

TIMBER NOTICE OF SALE

SALE NAME: *LYTLES LEG VRH & VDT*

AGREEMENT NO: 30-092744

AUCTION: April 26, 2016 starting at 10:00 a.m., **COUNTY:** Grays Harbor
South Puget Sound Region Office, Enumclaw, WA

SALE LOCATION: Sale located approximately 8 miles northwest of Oakville

**PRODUCTS SOLD
AND SALE AREA:**

All timber, except leave trees bounded out by yellow "Leave Tree Area" tags, and down timber existing more than 5 years from the day of sale, bounded by the following: white "Timber Sale Boundary" tags, blue "Special Management Area" tags, Upper Lytle Rock Pit marked with pink flagging, C-Line, and C-0600 roads in Unit #1; white "Timber Sale Boundary" tags, C-Line, C-1000, C-1100 and C-1101 roads in Unit #2; white "Timber Sale Boundary" tags in Units #3, #4 #5, and #6; white "Timber Sale Boundary" tags, blue "Special Management Area" tags, C-0620 and C-Line roads in Unit #7;

All timber, marked with orange paint bounded out by the following: white "Timber Sale Boundary" tags, blue "Special Management Area" tags, C-0600 and C-Line roads in Unit #8;

All right of way timber bounded by orange "Right of Way" tags in Units #9 - #11; all timber marked with orange paint bounded by "Right of Way" tags in Unit #12; on part(s) of Sections 23, 24 and 27 all in Township 17 North, Range 5 West, W.M., containing 195 acres, more or less.

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

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade								
				1P	2P	3P	SM	1S	2S	3S	4S	UT
Douglas fir	25.3	7	5,851				824		4,329	549	79	70
Hemlock	16.4	7	4,769				189		2,858	1,230	388	104
Red cedar	17.9		121							108	12	1
Red alder	12.9		87						16	20	48	3
Cottonwood	29.5		30						16			14
Maple	11.2		6						1		5	
Sale Total			10,864									

MINIMUM BID: \$2,763,000.00 **BID METHOD:** Sealed Bids

PERFORMANCE SECURITY: \$175,000.00 **SALE TYPE:** Lump Sum

EXPIRATION DATE: October 31, 2017 **ALLOCATION:** Export Restricted

BID DEPOSIT: \$276,300.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Harvesting activities are estimated to be 84% ground-based and 16% cable. Forest products sold under this contract shall be harvested and removed using cable and tracked ground based equipment, with tracked ground based equipment limited to sustained slopes 45% or less. Self-leveling shovels are restricted to sustained slopes of 55% or less.

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Use of tracked skidders shall be allowed for pole and Unit #8 (VDT) yarding only, unless authority to use other equipment is granted in writing by the State. Yarding may be restricted during wet weather if rutting becomes excessive, per clause H-017.

Cutting, yarding and timer haul will not be permitted from:

- October 1st to April 30th in Unit #8,
- June 1st to September 30th in Units #4 and #10,
- November 1st to April 30th in Units #1, #2, #3, #5, #6, #7, #9, #11 and #12,

nor on weekends or state recognized holidays, unless authority to do so is granted in writing by the Contract Administrator. If permission is granted to operate, the purchaser shall be required to operate under a Winter Operating Plan to include further protection of water, soil, roads and other forest assets at the Purchaser's expense. Preventive measures required in the Winter Operating Plan must be put in place prior to commencing any winter operations.

ROADS:

66.12 stations of required construction. 8.34 stations of required reconstruction. 21.78 stations of optional construction. 370.06 stations of required pre-haul maintenance. 24.30 stations of required abandonment. 6.21 stations of required abandonment, if constructed. 15.57 stations of required decommissioning, if constructed. Purchaser maintenance on the B-0207, B-0280, C-Line, Spur 1, Spur 2, C-0060, C-0400, C-0410, C-0411, C-0600, C-0700, C-0710, C-1000, C-1100, C-1101 and C-1102 roads. Designated maintenance on all other roads used.

Road construction and rock haul will not be permitted from October 1st to April 30th, nor on weekends or state recognized holidays unless authority to do so is granted in writing by the Contract Administrator. If permission is granted to operate from October 1st to April 30th, the purchaser shall be required to operate under a Winter Operating Plan to include further protection of water, soil, roads and other forest assets at the Purchaser's expense. Preventive measures required in the Winter Operating Plan must be put in place prior to commencing any winter operations. Additional timing restrictions due to stream crossings, as stated in Road Plan clause 1-25.

ACREAGE DETERMINATION

CRUISE METHOD: Unit acreage was determined by traversing the boundaries by GPS. Right of way acreage was determined by multiplying length times width. GPS data files are available upon request by emailing audrey.mainwaring@dnr.wa.gov. See cruise narrative for cruise method.

FEES: \$192,836.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: This sale contains high quality Douglas-fir and western hemlock.

This timber sale is a combination of seven variable retention harvest (VRH) units, one wetland management zone (WMZ) thinning unit, three right of way units and one daylighting unit. Units #1 through #7 are VRH, Unit #8 is a WMZ thinning unit that will be harvested by prescription as described in Schedule A of the contract. Units #9 through #11 are Right of Way units and Unit #12 is a daylighting unit. All take trees within Unit #8 are pre-marked with a single orange band around the tree.

Purchaser shall install a temporary State supplied 16 foot by 40 foot bridge on the C-0410 road at station 7+75. The bridge is available at the Mima Quarry. Purchaser must load, transport, and unload the bridge from and back to the Mima Quarry. See the road plan for additional details.

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The operation period for instream work associated with the installation of the temporary bridge on the C-0410 Road will be limited to July 1 through September 30th.

The C-0710 road from station 0+00 to 15+96 shall be constructed and abandoned in one operating season between June 1 and September 30.

The C-0700 and C-1100 Roads must be constructed by October 31, 2016. See Road Plan section 1-20 for more details.

There are residual blue painted trees from a previous sale in all units. Blue painted trees are take trees, unless located within tagged leave tree area clumps.

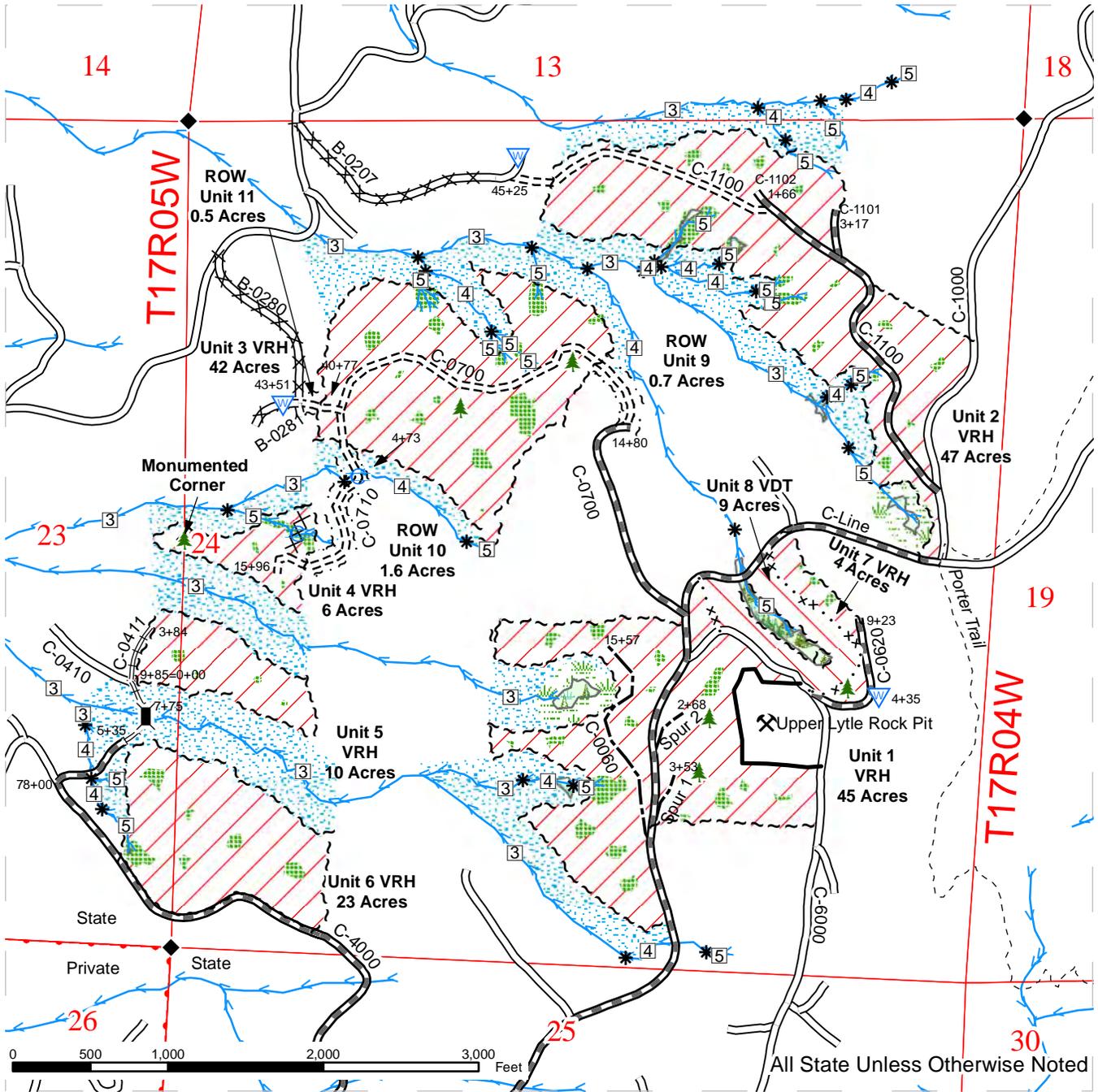
Rock pit expansion and development of the Upper Lytle Quarry is required, including manufacture of a 10,000 cy stockpile of 1 1/2 minus crushed rock.

A designated skid trail is marked with orange flagging in Unit 4. The Type 5 stream crossing with this designated skid trail requires a 24 inch temporary culvert.

TIMBER SALE MAP

SALE NAME: LYTLES LEG VRH & VDT
AGREEMENT#: 92744
TOWNSHIP(S): T17R05W
TRUST(S): State Forest Transfer(1), State Forest Purchase(2), Common School and Indemnity(3), Forest Board Repayment(42)

REGION: South Puget Sound Region
COUNTY(S): GRAYS HARBOR
ELEVATION RGE: 758-1485



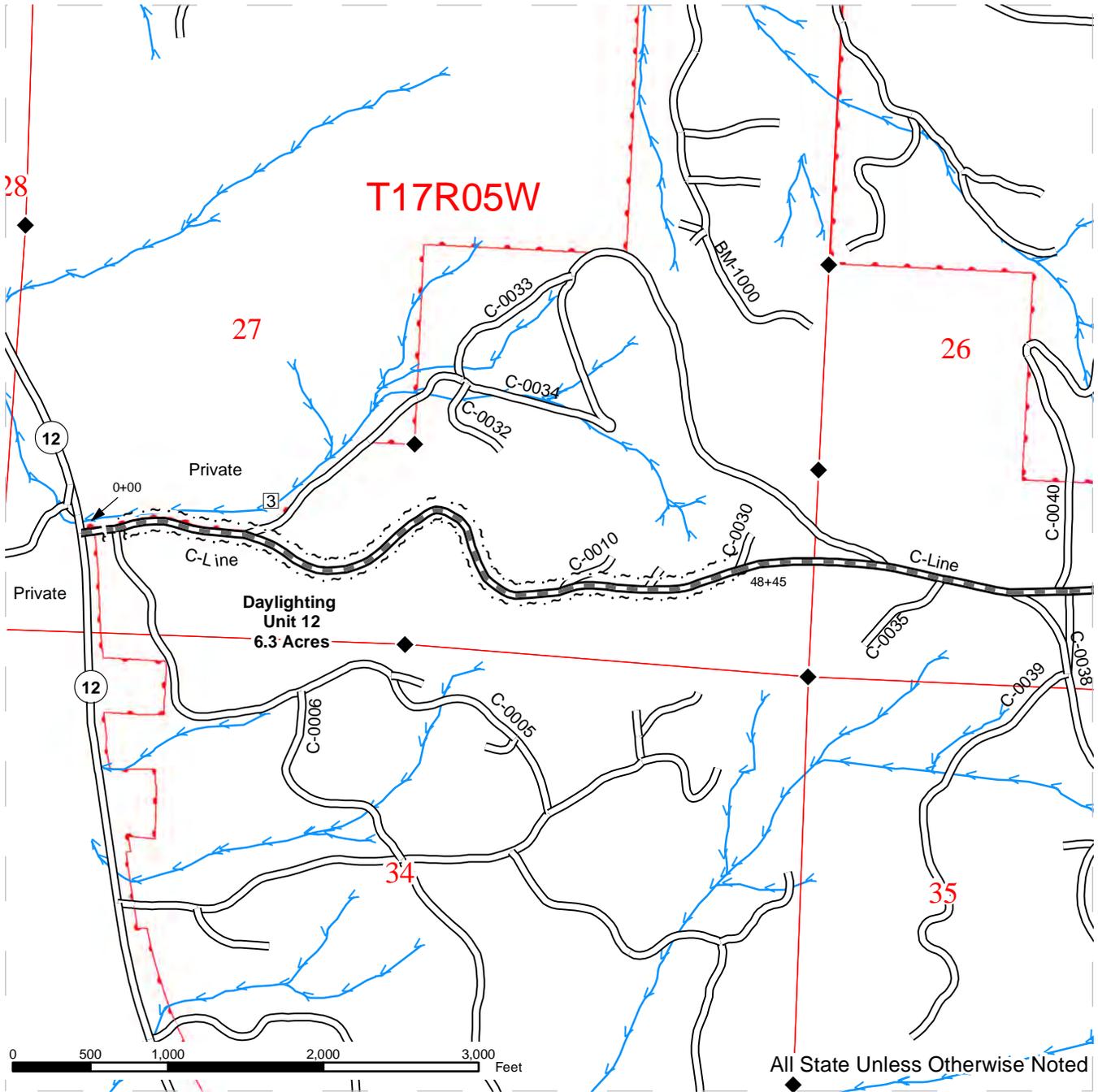
VRH Units	Blue "Special Mgt. Area" Tags	Streams
VDT Units	Rock Pit Boundary - marked with pink flagging	Stream Type
Leave Tree Area - marked with yellow "Leave Tree Area" tags	Existing Road	Stream Break
Riparian Mgt Zone	Optional Construction	Temporary Bridge Install
Wetland Mgt Zone	Required Construction	Culvert Installation
Forested Wetlands	Required Pre-Haul Maintenance	Waste Areas
White "Timber Sale Boundary" Tags	Required Reconstruction	Single Leave Trees - Marked with yellow "Leave Tree Area" tags
Orange "Right-of-Way" Tags	Non-drivable	Existing Rock Pit
	Designated Skid Trail - marked with orange flagging	Monumented Corners



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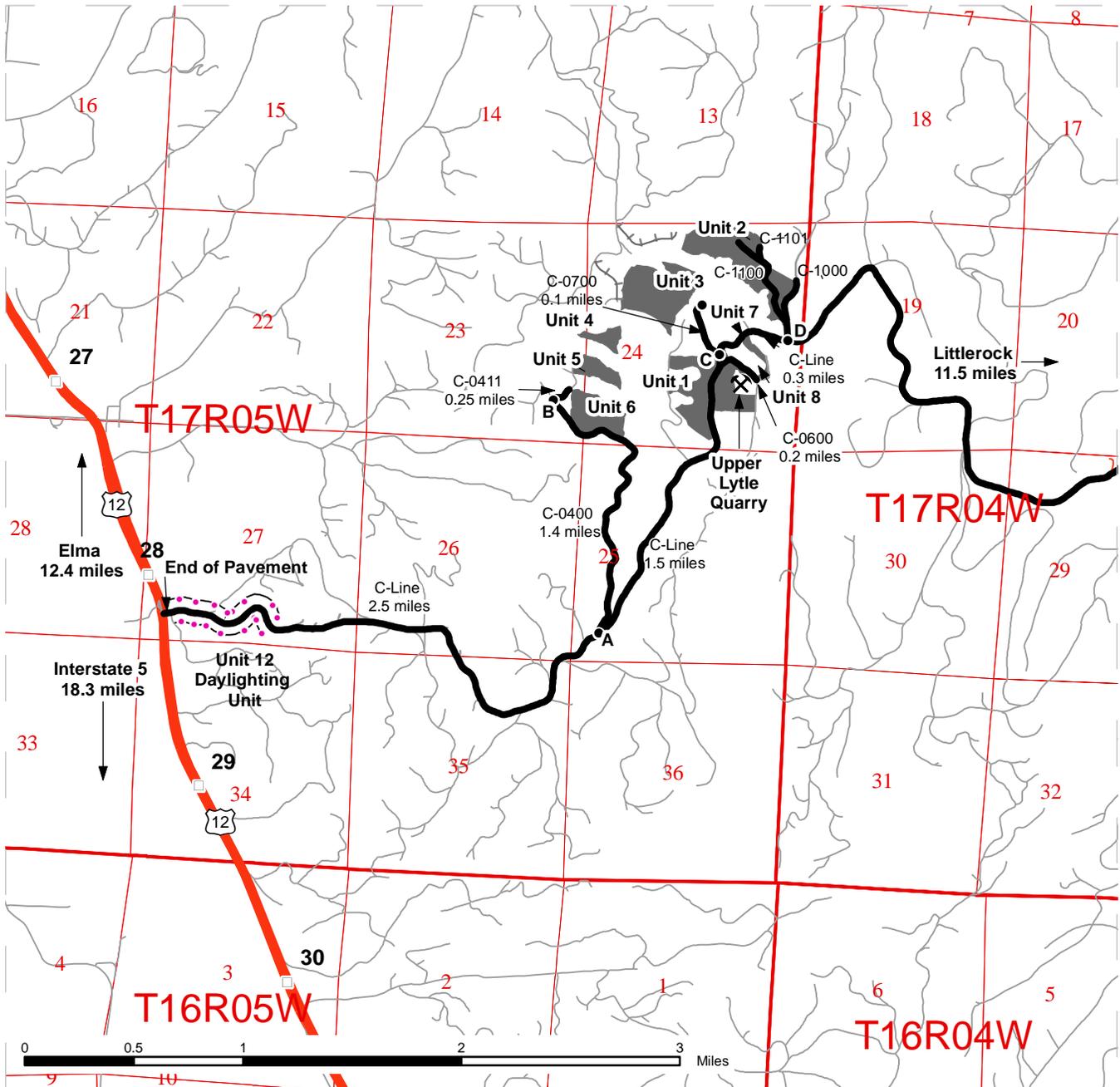


VRH Units	Blue "Special Mgt. Area" Tags	Streams
VDT Units	Rock Pit Boundary - marked with pink flagging	Stream Type
Leave Tree Area - marked with yellow "Leave Tree Area" tags	Orange "Right-of-Way" Tags	Stream Break
Riparian Mgt Zone	Existing Road	Temporary Bridge Install
Wetland Mgt Zone	Optional Construction	Culvert Installation
Forested Wetlands	Required Construction	Waste Areas
White "Timber Sale Boundary" Tags	Required Pre-Haul Maintenance	Single Leave Trees - Marked with yellow "Leave Tree Area" tags
	Required Reconstruction	Existing Rock Pit
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DRIVING MAP

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- Timber Sale Unit
- Highways
- Haul Route
- Other Route
- Abandoned Roads
- Daylighting
- Milepost Markers
- Distance Indicator
- Existing Rock Pit

Driving Directions:

From US Highway 12 at milepost 28, turn east onto the C-Line road and follow for 2.5 miles (indicator A).

From indicator A to units:

Unit 1: Continue on the C-Line for 1.5 miles to indicator C. C-Line divides the unit. Unit boundary starts at 1.1 miles.
 Unit 2: Continue on the C-Line for 1.8 miles to indicator D and turn left onto the C-1000 and stay left for the C-1100.
 Unit 3: Continue on the C-Line for 1.5 miles to indicator C. Turn left onto the C-0700 (walk into Unit 3).
 Units 7 and 8: Continue on C-Line for 1.5 miles to indicator C. Turn right onto the C-0620, Unit 8 is on the left. Continue on the C-0620 for 0.2 miles and Unit 7 is on the left and Upper Lytle Quarry is on the right.

Unit 4 - 6: From indicator A, turn left onto the C-0400. Follow the C-0400 for 1 mile, Unit 6 will be on the right. Follow the C-0400 for another 0.4 miles and turn right onto the C-0411 and follow for 0.25 miles, Unit 5 is 0.13 miles and Unit 4 is 0.3 miles.

Mima Mounds Storage Area (Mima Pit)

From Interstate 5, take the Maytown exit (Exit 95) onto Maytown Rd SW and follow for 2.9 miles to Little Rock. Continue straight onto 128th Ave SW for 0.8 miles. Take a left (south) onto Mima Rd SW for 1.3 miles. Then turn right (west) onto Bordeaux Rd SW for 0.4 miles, and Mima Pit will be on your right.



**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

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

Export Restricted Lump Sum AGREEMENT NO. 30-092744

SALE NAME: LYTLES LEG VRH & VDT

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

Section G: General Terms

G-001 Definitions

The following definitions apply throughout this contract;

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

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

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

Purchaser: The company or individual that has entered 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 April 26, 2016 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber, except leave trees bounded out by yellow "Leave Tree Area" tags, and down timber existing more than 5 years from the day of sale, bounded by the following: white "Timber Sale Boundary" tags, blue "Special Management Area" tags, Upper Lytle Rock Pit marked with pink flagging, C-Line, and C-0600 roads in Unit #1; white "Timber Sale Boundary" tags, C-Line, C-1000, C-1100 and C-1101 roads in Unit #2; white "Timber Sale Boundary" tags in Units #3, #4 #5, and #6; white "Timber Sale Boundary" tags, blue "Special Management Area" tags, C-0620 and C-Line roads in Unit #7;

All timber, marked with orange paint bounded out by the following: white "Timber Sale Boundary" tags, blue "Special Management Area" tags, C-0600 and C-Line roads in Unit #8;

All right of way timber bounded by orange "Right of Way" tags in Units #9 through #11; all timber marked with orange paint bounded by "Right of Way" tags in Unit #12;, located on approximately 195 acres on part(s) of Sections 23, 24, and 27 all in Township 17 North, Range 5 West W.M. in Grays Harbor 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	Variable Density Thinning (VDT) Unit 8
B	Recreation Trail Clean Out and Repair

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to October 31, 2017.

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 \$873.00 per acre per annum for the acres on which an operating release has not been issued within VRH units #1 - #7. Payment of \$125.00 per acre per annum for the acres on which an operating release has not been issued within WMZ Thinning Unit #8.
- f. In no event will the extension charge be less than \$200.00.
- g. Extension payments are non-refundable.

G-053 Surveys - Sensitive, Threatened, Endangered Species

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

G-060 Exclusion of Warranties

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

- a. The MERCHANTABILITY of the forest products. The use of the term "merchantable" in any document is not intended to vary the foregoing.
- b. The CONDITION of the forest products. The forest products will be conveyed "AS IS."

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

G-062 Habitat Conservation Plan

The State has entered into a Habitat Conservation Plan (HCP) with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (the Services) to address state trust land management issues relating to compliance with the Federal Endangered Species Act. The activities to be carried out under this contract are located within the State's HCP area and are subject to the terms and conditions of the HCP, and the Services' Incidental Take Permit Nos. 812521 and 1168 (collectively referred to as ITP), or as amended hereafter by the Services. The ITP authorizes the incidental take of certain federally listed threatened and endangered species, as specified in the ITP conditions. All HCP materials, including the ITP, are available for review at the State's Regional Offices and the administrative headquarters in Olympia, Washington.

By signing this contract, Purchaser agrees to comply with the terms and conditions of the ITP, and the HCP, which shall become terms of this contract. The State agrees to authorize the lawful activities of the Purchaser carried out pursuant to this contract, PROVIDED the Purchaser remains in compliance with the terms and conditions of both the HCP and ITP. The requirements set forth in this contract are intended to comply

with the terms and conditions of the HCP and ITP. Accordingly, non-compliance with the terms and conditions of the HCP and ITP will render the authorization provided in this paragraph void, be deemed a breach of the contract and may subject Purchaser to liability for violation of the Endangered Species Act.

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

G-063 Incidental Take Permit Notification Requirements

- a. Purchaser shall immediately notify the Contract Administrator of new locations of permit species covered by the Incidental Take Permits (ITP) that are discovered within the area covered by the State's Habitat Conservation Plan (HCP), including, but not limited to: locations of occupied murrelet habitat; spotted owl nest sites; wolves; grizzly bears; nests, communal roosts, or feeding concentrations of bald eagles; peregrine falcon nests; Columbian white-tailed deer; Aleutian Canada geese; Oregon silverspot butterflies; and additional stream reaches found to contain bull trout. Purchaser is required to notify the Contract Administrator upon discovery of any fish species found in streams or bodies of water classified as non-fish bearing. In all circumstances, notification must occur within a 24 hour time period.
- b. Upon locating any live, dead, injured, or sick specimens of any permit species covered by the ITP, Purchaser shall immediately notify the Contract Administrator. Purchaser shall notify the Contract Administrator if there is any doubt as to the identification of a discovered permit species. Purchaser may be required to take certain actions to help the Contract Administrator safeguard the well-being of any live, injured or sick specimens of any permit species discovered, until the proper disposition of such specimens can be determined by the Contract Administrator. Any such requirements will be explained to Purchaser by the Contract Administrator during the Pre-Work Conference. In all circumstances, notification must occur within a 24 hour time period.
- c. Purchaser shall refer to a specific ITP number, PRT-812521 or ITP 1168 (copies which are located in the region office) in all correspondence and reports concerning permit activities.
- d. Provisions and requirements of the ITP shall be clearly presented and explained to Purchaser by Contract Administrator during the Pre-Work Conference as per contract clause G-330. All applicable provisions of the ITP and this schedule must be presented and clearly explained by Purchaser to all authorized officers, employees, contractors, or agents of Purchaser conducting authorized activities in the timber sale area. Any questions Purchaser may have about the ITP should be directed to the Contract Administrator.

G-064 Permits

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

G-065 Regulatory Disclaimer

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

G-066 Governmental Regulatory Actions

a. Risk

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

b. Sale Area

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

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

c. Adjustment of Price

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

G-070 Limitation on Damage

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

G-080 Scope of State Advice

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

G-091 Sale Area Adjustment

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

G-101 Forest Products Not Designated

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

The pricing schedule has not been set for the sale.

G-106 Adding Naturally Damaged Forest Products

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

G-111 Title and Risk of Loss

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

G-116 Sustainable Forestry Initiative® (SFI) Certification

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

Purchaser shall have at least one person regularly on-site during active operations that have completed training according to the requirements outlined within the SFI® program Standard. Purchaser shall designate in writing the name(s) of the individual(s) who will be on-site and provide proof of their successful completion of an approved training program prior to active operations.

G-120 Responsibility for Work

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

G-121 Exceptions

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

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

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

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

The repair work identified by the State shall be promptly completed by Purchaser at an agreed price. The State may elect to accomplish repairs by means of State-provided resources. The State will bear the cost to repair damages caused by a third party. In all other cases, the Purchaser shall bear responsibility for the costs as described below.

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

Nothing contained in clauses G-120 and G-121 shall be construed as relieving Purchaser of responsibility for, or damage resulting from, Purchaser's operations or negligence, nor shall Purchaser be relieved from full responsibility for making good any defective work or materials. Authorization to haul does not warrant that Purchaser built roads are free from material defect and the State may require additional work, at Purchasers expense regardless of cost, to remedy deficiencies at any time.

G-140 Indemnity

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

G-150 Insurance

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

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

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

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

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

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

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

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

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

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

Commercial General Liability (CGL) Insurance. Purchaser shall maintain general liability (CGL) insurance, and, if necessary, commercial umbrella insurance with a limit of not less than \$1,000,000.00 per each occurrence. If such CGL insurance

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

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

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

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

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

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

G-160 Agents

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

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

G-170 Assignment and Delegation

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

G-180 Modifications

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

G-190 Contract Complete

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

G-200 Notice

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

G-210 Violation of Contract

G-220 State Suspends Operations

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

G-210 Violation of Contract

- a. If Purchaser violates any provision of this contract, the Contract Administrator, by written notice, may suspend those operations in violation. If the violation is capable of being remedied, Purchaser has 30 days after

receipt of a suspension notice to remedy the violation. If the violation cannot be remedied (such as a violation of WAC 240-15-015) or Purchaser fails to remedy the violation within 30 days after receipt of a suspension notice, the State may terminate the rights of Purchaser under this contract and collect damages.

- b. If the contract expires pursuant to clause G-030 or G-031 without Purchaser having performed all its duties under this contract, Purchaser's right to operate is terminated and Purchaser shall not have the right to remedy the breach. This provision shall not relieve Purchaser of any payment obligations.
- c. The State has the right to remedy the breach in the absence of any indicated attempt by Purchaser or if Purchaser is unable, as determined by the State, to remedy the breach. Any expense incurred by the State shall be charged to Purchaser and shall be paid within 30 days of receipt of billing.
- d. If Purchaser's violation is a result of a failure to make a payment when due, in addition to a. and b. above, interest shall accrue on the unpaid balance at 12 percent per annum, beginning the date payment was due.

G-220 State Suspends Operation

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

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

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

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

G-230 Unauthorized Activity

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

or RCW 79.02.300 and may result in prosecution under RCW 79.02.330 or other applicable statutes.

G-240 Dispute Resolution

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

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

G-250 Compliance with All Laws

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

G-260 Venue

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

G-270 Equipment Left on State Land

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

G-280 Operating Release

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

G-310 Road Use Authorization

Purchaser is authorized to use the following State roads and roads for which the State has acquired easements and road use permits; B-0200, B-0207, B-0280, C-Line, Spur 1, Spur 2, C-0060, C-0400, C-0410, C-0411, C-0600, C-0620, C-0700, C-0710, C 1000, C-1100, C-1101, and C-1102. The State may authorize in writing the use of other roads subject to fees, restrictions, and prior rights.

G-330 Pre-work Conference

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

G-340 Preservation of Markers

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

G-360 Road Use Reservation

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

G-370 Blocking Roads

Purchaser shall not block the C-Line, C-0600, C-0620, and C-1000 roads, unless authority is granted in writing by the Contract Administrator.

G-380 Road Easement and Road Use Permit Requirements

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

Easement #55-000539 between the State of Washington, Department of Natural Resources and George W Ray, dated July 10, 1967.

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:

To be determined approximately one month prior to the day of sale.

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 \$290,612.00. The total contract price consists of a \$0.00 contract bid price plus \$290,612.00 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 \$175,000.00. 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 area, as approved by the Contract Administrator. Purchaser may be required to pay liquidated damages for Excessive Reserve Tree Damage as detailed in clause D-041.

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

H-017 Preventing Excessive Soil Disturbance

Operations may be suspended when soil rutting exceeds 6 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-018 Temporary Stream Crossings

A temporary stream crossing is required to access the northeast part of Unit 4.

Purchaser shall comply with the following during the yarding operation:

- a. Adhere to the approved Hydraulic Permit Application (HPA) or Forest Practice Application (FPA) with approved hydraulic project work, if required, amend a current FPA or obtain a new FPA prior to commencing any new stream crossing construction.
- b. Location of the temporary stream crossing must be approved by the Contract Administrator.
- c. A temporary stream crossing shall not exceed 14 feet in width, including rub trees.
- d. Purchaser shall suspend operations during periods of wet weather when a high potential for sediment delivery into typed waters may occur.
- e. Temporary stream crossings shall be removed at the time of completion of yarding as required by the Contract Administrator.

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

H-035 Fall Trees Into Sale Area

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

H-040 Purchaser Harvest Plan

Purchaser shall, as part of the plan of operations, prepare an acceptable harvest plan for entire sale area. The plan shall address the felling, yarding, slash operations, designated skid trail crossing within Unit #4, WMZ thinning Unit #8 prescription and the H-140 clause, 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 cable and ground based equipment shall be limited to tracked ground based equipment on sustained slopes of 45% and less. Self-leveling shovels are restricted to sustained slopes of 55% or less. Use of tracked skidders shall be allowed for pole yarding and Unit #8 yarding only, unless authority to use other equipment is granted in writing by the State.

H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

H-126 Tailholds on State Land

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

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

- a. Cutting, yarding and timer haul will not be permitted from:
 - October 1st to April 30th in Unit #8.
 - June 1st to September 30th in Units #4 and #10.
 - November 1st to April 30th in Units #1, #2, #3, #5, #6, #7, #9, #11 and #12.
- nor on weekends or state recognized holidays, unless authority to do so is granted in writing by the Contract Administrator. If permission is granted to operate, the purchaser shall be required to operate under a Winter Operating Plan to include further protection of water, soil, roads and other forest assets at the Purchaser's expense. Preventive measures required in the Winter Operating Plan must be put in place prior to commencing any winter operations.
- b. Equipment limitation zones are required within 30 feet of Type 5 streams.
 - c. Crossings of Type 5 streams may be allowed at locations approved in writing by the Contract Administrator.
 - d. Purchaser shall place a 24"x 20' culvert at the Type 5 stream crossing location on the designated skid trail within Unit 4 to protect the stream bank and prevent sedimentation. All materials placed in and/or over the stream at this crossing shall be removed immediately upon completion of yarding on that skid trail.
 - e. Any and all operations associated with this sale may be temporarily suspended when, in the opinion of the Contract Administrator, there is the potential for delivery to typed water.
 - f. Within shovel logging areas, the shovel operator shall break up concentrations of logging debris greater than 10.5 feet by 10.5 feet to allow exposure of natural forest soils to ensure proper reforestation.
 - g. No equipment shall operate, or trees felled or damaged, outside the timber sale boundary.
 - h. The Purchaser shall notify all employees and contractors working on this sale that any danger tree marked or unmarked may be felled. Any marked danger tree will be replaced with a suitable tree of similar size and species as approved by the Contract Administrator.
 - i. Within ground based logging areas, and when yarding and loading operations are occurring simultaneously, an additional shovel will be required for loading to avoid extra trips to the landing. No more than one round trip shovel road is allowed.

- j. Designated haul roads have been designed to allow for the transport of poles 60 feet in length or less. If the Purchaser chooses to remove poles greater than 60 feet in length a haul plan must be submitted in writing to the Contract Administrator, which details the desired haul route, additional reconstruction needs, and mitigation for damage, which is a result of hauling oversize material. If approved in writing by the Contract Administrator, all work shall be at the Purchaser's expense.

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

H-141 Additional Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

- a. Purchaser shall leave 2 down logs per acre in units 1 through 7. A log is defined as having a minimum diameter of 12 inches on the small end of the log and a minimum length of 20 feet or at least 100 board feet.

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.

H-250 Additional Falling Requirements

Within Units #1 through #7, all live stems over 2 inches in diameter, shall be felled. Trees shall be severed at a stump height not to exceed 12 inches and cut completely free of the stump. Areas of young or immature timber may be excluded from this requirement 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 11/2/2015 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 B-0207, B-0280, Spur 1, Spur 2, C-0060, C-0400, C-0410, C-0411, C-0700, C-0710, C-1100, C-1101 and C-

1102 roads. All work shall be completed to the specifications detailed in the Road Plan.

C-060 Designated Road Maintainer

If required by the State, Purchaser shall perform maintenance and replacement work as directed by the Contract Administrator on all other roads used not covered in Clause C-050. Purchaser shall furnish a statement in a form satisfactory to the State showing the costs incurred while performing this work. Costs shall be based on the rates set forth in the State current Equipment Rate Schedule on file at the region and Olympia offices. The State shall reimburse Purchaser for said costs within 30 days of receipt and approval of the statement.

C-080 Landing Locations Approved Prior to Construction

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

C-140 Water Bars

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

Section S: Site Preparation and Protection

S-001 Emergency Response Plan

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

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

S-010 Fire Hazardous Conditions

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

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

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

S-030 Landing Debris Clean Up

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

S-050 Cessation of Operations for Low Humidity

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

S-060 Pump Truck or Pump Trailer

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

S-100 Stream Cleanout

Slash or debris which enters any typed stream 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 the Riparian or Wetland Management Zones, except for the variable density thinning in Unit #8, and within right of way clearing limits between orange right of way tags, unless authority is granted in writing by the Contract Administrator.

S-120 Stream Protection

No timber shall be felled into, across, or yarded through Type 3 and Type 4 waters, except for road construction.

S-130 Hazardous Materials**a. Hazardous Materials and Waste - Regulatory Compliance**

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

b. Hazardous Materials Spill Prevention

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

c. Hazardous Materials Spill Containment, Control and Cleanup

If safe to do so, Purchaser shall take immediate action to contain and control all hazardous material spills. Purchaser shall ensure that enough quick response spill kits capable of absorbing 4 to 6 gallons of oil, coolant, solvent or contaminated water are available on site to quickly address potential spills from any piece of equipment at all times throughout active operations. If large quantities of bulk fuel/other hazardous materials are stored on site, Purchaser must be able to effectively control a container leak and contain & recover a hazmat spill equal to the largest single on site storage container volume. (HAZWOPER reg. 29CFR 1910.120 (j) (1) (vii)).

d. Hazardous Material Release Reporting

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

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

DNR Contract Administrator

ECY - Northwest Region:

1-425-649-7000

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

ECY - Southwest Region:

1-360-407-6300

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

ECY - Central Region:

1-509-575-2490

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

ECY - Eastern Region:

1-509-329-3400

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

S-131 Refuse Disposal

As required by RCW 70.93, All Purchaser generated refuse shall be removed from state lands for proper disposal prior to termination of this contract. No refuse shall be burned, buried or abandoned on state forest lands. All refuse shall be transported in a

manner such that it is in compliance with RCW 70.93 and all loads or loose materials shall be covered/secured such that these waste materials are properly contained during transport.

Section D: Damages

D-013 Liquidated Damages or Failure to Perform

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

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

D-041 Reserve Tree Excessive Damage

When Purchaser's operations exceed the damage limits set forth in clause H-013, Reserve Tree Damage Definition, and when the Contract Administrator determines that a suitable replacement for a damaged reserve tree is not possible, the damaged trees result in substantial injury to the State. The value of the damaged reserve trees at the time of the breach is not readily ascertainable. Therefore, the Purchaser agrees to pay the State as liquidated damages at the rate of \$1,000.00 per tree for all damaged reserve trees that are not replaced in the harvest area.

DRAFT

DRAFT

DRAFT

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

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Purchaser

Art Tasker
South Puget Sound Region Manager

Date: _____
Address: _____

Date: _____

CORPORATE ACKNOWLEDGEMENT

STATE OF _____)

COUNTY OF _____)

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

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

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

Notary Public in and for the State of

My appointment expires _____

Schedule A
Variable Density Thinning (VDT) Unit 8
WMZ Prescription and Operation Requirements

Prescription

Within Unit 8 (VDT) the following prescription shall be followed:

- All trees with a single band of orange paint shall be felled and removed.

Trees within Unit 8 may be exchanged for similar trees based on size and species with written pre-authorization from the Contract Administrator (CA) due to operational necessity.

Operational Requirements

No equipment shall operate within 25 feet of the white Timber Sale Boundary tags without written authorization from the CA.

Skid Trail Requirements:

- Purchaser shall comply with the following during the yarding operation:
 - Skid trails will not exceed 14 feet in width, including rub trees.
 - Not more than 10 trips shall be used on any given skid trail.
 - Skid trail location will be pre-approved by the CA.
 - Rub trees shall be left standing until all timber tributary to the skid trail has been removed.
 - Excessive soil damage is not permitted. Excessive soil damage is described in clause H-017.
 - No skid trail is to remain open over winter even if operations are not complete within the harvest unit.
 - Within 50 feet of the edge of the wetland (white “Timber Sale Boundary” tags), skid trails need to be at a 45 degree or less angle in order to reduce the potential for concentrating surface water flow and soil erosion towards the wetland.
 - Skid trails within 50 feet of white “Timber Sale Boundary” shall be waterbared, by October 1st of any given year.
 - Purchaser shall, as directed by the Contract Administrator, construct water bars across skid trails as necessary to control soil erosion and water pollution.

Locations of skid trails must be marked by Purchaser and approved by the CA prior to the felling of timber.

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

Purchaser shall not deviate from the requirements set forth in the Operational Requirements of this schedule without prior written approval from the CA.

Schedule B
Recreation Trail clean out and repair

This schedule applies to the **Porter** trail.

Purchaser is responsible for locating and marking the recreation trail **adjacent to Unit #2** on the ground prior to harvest as approved by the Contract Administrator (CA).

- If needed, upon completion of harvest activities Purchaser shall locate the original recreation trail with pink fluorescent flagging. The CA will then approve the trail location in writing and repair/clean out can begin.
- The CA may require cleanout of the trail prior to completion of harvest, if there is a delay in harvesting activities.

Trail closures shall be posted by the Purchaser **at least 300 feet prior to the** harvest unit and at the nearest junction with another trail or road. Posting signs will include the date posted, closure periods, and anticipated re-openings. Closure signed will be maintained by the Purchaser during the sale and will be removed after the approval of the final trail cleaning following harvest.

Recreation trail repair/clean out shall occur within 2 weeks of completion of harvest within 200 feet of the trail and shall consist of the following:

- Remove all logging debris from the recreation trail and the area on each side of the trail within 5 feet of the travel path.
- Trail will be repaired where holes or ruts resulted due to logging damage. The trail will be returned to its original width on mineral soils and free of organic debris.
- Existing drainage control measures shall be returned to pre-harvest condition.

All work described above shall be done as determined by the CA. The logging release for the unit will not be issued until repair and clean out is completed and approved in writing by the CA.

FOREST EXCISE TAX -- ROAD SUMMARY SHEET

Region: South Puget Sound

Timber Sale Name: Lytle's Leg

Application Number: 30-092744

Excise Tax Applicable Activities

Construction: 6573 linear feet

Road to be constructed (optional and required) but not abandoned

Reconstruction: 0 linear feet

Road to be reconstructed (optional and required) but not abandoned

Abandonment: 0 linear feet

Abandonment of existing roads not reconstructed under the contract

Deactivation: 1557 linear feet

Road to be made undriveable but not officially abandoned.

Pre-Haul Maintenance: 37006 linear feet

Existing road to receive maintenance work (specifically required by the contract) prior to haul

Excise Tax Exempt Activities

Temporary Optional Construction: 2217 linear feet

Optional roads to be constructed and then abandoned

Temporary Optional Reconstruction: 834 linear feet

Optional roads to be reconstructed and then abandoned

New Abandonment: 3051 linear feet

Abandonment of roads constructed or reconstructed under the contract

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

(Revised 7/04)

PRE-CRUISE NARRATIVE

Sale Name: Lytle's Leg VRH&VDT	Region: South Puget Sound
Agreement #: 30-092744	District: Black Hill
Contact Forester: Wade Jones	Phone/ Location: (360)-280-3250
Alternate Contact: Derwood Duncan III	Phone/ Location: (360)-280-3113

Type of Sale (lump sum, mbf scale, tonnage scale or contract harvest): Lump sum
 Required or Optional removal of utility as pulp: No
 Evaluated for RFRS Implementation?: Yes, RMZs where on projection path to future desired condition, and some had high risk.
 Percentage cable (specify downhill vs uphill): 16% Uphill
 Percentage ground based: 84%
 Species Onsite: RC, DF, WH, RA, BC, BLM, NF, SF, SS, Other:(Please List)

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit # Harvest R/W or RMZ WMZ	Legal Description Sec/Twp/Rng	Grant	Gross Traversed Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determination (List method and error of closure if applicable)
				RMZ/ WMZ Acres	Leave Tree Acres	Existing Road Acres	Other Acres (describe)		
1	Sec 24/ T17N/ R05W	1, 2, 42	51.5	0	3.2	3.8	0	44.5	Garmin 64s
2	Sec 24/ T17N/ R05W	42	51.1	0	3.1	<1	0	47.1	Garmin 64s
3	Sec 24/ T17N/ R05W	42	45.5	0	3.5	0	0	42.0	Garmin 64s
4	Secs 23 & 24/ T17N/ R05W	2, 3, 42	6.3	0	<1	0	0	5.7	Garmin 64s
5	Secs 23 & 24/ T17N/ R05W	2, 3, 42	10.5	0	<1	0	0	10.3	Garmin 64s
6	Secs 23 & 24/ T17N/ R05W	1, 3	24.5	0	1.3	0	0	23.2	Garmin 64s
7	Sec 24/T17N/R05W	42	4	0	<1	0	0	3.8	Garmin 64s
8 (WMZ)	Secs 23 & 24/ T17N/ R05W	2, 42	10.4	0	0	0	1.6 Wetland	8.8	Garmin 64s
9 (ROW)	Sec 24/ T17N/ R05W	2, 42	<1	0	0	0	0	<1	Garmin 64s
10 (ROW)	Sec 24/T17N/R05W	2	2	<1	0	0	0	1.6	Garmin 64s
11 (ROW)	Sec 24/T17N/R05W	2	<1	0	0	0	0	<1	
12 (Daylighting)	Sec 27/T17N/R05W	1, 3	6.6	<1	0	0	0	6.3	Garmin 64s
TOTAL ACRES			213.4	0.7	12.1	4.7	1.6	194.5	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Mark leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1 (VRH)	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags, pink flagging, and the C-Line, C-0600, and C-0620 roads and the Upper Lytle Quarry. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging.		412 Trees
2 (VRH)	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags, pink flagging, and C-1000, C-1100, C-1101 roads. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging.		408 Trees

3 (VRH)	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags and pink flagging. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging.		368 Trees
4 (VRH)	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags and pink flagging. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging.		48 Trees
5 (VRH)	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags, pink flagging, and C-0411 road. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging.		88 Trees
6 (VRH)	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags, pink flagging, and C-0400 road. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging.		200 Trees
7 (VRH)	Variable Retention Harvest: Boundaries are marked with White "Timber Sale Boundary" tags, Blue "Special Management Area" tags, Pink flagging, C-0620, and the C-Line road. Clumped leave trees are marked with Yellow "Leave Tree Area" tags and pink flagging.		32 Trees
8 (VDT)	Variable Density Thinning: Only Orange painted trees will be harvested. No western red-cedar will be cut/harvested unless for safety Reasons.	Wetland Thinning; Bounded with double "Special Management Area" tags.	All trees not marked with orange paint
9 (ROW)	All take trees are bound within the orange "Right-of-Way Boundary" Tags		0 Trees
10 (ROW)	All take trees are bound within the orange "Right-of-Way Boundary" Tags	Will be cutting in RMZ	0 Trees
11 (ROW)	All take trees are bound within the orange "Right-of-Way Boundary" Tags		0 Trees
12 (Daylighting)	All take trees are bounded within the Orange "Right-of-Way Boundary" Tags	Will be thinning in the RMZ	0 Trees

OTHER PRE-CRUISE INFORMATION:

Unit #	Estimated Volume	Access information (Gates, locks, etc.)	Photos, traverse maps required
1 (VRH)	3,006 MBF	C-Line	Traverse map with contours, roads and leave trees. Photo (Scale 1' to 1,200')
2 (VRH)	1,239 MBF	C-Line to C-1100	Traverse map with contours, roads and leave trees. Photo (Scale 1' to 1,200')
3 (VRH)	2,016 MBF	C-Line to C-0700 (walk-in) to C-0700EXT	Traverse map with contours, roads and leave trees. Photo (Scale 1' to 1,200')
4 (VRH)	300 MBF	C-Line to C-0700 (walk-in) to C-0700EXT to C-0720	Traverse map with contours, roads and leave trees. Photo (Scale 1' to 1,200')

5 (VRH)	550 MBF	C-Line to C-0400 to C-4010 (walk-in)	Traverse map with contours, roads and leave trees. Photo (Scale 1' to 1,200')
6 (VRH)	1,200 MBF	C-Line to C-0400	Traverse map with contours, roads and leave trees. Photo (Scale 1' to 1,200')
7 (VRH)	300 MBF	C-Line to C-0620	Traverse map with contours, roads and leave trees. Photo (Scale 1' to 1200')
8 (VDT)	160 MBF	C-Line	Traverse map with contours, roads and leave trees. Photo (Scale 1' to 1,200')
9 (ROW)	100 MBF	C-Line to C-0700 (walk-in) to C-0700 new construction	Traverse map with contours, roads and leave trees. Photo (Scale 1' to 1,200')
10 (ROW)	100 MBF	C-Line to C-0700 (Walk-in) to C-0700 new construction to C-0710 new construction	Traverse map with contours, roads and leave trees. Photo (Scale 1' to 1,200')
11 (ROW)	100 MBF	C-Line to C-0700 (walk-in) to C-0700 new construction and ends at the B-0280 (waste area)	Traverse map with contours, roads and leave trees. Photo (Scale 1' to 1,200')
12 (Daylighting)	200 MBF	C-line	Traverse map with contours, roads and leave trees. Photo (Scale 1' to 1,200')
Totals	9,271 MBF		

REMARKS:

Units 1 through 7: All units are regeneration harvest with 84% ground base and 16% cable base. Root rot scattered throughout the unit with some blow down along the western boundary of Unit 1. The timber consists of high quality Douglas-fir with special mill scattered through the unit. Other species are western hemlock, western red-cedar, red alder, Sitka spruce, and big leaf maple. **Non-merch Western red-cedar will not be slashed unless there is a safety issue or operational restriction.**

Unit 8 (WMZ): WMZ thinning unit is 100% ground base. The WMZ's consist of high quality Douglas-fir with some western hemlock, western red-cedar, Sitka spruce, big leaf maple, and red alder. Need a stand table created from the cruise for each of the five units to determine leave/takes BA. **No western red-cedar will be harvested.** All take trees are painted with Orange paint to meet the prescriptions objectives. Need a Stand Table from the cruise to verify we left 120 BA within each WMZ (need to show both leave/take trees.) Also need a Species, Sort and Grade Report to estimate the removal volumes.

Unit 9 through Unit 11 (ROW): Right-of-Way. All timber between orange "Right-of-Way" tags is take timber.

Unit 12 (Daylighting): All timber between orange "Right-of-Way" tags is take timber.

Prepared By: Wade Jones
Date: 10/02/2015

Title: Forester 1

CC: Derwood Duncan III

Cruise Narrative

Sale Name: Lytle's Leg	Region: South Puget Sound
App. #: 30-092744	District: Black Hills
Lead Cruiser: Aaron Coleman	Completion Date: 11-10-2015 Revised: 12-9-15
Other Cruisers: n/a	

Unit acreage specifications:

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
1	44.5	Yes	
2	47.1	Yes	
3	42.0	Yes	
4	5.7	Yes	
5	10.3	Yes	
6	23.2	Yes	
7	3.8	Yes	
8	8.8	Yes	
9	.7	Yes	
10	1.6	Yes	
11	.5	Yes	
12	6.3	Yes	
Total	194.5	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 (Cru./Tally)	Total number of plots
1	VP	54.44 – Majors 40.00 – Minors	4.5 ft	280' x 280'	1:1	25
2	VP	54.44 – Majors 40.00 – Minors	4.5 ft	280' x 280'	1:1	25
3	VP	46.94 – Majors 33.61 – Minors	4.5 ft	280' x 280'	1:1	24
4	VP	54.44 – Majors 40.00 – Minors	4.5 ft	208' x 208'	Cruise All	6
5	VP	54.44 – Majors 40.00 – Minors	4.5 ft	208' x 208'	Cruise All	10
6	VP	54.44 – Majors 40.00 – Minors	4.5 ft	250' x 250'	1:1	15
7	VP	54.44 – Majors 40.00 – Minors	4.5 ft	208' x 208'	Cruise All	4
8	VP	54.44 – Majors 40.00 – Minors	4.5 ft	208' x 208'	Cruise All	9
9	VP	33.61	4.5 ft	n/a	n/a	4

10	VP	54.44	4.5 ft	n/a	n/a	8
11	VP	33.61	4.5 ft	n/a	n/a	1
12	ITS	DF – 1:10.2 WH – 1:1 BM – 1:1.7 RA – :9.1 RC – 1:1	n/a	n/a	n/a	n/a

Sale/Cruise Description:

Minor species cruise intensity:	Cruised on appropriate plots.
Minimum cruise spec:	40% Of Form- Factor at 16 feet D.O.B or 5 inch Top, and merchantable top.
Avg. ring count by sp:	DF = 7 WH = 7
Leave/take tree description:	Unit contains leave tree areas bounded with yellow "Leave Tree Area" tags and pink flashers. Unit contains blue painted trees from previous activity, but they are not marked leaves trees.
Sort Description:	<p>HA - Logs meeting the following criteria: Surface characteristics for a high quality A sort will have sound tight knots not to exceed 1 1/2" in diameter, numbering not more than an average of one per foot of log length. May include logs with not more than two larger knots. Knots and knot indicators 1/2" in diameter and smaller shall not be a determining factor. Logs will have a growth ring count of 6 or more rings per inch in the outer third top end of the log. (High Quality sort. Grades SM, 2S, 3S. Lengths 16ft-40ft, 2ft multiples min TDIB 8". Max butt 27")</p> <p>HB - Logs meeting the following criteria: Surface characteristics for an Intermediate B sort will have sound tight knots not to exceed 1 1/2" in diameter. May include logs with not more than two larger knots up to 2 1/2" in diameter. Logs will have a growth ring count of 6 or more rings per inch in the outer third to end of the log. (Intermediate sort. Grades 2S, 3S. Lengths 16ft-40ft, 2ft multiples min TDIB 8". Max butt 27").</p> <p>D - Domestic quality logs that do not meet high quality or intermediate definitions. (Domestic sort. Grades 2S, 3S, 4S and utility. Lengths 16ft-40ft, min TDIB 5".)</p> <p>O - Logs exceeding 27" on the large end. (Oversize sort. Grade 2S. Lengths 16ft-40ft, 2ft multiples butt diameter min dia. 27 in. +)</p> <p>R - Logs meeting the following criteria: Surface characteristics for a rough log sort will not meet the requirements for a domestic 2S, but still be in limitations for a domestic 3S. Meaning logs will contain excessive knots in excess of 2 1/2" and not exceeding 3" with a recovery of less than 65% of the net scale and greater than 33% of the gross scale. (Rough oversize sort. Grade 3S. Lengths 16ft-40ft, 2ft multiples TDIB 12"+)</p>

Field observations:

<p>This sale consists of 7 variable retention harvest (VRH) units, 1 variable density thinning (VDT) unit, 3 right-of-ways (ROWs) and one daylighting located off of the C-Line in Capitol State Forest.</p> <p>The species breakdown for this sale is about 50/50 split between Douglas-fir (DF) and Western Hemlock (WH) with small amounts of Western redcedar, and Red Alder present.</p> <p>The WH throughout this sale averages 16.4" diameter and 86' bole height, the DF averages 25.3" diameter and 106' bole height. There is a good amount of high quality first and second segments in the DF and WH, including the 'A', 'B' and 'SM' sort.</p> <p>Sound down and/or dead trees were cruised and are noted with a 'D' in the status column of the cruise. The 'L' and 'T' in the status column correspond to unit 8, the WMZ VDT with L=Leave and T=Take.</p> <p>Defect present throughout the sale consists primarily of swollen butts, sweep, broken/forked tops, and spike knots. Very little hardwood was seen within the units and minimal defect was observed on the few trees which were</p>
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cruised.

The recommended harvest system for the sale is 16% uphill cable yarding and 84% ground-based yarding.

All roads to this sale are in good condition and there are plenty of good access points into all units. Units 3, 4, 5, 6 are walk-in units along old road grades.

