

Washington DNR Timber Sales Program

Updated information is being provided for Northwest #30-091937 timber sale documents as follows:

Documents amended:

Brief Description	DATE	Initials
Notice of Sale: The minimum bid has been reduced to \$1,766,000.00	3/9/2016	ckf

TIMBER NOTICE OF SALE

SALE NAME: NORTHWEST

AGREEMENT NO: 30-091937

AUCTION: March 29, 2016 starting at 10:00 a.m., **COUNTY:** Grays Harbor
South Puget Sound Region Office, Enumclaw, WA

SALE LOCATION: Sale located approximately 24 miles west of Olympia

PRODUCTS SOLD AND SALE AREA:

All timber, except leave trees bounded out by yellow "Leave Tree Area" tags and down timber existing more than 5 years prior to day of sale, bounded by the following: white timber sale boundary tags, timber type change, A-Line, and Old A-Line roads in Unit #1; white timber sale boundary tags, A-5400, A-5460 and A-5462 roads in Unit #2; white timber sale boundary tags, A-Line and A-3000 roads in Unit #3; white timber sale boundary tags, A-Line, A-3000 and A-3000A roads in Unit #4; all timber bounded by orange right of way tags on part(s) of Sections 1 and 2 all in Township 17 North, Range 5 West, Sections 20, 30 and 31 all in Township 18 North, Range 4 West, Sections 35 and 36 all in Township 18 North, Range 5 West, W.M., containing 145 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	29.2	7	3,223				51		2,904	230	38	
Hemlock	18.8	7	2,049						1,461	377	190	21
Red cedar	18.2		558							437	121	
Red alder	12.3		392						96	72	224	
Spruce	33.9		82						75	6	1	
Sale Total			6,304									

MINIMUM BID: \$1,766,000.00 **BID METHOD:** Sealed Bids

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

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

BID DEPOSIT: \$176,600.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Harvesting activities are estimated to be 93% ground-based and 7% cable. Forest products sold under this contract shall be harvested and removed using cable and tracked ground based equipment, with tracked ground based equipment limited to sustained slopes 45% and less. Self-leveling shovels are restricted to sustained slopes of 55% or less. Use of tracked skidders shall be allowed for pole yarding only, unless authority to use other equipment is granted in writing by the State. Yarding may be restricted during wet weather if rutting becomes excessive, per clause H-017.

Cutting, yarding and timber haul will not be permitted from November 1st to April 30th, unless authority to do so is granted in writing by the Contract Administrator. If permission is granted to operate from November 1st to April 30th, the Purchaser shall be required to operate under a Winter Operating Plan to include further protection of water,

TIMBER NOTICE OF SALE

soil, roads and other forest assets at the Purchaser's expense. Preventive measures required in the Winter Operating Plan must be put in place prior to commencing any winter operations.

ROADS:

30.33 stations of optional construction. 923.60 stations of required pre-haul maintenance. 30.33 stations of required closure, if constructed. Purchaser maintenance on the Old A-Line, A-0340, A-0346, A-0890, A-1600, A-3000, A-3000A, A-3300, A-3310, A-5400, A-5460, A-5463 and A-5463.1 roads. Designated maintenance on all other roads used.

Rock for the proposal may be obtained at no cost to the Purchaser from the State owned North Rim Quarry, located in Section 32, Township 18 North, Range 04 West, W.M. or from any commercial source at the Purchaser's expense, as approved in writing by the Contract Administrator.

Road construction and Pre-haul Maintenance will not be permitted from October 1st to April 30th, unless authority to do so is granted in writing by the Contract Administrator. If permission is granted to operate from October 1st to April 30th, the Purchaser shall be required to operate under a Winter Operating Plan to include further protection of water, soil, roads and other forest assets at the Purchaser's expense. Preventive measures required in the Winter Operating Plan must be put in place prior to commencing any winter operations.

ACREAGE DETERMINATION

CRUISE METHOD:

Unit acreage was determined by traversing boundaries by GPS. Traverse GPS files are available upon request by emailing audrey.mainwaring@dnr.wa.gov. See cruise narrative for cruise method.

FEES:

\$111,896.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS:

