

Washington DNR Timber Sales Program

The documents for MOONSTER timber sale have been changed as follows:

Documents amended:

Brief Description	DATE	Initials
Road Plan has been updated. There was a typo in the Typical Section Sheet, however, the work was correctly cost and described elsewhere in the Road Plan.	11/14/16	kw



TIMBER NOTICE OF SALE

SALE NAME: MOONSTER

AGREEMENT NO: 30-093329

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

SALE LOCATION: Sale located approximately 25 miles northeast of Battle Ground

PRODUCTS SOLD AND SALE AREA: All timber, except trees marked with blue paint, trees bound out by yellow Leave Tree Area tags, western red cedar, snags, and all down timber greater than 36 inches in diameter, bound by the following: Timber Sale Boundary tags with pink flashers and reprod in Unit 1; Timber Sale Boundary tags, reprod, the L-1211C road, and property lines marked with white posts and pink flagging in Unit 2; Timber Sale Boundary tags and property lines marked with white posts or carsonite posts and pink flagging in Unit 3; Timber Sale Boundary tags in Unit 4; Right of Way Boundary tags in Unit 5 on part(s) of Sections 10, 13, 14, 23 and 24 all in Township 3 North, Range 4 East, W.M., containing 202 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	17.8	7	3,674				8		2,357	887	403	19
Silver fir	18.7		1,119						657	243	131	88
Red alder	16.2		96						6		74	16
Hemlock	20.9	7	16						8	7	1	
Noble fir	22.1		10						8	2		
Sale Total			4,915									

MINIMUM BID: \$1,273,000.00 **BID METHOD:** Sealed Bids

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

EXPIRATION DATE: October 31, 2019 **ALLOCATION:** Export Restricted

BID DEPOSIT: \$127,300.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Cable and Ground based equipment. This sale is estimated to be 50% shovel yarding and 50% cable yarding. A detailed felling and yarding plan shall be required prior to any harvest activities. Shovel yarding is restricted to slopes of 40% or less. For additional harvest requirements, refer to the H-140 and H-141 clauses in the contract. Ground based yarding and Yarding will not be permitted from October 31 to April 30 unless authorized in writing by the Contract Administrator.

ROADS: 22.84 stations of required construction. 32.92 stations of optional construction. 5.50 stations of optional reconstruction. 212.89 stations of required pre-haul maintenance. 15.15 stations of optional reconstruction. 16.38 stations of required abandonment, and



TIMBER NOTICE OF SALE

5.92 stations of heavy decommissioning and 16.48 stations of light decommission. Rock used in accordance with the quantities in the ROCK LIST under this contract may be obtained at no cost to the Purchaser from the L-1211A Pit, located in Section 14, Township 03 North, Range 04 East, W.M. Additional rock for this sale may be obtained from any commercial pit at the Purchaser's expense. Rock Sources will be subject to written approval by the Contract Administrator before their use. Road construction will not be permitted from September 30 to May 1 unless authorized in writing by the Contract Administrator. The hauling of forest products will not be permitted from September 30 to May 1 unless authorized in writing by the Contract Administrator.

ACREAGE DETERMINATION

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

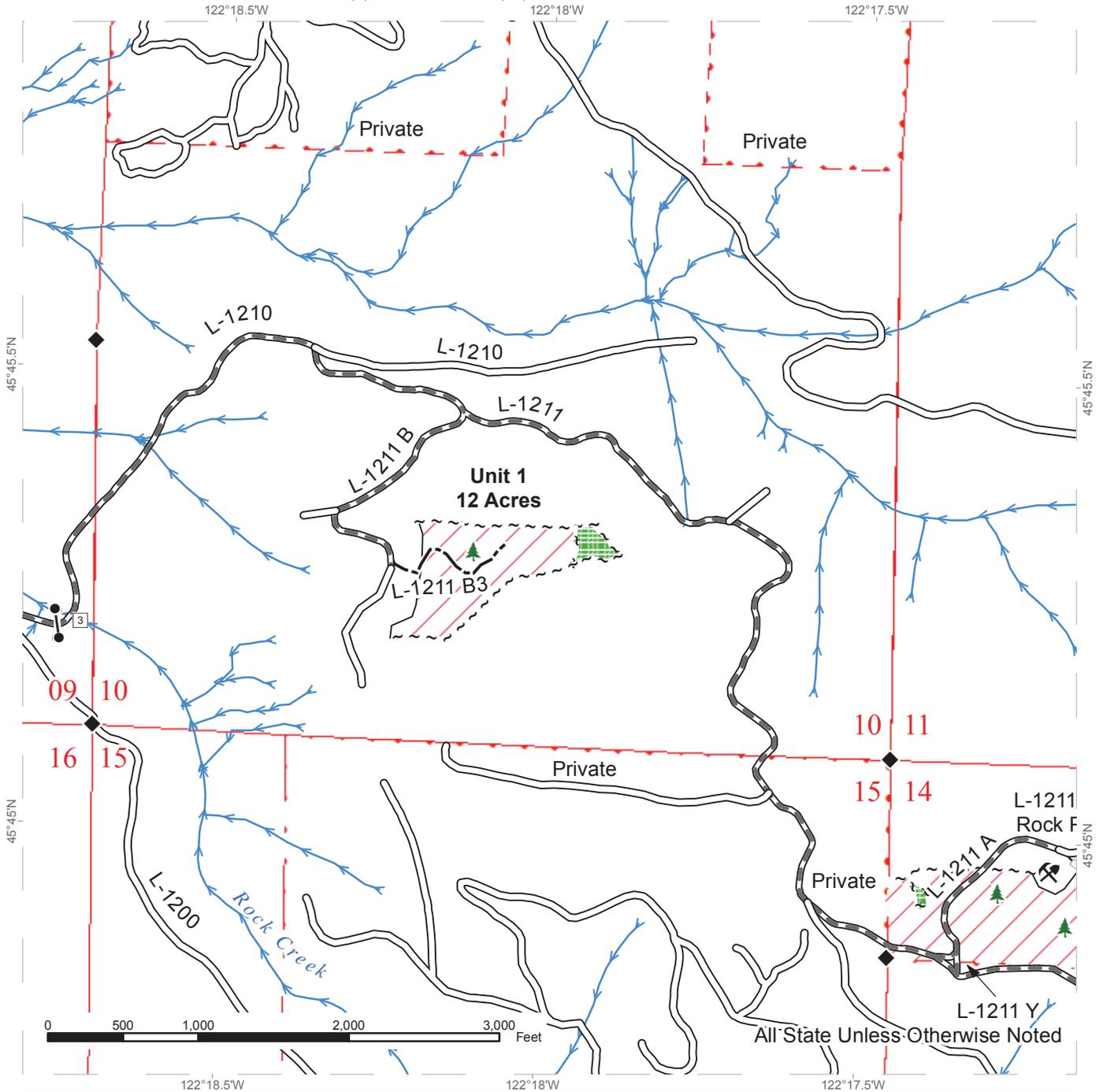
FEES: \$87,300.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: This sale contains an estimated 516 MBF of higher quality DF 2 saw logs, 243 MBF of higher quality DF 3 saw logs, 78 MBF of higher quality SF 2 saw logs, 88 MBF of higher quality SF 3 saw logs, and 6 MBF of higher quality NF 2 saw logs derived from the cruise. This sale was designed with a minimum tower height of 72 feet on all cable settings in Unit 4. Intermediate supports may be required to prevent soil rutting in Unit 4. See driving map for gate locations. PCP 1-1 gate keys may be obtained from the Pacific Cascade Region office.

TIMBER SALE MAP

SALE NAME: MOONSTER
AGREEMENT #: 93329
TOWNSHIP(S): T03R04E
TRUST(S): State Forest Transfer(1), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): CLARK
ELEVATION RGE: 1587-3088



All State Unless Otherwise Noted

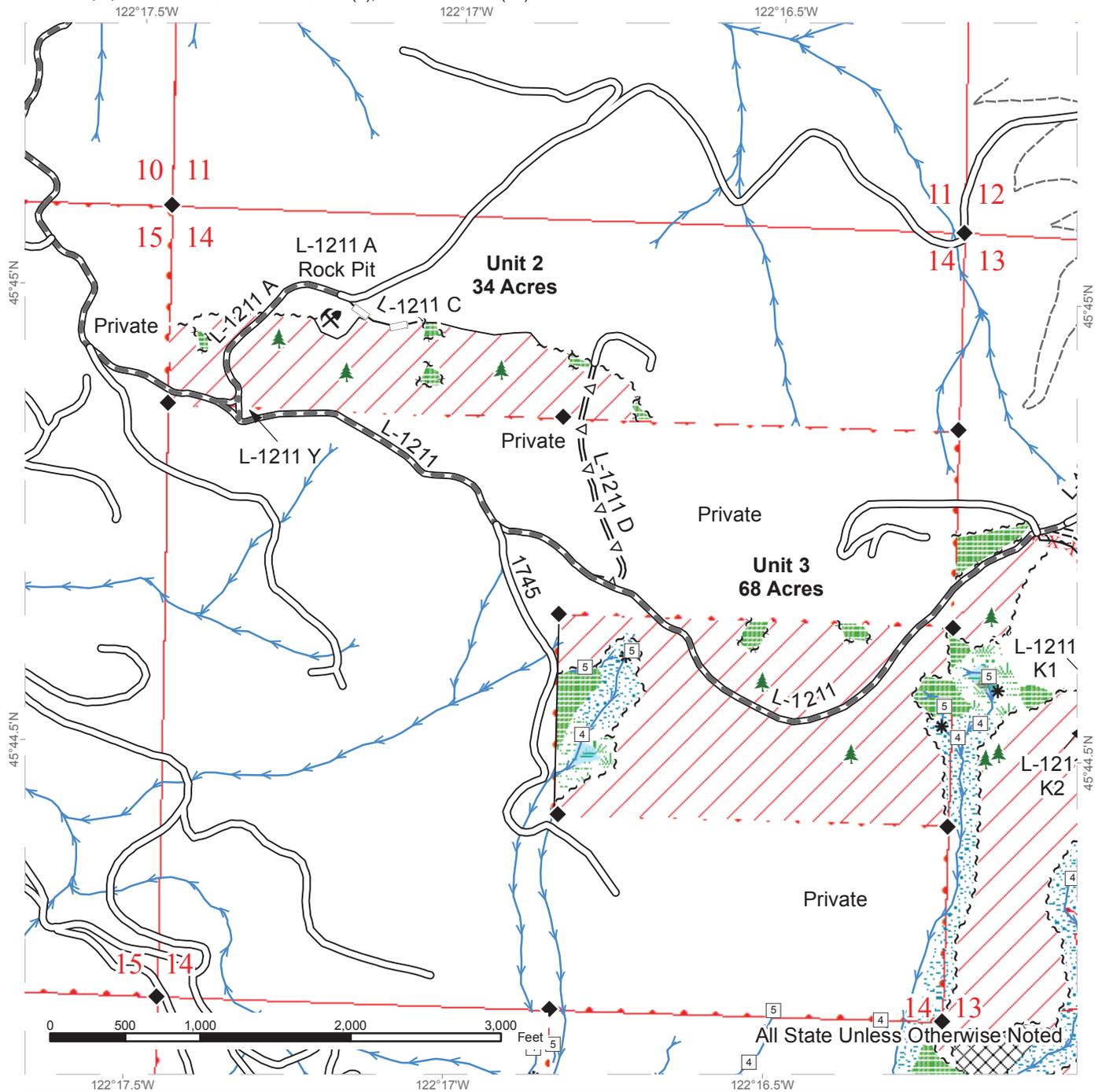
Variable Retention Harvest	Right of Way Tags	Streams
Leave Tree Area	Reprod	Stream Type
Sale Boundary Tags	Property Line	Stream Type Break
Leave Tree Tags	Existing Roads	Monumented Corners
	Required Pre-Haul Maintenance	Leave Trees
	Optional Construction	Gate (PCP 1-1)
	Optional Reconstruction	Existing Rock Pit



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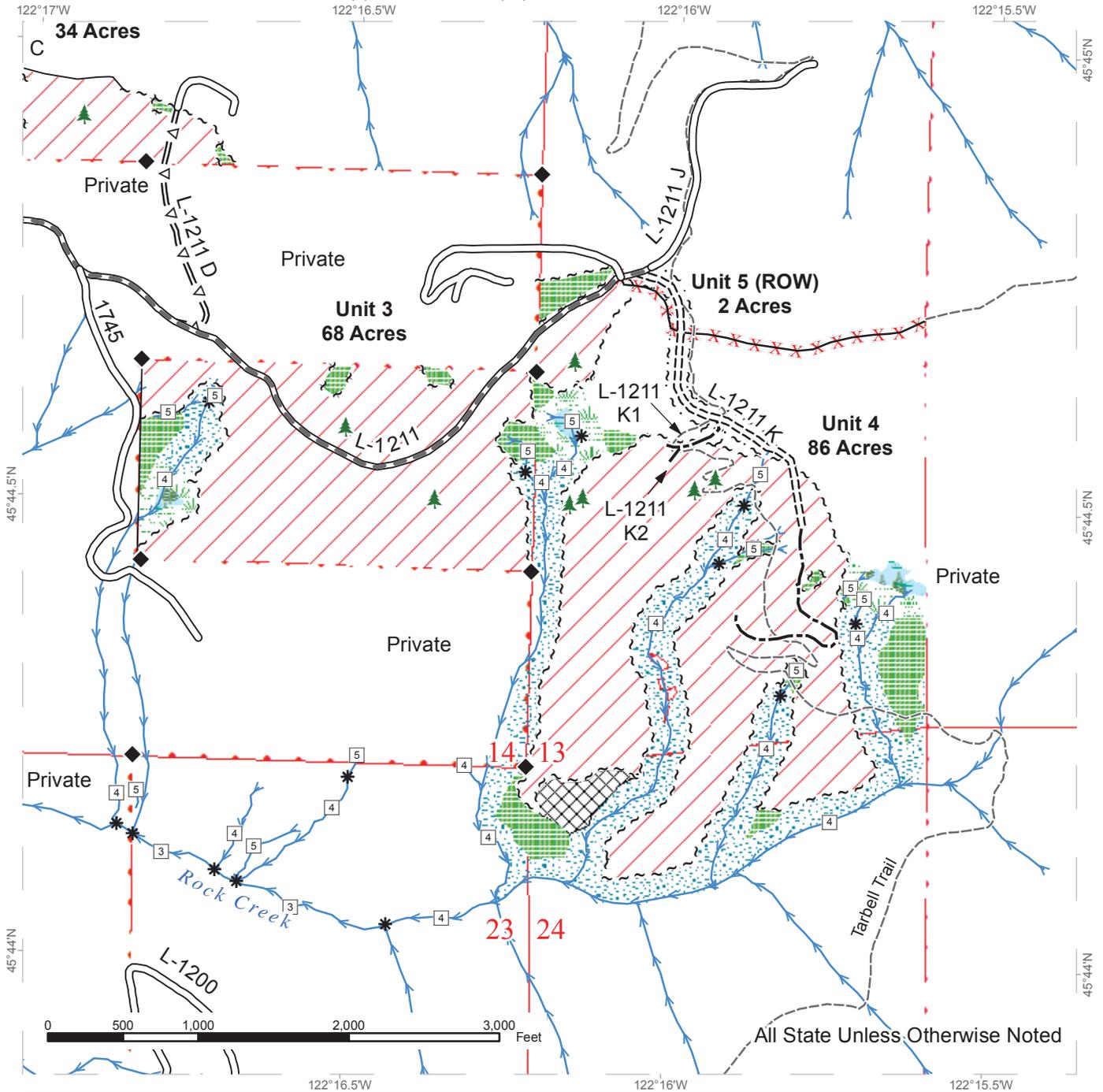


Variable Retention Harvest	Right of Way Tags	Streams
Leave Tree Area	Reprod	Stream Type
Riparian Mgt Zone	Property Line	Stream Type Break
Wetland Mgt Zone	Existing Roads	Monumented Corners
Forested Wetland	Required Pre-Haul Maintenance	Leave Trees
Talus	Required Construction	Existing Rock Pit
Slope Stability Mitigation Zone	Required Decommission	
Sale Boundary Tags	Optional Reconstruction	
Leave Tree Tags	Optional Pre-Haul Maintenance	
	Old Grades/Trails	

TIMBER SALE MAP

SALE NAME: MOONSTER
AGREEMENT #: 93329
TOWNSHIP(S): T03R04E
TRUST(S): State Forest Transfer(1), Scientific School(10)

REGION: Pacific Cascade Region
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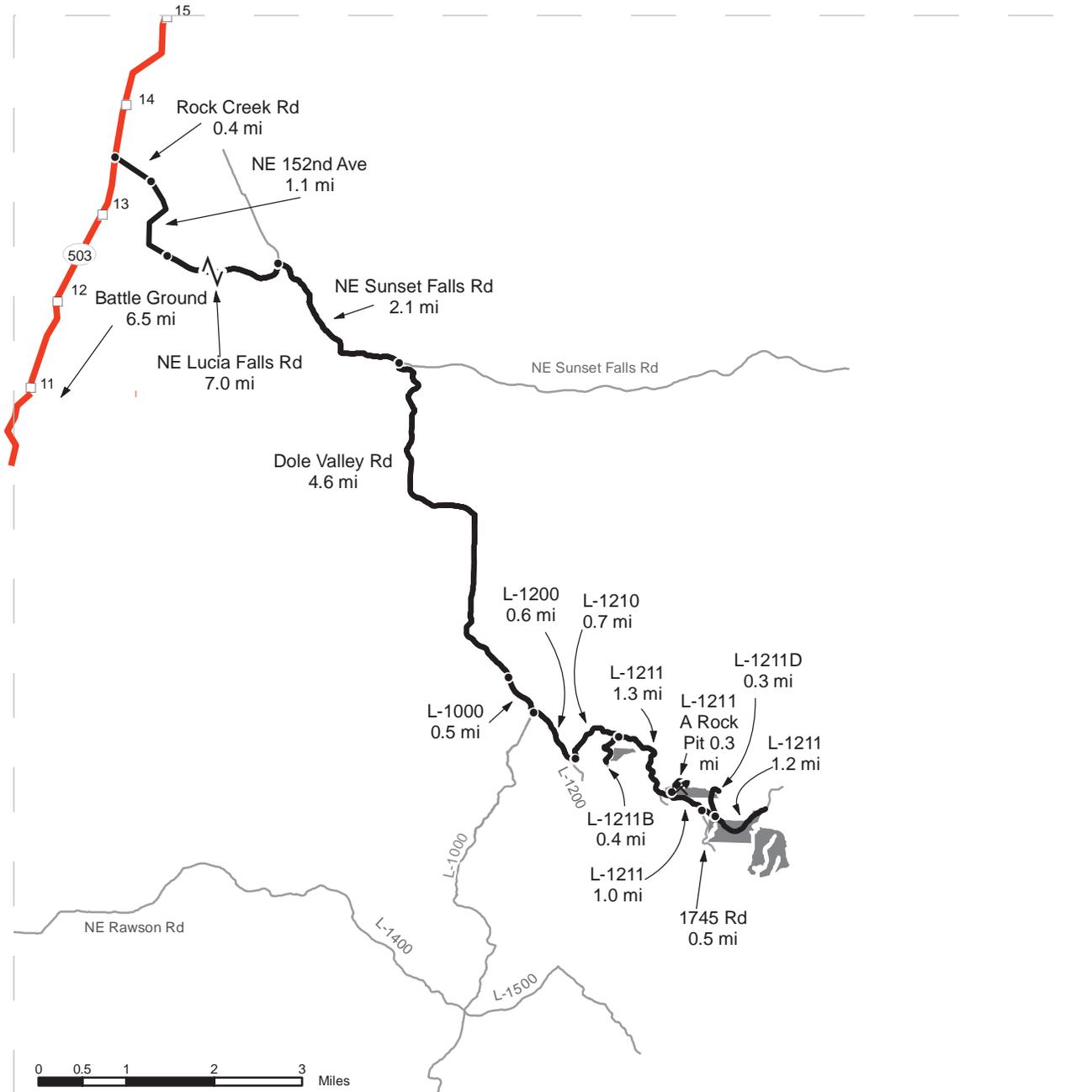
Variable Retention Harvest	Right of Way Tags	Streams
Leave Tree Area	Reprod	Stream Type
Riparian Mgt Zone	Property Line	Stream Type Break
Wetland Mgt Zone	Existing Roads	Monumented Corners
Forested Wetland	Required Pre-Haul Maintenance	Leave Trees
Talus	Required Construction	
Slope Stability Mitigation Zone	Required Decommission	
Sale Boundary Tags	Optional Construction	
Leave Tree Tags	Optional Pre-Haul Maintenance	
	Old Grades/Trails	



DRIVING MAP

SALE NAME: MOONSTER
AGREEMENT#: Not Defined.
TOWNSHIP(S): T03R04E
TRUST(S): State Forest Transfer(1), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): CLARK
ELEVATION RGE: 1577-3088



DRIVING DIRECTIONS:

	Harvest Area
	Highways
	Haul Route
	Other Route
	Milepost Markers
	Existing Rock Pit

From State Route 503 (milepost 13.5) turn east on Rock Creek Rd. and follow for 0.4 miles.
 Rock Creek Rd. becomes NE 152nd Ave; continue for 1.1 miles.
 At the stop, stay straight on NE Lucia Falls Rd; continue for 7 miles.
 Turn right (southeast) on NE Sunset Falls Rd for 2.1 miles.
 Turn right (south) onto Dole Valley Rd. for 4.6 miles.
 Dole Valley Rd becomes the L-1000; continue for 0.5 miles.
 Turn left (southeast) on the L-1200 for 0.6 miles, then turn left (northeast) on the L-1210 for 0.7 miles.
 Turn right (southeast) on the L-1211.

To access Unit 1 turn right (south) on the L-1211 B for 0.4 miles.
 Continuing straight on the L-1211 will provide direct access to Units 2 and 3, the Tarbell Trail which can be used to access Unit 4, and the L-1211 A which provides access to the L-1211 A Rock Pit.

**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

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

Export Restricted Lump Sum AGREEMENT NO. 30-093329

SALE NAME: MOONSTER

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

Section G: General Terms

G-001 Definitions

The following definitions apply throughout this contract;

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

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

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

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

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

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

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

G-011 Right to Remove Forest Products and Contract Area

Purchaser was the successful bidder on November 17, 2016 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber, except trees marked with blue paint, trees bound out by yellow Leave Tree Area tags, western red cedar, snags, and all down timber greater than 36 inches in diameter, bound by the following: Timber Sale Boundary tags with pink flashers and reprod in Unit 1; Timber Sale Boundary tags, reprod, the L-1211C road, and property lines marked with white posts and pink flagging in Unit 2; Timber Sale Boundary tags and property lines marked with white posts or carsonite posts and pink flagging in Unit 3; Timber Sale Boundary tags in Unit 4; Right of Way Boundary tags in Unit 5, located on approximately 202 acres on part(s) of Sections 10, 13, 14, 23, and 24 all in Township 3 North, Range 4 East W.M. in Clark County(s) as designated on the sale area and as shown on the attached timber sale map.

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

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

G-020 Inspection By Purchaser

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

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to October 31, 2019.

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 \$652.00 per acre per annum for the acres on which an operating release has not been issued in all units.
- 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-111 Title and Risk of Loss

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

G-116 Sustainable Forestry Initiative® (SFI) Certification

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

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

G-120 Responsibility for Work

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

G-121 Exceptions

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

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

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

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

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

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

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

G-140 Indemnity

To the fullest extent permitted by law, Purchaser shall indemnify, defend and hold harmless State, agencies of State and all officials, agents and employees of State, from and against all claims arising out of or resulting from the performance of the contract. "Claim" as used in this contract means any financial loss, claim, suit, action, damage, or expense, including but not limited to attorneys' fees, attributable for bodily injury, sickness, disease or death, or injury to or destruction of tangible property including loss of use resulting therefrom. Purchasers' obligations to indemnify, defend, and hold

harmless includes any claim by Purchasers' agents, employees, representatives, or any subcontractor or its employees. Purchaser expressly agrees to indemnify, defend, and hold harmless State for any claim arising out of or incident to Purchasers' or any subcontractors' performance or failure to perform the contract. Purchasers' obligation to indemnify, defend, and hold harmless State shall not be eliminated or reduced by any actual or alleged concurrent negligence of State or its agents, agencies, employees and officials. Purchaser waives its immunity under Title 51 RCW to the extent it is required to indemnify, defend and hold harmless State and its agencies, officials, agents or employees.

G-150 Insurance

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

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

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

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

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

Purchaser shall include all subcontractors as insured under all required insurance policies, or shall furnish separate certificates of insurance and endorsements for each subcontractor. Subcontractor(s) must comply fully with all insurance requirements

stated herein. Failure of subcontractor(s) to comply with insurance requirements does not limit Purchaser's liability or responsibility.

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

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

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

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

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

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

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

Workers' Compensation Coverage. Purchaser shall comply with all State of Washington workers' compensation statutes and regulations. Workers' compensation coverage shall be provided for all employees of Purchaser and employees of any subcontractor or sub-subcontractor. Coverage shall include bodily injury (including

death) by accident or disease, which exists out of or in connection with the performance of this contract. Except as prohibited by law, Purchaser waives all rights of subrogation against State for recovery of damages to the extent they are covered by workers' compensation, employer's liability, commercial general liability, or commercial umbrella liability insurance.

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

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

G-160 Agents

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

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

G-170 Assignment and Delegation

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

G-180 Modifications

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

G-190 Contract Complete

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

G-200 Notice

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

G-210 Violation of Contract

G-220 State Suspends Operations

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

G-210 Violation of Contract

- a. If Purchaser violates any provision of this contract, the Contract Administrator, by written notice, may suspend those operations in violation. If the violation is capable of being remedied, Purchaser has 30 days after receipt of a suspension notice to remedy the violation. If the violation cannot be remedied (such as a violation of WAC 240-15-015) or Purchaser fails to remedy the violation within 30 days after receipt of a suspension notice, the State may terminate the rights of Purchaser under this contract and collect damages.
- b. If the contract expires pursuant to clause G-030 or G-031 without Purchaser having performed all its duties under this contract, Purchaser's right to operate is terminated and Purchaser shall not have the right to remedy the breach. This provision shall not relieve Purchaser of any payment obligations.
- c. The State has the right to remedy the breach in the absence of any indicated attempt by Purchaser or if Purchaser is unable, as determined by the State, to remedy the breach. Any expense incurred by the State shall be charged to Purchaser and shall be paid within 30 days of receipt of billing.
- d. If Purchaser's violation is a result of a failure to make a payment when due, in addition to a. and b. above, interest shall accrue on the unpaid balance at 12 percent per annum, beginning the date payment was due.

G-220 State Suspends Operation

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

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

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

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

G-230 Unauthorized Activity

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

G-240 Dispute Resolution

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

- a. In the event of a dispute, Purchaser must make a written request to the Region Manager for resolution prior to seeking other relief.
- b. The Region Manager will issue a written decision on Purchaser's request within ten business days.
- c. Within ten business days of receipt of the Region Manager's decision, Purchaser may make a written request for resolution to the Deputy Supervisor - Uplands of the Department of Natural Resources.

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

G-250 Compliance with All Laws

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

G-260 Venue

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

G-270 Equipment Left on State Land

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

G-280 Operating Release

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

G-310 Road Use Authorization

Purchaser is authorized to use the following State roads and roads for which the State has acquired easements and road use permits; the L-1000, L-1200, L-1210, L-1211, L-1211A, L-1211B, L-1211B3, L-1211C, L-1211D, L-1211J, L-1211K, L-1211K1, L-1211K2, L1211Y roads. The State may authorize in writing the use of other roads subject to fees, restrictions, and prior rights.

G-330 Pre-work Conference

Purchaser shall arrange with the Contract Administrator to review this contract and to examine the sale area before beginning any operations. A plan of operations shall be developed and agreed upon by the Contract Administrator and Purchaser before

beginning any operations. To the extent that the plan of operations is inconsistent with the contract, the terms of the contract shall prevail. State's acceptance and approval of Purchaser's plan of operations shall not be construed as any statement or warranty that the plan of operations is adequate for Purchaser's purposes or complies with applicable laws.

G-340 Preservation of Markers

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

G-360 Road Use Reservation

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

G-370 Blocking Roads

Purchaser shall not block the L-1000, L-1200 or the L-1210 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 Exchange between Longview Timberlands LLC and the State dated: June 26, 2013. Termination date: Indefinite.

G-430 Open Fires

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

G-450 Encumbrances

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

Easement, including the terms and provisions thereof,

For: Road

In Favor of: Burlington Northern Inc.

Disclosed by Application No.: 50-033876

Granted: 4/8/1970

Expires: Indefinite

Easement, including the terms and provisions thereof,
 For: Trail
 In Favor of: WA State Department of Natural Resources
 Disclosed by Application No.: 50-038445
 Granted: 6/25/1975
 Expires: 6/24/2025

Easement, including the terms and provisions thereof,
 For: Road
 In Favor of: Longview Timberlands LLC
 Disclosed by Application No.: 50-089365
 Granted: 6/26/2013
 Expires: Indefinite

Lease, including the terms and provisions thereof,
 For: Minor Forest Products
 In Favor of: WA State Department of Natural Resources – Pacific Cascade Region
 Disclosed by Application No.: 35-RP0006
 Granted: 3/9/1993
 Expires: Indefinite

Special Notations

- Unit 7 ROW is located on private land in the SW¹/₄SE¹/₄ of S14 T3N R4E.
- Portions are within the Gifford Pinchot Road Right-of-Way Construction & Use Agreement area (92-084239).

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 \$131,535.00. The total contract price consists of a \$0.00 contract bid price plus \$131,535.00 in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause. Purchaser shall be liable for the entire purchase price, and will not be entitled to any refunds or offsets unless expressly stated in this contract.

THE PURCHASE PRICE SHALL NOT BE AFFECTED BY ANY FACTORS, INCLUDING: the amount of forest products actually present within the contract area, the actual acreage covered by the contract area, the amount or volume of forest

products actually cut or removed by purchaser, whether it becomes physically impossible or uneconomic to remove the forest products, and whether the subject forest products have been lost or damaged by fire or any other cause. The only situations Purchaser may not be liable for the full purchase price are governed by clause G-066, concerning governmental regulatory actions taken during the term of the contract.

P-045 Guarantee of Payment

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

P-050 Billing Procedure

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

P-080 Payment Account Refund

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

P-090 Performance Security

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

P-100 Performance Security Reduction

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

Section H: Harvesting Operations

H-010 Cutting and Yarding Schedule

Yarding will not be permitted from October 31 to April 30 unless authorized in writing by the Contract Administrator.