Grant(s): 1, 2, 3, 42

Prepared by: Aaron Coleman

Title: Timber Cruiser

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																		
T17N R05W S24 Ty00U1 THRU T17N R05W S24 Ty0U12				Project: LYTTLESLE										Page 1								
				Acres 194.50										Date 12/9/2015			Time 10:52:35AM					
Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
WH	CU	CU			100.0	429											4	7		0.00	39.7	
WH	HA	SM	2	2.3	652	637	124										40	16	409	2.14	1.6	
WH	HA	2S	5	3.8	1,199	1,154	224										40	14	261	1.49	4.4	
WH	HB	2S	24	3.8	5,881	5,657	1,100										40	14	308	1.73	18.4	
WH	HB	3S	6	3.0	1,423	1,380	268										40	10	147	0.86	9.4	
WH	D	SM	1	1.9	261	256	50										40	18	520	2.53	.5	
WH	D	2S	23	5.9	5,812	5,470	1,064										39	14	290	1.62	18.9	
WH	D	3S	20	2.7	4,993	4,860	945										38	8	101	0.68	48.1	
WH	D	4S	8	.0	1,961	1,960	381										28	5	31	0.30	62.3	
WH	D	UT	1	2.4	295	288	56										20	9	70	0.78	4.1	
WH	OS	SM		7.1	44	40	8										40	20	650	3.23	.1	
WH	OS	2S	9	10.0	2,347	2,111	411										40	21	719	3.81	2.9	
WH	OS	UT	1	.0	39	39	7										18	16	180	2.84	.2	
WH Totals				41	5.9	25,337	23,852	4,639	12	22	32	33	2	5	2	90	29	9	113	0.91	210.6	
WH	L	CU	CU		100.0	14											5	7		0.00	2.5	
WH	L	HA	SM	7	4.4	116	111	22									40	17	440	2.35	.3	
WH	L	HA	2S	8	3.1	112	108	21									40	14	313	1.72	.3	
WH	L	HA	3S	3		48	48	9									40	10	150	0.89	.3	
WH	L	HB	2S	21	2.1	298	292	57									40	14	323	1.76	.9	
WH	L	HB	3S	5		76	76	15									40	11	169	0.98	.4	
WH	L	D	2S	26	6.5	402	375	73									38	14	282	1.69	1.3	
WH	L	D	3S	13		176	176	34									38	8	88	0.61	2.0	
WH	L	D	4S	4	5.9	64	60	12									33	6	36	0.36	1.7	
WH	L	OS	SM	8	5.0	127	121	23									40	21	726	3.67	.2	
WH	L	OS	2S	5	5.0	63	60	12									40	24	960	4.36	.1	
WH Totals				2	4.5	1,496	1,428	278	8	17	31	43	1	2	1	95	29	10	143	1.11	10.0	
WH	T	CU	CU		100.0	3											6	5		0.00	.4	
WH	T	HA	SM	9	5.0	38	36	7									40	16	380	2.14	.1	
WH	T	HB	2S	38	4.7	150	143	28									40	14	283	1.63	.5	
WH	T	HB	3S	5		19	19	4									40	10	150	0.81	.1	
WH	T	D	2S	10	8.8	43	39	8									40	14	265	1.46	.1	
WH	T	D	3S	18	3.2	70	67	13									38	8	84	0.69	.8	
WH	T	D	4S	9		34	34	7									29	5	35	0.31	1.0	
WH	T	OS	2S	11	5.0	41	39	8									40	19	570	2.97	.1	
WH Totals				1	4.9	397	377	73	16	15	37	31	1	2	8	89	31	9	120	0.93	3.1	
WH	D	CU	CU		100.0	107											16	10		0.00	2.0	
WH	D	D	2S	28	32.7	123	83	16									40	13	179	1.49	.5	
WH	D	D	UT	72	23.3	278	213	41									40	10	123	0.97	1.7	
WH Totals				1	41.7	507	296	57										29	10	71	0.79	4.2
DF	CU	CU			100.0	267											4	10		0.00	20.7	
DF	HA	SM	3	2.8	1,110	1,080	210										40	17	472	2.45	2.3	
DF	HA	2S		.0	36	36	7										40	15	360	1.82	.1	
DF	HB	2S	12	3.7	3,725	3,587	698										39	15	342	1.89	10.5	
DF	HB	3S	2		379	379	74										40	10	139	0.75	2.7	
DF	D	2S	28	5.2	8,875	8,415	1,637										40	15	344	1.81	24.5	
DF	D	3S	8	3.8	2,537	2,441	475										37	9	98	0.79	24.9	
DF	D	4S	1	1.7	411	404	79										30	5	34	0.33	11.8	
DF	D	UT	1		126	126	25										27	16	274	1.96	.5	

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																		
T17N R05W S24 Ty00U1 THRU T17N R05W S24 Ty0U12				Project: LYTTLESLE										Page 2								
				Acres 194.50										Date 12/9/2015								
														Time 10:52:35AM								
S Spp	So T	Gr rt	ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
DF	OS	SM		10	4.4	3,302	3,156	614										40	21	783	3.77	4.0
DF	OS	2S		34	7.2	10,865	10,088	1,962										40	23	868	4.29	11.6
DF	OS	UT		1		76	76	15						100				16	26	500	3.98	.2
DF Totals				51	6.1	31,709	29,788	5,794	2	8	19	71	1	2	2	95	31	13	262	1.77	113.7	
DF	L	CU	CU														0	11		0.00	.7	
DF	L	D	2S	25	4.9	198	189	37			10	90		4			39	17	431	2.18	.4	
DF	L	D	3S	16	9.4	132	119	23	15	67	18		4		8	88	38	9	117	0.85	1.0	
DF	L	D	UT	3		21	21	4				100	100				16	19	240	2.19	.1	
DF	L	OS	2S	56	7.9	441	406	79				100		7		93	38	24	874	4.53	.5	
DF Totals				1	7.2	792	735	143	3	11	5	81	3	5	1	90	28	14	276	2.04	2.7	
DF	D	CU	CU		100.0	93											23	15		0.00	.5	
DF	D	D	UT	26	20.4	74	59	12			100			23		77	38	13	180	1.38	.3	
DF	D	OS	2S	32	39.5	115	69	14				100				100	40	24	636	5.64	.1	
DF	D	OS	UT	42	17.8	113	93	18				100				100	40	23	789	4.40	.1	
DF Totals				0	43.9	395	221	43			27	73		6		94	31	16	219	1.97	1.0	
DF	T	CU	CU														13			0.00	.0	
DF	T	D	2S	44	9.0	35	32	6			25	75				100	40	17	455	2.36	.1	
DF	T	OS	2S	56	9.6	43	39	8				100				100	40	26	1130	5.78	.0	
DF Totals				0	9.3	78	71	14			11	89				100	30	18	510	3.50	.1	
RA		CU	CU		100.0	6											6	7		0.00	.8	
RA		D	UT	3		16	16	3			100		100				16	9	40	0.68	.4	
RA		D	2S	19	12.5	95	83	16			100			20		80	35	13	193	1.39	.4	
RA		D	3S	22	5.3	106	100	20			100			9		91	37	10	135	1.06	.7	
RA		D	4S	27	9.4	133	121	24			100			5		95	37	8	82	0.73	1.5	
RA		D	4S	29	1.8	128	126	24	100				25	28	12	35	27	5	31	0.32	4.1	
RA Totals				1	8.0	485	446	87	28	53	19		12	14	3	71	28	7	56	0.59	8.0	
BM		CU	CU		100.0	0											3	7		0.00	.0	
BM		D	UT	5		2	2	0			47	53		53	47		21	12	95	0.82	.0	
BM		D	2S	16	4.7	6	5	1			100					52	48	35	13	203	1.48	.0
BM		D	3S	6	4.2	2	2	0			100					43	57	33	10	115	0.70	.0
BM		D	4S	73	.4	24	24	5	100					3	94	4	31	6	39	0.42	.6	
BM Totals				0	1.8	34	33	6	73	8	19		3	7	80	10	30	6	47	0.48	.7	
RC		CU	CU		100.0	18											2	7		0.00	3.0	
RC		D	3S	54	3.7	350	336	65	19	33	41	7		2		98	36	9	120	1.03	2.8	
RC		D	4S	9	11.3	69	61	12	96	4				18	66	16	27	6	30	0.42	2.1	
RC		D	UT	1		4	4	1	100					100			16	5	20	0.34	.2	
RC		OS	3S	36	11.9	250	220	43				100				100	36	19	494	4.13	.4	
RC Totals				1	10.0	691	622	121	20	18	22	39	2	8		90	21	8	73	1.06	8.5	
CW		CU	CU														17			0.00	.1	
CW		D	2S	19	6.5	32	30	6				100				100	40	17	430	2.11	.1	
CW		D	UT	13		20	20	4				100		100			24	17	280	1.88	.1	
CW		OS	2S	35	8.3	59	54	10				100				100	40	22	770	3.94	.1	

TC PSTATS		PROJECT STATISTICS							PAGE	1		
		PROJECT LYTLESLE							DATE	12/9/2015		
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt		
17N	05	24	LYTLESLEG	00U1	THR	194.50	132	764	S	W		
17N	05W	24	LYTLESLEG	00U2								
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			132	764	5.8							
CRUISE			89	503	5.7	26,942	1.9					
DBH COUNT REFOREST COUNT			41	236	5.8							
BLANKS			2									
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			220	36.0	25.4	107	25.1	126.3	31,709	29,788	6,354	6,304
DOUG FIR-D			4	.4	27.5	73	0.4	1.8	395	221	78	62
DOUG FIR-L			7	.7	27.5	110	0.6	3.0	792	735	153	153
DOUG FIR-T			1	.0	38.0	129	0.0	.3	78	71	15	15
WHEMLOCK			176	85.4	16.4	86	31.1	126.1	25,337	23,852	5,646	5,554
WHEMLOCK-D			6	1.7	17.9	72	0.7	3.0	507	296	118	94
WHEMLOCK-L			18	3.5	19.2	95	1.6	7.1	1,496	1,428	330	327
WHEMLOCK-T			8	1.5	16.1	77	0.5	2.2	397	377	92	92
WR CEDAR			26	3.5	17.8	70	1.4	6.1	691	622	198	194
R ALDER			24	4.7	12.9	55	1.2	4.3	485	446	131	129
BL MAPLE			11	.6	11.2	36	0.1	.4	34	33	10	10
COTWOOD			2	.1	29.5	77	0.1	.7	160	153	29	29
TOTAL			503	138.5	19.3	90	64.0	281.3	62,080	58,023	13,154	12,963
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL	68.1	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
DOUG FIR		81.1	5.5	923	977	1,031						
DOUG FIR-D		85.0	48.6	450	875	1,300						
DOUG FIR-L		53.9	21.9	1,169	1,497	1,826						
DOUG FIR-T												
WHEMLOCK		78.5	5.9	455	484	512						
WHEMLOCK-D		65.0	28.9	134	188	243						
WHEMLOCK-L		66.0	16.0	544	647	751						
WHEMLOCK-T		72.7	27.4	320	441	562						
WR CEDAR		113.3	22.6	223	288	353						
R ALDER		96.1	20.0	83	104	125						
BL MAPLE		131.3	41.5	69	118	167						
COTWOOD		14.3	13.4	944	1,090	1,236						
TOTAL		97.7	4.4	656	686	716	381	194	95			
CL	68.1	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
DOUG FIR		75.1	5.1	192	203	213						
DOUG FIR-D		87.7	50.1	124	248	372						
DOUG FIR-L		48.4	19.7	243	302	362						
DOUG FIR-T												
WHEMLOCK		72.6	5.5	104	110	116						
WHEMLOCK-D		53.0	23.6	45	59	73						
WHEMLOCK-L		58.1	14.1	123	143	164						
WHEMLOCK-T		65.7	24.8	78	103	129						
WR CEDAR		102.3	20.5	69	87	105						
R ALDER		84.7	17.6	25	31	36						

TC PSTATS		PROJECT STATISTICS							PAGE	2
		PROJECT		LYTTLESLE			DATE	12/9/2015		
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
17N	05	24	LYTTLESLEG	00U1	THR	194.50	132	764	S	W
17N	05W	24	LYTTLESLEG	00U12						
CL	68.1		COEFF	SAMPLE TREES - CF			# OF TREES REQ.		INF. POP.	
SD:	1.00		VAR.	S.E.%	LOW	AVG	HIGH	5	7	10
BL MAPLE			117.6	37.1	18	29	39			
COTWOOD			23.0	21.5	163	208	253			
TOTAL			88.3	4.0	143	149	155	311	159	78
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			117.6	10.2	32	36	40			
DOUG FIR-D			737.9	64.2	0	0	1			
DOUG FIR-L			510.4	44.4	0	1	1			
DOUG FIR-T			1148.9	99.9	0	0	0			
WHEMLOCK			115.6	10.1	77	85	94			
WHEMLOCK-D			577.8	50.3	1	2	3			
WHEMLOCK-L			489.8	42.6	2	4	5			
WHEMLOCK-T			587.8	51.1	1	2	2			
WR CEDAR			369.7	32.1	2	4	5			
R ALDER			532.0	46.3	3	5	7			
BL MAPLE			1003.6	87.3	0	1	1			
COTWOOD			809.3	70.4	0	0	0			
TOTAL			72.7	6.3	130	139	147	211	108	53
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			95.8	8.3	116	126	137			
DOUG FIR-D			681.7	59.3	1	2	3			
DOUG FIR-L			514.5	44.7	2	3	4			
DOUG FIR-T			1148.9	99.9	0	0	1			
WHEMLOCK			107.6	9.4	114	126	138			
WHEMLOCK-D			542.4	47.2	2	3	4			
WHEMLOCK-L			413.4	36.0	5	7	10			
WHEMLOCK-T			489.2	42.5	1	2	3			
WR CEDAR			453.5	39.4	4	6	8			
R ALDER			513.9	44.7	2	4	6			
BL MAPLE			970.1	84.4	0	0	1			
COTWOOD			813.0	70.7	0	1	1			
TOTAL			56.9	4.9	267	281	295	129	66	32
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			98.5	8.6	27,237	29,788	32,339			
DOUG FIR-D			715.5	62.2	84	221	359			
DOUG FIR-L			534.7	46.5	393	735	1,076			
DOUG FIR-T			1148.9	99.9	0	71	142			
WHEMLOCK			113.6	9.9	21,496	23,852	26,209			
WHEMLOCK-D			540.7	47.0	157	296	434			
WHEMLOCK-L			414.2	36.0	914	1,428	1,942			
WHEMLOCK-T			498.2	43.3	214	377	541			
WR CEDAR			488.6	42.5	358	622	886			
R ALDER			501.5	43.6	252	446	641			
BL MAPLE			854.6	74.3	9	33	58			
COTWOOD			813.0	70.7	45	153	261			
TOTAL			60.4	5.2	54,977	58,023	61,068	145	74	36
CL	68.1		COEFF	NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR			97.8	8.5	5,768	6,304	6,839			
DOUG FIR-D			723.2	62.9	23	62	102			
DOUG FIR-L			525.0	45.7	83	153	223			
DOUG FIR-T			1148.9	99.9	0	15	29			
WHEMLOCK			112.7	9.8	5,009	5,554	6,098			
WHEMLOCK-D			547.6	47.6	49	94	139			

TC PSTATS		<u>PROJECT STATISTICS</u>							PAGE	3
		PROJECT		LYTTLESLE			DATE	12/9/2015		
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
17N	05	24	LYTTLESLEG	00U1	THR	194.50	132	764	S	W
17N	05W	24	LYTTLESLEG	00U12						
CL	68.1	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK-L		414.3	36.0	209	327	444				
WHEMLOCK-T		497.2	43.2	52	92	131				
WR CEDAR		487.3	42.4	112	194	277				
R ALDER		517.2	45.0	71	129	187				
BL MAPLE		896.5	78.0	2	10	18				
COTWOOD		819.3	71.3	8	29	50				
TOTAL		59.5	5.2	12,292	12,963	13,634	141	72	35	
CL	68.1	COEFF		V_BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		36.7	3.2	216	236	256				
DOUG FIR-D		736.8	64.1	45	120	195				
DOUG FIR-L		419.4	36.5	131	244	358				
DOUG FIR-T		1148.9	99.9	0	259	518				
WHEMLOCK		60.6	5.3	170	189	208				
WHEMLOCK-D		540.7	47.0	52	98	144				
WHEMLOCK-L		329.5	28.7	128	201	273				
WHEMLOCK-T		498.2	43.3	98	172	247				
WR CEDAR		451.1	39.2	59	102	146				
R ALDER		481.4	41.9	58	104	149				
BL MAPLE		1046.6	91.0	19	75	131				
COTWOOD		809.3	70.4	67	229	391				
TOTAL		66.5	5.8	195	206	217	176	90	44	

T17N R05W S24 T00U1 **T17N R05W S24 T00U1**
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 17N 05W 24 LYTTLESLEG 00U1 44.50 25 67 S W

S Sp	So T	Gr rt	%	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre	
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
								5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
WH	CU	CU		100.0	1,115												8	12		0.00	29.5
WH	HA	SM	7	1.3	2,152	2,124	95										40	16	395	2.08	5.4
WH	HB	2S	32	3.9	9,264	8,908	396			40	60						40	16	374	2.00	23.8
WH	HB	3S	2		715	715	32			100							40	11	169	0.98	4.2
WH	DM	2S	28	6.6	8,314	7,768	346				52	48	2	3			39	14	290	1.66	26.8
WH	DM	3S	14	2.9	4,109	3,992	178	5	95					12	4	84	37	9	114	0.82	35.1
WH	DM	4S	4		1,136	1,136	51	100					5	80			27	6	34	0.36	33.7
WH	DM	UT	1		82	82	4			100			34	66			21	8	41	0.57	2.0
WH	OS	2S	12	8.2	3,636	3,339	149										40	21	700	3.61	4.8
WH	Totals		53	8.1	30,524	28,064	1,249	5	16	27	52		1	6	1	93	30	11	170	1.26	165.3
WH	D	CU	CU		100.0	210											12	10		0.00	3.0
WH	D	DM	2S	42	38.9	297	181	8			100						40	15	220	1.93	.8
WH	D	DM	UT	58		248	248	11			100						40	9	128	0.81	1.9
WH	D	Totals		1	43.1	755	430	19		58	42					100	25	11	74	0.86	5.8
DF	CU	CU		100.0	143												3	9		0.00	25.8
DF	HA	SM	7	2.6	1,669	1,625	72				100						40	17	471	2.36	3.4
DF	HB	2S	8	3.7	1,974	1,901	85				100						40	14	294	1.58	6.5
DF	DM	2S	23	8.4	5,584	5,117	228				58	42		1		99	39	15	325	1.79	15.8
DF	DM	3S	8	1.4	1,965	1,938	86	19	81				12	6	28	54	33	9	89	0.75	21.8
DF	DM	4S	2		349	349	16	100								100	40	5	40	0.34	8.7
DF	OS	SM	11	3.3	2,767	2,674	119				100						40	20	677	3.18	4.0
DF	OS	2S	39	7.5	9,502	8,793	391				100						39	23	931	4.63	9.4
DF	OS	UT	2		330	330	15				100		100				16	26	500	3.98	.7
DF	Totals		43	6.4	24,283	22,729	1,011	3	7	22	68		2	1	2	94	28	12	237	1.77	96.1
DF	D	CU	CU		100.0	378											24	14		0.00	1.8
DF	D	DM	UT	43	25.0	265	199	9			100						40	13	180	1.34	1.1
DF	D	OS	UT	57	25.5	345	257	11			100						40	23	700	4.41	.4
DF	D	Totals		1	53.9	988	456	20		44	56					100	31	15	138	1.21	3.3
RA	CU	CU		100.0	23												14	6		0.00	1.1
RA	DM	UT	8		69	69	3			100						100	16	9	40	0.68	1.7
RA	DM	3S	19	6.7	152	142	6			100						100	40	10	140	1.16	1.0
RA	DM	4S	33	9.8	294	265	12			100						100	40	8	92	0.75	2.9
RA	DM	4S	40	3.2	316	306	14	100					30	47		23	26	5	27	0.30	11.5
RA	Totals		1	8.4	855	783	35	39	61				21	19		61	27	6	43	0.49	18.3
BM	DM	4S	100		97	97	4	100									31	6	40	0.43	2.4
BM	Totals		0		97	97	4	100								100	31	6	40	0.43	2.4
RC	DM	3S	87		114	114	5			100						100	36	10	140	1.36	.8

T17N R05W S24 T00U1										T17N R05W S24 T00U1				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
17N	05W	24	LYTLESLEG	00U1	44.50	25	67	S	W					

Spp	So	Gr	%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log				Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/		
								5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf		
RC	DM	UT	13	16	16	1	100					100					16	5	20	0.34	.8
RC	Totals		0	130	130	6	12	88				12			88		26	8	80	1.05	1.6
CW	CU	CU																17		0.00	.3
CW	DM	2S	35	6.5	140	131	6					100			100		40	17	430	2.11	.3
CW	OS	2S	65	8.3	256	235	10					100			100		40	22	770	3.94	.3
CW	Totals		1	7.7	397	366	16					100			100		27	19	400	3.02	.9
Type Totals				8.6	58,029	53,054	2,361	5	13	24	58	2	4	2	93		29	11	181	1.36	293.7

T17N R05W S24 T00U2 T17N R05W S24 T00U2
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 17N 05W 24 LYTLESLEG 00U2 47.10 25 62 S W

Spp	S T	So rt	Gr ad	%	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
DF		CU	CU		100.0	241												2	11		0.00	18.7
DF		HA	SM	3	2.0	1,370	1,342	63										40	17	484	2.54	2.8
DF		HB	2S	13	2.3	5,295	5,171	244			52	48						40	15	335	1.85	15.5
DF		HB	3S	3	.0	1,239	1,239	58		100								40	9	132	0.71	9.4
DF		DM	2S	34	4.1	14,490	13,891	654			44	56			3	97		40	15	344	1.77	40.4
DF		DM	3S	9	1.8	3,594	3,531	166	8	92					2	16	82	38	9	106	0.84	33.4
DF		DM	4S	1		474	474	22	100					12	88			24	6	30	0.35	15.6
DF		DM	UT	1		501	501	24							100			24	18	320	2.45	1.6
DF		OS	SM	15	4.3	6,274	6,002	283										40	21	764	3.70	7.9
DF		OS	2S	21	6.6	8,980	8,391	395							8	92		40	21	728	3.79	11.5
DF	Totals			69	4.5	42,457	40,543	1,910	2	11	22	65		0	2	4	93	33	13	259	1.68	156.7
WH		CU	CU		100.0	243												6	6		0.00	40.2
WH		HA	2S	19	4.3	3,699	3,541	167			100							40	14	260	1.49	13.6
WH		HB	2S	23	3.9	4,223	4,060	191			100							40	14	264	1.56	15.4
WH		HB	3S	15	2.3	2,729	2,666	126		100								40	10	147	0.85	18.1
WH		DM	2S	3		630	630	30			100							40	13	240	1.34	2.6
WH		DM	3S	19	2.1	3,316	3,246	153	17	83					3	97		40	9	112	0.66	29.1
WH		DM	4S	17		3,164	3,164	149	100					18	21	20	41	29	5	31	0.27	100.9
WH		DM	UT	4	4.8	618	588	28	19	25	56			88	12			19	9	59	0.71	10.0
WH	Totals			30	3.9	18,621	17,895	843	21	31	48			6	4	4	86	28	7	78	0.65	229.9
WH	D	CU	CU		100.0	243												23	9		0.00	4.2
WH	D	DM	UT	100	34.5	776	508	24		64	36							40	11	122	1.13	4.2
WH D	Totals			1	50.1	1,019	508	24		64	36							31	10	61	0.72	8.3
RC		CU	CU		100.0	11												11	5		0.00	1.1
RC		DM	3S	100		92	92	4		100								36	8	80	0.96	1.1
RC	Totals			0	11.1	103	92	4		100								24	7	40	0.74	2.3
Type Totals					5.1	62,200	59,038	2,781	8	18	30	45		2	3	4	91	30	10	149	1.10	397.2

T17N R05W S24 T00U3 **T17N R05W S24 T00U3**
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 17N 05W 24 LYTTLESLEG 00U3 42.00 24 98 S W

S Sp	So T	Gr rt	%	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre		
				Net BdFt	Def%	Gross		Net	Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf	
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
WH	CU	CU		100.0	327													2	6		0.00	63.3
WH	HB	2S	19	4.3	6,331	6,061	255			44	56					100		40	15	327	1.83	18.5
WH	HB	3S	2	3.6	818	789	33		100							100		40	10	157	0.93	5.0
WH	DM	SM	2	1.9	640	628	26				100					100		40	18	520	2.59	1.2
WH	DM	2S	32	4.6	10,288	9,812	412			43	57		2			98		39	15	325	1.73	30.2
WH	DM	3S	25	2.7	8,061	7,843	329	30	70					4	4	91		39	8	92	0.65	85.1
WH	DM	4S	6		2,153	2,153	90	95	5				12	45	29	14		27	5	30	0.28	71.6
WH	OS	2S	14	11.0	4,601	4,097	172				100					100		40	21	729	3.98	5.6
WH	Totals		42	5.5	33,218	31,382	1,318	14	20	22	44		1	4	3	91		28	8	112	0.94	280.6
DF	CU	CU		100.0	555													6	12		0.00	20.8
DF	HB	2S	14	5.3	5,955	5,637	237			23	77					100		40	16	407	2.22	13.9
DF	HB	3S			275	275	12		100							100		40	11	180	0.94	1.5
DF	DM	2S	30	5.4	12,245	11,588	487			46	54		1			99		40	15	349	1.83	33.3
DF	DM	3S	5	6.1	2,278	2,140	90	17	83				10	12	79			37	8	93	0.78	22.9
DF	DM	4S		37.7	77	48	2	37	63				100					25	7	25	0.51	1.9
DF	OS	SM	4	5.2	1,374	1,303	55				100					100		40	27	1339	6.20	1.0
DF	OS	2S	47	7.2	19,892	18,468	776				100					100		40	23	932	4.46	19.8
DF	D Totals		53	7.5	42,650	39,458	1,657	1	5	17	77			1	1	98		33	15	343	2.16	115.1
DF	D	CU	CU		100.0	30												8	23		0.00	.2
DF	D	DM	UT	11		63	63	3		100				100				30	13	180	1.55	.4
DF	D	OS	2S	60	39.5	532	322	14			100					100		40	24	636	5.64	.5
DF	D	OS	UT	29		157	157	7			100					100		40	24	1010	4.36	.2
DF	D Totals		1	30.6	781	542	23			12	88			12		88		33	20	464	4.13	1.2
RC	CU	CU		100.0	70													3	8		0.00	7.1
RC	DM	3S	46	6.0	1,010	949	40	17	20	53	11			3		97		36	10	140	1.14	6.8
RC	DM	4S	8	10.8	196	175	7	100					24	68		8		25	5	27	0.42	6.4
RC	OS	3S	46	12.1	1,062	934	39				100					100		36	19	508	4.24	1.8
RC	Totals		3	12.0	2,338	2,058	86	16	9	24	50		2	7		91		22	9	93	1.27	22.1
RA	CU	CU																1	8		0.00	1.4
RA	DM	2S	40	12.5	440	385	16			100				20		80		35	13	193	1.39	2.0
RA	DM	3S	15	6.7	150	140	6		100							100		40	10	140	0.97	1.0
RA	DM	4S	27	8.8	287	262	11		100				11			89		33	8	74	0.70	3.5
RA	DM	4S	18		162	162	7	100					12		38	50		32	5	42	0.36	3.9
RA	Totals		1	8.7	1,040	950	40	17	42	41			5	8	6	80		30	8	81	0.75	11.8
CW	DM	UT	28		92	92	4				100							24	17	280	1.88	.3
CW	OS	UT	72		229	229	10				100					100		40	20	700	3.23	.3
CW	Totals		0		321	321	13				100			29		71		32	19	490	2.72	.7

T17N R05W S24 T00U3										T17N R05W S24 T00U3				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
17N	05W	24	LYTLESLEG	00U3	42.00	24	98	S	W					

S Spp	So T	Gr rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
									Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/	
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
Type Totals					7.0	80,348	74,710	3,138	7	12	19	62	1	3	2	95	29	10	173	1.33	431.4

T17N R05W S24 T00U4										T17N R05W S24 T00U4				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
17N	05W	24	LYTLESLEG	00U4	5.70	6	36	S	W					

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
DF		CU	CU		100.0	141												4	17		0.00	17.4
DF		HB	2S	2	1.9	1,304	1,280	7										40	18	520	2.73	2.5
DF		DM	2S	35	4.8	16,566	15,764	90		1	42	58		6		94		38	15	324	1.80	48.7
DF		DM	3S	8	5.3	3,826	3,625	21	15	85				5	29	65		36	9	99	0.83	36.5
DF		OS	2S	55	7.8	26,830	24,741	141								100		40	22	786	3.86	31.5
DF	Totals			65	6.7	48,668	45,409	259	1	7	14	77		2	2	95		34	15	333	2.09	136.5
WH		CU	CU		100.0	892												11	9		0.00	23.1
WH		HB	2S	15	3.5	3,739	3,607	21			31	69				100		40	15	322	1.82	11.2
WH		DM	2S	46	5.3	11,295	10,701	61			65	35				100		40	14	271	1.53	39.5
WH		DM	3S	25	6.3	6,332	5,931	34	12	88					3	97		40	9	112	0.72	52.7
WH		DM	4S	4		1,058	1,058	6	78	22				22	78			24	6	31	0.40	33.8
WH		DM	UT	4		877	877	5	53			47		47	53			22	9	65	0.62	13.5
WH		OS	2S	6	10.0	1,385	1,246	7								100		40	20	630	3.55	2.0
WH	Totals			34	8.4	25,577	23,420	133	9	23	34	34		3	6	1	91	32	10	133	0.99	175.9
RC		CU	CU															8			0.00	2.1
RC		DM	3S	88		467	467	3			100					100		36	13	220	2.17	2.1
RC		DM	4S	12		64	64	0		100				100				18	8	30	0.64	2.1
RC	Totals			1		531	531	3		12	88			12		88		18	10	83	1.66	6.4
Type Totals					7.2	74,776	69,360	395	4	13	22	62		1	3	2	94	32	12	218	1.49	318.7

T17N R05W S24 T00U5										T17N R05W S24 T00U5				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
17N	05W	24	LYTTLESLEG	00U5	10.30	10	40	S	W					

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
									Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/	
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
DF		CU	CU		100.0	271											4	7		0.00	43.3
DF		HB	2S	14	2.9	5,869	5,697	59			42	58			100		40	15	340	1.82	16.7
DF		HB	3S	1		374	374	4		100					100		40	10	150	0.81	2.5
DF		DM	2S	21	3.9	8,863	8,513	88			27	73			100		40	16	408	2.03	20.9
DF		DM	3S	13	1.2	5,150	5,087	52	20	80				7	4	89	39	8	106	0.75	47.9
DF		DM	4S	4		1,372	1,372	14	100					61	10	29	31	5	35	0.28	39.1
DF		OS	SM	19	4.8	7,839	7,466	77				100			100		40	22	809	3.94	9.2
DF		OS	2S	28	6.8	11,746	10,952	113				100			100		40	23	885	4.27	12.4
DF	Totals			90	4.9	41,484	39,462	406	6	11	12	71		3	1	96	30	11	206	1.45	192.0
WH		CU	CU														5			0.00	10.0
WH		HB	2S	29	3.4	724	699	7			100				100		40	14	280	1.63	2.5
WH		DM	3S	42		985	985	10		100					100		40	9	130	0.77	7.6
WH		DM	4S	29		678	678	7	100					11	59	30	34	5	39	0.33	17.6
WH	Totals			5	1.0	2,387	2,362	24	29	42	30		3	17	80		26	7	63	0.59	37.6
RC		CU	CU														6			0.00	12.1
RC		DM	3S	49		731	731	8		55	45				100		36	10	121	1.09	6.0
RC		DM	4S	26	13.5	450	390	4	100					72	28		31	6	35	0.40	11.2
RC		OS	3S	25	9.5	393	355	4			100				100		36	17	380	3.25	.9
RC	Totals			3	6.2	1,574	1,476	15	26	27	22	24		19	81		20	7	49	0.81	30.2
RA		DM	3S	100		634	634	7		100				28	72		31	11	125	1.00	5.1
RA	Totals			1		634	634	7		100				28	72		31	11	125	1.00	5.1
Type Totals					4.7	46,079	43,935	453	8	15	13	64		4	2	94	28	10	166	1.28	264.9

T17N R05W S24 T00U6										T17N R05W S24 T00U6				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
17N	05W	24	LYTTLESLEG	00U6	23.20	15	48	S	W					

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
WH		CU	CU		100.0	128												2	6		0.00	53.6
WH		HA	SM	2	4.3	975	933	22										40	17	440	2.23	2.1
WH		HA	2S	6	2.4	2,545	2,483	58			100							40	14	265	1.49	9.4
WH		HB	2S	21	3.3	9,268	8,964	208			90	10						40	13	240	1.42	37.4
WH		HB	3S	7	6.0	3,012	2,830	66		100								40	10	131	0.82	21.7
WH		DM	SM	2	1.9	1,032	1,013	23										40	18	520	2.45	1.9
WH		DM	2S	20	8.3	9,269	8,499	197			78	22						40	13	249	1.47	34.2
WH		DM	3S	24	2.4	10,159	9,913	230	23	77			1	4	7	88		38	8	98	0.63	101.1
WH		DM	4S	6		2,664	2,664	62	100				17	39	9	35		27	5	30	0.31	88.6
WH		DM	UT	2		830	830	19	11		89		11	89				21	9	128	1.23	6.5
WH		OS	2S	9	11.4	4,036	3,575	83										40	22	744	3.87	4.8
WH		OS	UT	1	.0	323	323	7			100		100					18	16	180	2.84	1.8
WH	Totals			68	5.0	44,243	42,027	975	12	25	41	22	2	5	2	90		30	9	116	0.90	363.1
WH	D	CU	CU															9			0.00	2.3
WH	D	DM	2S	55	25.0	461	345	8			100							40	12	150	1.18	2.3
WH	D	DM	UT	45		276	276	6		100								40	9	120	0.61	2.3
WH	D	Totals		1	15.6	737	622	14		44	56					100		27	10	90	0.90	6.9
DF		CU	CU		100.0	270												4	13		0.00	15.6
DF		HA	SM	17	3.5	3,328	3,210	74				100						40	17	464	2.47	6.9
DF		HB	2S	13	3.4	2,659	2,570	60			76	24		36		64		33	14	251	1.49	10.3
DF		DM	2S	15	6.0	2,856	2,685	62			17	83				100		40	16	402	2.06	6.7
DF		DM	3S	5	22.4	1,233	957	22		100				10	11	79		37	9	73	0.78	13.1
DF		OS	SM	18	5.3	3,668	3,473	81								100		40	22	787	3.86	4.4
DF		OS	2S	32	7.5	6,308	5,834	135								100		40	24	935	4.67	6.2
DF	Totals			30	7.8	20,321	18,728	434		5	13	82		5	1	94		29	15	296	2.14	63.2
RC		CU	CU															6			0.00	4.0
RC		DM	3S	100		242	242	6	100							100		36	6	60	0.43	4.0
RC	Totals			0		242	242	6	100							100		18	6	30	0.43	8.1
Type	Totals				6.0	65,543	61,619	1,430	9	19	32	40	2	5	2	92		30	10	140	1.07	441.3

T17N R05W S24 T00U7										T17N R05W S24 T00U7				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
17N	05W	24	LYTLESLEG	00U7	3.80	4	13	S	W					

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf		
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99						
WH		CU	CU		100.0	86												2	7		0.00	90.7
WH		HA	SM	8	8.3	2,215	2,030	8										40	19	550	2.83	3.7
WH		HB	2S	26	2.3	6,044	5,902	22			28	72						40	16	385	2.02	15.3
WH		HB	3S	14		3,218	3,218	12		100								40	10	163	0.91	19.7
WH		DM	2S	17	5.6	4,039	3,813	14			76	24		24		76		37	14	249	1.46	15.3
WH		DM	3S	12		2,627	2,627	10	32	68				9	18	73		36	8	85	0.64	30.8
WH		DM	4S	13		3,118	3,118	12	100							96		37	5	42	0.42	74.0
WH		OS	SM	10	7.1	2,228	2,069	8				100				100		40	20	650	3.23	3.2
WH	Totals			71	3.4	23,574	22,776	87	17	22	20	41		1	5	2	92	25	8	90	0.88	252.8
DF		HA	2S	19	.0	1,856	1,856	7			100					100		40	15	360	1.82	5.2
DF		HB	2S	21	4.3	1,993	1,906	7			100					100		40	17	440	2.23	4.3
DF		DM	2S	22	1.2	2,078	2,052	8			51	49				100		40	14	296	1.49	6.9
DF		DM	3S	18		1,731	1,731	7	30	70				15	15	70		35	8	100	0.73	17.2
DF		OS	2S	20	7.9	1,973	1,818	7				100				100		40	21	700	3.82	2.6
DF	Totals			29	2.8	9,632	9,364	36	6	13	31	51		3	3	94		38	12	258	1.47	36.3
Type Totals					3.2	33,206	32,140	122	14	19	23	44		0	4	2	93	26	9	111	0.98	289.0

T17N R05W S24 T00U9										T17N R05W S24 T00U9				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
17N	05W	24	LYTLESLEG	00U9	.70	4	11	S	W					

S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
								Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/	
								5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
WH	DM	4S	84	4.7	3,306	3,151	2	100		20	46	20	15	26	5	29	0.24	110.4		
WH		DM UT	16		571	571	0	100		100				25	5	30	0.24	19.0		
WH	Totals		57	4.0	3,876	3,722	3	100		17	54	17	12	26	5	29	0.24	129.4		
DF	DM	4S	100		2,819	2,819	2	100		45	37		18	23	5	24	0.22	118.7		
DF	Totals		43		2,819	2,819	2	100		45	37		18	23	5	24	0.22	118.7		
Type Totals				2.3	6,695	6,541	5	100		29	47	9	15	25	5	26	0.23	248.1		

TC TSTATS				STATISTICS				PAGE	1	
PROJECT				LYTTLESLE				DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTTLESLEG	00U1	44.50	25	121	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		25	121	4.8						
CRUISE		14	67	4.8	4,768	1.4				
DBH COUNT REFOREST COUNT		11	54	4.9						
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	37	58.1	20.8	95	30.1	137.2	30,524	28,064	6,590	6,334
WHEMLOCK-D	2	1.9	20.3	79	1.0	4.4	755	430	171	126
DOUG FIR	17	29.5	24.7	102	19.7	98.0	24,283	22,729	4,805	4,771
DOUG FIR-D	2	1.5	23.3	72	0.9	4.4	988	456	187	124
R ALDER	6	12.6	11.8	48	2.8	9.6	855	783	245	240
BL MAPLE	1	2.4	11.0	32	0.5	1.6	97	97	32	32
WR CEDAR	1	.8	19.0	65	0.4	1.6	130	130	44	44
COTWOOD	1	.3	31.0	89	0.3	1.6	397	366	74	74
TOTAL	67	107.1	21.0	89	56.3	258.3	58,029	53,054	12,148	11,746
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	46.5	7.6		599	649	698				
WHEMLOCK-D	89.5	83.8		40	245	450				
DOUG FIR	66.5	16.6		1,103	1,322	1,542				
DOUG FIR-D	83.6	78.3		96	440	784				
R ALDER	62.6	27.9		61	85	109				
BL MAPLE										
WR CEDAR										
COTWOOD										
TOTAL	84.9	10.4		666	743	820	288	147	72	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	42.8	7.0		135	145	155				
WHEMLOCK-D	85.5	80.1		14	72	129				
DOUG FIR	60.2	15.0		228	268	308				
DOUG FIR-D	75.4	70.6		34	115	196				
R ALDER	67.8	30.2		19	27	35				
BL MAPLE										
WR CEDAR										
COTWOOD										
TOTAL	74.2	9.1		146	161	175	220	112	55	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK	90.9	18.5		47	58	69				
WHEMLOCK-D	350.1	71.4		1	2	3				
DOUG FIR	93.5	19.1		24	29	35				
DOUG FIR-D	390.7	79.7		0	1	3				
R ALDER	348.3	71.0		4	13	22				
BL MAPLE	500.0	102.0			2	5				
WR CEDAR	500.0	102.0			1	2				

TC TSTATS				STATISTICS			PAGE	2		
PROJECT				LYTLESLE			DATE	12/9/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTLESLEG	00U1	44.50	25	121	S	W	
CL:	68.1 %	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
COTWOOD		500.0	102.0		0	1				
TOTAL		<i>52.1</i>	<i>10.6</i>	<i>96</i>	<i>107</i>	<i>119</i>	<i>113</i>	<i>58</i>	<i>28</i>	
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		83.5	17.0	114	137	161				
WHEMLOCK-D		346.1	70.6	1	4	7				
DOUG FIR		89.3	18.2	80	98	116				
DOUG FIR-D		346.1	70.6	1	4	7				
R ALDER		366.4	74.7	2	10	17				
BL MAPLE		500.0	102.0		2	3				
WR CEDAR		500.0	102.0		2	3				
COTWOOD		500.0	102.0		2	3				
TOTAL		<i>43.5</i>	<i>8.9</i>	<i>235</i>	<i>258</i>	<i>281</i>	<i>79</i>	<i>40</i>	<i>20</i>	
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		87.1	17.8	23,076	28,064	33,051				
WHEMLOCK-D		396.6	80.9	82	430	777				
DOUG FIR		92.2	18.8	18,455	22,729	27,003				
DOUG FIR-D		349.1	71.2	131	456	780				
R ALDER		404.4	82.5	137	783	1,428				
BL MAPLE		500.0	102.0		97	196				
WR CEDAR		500.0	102.0		130	263				
COTWOOD		500.0	102.0		366	740				
TOTAL		<i>50.2</i>	<i>10.2</i>	<i>47,618</i>	<i>53,054</i>	<i>58,489</i>	<i>105</i>	<i>54</i>	<i>26</i>	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		87.5	17.8	5,204	6,334	7,465				
WHEMLOCK-D		390.9	79.7	26	126	227				
DOUG FIR		90.9	18.5	3,886	4,771	5,656				
DOUG FIR-D		346.4	70.6	36	124	212				
R ALDER		407.9	83.2	40	240	439				
BL MAPLE		500.0	102.0		32	65				
WR CEDAR		500.0	102.0		44	90				
COTWOOD		500.0	102.0		74	149				
TOTAL		<i>49.1</i>	<i>10.0</i>	<i>10,569</i>	<i>11,746</i>	<i>12,923</i>	<i>100</i>	<i>51</i>	<i>25</i>	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		48.4	9.9	168	205	241				
WHEMLOCK-D		396.6	80.9	19	99	178				
DOUG FIR				188	232	276				
DOUG FIR-D		349.1	71.2	30	105	179				
R ALDER		404.4	82.5	14	82	149				
BL MAPLE		500.0	102.0		61	122				
WR CEDAR		500.0	102.0		81	164				
COTWOOD		500.0	102.0		229	462				
TOTAL		<i>192.8</i>	<i>39.3</i>	<i>184</i>	<i>205</i>	<i>226</i>	<i>1,546</i>	<i>789</i>	<i>386</i>	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	LYTLESLE			DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTLESLEG	00U2	47.10	25	132	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		25	132	5.3						
CRUISE		12	62	5.2	7,835	.8				
DBH COUNT REFOREST COUNT		13	70	5.4						
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	35	46.0	26.2	117	33.6	172.0	42,457	40,543	8,752	8,716
WHEMLOCK	23	115.0	13.0	76	29.5	106.7	18,621	17,895	4,284	4,244
WHEMLOCK-D	3	4.2	16.9	65	1.6	6.5	1,019	508	243	189
WR CEDAR	1	1.1	16.0	62	0.4	1.6	103	92	43	40
TOTAL	62	166.3	17.8	87	68.0	286.9	62,200	59,038	13,322	13,188
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		39.6	6.7	961	1,029	1,098				
WHEMLOCK		61.7	13.1	259	298	337				
WHEMLOCK-D		18.7	13.0	107	123	139				
WR CEDAR										
TOTAL		71.6	9.1	636	699	763	205	104	51	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		35.2	5.9	205	218	231				
WHEMLOCK		59.4	12.6	61	70	79				
WHEMLOCK-D		11.0	7.6	42	46	49				
WR CEDAR										
TOTAL		64.8	8.2	139	152	164	168	86	42	
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		62.2	12.7	40	46	52				
WHEMLOCK		97.5	19.9	92	115	138				
WHEMLOCK-D		376.3	76.7	1	4	7				
WR CEDAR		500.0	102.0		1	2				
TOTAL		60.5	12.3	146	166	187	152	78	38	
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		64.4	13.1	149	172	195				
WHEMLOCK		101.5	20.7	85	107	129				
WHEMLOCK-D		366.4	74.7	2	7	11				
WR CEDAR		500.0	102.0		2	3				
TOTAL		35.7	7.3	266	287	308	53	27	13	
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		65.5	13.4	35,127	40,543	45,959				
WHEMLOCK		106.5	21.7	14,010	17,895	21,780				
WHEMLOCK-D		359.8	73.4	135	508	881				
WR CEDAR		500.0	102.0		92	185				
TOTAL		38.8	7.9	54,369	59,038	63,707	63	32	16	

TC TSTATS				STATISTICS				PAGE	2	
PROJECT				LYTTLESLE				DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTTLESLEG	00U2	47.10	25	132	S	W	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E. %	LOW	AVG	HIGH	5	7	10	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	7	10	
DOUG FIR		64.7	13.2	7,565	8,716	9,866				
WHEMLOCK		106.9	21.8	3,319	4,244	5,169				
WHEMLOCK-D		366.5	74.7	48	189	330				
WR CEDAR		500.0	102.0		40	80				
TOTAL		37.7	7.7	12,174	13,188	14,201	59	30	15	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	7	10	
DOUG FIR				204	236	267				
WHEMLOCK		36.8	7.5	131	168	204				
WHEMLOCK-D		359.8	73.4	21	78	135				
WR CEDAR		500.0	102.0		57	116				
TOTAL		216.0	44.1	190	206	222	1,941	990	485	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	LYTLESLE			DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTLESLEG	00U3	42.00	24	188	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		24	188	7.8						
CRUISE		14	98	7.0	6,549	1.5				
DBH COUNT REFOREST COUNT		10	78	7.8						
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	40	110.0	16.6	87	40.4	164.6	33,218	31,382	7,376	7,302
DOUG FIR	39	31.8	30.1	123	28.6	157.0	42,650	39,458	8,265	8,160
DOUG FIR-D	2	.5	37.7	78	0.6	3.9	781	542	161	158
WR CEDAR	11	8.5	19.9	73	4.1	18.2	2,338	2,058	640	626
R ALDER	5	4.9	16.2	77	1.7	7.0	1,040	950	265	265
COTWOOD	1	.3	28.0	66	0.3	1.4	321	321	57	57
TOTAL	98	155.9	20.3	93	78.1	352.1	80,348	74,710	16,764	16,567
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		80.8	12.9	518	595	672				
DOUG FIR		50.1	8.0	1,401	1,524	1,646				
DOUG FIR-D		66.9	62.7	489	1,310	2,131				
WR CEDAR		80.0	25.3	374	501	628				
R ALDER		60.9	30.2	156	224	292				
COTWOOD										
TOTAL		79.9	8.1	880	957	1,035	255	130	64	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		74.9	12.0	118	134	150				
DOUG FIR		45.2	7.2	287	309	331				
DOUG FIR-D		66.3	62.1	144	380	616				
WR CEDAR		71.6	22.6	114	147	180				
R ALDER		49.2	24.5	47	62	77				
COTWOOD										
TOTAL		71.7	7.3	192	207	222	205	105	51	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		58.6	12.2	97	110	123				
DOUG FIR		60.3	12.6	28	32	36				
DOUG FIR-D		489.9	102.1		1	1				
WR CEDAR		233.5	48.7	4	8	13				
R ALDER		309.7	64.5	2	5	8				
COTWOOD		489.9	102.1		0	1				
TOTAL		36.7	7.6	144	156	168	56	29	14	
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		60.5	12.6	144	165	185				
DOUG FIR		53.5	11.2	140	157	175				
DOUG FIR-D		489.9	102.1		4	8				
WR CEDAR		277.5	57.8	8	18	29				
R ALDER		315.8	65.8	2	7	12				
COTWOOD		489.9	102.1		1	3				

TC TSTATS				STATISTICS				PAGE	2	
PROJECT				LYTTLESLE				DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTTLESLEG	00U3	42.00	24	188	S	W	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
TOTAL		22.4	4.7	336	352	369	21	11	5	
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		65.2	13.6	27,116	31,382	35,647				
DOUG FIR		54.7	11.4	34,960	39,458	43,956				
DOUG FIR-D		489.9	102.1		542	1,095				
WR CEDAR		275.8	57.5	875	2,058	3,240				
R ALDER		292.5	60.9	371	950	1,529				
COTWOOD		489.9	102.1		321	649				
TOTAL		23.2	4.8	71,096	74,710	78,324	22	11	6	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		63.9	13.3	6,329	7,302	8,274				
DOUG FIR		53.9	11.2	7,244	8,160	9,077				
DOUG FIR-D		489.9	102.1		158	319				
WR CEDAR		282.5	58.9	257	626	994				
R ALDER		301.8	62.9	98	265	432				
COTWOOD		489.9	102.1		57	115				
TOTAL		22.1	4.6	15,804	16,567	17,331	20	10	5	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK				165	191	217				
DOUG FIR				223	251	280				
DOUG FIR-D		489.9	102.1		139	280				
WR CEDAR		264.8	55.2	48	113	178				
R ALDER		292.5	60.9	53	136	218				
COTWOOD		489.9	102.1		229	463				
TOTAL		176.9	36.8	202	212	222	1,303	665	326	

TC TSTATS				STATISTICS				PAGE	1	
PROJECT				LYTTLESLE				DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTTLESLEG	00U4	5.70	6	36	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		6	36	6.0						
CRUISE		6	36	6.0	632		5.7			
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	21	39.0	29.9	121	34.8	190.5	48,668	45,409	9,584	9,548
WHEMLOCK	14	69.7	18.3	84	29.7	127.0	25,577	23,420	5,688	5,528
WR CEDAR	1	2.1	24.0	58	1.4	6.7	531	531	190	190
TOTAL	36	110.8	23.2	96	67.4	324.2	74,776	69,360	15,461	15,266
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		2.3	.6	1,586	1,595	1,604				
WHEMLOCK		58.1	16.1	385	459	532				
WR CEDAR										
TOTAL		56.7	9.9	966	1,072	1,178	128	65	32	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR				329	329	329				
WHEMLOCK		55.4	15.4	90	107	123				
WR CEDAR										
TOTAL		47.9	8.3	209	227	246	91	47	23	
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		71.2	31.7	27	39	51				
WHEMLOCK		91.0	40.5	41	70	98				
WR CEDAR		244.9	109.1	2	2	4				
TOTAL		38.5	17.1	92	111	130	70	36	18	
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		74.0	32.9	128	191	253				
WHEMLOCK		96.5	43.0	72	127	182				
WR CEDAR		244.9	109.1	7	7	14				
TOTAL		28.6	12.7	283	324	365	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	
DOUG FIR		70.7	31.5	31,114	45,409	59,704				
WHEMLOCK		94.8	42.2	13,532	23,420	33,309				
WR CEDAR		244.9	109.1	531	1,109					
TOTAL		25.0	11.1	61,636	69,360	77,084	30	15	7	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		70.4	31.3	6,556	9,548	12,541				
WHEMLOCK		96.8	43.1	3,145	5,528	7,910				
WR CEDAR		244.9	109.1	190	397					
TOTAL		24.4	10.9	13,608	15,266	16,924	28	14	7	

TC TSTATS				STATISTICS				PAGE	2	
PROJECT				LYTLESLE				DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTLESLEG	00U4	5.70	6	36	S	W	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		70.7	31.5	163	238	313				
WHEMLOCK		94.8	42.2	107	184	262				
WR CEDAR		244.9	109.1		80	166				
TOTAL		25.6	11.4	190	214	238	31	16	8	

TC TSTATS				STATISTICS				PAGE	1	
PROJECT				LYTLESLE				DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTLESLEG	00U5	10.30	10	40	S	W	
				TREES	ESTIMATED		PERCENT			
				PER PLOT	TOTAL		SAMPLE			
					TREES		TREES			
TOTAL		10	40	4.0						
CRUISE		10	40	4.0	1,129		3.5			
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	32	77.4	20.3	89	38.7	174.2	41,484	39,462	8,337	8,282
WHEMLOCK	3	17.6	13.1	73	4.5	16.3	2,387	2,362	591	591
WR CEDAR	4	12.1	15.6	70	4.1	16.0	1,574	1,476	483	484
R ALDER	1	2.5	17.0	63	1.0	4.0	634	634	155	155
TOTAL	40	109.6	18.8	84	48.6	210.5	46,079	43,935	9,567	9,511
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF		SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		65.5	11.6	1,025	1,159	1,293				
WHEMLOCK		98.3	68.0	70	220	370				
WR CEDAR		85.8	49.0	110	215	320				
R ALDER										
TOTAL		80.2	12.7	848	972	1,095	257	131	64	
CL:	68.1 %	COEFF		SAMPLE TREES - CF			# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		61.2	10.8	209	235	260				
WHEMLOCK		91.3	63.2	20	53	86				
WR CEDAR		86.8	49.6	35	70	104				
R ALDER										
TOTAL		73.5	11.6	177	200	224	216	110	54	
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		137.2	45.7	42	77	113				
WHEMLOCK		190.6	63.4	6	18	29				
WR CEDAR		167.7	55.8	5	12	19				
R ALDER		316.2	105.2		3	5				
TOTAL		97.0	32.3	74	110	145	417	213	104	
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		65.6	21.8	136	174	212				
WHEMLOCK		161.0	53.6	8	16	25				
WR CEDAR		129.1	43.0	9	16	23				
R ALDER		316.2	105.2		4	8				
TOTAL		59.8	19.9	169	211	252	158	81	40	
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		75.5	25.1	29,542	39,462	49,383				
WHEMLOCK		177.6	59.1	966	2,362	3,758				
WR CEDAR		138.0	45.9	798	1,476	2,154				
R ALDER		316.2	105.2		634	1,302				
TOTAL		69.9	23.3	33,708	43,935	54,161	217	111	54	

TC TSTATS				STATISTICS				PAGE	2	
PROJECT				LYTTLESLE				DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTTLESLEG	00U5	10.30	10	40	S	W	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E. %	LOW	AVG	HIGH	5	7	10	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	7	10	
DOUG FIR		73.6	24.5	6,252	8,282	10,311				
WHEMLOCK		171.9	57.2	253	591	928				
WR CEDAR		133.8	44.5	268	484	699				
R ALDER		316.2	105.2		155	319				
TOTAL		67.7	22.5	7,368	9,511	11,654	203	104	51	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	7	10	
DOUG FIR		75.5	25.1	170	227	283				
WHEMLOCK		177.6	59.1	59	145	230				
WR CEDAR		138.0	45.9	50	92	135				
R ALDER		316.2	105.2		159	326				
TOTAL		69.4	23.1	160	209	257	213	109	53	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	LYTLESLE			DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTLESLEG	00U6	23.20	15	82	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		15	82	5.5						
CRUISE		7	47	6.7	3,403		1.4			
DBH COUNT										
REFOREST										
COUNT		7	34	4.9						
BLANKS		1								
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK	35	124.5	17.8	99	50.8	214.1	44,243	42,027	9,969	9,944
WHEMLOCK-D	1	2.3	17.0	89	0.9	3.6	737	622	165	165
DOUG FIR	10	15.9	29.7	123	14.0	76.2	20,321	18,728	4,023	3,974
WR CEDAR	1	4.0	11.0	65	0.8	2.7	242	242	62	62
TOTAL	47	146.7	19.3	101	67.6	296.6	65,543	61,619	14,220	14,146
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		77.0	13.0	425	489	552				
WHEMLOCK-D										
DOUG FIR		34.6	12.2	1,363	1,552	1,742				
WR CEDAR										
TOTAL		86.8	12.8	595	683	770	301	154	75	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		69.5	11.7	99	113	126				
WHEMLOCK-D										
DOUG FIR		26.4	9.3	293	323	353				
WR CEDAR										
TOTAL		77.1	11.4	134	151	168	237	121	59	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		74.2	19.8	100	124	149				
WHEMLOCK-D		387.3	103.4		2	5				
DOUG FIR		108.6	29.0	11	16	20				
WR CEDAR		387.3	103.4		4	8				
TOTAL		62.3	16.6	122	147	171	166	85	41	
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		68.3	18.2	175	214	253				
WHEMLOCK-D		387.3	103.4		4	7				
DOUG FIR		107.3	28.7	54	76	98				
WR CEDAR		387.3	103.4		3	5				
TOTAL		43.4	11.6	262	297	331	81	41	20	
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		72.7	19.4	33,863	42,027	50,191				
WHEMLOCK-D		387.3	103.4		622	1,265				
DOUG FIR		107.3	28.7	13,358	18,728	24,098				
WR CEDAR		387.3	103.4		242	493				
TOTAL		43.2	11.5	54,510	61,619	68,728	80	41	20	

TC TSTATS				STATISTICS				PAGE	2	
PROJECT				LYTTLESLE				DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTTLESLEG	00U6	23.20	15	82	S	W	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		71.0	19.0	8,058	9,944	11,831				
WHEMLOCK-D		387.3	103.4		165	336				
DOUG FIR		107.3	28.7	2,835	3,974	5,113				
WR CEDAR		387.3	103.4		62	127				
TOTAL		<i>43.6</i>	<i>11.6</i>	<i>12,499</i>	<i>14,146</i>	<i>15,793</i>	<i>81</i>	<i>41</i>	<i>20</i>	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK				158	196	234				
WHEMLOCK-D		387.3	103.4		171	348				
DOUG FIR				175	246	316				
WR CEDAR		387.3	103.4		91	185				
TOTAL		<i>169.9</i>	<i>45.4</i>	<i>184</i>	<i>208</i>	<i>232</i>	<i>1,235</i>	<i>630</i>	<i>309</i>	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	LYTLESLE			DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTLESLEG	00U7	3.80	4	13	S	W	
				TREES	ESTIMATED		PERCENT			
				PER PLOT	TOTAL		SAMPLE			
					TREES		TREES			
TOTAL		4	13	3.3						
CRUISE		4	13	3.3	418		3.1			
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK	10	97.9	16.0	76	34.1	136.1	23,574	22,776	5,493	5,474
DOUG FIR	3	12.1	24.9	117	8.2	40.8	9,632	9,364	2,019	2,019
TOTAL	13	110.0	17.2	81	42.7	176.9	33,206	32,140	7,512	7,493
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		89.4	29.8	319	454	589				
DOUG FIR		37.7	26.1	623	843	1,063				
TOTAL		75.7	21.8	425	544	663	248	126	62	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		81.1	27.0	74	101	129				
DOUG FIR		39.7	27.5	133	183	233				
TOTAL		70.7	20.4	96	120	145	216	110	54	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		91.4	52.2	47	98	149				
DOUG FIR		148.3	84.8	2	12	22				
TOTAL		79.3	45.3	60	110	160	328	168	82	
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		51.6	29.5	96	136	176				
DOUG FIR		127.7	72.9	11	41	71				
TOTAL		29.5	16.8	147	177	207	45	23	11	
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		76.5	43.7	12,827	22,776	32,726				
DOUG FIR		127.7	73.0	2,530	9,364	16,197				
TOTAL		32.0	18.3	26,265	32,140	38,014	53	27	13	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		66.2	37.8	3,405	5,474	7,543				
DOUG FIR		126.8	72.5	556	2,019	3,482				
TOTAL		27.0	15.4	6,337	7,493	8,649	38	19	10	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		76.5	43.7	94	167	240				
DOUG FIR		127.7	73.0	62	229	397				
TOTAL		32.0	18.3	148	182	215	53	27	13	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	LYTLESLE			DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTLESLEG	00U8	8.80	9	46	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		9	46	5.1						
CRUISE		9	34	3.8	1,135	3.0				
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-L	18	78.1	19.2	95	35.9	157.3	33,063	31,564	7,301	7,218
WHEMLOCK-T	8	34.1	16.1	77	12.1	48.4	8,775	8,341	2,037	2,026
DOUG FIR-L	7	16.1	27.5	110	12.7	66.5	17,505	16,241	3,386	3,388
DOUG FIR-T	1	.8	38.0	129	1.0	6.0	1,728	1,567	322	322
TOTAL	34	129.0	19.9	92	62.4	278.2	61,070	57,713	13,046	12,953
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK-L	66.0	16.0		544	647	751				
WHEMLOCK-T	72.7	27.4		320	441	562				
DOUG FIR-L	53.9	21.9		1,169	1,497	1,826				
DOUG FIR-T										
TOTAL	80.3	13.8		703	815	927	257	131	64	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK-L	58.1	14.1		123	143	164				
WHEMLOCK-T	65.7	24.8		78	103	129				
DOUG FIR-L	48.4	19.7		243	302	362				
DOUG FIR-T										
TOTAL	71.2	12.2		154	175	196	203	103	51	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK-L	88.2	31.1		54	78	102				
WHEMLOCK-T	125.8	44.4		19	34	49				
DOUG FIR-L	96.7	34.1		11	16	22				
DOUG FIR-T	300.0	105.9			1	2				
TOTAL	41.0	14.5		110	129	148	75	38	19	
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-L	50.3	17.8		129	157	185				
WHEMLOCK-T	87.9	31.0		33	48	63				
DOUG FIR-L	98.3	34.7		43	67	90				
DOUG FIR-T	300.0	105.9			6	12				
TOTAL				278	278	278				
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-L	50.8	17.9		25,910	31,564	37,217				
WHEMLOCK-T	91.7	32.4		5,641	8,341	11,041				
DOUG FIR-L	106.2	37.5		10,154	16,241	22,328				
DOUG FIR-T	300.0	105.9			1,567	3,226				
TOTAL				57,713	57,713	57,713				

TC TSTATS				STATISTICS				PAGE	2	
PROJECT				LYTTLESLE				DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTTLESLEG	00U8	8.80	9	46	S	W	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E. %	LOW	AVG	HIGH	5	7	10	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	7	10	
WHEMLOCK-L		50.8	17.9	5,922	7,218	8,513				
WHEMLOCK-T		91.3	32.2	1,373	2,026	2,678				
DOUG FIR-L		102.5	36.2	2,163	3,388	4,613				
DOUG FIR-T		300.0	105.9		322	663				
TOTAL				<i>12,953</i>	<i>12,953</i>	<i>12,953</i>				
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	7	10	
WHEMLOCK-L				165	201	237				
WHEMLOCK-T		91.7	32.4	117	172	228				
DOUG FIR-L		53.9	19.0	153	244	336				
DOUG FIR-T		300.0	105.9		259	533				
TOTAL		<i>87.5</i>	<i>30.9</i>	<i>207</i>	<i>207</i>	<i>207</i>	<i>343</i>	<i>175</i>	<i>86</i>	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	LYTLESLE			DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTLESLEG	00U9	0.70	4	11	S	W	
				TREES	ESTIMATED		PERCENT			
				PER PLOT	TOTAL		SAMPLE			
					TREES		TREES			
TOTAL		4	11	2.8						
CRUISE		4	11	2.8	174		6.3			
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK	6	129.4	8.5	44	17.3	50.4	3,876	3,722	803	803
DOUG FIR	5	118.7	8.1	43	14.8	42.0	2,819	2,819	608	604
TOTAL	11	248.1	8.3	43	32.2	92.4	6,695	6,541	1,411	1,407
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		21.1	9.4	27	30	33				
DOUG FIR		34.4	17.1	22	26	30				
TOTAL		26.6	8.4	26	28	31	31	16	8	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		49.1	21.9	5	7	8				
DOUG FIR		67.9	33.7	4	6	8				
TOTAL		54.7	17.3	5	7	8	131	67	33	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		78.9	45.1	71	129	188				
DOUG FIR		200.0	114.3		119	254				
TOTAL		64.8	37.0	156	248	340	219	112	55	
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		86.1	49.2	26	50	75				
DOUG FIR		200.0	114.3		42	90				
TOTAL		62.1	35.5	60	92	125	201	103	50	
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		78.5	44.9	2,052	3,722	5,392				
DOUG FIR		200.0	114.3		2,819	6,040				
TOTAL		53.7	30.7	4,533	6,541	8,549	151	77	38	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		96.8	55.3	359	803	1,248				
DOUG FIR		200.0	114.3		604	1,294				
TOTAL		62.4	35.6	906	1,407	1,909	203	104	51	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		78.5	44.9	41	74	107				
DOUG FIR		200.0	114.3		67	144				
TOTAL		53.7	30.7	49	71	92	151	77	38	

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	LYTLESLE			DATE	12/9/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
17N	05W	24	LYTLESLEG	0U10	1.60	8	20	S	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		8	20	2.5							
CRUISE		7	20	2.9	283	7.1					
DBH COUNT											
REFOREST											
COUNT											
BLANKS		1									
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	15	139.0	11.6	54	30.0	102.1	9,161	8,815	2,430	2,408	
WHEMLOCK	3	9.1	20.3	86	4.5	20.4	3,863	3,338	880	854	
R ALDER	2	28.9	9.3	40	4.5	13.6	1,200	993	297	279	
TOTAL	20	177.0	11.9	54	39.5	136.1	14,224	13,146	3,607	3,541	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR	245.0	65.4		105	304	503					
WHEMLOCK	73.3	50.7		237	480	723					
R ALDER	106.1	99.3		1	80	159					
TOTAL	213.5	48.9		157	308	459	1,916	977	479		
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR	221.4	59.1		28	69	110					
WHEMLOCK	59.5	41.2		69	117	166					
R ALDER	122.2	114.4			28	60					
TOTAL	187.6	43.0		41	73	104	1,480	755	370		
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	101.1	38.1		86	139	192					
WHEMLOCK	282.8	106.6			9	19					
R ALDER	282.8	106.6			29	60					
TOTAL	69.4	26.2		131	177	223	219	112	55		
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	72.3	27.3		74	102	130					
WHEMLOCK	282.8	106.6			20	42					
R ALDER	282.8	106.6			14	28					
TOTAL	56.6	21.3		107	136	165	146	74	36		
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	57.7	21.7		6,899	8,815	10,732					
WHEMLOCK	282.8	106.6			3,338	6,897					
R ALDER	282.8	106.6			993	2,052					
TOTAL	96.4	36.3		8,370	13,146	17,922	422	216	106		
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR	56.0	21.1		1,900	2,408	2,915					
WHEMLOCK	282.8	106.6			854	1,764					
R ALDER	282.8	106.6			279	577					
TOTAL	83.5	31.5		2,426	3,541	4,655	317	162	79		

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	LYTLESLE			DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTLESLEG	0U10	1.60	8	20	S	W	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		57.7	21.7	68	86	105				
WHEMLOCK		282.8	106.6		163	338				
R ALDER		282.8	106.6		73	151				
TOTAL		96.4	36.3	61	97	132	422	216	106	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	LYTTLESLE			DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTTLESLEG	0U11	0.50	1	4	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		1	4	4.0						
CRUISE		1	4	4.0	89		4.5			
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
WHEMLOCK	2	104.4	10.9	55	20.4	67.2	4,177	4,177	1,412	1,412
DOUG FIR	2	74.2	12.9	49	18.7	67.2	5,310	5,310	1,625	1,625
TOTAL	4	178.7	11.7	52	39.2	134.4	9,487	9,487	3,038	3,038
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK				40	40	40				
DOUG FIR		20.2	18.9	57	70	83				
TOTAL		34.8	19.9	44	55	66	63	32	16	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		41.2	38.6	9	14	20				
DOUG FIR		2.6	2.4	21	22	22				
TOTAL		30.9	17.6	15	18	21	50	25	12	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	LYTTLESLE			DATE	12/9/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05W	24	LYTTLESLEG	0U12	6.30	1	71	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		1	71	71.0						
CRUISE		1	71	71.0	528		13.4			
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	41	66.4	14.3	72	19.7	74.5	10,103	9,747	2,540	2,509
R ALDER	10	13.2	10.8	62	2.5	8.4	655	626	208	206
BL MAPLE	10	2.7	12.6	61	0.7	2.3	359	340	83	81
WR CEDAR	7	1.1	13.7	65	0.3	1.1	97	89	30	28
WHEMLOCK	3	.5	10.5	60	0.1	.3	22	21	7	7
TOTAL	<i>71</i>	<i>83.8</i>	<i>13.8</i>	<i>70</i>	<i>23.3</i>	<i>86.6</i>	<i>11,236</i>	<i>10,822</i>	<i>2,868</i>	<i>2,832</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		93.2	14.5	125	147	168				
R ALDER		49.4	16.4	38	46	54				
BL MAPLE		128.0	42.6	72	126	180				
WR CEDAR		51.5	21.0	63	80	97				
WHEMLOCK		35.3	24.4	33	43	54				
TOTAL		<i>106.1</i>	<i>12.6</i>	<i>104</i>	<i>119</i>	<i>134</i>	<i>450</i>	<i>229</i>	<i>112</i>	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		87.3	13.6	33	38	43				
R ALDER		61.6	20.5	12	15	18				
BL MAPLE		116.3	38.7	18	30	42				
WR CEDAR		50.7	20.6	20	25	31				
WHEMLOCK		53.8	37.2	9	14	19				
TOTAL		<i>95.2</i>	<i>11.3</i>	<i>28</i>	<i>31</i>	<i>35</i>	<i>362</i>	<i>185</i>	<i>90</i>	

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

T17N R05W S24 Ty00U	44.5
T17N R05W S24 Ty00U	47.1
T17N R05W S24 Ty0U1	6.3

Project LYTLESLE
Acres 194.50

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Time 10:52:36AM

Species	s T	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
		Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
DOUG FIR		7,007	18,179	35,220	174.98	67.44	1.82	12,358	12,260	6,167	5,794
WHEMLOCK		16,620	34,408	35,143	64.99	31.39	0.95	10,982	10,802	4,928	4,639
WHEMLOCK	L	687	1,488	2,056	92.47	42.68	1.19	643	635	291	278
DOUG FIR	L	142	390	849	210.66	76.37	2.06	298	298	154	143
WR CEDAR		683	1,148	906	55.36	32.92	1.13	385	378	134	121
R ALDER		923	1,494	699	27.26	16.84	0.60	254	252	94	87
WHEMLOCK	T	300	527	574	59.36	33.85	0.97	179	178	77	73
WHEMLOCK	D	336	426	732	54.62	43.07	1.08	229	183	99	57
DOUG FIR	D	87	108	430	139.98	112.45	2.90	151	121	77	43
COTWOOD		27	55	139	207.89	103.94	2.89	57	57	31	30
DOUG FIR	T	7	20	81	419.54	139.85	3.50	28	28	15	14
BL MAPLE		125	132	52	15.57	14.77	0.48	20	19	7	6
Totals		26,942	58,375	76,881	93.58	43.19	1.26	25,584	25,213	12,075	11,285

Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
C	25,868	56,695	75,991	96.20	43.89	1.28	25,253	24,885	11,943	11,162
H	1,075	1,680	890	30.49	19.51	0.69	331	328	132	123
Totals	26,942	58,375	76,881	93.58	43.19	1.26	25,584	25,213	12,075	11,285



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

FPA/N No: 2418363

Effective Date: 01/22/2016

Expiration Date: 01/22/2019

Shut Down Zone: 651

EARR Tax Credit: Eligible Non-eligible

Reference Lytle's Leg VRH+VDT
(30-092744)

**Forest Practices Application/Notification
 Notice of Decision**

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

Number of Years Granted on Multi-Year Request

- Class II Class III Class IVG Class IVS
- 4 yrs 5 yrs

Conditions on Approval / Reasons for Disapproval

Conditions: Notify DNR at southpuget.forestpractices@dnr.wa.gov 2 business days prior to starting the FPHP. Please refer to FPA #2418363

Work above the OHWM can occur year round. Any work below the OHWM of that has potential to deliver sediment to the stream should only occur between July 1st & September 30th of any given year.

