

TIMBER NOTICE OF SALE

SALE NAME: PROSPECTOR VRH

AGREEMENT NO: 30-092543

AUCTION: June 16, 2016 starting at 10:00 a.m., **COUNTY:** Skamania
Pacific Cascade Region Office, Castle Rock, WA

SALE LOCATION: Sale located approximately 15 miles northwest of Stevenson

**PRODUCTS SOLD
AND SALE AREA:**

All timber, except leave trees bounded by yellow Leave Tree Area tags, leave trees marked with blue paint, snags, and down timber greater than 10 inches in diameter bounded by the following: Timber Sale Boundary tags and pink flagging in Units 1 and 2; Timber Sale Boundary tags, pink flagging, and the W-2070 road in Unit 5, Timber Sale Boundary tags, pink flagging, reprod, private property, and the W-2014 road in Unit 6; Timber Sale Boundary tags, pink flagging, reprod, private property, and the W-2014 road in Unit 7. All timber bounded by: Right-of-Way Boundary tags and orange flagging in Units 3, 4, 8, 9, 10, and 11; on part(s) of Sections 7, 8, 17 and 18 all in Township 3 North, Range 6 East, Sections 13, 25, 26 and 36 all in Township 3 North, Range 5 East, W.M., containing 345 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	16.3	7	8,358				27		4,069	3,111	967	184
Hemlock	13	7	335						140	116	44	35
Red alder	12.3		34						7		17	10
Sale Total			8,727									

MINIMUM BID: \$1,860,000.00 **BID METHOD:** Sealed Bids

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

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

BID DEPOSIT: \$186,000.00 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 95% cable yarding and 5% ground-based yarding. A detailed felling and yarding plan shall be required prior to any harvest activities. Ground-based yarding is restricted to slopes of 35% or less, and restricted to dry soil conditions. For additional harvest requirements, refer to the H-140 and H-141 clauses in the contract. Ground Based Yarding will not be permitted from October 1 to May 1 unless authorized in writing by the Contract Administrator.

ROADS: 140.04 stations of required construction. 12.25 stations of required reconstruction. 67.79 stations of optional construction. 144.91 stations of required pre-haul maintenance, and 85.25 stations of required abandonment. 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 W-2014 Pit, located in Section 36, Township 03 North, Range 05 East, W.M., the W-2050 Pit, located in Section 17, Township 03 North, Range 06 East, W.M., on the W-

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2073D road at station 10+05 on the left side of the road. 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. Purchaser is to obtain and install bridge on the W-2073. Removal of the two bridges on the W-2070 during abandonment. Bridge installation and removals will not be permitted from October 1 to June 30. Road construction will not be permitted from October 1 to April 30 unless authorized in writing by the Contract Administrator. The hauling of forest products will not be permitted from November 1 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 variable plot and ITS cruise method.

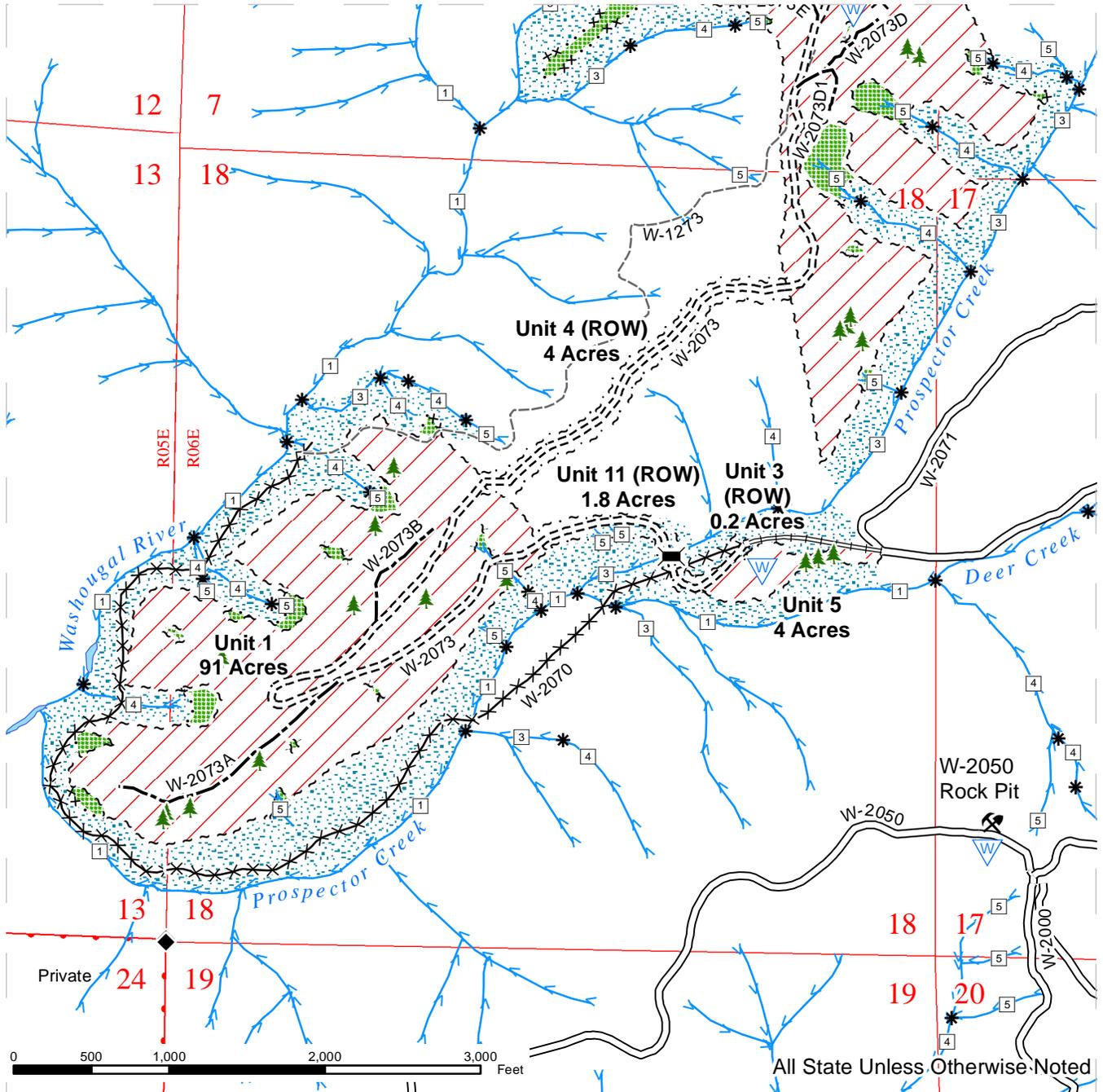
FEES: Fee of \$3,955.13 paid to Synergy Resources LLC for a Road Use Permit between the Purchaser and Synergy Resources LLC. This fee is due day of sale. \$154,904.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: This sale contains an estimated 2,180 MBF of high quality DF 2 saw, 1,589 MBF of high quality DF 3 saw, 27 MBF of DF SM, 47 MBF of high quality WH 2 saw, 31 MBF of high quality WH 3 saw, and 177 MBF of DF Poles. The two existing bridges on the W-2070 have not been load rated and are only suitable for light pickup truck traffic. No heavy equipment is allowed to cross the two existing bridges on the W-2070. See road plan for more details. The bridges are between Stations 16+75 to 17+25 and 28+05 to 28+55 on the W-2070. No operations shall occur on any weekends or State recognized holidays. If the purchaser chooses to haul over the CG-2000, the Pacific Crest Trail crossing needs to be marked with active hauling signs. If the purchaser chooses to haul over the W-2000, the Three Corner Rock Trail crossing needs to be marked with active hauling signs. PCP-1 key required for gate on W-2010 road. The W-2010 gate needs to be closed at all times unless actively hauling. During active haul, locks need to be locked to the gate. Active haul routes need to be posted at all times.

TIMBER SALE MAP

SALE NAME: PROSPECTOR VRH
AGREEMENT#: 30-092543
TOWNSHIP(S): T03R05E, T03R06E
TRUST(S): State Forest Transfer(1), Capitol Grant(7), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): SKAMANIA
ELEVATION RGE: 1248-2046



All State Unless Otherwise Noted

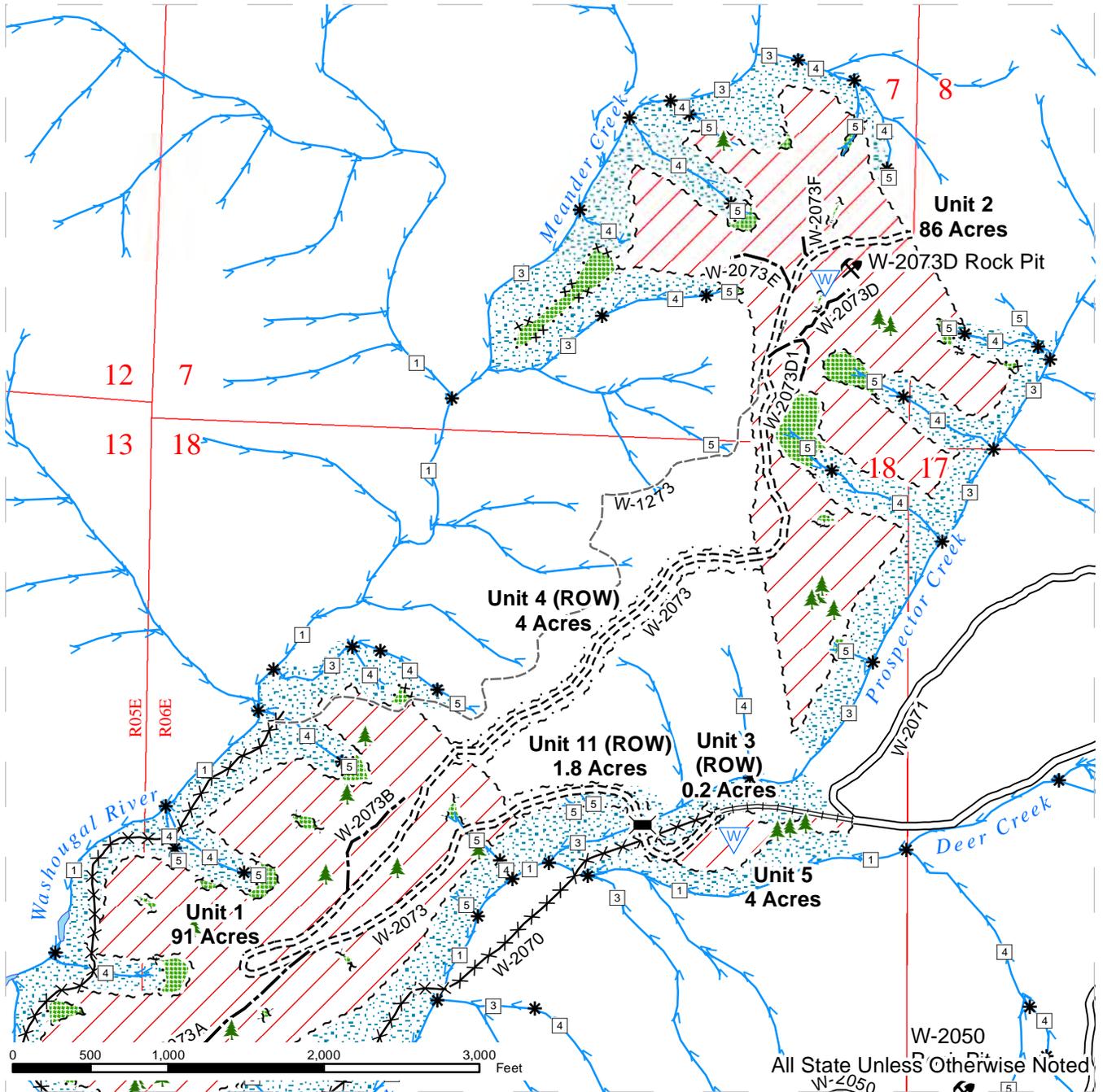
Variable Retention Harvest	Existing Roads	Streams
Leave Tree Area	Required Construction	Stream Type
Riparian Mgt Zone	Required Reconstruction	Stream Type Break
Sale Boundary Tags	Required Pre-Haul Maintenance	Leave Trees
Pink Flagging	Optional Construction	Rock Pit
Right of Way Tags	Abandoned Roads	Bridge Installation
Yellow Flagging	Old Grades / Trails	Waste Area
Leave Tree Tags	Required Abandonment	Monumented Corners



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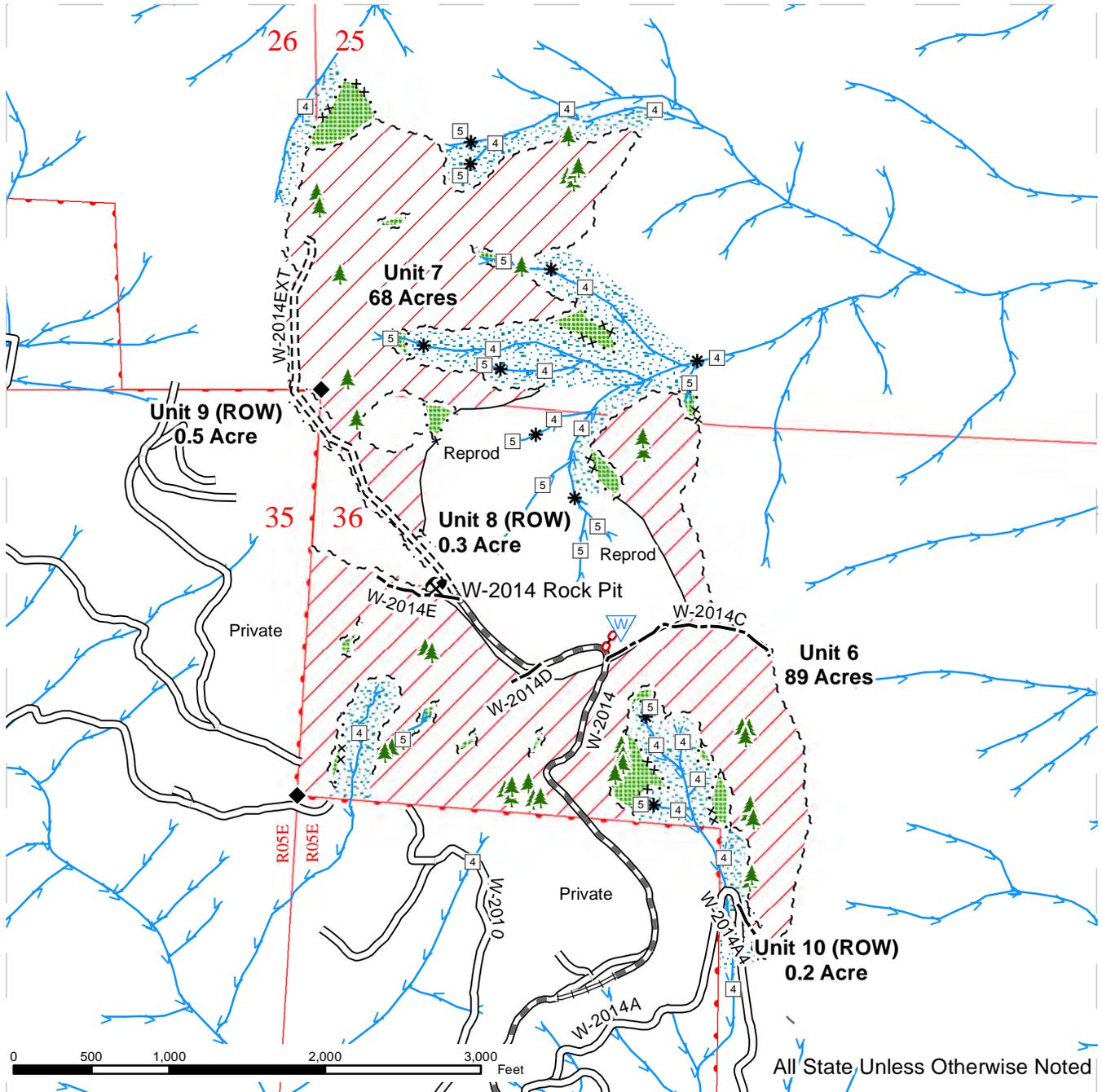
Variable Retention Harvest	Existing Roads	Streams
Leave Tree Area	Required Construction	Stream Type
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Variable Retention Harvest	Existing Roads	Streams
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DRIVING MAP

SALE NAME: PROSPECTOR VRH
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- Highways
- Haul Route
- Other Route
- ★ Town
- Milepost Marker
- Gate (PCP 1-1)
- Distance Indicator
- ⛏ Rock Pit

DRIVING DIRECTIONS:

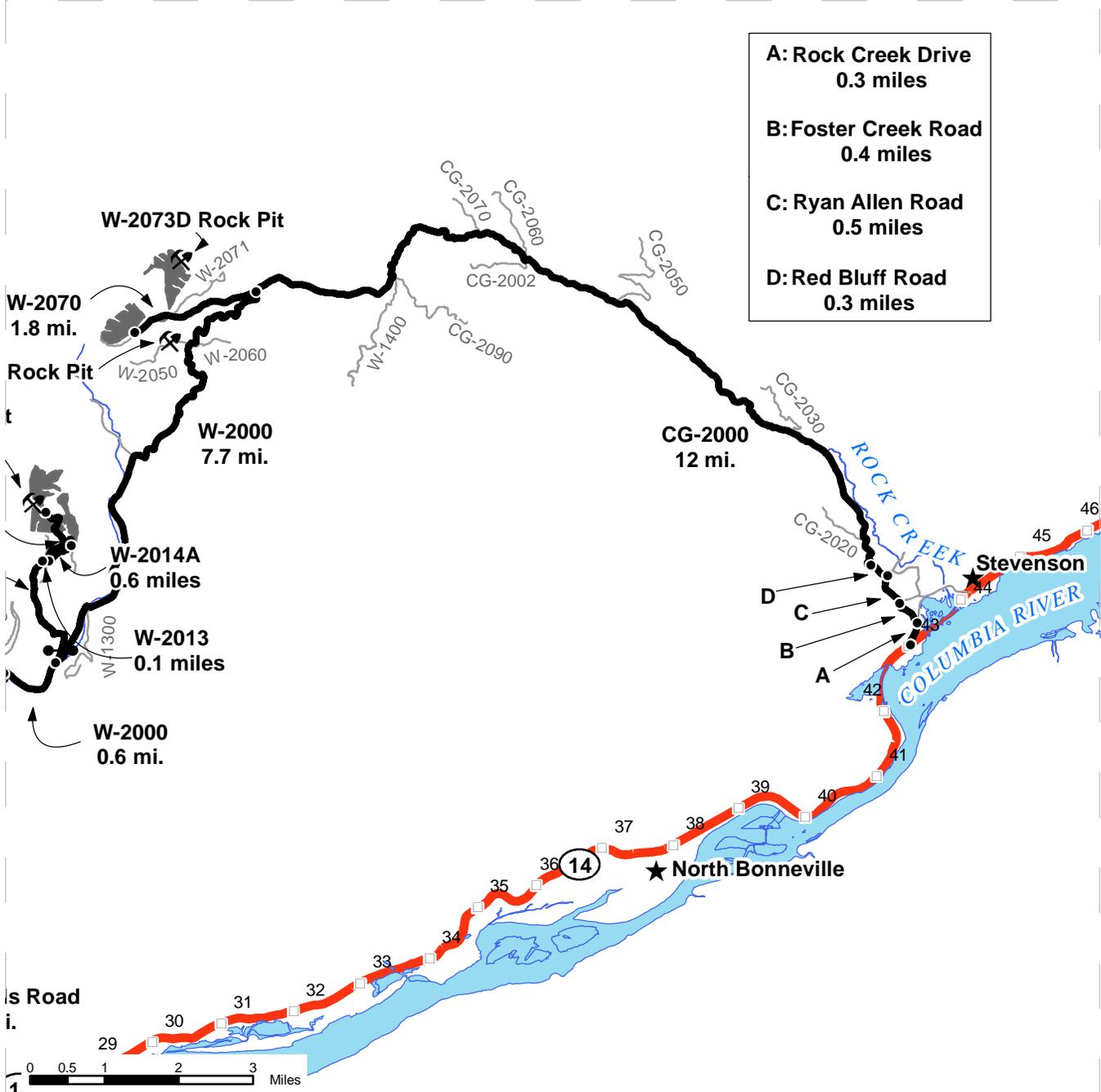
Route 1: From State Route 14 (milepost 16), turn north onto Washougal River Road and follow for 10.2 miles. At the junction with Salmon Falls Road, stay left to remain on Washougal River Road and follow for 7.3 miles. Turn right onto the W-2000 (at Dougan Falls) and follow for 0.6 miles. Units 6, 7, 8, 9, and 10: Turn left onto the W-2010, go through the gate, and follow for 1.7 miles. Turn right onto the W-2013 and follow for 0.1 miles. Turn left onto the W-2014 and follow for 1.8 miles to access Units 6, 7, 8, and 9 and the W-2014 Rock Pit. Alternatively, go past the junction with the W-2014 and then stay to the left to continue onto the W-2014A and access Units 6 and 10. Units 1, 2, 3, 4, and 5: Remain on the W-2000 for 7.3 miles from the beginning of the road at Dougan Falls. At the W-2050 Rock Pit and the junction with the W-2050, turn right to stay on the W-2000 and follow for 1.6 miles. Turn left onto the W-2070 and continue for 1.8 miles to access Units 1, 3, and 5. Continue for 0.7 miles on the W-2070 to the end of the drivable road for walk-in access to Units 2 and 4 and the W-2073D Rock Pit.



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- A: Rock Creek Drive**
0.3 miles
- B: Foster Creek Road**
0.4 miles
- C: Ryan Allen Road**
0.5 miles
- D: Red Bluff Road**
0.3 miles

- Highways
- Haul Route
- Other Route
- ★ Town
- Milepost Marker
- Gate (PCP 1-1)
- Distance Indicator
- ⛏ Rock Pit

DRIVING DIRECTIONS:

Route 2: From State Highway 14 (between mileposts 26 and 27), turn north onto Rock Creek Drive and follow for 0.3 miles.
 Turn left onto Foster Creek Road and follow for 0.4 miles.
 Stay left to continue onto Ryan Allen Road and follow for 0.5 miles.
 Turn left onto Red Bluff Road and follow for 0.3 miles.
 Follow the road to the right where it quickly turns into gravel and becomes the CG-2000.
 Follow the CG-2000 for 10 miles.
 At the 4-way junction of the CG-2000, CG-2090, W-1400, and W-2000, stay to the right to continue onto the W-2000 and follow for 2 miles.
 Stay to the right to continue onto the W-2070 and follow for 1.8 miles to access Units 1, 3, and 5.
 Continue for 0.7 miles on the W-2070 to the end of the drivable road for walk-in access to Units 2 and 4 and the W-2073D Rock Pit.



**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

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

Export Restricted Lump Sum AGREEMENT NO. 30-092543

SALE NAME: PROSPECTOR VRH

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

Section G: General Terms

G-001 Definitions

The following definitions apply throughout this contract;

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

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

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

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

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

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

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

G-011 Right to Remove Forest Products and Contract Area

Purchaser was the successful bidder on June 16, 2016 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber, except leave trees bounded by yellow Leave Tree Area tags, leave trees marked with blue paint, snags, and down timber greater than 10 inches in diameter bounded by the following: Timber Sale Boundary tags and pink flagging in Units 1 and 2; Timber Sale Boundary tags, pink flagging, and the W-2070 road in Unit 5, Timber Sale Boundary tags, pink flagging, reprod, private property, and the W-2014 road in Unit 6; Timber Sale Boundary tags, pink flagging, reprod, private property, and the W-2014 road in Unit 7. All timber bounded by: Right-of-Way Boundary tags and orange flagging in Units 3, 4, 8, 9, 10, and 11,; located on approximately 345 acres on part(s) of Sections 7, 8, 17, and 18 all in Township 3 North, Range 6 East, Sections 13, 25, 26, and 36 all in Township 3 North, Range 5 East W.M. in Skamania County(s) as designated on the sale area and as shown on the attached timber sale map.

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

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

G-020 Inspection By Purchaser

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

estimates, appraisals, pre-bid documentation, or any other representations by the State Department of Natural Resources.

G-031 Contract Term

Purchaser shall complete all work required by this contract prior to October 31, 2018.

G-040 Contract Term Adjustment - No Payment

Purchaser may request an adjustment in the contract term. A claim must be submitted in writing and received by the State within 30 days after the start of interruption or delay. The claim must also indicate the actual or anticipated length of interruption or delay. The State may grant an adjustment without charge only if the cause for contract term adjustment is beyond Purchaser's control. The cause must be one of the following and the adjustment may be granted only if operations or planned operations under this contract are actually interrupted or delayed:

- a. Road and bridge failures which deny access.
- b. Access road closures imposed by road owner.
- c. Excessive suspensions as provided in clause G-220.
- d. Regulatory actions not arising from Purchaser's failure to comply with this contract which will prevent timber harvest for a period less than 6 months.

G-051 Contract Term Extension - Payment

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

- a. A written request for extension of the contract term must be received prior to the expiration date of the contract.
- b. Completion of all required roads and compliance with all contract and regulatory requirements.
- c. For the first extension, not to exceed 1 year, payment of at least 25 percent of the total contract price.

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

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

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

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

- e. Payment of \$877.00 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 Purchaser's 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. Purchaser's 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; CG-2000, W-2000, W-2010, W-2013, W-2014, W-2014 ext, W-2014A4, W-2014C, W-2014D, W-2014E, W-2050, W-2070, W-2073, W-2073A, W-2073B, W-2073D, W-2073D1, W-2073E, W-2073F 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 W-2000, CG-2000, W-2010, W-2013, W-2014, W-2014A, W-2050, and W-2070 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:

Road Use Permit between the State and Synergy Resources LLC. Dated:02/08/2016
Expires:12/31/2019

G-396 County Hauling Permit

The hauling of forest products, rock or equipment may require a county road hauling permit. Purchaser is responsible for obtaining a permit and any costs associated with extra maintenance or repair levied by a county. Purchaser must provide the Contract Administrator with a copy of the executed permit.

G-410 Judgment Requirements

Purchaser agrees to comply with the attached terms and conditions of Condemnation judgment(s) in Superior Court of the State of Washington for Skamania County, numbered 4395-C, dated February 11, 1966.

G-430 Open Fires

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

G-450 Encumbrances

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

DATA MISSING

Section P: Payments and Securities

P-011 Initial Deposit

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

P-020 Payment for Forest Products

Purchaser agrees to pay the total, lump sum contract price of \$233,447.00. The total contract price consists of a \$0.00 contract bid price plus \$233,447.00 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 \$0.00. The Security provided shall guarantee performance of all provisions of this contract and payment of any damages caused by operations under this contract or resulting from Purchaser's noncompliance with any rule or law. Acceptable performance security may be in the form of a performance bond, irrevocable letter of credit, cash, savings or certificate of deposit account assignments, and must name the State as the obligee or beneficiary. A letter of credit must comply with Title 62A RCW, Article 5. Performance security must remain in full force over the duration of the contract length. Surety bonds issued shall conform to the issuance and rating requirements in clause G-150. The State shall retain the performance security pursuant to RCW 79.15.100. Purchaser shall not operate unless the performance security has been accepted by the State. If at any time the State decides that the security document or amount has become unsatisfactory, Purchaser agrees to suspend operations and, within 30 days of notification, to replace the security with one acceptable to the State or to supplement the amount of the existing security.

P-100 Performance Security Reduction

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

Section H: Harvesting Operations

H-010 Cutting and Yarding Schedule

Ground Based Yarding will not be permitted from October 1 to May 1 unless authorized in writing by the Contract Administrator.

H-013 Reserve Tree Damage Definition

Reserve trees are trees required and designated for retention within the sale boundary. Purchaser shall protect reserve trees from being cut, damaged, or removed during operations.

Reserve tree damage exists when one or more of the following criteria occur as a result of Purchaser's operation, as determined by the Contract Administrator:

- a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 100 square inches.
- b. A reserve tree top is broken or the live crown ratio is reduced below 30 percent.

- c. A reserve tree has more than 1/3 of the circumference of its root system injured such that the cambium layer is exposed.

If the Contract Administrator determines that a reserve tree has been cut or damaged, the Purchaser shall provide a replacement reserve tree of like condition, size, and species within the sale area, as approved by the Contract Administrator. Purchaser may be required to pay liquidated damages for Excessive Reserve Tree Damage as detailed in clause D-041.

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

H-017 Preventing Excessive Soil Disturbance

Operations may be suspended when soil rutting exceeds 6 inches as measured from the natural ground line. To reduce soil damage, the Contract Administrator may require water bars to be constructed, grass seed to be placed on exposed soils, or other mitigation measures. Suspended operations shall not resume unless approval to do so has been given, in writing, by the Contract Administrator.

H-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, 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, shovel, forwarder, tracked skidder, and rubber tired 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.

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 November 1 to May 1 in all units unless authorized in writing by the Contract Administrator .

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

Ground based yarding equipment will not be permitted on slopes over 35%.

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

A detailed felling and yarding plan shall be required prior to any harvest activities and approved in writing by the Contract Administrator.

No operations shall occur on any weekends or State recognized holidays.

W-2010 gate needs to be closed at all times unless actively hauling. During active haul, locks need to be locked to the gate so they are not lost or stolen.

Active haul routes need to be posted at all times.

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.

Purchaser shall comply with terms and conditions of Cutting Line Agreement entered into between the State and Synergy Resources LLC, dated 12/15/2015.

The two existing bridges on the W-2070 have not been load rated and are only suitable for light pickup truck traffic. No equipment is allowed to cross the two existing bridges on the W-2070. The bridges are between Stations 16+75 to 17+25 and 28+05 to 28+55 on the W-2070.

If the purchaser chooses to haul over the CG-2000, the Pacific Crest Trail crossing needs to be marked with active hauling signs.

If the purchaser chooses to haul over the W-2000, the Three Corner Rock Trail crossing needs to be marked with active hauling signs.

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

H-190 Completion of Settings

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

H-220 Protection of Residual or Adjacent Trees

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

H-230 Tops and Limbs Outside the Sale Boundary

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

Section C: Construction and Maintenance

C-040 Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 10/20/2016 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 W-2010, W-2014, W-2014 ext., W-2014A, W-2014A4, W-2014C, W-2014D, W-2014E, W-2073, W-2073A, W-2073B, W-2073D, W-2073D1, W-2073E, W-2073F. 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 W-2000, CG-2000, W-2010, W-2050, W-2070. Purchaser shall furnish a statement in a form satisfactory to the State showing the costs incurred while performing this work. Costs shall be based on the rates set forth in the State current Equipment Rate Schedule on file at the region and Olympia offices. The State shall reimburse Purchaser for said costs within 30 days of receipt and approval of the statement.

C-080 Landing Locations Approved Prior to Construction

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

C-140 Water Bars

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

Section S: Site Preparation and Protection

S-001 Emergency Response Plan

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

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

S-010 Fire Hazardous Conditions

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

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

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

S-030 Landing Debris Clean Up

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

- S-035 Logging Debris Clean Up
Slash and debris created from harvest activities shall be treated in a manner approved in writing by the Contract Administrator.
- S-050 Cessation of Operations for Low Humidity
During the "closed season", when the humidity is 30 percent or lower on the sale area, all operations must cease unless authority to continue is granted by the State in writing.
- S-060 Pump Truck or Pump Trailer
Purchaser shall provide a fully functional pump truck or pump trailer equipped to meet the specifications of WAC 332-24-005 and WAC 332-24-405 during the "closed season" or as extended by the State and shall provide trained personnel to operate this equipment on the sale area during all operating periods.
- S-070 Water Supply
Purchaser shall provide, during the "closed season", a water supply with a minimum capacity of 1500 gallons for rapid filling of pump trucks or trailers at a location designated by the Contract Administrator.
- S-100 Stream Cleanout
Slash or debris which enters all typed streams as a result of operations under this contract and which is identified by the Contract Administrator shall be removed and deposited in a stable position. Removal of slash or debris shall be accomplished in a manner that avoids damage to the natural stream bed and bank vegetation.
- S-110 Resource Protection
No ground based equipment may operate within the RMZ of Type 3 and Type 4 streams or within the 30 feet of Type 5 streams unless authority is granted in writing by the Contract Administrator.
- S-130 Hazardous Materials
- a. Hazardous Materials and Waste - Regulatory Compliance

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

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

c. Hazardous Materials Spill Containment, Control and Cleanup

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

d. Hazardous Material Release Reporting

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

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

DNR Contract Administrator

ECY - Northwest Region:

1-425-649-7000

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

ECY - Southwest Region:

1-360-407-6300

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

ECY - Central Region:

1-509-575-2490

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

ECY - Eastern Region:

1-509-329-3400

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

S-131 Refuse Disposal

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

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

Section D: Damages

D-013 Liquidated Damages or Failure to Perform

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

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

D-041 Reserve Tree Excessive Damage

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

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

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: PROSPECTOR VRH

Application Number: 30- 092543

EXCISE TAX APPLICABLE ACTIVITIES

Construction: 20,783 linear feet
Road to be constructed (optional and required) but not abandoned

Reconstruction: 1,225 linear feet
Road to be reconstructed (optional and required) but not abandoned

Abandonment: 8,525 linear feet
Abandonment of existing roads not reconstructed under the contract

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

Pre-Haul Maintenance: 14,491 linear feet
Existing road to receive maintenance work (specifically required by the contract) prior to haul

EXCISE TAX EXEMPT ACTIVITIES

Temporary Optional and Required Construction: 0 linear feet
Optional 0' and required 0' roads to be constructed and then abandoned

Temporary Optional and Required Reconstruction: 0 linear feet
Optional 0' and required 0' roads to be reconstructed and then abandoned

New Abandonment: 0 linear feet
Abandonment of roads constructed or reconstructed under the contract

All parties must make their own assessment of the taxable or non-taxable status of any work performed under the timber sale 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: Prospector VRH	Region: Pacific Cascade
Agreement #: 30-092543	District: Yacolt
Contact Forester: Sean Tran Phone / Location: (360) 688-6035	County(s): Skamania, Choose a county
Alternate Contact: Jacob Oberlander Phone / Location: (360) 601-1074	Other information: Click here to enter text.

Type of Sale: Lump Sum	
Harvest System: Uphill Cable	95%
Harvest System: Ground based	5%

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit #	Legal Description (Enter only one legal for each unit) Sec/Twp/Rng	Grant or Trust	Gross Proposal Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determination (List method and error of closure if applicable)
				RMZ/WMZ Acres	Leave Tree Acres	Existing Road Acres	Other Acres (describe)		
1	Sec 18 / T03N R06E	01, 07	159	63	5	0	0	91	GPS (Trimble)
2	Sec 07 / T03N R06E	01	149	52	9	0	2 (unstable slopes)	86	GPS (Trimble)
3 ROW	Sec 18 / T03N R06E	01	0.2	0	0	0	0	0.2	GPS (Garmin)
4 ROW	Sec 18 / T03N R06E	01	4	0	0	0	0	4	GPS (Garmin)
5	Sec 18 / T03N R06E	01	12	8	0	0	0	4	GPS (Trimble)
6	Sec 36 / T03N R05E	10, 01	113	17	5	2	0	89	GPS (Trimble)
7	Sec 25 / T03N R05E	01, 07	96	21	5	0	2 (talus)	68	GPS (Trimble)
8 ROW	Sec 36 / T03N R05E	01	0.3	0	0	0	0	0.3	GPS (Trimble)
9 ROW	Sec 35 / T03N R05E	PVT	0.5	0	0	0	0	0.5	GPS (Garmin)
10 ROW	Sec 36 / T03N R05E	10	0.2	0	0	0	0	0.2	GPS (Garmin)

11 ROW	Sec 18/T03N R06E	01	1.8	0	0	0	0	1.8	
TOTAL ACRES			536	161	24	2	4	345	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1	Unit 1 is bounded by white "Timber Sale Boundary" tags, pink flashers and pink flagging. Clumped leave trees are bounded by yellow "Leave Tree Area" tags, pink flashers, and pink flagging. Individual leave trees are marked with a ring of blue paint. Road Center Lines (CL) are marked with orange ribbon, stakes and orange paint.	Variable Retention Harvest	772 clumped and scattered leave trees
2	Unit 2 is bounded by white "Timber Sale Boundary" tags, pink flashers and pink flagging. Clumped leave trees are bounded by yellow "Leave Tree Area" tags, pink flashers, and pink flagging. Individual leave trees are marked with a ring of blue paint. Road Center Lines (CL) are marked with orange ribbon, stakes and orange paint.	Variable Retention Harvest	776 clumped and scattered leave trees
3 (ROW)	ROW area is defined by clearing limits of 33 feet on either side of the center line. Center line is marked by wooden stakes, orange flagging, and orange painted "CL."	Right of Way	100% harvest within the ROW area
4 (ROW)	ROW area is defined by clearing limits of 33 feet on either side of the center line. Center line is marked by wooden stakes, orange flagging, and orange painted "CL."	Right of Way	100% harvest within the ROW area
5 (Waste Area)	Unit 5 is bounded by white "Timber Sale Boundary" tags, pink flashers and pink flagging. Individual leave trees are marked with a ring of blue paint.	Variable Retention Harvest for Waste Area	32 scattered leave trees
6	Unit 6 is bounded by white "Timber Sale Boundary" tags, pink flashers, and pink flagging. Property lines are marked by white carsonite posts and/ or pink flagging. Individual leave trees are marked with a single ring of blue paint.	Variable Retention Harvest	788 clumped and scattered leave trees

	Road Center Lines (CL) are marked with orange ribbon and orange paint.		
7	Unit 7 is bounded by white "Timber Sale Boundary" tags, pink flashers, and/ or pink flagging. Property lines are marked by white carsonite posts and pink flagging. Individual leave trees are marked with a single ring of blue paint. Road Center Lines (CL) are marked with orange ribbon and orange paint.	Variable Retention Harvest	600 clumped and scattered leave trees
8 (ROW)	ROW area is bound by orange "Right-of-Way" tags and orange flashers.	Right of Way	100% harvest within the ROW area
9 (ROW)	ROW area is bound by orange "Right-of-Way" tags and orange flashers.	Right of Way	100% harvest within the ROW area (PVT)
10 (ROW)	ROW area is bound by orange "Right-of-Way" tags and orange flashers.	Right of Way	100% harvest within the ROW area
11 (ROW)	ROW area is bound by orange "Right-of-Way" tags and orange flashers.	Right of Way	100% harvest within the ROW area

OTHER PRE-CRUISE INFORMATION:

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
1	DF, WH - 2457	None.	
2	DF, WH - 2064	None.	
3	DF, WH - 22	None.	
4	DF, WH - 88	None.	
5	DF, WH - 60	None.	
6	DF, WH - 1710	PCP-1 key required for gate on W-2010 road.	
7	DF, WH - 1428	PCP-1 key required for gate on W-2010 road.	
8	DF, WH - 3	PCP-1 key required for gate on W-2010 road.	
9	DF, WH - 3	PCP-1 key required for gate on W-2010 road.	
10	DF, WH - 1	PCP-1 key required for gate on W-2010 road.	
11	DF, WH	None.	
TOTAL MBF	7836 MBF		

REMARKS:

Drive northeast on Washougal River Road until the pavement ends and take a right onto the W-2000 road. Stay on the W-2000 road for 1 mile until you reach the W-2010 road gate on the left. Go through the gate and travel for approximately 2 miles until you reach a fork. Go right at the fork to continue onto the W-2013 road. In 400 feet, go right at the next fork to travel onto the W-2014A road and continue about 0.5 miles to Unit 6 and Unit 10 (ROW). Alternately, go left at the second fork to travel onto the W-2014 road. In another 1000 feet, stay to the right to remain on the W-2014 road and you will reach the boundary of Unit 6 in another 0.5 miles. Continue for another 0.5 miles to reach the end of the W-2014 road. Unit 7, 8 (ROW), and 9 (ROW) will require a walk-in.

To reach the additional units, from the end of Washougal River road, take a right on the W-2000 road and travel for approximately 8 miles until you reach the intersection with the W-2070 road. Take a left on the W-2070 road. In approximately 1.75 miles, Unit 5 will be on your left. Continue for another 0.25 miles, cross the bridge over Prospector Creek, and Unit 3 (ROW) will be on your right. Continue for approximately 0.5 miles to reach the end of the drivable road. Unit 1, 2, and 4 (ROW) require a walk-in.

Prepared By: Sean Tran Date: July 7, 2015	Title: Natural Resource Specialist 1	CC: Jacob Oberlander
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Cruise Narrative

Sale Name: Prospector VRH	Region: Pacific Cascade
App. #: 30-092543	District: Yaoclt
Lead Cruiser: Bryce Frank	Completion date: 10-1-2015
Other Cruisers: Calvin Bailey	

Unit acreage specifications:

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
1	91	Yes	
2	86	Yes	
3 ROW	0.2	Yes	
4 ROW	4	Yes	
5	4	Yes	
6	89	Yes	
7	68	Yes	
8 ROW	0.3	Yes	
9 ROW	0.5	Yes	
10 ROW	0.2	Yes	
11 ROW	1.8	Yes	
Total	345	Yes	

Unit cruise specifications:

Unit #	Sample type (VP, FP, ITS,100%)	Expansion factor (BAF, full/ half)	Sighting height (4.5 ft, 16 ft.)	Grid size (Plot spacing or % of area)	Plot ratio (Cru./Tally)	Total number of plots
1	VP	40	4.5 ft	250' x 250'	1:1	63
2	VP	40	4.5 ft	250' x 250'	1:1	60
3 ROW	VP	40	4.5 ft	100' spacing	Cruise All	2
4 ROW	VP	40	4.5 ft	170' x 170'	1:1	6
5	VP	40	4.5 ft	186' x 186'	Cruise All	5
6	VP	46.94	4.5 ft	250' x 250'	1:1	62
7	VP	33.61	4.5 ft	250' x 250'	1:1	47
8	ITS	DF: 3 WH: 1	n/a	n/a	n/a	n/a
9	VP	20	4.5 ft	104' x 104'	Cruise All	2
10	ITS	DF: 2.5 WH: 2.2	n/a	n/a	n/a	n/a
11	VP	54.45	4.5	320' spacing	Cruise All	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:

<p>Prospector VRH consists of 11 units in total. Units 1, 2, 5, 6 and 7 are VRH units and units 3, 4, 8, 9, 10 and 11 are small ROW units.</p> <p>Units 1 and 2 are located above the W-2070 to the north and west are both very similar in stand structure, consisting of mainly Douglas-fir at 96% merchantable volume, followed by Western Hemlock (WH) and Red Alder in small amounts. Some pole volume is present in the DF at 5% of the total volume of these two units.* The timber is small in diameter at 15.2 inches and short, with an average bole height of 75 ft. There is a significant amount of high quality B in both DF and WH. Due to the size of the timber, 3S is very common and almost surpasses 2S in volume. Defect is very minor at 1.8% and is composed of sparse spike knots and hooked butts. These two units compose roughly half of the total sale area for an average per-acre net volume of 27,938 bdf and a total volume of 4,945 mbf.</p> <p>*Although pole cruise volume is included, a proper pole cruise has not been conducted on this sale. Pole volume was determined by the cruisers on normal cruise plots.</p> <p><u>Unit 3</u> is a small 0.2 acre ROW.</p> <p><u>Unit 4</u> is a 4 acre ROW that connects Unit 1 to Unit 2 along the ridge above the W-2070. Timber in these ROWs is very similar to the timber described for Units 1 and 2.</p> <p><u>Unit 5</u> is a small 4 acre unit along the W-2070 (waste area).</p> <p><u>Units 6 and 7</u> are the two other large units of the sale. They exist further to the south along the W-2000, 2 miles north on the W-2010. Timber here is of similar structure and size to that of Units 1 and 2 with some key differences: There is no notable presence of pole volume on either of these units, there is significantly less high quality, and defect is much more pronounced (3.1%) due to broken and split tops. Numerous standing dead exist</p>
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in these units, but were determined to be mostly un-merchantable by the cruisers. Average diameter is slightly higher at 18 inches for DF, but bole height slightly shorter at 67 ft. 3S is still very common, but less so than Units 1 and 2. Due to some larger trees on these units, 2S plays a heavier role in contributing to volumes. Together, these units compose an average per-acre net volume of 22,230 bdf and a total volume of 3,490 mbf.

Units 8 and 9 are located above Unit 7 along the ridgeline and consist of sparse, small diameter, short Douglas-fir.

Unit 10 is a small 0.2 acre ROW that connects the W-2014A to a planned landing location in Unit 6. A handful of large DF (26-30 inches, 100' bole height), large WH of similar dimensions, and small WH (one-piece 4S) exist in this small unit.

Unit 11 is a ROW that ties into the eastern portion of unit1.

Access to Units 1 and 2 is currently limited to foot travel and ATV use only due to incomplete road construction. Similarly, access to Unit 7 is also limited, but is only traversable by foot along the W-2014EXT (which has been brushed out). A small truck can reach the location of the W-2014 rock pit south of Unit 7. Access to Unit 6 is adequate but not exceptional along the W-2014 and W-2014A, expect several dips and bumps along the way on these roads.

Due to the aggressively steep terrain, this sale is almost exclusively planned for uphill cable methods, with only 5% as ground based. Slopes range from 50% grade to 80% grade.

Grants: 01, 07, 10

Prepared by: Bryce Frank

Title: Timber Cruiser

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																		
<div style="border: 1px solid black; padding: 5px;"> T03N R06E S18 Ty00U1 THRU T03N R06E S18 Ty0U11 </div>				Project: PROSPECT										Page 1								
				Acres 345.00										Date 1/28/2016			Time 3:03:36PM					
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	70												2	9		0.00	37.4
DF	HA	2S		1		252	252	87			100							40	13	247	1.50	1.0
DF	HA	3S		1		246	246	85		100								40	9	115	0.70	2.1
DF	HB	2S		25	1.1	6,132	6,065	2,093			73	27		0	2	98		40	14	280	1.69	21.7
DF	HB	3S		19	1.1	4,408	4,361	1,504		100				8	92		39	9	125	0.84	34.8	
DF	D	SM				78	78	27				100					40	16	406	2.13	.2	
DF	D	2S		23	3.8	5,394	5,190	1,791			50	50		1	1	4	94	39	15	322	2.11	16.1
DF	D	3S		17	3.1	4,162	4,032	1,391		50	50			0	4	24	72	37	8	78	0.65	51.8
DF	D	4S		11	1.8	2,759	2,709	935		95	5			20	29	16	35	27	5	30	0.32	91.0
DF	D	UT		3	.3	536	534	184		77	15	3	6	28	33	4	35	24	6	32	0.37	16.5
DF Totals				93	2.4	24,037	23,468	8,096	21	29	31	19	3	5	9	83	29	8	86	0.79	272.7	
DF	P	CU	CU															5			0.00	1.4
DF	P	HA	2S		5	44	44	15			100							40	13	238	1.42	.2
DF	P	HB	2S		30	222	222	77			100							40	13	226	1.38	1.0
DF	P	HB	3S		32	.5	247	245	85		100				3	97		40	10	140	0.87	1.7
DF	P	D	2S		2	19	19	7			100							40	12	200	1.48	.1
DF	P	D	3S		18	137	137	47	90	10					22	78		38	7	65	0.51	2.1
DF	P	D	4S		13	91	91	32	100				24	13	10	52		27	5	28	0.32	3.3
DF Totals				3	.2	760	759	262	28	34	38		3	2	6	89	30	7	78	0.69	9.8	
WH	CU	CU			100.0	0												2	9		0.00	1.3
WH	HB	2S		14	3.6	143	138	47			79	21		6	94		39	14	294	1.87	.5	
WH	HB	3S		9	1.8	90	89	31		100				5	95		40	8	102	0.75	.9	
WH	D	2S		27	6.9	285	265	92			61	39		1	99		39	14	282	1.94	.9	
WH	D	3S		26	.8	249	247	85	50	50			0		37	62	37	7	72	0.61	3.4	
WH	D	4S		13	7.7	139	128	44	92	8			39	26	23	11	23	5	25	0.36	5.2	
WH	D	UT		11		103	103	35	100				43	5	52		25	5	25	0.25	4.2	
WH Totals				4	3.9	1,009	970	335	36	23	28	14	10	4	20	67	27	7	59	0.63	16.4	
RA	CU	CU			100.0	2												4	8		0.00	.5
RA	D	UT		30		30	30	10	100					51	3	14	32	21	6	26	0.32	1.1
RA	D	2S		19		19	19	7			100			100			16	12	80	1.18	.2	
RA	D	4S		51		50	50	17	100				9	82		9	28	7	43	0.48	1.2	
RA Totals				0	1.5	100	99	34	81		19		39	42	4	14	21	7	32	0.45	3.0	
Totals					2.4	25,907	25,296	8,727	22	29	31	18	3	5	9	82	29	8	84	0.78	301.9	

TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
03N	06E	18	PROSPECT	00U1	THR	345.00	253	1,264	S	W
03N	06E	18	PROSPECT	0U11						
CL	68.1		COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.00		VAR.	S.E.%	LOW	AVG	HIGH	5	7	10
TOTAL			52.0	3.3	24,469	25,296	26,122	108	55	27
CL	68.1		COEFF	NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR			54.8	3.4	6,014	6,229	6,443			
DOUG FIR-P			338.9	21.3	157	200	243			
WHEMLOCK			303.0	19.0	225	278	331			
R ALDER			675.6	42.4	16	28	40			
TOTAL			50.1	3.1	6,523	6,735	6,947	100	51	25
CL	68.1		COEFF	V_BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10
DOUG FIR					122	126	131			
DOUG FIR-P			321.4	20.2	105	134	162			
WHEMLOCK			252.5	15.9	78	97	115			
R ALDER			456.5	28.7	42	78	113			
TOTAL			50.6	3.2	121	125	129	102	52	26

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1									
		Project: PROSPECT										Date 1/28/2016									
												Time 3:03:36PM									
T03N R06E S18 T00U1										T03N R06E S18 T00U1											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
03N	06E	18	PROSPECT	00U1	91.00	63	158	S	W												
Spp	S	So	Gr	% 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	Lf		
DF	CU	CU			100.0	120										3	8		0.00	42.6	
DF	HA	2S		2		714	714	65		100					100	40	13	266	1.61	2.7	
DF	HA	3S		4		826	826	75		100					100	40	9	114	0.70	7.2	
DF	HB	2S		29	1.5	7,583	7,472	680		74	26		1	3	96	39	14	270	1.60	27.7	
DF	HB	3S		24	1.4	6,443	6,355	578		100				8	92	39	9	119	0.78	53.3	
DF	DM	SM		1		212	212	19							100	40	16	400	2.14	.5	
DF	DM	2S		6	7.0	1,616	1,503	137		50	50			7	93	38	14	277	1.81	5.4	
DF	DM	3S		15	3.3	4,089	3,953	360	70	30				1	33	37	7	69	0.53	57.4	
DF	DM	4S		18	1.2	4,470	4,416	402	98	2			21	20	15	43	28	5	30	0.28	146.6
DF	DM	UT		1		207	207	19	100				5		28	67	33	5	35	0.29	6.0
DF	Totals			89	2.4	26,279	25,657	2,335	28	33	27	11	4	4	11	81	30	7	73	0.63	349.5
DF	P	CU	CU													5			0.00	2.4	
DF	P	HA	2S	10		166	166	15		100					100	40	13	238	1.42	.7	
DF	P	HB	2S	16		244	244	22		100					100	40	13	240	1.47	1.0	
DF	P	HB	3S	36	.9	580	575	52		100				6	94	39	9	126	0.82	4.6	
DF	P	DM	3S	19		297	297	27	92	8				39	61	37	7	67	0.51	4.5	
DF	P	DM	4S	19		284	284	26	100				30	16	13	42	25	5	26	0.30	11.0
DF	P	Totals		5	.3	1,571	1,566	143	35	38	26		5	3	12	80	29	7	65	0.60	24.1
WH	CU	CU														6			0.00	.4	
WH	HB	2S		35	3.9	510	490	45		77	23				100	40	14	295	1.87	1.7	
WH	HB	3S		5	8.3	75	69	6		100					100	40	9	110	0.92	.6	
WH	DM	2S		6	10.0	89	80	7		100					100	40	12	180	1.38	.4	
WH	DM	3S		30		423	423	39	73	27				18	82	39	7	70	0.54	6.0	
WH	DM	4S		12	13.6	184	159	15	94	6			43	46	11	20	5	20	0.26	7.9	
WH	DM	UT		12		158	158	14	100				68		32	23	5	19	0.23	8.3	
WH	Totals			5	4.2	1,440	1,380	126	45	14	33	8	13	5	10	72	27	6	54	0.55	25.4
RA	DM	UT		28		58	58	5	100				100			14	6	20	0.23	2.9	
RA	DM	4S		72		144	144	13	100					100		30	7	50	0.46	2.9	
RA	Totals			1		202	202	18	100				29	71		22	7	35	0.39	5.8	
Type Totals					2.3	29,492	28,805	2,621	30	32	27	10	4	5	11	80	29	7	71	0.62	404.8

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1									
Project: PROSPECT												Date 1/28/2016									
												Time 3:03:36PM									
T03N R06E S18 T00U2										T03N R06E S18 T00U2											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
03N	06E	18	PROSPECT	00U2	86.00	60	136	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			
DF	CU	CU		100.0	30											1	9		0.00	34.3	
DF	HA	2S			157	157	14		100					100		40	12	200	1.28	.8	
DF	HB	2S	34	.7	8,529	8,472	729		71	29			2	98		40	14	291	1.74	29.1	
DF	HB	3S	18	1.0	4,789	4,744	408		100					11	89	39	9	124	0.84	38.2	
DF	DM	2S	21	2.2	5,292	5,178	445			53	47		1	6	94	38	15	345	2.06	15.0	
DF	DM	3S	15	1.9	3,850	3,777	325	64	36					3	31	37	7	73	0.59	51.4	
DF	DM	4S	10	1.1	2,627	2,599	224	94	6				21	33	10	27	5	29	0.31	88.8	
DF	DM	UT	2		317	317	27	100					39	61		19	5	19	0.24	17.1	
DF	Totals		93	1.4	25,592	25,243	2,171	20	25	35	19		3	5	9	83	29	8	92	0.81	274.7
DF	P	CU	CU													6			0.00	2.9	
DF	P	HB	2S	45	633	633	54		100					100		40	12	221	1.34	2.9	
DF	P	HB	3S	27	375	375	32		100					100		40	11	172	0.99	2.2	
DF	P	DM	2S	6	76	76	7			100				100		40	12	200	1.48	.4	
DF	P	DM	3S	17	237	237	20	87	13					100		39	6	63	0.52	3.8	
DF	P	DM	4S	5	66	66	6	100						100		40	5	40	0.38	1.7	
DF	P	Totals	5		1,388	1,388	119	20	29	51				100		31	8	101	0.84	13.8	
WH	DM	2S	33	6.9	98	91	8		100					100		40	14	270	1.85	.3	
WH	DM	3S	8		24	24	2	100						100		39	7	70	0.67	.3	
WH	DM	UT	59		161	161	14	100						100		35	5	40	0.29	4.0	
WH	Totals		1	2.4	282	275	24	67	33					58	42	36	6	59	0.44	4.7	
RA	CU	CU														3	11		0.00	1.0	
RA	DM	UT	33		38	38	3	100						100		36	5	40	0.40	1.0	
RA	DM	2S	67		76	76	7		100			100				16	12	80	1.18	1.0	
RA	Totals		0		115	115	10	33	67			67		33		18	9	40	0.60	2.9	
Type Totals				1.3	27,376	27,021	2,324	21	25	36	18		3	4	9	83	29	8	91	0.81	296.1

T03N R06E S18 T00U5	T03N R06E S18 T00U5
Twp 03N Rge 06E Sec 18 Tract PROSPECT Type 00U5 Acres 4.00 Plots 5 Sample Trees 20 CuFt S	BdFt 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/ Lf		
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf		
DF		CU	CU														0	7		0.00	20.7	
DF		HB	2S	36	2.9	8,677	8,426	34			74	26					100	40	14	272	1.57	30.9
DF		HB	3S	34	2.3	7,864	7,685	31		100					19	81		38	9	119	0.76	64.7
DF		DM	SM	5		1,109	1,109	4				100					100	40	16	400	2.02	2.8
DF		DM	3S	11	2.4	2,697	2,632	11	50	50					5	58	37	35	8	74	0.52	35.7
DF		DM	4S	14		3,027	3,027	12	100					6	42	9	42	30	5	32	0.27	93.8
DF	Totals			92	2.1	23,374	22,878	92	19	39	27	15		1	6	14	79	32	8	92	0.69	248.5
WH		CU	CU															3	16		0.00	5.1
WH		HB	3S	47		914	914	4		100							100	40	11	180	1.03	5.1
WH		DM	4S	30		560	560	2	100							27	73	36	5	37	0.44	15.3
WH		DM	UT	23		440	440	2	100					100				25	5	30	0.29	14.7
WH	Totals			8		1,913	1,913	8	52	48				23	8	69		28	7	48	0.49	40.1
Type Totals					2.0	25,288	24,792	99	22	40	25	13		1	7	14	78	31	8	86	0.67	288.6