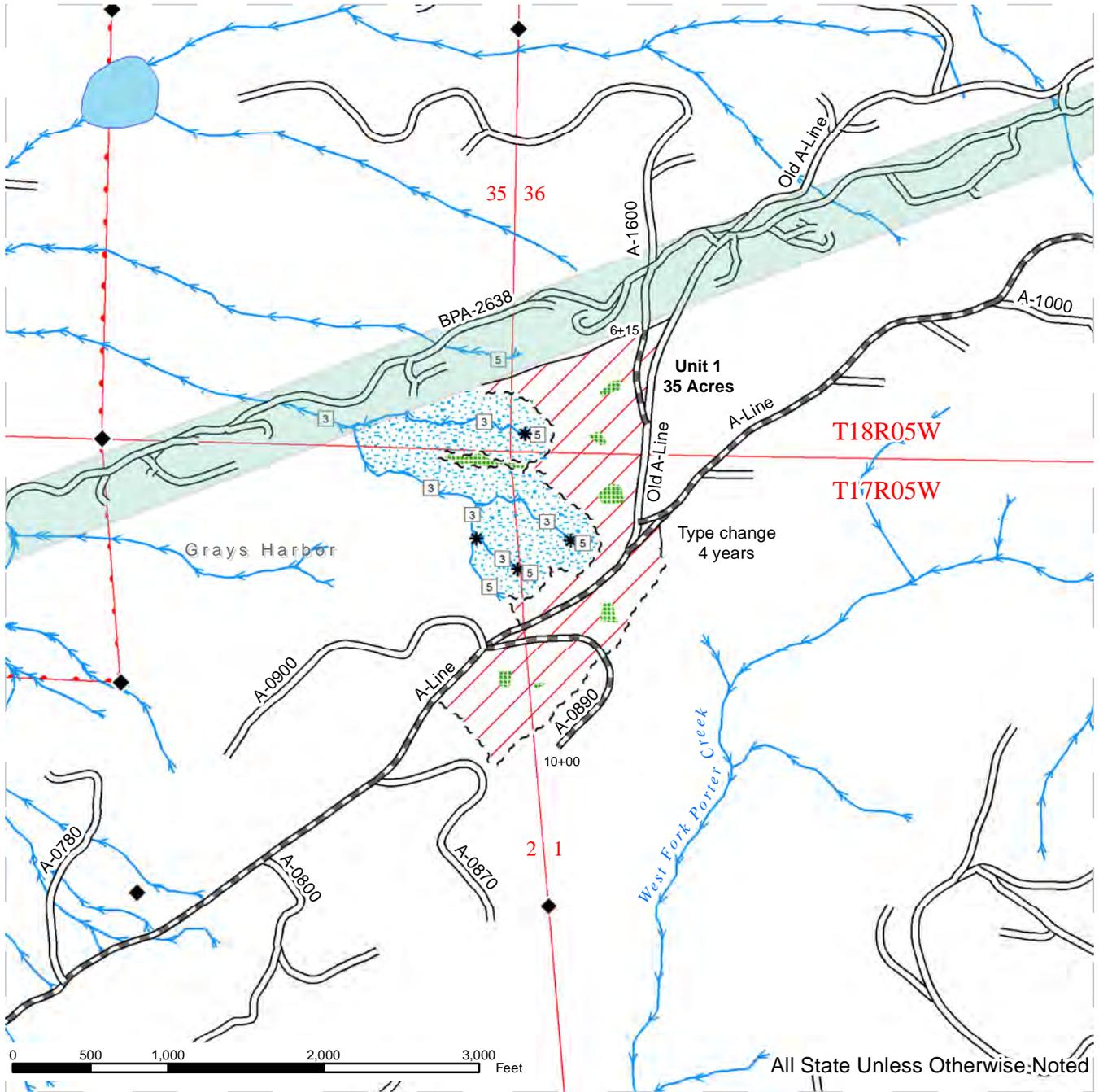
Road work associated with this project includes manufacture of 2,000 cubic yard stockpile of 2 inch minus crushed. See Road Plan for details.

Any timber harvest within two tree lengths of the BPA power line right of way will require at least one week advanced notice to the local BPA Operation and Maintenance District. No activity may occur within the BPA right of way.

TIMBER SALE MAP

SALE NAME: NORTHWEST
AGREEMENT#: 91937
TOWNSHIP(S): T17R05W, T18R04W, T18R05W
TRUST(S): State Forest Purchase(2), Common School and Indemnity(3), Forest Board Repayment(42)

REGION: South Puget Sound Region
COUNTY(S): GRAYS HARBOR, THURSTON
ELEVATION RGE: 421-1318

