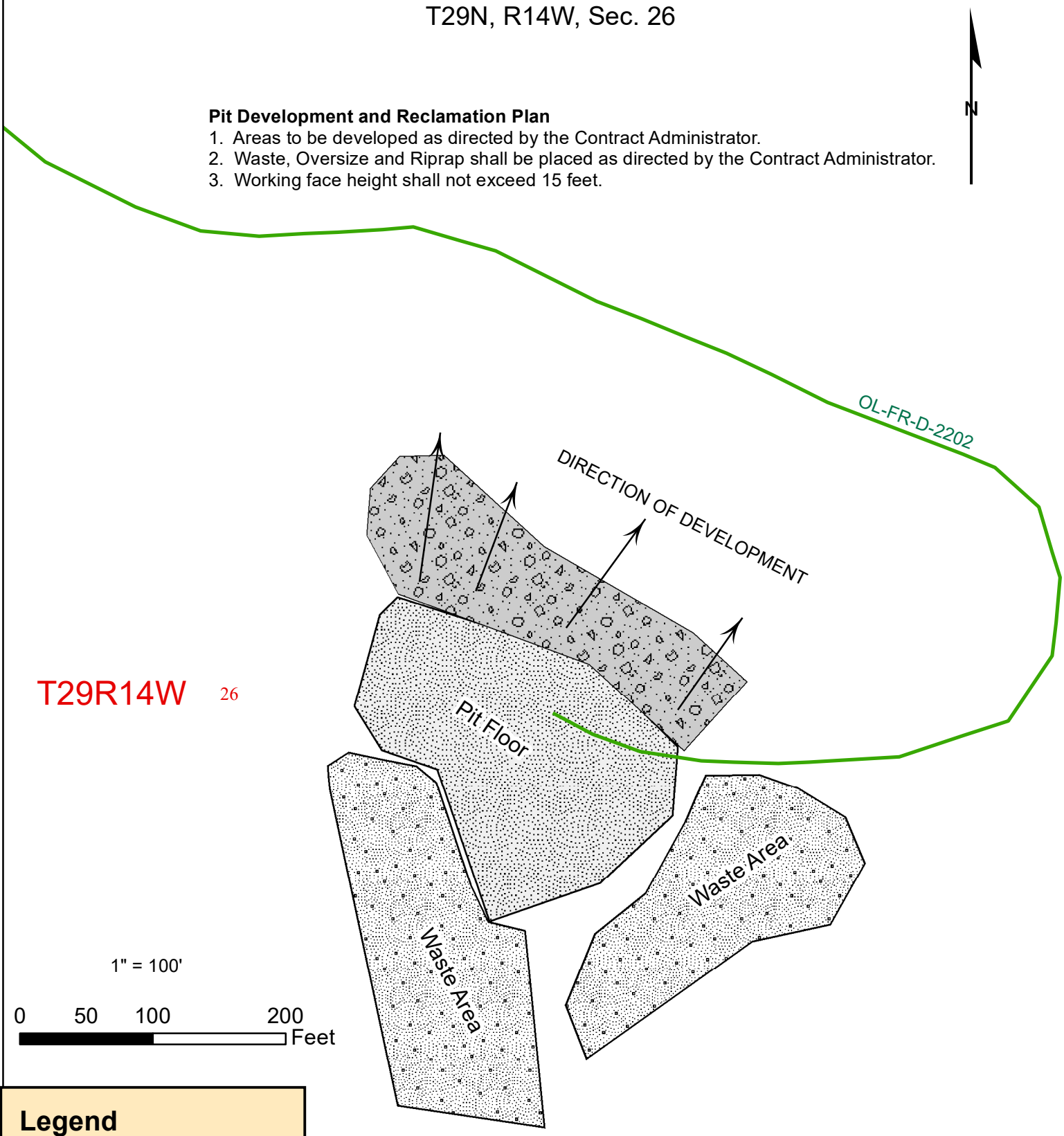
CROSSING C2

Designed By: Bill Mehl
Drawn By: Bill Mehl
Date: 1/22/2020
Sheet 3 of 3

Gunderson RR Pit
T29N, R14W, Sec. 26

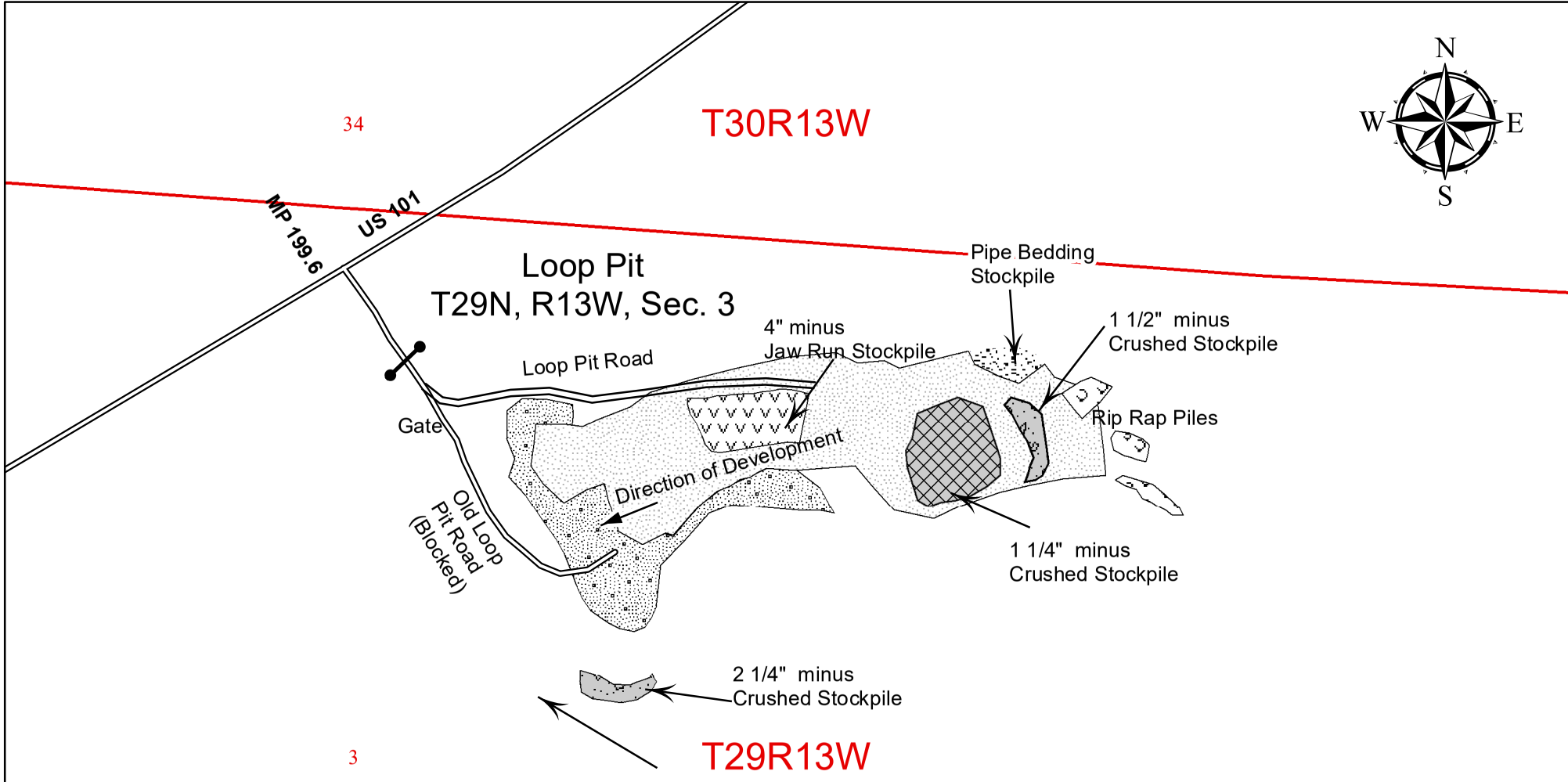
Pit Development and Reclamation Plan

1. Areas to be developed as directed by the Contract Administrator.
2. Waste, Oversize and Riprap shall be placed as directed by the Contract Administrator.
3. Working face height shall not exceed 15 feet.