T03N R06E S18 T00U6										T03N R06E S18 T00U6				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
03N	06E	18	PROSPECT	00U6	89.00	62	144	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	39												2	10		0.00	35.1
DF		HB	2S	17	1.4	4,090	4,033	359			67	33					100	40	14	292	1.82	13.8
DF		HB	3S	9	.6	2,303	2,289	204		100					12	88		39	10	134	0.92	17.0
DF		DM	2S	44	3.7	10,697	10,300	917			43	57		1		6	93	39	15	335	2.24	30.8
DF		DM	3S	20	4.4	5,051	4,830	430	30	70				0	6	15	78	37	8	87	0.79	55.8
DF		DM	4S	7	5.5	1,695	1,601	143	86	14				23	51	13	13	25	6	29	0.43	55.2
DF		DM	UT	3		655	655	58	55	29		16		43	18		39	22	6	40	0.49	16.5
DF	Totals			94	3.4	24,531	23,708	2,110	13	26	30	31		3	5	8	84	28	9	106	1.07	224.2
WH		CU	CU															4	11		0.00	2.2
WH		HB	3S	15		217	217	19		100						100		40	8	90	0.67	2.4
WH		DM	2S	38	7.1	584	542	48			55	45				100		39	14	293	2.08	1.8
WH		DM	3S	28	1.2	401	396	35	18	82						53	47	35	8	80	0.72	4.9
WH		DM	4S	19	5.9	270	255	23	89	11				49	15	36		23	5	26	0.40	9.9
WH	Totals			6	4.2	1,473	1,410	126	21	40	21	17		9	3	21	67	27	8	66	0.75	21.3
Type Totals					3.4	26,003	25,118	2,236	14	27	30	30		3	5	8	83	28	9	102	1.04	245.5

T03N R06E S18 T00U7										T03N R06E S18 T00U7				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
03N	06E	18	PROSPECT	00U7	68.00	47	119	S	W					

S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre		
								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	Lf			
DF	CU	CU		100.0	102												3	10		0.00	37.0	
DF	HA	3S			142	142	10		100						100		40	9	120	0.76	1.2	
DF	HB	2S	20	.6	3,489	3,468	236			80	20			2	98		40	13	265	1.68	13.1	
DF	HB	3S	19	.7	3,513	3,487	237		100					2	98		40	10	138	0.95	25.2	
DF	DM	2S	23	4.6	4,284	4,086	278			68	32			2	98		39	14	280	1.97	14.6	
DF	DM	3S	20	2.5	3,575	3,485	237	34	66					3	20	77	37	8	89	0.75	39.0	
DF	DM	4S	11	1.2	2,069	2,044	139	99	1					10	22	33	29	5	30	0.36	67.1	
DF	DM	UT	7	.7	1,118	1,111	76	82	12	7				16	44	3	28	6	38	0.38	29.6	
DF	Totals		97	2.6	18,291	17,822	1,212	23	34	32	11			2	7	9	83	29	8	79	0.78	226.7
WH	CU	CU															1	7		0.00	2.9	
WH	DM	2S	56	3.8	345	332	23			57	43				100		40	14	289	1.84	1.1	
WH	DM	3S	20	2.6	121	118	8	79	21						79	21	33	6	54	0.59	2.2	
WH	DM	4S	10		60	60	4	100							23	77	36	5	40	0.48	1.5	
WH	DM	UT	14		80	80	5	100						100			17	5	20	0.20	4.0	
WH	Totals		3	2.7	606	590	40	40	4	32	24			14	2	16	68	21	7	50	0.69	11.7
RA	CU	CU		100.0	8												8	5		0.00	.8	
RA	DM	4S	100		39	39	3	100						60	40		20	6	25	0.63	1.6	
RA	Totals		0	16.7	47	39	3	100						60	40		16	6	17	0.52	2.3	
Type Totals				2.6	18,944	18,451	1,255	24	33	32	12			3	6	9	82	28	8	77	0.78	240.8

T03N R06E S18 T00U9										T03N R06E S18 T00U9			
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt				
03N	06E	18	PROSPECT	00U9	.50	2	5	S	W				

Spp	Sp	T	So	Gr	ad	%	Net	Percent Net Board Foot Volume								Average Log				Logs Per /Acre					
								Bd. Ft. per Acre				Total	Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/	
								Def%	Gross	Net	Net MBF		5-7	8-11	12-15	16+	12-20	21-30	31-35						36-99
DF			DM	4S		53	816	816	0	100					100					25	5	26	0.55	31.4	
DF			DM	UT		47	700	700	0	100					53	47				14	5	14	0.33	48.3	
DF	Totals					100	1,516	1,516	1	100					25	75				18	5	19	0.45	79.7	
Type Totals							1,516	1,516	1	100					25	75				18	5	19	0.45	79.7	

T03N R06E S18 T0U10										T03N R06E S18 T0U10				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
03N	06E	18	PROSPECT	0U10	.20	1	7	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/ Lf	
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
DF		CU	CU		100.0	500											14	10		0.00	12.5
DF		HB	2S	17		3,000	3,000	1			100				100		40	13	240	1.45	12.5
DF		DM	2S	80	4.4	14,125	13,500	3			27	73			100		40	18	540	3.07	25.0
DF		DM	4S	3		500	500	0	100						100		40	5	40	0.53	12.5
DF	Totals			56	6.2	18,125	17,000	3	3	39	58				100		35	13	272	1.87	62.5
WH		CU	CU		100.0	110											3	6		0.00	33.0
WH		DM	2S	65	8.1	9,460	8,690	2			100				100		40	17	395	2.52	22.0
WH		DM	3S	25		3,300	3,300	1	20	80					100		40	8	100	0.81	33.0
WH		DM	4S	10		1,320	1,320	0	92	8			17		83		24	6	30	0.40	44.0
WH	Totals			44	6.2	14,190	13,310	3	14	21	65		2		98		25	8	101	1.10	132.0
Type Totals					6.2	32,315	30,310	6	8	9	22	61		1	99		28	10	156	1.40	194.5

T03N R06E S18 T0U11 **T03N R06E S18 T0U11**
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 03N 06E 18 PROSPECT 0U11 1.80 4 18 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/ Lf		
									5-7	8-11	12-15	16+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf		
DF	CU	CU															2	16		0.00	36.3	
DF	HA	2S		4		1,659	1,659	3			100					100	40	13	240	1.25	6.9	
DF	HB	2S		38	.3	13,112	13,072	24			54	46				100	40	15	341	1.76	38.3	
DF	HB	3S		18	1.1	6,067	5,998	11		100						100	40	9	119	0.70	50.5	
DF	DM	SM		5		1,837	1,837	3				100				100	40	17	460	2.23	4.0	
DF	DM	2S		18	7.9	6,543	6,029	11			49	51			10	90	39	14	293	1.78	20.6	
DF	DM	3S		5	5.0	1,716	1,630	3	24	76				35	28	37	31	8	71	0.72	22.9	
DF	DM	4S		7		2,695	2,695	5	100					20	16	64	31	6	36	0.30	75.9	
DF	DM	UT		5		1,395	1,395	3		50	50			50	50		22	10	66	0.77	21.0	
DF	Totals			84	2.0	35,025	34,315	62	9	23	34	34		4	5	3	88	30	10	124	0.93	276.3
WH	HB	2S		32		1,585	1,585	3			100					100	32	15	280	1.82	5.7	
WH	HB	3S		16		792	792	1		100						100	32	11	140	0.94	5.7	
WH	DM	2S		45	13.5	2,535	2,194	4			28	72			28	72	36	18	450	3.13	4.9	
WH	DM	3S		3		146	146	0		100				100			18	10	60	0.89	2.4	
WH	DM	4S		4		170	170	0	100					100			23	6	30	0.43	5.7	
WH	Totals			12	6.5	5,228	4,887	9	3	19	45	32		3	3	61	32	29	12	201	1.61	24.3
RA	CU	CU																				20.6
RA	DM	UT		50		825	825	1	100							100	35	5	40	0.40	20.6	
RA	DM	4S		50		825	825	1	100							100	40	5	40	0.40	20.6	
RA	Totals			4		1,650	1,650	3	100						50	50	25	5	27	0.40	61.9	
Type Totals					2.5	41,903	40,851	74	12	22	34	32		3	5	12	80	29	10	113	0.90	362.5

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	PROSPECT		DATE	1/28/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	00U1	91.00	63	343	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		63	343	5.4						
CRUISE		32	158	4.9	18,560		.9			
DBH COUNT										
REFOREST										
COUNT		31	185	6.0						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	124	171.1	14.3	77	50.3	189.8	26,279	25,657	6,506	6,490
DOUG FIR-P	17	11.0	14.2	77	3.2	12.1	1,571	1,566	414	414
WHEMLOCK	16	19.0	11.6	55	4.1	14.0	1,440	1,380	383	383
R ALDER	1	2.9	11.0	46	0.6	1.9	202	202	50	50
TOTAL	158	204.0	14.0	75	58.2	217.8	29,492	28,805	7,352	7,336
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	85.8	7.7		236	256	276				
DOUG FIR-P	66.6	16.6		161	193	225				
WHEMLOCK	92.6	24.7		135	179	224				
R ALDER										
TOTAL	86.4	6.9		224	241	257	298	152	75	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	75.7	6.8		59	63	67				
DOUG FIR-P	60.4	15.1		42	50	57				
WHEMLOCK	86.1	23.0		38	50	61				
R ALDER										
TOTAL	76.2	6.1		56	60	64	232	118	58	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	51.5	6.5		160	171	182				
DOUG FIR-P	244.1	30.7		8	11	14				
WHEMLOCK	277.9	35.0		12	19	26				
R ALDER	587.8	74.0		1	3	5				
TOTAL	44.4	5.6		193	204	215	79	40	20	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	45.2	5.7		179	190	201				
DOUG FIR-P	219.9	27.7		9	12	15				
WHEMLOCK	252.8	31.8		10	14	18				
R ALDER	587.8	74.0		0	2	3				
TOTAL	34.4	4.3		208	218	227	47	24	12	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	49.2	6.2		24,068	25,657	27,247				
DOUG FIR-P	212.9	26.8		1,146	1,566	1,986				
WHEMLOCK	284.1	35.8		886	1,380	1,873				
R ALDER	587.8	74.0		53	202	352				
TOTAL	40.2	5.1		27,349	28,805	30,261	64	33	16	

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	PROSPECT			DATE	1/28/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
03N	06E	18	PROSPECT	00U1	91.00		63	343	S	W
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		47.8	6.0	6,100	6,490	6,880				
DOUG FIR-P		215.7	27.2	301	414	526				
WHEMLOCK		283.1	35.6	246	383	519				
R ALDER		587.8	74.0	13	50	86				
TOTAL		38.0	4.8	6,985	7,336	7,686	58	29	14	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR				127	135	144				
DOUG FIR-P		204.4	25.7	95	130	165				
WHEMLOCK		259.8	32.7	63	99	134				
R ALDER		246.9	31.1	28	106	185				
TOTAL		216.0	27.2	126	132	139	1,863	951	466	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	PROSPECT		DATE	1/28/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	00U2	86.00	60	297	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	60	297	4.9							
CRUISE	33	136	4.1	11,739	1.2					
DBH COUNT										
REFOREST										
COUNT	27	153	5.7							
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	119	125.8	16.4	72	45.5	184.0	25,592	25,243	6,402	6,396
DOUG FIR-P	12	5.4	18.4	83	2.3	10.0	1,388	1,388	364	364
WHEMLOCK	3	4.4	10.6	62	0.8	2.7	282	275	74	74
R ALDER	2	1.0	16.0	58	0.3	1.3	115	115	32	32
TOTAL	<i>136</i>	<i>136.5</i>	<i>16.3</i>	<i>72</i>	<i>49.0</i>	<i>198.0</i>	<i>27,376</i>	<i>27,021</i>	<i>6,873</i>	<i>6,866</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR	81.6	7.5	323	350	376					
DOUG FIR-P	18.5	5.6	248	263	277					
WHEMLOCK	123.7	85.6	20	140	260					
R ALDER			120	120	120					
TOTAL	<i>81.5</i>	<i>7.0</i>	<i>310</i>	<i>334</i>	<i>357</i>	<i>265</i>	<i>135</i>	<i>66</i>		
CL: 68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR	70.6	6.5	80	85	91					
DOUG FIR-P	18.7	5.6	65	69	73					
WHEMLOCK	129.6	89.6	4	40	76					
R ALDER			33	33	33					
TOTAL	<i>70.2</i>	<i>6.1</i>	<i>77</i>	<i>82</i>	<i>87</i>	<i>197</i>	<i>100</i>	<i>49</i>		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR	45.2	5.8	118	126	133					
DOUG FIR-P	255.4	32.9	4	5	7					
WHEMLOCK	567.7	73.2	1	4	8					
R ALDER	543.1	70.0	0	1	2					
TOTAL	<i>37.8</i>	<i>4.9</i>	<i>130</i>	<i>137</i>	<i>143</i>	<i>57</i>	<i>29</i>	<i>14</i>		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR	40.9	5.3	174	184	194					
DOUG FIR-P	240.1	31.0	7	10	13					
WHEMLOCK	467.6	60.3	1	3	4					
R ALDER	543.1	70.0	0	1	2					
TOTAL	<i>31.7</i>	<i>4.1</i>	<i>190</i>	<i>198</i>	<i>206</i>	<i>40</i>	<i>20</i>	<i>10</i>		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR	44.8	5.8	23,785	25,243	26,702					
DOUG FIR-P	241.8	31.2	955	1,388	1,821					
WHEMLOCK	452.2	58.3	115	275	436					
R ALDER	543.1	70.0	34	115	195					
TOTAL	<i>36.5</i>	<i>4.7</i>	<i>25,750</i>	<i>27,021</i>	<i>28,291</i>	<i>53</i>	<i>27</i>	<i>13</i>		

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	PROSPECT			DATE	1/28/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES		PLOTS	TREES	CuFt	BdFt
03N	06E	18	PROSPECT	00U2	86.00		60	297	S	W
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
CL:	68.1 %	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		43.3	5.6	6,039	6,396	6,753				
DOUG FIR-P		239.2	30.9	252	364	477				
WHEMLOCK		448.4	57.8	31	74	118				
R ALDER		543.1	70.0	10	32	54				
TOTAL		34.6	4.5	6,560	6,866	7,172	48	24	12	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR				129	137	145				
DOUG FIR-P		224.4	28.9	95	139	182				
WHEMLOCK		407.8	52.6	43	103	164				
R ALDER		543.1	70.0	26	86	146				
TOTAL		212.6	27.4	130	136	143	1,804	921	451	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	PROSPECT		DATE	1/28/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	00U3	0.20	2	7	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		2	7	3.5						
CRUISE		2	7	3.5	28		25.2			
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	5	74.8	15.7	69	25.3	100.0	12,297	11,927	3,139	3,135
R ALDER	1	45.3	9.0	34	6.7	20.0	1,358	1,358	340	340
WHEMLOCK	1	18.7	14.0	72	5.3	20.0	2,806	2,619	711	711
TOTAL	7	138.8	13.6	58	38.0	140.0	16,461	15,904	4,190	4,187
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		54.3	27.0	143	196	249				
R ALDER										
WHEMLOCK										
TOTAL		65.3	26.6	121	164	208	197	101	49	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		54.6	27.1	38	52	66				
R ALDER										
WHEMLOCK										
TOTAL		65.5	26.7	32	44	55	199	102	50	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		36.0	33.7	50	75	100				
R ALDER		141.4	132.4		45	105				
WHEMLOCK		141.4	132.4		19	43				
TOTAL		7.6	7.2	129	139	149	4	2	1	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		28.3	26.5	74	100	126				
R ALDER		141.4	132.4		20	46				
WHEMLOCK		141.4	132.4		20	46				
TOTAL		20.2	18.9	114	140	166	29	15	7	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		40.6	38.0	7,391	11,927	16,463				
R ALDER		141.4	132.4		1,358	3,157				
WHEMLOCK		141.4	132.4		2,619	6,088				
TOTAL		41.7	39.0	9,698	15,904	22,110	122	62	30	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		29.8	28.0	2,259	3,135	4,012				
R ALDER		141.4	132.4		340	791				
WHEMLOCK		141.4	132.4		711	1,653				
TOTAL		34.9	32.7	2,819	4,187	5,555	85	44	21	

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	PROSPECT			DATE	1/28/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	00U3	0.20	2	7	S	W	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		40.6	38.0	74	119	165				
R ALDER		141.4	132.4		68	158				
WHEMLOCK		141.4	132.4		131	304				
TOTAL		<i>41.7</i>	<i>39.0</i>	<i>69</i>	<i>114</i>	<i>158</i>	<i>122</i>	<i>62</i>	<i>30</i>	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	PROSPECT		DATE	1/28/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	00U4	4.00	6	33	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		6	33	5.5						
CRUISE		3	18	6.0	696		2.6			
DBH COUNT										
REFOREST										
COUNT		3	15	5.0						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	18	174.1	15.2	71	56.4	220.0	27,080	26,856	7,042	7,042
TOTAL	<i>18</i>	<i>174.1</i>	<i>15.2</i>	<i>71</i>	<i>56.4</i>	<i>220.0</i>	<i>27,080</i>	<i>26,856</i>	<i>7,042</i>	<i>7,042</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	49.8	12.1		166	189	212				
TOTAL	<i>49.8</i>	<i>12.1</i>		<i>166</i>	<i>189</i>	<i>212</i>	<i>105</i>	<i>53</i>	<i>26</i>	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	50.2	12.2		44	50	56				
TOTAL	<i>50.2</i>	<i>12.2</i>		<i>44</i>	<i>50</i>	<i>56</i>	<i>107</i>	<i>54</i>	<i>27</i>	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	46.9	20.9		138	174	210				
TOTAL	<i>46.9</i>	<i>20.9</i>		<i>138</i>	<i>174</i>	<i>210</i>	<i>105</i>	<i>53</i>	<i>26</i>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	39.4	17.6		181	220	259				
TOTAL	<i>39.4</i>	<i>17.6</i>		<i>181</i>	<i>220</i>	<i>259</i>	<i>74</i>	<i>38</i>	<i>18</i>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	40.1	17.9		22,055	26,856	31,657				
TOTAL	<i>40.1</i>	<i>17.9</i>		<i>22,055</i>	<i>26,856</i>	<i>31,657</i>	<i>77</i>	<i>39</i>	<i>19</i>	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	39.5	17.6		5,803	7,042	8,282				
TOTAL	<i>39.5</i>	<i>17.6</i>		<i>5,803</i>	<i>7,042</i>	<i>8,282</i>	<i>74</i>	<i>38</i>	<i>19</i>	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR				100	122	144				
TOTAL	<i>183.7</i>	<i>81.8</i>		<i>100</i>	<i>122</i>	<i>144</i>	<i>1,606</i>	<i>819</i>	<i>401</i>	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	PROSPECT		DATE	1/28/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	00U5	4.00	5	20	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		5	20	4.0						
CRUISE		4	20	5.0	522		3.8			
DBH COUNT										
REFOREST										
COUNT										
BLANKS		1								
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	17	100.5	15.8	87	34.3	136.0	23,374	22,878	5,458	5,458
WHEMLOCK	3	29.9	12.1	43	6.9	24.0	1,913	1,913	560	560
TOTAL	20	130.4	15.0	77	41.3	160.0	25,288	24,792	6,018	6,018
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	65.3	16.3		272	325	378				
WHEMLOCK	108.4	75.0		23	93	163				
TOTAL	74.1	17.0		241	290	339	231	118	58	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	58.6	14.6		65	76	87				
WHEMLOCK	92.3	63.8		9	26	43				
TOTAL	66.3	15.2		58	68	79	185	94	46	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	97.8	48.6		52	100	149				
WHEMLOCK	107.5	53.4		14	30	46				
TOTAL	90.0	44.7		72	130	189	400	204	100	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	64.4	32.0		92	136	180				
WHEMLOCK	91.3	45.4		13	24	35				
TOTAL	66.1	32.9		107	160	213	216	110	54	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	60.7	30.2		15,974	22,878	29,783				
WHEMLOCK	114.2	56.7		828	1,913	2,999				
TOTAL	62.3	31.0		17,112	24,792	32,471	192	98	48	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	60.8	30.2		3,809	5,458	7,107				
WHEMLOCK	105.2	52.3		268	560	853				
TOTAL	62.9	31.3		4,137	6,018	7,899	195	100	49	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	60.7	30.2		117	168	219				
WHEMLOCK	114.2	56.7		34	80	125				
TOTAL	62.3	31.0		107	155	203	192	98	48	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	PROSPECT		DATE	1/28/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	00U6	89.00	62	293	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		62	293	4.7						
CRUISE		32	144	4.5	9,937	1.4				
DBH COUNT REFOREST COUNT		27	149	5.5						
BLANKS		3								
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		133	100.6	19.4	67	46.9	206.7	24,531	23,708	6,703
WHEMLOCK		11	11.1	15.8	59	3.8	15.1	1,473	1,410	429
TOTAL		144	111.6	19.1	66	50.8	221.8	26,003	25,118	7,132
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		73.4	6.4	329	352	374				
WHEMLOCK		69.0	23.0	163	211	259				
TOTAL		74.3	6.2	320	342	363	221	113	55	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		62.0	5.4	91	96	101				
WHEMLOCK		68.5	22.8	49	64	79				
TOTAL		62.9	5.3	89	94	99	158	81	39	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		61.2	7.8	93	101	108				
WHEMLOCK		270.5	34.3	7	11	15				
TOTAL		59.1	7.5	103	112	120	139	71	35	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		53.1	6.7	193	207	221				
WHEMLOCK		249.6	31.7	10	15	20				
TOTAL		50.7	6.4	208	222	236	103	52	26	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		56.0	7.1	22,023	23,708	25,392				
WHEMLOCK		247.8	31.4	967	1,410	1,854				
TOTAL		54.9	7.0	23,368	25,118	26,868	120	61	30	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		54.8	7.0	6,228	6,694	7,159				
WHEMLOCK		246.5	31.3	295	429	563				
TOTAL		53.2	6.7	6,642	7,123	7,603	113	58	28	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR				107	115	123				
WHEMLOCK		158.7	20.1	64	93	122				
TOTAL		211.1	26.8	105	113	121	1,780	908	445	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	PROSPECT		DATE	1/28/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	00U7	68.00	47	235	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		47	235	5.0						
CRUISE		23	118	5.1	8,142		1.4			
DBH COUNT										
REFOREST										
COUNT		22	116	5.3						
BLANKS		2								
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	110	110.5	16.3	68	39.5	159.5	18,291	17,822	5,114	5,091
WHEMLOCK	6	7.7	12.4	46	1.8	6.4	606	590	167	167
R ALDER	2	1.6	13.0	29	0.4	1.4	47	39	20	19
TOTAL	118	119.7	16.0	66	41.8	167.3	18,944	18,451	5,301	5,277
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	67.5	6.4		227	243	259				
WHEMLOCK	101.0	45.0		109	198	288				
R ALDER	28.3	26.5		18	25	32				
TOTAL	70.2	6.5		222	237	252	197	100	49	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	59.9	5.7		65	69	73				
WHEMLOCK	93.5	41.7		33	56	79				
R ALDER	18.3	17.1		10	12	14				
TOTAL	62.4	5.7		64	68	71	155	79	39	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	61.1	8.9		101	110	120				
WHEMLOCK	281.0	41.0		5	8	11				
R ALDER	685.6	99.9		0	2	3				
TOTAL	60.1	8.8		109	120	130	144	73	36	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	49.6	7.2		148	159	171				
WHEMLOCK	207.7	30.3		4	6	8				
R ALDER	685.6	99.9		0	1	3				
TOTAL	48.0	7.0		156	167	179	92	47	23	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	53.9	7.9		16,421	17,822	19,222				
WHEMLOCK	221.7	32.3		400	590	781				
R ALDER	685.6	99.9		0	39	78				
TOTAL	53.4	7.8		17,013	18,451	19,888	114	58	29	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	51.3	7.5		4,711	5,091	5,471				
WHEMLOCK	219.6	32.0		114	167	220				
R ALDER	685.6	99.9		0	19	38				
TOTAL	50.5	7.4		4,889	5,277	5,665	102	52	25	

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	PROSPECT			DATE	1/28/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	00U7	68.00	47	235	S	W	
CL:	68.1 %	COEFF	V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
CL:	68.1 %	COEFF	V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5	7	10	
DOUG FIR				103	112	121				
WHEMLOCK		177.1	25.8	62	92	121				
R ALDER		685.6	99.9	0	27	54				
TOTAL		205.2	29.9	102	110	119	1,681	858	420	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	PROSPECT		DATE	1/28/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	00U8	0.30	1	6	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		1	6	6.0						
CRUISE		1	6	6.0	14		42.9			
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	4	40.0	18.9	54	17.9	77.6	5,400	5,200	1,840	1,838
WHEMLOCK	2	6.7	16.0	51	2.3	9.3	533	500	231	231
TOTAL	6	46.7	18.5	53	20.2	87.0	5,933	5,700	2,072	2,069
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		55.1	31.5	89	130	171				
WHEMLOCK		28.3	26.5	55	75	95				
TOTAL		56.5	25.1	84	112	140	152	77	38	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		44.2	25.3	34	46	58				
WHEMLOCK		25.4	23.8	26	35	43				
TOTAL		40.8	18.2	35	42	50	79	40	20	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	PROSPECT		DATE	1/28/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	00U9	0.50	2	5	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		2	5	2.5						
CRUISE		2	5	2.5	40		12.5			
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	5	79.7	10.7	27	15.3	50.0	1,516	1,516	660	660
TOTAL	5	79.7	10.7	27	15.3	50.0	1,516	1,516	660	660
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	37.3	18.5		20	24	28				
TOTAL	37.3	18.5		20	24	28	69	35	17	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	51.3	25.5		9	12	15				
TOTAL	51.3	25.5		9	12	15	130	66	32	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	36.5	34.2		52	80	107				
TOTAL	36.5	34.2		52	80	107	94	48	23	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	28.3	26.5		37	50	63				
TOTAL	28.3	26.5		37	50	63	56	29	14	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	24.1	22.5		1,174	1,516	1,857				
TOTAL	24.1	22.5		1,174	1,516	1,857	41	21	10	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	50.5	47.3		348	660	972				
TOTAL	50.5	47.3		348	660	972	179	91	45	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	24.1	22.5		23	30	37				
TOTAL	24.1	22.5		23	30	37	41	21	10	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	PROSPECT		DATE	1/28/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	0U10	0.20	1	7	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		1	7	7.0						
CRUISE		1	7	7.0	16		43.8			
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	2	25.0	27.3	89	19.4	101.5	18,125	17,000	4,201	4,059
WHEMLOCK	5	55.0	18.1	74	23.1	98.3	14,190	13,310	3,718	3,707
TOTAL	7	80.0	21.4	78	43.2	199.8	32,315	30,310	7,919	7,766
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		83.2	77.9	150	680	1,210				
WHEMLOCK		106.0	52.7	115	242	369				
TOTAL		102.9	41.9	213	367	521	491	251	123	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		72.6	68.0	52	162	273				
WHEMLOCK		100.3	49.8	34	67	101				
TOTAL		91.7	37.3	59	95	130	390	199	97	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	PROSPECT		DATE	1/28/2016		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	0U11	1.80	4	18	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		4	18	4.5						
CRUISE		4	18	4.5	259		7.0			
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	14	94.4	19.2	95	43.4	190.6	35,025	34,315	7,819	7,822
WHEMLOCK	2	8.1	24.8	91	5.5	27.2	5,228	4,887	1,143	1,143
R ALDER	2	41.3	11.0	48	8.2	27.2	1,650	1,650	616	616
TOTAL	<i>18</i>	<i>143.8</i>	<i>17.7</i>	<i>81</i>	<i>58.3</i>	<i>245.0</i>	<i>41,903</i>	<i>40,851</i>	<i>9,578</i>	<i>9,581</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	56.8	15.7		426	506	585				
WHEMLOCK	51.2	47.9		367	705	1,043				
R ALDER				40	40	40				
TOTAL	<i>66.4</i>	<i>16.1</i>		<i>400</i>	<i>476</i>	<i>553</i>	<i>186</i>	<i>95</i>	<i>47</i>	
CL:	68.1 %	COEFF	SAMPLE TREES - CF				# OF TREES REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	49.2	13.6		97	113	128				
WHEMLOCK	59.5	55.8		75	170	264				
R ALDER	9.4	8.8		14	15	16				
TOTAL	<i>61.5</i>	<i>14.9</i>		<i>92</i>	<i>108</i>	<i>124</i>	<i>160</i>	<i>82</i>	<i>40</i>	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	90.7	51.8		45	94	143				
WHEMLOCK	132.5	75.7		2	8	14				
R ALDER	115.5	66.0		14	41	68				
TOTAL	<i>28.4</i>	<i>16.3</i>		<i>120</i>	<i>144</i>	<i>167</i>	<i>42</i>	<i>22</i>	<i>11</i>	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	68.0	38.9		117	191	265				
WHEMLOCK	115.5	66.0		9	27	45				
R ALDER	115.5	66.0		9	27	45				
TOTAL	<i>42.6</i>	<i>24.3</i>		<i>185</i>	<i>245</i>	<i>305</i>	<i>95</i>	<i>48</i>	<i>24</i>	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	80.4	46.0		18,546	34,315	50,084				
WHEMLOCK	115.7	66.1		1,657	4,887	8,116				
R ALDER	115.5	66.0		561	1,650	2,739				
TOTAL	<i>67.2</i>	<i>38.4</i>		<i>25,160</i>	<i>40,851</i>	<i>56,543</i>	<i>236</i>	<i>120</i>	<i>59</i>	
CL:	68.1 %	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.	INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	76.4	43.6		4,408	7,822	11,236				
WHEMLOCK	115.6	66.0		388	1,143	1,897				
R ALDER	116.0	66.3		208	616	1,024				
TOTAL	<i>57.9</i>	<i>33.1</i>		<i>6,413</i>	<i>9,581</i>	<i>12,749</i>	<i>175</i>	<i>89</i>	<i>44</i>	

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	PROSPECT			DATE	1/28/2016	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	06E	18	PROSPECT	0U11	1.80	4	18	S	W	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	7	10	
CL:	68.1 %	COEFF		V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		80.4	46.0	97	180	263				
WHEMLOCK		115.7	66.1	61	179	298				
R ALDER		115.5	66.0	21	61	101				
TOTAL		<i>67.2</i>	<i>38.4</i>	<i>103</i>	<i>167</i>	<i>231</i>	<i>236</i>	<i>120</i>	<i>59</i>	

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

T03N R06E S18 Ty00U1	91.0
T03N R06E S18 Ty00U2	86.0
T03N R06E S18 Ty0U1	1.8

Project PROSPECT
Acres 345.00

Page No 1
Date: 1/28/2016
Time 3:03:37PM

Species	s T	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
		Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
DOUG FIR		44,194	81,573	61,371	48.63	26.34	0.80	21,534	21,489	8,293	8,096
WHEMLOCK		3,761	5,195	3,073	25.53	18.48	0.64	960	960	348	335
DOUG FIR	P	1,464	2,909	1,966	47.12	23.72	0.70	690	690	262	262
R ALDER		534	878	269	18.19	11.05	0.46	98	97	35	34
Totals		49,953	90,555	66,679	46.52	25.66	0.79	23,282	23,237	8,938	8,727

Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
C	49,419	89,677	66,410	46.82	25.80	0.79	23,184	23,140	8,903	8,693
H	534	878	269	18.19	11.05	0.46	98	97	35	34
Totals	49,953	90,555	66,679	46.52	25.66	0.79	23,282	23,237	8,938	8,727



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

FPA/N No: 2931320
 Effective Date: 03/01/2016
 Expiration Date: 03/01/2019
 Shut Down Zone: 660
 EARR Tax Credit: Eligible [] Non-eligible
 Reference: Prospector VRH
 30-092543

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

Decision

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

FPA/N Classification

Number of Years Granted on Multi-Year Request

Class II Class III [] Class IVG [] Class IVS [] 3 yrs [] 4 yrs [] 5 yrs

Conditions on Approval / Reasons for Disapproval

1. Notify the Department of Natural Resources at least 48 hours before beginning operations. Call (360) 577-2025 and provide the application number and legal description for your operation.
2. Project Timing Restrictions: August 1 to September 30 for all work below OHW

Issued By: Scott Hancock Region: Pacific Cascade

Title: Forest Practices Forester Date: 02/29/2016

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

Issued in person: Landowner Timber Owner Operator By: Jacqueline

Appeal Information

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

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

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

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

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

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

And

Department Of Natural Resources
Pacific Cascade Region
601 Bond Road
PO Box 280
Castle Rock, WA 98611

Other Applicable Laws

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

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

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

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

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

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

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

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

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

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

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

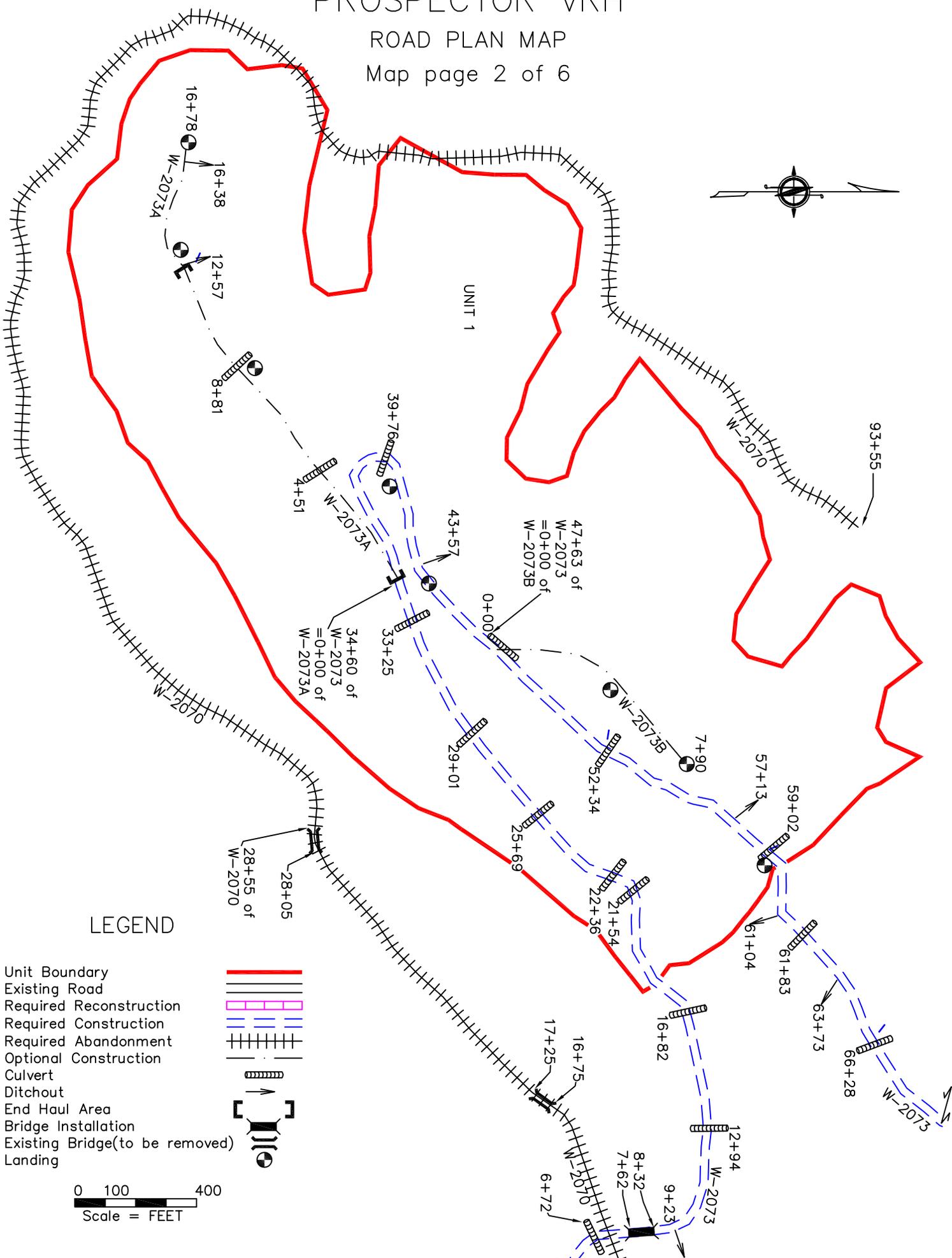
DNR affidavit of mailing:

On this day <u>2/29/16</u>	I placed in the United States mail at <u>Castle Rock</u> , WA,
(date mm/dd/yyyy)	(post office location)
postage paid, a true and accurate copy of this document. Notice of Decision FPA # <u>2931320</u>	
<u>Jacqui Spahr</u>	<u>Jacqui Spahr</u>
(Printed name)	(Signature)

PROSPECTOR VRH

ROAD PLAN MAP

Map page 2 of 6



LEGEND

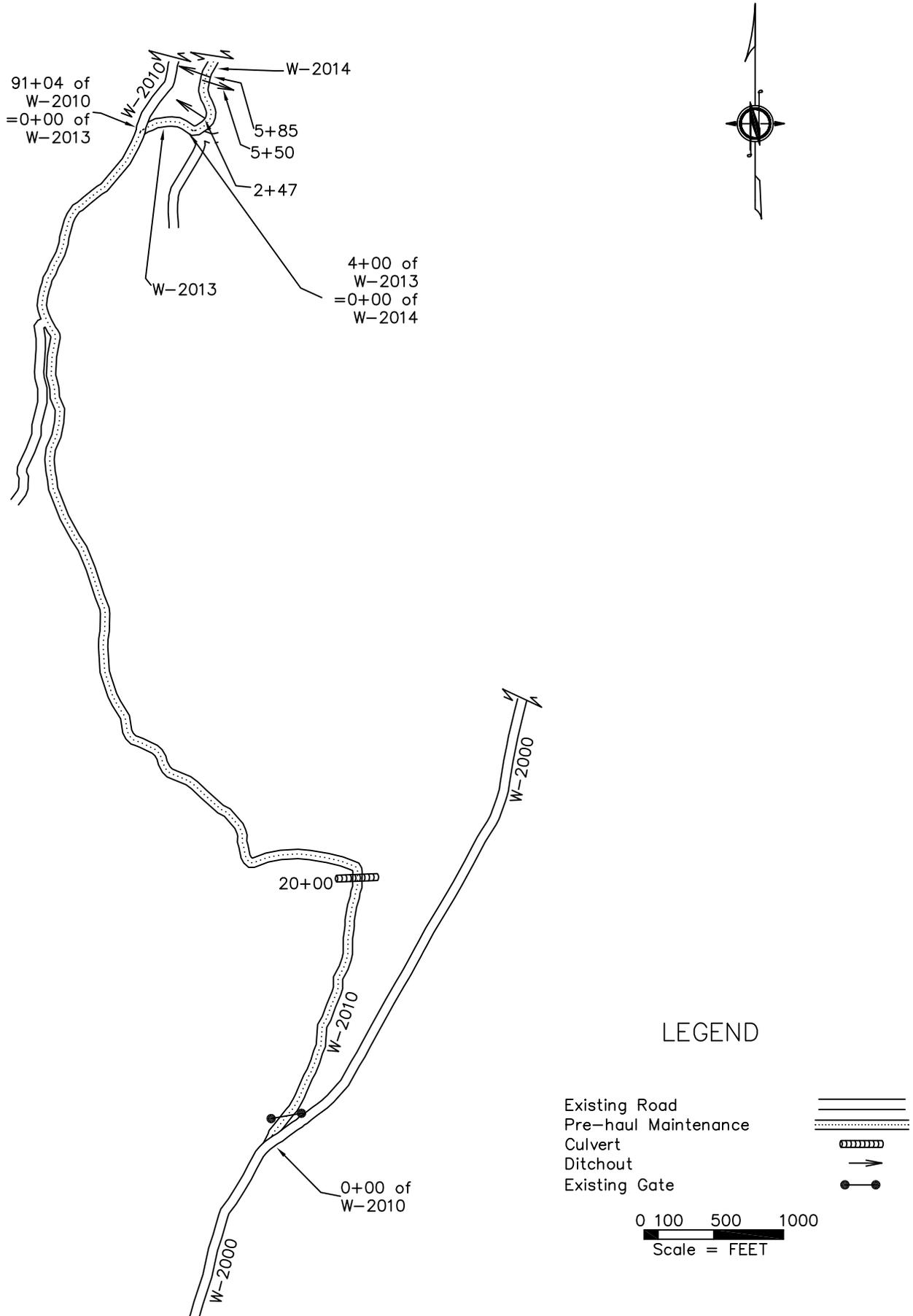
- Unit Boundary
- Existing Road
- Required Reconstruction
- Required Construction
- Required Abandonment
- Optional Construction
- Culvert
- Ditchout
- End Haul Area
- Bridge Installation
- Existing Bridge(to be removed)
- Landing



PROSPECTOR VRH

ROAD PLAN MAP

Map page 4 of 6



LEGEND

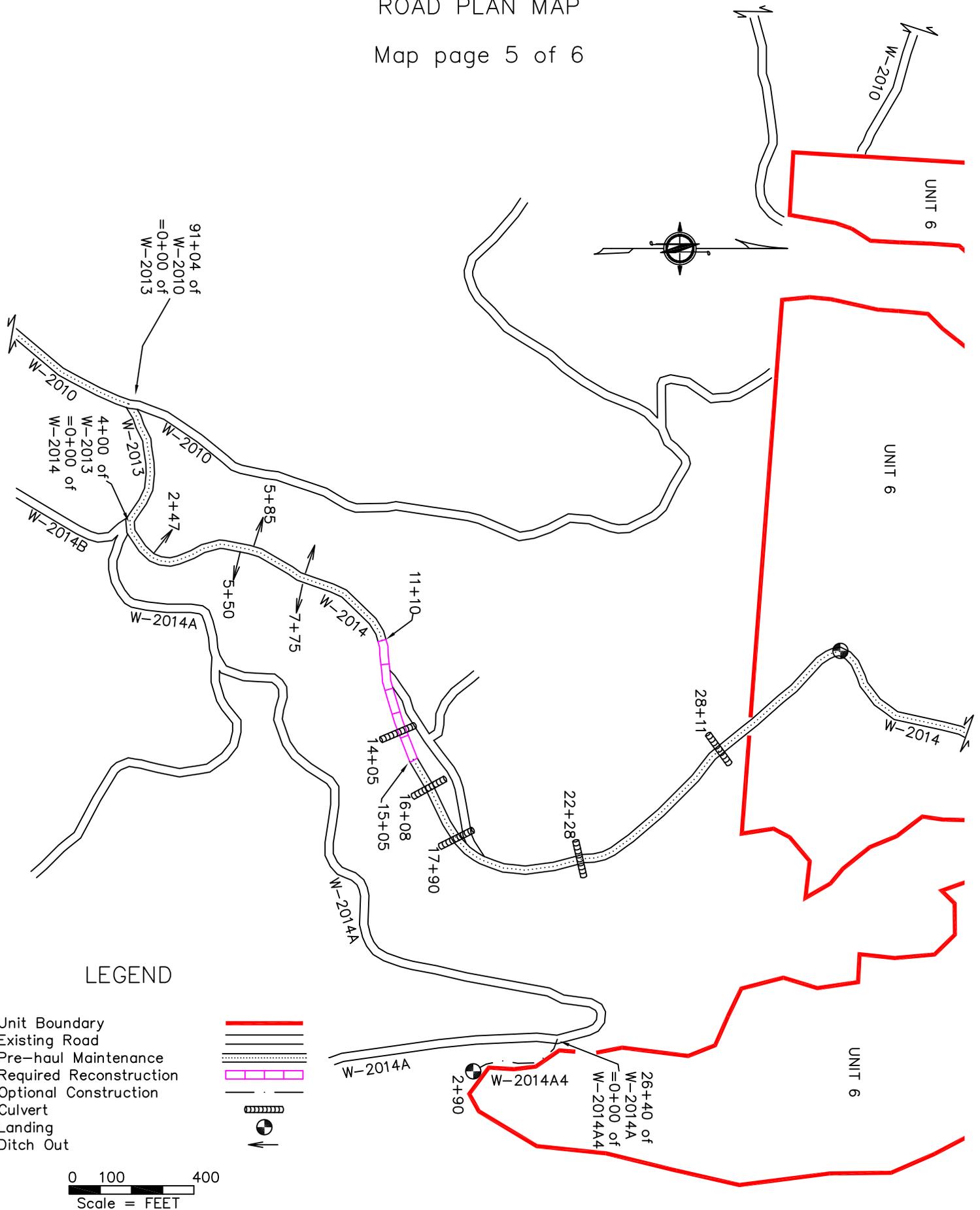
- Existing Road 
- Pre-haul Maintenance 
- Culvert 
- Ditchout 
- Existing Gate 

0 100 500 1000
Scale = FEET

PROSPECTOR VRH

ROAD PLAN MAP

Map page 5 of 6



LEGEND

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

0 100 400
Scale = FEET

PROSPECTOR VRH

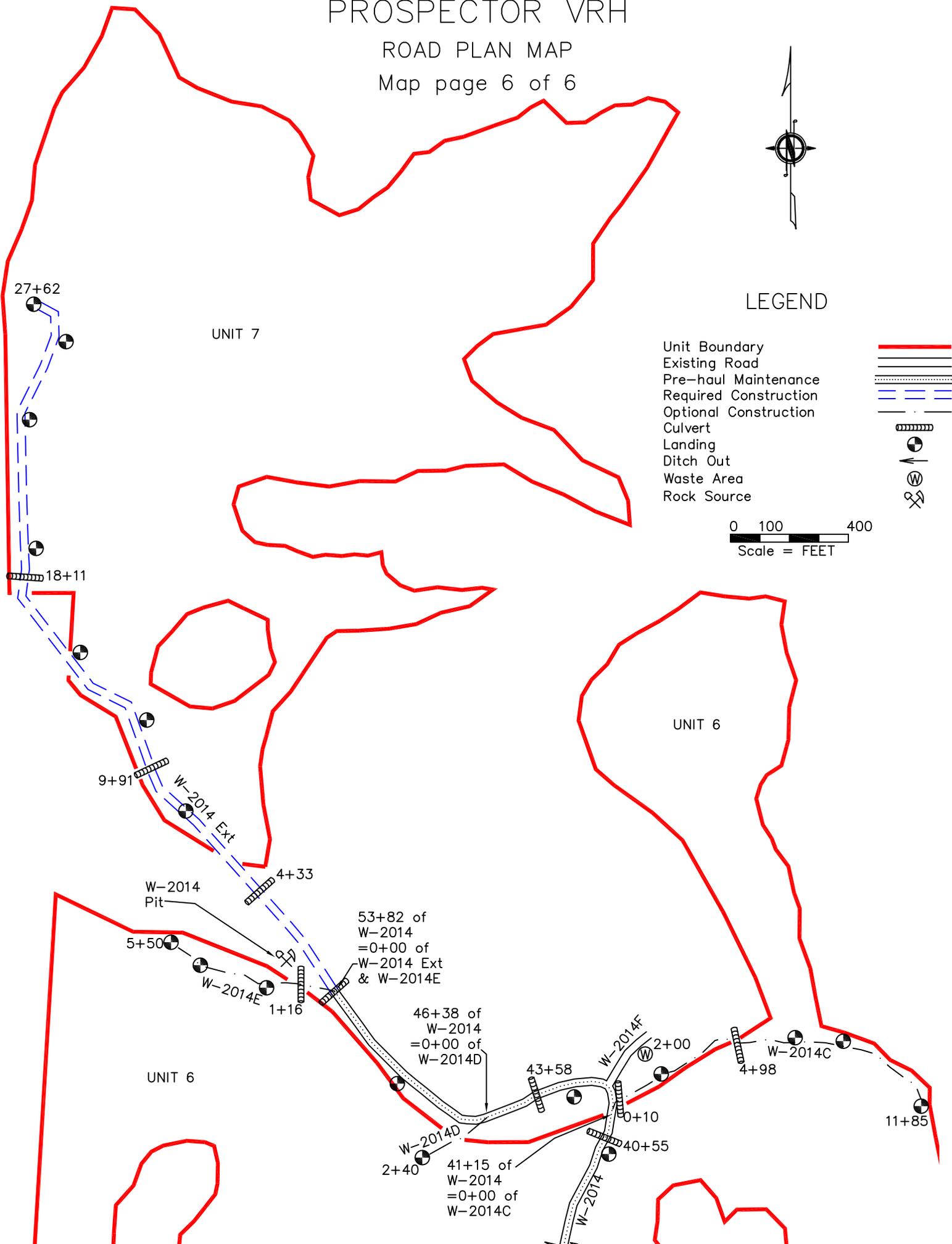
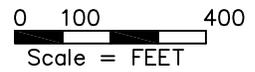
ROAD PLAN MAP

Map page 6 of 6



LEGEND

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



STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

PROSPECTOR VRH TIMBER SALE ROAD PLAN
SKAMANIA COUNTY
YACOLT DISTRICT

AGREEMENT NO.: 30-092543

STAFF ENGINEER: DAVID STONE

CREATION DATE: 10/20/15

DRAWN & COMPILED BY: ALICIA COMPTON

REVISED DATE: 2/11/16

& DAVID STONE

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>
W-2070	0+00 to 8+30	Reconstruction
W-2073	0+00 to 112+42	Construction
W-2010	0+00 to 91+04	Pre-haul Maintenance
W-2013	0+00 to 4+00	Pre-haul Maintenance
W-2014	0+00 to 11+10	Pre-haul Maintenance
W-2014	11+10 to 15+05	Reconstruction
W-2014	15+05 to 53+82	Pre-haul Maintenance
W-2014Ext	0+00 to 27+62	Construction

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>
W-2073A	0+00 to 16+78	Construction
W-2073B	0+00 to 7+90	Construction
W-2073D	0+00 to 10+05	Construction
W-2073D1	0+00 to 3+30	Construction
W-2073E	0+00to 5+66	Construction
W-2073F	0+00 to 1+45	Construction
W-2014A4	0+00 to 2+90	Construction
W-2014C	0+00 to 11+85	Construction
W-2014D	0+00 to 2+40	Construction
W-2014E	0+00 to 5+50	Construction

0-4 CONSTRUCTION

Construction includes, but is not limited to clearing, grubbing, right-of-way debris disposal, excavation and embankment to sub-grade, landing and turnout construction, culvert installation, bridge installation, application of rock, and compaction of earthwork and 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>
W-2070	0+00 to 8+30	Clear, grub, widen subgrade, excavate ditchlines, grade, shape, and compact subgrade surface in accordance to TYPICAL SECTION SHEET. Install culverts in accordance to CULVERT LIST. Reconstruct road grade according to construction stakes and reference points marked in the field. Apply rock in accordance to ROCK LIST. Grade, shape, and compact rock.
W-2014	11+10 to 15+05	Clear, grub, widen subgrade, excavate ditchlines, grade, shape, and compact subgrade surface in accordance to TYPICAL SECTION SHEET. Install culverts in accordance to CULVERT LIST. Reconstruct road grade according to construction stakes and reference points marked in the field. Apply rock in accordance to ROCK LIST. Grade, shape, and compact 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>
W-2010	0+00 to 91+04	Grade, shape, and compact existing surface in accordance to TYPICAL SECTION SHEET. Install culvert in accordance to CULVERT LIST. Grade, shape, and compact rock.
W-2013	0+00 to 4+00	Grade, shape, and compact existing surface in accordance to TYPICAL SECTION SHEET.
W-2014	0+00 to 11+10 and 15+05 to 53+82	Excavate culvert inlets and outlets. Excavate ditchlines and rip, grade, shape, and compact existing surface in accordance to TYPICAL SECTION SHEET. Install culverts in accordance to CULVERT LIST. Apply rock in accordance to ROCK LIST. Grade, shape, and compact rock.

0-10 ABANDONMENT

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

0-12 DEVELOP ROCK SOURCE

Purchaser shall develop a new rock source. Development will involve access road construction, clearing, stripping, end hauling waste to a waste area, drilling, shooting, and processing rock. Work for developing rock sources is listed in Section 6 ROCK, SURFACING, and the ROCK SOURCE DEVELOPMENT PLAN.

0-13 STRUCTURES

Purchaser shall provide and install one 16'x70' steel bridge. Requirements for these structures are listed in Sections 7 STRUCTURES.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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

1-4 ROAD TOLERANCES

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

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

1-5 DESIGN DATA

Road location, cross-section, stream crossing and bridge design data is available upon request at the Department of Natural Resources Pacific Cascade Region Office in Castle Rock, WA.

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 shall not begin without written approval from the Contract Administrator.

1-9 DAMAGED METALLIC COATING

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

1-10 WSDOT STANDARD SPECIFICATION REFERENCE

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

1-15 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, orange paint, or aluminum reference tags for all road types and bridges.

1-16 CONSTRUCTION STAKES SET BY STATE

The Purchaser shall construct the following roads in accordance with the construction stakes and reference points set in the field for grade and alignment.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
W-2070	0+00 to 8+30	Centerline stakes, slope stakes, and RPs
W-2073	0+00 to 112+42	Centerline stakes, slope stakes, and RPs
W-2073A	0+00 to 12+57	Centerline stakes, slope stakes, and RPs
W-2014	11+10 to 15+05	Centerline stakes, slope stakes, and RPs

1-18 REFERENCE POINT DAMAGE

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

1-21 HAUL APPROVAL

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

1-22 WORK NOTIFICATIONS

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

1-23 ROAD WORK PHASE APPROVAL

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

- Subgrade approval
- Waste area construction
- Subgrade compaction
- Rock compaction
- Removal of all components of existing bridge structures
- Subsurface drain

1-25 ACTIVITY TIMING RESTRICTION

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

1-26 OPERATING DURING CLOSURE PERIOD

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

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

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

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

1-32 BRIDGE AND ASPHALT SURFACE RESTRICTION

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

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

1-33 SNOW PLOWING RESTRICTION

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

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.

2-4 PASSAGE OF LIGHT VEHICLES

Purchaser shall maintain the following roads in a condition that will allow the passage of light administrative vehicles.

<u>Road</u>	<u>Stations</u>
W-2010	0+00 to 91+04
W-2013	0+00 to 4+00
W-2014	0+00 to 53+82
W-2014A	0+00 to 26+40

2-5 MAINTENANCE GRADING – EXISTING ROAD

On the following roads, Purchaser shall use a grader to shape the existing surface before application of rock or timber haul.

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
W-2010	0+00 to 91+04	Shape surface in accordance with TYPICAL SECTION SHEET
W-2013	0+00 to 4+00	
W-2014	0+00 to 11+10 and 15+05 to 53+82	

2-6 CLEANING CULVERTS

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

<u>Road</u>	<u>Stations</u>
W-2014	0+00 to 11+10 and 15+05 to 53+82

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

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

<u>Road</u>	<u>Stations</u>
W-2014	0+00 to 11+10 and 15+05 to 53+82

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.

3-6 CLEARING WITHIN RIPARIAN AREA AT TYPE 1-3 STREAM CROSSING

Purchaser shall place a log, with length equal to two (2) times the width of the ordinary high water, from the largest diameter class conifer tree cut from within the Inner Zone (25 feet either side of the stream) in the stream in accordance with the TYPICAL RIPARIAN STRATEGY STREAM CROSSING PLAN.

3-7 RIGHT-OF-WAY DECKING

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

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.
- On the upslope side of the road prism.

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. Stumps over 22 inches diameter must be split. Stumps over 40 inches must be quartered. Grubbing must be completed before starting excavation and embankment.

3-11 GRUBBING WITHIN RIPARIAN AREA AT TYPE 1-3 STREAM CROSSING

Purchaser shall retain all grubbed stumps (root wads) within the Inner Zone (25 feet either side of the stream) for placement in accordance with the TYPICAL RIPARIAN STRATEGY STREAM CROSSING PLAN. Three root wads must be placed in or adjacent to the stream channel. The remaining stumps grubbed from the Inner Zone must be placed at least 50 feet from the roadway in the Middle (25 feet to 100 feet from the stream) or the Outer Zones (remaining portion of RMZ).

3-12 STUMP PLACEMENT

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

3-14 STUMPS WITHIN DESIGNATED WASTE AREAS

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

3-20 ORGANIC DEBRIS DEFINITION

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

3-21 DISPOSAL COMPLETION

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

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
W-2050 Rock Pit	W-2050 pit area	Waste area is to the left
W-2073D Rock Pit	9+40 on W-2073D	Waste area is to the left
W-2014 Rock Pit	2+00 on W-2014F	Waste area is to the right
W-2073	8+30 on W-2070	Waste area is to the left
W-2073A	8+30 on W-2070	Waste area is to the left

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, wetland, or riparian management zone.
- On road subgrades, road prism excavation and embankment slopes as shown on the TYPICAL SECTION SHEET..
- 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 unless otherwise stated in this plan.

3-25 SCATTERING ORGANIC DEBRIS

Purchaser shall scatter organic debris outside of the grubbing limits on the downhill side of the road below the fill slope shoulder unless otherwise detailed in this road plan and as directed by the Contract Administrator.

3-31 PILING

Purchaser shall pile organic debris no closer than 10 feet from standing timber and no higher than 15 feet in areas specified in Clause 3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS. Piles must be free of rock and soil.

3-32 END HAULING ORGANIC DEBRIS

On slopes greater than 45%, Purchaser shall end haul or push organic debris to the designated waste areas specified in Clause 3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS, or to a waste area located by the Contract Administrator.

SECTION 4 – EXCAVATION

4-2 PIONEERING

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

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Purchaser shall follow these standards for road grade and alignment:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 13 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 6% 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.
- 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:

<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 3 to 6 feet.
- 4 feet for embankment heights at centerline of greater than 6 feet.

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

4-10 WIDEN THE EXISTING SUBGRADE

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

<u>Road</u>	<u>Stations</u>
W-2070	0+00 to 8+30
W-2014	11+10 to 15+05

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.

4-21 TURNOUTS

Purchaser shall construct turnouts intervisible with a maximum distance of 1,000 feet between turnouts unless otherwise shown on drawings. 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 TYPICAL SECTION SHEET.

4-22 TURNAROUNDS

Purchaser shall construct turnarounds 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, 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 end hauled to designated waste areas.