Issued By: Josh Meek

Region: South Puget Sound

Title: Resource Protection Forester

Date: 01/22/2016

Copies to: Landowner, Timber Owner and Operator.

Issued in person: Landowner Timber Owner Operator By: _____

Appeal Information

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

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

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

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

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

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

And

Department Of Natural Resources
South Puget Sound Region
950 Farman Ave. N
Enumclaw, WA 98022

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.

Hydraulic Project Approval (HPA) (Chapter 77.55RCW and WAC 222-50-020(2))

The Department of Fish and Wildlife (WDFW), as the jurisdictional agency issuing HPAs, has final authority for approving water crossing structures in Type S and F waters. WDFW continues to have authority on Type N waters and may exercise that authority on some Type N waters.

Notice: The HPA water crossing requirements supersede what is indicated on the FPA. Landowners are required by law to follow the provisions as directed on the HPA.

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.

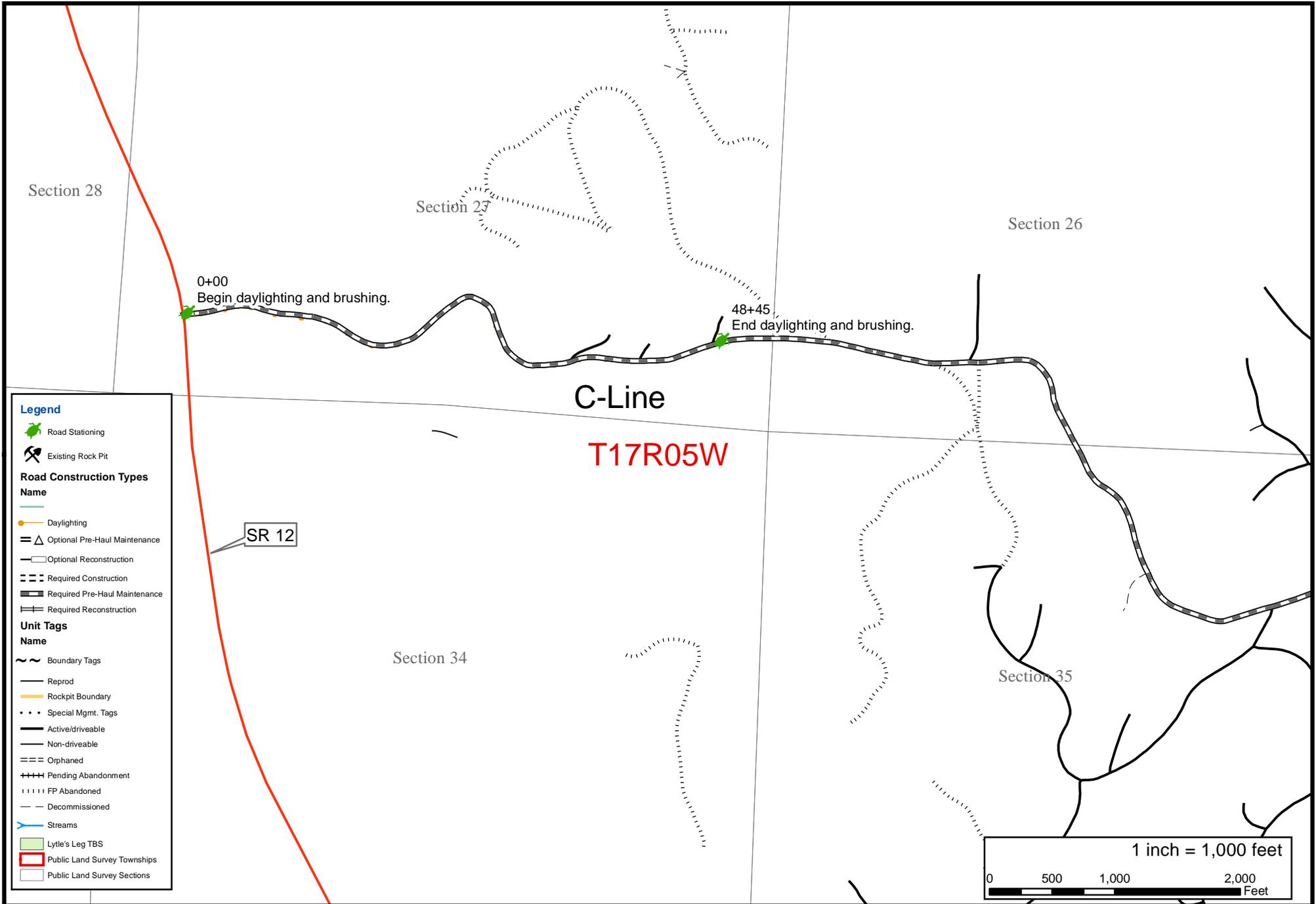
If the seller fails to notify the buyer about the continuing forest land obligation, the seller must pay the buyer's costs related to continuing forest land obligations, including all legal costs and reasonable attorneys' fees incurred by the buyer in enforcing the continuing forest land obligation against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

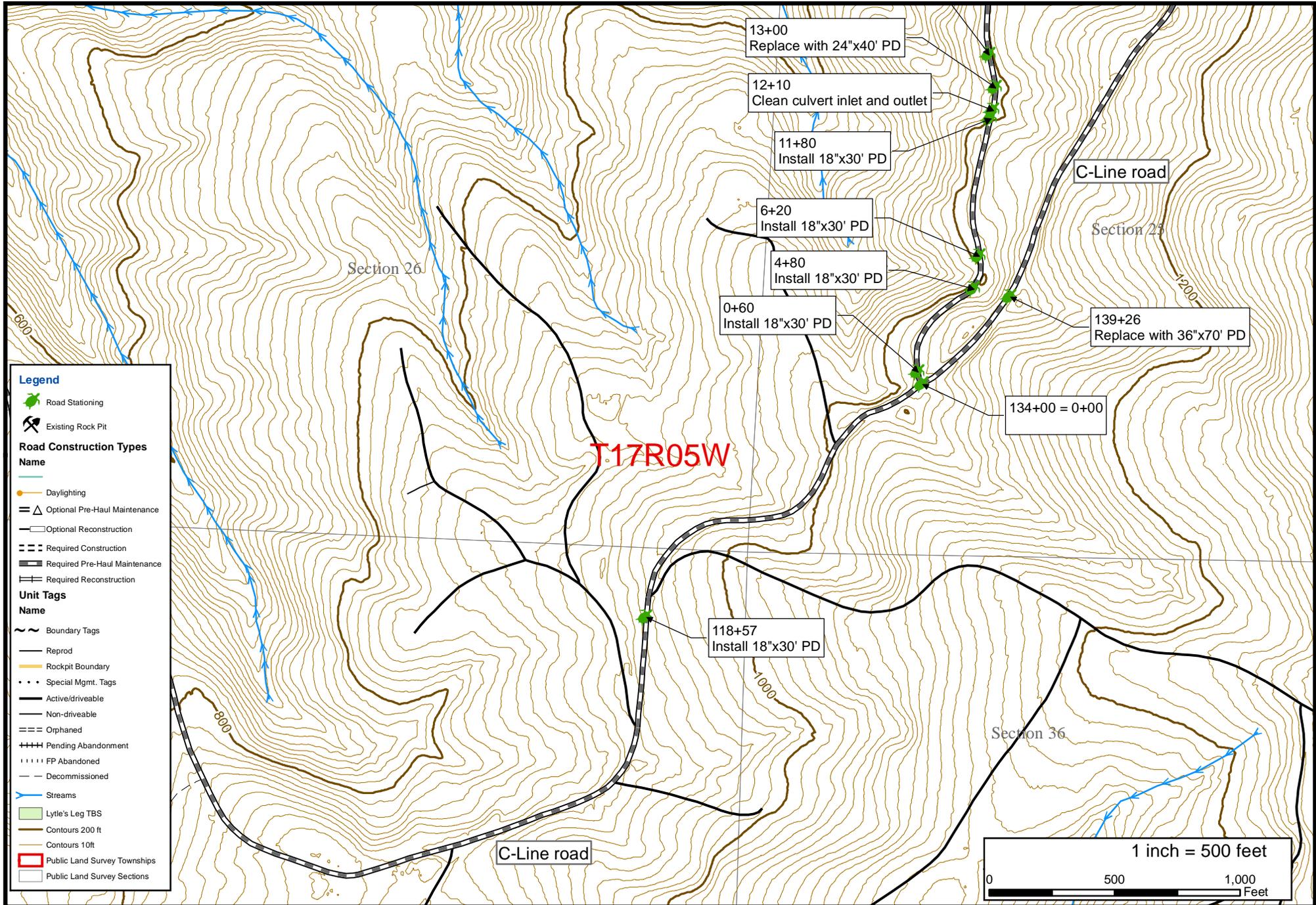
DNR affidavit of mailing:

On this day 01/22/2016, I placed in the United States mail at Enumclaw, WA,
(date mm/dd/yyyy) (post office location)
postage paid, a true and accurate copy of this document. Notice of Decision FPA #2418363
Sharon Koehn _____
(Printed name) (Signature)

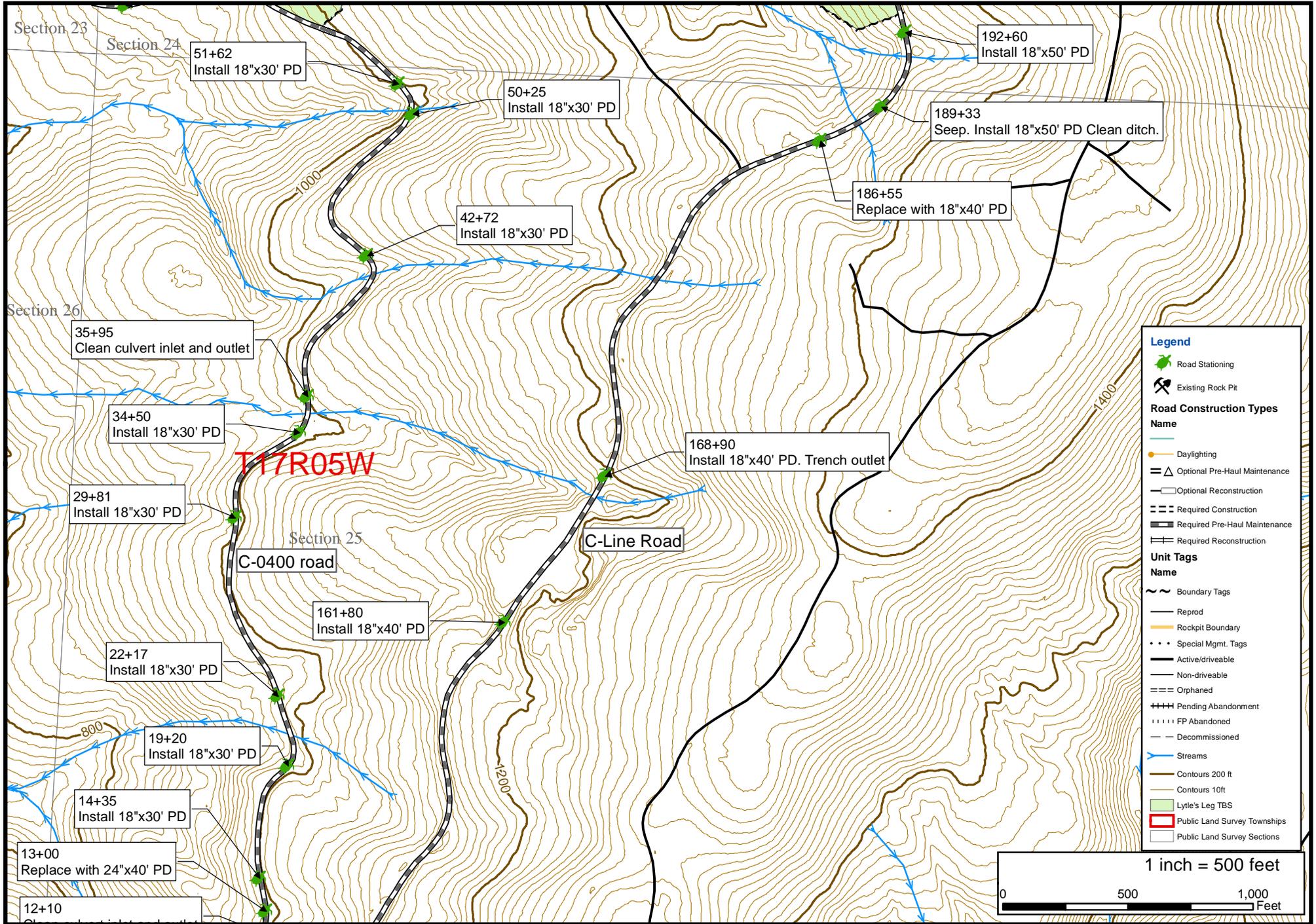
Lytle's Leg Roadplan View, pg 1 of 7



Lytle's Leg Roadplan View, pg 2 of 7



Lytle's Leg Roadplan View, pg 3 of 7



Section 23
Section 24
Section 26
Section 25

51+62
Install 18"x30' PD

50+25
Install 18"x30' PD

192+60
Install 18"x50' PD

189+33
Seep. Install 18"x50' PD Clean ditch.

42+72
Install 18"x30' PD

186+55
Replace with 18"x40' PD

35+95
Clean culvert inlet and outlet

34+50
Install 18"x30' PD

168+90
Install 18"x40' PD. Trench outlet

29+81
Install 18"x30' PD

C-0400 road

C-Line Road

161+80
Install 18"x40' PD

22+17
Install 18"x30' PD

19+20
Install 18"x30' PD

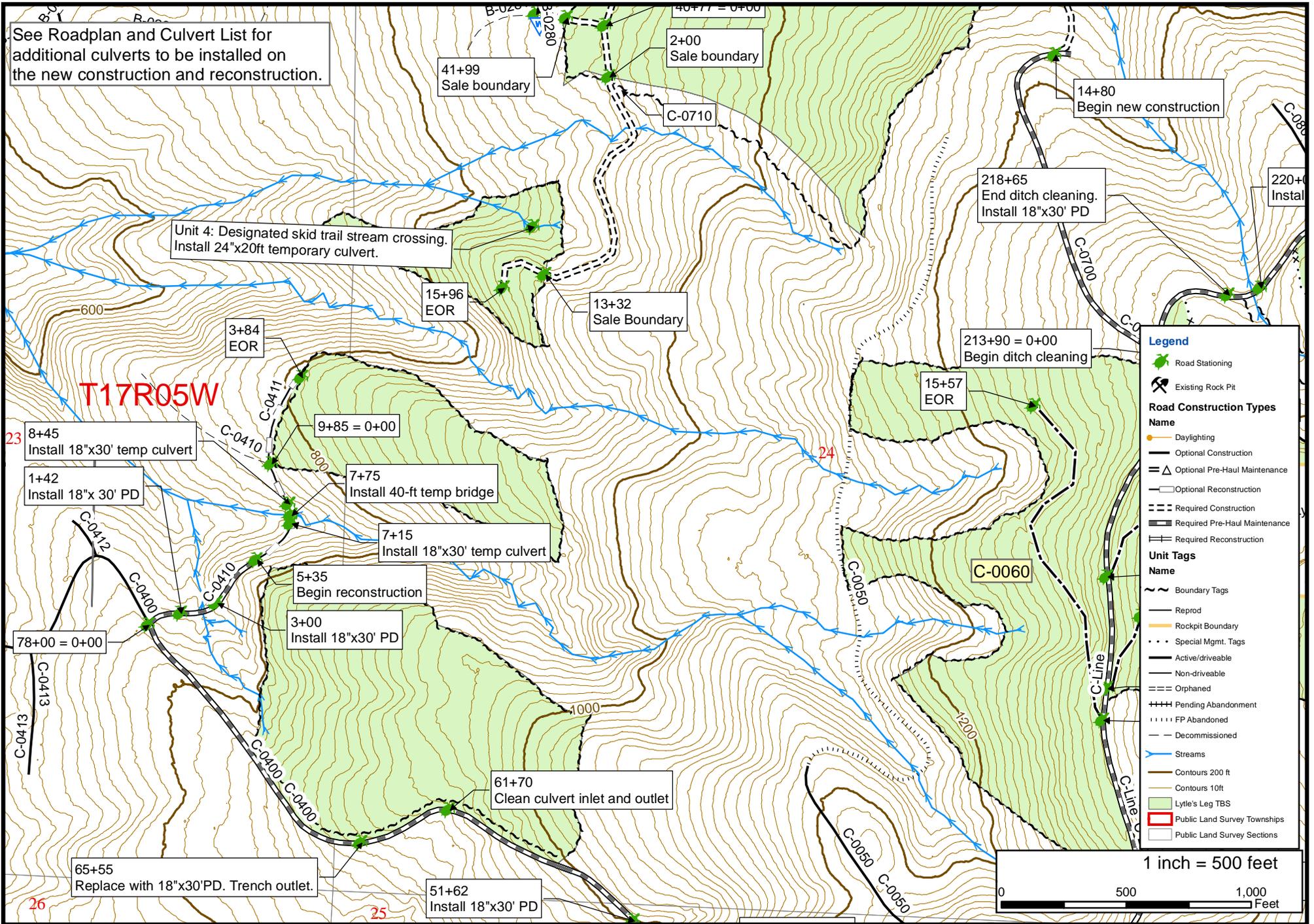
14+35
Install 18"x30' PD

13+00
Replace with 24"x40' PD

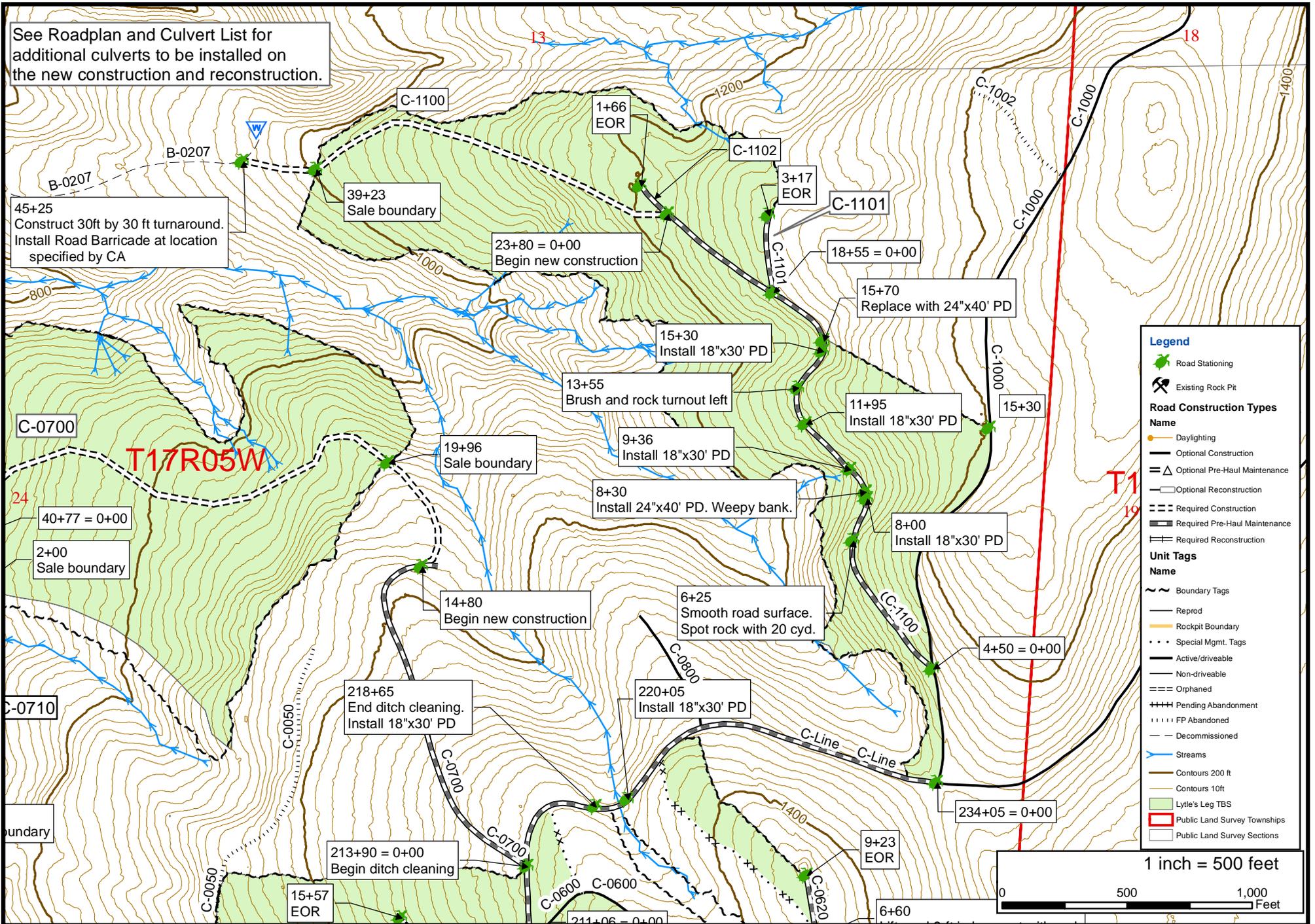
12+10

T17R05W

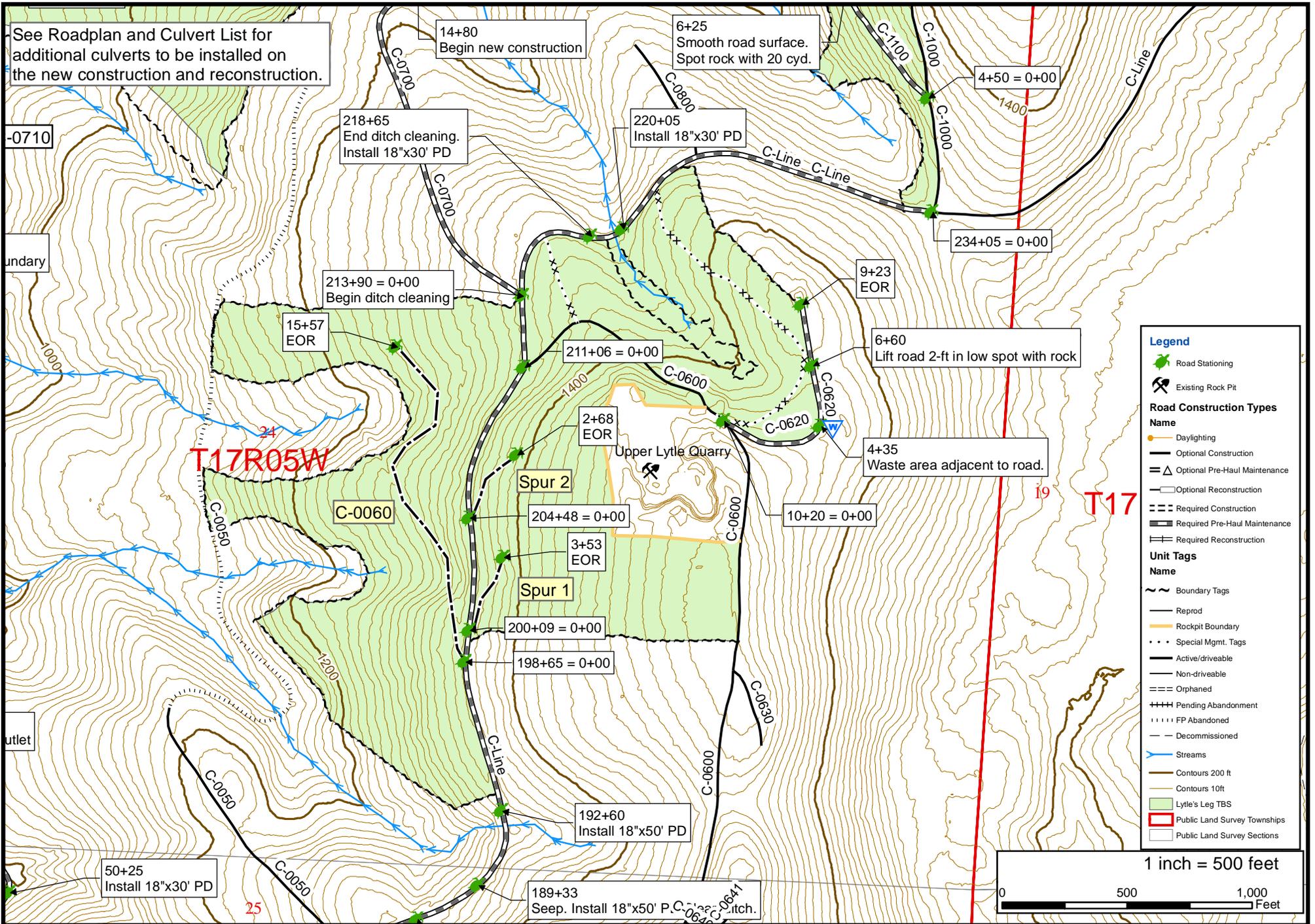
Lytle's Leg Roadplan View, pg 4 of 7



Lytle's Leg Roadplan View, pg 6 of 7



Lytle's Leg Roadplan View, pg 7 of 7



See Roadplan and Culvert List for additional culverts to be installed on the new construction and reconstruction.

14+80
Begin new construction

6+25
Smooth road surface.
Spot rock with 20 cyd.

218+65
End ditch cleaning.
Install 18"x30' PD

220+05
Install 18"x30' PD

4+50 = 0+00

-0710

Boundary

213+90 = 0+00
Begin ditch cleaning

15+57
EOR

211+06 = 0+00

9+23
EOR

234+05 = 0+00

6+60
Lift road 2-ft in low spot with rock

T17R05W

C-0060

2+68
EOR

Upper Lytle Quarry

4+35
Waste area adjacent to road.

Spur 2

204+48 = 0+00

3+53
EOR

Spur 1

200+09 = 0+00

198+65 = 0+00

10+20 = 0+00

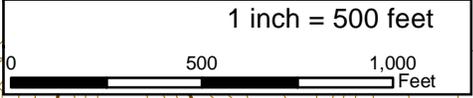
Outlet

192+60
Install 18"x50' PD

50+25
Install 18"x30' PD

189+33
Seep. Install 18"x50' P.C. Catch.

- Legend**
- Road Stationing
 - Existing Rock Pit
 - Road Construction Types**
 - Name**
 - Daylighting
 - Optional Construction
 - Optional Pre-Haul Maintenance
 - Optional Reconstruction
 - Required Construction
 - Required Pre-Haul Maintenance
 - Required Reconstruction
 - Unit Tags**
 - Name**
 - Boundary Tags
 - Reprod
 - Rockpit Boundary
 - Special Mgmt. Tags
 - Active/driveable
 - Non-driveable
 - Orphaned
 - Pending Abandonment
 - FP Abandoned
 - Decommissioned
 - Streams
 - Contours 200 ft
 - Contours 10ft
 - Lytle's Leg TBS
 - Public Land Survey Townships
 - Public Land Survey Sections



STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

LYTLE'S LEG VRH AND VDT TIMBER SALE ROAD PLAN
GRAYS HARBOR COUNTY
BLACK HILLS DISTRICT
LITTLE ROCK UNIT

AGREEMENT NO.: 30-092744

STAFF ENGINEER: MICHELLE BELL

DATE: 11/2/2015

SECTION 0 – SCOPE OF PROJECT

0-1 ROAD PLAN SCOPE

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

0-2 REQUIRED ROADS

The specified work on the following roads is required.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
C-Line	0+00 to 234+05	Pre-haul maintenance
C-0400	0+00 to 78+00	Pre-haul maintenance
C-0410	0+00 to 5+35	Pre-haul maintenance
C-0410	5+35 to 9+85	Reconstruction
C-0411	0+00 to 3+84	Reconstruction
C-0620	0+00 to 9+23	Pre-haul maintenance
C-0700	0+00 to 14+80	Pre-haul maintenance
C-0700	14+80 to 43+51	Construction
C-0710	0+00 to 15+96	Construction
C-1100	0+00 to 23+80	Pre-haul maintenance
C-1100	23+80 to 45+25	Construction
C-1101	0+00 to 3+17	Pre-haul maintenance
C-1102	0+00 to 1+66	Pre-haul maintenance
C-0060	0+00 to 15+57	Decomisioning, if built
C-0410	5+35 to 9+85	Abandonment
C-0411	0+00 to 3+84	Abandonment
Spur 1	0+00 to 3+53	Abandonment, if built
Spur 2	0+00 to 2+68	Abandonment, if built
C-0710	0+00 to 15+96	Abandonment

0-3 OPTIONAL ROADS

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
C-0060	0+00 to 15+57	Construction
Spur 1	0+00 to 3+53	Construction
Spur 2	0+00 to 2+68	Construction

0-4 CONSTRUCTION

Construction includes, but is not limited to:

- Clearing.
- Grubbing.
- Right of way debris disposal.
- Excavation and/or embankment to subgrade.
- Landing construction.
- Acquisition and installation of drainage structures.
- Acquisition and installation of stream culverts.
- Manufacture and application of rock.

0-5 RECONSTRUCTION

Reconstruction includes, but is not limited to:

- Brushing.
- Excavation and/or embankment to subgrade.
- Landing construction.
- Installation and removal of a 40 foot steel bridge.
- Acquisition and installation of drainage structures.
- Manufacture and application of rock.

0-6 PRE-HAUL MAINTENANCE

Pre-haul maintenance includes, but is not limited to:

- Brushing.
- Grading.
- Ditch cleaning and reconstruction.
- Culvert cleaning and headwall reconstruction.
- Acquisition and installation of drainage structures.
- Manufacture and application of rock.

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 decommissioning listed in Clause 9-20 ROAD DECOMMISSIONING.

0-10 ABANDONMENT

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

0-12 DEVELOP ROCK SOURCE

Purchaser may develop an existing rock source. Rock source development will include manufacture of 10,000cy stockpile. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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

1-4 ROAD TOLERANCES

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

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

1-6 ORDER OF PRECEDENCE

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

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

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

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

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

1-9 DAMAGED METALLIC COATING

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

SUBSECTION ROAD MARKING

1-15 ROAD MARKING

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

- Centerline is marked with stakes and orange flagging for new construction.

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, unless approved in writing by the Contract Administrator.

On the following roads, Purchaser shall complete construction road work by the specified date.

<u>Road</u>	<u>Stations</u>	<u>Date</u>
C-0700	14+80 to 43+51	Complete by October 31, 2016
C-1100	23+80 to 45+25	Complete by October 31, 2016

1-21 HAUL APPROVAL

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

1-22 WORK NOTIFICATIONS

On the following road(s), Purchaser shall notify the Contract Administrator a minimum of 14 calendar days before work begins.

<u>Road</u>	<u>Stations</u>
C-Line	0+00 to 234+05

1-23 ROAD WORK PHASE APPROVAL

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

- Subgrade construction
- Drainage installation
- Subgrade compaction
- Rock application
- Rock compaction

SUBSECTION RESTRICTIONS

1-25 ACTIVITY TIMING RESTRICTION

No operation of road construction equipment or rock haul will be allowed on weekends or state recognized holidays, unless authorized in writing by the Contract Administrator.

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

<u>Activity</u>	<u>Closure Period</u>
Operation of road construction equipment or rock haul	October 1 to April 30

The specified activities are **only allowed** during the listed period(s) unless authorized in writing by the Contract Administrator.

<u>Road</u>	<u>Stations</u>	<u>Activity</u>	<u>Operating Period</u>
C-0710	0+00 to 15+96	Construct and abandon road in one operating period.	June 1 to September 30
C-0410	7+75 (bridge installation)	Per FPA conditions, any work below the ordinary high water mark (OHWM)	July 1 to September 30

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a seasonal closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION, the Purchaser shall comply with a maintenance plan to include further protection of water, soil, roads, and other forest assets at the Purchaser’s expense. Preventative measures shall be in place prior to operating during the closure period. Purchaser is required to maintain all haul roads at their own expense including those listed in Contract Clause C-060 DESIGNATED ROAD MAINTAINER. If other operators are using, or desire to use these roads, a joint operating plan must be developed. All parties shall follow this plan.

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

- Wheel track rutting exceeds 4 inches on crushed rock roads.
- Wheel track rutting exceeds 6 inches on native surface roads.
- Surface or base stability problems persist.
- Weather is such that satisfactory results cannot be obtained in an area of operations.
- When, in the opinion of the Contract Administrator excessive road damage or rutting may occur.

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

1-32 BRIDGE 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, approved in writing by Contract Administrator, must be used.

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

1-33 SNOW PLOWING RESTRICTION

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

SUBSECTION OTHER INFRASTRUCTURE

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

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

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

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

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

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

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

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

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

2-5 MAINTENANCE GRADING – EXISTING ROAD

On the following road(s), Purchaser shall use a grader to shape the existing surface before before timber haul. Purchaser shall accomplish all grading using a motor grader with a minimum of 175 horsepower.

<u>Road</u>	<u>Stations</u>	<u>Comments</u>
C-Line	0+00 to 48+45	
C-Line	48+45 to 234+05	Grade after all culvert installations are complete
C-0400	0+00 to 78+00	Grade after all culvert installations are complete
C-0700	0+00 to 14+80	
C-1100	0+00 to 23+80	
C-1101	0+00 to 3+17	
C-1102	0+00 to 1+66	

2-6 CLEANING CULVERTS

On the following road(s), Purchaser shall clean the inlets and outlets of all culverts and shall obtain written approval from the Contract Administrator before timber haul.

<u>Road</u>	<u>Stations</u>
C-Line	0+00 to 48+45
C-Line	192+60 to 234+05
C-0400	0+00 to 78+00
C-1100	0+00 to 23+80

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

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

<u>Road</u>	<u>Stations</u>
C-Line	0+00 to 48+45
C-Line	192+60 to 234+05
C-0400	0+00 to 78+00
C-0700	0+00 to 14+80
C-1100	0+00 to 23+80
C-1101	0+00 to 3+17
C-1102	0+00 to 1+66

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

SUBSECTION BRUSHING

3-1 BRUSHING

On the following road(s), Purchaser shall cut vegetative material up to 9 inches in diameter, including limbs, as shown on the ROAD BRUSHING DETAIL. Brushing must be achieved by manual or mechanical cutting of brush, trees, and branches. Root systems and stumps of cut vegetation may not be disturbed unless directed by the Contract Administrator. Purchaser shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

<u>Road</u>	<u>Stations</u>
C-Line	0+00 to 48+45
C-Line	213+90 to 234+05
C-0400	0+00 to 78+00
C-0620	0+00 to 9+23
C-0700	0+00 to 14+80
C-1100	0+00 to 23+80
C-1101	0+0+0 to 3+17
C-1102	0+00 to 1+66

SUBSECTION CLEARING

3-5 CLEARING

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

3-8 PROHIBITED DECKING AREAS

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

- Within the grubbing limits.
- Within 50 feet of any stream.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- On slopes greater than 55%.
- Against standing trees unless approved by the Contract Administrator.

SUBSECTION GRUBBING

3-10 GRUBBING

Purchaser shall remove all stumps between the grubbing limits specified on the TYPICAL SECTION SHEET. Purchaser shall also remove stumps with undercut roots outside the grubbing limits. Purchaser shall remove stumps using a hydraulic mounted excavator unless authorized in writing by the Contract Administrator. Grubbing must be completed before starting excavation and embankment.

SUBSECTION ORGANIC DEBRIS

3-20 ORGANIC DEBRIS DEFINITION

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

3-21 DISPOSAL COMPLETION

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

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream, or wetland.
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 55%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush can fall into the ditch or onto the road surface.
- Against standing timber.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

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

SECTION 4 – EXCAVATION

4-1 EXCAVATOR CONSTRUCTION

Purchaser shall use a track mounted hydraulic excavator for construction work, unless authorized in writing by the Contract Administrator.

4-2 PIONEERING

Pioneering may not extend more than 1000 feet beyond completed construction unless approved in writing by the Contract Administrator. In addition, the following actions must be taken as pioneering progresses:

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Purchaser shall follow these standards for road grade and alignment except as designed:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 16 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 5% in 100 feet.
- Maximum grade change for crest vertical curves is 4% in 100 feet.

4-5 CUT SLOPE RATIO

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

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

4-6 EMBANKMENT SLOPE RATIO

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

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

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

SUBSECTION INTERSECTIONS, TURNOUTS AND TURNAROUNDS

4-21 TURNOUTS

Purchaser shall construct turnouts as designated on the TURNOUT LIST. On optional construction roads, Purchaser shall construct turnouts intervisible with a maximum distance of 1,000 feet between turnouts.. Locations may be adjusted to fit the final subgrade alignment and sight distances. Location changes are subject to written approval by the Contract Administrator. Minimum dimensions are shown on the TYPICAL SECTION SHEET.

4-22 TURNAROUNDS

Purchaser shall construct turnarounds as designated on the TURNAROUND LIST. Additional turnarounds must be no larger than 30 feet long and 30 feet wide and are subject to written approval by the Contract Administrator.

SUBSECTION DITCH CONSTRUCTION

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

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 55% if the waste material is compacted and free of organic debris. On side slopes greater than 55%, all waste material must be end hauled or pushed to the designated embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

4-37 WASTE AREA LOCATION

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

<u>Road</u>	<u>Waste Area Location</u>	<u>Comments</u>
B-0207	End of road	
B-0280	End of Road	
C-0620	Adjacent to road at station 4+35	Crushed rock in waste area must be pushed out of the way prior to depositing waste. Crushed rock and waste may not be mixed.

4-38 PROHIBITED WASTE DISPOSAL AREAS

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

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream or wetland.
- Within a riparian management zone.
- On side slopes steeper than 55%.
- 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.

SUBSECTION BORROW

4-46 COMMON BORROW

Common borrow consists of soil, and/or aggregate that is non-plastic and contains no more than 5% clay, organic debris, or trash by volume. The material is considered non-plastic if the fines in the sample cannot be rolled, between the hand and a smooth surface, into a thread at any moisture content.

4-49 BORROW SOURCE

Purchaser shall obtain borrow material from the listed borrow source(s). Development of the borrow source must be in accordance with UPPER LYTLE QUARRY DEVELOPMENT PLAN.

<u>Source</u>	<u>Location</u>
Upper Lytle's Quarry	N ½ S ¼ Section 24 Township 17 Range 05 West

4-50 BORROW APPLICATION

Purchaser shall apply borrow in accordance with quantities shown below. Borrow must be spread, shaped, and compacted full width concurrent with hauling operations.

<u>Road</u>	<u>Stations</u>	<u>Estimated Cubic Yards</u>	<u>Type</u>
C-0060	0+00 to 3+00	100	Common Borrow

SUBSECTION SHAPING

4-55 ROAD SHAPING

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

4-56 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 for embankment and waste area segments too narrow to accommodate equipment. Waste material may be placed by end-dumping or sidecasting until sufficiently wide enough to support the equipment.

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed and reconstructed subgrades in accordance with the COMPACTION LIST by routing equipment over the entire width except ditch. Purchaser shall obtain written approval from the Contract Administrator for subgrade compaction before rock application.

4-62 DRY WEATHER COMPACTION

At any time of 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.

SECTION 5 – DRAINAGE

SUBSECTION CULVERTS

5-5 CULVERTS

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

5-6 USED CULVERT MATERIAL

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

<u>Road</u>	<u>Stations</u>
C-0410	5+35 to 9+85
C-0411	0+00 to 3+84
C-0060	0+00 to 15+57
C-0710	0+00 to 15+96
Spur 1	0+00 to 3+53
Spur 2	0+00 to 2+68

5-9 CULVERT MARKER INSTALLATION

Purchaser shall install culvert markers in accordance with the CULVERT MARKER DETAIL at all newly installed culverts. Temporary culverts as listed in the CULVERT AND DRAINAGE DETAIL shall not be marked.

5-11 UNUSED MATERIALS STATE PROPERTY

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

SUBSECTION CULVERT INSTALLATION

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL and the Corrugated Polyethylene Pipe Association’s “Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings”. Corrugated Polyethylene pipe must be installed in a manner consistent with the manufacturer’s recommendations.

5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

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

5-17 CROSS DRAIN SKEW AND SLOPE

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

5-18 CULVERT DEPTH OF COVER

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

SUBSECTION ENERGY DISSIPATERS

5-20 ENERGY DISSIPATERS

Purchaser shall install energy dissipaters in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all culverts on the CULVERT AND DRAINAGE LIST that specify the placement of rock. Energy dissipater installation is subject to approval by the Contract Administrator.

The type of energy dissipater and the amount of material must be consistent with the specifications listed on the CULVERT AND DRAINAGE LIST. Energy dissipaters must extend a minimum of 1 foot to each side of the culvert at the outlet and a minimum of 2 feet beyond the outlet. Rock must be set in place by machine. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed.

SUBSECTION CATCH BASINS, HEADWALLS, AND ARMORING

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts. Rock used for headwalls must be QUARRY SPLLS or LIGHT LOOSE RIP RAP. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets. Minimum specifications require that rock be placed at a width of one culvert diameter on each side of the culvert opening, and to a height of one culvert diameter above the top of the culvert. Rock may not restrict the flow of water into culvert inlets or catch basins. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed. QUARRY SPALLS and LIGHT LOOSE RIP RAP shall meet the specifications in CLAUSE 6-43 QUARRY SPALLS and CLAUSE 6-50 LIGHT LOOSE RIP RAP.

5-27 ARMORING FOR STREAM CROSSING CULVERTS

Purchaser shall place list rock type(s) in conjunction with or immediately following construction of the embankment. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the ROCK LIST or as directed by the Contract Administrator. Rock may not restrict the flow of water into culvert inlets or catch basins. Rock must be set in place by machine. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed.

SUBSECTION SURFACE DRAINAGE

5-33 NATIVE SURFACE ROADS

If overwintered, native surface roads must be waterbarred by November 1. Purchaser shall construct waterbars according to the attached DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical distance of no more than 10 feet between waterbars or between natural drainage paths, and with a maximum spacing of 300 feet.

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. Purchaser shall obtain written approval from the Contract Administrator for the use of material from any other source. If other operators are using, or desire to use the rock source(s), a joint operating plan must be developed. All parties shall follow this plan. Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before starting any operations in the listed locations.

<u>Source</u>	<u>Location</u>
Upper Lytle Quarry	N ½ S ¼ Section 24 Township 17 Range 05 West

6-5 ROCK FROM COMMERCIAL SOURCE

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

SUBSECTION ROCK SOURCE DEVELOPMENT

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

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

<u>Source</u>
Upper Lytle Quarry

6-12 ROCK SOURCE SPECIFICATIONS

Rock sources must be in accordance with the following specifications, unless otherwise specified in the ROCK SOURCE DEVELOPMENT PLAN:

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

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

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

6-14 DRILL AND SHOOT

Rock drilling and shooting must meet the following specifications:

- 200 cubic yards of oversize material is allowed to remain in the rock source at the termination of this timber sale.
- Oversize material is defined as rock fragments larger than 1.5 feet in any dimension.
- Oversized rock that exceeds the maximum allowable amount must be reduced to a smaller size within the rock source.
- Purchaser shall notify the Contract Administrator a minimum of 3 working days before blasting operations.
- Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator 3 working days before any drilling.
- All operations must be carried out in compliance with the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and the Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- Purchaser shall block access roads before blasting operations.

SUBSECTION ROCK MANUFACTURE

6-20 ROCK GRADATION TYPES

Purchaser shall manufacture rock in accordance with the types and amounts listed in the ROCK LIST. Rock must meet the following specifications for gradation and uniform quality when placed in hauling vehicles or during manufacture and placement into a stockpile. Purchaser shall provide a sieve analysis upon request from the Contract Administrator.

6-23 ROCK CRUSHING OPERATIONS

Rock crushing operations must conform to the following specifications:

- Operations and placement of oversize material must be conducted in or near the rock source site, as approved in writing by the Contract Administrator.
- If a smooth roll crusher is used, the maximum size of material fed into it shall be equal to the largest size of the material coming out of it plus 8.5 percent of the roll radius.
- Purchaser shall provide an onsite weatherproof field laboratory equipped with all necessary testing equipment (oven, sieves, sieve shaker, and scales) for conducting sieve testing of the required aggregate that is being produced. This laboratory must be available for use by the Contract Administrator during the entire crushing operation.
- The crushing operation per pit must be concluded within 45 working days from the time it begins in that pit.
- Purchaser is required to produce sieve analysis for crushing operations every 1000 yards for each rock gradation type.

SUBSECTION ROCK GRADATIONS

6-29 1 ½-INCH MINUS CRUSHED ROCK

% Passing 1 ½" square sieve	100%
% Passing 1" square sieve	70 - 90%
% Passing 5/8" square sieve	50 - 80%
% Passing U.S. #4 sieve	30 - 50%
% Passing U.S. #40 sieve	3 - 18%
% Passing U.S. #200 sieve	7.5% maximum

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

6-37 4-INCH JAW RUN ROCK

% Passing 4" square sieve	95%
% Passing U.S. #40 sieve	16% maximum
% Passing U.S. #200 sieve	5% maximum

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

6-43 QUARRY SPALLS

% Passing 8" square sieve	100%
% Passing 3" square sieve	40% maximum
% Passing 3/4" square sieve	10% maximum

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

6-50 LIGHT LOOSE RIP RAP

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

<u>At Least/Not More Than</u>	<u>Size Range</u>
20% / 90%	20" - 36"
80% / --	12" - 30"
10% / 20%	3" - 8"

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 compacted yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction.

6-56 ROCK MEASUREMENT BY TRUCK VOLUME

Measurement of STOCKPILE, QUARRY SPALLS and LIGHT LOOSE RIP RAP rock is on a cubic yard truck measure basis. The Contract Administrator will measure each truck box before rock hauling. An average of such volumes for each truck will be used to tally the volume hauled. The Contract Administrator may periodically require that a load be flattened off and its volume calculated. Purchaser shall maintain load tally sheets for each truck as shown in ROCK ACCOUNTABILITY DETAIL and shall give them to the Contract Administrator on a weekly basis during rocking operations.

SUBSECTION ROCK STOCKPILE

6-65 ROCK STOCKPILE LOCATION

Purchaser shall stockpile rock as listed below.

<u>Rock Source</u>	<u>Rock Type</u>	<u>Quantity (c.y.)</u>	<u>Stockpile Location</u>
Upper Lytle Quarry	1-1/2 Inch Minus Crushed	10,000	Upper Lytle Quarry Stockpile Site

6-67 ROCK STOCKPILE SPECIFICATIONS

Rock stockpiles listed in Clause 6-65 ROCK STOCKPILE LOCATION must meet the following specifications:

Before placing aggregates upon the stockpile site, the site must be cleared of vegetation, trees, stumps, brush, rocks, or other debris and the ground leveled to a smooth, firm, uniform surface.

When completed, the stockpile must be neat and regular in shape. The stockpile height is limited to a maximum of 24 feet. Stockpiles in excess of 500 cubic yards must be built up in layers of not more than 4 feet deep. Stockpile layers must be constructed by trucks, clamshells, or other methods approved in writing by the Contract Administrator. Pushing aggregates into piles with a bulldozer shall not be permitted. Each layer must be completed over the entire area of the pile before depositing aggregates in the next layer. The aggregates may not be dumped so that they run down and over the lower layers in the stockpile. The method of dropping from a bucket or spout in one location to form a cone shaped pile is not allowed.

No equipment other than pneumatic tired equipment may be used on stockpiles. Stockpiles of different types or sizes of aggregate must be spaced far enough apart, or separated by suitable walls or partitions, to prevent the mixing of the aggregates.

SUBSECTION ROCK APPLICATION

6-70 APPROVAL BEFORE ROCK APPLICATION

Purchaser shall obtain written approval from the Contract Administrator for subgrade including: ditches, headwalls, catch basins, culverts, energy dissipaters, ditch-outs, subgrade shaping and compacting before rock application.

6-71 ROCK APPLICATION

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

6-73 ROCK FOR WIDENED PORTIONS

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

SECTION 7 – STRUCTURES

SUBSECTION STREAM CROSSING STRUCTURES GENERAL

7-5 STRUCTURE DEBRIS

Purchaser shall not allow debris from the installation or removal of structures to enter any stream. Purchaser shall maintain a clean jobsite, with all materials stored away from the high water mark or other area presenting a risk of the materials entering a stream. Debris entering any stream must be removed immediately, and placed in the site(s) designated for stockpiling or disposal , unless otherwise stated in the Insert design or specification sheet. Purchaser shall retrieve all material carried downstream from the jobsite.

SUBSECTION BRIDGE INSTALLATION

7-46 STATE SUPPLIED BRIDGE

Purchaser shall construct each bridge listed below. Bridge(s) are available for use within the terms of the contract without charge from the state. Refer to BRIDGE DETAIL, HYDRAULIC PROJECT REQUIREMENTS DETAIL, and this plan for details.

<u>Road</u>	<u>Station</u>	<u>Length (ft)</u>	<u>W.B.S.R¹ (ft)</u>	<u>Type</u>	<u>Current Location²</u>
C-0410	7+75	40	16	Steel RTI bridge	DNR Mima Pit

¹W.B.S.R. = Width between shear rails

²Current Locations = Directions to DNR Mima Pit from Mima Rd/Bordeaux Rd intersection.

- Turn onto Bordeaux Rd and travel 0.4 miles
- Junction to DNR Mima Pit is on the right
- Pit is approx. 500 feet down the gravel road through the gate.

- A. The following materials are provided by the Owner for the temporary bridge:
1. 16-foot wide by 40-foot long steel modular bridge
 2. Concrete spread footings. Dimensions are 1.5 feet high by 2.5 feet wide by 16 feet long.
 3. Bearing plates
 4. Elastomeric bearing pads
 5. Bridge superstructure hardware
 6. Guard rail posts
 7. Galvanized w-beam guard rail
 8. Galvanized flared end section
 9. Guard rail hardware
- B. Purchaser may pick up bridge(s) Monday through Friday, between 7:00 A.M. and 5:30 P.M. excluding state recognized holidays. Purchaser shall notify the Contract Administrator a minimum of 3 calendar days before pick up of the bridge and associated hardware.
- C. Purchaser is responsible for loading, transportation, delivery, and incorporating materials into the project.
- D. Manufacture bridge specifications are available at the DNR South Puget Sound Region Office.

7-48 STATE SUPPLIED BRIDGE – MOBILIZATION

Bridge Specification: RTI steel bridge. Bridge is partially assembled and in 2 pieces. Pieces are just over 8 foot wide by 40 foot long. Approximately 19,400 lbs. per piece.

The bridge is partially assembled and ready to load for transportation to the jobsite. Purchaser shall submit a plan of operations to the Contract Administrator for written approval for disassembly, loading, transport, and placement of the state provided bridge superstructure. The plan must include a description of the equipment and techniques to be used to lift and place the superstructure. Equipment used to lift the superstructure must have sufficient capacity to lift it free and clear without dragging. Dragging of the bridge will not be allowed. Purchaser is liable for damage to the bridge structure.

7-49 RETURN OF TEMPORARY STATE SUPPLIED BRIDGE

Purchaser shall return and offload bridge(s) supplied by the state for temporary use to the initial pick up location as designated in this road plan. Purchaser shall obtain written approval from the Contract Administrator to use any alternate return delivery location.

Bridge shall be placed on dunnage of sufficient size to keep the bridge stable and not touching the ground.

7-53 BRIDGE INSTALLATION

Purchaser shall install bridges ensuring there is a full width, continuous deck with no gaps that allow water and sediment to drain from the bridge to the stream.

SECTION 8 – EROSION CONTROL

8-1 SEDIMENT CONTROL STRUCTURES

Sediment control shall be accomplished using sediment traps, silt fence, settling ponds or other methods as approved, in writing, by the Contract Administrator. Purchaser shall install sediment traps in accordance with the SEDIMENT TRAP DETAIL.

8-2 PROTECTION FOR EXPOSED SOIL

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

SUBSECTION REVEGETATION

8-15 REVEGETATION

On the following road(s), Purchaser shall spread grass seed on all exposed soils within the grubbing limits resulting from road work activities. Cover all exposed soils using hand method. Other methods of covering must be approved in writing by the Contract Administrator.

<u>Road</u>	<u>Location</u>
C-Line	0+00 to
C-0400	0+00 to 78+00
C-0410	0+00 to 5+35
C-0700	0+00 to 40+77
C-1100	0+00 to 45+25
C-1101	0+00 to 3+17
C-1102	0+00 to 1+66

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the seed and mulch.

8-17 REVEGETATION TIMING

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

SUBSECTION SEED AND MULCH

8-25 GRASS SEED

Purchaser shall evenly spread the seed mixture listed below on all soil specified in CLAUSE 8-15 REVEGETATION at a rate of 50 pounds per acre of exposed soil. Grass seed must meet the following specifications:

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

<u>Kind and Variety of Seed in Mixture</u>	<u>% by Weight</u>
Perennial Rye	35-45
Red Fescue	35-45
Highland Bent	5-15
White Clover	5-15
Inert and Other Crop	0.5

SECTION 9 – POST-HAUL ROAD WORK

SUBSECTION STRUCTURES

9-2 CULVERT AND BRIDGE REMOVAL FROM LIVE STREAM

On the following road(s), Purchaser shall remove existing culvert(s) and bridge(s) from live streams and leave the resulting channel open with excavation slope and excavated channel width as specified. Place excavated material as approved in writing by the Contract Administrator. Temporary diversions must be utilized when performing any instream work, including equipment crossings.

<u>Road</u>	<u>Stations</u>	<u>Excavated Channel Width</u>	<u>Slope Ratio</u>	<u>Comments</u>
C-0410	7+75	Match to conditions at time of bridge installation	Match to conditions at time of bridge installation	Restore banks to original condition existing at the time of the bridge installation.
C-0710	4+73	2.5	2:1	

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

SUBSECTION POST-HAUL MAINTENANCE

9-5 POST-HAUL MAINTENANCE

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

<u>Road</u>	<u>Stations</u>	<u>Additional Requirements</u>
C-0700	43+51	Block road(s) with earthen barricade according to the attached BARRICADE DETAIL. Exact location of barricade to be determined by the Contract Administrator.
C-1100	45+25	

SUBSECTION POST-HAUL LANDING MAINTENANCE

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

SUBSECTION DECOMMISSIONING AND ABANDONMENT

9-20 ROAD DECOMMISSIONING

Purchaser shall decommission the following roads before the termination of this contract.

<u>Road</u>	<u>Stations</u>
C-0060	0+00 to 15+57

9-21 ROAD ABANDONMENT

Purchaser shall abandon the following roads before the termination of this contract.

<u>Road</u>	<u>Stations</u>
C-0410	5+35 to 9+85
C-0411	0+00 to 3+84
Spur 1	0+00 to 3+53
Spur 2	0+00 to 2+68
C-0710	0+00 to 15+96

9-22 DECOMMISSIONING AND ABANDONMENT

- Construct non-drivable waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL at a maximum spacing which will produce a vertical drop of no more than 10 feet between waterbars or between natural drainage paths and with a maximum spacing of 100 feet, or as marked in the field.
- Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
- Key waterbars into the cut-slope to intercept the ditch. Waterbars shall be outsloped to provide positive drainage. Outlets shall be on stable locations.
- Block roads with earthen barricades according to the attached BARRICADE DETAIL at the beginning of each road to be abandoned.
- Remove ditch cross drain culverts and leave the resulting trench open.
- Remove stream culverts and leave the resulting trench open with excavated channel width of minimum 3 feet.
- Slope all trench walls and approach embankments no steeper than 1.5:1.
- Remove culverts from State land.
- Apply grass seed concurrently with abandonment and in accordance with the application rate and grass type specified in Section 8 EROSION CONTROL.
- Cover, concurrently with abandonment, all exposed soils within 50 feet of any live stream, with a layer of straw. Straw shall be furnished by the Purchaser.
- Scatter woody debris onto abandoned road surfaces.

SECTION 10 MATERIALS

SUBSECTION CULVERTS

10-17 CORRUGATED PLASTIC CULVERT

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

10-22 PLASTIC BAND

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

SECTION 11 SPECIAL NOTES

11-1 DIVERSION REQUIREMENTS FOR TYPE 3 AND TYPE 4 STREAMS

Purchase shall utilize temporary diversions when performing work in any live type 3 or 4 stream. Performing work shall include equipment crossings.

11-2 DESIGNATED SKID TRAIL

To cross the type 5 stream in Unit 4 as a designated skid trail, Purchaser shall install a 24 inch by 20 foot temporary culvert in the Type 5 stream. Culvert may be new or used.

11-3 FOUNDATION DESIGN

All foundation design work shall be completed by a Civil Engineer, licensed in the state of Washington with an expertise in bridges. Expertise in this case is defined as having a minimum of three years of bridge design experience. Foundation shall be designed for an L-90 loading.

11-4 DITCH MAINTENANCE

The Purchaser shall maintain ditches in accordance with Forest Access Road Maintenance Specifications. Any landing construction, especially which crosses ditches, shall provide for drainage, as approved by the Contract Administrator.