Legend

- Routes
- pit_floor
- waste_area
- pit_development_area



Boulders to be shot and then crushed marked with blue paint.

0 100 200 400 Feet

1:2,400 (1" = 200')

Pit Develpment and Reclamation Plan

1. Areas to be developed as directed by the Contract Administrator.
2. Working face height shall not exceed 15 feet.
3. Boulders shall be maintained along the top of the pit face and along the haul road in the pit at all times as directed by the Contract Administrator.
4. Suitable drainage shall be maintained at all times.
5. Rock pit operations, or operation of heavy equipment is not permitted from two hours before official sunset to two hours after official sunrise, from April 1 through September 23.

Legend

- Existing Roads
- Existing Crushed Stockpiles
- 1 1/4" Minus Stockpile
- 4" minus Jaw Run Stockplie
- Rip Rap
- Pipe Bedding Material
- Pit Floor
- Stripped Area

Map Drawn by
Jed Nowak
Updated 07/01/2019

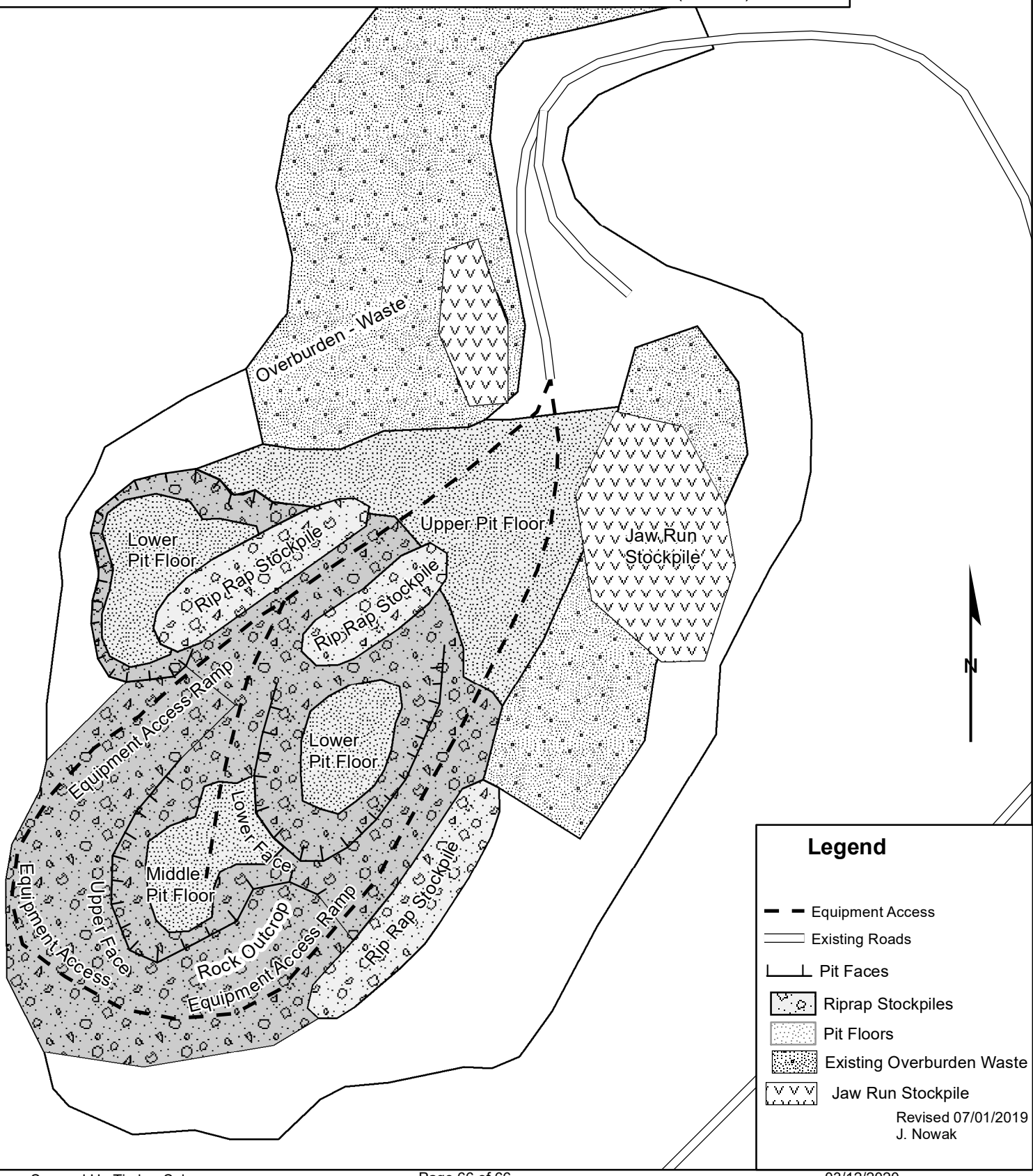
Thunder Pit
T29N, R14W, Sec. 2

Pit Development and Reclamation Plan

1. Areas to be developed as directed by the Contract Administrator.
2. Waste, Oversize and Riprap shall be placed as directed by the Contract Administrator.
3. Working face height shall not exceed 15 feet.

0 50 100 Feet

1:600 (1" = 50')