<u>Road</u>	<u>Stations</u>
W-2014	0+00 to 11+10 and 15+05 to 53+82

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

Purchaser shall construct ditchouts as identified on the CULVERT LIST 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>Remarks</u>
W-2050 Rock Pit	5+00 on the W-2050	Waste area is located to the left across the road from the rock pit mining area. Rock pit overburden excavation.
W-2073D Rock Pit	9+40 on W-2073D	Waste area is located to the left. Rock pit overburden excavation.
W-2014 Rock Pit	2+00 on W-2014F	Waste area is to the right. Rock pit overburden excavation.

WASTE AREA LOCATION CONTINUED

W-2070 Existing Bridge locations 16+75 to 17+25, 28+05 to 28+55	W-2070 (see remarks)	Waste area is the existing roadway. Native material shall not be placed closer than 50 feet away from top bridge excavation extents, all other material shall not be placed closer than 200 feet away from top bridge excavation extents.
W-2073	8+30 on W-2070	Waste area is to the left. End haul material from excavation.
W-2073A	8+30 on W-2070	Waste area is to the left. End haul material from excavation.

4-38 PROHIBITED WASTE DISPOSAL AREAS

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

- Within 25 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. Development of the borrow source must be in accordance with the attached design(plan, profile, and cross sections).

<u>Source</u>	<u>Location</u>	<u>Type</u>
W-2073	0+00 to 40+36	Native

4-50 BORROW APPLICATION

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

<u>Road</u>	<u>Stations</u>	<u>Cubic Yards</u>	<u>Type/Comments</u>
W-2070	0+00 to 8+30	1,402	Native - Raise the elevation of the roadway between 1.5 and 2 feet according to construction stakes and reference points marked in the field.

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. Purchaser shall accomplish all shaping using a motor grader with a minimum of 175 horsepower.

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, Purchaser shall rip the surface to a depth of 4 inches and reshape. During the reshaping process, rocks over 6 inches in diameter must be sidecast.

<u>Road</u>	<u>Stations</u>
W-2014	0+00 to 11+10 and 15+05 to 53+82

4-60 FILL COMPACTION

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

4-61 SUBGRADE COMPACTION

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

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.

4-70 SUBGRADE REINFORCEMENT

On the following road, Purchaser shall provide and install geotextile fabric as specified in the W-2073 BRIDGE INSTALLATION DETAIL. Geotextile fabric must overlap by a minimum of 2 feet at all joints. Geotextile fabric must meet the specifications in Clause 10-3 GEOTEXTILE FOR STABILIZATION.

<u>Road</u>	<u>Stations</u>
W-2073	7+57 to 8+98

SECTION 5 – DRAINAGE

5-1 REMOVAL OF SHOULDER BERMS

On the following road, Purchaser shall remove berms from road shoulders. The construction of ditchouts is required where ponding could result from the effects of sidecast debris.

<u>Road</u>	<u>Stations</u>
W-2014	0+00 to 11+10 and 15+05 to 53+82

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 must be new material and meet the specifications in Clauses 10-15 through 10-24.

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 at a location directed by the Contract Administrator.

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL, LIVE STREAM INSTALLATION 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.

5-17 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.

5-20 ENERGY DISSIPATERS

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

The type of energy dissipater and the amount of material must be consistent with the specifications listed on the CULVERT LIST. Rock must be set in place by machine. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed.

5-25 CATCH BASINS

Purchaser shall construct catch basins in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL. Minimum dimensions of catch basins are 3 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. Rock must be set in place by machine. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed. The type and amount of rock shall be consistent with the specifications listed on the CULVERT LIST.

5-33 NATIVE SURFACE ROADS

If overwintered, native surface roads must be waterbarred by October 1. Purchaser shall construct waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical distance of no more than 10 feet between waterbars or between natural drainage paths, and with a maximum spacing of 200 feet.

5-35 SUBSURFACE DRAIN

On the following roads, Purchaser shall install subsurface drains in accordance with the W-2073 BRIDGE INSTALLATION DETAIL.

<u>Road</u>	<u>Stations</u>
W-2073	8+35 to 8+91

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 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, 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>
W-2014 Pit	NW¼ NW¼ Sec. 36, T03N, R05E, W.M.
W-2050 Pit	SW¼ SW¼ Sec. 17, T03N, R06E, W.M.
W-2073D Potential Pit	On the slope to left of Station 10+05 on the W-2073D

6-5 ROCK FROM COMMERCIAL SOURCE

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

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

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

<u>Source</u>	<u>Location</u>
W-2014 Pit	NW¼ NW¼ Sec. 36, T03N, R05E, W.M.
W-2050 Pit	SW¼ SW¼ Sec. 17, T03N, R06E, W.M.

6-11 ROCK SOURCE DEVELOPMENT PLAN BY PURCHASER

Purchaser shall conduct rock source development and use at the following sources, in accordance with a written ROCK SOURCE DEVELOPMENT AND RECLAMATION 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 AND RECLAMATION 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>
On the left @ Station 10+05 on the W-2073D	3-Inch Jaw Run Rock

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

- Rock source location.
- 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.
- Rock source reclamation plan describing how the area will be left in a condition that will ensure public safety and minimize environmental impacts.

6-12 ROCK SOURCE SPECIFICATIONS

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

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

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

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

6-14 DRILL AND SHOOT

Rock drilling and shooting must meet the following specifications:

- 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. No oversize material is allowed to remain in the rock source at the termination of this timber sale.
- Oversize material is defined as rock fragments larger than two feet in any dimension.
- Oversized rock that exceeds the maximum allowable amount must be approved by the Contract Administrator.
- 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).
- All operations must be carried out in compliance with the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and the Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- Purchaser shall block access roads and trails before blasting operations.

6-20 ROCK GRADATION TYPES

Purchaser shall manufacture rock in accordance with the types and amounts listed in the ROCK LIST. Rock must meet the following specifications for gradation and uniform quality during manufacture. Purchaser shall provide a sieve analysis upon request from the Contract Administrator. Gradation specifications in Clauses 6-30, 6-34, 6-41, 6-50, & 6-51.

6-22 FRACTURE REQUIREMENT FOR ROCK

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

6-23 ROCK CRUSHING OPERATIONS

Rock crushing operations shall conform to the following specifications:

- Operations and placement of oversize material must be conducted in or near the rock source site, as approved in writing by the Contract Administrator.
- The Purchaser shall provide an onsite weatherproof field laboratory equipped with all necessary testing equipment (oven, sieves, sieve shaker, and scales) for conducting sieve testing of the required aggregate that is being produced. This laboratory shall be available for use by the Contract Administrator during the entire crushing operation.
- All testing and operations shall be performed in accordance with the attached ROCK CRUSHING COMPLIANCE PROCEDURE.
- The Purchaser is required to produce sieve analysis for crushing operations every 1000 yards for each rock gradation type.
- The Purchaser may use commercial testing lab to produce a sieve analysis in lieu of a field laboratory.

6-30 2-INCH MINUS CRUSHED ROCK

% Passing 2" square sieve	100%
% Passing 1" square sieve	55 - 75%
% Passing U.S. #4 sieve	20 - 45%

Of the fraction passing the No. 4 sieve, 40% to 60% shall pass the No. 10 sieve

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.

6-34 3-INCH JAW RUN ROCK

% Passing 3" in one dimension	100%
% Passing 1 1/2" square sieve	45 - 65%

Rock may contain no more than 5 percent organic debris, dirt, and trash. All percentages are by weight.

6-41 PIT RUN ROCK

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

6-50 LIGHT LOOSE RIP RAP

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

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

6-51 HEAVY LOOSE RIP RAP

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

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

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of specified rock depths, are defined as the compacted depths using the compaction methods required in this road plan. Estimated minimum 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 Landing, Junction, Riprap, and Spot Rock shall be on a cubic yard truck measure basis. The Contract Administrator shall measure each truck box before rock hauling. The Contract Administrator shall periodically require that a load be flattened off and its volume calculated. An average of such volumes for each truck shall be used to tally the volume to be hauled. The Purchaser shall maintain load tally sheets for each truck as shown in ROCK ACCOUNTABILITY DETAIL and shall give them to the Contract Administrator or mail them to the Pacific Cascade Region Office on a weekly basis during rocking operations.

6-70 APPROVAL BEFORE ROCK APPLICATION

Purchaser shall obtain written approval from the Contract Administrator for completed subgrade and drainage installation, including inlet and outlet armor, before rock application.

6-71 ROCK APPLICATION

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

6-73 ROCK FOR WIDENED PORTIONS

Purchaser shall apply rock to turnarounds, 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 June 1 to September 30 the Purchaser may 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>
W-2073B	2+00 to 7+90
W-2073D1	2+00 to 3+30
W-2073E	2+00 to 5+66
W-2014C	2+00 to 11+85
W-2014E	2+00 to 5+50

SECTION 7 – STRUCTURES

7-1 SIGN INSTALLATION

Purchaser shall purchase, install, and maintain the following road signs. Signs must comply with the Federal Highway Administration’s Manual on Uniform Traffic Control Devices.

<u>Road</u>	<u>Station</u>	<u>Sign</u>
W-2073	7+62 and 8+32	Bridge delineators

7-5 STRUCTURE DEBRIS

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

7-6 STREAM CROSSING INSTALLATION

Installation of stream crossing structures shall be in accordance with the manufacturer's requirements, FPA, W-2073 BRIDGE DESIGN DETAILS, and STREAM DIVERSION PROCEDURE.

7-15 DRAWING AND CALCULATION REVIEW FOR ACCEPTANCE

The Purchaser shall prepare and submit three sets of complete design drawings and calculations for the superstructure, including sills, sole/bearing plates, and back walls. All drawings and calculations shall be prepared, stamped, and signed by a Registered Professional Engineer in the State of Washington. The superstructure must be designed by a Professional Engineer licensed in the state of manufacture. Drawings can be in either electronic or hard copy form and shall be no smaller than 11" X 17" sheets.

Send submittals to:

Department of Natural Resources
Attn.: Pacific Cascade Region Engineer
P.O. Box 280
Castle Rock, WA 98611
360-577-2025

Reports and plans will be accepted or rejected within 10 working days of receipt of final drawing submittal. Delays in work because of the possibility of rejection, revision, and resubmittal of documents are deemed a risk of the Purchaser and may not be the basis for claims of additional compensation.

7-16 STRUCTURE ACCEPTANCE

The Region Engineer or designee will inspect the structure upon delivery. Acceptance will be issued if the structure meets all specifications and certifications. Structures that are not accepted may not be installed.

7-17 INSTALLATION PRODUCTION SCHEDULE

Purchaser shall provide the Contract Administrator, or their designee, with a production schedule showing projected completion dates of the following items before starting construction of structures. Production schedule shall include, but is not limited to:

excavation,
placement of and compaction of fill material/subsurface drain/riprap
placement of sills /abutments/superstructure/ecology blocks,
backfill compaction, rock application and compaction,

7-18 INSTALLATION STAGE ACCEPTANCE

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

7-19 INSTALLATION FINAL ACCEPTANCE

Purchaser shall notify the Contract Administrator in writing when each structure is complete. Before final acceptance of the structure. Purchaser shall submit a complete set of as-built plans stamped by the design engineer. Any omissions to the plans are the responsibility of the Purchaser to correct and include in the finalized set of plans. Submit finalized plans to the same location stated in Clause 7-15 DRAWING AND CALCULATION REVIEW FOR ACCEPTANCE.

7-45 PURCHASER SUPPLIED BRIDGE

Purchaser shall design, provide, and construct each bridge listed below. Designs must include curbs and guard rails, a full width continuous deck with no gaps that allow water and sediment to drain from the bridge to the stream.

Road	Station	Length (ft)	W.B.S.R. ¹ (ft)	Loading/Deflection Ratio	Type	Vert.Clear ² (ft)	Hor. Align ³
W-2073	7+62 to 8+32	70	16.0	HL-93 / U80 and L90	Modular Weathering Steel	PP & CS	PP & CS

¹W.B.S.R. = Width between shear rails.

²Vertical clearance shall be measured from 100 year flood level.

³Horizontal alignment: P.P. = on the attached plan/profile, C.S. = according to construction stakes on the ground.

7-47 PURCHASER SUPPLIED ABUTMENTS

Purchaser shall provide pre-cast concrete abutment designs. Bridge abutments must be designed by an engineer licensed in the State of Washington, or the state of manufacture . The abutment design includes, but is not limited to wing walls, steel reinforced concrete sills, and permanent, functional provisions for lifting.

7-51 EMBANKMENT RETENTION

Purchaser shall provide embankment retention to ensure that bridge approach embankments are stable, contained, and do not encroach the stream channel. Bin wall or Hilfiker systems are two pre-approved designs. Alternate designs for embankment retention must be submitted to the same location stated in Clause 7-15 DRAWING AND CALCULATION REVIEW FOR ACCEPTANCE for consideration. Reports and plans will be accepted or rejected within 10 working days of receipt.

7-52 TECHNICAL SPECIFICATIONS

Design: The bridge superstructure shall be designed in accordance with AASHTO LFRD, latest edition and any subsequent interim specifications. Design details not covered by the AASHTO specifications shall be in accordance with other normally accepted structural design standards.

Fabrication: The structural steel fabricating plant of origin shall be certified under the AISC Quality Certification Program. Certification categories shall include Simple and Major Steel Bridges.

Certification of Materials: Mill test certificates shall be furnished for the steel stringers and the bridge deck. Certified mill test reports for steel bridge stringers with specified values shall include, in addition to other tests, the results of Charpy V-notch impact tests.

Welding: All welding shall be completed by welders certified in accordance with the requirements and qualification tests of the American Welding Society.

7-53 BRIDGE INSTALLATION

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

SECTION 8 – EROSION CONTROL

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall furnish and evenly spread a 4-inch layer of straw to all exposed soils within 100 feet of a stream or wetland. Soils shall be covered before the first anticipated storm event. Soils shall not be allowed to sit exposed during any rain event.

8-15 REVEGETATION

Purchaser shall spread grass seed and/or 4-inch layer of straw on all exposed soils within the grubbing limits resulting from road work activities. Cover all exposed soils using manual dispersal of grass seed and or straw. Other methods of covering must be approved in writing by the Contract Administrator.

<u>Location</u>	<u>Qty (lbs)*</u>	<u>Type</u>
All roads, abandonment, pit, pit access roads, and waste areas.	493	Grass Seed

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

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the grass seed and straw.

8-17 REVEGETATION TIMING

Purchaser shall perform revegetation during the first available opportunity after construction, reconstruction, pre-haul maintenance, pit mining area, waste area construction, and abandonment is completed. Soils shall not be allowed to sit exposed for longer than one month without receiving revegetation treatment, unless otherwise approved in writing by the Contract Administrator.

8-19 ASSURANCE FOR SEEDED AREA

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

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 and or straw 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 and or straw 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 40 pounds per acre of exposed soil. Grass seed shall meet the following specifications:

1. Weed seed shall not exceed 0.5% by weight.
2. All seed species shall have a minimum 90% germination rate, unless otherwise specified.
3. Seed shall be certified.
4. Seed shall be furnished in standard containers that show 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 shall 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	25-35	90
Red Fescue	40-50	90
Highland Bent	15	85
Red and White Clover	10	90
Inert and Other Crop	0.5	

SECTION 9 – POST-HAUL ROAD WORK

9-1 EARTHEN BARRICADES

On the following roads, barricades shall be constructed in accordance with the EARTHEN BARRICADE DETAIL.

<u>Road</u>	<u>Stations</u>
W-2070	14+30, 14+50, & 14+70

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-11 LANDING EMBANKMENT

Purchaser shall slope landing embankments to the original construction specifications.

9-21 ROAD ABANDONMENT

Purchaser shall abandon the following roads before the termination of this contract by the specified date. Work must be in accordance with the ROAD ABANDONMENT CROSS SECTIONS DETAIL.

<u>Road</u>	<u>Stations</u>	<u>Type</u>	<u>Date</u>
W-2070	8+30 to 16+75, 17+25 to 28+05, and 28+55 to 93+55	Light	Before the termination of this contract
W-2070	16+75 to 17+25 and 28+05 to 28+55	Heavy	Before the termination of this contract

9-22 LIGHT ABANDONMENT

- Remove road shoulder berms except as directed.
- Outslope roadway or inslope to a waterbar as appropriate.
- Construct non-drivable waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL at a maximum spacing which will produce a vertical drop of no more than 10 feet between waterbars or between natural drainage paths and with a maximum spacing of 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 shall be outsloped to provide positive drainage. Outlets shall be on stable locations.
- Remove culverts and leave the resulting trench open. The removed fill material shall be placed and compacted in a location that will not erode into any Type 1 through 5 waters or wetlands.
- All removed culverts shall be placed adjacent to roadway on the fill slope and not in an area that will prevent surface water flow.
- Slope all trench walls and approach embankments no steeper than 1.5:1.
- Block roads with earthen barricades according to the attached EARTHEN BARRICADE DETAIL.
- Apply grass seed concurrently with abandonment to all exposed soil within the old roadway limits and in accordance with Section 8 EROSION CONTROL.
- Scatter woody debris onto abandoned and decommissioned road surfaces as directed by the Contract Administrator.
- Cover, concurrently with abandonment, all exposed soils within 100 feet of any live stream, with a 4-inch deep layer of straw.

9-24 HEAVY ABANDONMENT

- Bridge Removal Clause 11-3
- Slope all trench walls and approach embankments no steeper than 1.5:1.
- Apply grass seed concurrently with abandonment to all exposed soil within the old roadway limits and in accordance with Section 8 EROSION CONTROL.
- Cover, concurrently with abandonment, all exposed soils within 100 feet of any live stream, with a 4-inch deep layer of straw.

SECTION 10 MATERIALS

10-3 GEOTEXTILE FOR STABILIZATION

Geotextiles shall be woven polypropylene fibers and shall meet the following minimum requirements for strength and property qualities, and shall be designed by the manufacturer to be used for stabilization or reinforcement, and filtration. Material shall be free of defects, cuts, and tears.

	<u>ASTM Test</u>	<u>Requirements</u>
Type	--	Woven
Apparent opening size	D 4751	No. 40 max
Water permittivity	D 4491	0.05 sec ⁻¹
Grab tensile strength	D 4632	315 lbs
Grab tensile elongation	D 4632	15%
CBR puncture strength	D 6241	1000 lbs
Puncture strength	D 4833	120 lbs
Tear strength	D 4533	120 lbs
Ultraviolet stability	D 4355	70% retained after 500 hours of exposure

10-15 CORRUGATED STEEL CULVERT

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

10-17 CORRUGATED PLASTIC CULVERT

Polyethylene culverts shall 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.

10-24 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"

10-45 BRIDGE MATERIAL

All materials necessary for assembly shall be included with the structure and meet the following requirements:

- a. All structural steel must be of domestic (USA) manufacture and conform to the requirements of ASTM Specification A588 weathering steel.
- b. All galvanizing shall be done after fabrication and shall be in accordance with AASHTO Designation M111-09 (ASTM Designation: A123) and/or AASHTO Designation M232-10 centrifuged to remove excess (ASTM Designation A153) and/or AASHTO M298-10 mechanical galvanization (ASTM B695-04).
- c. Flanges used for connecting the stringer units together shall be designed to facilitate field assembly.
- d. All bolts used to facilitate field assembly will be A325 Type 1 or 2 galvanized. All materials necessary for assembly shall be included with the structure. All hardware connections and fasteners shall be in accordance with AASHTO Designation ASTM Designation A325 Type 3 weathering steel.
- e. Guard rails shall be new galvanized w-beams a minimum of 12 gauge in thickness with new galvanized Type B Terminals. All bolts and hardware shall be new galvanized and high strength steel. Top of guard rails shall be set at a minimum of 2.5 feet above the top of the bridge running surface.
- f. The bridge deck shall be made of corrugated galvanized steel a minimum 9 gauge in thickness. Deck shall have side dams that extend at least 4 inches above the top of the deck.
- g. The bridge surface shall be decked full width with pressure treated 4 inch x 10 inch running planks. All deck material shall be No. 2 or better Douglas fir. The running planks shall have beveled edges and shall be installed with a minimum of a three foot stagger.
- h. Elastomeric bearing pads shall conform to the requirements of AASHTO M251-06.
- i. Bridges shall have weathering steel sole plates/bearing plates welded as specified in the bearing detail on design engineer plans.
- j. Backwalls shall be constructed of galvanized corrugated steel. The design engineer shall specify the gauge of back wall material. Backwalls shall be a minimum of 24 feet long and tall enough to extend from the bottom of the girders to the top of the girders.
- k. Welded splices are prohibited in main load carrying members.
- l. All concrete used shall conform to AASHTO specifications.
- m. The superstructure shall have permanent, functional provisions for lifting.
- n. Bridge shall be attached to precast concrete sills.

SECTION 11 SPECIAL NOTES

11-1 EMBANKMENT RETENTION ECOLOGY BLOCKS

At the following locations, ecology blocks shall be set in place in conjunction with construction during embankment as specified on the BRIDGE DESIGN DETAILS. Ecology blocks shall be new concrete blocks with the following dimensions: 2 feet wide x 2 feet tall x 6 feet long. Blocks may vary in dimension by no more than 1 inch. Blocks shall be interlocking with each block having an approximate weight of 3,550 pounds. Blocks must be structurally sound without visible cold joints or spalls.

<u>Road</u>	<u>Stations</u>	<u>Location</u>
W-2073	7+56 to 7+62	Up stream
W-2073	7+56 to 7+62	Down stream
W-2073	8+32 to 8+38	Up stream
W-2073	8+32 to 8+38	Down stream

11-2 BRIDGE DELINEATORS INSTALLATION

Bridge delineators shall consist of four reflective striped delineators mounted on each bridge. Mounting may consist of painted metal post and bolt, or epoxy an bolt, or other Contract Administrator approved means of attachment. One delineator shall be installed at each end of the bridge guard rail or curb. Each delineator shall be installed with the reflector striping angled downward guiding traffic toward the center of the bridge.

11-3 BRIDGE REMOVAL

On the following road, Purchaser shall remove two existing bridges from live streams and leave the resulting channel open with excavation slope and excavated channel width as specified. Purchaser may remove bridges from State Land, however it is not a requirement.

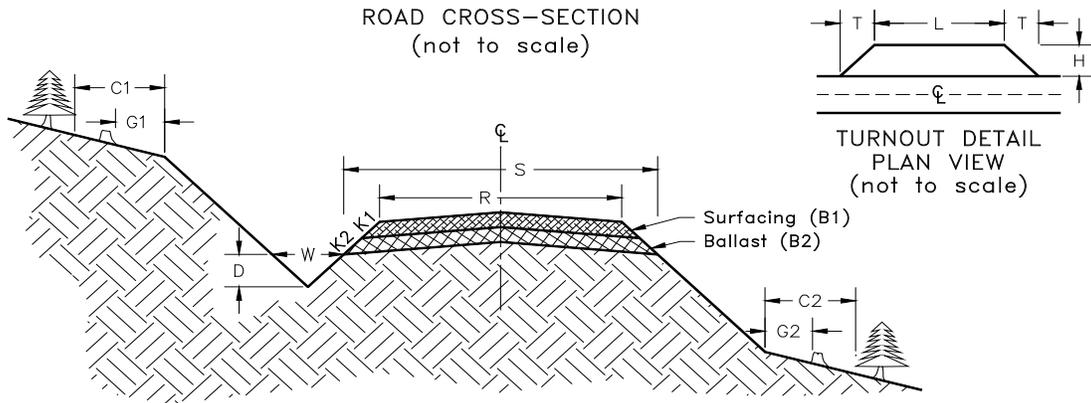
<u>Road</u>	<u>Stations</u>	<u>Excavated Channel Width</u>	<u>Slope Ratio</u>	<u>Comments</u>
W-2070	16+75 to 17+25 and 28+05 to 28+55	Construction Stakes	1½:1	Removal of bridges/ existing abutments/gabion baskets/all concrete including piers and spread footings/channel encroaching back fills. Excavation extents staked in field.

11-4 FPA ACTIVITY TIMING RESTRICTION

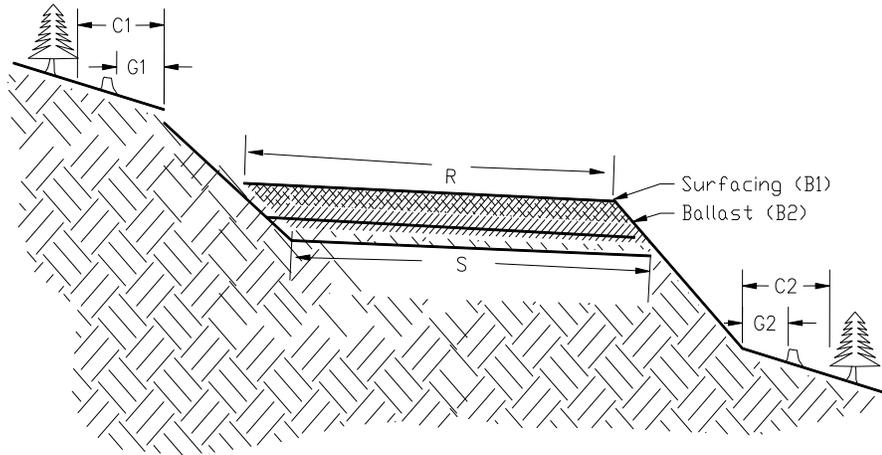
The specified activities are not allowed during the listed closure period unless authorized in writing by the Contract Administrator.

<u>Activity</u>	<u>Closure Period</u>
Bridge Installation/Removal	Consult FPA for in stream work period

TYPICAL SECTION SHEET



OUTSLOPED
ROAD CROSS-SECTION
(not to scale)



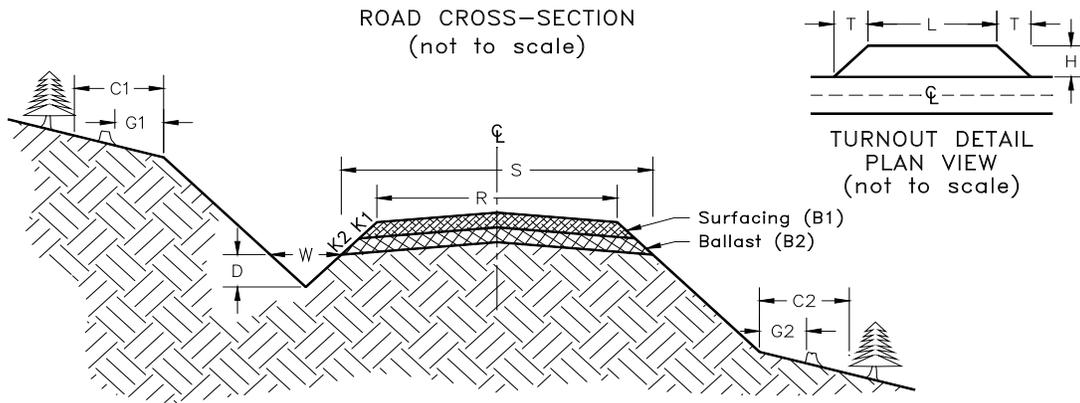
Road Number	From Station	To Station	Tolerance Class	Subgrade Width (feet)	Road Width (feet)	Ditch		Crown at C/L (inches)	Grubbing Limits (feet)		Clearing Limits (feet)	
						Width (feet)	Depth (feet)		G1	G2	C1	C2
				S	R	W	D		G1	G2	C1	C2
W-2070	0+00	8+30	A	16	12	3	1	4	5	5	10	10
W-2073	0+00	8+32	A	16	12	3	1	4	5	5	ROW TAGS	
W-2073	8+32	8+91	A	24	20	3	1	4	5	5	ROW TAGS	
W-2073	8+91	17+88	A	16	12	3	1	4	5	5	ROW TAGS	
W-2073	17+88	59+44	A	16	12	3	1	4	5	5	10	10
W-2073	59+44	84+05	A	16	12	3	1	4	5	5	ROW TAGS	
W-2073	84+05	112+42	A	16	12	3	1	4	5	5	10	10
* W-2073A	0+00	16+78	C	14	12	3	1	4	3	3	5	5
* W-2073B	0+00	7+90	C	14	12	3	1	4	3	3	5	5
* W-2073D	0+00	10+05	C	14	12	3	1	4	3	3	5	5
* W-2073D1	0+00	3+30	C	14	12	3	1	4	3	3	5	5
* W-2073E	0+00	5+66	C	14	12	3	1	4	3	3	5	5

TYPICAL SECTION SHEET (Continued)

Road Number	From Station	To Station	Tolerance Class	Subgrade Width (feet)	Road Width (feet)	Ditch		Crown at C/L (inches)	Grubbing Limits (feet)		Clearing Limits (feet)	
						Width (feet)	Depth (feet)		G1	G2	C1	C2
				S	R	W	D					
* W-2073F	0+00	1+45	C	14	12	3	1	4	3	3	5	5
W-2010	0+00	91+04	A	14	12	3	1	4	N/A	N/A	N/A	N/A
W-2013	0+00	4+00	B	14	12	3	1	4	N/A	N/A	N/A	N/A
W-2014	0+00	53+82	B	14	12	3	1	4	3	3	5	5
W-2014Ext	0+00	4+33	C	14	12	3	1	4	3	3	ROW TAGS	
W-2014Ext	4+33	14+45	C	14	12	3	1	4	3	3	5	5
W-2014Ext	14+45	16+93	C	14	12	3	1	4	3	3	ROW TAGS	
W-2014Ext	16+93	27+62	C	14	12	3	1	4	3	3	5	5
*W-2014A4	0+00	1+54	C	14	12	3	1	4	3	3	ROW TAGS	
*W-2014A4	1+54	2+90	C	14	12	3	1	4	3	3	5	5
* W-2014C	0+00	11+85	C	14	12	3	1	4	3	3	5	5
* W-2014D	0+00	2+40	C	14	12	OUTSLOPE		6	3	3	5	5
* W-2014E	0+00	5+50	C	14	12	3	1	4	3	3	5	5

* Optional Roads

ROCK LIST
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BALLAST

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
PIT RUN											
W-2073 Bridge back fill below sill		7+62	--	--	--	--	12	W-2050 PIT			
W-2073 Bridge back fill below sill		8+32	--	--	--	--	12				
W-2073 roadway back fill	7+50	7+62	--	--	--	--	34				
W-2073 roadway back fill	8+32	8+57	--	--	--	--	208				
3 INCH JAW RUN											
W-2070	0+00	8+30	1½:1	6	32	8.30	266				
CURVE WIDENING	--	--	1½:1	6	--	--	9				
TURNOUTS	--	--	1½:1	6	19/TO	1 TO's	19	50	10	25	
JUNCTION	0+00	--	--	--	--	--	30				
LANDINGS	--	--	--	--	30/Landing	1 Landings	30				
W-2073	0+00	6+72	1½:1	6	32	6.72	215				
W-2073	6+72	7+62	1½:1	9	51	0.90	46				
W-2073	8+32	8+91	1½:1	9	79	0.59	47				
W-2073	8+91	10+05	1½:1	9	51	1.14	58				
W-2073	10+05	61+04	1½:1	6	32	50.99	1,632				
CURVE WIDENING	--	--	1½:1	6	--	--	100				
TURNOUTS	--	--	1½:1	6	19/TO	4 TO's	76	50	10	25	
JUNCTION	0+00	--	--	--	--	--	30				
LANDINGS	--	--	--	--	30/Landing	3 Landings	90				

ROCK LIST
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BALLAST (continued)

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
					3 INCH JAW RUN						
								W-2050 PIT			
W-2073	61+04	112+42	1½:1	9	46	51.38	2,363				
CURVE WIDENING	--	--	1½:1	9	--	--	95				
TURNOUTS	--	--	1½:1	9	29/TO	6 TO's	174		50	10	25
LANDINGS	--	--	--	--	30/Landing	3 Landings	90				
W-2073A	0+00	16+78	1½:1	6	30	16.78	503				
								W-2050 & W-2073D PITS			
CURVE WIDENING	--	--	1½:1	6	--	--	18				
TURNOUT	--	--	1½:1	6	19/TO	1 TO	19		50	10	25
JUNCTION		0+00	--	--	--	--	20				
LANDING	--	--	--	--	30/Landing	3 Landing	90				
W-2073B	0+00	7+90	1½:1	6	30	7.90	237				
CURVE WIDENING	--	--	1½:1	6	--	--	8				
TURNOUT	--	--	1½:1	6	19/TO	1 TO	19		50	10	25
JUNCTION		0+00	--	--	--	--	20				
LANDINGS	--	--	--	--	30/Landing	2 Landings	60				
W-2073D	0+00	10+05	1½:1	6	30	10.05	302				
CURVE WIDENING	--	--	1½:1	6	--	--	11				
TURNOUT	--	--	1½:1	6	19/TO	1 TO	19		50	10	25
JUNCTION		0+00	--	--	--	--	20				
LANDING	--	--	--	--	30/Landing	1 Landing	30				
W-2073D1	0+00	3+30	1½:1	6	30	3.30	99				
CURVE WIDENING	--	--	1½:1	6	--	--	6				
JUNCTION		0+00	--	--	--	--	20				
LANDING	--	--	--	--	30/Landing	1 Landing	30				
W-2073E	0+00	5+66	1½:1	6	30	5.66	170				
CURVE WIDENING	--	--	1½:1	6	--	--	7				
JUNCTION		0+00	--	--	--	--	20				
LANDING	--	--	--	--	30/Landing	1 Landing	30				
W-2073F	0+00	1+45	1½:1	6	30	1.45	44				
CURVE WIDENING	--	--	1½:1	6	--	--	2				
JUNCTION		0+00	--	--	--	--	20				
LANDINGS	--	--	--	--	30/Landing	1 Landings	30				

ROCK LIST
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BALLAST (continued)

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
					3 INCH JAW RUN						
								W-2014 PIT			
W-2010	19+85	20+15	1½:1	9	46	0.30	14				
W-2014	0+00	11+10	1½:1	6	30	11.10	333				
CURVE WIDENING	--	--	1½:1	6	--	--	12				
TURNOUTS	--	--	1½:1	6	19/TO	1 TO	19	50	10	25	
JUNCTION		0+00	--	--	--	--	20				
W-2014	11+10	15+05	1½:1	9	46	3.95	182				
CURVE WIDENING	--	--	1½:1	9	--	--	6				
W-2014	15+05	53+82	1½:1	6	30	38.77	1,163				
CURVE WIDENING	--	--	1½:1	6	--	--	41				
TURNOUT	--	--	1½:1	6	19/TO	5 TO	95	50	10	25	
LANDING	--	--	--	--	30/Landing	4 Landing	120				
W-2014Ext	0+00	27.62	1½:1	6	30	27.62	829				
CURVE WIDENING	--	--	1½:1	6	--	--	29				
TURNOUTS	--	--	1½:1	6	19/TO	4 TO	76	50	10	25	
JUNCTION		0+00	--	--	--	--	30				
LANDINGS	--	--	--	--	30/Landing	7Landings	210				
W-2014A4	0+00	2+90	1½:1	6	30	2.90	87				
CURVE WIDENING	--	--	1½:1	6	--	--	3				
JUNCTION		0+00	--	--	--	--	15				
LANDING	--	--	--	--	30/Landing	1 Landings	30				
W-2014C	0+00	11+85	1½:1	6	30	11.85	356				
CURVE WIDENING	--	--	1½:1	6	--	--	12				
TURNOUTS	--	--	1½:1	6	19/TO	1TO's	19	50	10	25	
JUNCTION		0+00	--	--	--	--	20				
LANDINGS	--	--	--	--	30/Landing	4 Landings	120				
W-2014D	0+00	2+40	1½:1	6	30	2.40	72				
CURVE WIDENING	--	--	1½:1	6	--	--	3				
JUNCTION		0+00	--	--	--	--	20				
LANDING	--	--	--	--	30/Landing	1 Landing	30				
W-2014E	0+00	5+50	1½:1	6	30	5.50	165				
CURVE WIDENING	--	--	1½:1	6	--	--	6				
JUNCTION		0+00	--	--	--	--	20				
LANDING	--	--	--	--	30/Landing	3 Landing	90				

3 INCH JAW RUN BALLAST TOTAL **11,471** Cubic Yards
PIT RUN BALLAST TOTAL **266** Cubic Yards

ROCK LIST
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SURFACE

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
						2 INCH MINUS		W-2050 PIT			
W-2073 Bridge leveling rock below sill	7+62		--	--	--	--	5.5				
W-2073 Bridge leveling rock below sill	8+32		--	--	--	--	5.5				
W-2070	0+00	8+30	1½:1	4	19	8.30	158				
CURVE WIDENING	--	--	1½:1	4	--	--	6				
TURNOUTS	--	--	1½:1	4	12/TO	1 TO's	12	50	10	25	
JUNCTION	0+00		--	--	--	--	30				
W-2073	0+00	6+72	1½:1	4	19	6.72	128				
W-2073	6+72	7+62	1½:1	6	30	0.90	27				
W-2073	8+32	8+91	1½:1	6	48	0.59	28				
W-2073	8+91	10+05	1½:1	6	30	1.14	34				
W-2073	10+05	61+04	1½:1	4	19	50.99	969				
CURVE WIDENING	--	--	1½:1	4	--	--	59				
TURNOUTS	--	--	1½:1	4	12/TO	4 TO's	48	50	10	25	
JUNCTION	0+00		--	--	--	--	20				

2 INCH MINUS CRUSHED TOTAL **1,530** Cubic Yards

ROCK LIST
(Page 5 of 5)

RIP-RAP

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Total	Rock Source
			K1	B1				
LIGHT LOOSE RIPRAP								W-2050 & W-2014 PITS
Culvert headwall, energy dissipators and slope armor								
W-2070 Culverts	--	--	--	--	--	--	2.0	
W-2073 Culverts	--	--	--	--	--	--	129.0	
W-2073A Culverts	--	--	--	--	--	--	11.0	
W-2073B Culvert	--	--	--	--	--	--	1.0	
W-2073D Culverts	--	--	--	--	--	--	2.5	
W-2073E Culvert	--	--	--	--	--	--	5.5	
W-2010 Culverts	--	--	--	--	--	--	5.5	
W-2014 Culverts	--	--	--	--	--	--	12.5	
W-2014Ext Culverts	--	--	--	--	--	--	17.5	
W-2014C Culverts	--	--	--	--	--	--	2.0	
W-2014E Culvert	--	--	--	--	--	--	1.0	
W-2073 Subsurface Drain	8+35	8+91	1½:1	See Bridge Design Detail	-	0.56	235.0	
HEAVY LOOSE RIPRAP								
W-2073 7+62	Abutment ballast below sill		--	--	--	--	84.5	
W-2073 7+62	Fill slope armor		--	--	--	--	183.0	
W-2070 17+30	Abutment ballast below sill		--	--	--	--	84.5	
W-2073 8+32	Fill slope armor		--	--	--	--	215.0	

LIGHT LOOSE RIPRAP TOTAL 424.5 Cubic Yards
HEAVY LOOSE RIPRAP TOTAL 567.0 Cubic Yards

CULVERT LIST

Road Number	Location	Culvert		Length (ft)			Riprap (C.Y.)			Backfill Material	Placement Method	Const. Staked	Remarks
		Dia. (in)	Gauge	Culvert	Down spt	Flume	Inlet	Outlet	Type				
			If										
			Steel										
W-2070	2+02	18	16	30	--	--	0.5	0.5	LL	NT	Machine	--	Cross-drain, inlet is to the right
	3+71	--		--	--	--	--	--	--	--	--	--	Ditchout Right
	7+67	18	16	32	--	--	0.5	0.5	LL	NT	Machine	--	Cross-drain, inlet is to the right
W-2073	6+72	18	16	40	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain, existing ditchline
	9+23	--		--	--	--	--	--	--	--	--	--	Ditchout Right
	12+94	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	16+82	18	16	40	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	21+54	24	14	50	--	--	10.0	20.0	LL	NT	Machine	--	Type 5 creek
	22+36	18	16	40	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	25+69	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	29+01	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	33+25	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	39+76	18	16	40	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	43+57	--		--	--	--	--	--	--	--	--	--	Ditchout Left
	52+34	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	57+13	--		--	--	--	--	--	--	--	--	--	Ditchout Left
	59+02	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	61+04	--		--	--	--	--	--	--	--	--	--	Ditchout Right
	61+83	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	63+73	--		--	--	--	--	--	--	--	--	--	Ditchout Right
	66+28	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	70+57	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	77+78	--		--	--	--	--	--	--	--	--	--	Ditchout Left
	85+64	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain, no skew
	91+52	--		--	--	--	--	--	--	--	--	--	Ditchout Left
	93+58	--		--	--	--	--	--	--	--	--	--	Ditchouts Left & Right
	95+55	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	100+33	18	16	32	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	107+74	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	110+37	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	112+42	--		--	--	--	--	--	--	--	--	--	Ditchout Right
W-2073A	4+51	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	8+81	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	12+57	--		--	--	--	--	--	--	--	--	--	Ditchout Right
	16+38	--		--	--	--	--	--	--	--	--	--	Ditchout Right
W-2073B	0+00	18	16	40	--	--	0.5	0.5	LL	NT	Machine	--	Cross-drain, W-2073 ditchline
W-2073D	0+00	18	16	40	--	--	0.5	0.5	LL	NT	Machine	--	Cross-drain, W-2073 ditchline
	4+30	18	16	30	--	--	0.5	1.0	LL	NT	Machine	--	Cross-drain, ditchline water from W-2073D1
	5+50	--		--	--	--	--	--	--	--	--	--	Ditchout Left
W-2073E	1+83	18	16	34	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	3+72	--		--	--	--	--	--	--	--	--	--	Ditchout Right

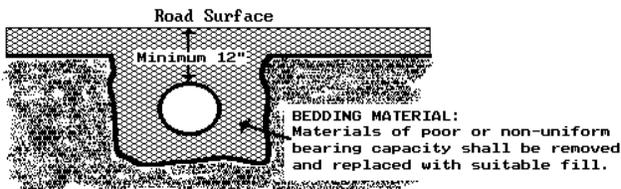
Culvert List (continued)

Road Number	Location	Culvert		Length (ft)			Riprap (C.Y.)			Backfill Material	Placement Method	Const. Staked	Remarks
		Dia. (in)	Gauge	Culvert	Down spt	Flume	Inlet	Outlet	Type				
			If										
			Steel										
W-2010	20+00	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
W-2014	2+47	--	--	--	--	--	--	--	--	--	--	--	Ditchout Left
	5+50	--	--	--	--	--	--	--	--	--	--	--	Ditchout Right
	5+85	--	--	--	--	--	--	--	--	--	--	--	Ditchout Left
	7+75	--	--	--	--	--	--	--	--	--	--	--	Ditchout Left & Right
	14+05	18	16	30	--	--	0.5	1.0	LL	NT	Machine	--	Cross-drain, no skew
	16+08	18	16	30	--	--	0.5	1.0	LL	NT	Machine	--	Cross-drain, no skew
	17+90	18	16	36	--	--	0.5	0.5	LL	NT	Machine	--	Cross-drain, excavate leadoff ditch
	22+28	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	28+11	18	16	30	--	--	0.5	0.5	LL	NT	Machine	--	Cross-drain
	40+55	18	16	30	--	--	0.5	0.5	LL	NT	Machine	--	Cross-drain
	43+58	18	16	30	--	--	0.5	0.5	LL	NT	Machine	--	Cross-drain
W-2014Ext	0+00	18	16	40	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	4+33	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	9+91	18	16	30	--	--	0.5	5.0	LL	NT	Machine	--	Cross-drain
	18+11	18	16	30	--	--	0.5	0.5	LL	NT	Machine	--	Cross-drain
W-2014C	0+10	18	16	40	--	--	0.5	0.5	LL	NT	Machine	--	Cross-drain, W-2014 existing ditchline
	4+98	18	16	30	--	--	0.5	0.5	LL	NT	Machine	--	Cross-drain
W-2014E	1+16	18	16	30	--	--	0.5	0.5	LL	NT	Machine	--	Cross-drain

Key:

- CR - 2" Minus Crushed Rock
- NT - Native (bank run)
- SL - Select Fill
- HL - Heavy Loose Riprap
- LL - Light Loose Riprap
- Flume - Half round pipe
- Downspout - Full round pipe

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

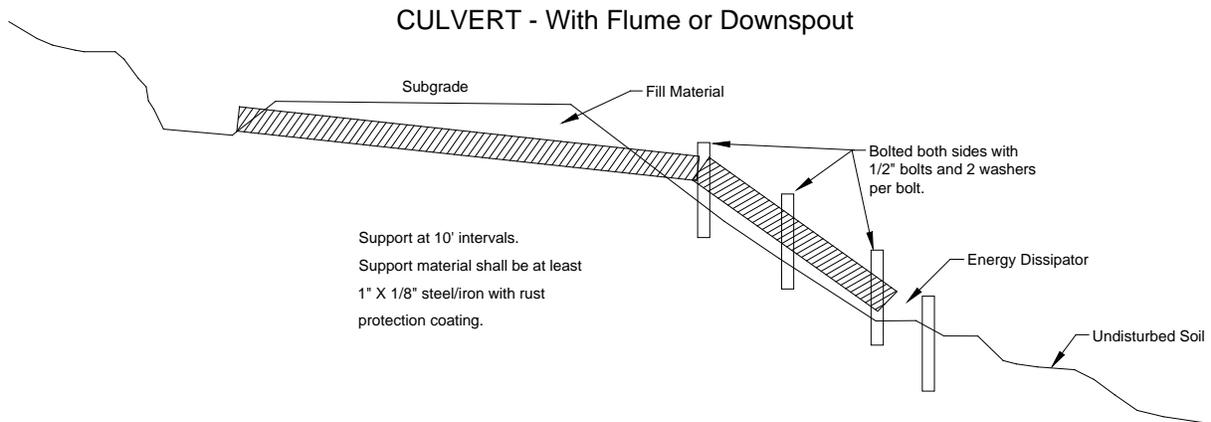
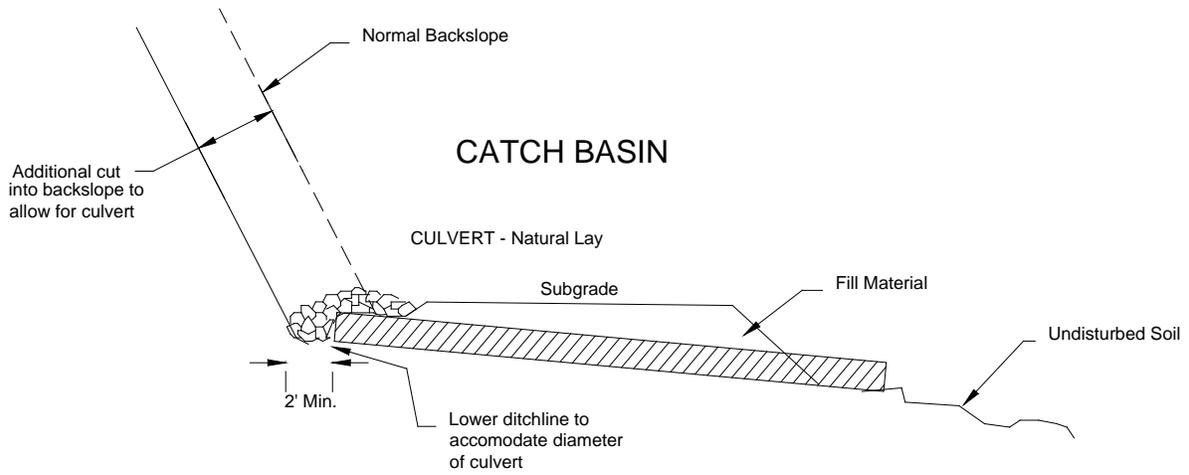


COMPACTION LIST

Road	From Station	To Station	Type	Max Depth Per Lift (inches)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
All Pre-haul & Post-haul roads	All	All	Surface	N/A	Vibratory Smooth Drum	20,000	4	5
All Waste Areas	All	All	Waste Area	12	Excavation	28,000	3	--
All Reconstruction and Construction roads	All	All	Embankment	12	Excavation	28,000	4	--
All Reconstruction and Construction roads	All	All	Subgrade	12	Vibratory Smooth Drum	20,000	4	5
All Pre-haul, Reconstruction and Construction roads	All	All	Rock - 3 Inch Jaw Run	12	Vibratory Grid	20,000	4	5
All Reconstruction and Construction roads	All	All	Rock - 2 Inch Minus	6	Vibratory Smooth Drum	20,000	4	5
W-2073 - Design Backfill below sills	7+62 & 8+32		Rock -Pit Run & 2"Minus	12	Vibratory Plate Compactor	Varies	Varies	

CULVERT AND DRAINAGE SPECIFICATION DETAIL

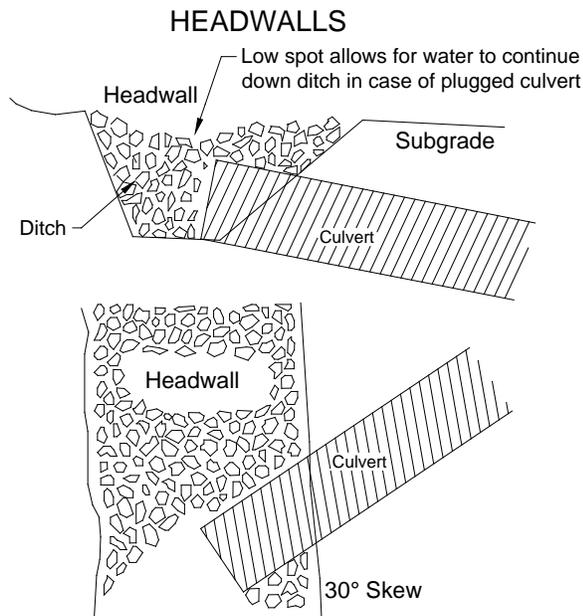
(Page 1 of 3)



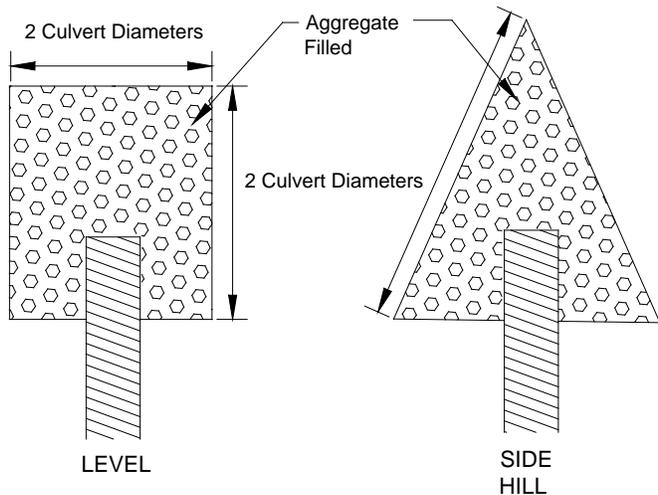
CULVERT AND DRAINAGE SPECIFICATION DETAIL

(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.



ENERGY DISSIPATORS



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

(Page 3 of 3)

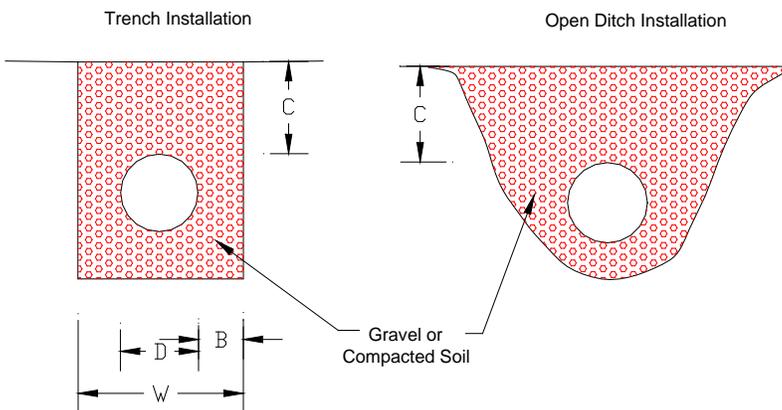
POLYETHYLENE PIPE INSTALLATION

INSTALLATION REQUIREMENTS:

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

MINIMUM DIMENSIONS Trench or Open Ditch Installation

* minimum cover on unsurfaced roads



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

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Page 1 of 2

Cuts and Fills

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

Surface

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

Drainage

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

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Page 2 of 2

Preventative Maintenance

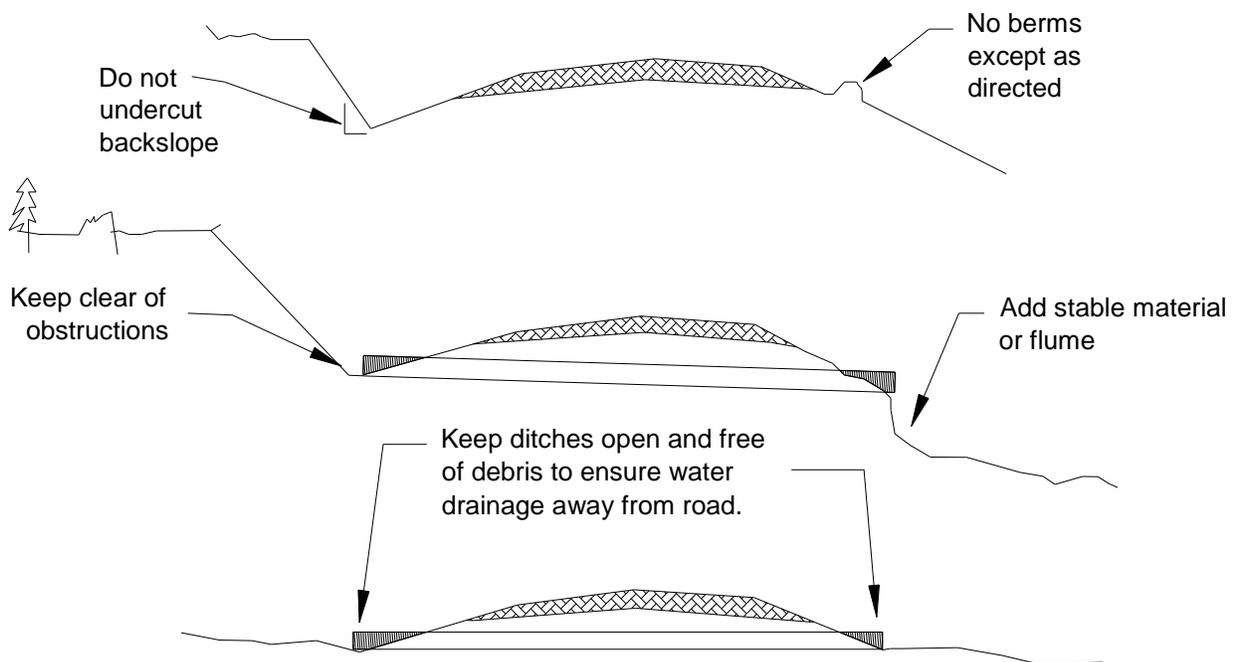
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

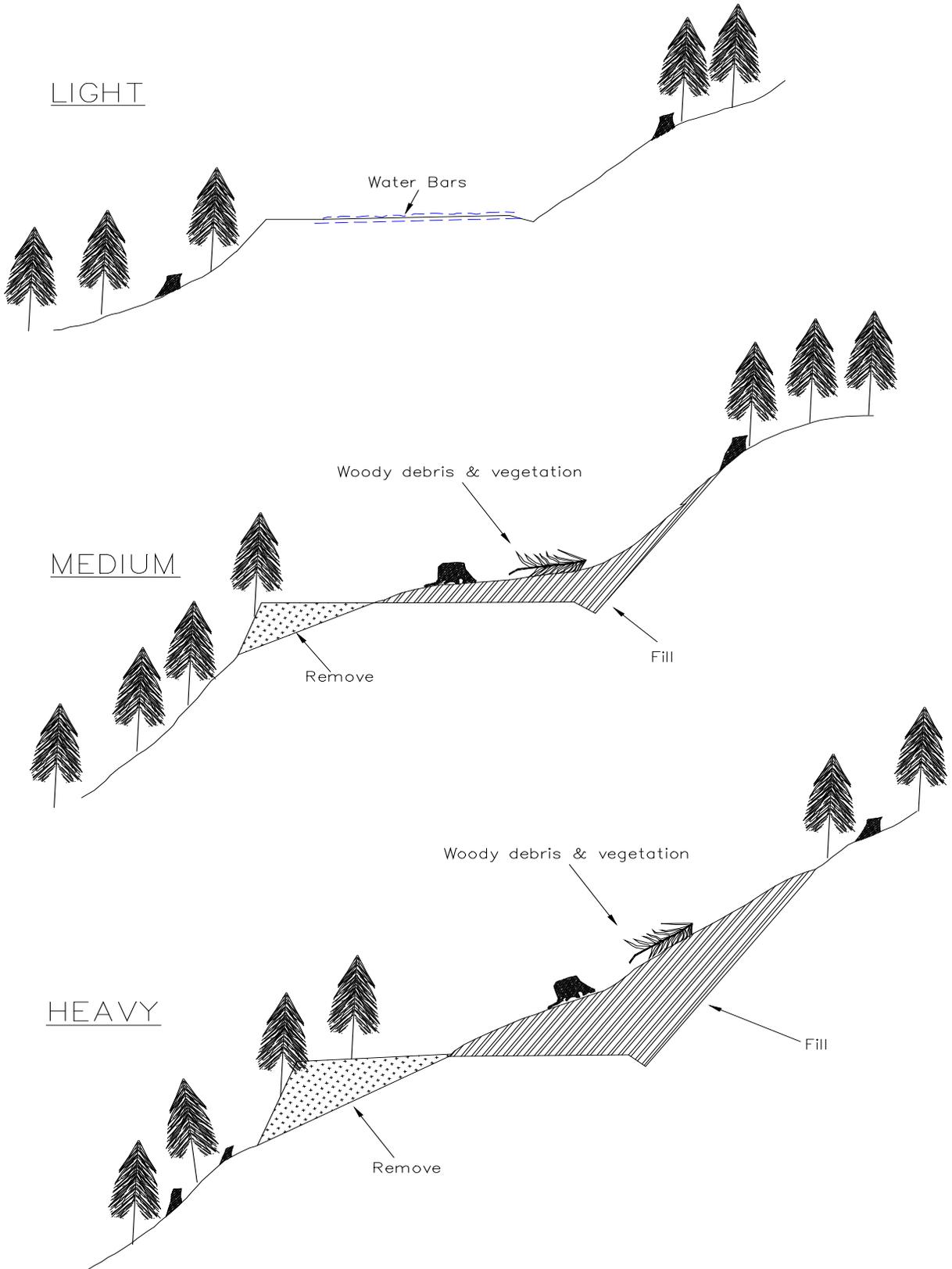
- At the conclusion of logging operations, ensure all conditions of these specifications have been met.