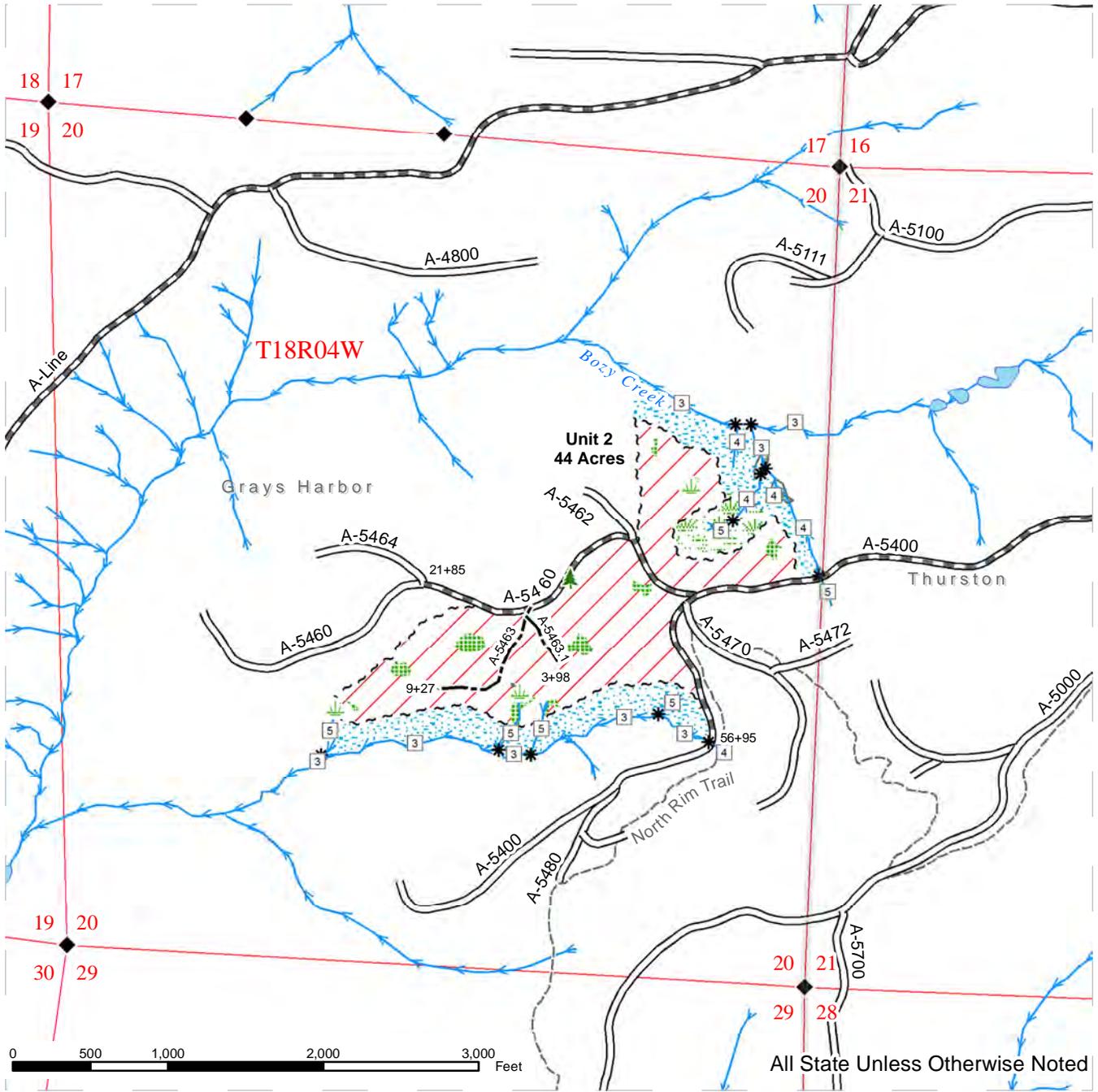


Timber Sale Area	Sale Boundary Tags	Streams
Wetland Mgt Zone	Right of Way Tags	Stream Type
Forested Wetland	Timber Type Change	Stream Type Break
Riparian Mgt Zone	Existing Roads	Single Leave Tree
Leave Tree Area - marked with yellow "Leave Tree Area" tags	Required Pre-Haul Maintenance	Wetland <0.25 ac.
Overhead Power Line and ROW	Optional Construction	Quarry
	Trail	

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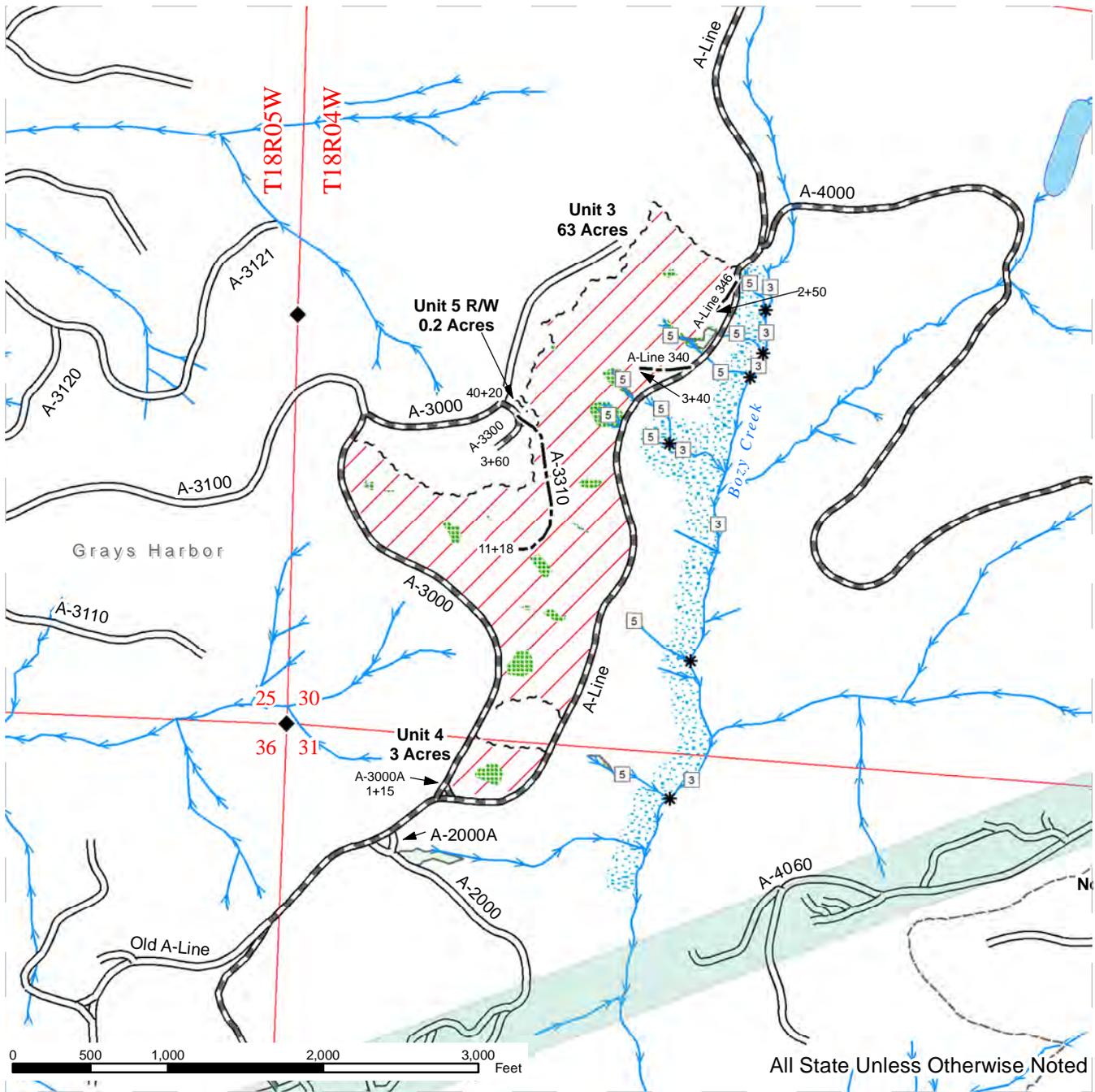
	Timber Sale Area		Sale Boundary Tags		Streams
	Wetland Mgt Zone		Right of Way Tags		Stream Type
	Forested Wetland		Timber Type Change		Stream Type Break
	Riparian Mgt Zone		Existing Roads		Single Leave Tree
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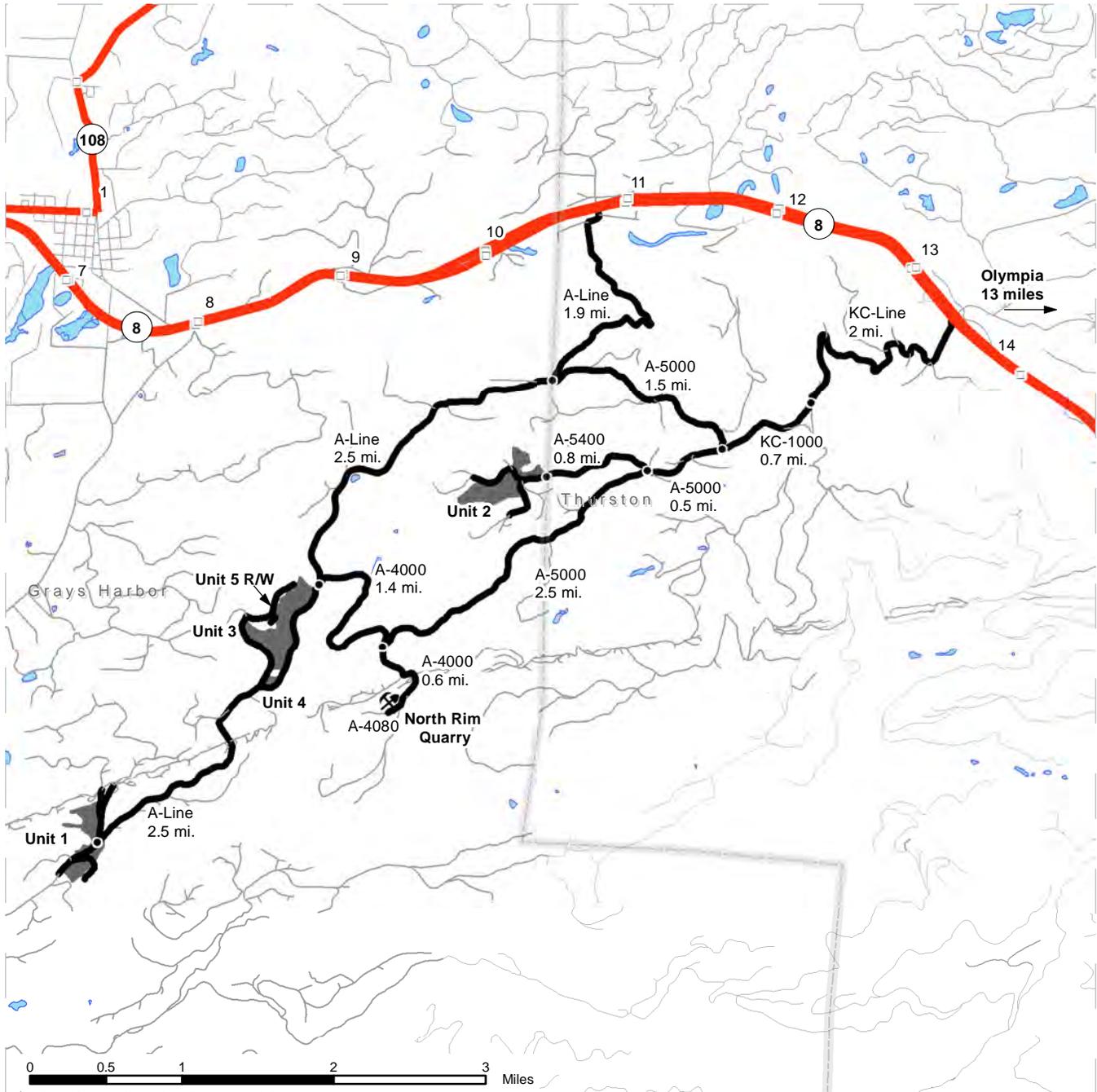
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	Forested Wetland		Timber Type Change		Stream Type Break
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			Trail		