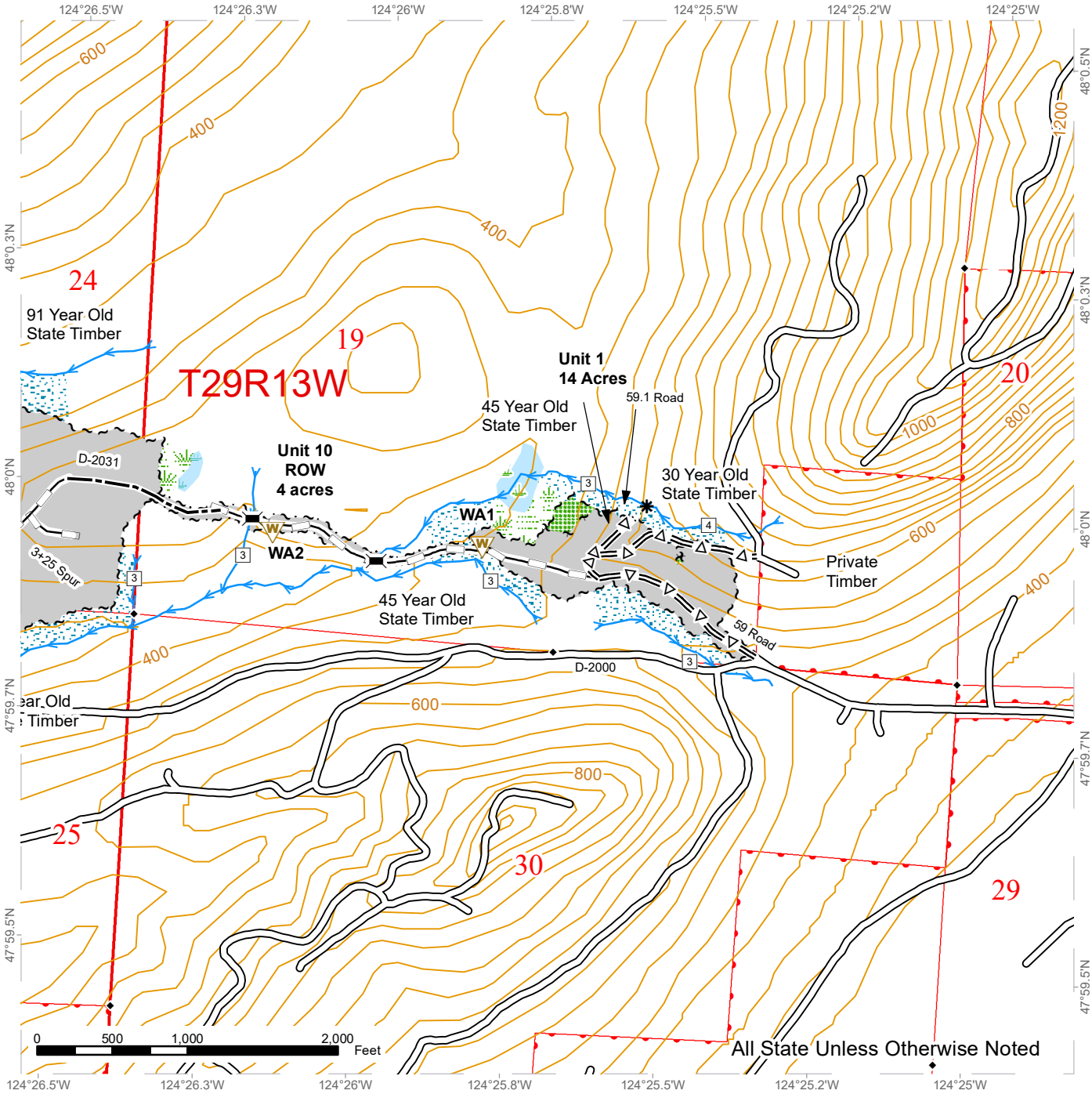


Revised 07/01/2019
J. Nowak

LOGGING PLAN MAP

SALE NAME: SPRUCED UP
AGREEMENT#: 30-098878
TOWNSHIP(S): T29R13W, T29R14W
TRUST(S): Capitol Grant (7), Common School and Indemnity (3), State Forest Transfer (1)

REGION: Olympic Region
COUNTY(S): Clallam
ELEVATION RGE: 200'-600'



Timber Sale Boundary Tags	Contours 40-foot	Leave Tree Area
Leave Tree Tags	Stream Type	Riparian Management Zone
Right of Way Tags	Stream Type Break	Wetlands - Non-forested
Existing Roads	Bridge	Forested Wetland
Optional Pre-Haul Maintenance	Waste Area	Wetland Management Zone
Optional Construction	Survey Monument	Township/Range Lines
Optional Reconstruction	Ground	Section Lines
Streams	Cable	Property Line