H-016 Skid Trail Requirements

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

Purchaser shall comply with the following during the yarding operation:

- a. A skid trail will not exceed 14 feet in width, including rub trees.
- b. Skid trails shall not cover more than 5 percent of the total acreage on one unit.
- c. Location of the skid trails must be marked by Purchaser and approved by the Contract Administrator.
- d. Except for rub trees, skid trails shall be felled and yarded prior to the felling of adjacent timber.
- e. Rub trees shall be left standing until all timber tributary to the skid trail has been removed.
- f. Excessive soil damage is not permitted. Excessive soil damage is described in clause H-017.
- g. Purchaser will not have more than two skid trails open to active skidding at any one time. All other skid trails used for skidding timber will be closed.
- h. Once a skid trail is closed, Purchaser will not reopen a skid trail unless approved in writing by the Contract Administrator.
- i. Skid trails will be water barred at the time of completion of yarding, if required by the Contract Administrator.

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

H-017 Preventing Excessive Soil Disturbance

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

H-035 Fall Trees Into Sale Area

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

H-040 Purchaser Harvest Plan

Purchaser shall, as part of the plan of operations, prepare an acceptable harvest plan for all units. The plan shall address the felling and yarding operations, the H-140 and H-141 clauses, 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 using cable systems and ground based systems: shovel, forwarder, and tracked skidder 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. If optional cable corridor in Unit 4 is utilized full suspension must be maintained through the entire RMZ.

H-126 Tailholds on State Land

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

H-127 Tailholds on Private Land

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

H-130 Hauling Schedule

The hauling of forest products will not be permitted on all roads from September 30 to May 1 unless authorized in writing by the Contract Administrator .

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

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

No operations shall occur on any weekends, State recognized holidays, or from 7 p.m. to 7 a.m. on weekdays within Unit 4.

Ground based yarding equipment will not be permitted on slopes over 40%.

No western redcedar shall be cut unless authorized by the Contract Administrator.

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

This sale was designed with a minimum tower height of 72 feet on all cable settings in Unit 4.

Intermediate supports may be required to prevent soil rutting in Unit 4 off the L-1211 K road.

Purchaser will be given the option to cable yard through a Type 4 RMZ in Unit 4. The location of the yarding corridor will avoid the "Slope Stability Mitigation Area" shown on the Timber Sale Map and be approved in writing by the Contract Administrator. The yarding corridor will be minimized in width and trees cut or damaged during operations will remain on site as live trees, snags, or down woody debris. Full suspension will be required in the inner zone of the RMZ and lead end suspension will be required in the middle and outer zones. Any debris that could block or divert a portion of the stream shall be removed.

Slash piles generated on Private land shall be disposed of in a manner approved by the Contract Administrator.

TARBELL TRAIL SPECIAL REQUIREMENTS:

- 1) The Purchaser shall post the trail closed with warning signs, and provide a watch person when harvest operations occur within 200 feet of the trail.
- 2) Tarbell Trail closures will be posted by the Purchaser prior to operations at each end of the harvest unit and at the nearest junction with another trail or road. Posting will include the date posted, closure periods, and anticipated

reopening. Closure signs will be maintained by the Purchaser during the sale and will be removed after approval of the final trail cleaning following harvest.

- 3) The Tarbell Trail shall remain in a usable condition for weekend and holiday use when cable yarding operations are not active.
- 4) The trail, any trail structures and drainage will be repaired to pre-harvest conditions within 15 days of the completion of harvest activities.
- 5) No slash piles shall be left within 25 feet of either side of the trail.
- 6) Cable yarding corridors that cross the Tarbell Trail are subject to approval by the Contract Administrator.

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

H-141 Additional Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

Within shovel logging areas, the shovel operator shall break up concentrations of logging debris greater than 10 feet by 10 feet to allow exposure of natural forest soils to ensure proper reforestation.

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-250 Additional Falling Requirements

Within all units, all live stems of hardwood species greater than 2 inches DBH or over 10 feet tall, shall be felled concurrently with felling operations. 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 1/26/2016 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on the L-1210, L-1211, L-1211A L-1211B, L-1211B3, L-1211C, L-1211D, L-1211J, L-1211K, L-1211K1, L-1211K2, L-1211Y, 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 L-1000 and L-1200. 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-100 Landing Location Restricted

Landing locations are restricted to those shown on the timber sale map unless otherwise authorized in writing by the Contract Administrator.

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 ground based equipment may operate within the 30-foot Equipment Limitation Zone of any Type 5 stream unless authority is granted in writing by the Contract Administrator.

S-120 Stream Protection

No timber shall be felled into, across, or yarded through No timber shall be felled into, across, or yarded through any Typed stream except the designated equipment crossings in Units 4 and 8 and the designated stream crossing in Unit 4.

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.

S-150 Recreation Trail Cleanout

At the completion of logging operations in Unit 4, Purchaser shall repair any damage to and clean out all logging debris from recreational trail(s).

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 and leave tree areas.

DRAFT

DRAFT

DRAFT

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

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Purchaser

Eric Wisch
Pacific Cascade Region Manager

Date: _____
Address: _____

Date: _____

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

STATE OF _____)

COUNTY OF _____)

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

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

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

Notary Public in and for the State of

My appointment expires _____



WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

FOREST EXCISE TAX ROAD SUMMARY SHEET

Region: Pacific Cascade

Timber Sale Name: MOONSTER

Application Number: 30- 093329

EXCISE TAX APPLICABLE ACTIVITIES

Construction: 4,668 linear feet
Road to be constructed (optional and required) but not abandoned

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

Abandonment: 180 linear feet
Abandonment of existing roads not reconstructed under the contract

Decommission: 2,240 linear feet
Road to be made undriveable but not officially abandoned.

Pre-Haul Maintenance: 22,804 linear feet
Existing road to receive maintenance work (specifically required by the contract) prior to haul

EXCISE TAX EXEMPT ACTIVITIES

Temporary Optional Construction: 908 linear feet
Optional roads to be constructed and then abandoned

Temporary Optional Reconstruction: 550 linear feet
Optional roads to be reconstructed and then abandoned

New Abandonment: 1,458 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 6/13)

PRE-CRUISE NARRATIVE

Sale Name: Moonster	Region: Pacific Cascade
Agreement #: 30-093329	District: Yacolt
Contact Forester: Doug Serrine Phone / Location: (360) 791-6640	County(s): Clark
Alternate Contact: Aaron Nelson Phone / Location: (360) 577-2025	Other information: Click here to enter text.

Type of Sale: Lump Sum	
Harvest System: Uphill Cable	50%
Harvest System: Ground based	50%

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit # Harvest R/W or RMZ WMZ	Legal Description (Enter only one legal for each unit) Sec/Twp/Rng	Grant or Trust	Gross Proposal Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determination (List method and error of closure if applicable)
				RMZ/ WMZ Acres	Leave Tree Acres	Existing Road Acres	Other Acres (Talus and Buffer)		
1	Sec.10 T03N R04E	01	13	-	1	-	-	12	GPS (Trimble)
2	Sec.14 T03N R04E	01, 10	38	-	2	2	-	34	GPS (Garmin)
3	Sec.13,14 T03N R04E	01	92	12	8	4	-	68	GPS (Garmin)
4	Sec.13, 23, 24 T03N R04E	01	154	54	11	-	3	86	GPS (Trimble)
5 (ROW)	Sec.13 T03N R04E	01	2	-	-	-	-	2	GPS (Garmin)
TOTAL ACRES			299	66	22	6	3	202	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1 (VRH)	Unit 1 is bound by reprod marked with pink flagging and mature timber bound by white "Timber Sale Boundary" tags with pink flashers and pink flagging. Clumped leave	Variable Retention Harvest	107 leave trees clumped and scattered.

	trees are bound by yellow "Leave Tree Area" tags, pink flashers, and pink flagging. Individual leave trees are marked with a ring of blue paint.		
2 (VRH)	Unit 2 is bound by reprod and property boundaries marked with pink flagging and mature timber bound by white "Timber Sale Boundary" tags with pink flashers and pink flagging. Clumped leave trees are bound by yellow "Leave Tree Area" tags, pink flashers, and pink flagging. Individual leave trees are marked with a ring of blue paint.	Variable Retention Harvest	296 leave trees clumped and scattered.
3 (VRH)	Unit 3 is bound by property boundaries marked with pink flagging and mature timber bound by white "Timber Sale Boundary" tags with pink flashers and pink flagging. Clumped leave trees are bound by yellow "Leave Tree Area" tags, pink flashers, and pink flagging. Individual leave trees are marked with a ring of blue paint.	Variable Retention Harvest	612 leave trees clumped and scattered.
4 (VRH)	Unit 4 is bound by mature timber bound by white "Timber Sale Boundary" tags with pink flashers and pink flagging. Clumped leave trees are bound by yellow "Leave Tree Area" tags, pink flashers and pink flagging. Individual leave trees are marked with a ring of blue paint.	Variable Retention Harvest	778 leave trees clumped and scattered.
5 (ROW)	Unit boundary is defined by orange "Right-of-Way Boundary" tags and orange flashers.	Right-of-Way Harvest	

OTHER PRE-CRUISE INFORMATION:

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
1	DF,RA / 778 MBF	Unit is accessed via the L-1211 B off of the L-1211.	Logging Plan\ Cruise Maps and Driving Map
2	DF,SF / 1,058 MBF	Unit is easily accessed via the L-1212 and L-1211 D, both off of the L-1211.	Logging Plan\ Cruise Maps and Driving Map
3	DF,SF / 1,376 MBF	The L-1211 runs directly through the unit.	Logging Plan\ Cruise Maps and Driving Map
4	SF,DF/ 1,619 MBF	Best access is from the top near the Junction of	Logging Plan\ Cruise

		the L-1211, L-1211 E, and the orphaned road that connects to the Tarbell trail. The Tarbell trail helps access lower portions of the unit.	Maps and Driving Map
5	SF, DF/ 84 MBF	Unit is accessed just past the water bars on the L-1211 J off of the L-1211.	Logging Plan\ Cruise Maps and Driving Map
TOTAL MBF	4,915 MBF		

REMARKS:

The L-1210, L-1211, and L-1211 A road systems are all accessed by the L-1200. The L-1210 has a gate that requires a PCP1-1 key. Unit 4 has difficult access and contains above average brush concentrations in some areas, an aerial photo may be useful.

Prepared By: Doug Serrine Date: 10/07/15	Title: Forester 1	CC: Aaron Nelson
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Cruise Narrative

Sale Name: Moonster	Region: Pacific Cascade
App. #: 30-93329	District: Yacolt
Lead Cruiser: Eric Carlson	Completion date: 2-22-2016
Other Cruisers: Bryce Frank	

Unit acreage specifications:

Unit #	Acres	Cruised acres agree with sale acres? (Yes/No)	If acres do not agree explain why.
1	12	Yes	
2	34	Yes	
3	68	Yes	
4	86	Yes	
5	2	Yes	
Total	202		

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	62.5	4.5 ft.	208' x 208'	Cruise all	12
2	VP	46.94	4.5 ft.	220' x 220'	1:1	30
3	VP	46.94	4.5 ft.	250' x 250'	1:1	47
4	VP	40	4.5 ft.	250' x 250'	1:1	59
5	VP	54.44	4.5 ft.	148' x 148'	1:1	4

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 SS = n/a
Leave/take tree description:	Leave tree clumps are bounded with yellow "Leave Tree Area" tags and pink flagging, individual leave trees are marked with a single band of blue paint.

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

Field observations:

Moonster - consists of 6 VRH units and 3 ROW units. These units fall across a wide spectrum of volume and quality of timber, from lower elevation units with heavy Douglas-fir (DF) to higher elevation units with smaller DF and defect-heavy Silver Fir (SF).

Unit 1 is located off of the L-1211 B and is the first unit of the sale. This unit is 12 acres and consists of large Douglas-fir in a dense stand. Defect is low at 2.6%, and the average diameter is 20 inches and the average bole height is 91 feet. Although the quality in this stand is largely domestic, the boles are straight and free of major defects. The volume for this unit is 65,285 Bdft/ac and 790 MBF.

Unit 2 is located off of the L-1212 to the Northeast and Southwest near the rock pit. This unit is 34 acres and consisted of Douglas-fir in a varied density stand. The average diameter is 19.7 inches and the average bole height is 72 feet. Defect for this unit is at 2.7% and consisted of spike-knots, sweep, and hooked butts. The volume for this unit is 31,117 Bdft./ac and 1,058 MBF.

Units 3 & 4 are located off the L-1211 and unit 4 is accessible by hiking in on the Tarbell trail. Unit 3 is 68 acres and unit 4 is 86 acres. These units were very similar in structure with shorter bole heights and consisted mainly of Silver fir with prevalent signs of frost crack in many of the trees. Larger pieces of frost crack timber were added to the utility category, while smaller pieces were counted as cull. The units were varied in distribution of trees with patchy clumps and gaps spread throughout. The combined volumes of these units were 19,481 Bdft/ ac and 3,000 MBF. Defect for the combined units is right at 3%.

Unit 5 ROW consists of heavy volumes of DF as seen in the northern-most sections of unit 4.

Grant: 01, 10

Prepared by: Eric Carlson

Title: Timber Cruiser

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																		
T03N R04E S10 Ty00U1 THRU T03N R04E S10 Ty00U5				Project: MOONSTER										Page 1								
				Acres 202.00										Date 5/31/2016			Time 9:50:01AM					
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						
DF	CU	CU			100.0	35											3	8		0.00	17.8	
DF	HA	2S				75	75	15			100			100			17	14	120	1.52	.6	
DF	HA	3S				60	60	12		100					100	40	9	120	0.83	.5		
DF	HB	2S	14	1.8	2,525	2,479	501			62	38			4	96	39	14	312	1.87	8.0		
DF	HB	3S	6	2.6	1,176	1,146	231			100				32	68	37	9	111	0.87	10.3		
DF	D	SM		1.6	41	41	8				100				100	40	18	522	2.87	.1		
DF	D	2S	51	3.2	9,426	9,124	1,843			39	61			1	17	38	15	352	2.26	25.9		
DF	D	3S	17	2.6	3,262	3,178	642		24	76				0	5	48	47	35	88	0.79	36.2	
DF	D	4S	11	.6	2,006	1,994	403		95	5				15	34	28	23	27	5	31	0.36	64.6
DF	D	UT	1		92	92	19		16		49	34		43	57	16	8	61	0.91	1.5		
DF Totals				75	2.7	18,698	18,187	3,674	15	20	29	36	3	5	22	70	29	9	110	1.01	165.6	
SF	CU	CU			100.0	36										4	12		0.00	9.1		
SF	HB	2S	7	1.1	393	388	78			85	15			15	13	72	36	14	285	1.87	1.4	
SF	HB	3S	7	4.7	455	434	88		100					44	56	36	9	113	0.96	3.8		
SF	D	2S	52	3.5	2,969	2,865	579			41	59			1	2	69	28	33	16	333	2.40	8.6
SF	D	3S	14	3.8	796	765	155		27	73				1	10	62	27	33	8	86	0.87	8.9
SF	D	4S	12	.2	651	649	131		91	9				8	61	10	21	27	5	32	0.43	20.5
SF	D	UT	8		438	438	88		31	38	31			7	13	81	35	11	177	1.44	2.5	
SF Totals				23	3.4	5,738	5,541	1,119	14	21	30	34	2	11	51	37	26	9	101	1.05	54.8	
WH	CU	CU															11			0.00	.1	
WH	D	2S	50	2.9	41	40	8				100					40	20	680	3.71	.1		
WH	D	3S	43	5.1	36	34	7		100					69	31	34	11	142	1.20	.2		
WH	D	4S	7		5	5	1		100					100		28	5	30	0.40	.2		
WH Totals				0	3.6	83	80	16	7	43	50		7	30	63	29	10	147	1.32	.5		
RA	D	UT	16		78	78	16		92	8				47	8		45	21	6	27	0.33	2.9
RA	D	2S	6	5.0	31	30	6				100					40	12	190	1.38	.2		
RA	D	4S	65	5.6	327	309	62		100							40	11	170	1.53	1.8		
RA	D	4S	13	3.9	60	58	12		100							39	5	46	0.43	1.3		
RA Totals				2	4.4	497	475	96	27	66	6		8	1	91	31	7	78	0.85	6.1		
NF	HB	2S	59		28	28	6			44	56					40	14	278	1.84	.1		
NF	D	2S	24	8.3	12	11	2			100						40	13	220	1.78	.1		
NF	D	3S	17		8	8	2		100						100	34	6	53	0.61	.2		
NF Totals				0	2.1	48	47	10	17	50	33			17	83	37	10	156	1.26	.3		
Totals					2.9	25,063	24,330	4,915	15	22	29	35	3	6	28	63	28	9	107	1.01	227.3	

PROJECT STATISTICS										PAGE	1
PROJECT MOONSTER										DATE	5/31/2016
TC PSTATS	TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
	03N	04E	10	MOONSTER	00U1	THR	202.00	152	701	S	W
	03N	04E	10	MOONSTER	00U5						
STAND SUMMARY											
							ESTIMATED		PERCENT		
							TOTAL		SAMPLE		
							TREES		TREES		
							PER PLOT				
							TREES				
TOTAL				152	701	4.6					
CRUISE				82	378	4.6	23,441		1.6		
DBH COUNT											
REFOREST											
COUNT				68	323	4.8					
BLANKS				2							
100 %											
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL	68.1	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR		82.6	5.0	418	441	463					
PS FIR		90.1	9.7	329	364	400					
NOBLE F		35.5	24.5	246	327	407					
R ALDER		89.4	39.8	59	98	137					
WHEMLOCK		97.1	90.9	47	510	973					
TOTAL		85.2	4.5	398	417	435		290	73	32	
CL	68.1	COEFF		SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR		69.3	4.2	105	110	114					
PS FIR		76.0	8.2	88	95	103					
NOBLE F		26.3	18.2	79	97	115					
R ALDER		81.1	36.1	21	33	46					
WHEMLOCK		88.8	83.1	21	126	231					
TOTAL		71.5	3.7	101	105	109		204	51	23	
CL	68.1	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR		99.2	8.0	77	84	91					
PS FIR		181.4	14.7	24	28	32					
NOBLE F		1232.9	99.9	0	0	0					
R ALDER		702.0	56.9	2	4	6					
WHEMLOCK		978.3	79.3	0	0	0					
TOTAL		76.2	6.2	109	116	123		232	58	26	
CL	68.1	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR		77.2	6.3	136	145	154					
PS FIR		152.1	12.3	46	53	59					
NOBLE F		1232.9	99.9	0	0	1					
R ALDER		611.8	49.6	3	6	9					
WHEMLOCK		868.9	70.4	0	1	1					
TOTAL		54.2	4.4	195	204	213		117	29	13	

PROJECT STATISTICS
PROJECT MOONSTER

TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
03N	04E	10	MOONSTER	00U1	THR	202.00	152	701	S	W
03N	04E	10	MOONSTER	00U5						
CL	68.1		COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR			91.3	7.4	16,842	18,187	19,533			
PS FIR			153.7	12.5	4,851	5,541	6,230			
NOBLE F			1232.9	99.9	0	47	95			
R ALDER			627.5	50.8	233	475	716			
WHEMLOCK			899.6	72.9	22	80	138			
TOTAL			<i>64.4</i>	<i>5.2</i>	<i>23,060</i>	<i>24,330</i>	<i>25,600</i>	<i>166</i>	<i>41</i>	<i>18</i>
CL	68.1		COEFF	NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR			85.9	7.0	4,482	4,818	5,153			
PS FIR			154.3	12.5	1,340	1,532	1,724			
NOBLE F			1232.9	99.9	0	14	28			
R ALDER			618.5	50.1	81	162	243			
WHEMLOCK			881.3	71.4	6	21	35			
TOTAL			<i>60.1</i>	<i>4.9</i>	<i>6,228</i>	<i>6,547</i>	<i>6,866</i>	<i>144</i>	<i>36</i>	<i>16</i>
CL	68.1		COEFF	V BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR			21.1	1.7	116	126	135			
PS FIR			85.0	6.9	92	105	118			
NOBLE F			1232.9	99.9	0	117	234			
R ALDER			247.1	20.0	40	81	121			
WHEMLOCK			899.6	72.9	37	138	239			
TOTAL			<i>59.3</i>	<i>4.8</i>	<i>113</i>	<i>119</i>	<i>125</i>	<i>140</i>	<i>35</i>	<i>16</i>

T03N R04E S10 T00U1										T03N R04E S10 T00U1				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
03N	04E	10	MOONSTER	00U1	12.00	12	69	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	125											5	7		0.00	26.2	
DF		HB	2S	46	2.4	29,717	29,002	348			49	51			1	99	40	15	348	1.99	83.4	
DF		HB	3S	9	1.6	6,061	5,965	72		100					7	93	39	9	130	0.87	45.9	
DF		DM	SM	1	1.6	694	683	8				100				100	40	18	522	2.87	1.3	
DF		DM	2S	25	4.0	15,881	15,243	183			28	72				100	40	16	440	2.31	34.6	
DF		DM	3S	11	1.6	7,307	7,190	86	15	85				1	7	17	37	9	99	0.70	72.9	
DF		DM	4S	8	1.6	4,737	4,661	56	91	9				22	32	10	26	6	34	0.37	137.0	
DF	Totals			97	2.8	64,523	62,744	753	9	20	30	42		2	3	4	91	32	10	156	1.14	401.3
RA		DM	UT	34		703	703	8	85	15					15	85	36	5	40	0.28	17.6	
RA		DM	2S	24	5.0	529	503	6			100					100	40	12	190	1.38	2.6	
RA		DM	4S	42		855	855	10	100							100	40	5	49	0.38	17.4	
RA	Totals			3	1.3	2,087	2,061	25	70	5	24				5	95	38	6	55	0.41	37.7	
Type Totals					2.7	66,610	64,805	778	11	19	29	41		2	3	4	92	33	9	148	1.06	438.9

T03N R04E S10 T00U3 T03N R04E S10 T00U3
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 03N 04E 10 MOONSTER 00U3 68.00 47 99 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	28												3	9		0.00	19.5
DF		HA	2S	1		222	222	15		100				100				17	14	120	1.52	1.9
DF		HA	3S	1		178	178	12		100					100			40	9	120	0.83	1.5
DF		HB	2S	8		1,060	1,060	72		79	21				100			40	13	249	1.57	4.3
DF		HB	3S	5		761	761	52		100					33	67		37	9	97	0.78	7.8
DF		DM	2S	50	2.5	7,482	7,298	496		41	59		2		25	73		36	15	349	2.35	20.9
DF		DM	3S	18	2.4	2,730	2,663	181	32	68				7	55	39		34	8	79	0.76	33.9
DF		DM	4S	16		2,316	2,316	157	98	2				11	44	29	17	28	5	31	0.35	73.6
DF		DM	UT	1		23	23	2	100									11	5	10	0.20	2.3
DF	Totals			72	1.9	14,801	14,523	988	22	19	28	31	5	8	29	59		28	8	88	0.87	165.6
SF		CU	CU															2	13		0.00	5.3
SF		HB	2S	8		389	389	26		100					39	61		36	14	267	1.76	1.5
SF		HB	3S	7		333	333	23		100					45	55		36	10	145	1.12	2.3
SF		DM	2S	61	3.2	2,961	2,868	195		58	42			6	59	35		33	15	277	2.09	10.3
SF		DM	3S	13	3.7	653	628	43	56	44			3	15	41	41		34	8	72	0.78	8.8
SF		DM	4S	9		384	384	26	95	5			10	44	9	37		29	6	34	0.49	11.2
SF		DM	UT	2		87	87	6		100						100		40	9	120	0.92	.7
SF	Totals			23	2.5	4,807	4,689	319	15	15	44	26	1	9	49	41		29	10	117	1.15	40.2
RA		DM	UT	10		108	108	7	100									13	6	20	0.43	5.4
RA		DM	4S	90	5.6	972	918	62		100						100		40	11	170	1.53	5.4
RA	Totals			5	5.0	1,080	1,026	70	11	89			11			89		27	9	95	1.26	10.8
Type Totals					2.2	20,688	20,238	1,376	20	22	30	28	4	8	32	56		28	8	93	0.94	216.5

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1									
		Project: MOONSTER										Date 5/31/2016									
												Time 9:50:01AM									
T03N R04E S10 T00U4										T03N R04E S10 T00U4											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
03N	04E	10	MOONSTER	00U4	86.00	59	123	S	W												
S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre	
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/ Lf		
								5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft			
SF	CU	CU		100.0	85											4	12		0.00		17.1
SF	HB	2S	5	2.3	458	448	39			70	30		30		70	36	15	309	2.04		1.4
SF	HB	3S	6	7.6	657	607	52		100					53	47	36	9	96	0.89		6.3
SF	DM	2S	50	3.6	4,632	4,463	384			32	68	2		73	25	33	17	371	2.60		12.0
SF	DM	3S	14	4.0	1,321	1,268	109	14	86				9	71	20	33	9	94	0.94		13.4
SF	DM	4S	14	.3	1,192	1,189	102	90	10			8	66	9	17	27	5	31	0.42		38.5
SF	DM	UT	11		960	960	83		26	40	34	7		13	79	35	12	184	1.51		5.2
SF	Totals		47	4.0	9,305	8,935	768	14	23	24	39	3	12	53	33	25	9	95	1.02		94.0
DF	CU	CU		100.0	31											2	6		0.00		14.0
DF	HB	2S		6.2	74	70	6			100				100		32	12	150	1.28		.5
DF	HB	3S	4		358	358	31		100					30	70	37	9	109	0.89		3.3
DF	DM	2S	63	3.6	6,381	6,154	529			38	62			26	74	37	16	356	2.34		17.3
DF	DM	3S	19	4.5	1,888	1,802	155	22	78				7	60	33	34	8	84	0.85		21.4
DF	DM	4S	13	.5	1,233	1,227	106	97	3			13	19	45	23	27	5	30	0.35		41.4
DF	DM	UT	1		74	74	6				100	100				12	18	160	2.59		.5
DF	Totals		51	3.5	10,040	9,686	833	16	19	25	40	2	4	35	59	27	8	99	0.99		98.3
WH	CU	CU														11			0.00		.1
WH	DM	2S	50	2.9	97	94	8			100				100		40	20	680	3.71		.1
WH	DM	3S	43	5.1	85	81	7		100					69	31	34	11	142	1.20		.6
WH	DM	4S	7		13	13	1	100					100			28	5	30	0.40		.4
WH	Totals		1	3.6	195	188	16	7	43		50		7	30	63	29	10	147	1.32		1.3
RA	DM	4S	100	25.0	22	17	1	100						100		36	5	30	0.69		.6
RA	Totals		0	25.0	22	17	1	100						100		36	5	30	0.69		.6
Type Totals				3.8	19,562	18,826	1,619	15	21	24	40	3	7	43	47	26	9	97	1.01		194.1

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	MOONSTER			DATE	5/31/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	04E	10	MOONSTER	00U1	12.00	12	69	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL				12	69	5.8				
CRUISE				12	69	5.8	2,287	3.0		
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	65	155.5	20.0	91	75.7	338.5	64,523	62,744	14,769	14,740
R ALDER	4	35.0	10.4	62	6.4	20.8	2,087	2,061	585	585
TOTAL	69	190.5	18.6	86	83.3	359.4	66,610	64,805	15,353	15,325
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	66.2	8.3		607	662	717				
R ALDER	99.6	56.9		40	93	145				
TOTAL	71.1	8.7		574	628	683	202	50	22	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	57.5	7.2		138	149	160				
R ALDER	102.6	58.6		11	27	43				
TOTAL	62.3	7.6		131	142	153	155	39	17	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	72.7	21.9		121	156	190				
R ALDER	346.4	104.3			35	72				
TOTAL	67.0	20.2		152	191	229	195	49	22	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	48.2	14.5		289	339	388				
R ALDER	346.4	104.3			21	43				
TOTAL	38.6	11.6		318	359	401	65	16	7	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	48.6	14.6		53,567	62,744	71,921				
R ALDER	346.4	104.3			2,061	4,210				
TOTAL	42.3	12.7		56,543	64,805	73,066	78	20	9	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	48.9	14.7		12,568	14,740	16,913				
R ALDER	346.4	104.3			585	1,195				
TOTAL	41.7	12.6		13,400	15,325	17,250	76	19	8	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	48.6	14.6		158	185	212				
R ALDER	346.4	104.3			99	202				
TOTAL	42.3	12.7		157	180	203	78	20	9	

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	MOONSTER			DATE	5/31/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
03N	04E	10	MOONSTER	00U2	34.00	30	156	S	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		30	156	5.2							
CRUISE		15	72	4.8	3,827	1.9					
DBH COUNT REFOREST COUNT		15	84	5.6							
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		72	112.6	19.7	72	53.9	239.4	31,988	31,117	8,419	
TOTAL		72	112.6	19.7	72	53.9	239.4	31,988	31,117	8,419	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.	INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		60.2	7.2	376	405	435					
TOTAL		60.2	7.2	376	405	435	145	36	16		
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.	INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		50.1	6.0	100	106	112					
TOTAL		50.1	6.0	100	106	112	100	25	11		
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.	INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		57.0	10.6	101	113	124					
TOTAL		57.0	10.6	101	113	124	134	34	15		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.	INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		48.1	8.9	218	239	261					
TOTAL		48.1	8.9	218	239	261	96	24	11		
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.	INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		49.0	9.1	28,288	31,117	33,947					
TOTAL		49.0	9.1	28,288	31,117	33,947	99	25	11		
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.	INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		48.5	9.0	7,655	8,412	9,168					
TOTAL		48.5	9.0	7,655	8,412	9,168	97	24	11		
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.	INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR				118	130	142					
TOTAL		217.3	40.3	118	130	142	1,952	488	217		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	MOONSTER			DATE	5/31/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	04E	10	MOONSTER	00U3	68.00	47	194	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		47	194	4.1						
CRUISE		23	99	4.3	8,140	1.2				
DBH COUNT REFOREST COUNT		22	95	4.3						
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	75	94.8	16.3	60	33.9	136.8	14,801	14,523	3,987	3,981
PS FIR	23	19.5	20.3	65	9.7	43.9	4,807	4,689	1,322	1,322
R ALDER	1	5.4	21.0	55	2.8	13.0	1,080	1,026	361	361
TOTAL	99	119.7	17.2	60	46.7	193.8	20,688	20,238	5,669	5,663
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	107.3	12.7		304	348	393				
PS FIR	74.7	15.9		282	335	389				
R ALDER										
TOTAL	100.5	10.3		308	343	379	403	101	45	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	89.5	10.6		81	90	100				
PS FIR	58.3	12.4		79	90	101				
R ALDER										
TOTAL	82.5	8.5		82	90	97	272	68	30	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	114.1	16.6		79	95	111				
PS FIR	180.1	26.2		14	19	25				
R ALDER	410.9	59.9		2	5	9				
TOTAL	88.4	12.9		104	120	135	312	78	35	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	79.3	11.6		121	137	153				
PS FIR	174.5	25.4		33	44	55				
R ALDER	410.9	59.9		5	13	21				
TOTAL	59.7	8.7		177	194	211	142	36	16	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	86.9	12.7		12,684	14,523	16,362				
PS FIR	176.5	25.7		3,483	4,689	5,896				
R ALDER	410.9	59.9		411	1,026	1,640				
TOTAL	66.6	9.7		18,274	20,238	22,203	177	44	20	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	84.1	12.3		3,493	3,981	4,469				
PS FIR	175.8	25.6		983	1,322	1,660				
R ALDER	410.9	59.9		145	361	577				
TOTAL	64.1	9.3		5,135	5,663	6,192	164	41	18	