DRIVING MAP

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

DRIVING DIRECTIONS:

Units 1, 3, 4, and 5 (R/W):
 From US Highway 8 (milepost 11), turn south onto the A-Line and follow for 1.9 miles. Keep west on the A-Line for 2.5 miles to reach Unit 3, Unit 4, and Unit 5 R/W. Continue on the A-Line for 2.5 miles to Unit 1.

Unit 2:
 From US Highway 8 (milepost 14), turn south on the KC-Line and follow for 2 miles. Turn right onto the KC-1000 and follow for 0.7 miles and continue straight onto the A-5000 for 0.5 miles. Turn onto the A-5400 for 0.8 miles to Unit 2.

North Rim Quarry:
 From the A-5000 and A-5400 junction, head southwest on the A-5000 for 2.5 miles. Turn left (south) onto the A-4000 for 0.6 miles. North Rim Quarry will be off the A-4080 spur on the right.



**STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES**

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

Export Restricted Lump Sum AGREEMENT NO. 30-091937

SALE NAME: NORTHWEST

**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 March 29, 2016 and the sale was confirmed on _____. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber, except leave trees bounded out by yellow "Leave Tree Area" tags and down timber existing more than 5 years prior to day of sale, bounded by the following: white timber sale boundary tags, timber type change, A-Line, and Old A-Line roads in Unit #1; white timber sale boundary tags, A-5400, A-5460 and A-5462 roads in Unit #2; white timber sale boundary tags, A-Line and A-3000 roads in Unit #3; white timber sale boundary tags, A-Line, A-3000 and A-3000A roads in Unit #4; all timber bounded by orange right of way tags, located on approximately 145 acres on part(s) of Sections 1, and 2 all in Township 17 North, Range 5 West, Sections 20, 30, and 31 all in Township 18 North, Range 4 West, Sections 35, and 36 all in Township 18 North, Range 5 West W.M. in Grays Harbor County(s) as designated on the sale area and as shown on the attached timber sale map.

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

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

G-020 Inspection By Purchaser

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

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

G-031 Contract Term

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

G-040 Contract Term Adjustment - No Payment

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

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

G-051 Contract Term Extension - Payment

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

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

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

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

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

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

- e. Payment of \$873.00 per acre per annum for the acres on which an operating release has not been issued within the harvest area.
- f. In no event will the extension charge be less than \$200.00.
- g. Extension payments are non-refundable.