N

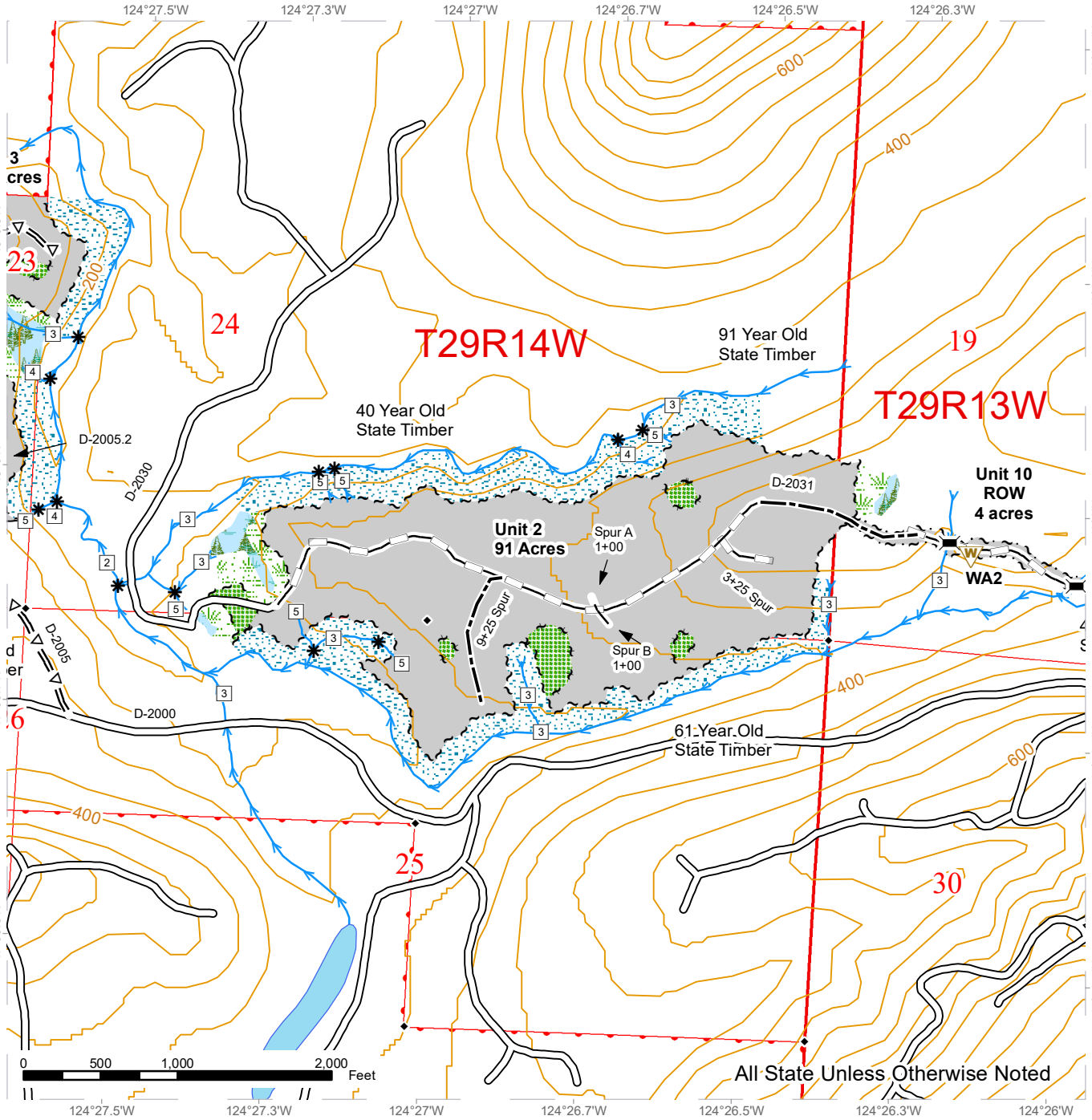
Prepared By: adan490

Modification Date: mpff490 1/22/2020

LOGGING PLAN MAP

SALE NAME: SPRUCED UP
AGREEMENT#: 30-098878
TOWNSHIP(S): T29R13W, T29R14W
TRUST(S): Capitol Grant (7), Common School and Indemnity (3), State Forest Transfer (1)

REGION: Olympic Region
COUNTY(S): Clallam
ELEVATION RGE: 200'-600'



Timber Sale Boundary Tags	Streams	Cable	Open Water
Timber Type Change	Contours 40-foot	Leave Tree Area	
Leave Tree Tags	Stream Type	Riparian Management Zone	
Right of Way Tags	Stream Type Break	Forested Wetland	
Existing Roads	Bridge	Wetland Management Zone	
Optional Pre-Haul Maintenance	Waste Area	Township/Range Lines	
Optional Construction	Survey Monument	Section Lines	
Optional Reconstruction	Ground	Property Line	