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	MOONSTER			DATE	5/31/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	04E	10	MOONSTER	00U3	68.00	47	194	S	W	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		24.2	3.5	93	106	120				
PS FIR		109.8	16.0	79	107	134				
R ALDER				32	79	126				
TOTAL		210.8	30.7	94	104	115	1,774	443	197	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	MOONSTER			DATE	5/31/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	04E	10	MOONSTER	00U4	86.00	59	255	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		59	255	4.3						
CRUISE		30	123	4.1	8,785	1.4				
DBH COUNT REFOREST COUNT		29	132	4.6						
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
PS FIR	62	48.1	18.1	57	20.2	86.1	9,305	8,935	2,468	2,451
DOUG FIR	58	52.9	17.1	62	20.5	84.7	10,040	9,686	2,644	2,637
WHEMLOCK	2	.6	20.9	69	0.3	1.4	195	188	49	49
R ALDER	1	.6	15.0	38	0.2	.7	22	17	14	14
TOTAL	<i>123</i>	<i>102.2</i>	<i>17.6</i>	<i>59</i>	<i>41.2</i>	<i>172.9</i>	<i>19,562</i>	<i>18,826</i>	<i>5,174</i>	<i>5,150</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
PS FIR		95.0	12.4	336	383	430				
DOUG FIR		79.9	10.6	343	383	424				
WHEMLOCK		97.1	90.9	47	510	973				
R ALDER										
TOTAL		<i>87.9</i>	<i>8.1</i>	<i>351</i>	<i>382</i>	<i>413</i>	<i>309</i>	<i>77</i>	<i>34</i>	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
PS FIR		81.8	10.6	89	99	110				
DOUG FIR		71.7	9.5	90	100	109				
WHEMLOCK		88.8	83.1	21	126	231				
R ALDER										
TOTAL		<i>76.9</i>	<i>7.0</i>	<i>92</i>	<i>99</i>	<i>106</i>	<i>236</i>	<i>59</i>	<i>26</i>	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
PS FIR		121.9	15.9	40	48	56				
DOUG FIR		89.5	11.6	47	53	59				
WHEMLOCK		607.6	79.0	0	1	1				
R ALDER		768.1	99.9	0	1	1				
TOTAL		<i>68.9</i>	<i>9.0</i>	<i>93</i>	<i>102</i>	<i>111</i>	<i>189</i>	<i>47</i>	<i>21</i>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
PS FIR		90.0	11.7	76	86	96				
DOUG FIR		84.6	11.0	75	85	94				
WHEMLOCK		538.4	70.0	0	1	2				
R ALDER		768.1	99.9	0	1	1				
TOTAL		<i>55.1</i>	<i>7.2</i>	<i>160</i>	<i>173</i>	<i>185</i>	<i>121</i>	<i>30</i>	<i>13</i>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
PS FIR		91.8	11.9	7,869	8,935	10,002				
DOUG FIR		95.3	12.4	8,485	9,686	10,887				
WHEMLOCK		557.9	72.6	51	188	324				
R ALDER		768.1	99.9	0	17	33				
TOTAL		<i>60.1</i>	<i>7.8</i>	<i>17,353</i>	<i>18,826</i>	<i>20,298</i>	<i>144</i>	<i>36</i>	<i>16</i>	

TC TSTATS				STATISTICS				PAGE	2		
				PROJECT				DATE	5/31/2016		
				MOONSTER							
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
03N	04E	10	MOONSTER	00U4	86.00	59	255	S	W		
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15		
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
PS FIR		92.8	12.1	2,155	2,451	2,746					
DOUG FIR		90.9	11.8	2,325	2,637	2,949					
WHEMLOCK		546.3	71.1	14	49	83					
R ALDER		768.1	99.9	0	14	28					
TOTAL		58.6	7.6	4,757	5,150	5,543	137	34	15		
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
PS FIR				91	104	116					
DOUG FIR				100	114	128					
WHEMLOCK		557.9	72.6	38	138	239					
R ALDER		768.1	99.9	0	24	49					
TOTAL		222.1	28.9	100	109	117	1,970	493	219		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	MOONSTER			DATE	5/31/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	04E	10	MOONSTER	00U5	2.00	4	27	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		4	27	6.8						
CRUISE		2	15	7.5	401	3.7				
DBH COUNT REFOREST COUNT		2	12	6.0						
BLANKS 100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	8	120.3	17.6	73	48.6	204.1	22,532	21,182	6,404	6,404
PS FIR	4	64.9	18.6	76	28.4	122.5	15,937	15,937	4,432	4,432
NOBLE F	3	15.4	22.1	76	8.7	40.8	4,891	4,788	1,436	1,436
TOTAL	<i>15</i>	<i>200.6</i>	<i>18.3</i>	<i>74</i>	<i>85.8</i>	<i>367.5</i>	<i>43,360</i>	<i>41,907</i>	<i>12,273</i>	<i>12,272</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	52.5	19.8		185	231	277				
PS FIR	28.4	16.2		218	260	302				
NOBLE F	35.5	24.5		246	327	407				
TOTAL	<i>42.2</i>	<i>11.3</i>		<i>229</i>	<i>258</i>	<i>287</i>	<i>76</i>	<i>19</i>	<i>8</i>	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	53.3	20.1		57	71	86				
PS FIR	29.2	16.7		60	73	85				
NOBLE F	26.3	18.2		79	97	115				
TOTAL	<i>41.6</i>	<i>11.1</i>		<i>68</i>	<i>77</i>	<i>85</i>	<i>74</i>	<i>19</i>	<i>8</i>	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	56.3	32.2		82	120	159				
PS FIR	116.9	66.8		22	65	108				
NOBLE F	200.0	114.3			15	33				
TOTAL	<i>10.6</i>	<i>6.0</i>		<i>188</i>	<i>201</i>	<i>213</i>	<i>6</i>	<i>1</i>	<i>1</i>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	59.1	33.8		135	204	273				
PS FIR	116.9	66.8		41	122	204				
NOBLE F	200.0	114.3			41	87				
TOTAL	<i>14.2</i>	<i>8.1</i>		<i>338</i>	<i>367</i>	<i>397</i>	<i>11</i>	<i>3</i>	<i>1</i>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	60.3	34.5		13,880	21,182	28,485				
PS FIR	116.9	66.8		5,294	15,937	26,580				
NOBLE F	200.0	114.3			4,788	10,260				
TOTAL	<i>14.5</i>	<i>8.3</i>		<i>38,430</i>	<i>41,907</i>	<i>45,385</i>	<i>11</i>	<i>3</i>	<i>1</i>	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	61.5	35.1		4,154	6,404	8,653				
PS FIR	116.9	66.8		1,472	4,432	7,392				
NOBLE F	200.0	114.3			1,436	3,078				
TOTAL	<i>15.4</i>	<i>8.8</i>		<i>11,190</i>	<i>12,272</i>	<i>13,354</i>	<i>12</i>	<i>3</i>	<i>1</i>	

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	MOONSTER			DATE	5/31/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	04E	10	MOONSTER	00U5	2.00	4	27	S	W	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	10	15	
DOUG FIR				68	104	140				
PS FIR				43	130	217				
NOBLE F		200.0	114.3		117	251				
TOTAL		<i>176.0</i>	<i>100.6</i>	<i>105</i>	<i>114</i>	<i>124</i>	<i>1,618</i>	<i>405</i>	<i>180</i>	

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

T03N R04E S10 Ty00U1	12.0
T03N R04E S10 Ty00U2	34.0
T03N R04E S10 Ty00U	2.0

Project MOONSTER
Acres 202.00

Page No 1
Date: 5/31/2016
Time 9:50:02AM

Species	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
DOUG FIR	16,935	29,844	27,780	57.46	32.61	1.04	9,747	9,732	3,777	3,674
PS FIR	5,591	9,239	8,909	55.36	33.50	1.11	3,109	3,095	1,159	1,119
R ALDER	835	1,233	900	39.24	26.55	0.85	327	327	100	96
WHEMLOCK	49	98	134	85.42	42.71	1.33	42	42	17	16
NOBLE F	31	62		93.35	46.68	1.26	29	29	10	10
Totals	23,441	40,476	37,723	56.42	32.67	1.05	13,255	13,225	5,063	4,915

Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
C	22,606	39,242	36,823	57.05	32.87	1.06	12,927	12,897	4,962	4,819
H	835	1,233	900	39.24	26.55	0.85	327	327	100	96
Totals	23,441	40,476	37,723	56.42	32.67	1.05	13,255	13,225	5,063	4,915



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

FPAN No: 2932110
 Effective Date: 7/29/2016
 Expiration Date: 7/29/2019
 Shut Down Zone: 660
 EARR Tax Credit: Eligible Non-eligible
 Reference: 10,13,14,23,24-03-04E
Moonster TBS

**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 FPA/N.

FPA/N Classification

Class II Class III Class IVG Class IVS

Number of Years Granted on Multi-Year Request

4 years 5 years

Conditions on Approval / Reasons for Disapproval

No additional conditions

Issued By: Scott Hancock

Region: Pacific Cascade

Title: Forest Practices Forester

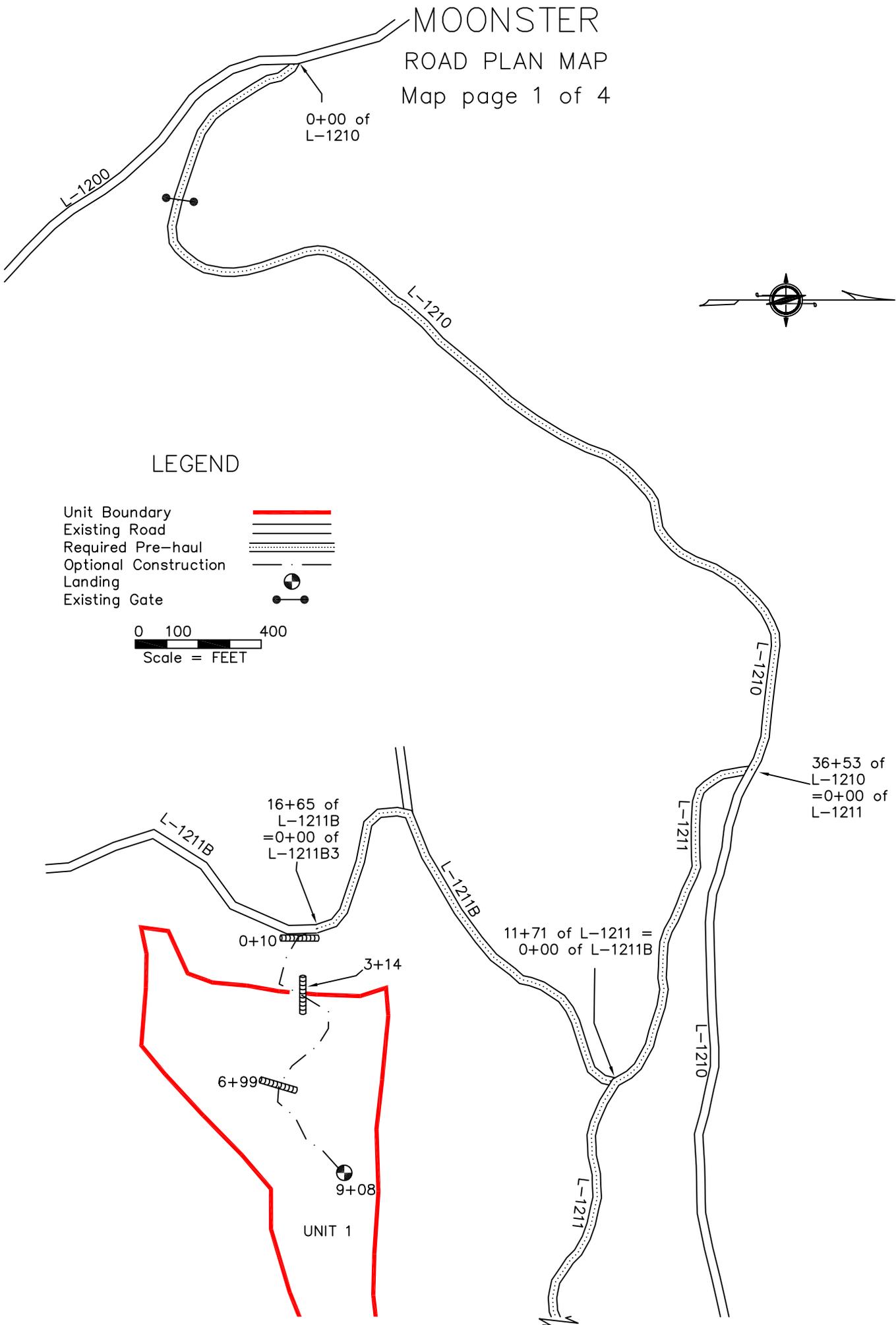
Date: 7/29/2016

Copies to: Landowner, Timber Owner and Operator.

Issued in person: Landowner Timber Owner Operator By: Tonya Johnston

MOONSTER ROAD PLAN MAP

Map page 1 of 4



LEGEND

- Unit Boundary 
- Existing Road 
- Required Pre-haul 
- Optional Construction 
- Landing 
- Existing Gate 

0 100 400
Scale = FEET

16+65 of
L-1211B
=0+00 of
L-1211B3

0+10

3+14

6+99

9+08

UNIT 1

11+71 of L-1211 =
0+00 of L-1211B

36+53 of
L-1210
=0+00 of
L-1211

MOONSTER ROAD PLAN MAP Map page 2 of 4



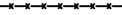
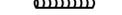
74+90 of
L-1211
=0+00 of
L-1211A

76+78 of
L-1211
=0+00 of
L-1211Y

1+50 of
L-1211Y

14+31 of
L-1211A
=0+00 of
L-1211C

LEGEND

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

0 100 400
Scale = FEET

L-1211

L-1211A
Pit

3+00

UNIT 2

5+50

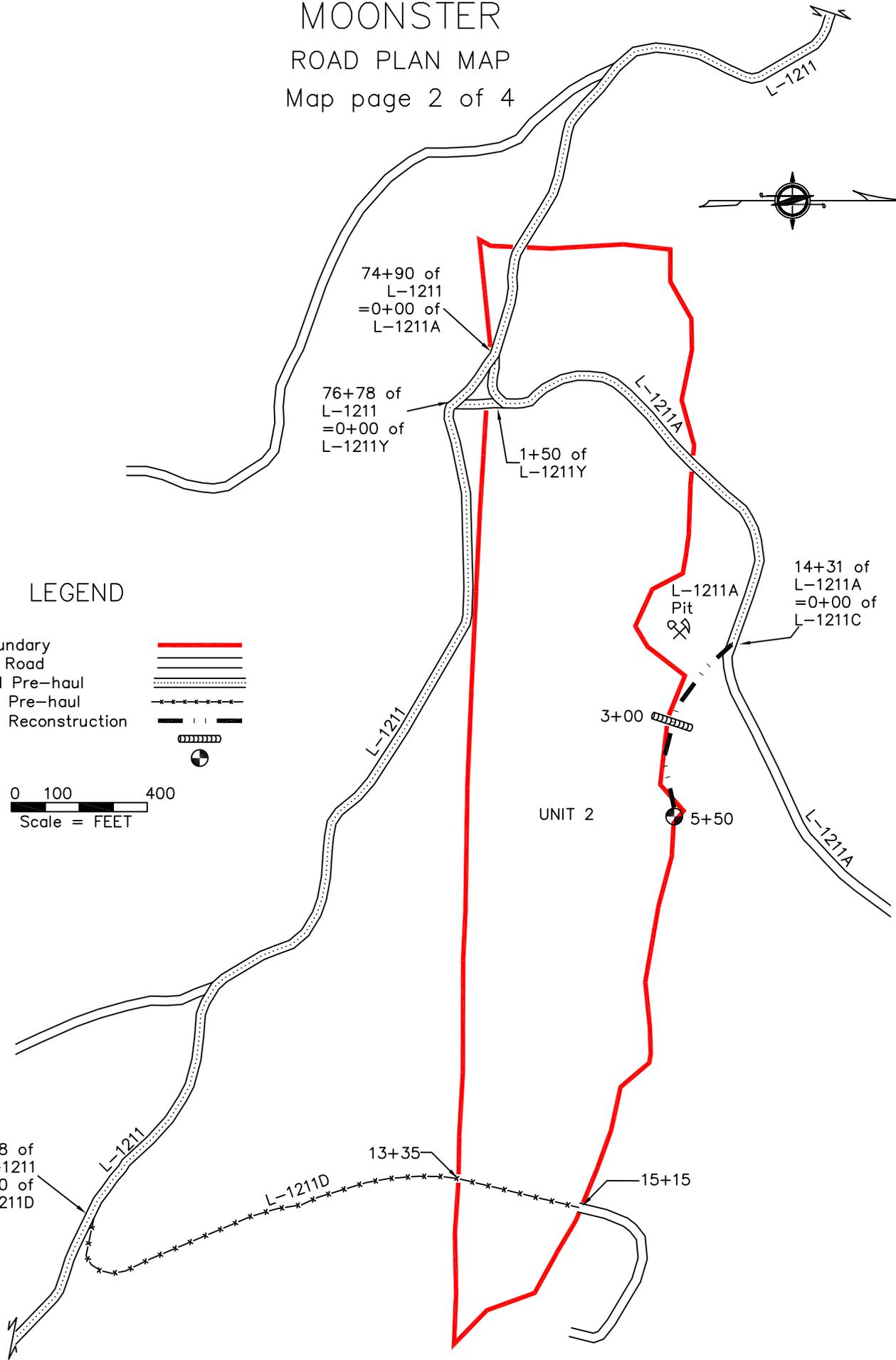
L-1211A

104+78 of
L-1211
=0+00 of
L-1211D

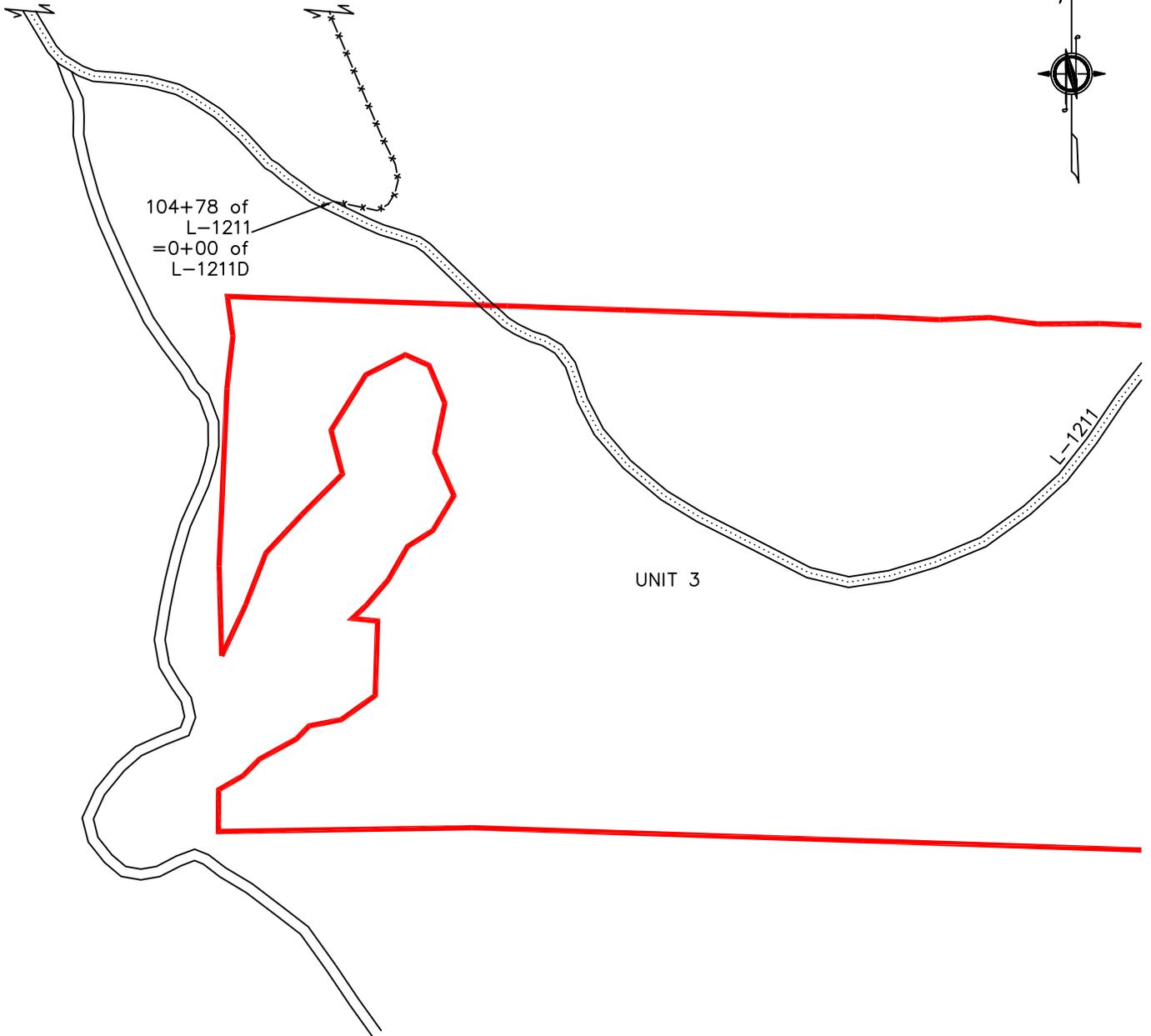
13+35

L-1211D

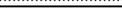
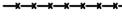
15+15

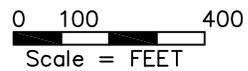


MOONSTER ROAD PLAN MAP Map page 3 of 4



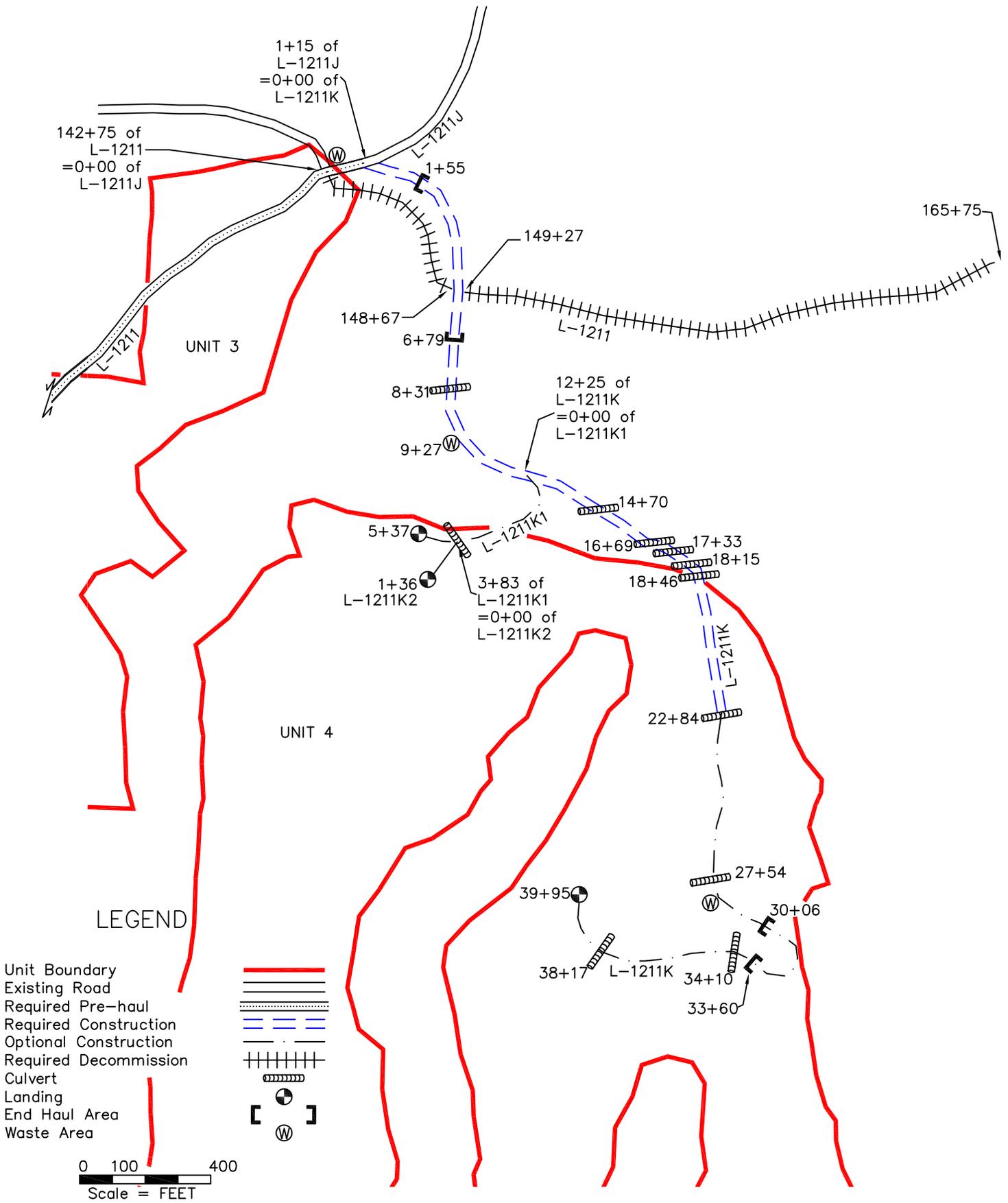
LEGEND

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



MOONSTER ROAD PLAN MAP

Map page 4 of 4



STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

MOONSTER TIMBER SALE ROAD PLAN
CLARK COUNTY
YACOLT DISTRICT

AGREEMENT NO.: 30-093329

STAFF ENGINEER: SCOTT HANNA

CREATION DATE: JANUARY 26, 2016

DRAWN & COMPILED BY: ALICIA COMPTON

MODIFICATION DATE: MAY 25, 2016

SECTION 0 – SCOPE OF PROJECT

0-1 ROAD PLAN SCOPE

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

0-2 REQUIRED ROADS

The specified work on the following roads is required.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
L-1210	0+00 to 36+53	pre-haul maintenance
L-1211	0+00 to 142+75	pre-haul maintenance
L-1211A	0+00 to 14+31	pre-haul maintenance
L-1211B	0+00 to 16+65	pre-haul maintenance
L-1211J	0+00 to 1+15	pre-haul maintenance
L-1211K	0+00 to 22+84	construction
L-1211Y	0+00 to 1+50	pre-haul maintenance

0-3 OPTIONAL ROADS

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
L-1211B3	0+00 to 9+08	construction
L-1211C	0+00 to 5+50	reconstruction
L-1211D	0+00 to 15+15	pre-haul maintenance
L-1211K	22+84 to 39+95	construction
L-1211K1	0+00 to 5+37	construction
L-1211K2	0+00 to 1+36	construction

0-4 CONSTRUCTION

Construction includes, but is not limited to the following: clearing; grubbing; right-of-way debris disposal; excavation and embankment to sub-grade; full-bench excavation and endhaul material; acquisition and installation of drainage structures; compaction of subgrade and embankment; excavation and over haul for embankment construction; landing construction; manufacture, application and compaction of rock.

0-5 RECONSTRUCTION

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
L-1211C	0+00 to 5+50	Clearing and grubbing; ditch construction; acquisition and installation of drainage structures; shaping and compaction of existing surface; manufacture, application and compaction of rock.

0-6 PRE-HAUL MAINTENANCE

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
L-1210	0+00 to 36+53	Clean ditches; clean culvert inlets and outlets; grade, shape, and compact existing surface; application and compaction of spot patch rock as directed by Contract Administrator.
L-1211	0+00 to 53+84	Clearing and grubbing in accordance with TYPICAL SECTION SHEET; clean ditches; clean culvert inlets and outlets; grade, shape, and compact existing surface; application and compaction of spot patch rock as directed by Contract Administrator.
L-1211	53+84 to 142+75	Clean ditches; clean culvert inlets and outlets; grade, shape, and compact existing surface; application and compaction of spot patch rock as directed by Contract Administrator.
L-1211A	0+00 to 14+31	Clean ditches; clean culvert inlets and outlets; grade, shape, and compact existing surface.
L-1211B	0+00 to 16+65	Clean ditches; clean culvert inlets and outlets; grade, shape, and compact existing surface; application and compaction of spot patch rock as directed by Contract Administrator.

0-6 PRE-HAUL MAINTENANCE CONT.

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
L-1211D	0+00 to 13+35	Clean ditches; clean culvert inlets and outlets; grade, shape, and compact existing surface; application and compaction of spot patch rock as directed by Contract Administrator.
L-1211D	13+35 to 15+15	Remove waterbar; clean ditches; grade, shape, and compact existing surface; manufacture, application and compaction of rock.
L-1211J	0+00 to 1+15	Remove waterbar; grade, shape, and compact existing surface; manufacture, application and compaction of rock.
L-1211Y	0+00 to 1+50	Grade, shape, and compact existing surface.

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 involve clearing, stripping, waste disposal, drilling, shooting, and processing rock. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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

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.

1-15 ROAD MARKING

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

- Four-foot stakes with orange ribbon for pre-haul maintenance.
- Four-foot stakes with orange ribbon, orange paint and reference points for construction.

1-16 CONSTRUCTION STAKES SET BY STATE

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
L-1211B3	0+00 to 9+08	centerline
L-1211K	0+00 to 39+95	centerline, slope stakes
L-1211K1	0+00 to 5+37	centerline, slope stakes
L-1211K2	0+00 to 1+36	centerline, slope stakes

1-18 REFERENCE POINT DAMAGE

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

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

Purchaser shall notify the Contract Administrator a minimum of 14 calendar days before work begins.

1-23 ROAD WORK PHASE APPROVAL

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

- Subgrade construction
- Rock compaction

1-25 ACTIVITY TIMING RESTRICTION

The specified activities are not permitted during the listed closure period(s) unless authorized in writing by the Contract Administrator. Restrictions for the hauling forest products are specified in Contract Clause H-130 HAULING SCHEDULE.

<u>Road</u>	<u>Closure Period</u>
Construction	September 30 to May 1
Reconstruction	September 30 to May 1
Pre-haul Maintenance	September 30 to May 1
Abandonment	September 30 to May 1
Decommission	September 30 to May 1

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION or Contract Clause H-130 HAULING SCHEDULE, the Purchaser shall provide a maintenance plan to include further protection of state resources. The Contract Administrator must approve the maintenance plan in writing, and preventative measures shall be put in place, before operation in the closure period. The Purchaser shall be required to maintain all haul roads at their own expense including those listed in Contract Clause C-060 DESIGNATED ROAD MAINTAINER. If other operators are using, or desire to use these designated maintainer roads, a joint operating plan shall be developed. All parties shall follow this plan.