G-053 Surveys - Sensitive, Threatened, Endangered Species

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

G-060 Exclusion of Warranties

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

- a. The MERCHANTABILITY of the forest products. The use of the term "merchantable" in any document is not intended to vary the foregoing.
- b. The CONDITION of the forest products. The forest products will be conveyed "AS IS."
- c. The ACREAGE contained within any sale area. Any acreage descriptions appearing in the timber notice of sale, timber sale contract, or other documents are estimates only, provided solely for administrative and identification purposes.
- d. The VOLUME, QUALITY, OR GRADE of the forest products. The State neither warrants nor limits the amount of timber to be harvested. The descriptions of the forest products to be conveyed are estimates only, made solely for administrative and identification purposes.
- e. The CORRECTNESS OF ANY SOIL OR SURFACE CONDITIONS, PRE-SALE CONSTRUCTION APPRAISALS, INVESTIGATIONS, AND ALL OTHER PRE-BID DOCUMENTS PREPARED BY OR FOR THE STATE. These documents have been prepared for the State's appraisal purposes only.
- f. THAT THE SALE AREA IS FREE FROM THREATENED OR ENDANGERED SPECIES or their habitat. The State is not responsible for

any interference with forestry operations that result from the presence of any threatened or endangered species, or the presence of their habitat, within the sale area.

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

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

G-062 Habitat Conservation Plan

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

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

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

G-063 Incidental Take Permit Notification Requirements

- a. Purchaser shall immediately notify the Contract Administrator of new locations of permit species covered by the Incidental Take Permits (ITP) that are discovered within the area covered by the State's Habitat Conservation Plan (HCP), including, but not limited to: locations of occupied murrelet habitat; spotted owl nest sites; wolves; grizzly bears; nests, communal roosts, or feeding concentrations of bald eagles; peregrine falcon nests; Columbian white-tailed deer; Aleutian Canada geese; Oregon silverspot butterflies; and

additional stream reaches found to contain bull trout. Purchaser is required to notify the Contract Administrator upon discovery of any fish species found in streams or bodies of water classified as non-fish bearing. In all circumstances, notification must occur within a 24 hour time period.

- b. Upon locating any live, dead, injured, or sick specimens of any permit species covered by the ITP, Purchaser shall immediately notify the Contract Administrator. Purchaser shall notify the Contract Administrator if there is any doubt as to the identification of a discovered permit species. Purchaser may be required to take certain actions to help the Contract Administrator safeguard the well-being of any live, injured or sick specimens of any permit species discovered, until the proper disposition of such specimens can be determined by the Contract Administrator. Any such requirements will be explained to Purchaser by the Contract Administrator during the Pre-Work Conference. In all circumstances, notification must occur within a 24 hour time period.
- c. Purchaser shall refer to a specific ITP number, PRT-812521 or ITP 1168 (copies which are located in the region office) in all correspondence and reports concerning permit activities.
- d. Provisions and requirements of the ITP shall be clearly presented and explained to Purchaser by Contract Administrator during the Pre-Work Conference as per contract clause G-330. All applicable provisions of the ITP and this schedule must be presented and clearly explained by Purchaser to all authorized officers, employees, contractors, or agents of Purchaser conducting authorized activities in the timber sale area. Any questions Purchaser may have about the ITP should be directed to the Contract Administrator.

G-064 Permits

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

G-065 Regulatory Disclaimer

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

G-066 Governmental Regulatory Actions

a. Risk

Purchaser shall be responsible for any increased operational costs arising from any applicable foreign or domestic governmental regulation or order that does not cause contract performance to become commercially impracticable or that does not substantially frustrate the purpose of the contract. If impracticability

or frustration results from Purchaser's failure to comply with this contract, Purchaser shall remain responsible for payment of the total contract price notwithstanding the impracticability or frustration.

b. Sale Area

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

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

c. Adjustment of Price

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

G-070 Limitation on Damage

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

G-080 Scope of State Advice

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

G-091 Sale Area Adjustment

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

G-101 Forest Products Not Designated

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

The pricing schedule has not been set for the sale.

G-106 Adding Naturally Damaged Forest Products

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

G-111 Title and Risk of Loss

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

G-116 Sustainable Forestry Initiative® (SFI) Certification

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

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

G-120 Responsibility for Work

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

G-121 Exceptions

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

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

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

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

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

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

Nothing contained in clauses G-120 and G-121 shall be construed as relieving Purchaser of responsibility for, or damage resulting from, Purchaser's operations or negligence, nor shall Purchaser be relieved from full responsibility for making good any defective work or materials. Authorization to haul does not warrant that Purchaser built roads are free from material defect and the State may require additional work, at 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. Purchasers' obligations to indemnify, defend, and hold harmless includes any claim by Purchasers' agents, employees, representatives, or any subcontractor or its employees. Purchaser expressly agrees to indemnify, defend, and hold harmless State for any claim arising out of or incident to Purchasers' or any subcontractors' performance or failure to perform the contract. Purchasers' obligation to indemnify, defend, and hold harmless State shall not be eliminated or reduced by any actual or alleged concurrent negligence of State or its agents, agencies, employees and officials. Purchaser waives its immunity under Title 51 RCW to the extent it is required to indemnify, defend and hold harmless State and its agencies, officials, agents or employees.

G-150 Insurance

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

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

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

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

Before starting work, Purchaser shall furnish State of Washington, Department of Natural Resources with a certificate(s) of insurance, executed by a duly authorized

representative of each insurer, showing compliance with the insurance requirements specified in the contract. Insurance coverage shall be obtained by the Purchaser prior to operations commencing and continually maintained in full force until all contract obligations have been satisfied or an operating release has been signed by the State.