11-5 EXISTING ROAD CLEAN-UP

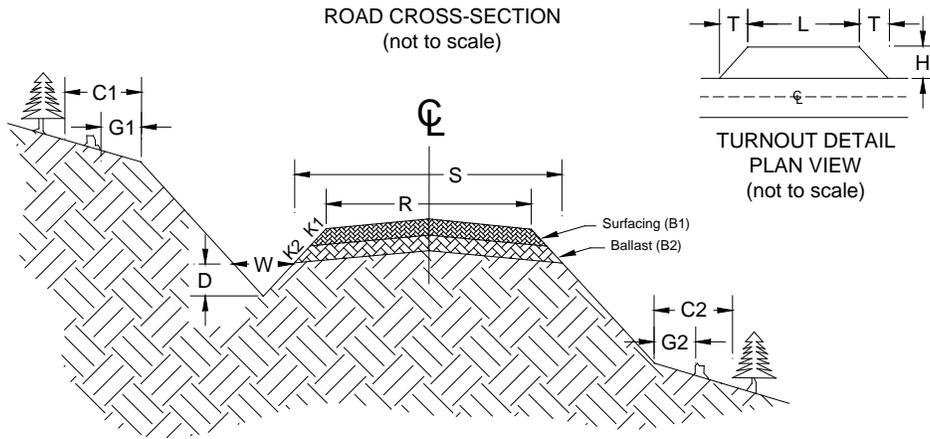
If Purchaser elects to use the following roads as a landing or loading location the road shall be cleaned of all organic debris, all lost or worn away surface material will be replaced, and all ditches and drainage channels at culvert outlet and inlets shall be cleaned and cleared of obstructions.

<u>Road</u>
C-Line
C-0600
C-0620
C-1000
C-1100
C-1101
C-1102

11-6 LANDING DEBRIS

Purchaser shall reduce or relocate debris generated by road and landing construction, in a manner approved, in writing, by the Contract Administrator, to avoid landing failures and potential debris slides.

TYPICAL SECTION SHEET



Road Number	From Station	To Station	Tolerance Class	Subgrade Width (feet)	Road Width (feet)	Ditch		Crown in. @ CL	Grubbing Limits (feet)		Clearing Limits* (feet)	
						Width (feet)	Depth (feet)		G1	G2	C1	C2
				S	R	W	D		G1	G2	C1	C2
C-Line	0+00	234+05	A	-	Varies	3	1	4	-	-	See Brushing Detail	
C-0400	0+00	78+00	C	15	12	3	1	4	-	-		
C-0410	0+00	9+85	C	15	12	3	1	4	-	-		
C-0411	0+00	3+84	C	15	12	3	1	4	-	-	0	0
C-0060	0+00	15+57	C	15	12	3	1	4	0	0	0	0
Spur 1	0+00	3+53	C	15	12	3	1	4	0	0	0	0
Spur 2	0+00	2+68	C	15	12	3	1	4	0	0	0	0
C-0620	0+00	9+23	C	15	12	3	1	4	-	-	See Brushing Detail	
C-0700	0+00	14+80	B	19	14	3	1	4	-	-	See Brushing Detail	
C-0700	14+80	19+96	B	19	14	3	1	4	2	2	Tags	Tags
C-0700	19+96	41+99	B	19	14	3	1	4	2	2	5	5
C-0700	41+99	43+51	B	19	14	3	1	4	2	2	Tags	Tags
C-0710	0+00	2+00	C	15	12	3	1	4	0	0	0	0
C-0710	2+00	13+32	C	15	12	3	1	4	0	0	Tags	Tags
C-0710	13+32	15+96	C	15	12	3	1	4	0	0	0	0
C-1100	0+00	39+23	B	19	14	3	1	4	2	2	5	5
C-1100	39+23	45+25	B	19	14	3	1	4	2	2	Tags	Tags
C-1101	0+00	3+17	C	15	12	3	1	4	-	-	See Brushing Detail	
C-1102	0+00	1+66	C	15	12	3	1	4	-	-		

*Tags are Orange Right of Way Tags

TURNOUT LIST

Road Number	Begin L- Station	End L- Station	Turnout Width (H)	Full Width Length (L)	Taper Length (T)	Comments
C-0700	16+25	17+25	12'	50'	25'	Turnout Left
C-0700	21+11	22+11	12'	50'	25'	Turnout Left
C-0700	24+85	25+85	12'	50'	25'	Turnout Right
C-0700	31+41	32+41	12'	50'	25'	Turnout Right
C-0700	36+89	37+89	12'	50'	25'	Turnout Right
C-0700	42+51	43+51	12'	50'	25'	Turnout Right. Install as C-0700 connects to B-0281rd to create curve widening and turnout at junction.
C-1100	25+16	26+16	12'	50'	25'	Turnout Right
C-1100	35+10	36+10	12'	50'	25'	Turnout Right
C-1100	39+56	40+56	12'	50'	25'	Turnout Right

TURNAROUND LIST

Road Number	Station	Length (feet)	Width (feet)	Comments
C-0700	43+51	30	30	Turnaround will be constructed at junction of C-0700 and the B-0280 roads
C-1100	45+25	30	30	Turnaround will be constructed at junction of C-1100 and B-0207 roads

COMPACTION LIST

Road	From Station	To Station	Type	Max Depth Per Lift (inches)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
All new construction and reconstruction roads			Culvert Installations	12	Vibratory Smooth Drum	14,000	4	3
			Embankment	12				
			Fill	12				
			Subgrade					
			Rock	9				
			Waste Area	12				
All pre-haul maintenance roads			After grading existing road surface. Culvert Installations.	9				

ROCK LIST, page 1 of 2

BALLAST

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y. Station	# of Stations	C.Y. Subtotal	Rock Source
			K2	B2	4 Inch Jaw Run			
C-0410 (bridge approaches)	6+50	9+50	1.5:1	12"	50	2.6	130	Upper Lytle Quarry
C-0060*	0+00	15+57	1.5:1	12"	50	16	800	
Spur 1*	0+00	3+53	1.5:1	12"	50	4	200	
Spur 2*	0+00	2+68	1.5:1	12"	50	3	150	
C-0700	14+80	43+51	1.5:1	12"	63	15	945	
C-0710*	0+00	4+50	1.5:1	12"	50	5	250	
C-0710	4+50	5+50	1.5:1	12"	50	1	50	
C-0710*	5+50	15+96	1.5:1	12"	50	11	550	
C-1100	23+80	45+25	1.5:1	12"	63	22	1386	
Quarry Spalls or Light Loose Rip Rap								
For culvert installations. See Culvert and Drainage List for locations.							52.5	
1-1/2" Minus Crushed								
For culvert bedding. See Culvert and Drainage List for locations. Estimated 5 cyd per 18"x30' culvert.							315	

4 Inch Jaw Run BALLAST TOTAL: 4461 cubic yards
 Quarry Spalls BALLAST TOTAL: 52.5 cubic yards

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

NOTE: Yardages are estimated on a compacted (In-Place) basis. Compliance of required rock will be based on compacted depth measurement. Apply appropriate factors to determine loose amounts for estimating purposes. Roads and rock quantities are designed for dry weather use. If Purchaser elects to haul in wet weather additional rock may be obtained from the rock pits listed in Section 6 at the Purchaser's expense and with prior written approval from the Contract Administrator.

ROCK LIST, page 2 of 2

SURFACE

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y. Station	# of Stations	C.Y. Total	Rock Source	Comment
			K1	B1	1-1/2 Inch Minus Crushed				
C-0620	6+00	7+00	1.5:1	24"	100	1	100	Upper Lytle Quarry	Raise road 2 feet in low spot to eliminate water ponding.
C-0700	0+00	14+80	1.5:1	3"	14	15	210		
C-0700	14+80	43+51	1.5:1	6"	27	29	783		
C-1100	0+00	45+25	1.5:1	6"	27	46	1242		
C-1101	0+00	3+17	1.5:1	6"	25	3	75		
C-1102	0+00	1+66	1.5:1	6"	25	2	50		
For surface rock over C-Line Road culvert Installations. See Culvert List for locations. Place minimum 12 inches of compacted rock over disturbed ground over each culvert installation on the C-Line road. Rock slope is 1.5:1.							200		
For surface rock over C-0400 Road culvert Installations. See Culvert List for locations. Place minimum 12 inches of compacted rock over disturbed ground over each culvert installation on the C-Line road. Rock slope is 1.5:1.							280		Estimated 20 cyd for one 18"x30' culvert installation.
For surface rock over C-0410 Road culvert Installations. See Culvert List for locations. Place minimum 12 inches of compacted rock over disturbed ground over each culvert installation on the C-Line road. Rock slope is 1.5:1.							60		Estimated 20 cyd for one 18"x30' culvert installation.
Stockpile at Upper Lytle Quarry							10,000		

SURFACE TOTAL 13,000 Cubic Yards

NOTE: Yardages are estimated on a compacted (In-Place) basis. Compliance of required rock will be based on compacted depth measurement. Apply appropriate factors to determine loose amounts for estimating purposes. Roads and rock quantities are designed for dry weather use. If Purchaser elects to haul in wet weather additional rock may be obtained from the rock pits listed in Section 6 at the Purchaser's expense and with prior written approval from the Contract Administrator.

CULVERT AND DRAINAGE LIST, pg 1 of 3

Road Number	Location	Culvert		Length (ft)			Riprap (C.Y.)			Backfill Material*	Placement Method*	Const. Staked*	Remarks
		Dia. (in)	Type	Culvert	Downspt	Flume	Inlet	Outlet	Type				
C-Line	118+57	18	PD	30			0.5	0.5	QS				
	139+26	36	PD	70			1.5	1.5	QS				Replace existing stream culvert
	161+80	18	PD	40			0.5	0.5	QS				
	168+90	18	PD	40			0.5	0.5	QS				Trench outlet.
	186+55	18	PD	40			0.5	0.5	QS				
	189+33	18	PD	50			0.5	0.5	QS				Clean ditch around culvert inlet. Seep.
	192+60	18	PD	50			0.5	0.5	QS				
	218+65	18	PD	30			0.5	0.5	QS				
	220+05	18	PD	30			0.5	0.5	QS				
	C-0400	0+60	18	PD	30			0.5	0.5	QS			
4+80		18	PD	30			0.5	0.5	QS				
6+20		18	PD	30			0.5	0.5	QS				
11+80		18	PD	30			0.5	0.5	QS				
12+10		-	-	-									Clean culvert inlet and outlet
13+00		24	PD	40			1	1	QS				
14+35		18	PD	30			0.5	0.5	QS				
19+20		18	PD	30			0.5	0.5	QS				
22+17		18	PD	30			0.5	0.5	QS				
29+81		18	PD	30			0.5	0.5	QS				
34+50		18	PD	30			0.5	0.5	QS				
35+95		-	-	-			-	0.5	QS				Clean culvert inlet and outlet
42+72		18	PD	30			0.5	0.5	QS				
50+25		18	PD	30			0.5	0.5	QS				
51+62		18	PD	30			0.5	0.5	QS				
C-0410	3+00	18	PD	30			0.5	0.5	QS				
	7+15	18	TEMP	30									
	7+75	-	-	-									40 ft temporary bridge installation
C-0060	4+68	18	PD	30			0.5	0.5	QS				
	9+02	18	PD	30			0.5	0.5	QS				
Spur 1	0+00	18	TEMP	40									Install in C-Line ditch across Spur 1

CULVERT AND DRAINAGE LIST, pg 2 of 3

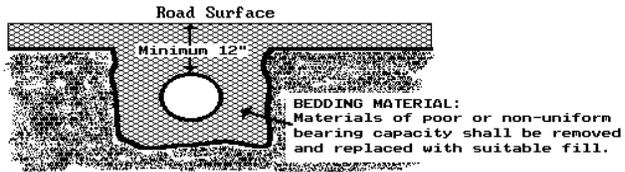
Road Number	Location	Culvert		Length (ft)			Riprap (C.Y.)			Backfill Material*	Placement Method*	Const. Staked*	Remarks
		Dia. (in)	Type	Culvert	Downspt	Flume	Inlet	Outlet	Type				
Spur 2	0+00	18	TEMP	40									Install in C-Line ditch across Spur 2, if needed
C-0700	20+97	18	PD	30			0.5	0.5	QS				
	24+85	18	PD	30			0.5	0.5	QS				
	27+77	18	PD	45			0.5	0.5	QS				
	36+89	18	PD	30			0.5	0.5	QS				
	39+15	18	PD	50			0.5	0.5	QS				
C-0710	0+46	18	TEMP	30									Trench outlet
	2+74	24	TEMP	30									Ns stream
	3+25	18	TEMP	30									
	4+73	36	TEMP	36									Np stream
	8+35	18	TEMP	30									
	9+79	24	TEMP	30									Ns stream
	10+14	18	TEMP	30									
	12+82	18	TEMP	30									
C-1100	8+00	18	PD	30			0.5	0.5	QS				
	8+30	24	PD	40			1	1	QS				Weepy bank.
	9+36	18	PD	30			0.5	0.5	QS				
	11+95	18	PD	30			0.5	0.5	QS				
	15+30	18	PD	30			0.5	0.5	QS				
	15+70	24	PD	40			1	1	QS				Replace existing culvert
C-1100	26+17	18	PD	30			0.5	0.5	QS				
	28+81	18	PD	30			0.5	0.5	QS				
	31+73	18	PD	30			0.5	0.5	QS				
	33+60	18	PD	30			0.5	0.5	QS				
	36+99	18	PD	30			0.5	0.5	QS				
	45+23	18	PD	30			0.5	0.5	QS				Install at junction with B-0207 as directed by CA.
Any Road listed in Clause 0-2	-	18	PD	30			0.5	0.5	QS				Install at CA discretion
	-	18	PD	30			0.5	0.5	QS				Install at CA discretion
	-	18	PD	30			0.5	0.5	QS				Install at CA discretion
	-	18	PD	30			0.5	0.5	QS				Install at CA discretion

* SEE CULVERT AND DRAINAGE SPECIFICATION DETAIL

CULVERT AND DRAINAGE LIST, pg 3 of 3

PD = Polyethylene Pipe Dual Wall AASHTO No. M294 Type S or ASTM F2648
TEMP = Temporary Culvert

CULVERT BACKFILL AND BASE PREPARATION (For culverts less than 36")

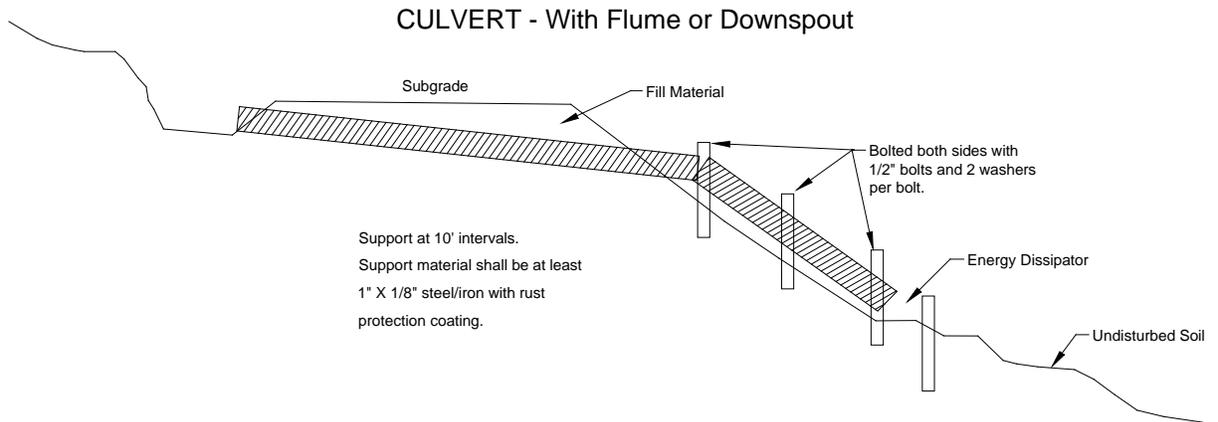
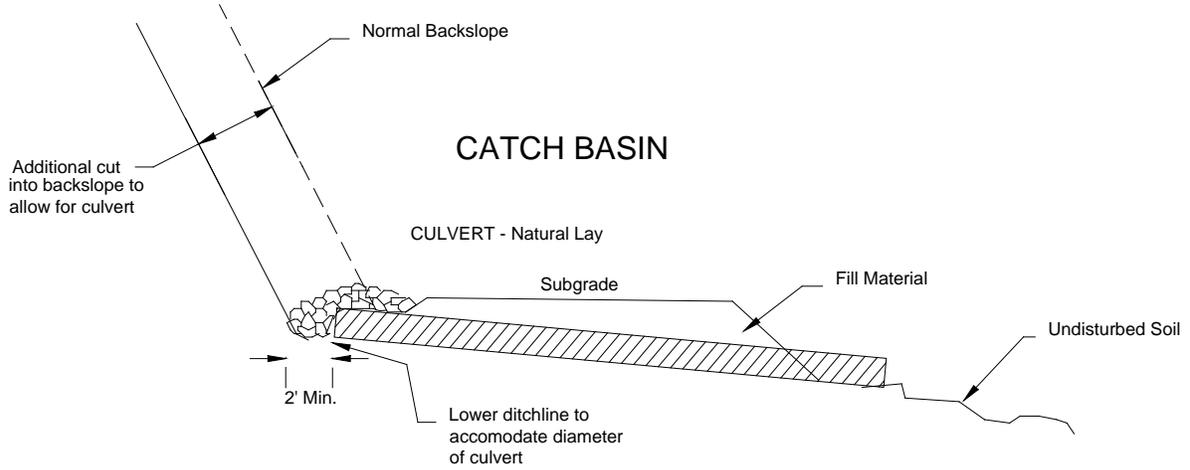


Key:

- QS - Quarry Spalls or Light Loose Riprap
- SR - Shot Rock
- NT - Native (bank run)
- SL - Select Fill
- HL - Heavy Loose Riprap
- Flume - Half round pipe
- Downspout - Full round pipe

CULVERT AND DRAINAGE SPECIFICATION DETAIL

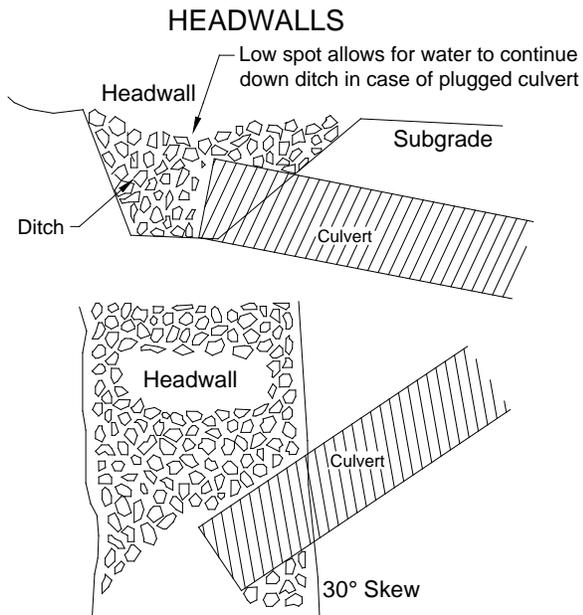
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CULVERT AND DRAINAGE SPECIFICATION DETAIL

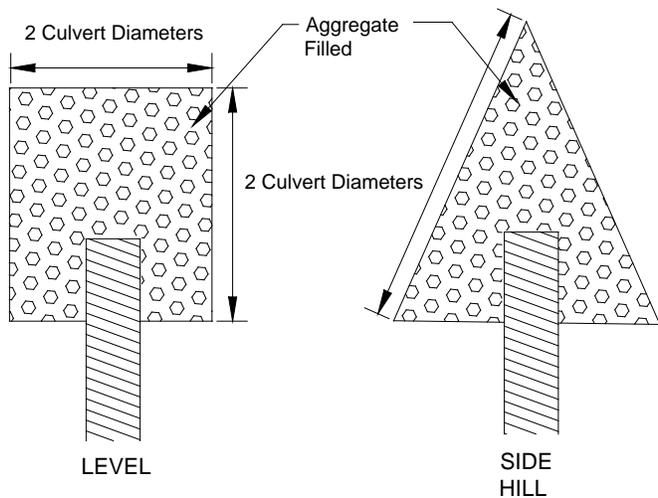
(Page 2 of 3)

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



Headwalls to be constructed of material that will resist erosion.

ENERGY DISSIPATORS



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

CULVERT AND DRAINAGE SPECIFICATION DETAIL

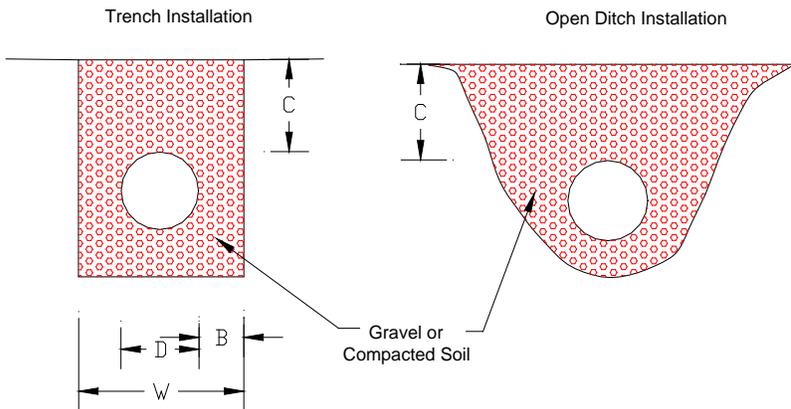
(Page 3 of 3)

POLYETHYLENE PIPE INSTALLATION

INSTALLATION REQUIREMENTS:

1. Crushed stone, gravel, or compacted soil backfill material shall be used as the bedding and envelope material around the culvert. The aggregate size shall not exceed 1/6 pipe diameter or 4" diameter, whichever is smaller.
2. The corrugated pipe shall be laid on grade, on a layer of bedding material as shown for the two types of installations. If native soil is used as the bedding and backfill material, it shall be well compacted in six inch layers under the haunches, around the sides and above the pipe to the recommended minimum height of cover.
3. Either crushed aggregate or flexible (asphalt) pavement may be laid as part of the minimum cover requirements.
4. Site conditions and availability of bedding materials often dictate the type of installation method used.
5. The load bearing capability of flexible conduits is dependent on the type of backfill material used and the degree of compaction achieved. Crushed stone and gravel backfill materials typically reach a compaction level of 90-95% AASHTO standard density without compaction. When native soils are used as backfill material, a compaction level of 85% is required. This minimum compaction can be achieved by either hand or mechanical tamping.

MINIMUM DIMENSIONS Trench or Open Ditch Installation



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

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS, page 1 of 2

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, with selected material or material approved by the Contract Administrator. Remove overhanging material from the top of cut slopes.
- Waste material from slides or other sources shall be placed and compacted in stable locations identified in the road plan or approved by the Contract Administrator, so that sediment will not deliver to any streams or wetlands.
- Slide material and debris shall not be mixed into the road surface materials, unless approved by the Contract Administrator.

Surface

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

Drainage

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

Preventative Maintenance

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

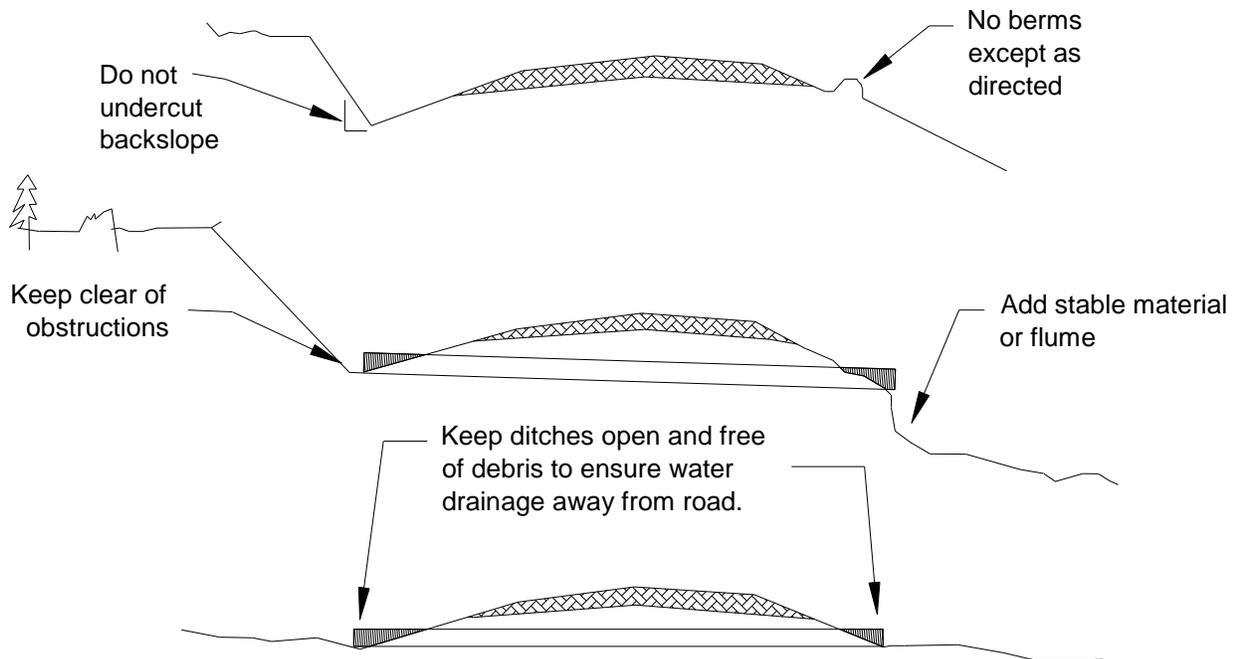
FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS, page 2 of 2

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.



UPPER LYTLE QUARRY DEVELOPMENT PLAN

NE ¼ SE ¼ Section 24, Township 17 North, Range 05 West, W.M.

(Pg 1 of 3)

General:

1. Pile debris in clean, burnable piles at station 4+35 on the C-0620 road (Point I on map) as directed by the Contract Administrator. Additional locations may be used if approved in writing by the Contract Administrator.
2. Endhaul overburden to waste area at station 4+35 on the C-0620 road (Point H on map). The waste area is located on the east side of the road. Additional locations may be used if approved in writing by the Contract Administrator.
3. Pile all reject rock and overburden at station 4+35 on the C-0620 road away from pit working area as shown on pit drawing. Additional locations may be used if approved in writing by the Contract Administrator.
4. Oversize material left in pit at the conclusion of operation shall not exceed **200** cubic yards. Existing oversize shall be used to manufacture the rock required for this contract. Oversize material is defined as rock fragments larger than 1.5 feet in any dimension.
5. A minimum stripping width of 20 feet must be maintained from all pit faces and at the termination of operations pit shall be left in said condition. No undercutting shall be permitted.
6. Maximum face height shall be 20 feet.
7. The minimum width of benches shall be 15 feet, unless specified otherwise, in writing by the Contract Administrator.
8. Pit walls shall be maintained in a condition to minimize the possibility of the walls sliding or failing.
9. Pit floor shall be sloped to allow drainage as shown. No ponding will be allowed.
10. At the end of operation, benches shall have safety berms constructed or access blocked to highway vehicles. Berms shall be at least mid-axel height of the largest self-propelled mobile equipment which usually travels adjacent to benches. Upon completion of operations in the pit, the area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life.
11. Upon completion of operations, the site shall be cleared of all temporary structures, equipment and rubbish, and shall be left in a neat and presentable condition.
12. At the completion of rock source operations, Purchaser shall request written approval from the Contract Administrator for final rock source condition and compliance with the terms of this plan.
13. Quantity and quality of ballast pit are not guaranteed by the State.
14. See "Upper Lytle Quarry Planview, pg 2 of 3" drawing for additional information.

UPPER LYTLE QUARRY DEVELOPMENT PLAN

NE ¼ SE ¼ Section 24, Township 17 North, Range 05 West, W.M.

(Pg 2 of 3)

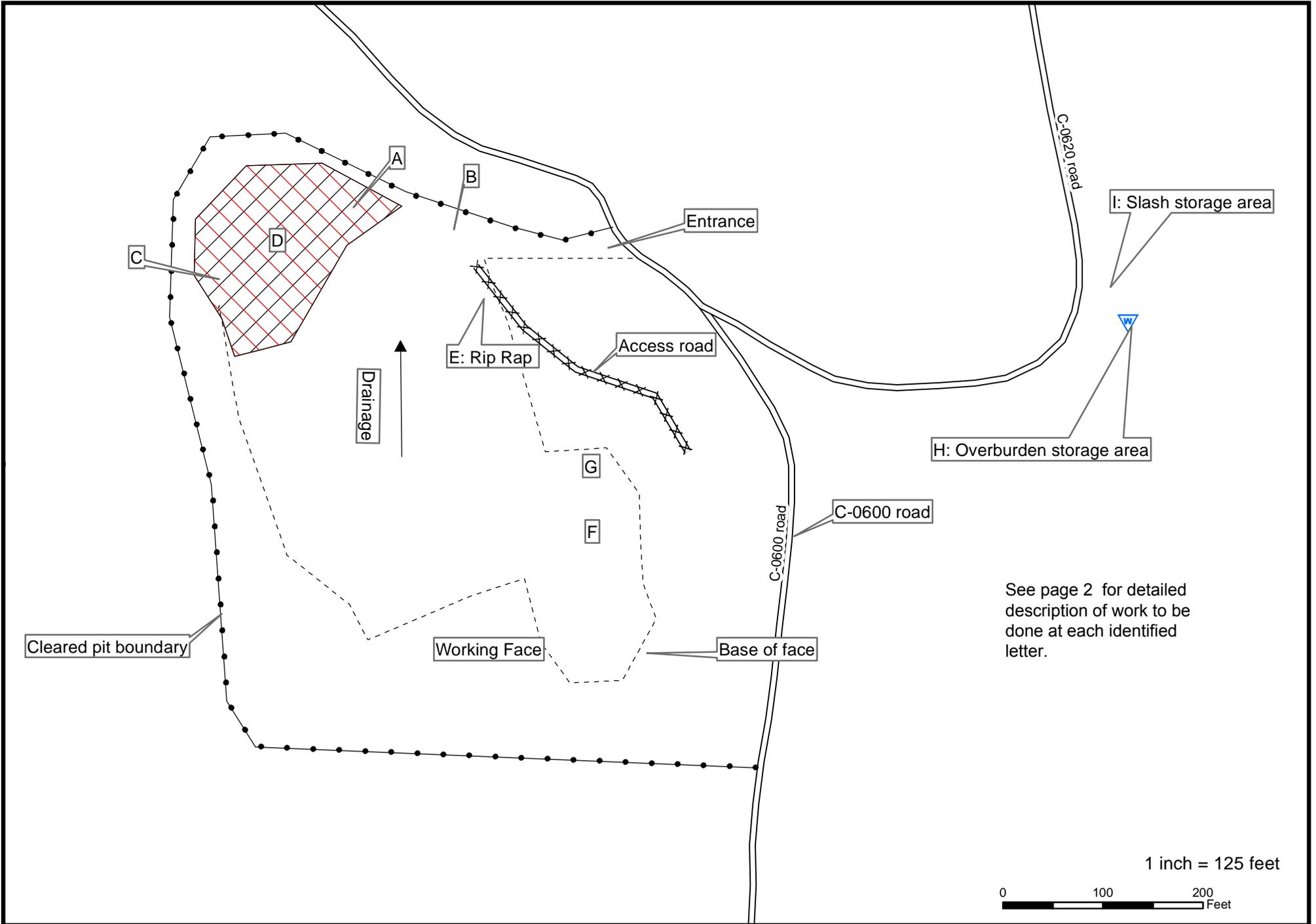
Specific Rock Source Work Requirements:

The following work shall be performed prior to the manufacture of the 1-1/4 Inch Minus Crushed stockpile. Points are shown on the Upper Lytle Quarry Planview, pg 3 of 3.

Point	Requirements
A	Move crushed rock stockpile from pt A to pt B.
C	Remove all oversized. Use oversized to manufacture rock required for this contract.
D	Hatched area will be new 1-1/4" stockpile location.
E	Access road blocked by oversized. If access road is used re-block at the conclusion of pit operations. South side of access road will be new oversized storage location.
F	Push stockpile to pt G.
H	Push existing stockpile to south side of storage site. Endhaul overburden from pit to pt H. Place so that the overburden does not mix with stockpile.
I	Endhaul stumps and slash to north side of storage area.

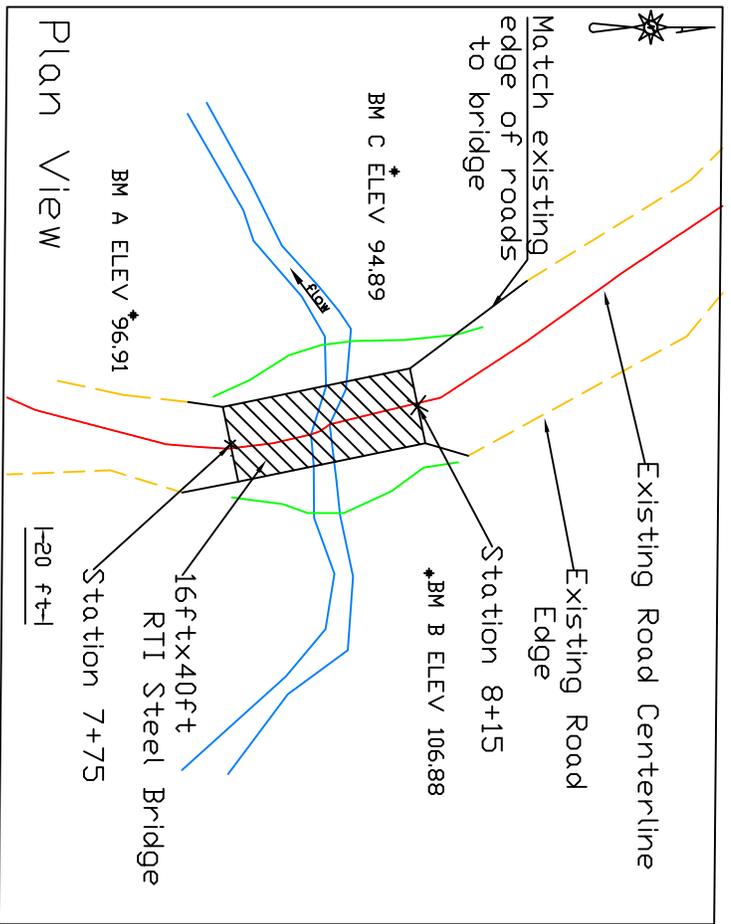
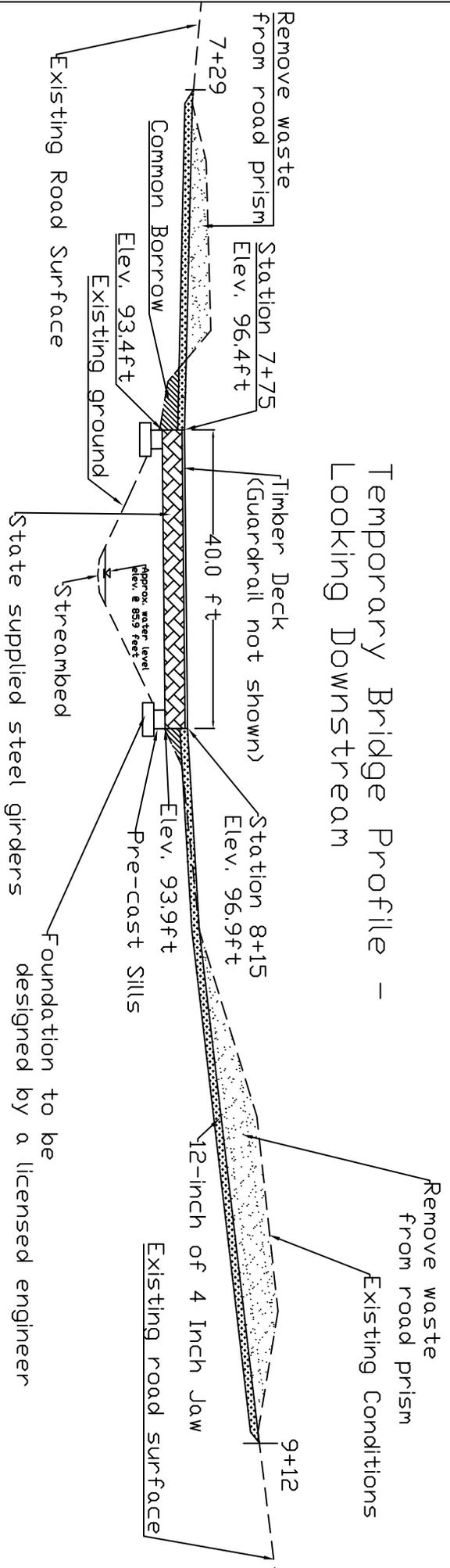
*Updated 11/2/2015 by M. Bell

Upper Lytle Quarry Development Plan: Planview, pg 3 of 3



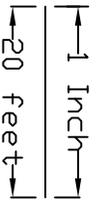
BRIDGE DETAIL

Temporary Bridge Profile -
Looking Downstream



RP Information to center of bridge deck elevation			
From	To	AZ	HD
BM A	Station 7+75	53°	33.9'
BM A	Station 8+15	18°	62.5'
BM B	Station 7+75	213°	49.5'
BM B	Station 8+15	266°	35.1'
BM C	Station 7+75	121°	66.7'
BM C	Station 8+15	84°	49.3'

Note: Local elevations are assumed. Additional subgrade rock specified in roadplan to be placed as needed and as directed by the Contract Administrator.



Date: 11/2/15
Drawn by: MDS



**WASHINGTON STATE DEPARTMENT OF
Natural Resources**

Bridge Details

Hydraulic project requirements
Project: Lytle's Leg VRH and VDT Timber Sale #30-092744
Gray's Harbor County

C-0410 Road Station 7+75: Bridge Installation and Removal
Lat/Long: 46.942847deg N / 123.26491deg W

Project timing

Work will be completed from July 1 to September 30 of any given year, unless additional days are allowed by Forest Practices in consultation with Department of Fish and Wildlife.

Controlling sediment and erosion

BMPs will be applied throughout all phases of this project to minimize the delivery of sediment to the stream.

Fill material that does not meet the specification for reuse as road fill will be placed in a stable location to prevent delivery to any water course and will be controlled from erosion by straw or available slash material or isolated by topography and/or waterbars.

Prior to starting work in areas where the bank will be disturbed, install temporary erosion control measures such as a filter fabric fence or straw wattles to prevent sediment from entering the stream. Keep in place during construction and add erosion control measures as needed to exposed soil.

After completion of work, but before removing the temporary erosion control measures, remove sediment accumulated during the project from behind the erosion control measures and deposit it in a location where it cannot enter typed water.

Stop work if high flow conditions that may cause sedimentation are encountered during the project. Do not re-start work until the flow subsides.

All exposed or disturbed areas resulting from this project with the potential to deliver sediment to any typed water shall be protected from erosion using grass seed and/or straw upon completion of the project.

Prior to releasing the water flow to the project area, all bank protection or armoring shall be completed to minimize sediment delivery to the stream or stream channel.

Clearing vegetation, minimizing disturbance

Vegetation removal will be limited to operational needs only within the extents of construction. Trees removed from within 25 feet of either side of the stream channel will be placed in the channel or along the stream banks downstream of the replacement project.

Bridge elevations and locations shall be established with reference points (RPs) and clearly benchmarked prior to commencing work on this project. The RPs shall be protected to serve as post project reference.

Operating and staging heavy equipment

Limit equipment use near the stream to minimize disturbance to stream banks and vegetation.

Where possible, operate equipment from the road, road shoulder, top of the bank, or similar out-of-water location.

Operate equipment in the stream channel only when the work area is dry or within an area where the stream flow is bypassed.

Petroleum leaks and/or spills

Spill kits shall be available at all times during active operations capable of absorbing at least 10 gallons of oil, coolant, solvent or contaminated water or potential spills from each piece of equipment.

All operations shall be conducted in a manner that avoids the release of hazardous materials, including petroleum products, while working around the stream.

Equipment crossings of the stream are to be minimized.

Service, refuel, and maintain equipment in an upland area where there is no potential for hazardous materials to enter water or stream channel.

Bypass methods for flowing water

Work below the OHWM shall be done in the dry or in isolation from the streamflow, if flowing, by the installation of a bypass flume or culvert, or pumping the stream flow around the work area. If channel is dry and weather conditions are forecasted to remain that way throughout the duration of the project, the following bypass requirements do not apply.

Upon completion of the project, all material used in the temporary bypass shall be removed from the site and the channel bed, bank and shoreline areas restored similar to pre-project natural condition or better.

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

Wastewater from project activities and dewatering shall be routed to an area outside the ordinary high water line to allow removal of fine sediment and contaminants prior to being discharged to the stream.

Fish protection measures

If stream is flowing, pumps used for dewatering the job site will be equipped with screens to prevent injury to fish.

Any device used for pumping water from a fish-bearing stream shall be equipped with a fish guard to prevent passage of fish into the diversion device pursuant to RCW 77.57.010 and 77.57.070. The pump intake shall be screened by one of the following:

- a. Perforated plate: 0.094 inch (maximum opening diameter).
- b. Profile bar: 0.069 inch (maximum width opening).
- c. Woven wire: 0.087 inch (maximum opening in the narrow direction).

The minimum open area for all types of fish guards is 27%. The screened intake shall consist of a facility with enough surface area to ensure that the velocity through the screen is less than 0.4 feet per second. Screen maintenance shall be adequate to prevent injury or entrapment of juvenile fish and the screen shall remain in place whenever water is withdrawn from the stream through the pump intake.

Plan and conduct fish capture and removal to minimize the amount and duration of handling.

Place inlet marker
on right side of
inlet, in culvert
corrugation if
possible

Edge of fill

Edge of road

Typical Plan

Culvert Barrel

Typical Section

Inlet marker: 1 inch I.D.
Schedule 40
PVC Pipe, white

24 inches min.

Road Surface

Catch Basin

Culvert Barrel

6 inches min.

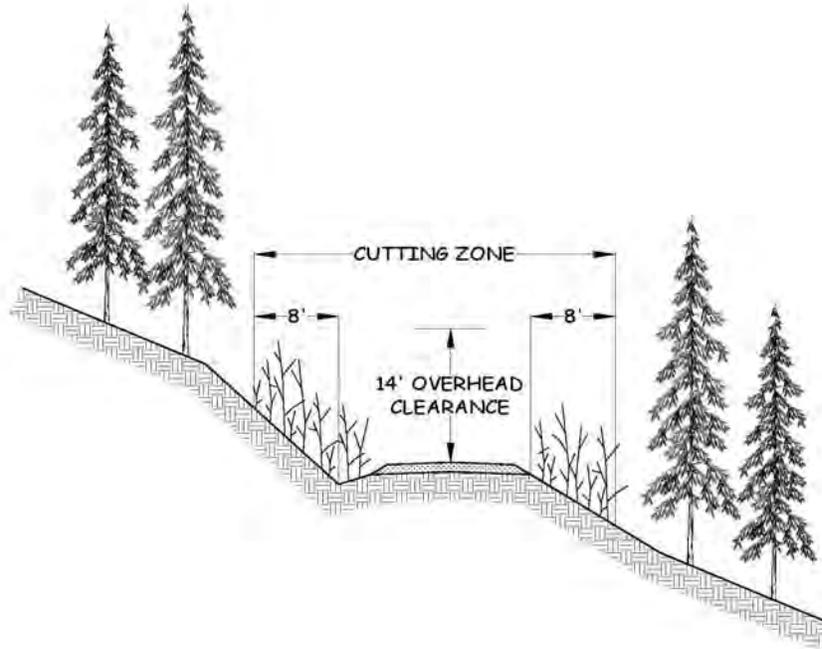
CULVERT MARKER DETAIL (INLET SHOWN)



WASHINGTON STATE DEPARTMENT OF
Natural Resources

Drawn by: WP Hoskins

ROAD BRUSHING DETAIL



SPECIFICATIONS

Brush shall be cut on the road surface and 8 ft. back from the back of road ditch and outside edge of running surface.

On the inside of switchbacks and tight curves, brush shall be cut back 16 ft. for visibility.

On truck turnouts or turnarounds, brush shall be cut 8 ft. back from outside edge.

Brush shall be cut to provide an overhead clearance of 14 ft. above the road running surface.

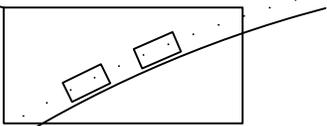
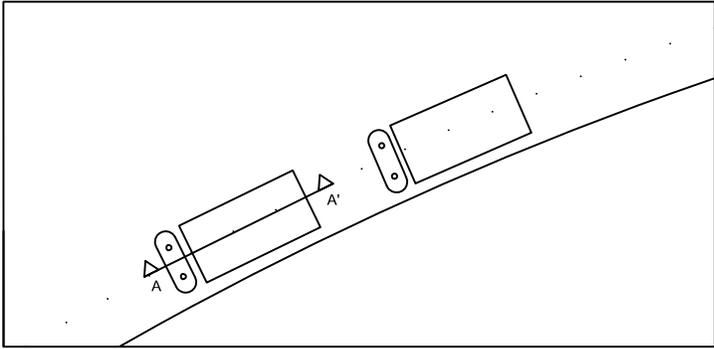
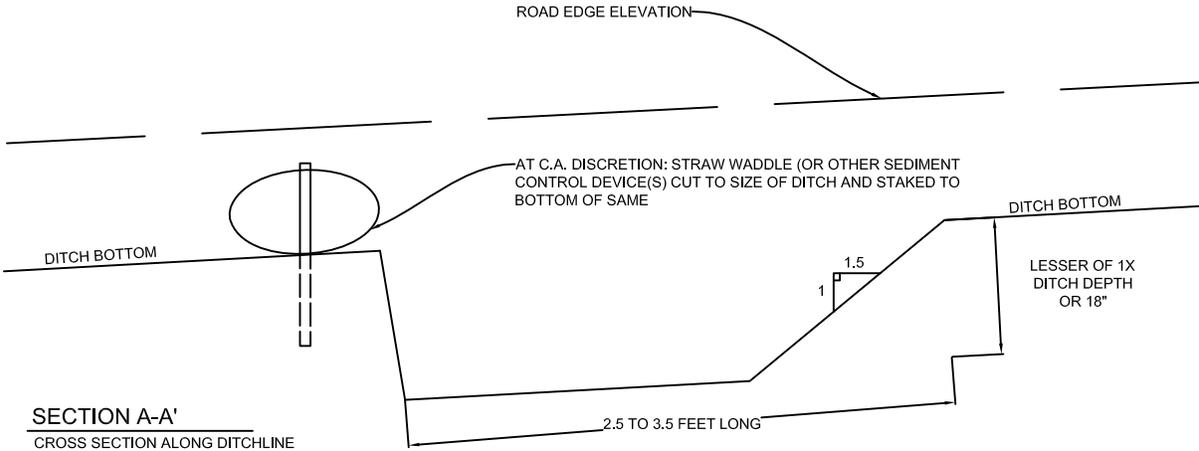
Brush shall be cut to within 6 in. of the ground.

Slash shall be removed from cut slopes above the road and scattered on embankment slopes.

Ditches shall be cleared of woody debris.

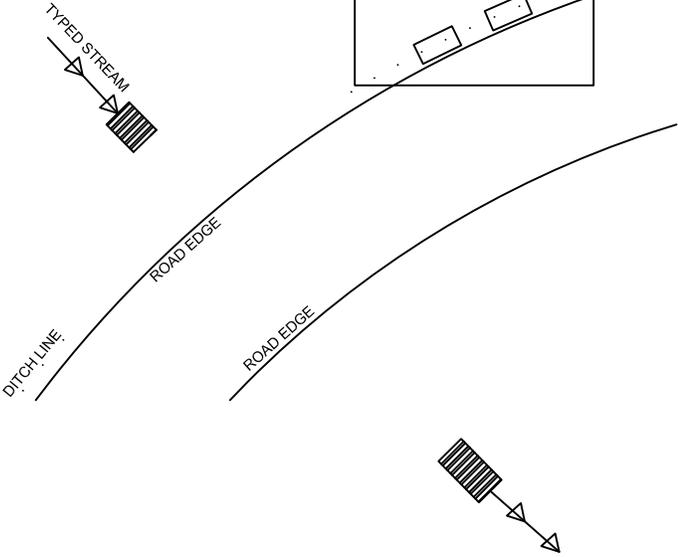
Culvert inlets and outlets shall be cleaned a minimum distance of two pipe diameters away.

SEDIMENT TRAP DETAIL



NOTES:

- CONSTRUCT SEDIMENT TRAPS IN SETS GREATER THAN ONE, WHENEVER POSSIBLE.
- SEDIMENT TRAPS SHOULD BE PLACED AS CLOSE AS PRACTICABLE TO STREAM CROSSING.
- IF SEDIMENT TRAPS FILL WITH SEDIMENT DURING HAUL OPERATIONS, REMOVING SEDIMENT FROM TRAPS IS CONSIDERED ROUTINE MAINTENANCE.
- ADDITIONAL SEDIMENT CONTROL DEVICES, SUCH AS HAY BALES, STRAW WADDLES OR OTHERS MAY BE REQUIRED AS SHOWN IF IN THE OPINION OF THE CONTRACT ADMINISTRATOR, SEDIMENT TRAP ALONE DOES NOT APPEAR TO BE EFFECTIVE.



Date: 09/16/2014
 Scale : NTS
 App#
 Drawn by: WPH
 Sheet 1 of 1

SEDIMENT TRAP DETAIL

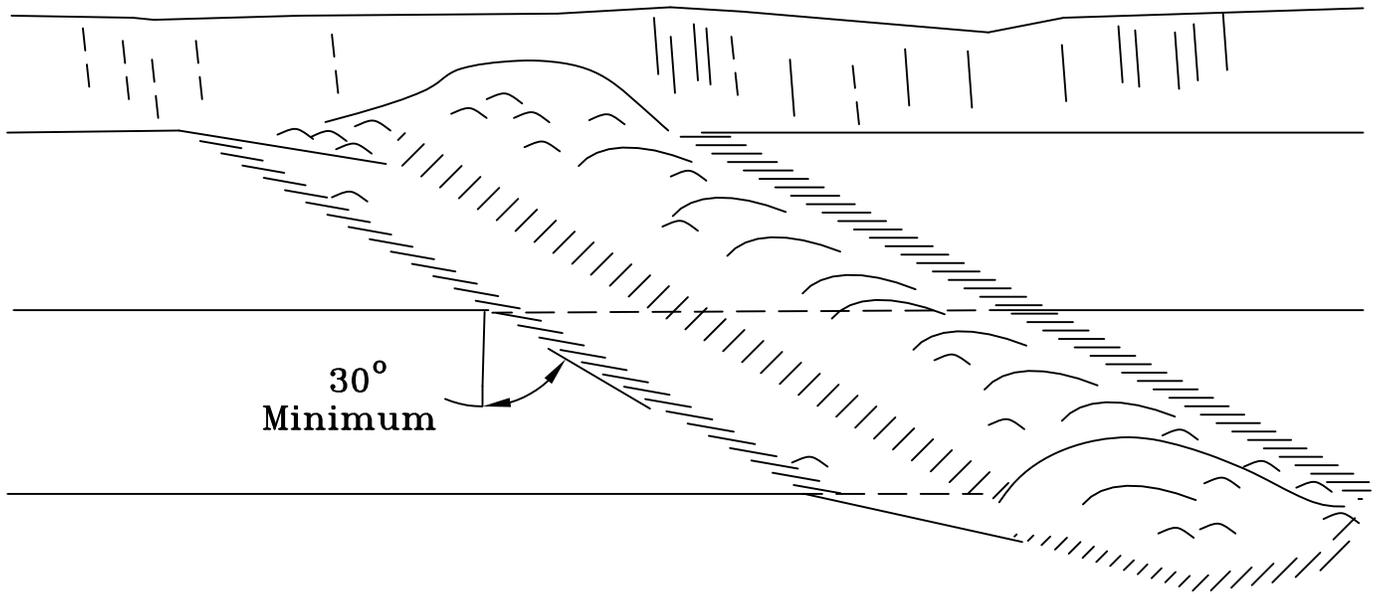
WASHINGTON STATE DEPARTMENT OF

Natural Resources

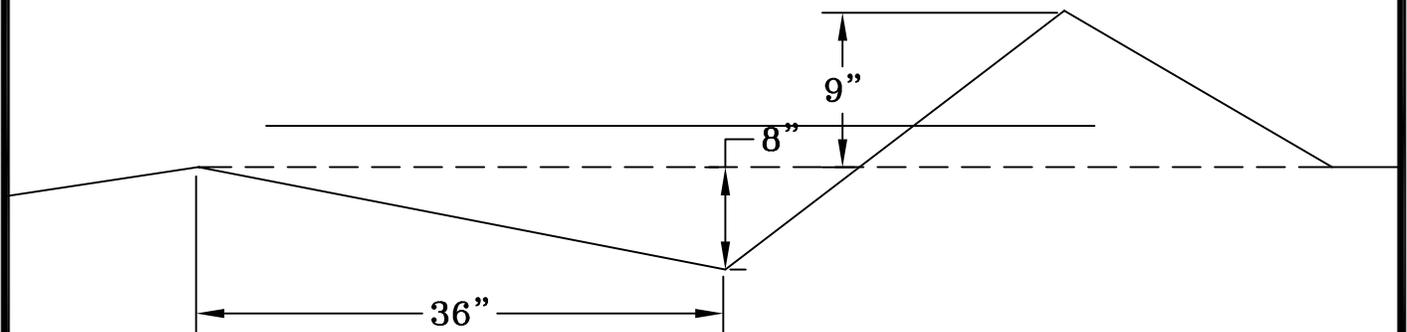
SPS Region

Drivable Water Bar Detail

Cross Ditch



Cross Section at Centerline

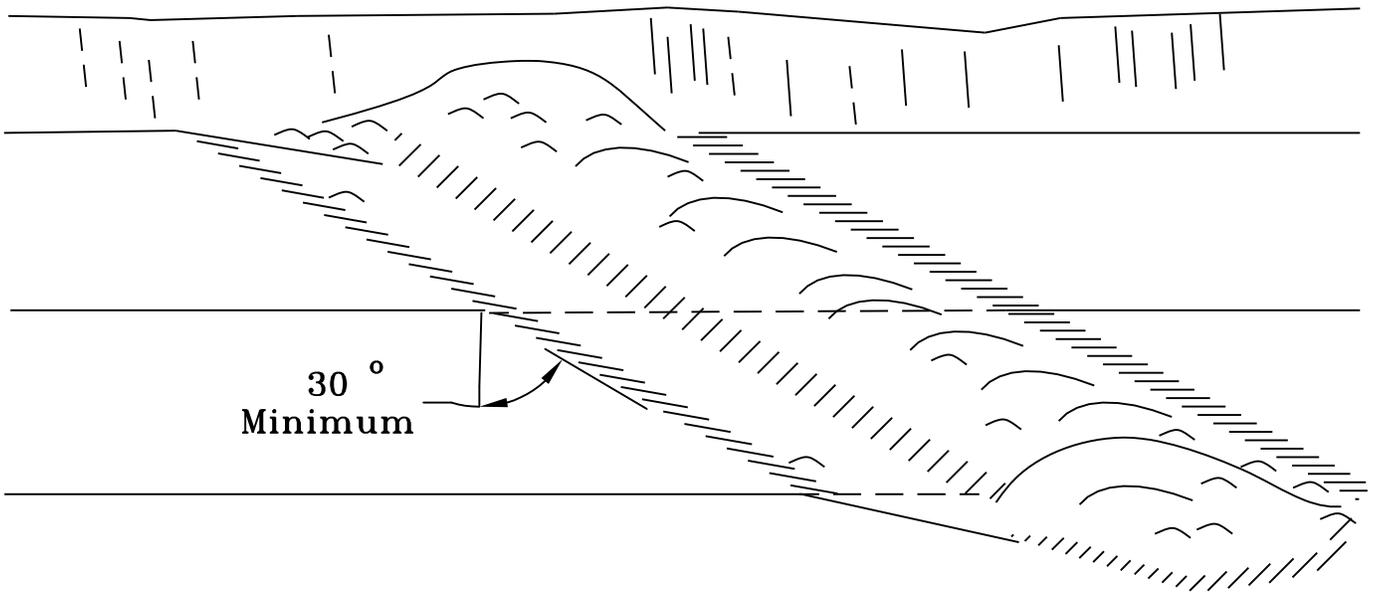


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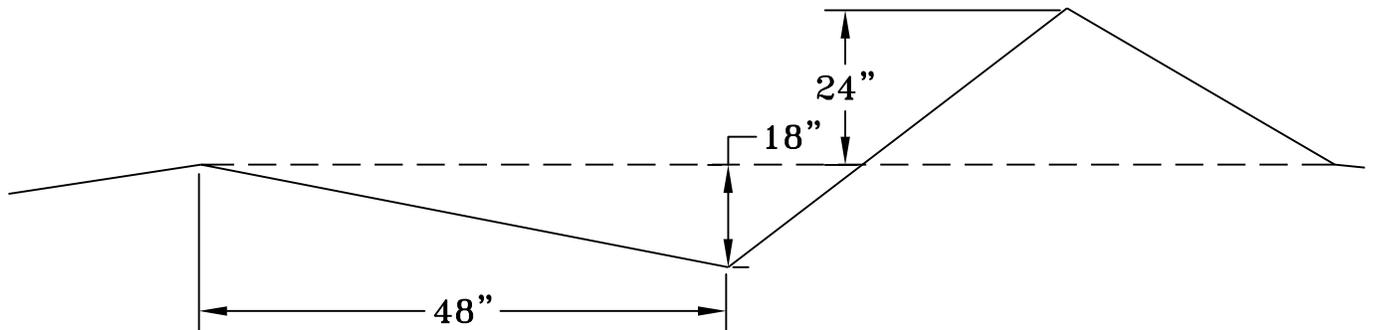
Drivable Water Bar Detail	
	WASHINGTON STATE DEPARTMENT OF Natural Resources
SPS Region	

Non-Drivable Water Bar Detail

Cross Ditch



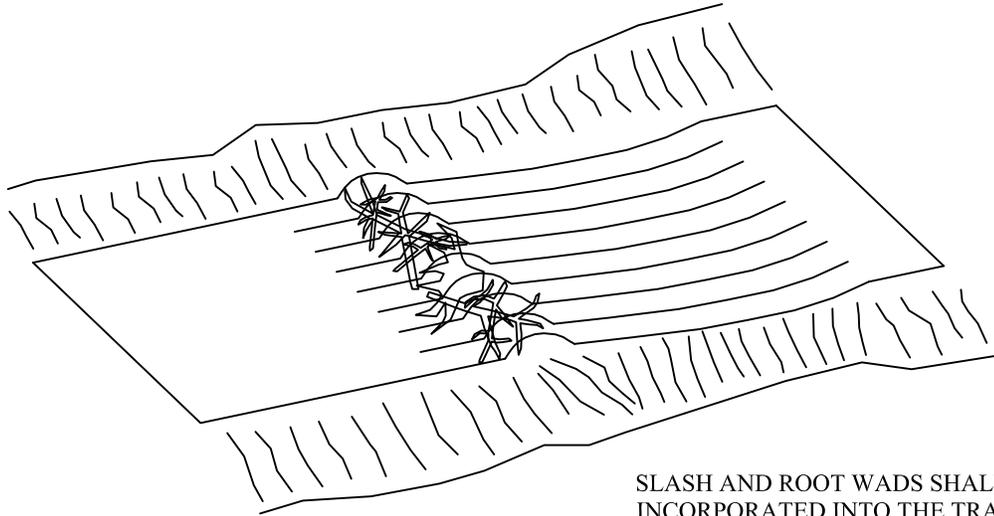
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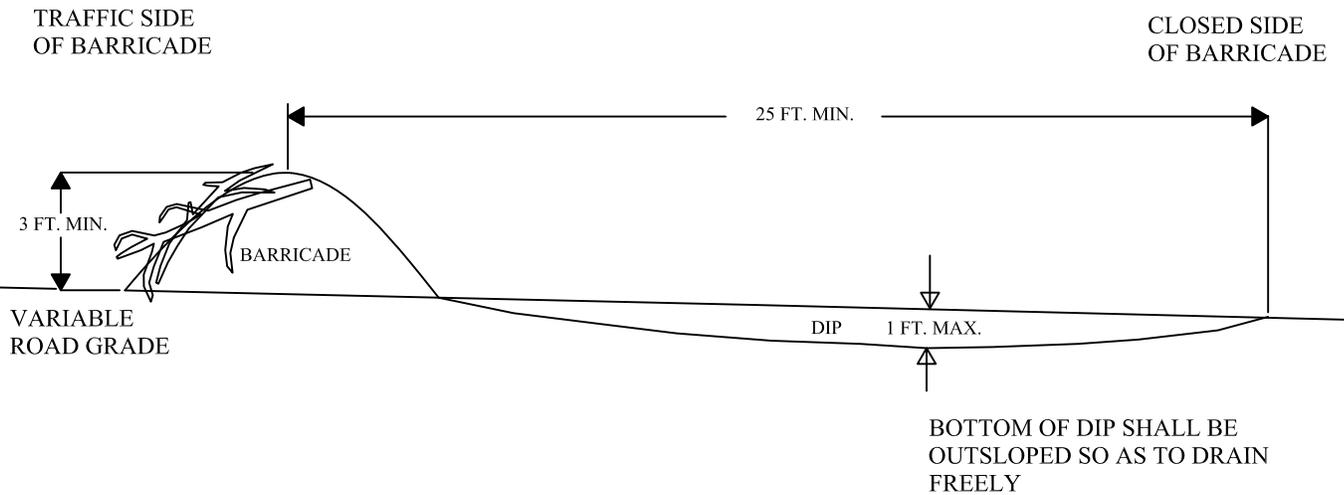
Non-Drivable Water Bar Detail	
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<small>SPS Region</small>	

BARRICADE DETAIL

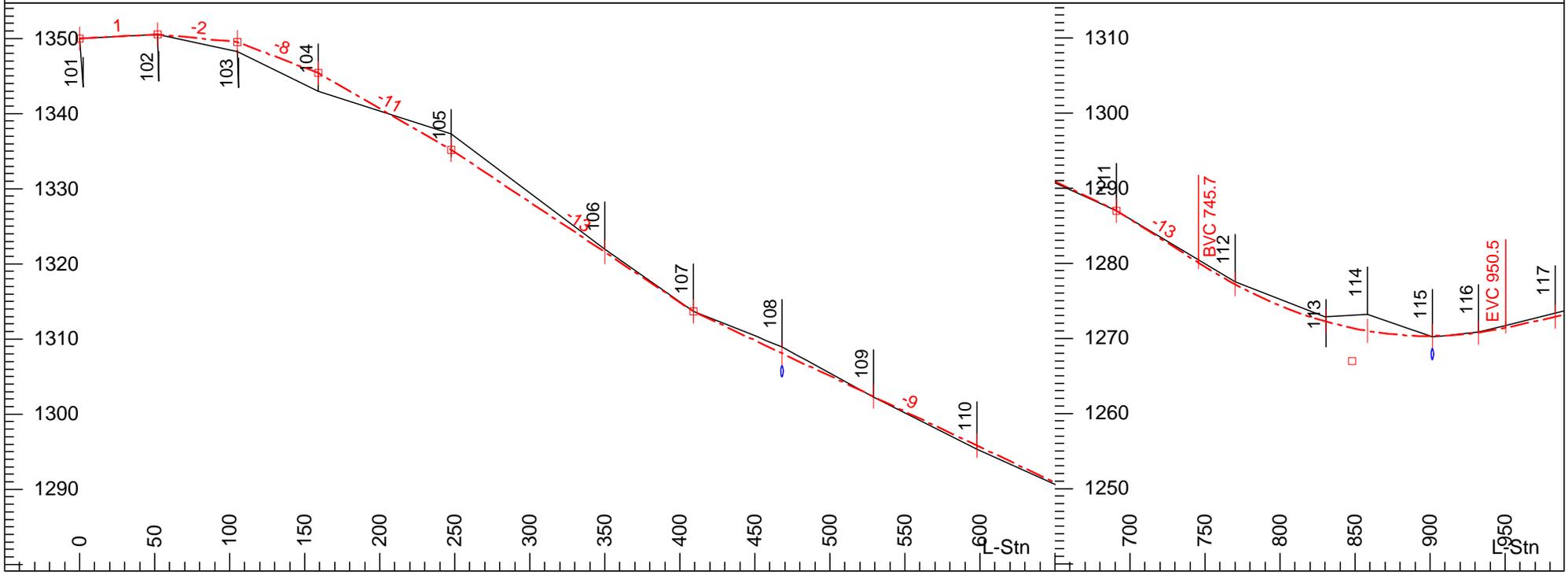
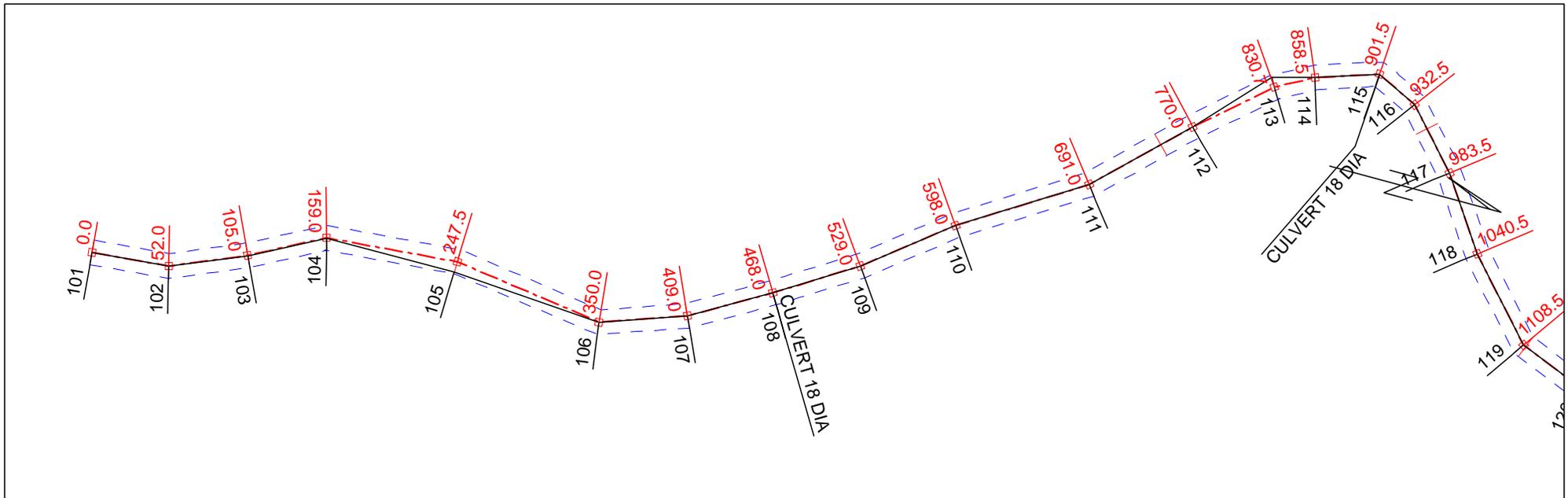


SLASH AND ROOT WADS SHALL BE INCORPORATED INTO THE TRAFFIC SIDE OF THE BARRICADE.