1-29 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:

- 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.

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 Contact Administrator upon request. Purchaser shall request a SNOW PLOWING AGREEMENT each time plowing occurs. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

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 haul.

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
L-1210	0+00 to 36+53	Grade, shape, and compact existing surface in accordance with TYPICAL SECTION SHEET.
L-1211	0+00 to 142+75	
L-1211A	0+00 to 14+31	
L-1211B	0+00 to 16+65	
L-1211D	0+00 to 15+15	
L-1211J	0+00 to 1+15	
L-1211Y	0+00 to 1+50	

2-6 CLEANING CULVERTS

On the following road(s), Purchaser shall clean the inlets and outlets of all culverts before haul.

<u>Road</u>	<u>Stations</u>
L-1210	0+00 to 36+53
L-1211	0+00 to 142+75
L-1211A	0+00 to 14+31
L-1211B	0+00 to 16+65
L-1211D	0+00 to 13+35

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

On the following road(s), Purchaser shall clean the ditchlines, culvert headwalls, and catch basins. Work shall be completed before rock application and shall be done in accordance with the TYPICAL SECTION DETAIL and CULVERT AND DRAINAGE SPECIFICATION DETAIL. Pulling ditch material across the road or mixing in with the road surface will not be allowed.

<u>Road</u>	<u>Stations</u>
L-1210	0+00 to 36+53
L-1211	0+00 to 142+75
L-1211A	0+00 to 14+31
L-1211B	0+00 to 16+65
L-1211D	0+00 to 15+15

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

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 40%.
- Against standing trees unless approved by the Contract Administrator.

3-10 GRUBBING

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

3-14 STUMPS WITHIN DESIGNATED WASTE AREAS

The removal of stumps is not required within waste areas if they are cut flush with the ground.

3-20 ORGANIC DEBRIS DEFINITION

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

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

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

<u>Road</u>	<u>Disposal Location</u>	<u>Requirements</u>
L-1211	142+75	Deposit material on downhill side of road prism; organic debris larger than one cubic foot in volume shall be separated from waste material as defined under Clause 4-35 WASTE MATERIAL DEFINITION.
L-1211K	9+27	
L-1211K	28+04	

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 45%.
- 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.

3-25 SCATTERING ORGANIC DEBRIS

Organic debris shall be scattered outside of the grubbing limits or in natural openings as directed by the Contract Administrator. Where natural openings are unavailable or restrictive, alternative debris disposal methods shall be subject to the written approval of the Contract Administrator.

3-32 END HAULING ORGANIC DEBRIS

On the following road(s), Purchaser shall end haul or push organic debris to the designated waste areas specified in Clause 3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS.

<u>Road</u>	<u>Stations</u>
L-1211K	1+55 to 6+79
L-1211K	30+06 to 33+60

SECTION 4 – EXCAVATION

4-2 PIONEERING

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

- Drainage must be provided on all uncompleted construction.
- Road pioneering operations may not undercut the final cut slope or restrict drainage.

Culverts at live stream crossings must be installed during pioneering operations prior to embankment.

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

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

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

4-4 SWITCHBACK STANDARDS

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

Purchaser shall follow these standards for switchbacks:

- Maximum adverse grades for switchbacks is 10% of the curve radius, except as designed.
- Maximum favorable grades for switchbacks is 12%.
- Maximum transition grades entering and leaving switchbacks is a 5% grade change.
- Transition grades required to meet switchback grade limitations must be constructed on the tangents preceding and departing from the switchbacks.

4-5 CUT SLOPE RATIO

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

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

4-6 EMBANKMENT SLOPE RATIO

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

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

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

4-12 FULL BENCH CONSTRUCTION

Where side slopes exceed 45%, Purchaser shall use full bench construction for the entire subgrade width except as construction staked or designed. On the following road(s), Purchaser shall haul waste material to the location specified in Clause 4-37 WASTE AREA LOCATION.

<u>Road</u>	<u>Full Bench Location</u>	<u>Comments</u>
L-1211K	1+55 to 6+79	See L-1211K CONSTRUCTION DETAIL
L-1211K	30+06 to 33+60	See Section 11 for additional notes.

4-21 TURNOUTS

Purchaser shall construct turnouts inter-visible with a maximum distance of 1,000 feet between turnouts. Locations may be adjusted to fit the final subgrade alignment and sight distances. Locations are subject to written approval by the Contract Administrator. Minimum dimensions are shown on the ROCK LIST.

4-22 TURNAROUNDS

Optional turnarounds must be no larger than 30 feet long and 30 feet wide. Locations are subject to written approval by the Contract Administrator.

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-27 DITCH WORK – MATERIAL USE PROHIBITED

On the following road(s), Purchaser shall not pull ditch material across the road or mix in with the road surface. Excavated material must be scattered outside the grubbing limits or disposed of as specified in Clause 4-36 DISPOSAL OF WASTE MATERIAL.

<u>Road</u>	<u>Stations</u>
L-1210	0+00 to 36+53
L-1211	0+00 to 142+75
L-1211A	0+00 to 14+31
L-1211B	0+00 to 16+65
L-1211D	0+00 to 13+35

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

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

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

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

4-37 WASTE AREA LOCATION

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>
L-1211	142+75	Deposit material on downhill side of road prism; waste material shall be kept separated from organic debris larger than one cubic foot in volume.
L-1211K	9+27	
L-1211K	28+04	

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 45%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Within the operational area for cable landings.
- Against standing timber.

4-47 NATIVE MATERIAL

Native material consists of naturally occurring material that is free of organic debris, trash, and rocks greater than 4 inches in any dimension.

4-49 BORROW SOURCE

Purchaser shall obtain borrow material from the listed borrow source(s) or borrow sources identified or approved by the Contract Administrator.

<u>Source</u>	<u>Location</u>	<u>Type</u>
L-1211K	0+00 to 11+99	native material

4-50 BORROW APPLICATION

Purchaser shall apply borrow in accordance with quantities shown on the L-1211K1 and L-1211K2 CONSTRUCTION DETAIL's. Borrow must be spread, shaped, and compacted full width concurrent with hauling operations.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
L-1211K1	1+29 to 4+88	native material
L-1211K2	0+00 to 1+36	native material

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.

4-57 EXISTING ROAD RIPPING AND BLADING

On the following road(s), Purchaser shall rip the surface to a depth of 6 inches and reshape. During the reshaping process, rocks over 6 inches in diameter must be sidecast except on slopes over 45 percent where rocks must be placed in a location specified in areas as approved by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
L-1210	0+00 to 36+53

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 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 deeper than 4 feet at the road shoulder and 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

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 LIST. Culvert, downspout, and flume lengths may be adjusted to fit as-built conditions and may not terminate directly on unprotected soil. Culverts may be new or used material and must meet the specifications in Clauses 10-15 through 10-23. Purchaser shall obtain approval from the Contract Administrator for the quality of used culverts before installation.

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>
L-1211B3	0+00 to 9+08
L-1211C	0+00 to 5+50

5-9 CULVERT MARKER INSTALLATION

On the following road(s), Purchaser shall install culvert markers in accordance with the CULVERT MARKER INSTALLATION DETAIL.

<u>Road</u>	<u>Stations</u>
L-1211K	0+00 to 39+95

5-11 UNUSED MATERIALS STATE PROPERTY

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

5-15 CULVERT INSTALLATION

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

5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

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

5-17 CROSS DRAIN SKEW AND SLOPE

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

5-18 CULVERT DEPTH OF COVER

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

5-20 ENERGY DISSIPATERS

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

5-25 CATCH BASINS

Purchaser shall construct catch basins in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL. Minimum dimensions of catch basins are 2 feet wide and 4 feet long with backslopes consistent with Clause 4-5 CUT SLOPE RATIO.

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 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.

5-27 ARMORING FOR STREAM CROSSING CULVERTS

At the following culvert(s), Purchaser shall place LIGHT LOOSE RIP RAP in conjunction with or immediately following construction of the embankment. Rock must be placed below the culvert outlet designated on the CULVERT LIST or as directed by the Contract Administrator. Rock may not restrict the flow of water from culvert outlet. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed. Light loose rip rap shall meet the specifications in Clause 6-50 LIGHT LOOSE RIP RAP.

<u>Road</u>	<u>Stations</u>	<u>Rock Type</u>
L-1211K	17+33	light loose rip rap
L-1211K	18+15	light loose rip rap

SECTION 6 – ROCK AND SURFACING

6-2 ROCK SOURCE ON STATE LAND

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the following 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>	<u>Rock Type</u>
L-1211A Pit	Sec 14, T03N, R04E, W.M.	4-inch jaw run, 6-inch jaw run, select pit run, light loose rip rap

6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the following existing stockpile(s) on state land at no charge to the Purchaser. Other stockpiles may not be used without prior written approval from the Contract Administrator.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>	<u>Quantity</u>
L-1211A Pit	Sec 14, T03N, R04E, W.M.	2-inch minus crushed	1,468 cubic yards

6-11 ROCK SOURCE DEVELOPMENT PLAN BY PURCHASER

Purchaser shall conduct rock source development and use at the following source, in accordance with a written ROCK SOURCE DEVELOPMENT PLAN to be prepared by the Purchaser. The plan is subject to written approval by the Contract Administrator before any rock source operations. 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>	<u>Rock Type</u>
L-1211A Pit	4-inch jaw run, 6-inch jaw run, select pit run, light loose rip rap

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

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

6-12 ROCK SOURCE SPECIFICATIONS

Rock sources must be in accordance with the following specifications:

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

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

- Pit walls must be maintained in a condition to minimize the possibility of the walls sliding or failing.
- The width of pit benches shall be a minimum of 1.5 times the maximum length of the largest machine in use.
- The surface of pit floors and benches must be uniform and free-draining at a minimum 2% outslope gradient.
- Pit faces shall not exceed 30 feet in height.
- All vegetation, including stumps, shall be cleared a minimum of 25 feet beyond the top of all working faces. Trees shall be cleared to a minimum of $\frac{3}{4}$ of the height of the tallest tree adjacent to the pit. The Purchaser shall maintain a minimum of 15 foot wide area stripped to rock from the pit face at all times.
- All overburden shall be end hauled, placed, and compacted in a waste area as identified by the Contract Administrator. Minimal acceptable compaction is achieved by placing waste material in 2 foot or shallower lifts and routing excavation equipment over entire width of the lifts.
- Root wads and organic debris larger than one cubic foot in volume shall be separated from overburden material and piled in the waste area as identified by the Contract Administrator.
- The location and amount of material to be placed in a temporary stockpile are subject to approval of the Contract Administrator. All stockpiled material shall be maintained in a neat and useable condition.
- 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 as approved by the Contract Administrator.

6-12 ROCK SOURCE SPECIFICATIONS CONT.

- All exposed soil in the waste area shall be grass seeded in accordance with Section 8 – Erosion Control Road Plan Clause 8-1 through 8-25.

6-14 DRILL AND SHOOT

Rock drilling and shooting must meet the following specifications:

- Oversize material remaining in the rock source at the conclusion of the timber sale may not exceed 5% of the total volume mined in that source.
- Oversize material is defined as rock fragments larger than two feet in any dimension.
- Purchaser shall notify the Contract Administrator a minimum of 5 working days before blasting operations.
- Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator 5 working days before any drilling (Form #M-126PAC).
- Purchaser shall block access roads and trails before blasting operations.

6-20 ROCK GRADATION TYPES

Purchaser shall provide and 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 during manufacture. The exact point of evaluation for conformance to specifications will be determined by the Contract Administrator.

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.

6-39 6-INCH JAW RUN ROCK

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

Rock may contain no organic debris and trash. All percentages are by weight.

6-41 SELECT PIT RUN ROCK

No more than 70 percent of the rock may be larger than 8 inches in any dimension and no rock may be larger than 12 inches in any dimension. Select Pit Run rock may not contain organic debris, dirt, and trash. Rock may require processing to meet this specification.

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"

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

6-56 ROCK MEASUREMENT BY TRUCK VOLUME

Measurement of 2-inch minus crushed, select pit run, and light loose rip rap for culvert bedding, armoring and spot patch rock is on a cubic yard truck measure basis. The Contract Administrator will measure each truck box before rock hauling. An average of such volumes for each truck will be used to tally the volume hauled. The Contract Administrator may periodically require that a load be flattened off and its volume calculated. Purchaser shall maintain load tally sheets for each truck and shall give them to the Contract Administrator on a weekly basis during rocking operations.

6-70 APPROVAL BEFORE ROCK APPLICATION

Purchaser shall obtain written approval from the Contract Administrator for subgrade 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.

6-75 OPTIONAL ROCK EXCEPTION

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

If less rock is applied, Purchaser shall submit a written plan, for approval, describing how these roads will be constructed, used, maintained, and treated post-haul. Purchaser shall meet post-haul specifications in Section 9 POST-HAUL ROAD WORK, the FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS, or other conditions of the approved plan.

<u>Road</u>	<u>Stations</u>
L-1211B3	0+00 to 9+08
L-1211C	0+00 to 5+50
L-1211D	13+35 to 15+15
All New Constructed Landings	

SECTION 8 – EROSION CONTROL

8-1 SEDIMENT CONTROL STRUCTURES

Purchaser shall install sediment traps, silt fences, settling ponds or other methods as approved, in writing, by the Contract Administrator.

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a 4-inch 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.

8-15 REVEGETATION

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

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the grass seed.

8-17 REVEGETATION TIMING

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

8-18 PROTECTION FOR SEED

Purchaser shall provide a protective cover for seed on all exposed soils within 100 feet of streams or wetlands if revegetation occurs between July 1 and March 31. The protective cover type shall be approved by the Contract Administrator. Seed shall be covered before the first anticipated storm event. Seed shall not be allowed to sit exposed during any rain event. The protective cover requirement may be waived by the Contract Administrator, in writing, if the Purchaser is able to demonstrate a revegetation plan that will result in the establishment of a uniform dense crop (at least 75% coverage) of 3-inch tall grass by October 31.

8-19 ASSURANCE FOR SEEDED AREA

Purchaser shall ensure the growth of a uniform and dense crop (at least 75% coverage) of 3-inch tall grass. Purchaser shall reapply the grass seed in areas that have failed to germinate or have been damaged through any cause. Restore eroded or disturbed areas, clean up and properly dispose of eroded materials, and reapply the grass seed at no addition cost to the state.

8-25 GRASS SEED

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

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

<u>Kind and Variety of Seed in Mixture</u>	<u>% by Weight</u>	<u>Minimum % germination</u>
Perennial Rye	35-45	90
Red Fescue	30-40	90
Highland Bent	5-15	85
White Clover	10-20	90
Inert and Other Crop	0.5	

SECTION 9 – POST-HAUL ROAD WORK

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

9-5 POST-HAUL MAINTENANCE

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

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-20 ROAD DECOMMISSIONING

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
L-1211	142+75 to 148+67	heavy
L-1211	149+27 to 165+75	light

9-21 ROAD ABANDONMENT

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
L-1211B3	0+00 to 9+08	light
L-1211C	0+00 to 5+50	light
L-1211D	13+35 to 15+15	light

9-22 LIGHT DECOMMISSIONING AND ABANDONMENT

- Remove road shoulder berms except as directed.
- Construct non-drivable waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical drop of no more than 20 feet between waterbars or between natural drainage paths and with a maximum spacing of 200 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 must be outsloped to provide positive drainage. Outlets must be on stable locations.
- Block roads with earthen barricades in accordance with the attached SPOILS BERM DETAIL.
- Scatter woody debris onto abandoned road surfaces.
- Remove all ditch relief culverts. The resulting slopes must be 1:1 or flatter. Place and compact the removed fill material in a location that will not erode into any waters or wetlands.
- Apply grass seed concurrently with abandonment and in accordance with Section 8 EROSION CONTROL.

9-24 HEAVY DECOMMISSIONING AND ABANDONMENT

- Fill in ditches.
- Rip the surface to a minimum depth of 10 inches.
- Remove embankments, sidecast fill, and place material into cut-banks and shape banks to conform to the natural ground.
- Remove road shoulder berms except as directed.
- Construct non-drivable waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical drop of no more than 20 feet between waterbars or between natural drainage paths and with a maximum spacing of 200 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 must be outsloped to provide positive drainage. Outlets must be on stable locations.
- Block roads with earthen barricades in accordance with the attached SPOILS BERM DETAIL.
- Scatter woody debris onto abandoned road surfaces.
- Remove ditch cross drain culverts and leave the resulting trench open.
- Slope all trench walls and approach embankments no steeper than 1.5:1.
- Apply grass seed concurrently with abandonment and in accordance with Section 8 EROSION CONTROL.

SECTION 10 MATERIALS

10-15 CORRUGATED STEEL CULVERT

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

10-16 CORRUGATED ALUMINUM CULVERT

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

10-17 CORRUGATED PLASTIC CULVERT

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

10-21 METAL BAND

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

10-22 PLASTIC BAND

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

10-23 RUBBER CULVERT GASKETS

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

10-24 GAGE AND CORRUGATION

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

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

SECTION 11 SPECIAL NOTES

11.1 CONSTRUCTION NOTES

On the following road segments all excavated material in excess of that which is needed to construct the designed fill shall be end hauled or pushed to designated waste areas.

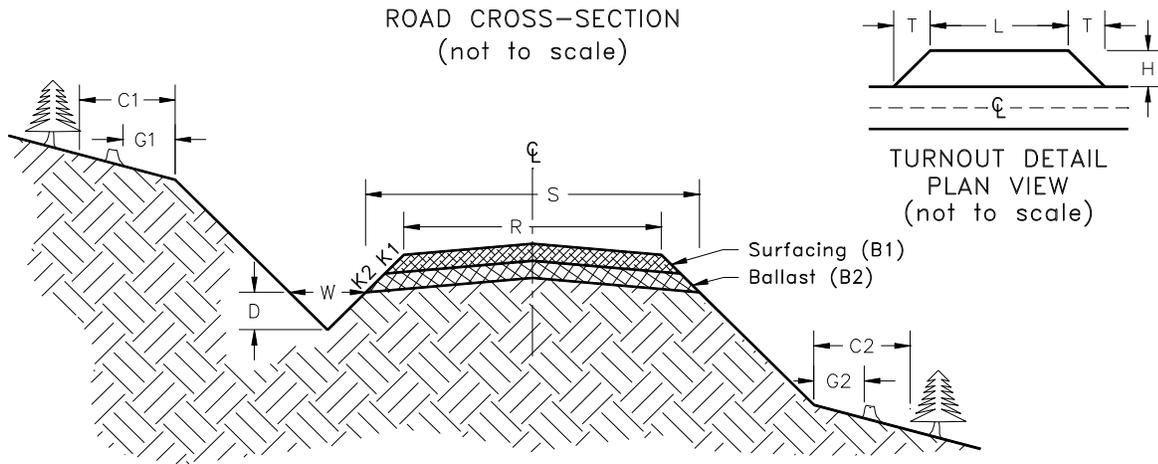
<u>Road</u>	<u>Excavation Location</u>	<u>Waste Area Location</u>
L-1211K	30+06 to 33+60	L-1211K at station 28+04

11.2 ROCK APPLICATION EXCEPTION

<u>Road</u>	<u>Station</u>	<u>Comment</u>
L-1211K	22+84 to 39+95	If the Purchaser discovers that the native source material is mostly hard, competent rock during road subgrade excavation, then the Purchaser may request a reduction in the application of ballast quantities subject to written approval by the Contract Administrator. Any quantity of material not used shall be stockpiled in a location as approved by the Contract Administrator.

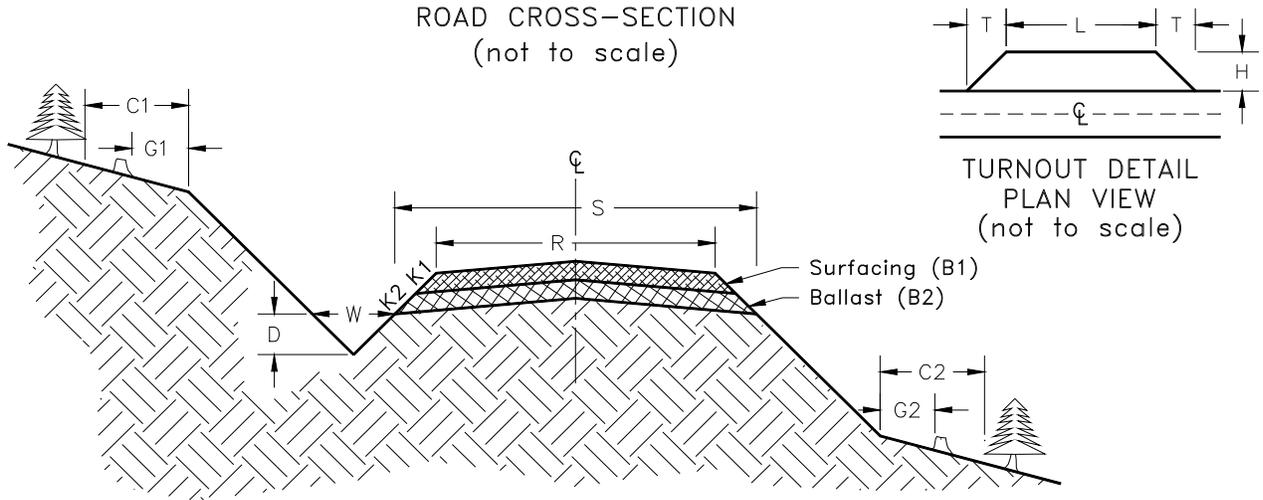
TYPICAL SECTION SHEET

(Page 1 of 1)



Road Number	From Station	To Station	Tolerance Class	Subgrade Width (feet)	Road Width (feet)	Ditch		Crown in. @ CL (inches)	Grubbing Limits (feet)		Clearing Limits (feet)	
						Width (feet)	Depth (feet)		G1	G2	C1	C2
				S	R	W	D		G1	G2	C1	C2
L-1210	0+00	36+53	C	--	12	3	1	4	--	--	--	--
L-1211	0+00	53+84	C	--	12	3	1	4	5	5	5	5
L-1211	53+84	142+75	C	--	12	3	1	4	--	--	--	--
L-1211A	0+00	14+31	C	--	12	3	1	4	--	--	--	--
L-1211B	0+00	16+65	C	--	12	3	1	4	--	--	--	--
L-1211C	0+00	5+50	C	15	12	2	1	4	5	5	5	5
L-1211D	0+00	13+35	C	--	12	3	1	4	--	--	--	--
L-1211D	13+35	15+15	C	--	12	2	1	4	--	--	--	--
L-1211J	0+00	1+15	C	16	12	3	1	4	--	--	--	--
L-1211K	0+00	39+95	C	16	12	3	1	4	5	5	10	10
L-1211K1	0+00	5+37	C	16	12	3	1	4	5	5	10	10
L-1211K2	0+00	1+36	C	15	12	3	1	4	5	5	10	10
L-1211Y	0+00	1+50	C	--	12	3	1	4	--	--	--	--

ROCK LIST
(Page 1 of 2)



2-INCH MINUS CRUSHED

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (inches)	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout		
									Length (feet)	Width (feet)	Taper (feet)
			K1	B1					L	H	T
L-1211J	0+00	1+15	1½:1	4	19	1.15	22	L-1211A Stockpile	50	10	25
L-1211K	0+00	39+95	1½:1	4	19	39.95	759				
		Turnout	1½:1	4	12	3	36				
		Curve Widening	1½:1	4	--	--	32				
L-1211K1	0+00	5+37	1½:1	4	19	5.37	102				
		Curve Widening	1½:1	4	--	--	11				
Spot Patching	As directed by Contract Administrator		1½:1	--	--	--	500				

REQUIRED 2-INCH MINUS CRUSHED TOTAL **1462** Cubic Yards

4-INCH JAW RUN

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (inches)	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout		
									Length (feet)	Width (feet)	Taper (feet)
			K2	B2					L	H	T
L-1211B3*	0+00	9+08	1½:1	12	63	9.08	572	L-1211A Pit			
L1211C*	0+00	5+50	1½:1	12	63	5.5	347				
L-1211D*	13+35	15+15	1½:1	12	63	1.8	113				
L-1211K2	0+00	1+36	1½:1	12	63	1.36	86				
All Roads*	All New Constructed Landings		--	--	50	3	150				

REQUIRED 4 INCH JAW RUN TOTAL **86** Cubic Yards
*OPTIONAL 4 INCH JAW RUN TOTAL **1,182** Cubic Yards

ROCK LIST
(Page 2 of 2)

6-INCH JAW RUN

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (inches)	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout		
									Length (feet)	Width (feet)	Taper (feet)
			K2	B2					L	H	T
								L-1211A Pit			
L-1211J	0+00	1+15	1½:1	12	67	1.15	77				
L-1211K	0+00	39+95	1½:1	12	67	39.95	2676				
		Turnout	1½:1	12	41	3	123		50	10	25
		Curve Widening	1½:1	12	--	--	97				
L-1211K1	0+00	5+37	1½:1	12	67	5.37	360				
		Curve Widening	1½:1	12	--	--	33				
		L-1211J/L-1211K Junction	1½:1	12	--	--	50				
All Roads*		All New Constructed Landings	--	--	50	2	100				

REQUIRED 6 INCH JAW RUN TOTAL **3,416** Cubic Yards
*OPTIONAL 6 INCH JAW RUN TOTAL **100** Cubic Yards

Note: Quantities in the ROCK LIST represent estimation based on loose yards except for spot patching, and landing rock. A twenty-five percent compaction factor provided the additional amounts for the minimum quantity estimates as shown. Additional quantities may be required to achieve the specify rock depth and shall be at the Purchaser's expense in accordance with Road Plan Clause 1-2 Unforeseen Conditions.

CULVERT ARMORING AND BEDDING

Road Number	Station	Description	Rock Type	C.Y. Total	Rock Source
All roads	See Culvert List	Culvert headwall and energy dissipators	LIGHT LOOSE RIP RAP	10	L-1211A Pit
			SELECT PIT RUN	15	
L-1211K	17+33	Culvert Bedding	""	3	L-1211A Stockpile
	18+15	Culvert Bedding	""	3	

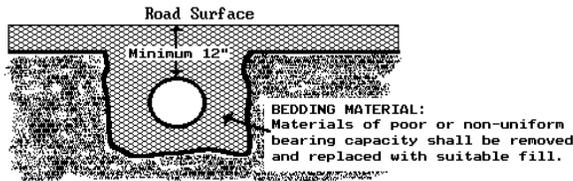
LIGHT LOOSE RIP RAP TOTAL **10** Cubic Yards
SELECT PIT RUN TOTAL **15** Cubic Yards
2-INCH MINUS CRUSHED TOTAL **6** Cubic Yards

CULVERT LIST

Road Number	Location	Culvert		Length (ft)			Riprap (C.Y.)			Backfill	Placement	Const.	Remarks
		Dia. (inches)	Gauge	Culvert	Downspt	Flume	Inlet	Outlet	Type	Material	Method	Staked	
			If										
			Steel										
L-1211B3	0+10	18		50	--	--	½	½	SPR	NT	Machine	--	Cross-drain installation
	3+14	18		30	--	--	½	½	SPR	NT	Machine	--	Cross-drain installation
	6+99	18		40	--	--	½	½	SPR	NT	Machine	--	Cross-drain installation
L-1211C	3+00	18		40	--	--	½	½	SPR	NT	Machine	--	Cross-drain installation
L-1211K	8+31	18		40	--	--	½	½	SPR	NT	Machine	--	Cross-drain installation
	14+70	18		40	--	--	½	½	SPR	NT	Machine	--	Cross-drain installation
	16+69	18		30	--	--	½	½	SPR	NT	Machine	--	Cross-drain installation
	17+33	24		50	--	--	2	3	LL	NT	Machine	--	Type Ns stream x-ing
	18+15	24		40	--	--	2	3	LL	NT	Machine	--	Type Ns stream x-ing
	18+46	18		50	--	--	1	2	SPR	NT	Machine	--	Spring
	22+84	18		30	--	--	½	½	SPR	NT	Machine	--	Cross-drain installation
	27+54	18		30	--	--	½	½	SPR	NT	Machine	--	Cross-drain installation
	34+10	18		30	--	--	½	½	SPR	NT	Machine	--	Cross-drain installation
	38+17	18		30	--	--	½	½	SPR	NT	Machine	--	Cross-drain installation
L-1211K1	3+83	18		50	--	--	½	½	SPR	NT	Machine	--	Cross-drain installation
As directed by C/A*		18		30	--	--	½	½	SPR	NT	Machine	--	Additional culverts as needed.
		18		40	--	--	½	½	SPR	NT	Machine	--	

*Purchaser shall provide the additional culverts to be install as directed by Contract Administrator. Any required culverts or additional culverts not installed as part of this contract shall be stockpile in a location as approved by the Contract Administrator.