Debris

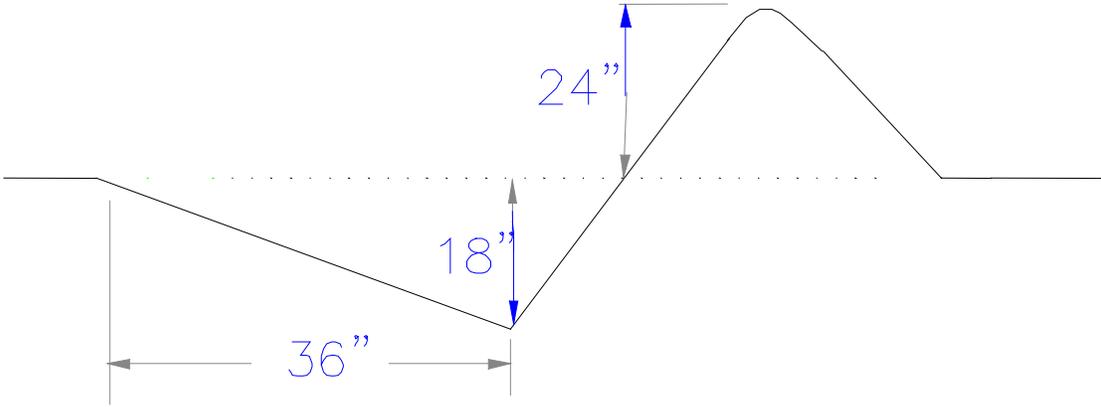
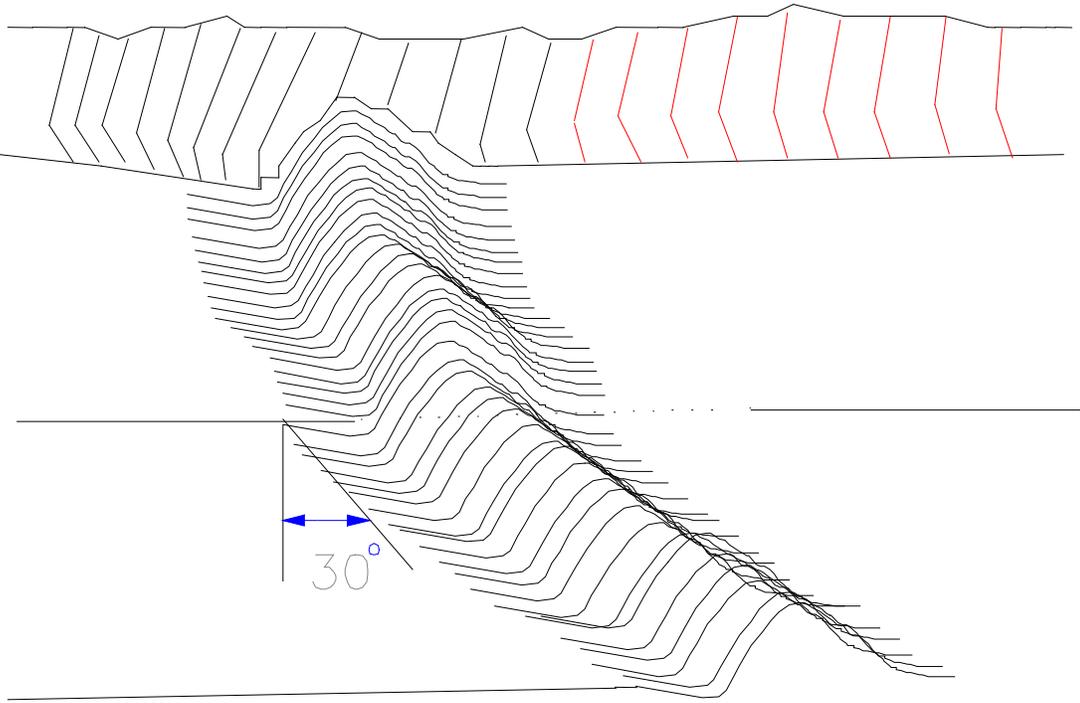
- Remove fallen timber, limbs, and stumps from the slopes, roadway, ditchlines, and culvert inlets.



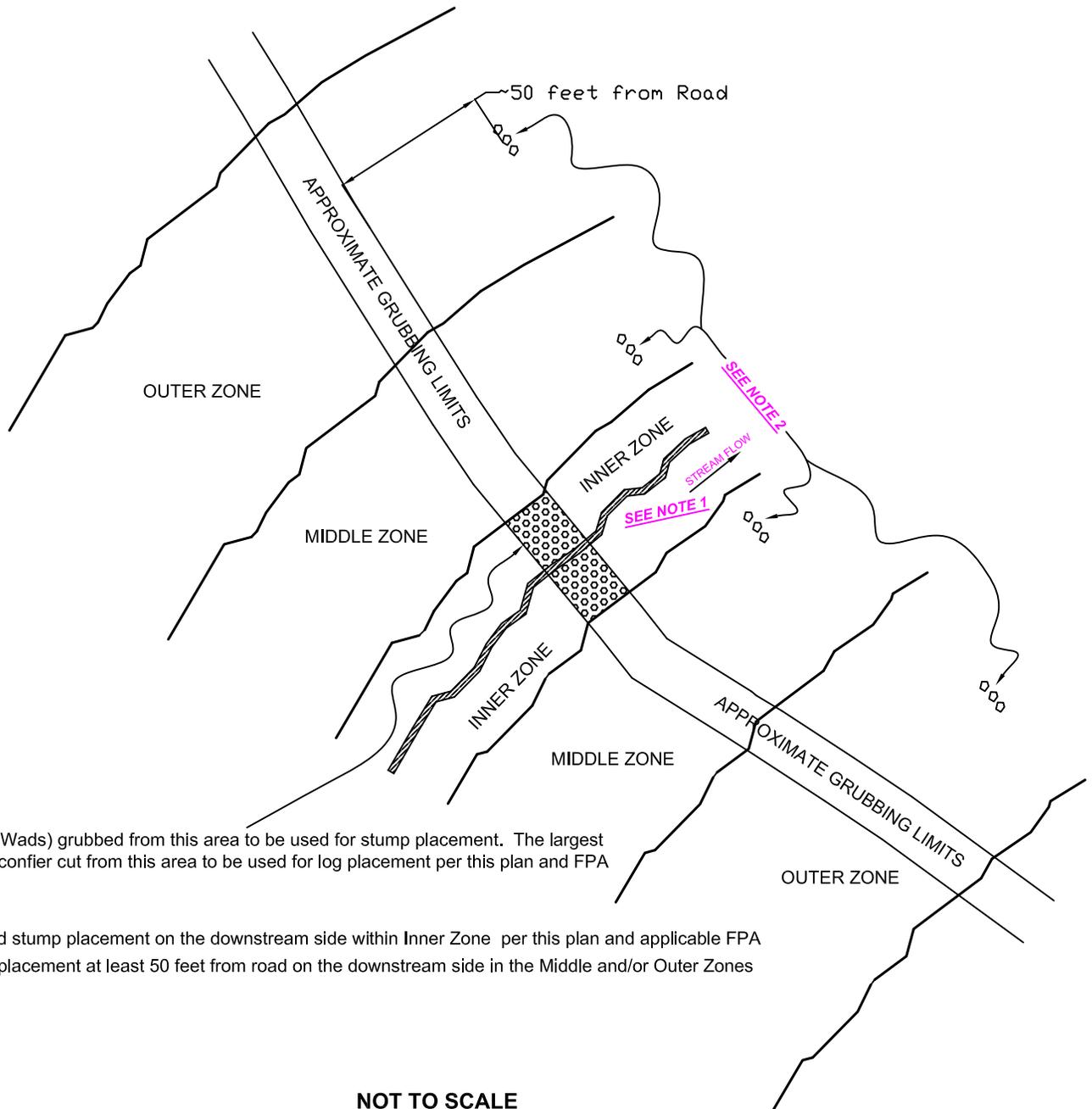
ROAD ABANDONMENT CROSS SECTIONS



NON-DRIVABLE WATER BAR DETAIL



TYPICAL RIPARIAN STRATEGY STREAM CROSSING PLAN

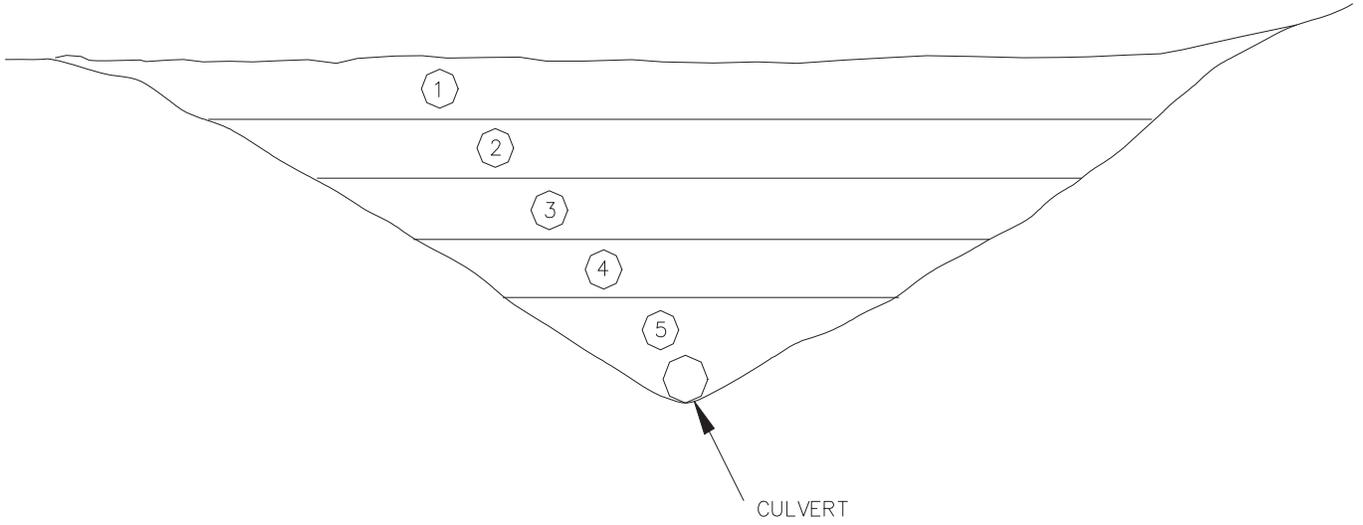


- Stumps (Root Wads) grubbed from this area to be used for stump placement. The largest diameter class conifer cut from this area to be used for log placement per this plan and FPA

NOTE 1: Log and stump placement on the downstream side within Inner Zone per this plan and applicable FPA

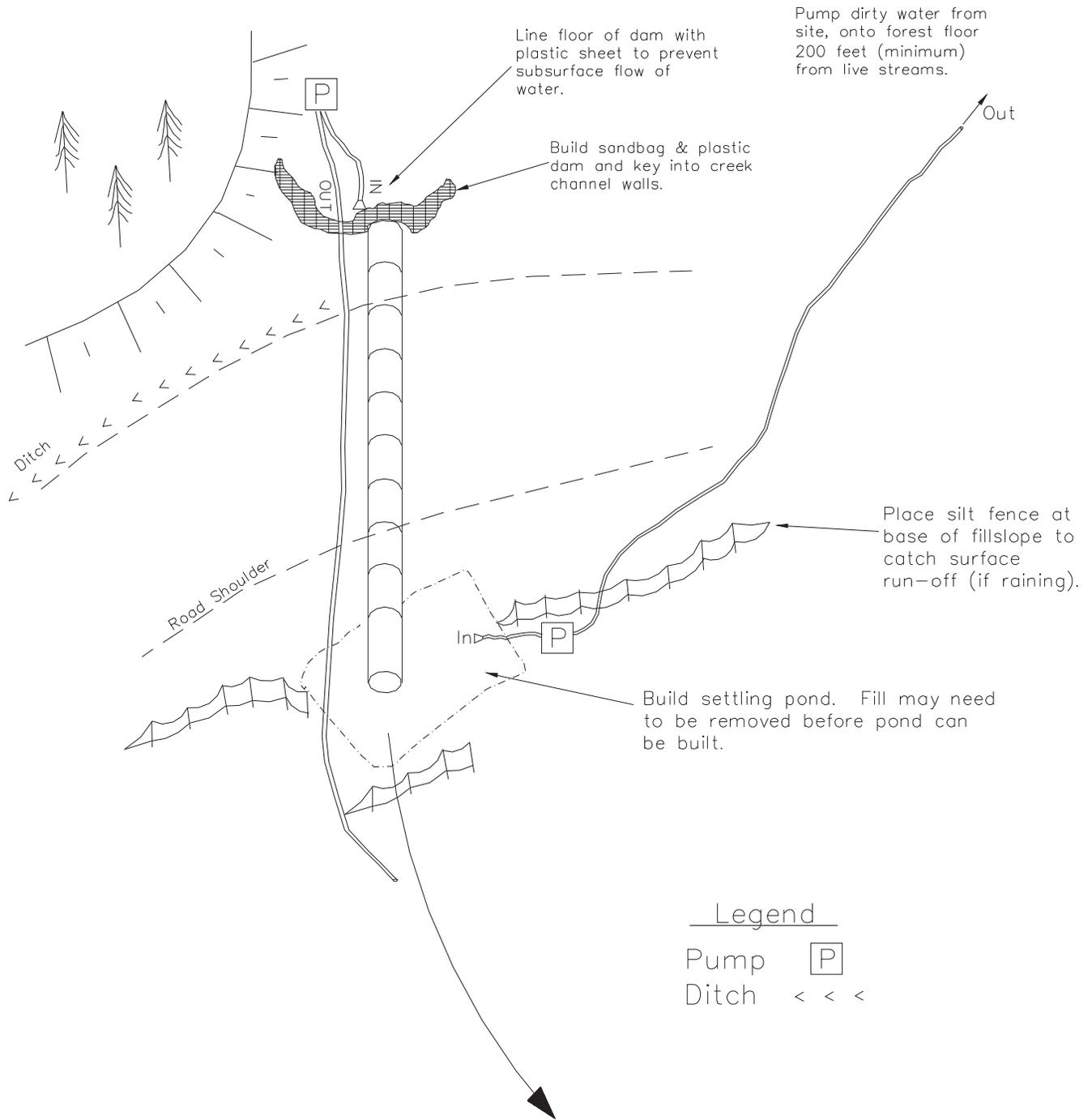
NOTE 2: Stump placement at least 50 feet from road on the downstream side in the Middle and/or Outer Zones

FILL REMOVAL DETAIL

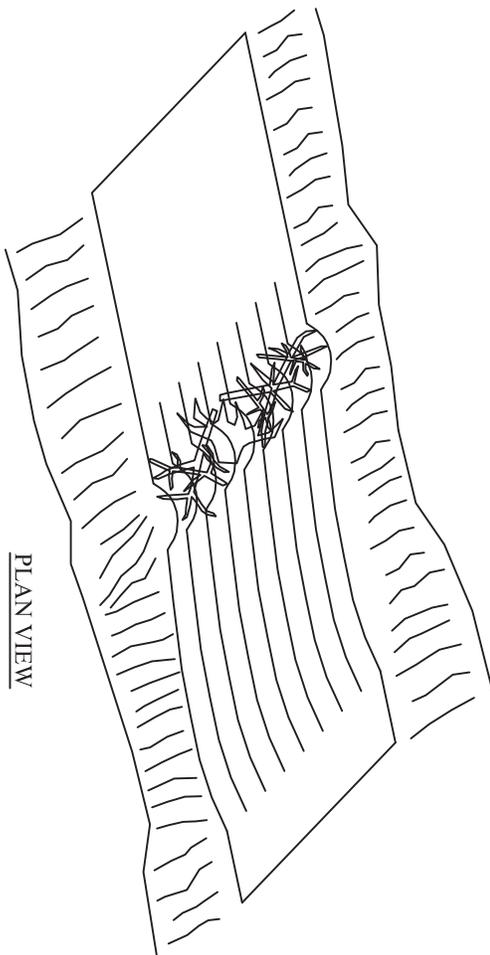


- Remove fill in layers not to exceed 3 feet.

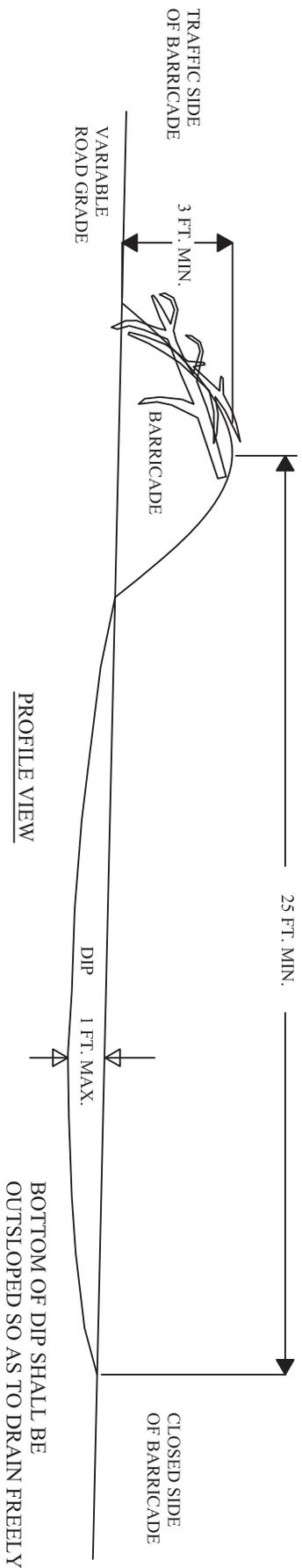
SETTLING POND AND PUMP DETAIL



EARTHEN BARRICADE DETAIL



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



Rock Crushing Compliance Procedure

Phase I. Equipment Adjustment

- Step 1:** At start up of crushing operations, the contractor will notify the contract administrator when the rock meets the gradation specifications in the contract. None of the rock crushed during this calibration period will be counted toward the amount required to be crushed, and this rock must be kept separate from accepted rock crushed later.
- Step 2:** The contract administrator will test the rock. Two samples will be taken. If the rock meets specifications, crushing may begin. If the rock does not meet specifications, return to Step 1.

Phase II. Production

- Step 3:** The contract administrator will continue periodic testing to ensure that rock stays in spec. Testing will take place according to the following schedule:
- After the first 500 yards
 - After every 1,000 yards thereafter
- a) Any time a sample is out of spec, but is within 5%*, the contractor will be notified and a second sample will be taken later in the day. If the second sample meets specifications, the rock crushed during that day will be accepted. If the second sample also fails to meet spec, none of the rock crushed since the last acceptable test will be counted toward the amount to be crushed.
- b) Any time a sample is out of spec and is more than 5% off in any category, none of the rock crushed since the last acceptable test will be accepted and that rock must be kept separate from the stockpile. Return to Step 1.
- c) Contractors are strongly encouraged to take their own samples regularly and keep their operations in spec to avoid unnecessary expenses.
- The 5% will be applied only to sieve specs for 2" to 1/4"; rock that is out of spec in larger sizes must be kept separate from the acceptable rock.

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
PACIFIC CASCADE REGION

PIT DEVELOPMENT PLAN

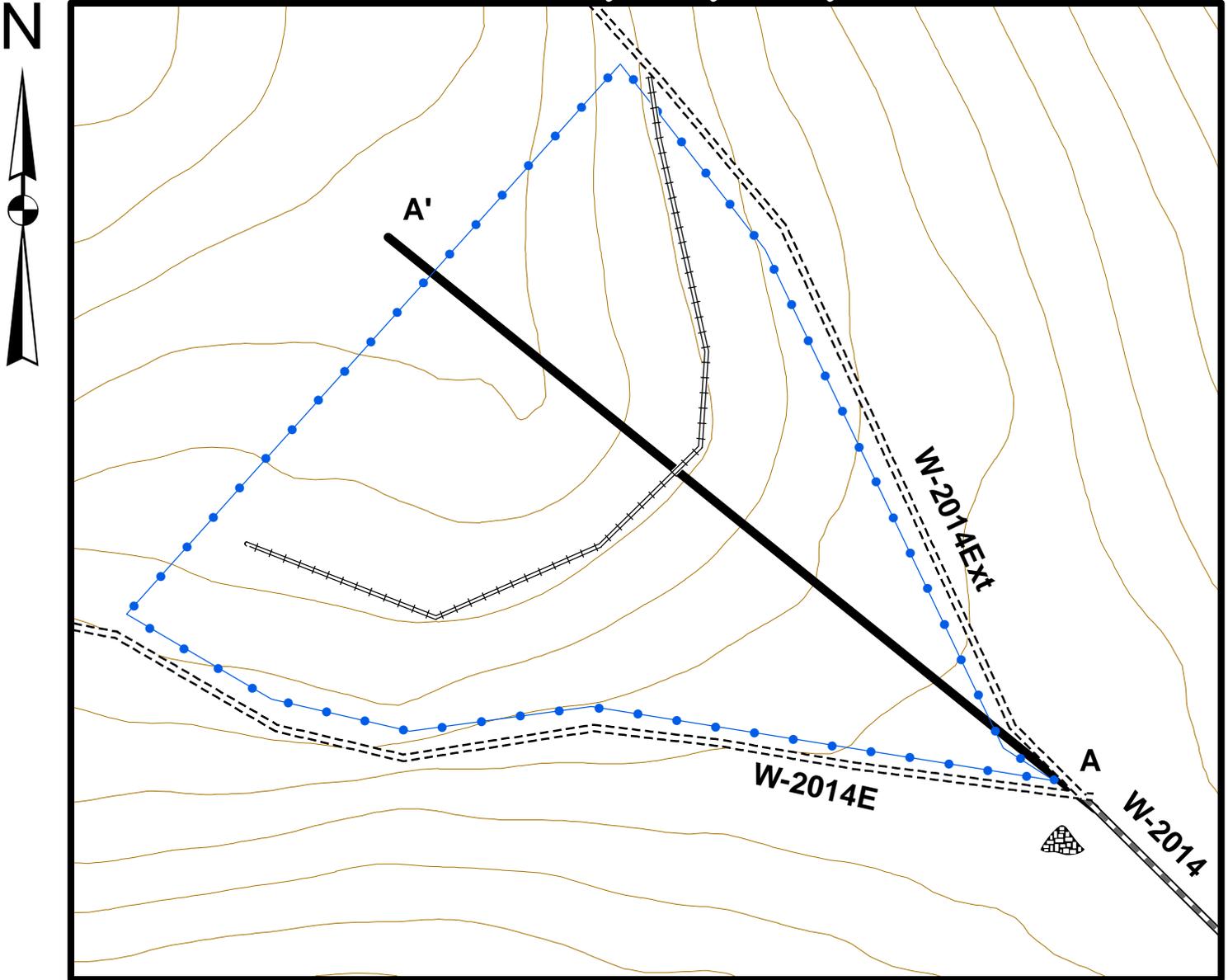
W-2014 Pit – NW ¼ NW ¼ Section 36, Township 03 North, Range 05 East, W.M.
W-2050 Pit – SW ¼ SW ¼ Section 17, Township 03 North, Range 06 East, W.M.

(Page 1 of 3)

1. Development shall take place in mining area as indicated on the Pit Development Plan Map for the W-2014 and W-2050 Pits.
2. 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 Contractor shall maintain a minimum of 15 foot wide area stripped to rock from the pit face at all times. All Clearing shall be approved in writing by the Contract Administrator prior to overburden removal.
3. Overburden from the W-2014 Pit shall be placed and compacted in the designated Waste Area at Station 2+00 on W-2014F. Overburden from the W-2050 Pit shall be placed and compacted in the designated Waste Area at Station 5+00 on W-2050. Minimal acceptable compaction is achieved by placing waste material in 1 foot or shallower lifts and routing excavation equipment over entire width of the lifts. All Overburden removal shall be approved in writing by the Contract Administrator prior to any drilling operation and or rock extraction.
4. Root wads and organic debris larger than one cubic foot in volume shall be separated from overburden material and piled in the designated Waste Area.
5. The Operator shall submit an informational drilling and shooting plan to the Contract Administrator 5 working days prior to any drilling. (Form #M-126PAC)
6. Drilling may begin when the Contract Administrator has approved, in writing, all of the Clearing, Grubbing and Overburden removal.
7. Pit faces shall not exceed 30 feet in height. All pit faces shall be sloped no steeper than $\frac{1}{4}$:1.
8. Working bench width shall be a minimum of 20 feet.
9. The pit floor shall have continuity of slope and be left in a smooth and neat condition, providing drainage at a minimum of 2 percent. All knobs, bumps, or extrusions shall be removed to the designated floor level by excavation or drill and shoot techniques. The installation of a culvert may be necessary to drain water from the pit floor in locations where the pit floor is adjacent to a road. The location of the culvert shall be subject to approval of the Contract Administrator. No sediment shall enter live water.
10. The location and amount of material to be placed in a temporary stockpile are subject to approval of the Contract Administrator. All stock piled material shall be maintained in a neat and useable condition.
11. Oversize material remaining in the rock source at the conclusion of use shall not exceed 5 percent of the total volume mined during that operation. Oversize material is defined as rock fragments larger than two feet in any direction. At the conclusion of operations, all remaining oversize material shall be placed as directed by the Contract Administrator in a location outside of the future development.
12. At the end of operations, pit faces and walls shall be scaled and cleared of loose and overhanging material; benches shall have safety berms constructed or access blocked to highway vehicles. Upon completion of operations in the pit, the area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life.
13. All exposed soil in the waste area shall be grass seeded in accordance with Road Plan clauses 8-15 and 8-25.
14. All operations shall be carried out in compliance with all regulations of:
 - a. Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations@ (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration.
 - b. "Safety Standards for Construction Work" (296-155 WAC), Washington Department of Labor and Industries.
15. The Operator shall submit an informational drilling and shooting report to the Contract Administrator after blasting has occurred. (Form #M-126PAC)
16. At the completion of rock source operations, Purchaser shall ask Contract Administrator for written approval of final rock source condition and compliance with the terms of this plan.
17. The pit area shall be worked and left in a condition that future operations may proceed in an orderly manner.
18. Upon completion of operations, the site shall be cleared of all temporary structures, equipment and rubbish, block access road with existing on site riprap at two locations as directed by the Contract Administrator, and shall be left in a neat and presentable condition.

W-2014 Rock Pit Plan

NW1/4 NW1/4 Sec.36, T03N, R05 E, W.M



0 10 20 40 60 80

Feet

----- Planned Construction Road

==== Existing Road

++++ Planned Access Road

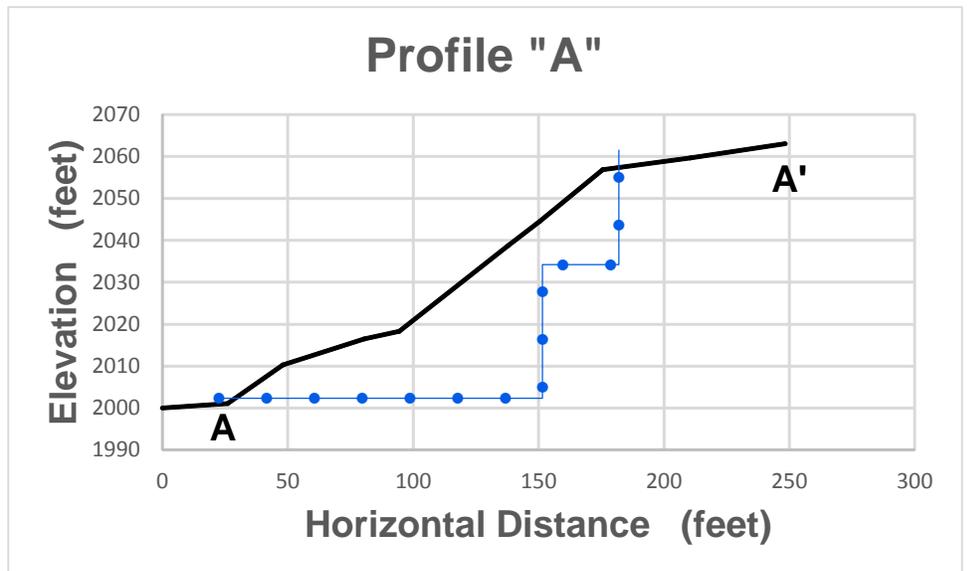
●● Mining Area

— Profile Line

▲ Oversize Rock Storage Area

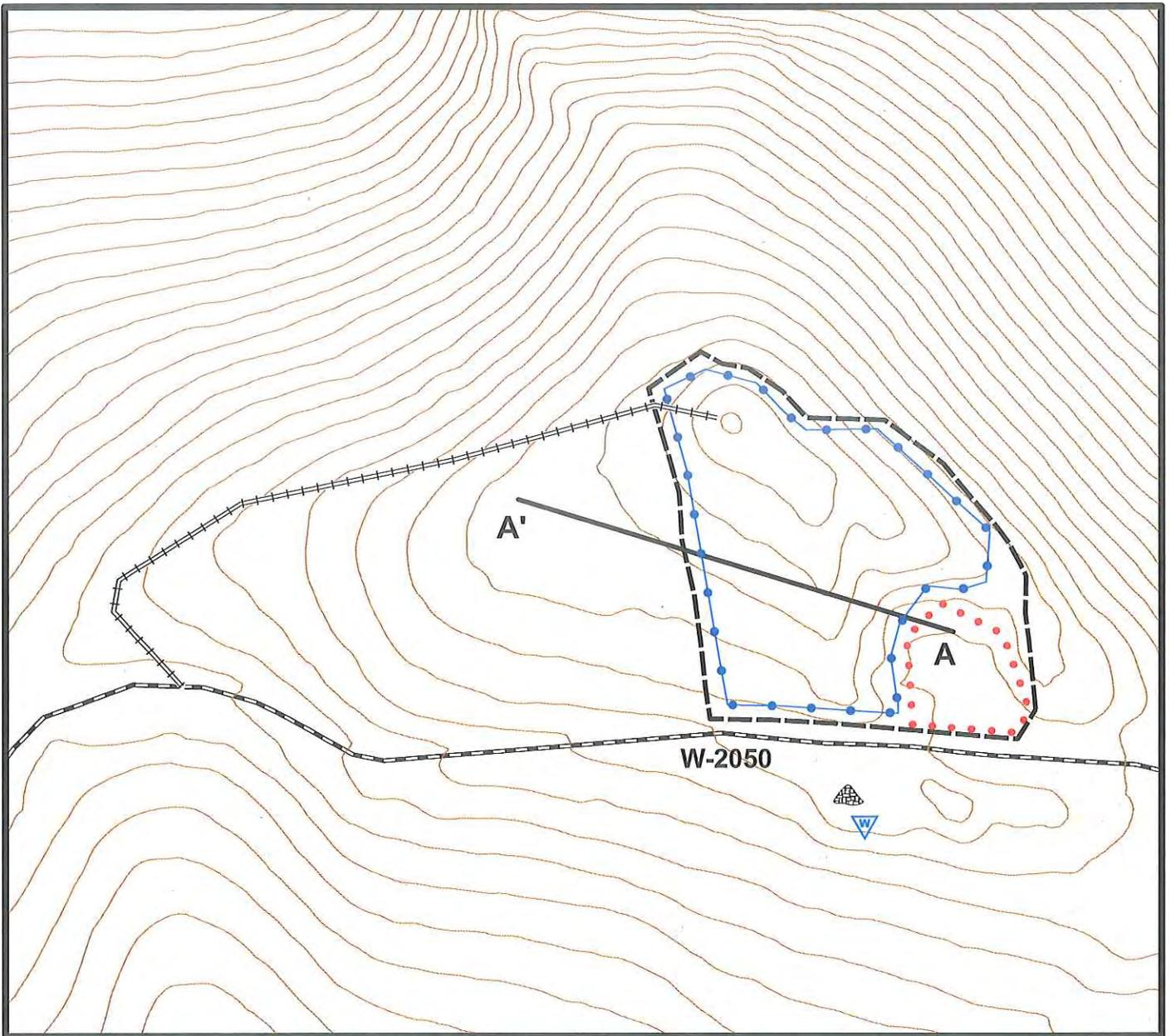
— Contours 10ft

*Waste area is located
0.2 miles SE of this pit. It is 200 feet
up an old spur road near the junction
of the W-2014 and W-2014C roads.



W-2050 Rock Pit Plan

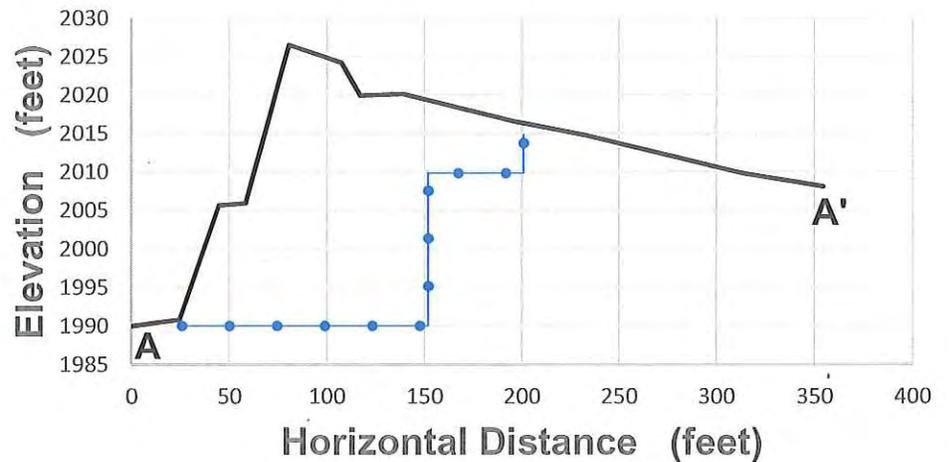
SW1/4 SW1/4 Sec.17, T03N, R06 E, W.M



0 25 50 100 150 200
 Feet

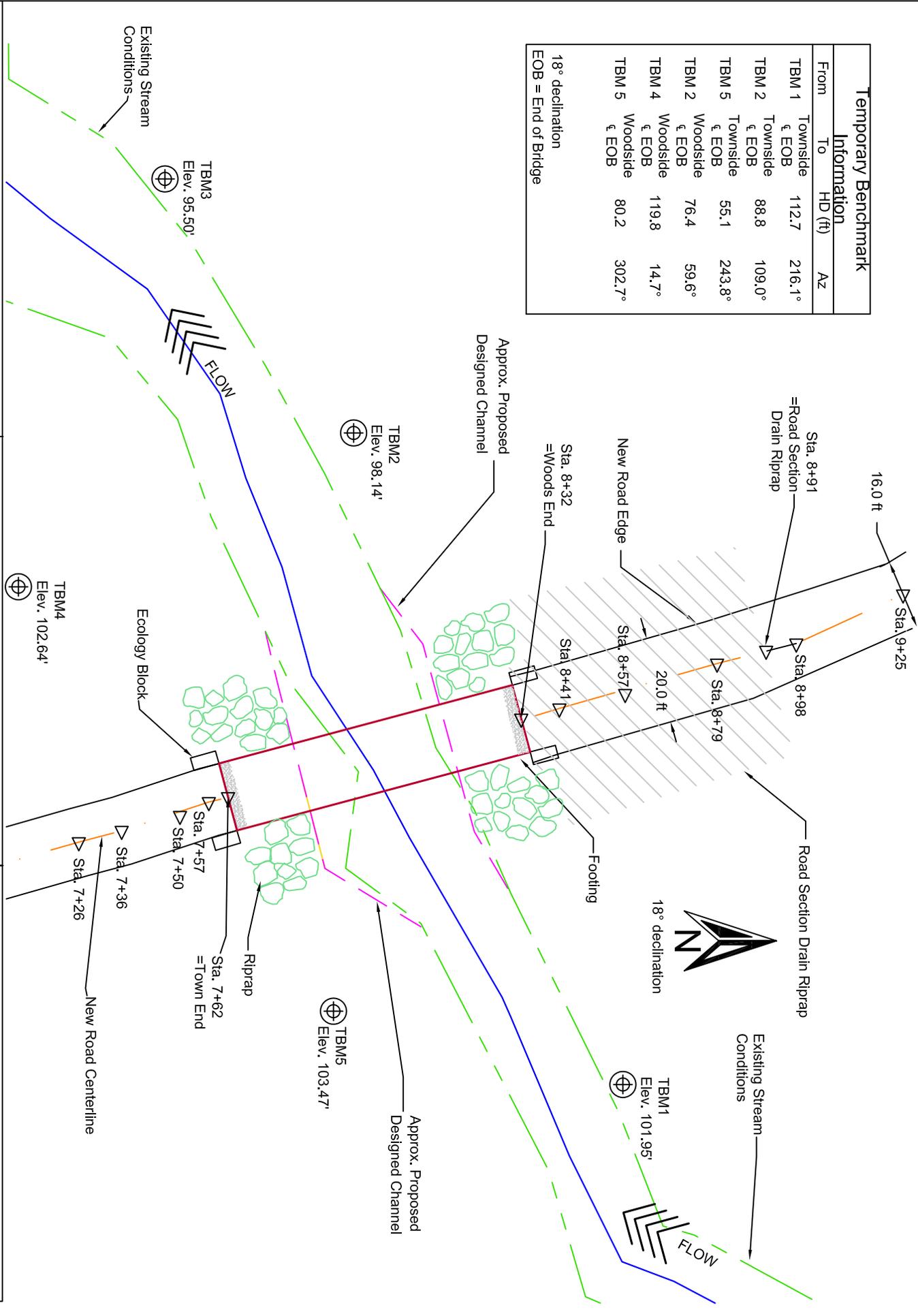
- Existing Road
- Access Road
- Mining Area
- Pit Floor
- Rock Pit Boundary
- Profile Line
- Waste Area
- Oversize Rock Storage Area
- Contours 10ft

Profile "A"



Temporary Benchmark Information			
From	To	HD (ft)	Az
TBM 1	Townside € EOB	112.7	216.1°
TBM 2	Townside € EOB	88.8	109.0°
TBM 5	Townside € EOB	55.1	243.8°
TBM 2	Woodside € EOB	76.4	59.6°
TBM 4	Woodside € EOB	119.8	14.7°
TBM 5	Woodside € EOB	80.2	302.7°

18° declination
EOB = End of Bridge

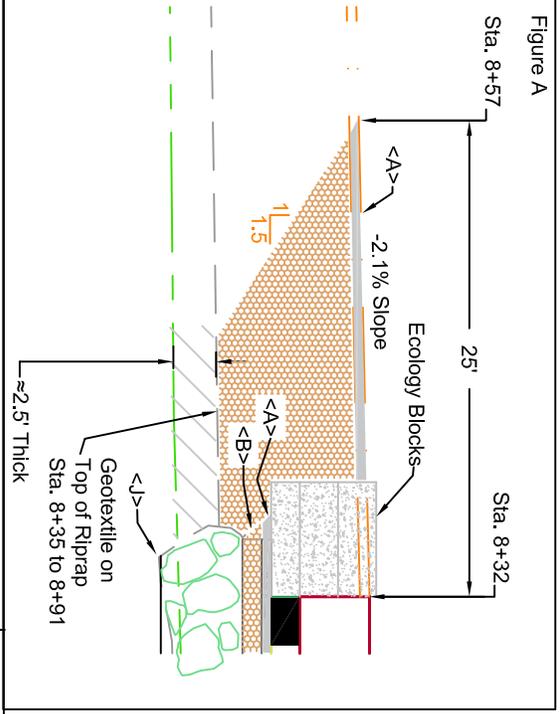
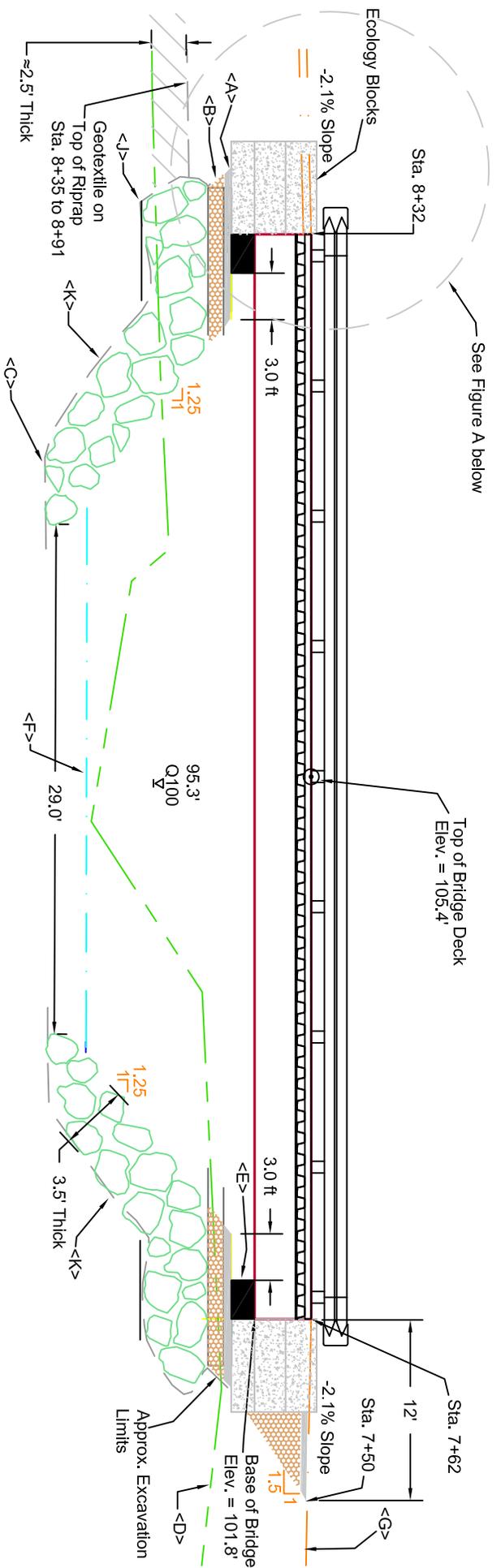


PROSPECTOR
 Plan View
 Drawn By: Brett Freeman, Alicia Compton
 Designed By: Brett Freeman



Date: 04 FEBRUARY 2016
 Sheet 1 of 3





- <A> 2 Inch Minus Crushed Rock applied to a compacted depth of 6 inches over excavation extents (both sides). Base elev = 99.8' (26' x 8.8')
- Pit Run Rock applied to a minimum compacted depth of 12 inches over excavation extents (both sides). Base elev. = 98.8'
- <C> Riprap at 1.25:1 slopes (both sides). Base elev. = 88.4'
- <D> Existing conditions
- <E> 18' x 2.5' x 1.5' Precast Concrete Sill (both sides). Base elev. = 100.3'
- <F> Designed Thalweg elev. = 90.9', 35' width
- <G> Designed Road Prism
- <J> Base of Riprap under sill foundation elev. = 94.8' (both sides)
- <K> Geotextile (Geotextile on top of riprap at stations 8+35 to 8+91)

Note:

- 1) Bridge Dimensions: 16' x 70' Steel Bridge
- 2) Wingwalls shall be designed as needed such that no fill material encroaches on the stream channel and such that no fill material is placed steeper than 1.5 (H):1 (V) on road prism side slopes.
- 3) Steel Bridge Drawing is for representation purposes only and does not reflect actual bridge design.

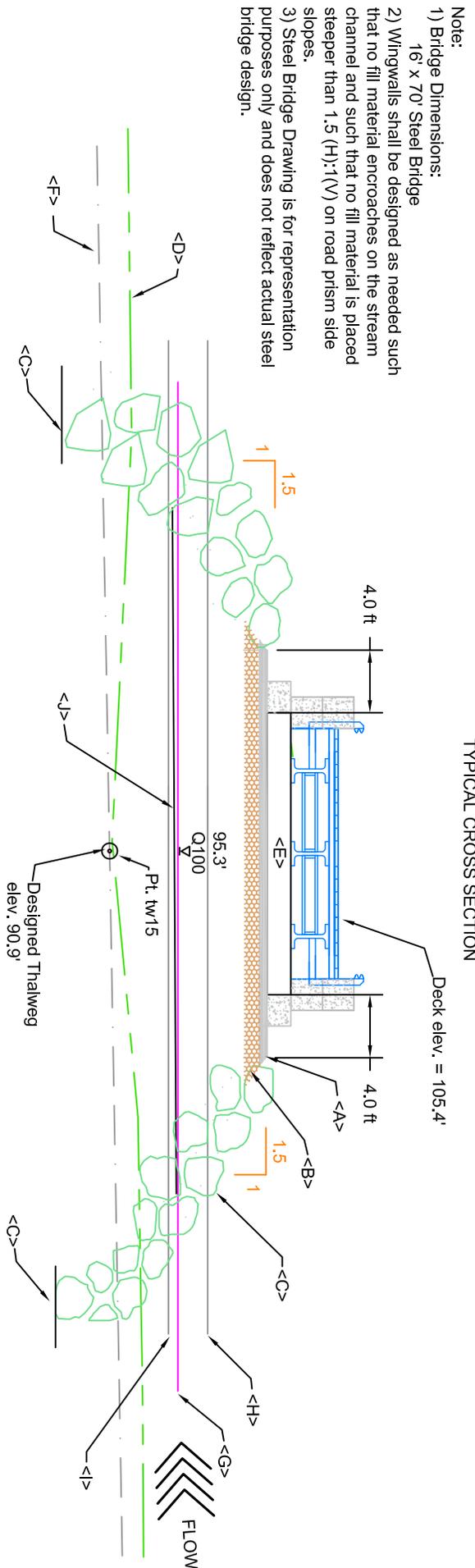
PROSPECTOR
 70' Bridge Cross Section
 Drawn By: Brett Freeman, Alicia Compton
 Designed By: Brett Freeman



Date: 04 FEBRUARY 2016
 Sheet 2 of 3

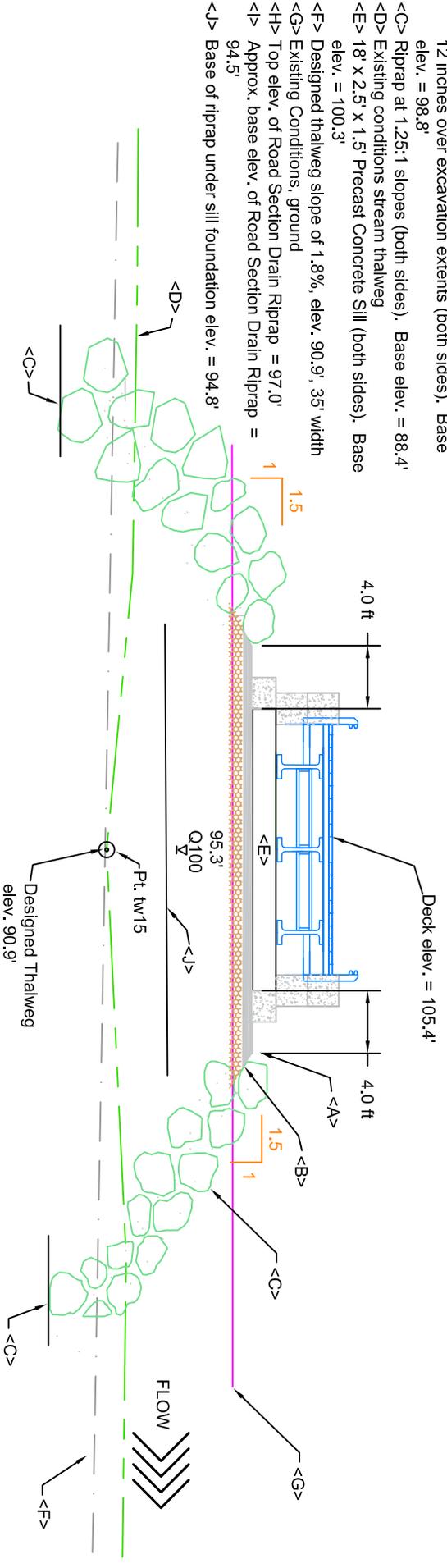


Sta. 8+32 WOODS END
TYPICAL CROSS SECTION



- Note:
- 1) Bridge Dimensions: 16' x 70' Steel Bridge
 - 2) Wingwalls shall be designed as needed such that no fill material encroaches on the stream channel and such that no fill material is placed steeper than 1.5 (H):1(V) on road prism side slopes.
 - 3) Steel Bridge Drawing is for representation purposes only and does not reflect actual steel bridge design.

Sta. 7+62 TOWN END
TYPICAL CROSS SECTION

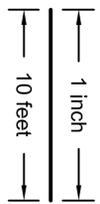


- <A> 2 Inch Minus Crushed Rock applied to a compacted depth of 6 inches over excavation extents (both sides). Base elev = 99.8' (26' x 8.8')
- Pit Run Rock applied to a minimum compacted depth of 12 inches over excavation extents (both sides). Base elev. = 98.8'
- <C> Riprap at 1.25:1 slopes (both sides). Base elev. = 88.4'
- <D> Existing conditions stream thalweg
- <E> 18' x 2.5' x 1.5' Precast Concrete Sill (both sides). Base elev. = 100.3'
- <F> Designed thalweg slope of 1.8%, elev. 90.9', 35' width
- <G> Existing Conditions, ground
- <H> Top elev. of Road Section Drain Riprap = 97.0'
- <I> Approx. base elev. of Road Section Drain Riprap = 94.5'
- <J> Base of riprap under sill foundation elev. = 94.8'

PROSPECTOR
Typical Cross Section Views
Drawn By: Brett Freeman & Alicia Compton
Designed By: Brett Freeman

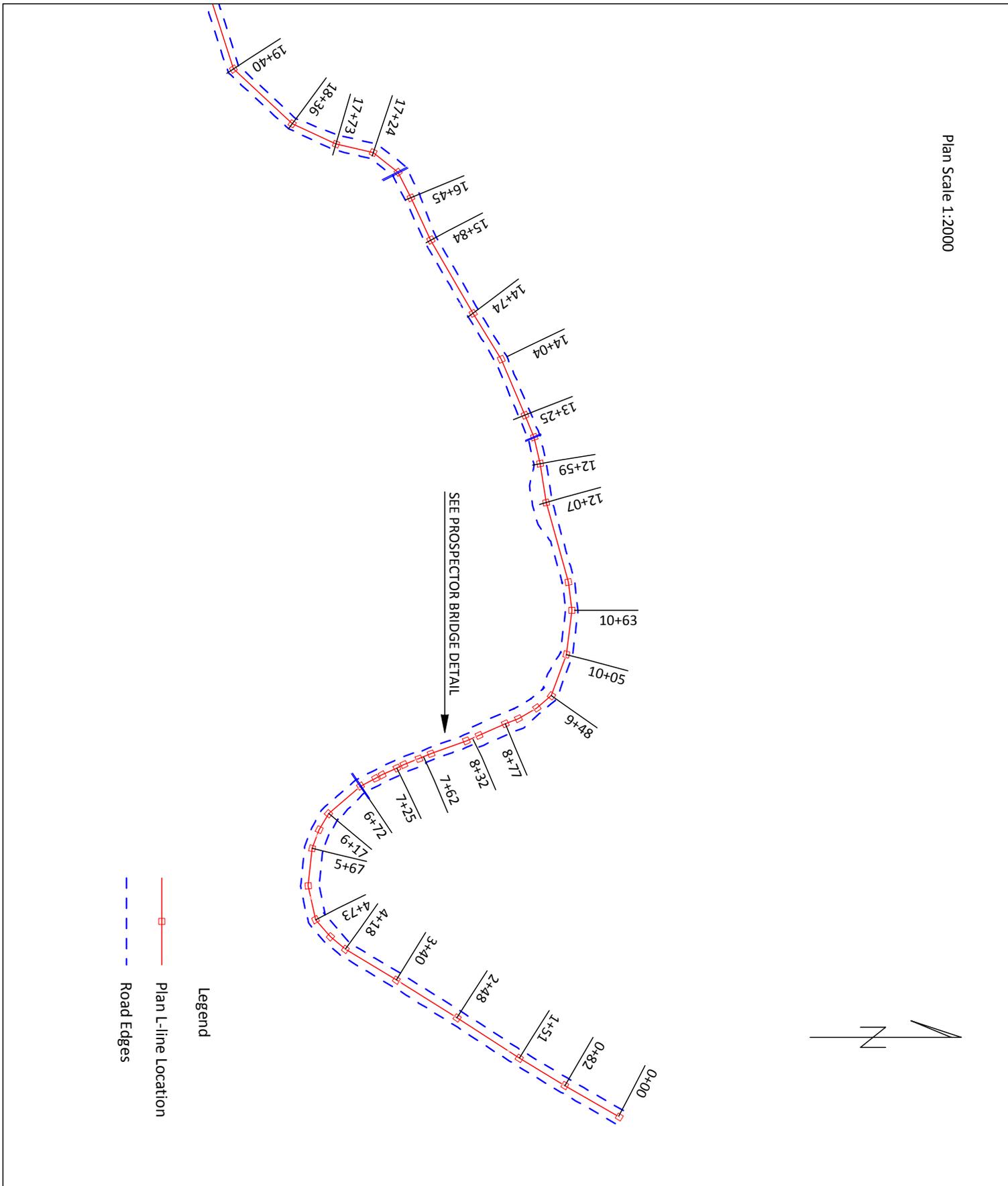


Date: 04 FEBRUARY 2016
Sheet 3 of 3
Vertical Scale 1:1

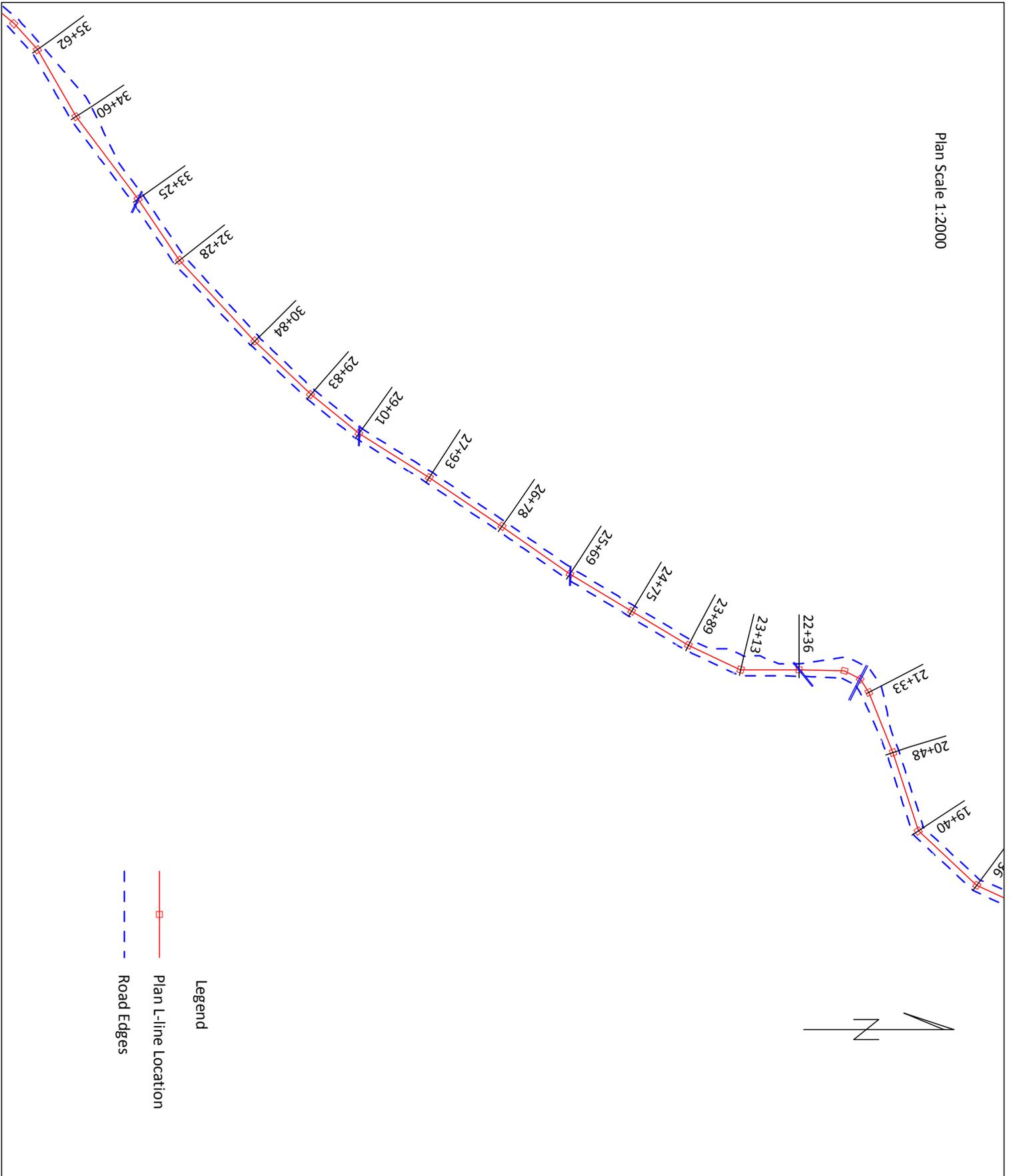


PLAN VIEW

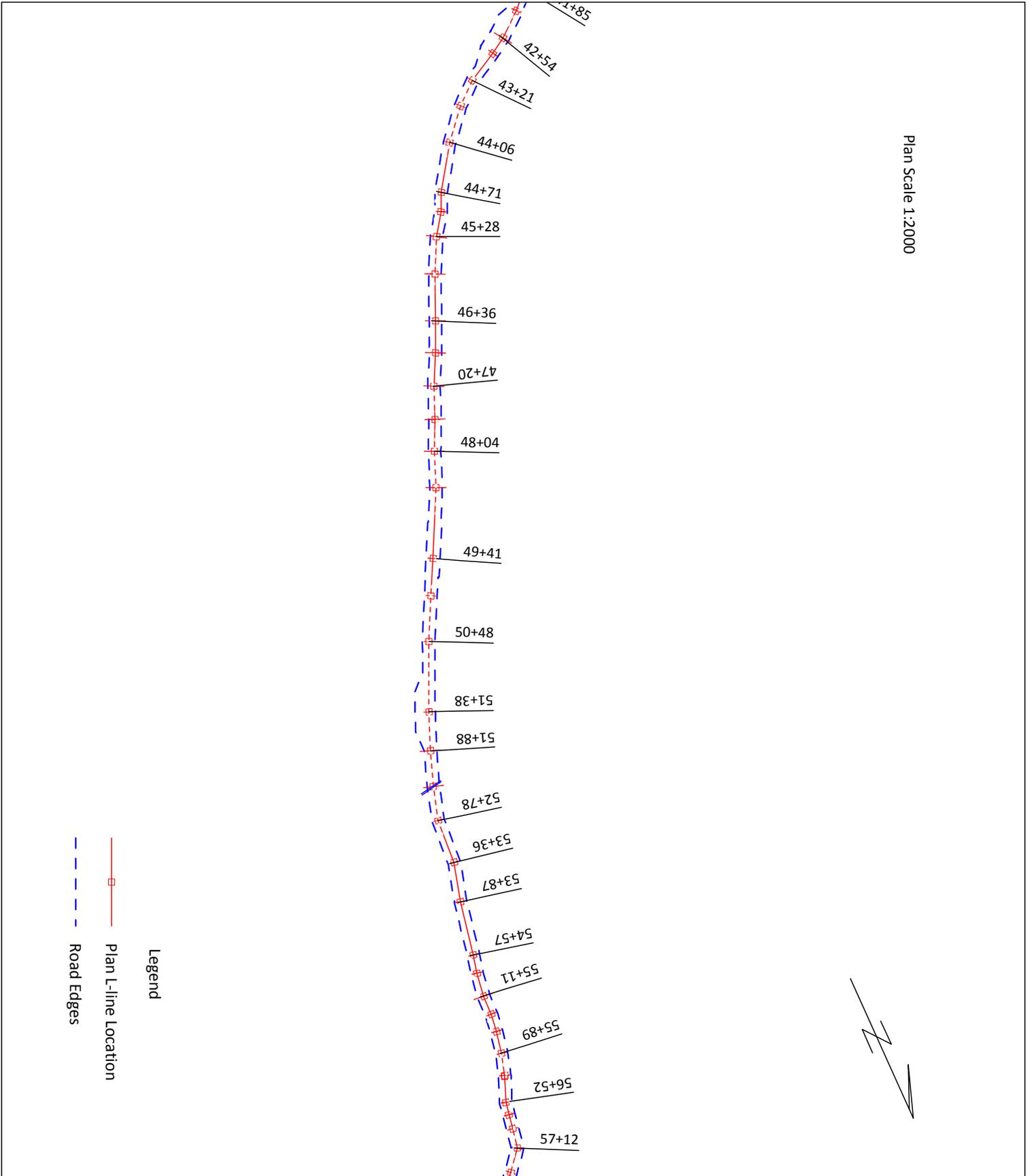
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PLAN VIEW