PLAN VIEW



PROFILE VIEW



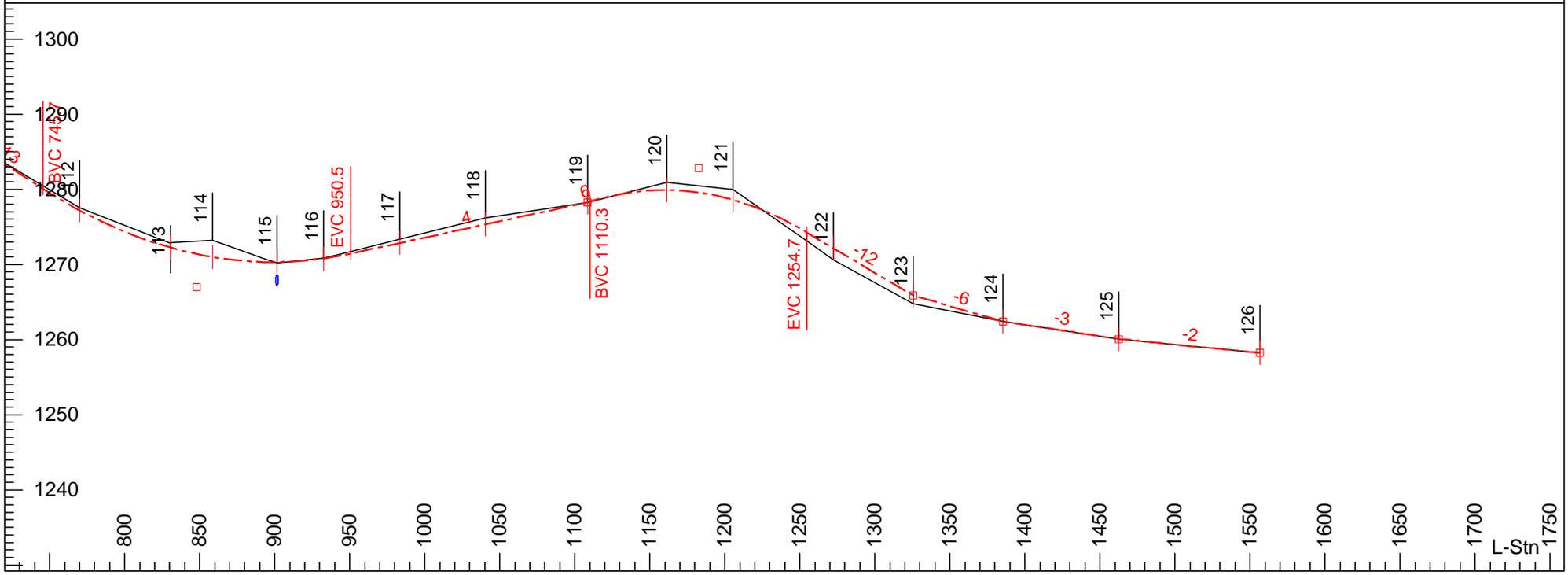
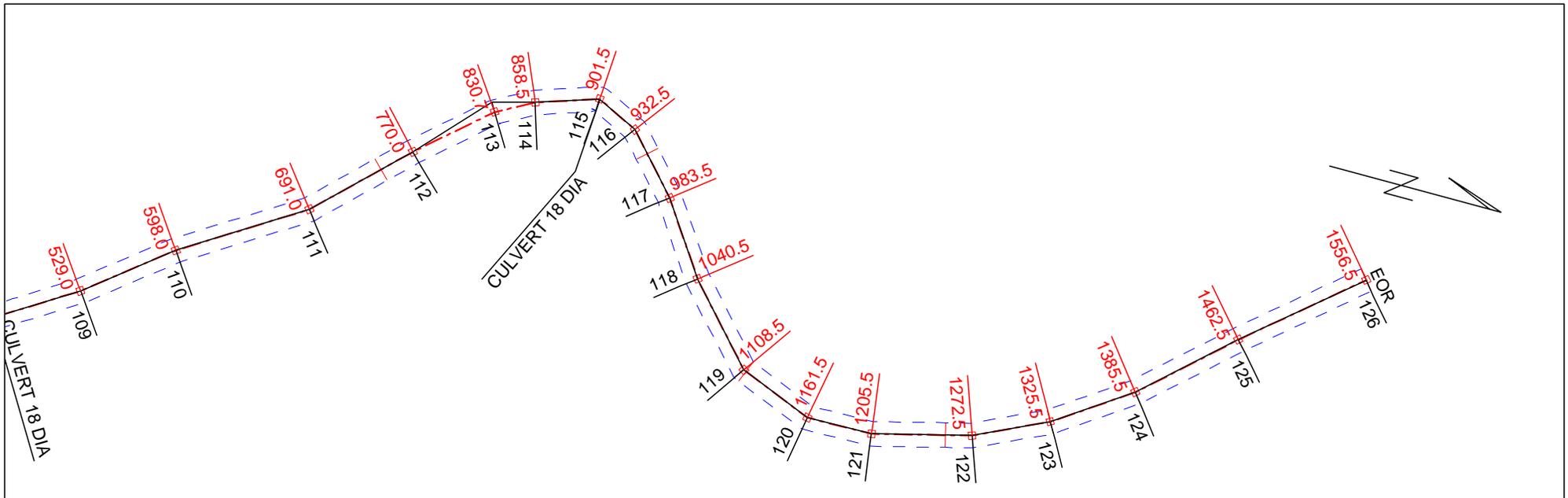
Lytle's LefgTimber Sale
 C-0060 road November 2, 2015
 Contract #: 30-092744



Washington State Department of
 Natural Resources
 South Puget Sound Region

Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

Engineer: M. Bell
 15/11/09 Page 1 of 2



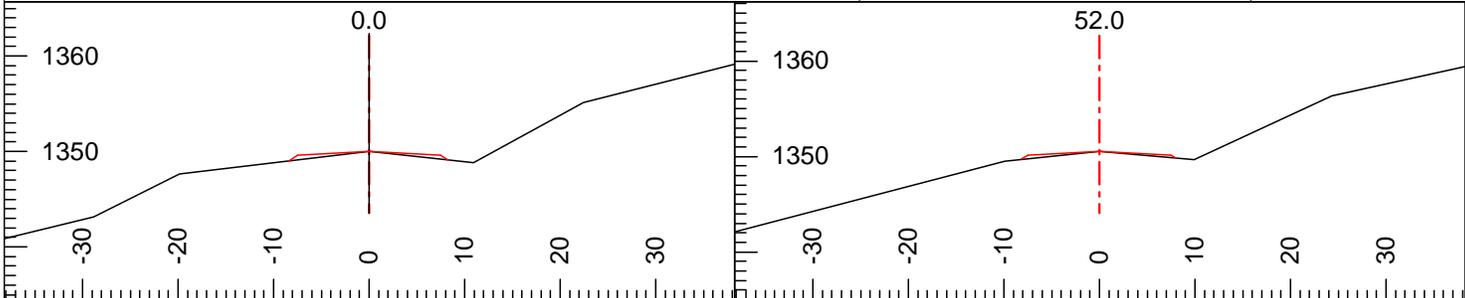
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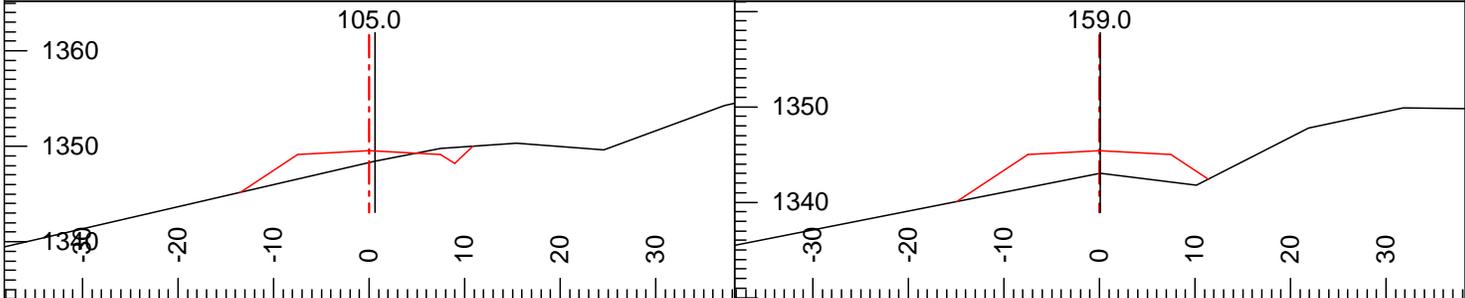
Washington State Department of
 Natural Resources
 South Puget Sound Region

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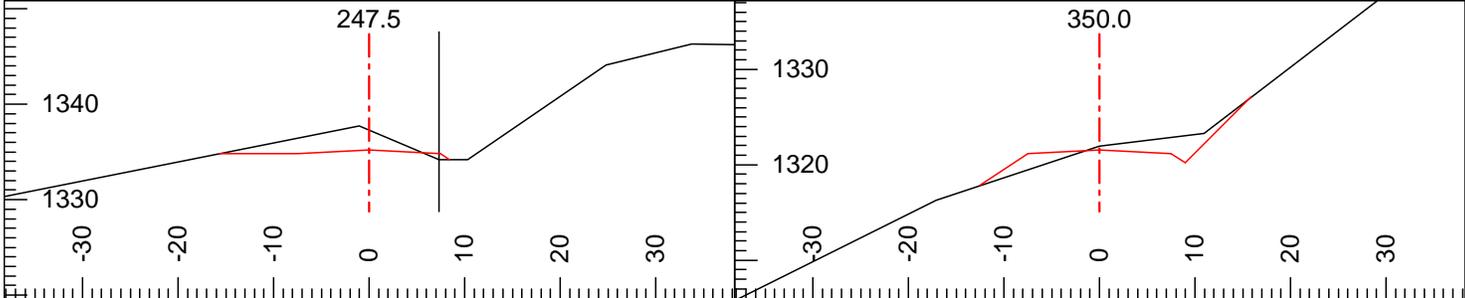
Engineer: M. Bell
 15/11/09 Page 2 of 2



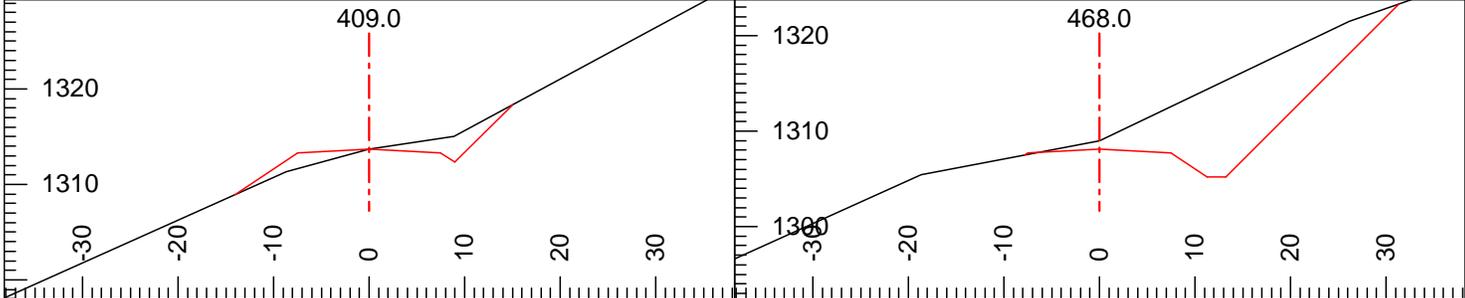
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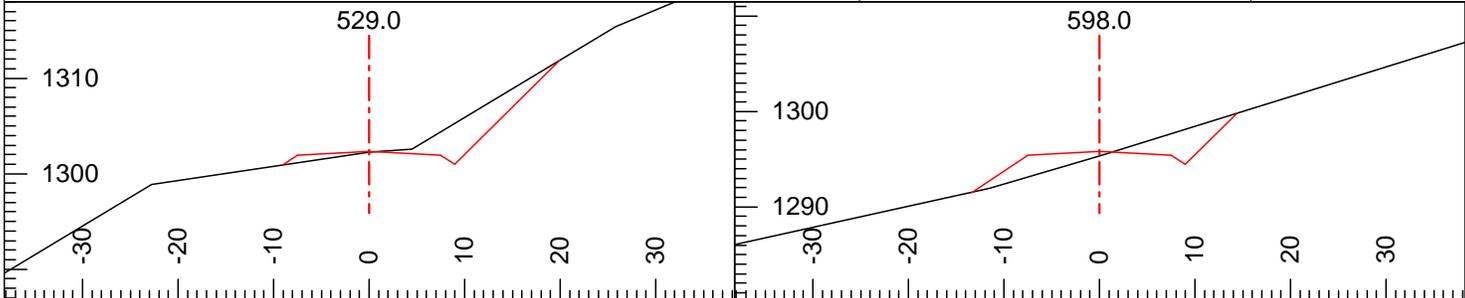
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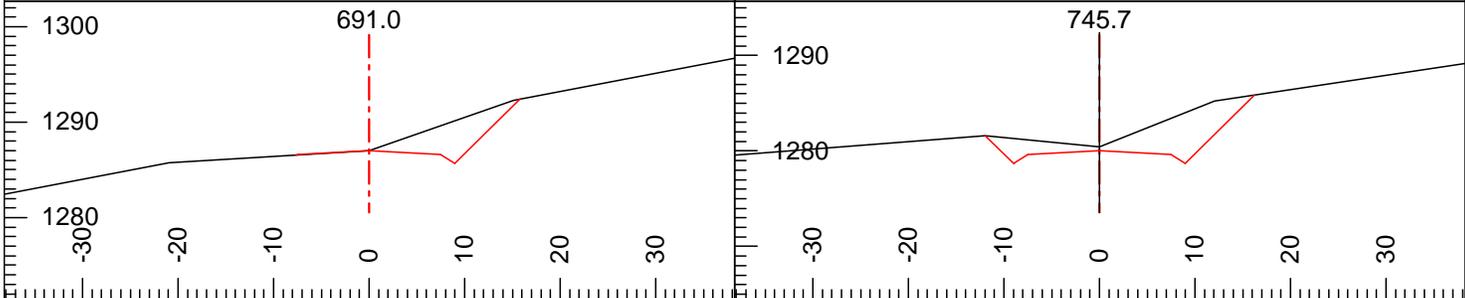
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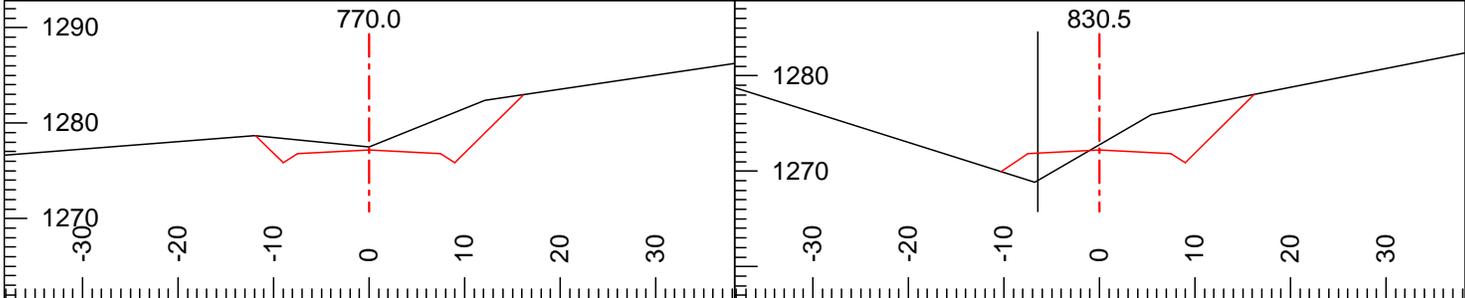
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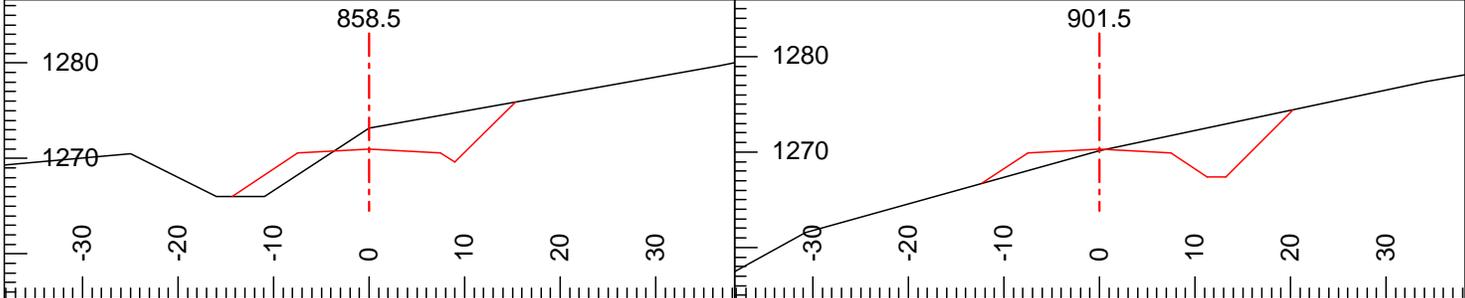
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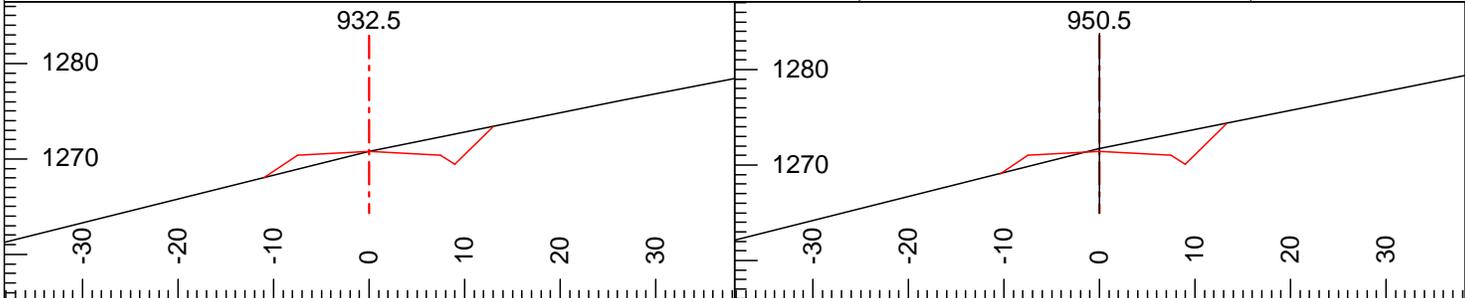
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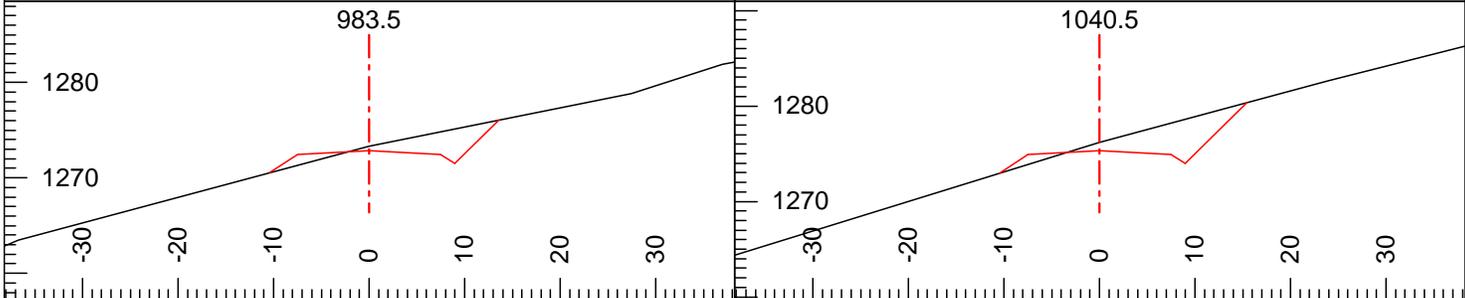
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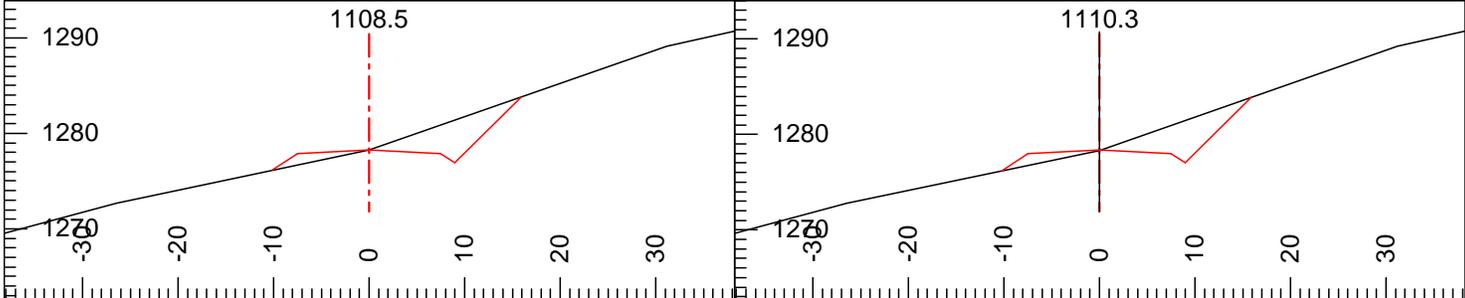
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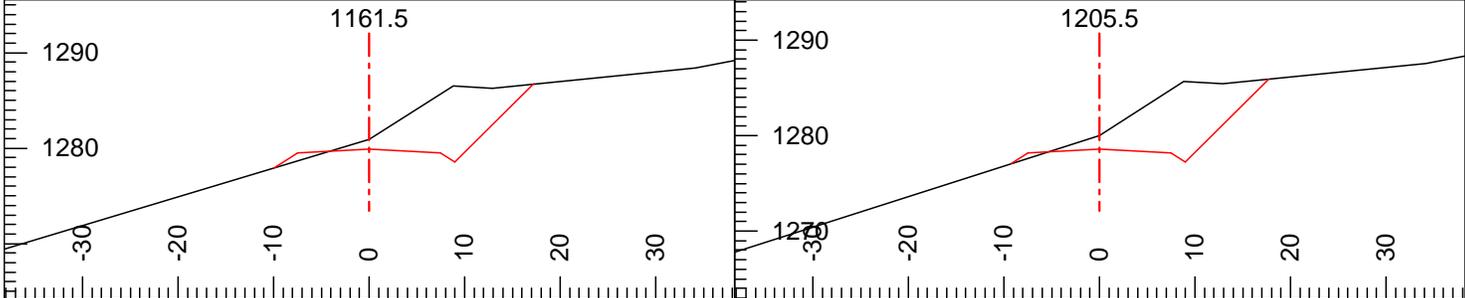
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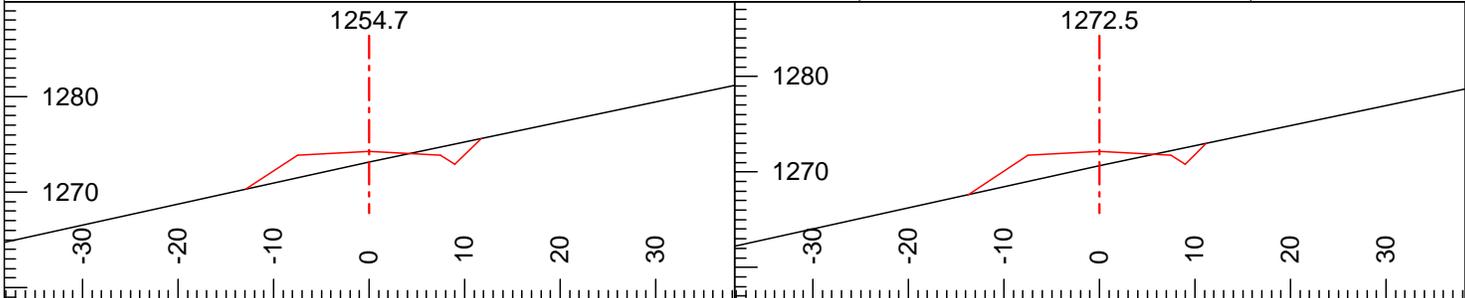
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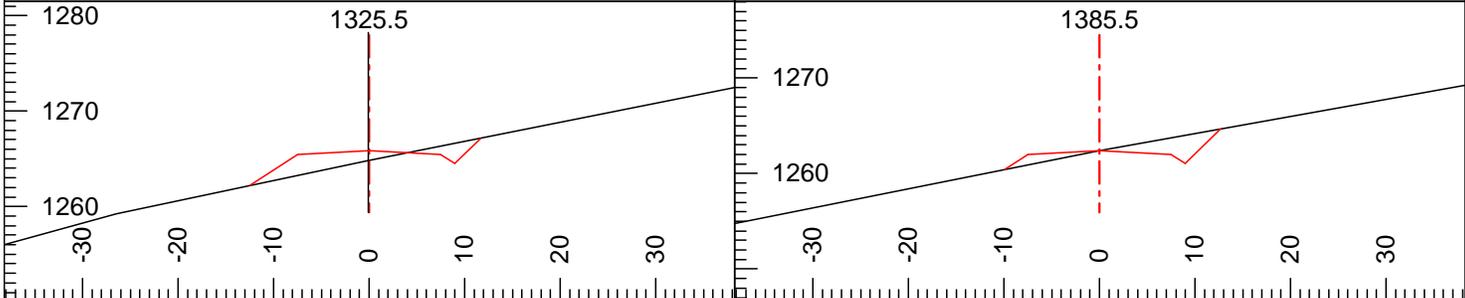
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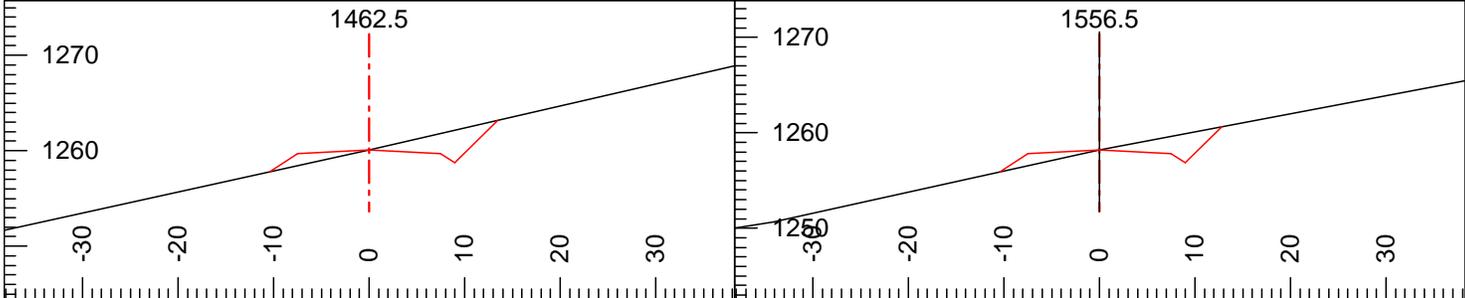
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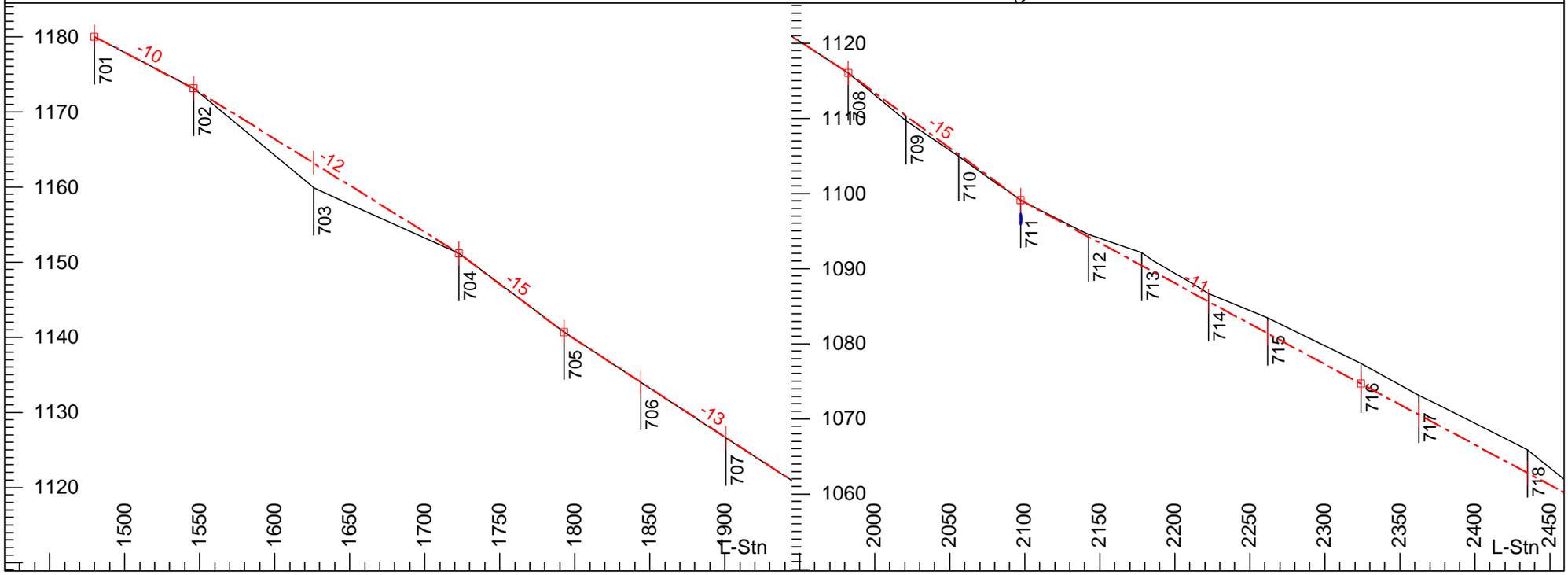
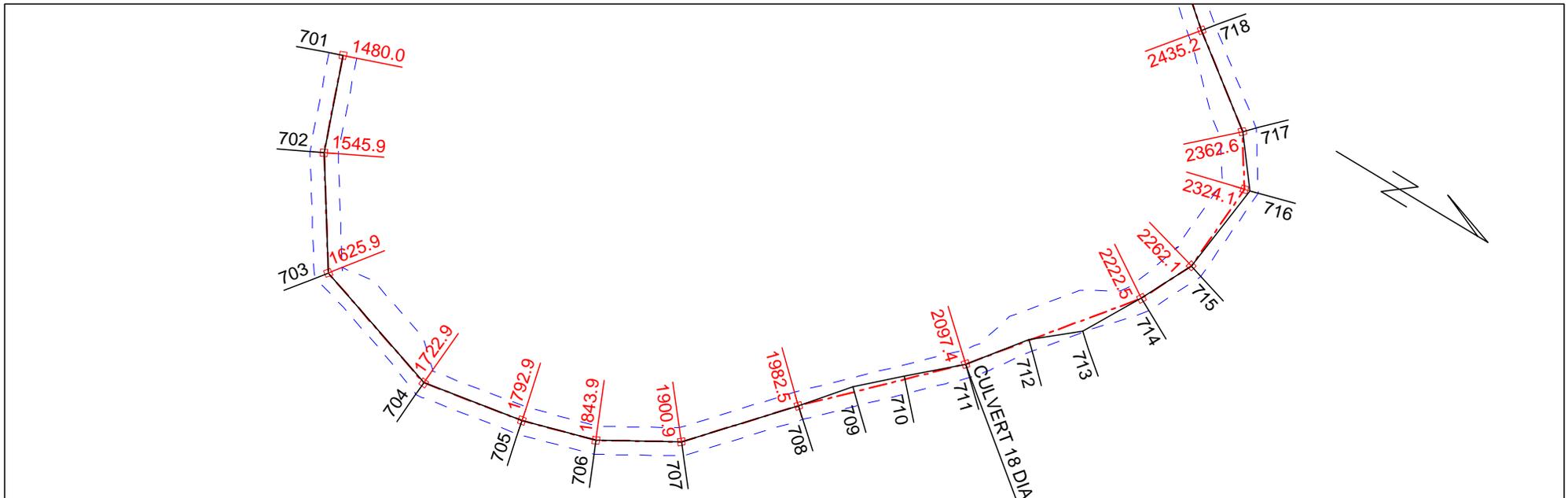


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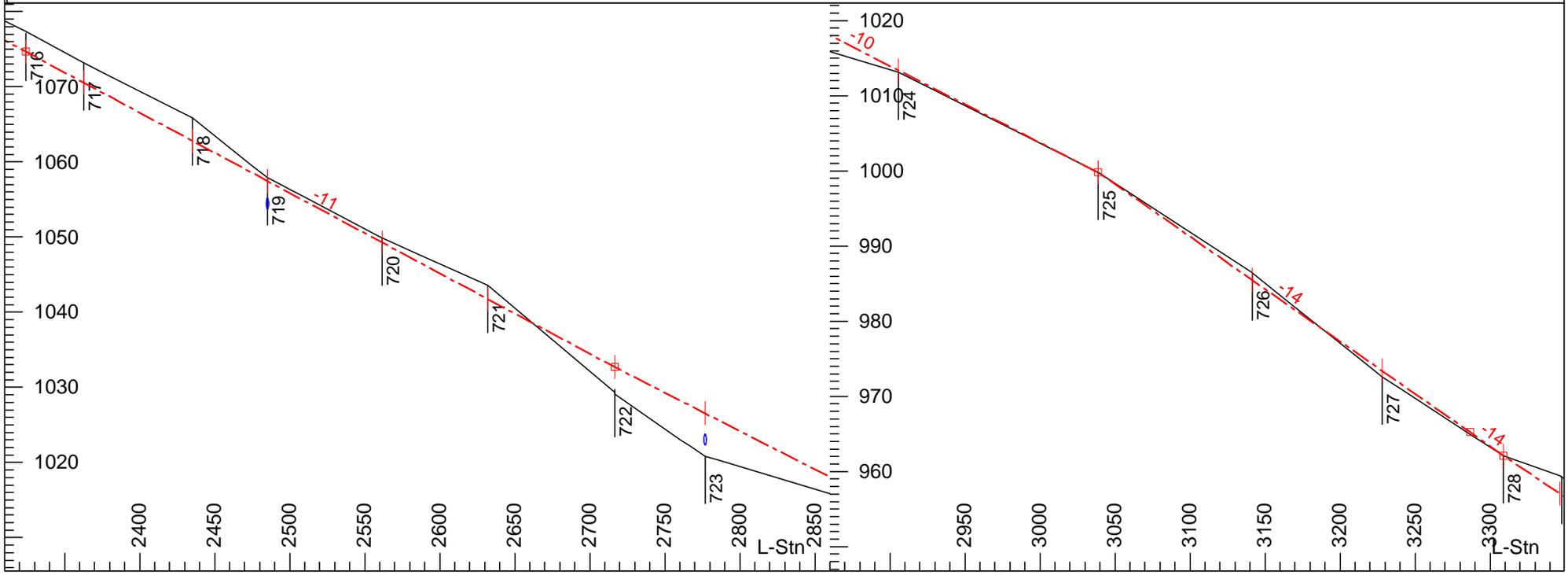
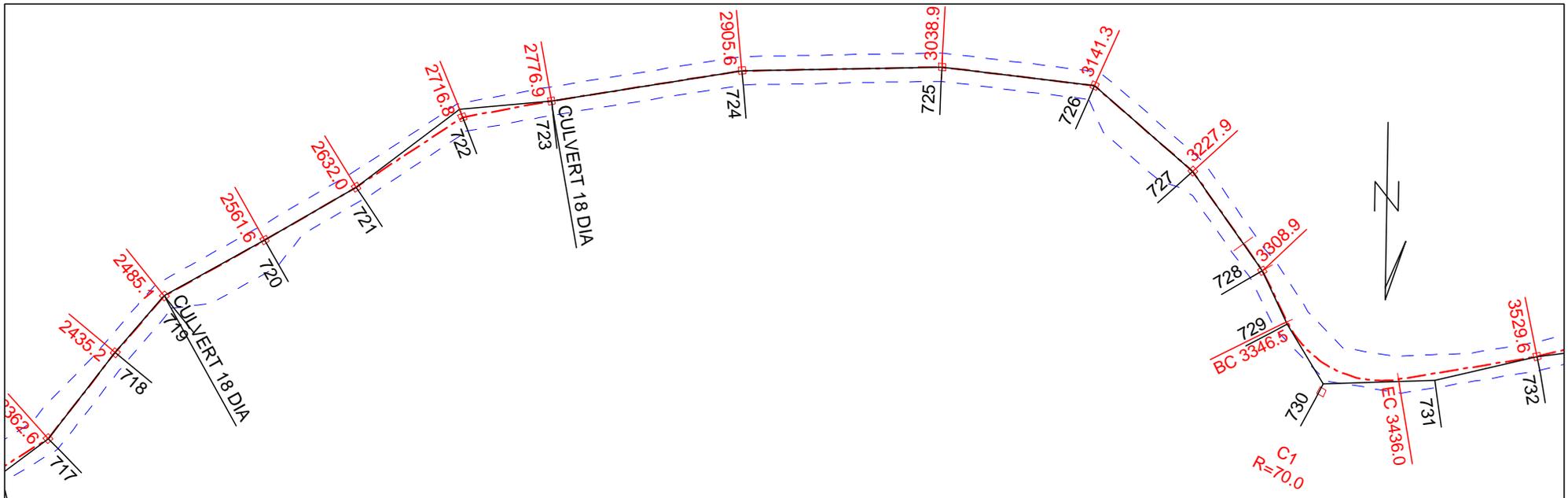
Lytle's Leg Timber Sale
 C-0700 road November 2, 2015
 Contract #: 30-092744



Washington State Department of
 Natural Resources
 South Puget Sound Region

Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

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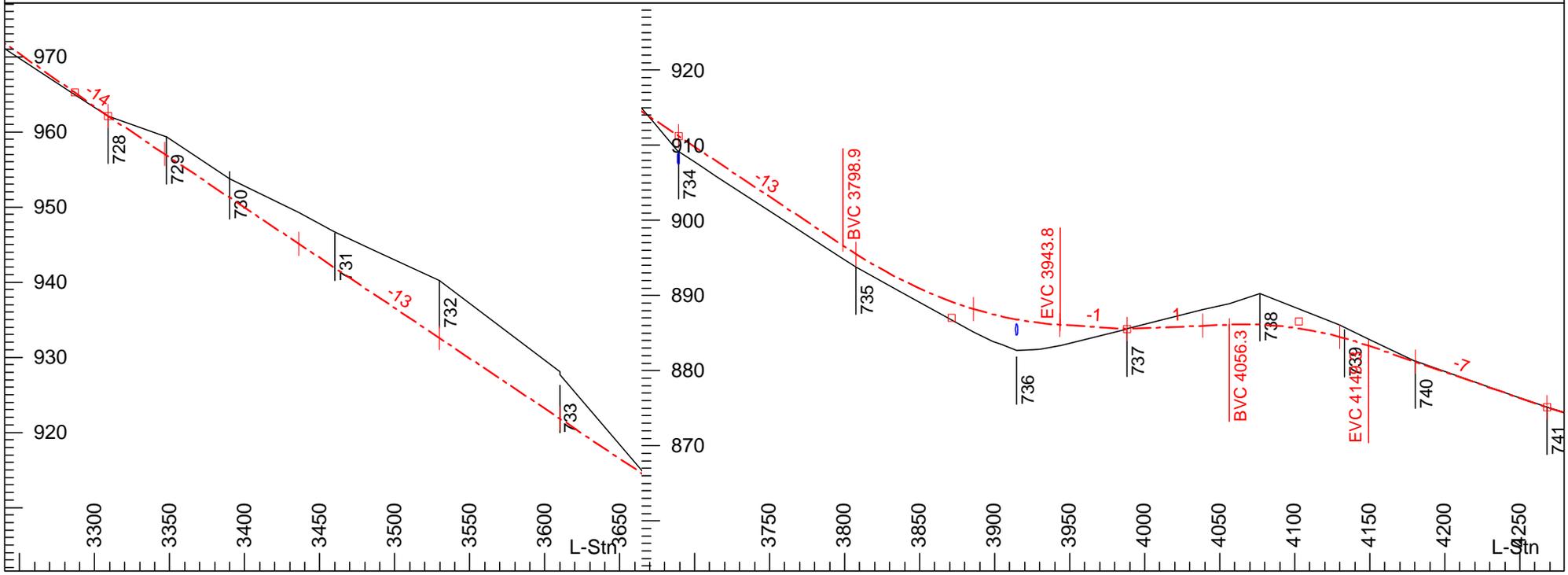
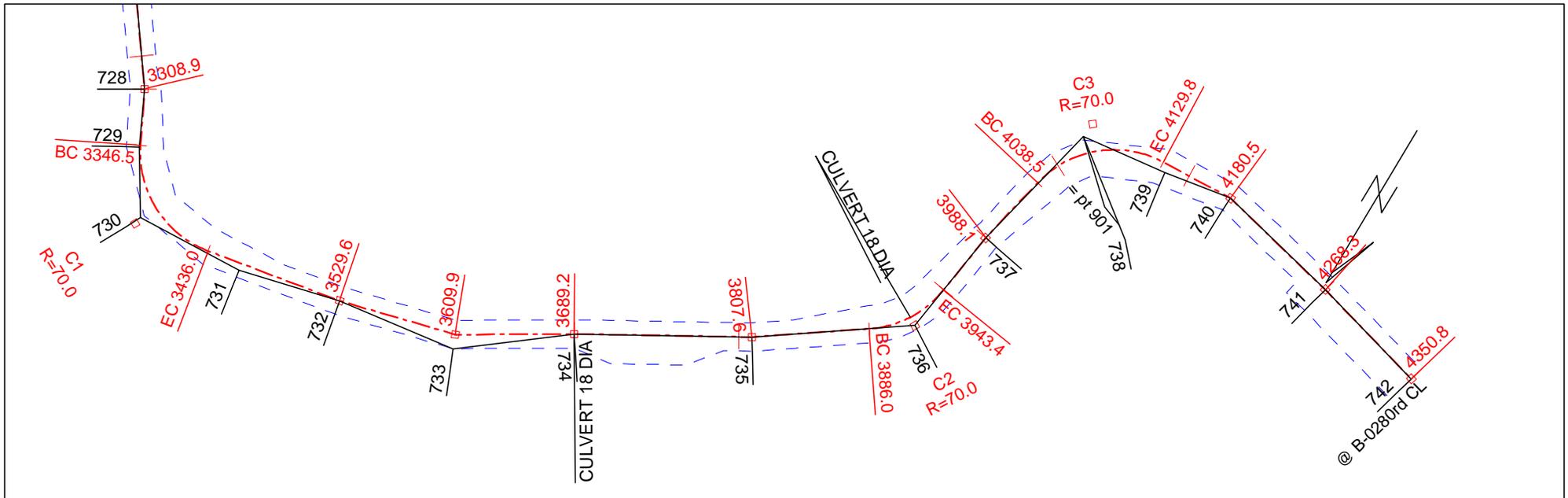
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Washington State Department of
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 South Puget Sound Region

Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

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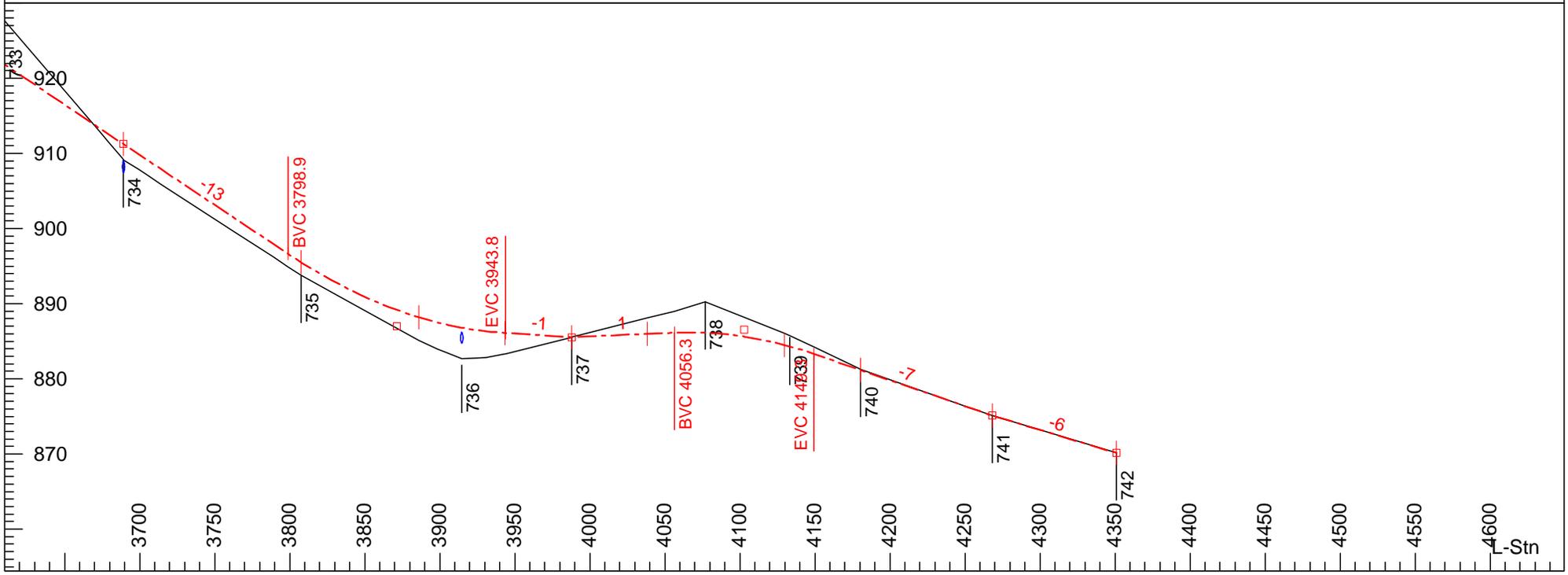
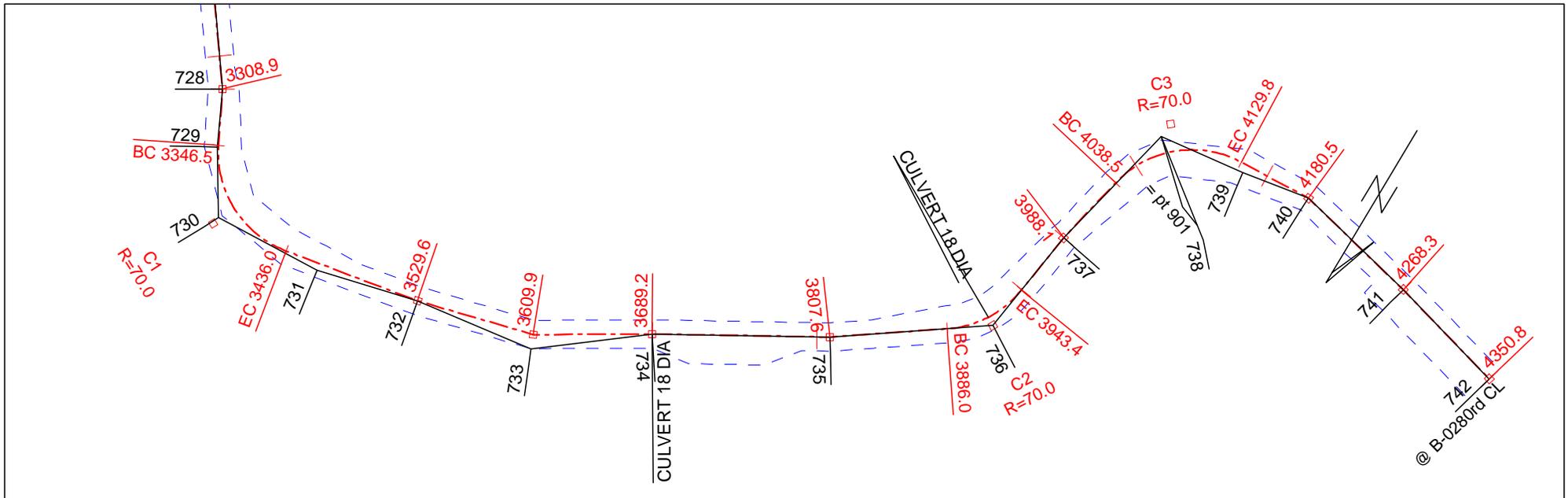
Lytle's Leg Timber Sale
 C-0700 road November 2, 2015
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Washington State Department of
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Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

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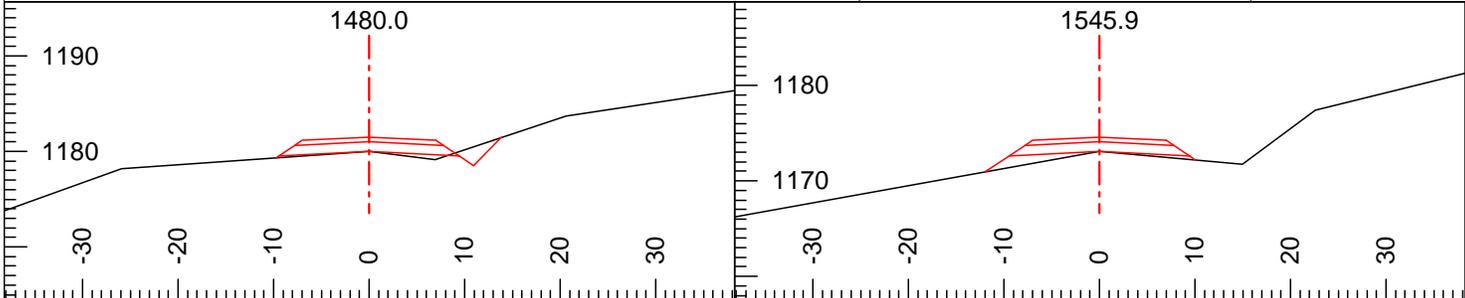
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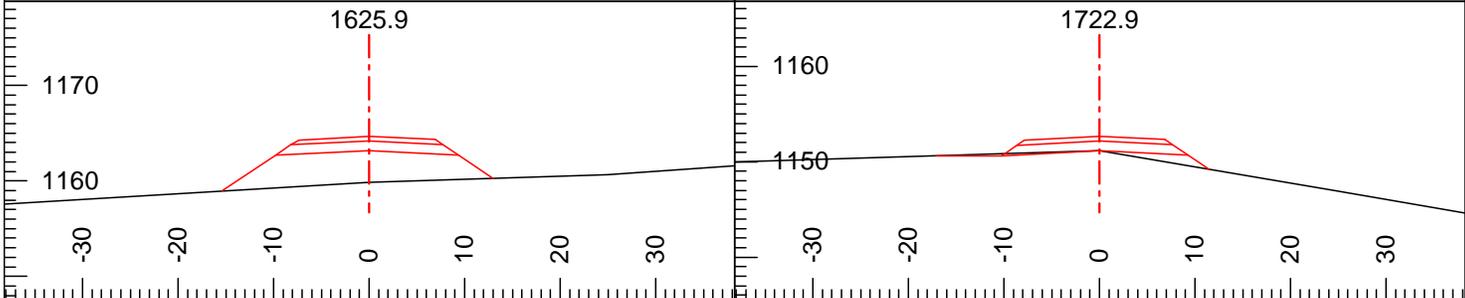
Washington State Department of
 Natural Resources
 South Puget Sound Region

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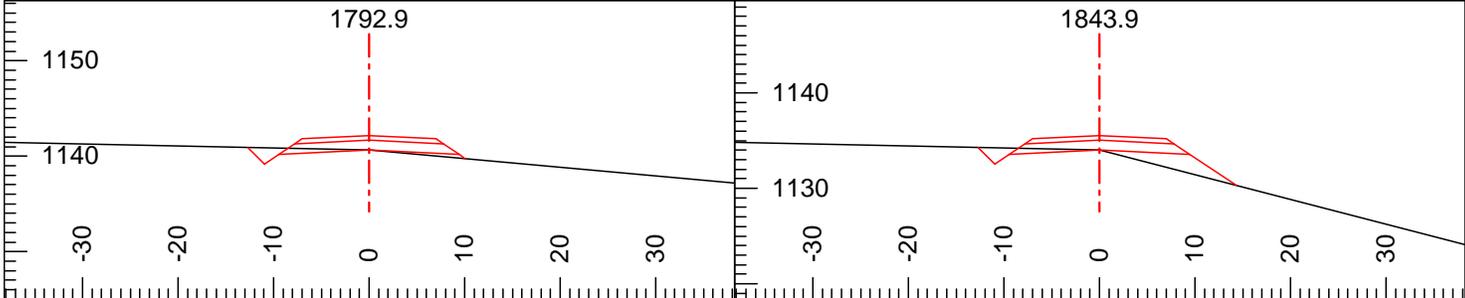
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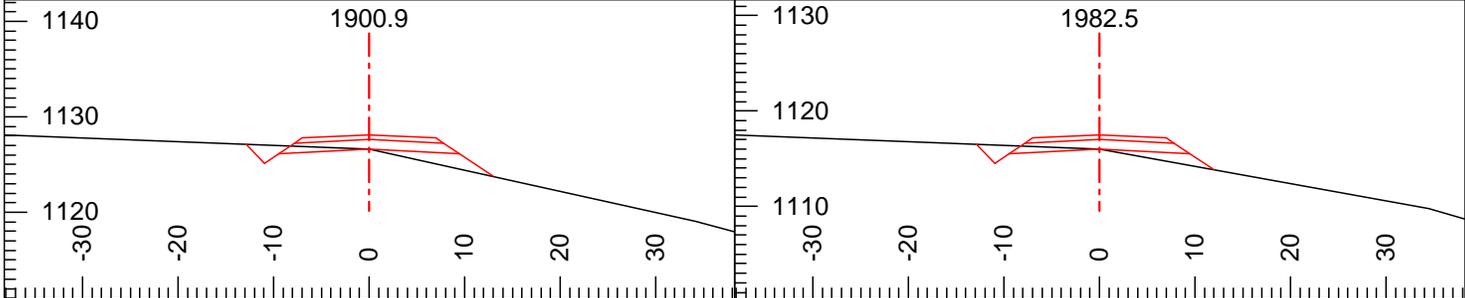
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Grd.Lst: n/a	Cut Dp: 0.0	Rd. Wd. R: 9.4



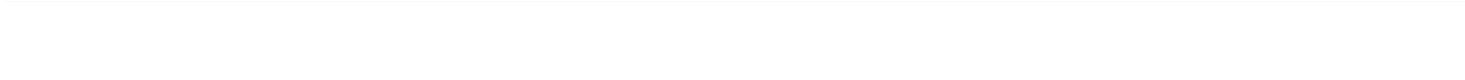
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Grd.Lst: -10	Cut Dp: 0.0	Rd. Wd. R: 9.4



L-Stn: 1625.9	Ssl: (Av) -6	CL Elev: 1163.2
Index: 703	Ssr: (Av) 3	Rd. Wd.: 19.2
Grd.Nxt.: -12	H. Offset: 0.0	Rd. Wd. L: 9.8
Grd.Lst: -12	Cut Dp: -3.3	Rd. Wd. R: 9.4



L-Stn: 1722.9	Ssl: (Av) -3	CL Elev: 1151.2
Index: 704	Ssr: (Av) -17	Rd. Wd.: 19.5
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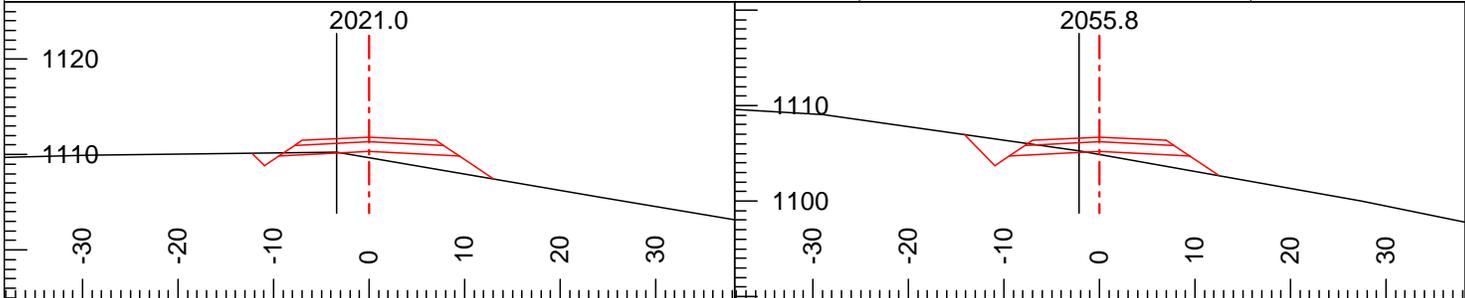