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



Key:

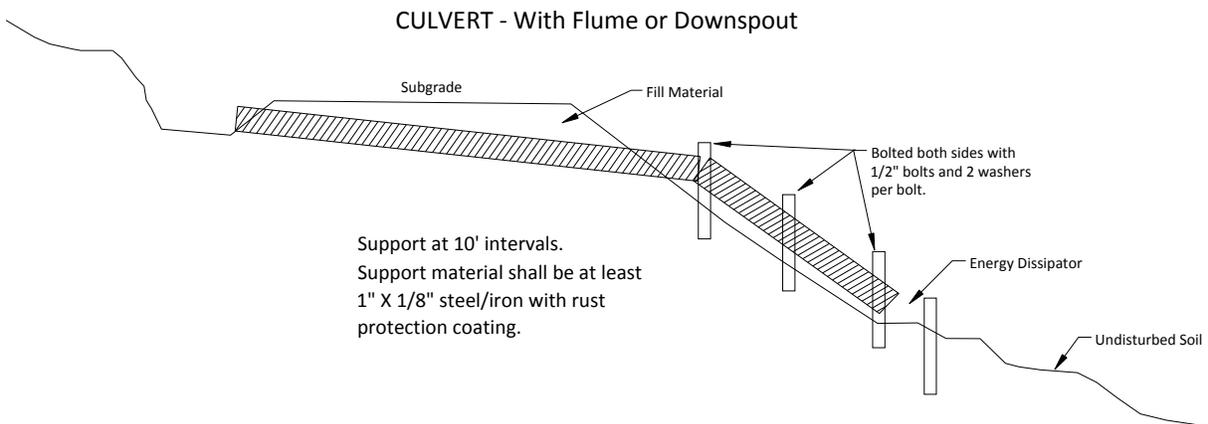
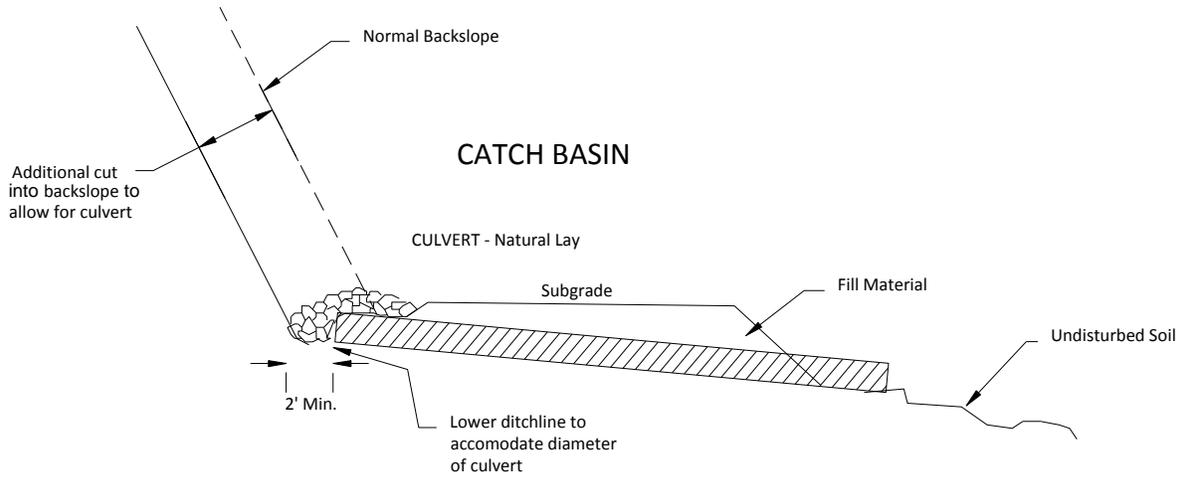
- QS - Quarry Spalls
- NT - Native (bank run)
- SPR - Select Pit Run
- HL - Heavy Loose Riprap
- LL - Light Loose Riprap
- Flume - Half round pipe
- Downsput - Full round pipe

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)
L-1210	0+00	36+53	Pre-haul Surface/Spot Patch	6	Vibratory Smooth Drum	14000	4	3
L-1211	0+00	142+75	Pre-haul Surface/Spot Patch	6	Vibratory Smooth Drum	14000	4	3
""	142+75		Waste Area	18	Excavation	At least a D-5 size dozer or larger	--	--
L-1211A	0+00	14+31	Pre-haul Surface/Spot Patch	6	Vibratory Smooth Drum	14000	4	3
L-1211B	0+00	16+65	Pre-haul Surface/Spot Patch	6	Vibratory Smooth Drum	14000	4	3
L-1211B3	0+00	9+08	Subgrade/Rock	12	Vibratory Smooth Drum	14000	4	3
L-1211C	0+00	5+50	Subgrade/Rock	12	Vibratory Smooth Drum	14000	4	3
L-1211D	0+00	13+35	Pre-haul Surface/Spot Patch	6	Vibratory Smooth Drum	14000	4	3
L-1211D	13+35	15+15	Subgrade/Rock	12	Vibratory Smooth Drum	14000	4	3
L-1211J	0+00	1+15	Subgrade	--	Vibratory Smooth Drum	14000	4	3
""	""	""	Ballast Rock	12	Vibratory Smooth Drum	14000	4	3
""	""	""	Surface Rock	4	Vibratory Smooth Drum	14000	4	3
L-1211K	0+00	39+95	Subgrade/Embankment Fill	12	Vibratory Smooth Drum	14000	4	3
""	""	""	Ballast Rock	12	Vibratory Smooth Drum	14000	4	3
""	""	""	Surface Rock	4	Vibratory Smooth Drum	14000	4	3
""	9+27		Waste Area	18	Excavation	At least a D-5 size dozer or larger	--	--
""	28+04		""	""	""	""	""	""
L-1211K1	0+00	5+37	Subgrade/Embankment Fill	12	Vibratory Smooth Drum	14000	4	3
""	""	""	Ballast Rock	12	Vibratory Smooth Drum	14000	4	3
""	""	""	Surface Rock	4	Vibratory Smooth Drum	14000	4	3
L-1211K2	0+00	1+36	Subgrade/Embankment Fill	12	Vibratory Smooth Drum	14000	4	3
""	""	""	Ballast Rock	12	Vibratory Smooth Drum	14000	4	3
""	""	""	Surface Rock	4	Vibratory Smooth Drum	14000	4	3
L-1211Y	0+00	1+50	Pre-haul Surface/Spot Patch	6	Vibratory Smooth Drum	14000	4	3

CULVERT AND DRAINAGE SPECIFICATION DETAIL

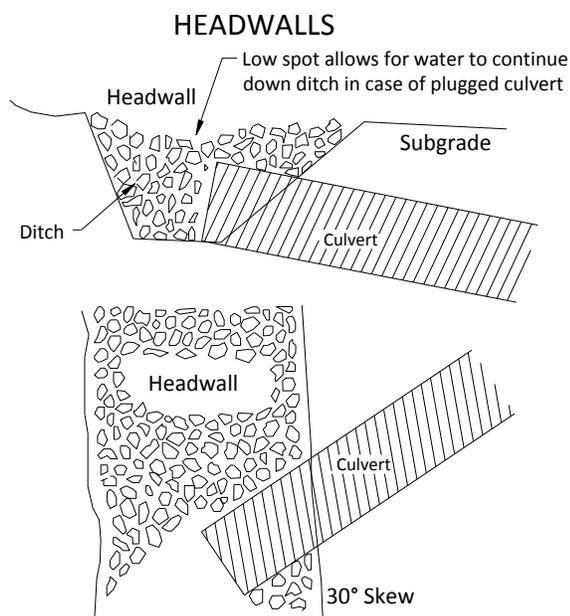
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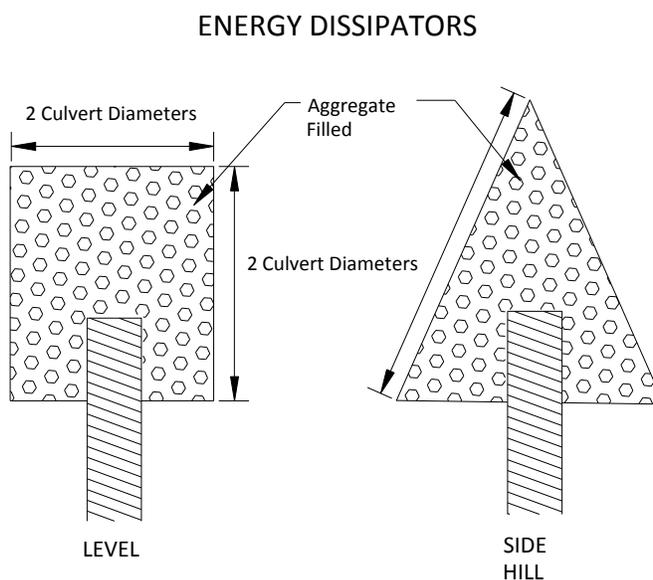
CULVERT AND DRAINAGE SPECIFICATION DETAIL

(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.



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

CULVERT AND DRAINAGE SPECIFICATION DETAIL

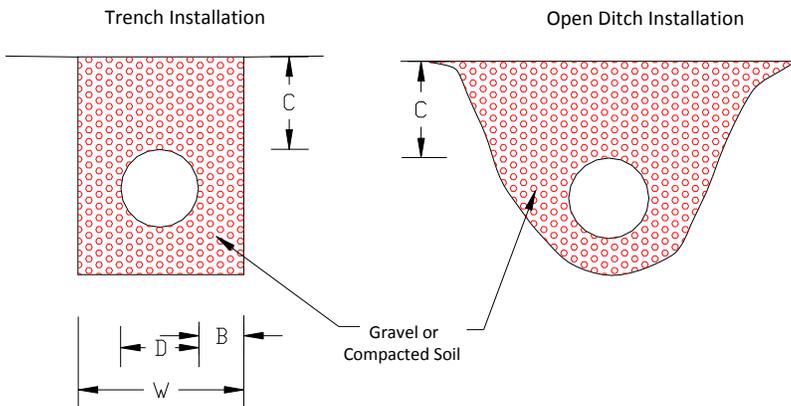
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POLYETHYLENE PIPE INSTALLATION

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 construction materials and 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, shape, and compact the road surface, turnouts, and shoulders to the original shape on the TYPICAL SECTION SHEET to provide a smooth, rut-free traveled surface and maintain surface water runoff in an even, un-concentrated manner.
- Blading shall not undercut the backslope.
- 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.

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 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.

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Page 2 of 2

Preventative Maintenance

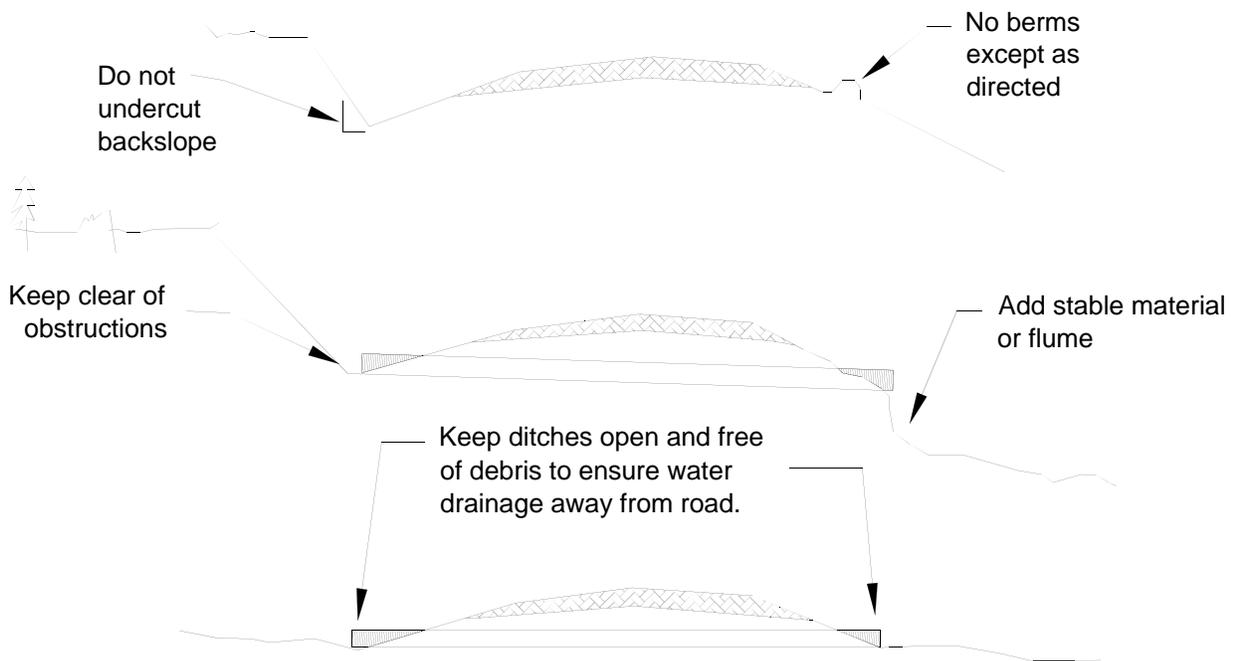
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