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

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

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

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

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

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

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

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

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

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

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

G-160 Agents

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

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

G-170 Assignment and Delegation

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

G-180 Modifications

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

G-190 Contract Complete

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

G-200 Notice

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

G-210 Violation of Contract

G-220 State Suspends Operations

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

G-210 Violation of Contract

- a. If Purchaser violates any provision of this contract, the Contract Administrator, by written notice, may suspend those operations in violation. If the violation is capable of being remedied, Purchaser has 30 days after receipt of a suspension notice to remedy the violation. If the violation cannot be remedied (such as a violation of WAC 240-15-015) or Purchaser fails to remedy the violation within 30 days after receipt of a suspension notice, the State may terminate the rights of Purchaser under this contract and collect damages.
- b. If the contract expires pursuant to clause G-030 or G-031 without Purchaser having performed all its duties under this contract, Purchaser's right to operate is terminated and Purchaser shall not have the right to remedy the breach. This provision shall not relieve Purchaser of any payment obligations.
- c. The State has the right to remedy the breach in the absence of any indicated attempt by Purchaser or if Purchaser is unable, as determined by the State, to

remedy the breach. Any expense incurred by the State shall be charged to Purchaser and shall be paid within 30 days of receipt of billing.

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

G-220 State Suspends Operation

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

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

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

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

G-230 Unauthorized Activity

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

G-240 Dispute Resolution

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

- a. In the event of a dispute, Purchaser must make a written request to the Region Manager for resolution prior to seeking other relief.
- b. The Region Manager will issue a written decision on Purchaser's request within ten business days.

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

G-250 Compliance with All Laws

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

G-260 Venue

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

G-270 Equipment Left on State Land

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

G-280 Operating Release

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

G-310 Road Use Authorization

Purchaser is authorized to use the following State roads and roads for which the State has acquired easements and road use permits; A-Line, Old A-Line, A-340, A-346, A-890, A-1600, A-3000, A-3000A, A-3300, A-3310, A-4000, A-4080, A-5000, A-5400, A-5460, A-5463, A-5463.1, KC-Line (from Hwy 8 to intersection with KC-1000) and

the KC-1000 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 A-Line road, unless authority is granted in writing by the Contract Administrator.

G-430 Open Fires

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

G-450 Encumbrances

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

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

Section P: Payments and Securities

P-011 Initial Deposit

Purchaser paid DATA MISSING initial deposit, which will be maintained pursuant to RCW 79.15.100(3). If the operating authority on this contract expires without

Purchaser's payment of the full amount specified in Clause P-020, the initial deposit will be immediately forfeited to the State, and will be offset against Purchaser's remaining balance due. Any excess initial deposit funds not needed to ensure full payment of the contract price, or not needed to complete any remaining obligations of the Purchaser existing after contract expiration, will be refunded to the Purchaser.

P-020 Payment for Forest Products

Purchaser agrees to pay the total, lump sum contract price of \$168,632.00. The total contract price consists of a \$0.00 contract bid price plus \$168,632.00 in fees. Fees collected shall be retained by the state unless the contract is adjusted via the G-066 clause. Purchaser shall be liable for the entire purchase price, and will not be entitled to any refunds or offsets unless expressly stated in this contract.

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

P-045 Guarantee of Payment

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

P-050 Billing Procedure

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

P-080 Payment Account Refund

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

P-090 Performance Security

Purchaser agrees to furnish, within 30 days of the confirmation date, security acceptable to the State in the amount of \$100,000.00. The Security provided shall guarantee performance of all provisions of this contract and payment of any damages caused by operations under this contract or resulting from Purchaser's noncompliance with any rule or law. Acceptable performance security may be in the form of a performance bond, irrevocable letter of credit, cash, savings or certificate of deposit account assignments, and must name the State as the obligee or beneficiary. A letter of

credit must comply with Title 62A RCW, Article 5. Performance security must remain in full force over the duration of the contract length. Surety bonds issued shall conform to the issuance and rating requirements in clause G-150. The State shall retain the performance security pursuant to RCW 79.15.100. Purchaser shall not operate unless the performance security has been accepted by the State. If at any time the State decides that the security document or amount has become unsatisfactory, Purchaser agrees to suspend operations and, within 30 days of notification, to replace the security with one acceptable to the State or to supplement the amount of the existing security.

P-100 Performance Security Reduction

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

Section H: Harvesting Operations

H-013 Reserve Tree Damage Definition

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

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

- a. A reserve tree has one or more scars on its trunk exposing the cambium layer, which in total exceeds 100 square inches.
- b. A reserve tree top is broken or the live crown ratio is reduced below 30 percent.
- c. A reserve tree has more than 1/3 of the circumference of its root system injured such that the cambium layer is exposed.

If the Contract Administrator determines that a reserve tree has been cut or damaged, the Purchaser shall provide a replacement reserve tree of like condition, size, and species within the sale 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 12 inches as measured from the natural ground line. To reduce soil damage, the Contract Administrator may require water bars to be constructed, grass seed to be placed on exposed soils, or other

mitigation measures. Suspended operations shall not resume unless approval to do so has been given, in writing, by the Contract Administrator.

H-035 Fall Trees Into Sale Area

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

H-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-060 Skid Trail Locations

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

H-080 Snags Not to be Felled

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

H-120 Harvesting Equipment

Forest products sold under this contract shall be harvested and removed using cable and ground based equipment. Ground based equipment shall be limited to tracked ground based equipment on sustained slopes of 45% and less. Self-leveling shovels are restricted to sustained slopes of 55% or less. Use of tracked skidders shall be allowed for pole yarding only, unless authority to use other equipment is granted in writing by the State.

H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

- a. Timber haul will not be permitted from November 1 to April 30, unless authority to do so is granted in writing by the Contract Administrator. If permission is granted to operate from November 1 to April 30, the Purchaser shall comply with a "Winter Operating Plan" to include further protection of water, soil, roads, and other forest assets at the Purchaser's expense. All preventative measures shall be in place prior to commencing any winter operations.

- b. Any and all operations associated with this sale may be temporarily suspended when, in the opinion of the Contract Administrator, there is the potential for delivery to typed water.
- c. No equipment shall operate, or trees felled or damaged, outside the timber sale boundary.
- d. The Purchaser shall notify all employees and contractors working on this sale that any danger tree marked or unmarked may be felled. Any marked danger tree will be replaced with a suitable tree of similar size and species as approved by the Contract Administrator.
- e. Within shovel logging areas, the shovel operator shall break up concentrations of logging debris greater than 10.5 feet by 10.5 feet to allow exposure of natural forest soils to ensure proper reforestation.
- f. Purchaser shall identify areas of root rot and mark the top of stumps around the perimeter with a durable red painted X.