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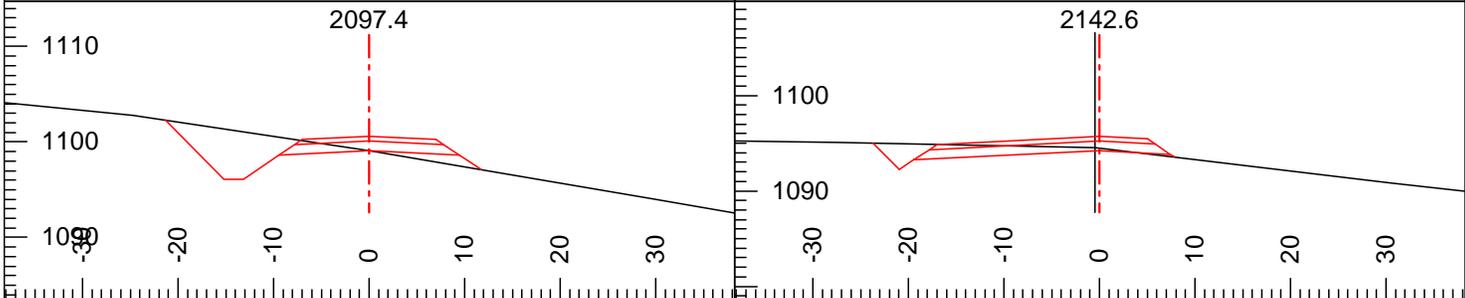
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L-Stn: 1900.9	Ssl: (Av) 4	CL Elev: 1126.6
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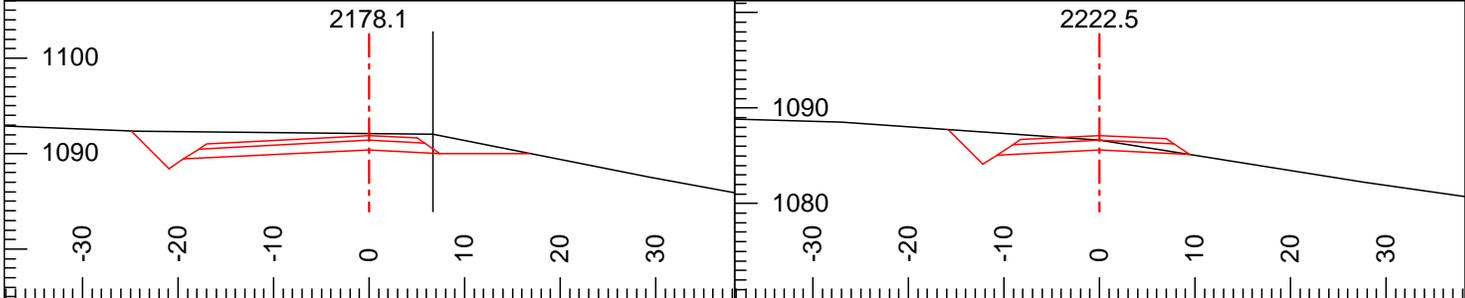
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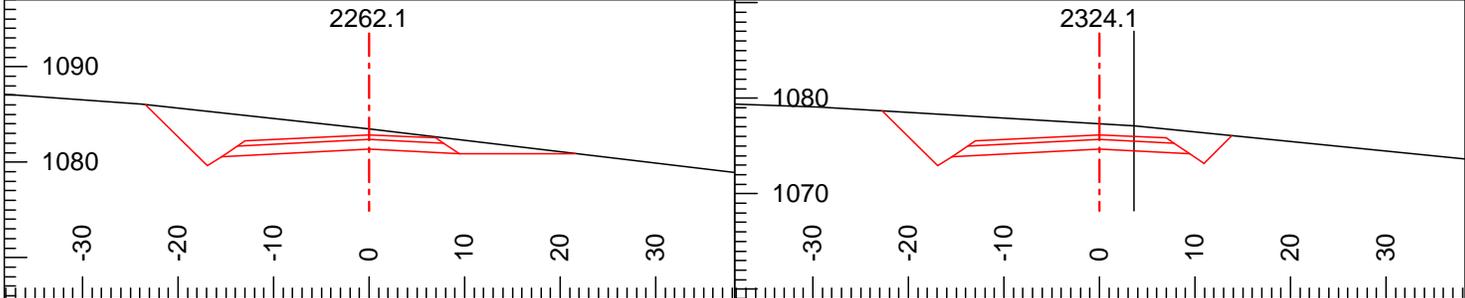
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Grd.Nxt.:	-15	H. Offset:	3.4	Rd. Wd. L:	9.4	Grd.Nxt.:	-15	H. Offset:	2.2	Rd. Wd. L:	9.4
Grd.Lst:	-15	Cut Dp:	-0.7	Rd. Wd. R:	9.4	Grd.Lst:	-15	Cut Dp:	-0.3	Rd. Wd. R:	9.4



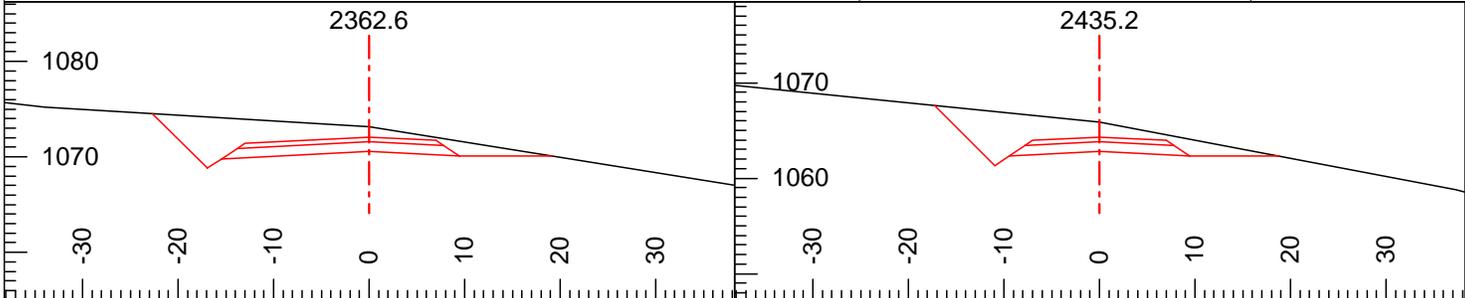
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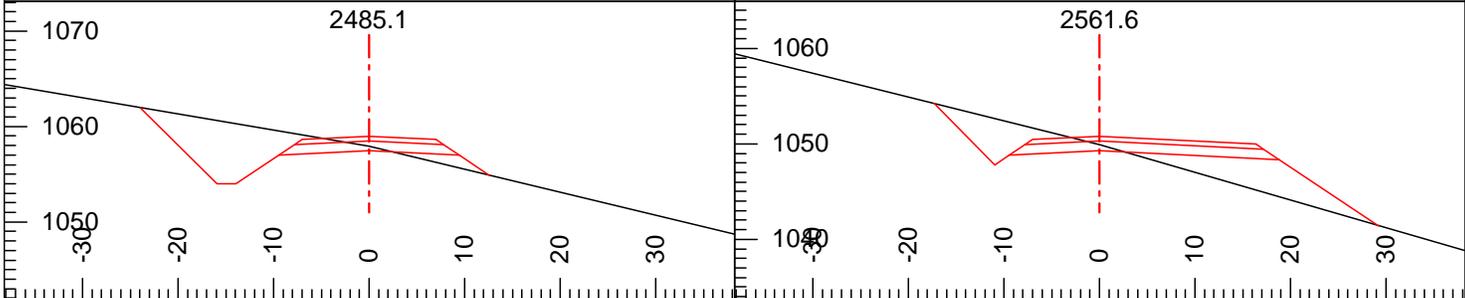
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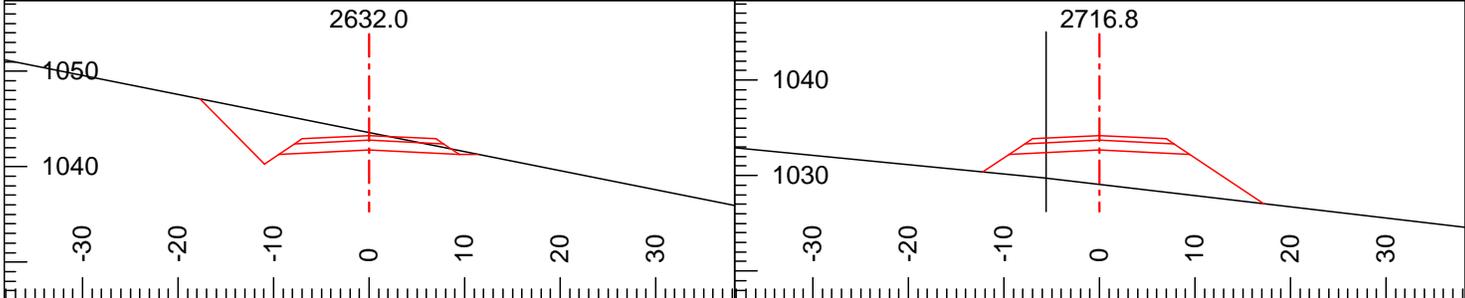
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Grd.Lst:	-11	Cut Dp:	2.1	Rd. Wd. R:	9.4	Grd.Lst:	-11	Cut Dp:	2.7	Rd. Wd. R:	9.4



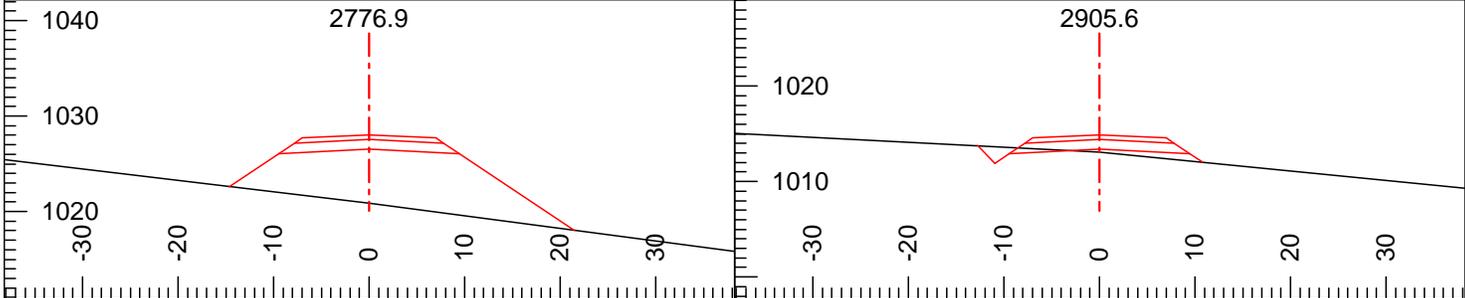
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Grd.Lst: -11	Cut Dp: 2.6	Rd. Wd. R: 9.4	Grd.Lst: -11	Cut Dp: 3.1	Rd. Wd. R: 9.4



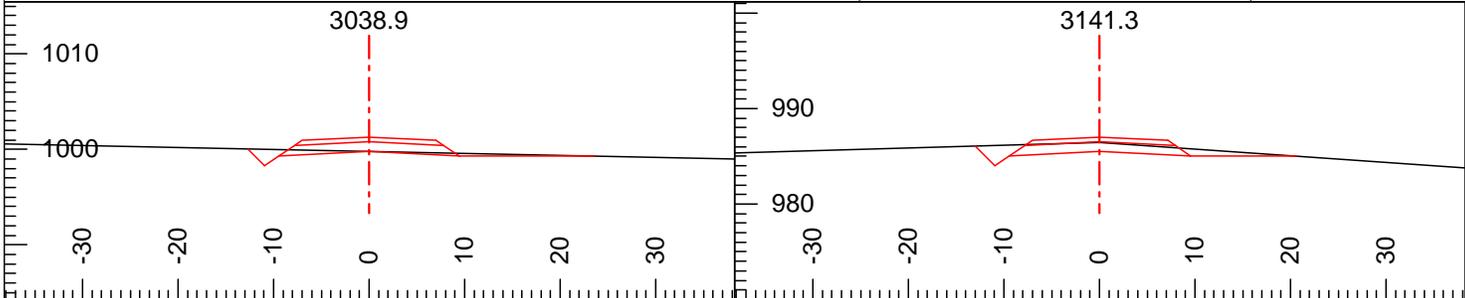
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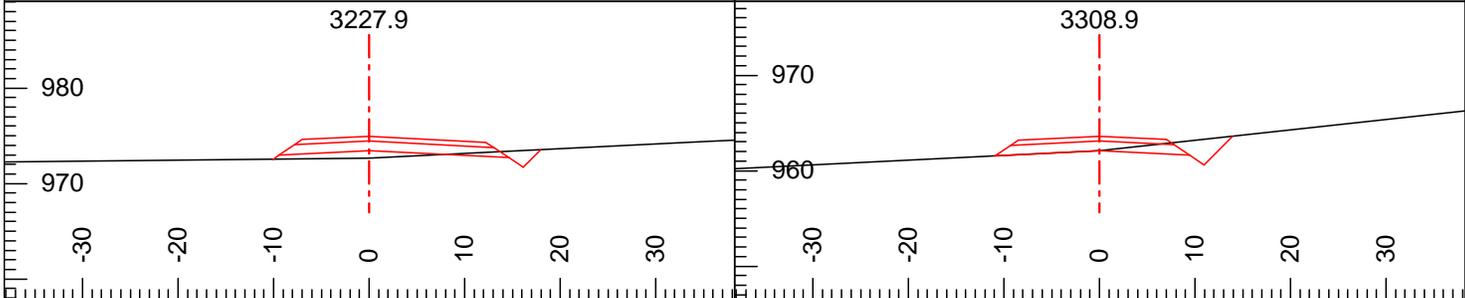
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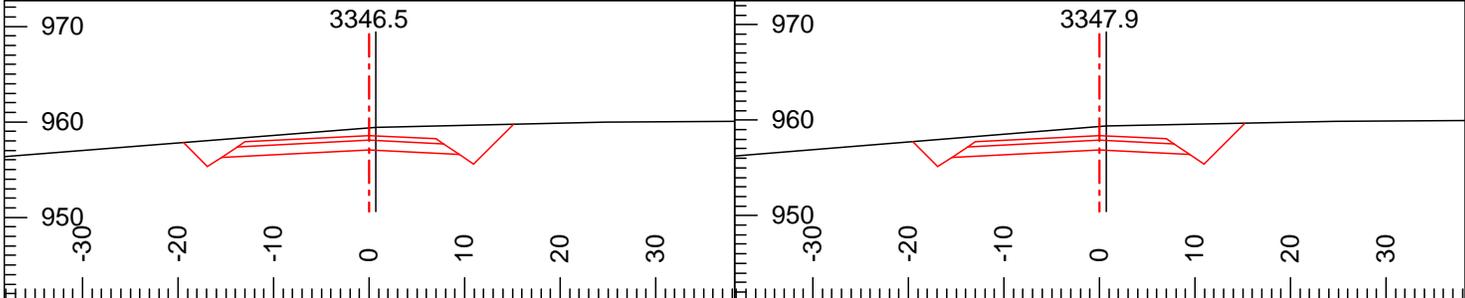
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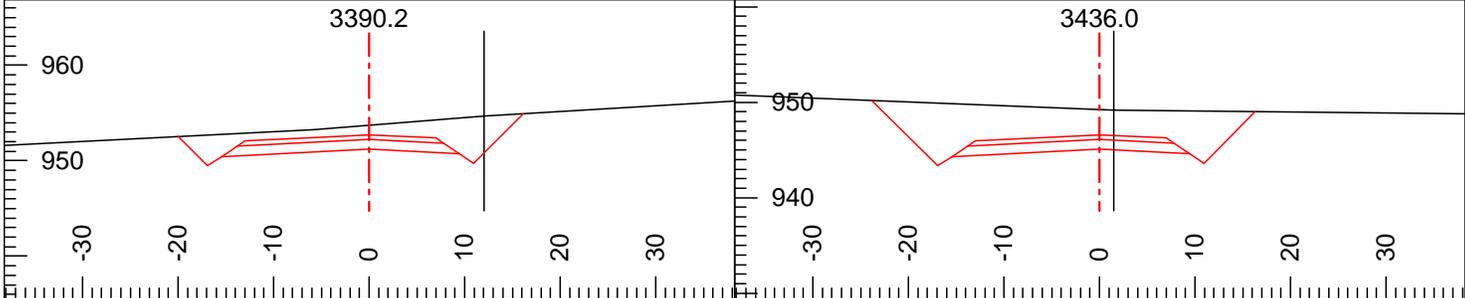
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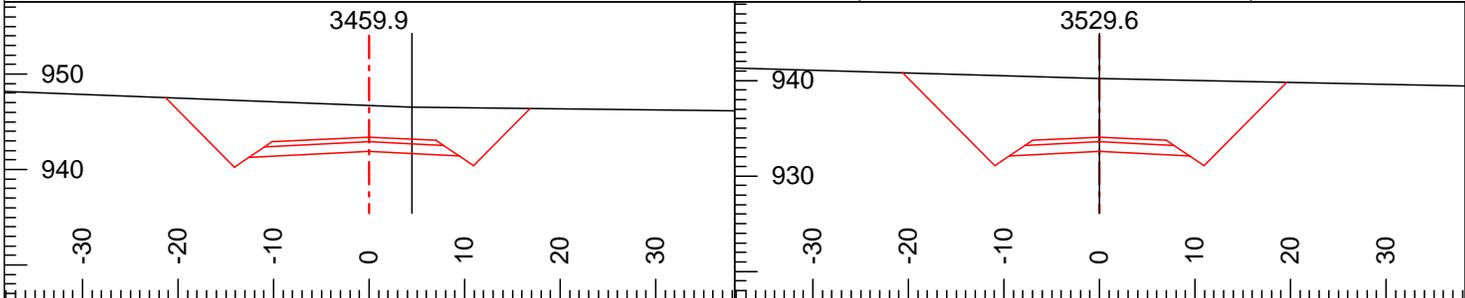
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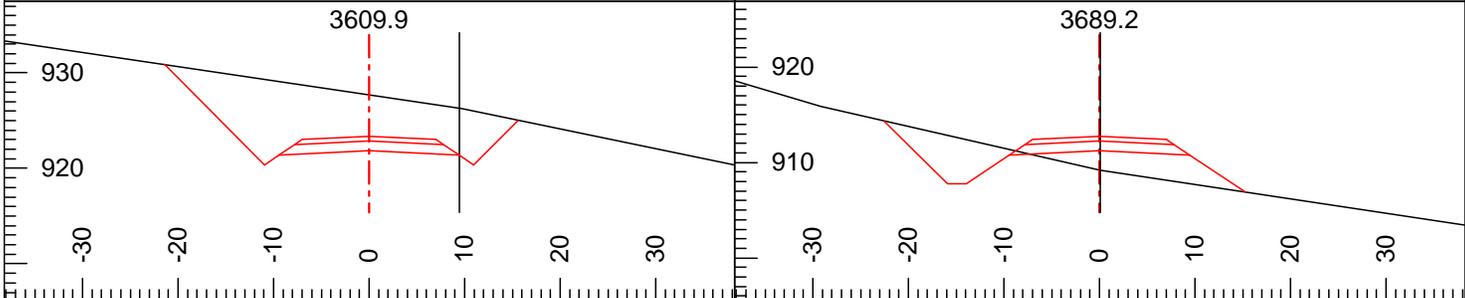
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Grd.Lst:	-13	Cut Dp:	2.3	Rd. Wd. R:	9.4	Grd.Lst:	-13	Cut Dp:	2.4	Rd. Wd. R:	9.4



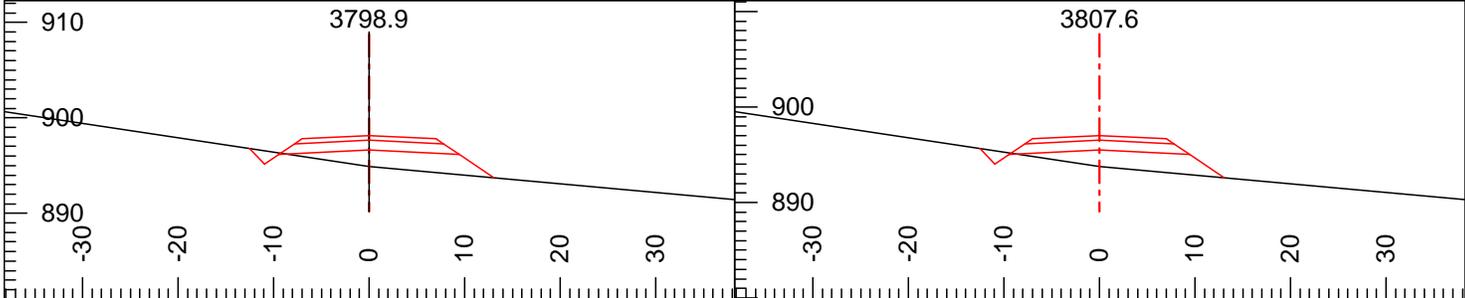
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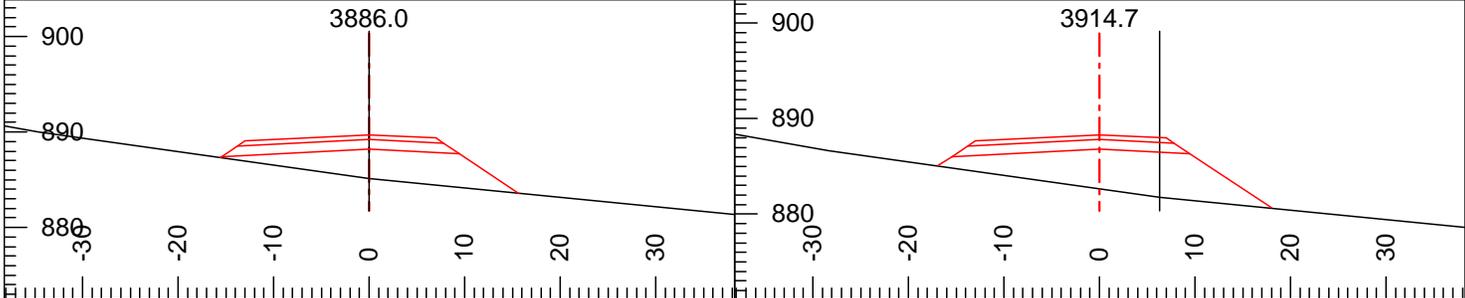
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Grd.Lst:	-13	Cut Dp:	4.8	Rd. Wd. R:	9.4	Grd.Lst:	-13	Cut Dp:	7.6	Rd. Wd. R:	9.4



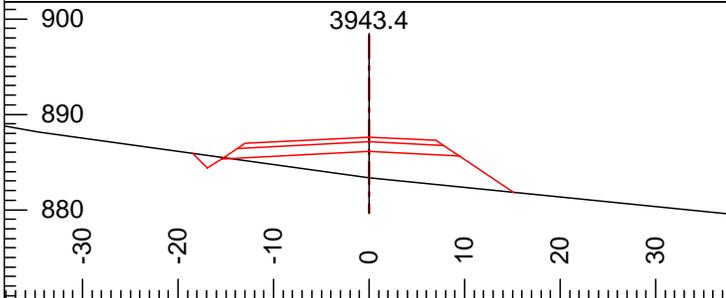
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Grd.Lst:	-13	Cut Dp:	5.8	Rd. Wd. R:	9.4	Grd.Lst:	-13	Cut Dp:	-2.1	Rd. Wd. R:	9.4



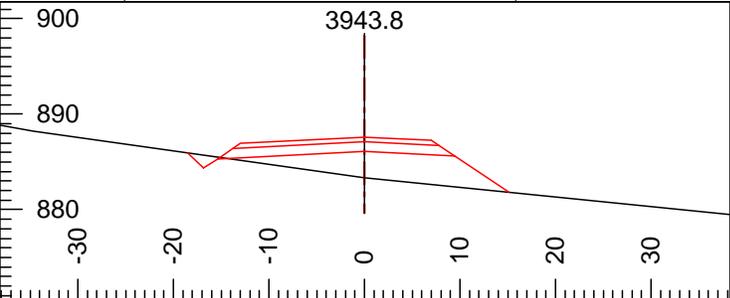
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Grd.Lst:	-13	Cut Dp:	-1.7	Rd. Wd. R:	9.4	Grd.Lst:	-13	Cut Dp:	-1.7	Rd. Wd. R:	9.4



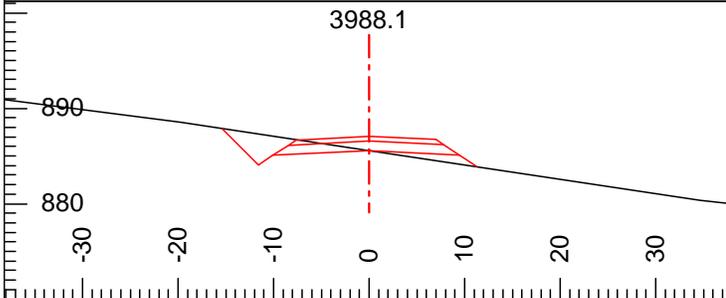
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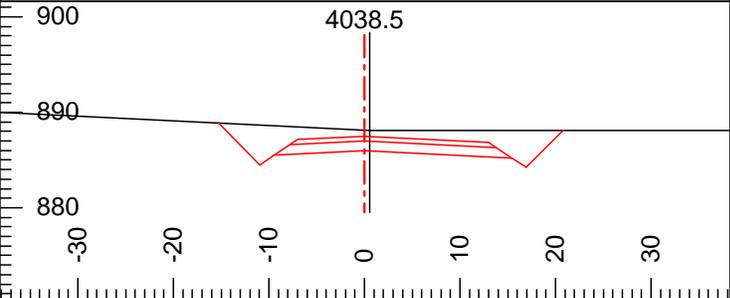
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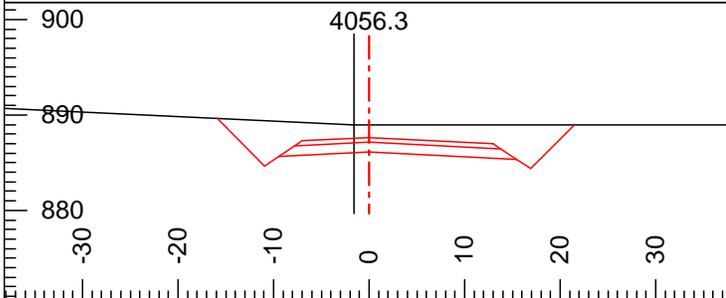
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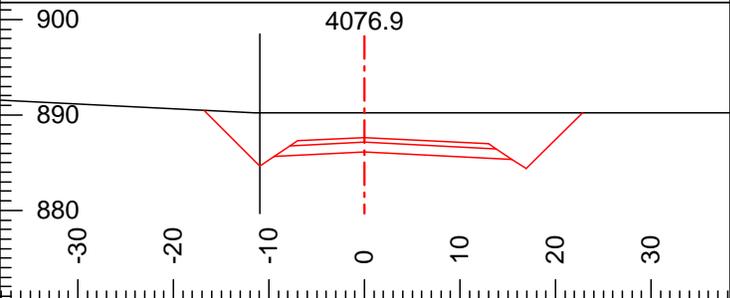
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Grd.Lst:	-1	Cut Dp:	0.0	Rd. Wd. R:	9.4



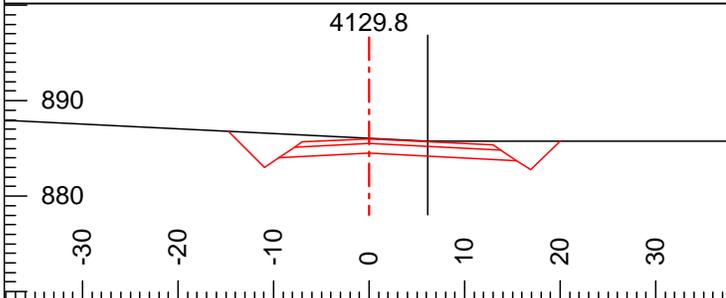
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Grd.Lst:	1	Cut Dp:	2.1	Rd. Wd. R:	15.4



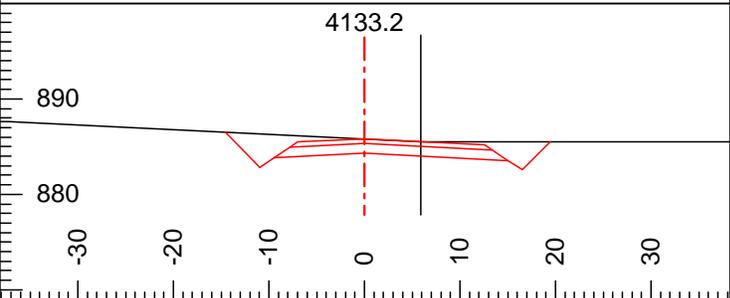
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Grd.Lst:	1	Cut Dp:	2.8	Rd. Wd. R:	15.4



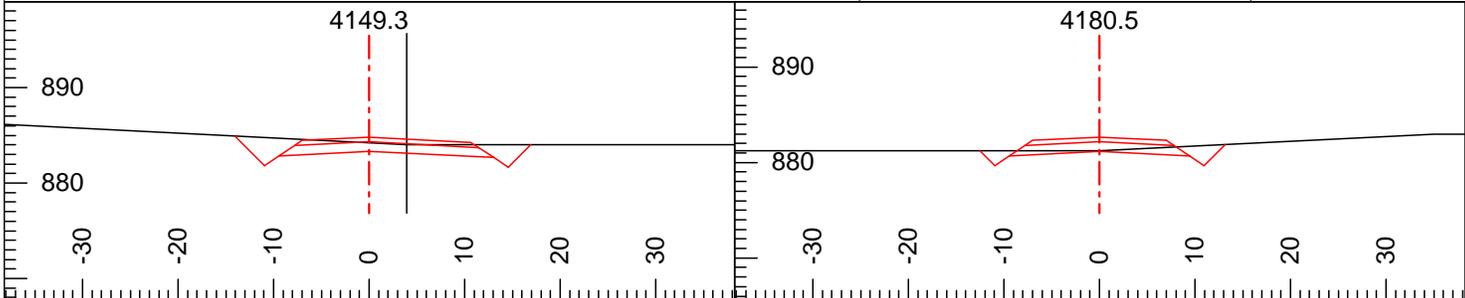
L-Stn:	4076.9	Ssl: (Av)	5	CL Elev:	886.1
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Grd.Nxt.:	-1	H. Offset:	11.4	Rd. Wd. L:	9.4
Grd.Lst:	-1	Cut Dp:	4.1	Rd. Wd. R:	15.4



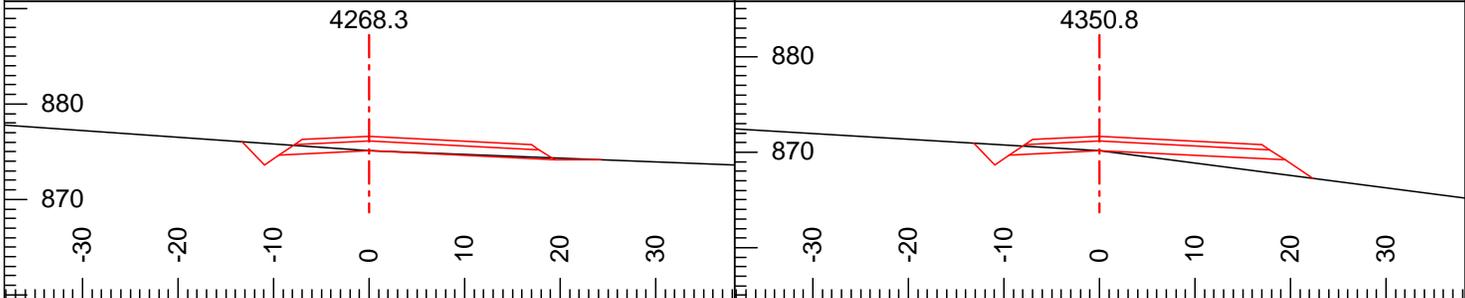
L-Stn:	4129.8	Ssl: (Av)	5	CL Elev:	884.5
Index:		Ssr: (Av)	0	Rd. Wd.:	24.9
Grd.Nxt.:	-5	H. Offset:	-6.1	Rd. Wd. L:	9.4
Grd.Lst:	-5	Cut Dp:	1.6	Rd. Wd. R:	15.4



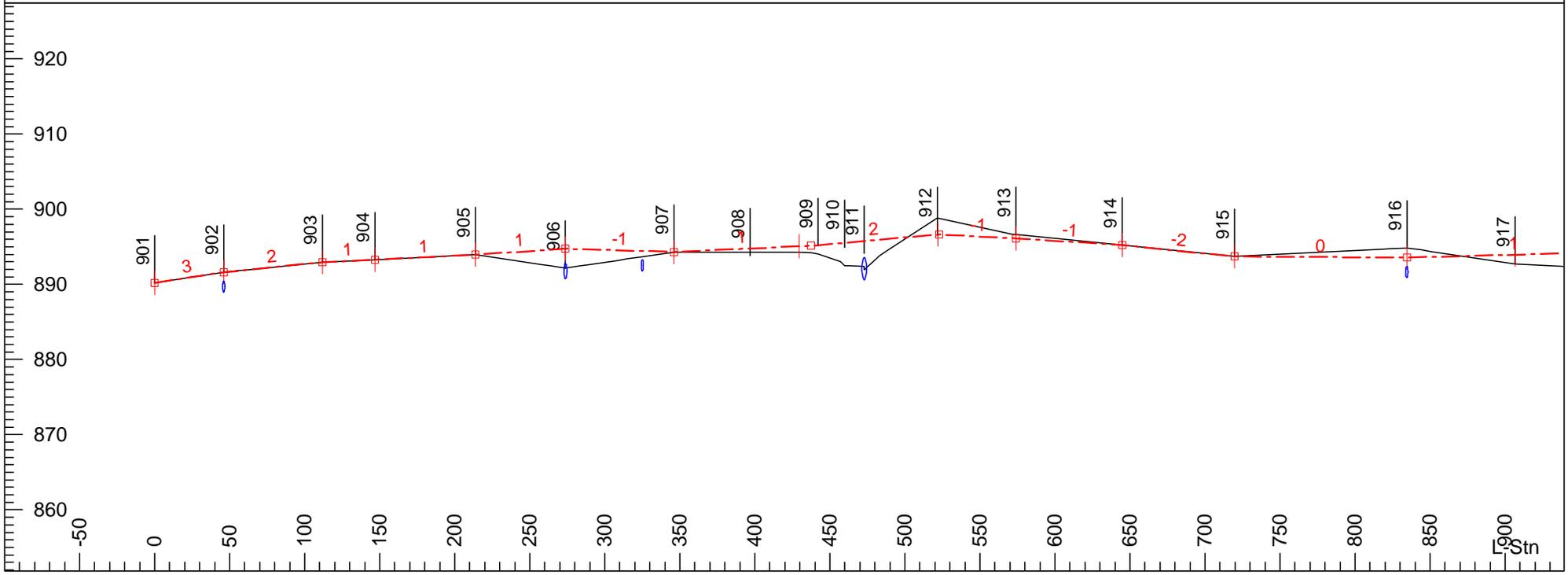
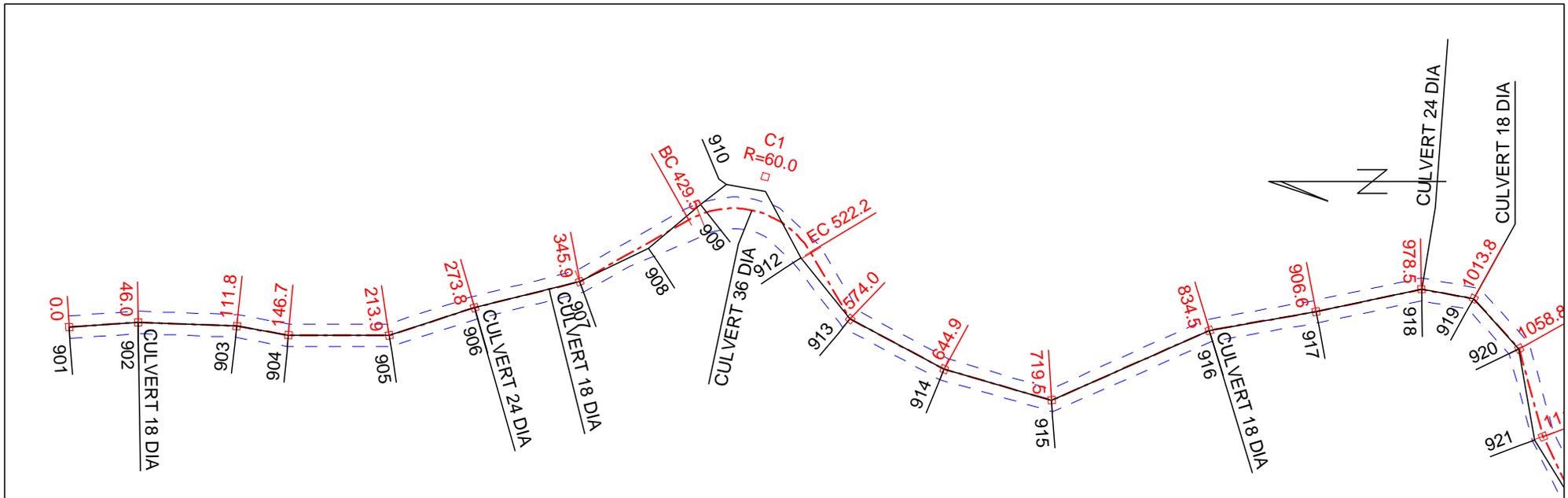
L-Stn:	4133.2	Ssl: (Av)	5	CL Elev:	884.3
Index:	739	Ssr: (Av)	0	Rd. Wd.:	24.5
Grd.Nxt.:	-6	H. Offset:	-5.9	Rd. Wd. L:	9.4
Grd.Lst:	-6	Cut Dp:	1.5	Rd. Wd. R:	15.0



L-Stn:	4149.3	Ssl: (Av)	5	CL Elev:	883.3	L-Stn:	4180.5	Ssl: (Av)	0	CL Elev:	881.2
Index:		Ssr: (Av)	0	Rd. Wd.:	22.5	Index:	740	Ssr: (Av)	5	Rd. Wd.:	18.9
Grd.Nxt.:	-7	H. Offset:	-3.9	Rd. Wd. L:	9.4	Grd.Nxt.:	-7	H. Offset:	0.0	Rd. Wd. L:	9.4
Grd.Lst:	-7	Cut Dp:	0.9	Rd. Wd. R:	13.1	Grd.Lst:	-7	Cut Dp:	0.1	Rd. Wd. R:	9.4



L-Stn:	4268.3	Ssl: (Av)	7	CL Elev:	875.1	L-Stn:	4350.8	Ssl: (Av)	6	CL Elev:	870.2
Index:	741	Ssr: (Av)	-4	Rd. Wd.:	28.9	Index:	742	Ssr: (Av)	-13	Rd. Wd.:	28.9
Grd.Nxt.:	-6	H. Offset:	0.0	Rd. Wd. L:	9.4	Grd.Nxt.:	n/a	H. Offset:	0.0	Rd. Wd. L:	9.4
Grd.Lst:	-7	Cut Dp:	0.0	Rd. Wd. R:	19.4	Grd.Lst:	-6	Cut Dp:	0.0	Rd. Wd. R:	19.4



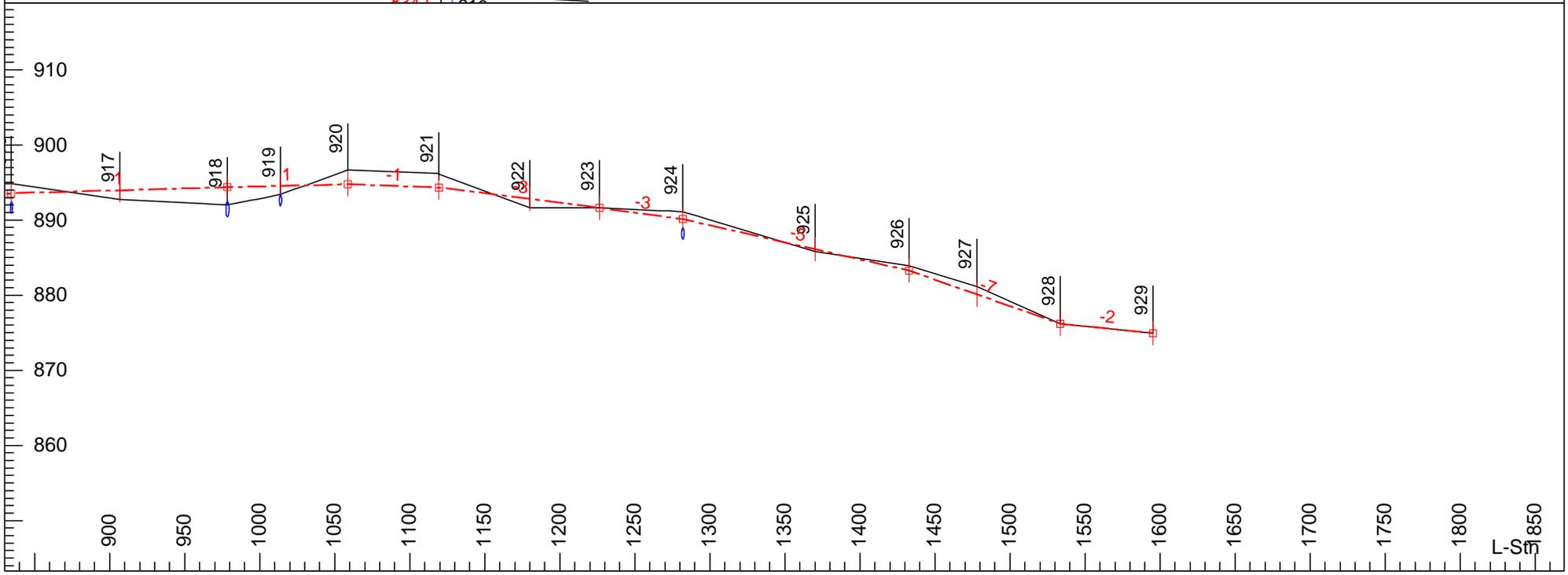
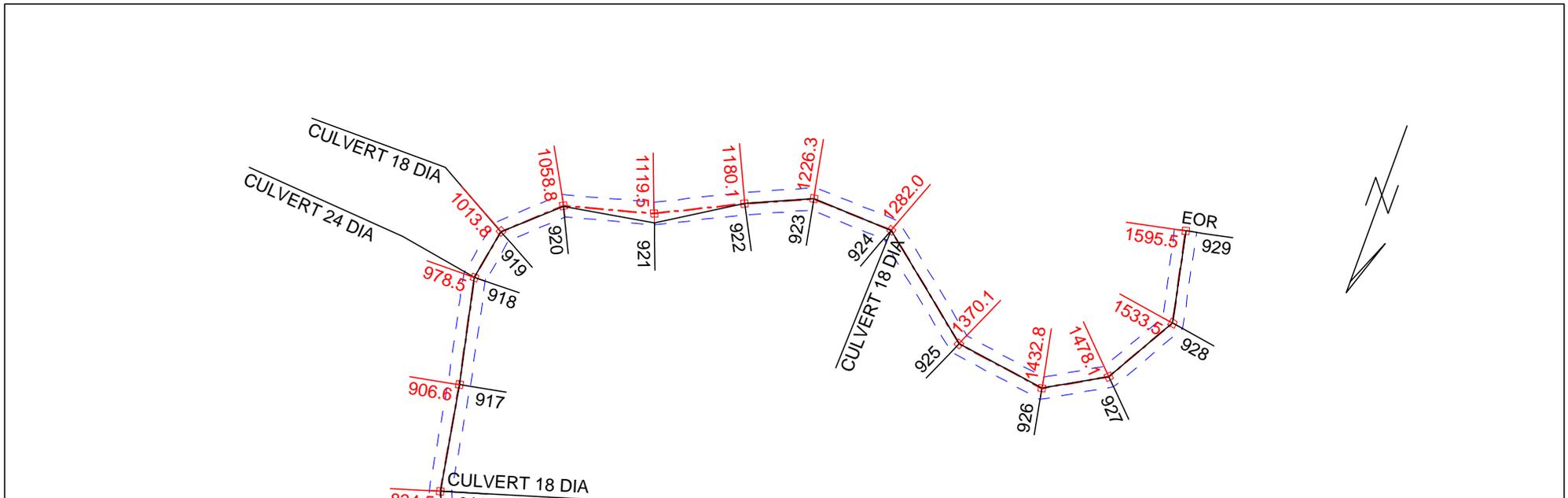
Lytle's Leg Timber Sale
 C-0710 road November 2, 2015
 Contract #: 30-092744



Washington State Department of
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Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

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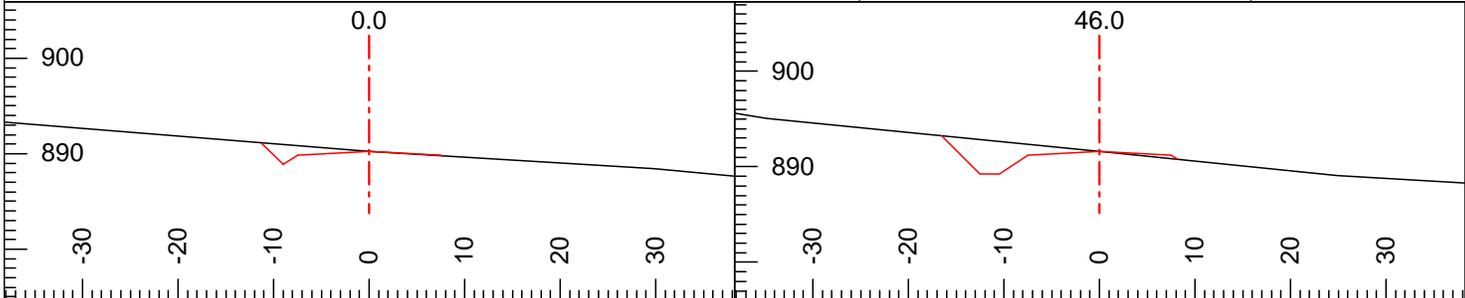
Lytle's Leg Timber Sale
 C-0710 road November 2, 2015
 Contract #: 30-092744



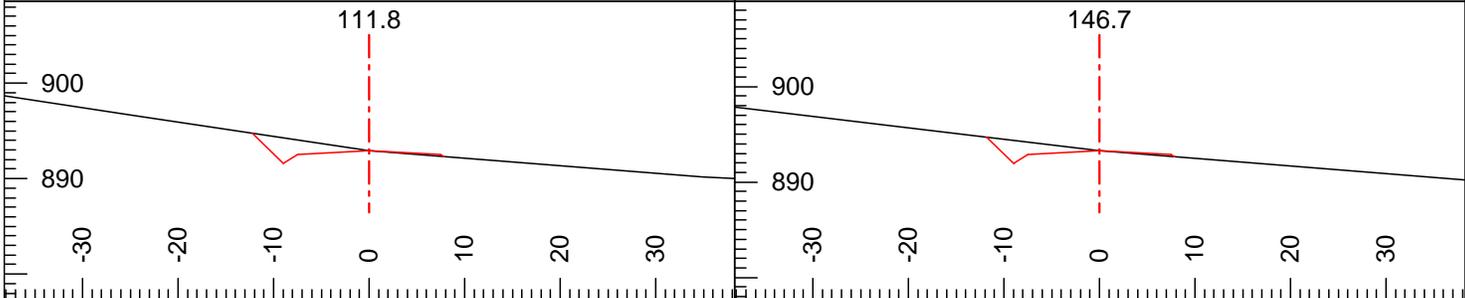
Washington State Department of
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Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

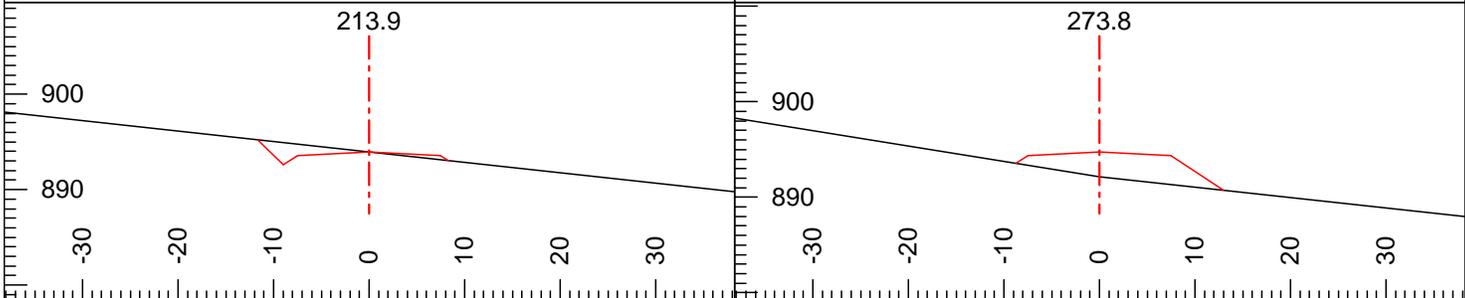
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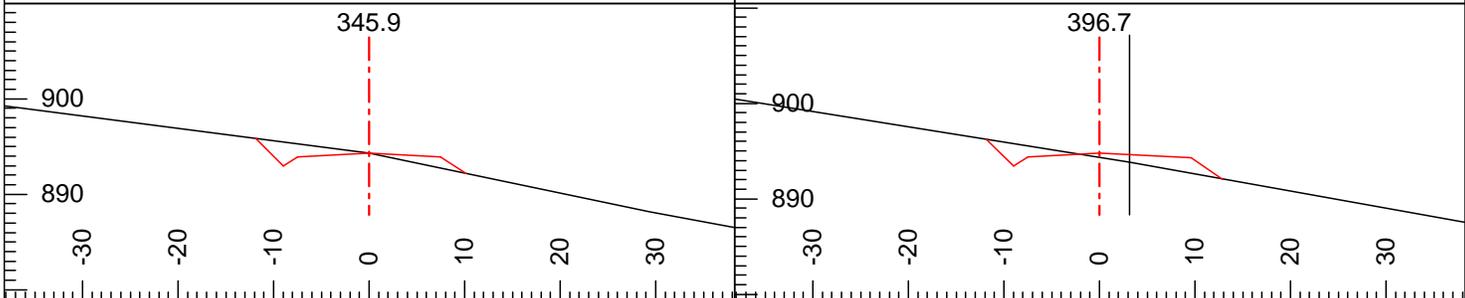
L-Stn:	0.0	Ssl: (Av)	8	CL Elev:	890.2	L-Stn:	46.0	Ssl: (Av)	10	CL Elev:	891.6
Index:	901	Ssr: (Av)	-6	Rd. Wd.:	15.0	Index:	902	Ssr: (Av)	-10	Rd. Wd.:	15.0
Grd.Nxt.:	3	H. Offset:	0.0	Rd. Wd. L:	7.5	Grd.Nxt.:	2	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	n/a	Cut Dp:	0.0	Rd. Wd. R:	7.5	Grd.Lst:	3	Cut Dp:	0.0	Rd. Wd. R:	7.5



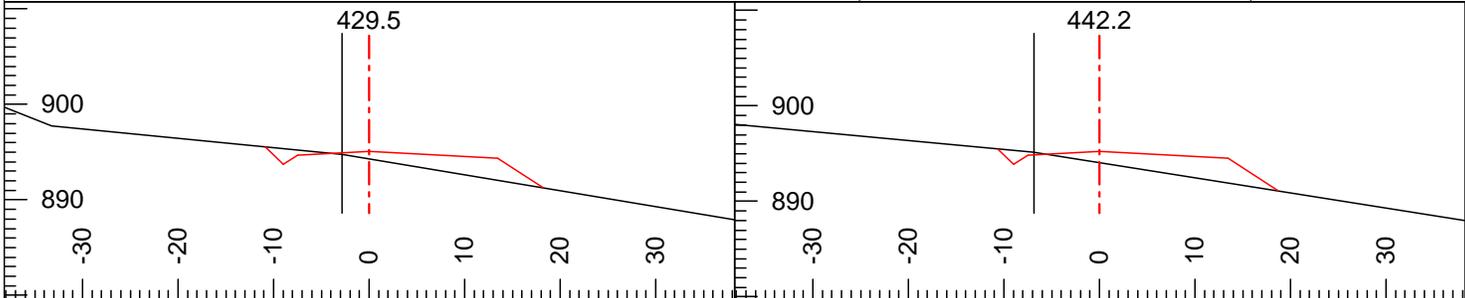
L-Stn:	111.8	Ssl: (Av)	15	CL Elev:	892.9	L-Stn:	146.7	Ssl: (Av)	12	CL Elev:	893.3
Index:	903	Ssr: (Av)	-8	Rd. Wd.:	15.0	Index:	904	Ssr: (Av)	-8	Rd. Wd.:	15.0
Grd.Nxt.:	1	H. Offset:	0.0	Rd. Wd. L:	7.5	Grd.Nxt.:	1	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	2	Cut Dp:	0.0	Rd. Wd. R:	7.5	Grd.Lst:	1	Cut Dp:	0.0	Rd. Wd. R:	7.5



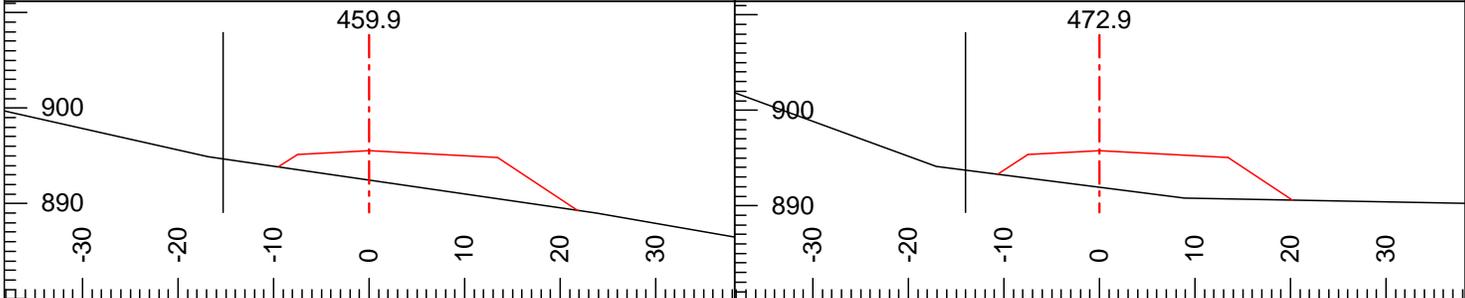
L-Stn:	213.9	Ssl: (Av)	11	CL Elev:	893.9	L-Stn:	273.8	Ssl: (Av)	16	CL Elev:	894.8
Index:	905	Ssr: (Av)	-11	Rd. Wd.:	15.0	Index:	906	Ssr: (Av)	-11	Rd. Wd.:	15.0
Grd.Nxt.:	1	H. Offset:	0.0	Rd. Wd. L:	7.5	Grd.Nxt.:	-1	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	1	Cut Dp:	0.0	Rd. Wd. R:	7.5	Grd.Lst:	1	Cut Dp:	-2.6	Rd. Wd. R:	7.5



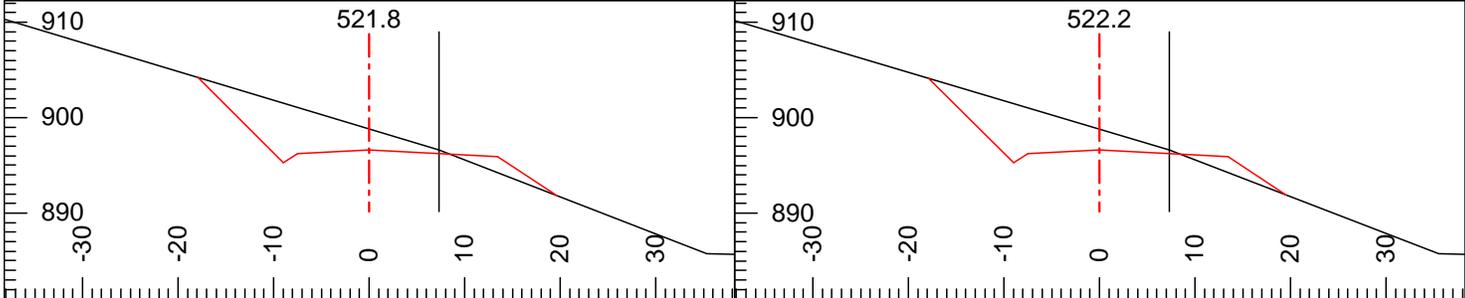
L-Stn:	345.9	Ssl: (Av)	13	CL Elev:	894.3	L-Stn:	396.7	Ssl: (Av)	16	CL Elev:	894.8
Index:	907	Ssr: (Av)	-21	Rd. Wd.:	15.0	Index:	908	Ssr: (Av)	-18	Rd. Wd.:	17.1
Grd.Nxt.:	1	H. Offset:	0.0	Rd. Wd. L:	7.5	Grd.Nxt.:	1	H. Offset:	-3.2	Rd. Wd. L:	7.5
Grd.Lst:	-1	Cut Dp:	0.0	Rd. Wd. R:	7.5	Grd.Lst:	1	Cut Dp:	-0.5	Rd. Wd. R:	9.6



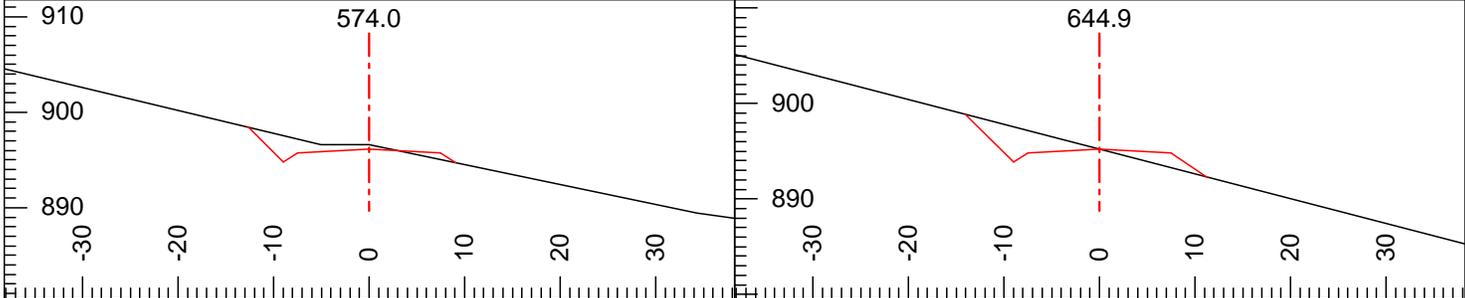
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Index:		Ssr: (Av)	-17	Rd. Wd.:	21.0	Index:	909	Ssr: (Av)	-17	Rd. Wd.:	21.0
Grd.Nxt.:	1	H. Offset:	2.8	Rd. Wd. L:	7.5	Grd.Nxt.:	2	H. Offset:	6.4	Rd. Wd. L:	7.5
Grd.Lst:	1	Cut Dp:	-0.8	Rd. Wd. R:	13.5	Grd.Lst:	2	Cut Dp:	-1.2	Rd. Wd. R:	13.5



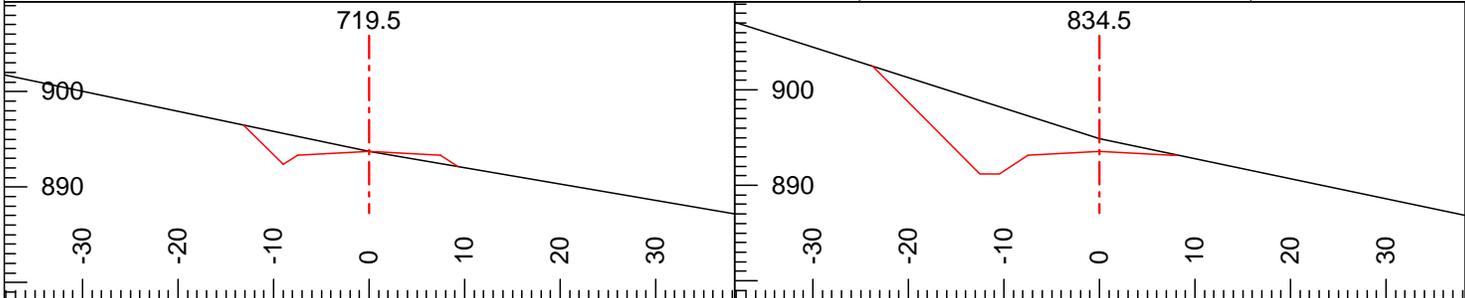
L-Stn:	459.9	Ssl: (Av)	23	CL Elev:	895.5	L-Stn:	472.9	Ssl: (Av)	40	CL Elev:	895.8
Index:	910	Ssr: (Av)	-15	Rd. Wd.:	21.0	Index:	911	Ssr: (Av)	-14	Rd. Wd.:	21.0
Grd.Nxt.:	2	H. Offset:	16.4	Rd. Wd. L:	7.5	Grd.Nxt.:	2	H. Offset:	15.6	Rd. Wd. L:	7.5
Grd.Lst:	2	Cut Dp:	-3.1	Rd. Wd. R:	13.5	Grd.Lst:	2	Cut Dp:	-3.8	Rd. Wd. R:	13.5