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

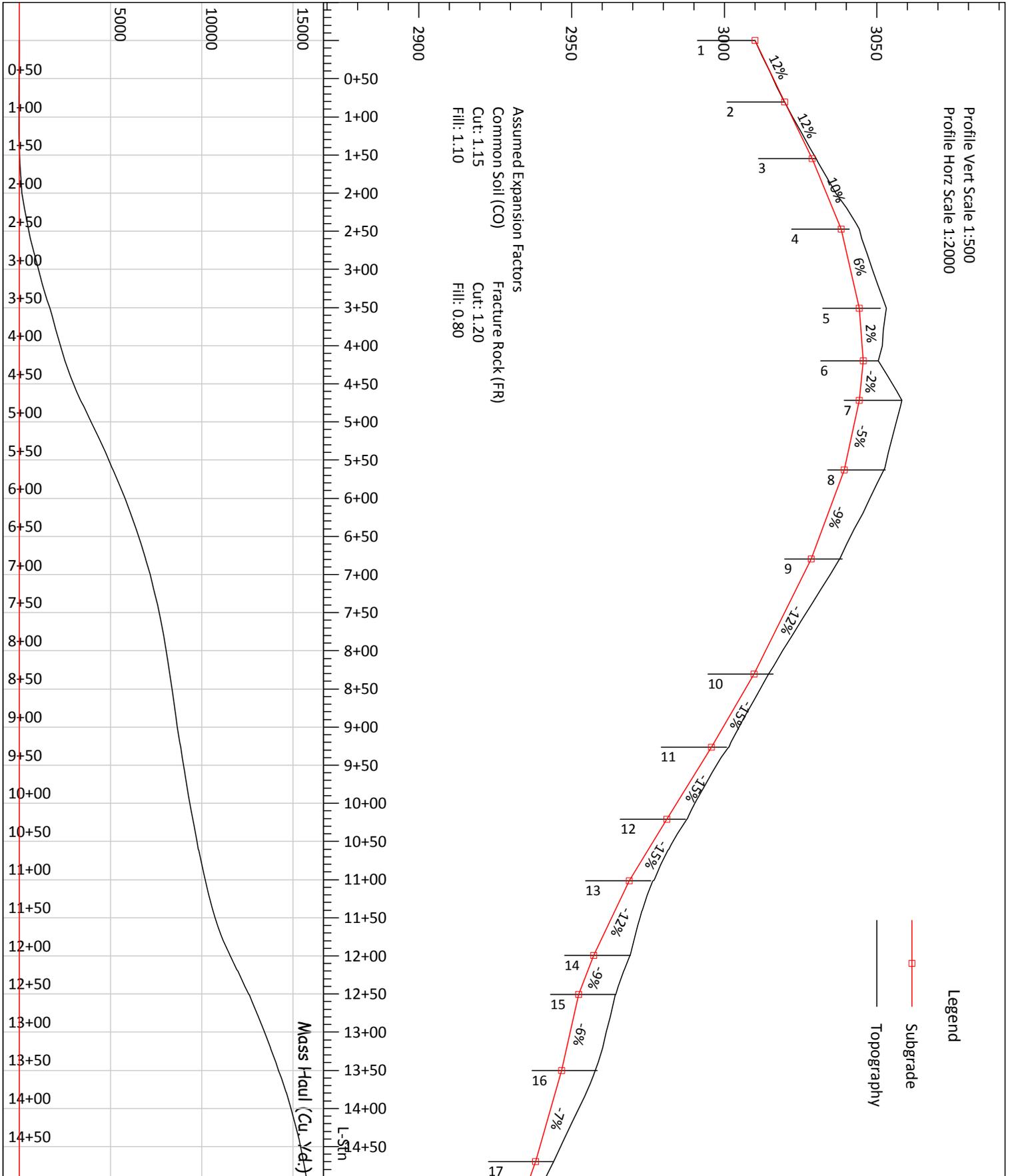
Debris

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



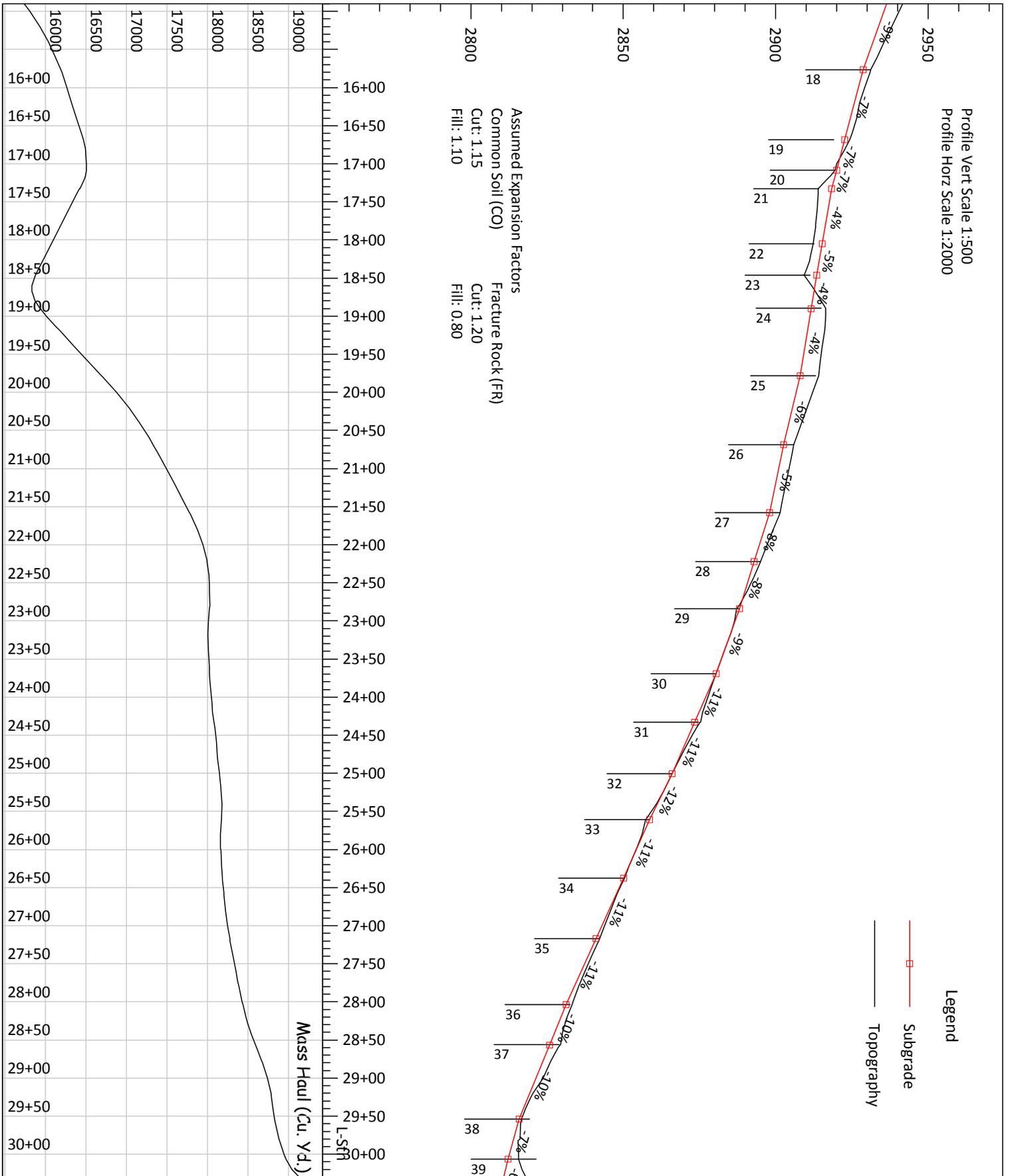
L-1211K CONSTRUCTION DETAIL

PROFILE VIEW



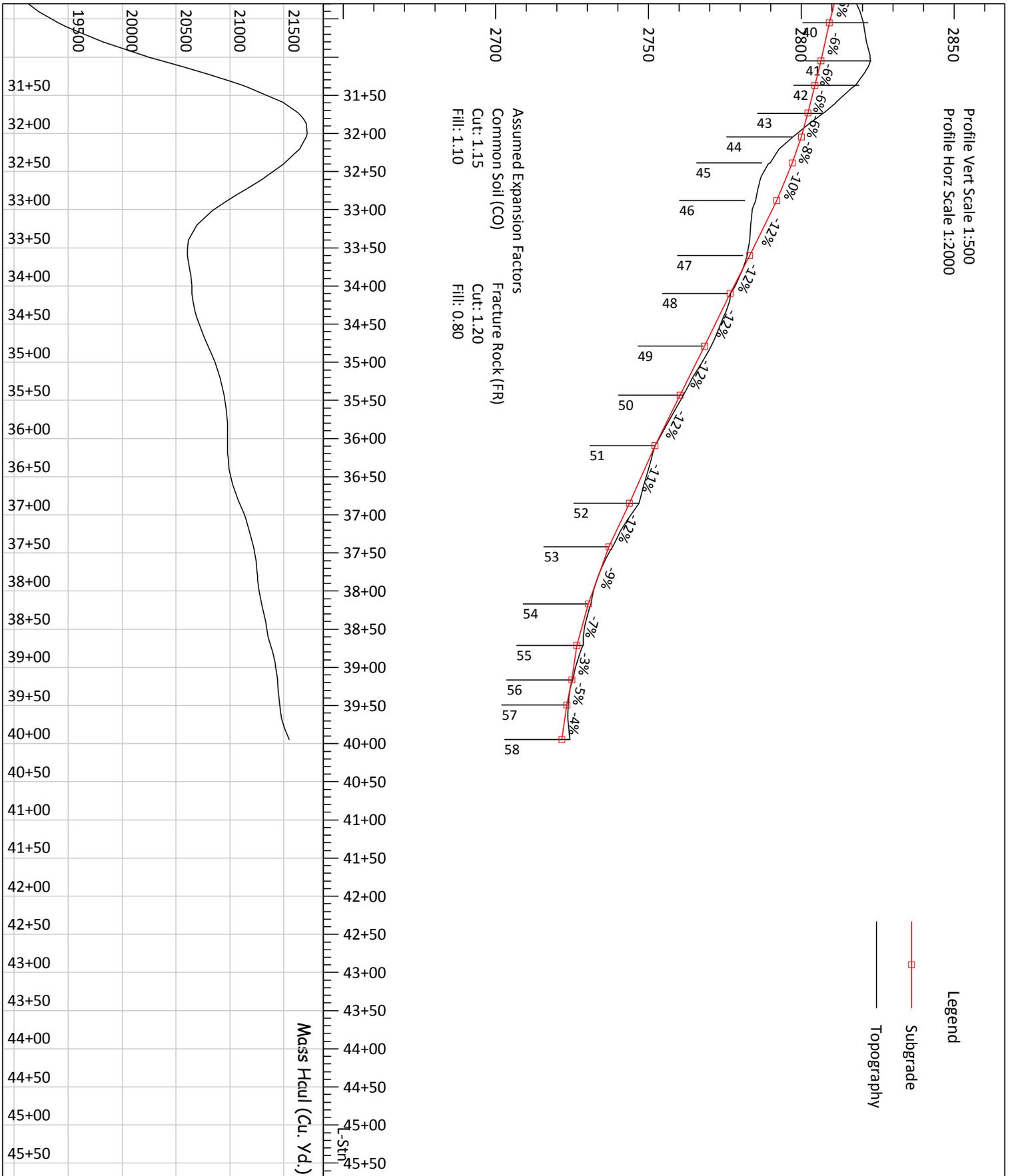
L-1211K CONSTRUCTION DETAIL

PROFILE VIEW



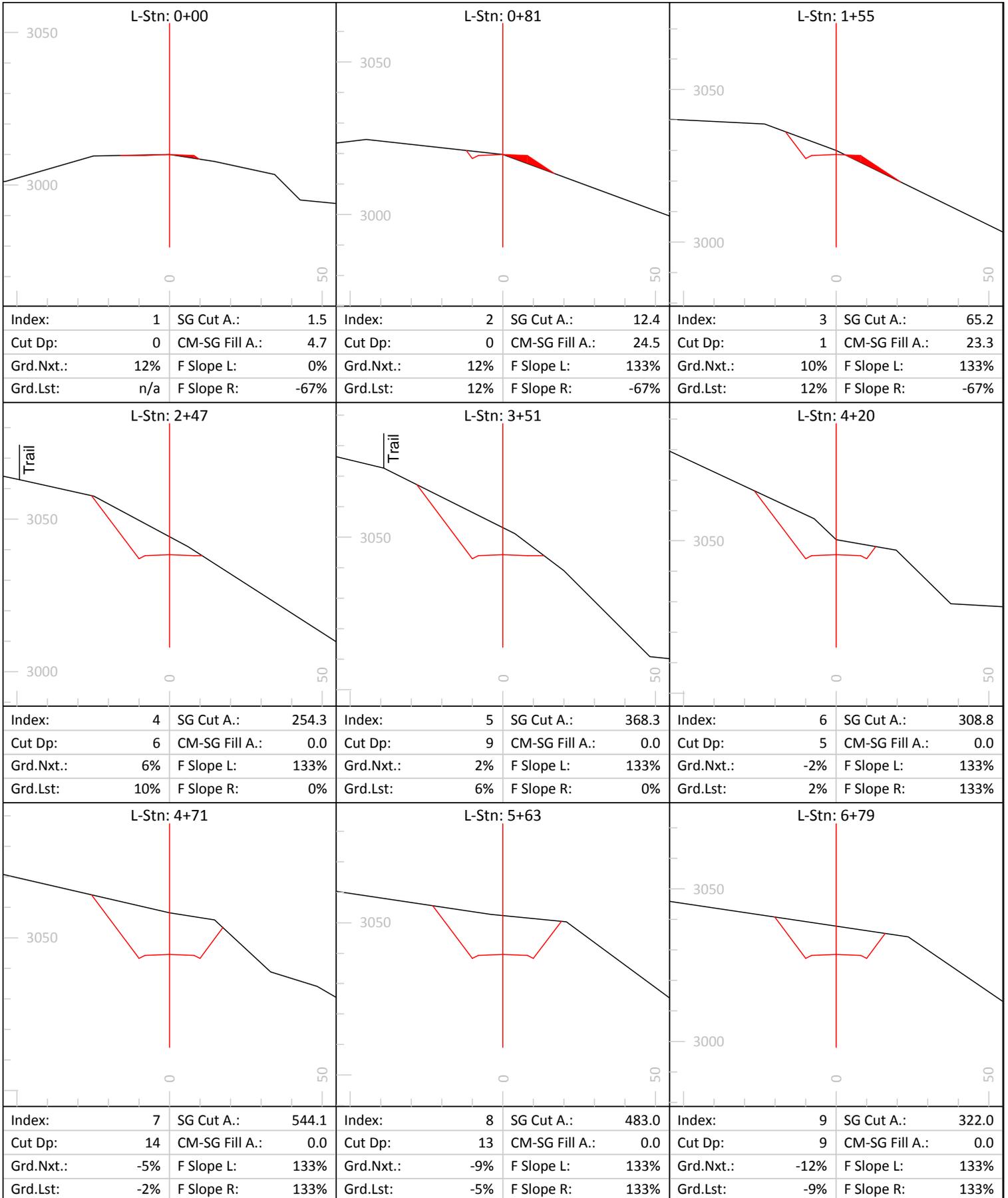
L-1211K CONSTRUCTION DETAIL

PROFILE VIEW



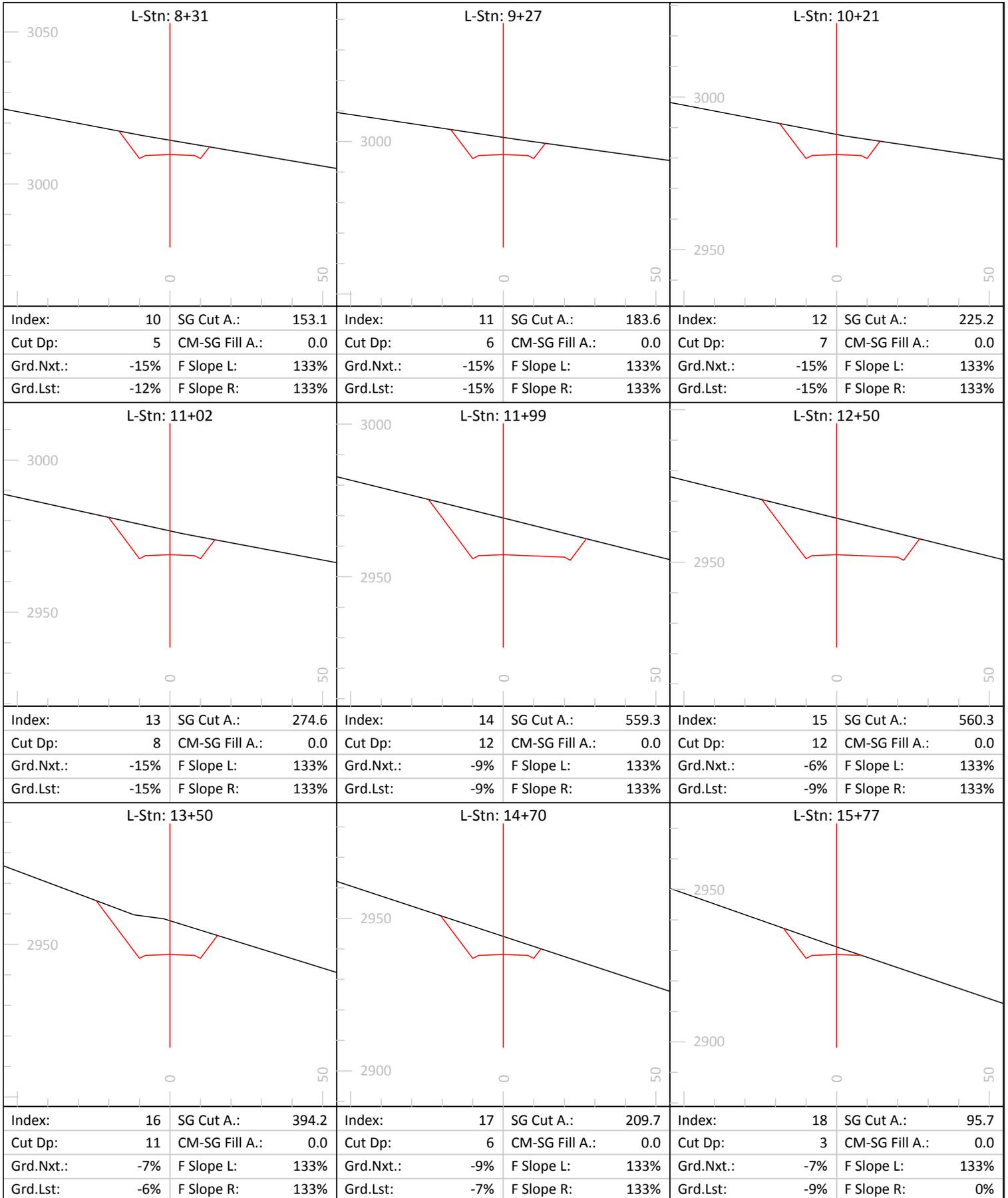
L-1211K CONSTRUCTION DETAIL

CROSS SECTION VIEW



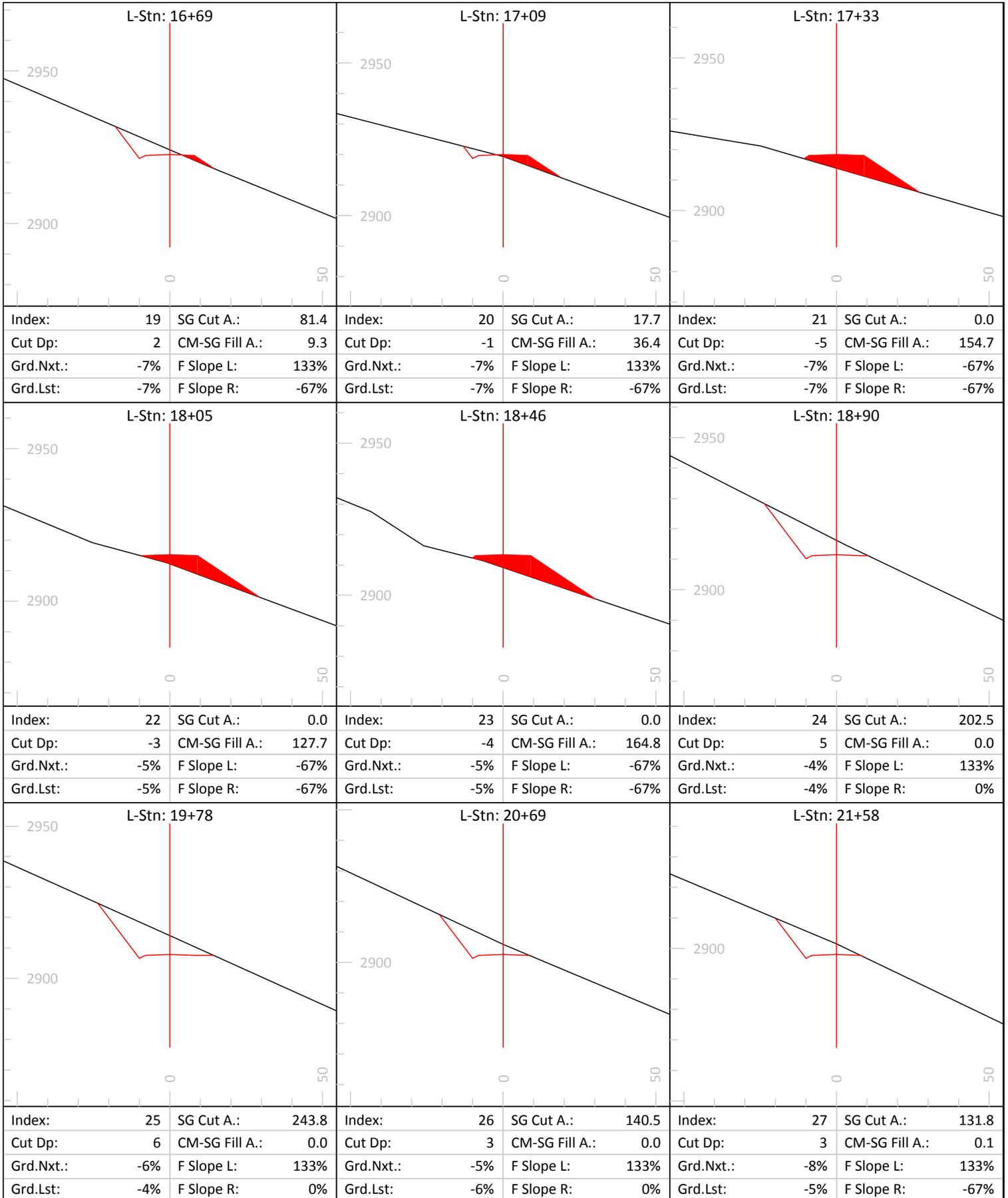
L-1211K CONSTRUCTION DETAIL

CROSS SECTION VIEW



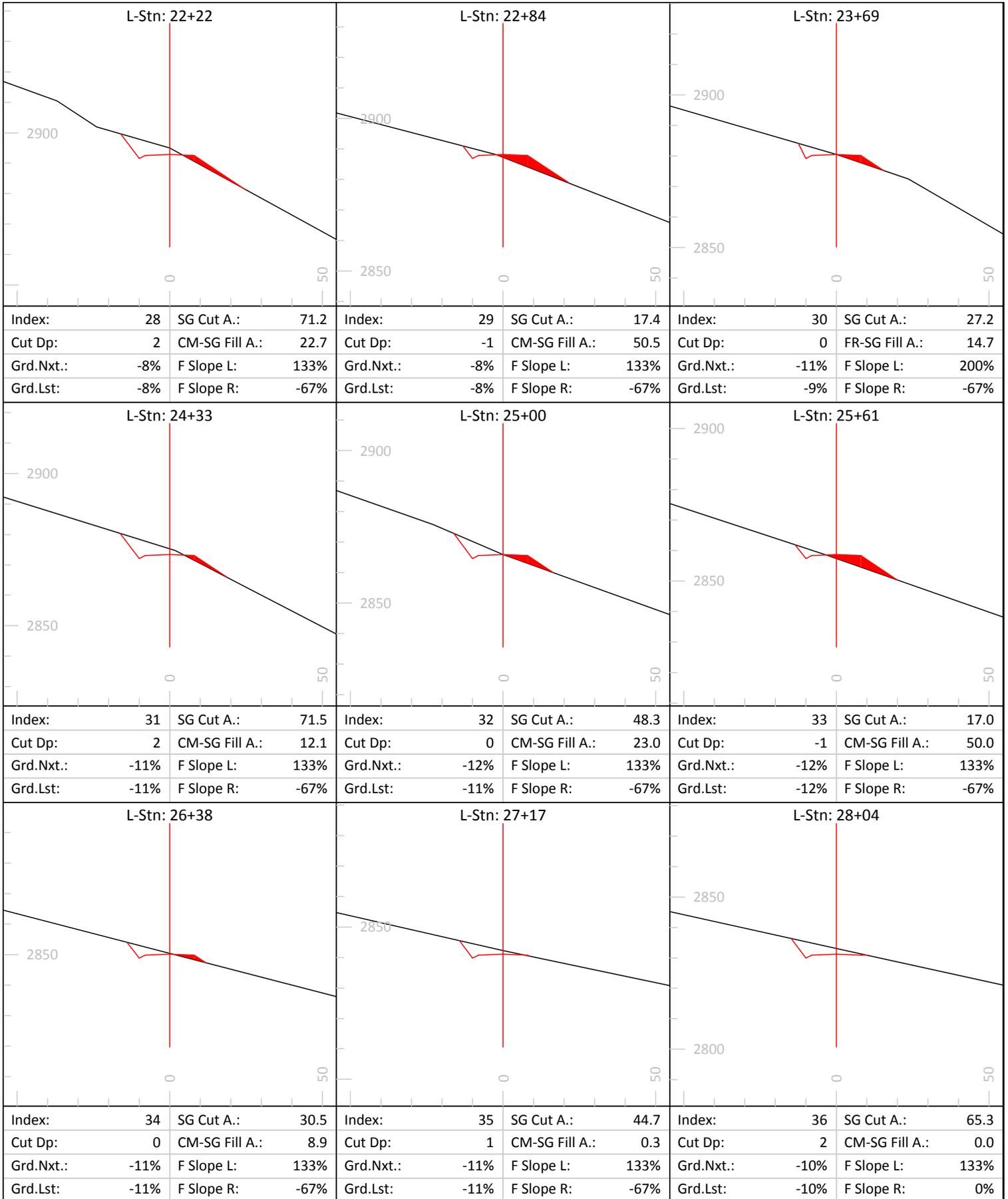
L-1211K CONSTRUCTION DETAIL

CROSS SECTION VIEW



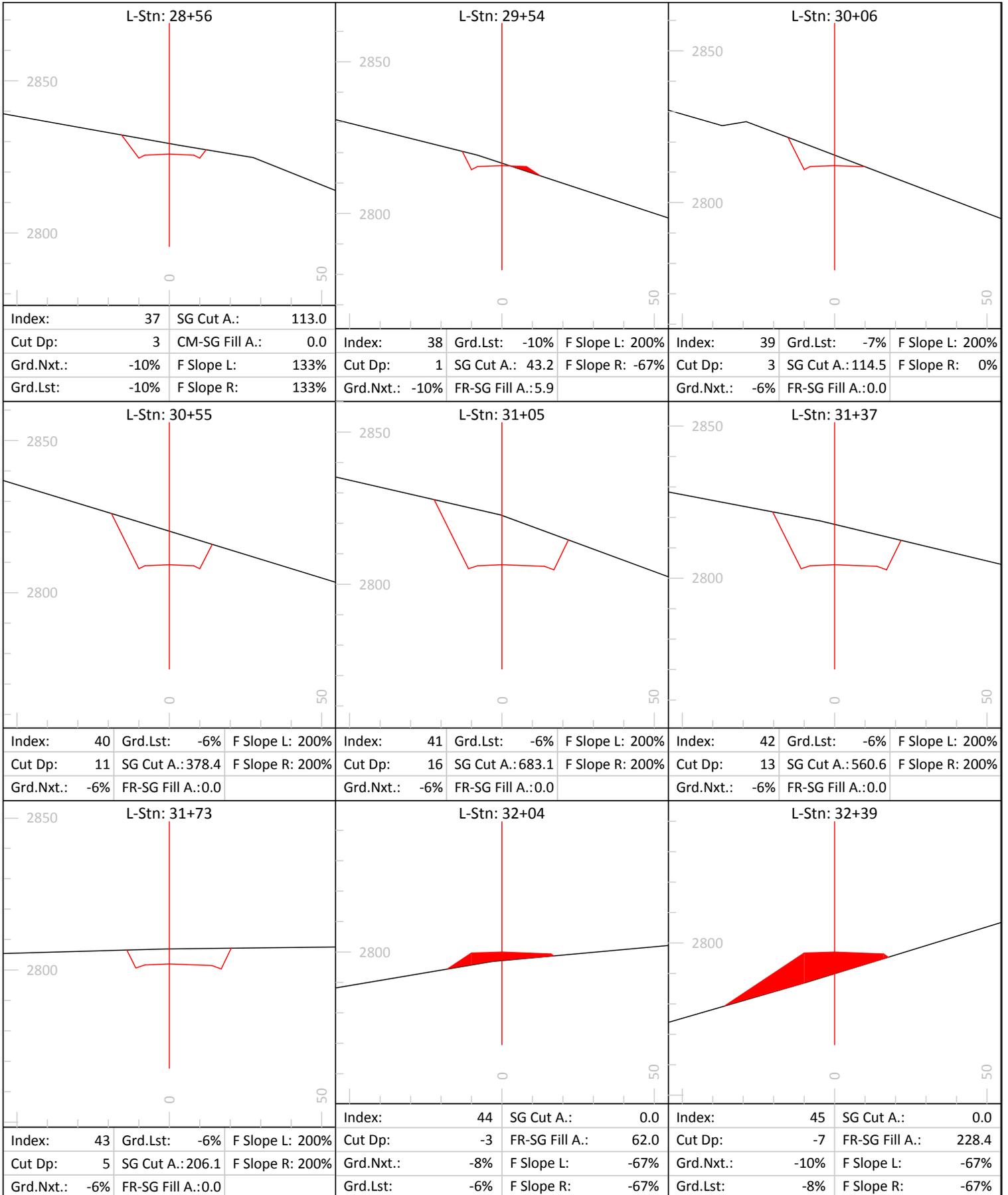
L-1211K CONSTRUCTION DETAIL

CROSS SECTION VIEW



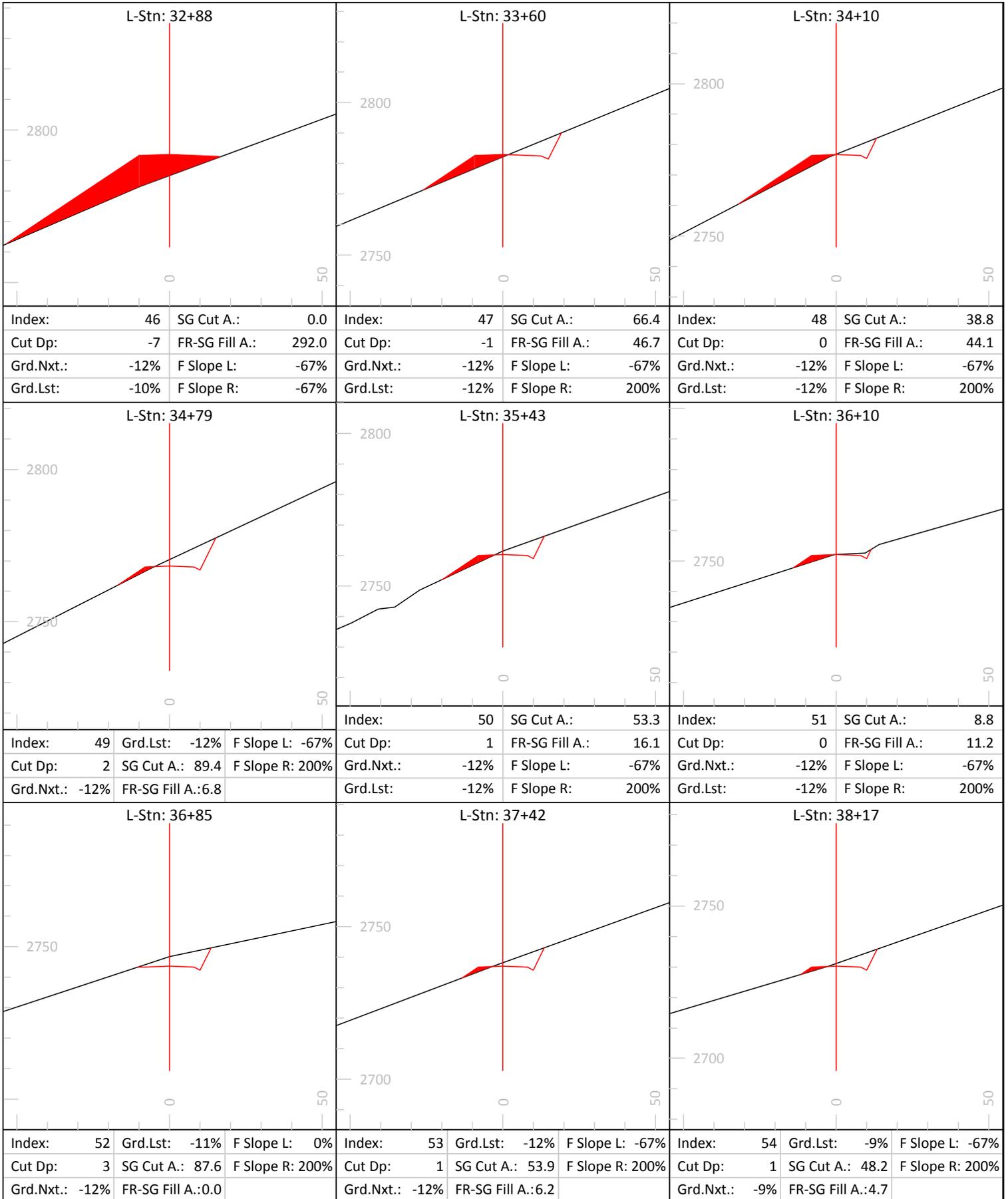
L-1211K CONSTRUCTION DETAIL

CROSS SECTION VIEW



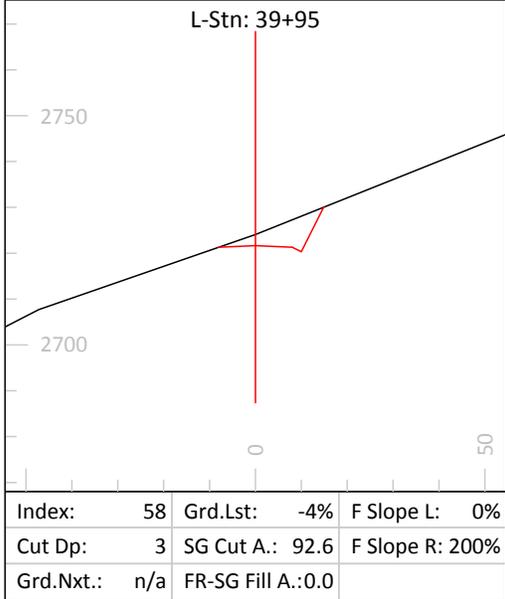
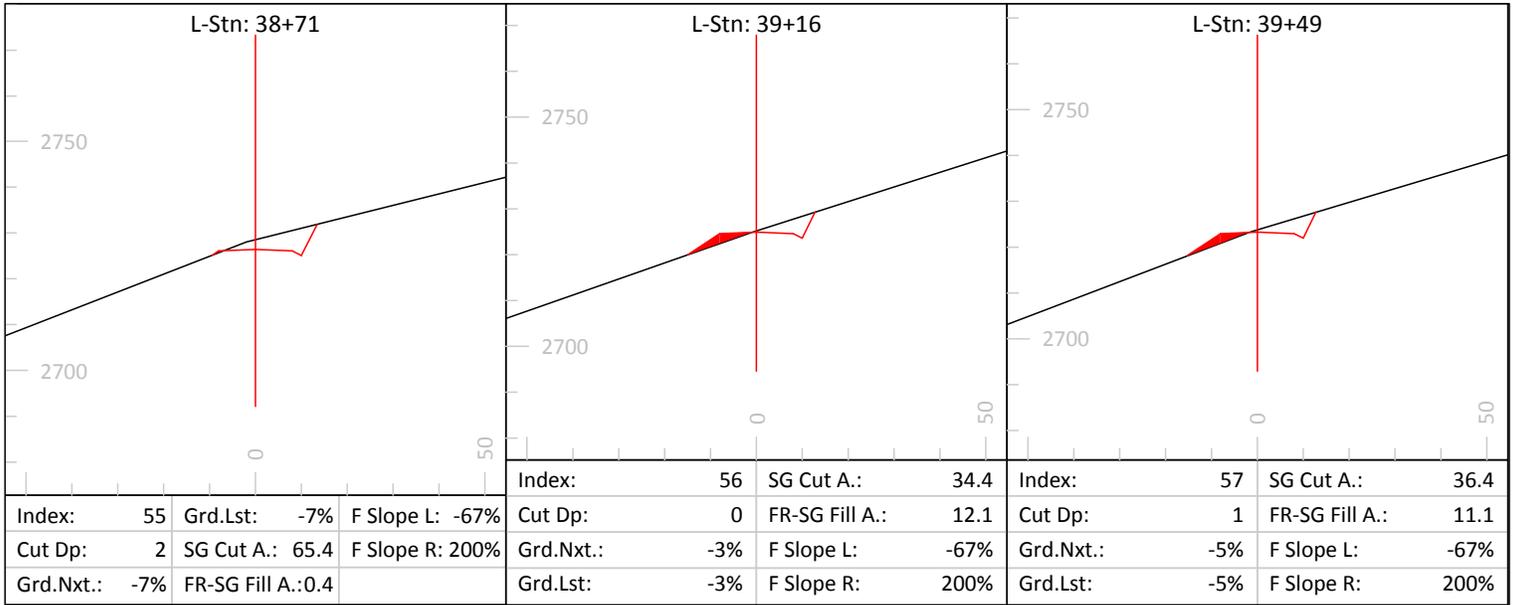
L-1211K CONSTRUCTION DETAIL