N

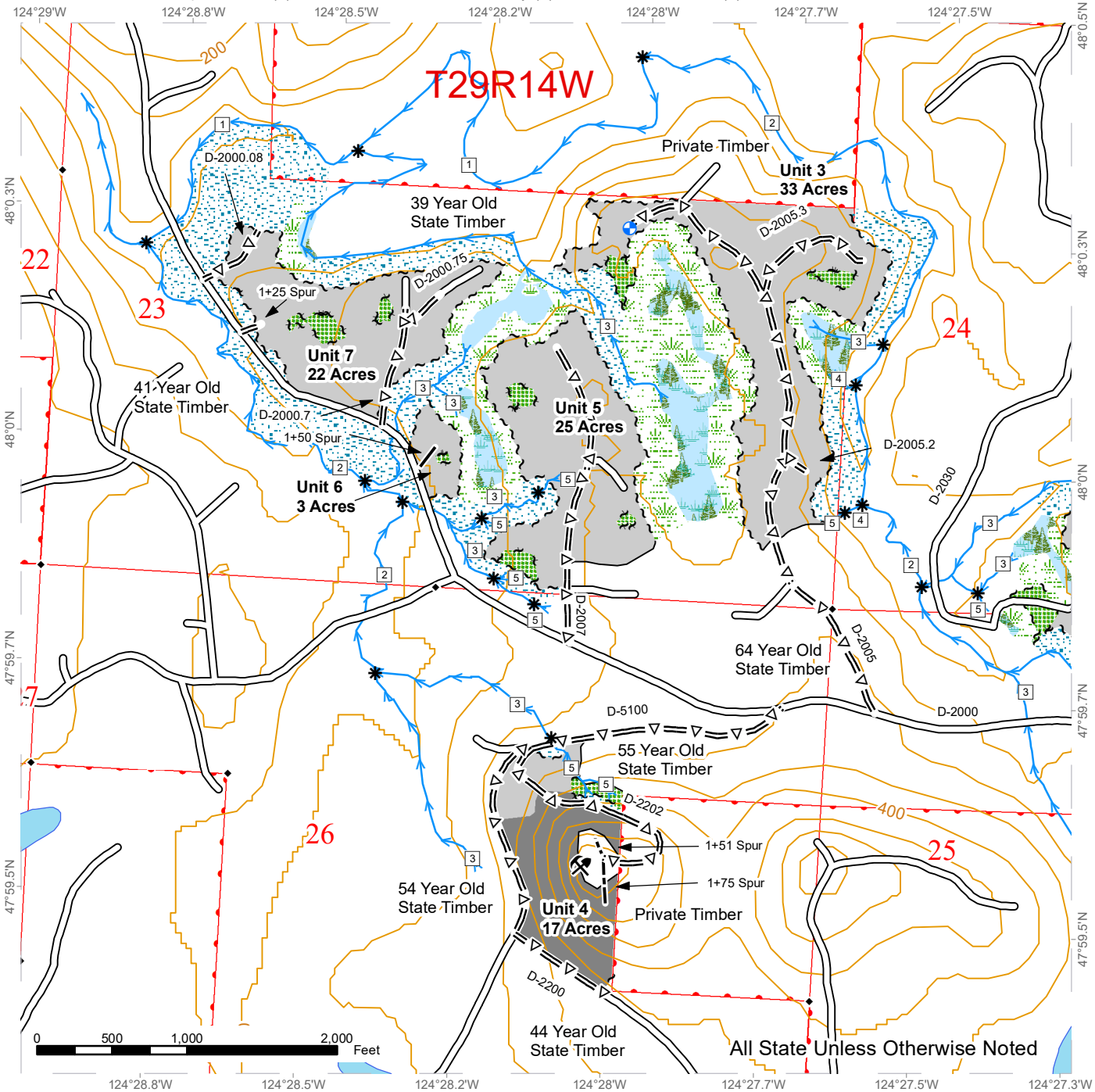
Prepared By: adan490

Modification Date: mpff490 1/22/2020

LOGGING PLAN MAP

SALE NAME: SPRUCED UP
AGREEMENT#: 30-098878
TOWNSHIP(S): T29R13W, T29R14W
TRUST(S): Capitol Grant (7), Common School and Indemnity (3), State Forest Transfer (1)

REGION: Olympic Region
COUNTY(S): Clallam
ELEVATION RGE: 200'-600'



Timber Sale Boundary Tags	Stream Type	Riparian Management Zone
Timber Type Change	Stream Type Break	Wetlands - Non-forested
Leave Tree Tags	Proposed Landing	Forested Wetland
Existing Roads	Rock Pit	Wetland Management Zone
Optional Pre-Haul Maintenance	Survey Monument	Township/Range Lines
Optional Construction	Ground	Section Lines
Streams	Cable	Property Line
Contours 40-foot	Leave Tree Area	Open Water