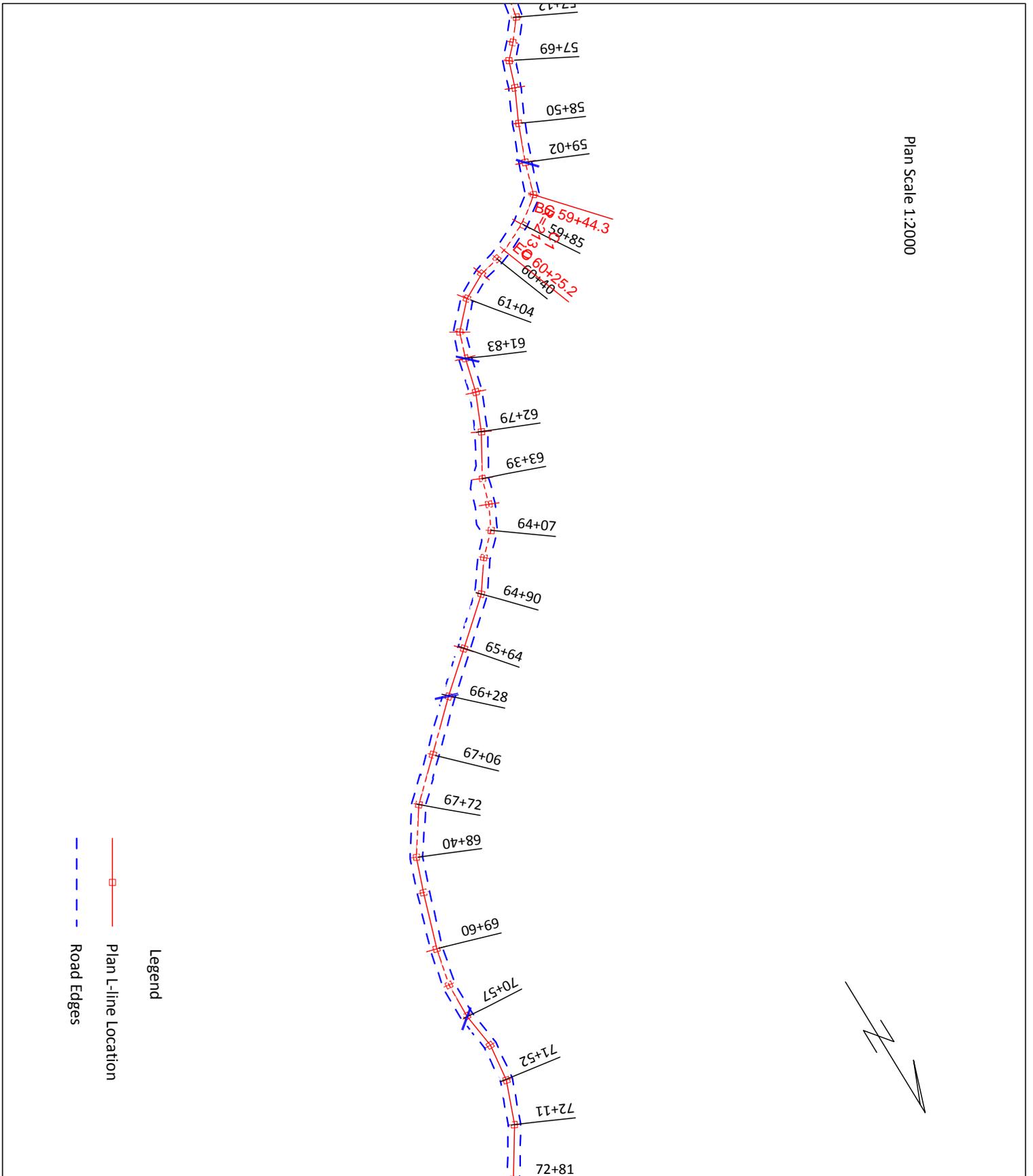


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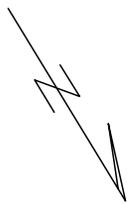
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PLAN VIEW



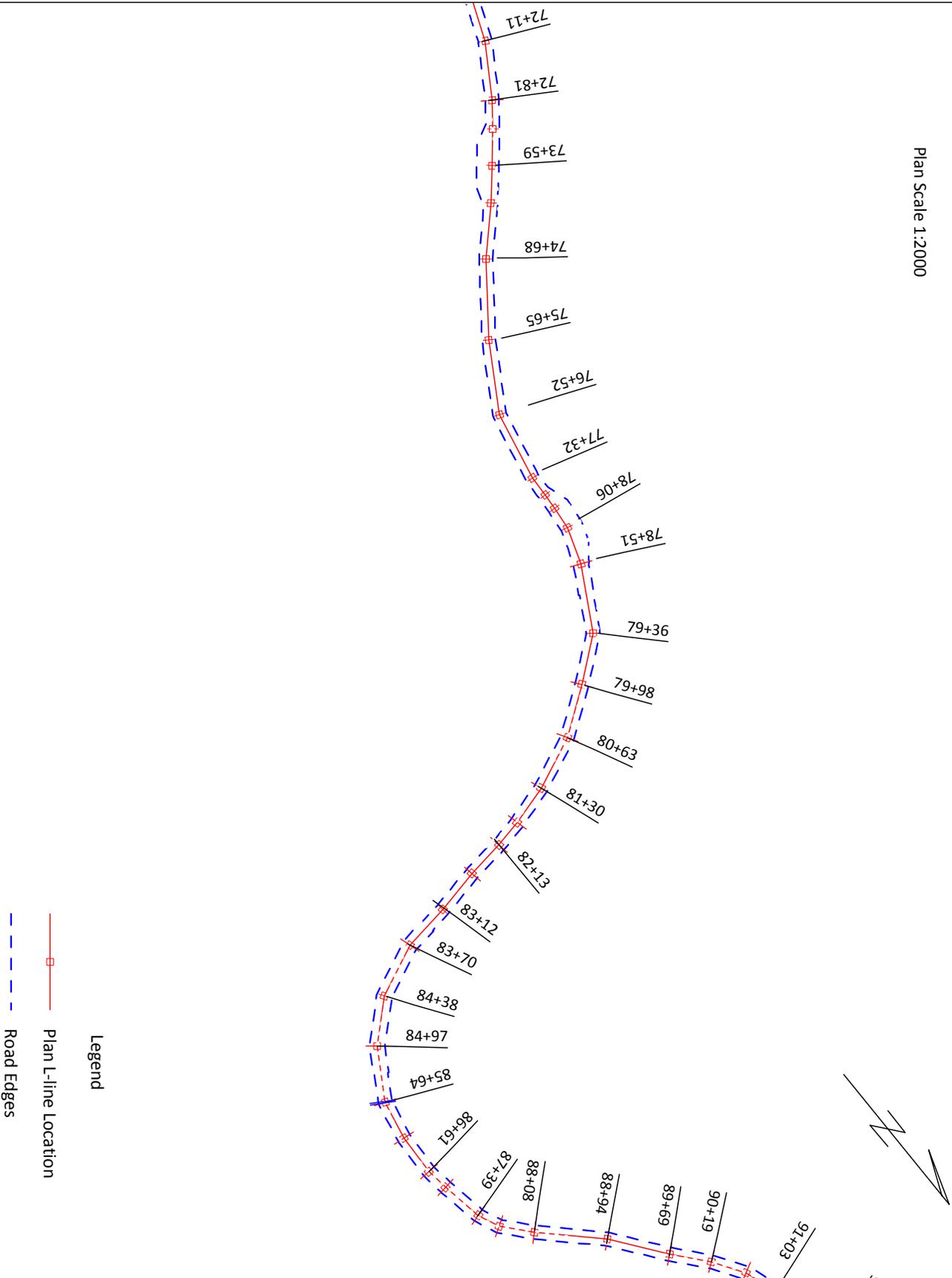
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Legend
Plan L-line Location
Road Edges

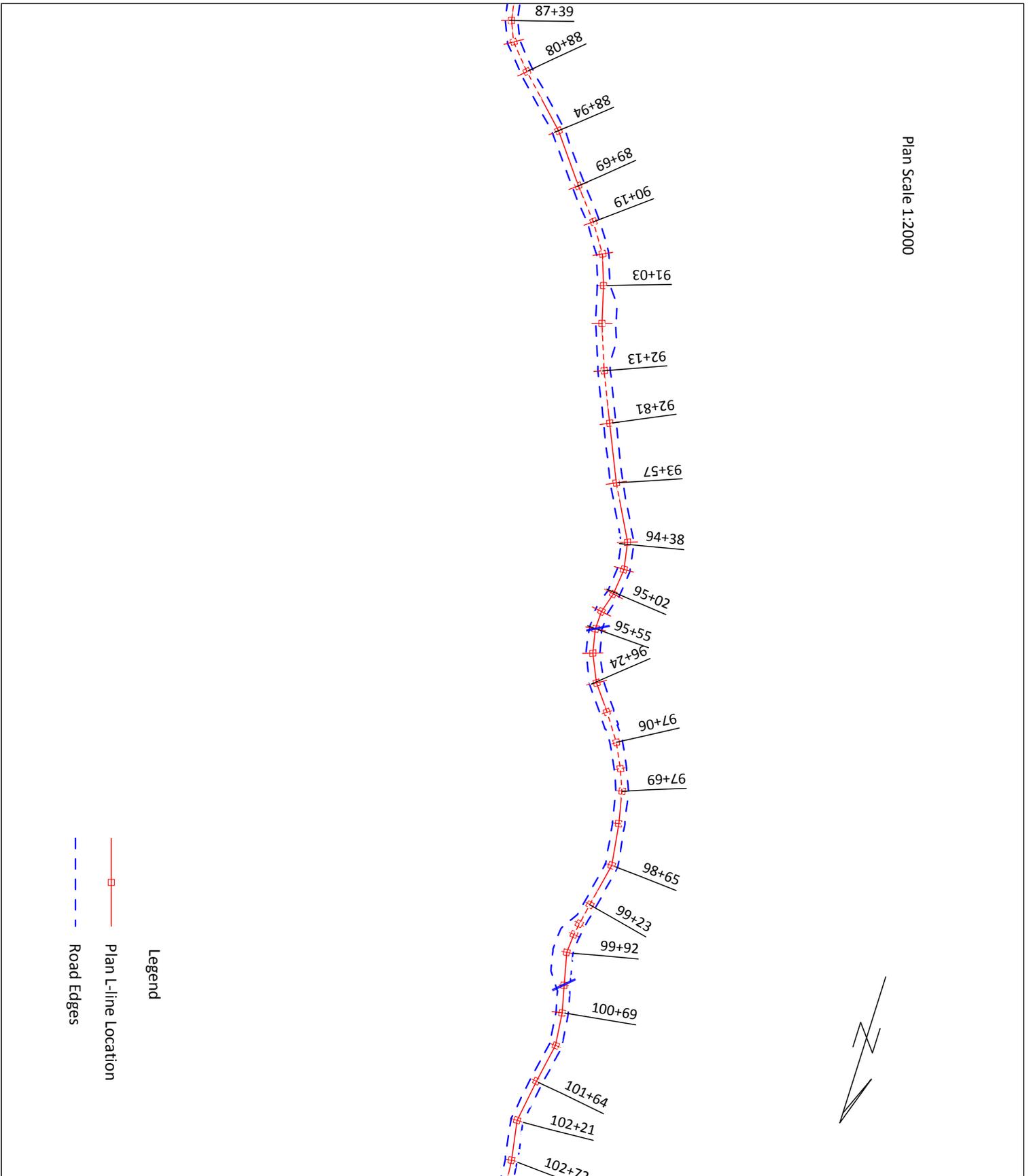


PLAN VIEW

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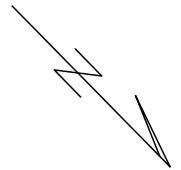
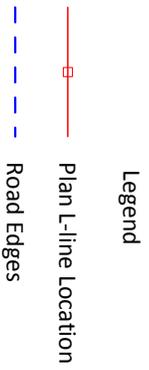
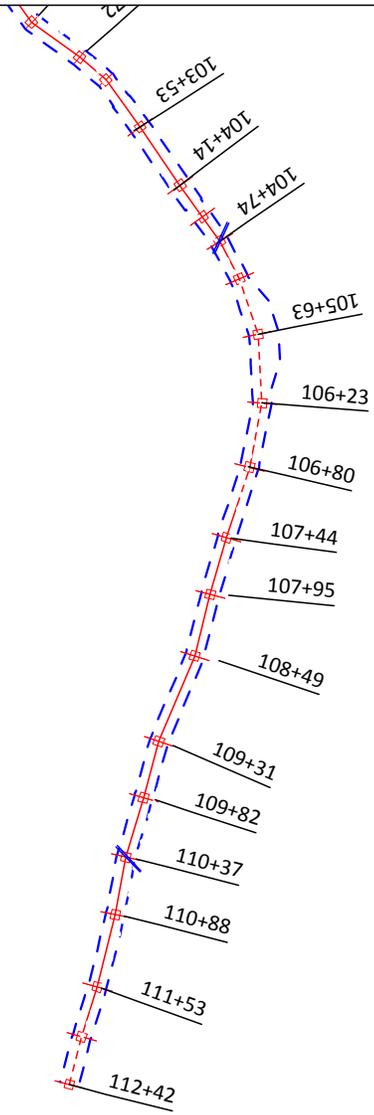


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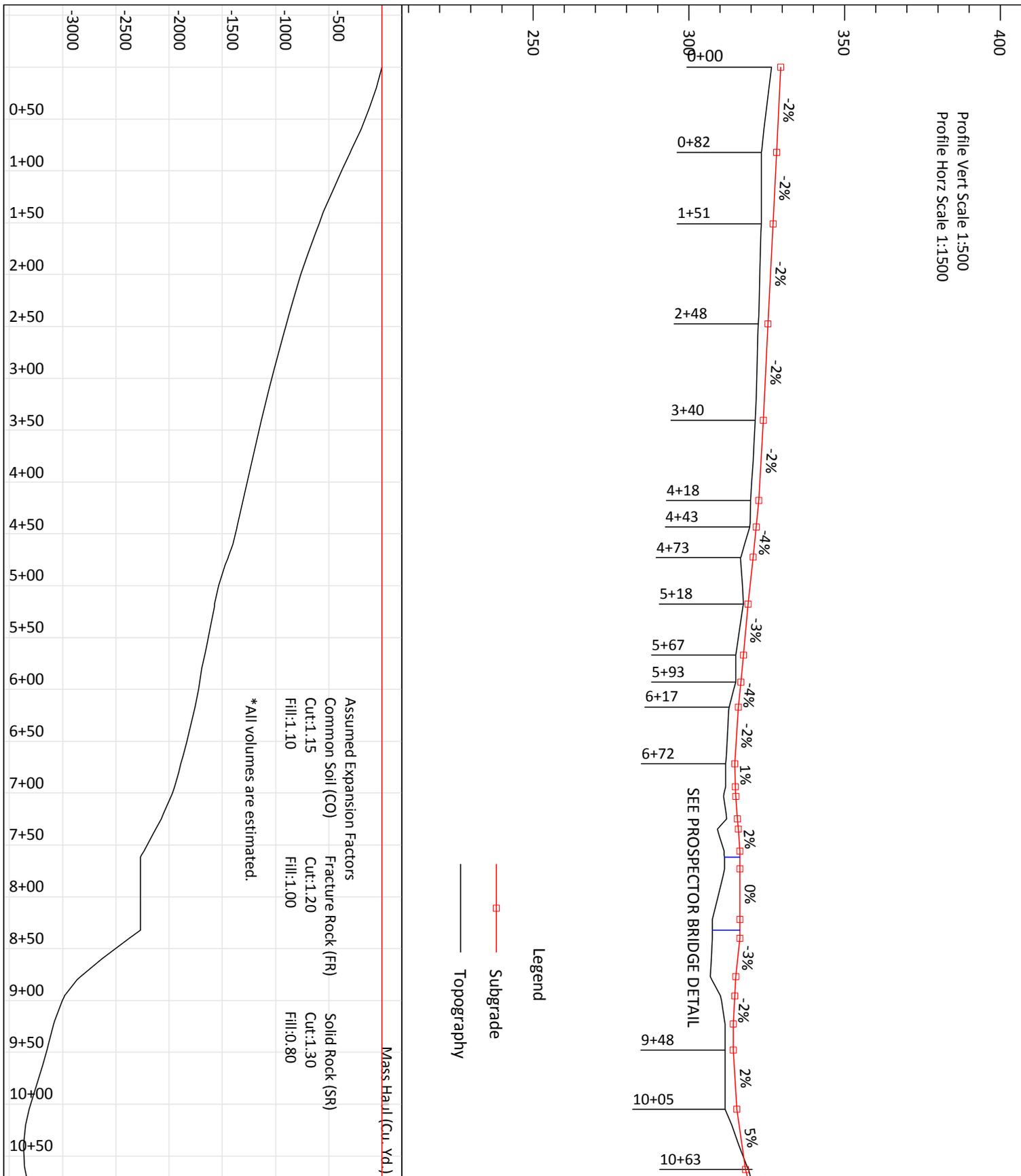


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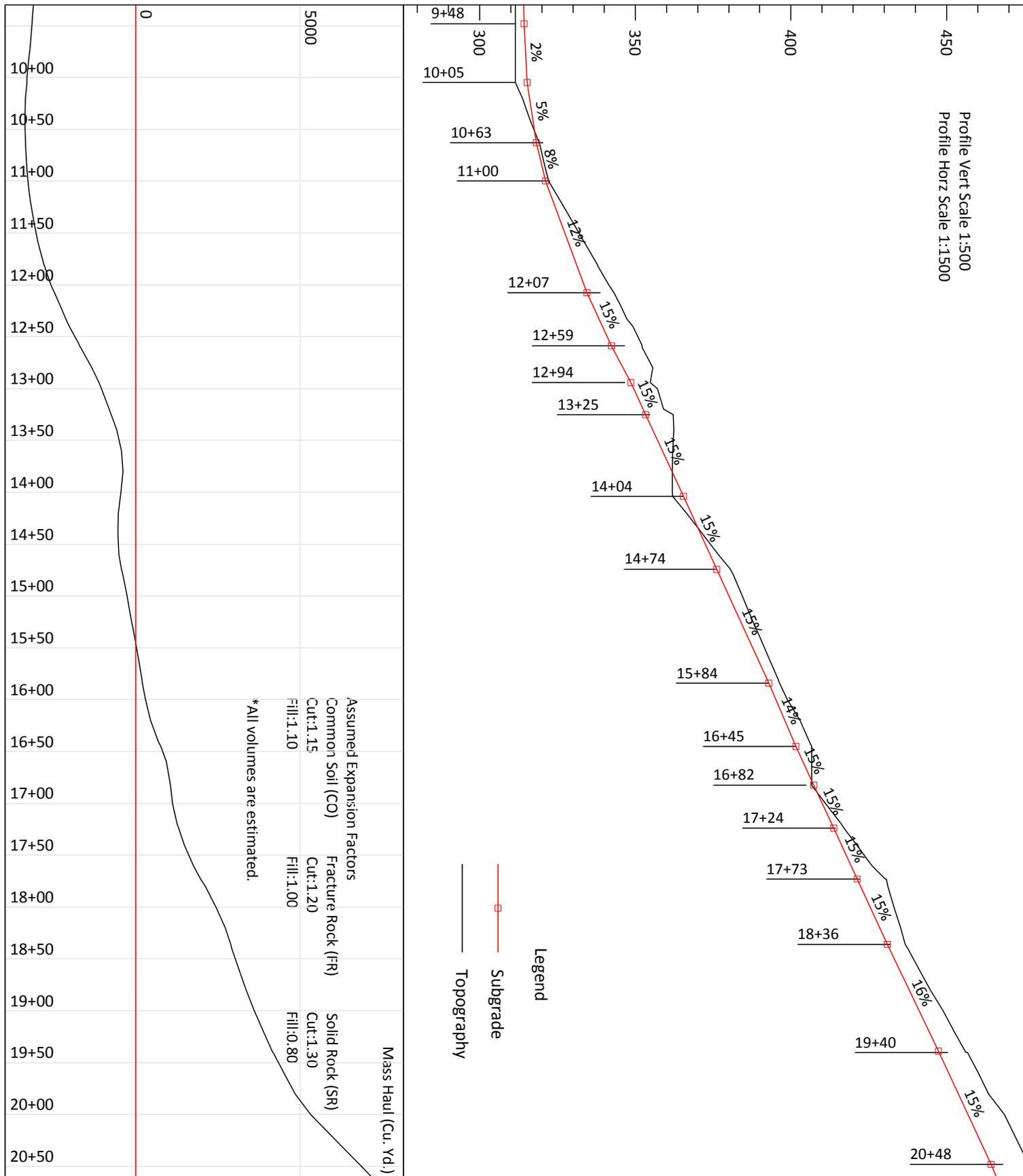
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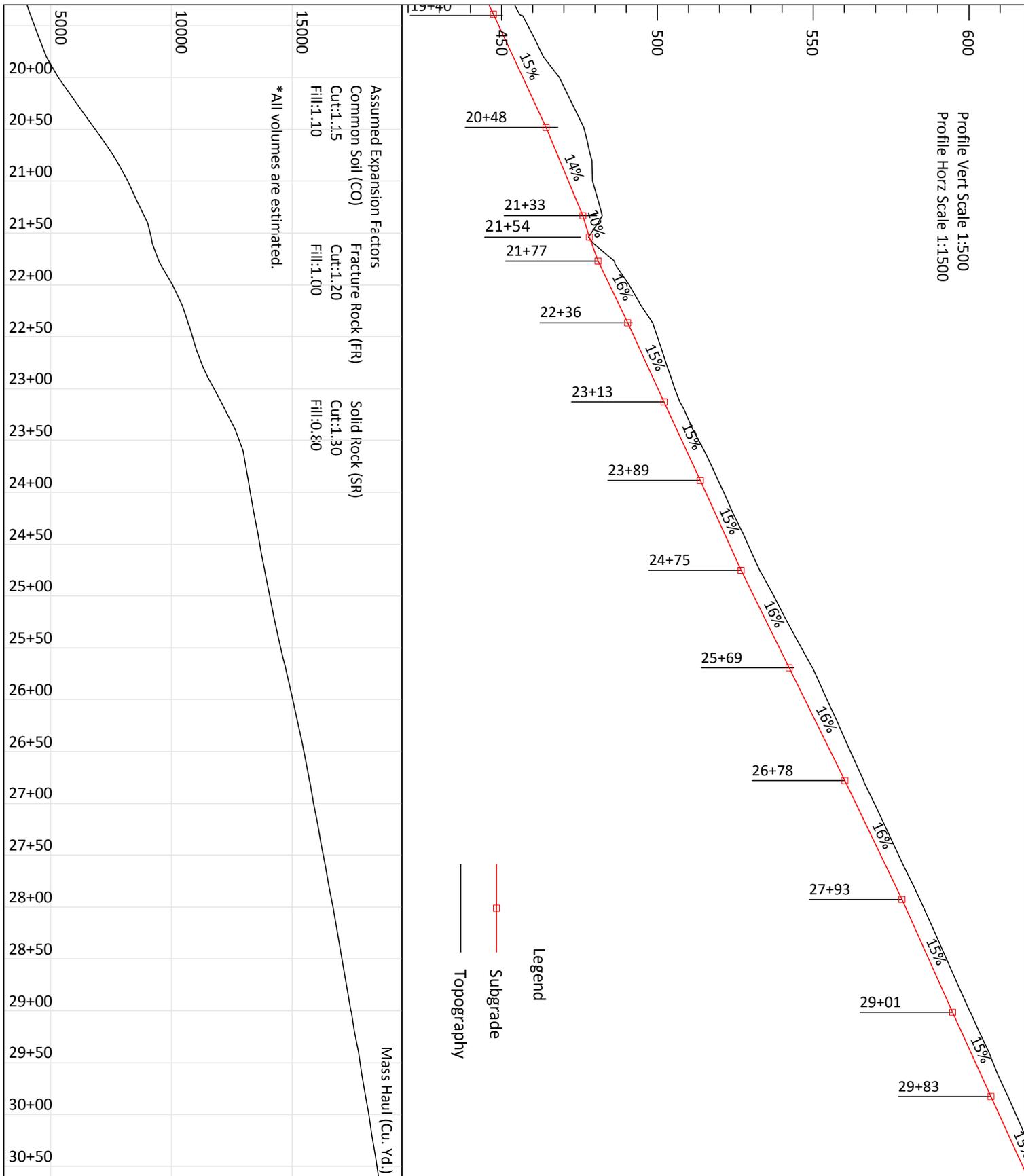
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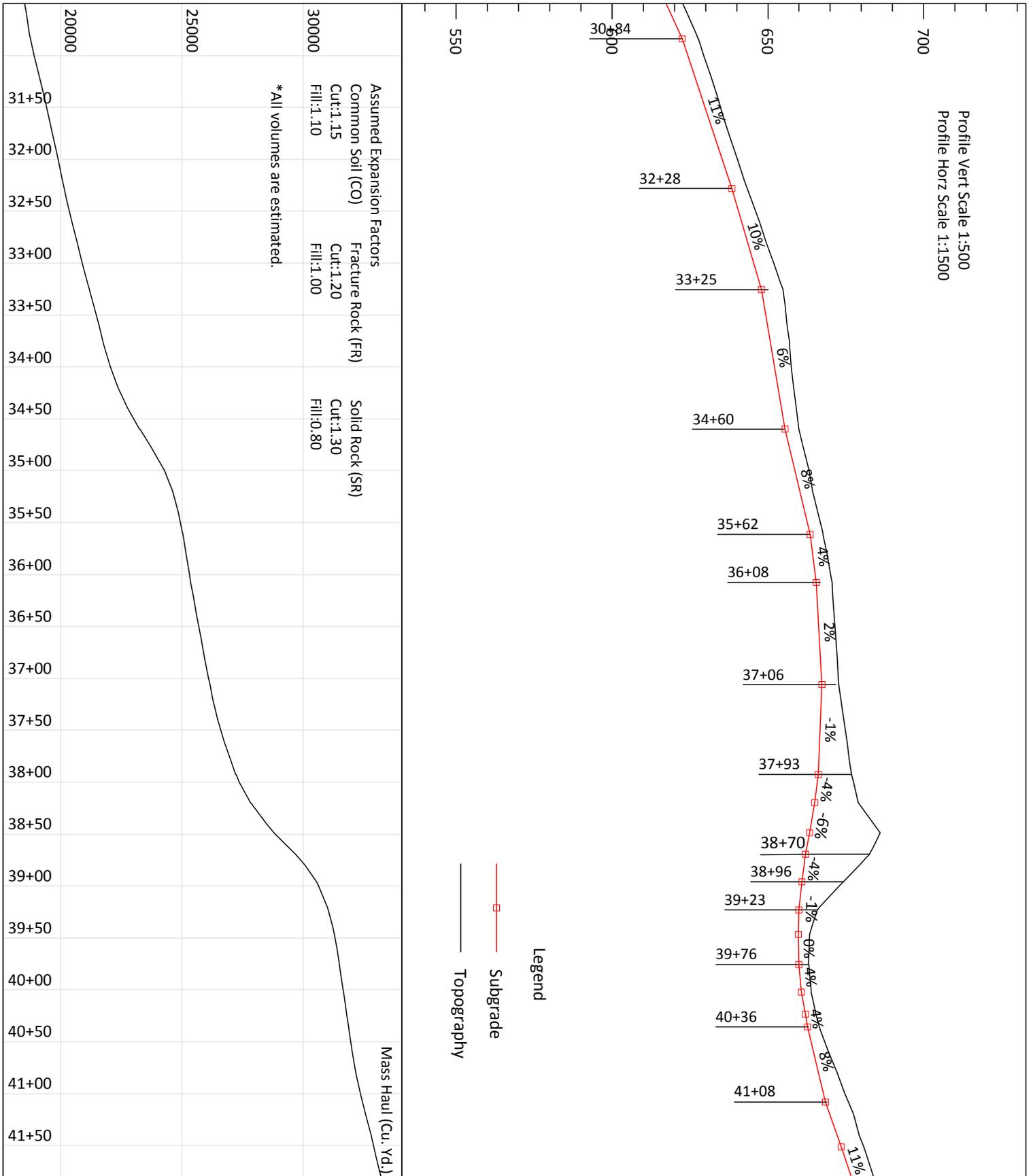
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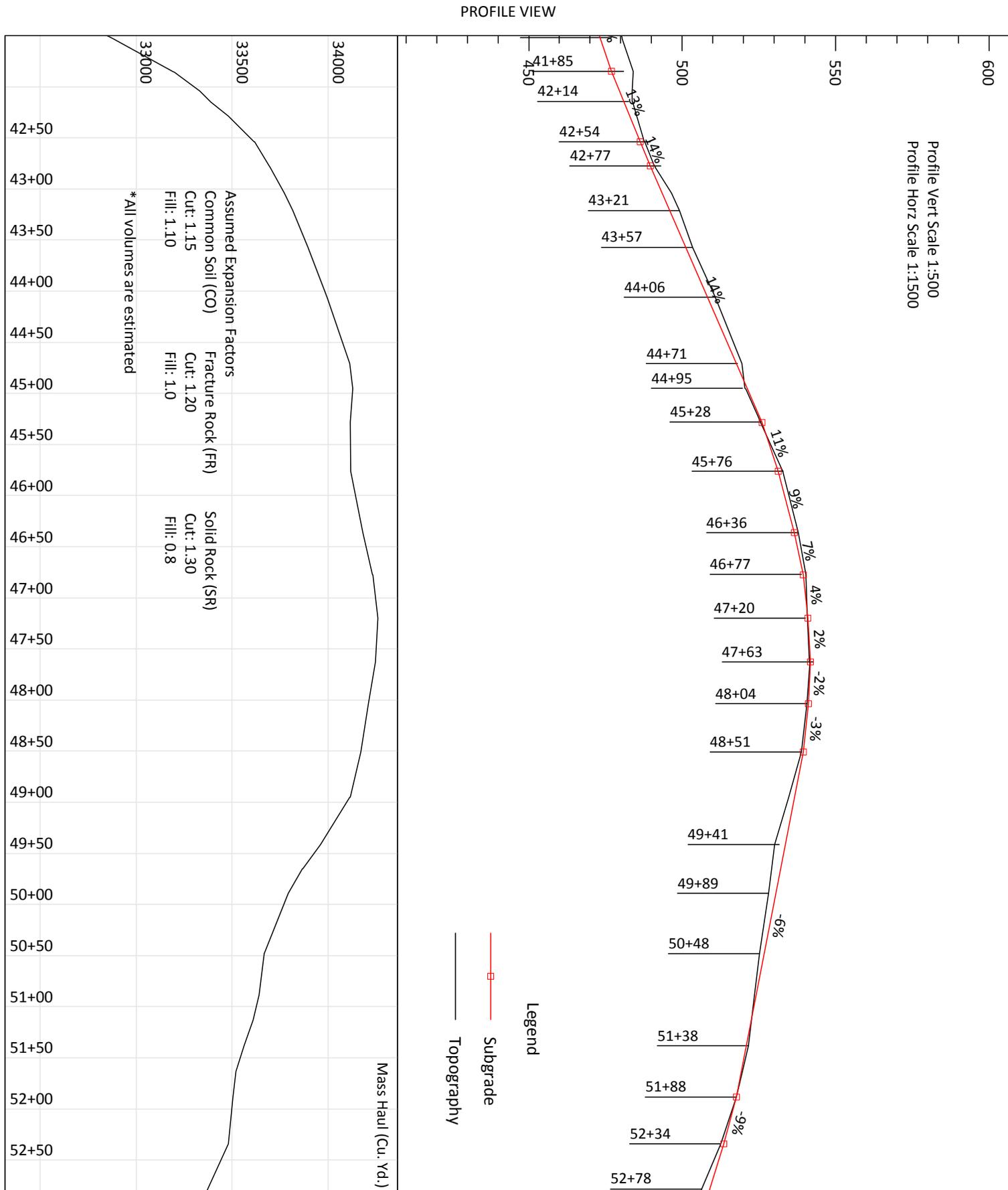


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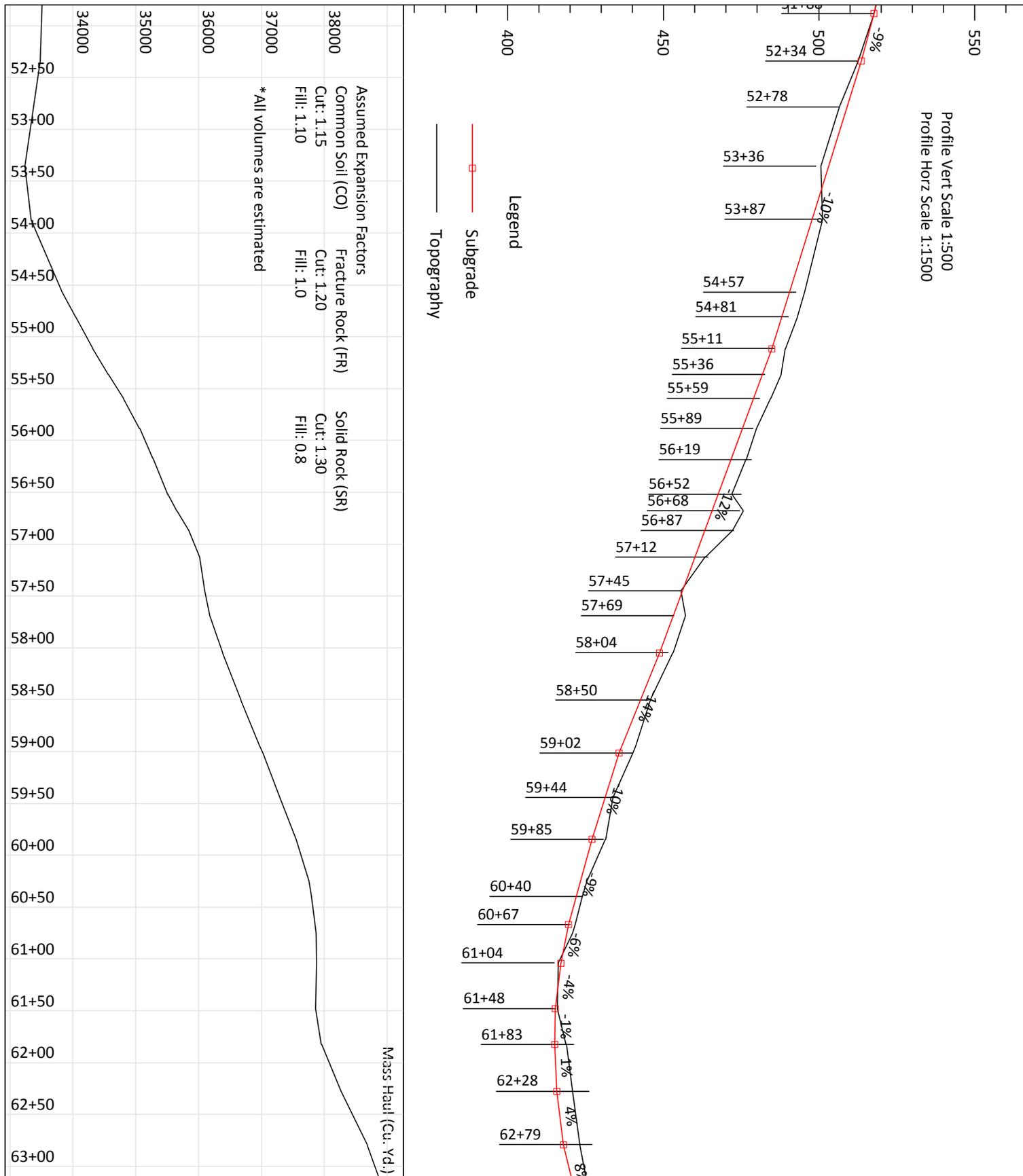


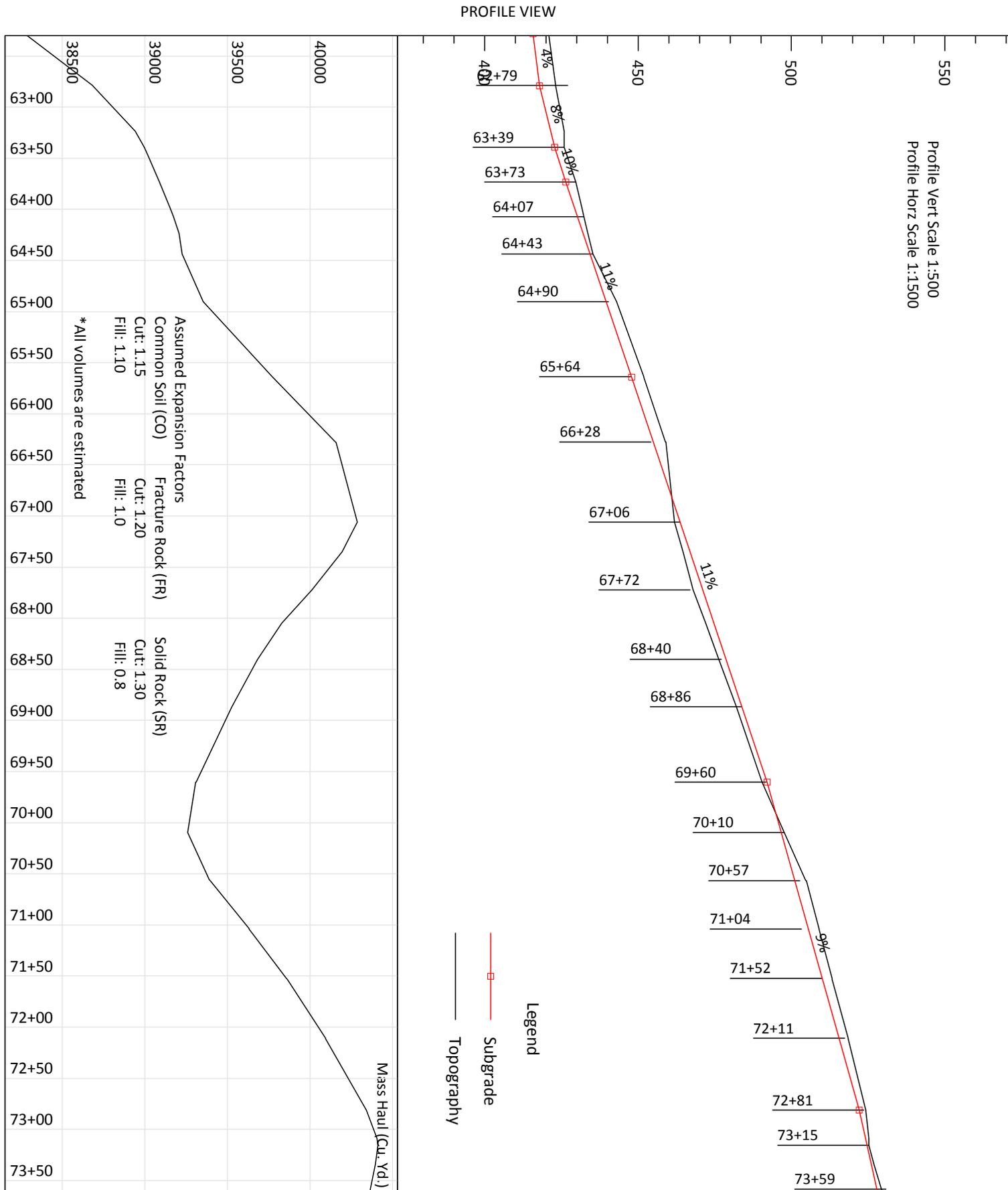
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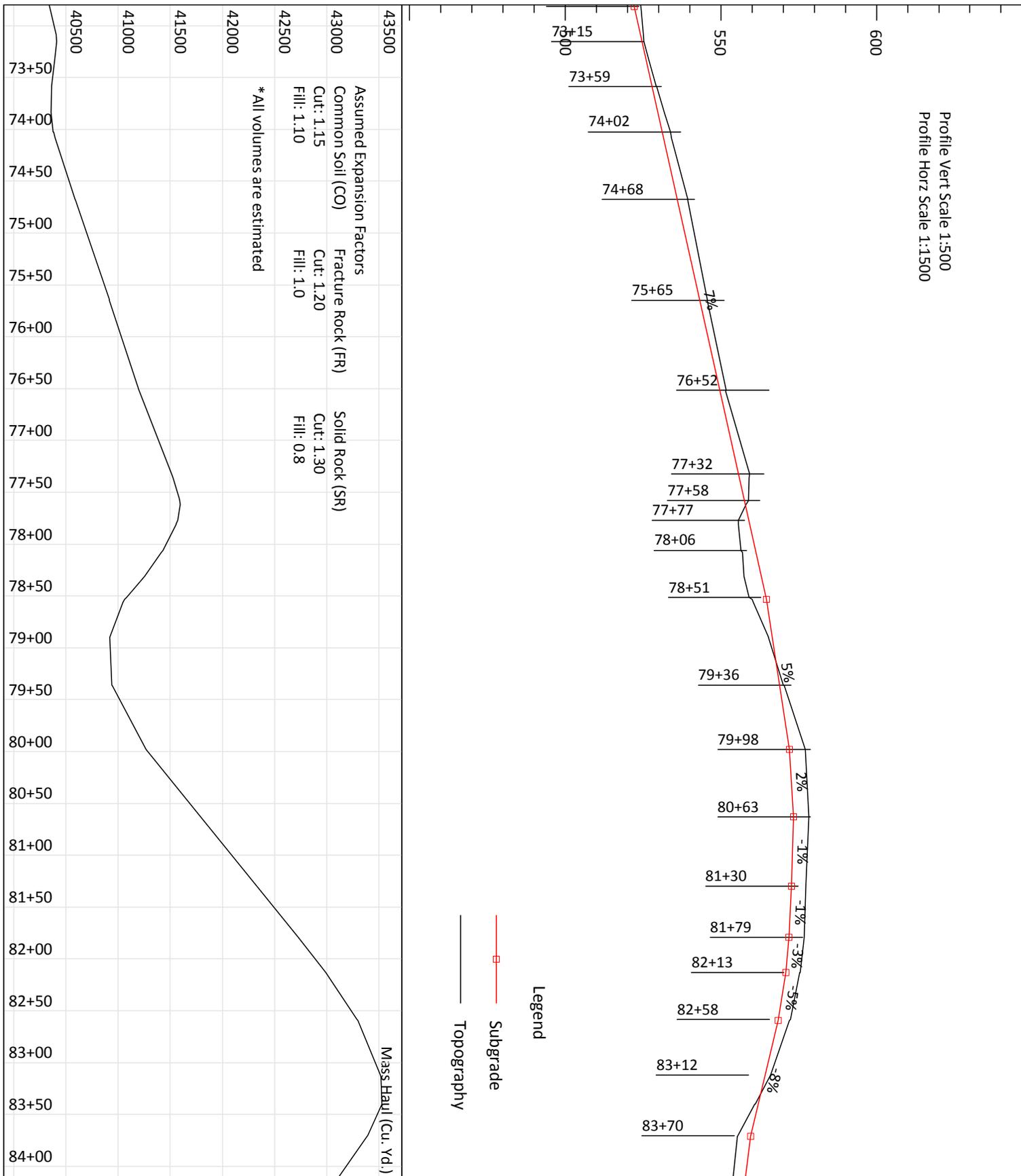


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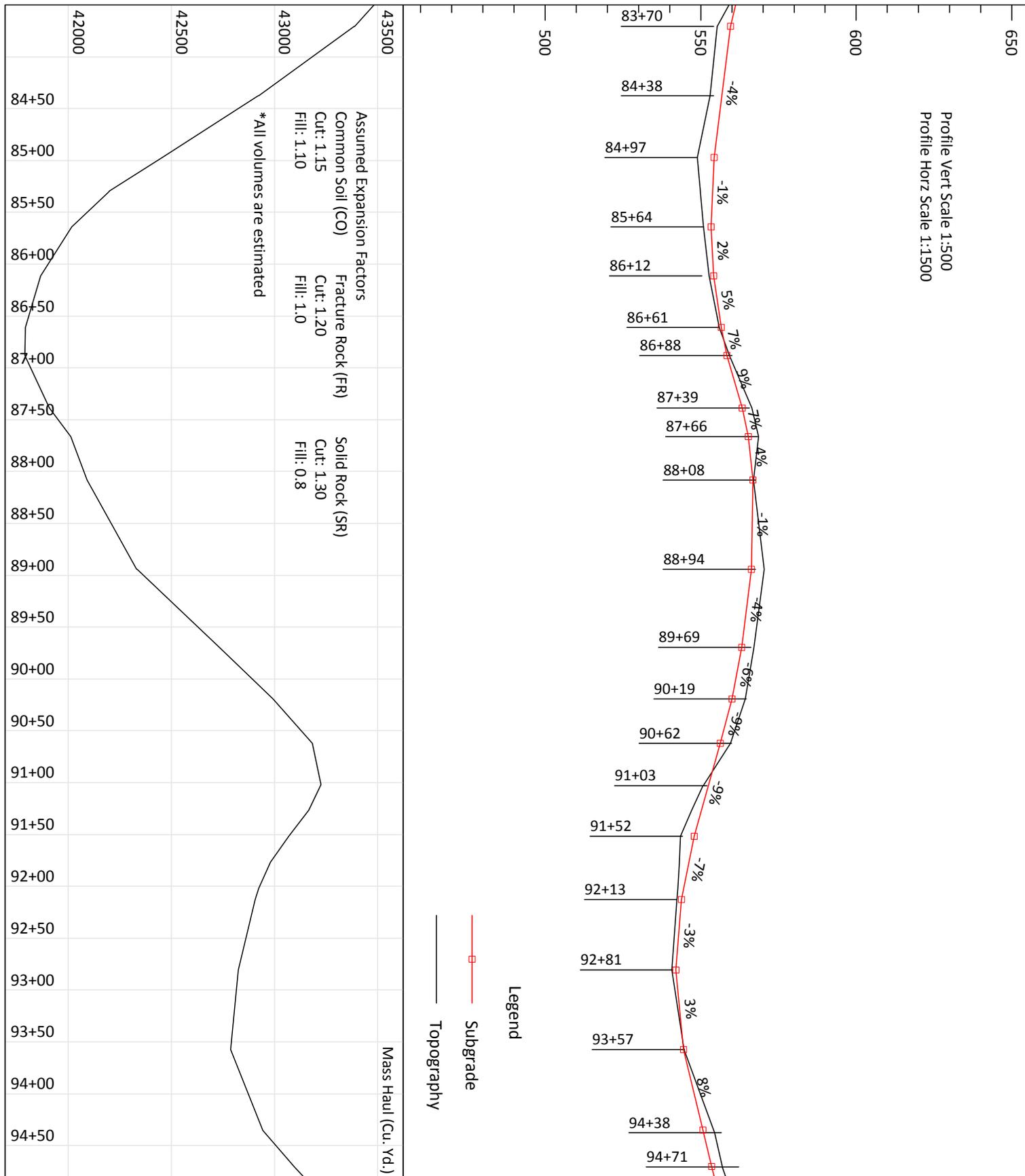


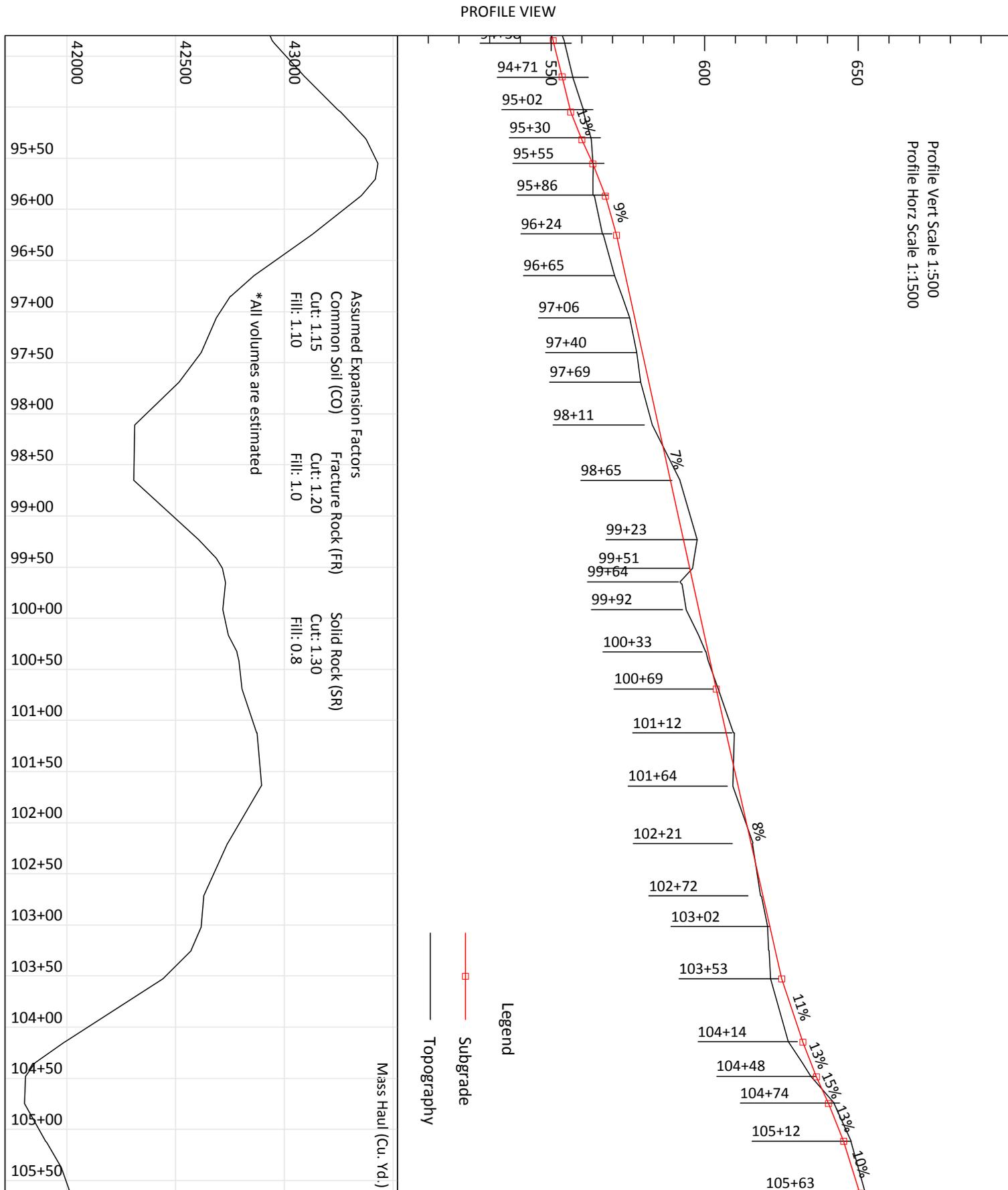
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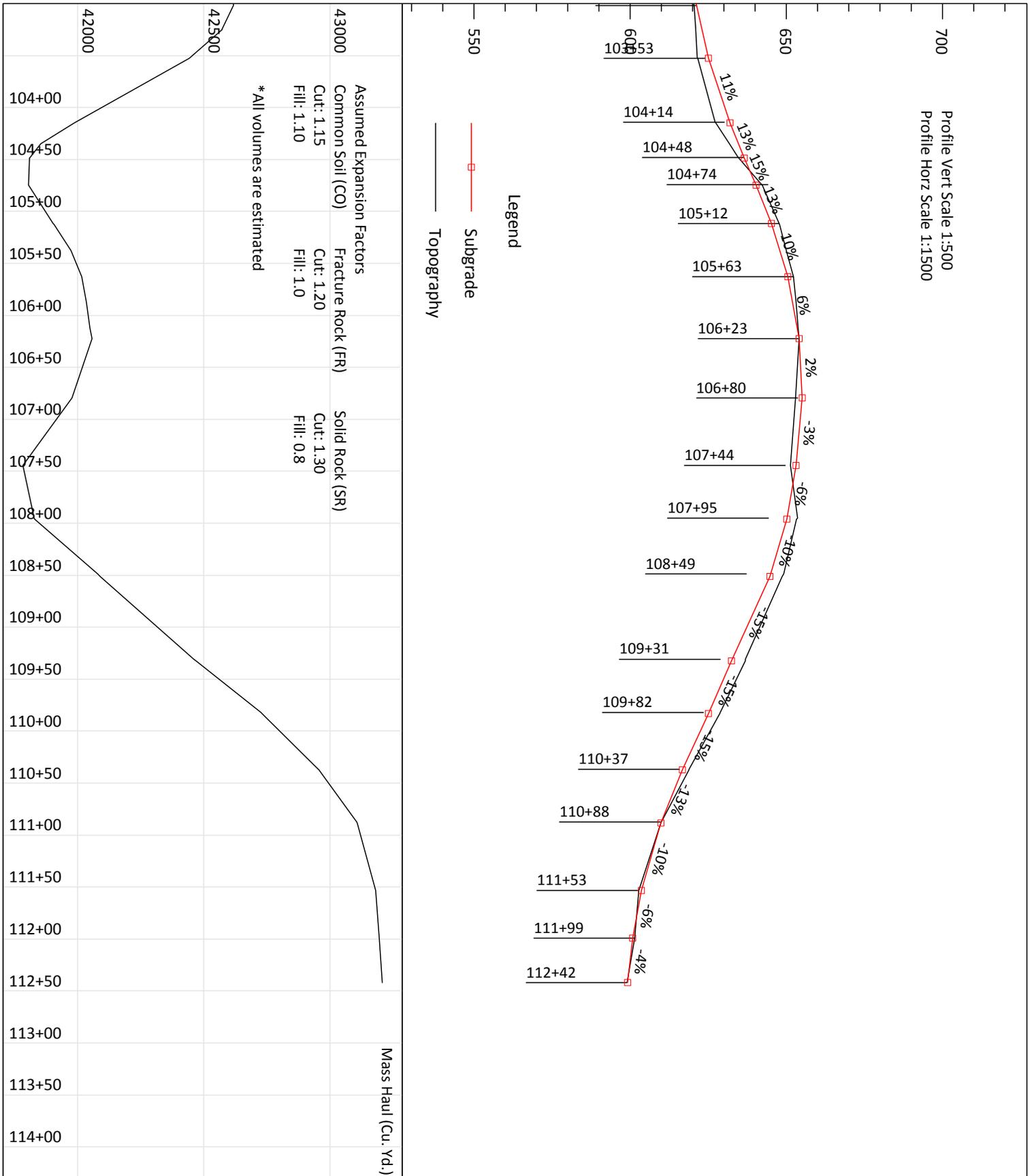
Profile Vert Scale 1:500
Profile Horz Scale 1:1500