CROSS SECTION VIEW

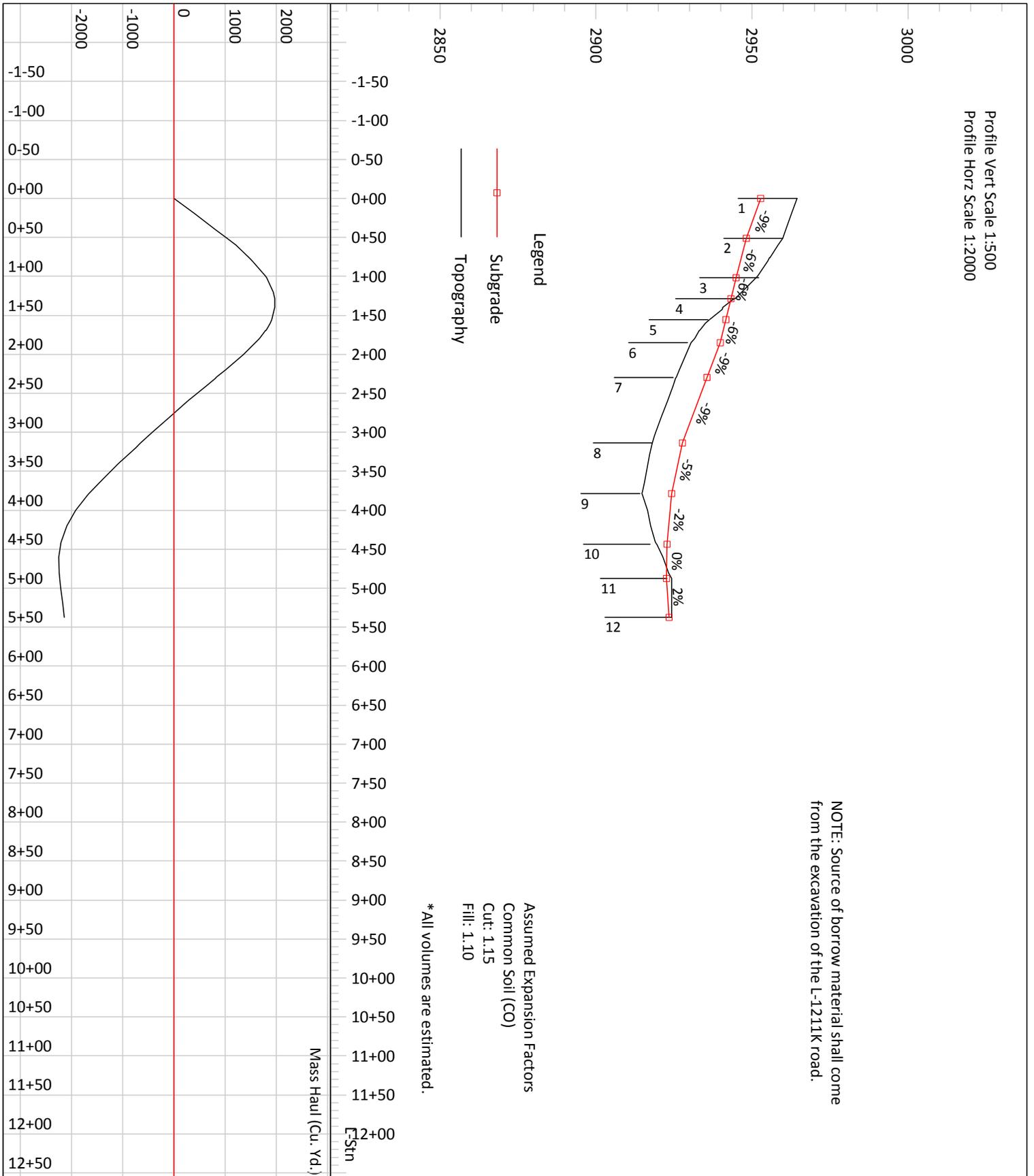


L-1211K CONSTRUCTION DETAIL

CROSS SECTION VIEW

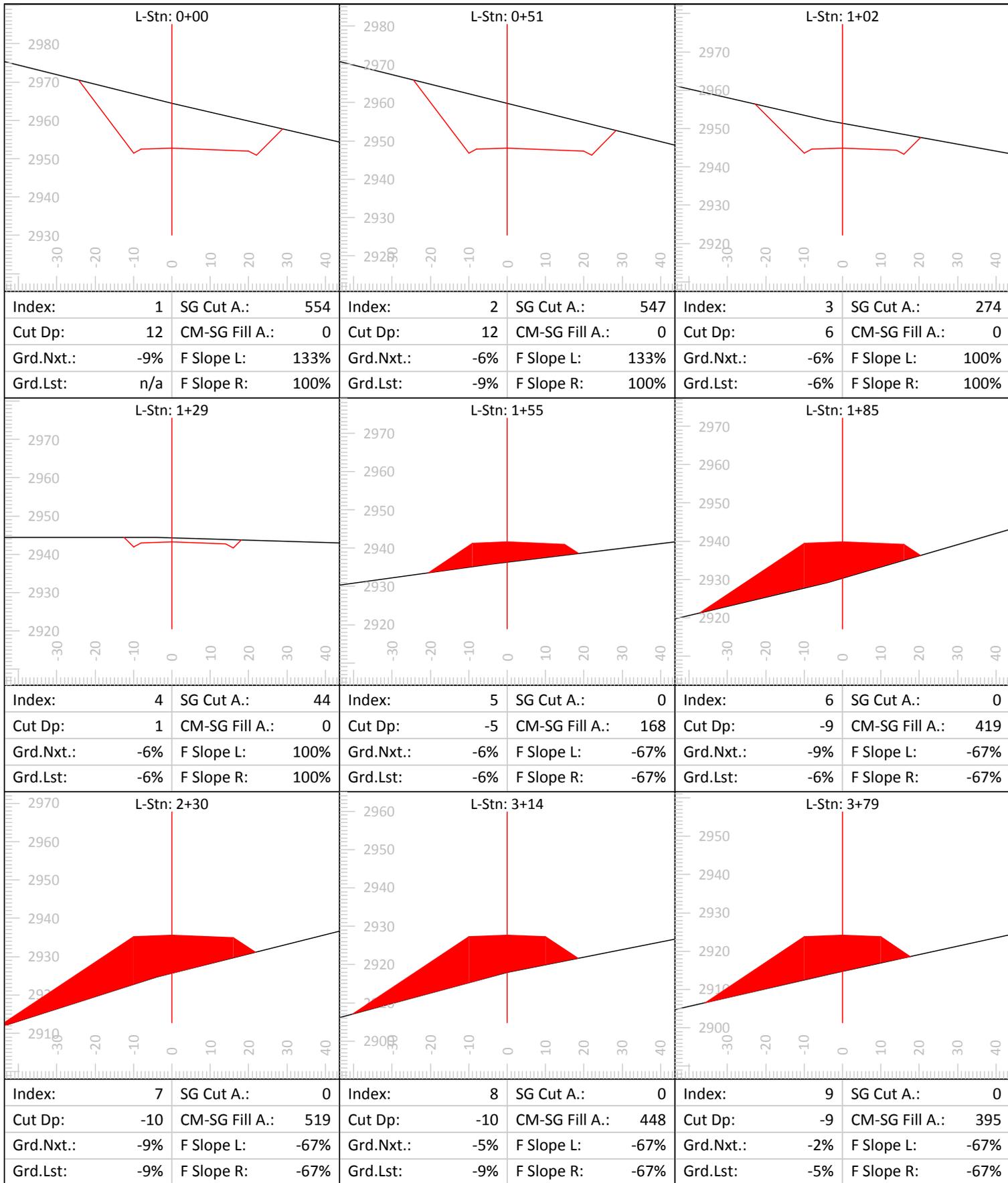


PROFILE VIEW



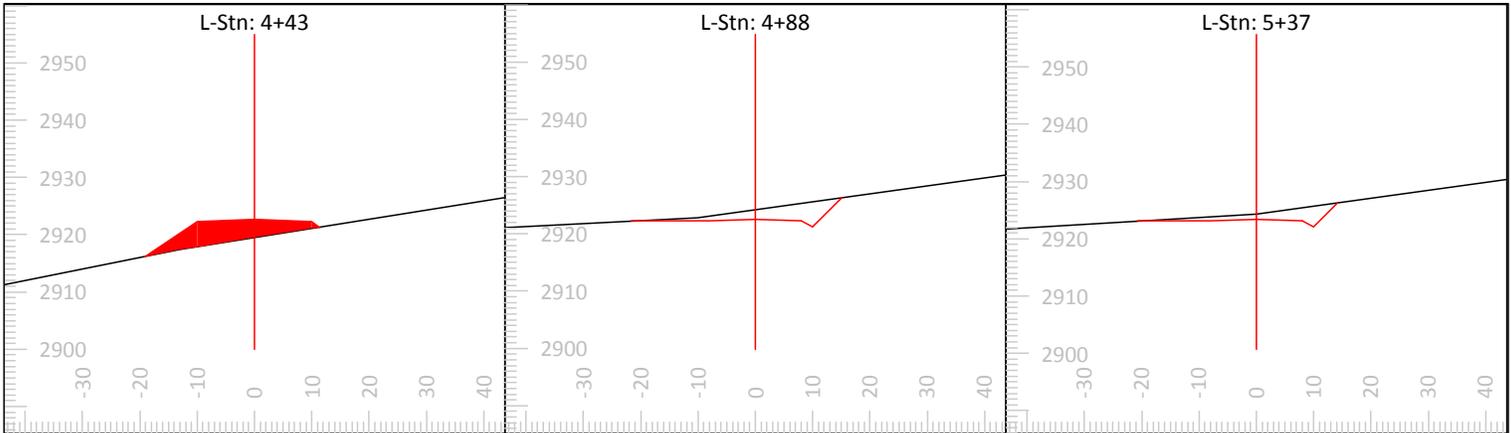
L-1211K1 CONSTRUCTION DETAIL

CROSS SECTION VIEW



L-1211K1 CONSTRUCTION DETAIL

CROSS SECTION VIEW

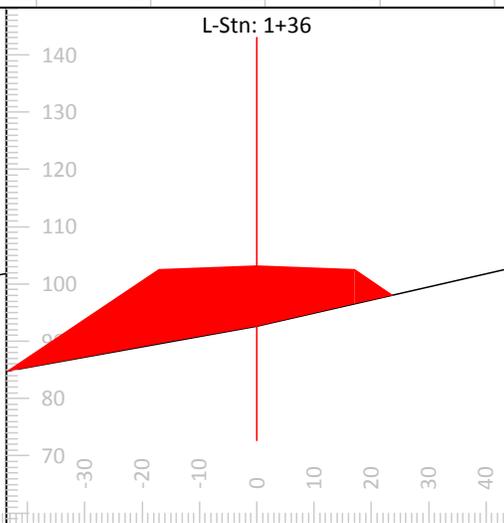
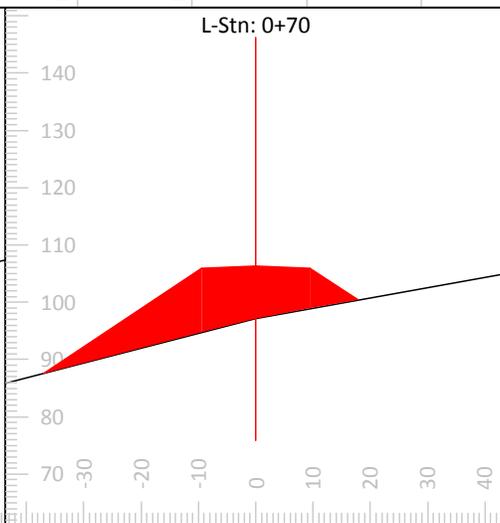
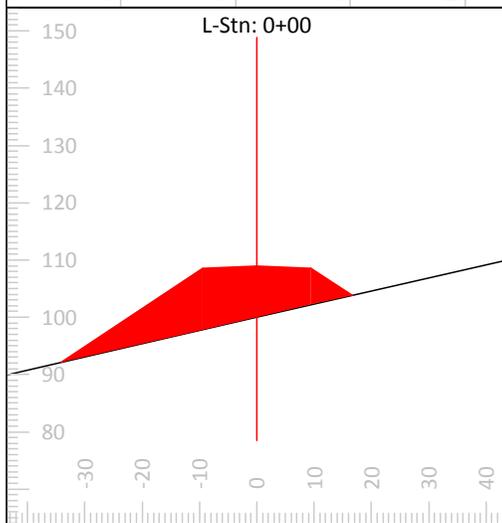
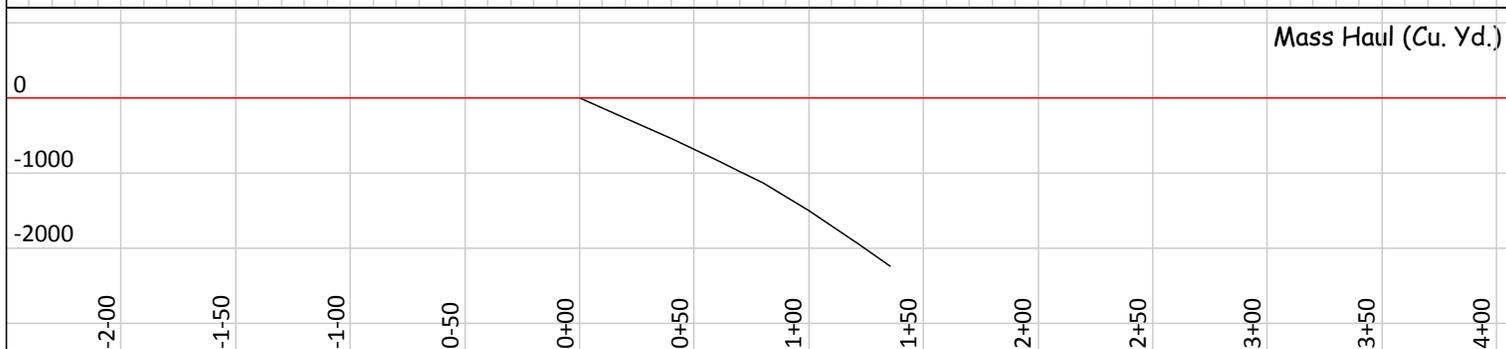
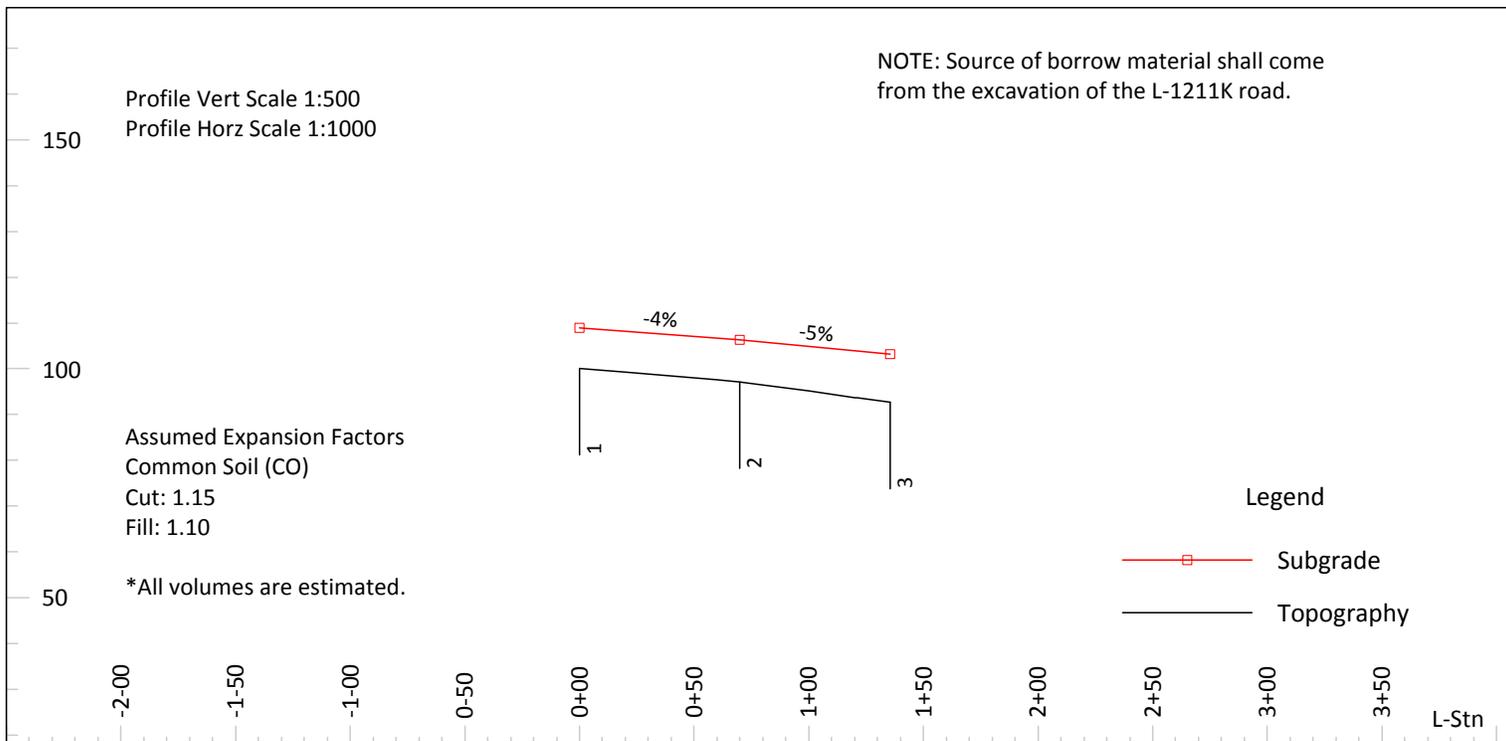


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Cut Dp:	-3	CM-SG Fill A.:	89	Cut Dp:	2	CM-SG Fill A.:	0	Cut Dp:	1	CM-SG Fill A.:	0
Grd.Nxt.:	0%	F Slope L:	-67%	Grd.Nxt.:	2%	F Slope L:	0%	Grd.Nxt.:	n/a	F Slope L:	0%
Grd.Lst:	-2%	F Slope R:	-67%	Grd.Lst:	0%	F Slope R:	100%	Grd.Lst:	2%	F Slope R:	100%

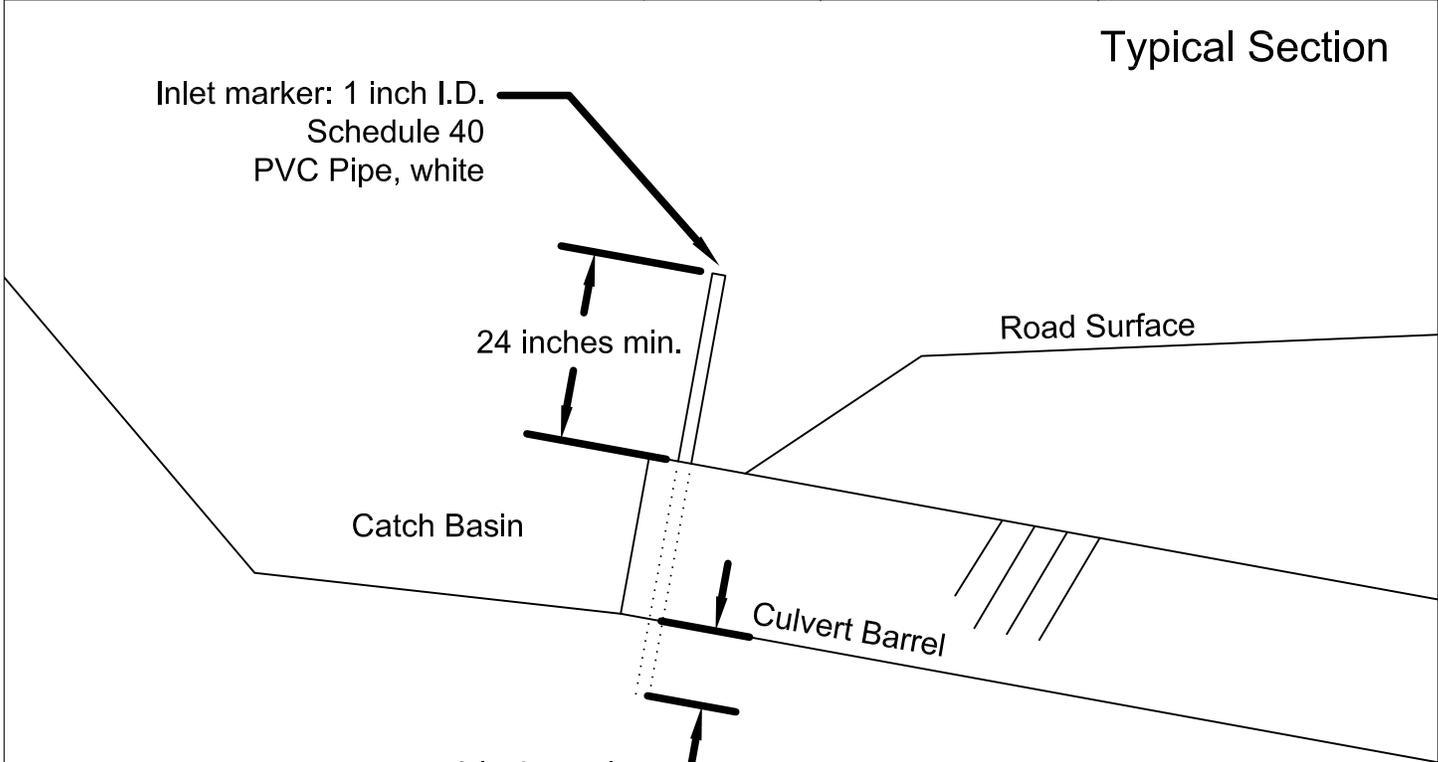
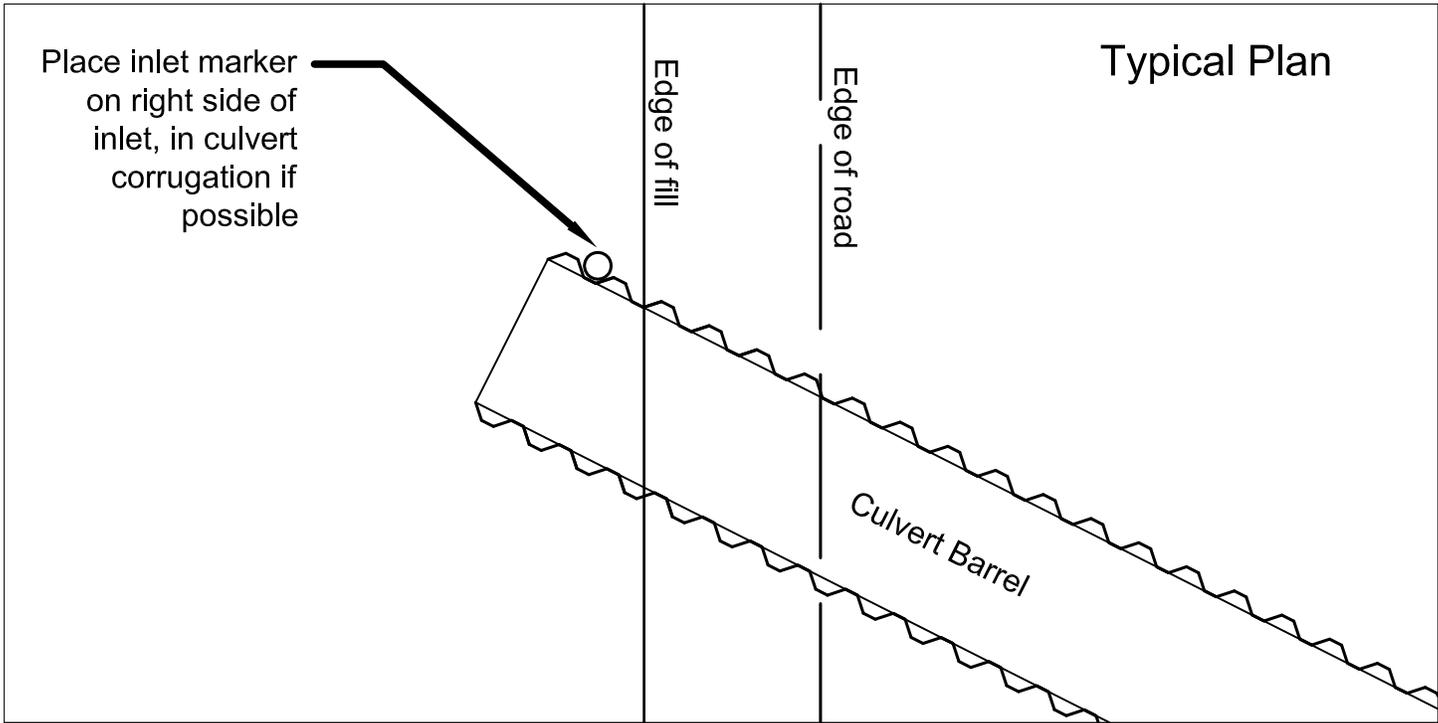
L-1211K2 CONSTRUCTION DETAIL

Page 1 of 1

PROFILE AND CROSS SECTION VIEWS



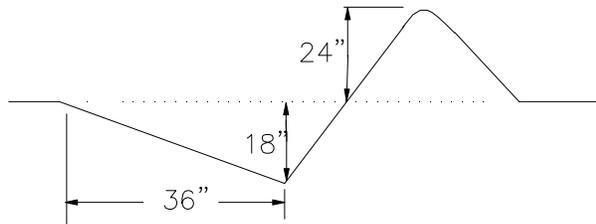
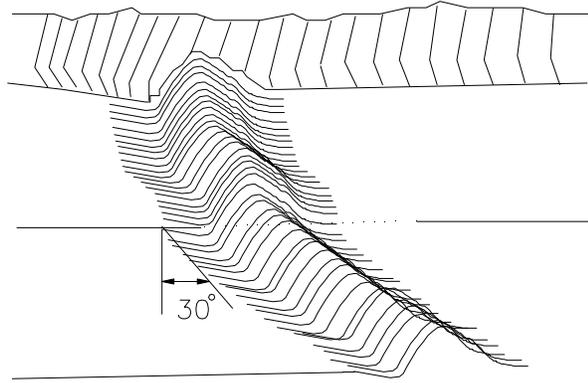
Index:	1	CM-SG Fill A.:	353.1	Index:	2	CM-SG Fill A.:	392.8	Index:	3	CM-SG Fill A.:	581.9
Cut Dp:	-9	F Slope L:	-67%	Cut Dp:	-9	F Slope L:	-67%	Cut Dp:	-11	F Slope L:	-67%
Grd.Nxt.:	-4%	F Slope R:	-67%	Grd.Nxt.:	-5%	F Slope R:	-67%	Grd.Nxt.:	n/a	F Slope R:	-67%
Grd.Lst:	n/a			Grd.Lst:	-4%			Grd.Lst:	-5%		



CULVERT MARKER DETAIL (INLET SHOWN)

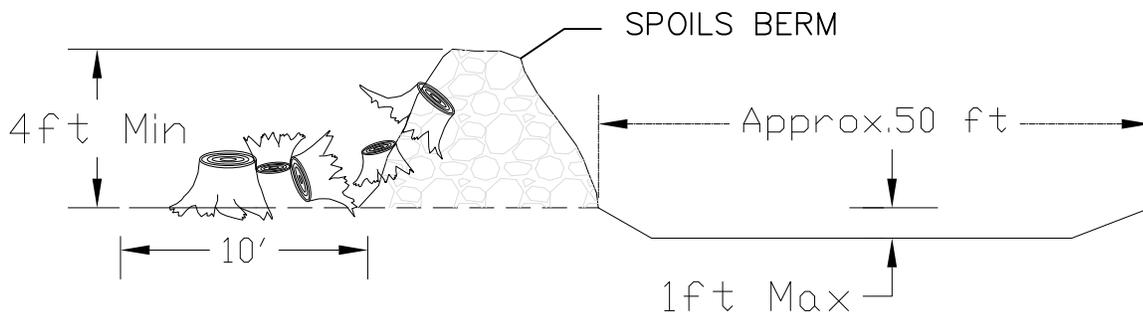
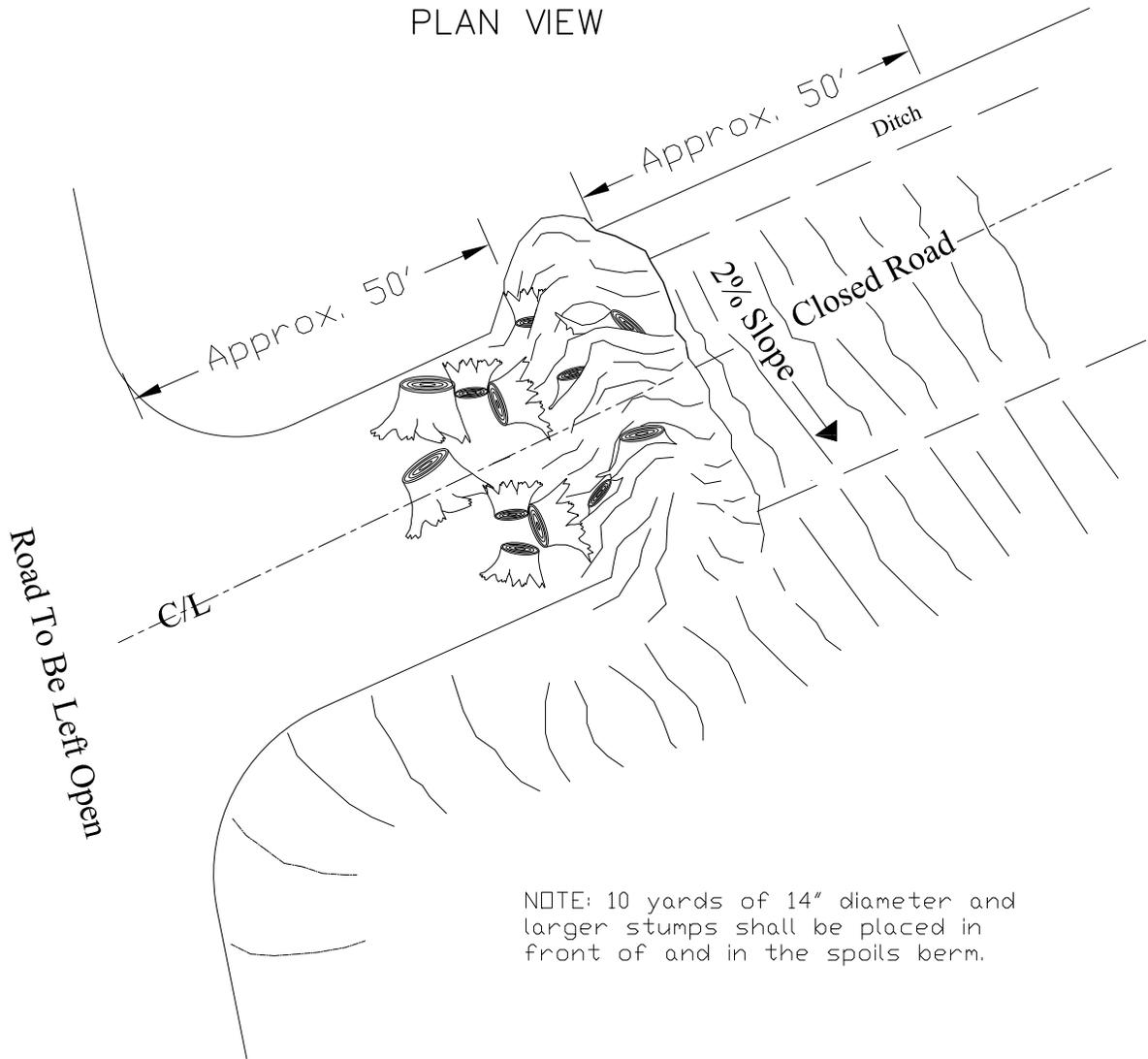
Drawn by: WP Hoskins

NON-DRIVABLE WATER BAR DETAIL



SPOILS BERM DETAIL

PLAN VIEW



Note: $\frac{1}{3}$ of stumps shall be partially buried in the spoils berm and/or road surface.

**DEPARTMENT OF NATURAL RESOURCES
ROAD DEVELOPMENT COST SUMMARY**

(Page 1 of 6)

REGION: PACIFIC CASCADE
DISTRICT: YACOLT

SALE/PROJECT NAME: MOONSTER

CONTRACT NUMBER: 30-093329

LEGAL DESCRIPTION: Sec 9, 10, 13, 14, 15, 23, T03N, R04E

ROAD NUMBER:	L-1211B3, L-1211K, L-1211K1, L-1211K2	L-1211C	L-1210, L-1211, L-1211A, L-1211B, L- 1211D, L-1211J, L-1211Y
ROAD STANDARD:	Construction	Reconstruction	Pre-haul maintenance
NUMBER OF STATIONS:	55.76	5.50	228.04
CLEARING AND GRUBBING:	\$13,350	\$248	
EXCAVATION AND FILL:	\$57,913	\$1,143	
MISC. MAINTENANCE:			\$18,725
ROCK:	(Cu. Yds.)		
2" Minus Crushed:	1468	\$5,780	\$0
4" Minus Jaw Run:	1268	\$9,937	\$4,188
6" Minus Jaw Run:	3516	\$43,366	\$0
Select Pit Run:	15	\$128	\$15
Light Loose Rip Rap:	10	\$365	\$0
CULVERTS AND FLUMES:	\$11,491	\$761	\$1,294
GENERAL EXPENSES:	\$11,386	\$699	\$25,304
MOBILIZATION:	\$1,800	\$1,800	\$1,800
TOTAL COSTS:	\$155,516	\$8,854	\$51,476
COST PER STATION:	\$2,789	\$1,610	\$226

ROAD DECOMMISSION COSTS: \$4,956

TOTAL (All Roads) = \$220,802

SALE VOLUME MBF = 4,916

TOTAL COST PER MBF (All Roads) = \$44.92

Compiled by: S. Hanna

Date: 01/26/16

CONSTRUCTION COSTS

(Page 2 of 6)

SALE NAME: MOONSTER

CONTRACT NUMBER: 30-093329

CLEARING AND GRUBBING:

Road	% Sideslope	MBF/ac	Disposal Factor	Production Factor	Cost/Station	Width Factor	Total Stations	Sub-Total
L-1211B3	35	25	1.00	3.72	\$65	1.00	9.08	\$2,195.54
L-1211K	40	25	1.00	3.72	\$65	1.00	39.95	\$9,659.91
L-1211K1	30	25	1.00	3.72	\$65	1.00	5.37	\$1,298.47
L-1211K2	25	25	1.00	2.22	\$65	1.00	1.36	\$196.25

CLEAR AND GRUB TOTAL = \$13,350.17

EXCAVATION:

Road	% Sideslope	Exc. Type Factor	Production Factor	Cost/Station	Width Factor	Total Stations	Sub-Total
L-1211B3	35	1.0	3.00	\$97	1.00	9.08	\$2,642.28
L-1211K	40	1.0	4.25	\$97	1.00	24.30	\$10,017.68
L-1211K	40	1.5	4.25	\$97	1.00	6.87	\$4,248.24
L-1211K1	25	1.0	2.25	\$97	1.00	2.23	\$486.70

Endhaul (Production costs based on 230 HP Excavator and 135 HP Dozer with Gravel Dump Truck)

Road	Cubic Yards ¹	Waste Area	Total Stations	R.T Miles	Excavation (\$/lcy)	Haul (\$/cy)	Dozer (\$/cy)	Sub-Total
L-1211K	4000	L-1211 at 142+75	5.24	0.24	\$1.07	\$1.33	\$0.39	\$11,166.54
L-1211K	2300	L-1211K at 9+27	5.24	0.20	\$1.07	\$1.96	\$0.39	\$7,875.61
L-1211K ¹	1900	L-1211K at 28+04	3.54	0.12	\$2.75	\$1.22	\$0.39	\$8,275.74

Switchback Fill Construction (Production costs based on 240 HP Dozer pushing native material with vibratory grid roller for compaction)

Road	Total Stations	Cubic Yards ²	Dozer (\$/lcy)	Compaction Lifts (ft)	Compact (\$/lcy) ³	Sub-Total
L-1211K	3.54	942	\$0.75	1	\$0.65	\$1,315.44
L-1211K1	1.01	1159	\$0.84	2	\$0.20	\$1,200.73

Borrow (Native material needed to construct the road grade)

Road	Cubic Yards ²	Total Stations	RT Miles	Haul (\$/lcy)	Compaction Lifts (ft)	Compact (\$/lcy) ³	Dozer (\$/lcy)	Sub-Total
L-1211K1 ⁴	2000	2.13	0.33	\$1.15	2	\$0.17	\$0.79	\$4,210.50
L-1211K2 ⁴	2300	1.36	0.37	\$1.18	2	\$0.13	\$0.56	\$4,290.30

¹Excess material not needed to construct the switchback or road grade embankment must be endhailed to designated waste areas.

²Yardage quantities are based on estimates only.

³Compaction costs accounts for the number of lifts based on average fill heights with 4 passes per lift.

⁴Construction cost for borrow is based on native material generated from the L-1211K construction between stations 6+79 to 11+99.

Subgrade Grading and Compaction

Soil Erosion Control

Total Stations	Cost/Station	Sub-Total	Seed Quantity (lbs)	Cost (\$/lb)	Application Cost (\$/station)	Stations	Sub-Total
55.76	\$29.46	\$1,642.69	119	\$2.20	\$5.00	55.76	\$540.60

EXCAVATION TOTAL = \$57,913.05

Rock Processing & Application Costs

BALLAST AND SURFACING:

Rock Haul Estimates	0
R.T. Miles =	3.78
Ave. Speed =	12.35
Delay (Hrs.)=	0.10
Cost / Hour =	\$95.00
CY / Load =	11

Rock Type	Culvert Armoring & Energy Dissipator		Road Surfacing and Ballast		
	Select Pit Run	Light Loose	2"- Minus	4"- Minus	6"- Jaw Run
Drill & Shoot	\$3.00	\$3.00		\$3.00	\$3.00
Dig and load	\$1.00	\$10.00	\$1.00	\$1.00	\$1.00
Crushing				\$4.00	\$3.50
Haul *	\$3.51	\$3.51	\$3.51	\$3.51	\$3.51
Spread	\$1.10	\$20.00	\$1.10	\$1.10	\$1.10
Compact	\$0.50		\$0.50	\$0.50	\$0.50
Total Unit Costs (\$/cy)	\$9.11	\$36.51	\$6.11	\$13.11	\$12.61
Cubic Yards	14	10	946	758	3,439
Sub-Total	\$127.54	\$365.10	\$5,780.06	\$9,937.38	\$43,365.79

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

ROCK TOTAL = \$59,575.87

CONSTRUCTION COSTS

(Page 3 of 6)

CULVERTS:

Description	Qty.	Dia (inches)	Length (feet)	Cost/ft*	Sub-total
X-Drain	6	18"	30	\$17.75	\$3,195.00
X-Drain	3	18"	40	\$19.03	\$2,284.05
X-Drain	3	18"	50	\$19.62	\$2,942.55
Stream Crossing	1	24	40	\$33.44	\$1,337.79
Stream Crossing	1	24	50	\$34.63	\$1,731.69

* Cost accounts for all culvert materials and the estimated times to install. Material costs are based on prices for double wall corrugated plastic pipes.

CULVERT TOTAL = \$11,491.08

MOBILIZATION:

Description	\$ per Move	# of Moves	Sub-total
Dump Trucks	110	4	\$440
Grader	440	1	\$440
Compactor	440	1	\$440
Excavator	495	1	\$495
Dozer (D8)	440	1	\$440
Front end loader	440	1	\$440
Rock crusher	\$2,000	1	\$2,000
Drill	\$440	1	\$440
Dozer (D5)	\$264	1	\$264

Total Mobilization = \$5,399

Average Mobilization Costs = \$1,799.67

GENERAL EXPENSES:

SUB-TOTAL = \$142,330.17

Overhead & General Exp. Add **8%** **\$11,386.41**

MOBILIZATION SUBTOTAL = \$1,799.67

SHEET TOTAL = \$155,516.25

RECONSTRUCTION COSTS

(Page 4 of 6)

SALE NAME: MOONSTER

CONTRACT NUMBER: 30-093329

CLEARING AND GRUBBING:

Road	% Side Slope	MBF/Acre	Disposal Factor	Production Factor	Cost/Station	Width Factor	Total Stations	Sub-Total
L-1211C	15	1	1.00	1.00	\$45	1	5.50	\$247.50
CLEAR AND GRUB TOTAL =								\$247.50

EXCAVATION:

Road	% Side Slope	Exc. Type Fact.	Production Factor	Cost/Station	Width Factor	Total Stations	Sub-Total
L-1211C	15	1.0	1.75	\$97	1.00	5.50	\$933.63

Subgrade Grading and Compaction

Total Stations	Cost/Station	Sub-Total
5.50	\$29.46	\$162.03

SOIL EROSION CONTROL

Seed Quantity (lbs)	Cost (\$/lb)	Application Cost (\$/station)	Stations	Sub-Total
9	\$2.20	\$5.00	5.50	\$47.30

EXCAVATION TOTAL = \$1,142.96

BALLAST AND SURFACING :

Description	Rock Source	Landowner
4"- Jaw Run	L-1211A	DNR
Select Pit Run	L-1211A	DNR

R.T. Miles =	0.10
Ave. Speed =	10.00
Delay (Hrs.)=	0.10
Cost / Hour =	\$95.00
CY / Load =	11

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

Rock Processing & Application Costs

Rock Type	4"- Jaw Run	Select Pit Run
Drill & Shoot	\$3.00	\$3.00
Dig and load	\$1.00	\$1.00
Crushing	\$4.00	
Haul *	\$0.95	\$0.95
Spread	\$1.10	\$10.00
Compact	\$0.50	
Total Unit Costs (\$/cy)	\$10.55	\$14.95
Cubic Yards	397	1
Sub-Total	\$4,188.35	\$14.95

ROCK TOTAL = \$4,203.30

CULVERTS:

Description	Qty.	Dia (inches)	Length (feet)	Cost/ft*	Sub-Total
X-Drain	1	18"	40	\$19.03	\$761.35

* Cost accounts for all culvert materials and the estimated times to install. Material costs are based on prices for double wall corrugated plastic pipes.