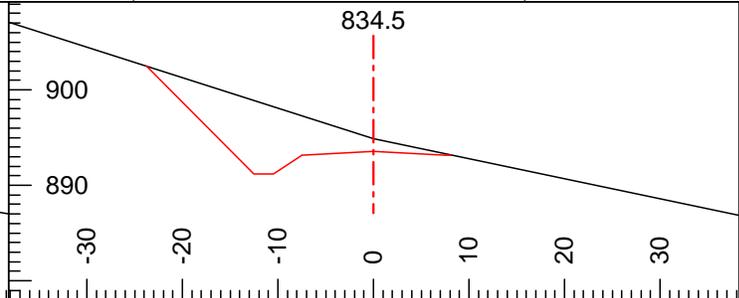
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Index:	912	Ssr: (Av)	-39	Rd. Wd.:	21.0	Index:		Ssr: (Av)	-39	Rd. Wd.:	21.0
Grd.Nxt.:	2	H. Offset:	-7.3	Rd. Wd. L:	7.5	Grd.Nxt.:	2	H. Offset:	-7.3	Rd. Wd. L:	7.5
Grd.Lst:	2	Cut Dp:	2.2	Rd. Wd. R:	13.5	Grd.Lst:	2	Cut Dp:	2.2	Rd. Wd. R:	13.5



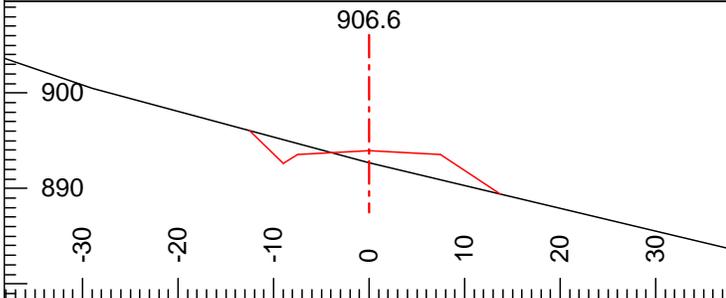
L-Stn:	574.0	Ssl: (Av)	12	CL Elev:	896.1	L-Stn:	644.9	Ssl: (Av)	26	CL Elev:	895.2
Index:	913	Ssr: (Av)	-21	Rd. Wd.:	15.0	Index:	914	Ssr: (Av)	-26	Rd. Wd.:	15.0
Grd.Nxt.:	-1	H. Offset:	0.0	Rd. Wd. L:	7.5	Grd.Nxt.:	-2	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	-1	Cut Dp:	0.5	Rd. Wd. R:	7.5	Grd.Lst:	-1	Cut Dp:	0.0	Rd. Wd. R:	7.5



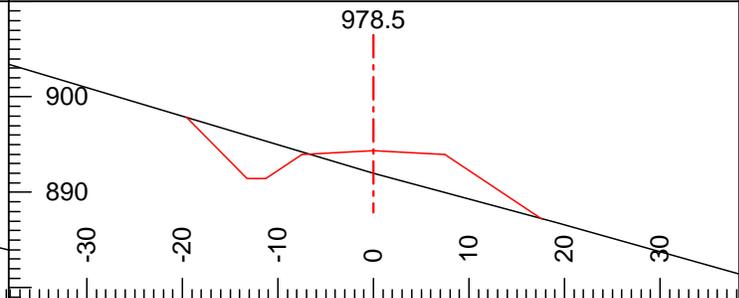
L-Stn:	719.5	Ssl: (Av)	21	CL Elev:	893.7
Index:	915	Ssr: (Av)	-17	Rd. Wd.:	15.0
Grd.Nxt.:	0	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	-2	Cut Dp:	0.0	Rd. Wd. R:	7.5



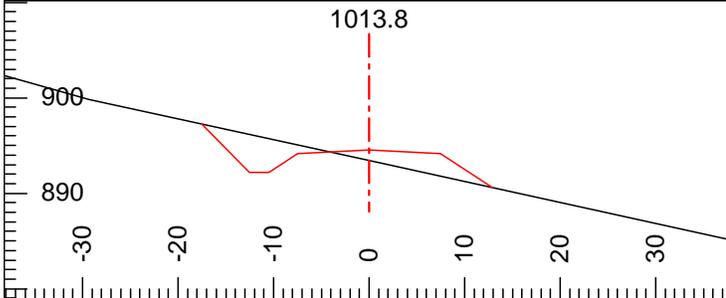
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Grd.Nxt.:	1	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	0	Cut Dp:	1.3	Rd. Wd. R:	7.5



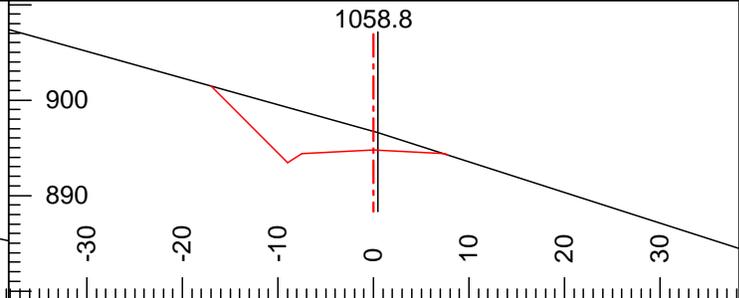
L-Stn:	906.6	Ssl: (Av)	27	CL Elev:	894.0
Index:	917	Ssr: (Av)	-24	Rd. Wd.:	15.0
Grd.Nxt.:	1	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	1	Cut Dp:	-1.2	Rd. Wd. R:	7.5



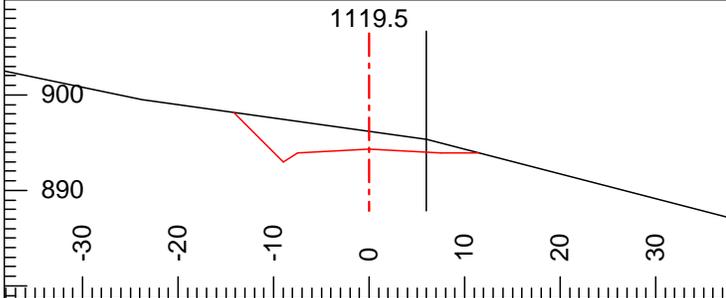
L-Stn:	978.5	Ssl: (Av)	30	CL Elev:	894.4
Index:	918	Ssr: (Av)	-27	Rd. Wd.:	15.0
Grd.Nxt.:	1	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	1	Cut Dp:	-2.4	Rd. Wd. R:	7.5



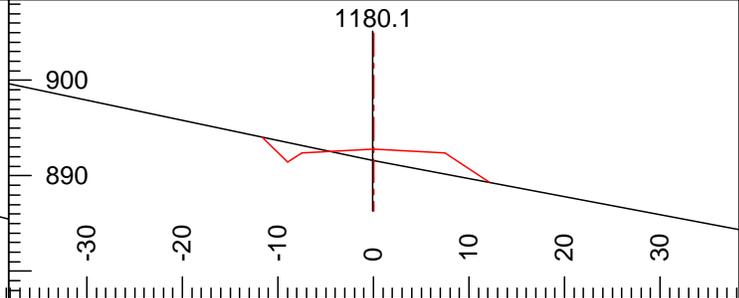
L-Stn:	1013.8	Ssl: (Av)	22	CL Elev:	894.5
Index:	919	Ssr: (Av)	-22	Rd. Wd.:	15.0
Grd.Nxt.:	1	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	1	Cut Dp:	-1.1	Rd. Wd. R:	7.5



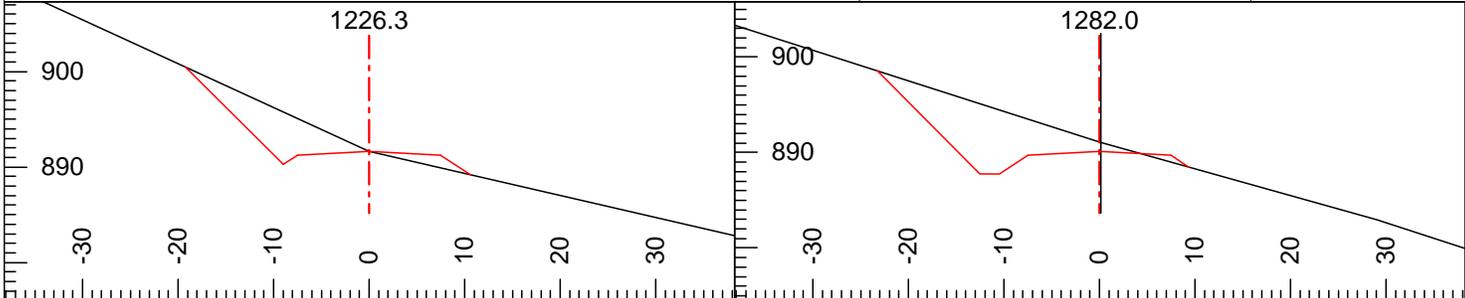
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Grd.Nxt.:	-1	H. Offset:	-0.5	Rd. Wd. L:	7.5
Grd.Lst:	1	Cut Dp:	1.9	Rd. Wd. R:	7.5



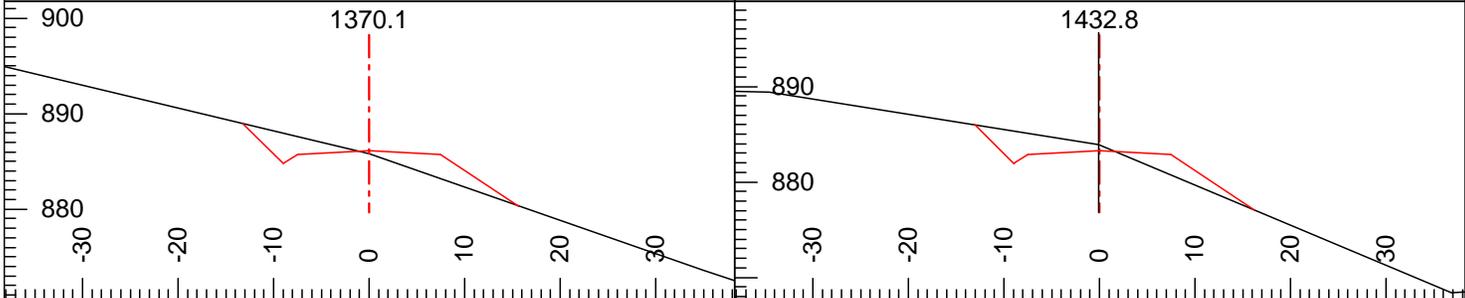
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Index:	921	Ssr: (Av)	-26	Rd. Wd.:	15.0
Grd.Nxt.:	-1	H. Offset:	-6.1	Rd. Wd. L:	7.5
Grd.Lst:	-1	Cut Dp:	1.9	Rd. Wd. R:	7.5



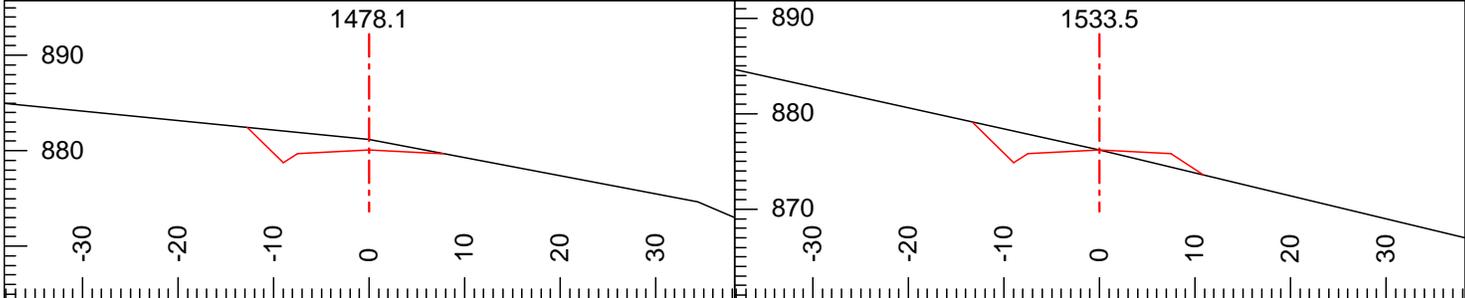
L-Stn:	1180.1	Ssl: (Av)	21	CL Elev:	892.8
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Grd.Nxt.:	-3	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	-3	Cut Dp:	-1.2	Rd. Wd. R:	7.5



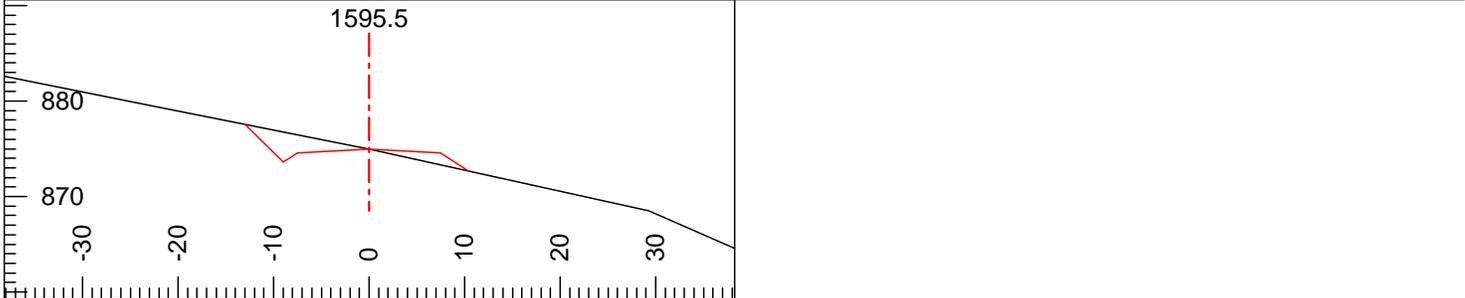
L-Stn:	1226.3	Ssl: (Av)	46	CL Elev:	891.6
Index:	923	Ssr: (Av)	-23	Rd. Wd.:	15.0
Grd.Nxt.:	-3	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	-3	Cut Dp:	0.0	Rd. Wd. R:	7.5



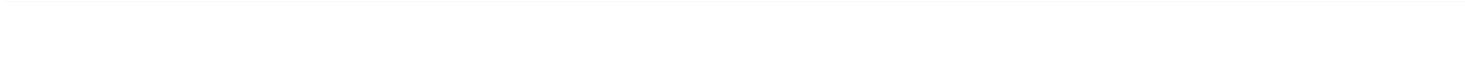
L-Stn:	1282.0	Ssl: (Av)	32	CL Elev:	890.1
Index:	924	Ssr: (Av)	-28	Rd. Wd.:	15.0
Grd.Nxt.:	-5	H. Offset:	-0.1	Rd. Wd. L:	7.5
Grd.Lst:	-3	Cut Dp:	1.0	Rd. Wd. R:	7.5



L-Stn:	1370.1	Ssl: (Av)	24	CL Elev:	886.1
Index:	925	Ssr: (Av)	-35	Rd. Wd.:	15.0
Grd.Nxt.:	-5	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	-5	Cut Dp:	-0.3	Rd. Wd. R:	7.5



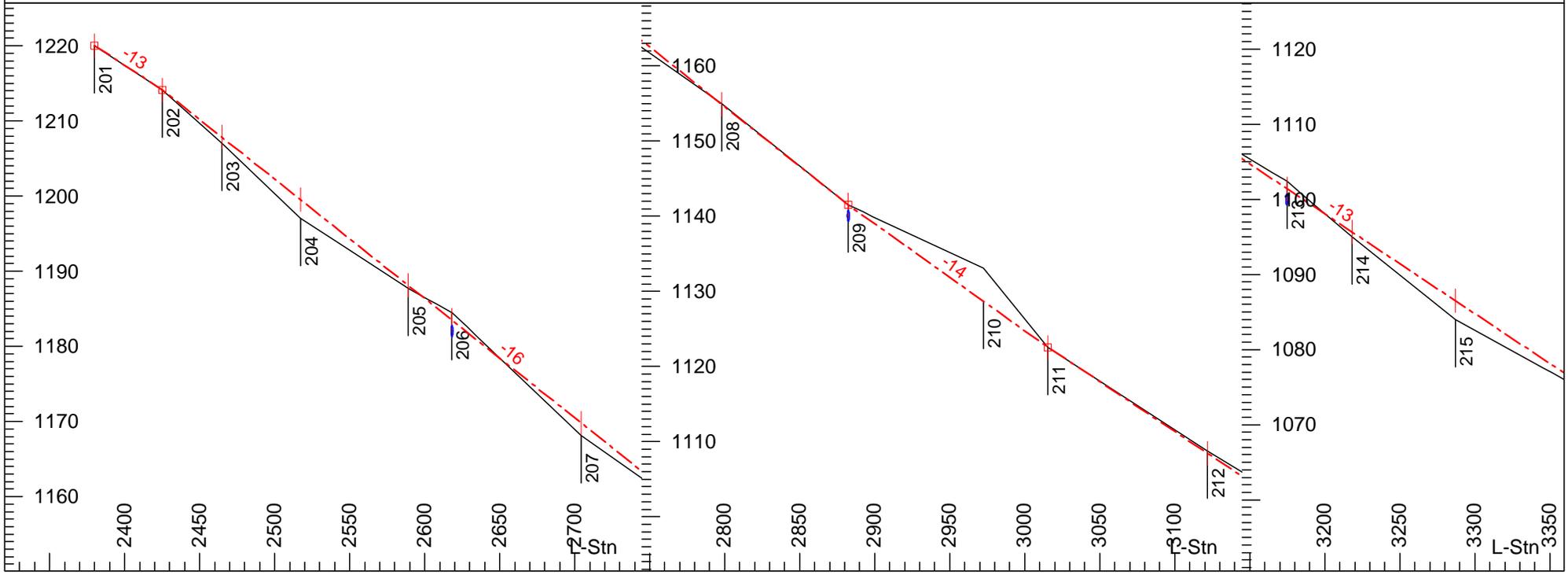
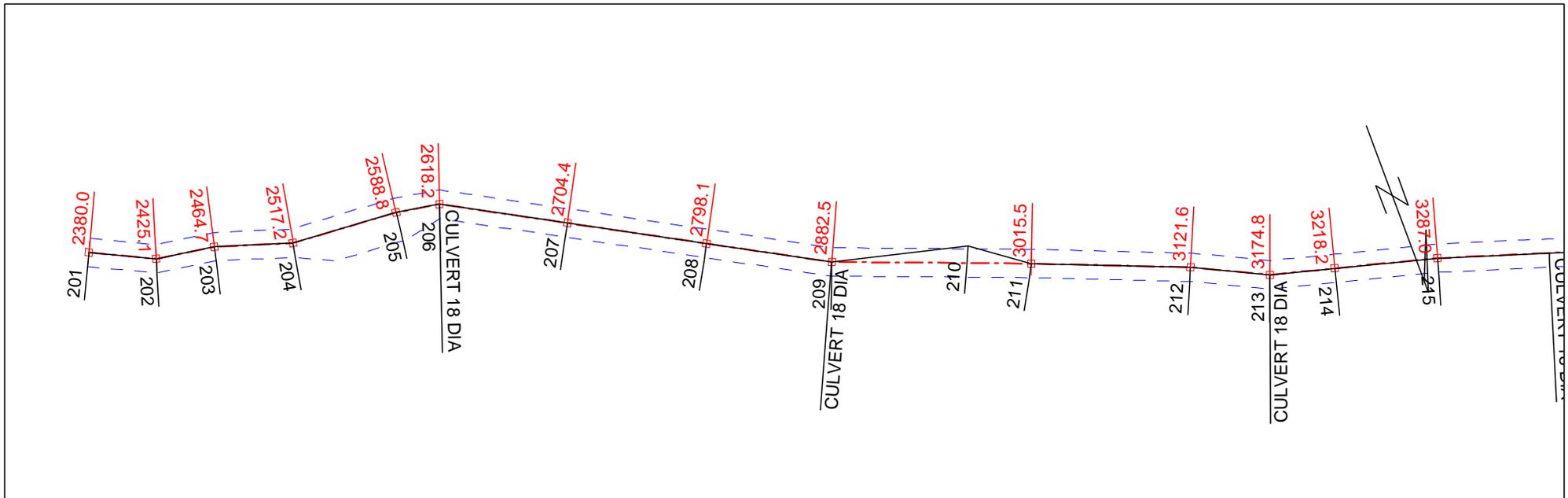
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Grd.Nxt.:	-7	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	-5	Cut Dp:	0.6	Rd. Wd. R:	7.5



L-Stn:	1478.1	Ssl: (Av)	10	CL Elev:	880.1
Index:	927	Ssr: (Av)	-19	Rd. Wd.:	15.0
Grd.Nxt.:	-7	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	-7	Cut Dp:	1.1	Rd. Wd. R:	7.5

L-Stn:	1533.5	Ssl: (Av)	22	CL Elev:	876.2
Index:	928	Ssr: (Av)	-24	Rd. Wd.:	15.0
Grd.Nxt.:	-2	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	-7	Cut Dp:	0.0	Rd. Wd. R:	7.5

L-Stn:	1595.5	Ssl: (Av)	20	CL Elev:	875.0
Index:	929	Ssr: (Av)	-22	Rd. Wd.:	15.0
Grd.Nxt.:	n/a	H. Offset:	0.0	Rd. Wd. L:	7.5
Grd.Lst:	-2	Cut Dp:	0.0	Rd. Wd. R:	7.5



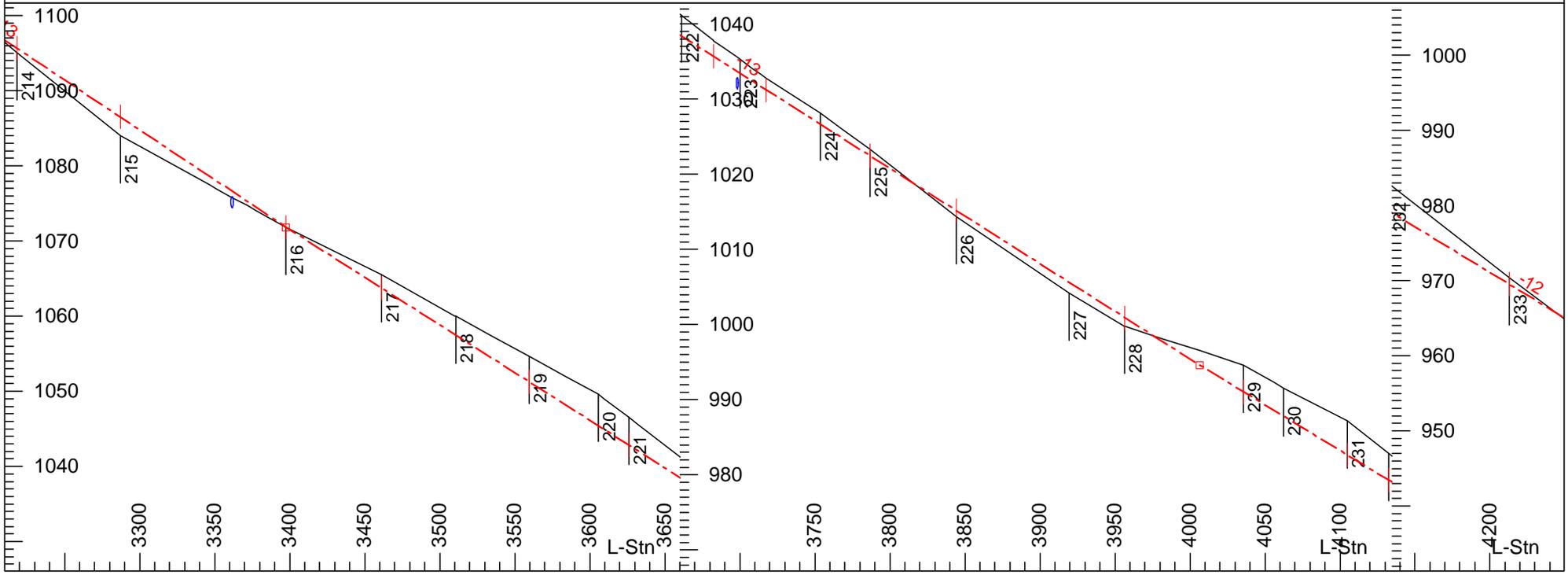
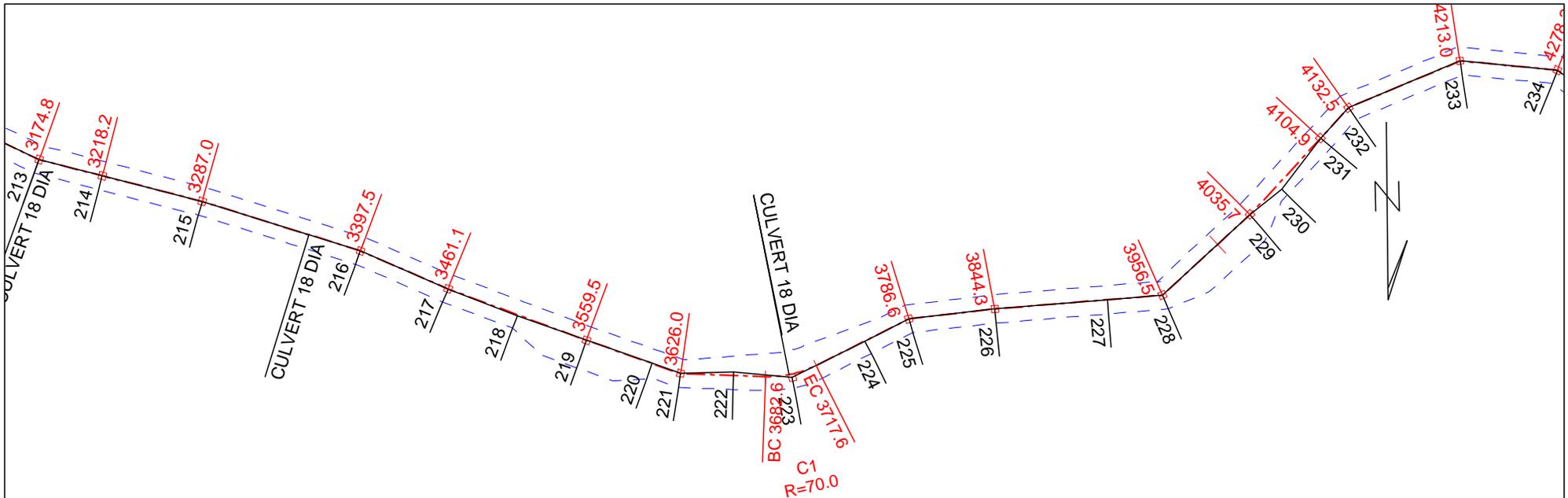
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 C-1100 road November 2, 2015
 Contract #: 30-092744



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Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

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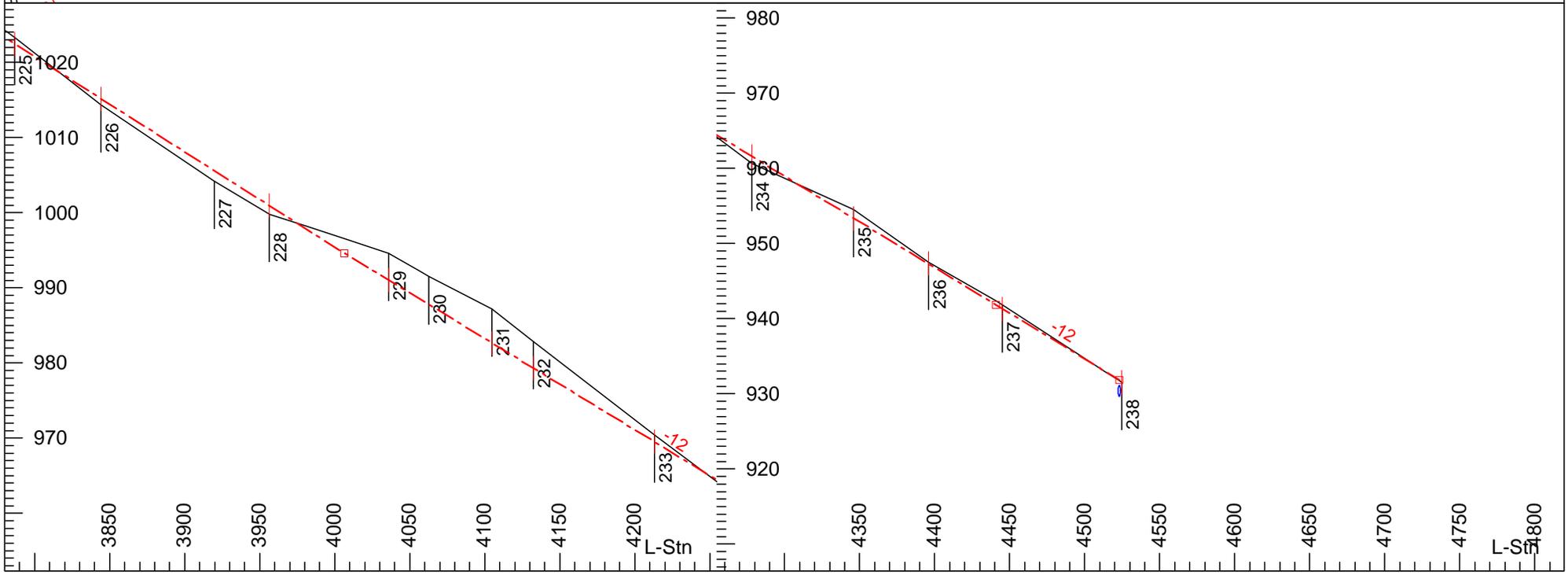
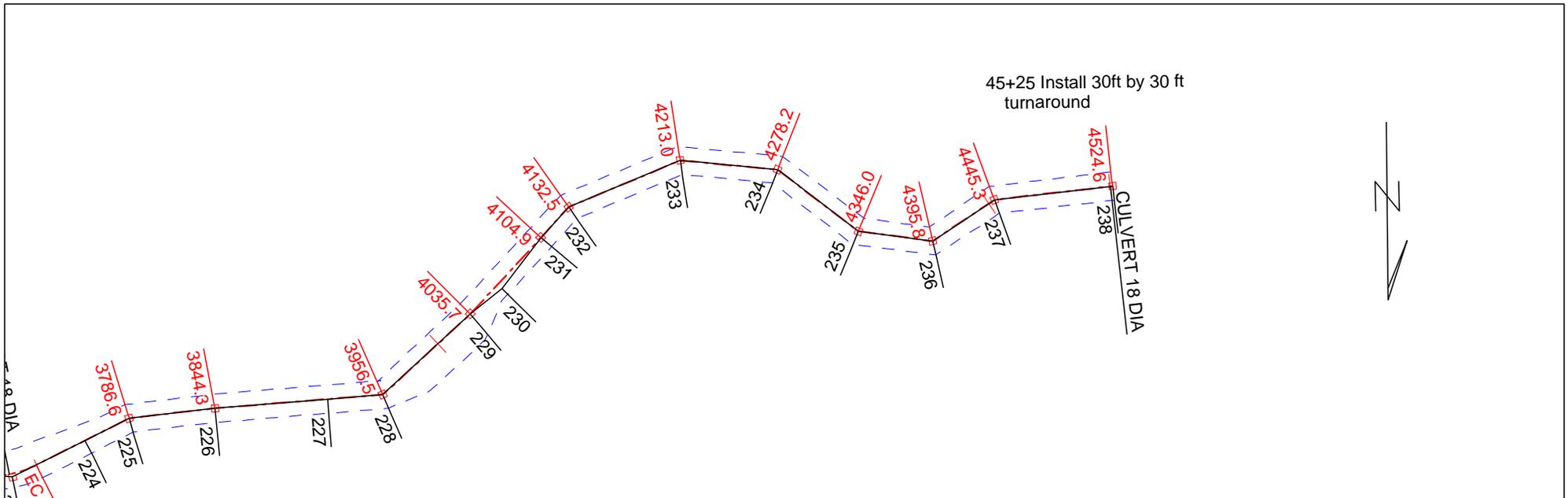
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 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

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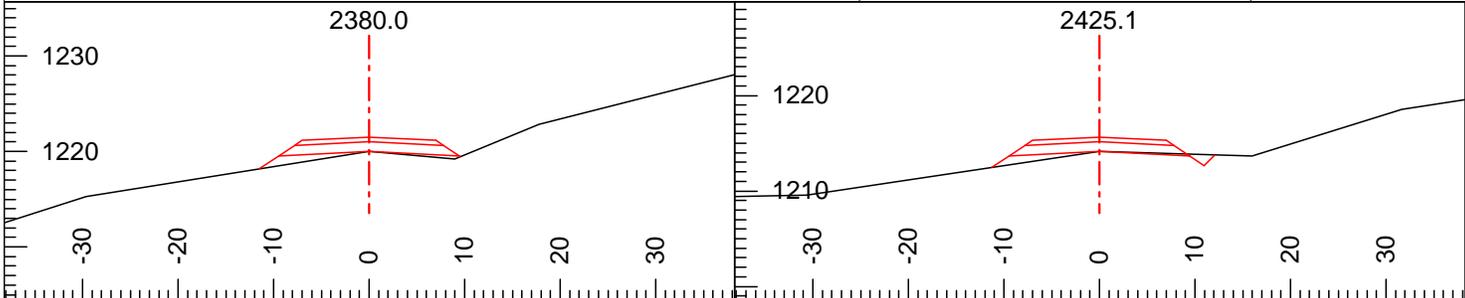
Lytle's Leg Timber Sale
 C-1100 road November 2, 2015
 Contract #: 30-092744



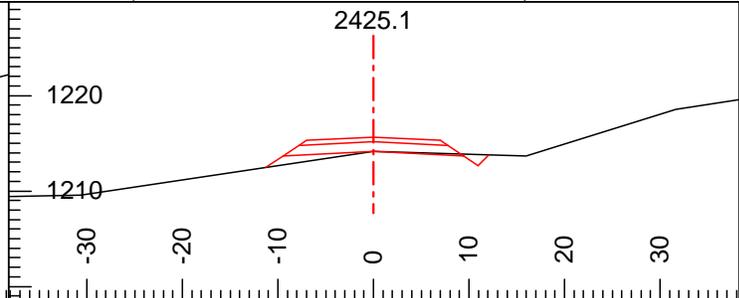
Washington State Department of
 Natural Resources
 South Puget Sound Region

Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

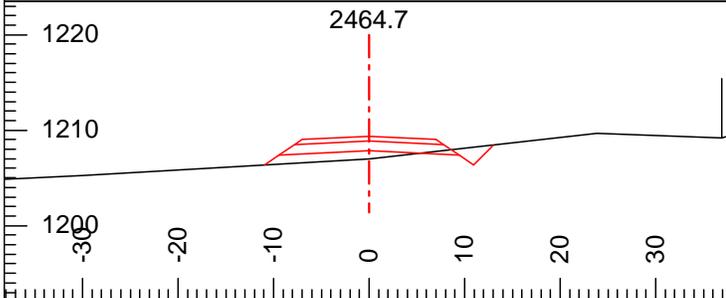
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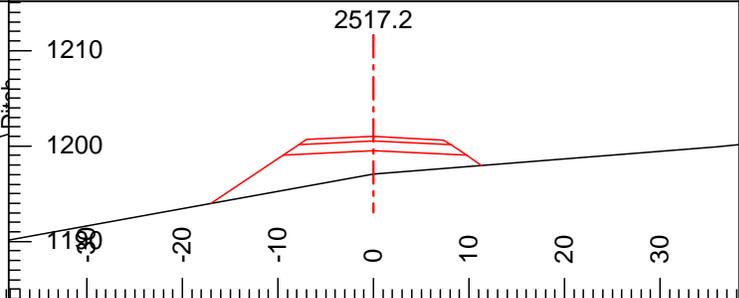
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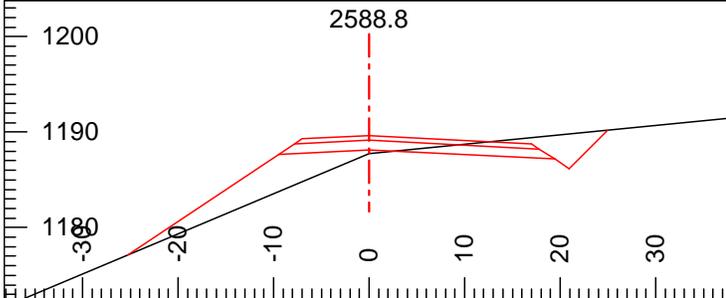
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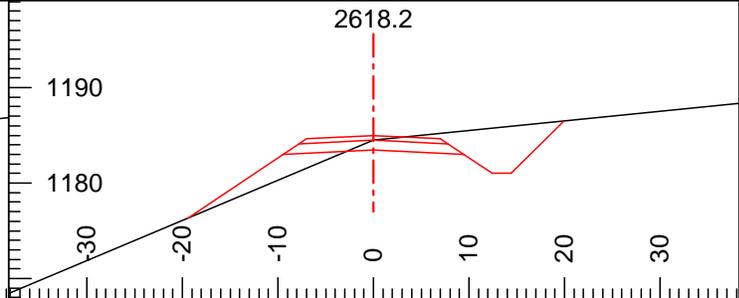
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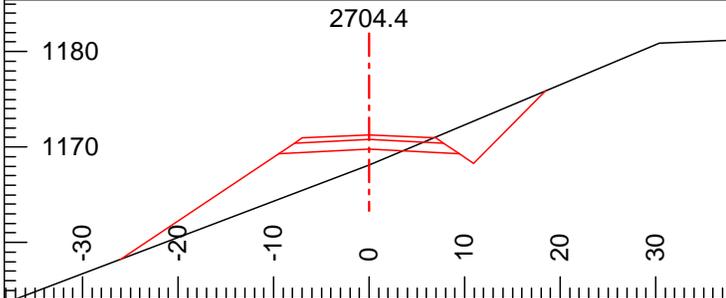
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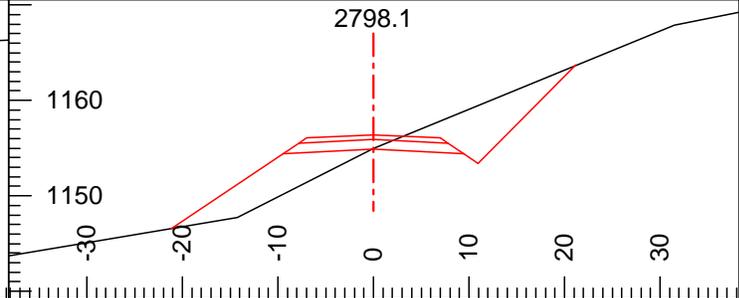
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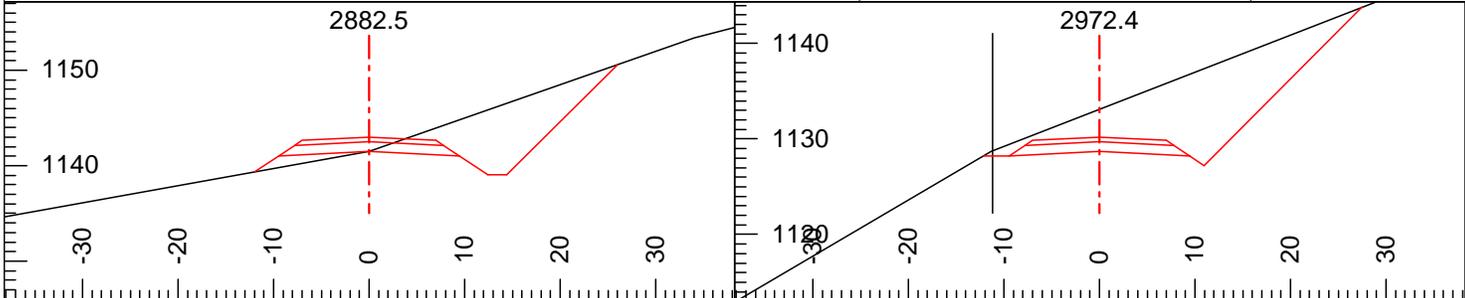
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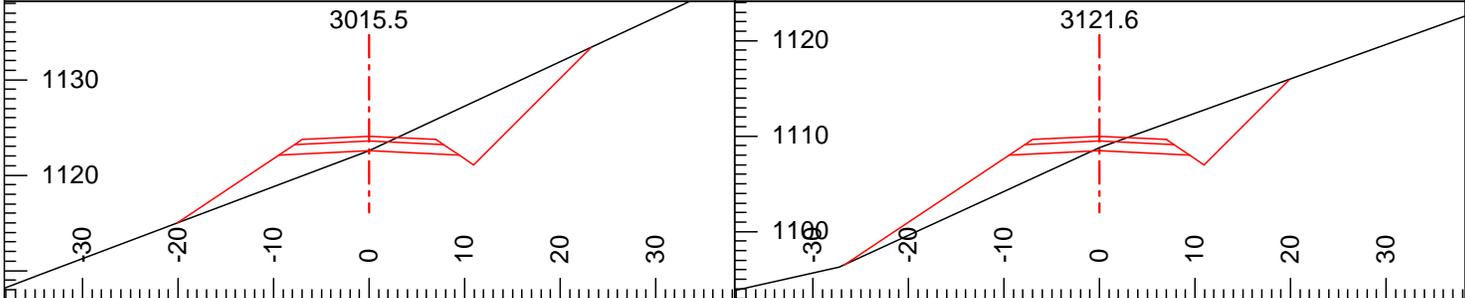
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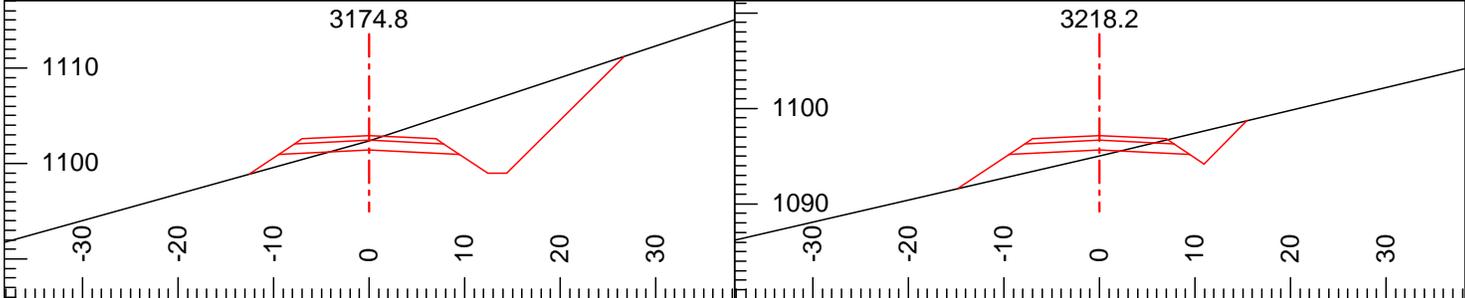
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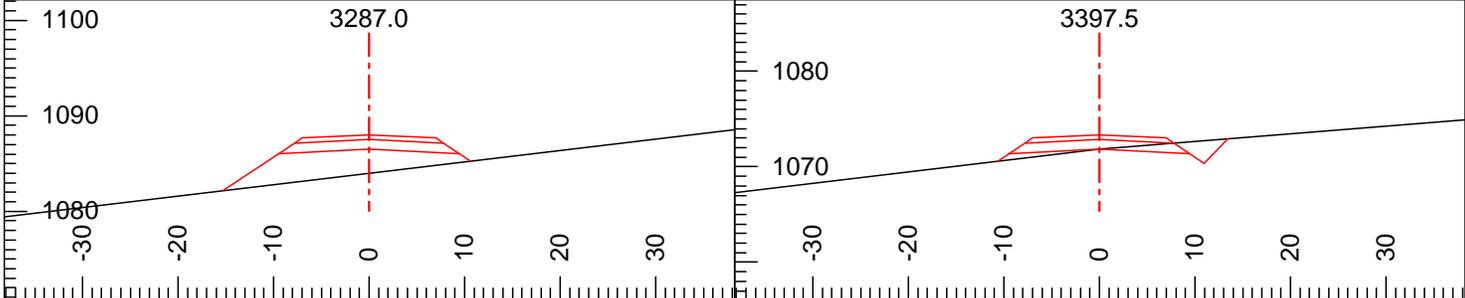
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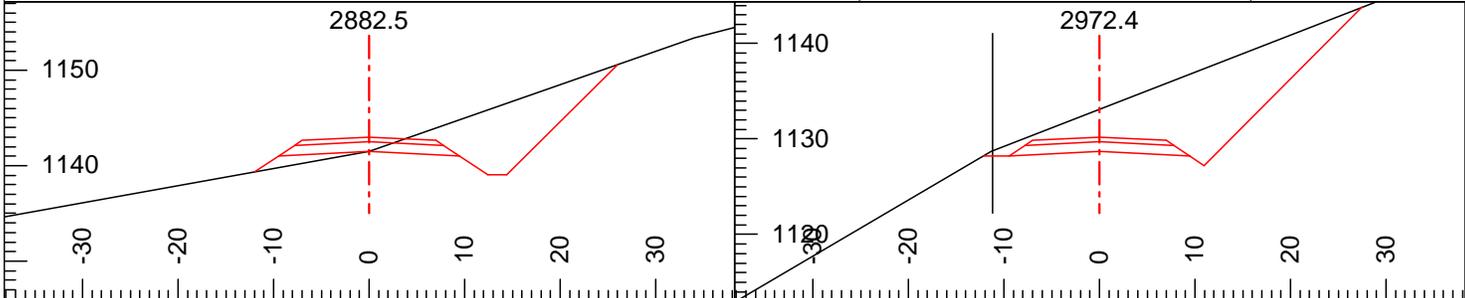
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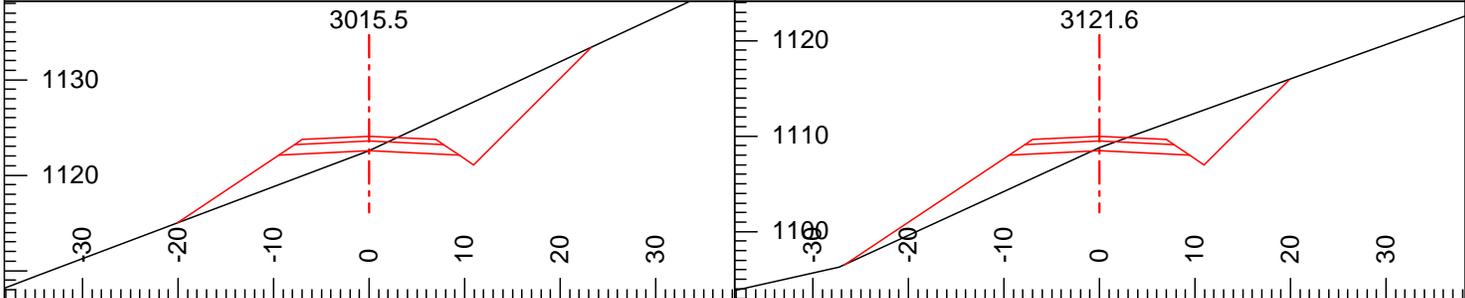
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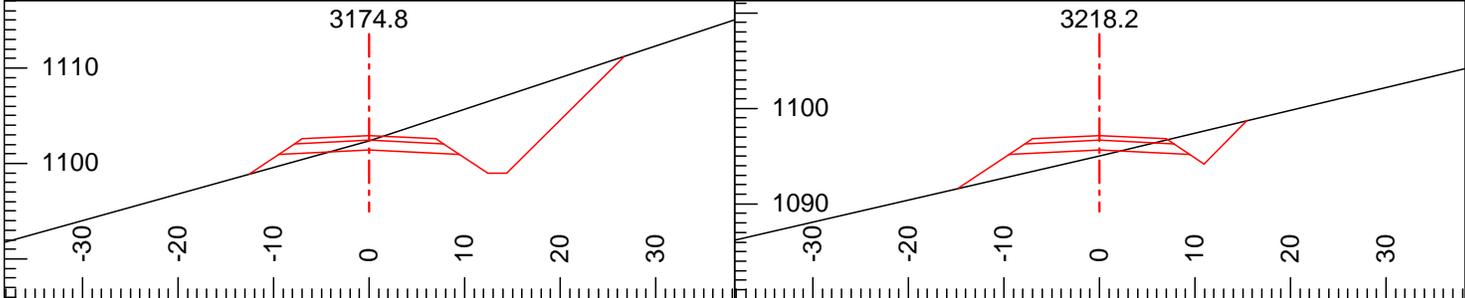
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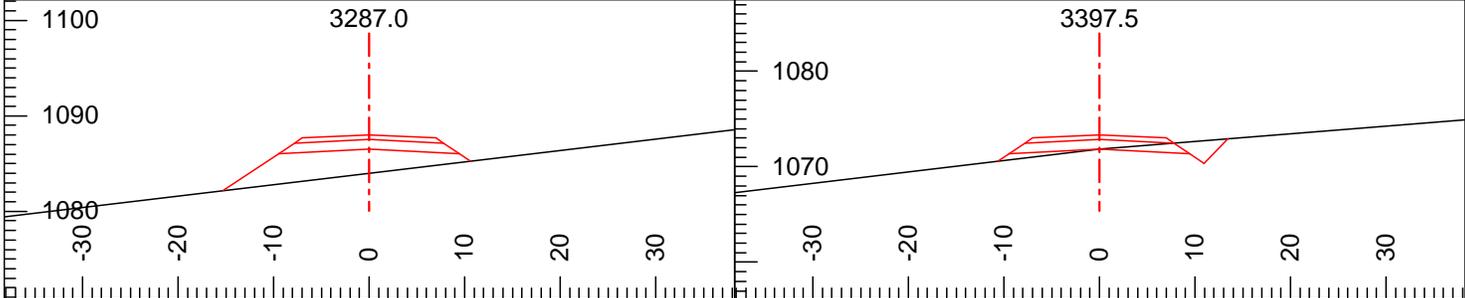
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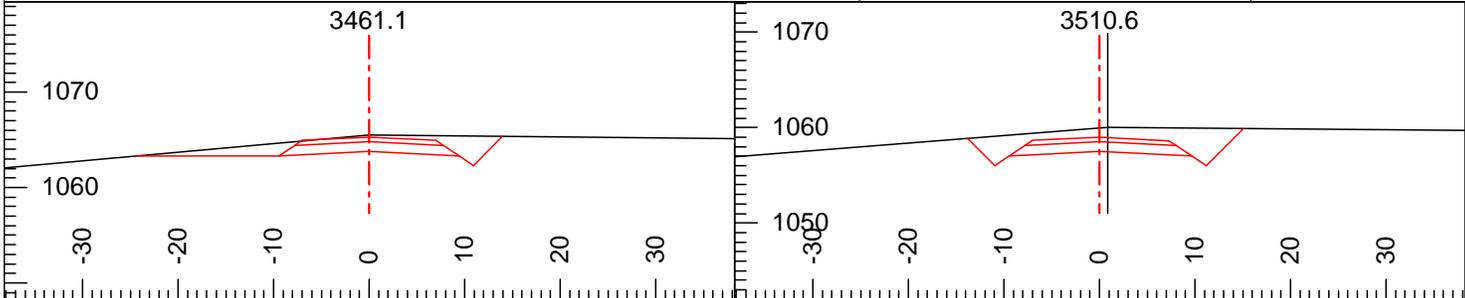
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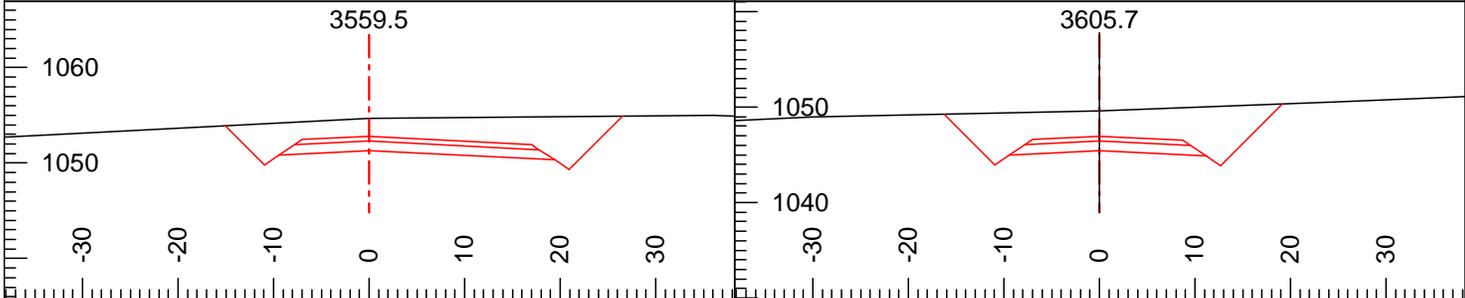
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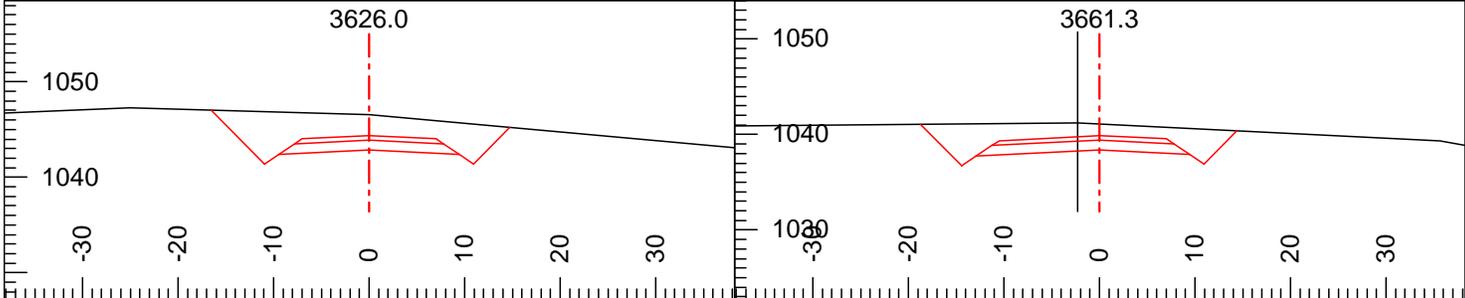
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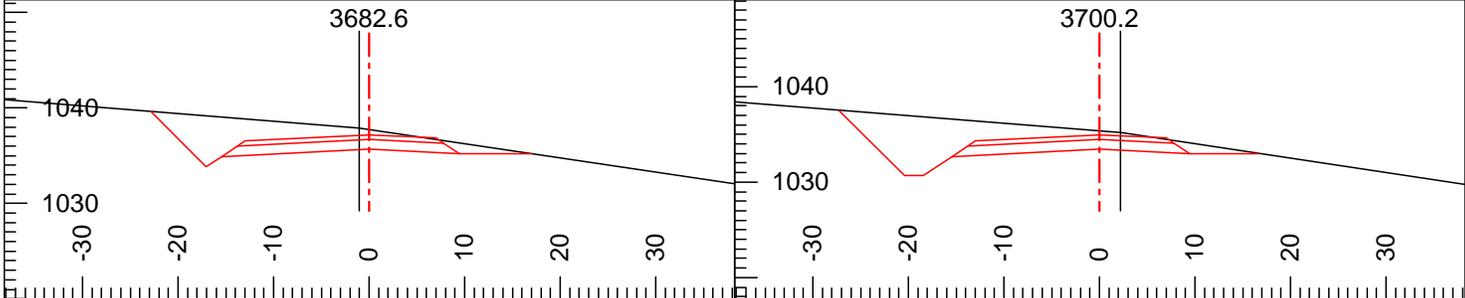
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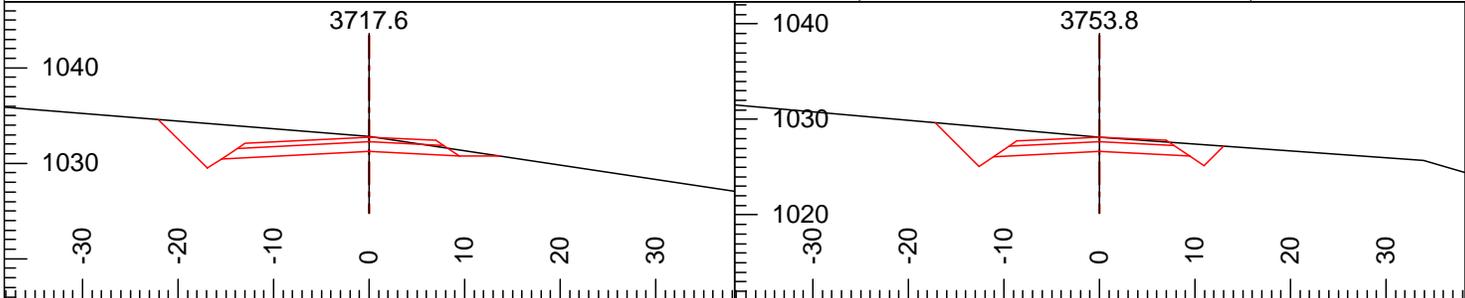
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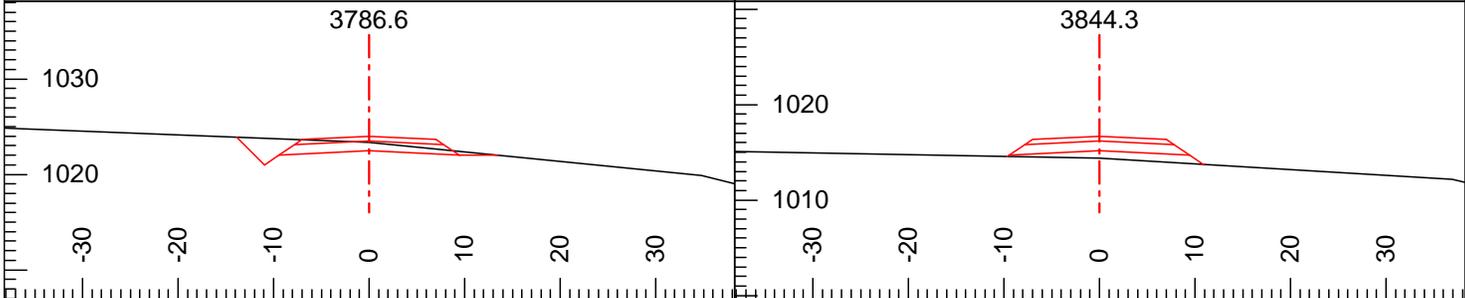
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Grd.Lst:	-13	Cut Dp:	3.7	Rd. Wd. R:	9.4	Grd.Lst:	-13	Cut Dp:	2.7	Rd. Wd. R:	9.4



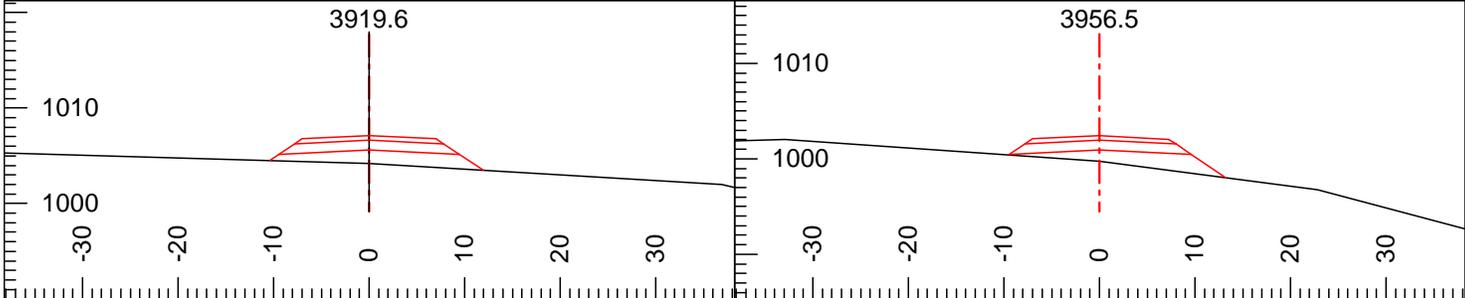
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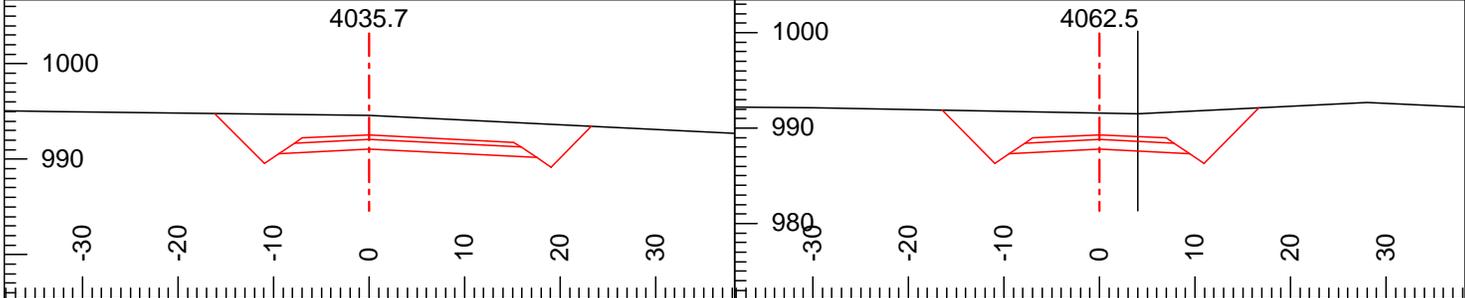
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Grd.Lst:	-13	Cut Dp:	1.6	Rd. Wd. R:	9.4	Grd.Lst:	-13	Cut Dp:	1.5	Rd. Wd. R:	9.4