N

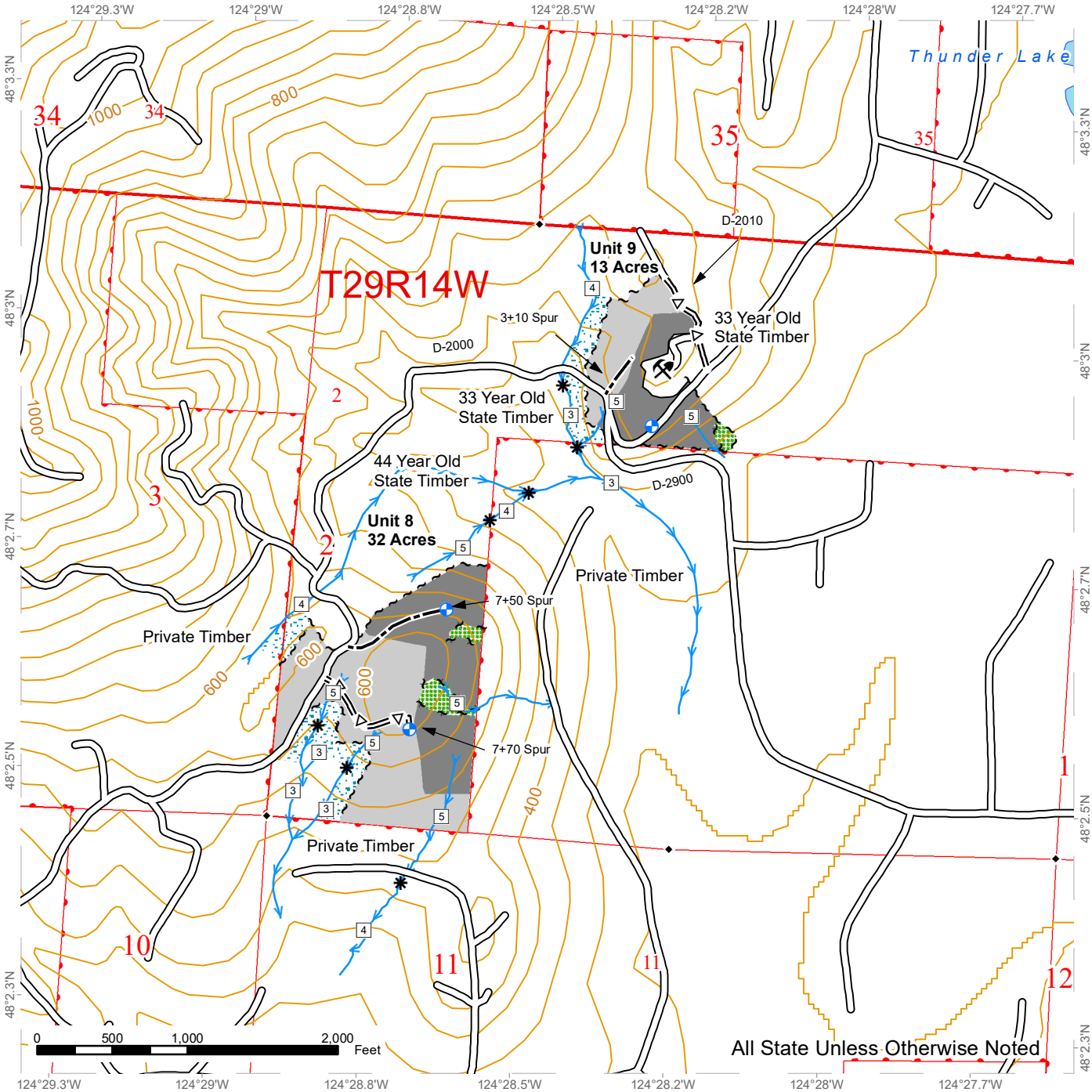
Prepared By: adan490

Modification Date: mpff490 1/22/2020

LOGGING PLAN MAP

SALE NAME: SPRUCED UP
AGREEMENT#: 30-098878
TOWNSHIP(S): T29R13W, T29R14W
TRUST(S): Capitol Grant (7), Common School and Indemnity (3), State Forest Transfer (1)

REGION: Olympic Region
COUNTY(S): Clallam
ELEVATION RGE: 200'-600'



~ ~ ~ Timber Sale Boundary Tags	Contours 40-foot	Cable
Timber Type Change	3 Stream Type	Leave Tree Area
~ ~ ~ Leave Tree Tags	Stream Type Break	Riparian Management Zone
Existing Roads	Proposed Landing	Township/Range Lines
=△= Optional Pre-Haul Maintenance	Rock Pit	Section Lines
Optional Construction	Survey Monument	Property Line
Streams	Ground	Open Water

N

Prepared By: adan490

Modification Date: mpff490 1/22/2020