CULVERT TOTAL = \$761.35

SUB-TOTAL = \$6,355.11

GENERAL EXPENSES:

Overhead & General Exp. Add 11% \$699.06

MOBILIZATION SUB-TOTAL = \$1,799.67

SHEET TOTAL = \$8,853.83

PRE-HAUL MAINTENANCE COSTS

(Page 5 of 6)

SALE NAME: MOONSTER

CONTRACT NUMBER: 30-093329

Total stations Pre-Haul Maintenance 228.04

MISC. MAINTENANCE ITEMS:

Description	Cost/Station	Total Stations	Sub-Total
ditch cleaning =	\$30.00	228.04	\$6,841.20
light grading & compact =	\$29.46	191.51	\$5,641.88
heavy grading & compact =	\$35.00	36.53	\$1,278.55
culvert cleanout =	\$5.20	228.04	\$1,185.81
seeding =	\$5.94	228.04	\$1,354.56
clearing and grubbing =	\$45.00	53.84	\$2,422.80
MISC TOTAL =			\$18,724.80

BALLAST AND SURFACING :

Rock Haul Estimates

R.T. Miles =	3.12
Ave. Speed =	12.55
Delay (Hrs.)=	0.10
Cost / Hour =	\$95.00
CY / Load =	11

DNR Rock Source	L-1211A Pit		
	2"- Crushed	4"- Jaw Run	6"- Jaw Run
Drill & Shoot		\$3.00	\$3.00
Dig and load	\$1.00	\$1.00	\$1.00
Crushing		\$4.00	\$3.50
Haul *	\$3.01	\$3.01	\$3.01
Spread	\$1.10	\$1.10	\$1.10
Compact	\$0.50	\$0.50	\$0.50
Total Unit Costs (\$/cy)	\$5.61	\$12.61	\$12.11
Cubic Yards	522	113	77
Sub-Total	\$2,928.42	\$1,424.93	\$932.47

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

ROCK TOTAL = \$5,285.82

CULVERTS AND FLUMES:

Description	Qty.	Dia (inches)	Length (feet)	Cost/ft*	Sub-total
Extras	1	18"	30	\$17.75	\$532.50
Extras	1	18"	40	\$19.03	\$761.35

* Cost accounts for all culvert materials and the estimated times to install. Material costs are based on prices for double wall corrugated plastic pipes.

CULVERT TOTAL = \$1,293.85

SUB-TOTAL = \$25,304.47

GENERAL EXPENSES:

Overhead & General Exp. Add 9% **\$2,277.40**

MOBILIZATION SUB-TOTAL = \$1,799.67

SHEET TOTAL = \$29,381.54

ROAD CLOSURE COSTS

(Page 6 of 6)

SALE NAME: MOONSTER

CONTRACT NUMBER: 30-093329

	Light	Medium	Heavy
Total Stations Road Closure =	32.86		5.92

MISC. ROAD CLOSURE COSTS:

	Description	Cost/Station	Total Stations	Sub-Total
	water barring =	\$32.36	32.86	\$1,063.35
sidecast pullback/restore natural slope=		\$200.00	5.92	\$1,184.00
	wood placement =	\$30.00	38.78	\$1,163.40
	culvert removal =	\$6.17	14.58	\$89.96
	grass seeding =	\$3.67	38.78	\$142.32
	spoils berm =	\$85.00	4	\$340.00
			Misc TOTAL =	\$3,983.03

GENERAL EXPENSES:

Overhead & General Exp. Add	12%	\$477.96
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MOBILIZATION:

*These move in costs are separate since they will occur after logging is done.

	Description	\$ per Move	# of Moves	Sub-total
	Dump Trucks	110		\$0
	Grader	440		\$0
	Compactor	440		\$0
	Excavator	495	1	\$495
	Dozer D8)	440		\$0
	Front end loader	440		\$0
			Total Mobilization =	\$495

Road No. S-1310, S-1310D, S-2700

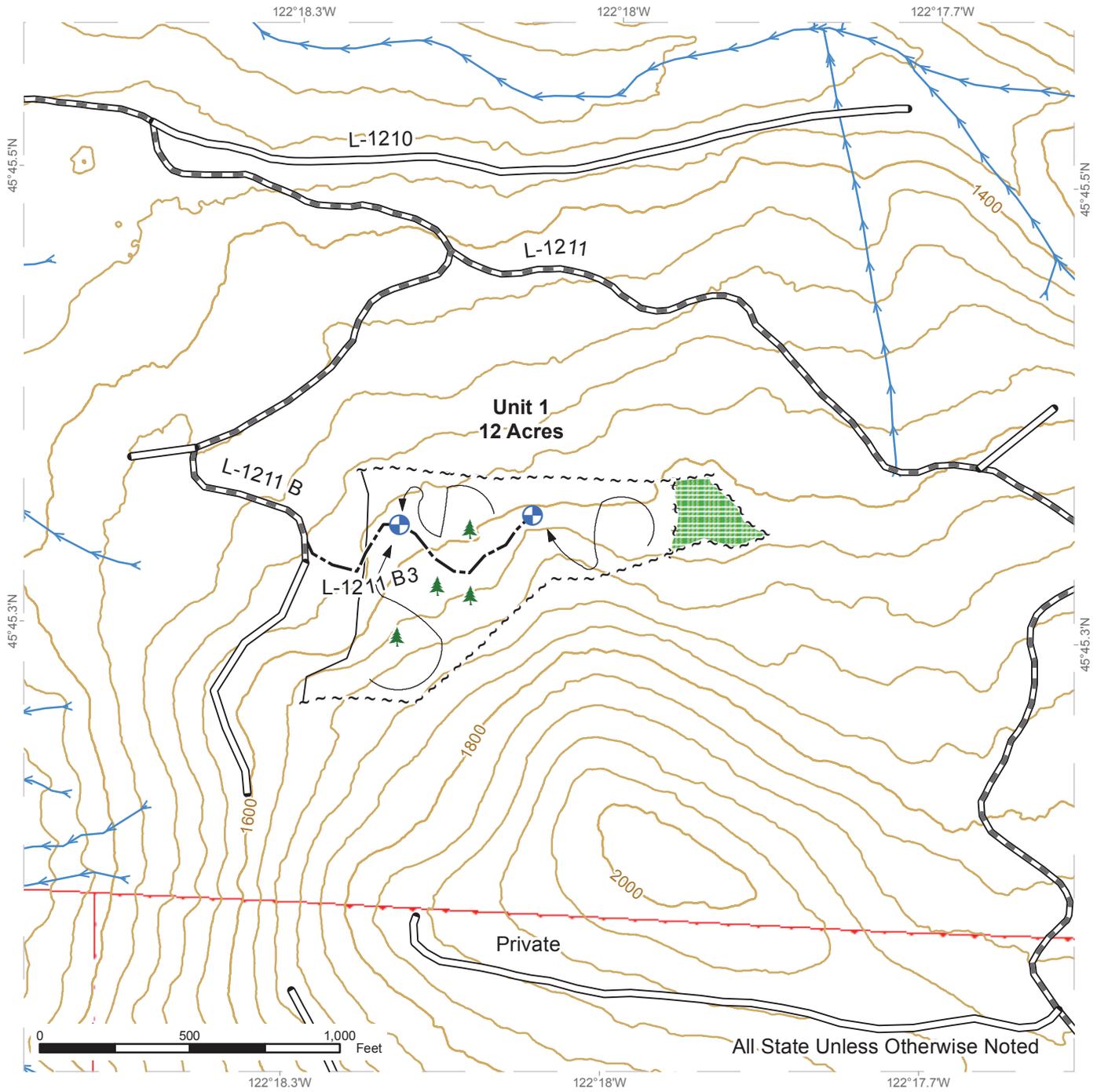
Standard: Light Abandonment

SHEET TOTAL = \$4,955.99

LOGGING PLAN MAP

SALE NAME: MOONSTER
AGREEMENT#: 93329
TOWNSHIP(S): T03R04E
TRUST(S): State Forest Transfer(1), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): CLARK
ELEVATION RGE: 1587-3088



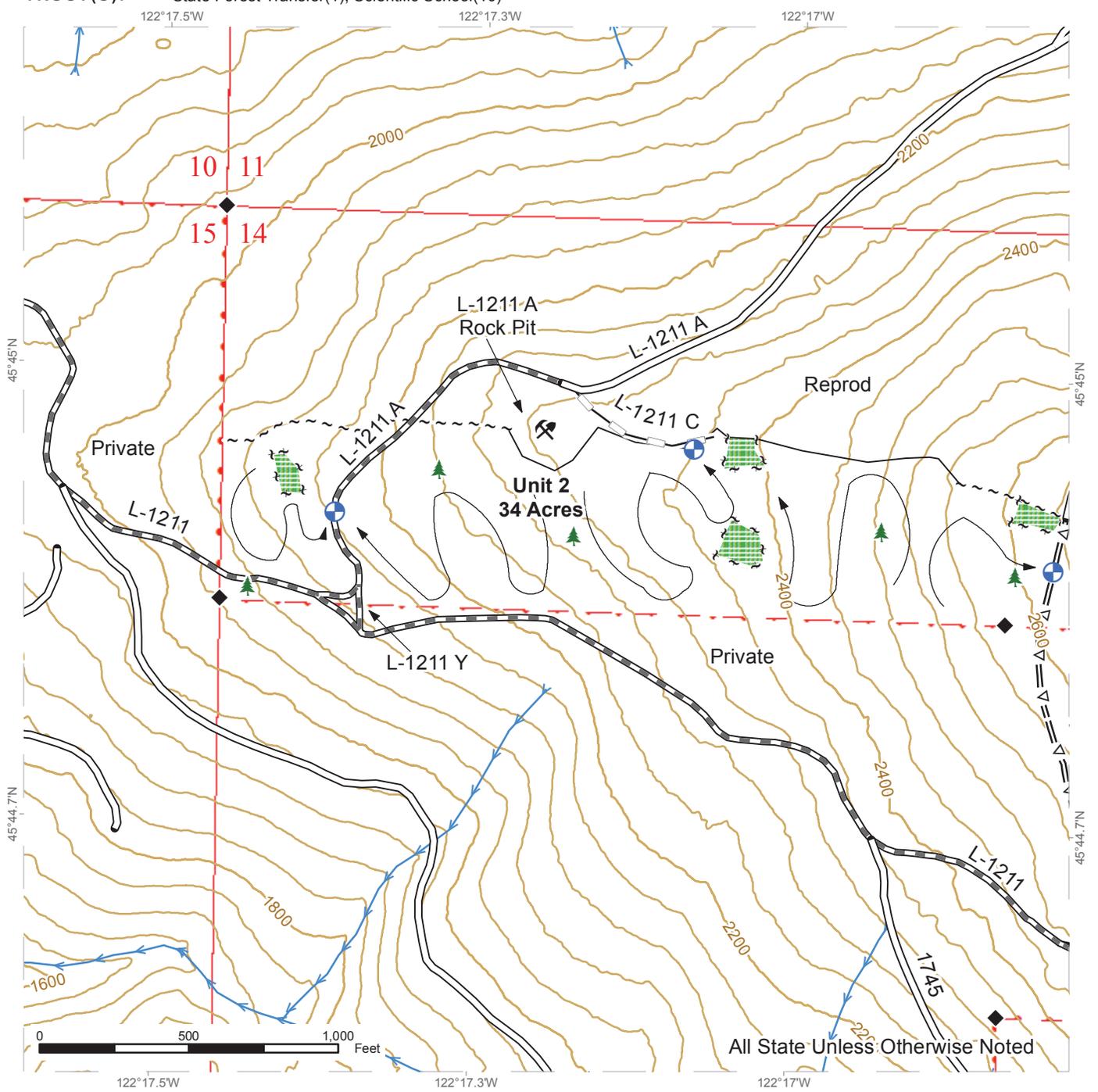
All State Unless Otherwise Noted



LOGGING PLAN MAP

SALE NAME: MOONSTER
AGREEMENT#: 93329
TOWNSHIP(S): T03R04E
TRUST(S): State Forest Transfer(1), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): CLARK
ELEVATION RGE: 1587-3088

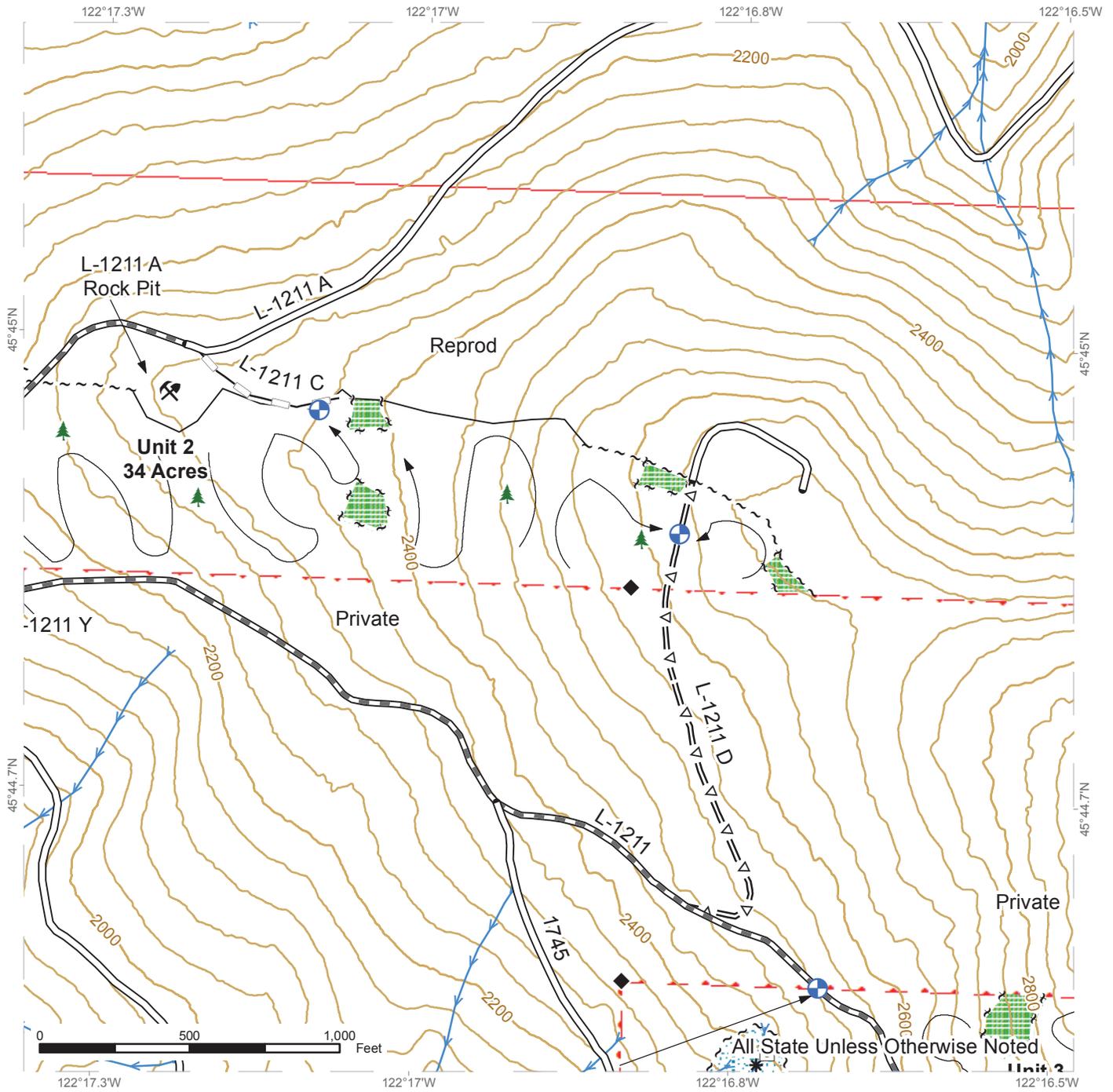


All State Unless Otherwise Noted

LOGGING PLAN MAP

SALE NAME: MOONSTER
AGREEMENT#: 93329
TOWNSHIP(S): T03R04E
TRUST(S): State Forest Transfer(1), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): CLARK
ELEVATION RGE: 1587-3088

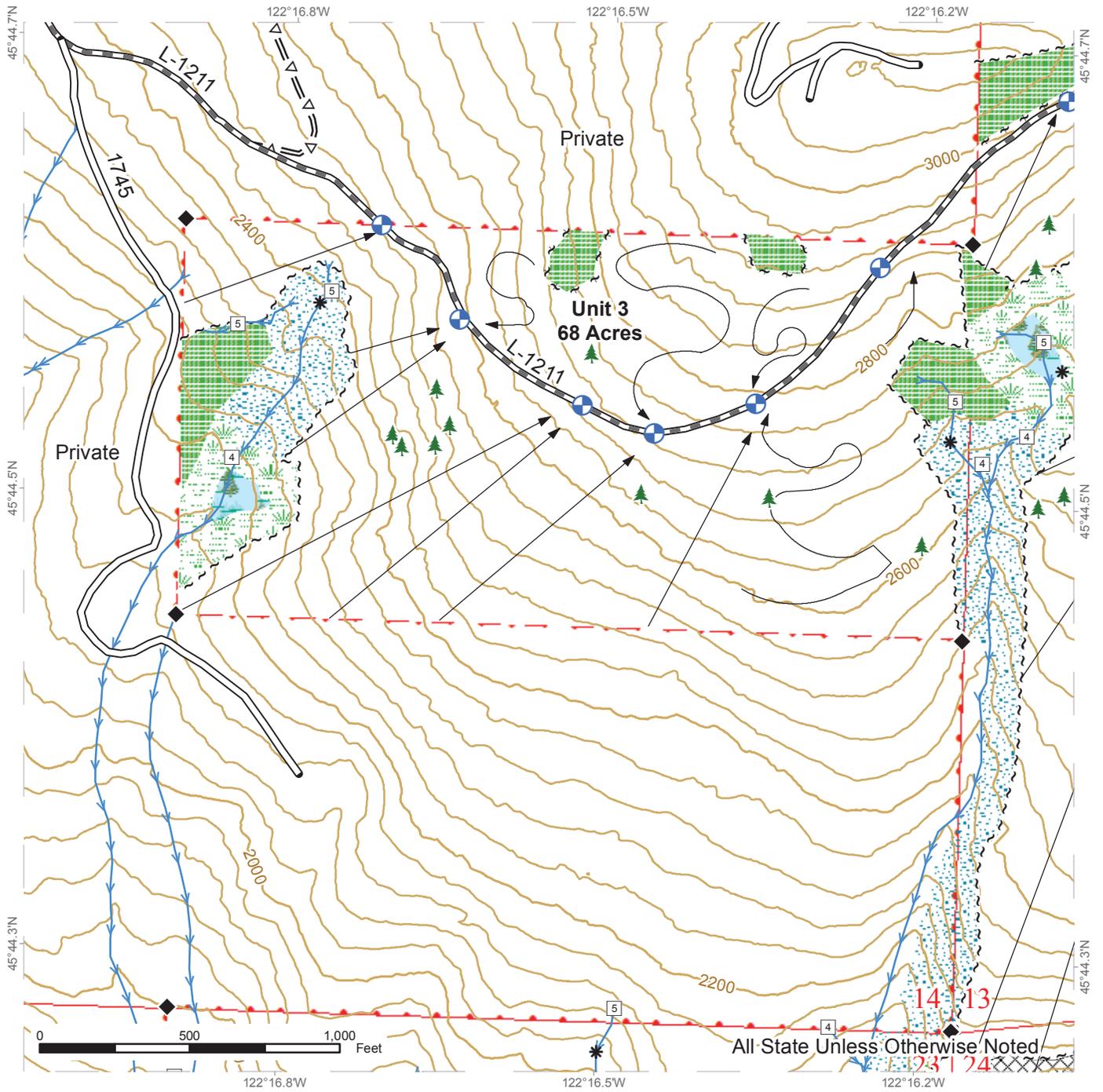




LOGGING PLAN MAP

SALE NAME: MOONSTER
AGREEMENT#: 93329
TOWNSHIP(S): T03R04E
TRUST(S): State Forest Transfer(1), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): CLARK
ELEVATION RGE: 1587-3088

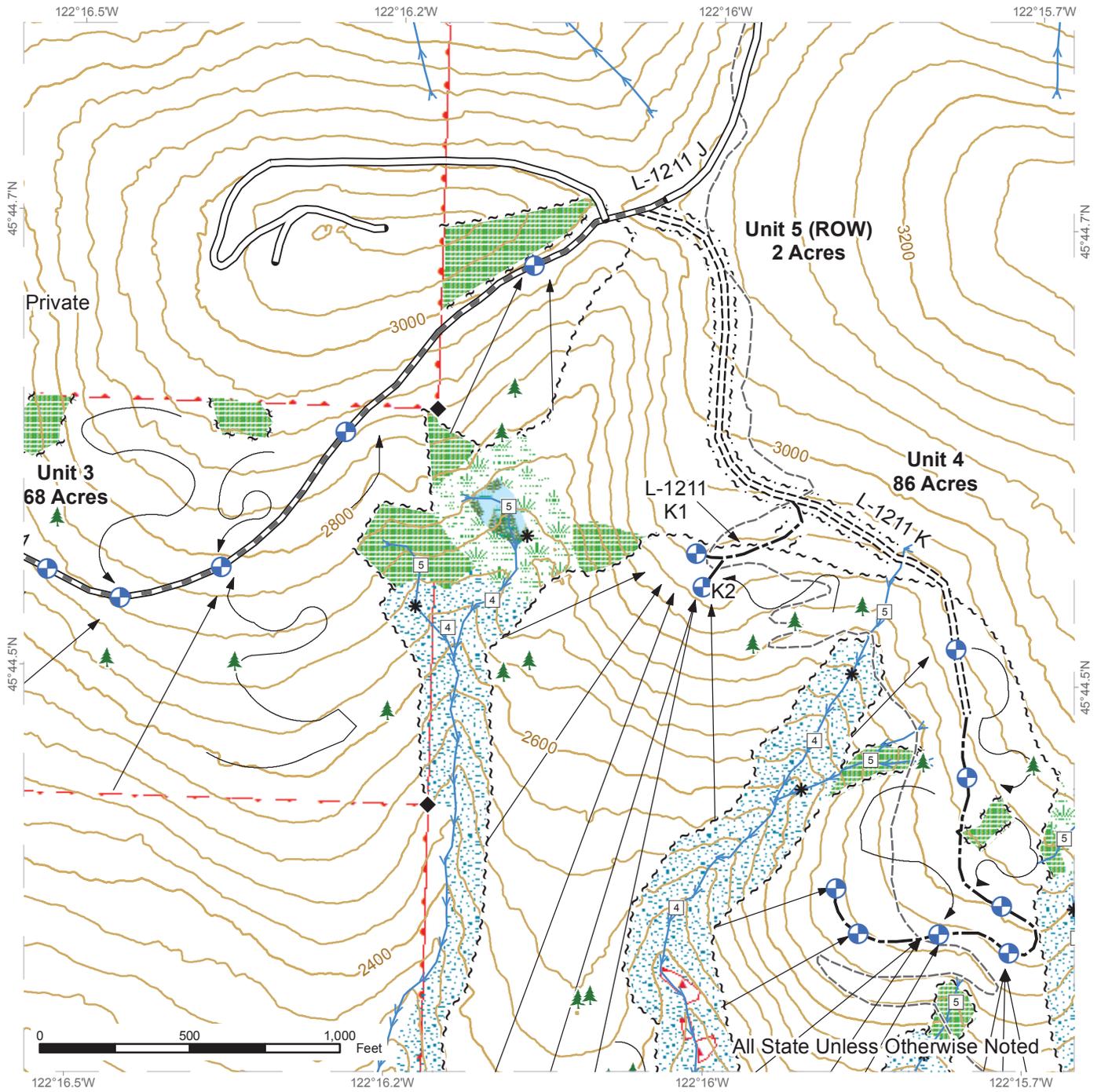


All State Unless Otherwise Noted

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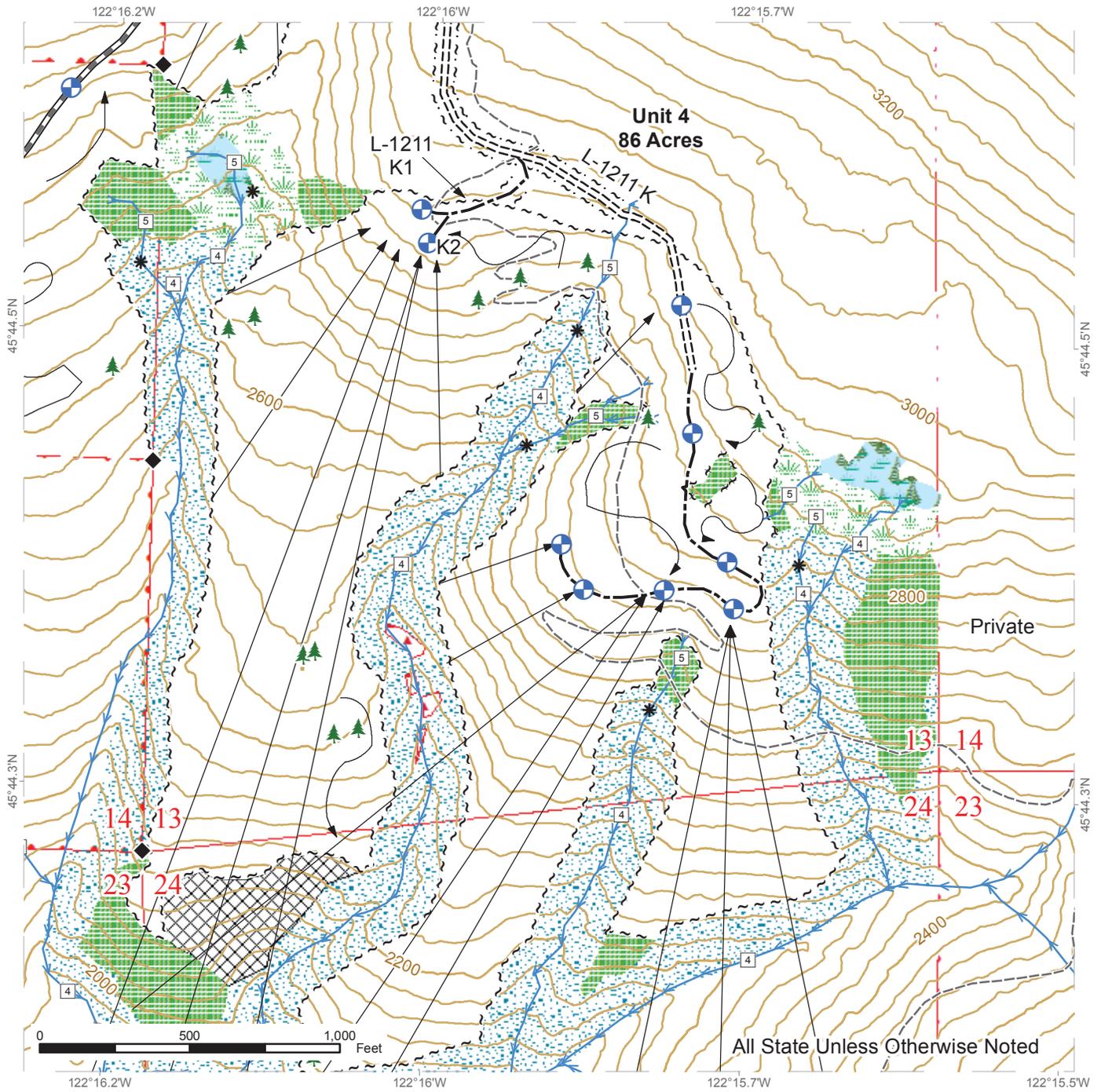
Cable Harvest	Sale Boundary Tags	Streams
Ground Harvest	Leave Tree Tags	Stream Type
Leave Tree Area	Right of Way Tags	Stream Type Break
Riparian Mgt Zone	Property Line	Monumented Corners
Wetland Mgt Zone	Existing Roads	Landing - Proposed
Forested Wetland	Required Pre-Haul Maintenance	Leave Trees
Talus and Buffer	Required Construction	Existing Rock Pit
Slope Stability Mitigation Zone	Optional Construction	Traverse Point
	Old Grades/Trails	



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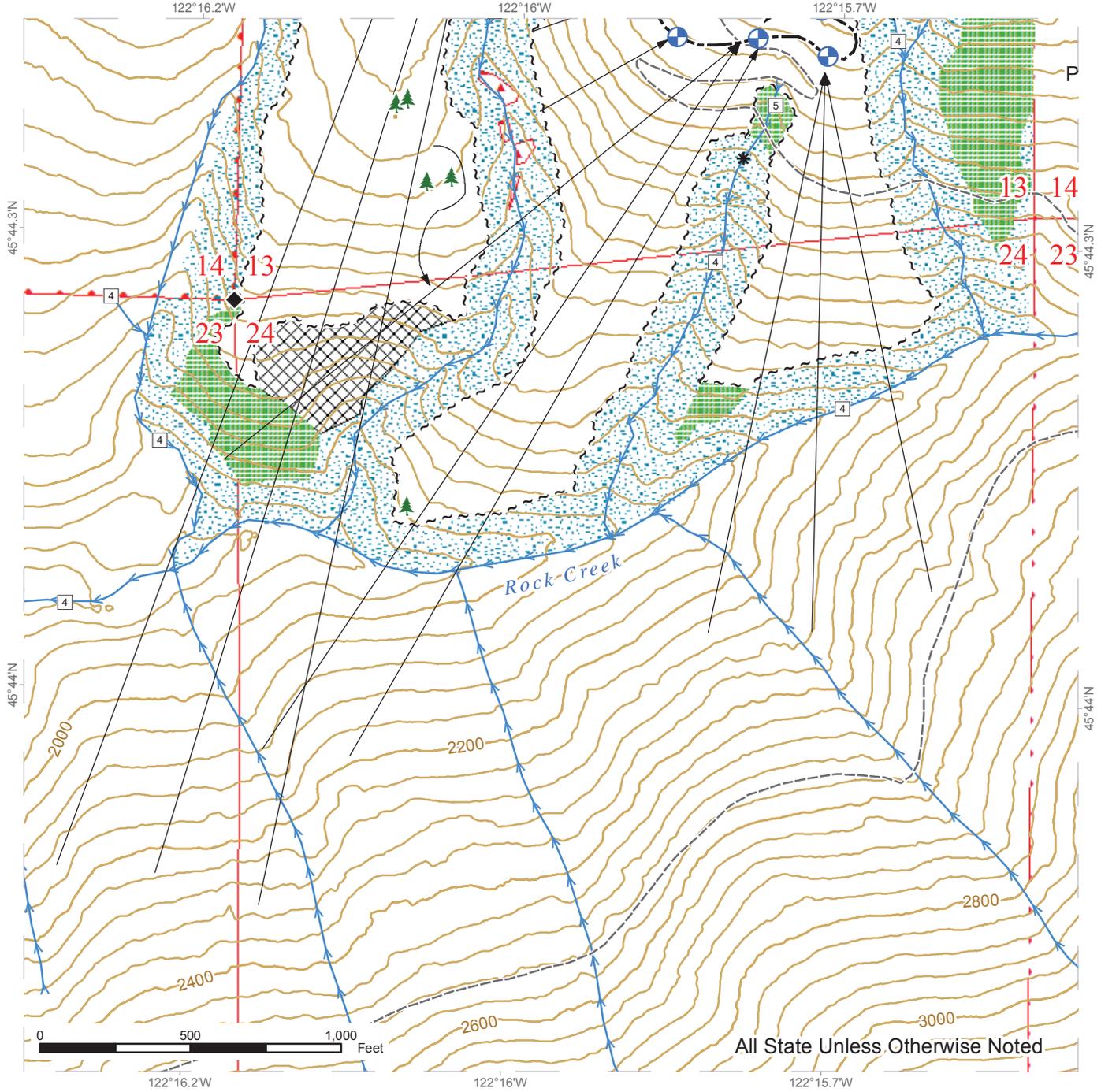
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