PROFILE VIEW



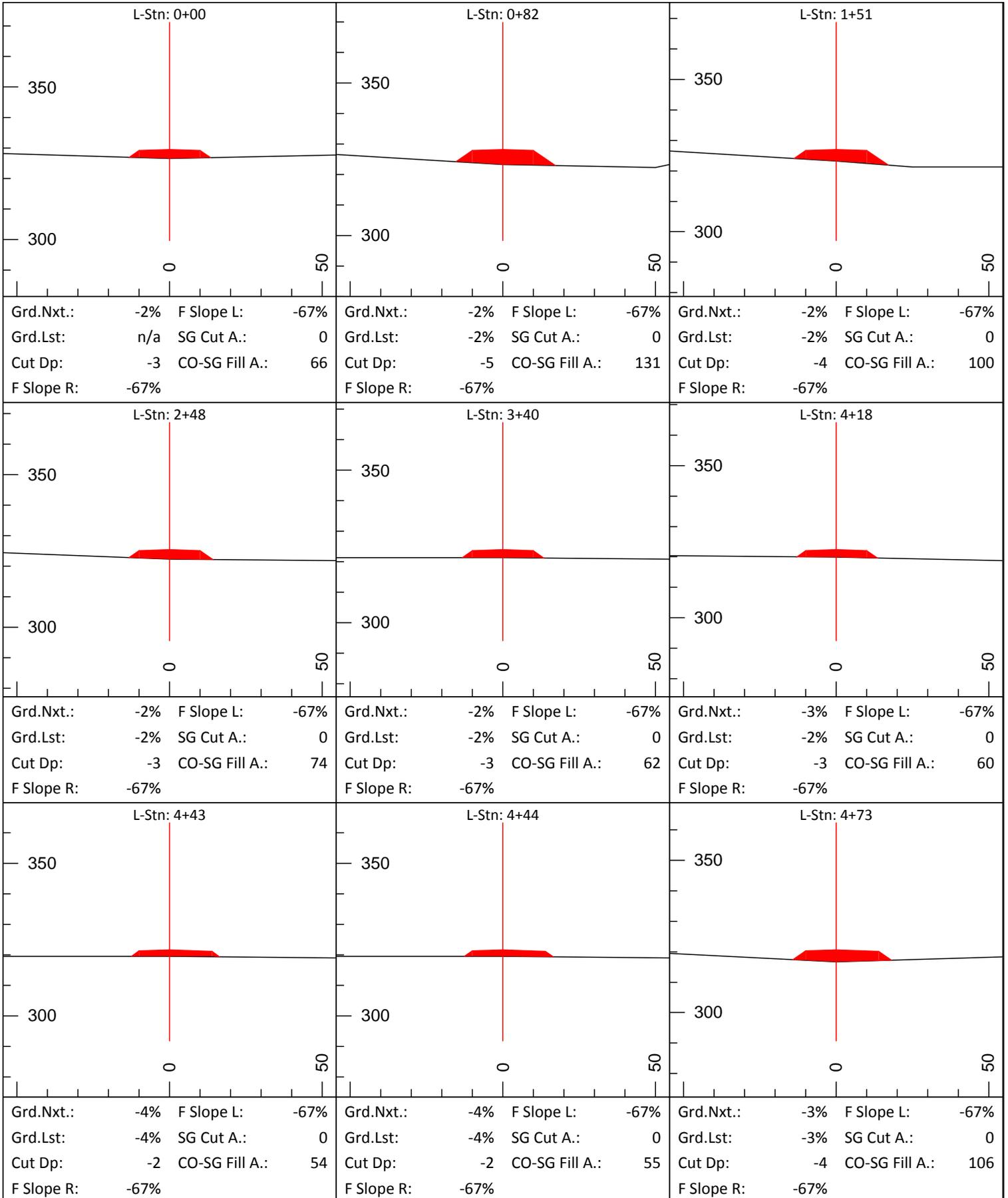


PROFILE VIEW

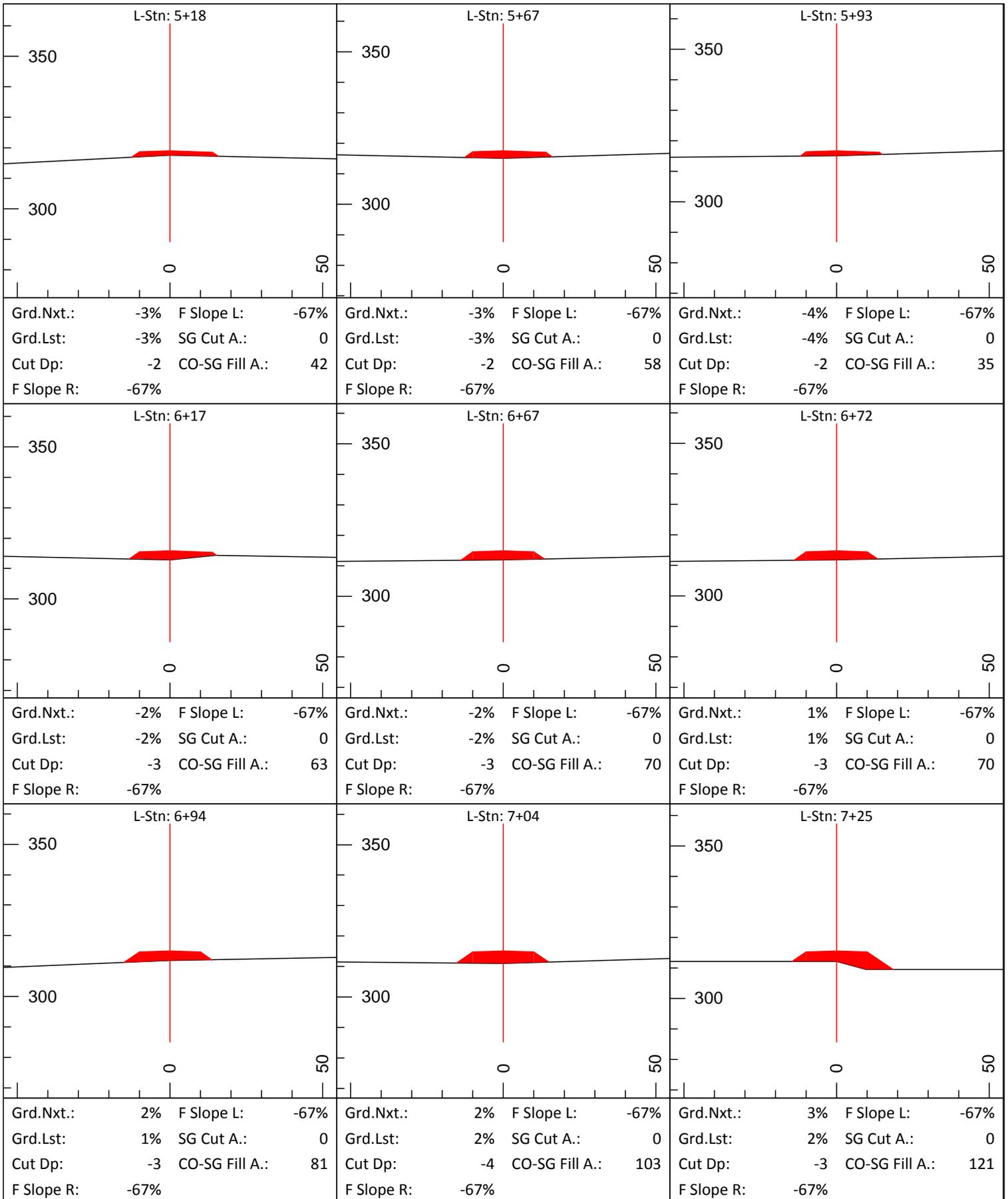


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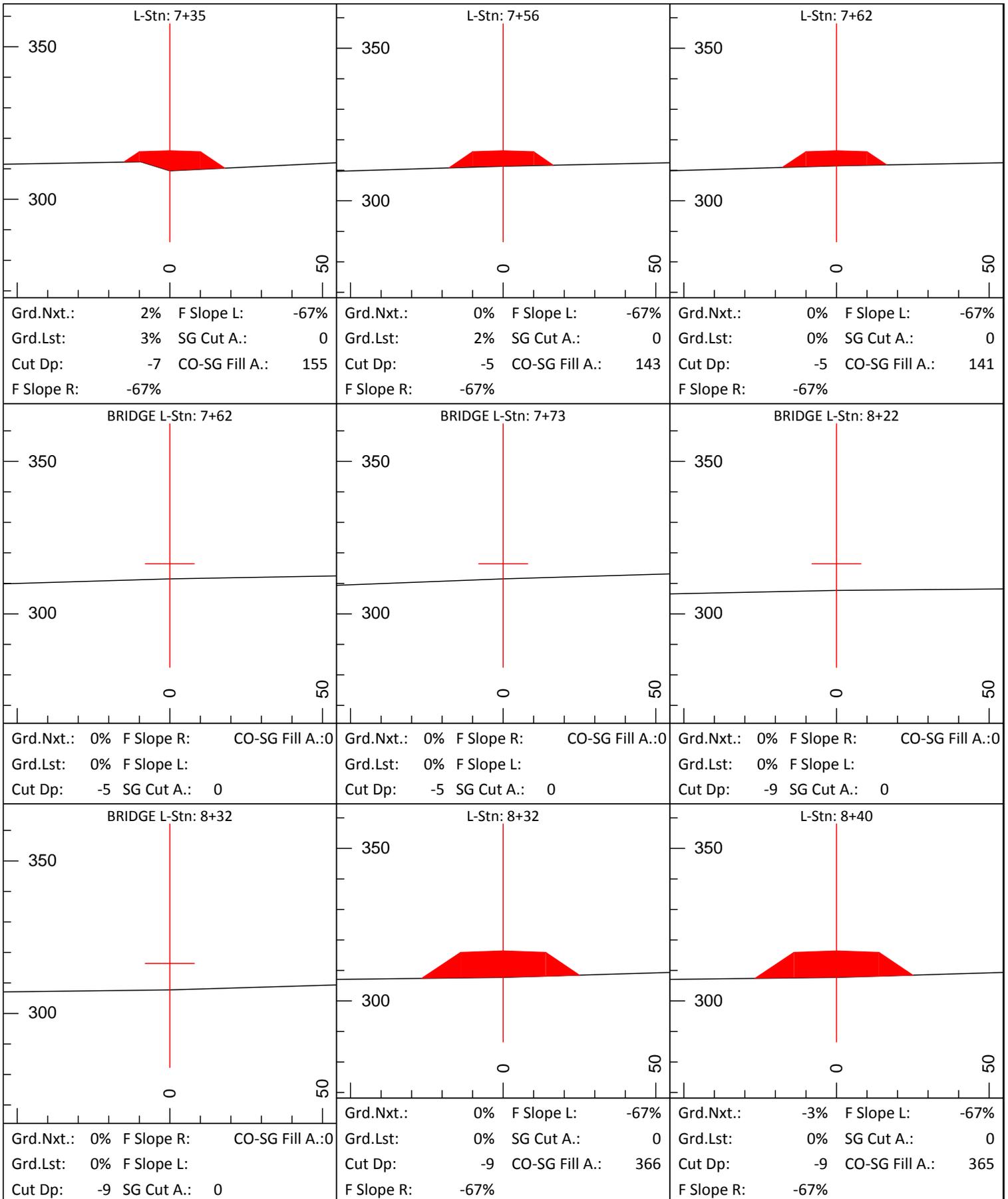
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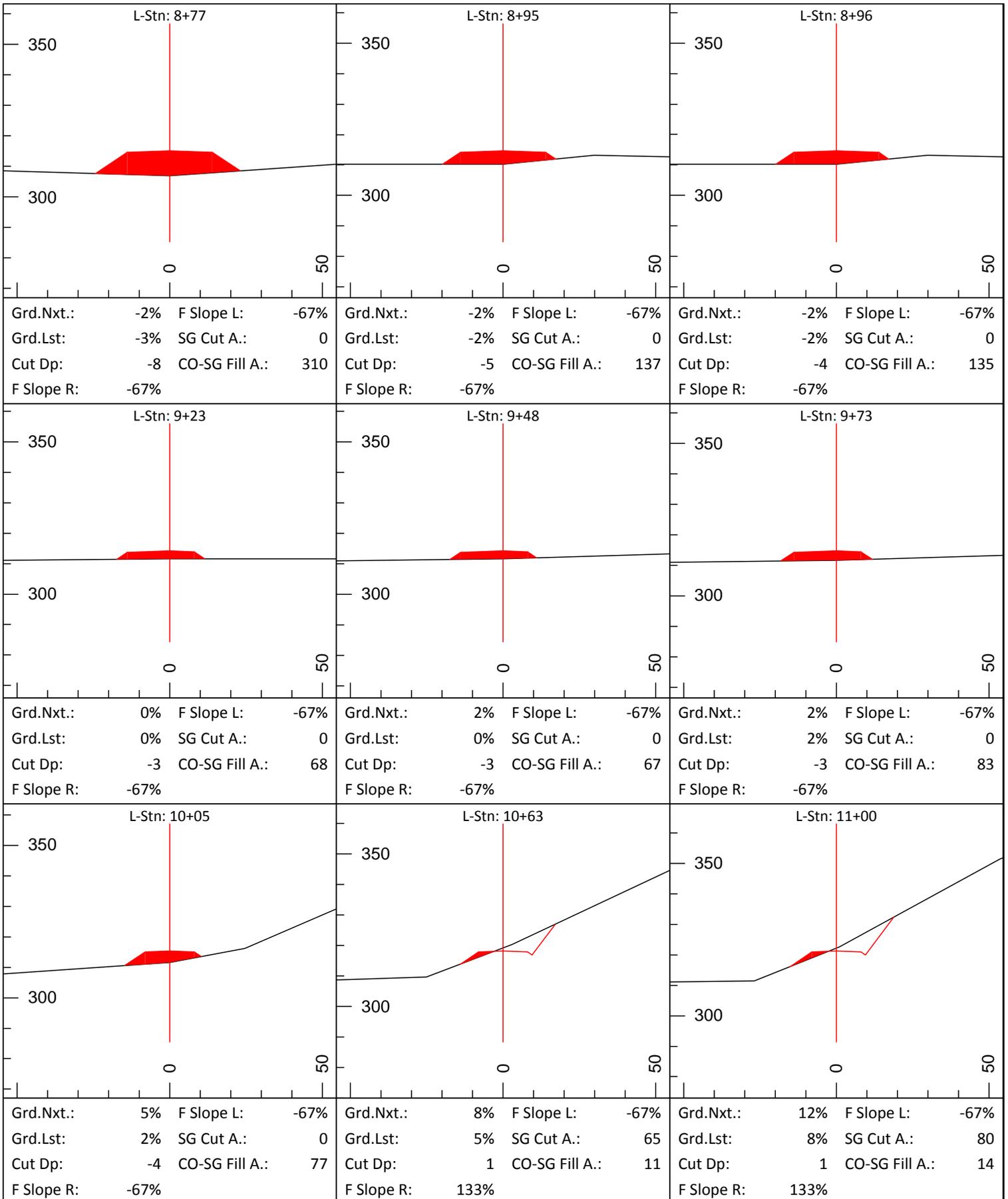
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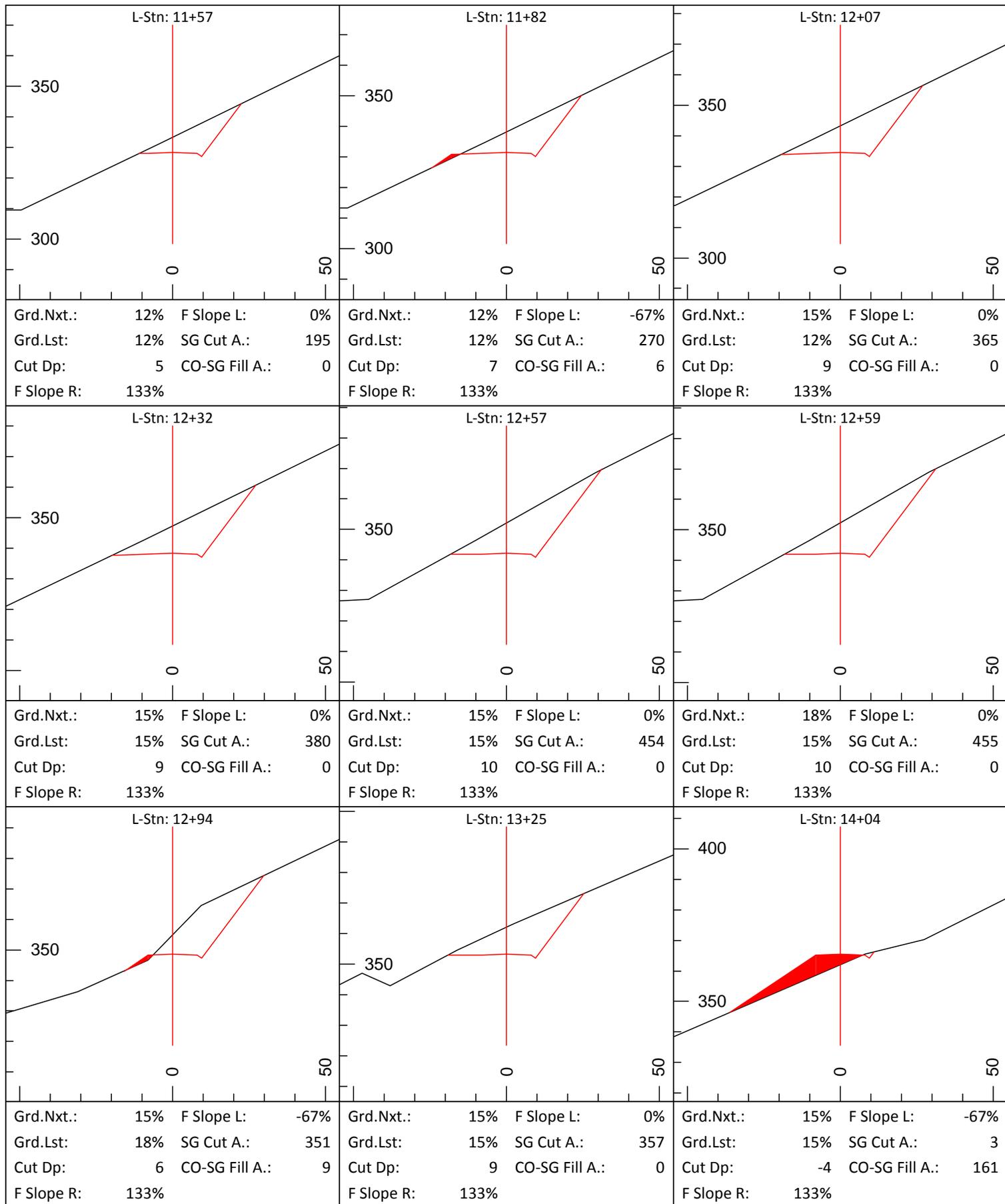
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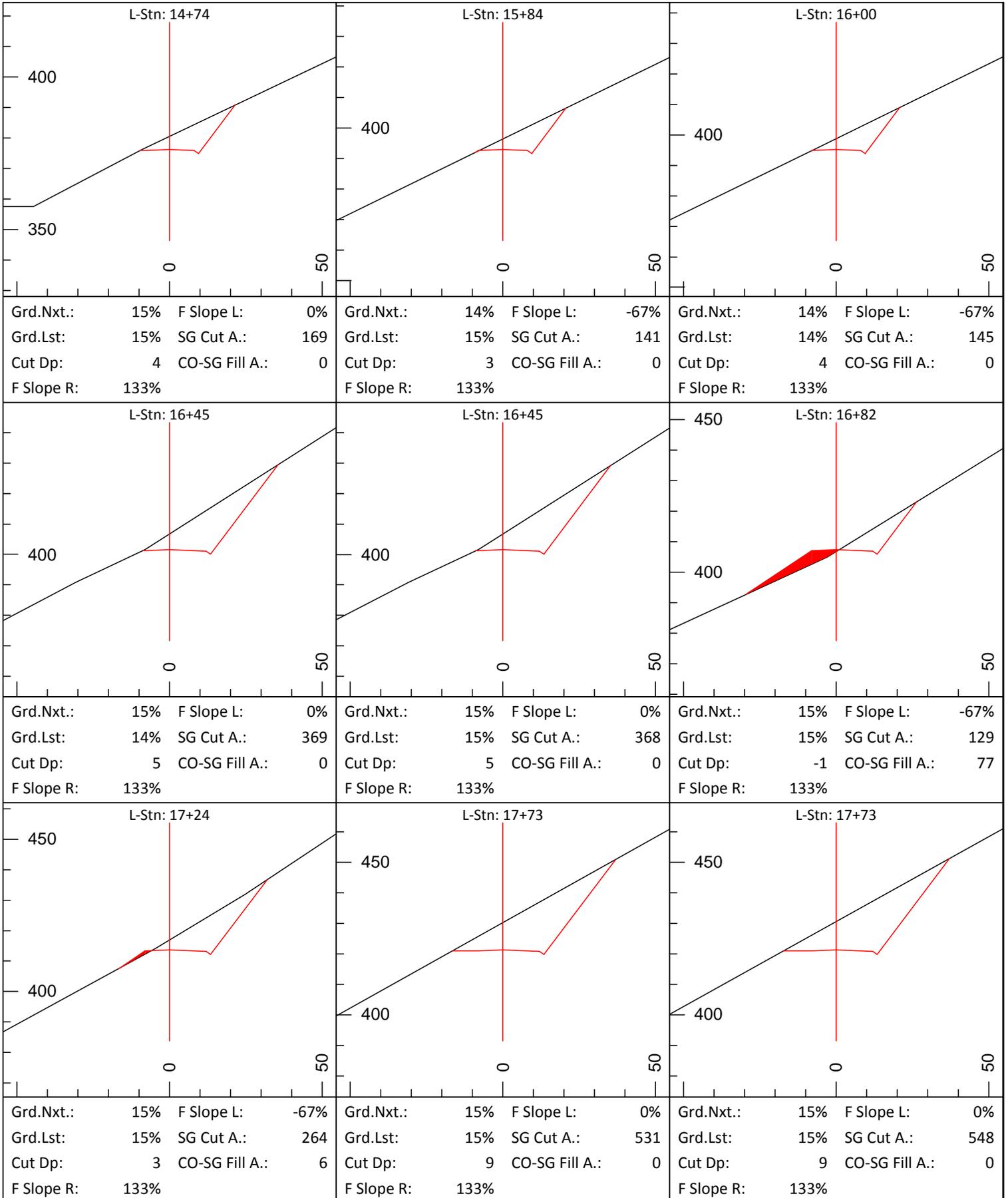


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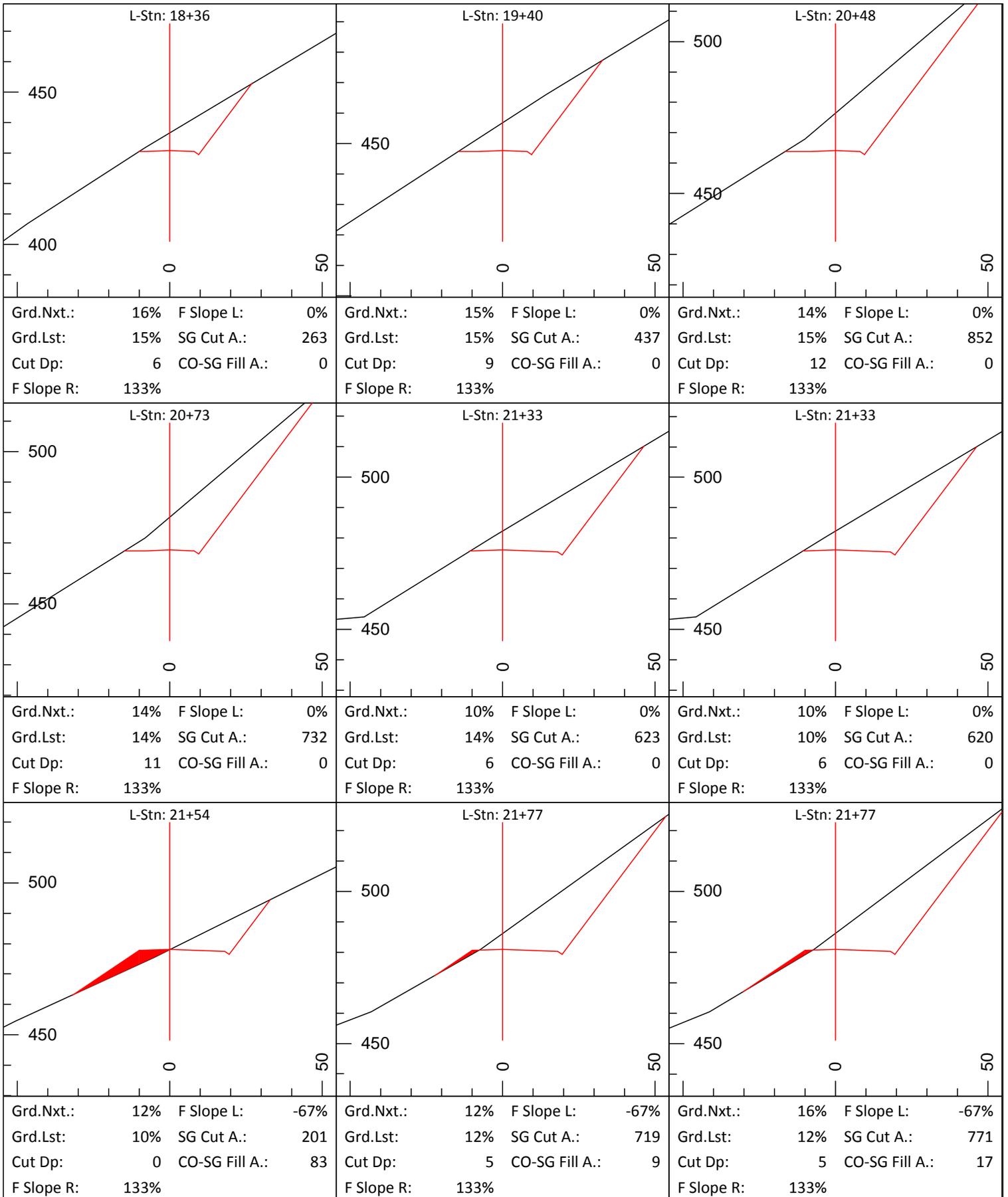
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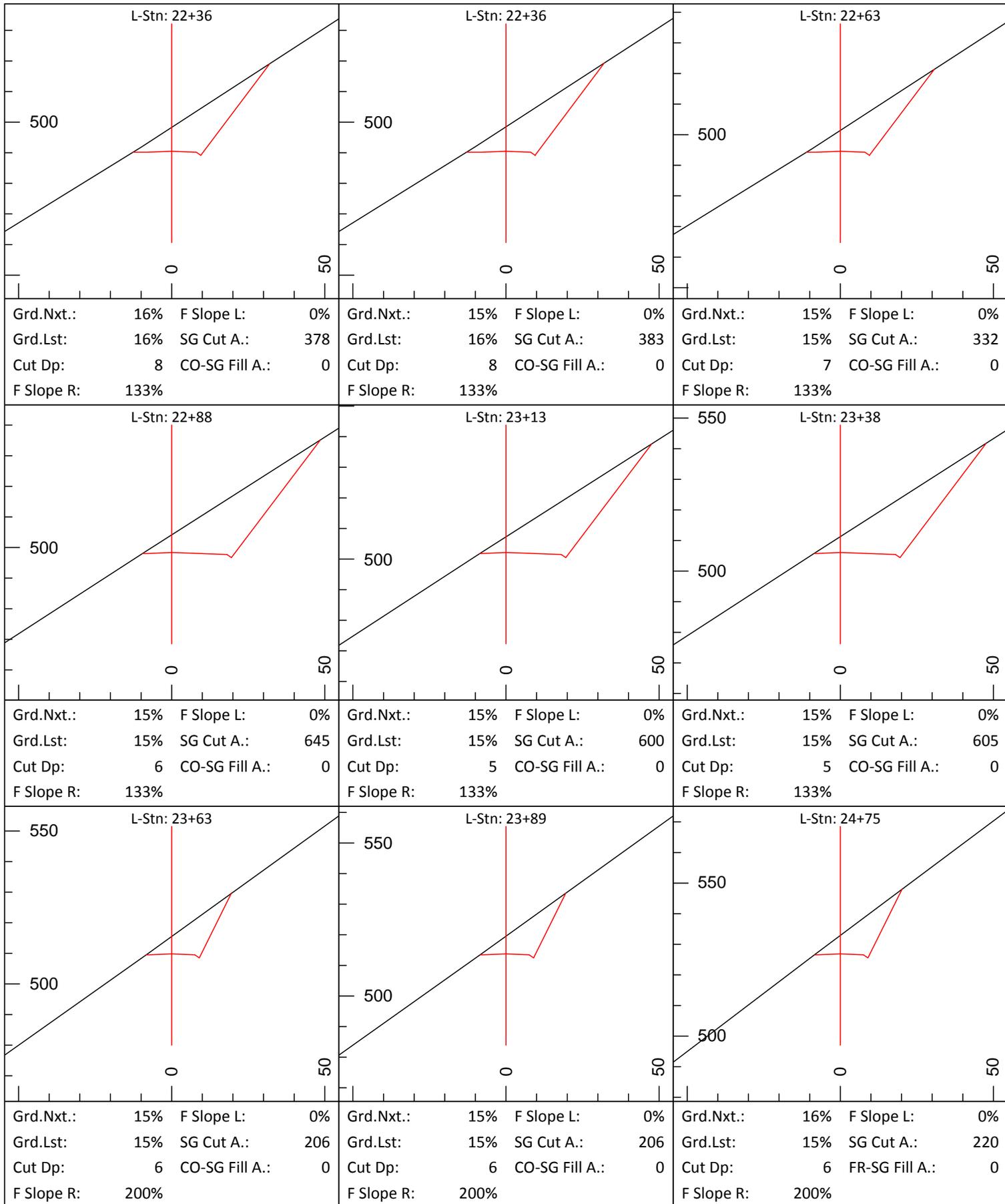


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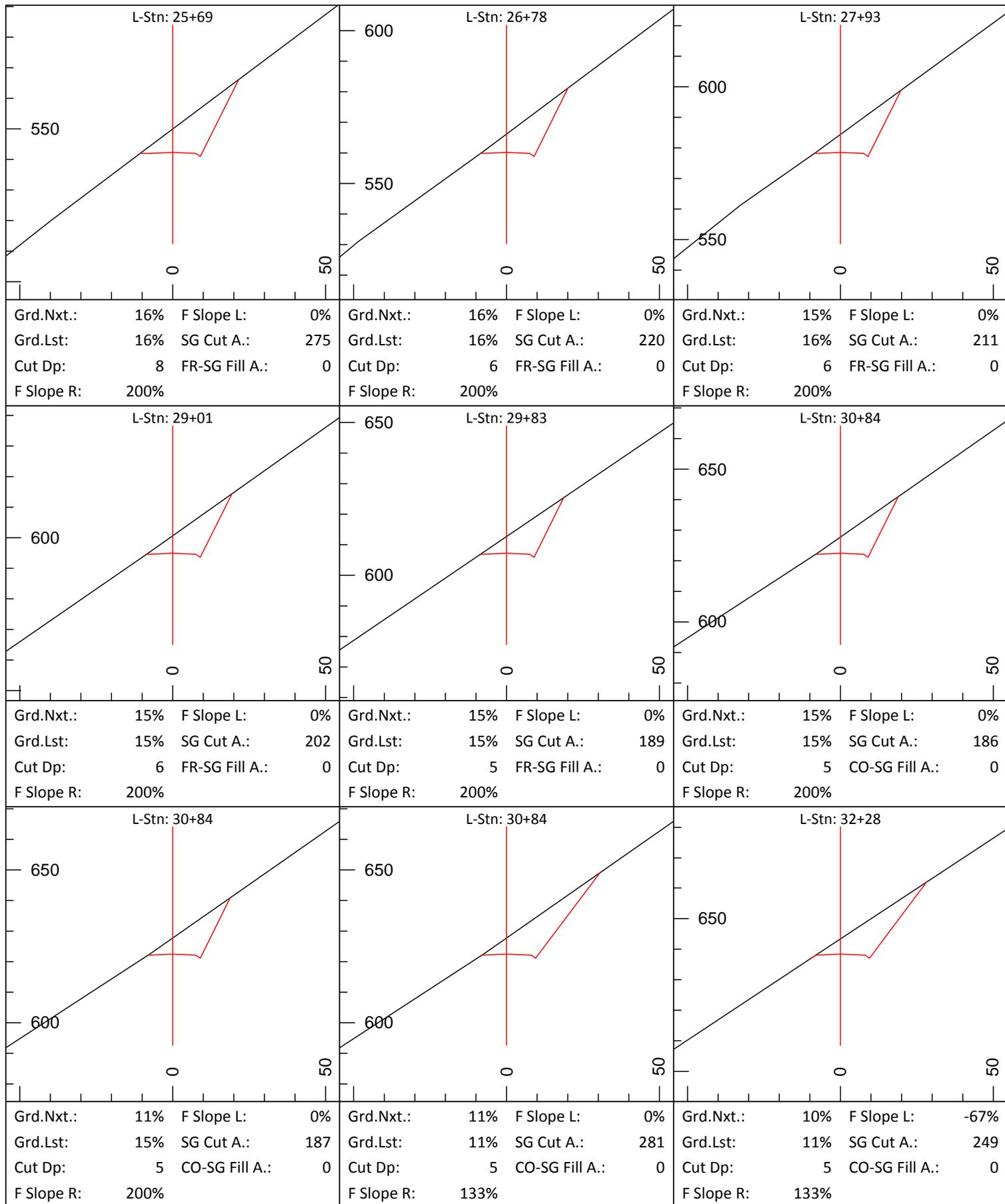
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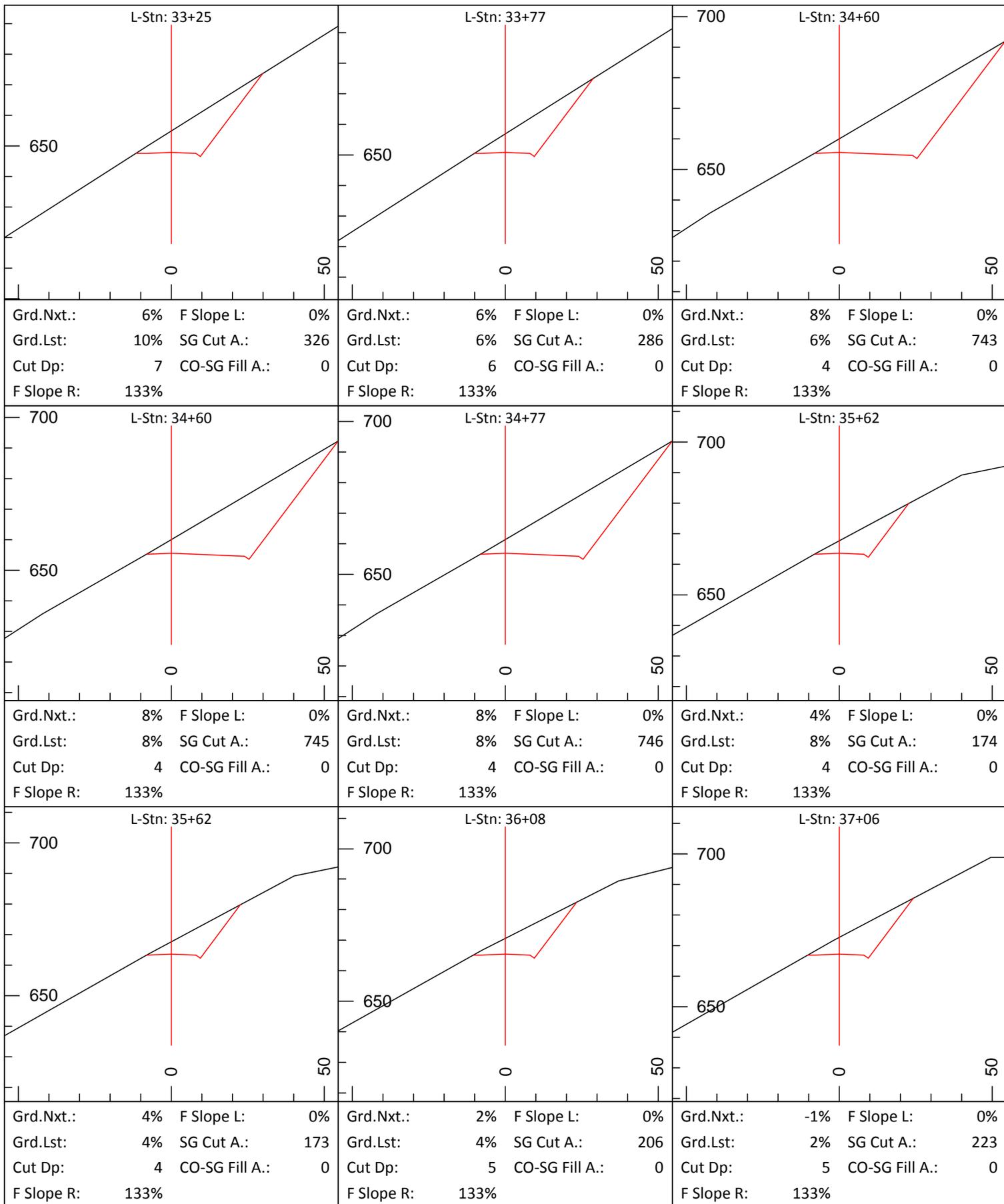
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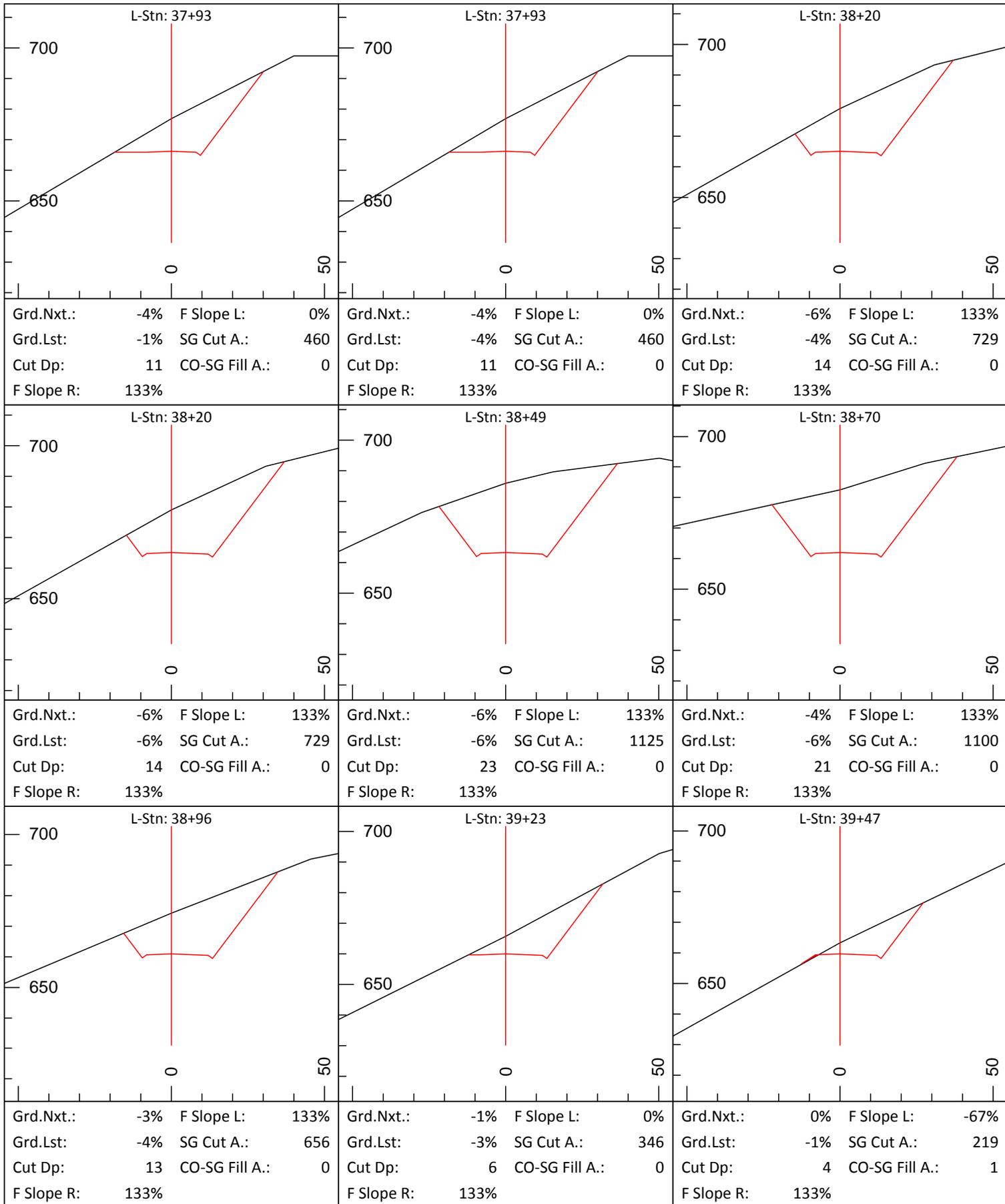
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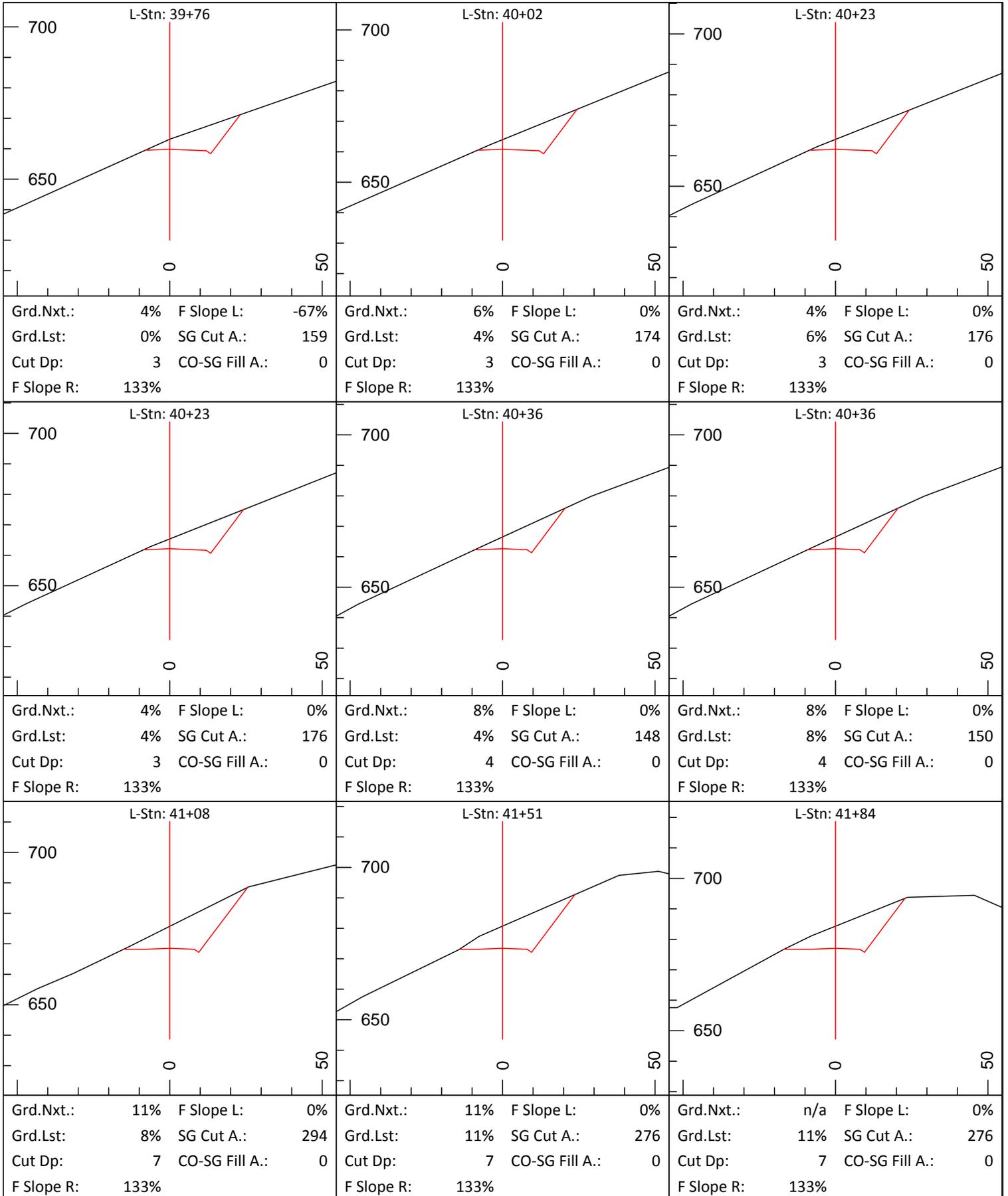


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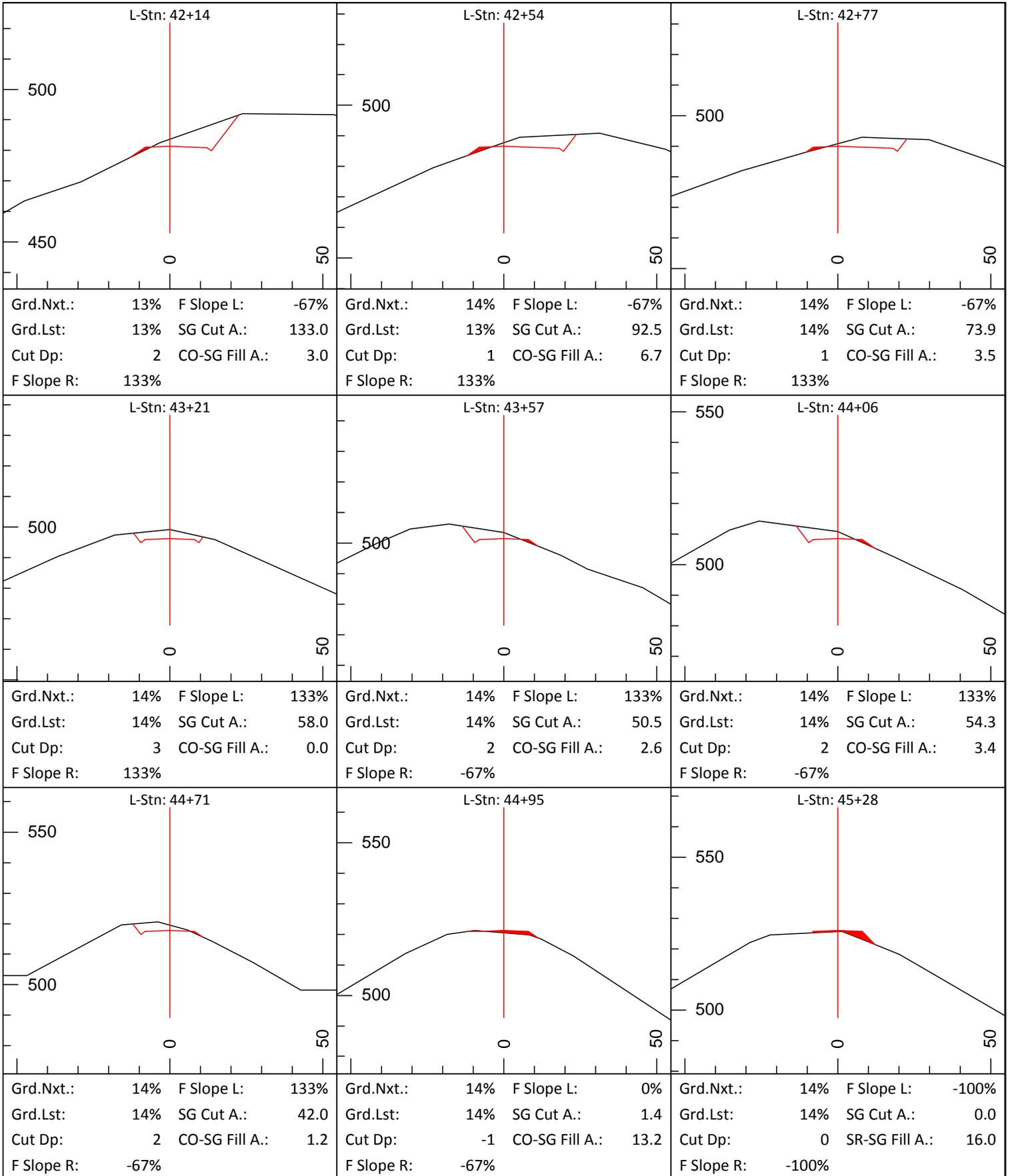