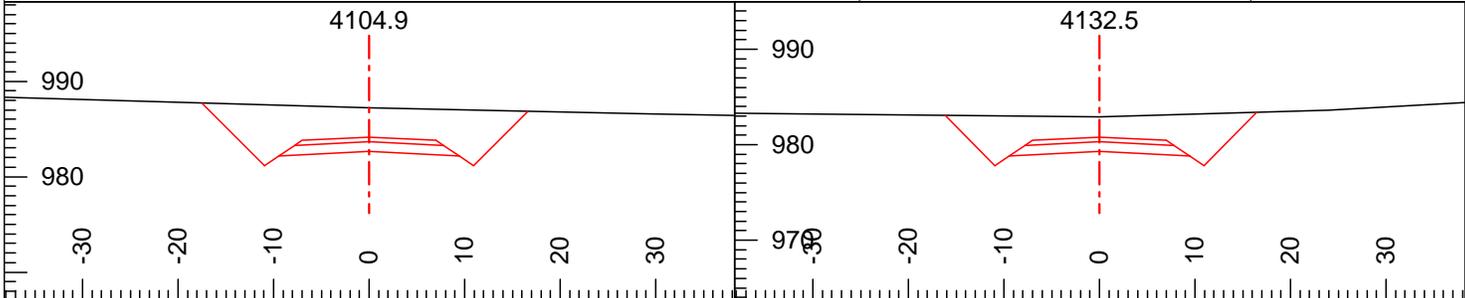
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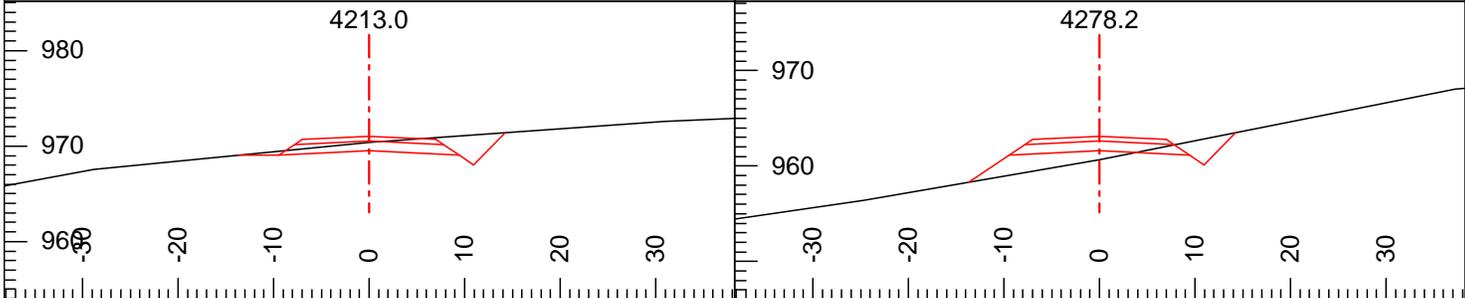
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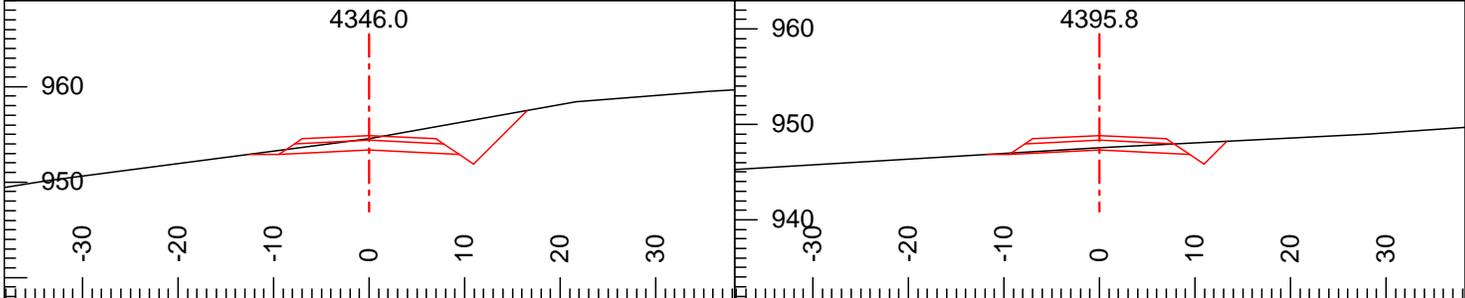
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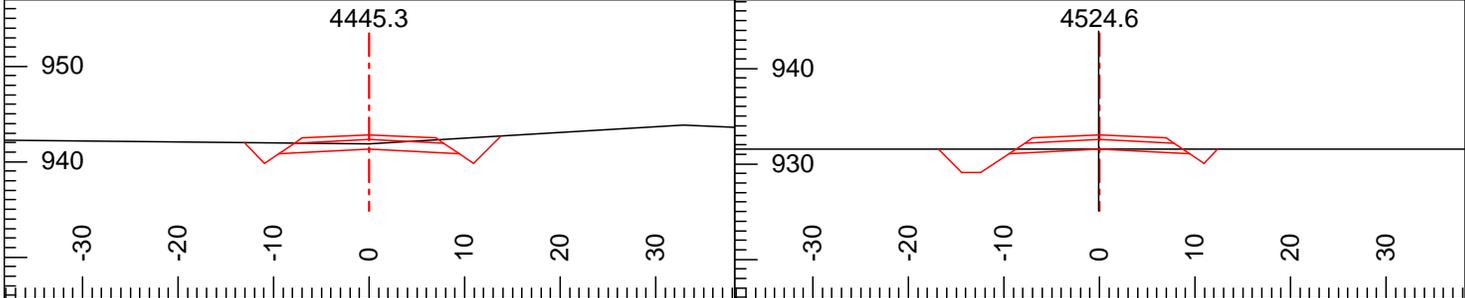
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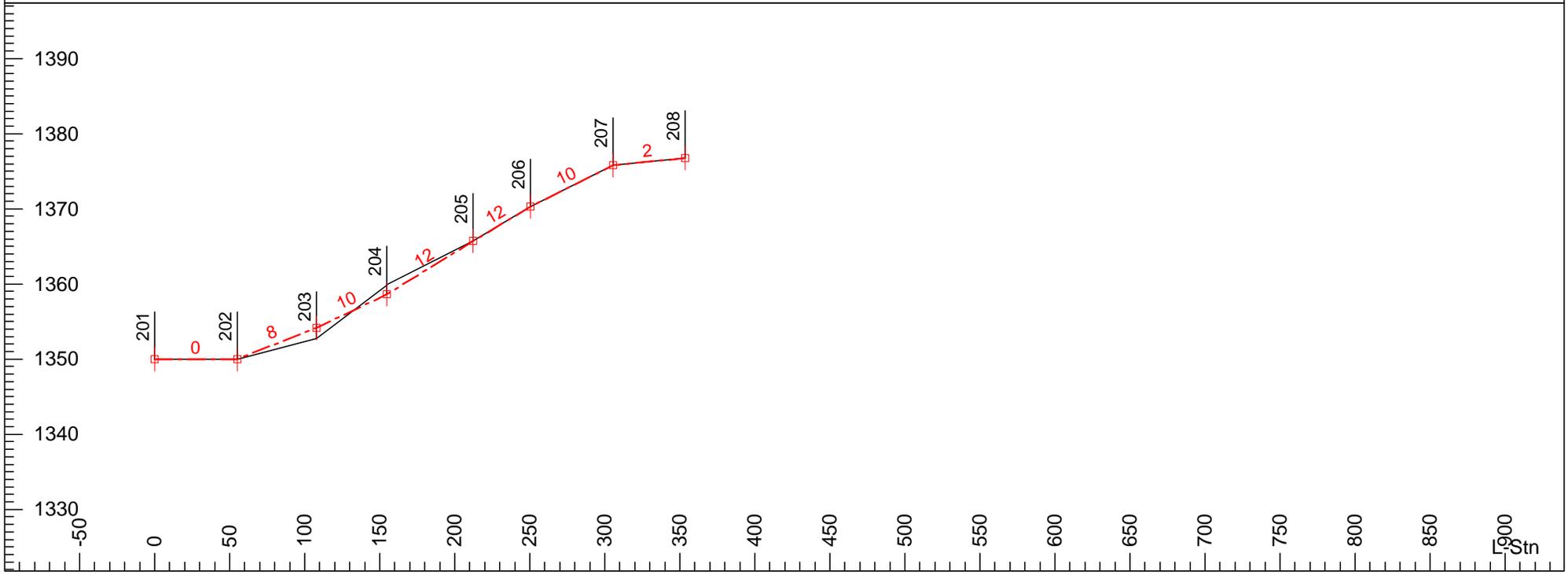
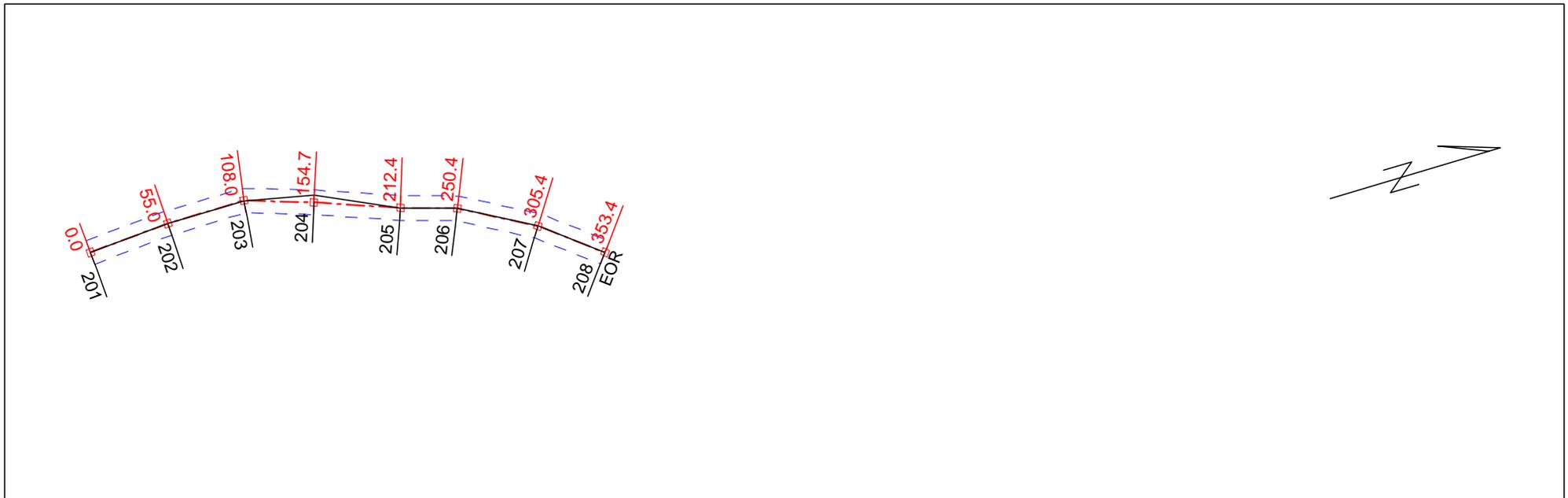
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Grd.Lst:	-12	Cut Dp:	1.2	Rd. Wd. R:	9.4	Grd.Lst:	-12	Cut Dp:	0.2	Rd. Wd. R:	9.4



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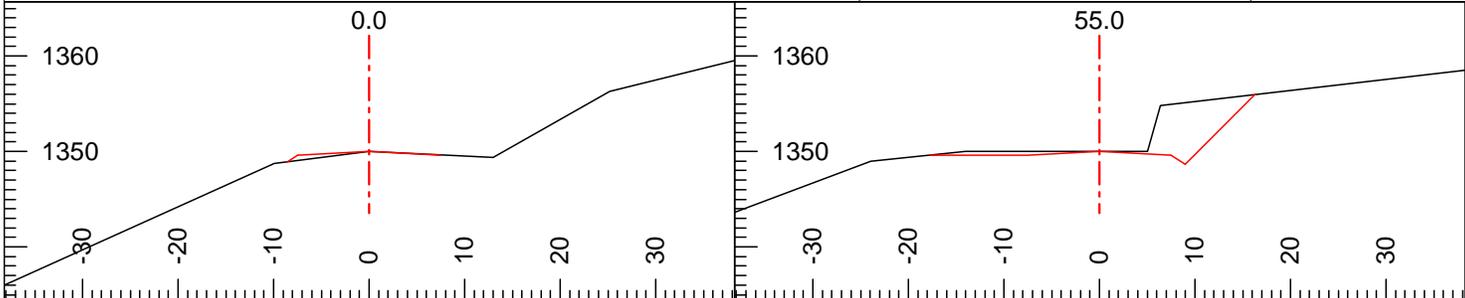
Lytle's Leg Timber Sale
 Spur 1 road November 2, 2015
 Contract #: 30-092744



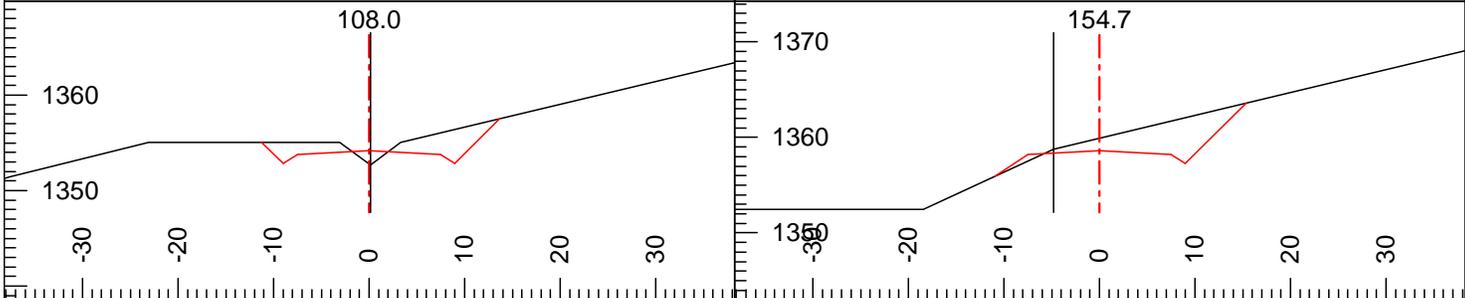
Washington State Department of
 Natural Resources
 South Puget Sound Region

Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

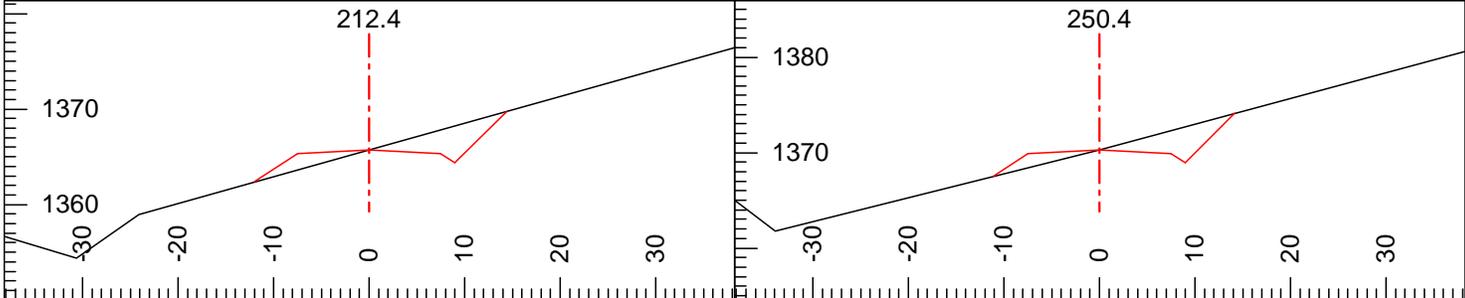
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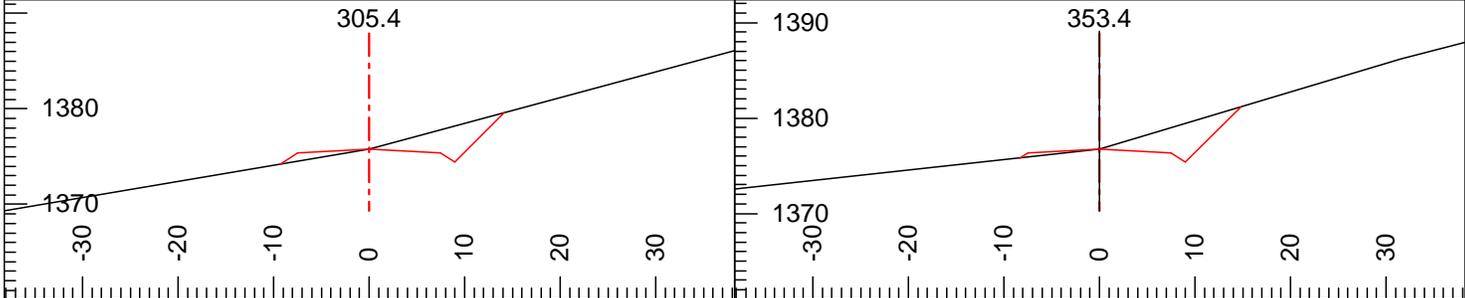
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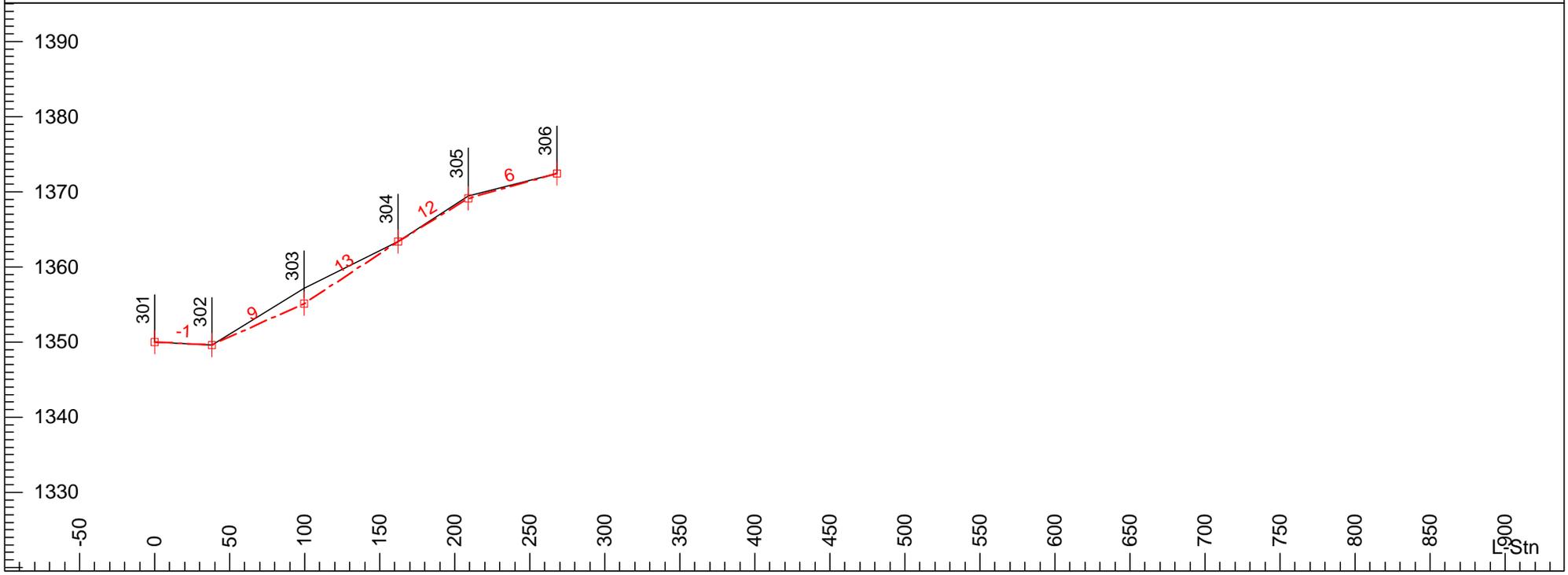
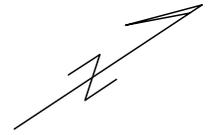
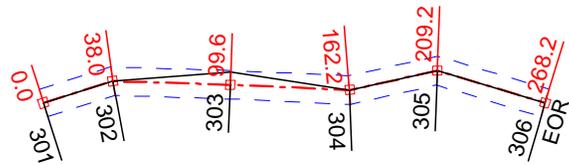
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L-Stn:	305.4	Ssl: (Av)	-17	CL Elev:	1375.8	L-Stn:	353.4	Ssl: (Av)	-11	CL Elev:	1376.7
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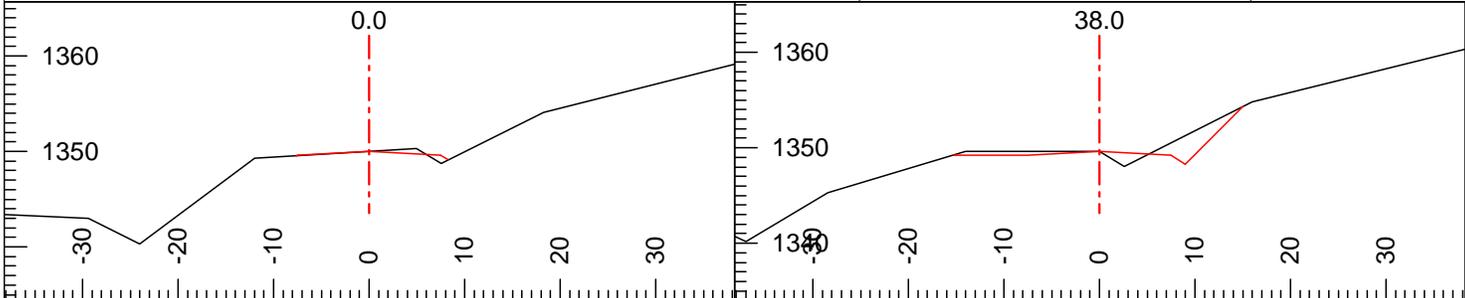
Lytle's Leg Timber Sale
 Spur 2 road November 2, 2015
 Contract #: 30-092744



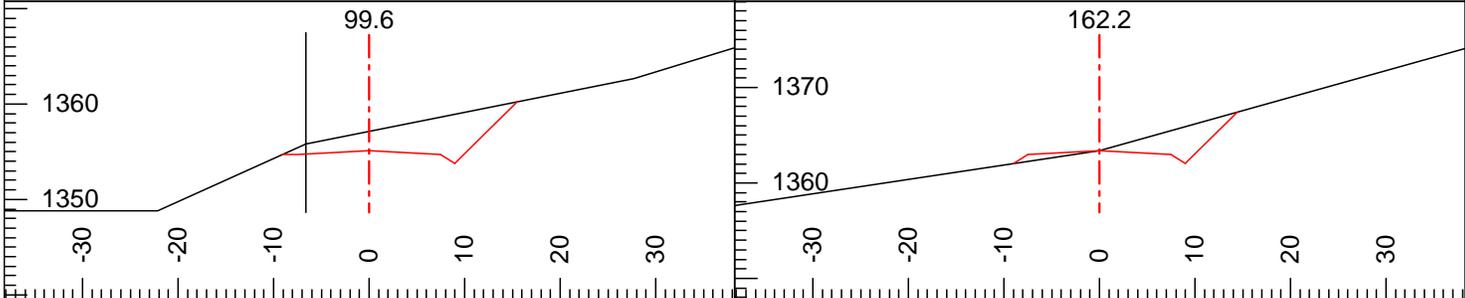
Washington State Department of
 Natural Resources
 South Puget Sound Region

Plan Scale 1:1200
 Profile Vert Scale 1:240
 Profile Horz Scale 1:1200

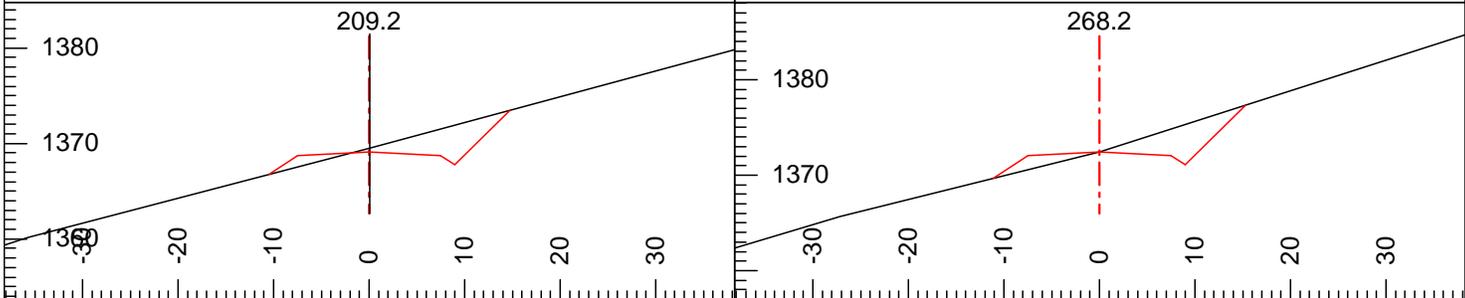
Engineer: M. Bell
 15/11/10 Page 1 of 1



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L-Stn:	99.6	Ssl: (Av)	-45	CL Elev:	1355.1	L-Stn:	162.2	Ssl: (Av)	-15	CL Elev:	1363.4
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Grd.Lst:	9	Cut Dp:	2.0	Rd. Wd. R:	7.5	Grd.Lst:	13	Cut Dp:	0.0	Rd. Wd. R:	7.5



L-Stn:	209.2	Ssl: (Av)	-26	CL Elev:	1369.1	L-Stn:	268.2	Ssl: (Av)	-25	CL Elev:	1372.4
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DEPARTMENT OF NATURAL RESOURCES - SOUTH PUGET SOUND REGION

FORM 9-87(Rev. 05-03)

SUMMARY - ROAD DEVELOPMENT COSTS

(COSTS ARE ESTIMATES ONLY & ARE NOT GUARANTEED BY THE STATE OR PART OF THE ROAD PLAN.)

SALE/PROJECT NAME: **Lytle's Leg**

CONTRACT NUMBER: **30-092744**

TYPE:	Construction	Reconstruction	Pre-Haul Maintenance
NUMBER OF STATIONS:	87.90	8.30	370.06 pre-haul
AVG. SIDESLOPE:	25	10	
CLEARING AND GRUBBING:	\$17,599	\$664	
EXCAVATION AND FILL:	\$22,754	\$1,096	
MISC. MAINTENANCE:			\$12,999
ROCK TOTALS (Cu. Yds.):			
Ballast:	\$55,680	\$0	\$0
Surfacing:	\$20,751	\$0	\$20,695
Riprap/Quarry Spalls:	\$62	\$5	\$183
Stockpile:			\$74,872
CULVERTS AND FLUMES:	\$15,528	\$1,807	\$24,892
STRUCTURES:	\$0	\$6,000	\$0
GENERAL EXPENSES:	\$10,590	\$1,053	\$10,691
MOBILIZATION:	\$2,700	\$2,700	\$2,700
TOTAL COSTS:	\$145,665	\$13,324	\$147,033
COST PER STATION:	\$1,657	\$1,605	\$397
ROAD DEACTIVATION AND ABANDONMENT COSTS:		\$6,332	

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

TOTAL (All Roads) =	\$312,354
SALE VOLUME MBF =	11,000
TOTAL COST PER MBF =	\$28.40

Plans to be furnished by:

Compiled by: M. Bell

Date: 11/09/15

**ROAD COST ESTIMATE - CONSTRUCTION
(FOR INTERNAL DNR USE ONLY)**

SALE NAME: Lytle's Leg

CONTRACT NUMBER: 30-092744

I. CLEARING AND GRUBBING:

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/Station	Width Factor	Total Stations	Sub Total
C-0060	30	50	1.00	5.67	\$40	1.00	15.57	\$3,531
Spur 1	28	50	1.00	3.33	\$40	1.00	3.53	\$470
Spur 2	25	50	1.00	3.33	\$40	1.00	2.68	\$357
C-0700	15	50	1.00	3.33	\$48	1.20	28.71	\$5,507
C-0710	30	50	1.00	5.67	\$40	1.00	15.96	\$3,620
C-1100	20	50	1.00	3.33	\$48	1.20	21.45	\$4,114
0	0			1.00			0.00	\$0
0	0			1.00			0.00	\$0
0	0			1.00			0.00	\$0
0	0			1.00			0.00	\$0
0	0			1.00			0.00	\$0
0	0			1.00			0.00	\$0
0	0			1.00			0.00	\$0
0	0			1.00			0.00	\$0
0	0			1.00			0.00	\$0
0	0			1.00			0.00	\$0
0	0			1.00			0.00	\$0
0	0			1.00			0.00	\$0

Clear and Grub TOTAL = \$17,599

II. EXCAVATION:

Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/Station	Width Factor	Total Stations	Sub Total
C-0060	30	1.0	2.50	\$88	1.00	15.57	\$3,425
Spur 1	28	1.0	2.25	\$88	1.00	3.53	\$699
Spur 2	25	1.0	2.25	\$88	1.00	2.68	\$531
C-0700	15	1.0	1.75	\$88	1.50	28.71	\$6,632
C-0710	30	1.0	2.50	\$110	1.00	15.96	\$4,389
C-1100	20	1.0	2.00	\$110	1.50	21.45	\$7,079
0	0		1.00			0.00	\$0
0	0		1.00			0.00	\$0
0	0		1.00			0.00	\$0
0	0		1.00			0.00	\$0
0	0		1.00			0.00	\$0
0	0		1.00			0.00	\$0
0	0		1.00			0.00	\$0
0	0		1.00			0.00	\$0
0	0		1.00			0.00	\$0
0	0		1.00			0.00	\$0
0	0		1.00			0.00	\$0

*End Haul, Over Haul, Large Fills/Cuts

End Haul/ Over Haul
Large Fills/ Cuts

Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
			\$0

Excavation TOTAL = \$22,754

III. BALLAST AND SURFACING :

Ballast source 1: Upper Lytles
Ballast source 2: Upper Lytles
Riprap source : Upper Lytles

Description	cu.yds/sta	x sta	x compaction factor	= cubic yds	Landings
Required Ballast 1 (4"-Jaw)	4461		1.30	5,799	
Required Surface (1-1/2")	1502		1.30	1,953	
Riprap/Quarry Spalls	13		1.30	17	

Pit:	Upper Lytle		
	Ballast 1	Surface	Riprap
UNIT COSTS			
Drill & Shoot	\$1.50	\$1.50	
Dig and load	\$0.50	\$0.50	\$0.75
Crushing	\$3.75	\$4.70	
Purchase			
Haul *	\$1.89	\$1.89	\$1.89
Spread	\$0.80	\$0.80	\$0.75
Compact	\$0.45	\$0.45	
Strip			
Reclamation			
Use tax	\$0.71	\$0.79	\$0.27
TOTAL (\$/cy)	\$9.60	\$10.63	\$3.66

* Haul Formula: (R.T.Miles/MPH+Delay)/(\$/hr / Cy/load)

Pit:	Upper Lytle
R.T. Miles =	1.8
Ave. Speed =	15
Delay (Hrs.)=	0.1
Cost / Hour =	\$102.85
CY / Load =	12

Required Ballast 1 (4"-Jaw)	5799	Cu. yds @	\$9.60 /cu. yd =	\$55,680
Required Surface (1-1/2")	1953	Cu. yds @	\$10.63 /cu. yd =	\$20,751
Riprap/Quarry Spalls	17	Cu. yds @	\$3.66 /cu. yd =	\$62

Rock total = \$76,493

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter	No/Length	Installed Cost/ft	Sub-total
	18	PD	18	30	\$20.08	\$10,843
	1	PD	18	46	\$20.08	\$924
	1	PD	18	51	\$20.08	\$1,024
		PD	24	41	\$24.39	\$0
	2	PD	24	30	\$24.39	\$1,463
	1	PD	36	36	\$35.38	\$1,274

Bands & Gaskets: one ft extra included in length to account for band cost.

Culvert total = \$15,528

V. STRUCTURES

Description	Type	No.	Cost/each	Sub-total
				\$0

NOTES:

Structure total = \$0

Sub-TOTAL = \$132,375

VI. GENERAL EXPENSES:

Overhead & General Exp. Add 8% \$10,590

VII. MOBILIZATION:

Description	\$ per Move	# of Moves	Sub-total
Dump Trucks	100	2	\$200
Grader	400	1	\$400
Compactor	400	1	\$400
Excavator	450	2	\$900
Dozer (D8)	400	1	\$400
Front end loader	400	1	\$400
Rock crusher	\$5,000	1	\$5,000
Drill	\$400	1	\$400
Crane	\$1,000		\$0

Total Mobilization = \$8,100 Mobilization sub-total = \$2,700.00

SHEET TOTAL = \$145,665

Stations: 87.90

By: M. Bell

Sheet 2 of 5

Date: 11/09/15

**ROAD COST ESTIMATE - RECONSTRUCTION
(FOR INTERNAL DNR USE ONLY)**

SALE NAME: Lytle's Leg

CONTRACT NUMBER: 30-092744

I. CLEARING AND GRUBBING:

	Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/Station	Width Factor	Total Stations	Sub Total
C-0410		10	20	1.00	2.00	\$40	1.0	4.50	\$360
C-0411		10	20	1.00	2.00	\$40	1.0	3.80	\$304
0				1.00	1.00			0.00	\$0
0				1.00	1.00			0.00	\$0
0				1.00	1.00			0.00	\$0

Clear and Grub TOTAL = \$664

II. EXCAVATION:

	Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/Station	Width Factor	Total Stations	Sub Total
C-0410		10	1.0	1.50	\$88	1.00	4.50	\$594
C-0411		10	1.0	1.50	\$88	1.00	3.80	\$502
0		0		1.00			0.00	\$0
0		0		1.00			0.00	\$0
0				1.00			0.00	\$0

*End Haul, Over Haul, Large Fills/Cuts

End Haul/ Over Haul
Large Fills/ Cuts

Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
			\$0
			\$0

Excavation TOTAL = \$1,096

III. BALLAST AND SURFACING :

Ballast source 1: Upper Lytles
Ballast source 2: Upper Lytles
Riprap source : Upper Lytles

UNIT COSTS	Upper Lytles		Upper Lytles
	Ballast 1	Surface	Riprap
Drill & Shoot	\$1.50	\$1.50	\$0.00
Dig and load	\$0.50	\$0.50	\$0.75
Crushing	\$3.75	\$4.70	\$0.00
Purchase			
Haul *	\$1.89	\$1.89	\$1.89
Spread	\$0.80	\$0.80	\$0.75
Compact	\$0.45	\$0.45	\$0.00
Strip			
Reclamation			
Use tax	\$0.71	\$0.79	\$0.27
TOTAL (\$/cy)	\$9.60	\$10.63	\$3.66

Description	cu.yds/sta	x sta	x compaction factor	= cubic yds
Required Ballast 1 (4"-)			1.30	0
Required Surface (1-1/2"-)			1.30	0
Riprap/Quarry Spalls	1		1.30	1

* Haul Formula: (R.T.Miles/MPH+Delay)/(\$/hr / Cy/load)

	Ballast 1	Ballast 2
R.T. Miles =	1.8	
Ave. Speed =	15.0	15.0
Delay (Hrs.)=	0.1	0.1
Cost / Hour =	\$102.85	\$102.85
CY / Load =	12.0	12.0

Required Ballast 1 (4"-)	0 Cu. yds @	\$9.60 /cu. yd =	\$0
Required Surface (1-1/2"-)	0 Cu. yds @	\$10.63 /cu. yd =	\$0
Riprap/Quarry Spalls	1 Cu. yds @	\$3.66 /cu. yd =	\$5

Rock total = \$5

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter (in.)	No/Length (ft)	Installed Cost/ft	Sub-total
	3	PD	18	30	\$20.08	\$1,807
		PD	18	36	\$20.08	\$0
		PD	18	41	\$20.08	\$0
		PD	24	30	\$24.39	\$0
		PD	24	41	\$24.39	\$0
		PD	24	51	\$24.39	\$0
		PD	24	82	\$24.39	\$0
		PD	48	52	\$60.00	\$0

Bands & Gaskets: one ft extra included in length to account for band cost.

\$0

Culvert total = \$1,807

V. STRUCTURES

Description	Type	Width	Length	Cost/ft.	Sub-total
State supplied bridge installation and removal					\$6,000
					\$0
					\$0
					\$0

Structure total = \$6,000

Sub-TOTAL = \$9,572

VI. GENERAL EXPENSES:

Overhead & General Exp. Add 11% \$1,053

VII. MOBILIZATION:

Description	\$ per Move	# of Moves	Sub-total
Dump Trucks	\$100	2	\$200
Grader	\$400	1	\$400
Compactor	\$400	1	\$400
Excavator	\$450	2	\$900
Dozer (D8)	\$400	1	\$400
Front end loader	\$400	1	\$400
Rock crusher	\$5,000	1	\$5,000
Drill	\$400	1	\$400

Total Mobilization = \$8,100 Mobilization sub-total = \$2,700.00

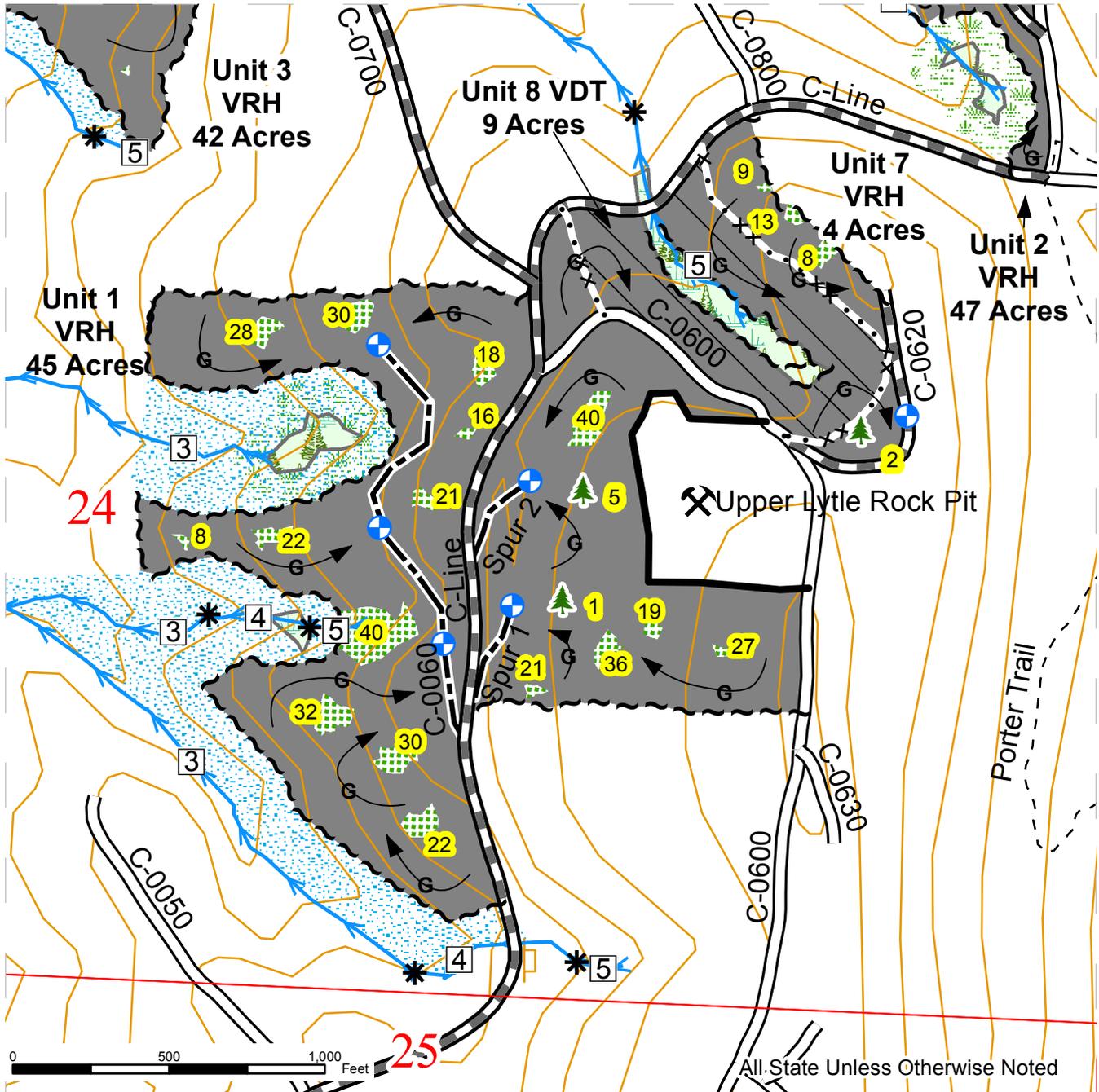
SHEET TOTAL = \$13,324

Stations: 8.30

LOGGING PLAN MAP

SALE NAME: LYTLES LEG VDT & VRH
 AGREEMENT#: 92744
 TOWNSHIP(S): T17R05W
 TRUST(S): State Forest Transfer(1), State Forest Purchase(2), Common School and Indemnity(3), Forest Board Repayment(42)

REGION: South Puget Sound Region
 COUNTY(S): GRAYS HARBOR
 ELEVATION RGE: 758-1485



VRH Units	Orange "Right-of-Way" Tags	Non-Motorized Trail
VDT Units	Rockpit Boundary - Marked w/ Pink Flagging	Contours 40-foot
Leave Tree Area - Marked w/ Yellow "Leave Tree Area" Tags	Blue "Special Mgt Area" Tags	Streams
Riparian Mgt Zone	Existing Road	Designated Skid Trail
Wetland Mgt Zone	Optional Construction	Single Leave Trees - Marked w/ Yellow "Leave Tree Area" Tags
Forested Wetland	Required Construction	Stream Break
White "Timber Sale Boundary" Tags	Required Pre-Haul Maintenance	Stream Type
Ground Logging	Required Reconstruction	Existing Rock Pit
Cable Logging	Non-drivable	Monumented Corners
		Proposed Landings

Prepared By: wjon490

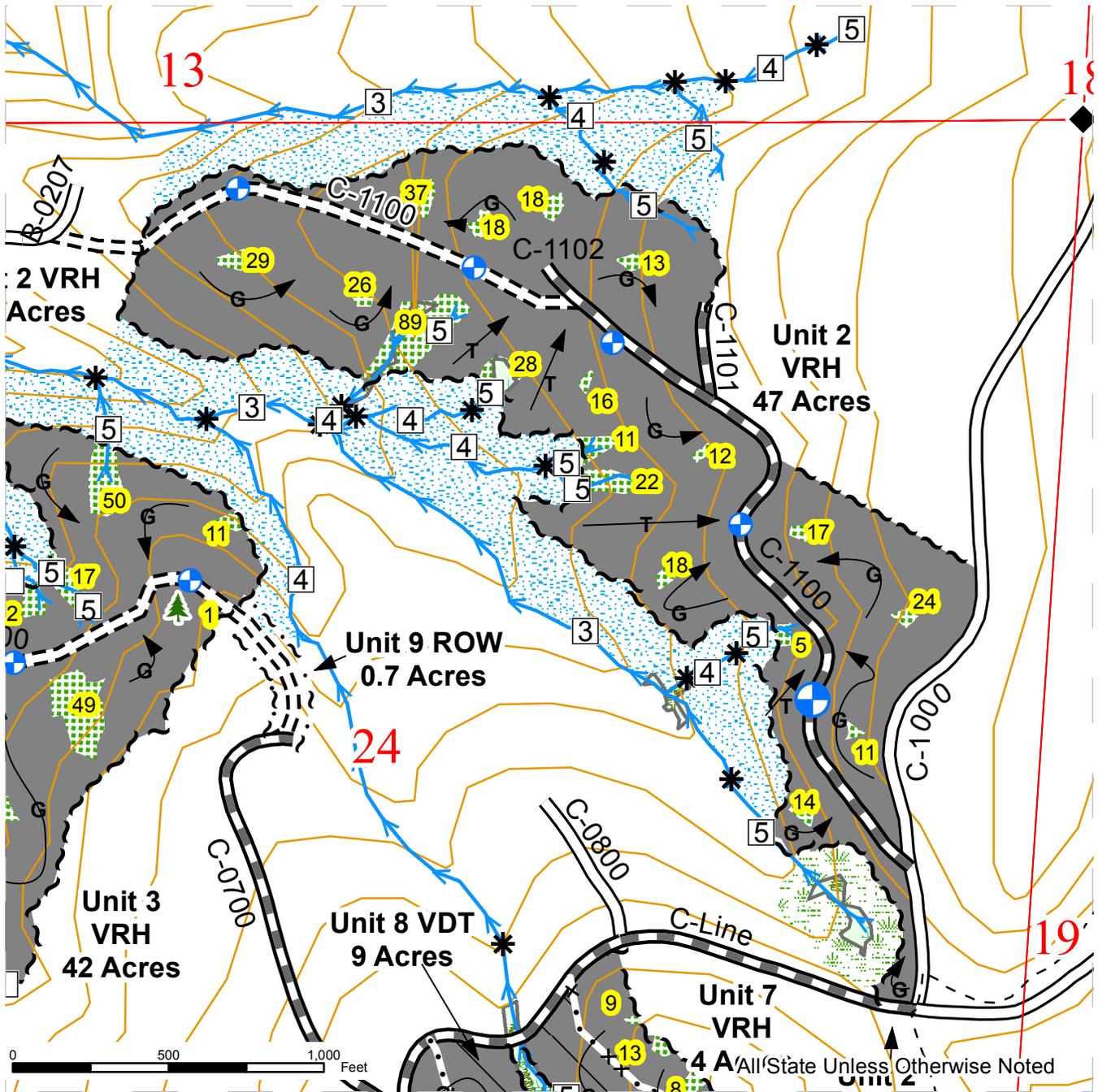
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Modification Date: 2/11/2016

LOGGING PLAN MAP

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 AGREEMENT#: 92744
 TOWNSHIP(S): T17R05W
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REGION: South Puget Sound Region
 COUNTY(S): GRAYS HARBOR
 ELEVATION RGE: 758-1485



VRH Units	Orange "Right-of-Way" Tags	Non-Motorized Trail
VDT Units	Rockpit Boundary - Marked w/ Pink Flagging	Contours 40-foot
Leave Tree Area - Marked w/ Yellow "Leave Tree Area" Tags	Blue "Special Mgt Area" Tags	Streams
Riparian Mgt Zone	Existing Road	Designated Skid Trail
Wetland Mgt Zone	Optional Construction	Single Leave Trees - Marked w/ Yellow "Leave Tree Area" Tags
Forested Wetland	Required Construction	Stream Break
White "Timber Sale Boundary" Tags	Required Pre-Haul Maintenance	Stream Type
Ground Logging	Required Reconstruction	Existing Rock Pit
Cable Logging	Non-drivable	Monumented Corners
		Proposed Landings

Prepared By: wjon490

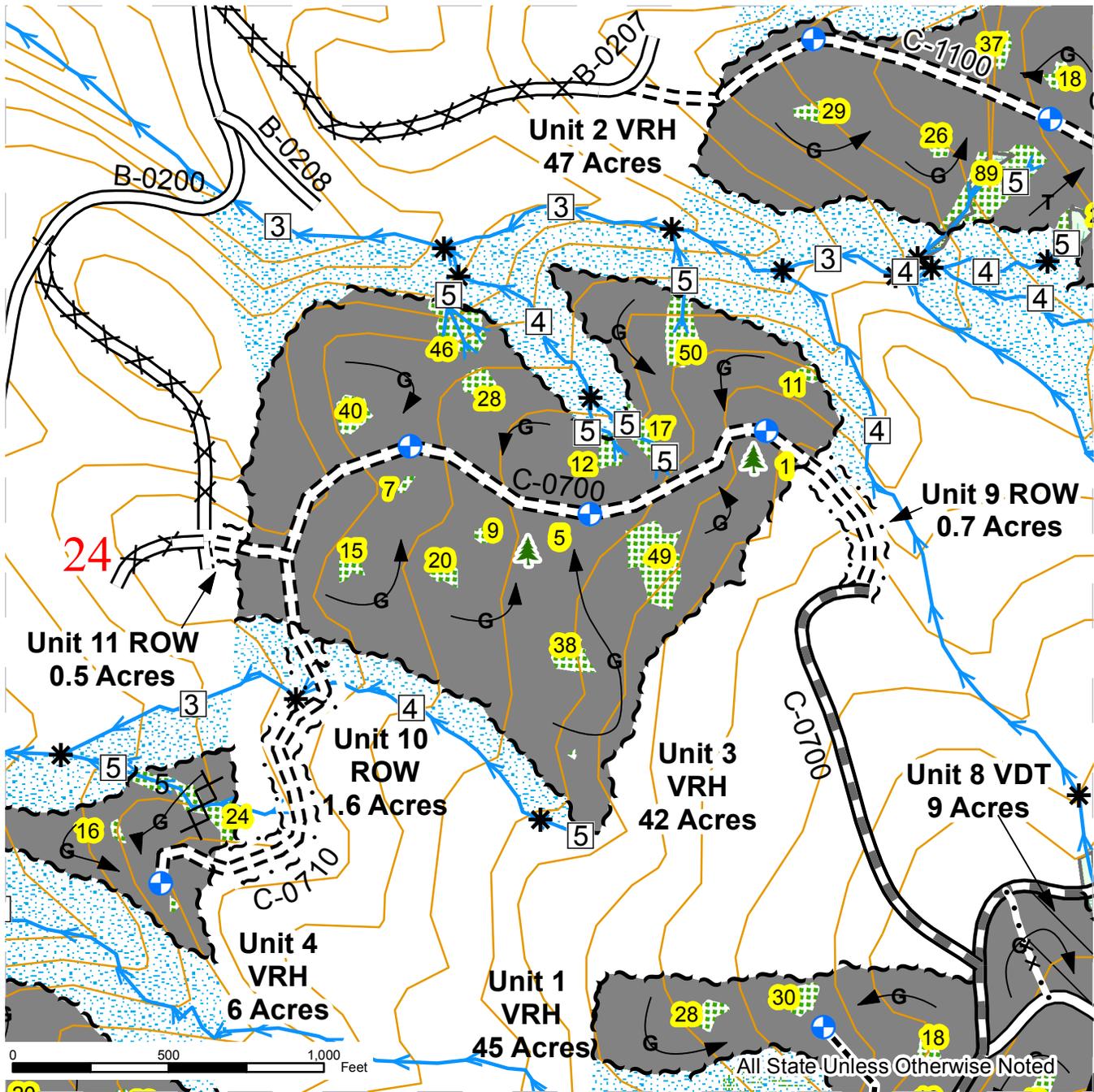
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 TRUST(S): State Forest Transfer(1), State Forest Purchase(2), Common School and Indemnity(3), Forest Board Repayment(42)

REGION: South Puget Sound Region
 COUNTY(S): GRAYS HARBOR
 ELEVATION RGE: 758-1485



VRH Units	Orange "Right-of-Way" Tags	Non-Motorized Trail
VDT Units	Rockpit Boundary - Marked w/ Pink Flagging	Contours 40-foot
Leave Tree Area - Marked w/ Yellow "Leave Tree Area" Tags	Blue "Special Mgt Area" Tags	Streams
Riparian Mgt Zone	Existing Road	Designated Skid Trail
Wetland Mgt Zone	Optional Construction	Single Leave Trees - Marked w/ Yellow "Leave Tree Area" Tags
Forested Wetland	Required Construction	Stream Break
White "Timber Sale Boundary" Tags	Required Pre-Haul Maintenance	Stream Type
Ground Logging	Required Reconstruction	Existing Rock Pit
Cable Logging	Non-drivable	Monumented Corners
		Proposed Landings

Prepared By: wjon490

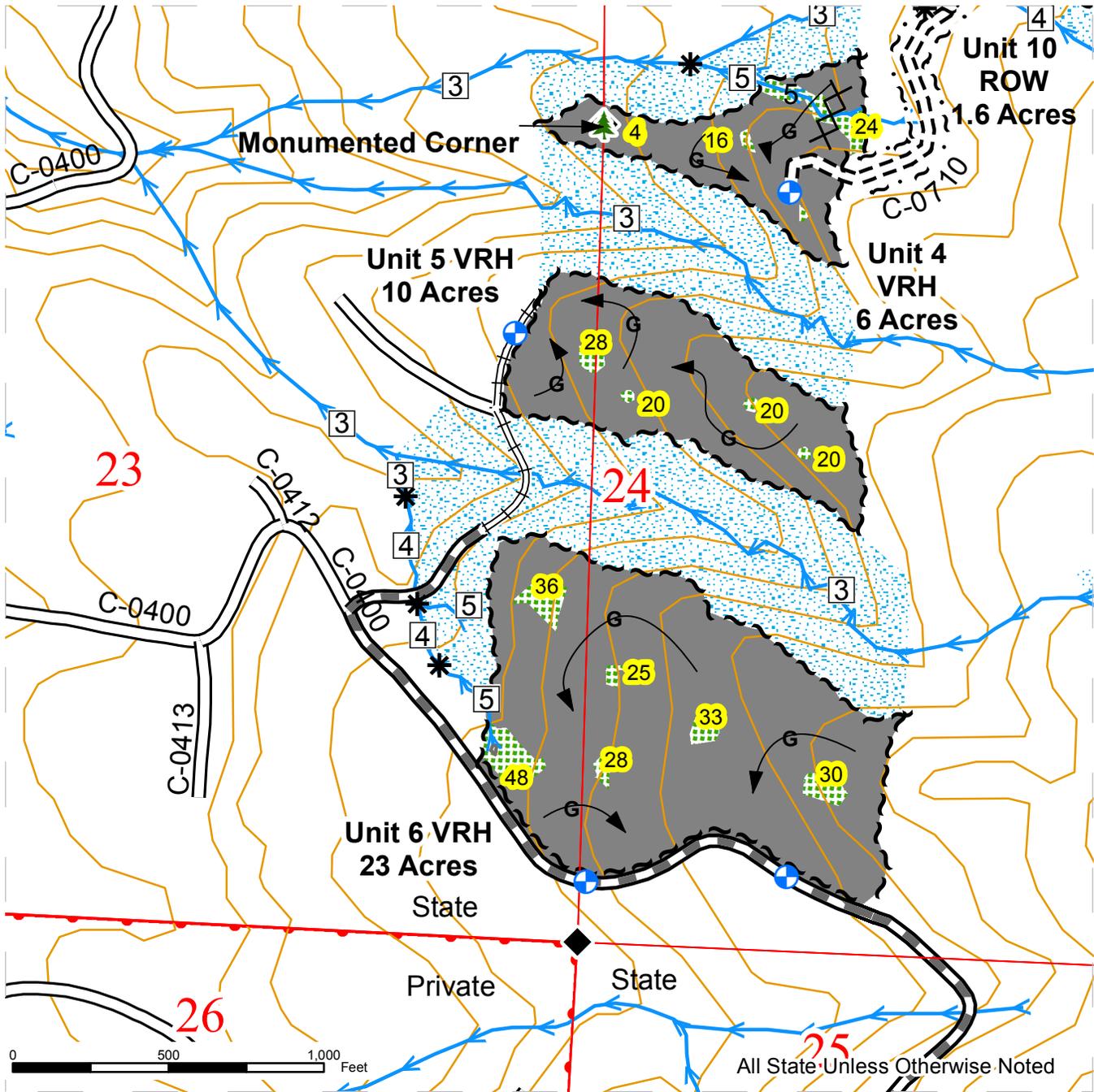
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Modification Date: 2/11/2016

LOGGING PLAN MAP

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 AGREEMENT#: 92744
 TOWNSHIP(S): T17R05W
 TRUST(S): State Forest Transfer(1), State Forest Purchase(2), Common School and Indemnity(3), Forest Board Repayment(42)

REGION: South Puget Sound Region
 COUNTY(S): GRAYS HARBOR
 ELEVATION RGE: 758-1485



VRH Units	Orange "Right-of-Way" Tags	Non-Motorized Trail
VDT Units	Rockpit Boundary - Marked w/ Pink Flagging	Contours 40-foot
Leave Tree Area - Marked w/ Yellow "Leave Tree Area" Tags	Blue "Special Mgt Area" Tags	Streams
Riparian Mgt Zone	Existing Road	Designated Skid Trail
Wetland Mgt Zone	Optional Construction	Single Leave Trees - Marked w/ Yellow "Leave Tree Area" Tags
Forested Wetland	Required Construction	Stream Break
White "Timber Sale Boundary" Tags	Required Pre-Haul Maintenance	Stream Type
Ground Logging	Required Reconstruction	Existing Rock Pit
Cable Logging	Non-drivable	Monumented Corners
		Proposed Landings

Prepared By: wjon490

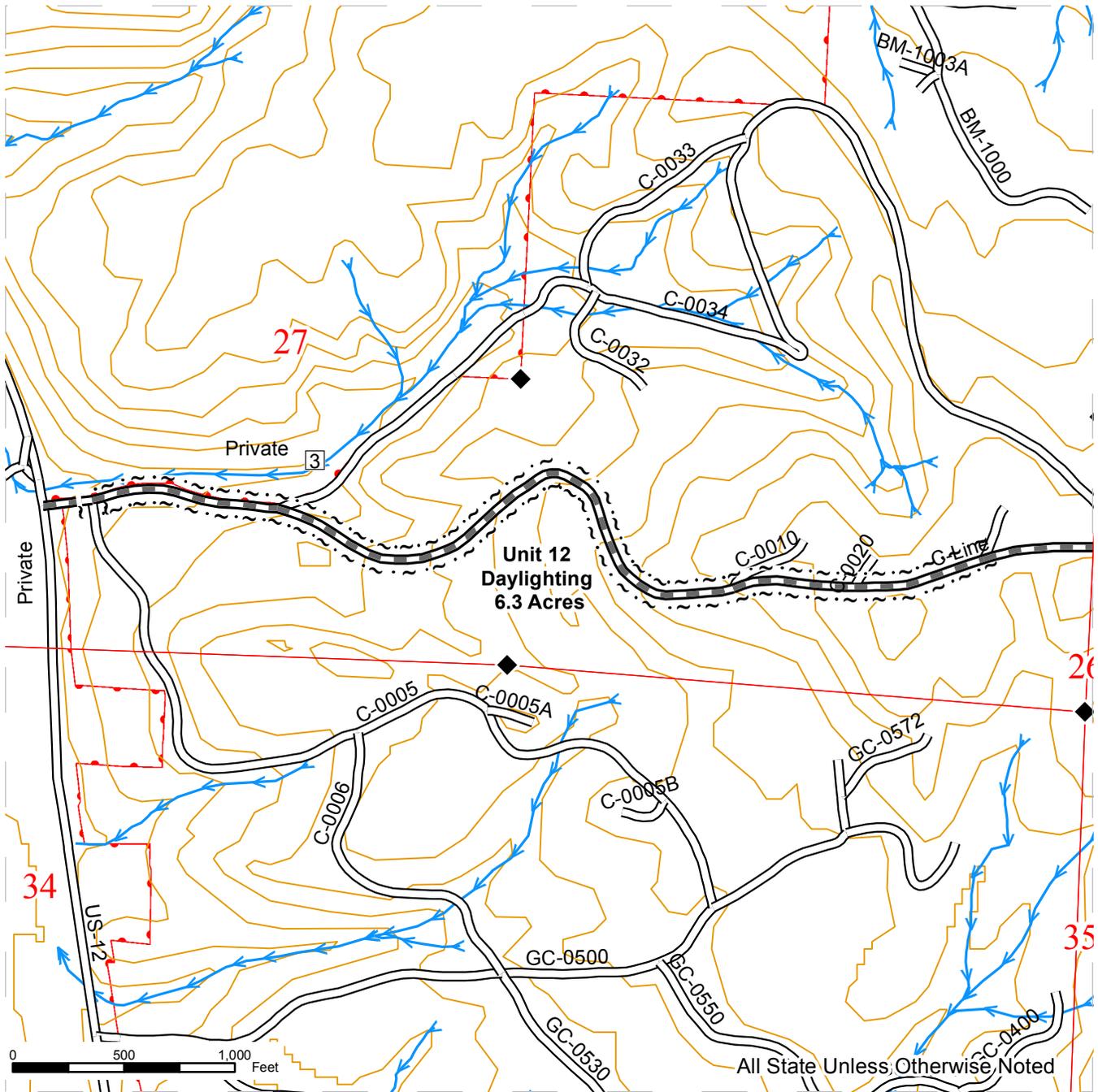
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SALE NAME: LYTLES LEG VDT & VRH
AGREEMENT#: 92744
TOWNSHIP(S): T17R05W
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REGION: South Puget Sound Region
COUNTY(S): GRAYS HARBOR
ELEVATION RGE: 758-1485



VRH Units	Orange "Right-of-Way" Tags	Non-Motorized Trail
VDT Units	Rockpit Boundary - Marked w/ Pink Flagging	Contours 40-foot
Leave Tree Area - Marked w/ Yellow "Leave Tree Area" Tags	Blue "Special Mgt Area" Tags	Streams
Riparian Mgt Zone	Existing Road	Designated Skid Trail
Wetland Mgt Zone	Optional Construction	Single Leave Trees - Marked w/ Yellow "Leave Tree Area" Tags
Forested Wetland	Required Construction	Stream Break
White "Timber Sale Boundary" Tags	Required Pre-Haul Maintenance	Stream Type
Ground Logging	Required Reconstruction	Existing Rock Pit
Cable Logging	Non-drivable	Monumented Corners
		Proposed Landings

Prepared By: wjon490

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