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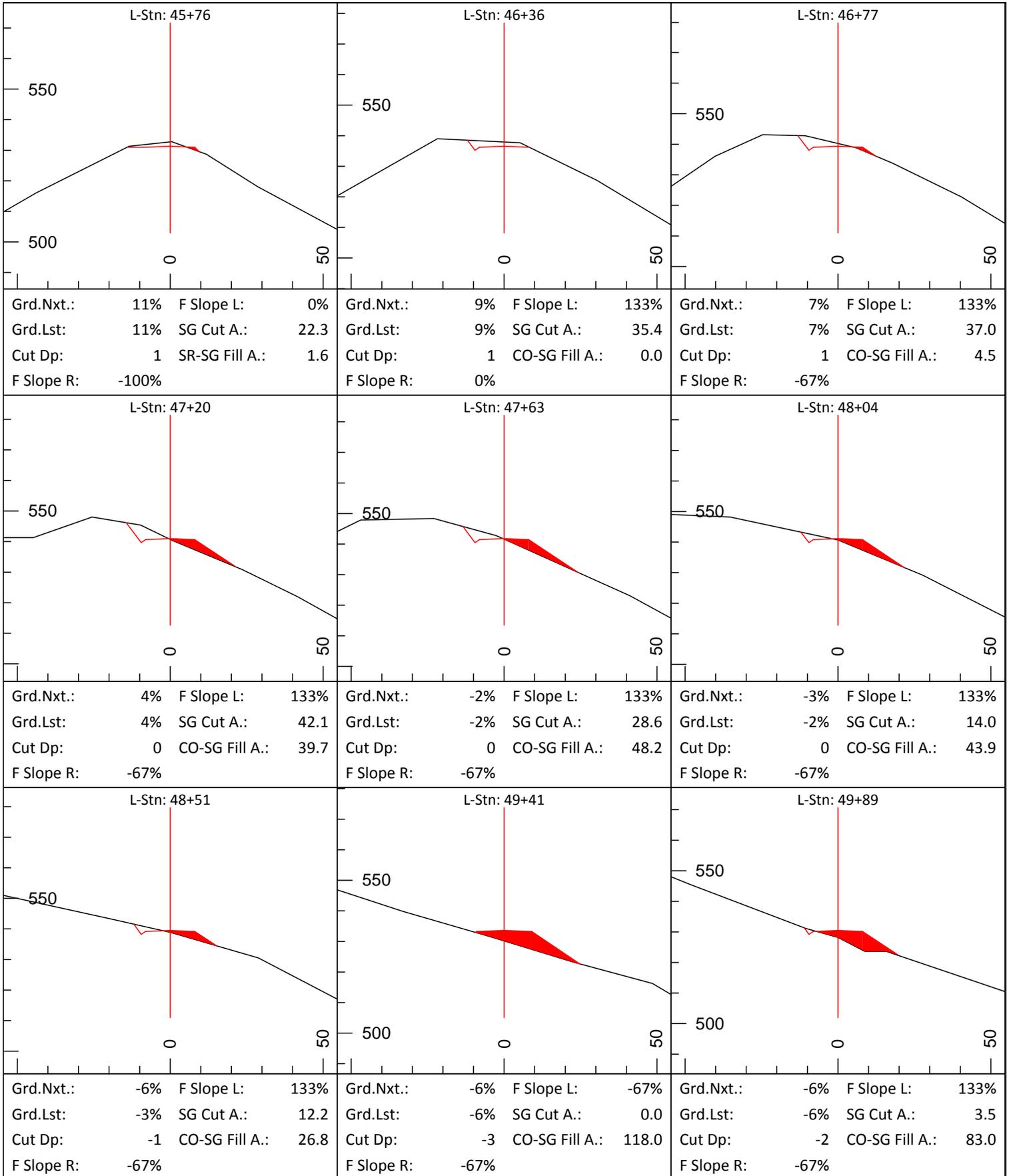
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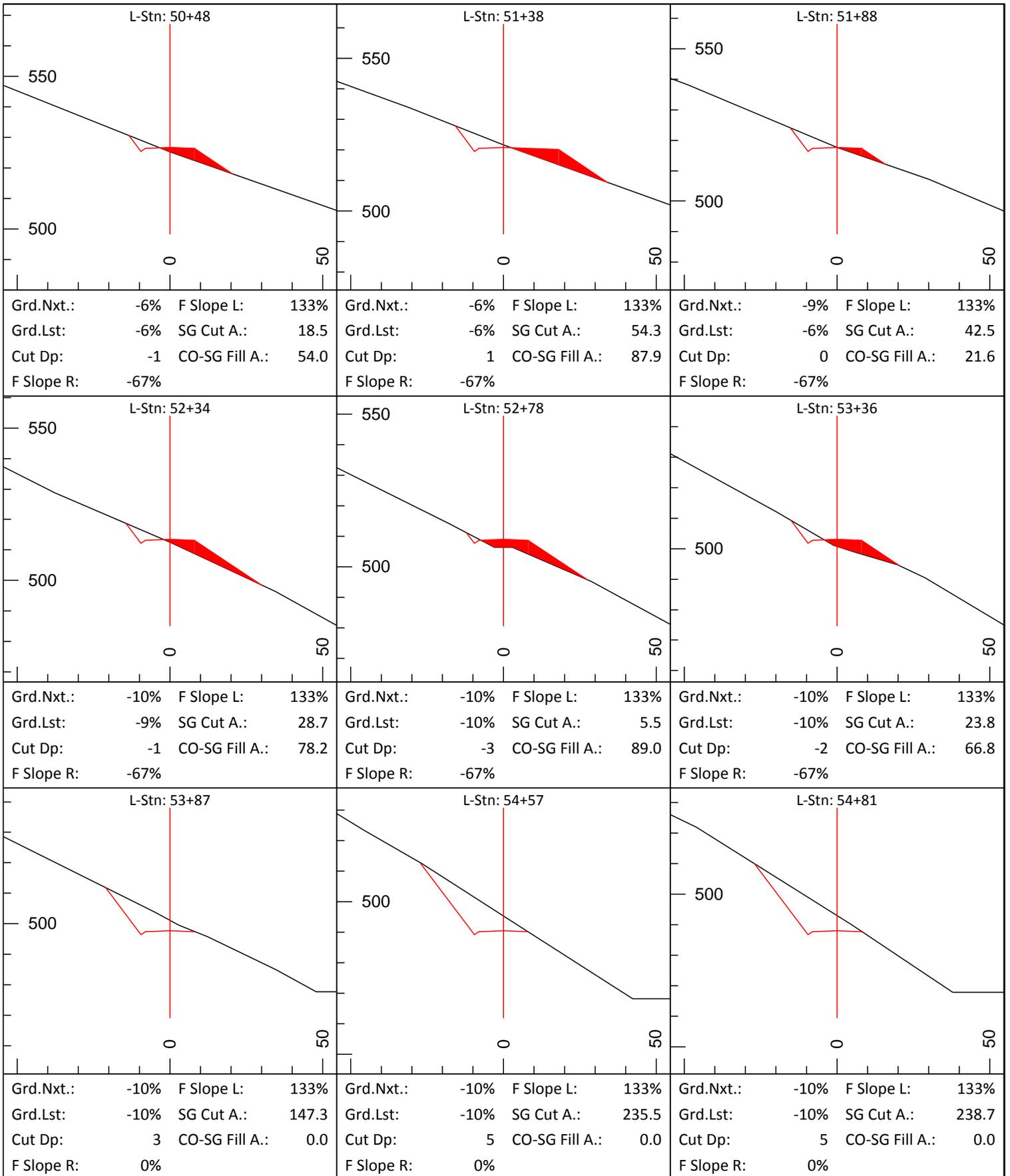
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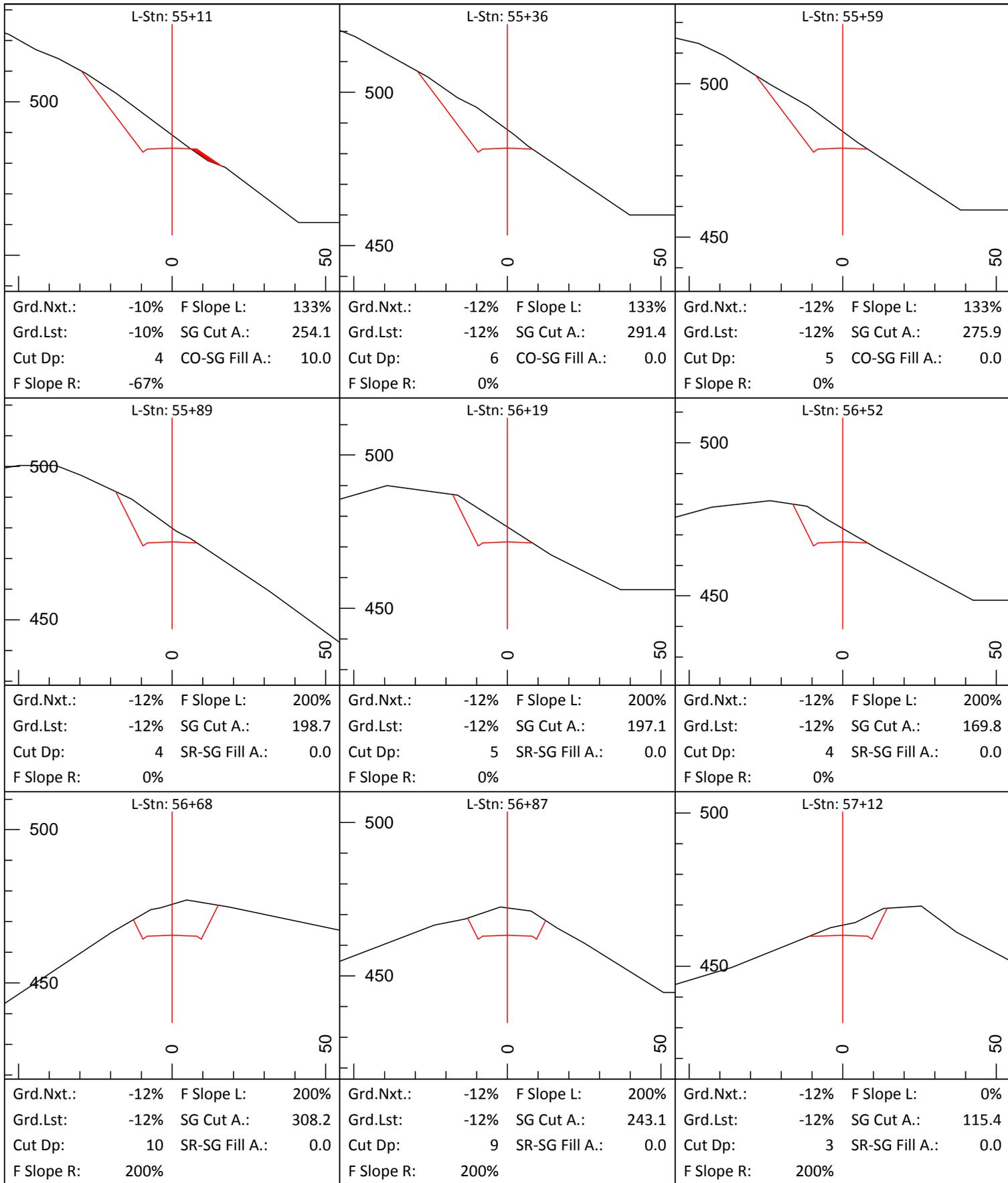
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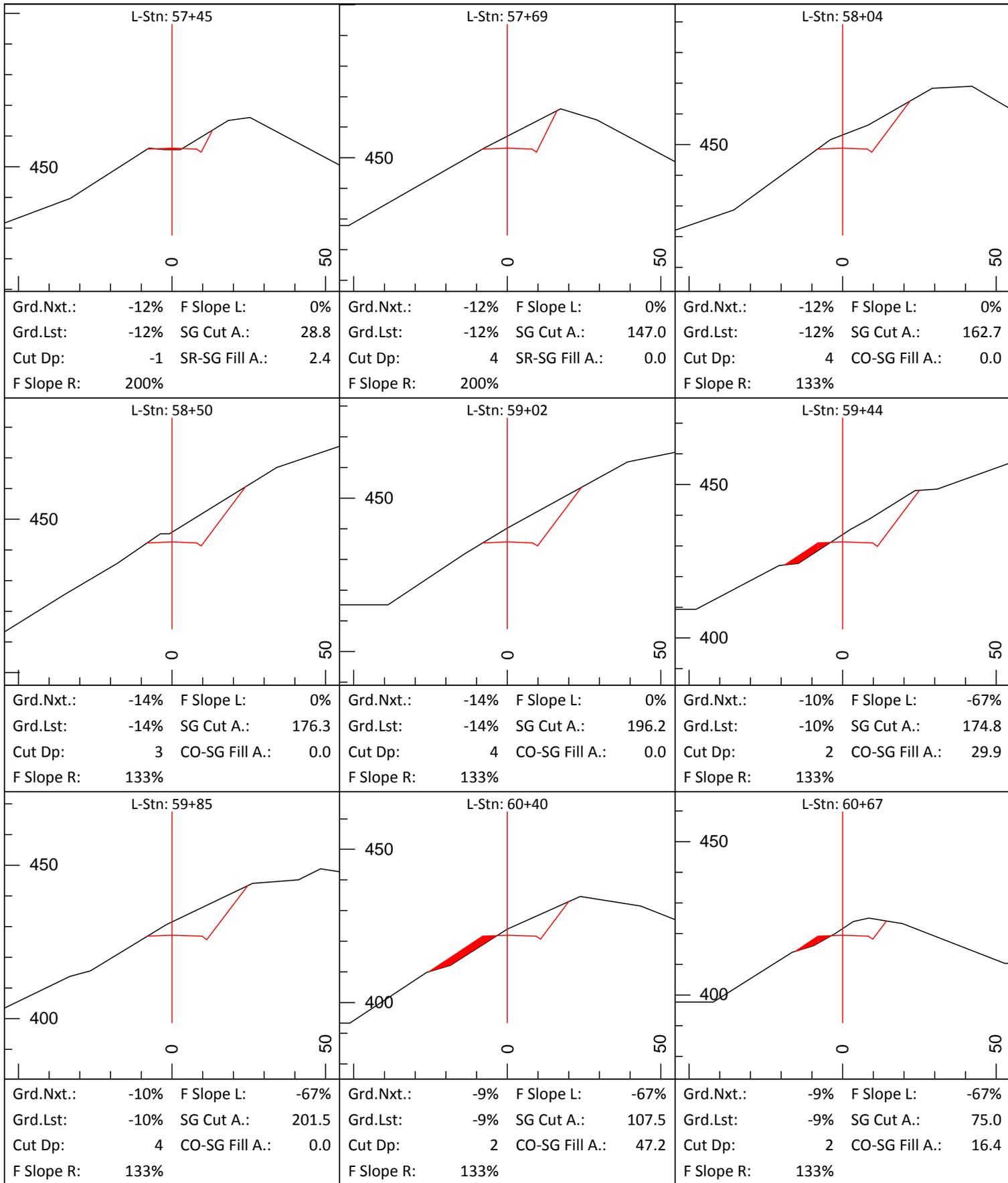
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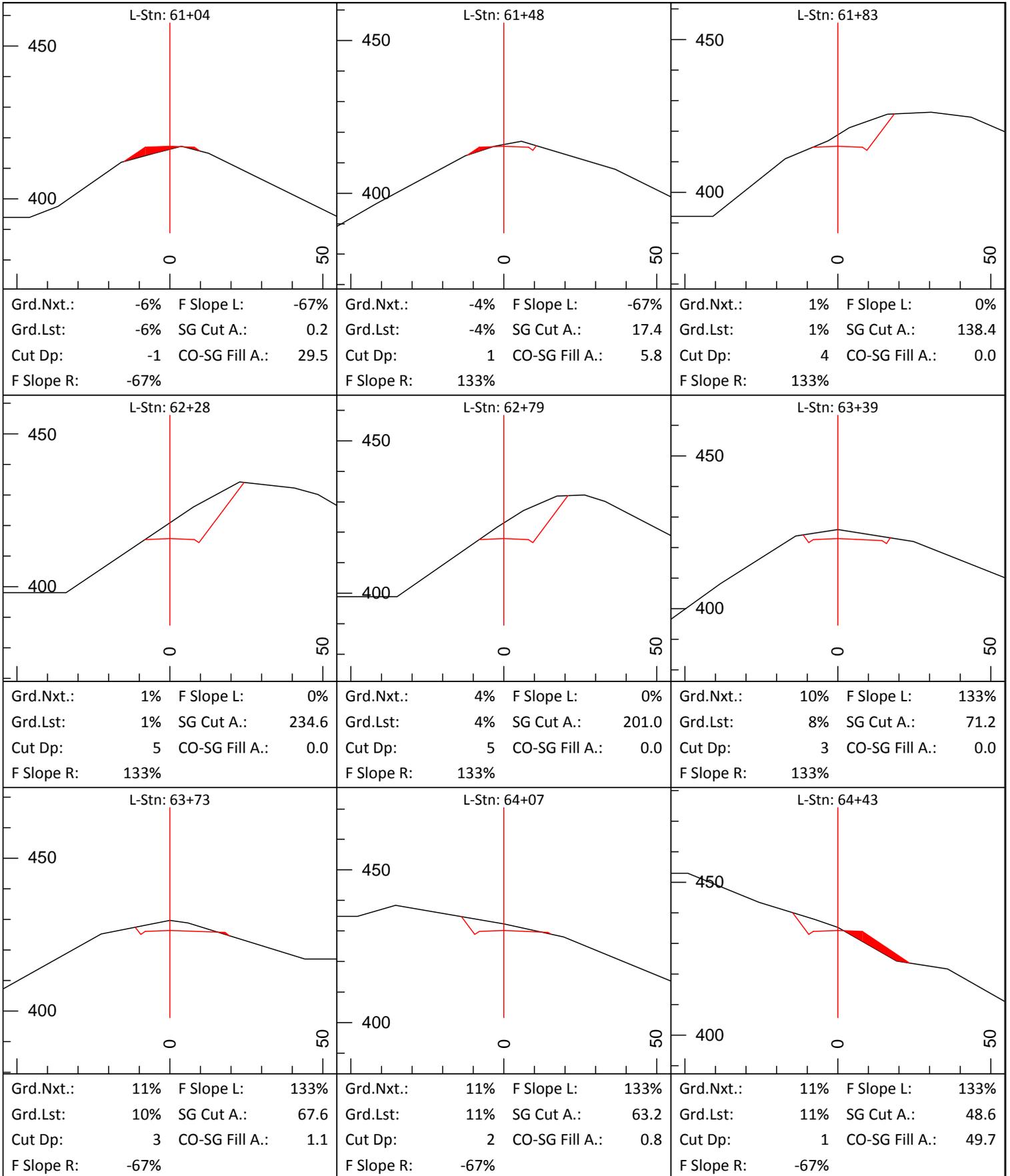
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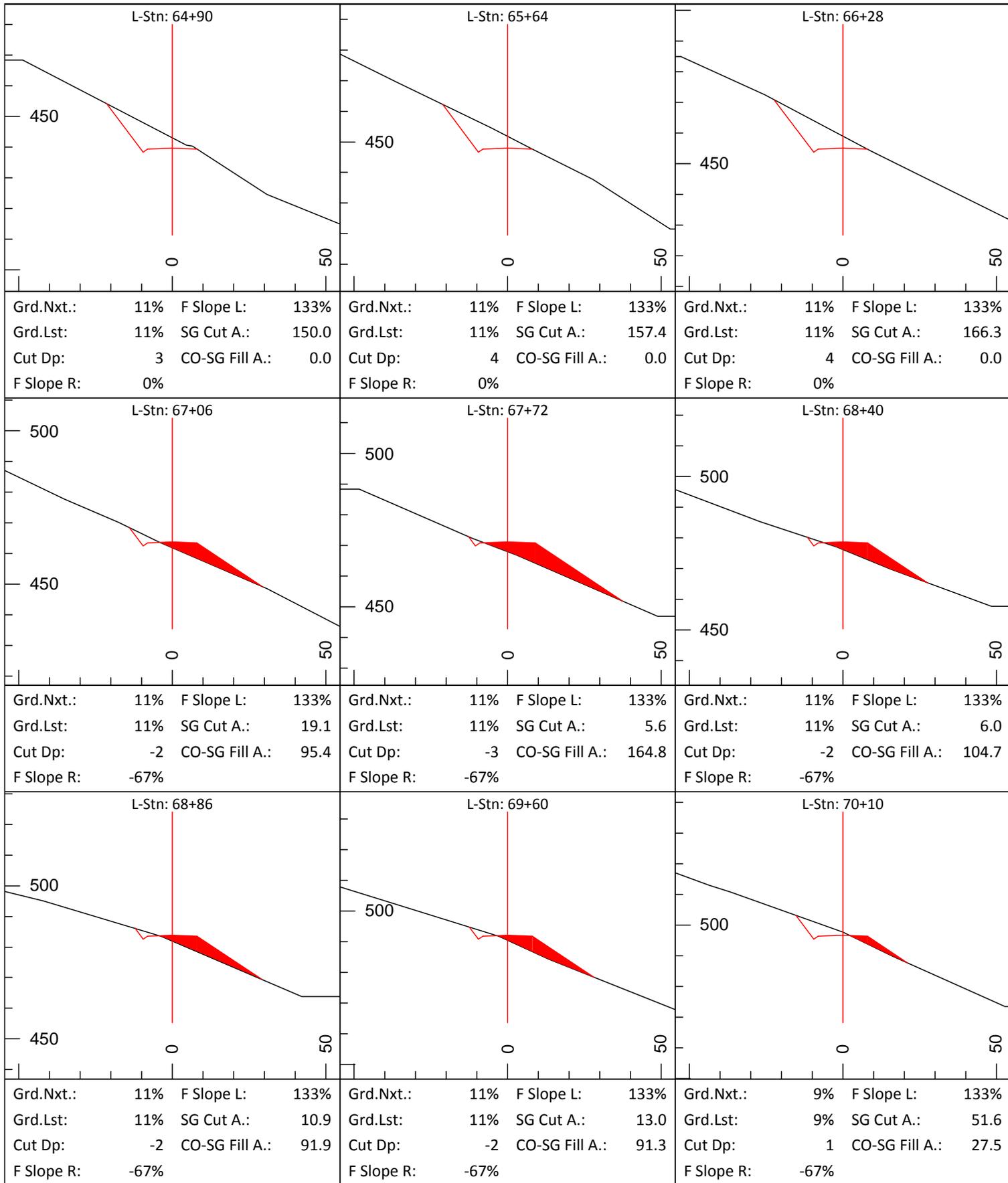
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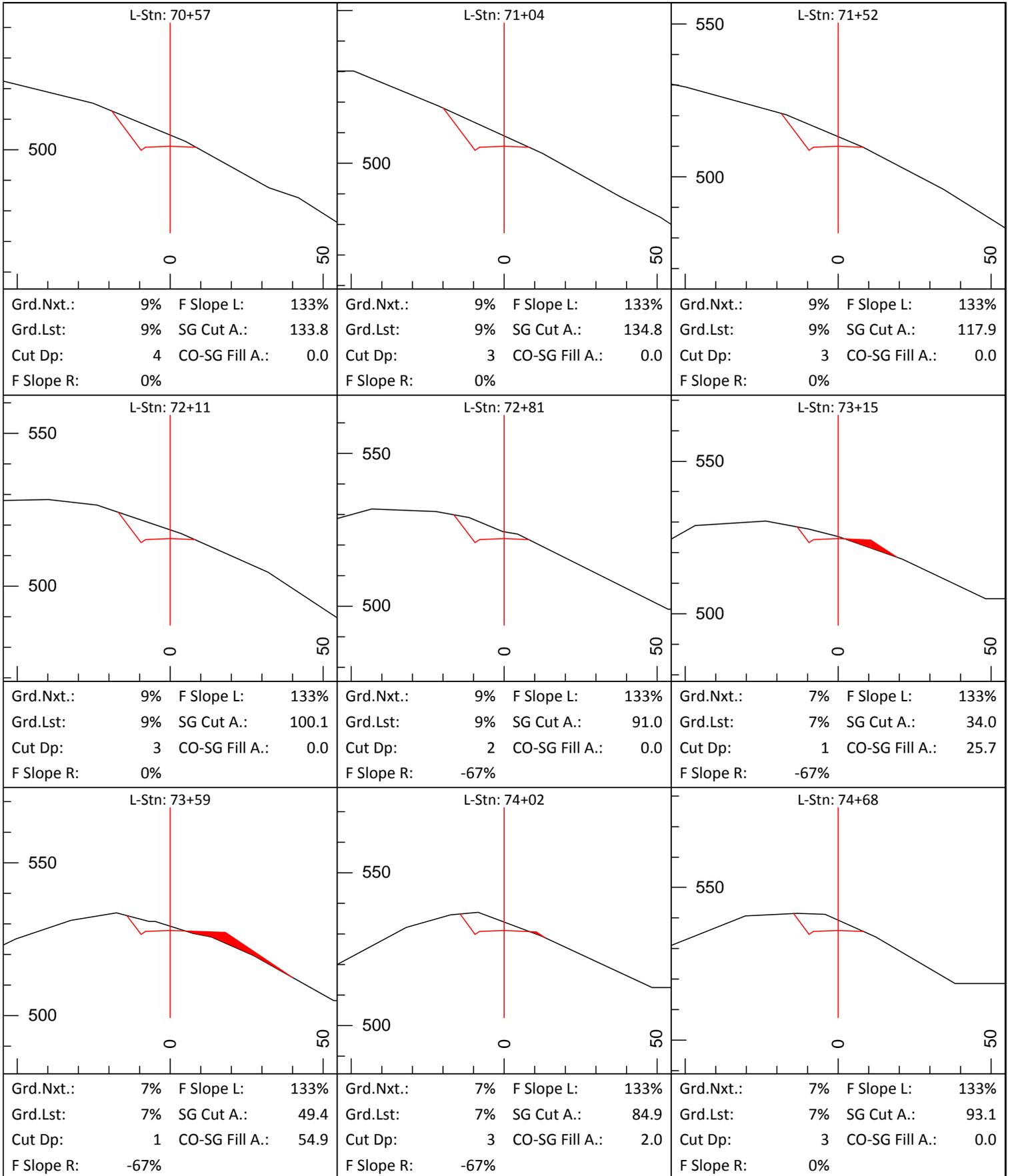
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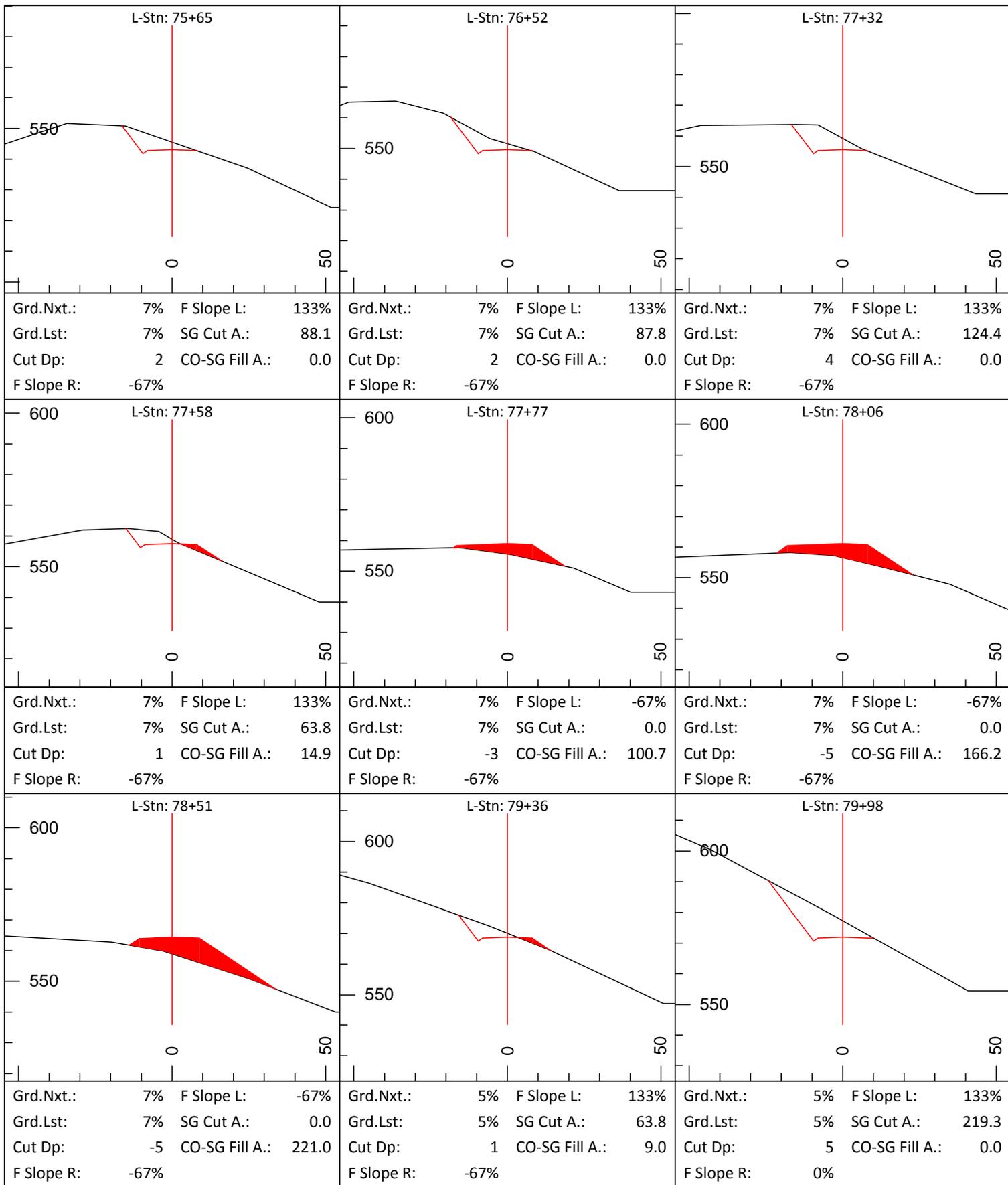
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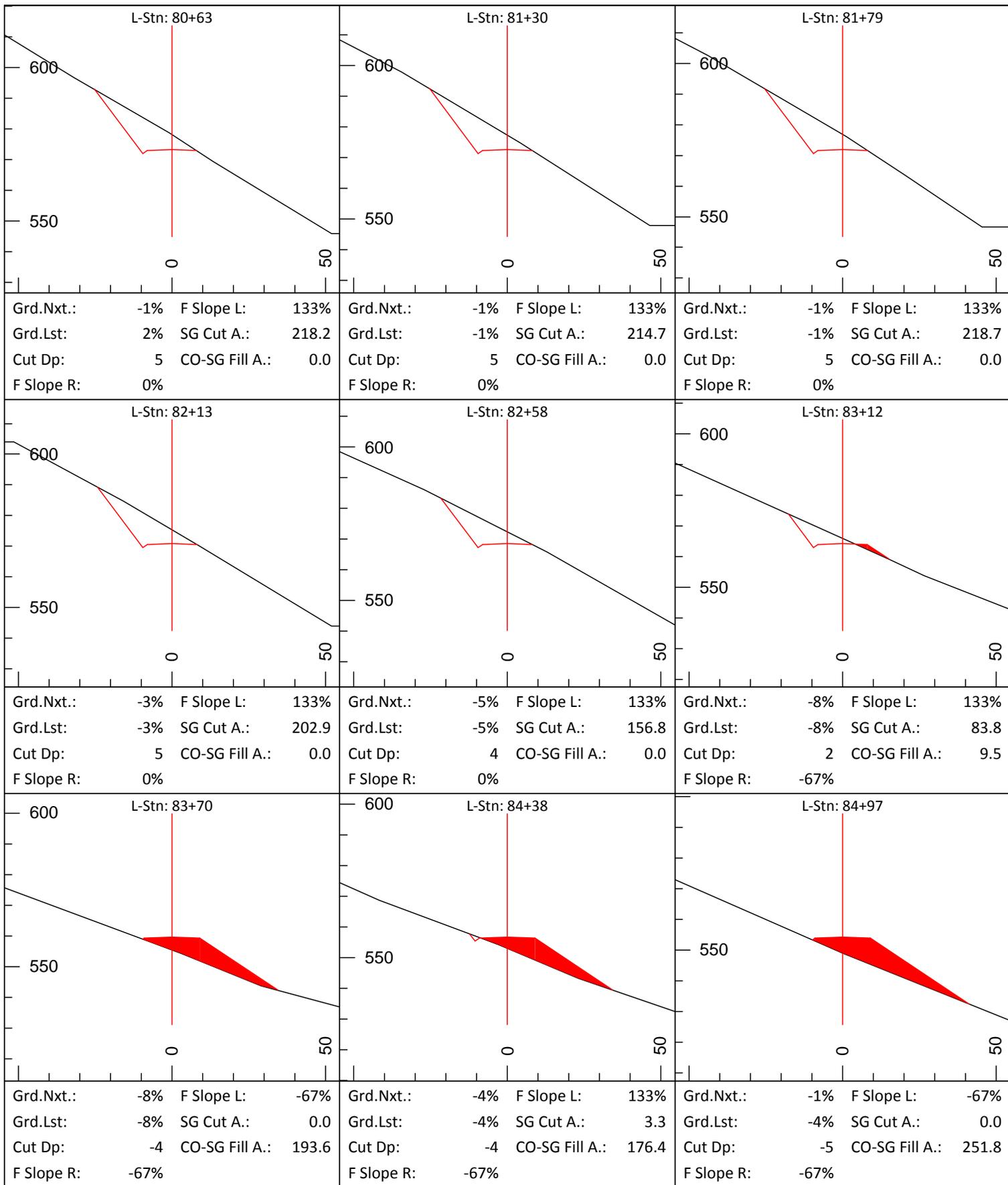
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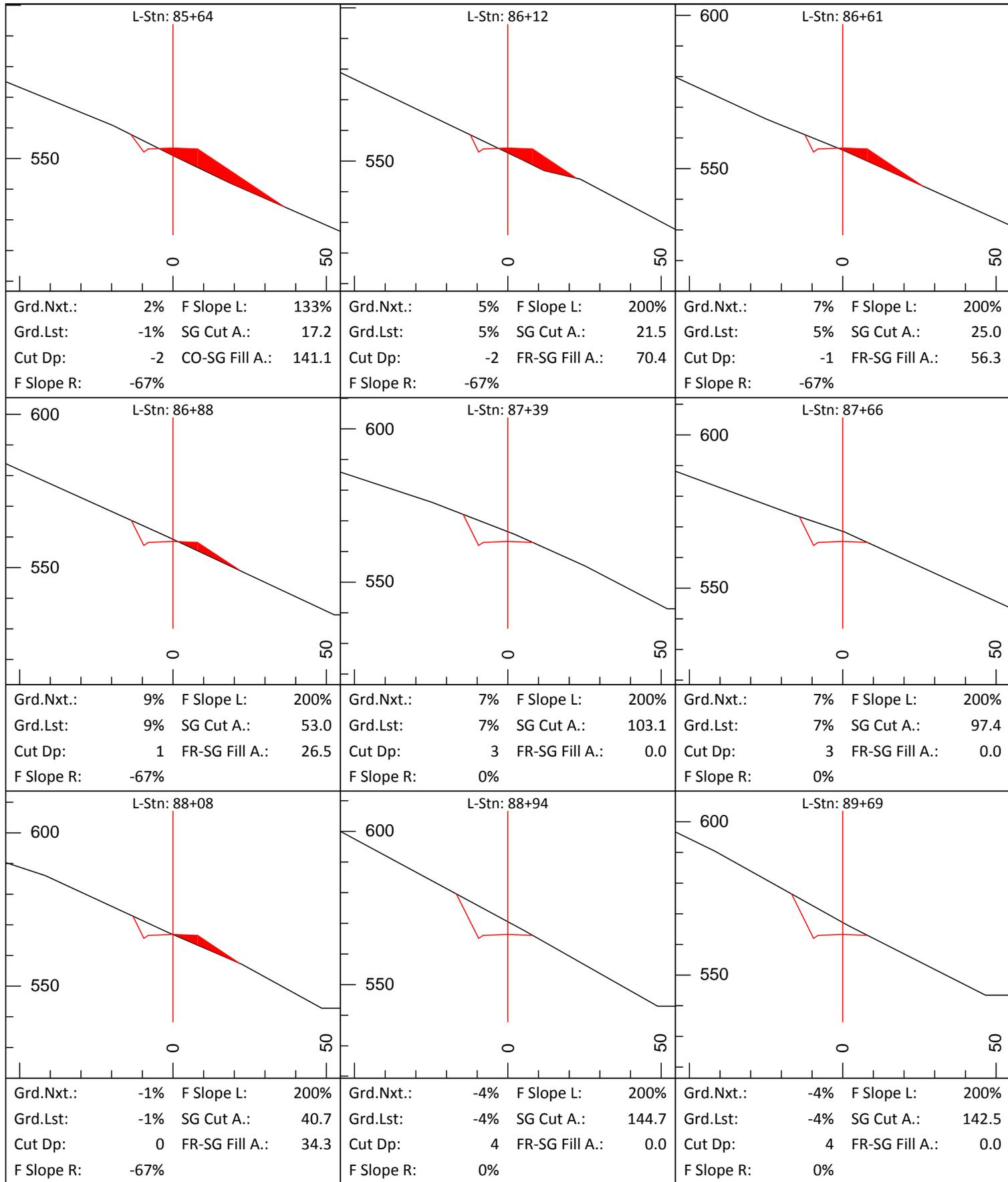
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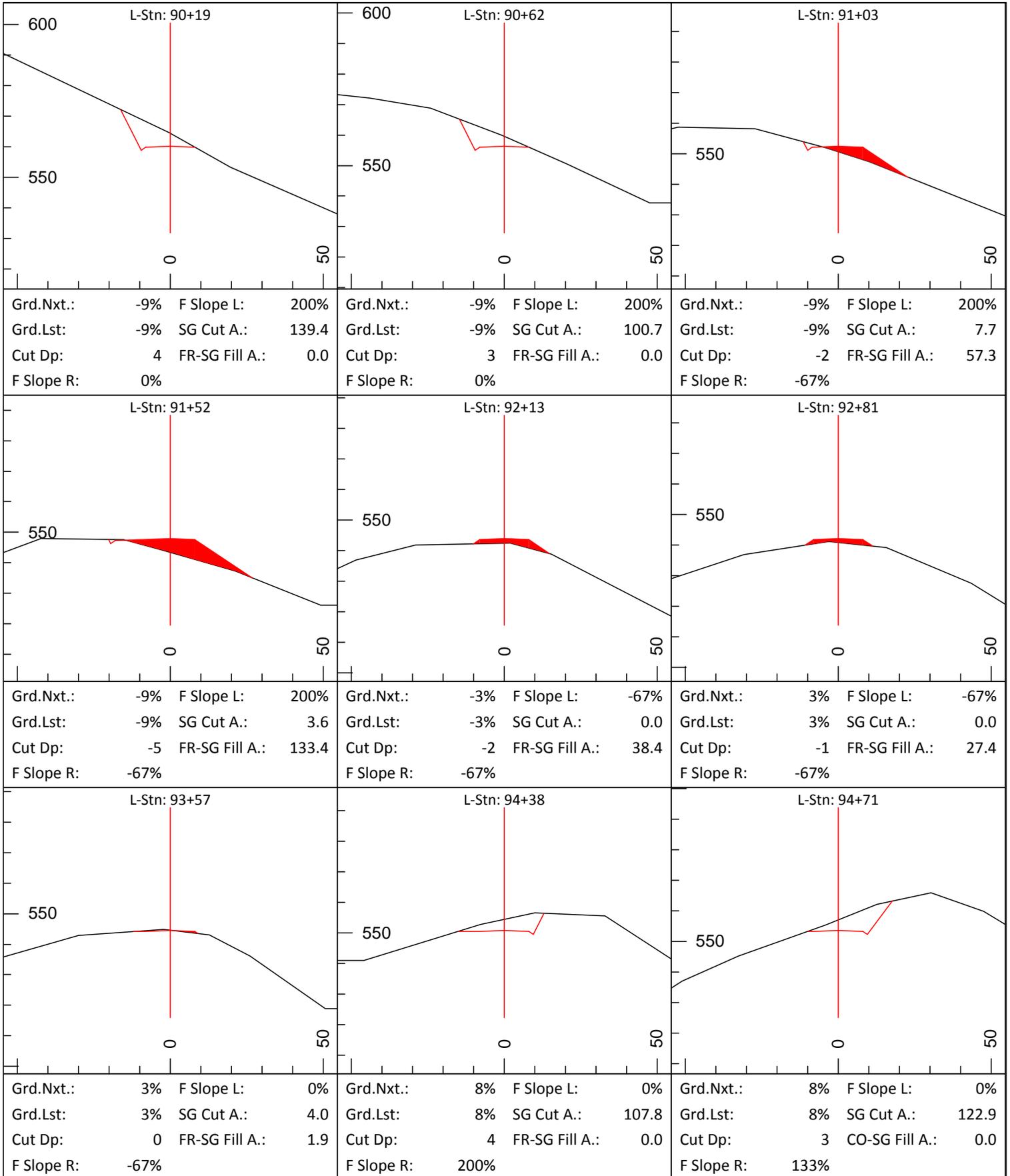
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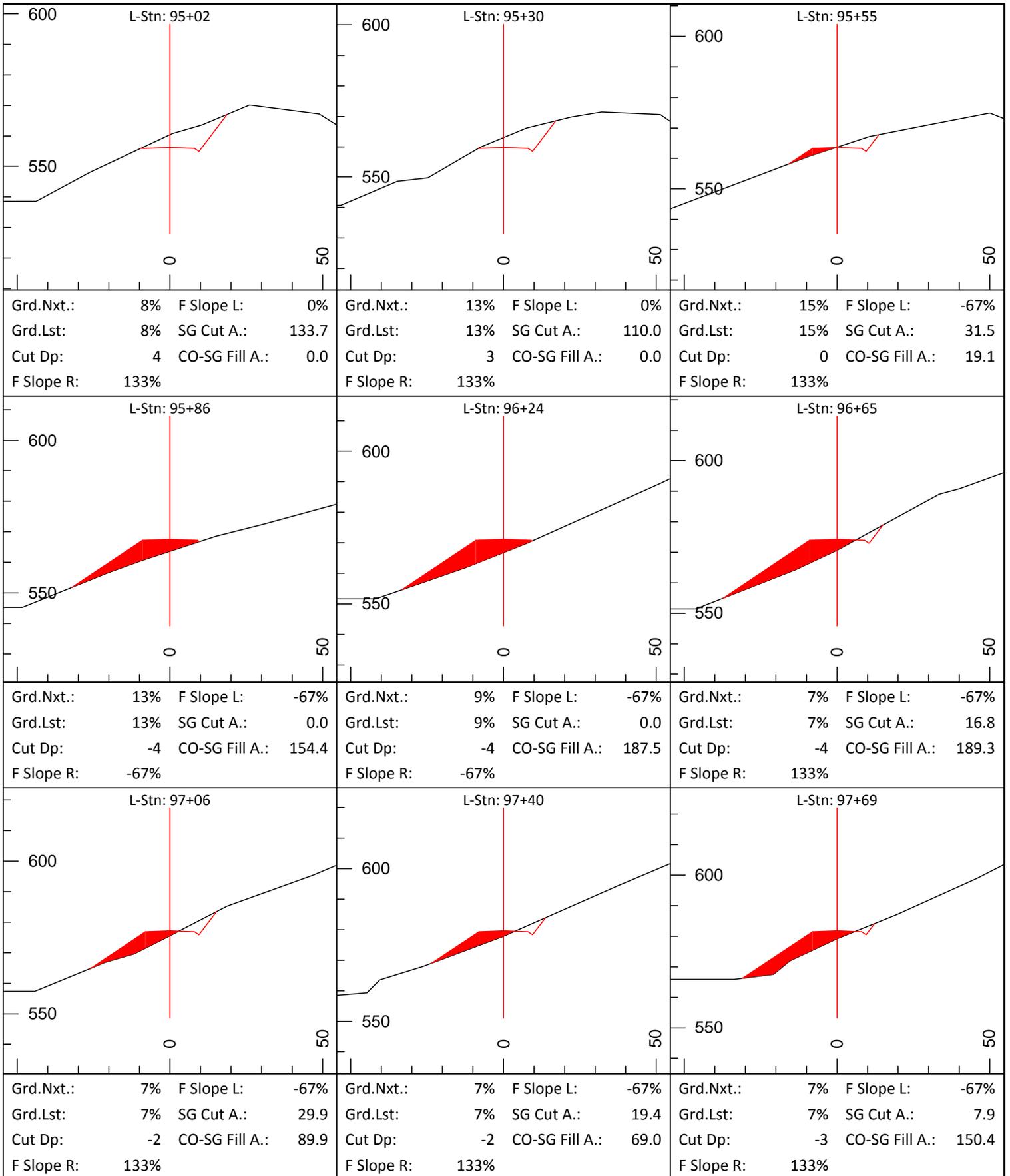
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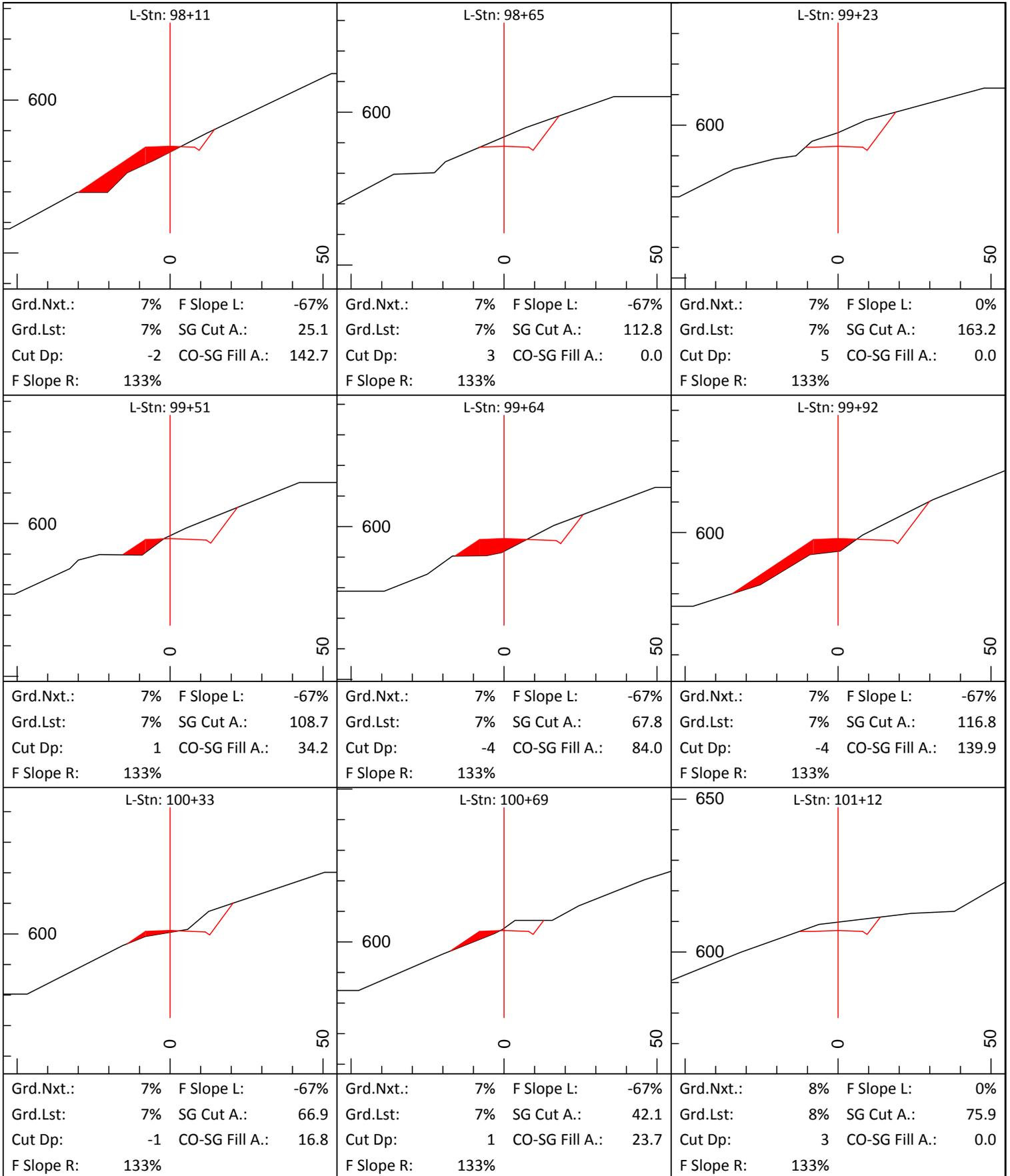
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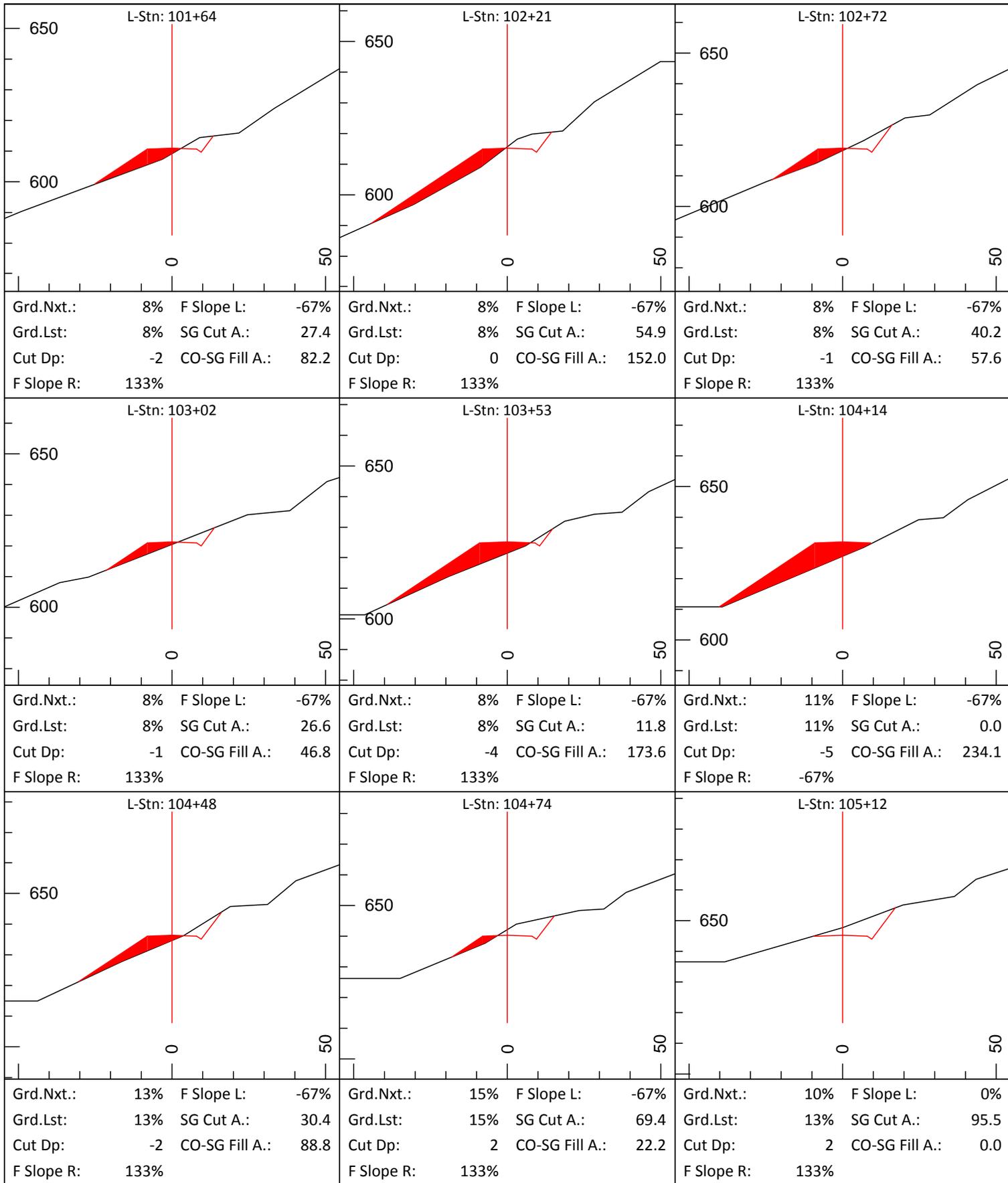
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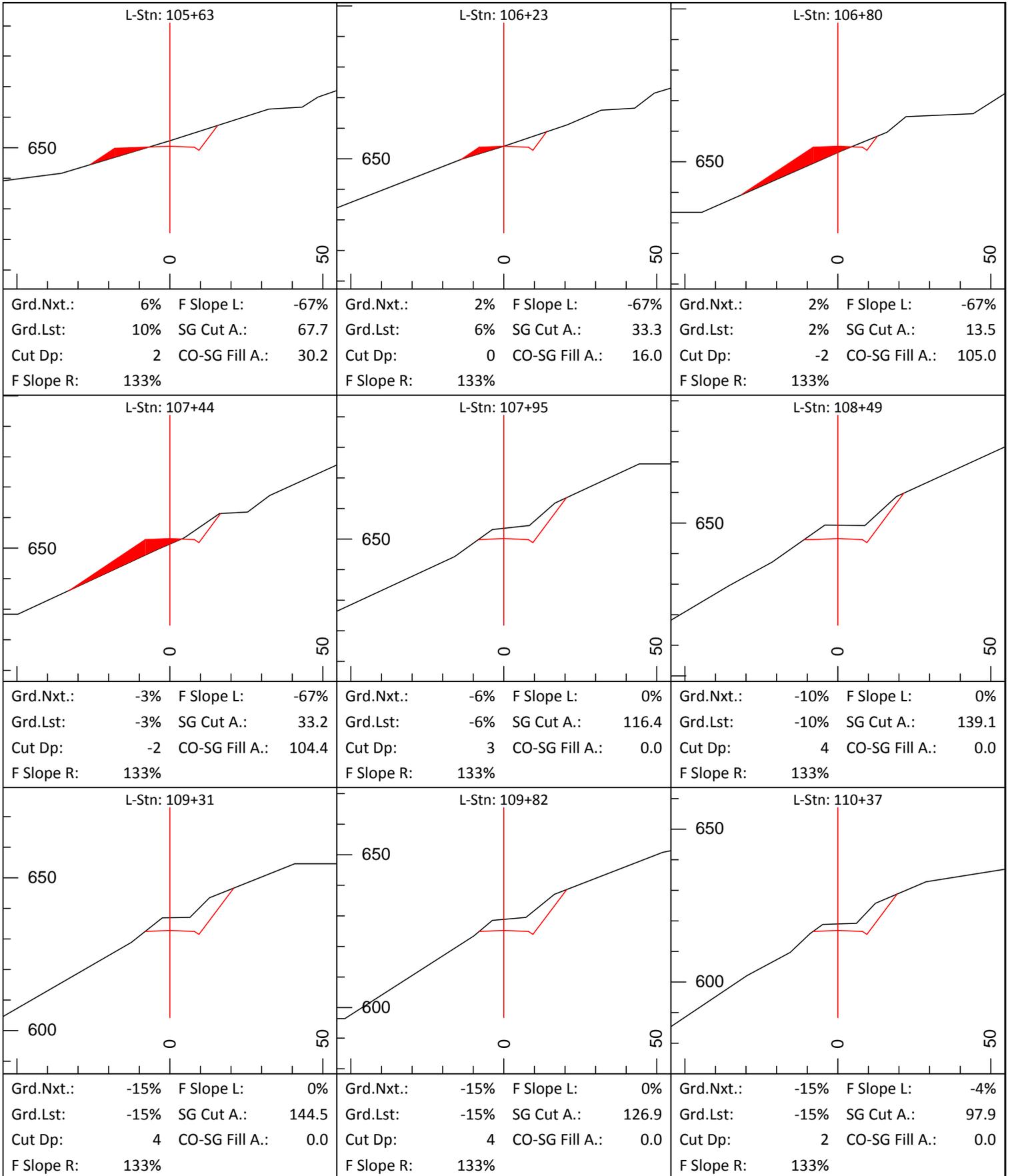
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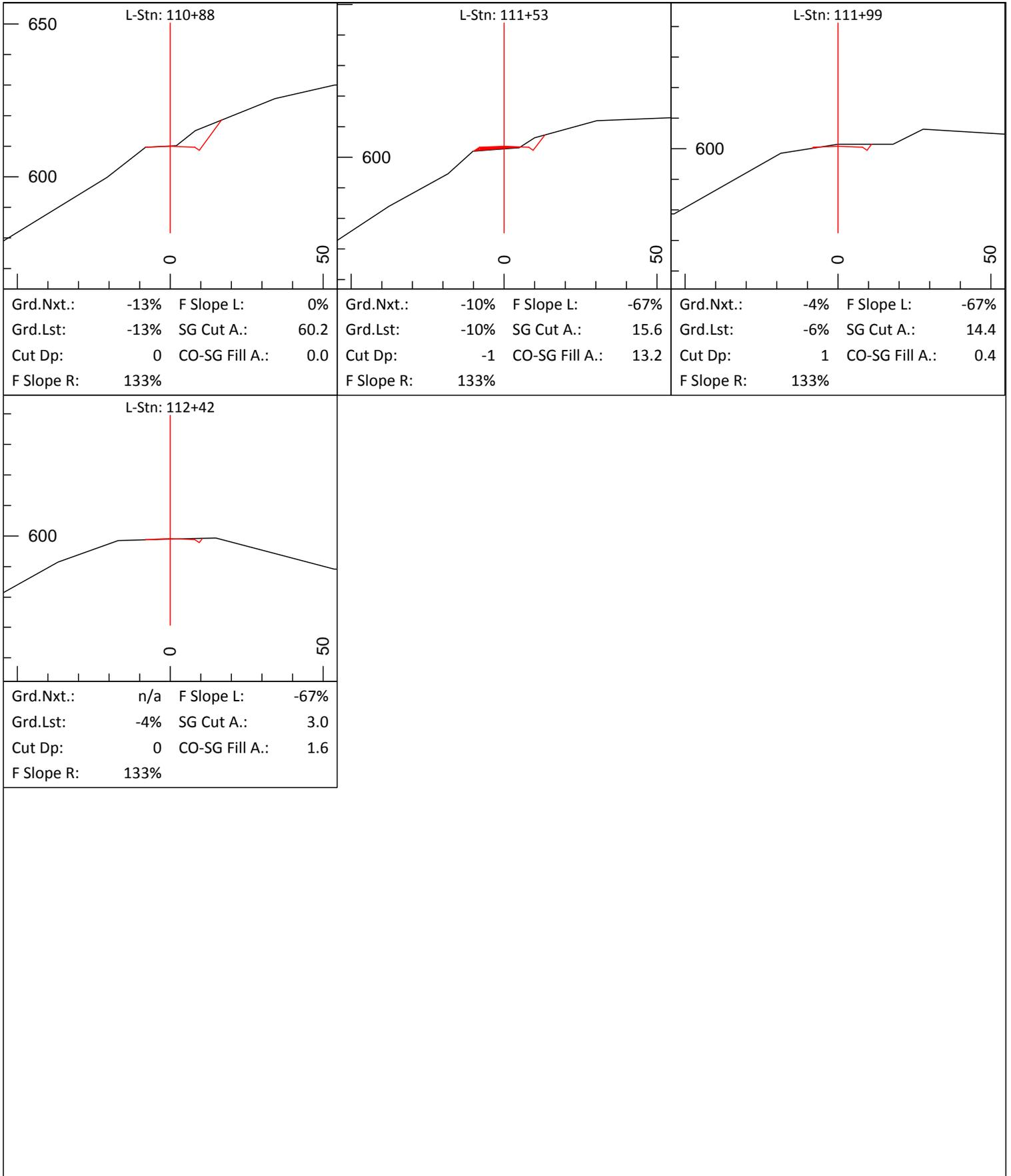
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CROSS SECTION VIEW



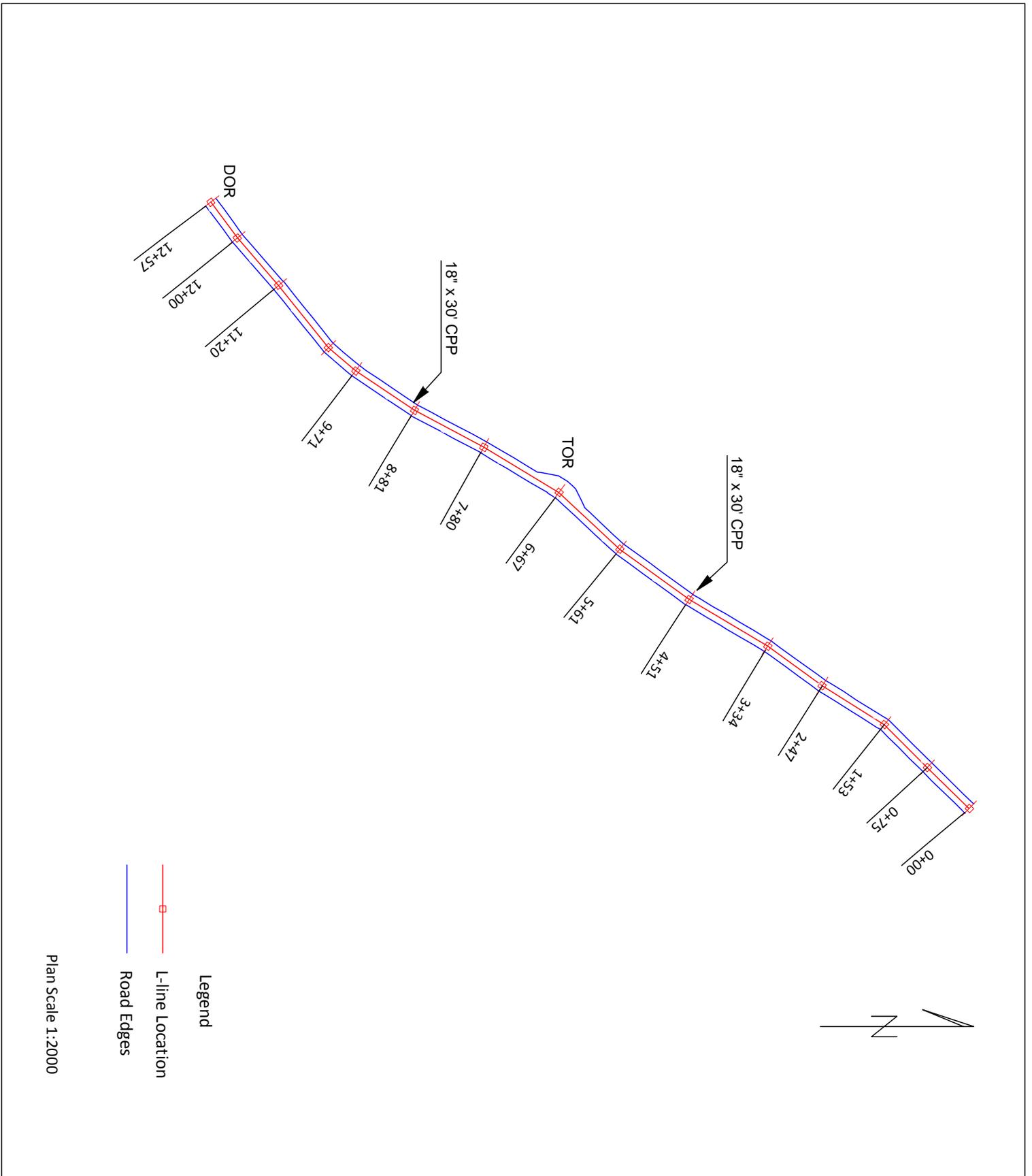
CROSS SECTION VIEW



W-2073A CONSTRUCTION DETAIL

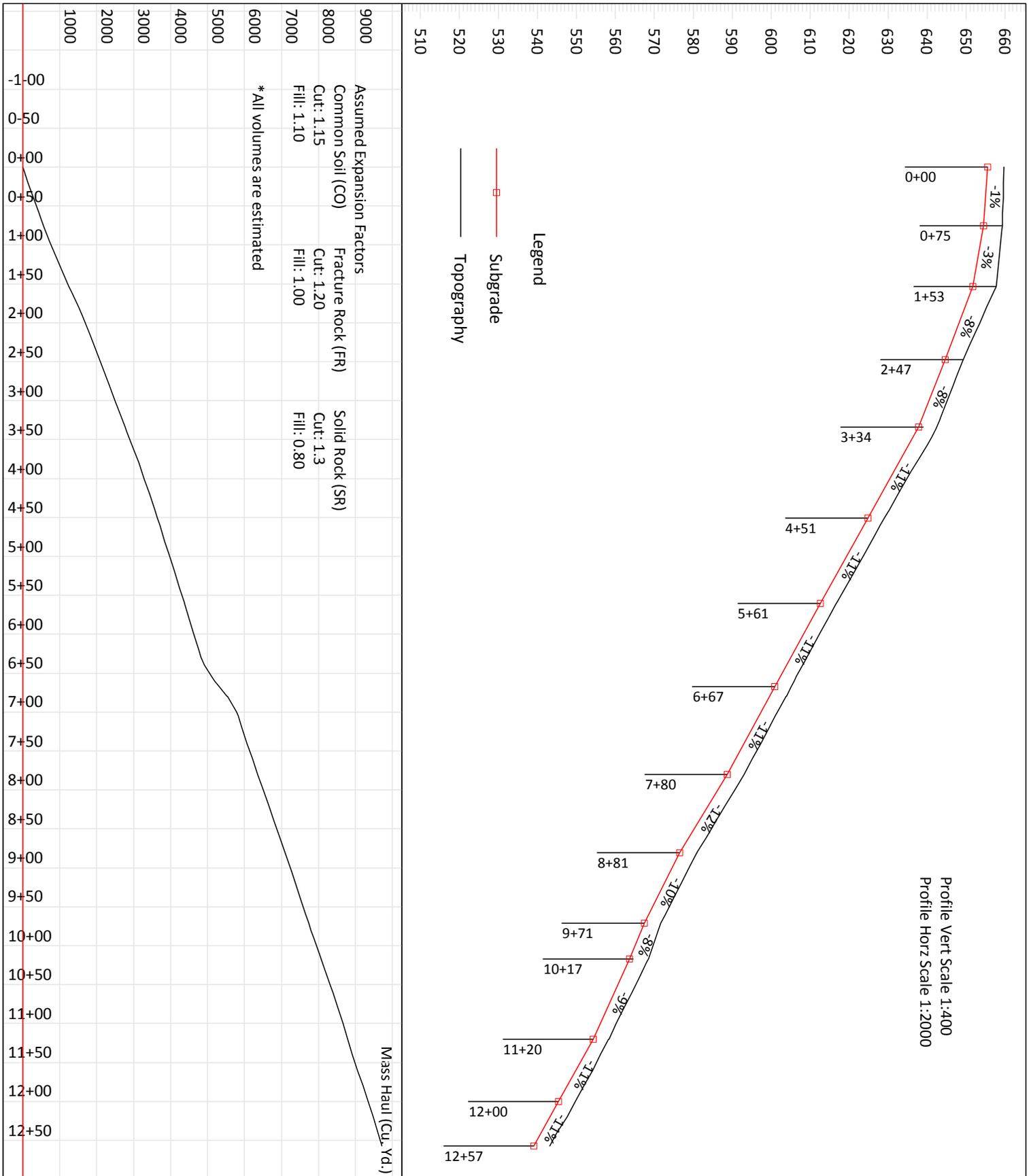
Page 1 of 4

PLAN VIEW



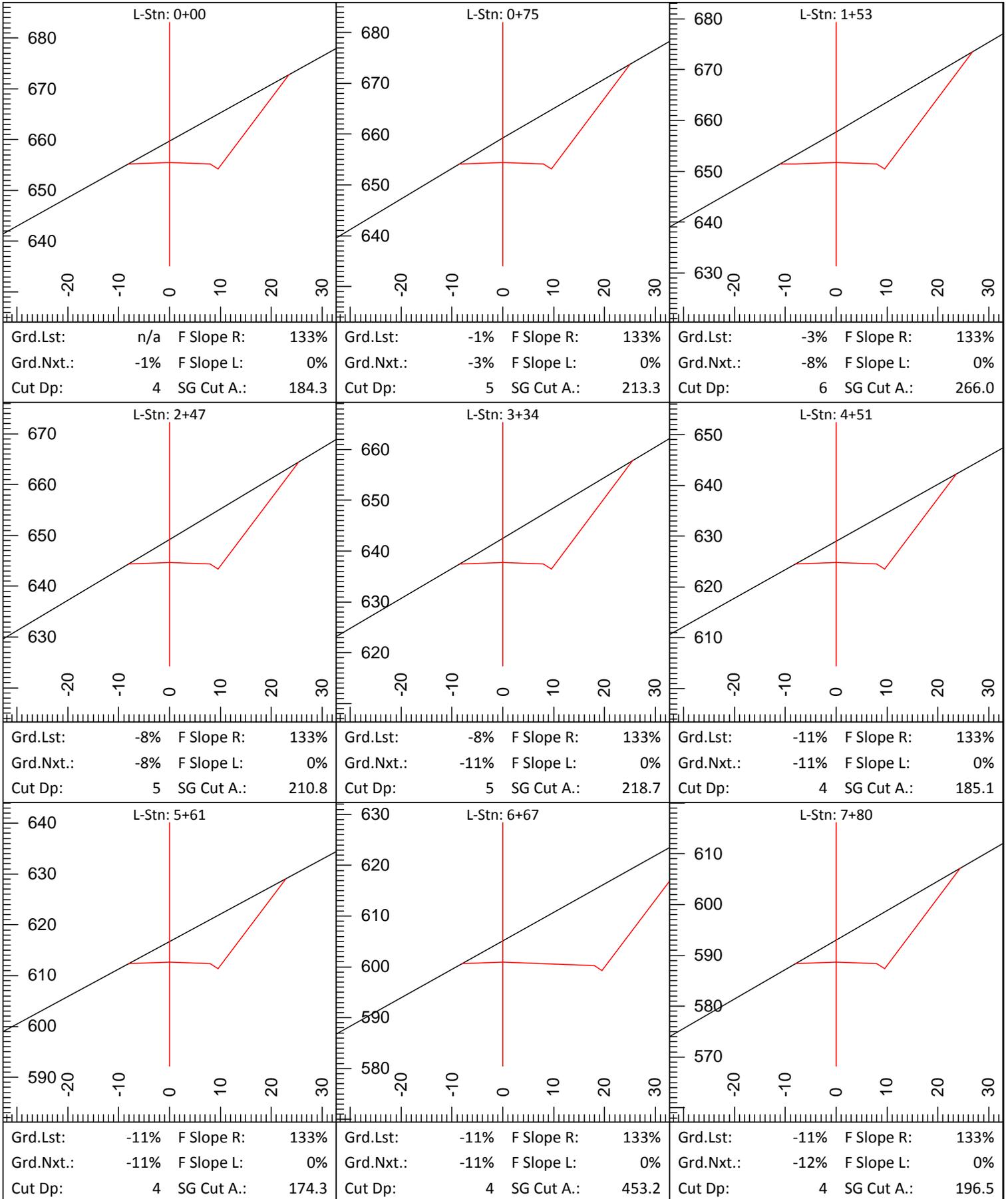
W-2073A CONSTRUCTION DETAIL

PROFILE VIEW



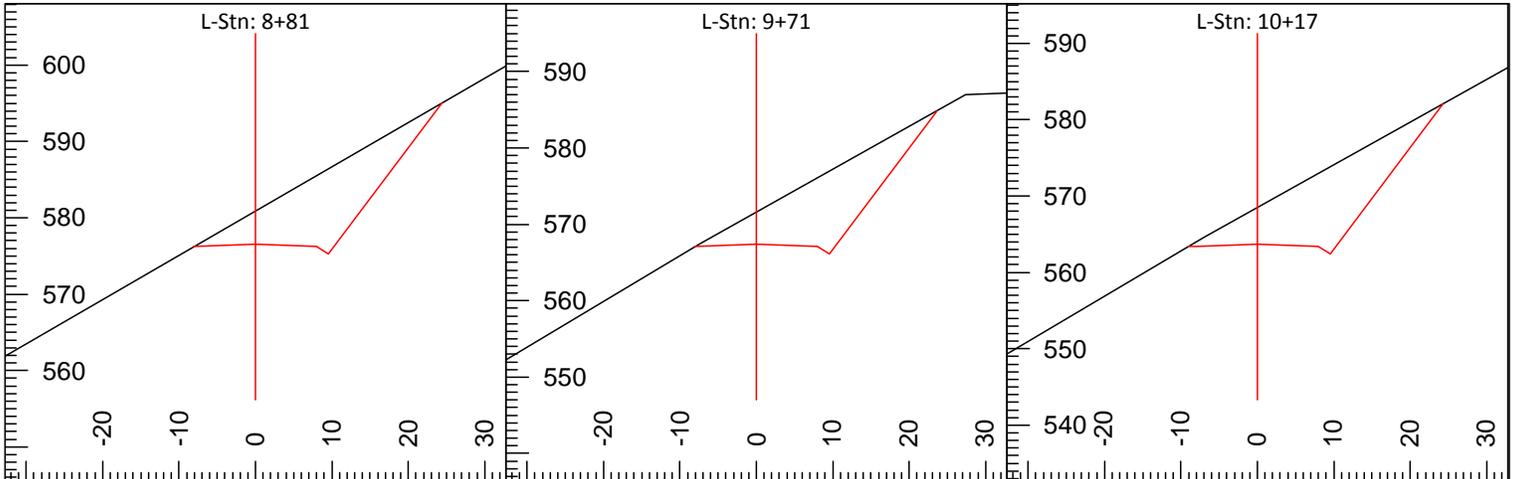
W-2073A CONSTRUCTION DETAIL

Page 3 of 4
CROSS SECTION VIEW

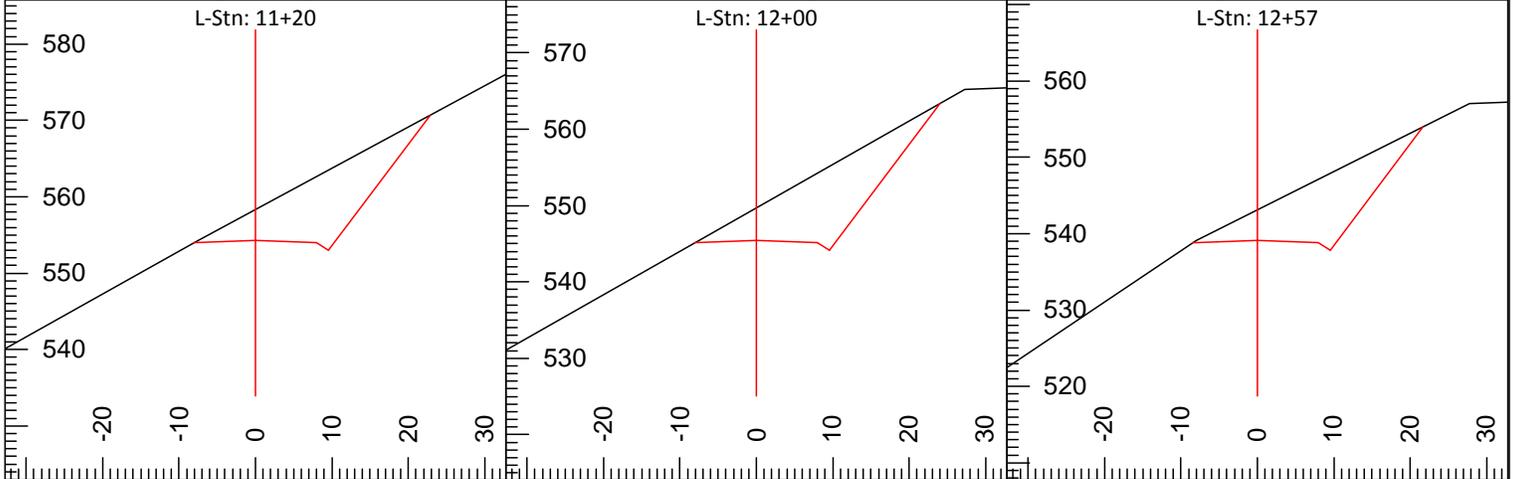


W-2073A CONSTRUCTION DETAIL

Page 4 of 4
CROSS SECTION VIEW



Grd.Lst:	-12%	F Slope R:	133%	Grd.Lst:	-10%	F Slope R:	133%	Grd.Lst:	-8%	F Slope R:	133%
Grd.Nxt.:	-10%	F Slope L:	0%	Grd.Nxt.:	-8%	F Slope L:	0%	Grd.Nxt.:	-9%	F Slope L:	0%
Cut Dp:	4	SG Cut A.:	196.5	Cut Dp:	4	SG Cut A.:	185.1	Cut Dp:	5	SG Cut A.:	207.5



Grd.Lst:	-9%	F Slope R:	133%	Grd.Lst:	-11%	F Slope R:	133%	Grd.Lst:	-11%	F Slope R:	133%
Grd.Nxt.:	-11%	F Slope L:	0%	Grd.Nxt.:	-11%	F Slope L:	0%	Grd.Nxt.:	n/a	F Slope L:	0%
Cut Dp:	4	SG Cut A.:	174.3	Cut Dp:	4	SG Cut A.:	190.7	Cut Dp:	4	SG Cut A.:	162.7

DEPARTMENT OF NATURAL RESOURCES

SUMMARY - Road Development Costs

REGION: PACIFIC CASCADE

DISTRICT: Yacolt

SALE/PROJECT NAME: PROSPECTOR VRH

CONTRACT NUMBER: 30-092543

ROAD NUMBERS:	W-2073, W-2073A, W-2073B, W-2073D, W-2073D1, W-2073E, W-2073F, W-2014Ext, W-2014A4, W-2014C, W-2014D, & W-2014E	W-2070 & W-2014 (11+10 to 15+05)	W-2010, W-2013, & W-2014 (0+00 to 11+10 & 15+05 to 53+82)
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ROAD STANDARD:	Construction	Reconstruction	Pre-haul maintenance
NUMBER OF STATIONS:	207.83	12.25	144.91
CLEARING, GRUBBING, GRADING, SHAPING, & COMPACT:	\$32,063	\$652	\$4,178
EXCAVATION AND FILL:	\$333,648	\$1,644	\$1,633
ROCK TOTALS:	\$142,828	\$10,409	\$23,040
CULVERTS & GEO. FABRIC:	\$21,347	\$1,651	\$3,875
GRASS SEED:	\$1,841	\$37	\$283
MOBILIZATION:	\$13,983	\$148	\$744
BRIDGES:	\$170,961		
TOTAL COSTS:	\$716,671	\$14,540	\$33,751
COST PER STATION:	\$3,448	\$1,187	\$233
ROAD ABANDONMENT COSTS:		\$22,717	

TOTAL (All Roads) = \$787,679

SALE VOLUME MBF = **8,727**

TOTAL COST PER MBF = **\$90.26**

Compiled by: David L. Stone Date: 02/10/16

PACIFIC CASCADE REGION - ROAD COST ESTIMATE - CONSTRUCTION

SALE NAME: PROSPECTOR VRH

CONTRACT NUMBER: 30-092543

I. CLEARING,GRUBBING, GRADING, SHAPING, AND COMPACTING :

Road Segment		% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
W-2073	C&G	35	30	1.00	4.11	\$40.00	1.00	112.42	\$18,482
W-2073A	C&G	15	20	1.00	2.00	\$40.00	1.00	16.78	\$1,342
W-2073B	C&G	20	20	1.00	2.00	\$40.00	1.00	7.90	\$632
W-2073D	C&G	25	20	1.00	2.00	\$40.00	1.00	10.05	\$804
W-2073D1	C&G	10	20	1.00	2.00	\$40.00	1.00	3.30	\$264
W-2073E	C&G	25	20	1.00	2.00	\$40.00	1.00	5.66	\$453
W-2073F	C&G	10	20	1.00	2.00	\$40.00	1.00	1.45	\$116
W-2014Ext	C&G	25	15	1.00	1.75	\$40.00	1.00	27.62	\$1,933
W-2014A4	C&G	20	20	1.00	2.00	\$40.00	1.00	2.90	\$232
W-2014C	C&G	20	15	1.00	1.75	\$40.00	1.00	11.85	\$830
W-2014D	C&G	10	10	1.00	1.50	\$40.00	1.00	2.40	\$144
W-2014E	C&G	20	20	1.00	2.00	\$40.00	1.00	5.50	\$440
W-2073	G,S&C	NA		1.00	1.50	\$20.50	1.00	112.42	\$3,457
W-2073A	G,S&C	NA		1.00	1.50	\$20.50	1.00	16.78	\$516
W-2073B	G,S&C	NA		1.00	1.50	\$20.50	1.00	7.90	\$243
W-2073D	G,S&C	NA		1.00	1.50	\$20.50	1.00	10.05	\$309
W-2073D1	G,S&C	NA		1.00	1.50	\$20.50	1.00	3.30	\$101
W-2073E	G,S&C	NA		1.00	1.50	\$20.50	1.00	5.66	\$174
W-2073F	G,S&C	NA		1.00	1.50	\$20.50	1.00	1.45	\$45
W-2014Ext	G,S&C	NA		1.00	1.50	\$20.50	1.00	27.62	\$849
W-2014A4	G,S&C	NA		1.00	1.50	\$20.50	1.00	2.90	\$89
W-2014C	G,S&C	NA		1.00	1.50	\$20.50	1.00	11.85	\$364
W-2014D	G,S&C	NA		1.00	1.50	\$20.50	1.00	2.40	\$74
W-2014E	G,S&C	NA		1.00	1.50	\$20.50	1.00	5.50	\$169

Note: C&G Includes ROW Decking

Clear and Grub TOTAL = \$25,672
Grade, Shape and Compact TOTAL = \$6,391

II. EXCAVATION:

Road Segment	% Side Slope	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
W-2073A (12+57 to 16+78)	15	1.0	1.75	\$100	1.00	4.21	\$737
W-2073B	20	1.0	2.00	\$100	1.00	7.90	\$1,580
W-2073D	25	1.0	2.25	\$115	1.00	10.05	\$2,600
W-2073D1	10	1.0	1.50	\$100	1.00	14.20	\$2,130
W-2073E	25	1.0	2.25	\$115	1.00	5.66	\$1,465
W-2073F	10	1.0	1.50	\$100	1.00	1.45	\$218
W-2014Ext	25	1.0	2.25	\$115	1.00	27.62	\$7,147
W-2014A4	20	1.0	2.00	\$100	1.00	2.90	\$580
W-2014C	20	1.0	2.00	\$100	1.00	11.85	\$2,370
W-2014D	10	1.0	1.50	\$100	1.00	2.40	\$360
W-2014E	20	1.0	2.00	\$100	1.00	5.50	\$1,100
Compact All Embankment - Cat		2.0	2.50	\$4.5	1.00	93.74	\$2,109

Sub Total = \$22,395

Road Segment	Estimated Cubic Yards	Cost/CY	Total
W-2073 0+00 to 112+42			
Excavation- Common - End Haul	38,970	\$1.75	\$68,198
Excavation- Common - Drift	10,454	\$1.50	\$15,681
Excavation- Fractured Rock - End Haul	6,911	\$1.95	\$13,476
Excavation- Solid Rock - End Haul (includes drill &shoot)	1,537	\$4.25	\$6,532
W-2073A 0+00 to 12+57			
Excavation- Common - End Haul	9,717	\$1.75	\$17,005

Road Segment	Estimated Vol. (cy)	Haul Rate	Production Factor	Cost/cy	Total
W-2073 0+00 to 112+42					
End Haul for road embankment	3,369	\$1.88			\$6,334
End Haul to Waste Area @ 8+30 on W-2070	42,647	\$3.11			\$132,632
End Haul for embankment @ 0+00 to 8+30 on W-2070	1,402	\$1.96			\$2,748
End Haul organic debris to Waste Area @ 8+30 on W-2070	400	\$3.11			\$1,244
W-2070A 0+00 to 12+57					
End Haul to Waste Area @ 8+30 on W-2070	9,717	\$2.27			\$22,058
Compact All Embankment (end-haul, drift material, & waste area)	67,589		1.50	\$0.25	\$25,346

Note: Loading is included in the End Haul locations
Note: No compaction on organic debris at the waste area

Sub Total = \$311,253

Excavation TOTAL = \$333,648

III. BALLAST AND SURFACING :

III. BALLAST AND SURFACING :			UNIT COSTS			
Rock Source: W-2014 Pit, W-2050 Pit, & W-2073D Pit			2" Minus	3" Jaw Run		Riprap
Description	Location	Cubic Yards	Drill & Shoot	\$2.50	\$2.50	\$2.50
			Dig and load	\$1.20	\$1.20	\$1.20
			Crushing	\$4.90	\$3.75	\$3.25
			Purchase			
			Haul *	\$5.84	\$2.77	\$1.78
			Spread/Place	\$1.00	\$0.80	\$0.70
			Compact	\$0.85	\$0.65	\$0.65
			Pit Development	\$0.90	\$0.90	\$0.90
2" Minus	Roads	1,313	TOTAL (\$/cy)			
Ballast (3" Jaw Run)	Roads & Landings	9,112	\$17.19	\$12.57	\$0.00	\$14.14
		0				
Riprap	Culverts & Subsurface Drain	404.5				

2" Minus	1,313 Cu. yds @	\$17.19 /cu. yd =	\$22,570
Ballast (3" Jaw Run)	9,112 Cu. yds @	\$12.57 /cu. yd =	\$114,538
0	0 Cu. yds @	\$0.00 /cu. yd =	\$0
Riprap	404.5 Cu. yds @	\$14.14 /cu. yd =	\$5,720

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

Haul R.T. miles are based on Weighted Averages

2" Minus		Ballast (3" Jaw Run)		0		Riprap	
R.T. Miles =	6.84	R.T. Miles =	1.66	R.T. Miles =	0.00	R.T. Miles =	7.14
Ave. Speed =	15	Ave. Speed =	15	Ave. Speed =	15	Ave. Speed =	12
Delay (Hrs.)=	0.2	Delay (Hrs.)=	0.2	Delay (Hrs.)=	0.2	Delay (Hrs.)=	0.2
Cost / Hour =	\$98.00	Cost / Hour =	\$98.00	Cost / Hour =	\$98.00	Cost / Hour =	\$98.00
CY / Load =	11	CY / Load =	11	CY / Load =	11	CY / Load =	8

Rock total = \$142,828

IV. CULVERTS & GEOTEXTILE FABRIC:

Description	Qty.	Gauge	Diameter (in)	Length (ft)	Installed Cost/ft	Sub-total
Culverts	33	16	18	1,076	\$17.50	\$18,830
Bands			(33) - 18" @ \$13.50 ea			\$446
Culvert	1	14	24	50	\$26.00	\$1,300
Bands			(1) - 24" @ \$19.50 ea			\$20
						Culvert total = \$20,595
Woven Geotextile Fabric				sq yds	Installed Cost/sq yd	
W-2073	7+57 to 8+98			684	1.10	\$752
For subsurface drain & subgrade						Geotextile Fabric total = \$752

V. GRASS SEED:

Description	Acres	\$/Acre	Sub-total
All roads, waste area and access road at pit	7.39	\$195.00	\$1,441
Straw and straw placement	40	\$10.00	\$400
			Grass Seed total = \$1,841

Sub-TOTAL = \$531,727

VI. MOBILIZATION:

Description	\$ per Move	# of Moves	Sub-total
Dump Trucks	90	10.00	\$900
* Move in costs are averaged over the appraisal sheets by percent of work performed.	Grader 500	2.50	\$1,250
	Compactor 350	2.50	\$875
	Excavator 500	3.00	\$1,500
	Dozer (D8) 500	3.00	\$1,500
	Front end loader 500	1.50	\$750
Note: Move in includes costs for move around see # of Moves	Rock crusher \$4,500	1.50	\$6,750
	Drill \$450	3.00	\$1,350
	Dozer (D5) \$0	0.00	\$0
Total Mobilization = \$14,875			C. Mobilization sub-total = \$13,983

Road No. W-2073, W-2073A, W-2073B, W-2073D, W-2073D1, W-2073E, W-2073F, W-2014Ext, W-2014A4, W-2014C, W-2014D, & W-2014E

Standard: Construction
Stations: 207.83

SHEET TOTAL = \$545,710

PACIFIC CASCADE REGION - ROAD COST ESTIMATE - RECONSTRUCTION

SALE NAME: PROSPECTOR VRH

CONTRACT NUMBER: 30-092543

I. CLEARING,GRUBBING, GRADING, SHAPING, AND COMPACTING :

Road Segment	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/Station	Width Factor	Total Stations	Sub Total
W-2070	C&G 10	1	1.00	1.00	\$40.00	0.60	8.30	\$199
W-2014 (11+10 to 15+05)	C&G 15	5	1.00	1.25	\$40.00	1.00	3.95	\$198
W-2070	G,S&C NA		1.00	1.50	\$20.50	1.00	8.30	\$255
W-2014 (11+10 to 15+05)	G,S&C NA		1.00	1.50	\$0.00	0.00	3.95	\$0

Note: C&G Includes ROW Decking

Clear and Grub TOTAL = \$397
Grade, Shape and Compact TOTAL = \$255

II. EXCAVATION:

Road Segment	% Side Slope	Exc. Type Fact.	Production Factor	Cost/Station	Width Factor	Total Stations	Sub Total
W-2070	10	1.0	1.50	\$85	0.75	8.30	\$794
W-2014 (11+10 to 15+05)	15	1.0	1.75	\$115	1.00	3.95	\$795
Compact All Embankment - Cat		1.0	1.00	\$4.50	1.00	12.25	\$55

Note road fill for embankment on the W-2070 is costed for on the construction cost sheet. The fill is excess material generated from new road construction on the W-2073.

Excavation TOTAL = \$1,644

III. BALLAST AND SURFACING :

UNIT COSTS			Ballast		
Rock Source: W-2050 Pit			3"Jaw Run	Riprap	
Description	Location	Cubic Yards			
2" Minus	Road	206			
Ballast (3" Jaw Run)	Road & landing	542			
Riprap	Culverts	3.5			
		0			
		0	0 Cu. yds @	\$0.00 /cu. yd =	\$0
		206	206 Cu. yds @	\$17.19 /cu. yd =	\$3,541
		542	542 Cu. yds @	\$12.57 /cu. yd =	\$6,813
			3.5 Cu. yds @	\$15.62 /cu. yd =	\$55
		0	0 Cu. yds @	\$0.00 /cu. yd =	\$0
TOTAL (\$/cy)			\$0.00	\$17.19	\$12.57
				\$15.62	\$0.00

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

Haul R.T. miles are based on Weighted Averages

	0	2" Minus	Ballast (3" Jaw Run)	Riprap	0
R.T. Miles =	0.00	6.84	1.66	6.14	0.00
Ave. Speed =	15	15	15	12	15
Delay (Hrs.)=	0.2	0.2	0.2	0.2	0.2
Cost / Hour =	\$98.00	\$98.00	\$98.00	\$98.00	\$98.00
CY / Load =	11	11	11	8	11

Rock total = \$10,409

IV. CULVERTS:

Description	Qty.	Gauge	Diameter (in.)	Length (ft)	Installed Cost/ft	Sub-total
Culvert	3	16	18	92	\$17.50	\$1,610
Bands			(3) - 18" @ \$13.50 ea			\$41

Culvert total = \$1,651

V. GRASS SEED

Description	Acres	\$/Acre	Sub-total
All roads, waste area and access road at pit	0.19	\$195.00	\$37

Grass Seed total = \$37

Sub-TOTAL = \$14,392

VI. MOBILIZATION:

Description	\$ per Move	# of Moves	Sub-total
Dump Trucks	\$90	10.00	\$900
Grader	\$500	2.50	\$1,250
Compactor	\$350	2.50	\$875
Excavator	\$500	3.00	\$1,500
Dozer (D8)	\$500	3.00	\$1,500
Front end loader	\$500	1.50	\$750
Rock crusher	\$4,500	1.50	\$6,750
Drill	\$450	3.00	\$1,350
Dozer (D5)	\$0	0.00	\$0

Total Mobilization = \$14,875 Mobilization sub-total = \$148

Road No. W-2070 & W-2014 (11+10 to 15+05)
Standard: Reconstruction
Stations: 12.25

SHEET TOTAL = \$14,540

PACIFIC CASCADE REGION - ROAD COST ESTIMATE - PRE-HAUL MAINTENANCE

SALE NAME: PROSPECTOR VRH

CONTRACT NUMBER: 30-092543

I. CLEARING,GRUBBING, GRADING, SHAPING, AND COMPACTING :

Road Segment	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
W-2010	G,S&C road		1.00	1.50	\$17.50	1.00	91.04	\$2,390
W-2013	G,S&C road		1.00	1.50	\$17.50	1.00	4.00	\$105
W-2014 0+00 to 11+10 and 15+05 to 53+82	G,S&C road		1.00	1.50	\$22.50	1.00	49.87	\$1,683
0	G,S&C road		1.00	1.50	\$0.00	1.00	0.00	\$0
0	G,S&C road		1.00	1.50	\$0.00	1.00	0.00	\$0
0	G,S&C road		1.00	1.50	\$0.00	1.00	0.00	\$0

Note: Ripping existing surface cost on the W-2014 has been included in the cost/station. Grade, Shape and Compact TOTAL = \$4,178

II. Excavation, Ditch & Culvert Cleaning:

Exc. Type	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
Ditchline and Culvert Cleaning W-2014 only	1.00	15.00	1.00	49.87	\$1,122

* Scatter ditchline waste material on the fill slope outside of the grubbing limits. If Waste Areas are needed they are to be local and designated by CA. Estimated Vol. (cy) 111 Production Factor 2.00 Haul Cost/cy \$2.30 Sub Total \$511

Excavation TOTAL = \$1,633

III. BALLAST AND SURFACING :

Rock source: W-2014 Pit		UNIT COSTS						
Description	Location	Cubic Yards	Ballast			Riprap		
			3" Jaw Run					
			Drill & Shoot	\$2.50	\$2.50	\$2.50	\$2.50	\$0.00
			Load at Stockpile					
			Dig and load	\$1.20	\$1.20	\$1.20	\$2.20	\$0.00
			Crushing	\$4.90	\$3.75	\$3.25		\$0.00
			Purchase					\$0.00
			Haul *	\$5.78	\$2.77	\$1.78	\$5.23	\$1.35
			Spread/Place	\$1.00	\$0.80	\$0.70	\$2.20	\$0.00
			Compact	\$0.85	\$0.65	\$0.65		\$0.00
			Pit Development	\$0.90	\$0.90	\$0.90		\$0.00
Ballast (3" Jaw Run)	Roads & Landings	1,817						
		0						
			TOTAL (\$/cy)	\$0.00	\$12.57	\$0.00	\$12.13	\$0.00

Riprap	Culverts	16.5						
		0	0 Cu. yds @	\$0.00 /cu. yd =			\$0	
		0	Ballast (3" Jaw Run)	1,817 Cu. yds @	\$12.57 /cu. yd =		\$22,840	
		0	0 Cu. yds @	\$0.00 /cu. yd =			\$0	
		0	Riprap	16.5 Cu. yds @	\$12.13 /cu. yd =		\$200	
		0	0 Cu. yds @	\$0.00 /cu. yd =			\$0	

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

Haul R.T. miles are based on Weighted Averages

Ballast (3" Jaw Run)				Riprap			
R.T. Miles =	6.73	R.T. Miles =	1.66	R.T. Miles =	0.00	R.T. Miles =	2.72
Ave. Speed =	15	Ave. Speed =	15	Ave. Speed =	15	Ave. Speed =	12
Delay (Hrs.)=	0.2	Delay (Hrs.)=	0.2	Delay (Hrs.)=	0.2	Delay (Hrs.)=	0.2
Cost / Hour =	\$98.00	Cost / Hour =	\$98.00	Cost / Hour =	\$98.00	Cost / Hour =	\$98.00
CY / Load =	11	CY / Load =	11	CY / Load =	11	CY / Load =	8
							17

Rock total = \$23,040

IV. CULVERTS:

Description	Qty.	Gauge	Diameter (in)	Length (ft)	Installed Cost/ft	Sub-total
Culverts	7	16	18	216	\$17.50	\$3,780
Bands			(7) - 18" @ \$13.50 ea			\$95

Culvert total = \$3,875

V. GRASS SEED :

Description	Acres	\$/Acre	Sub-total
All roads, waste area and access road at pit	1.45	\$195.00	\$283

Grass Seed total = \$283

Sub-TOTAL = \$33,008

VI. MOBILIZATION:

Description	\$ per Move	# of Moves	Sub-total
Dump Trucks	90	10.00	\$900
Grader	500	2.50	\$1,250
Compactor	350	2.50	\$875
Excavator	500	3.00	\$1,500
Dozer (D8)	500	3.00	\$1,500
Front end loader	500	1.50	\$750
Rock crusher	\$4,500	1.50	\$6,750
Drill	\$450	3.00	\$1,350
Dozer (D5)	\$0	0.00	\$0

Note: Move in costs are averaged over the appraisal sheets by percent of work performed. Move in costs for move around see # of Moves

Total Mobilization = \$14,875 PH. Mobilization sub-total = \$744

Road No. W-2010, W-2013, & W-2014 (0+00 to 11+10 & 15+05 to 53+82)

Standard: Pre-haul maintenance

Stations: 144.91

SHEET TOTAL = \$33,751

PACIFIC CASCADE REGION - ROAD COST ESTIMATE - CONSTRUCTION
 BRIDGE WORK SHEET
 Prospector W-2073 Bridge
 Bridge between Stations 7+62 and 8+32 on W-2073
 Work between Stations 7+50 and 8+57 on W-2073

SALE NAME: PROSPECTOR VRH

CONTRACT NUMBER: 30-092543

Note: surfacing , jaw run ballast and road section drain are included on the construction cost sheets

BALLAST AND SURFACING :

Description			UNIT COSTS				
Rock Source: W-2050 Pit & W-2014 Pit			2" Minus		Ballast Pit Run	Riprap	
			Drill & Shoot	\$2.50	\$0.00		\$2.50
			Dig and load	\$1.20	\$0.00	\$3.50	\$2.20
			Crushing	\$4.90	\$0.00	\$0.00	
			Purchase				
			Haul *	\$5.16	\$1.78	\$5.16	\$25.60
Description	Location	Cubic Yards	Spread/Place	\$1.00	\$0.00	\$0.70	\$2.20
2" Minus	Leveling rock below sills	11	Compact	\$1.00	\$0.00	\$0.65	
Pit Run	Roadway backfills	242	Pit Development	\$0.90	\$0.00	\$0.90	
Pit Run	Ballast below sills	24	TOTAL (\$/cy)				
Riprap	Abutment ballast below sills & fill slope armor	567.0		\$16.66	\$1.78	\$10.91	\$32.50
			2" Minus	11 cu. yds @	\$16.66 /cu. yd =		\$183
				0 cu. yds @	\$1.78 /cu. yd =		\$0
			Pit Run	266 cu. yds @	\$10.91 /cu. yd =		\$2,902
			Riprap	567.0 cu. yds @	\$32.50 /cu. yd =		\$18,428

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

Haul R.T. miles are based on Weighted Averages

	2" Minus	0	Pit Run	Riprap
R.T. Miles =	5.68	0.00	5.68	22.68
Ave. Speed =	15	15	15	12
Delay (Hrs.)=	0.2	0.2	0.2	0.2
Cost / Hour =	\$98.00	\$98.00	\$98.00	\$98.00
CY / Load =	11	11	11	8

Rock Total = \$21,513

Embankment Retention

Ecology blocks	12 blocks @	\$100.00 /block =	\$1,200
2'x2'x6' each block		Embankment Retention Total =	\$1,200

Bridge 7+62 to 8+62 - all components delivered

16' x 70' weathering steel modular bridge - includes structure design, sole plates, elastomeric bearing pads, and guardrail		\$107,700
Sills set of two 18" x 30" x 18' (includes design)		\$4,500
Galvanized metal backwalls		\$2,400
Assemble bridge components and mount to sill		\$2,500
Excavator time - 330 machine size	52 hrs. @	\$284.00 /hr. = \$14,768
Crane to set sills and bridge components - includes move in		\$12,600
		Bridge Total = \$144,468

Labor and Site Prep

Total labor (2 people/day)	16 hrs. @	\$30.00 /hr. =	\$480
Site excavation	600 cu.yds. @	\$1.75 /cu.yd. =	\$1,050
End-haul to waste area at 8+30 on W-2070	600 cu.yds. @	\$1.94 /cu.yd. =	\$1,164
Waste compaction	600 cu.yds. @	\$0.38 /cu.yd. =	\$228
		Site excavation & Labor Total =	\$2,922

Grass Seeding

Description	Acres	\$/Acre	Sub-total
Bridge location and waste area	0.30	\$195.00	\$59
	Straw Bales	\$/Flaked Bale	
Straw and straw placement around bridge location	30	\$10.00	\$300
Temporay water diversion of creek - sand bags and plastic sheeting			\$500
		Grass Seed total =	\$859

Sub Total = \$170,961

Standard: Construction

SHEET TOTAL = \$170,961

By: David L. Stone

Sheet 6 of 7

Date: 02/10/16

PACIFIC CASCADE REGION - ROAD COST ESTIMATE - ROAD ABANDONMENT & DECOMMISSIONING

SALE NAME: PROSPECTOR VRH
Road No. W-2070 (8+30 to 93+55)

CONTRACT NUMBER: 30-092543

Total stations Road Closure = 85.25

I. MISC. ROAD CLOSURE COSTS:

	Stations & Quantity	Cost	Sub Total
Waterbarring =	40 Water Bars	\$25.00 /Water Bar	\$1,000
Ripping =	0.00 Stations	\$14.50 /Station	\$0
Grass Seeding =	85.25 Stations	\$8.00 /Station	\$682
Straw =	10.00 Stations	\$75.00 /Station	\$750
Earthen Barricade=	3 SB	\$250.00 /SB	\$750
Culvert Removal =	3 Culverts	\$125.00 /Culvert	\$375
Bridge site stations 16+75 to 17+25 and 28+05 to 28+55 on W-2070			
Excavation, rock hammer concrete piers and footings, & removal of fill and all concrete and gabion baskets from location of bridge abutments	= 40.00 Hours	\$284.00 /Hour	\$11,360
Dozer for pushing bridge debris and fill away from abutment locations =	20.00 Hours	\$280.00 /Hour	\$5,600
Welder to cut bridges apart =	10.00 Hours	\$75.00 /Hour	\$750
	0.00 Hours	\$0.00 /Hour	\$0
		Misc TOTAL =	<u>\$21,267</u>

II. MOBILIZATION:

Description	\$ per Move	# of Moves	Sub-total
Dozer (D8) move in	450	1.0	\$450
* These move in costs are separate since they will occur after logging is done			
Dozer (D8) moves/ spur	75	0.0	\$0
Excavators move in	500	2.0	\$1,000
Excavator moves / spur	50	0.0	\$0
		Total Mobilization =	<u>\$1,450</u>

Road No. W-2070 (8+30 to 93+55)

Standard: Road Closure
Stations: 85.25

SHEET TOTAL = \$22,717

By: David L. Stone

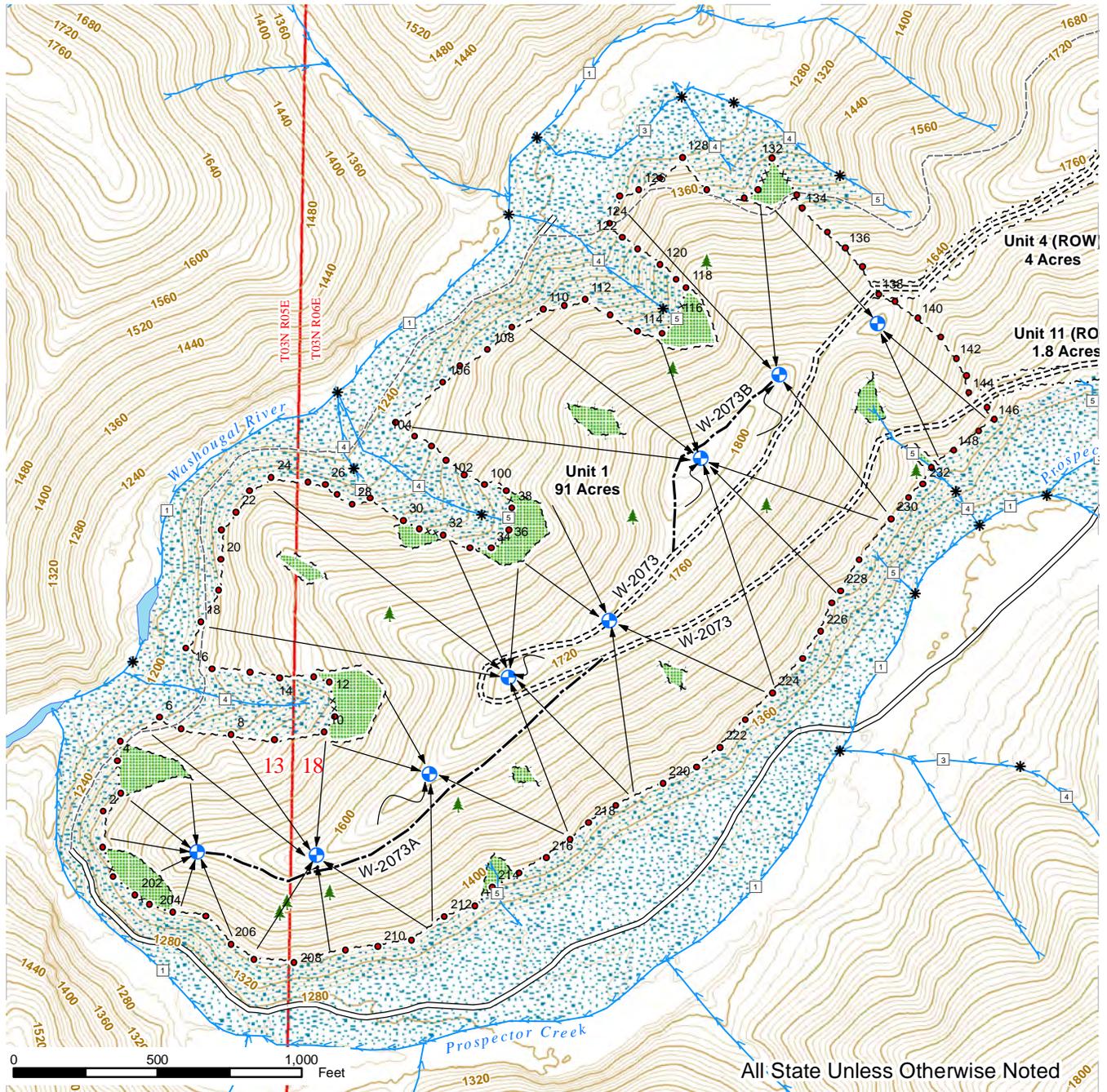
Sheet 7 of 7

Date: 02/10/16

LOGGING PLAN MAP

SALE NAME: PROSPECTOR VRH
AGREEMENT#: 30-092543
TOWNSHIP(S): T03R05E, T03R06E
TRUST(S): State Forest Transfer(1), Capitol Grant(7), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): SKAMANIA
ELEVATION RGE: 1248-2046



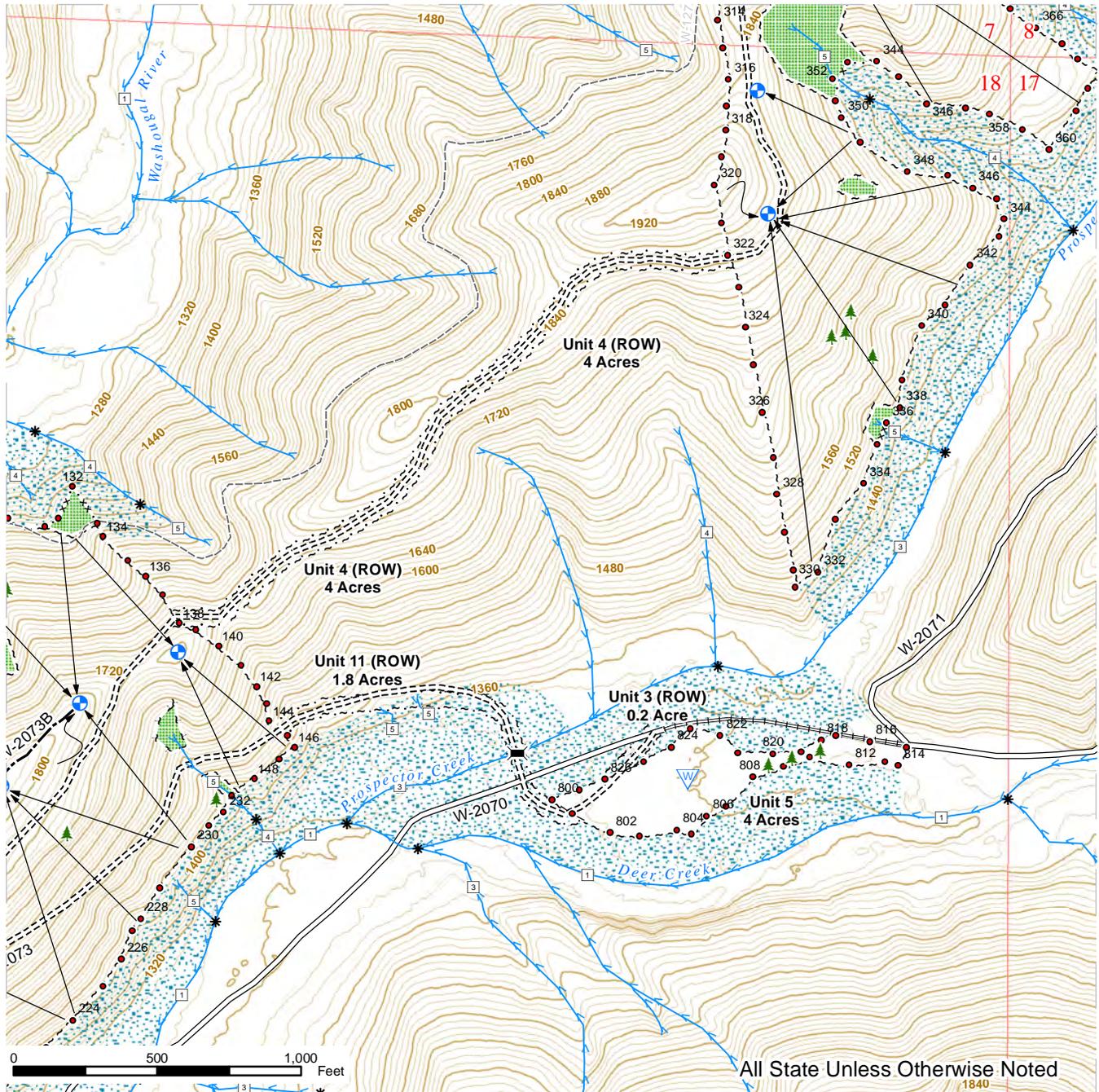
Leave Tree Area	Pink Flagging	Streams
Riparian Mgt Zone	Existing Roads	Stream Type
Cable Yarding	Required Pre-Haul Maintenance	Stream Type Break
Ground Based Yarding	Required Construction	Leave Trees
Sale Boundary Tags	Required Reconstruction	Bridge Installation
Yellow Flagging	Optional Construction	Landing - Proposed
Right of Way Tags	Old Grades / Trails	Rock Source
Leave Tree Tags		Waste Area
		Traverse Points



LOGGING PLAN MAP

SALE NAME: PROSPECTOR VRH
AGREEMENT#: 30-092543
TOWNSHIP(S): T03R05E, T03R06E
TRUST(S): State Forest Transfer(1), Capitol Grant(7), Scientific School(10)

REGION: Pacific Cascade Region
COUNTY(S): SKAMANIA
ELEVATION RGE: 1248-2046



All State Unless Otherwise Noted

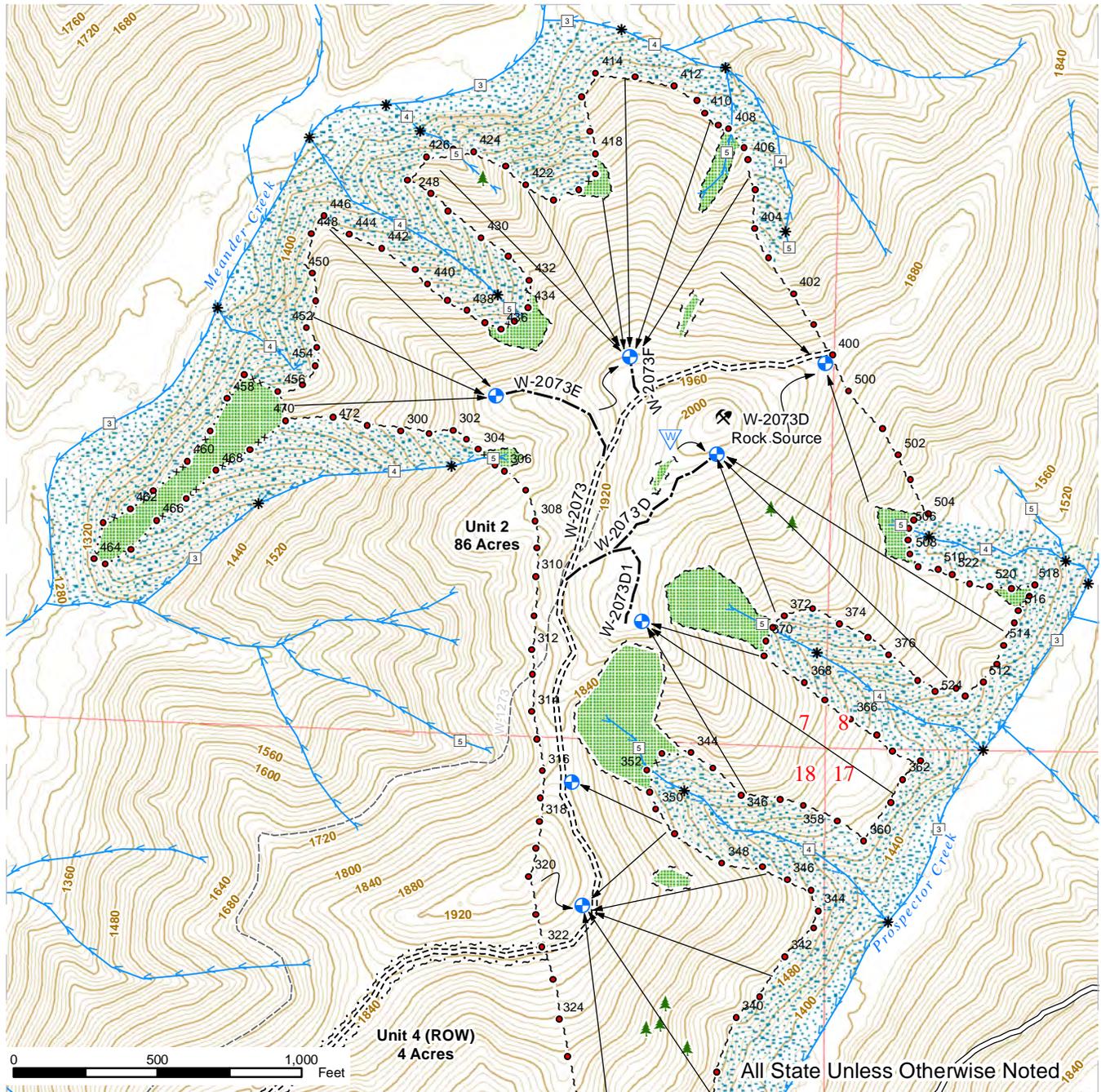
Leave Tree Area	Pink Flagging	Streams
Riparian Mgt Zone	Existing Roads	Stream Type
Cable Yarding	Required Pre-Haul Maintenance	Stream Type Break
Ground Based Yarding	Required Construction	Leave Trees
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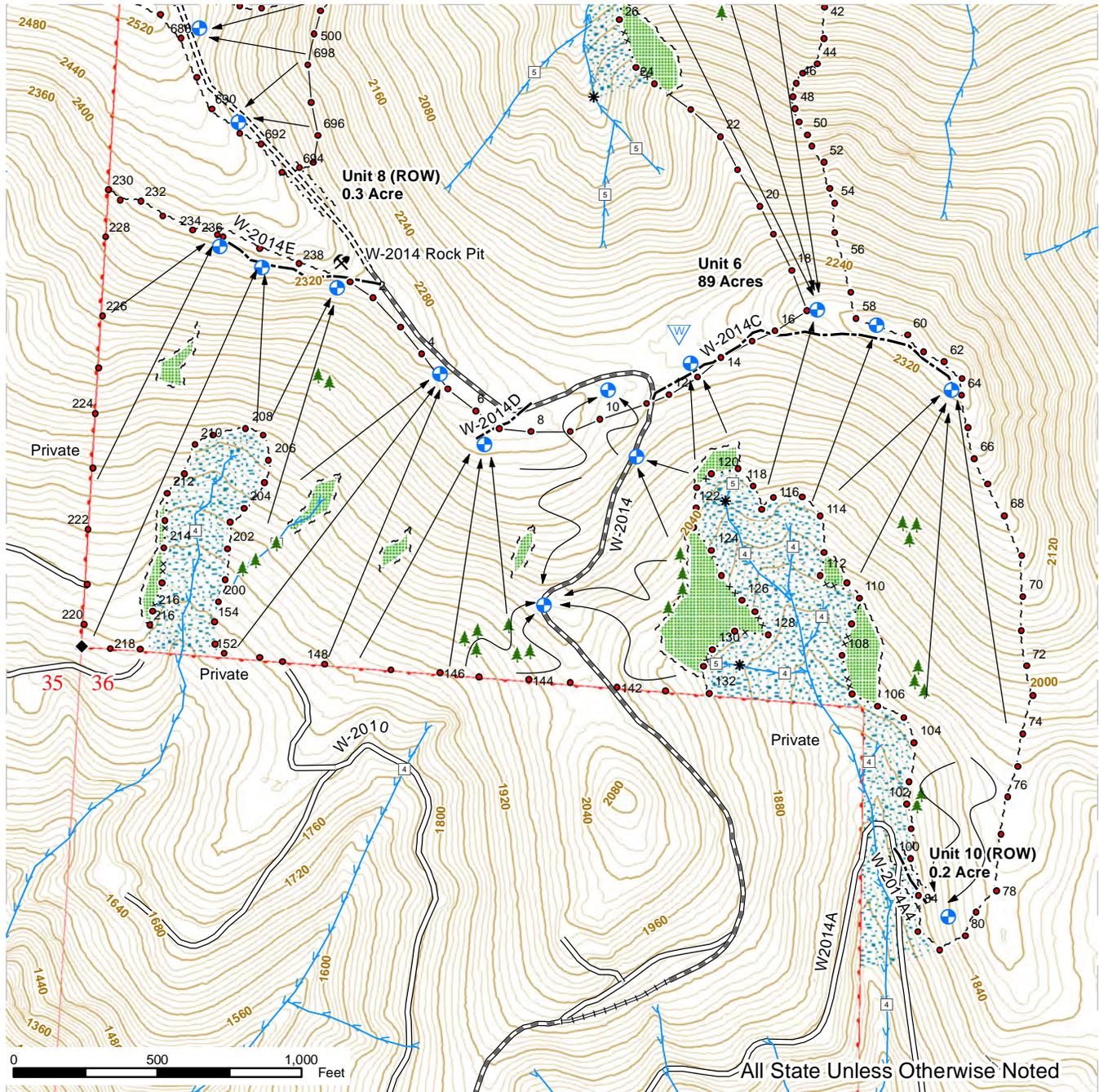


Leave Tree Area	Pink Flagging	Streams
Riparian Mgt Zone	Existing Roads	Stream Type
Cable Yarding	Required Pre-Haul Maintenance	Stream Type Break
Ground Based Yarding	Required Construction	Leave Trees
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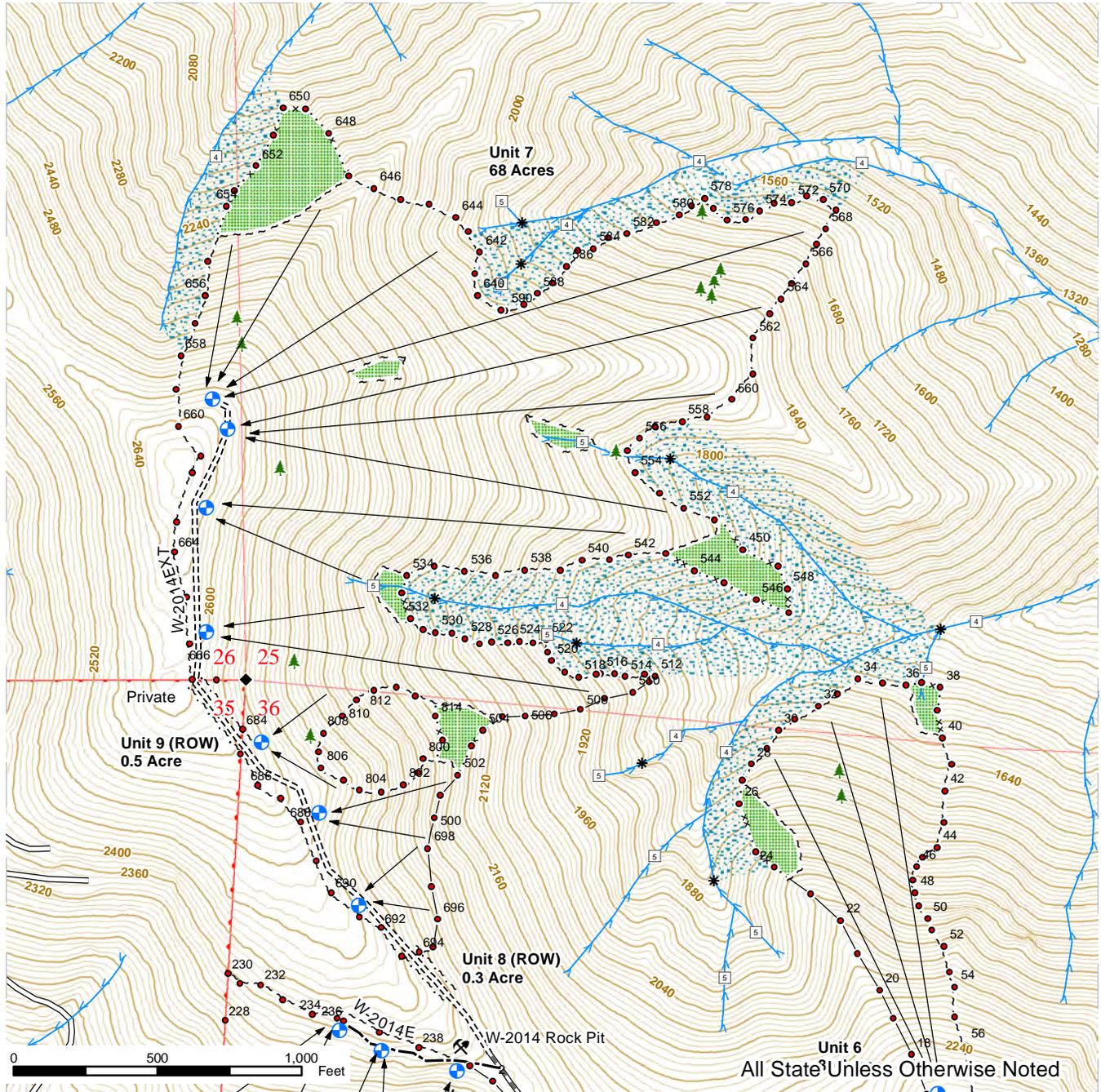
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