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

H-141 Additional Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

- a. Purchaser shall leave 2 down logs per acre. A log is defined as having a minimum diameter of 12 inches on the small end of the log and a minimum length of 20 feet or at least 100 board feet.
- b. Any timber harvest within two tree lengths of the BPA power line Right-of-Way will require at least one week advanced notice to the local BPA Operation and Maintenance District. The contact person is Jason Hunt, 360-570-4307 (office phone) or 253-880-4112 (cell phone).

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

H-190 Completion of Settings

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

H-220 Protection of Residual or Adjacent Trees

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

H-230 Tops and Limbs Outside the Sale Boundary

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

H-250 Additional Falling Requirements

Within the harvest area, all live stems over 2" in diameter, except for leave trees, shall be felled. Trees shall be severed at a stump height not to exceed 12 inches and cut completely free of the stump. Areas of young or immature timber may be excluded from this requirement by the Contract Administrator.

Section C: Construction and Maintenance**C-040** Road Plan

Road construction and associated work provisions of the Road Plan for this sale, dated 7/13/2015 are hereby made a part of this contract.

C-050 Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on Old A-Line, A- Line 340, A-Line 346, A-0890, A-1600, A-3000, A-3000A, A-3300, A-3310, A-5400, A-5460, A-5463 and A-5463.1 roads. All work shall be completed to the specifications detailed in the Road Plan.

C-060 Designated Road Maintainer

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

C-140 Water Bars

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

Section S: Site Preparation and Protection**S-001** Emergency Response Plan

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

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

S-010 Fire Hazardous Conditions

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

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

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

S-030 Landing Debris Clean Up

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

S-050 Cessation of Operations for Low Humidity

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

S-060 Pump Truck or Pump Trailer

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

S-100 Stream Cleanout

Slash or debris which enters any stream as a result of operations under this contract and which is identified by the Contract Administrator shall be removed and deposited in a stable position. Removal of slash or debris shall be accomplished in a manner that avoids damage to the natural stream bed and bank vegetation.

S-110 Resource Protection

No yarding equipment may operate within the Riparian and Wetland Management Zones and within 30 feet of Type 5 streams, unless authority is granted in writing by the Contract Administrator.

S-120 Stream Protection

No timber shall be felled into, across, or yarded through any stream, except Type 5 streams.

S-130 Hazardous Materials

- a. Hazardous Materials and Waste - Regulatory Compliance

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

b. Hazardous Materials Spill Prevention

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

c. Hazardous Materials Spill Containment, Control and Cleanup

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

d. Hazardous Material Release Reporting

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

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

DNR Contract Administrator

ECY - Northwest Region:

1-425-649-7000

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

ECY - Southwest Region:

1-360-407-6300

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

ECY - Central Region:

1-509-575-2490

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

ECY - Eastern Region:

1-509-329-3400

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

S-131 Refuse Disposal

As required by RCW 70.93, All Purchaser generated refuse shall be removed from state lands for proper disposal prior to termination of this contract. No refuse shall be burned, buried or abandoned on state forest lands. All refuse shall be transported in a manner such that it is in compliance with RCW 70.93 and all loads or loose materials shall be covered/secured such that these waste materials are properly contained during transport.

Section D: Damages

D-013 Liquidated Damages or Failure to Perform

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

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

D-041 Reserve Tree Excessive Damage

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

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

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

Purchaser

Art Tasker
South Puget Sound Region Manager

Date: _____
Address: _____

Date: _____

CORPORATE ACKNOWLEDGEMENT

STATE OF _____)

COUNTY OF _____)

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

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

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

Notary Public in and for the State of

My appointment expires _____



WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

FOREST EXCISE TAX ROAD SUMMARY SHEET

Region:

Timber Sale Name:

Application Number:

EXCISE TAX APPLICABLE ACTIVITIES

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

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

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

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

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

EXCISE TAX EXEMPT ACTIVITIES

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

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

New Abandonment: 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: Northwest	Region: South Puget Sound
Agreement #: 30-091937	District: Black Hills
Contact Forester: Kara Huntsman	Phone/ Location: (360)-584-4633 Ext: /
Alternate Contact: Andy Ritter	Phone/ Location: (360)-902-1447 Ext: /

Type of Sale (lump sum, mbf scale, tonnage scale or contract harvest): Lump Sum
Required or Optional removal of utility as pulp:
Evaluated for RFRS Implementation?: Yes
Percentage cable (specify downhill vs uphill): 7% uphill
Percentage ground based: 93%
Species Onsite: <input checked="" type="checkbox"/> RC, <input checked="" type="checkbox"/> DF, <input checked="" type="checkbox"/> WH, <input checked="" type="checkbox"/> RA, <input type="checkbox"/> BC, <input type="checkbox"/> BLM, <input type="checkbox"/> NF, <input type="checkbox"/> SF, <input checked="" type="checkbox"/> SS, <input type="checkbox"/> Other:(Please List)

UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit #	Harvest R/W or RMZ WMZ	Legal Description Sec/Twp/Rng	Grant	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 1,2, / T17N/ R05W Sec 35,36 /T18N/ R05W	02,03, 42	39.0		1.9	2.2		34.9	GPS
2		Sec 20 /T18N/ R04W	02,42	46.5		2.2	0.5		43.8	GPS
3		Sec 30 /T18N/ R04W	02,42	65.7		3.2			62.5	GPS
4		Sec 31 /T18N/ R04W	02,42	3.5		0.4			3.1	GPS
5 (R/W)		Sec 30 /T18N/ R04W	02,42	0.2					0.2	GPS
TOTAL ACRES				154.9		7.7	2.7		144.5	

HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Mark leave, take, etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags and pink flagging. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging.	N/A	8 leave trees per acre.
2	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags and pink flagging. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging.	Some of the leave tree clumps were left in order to protect sensitive features.	8 leave trees per acre.
3	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags and pink flagging. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging.	Some of the leave tree clumps were left in order to protect sensitive features.	8 leave trees per acre.
4	Variable Retention Harvest: Boundaries are marked with white "Timber Sale Boundary" tags and pink flagging. Clumped leave trees are marked with yellow "Leave Tree Area" tags and pink flagging.	N/A	8 leave trees per acre.
5 R/W	Right of way marked with orange "Right of Way" tags.	N/A	

OTHER PRE-CRUISE INFORMATION:

Unit #	Estimated Volume	Access information (Gates, locks, etc.)	Photos, traverse maps required
1	See cruise		Traverse map with contours, roads and leave trees. (Scale 1' to 400')
2	See cruise		Traverse map with contours, roads and leave trees. (Scale 1' to 400')
3	See cruise		Traverse map with contours, roads and leave trees. (Scale 1' to 400')
4	See cruise		Traverse map with contours, roads and leave trees. (Scale 1' to 400')
5 R/W	See cruise		Traverse map with contours, roads and leave trees. (Scale 1' to 400')

REMARKS:

Units are VRH harvest with 93% ground and 7% cable. Small root rot pockets are present in Unit 1 and Unit 3. The timber consists of western hemlock and Douglas-fir. Other species present are western red cedar, red alder, and sitka spruce. Pure western red cedar pockets are present in Unit 2 and Unit 3.

Prepared By: Kara Huntsman Date: 08/25/2015	Title: Forester	CC:
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Revised 2/23/2007 (PSLD)

Cruise Narrative

Sale Name: Northwest	Region: South Puget Sound
Agree. #: 30-091937	District: Black Hills
Lead cruiser: John Piety	Completion date: 9-15-2015
Other cruisers on sale: none	

Unit acreage specifications:

Unit #	Cruised acres	Cruised acres agree with sale acres? Yes/No	If acres do not agree explain why.
1	35	Yes	
2	44	Yes	
3	63	Yes	
4	3	Yes	
R/W05	0.2	Yes	
Total	145.2		

Unit cruise specifications:

Unit #	Sample type (VP, FP, ITS,100%)	Expansion factor (BAF, full/half)	Sighting height (4.5 ft, 16 ft.)	Grid size (Plot spacing or % of area)	Plot ratio (cruise:count)	Total number of plots
1	VP	54.4 BAF	4.5	290' X 290'	1:1	17
2	VP	33.61 BAF	4.5	290' X 290'	1:1	17
3	VP	46.91 BAF	4.5	290' X 290'	1:1	33
4	VP	46.91 BAF	4.5	198' X 198'	1:1	3
R/W05	VP	20.0 BAF	4.5	Along centerline	100%	2

Sale/Cruise Description:

Minor species cruise intensity:	100% up to 5 trees per species
Minimum cruise spec:	HA - Logs meeting the following criteria: Surface characteristics for a high quality A sort will have sound tight knots not to exceed 1 1/2" in diameter, numbering not more than an average of one per foot of log length. May include logs with not more than two larger knots. Knots and knot indicators 1/2" in diameter and smaller shall not be a determining factor. Logs will have a growth ring count of 6 or more rings per inch in the outer third top end of the log. (High Quality sort. Grades SM, 2S, 12"+ TDIB lengths 16-40ft. Max

	<p>butt 27" Grade 3S lengths 34ft, 26ft, 17ft. TDIB 8-11".)</p> <p>HB - Logs meeting the following criteria: Surface characteristics for an Intermediate B sort will have sound tight knots not to exceed 1 1/2" in diameter. May include logs with not more than two larger knots up to 2 1/2" in diameter. Logs will have a growth ring count of 6 or more rings per inch in the outer third to end of the log. (Intermediate sort. Grade 2S, 12"+TDIB lengths 16-40ft. Max butt 27" Grade 3S lengths 34ft, 26ft, 17ft min TDIB 8-11".).</p> <p>D - Domestic quality logs that do not meet high quality or intermediate definitions. (Domestic sort. Grades 2S, 3S, 4S and utility. Lengths 16ft-40ft, min TDIB 2in.)</p> <p>O- Logs exceeding 27" on the large end. (Oversize sort. Grade 2S. Lengths 16ft-40ft, 2ft multiples butt diameter min dia. 27 in. +)</p> <p>R - Logs meeting the following criteria: Surface characteristics for a rough log sort will not meet the requirements for a domestic 2S, but still be in limitations for a domestic 3S. Meaning logs will contain excessive knots in excess of 2 1/2" and not exceeding 3" with a recovery of less than 65% of the net scale and greater than 33% of the gross scale. (Rough oversize sort. Grade 3S. Lengths 16ft-40ft, 2ft multiples TDIB 12"+)</p>			
Avg ring count by sp:	DF =	7	WH =	7
Leave/take tree description:	Leave trees are tagged out with yellow leave tree tags.			
Other conditions				

Field observations:

Unit #1 is a stand with oversized dominant DF and an understory of RA and minors WH, RC. Unit #2 is a mixed conifer stand dominated by WH, DF with minors RC, RA, and SS. Unit # 3 is dominated by DF, WH with minors RC and RA. Unit # 4 is dominated by WH, DF with some RC. Unit #3 has had some previous harvest activity in the south and west side of the unit, unit# 4 also has had some previous activity. There is some wind throw in unit #3. I did see a few BM in unit # 1. There is a large component of oversized trees in these units (27"+ on the large end). Fair to good quality logs.

Grants: 02, 03, 42

Prepared by:

John Piety

Title:

Cruiser

CC:

TC PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																					
T17N R05W S01 Ty0001 THRU T18N R04W S31 Ty0004			Project:		NORTHWES										Page		1						
			Acres		145.20										Date		9/15/2015						
														Time		9:56:47AM							
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			
									2-4	5-7	8-11	12+	12-20	21-30	31-35	36-99							
DF	HB	2S		1	242	242	35										40	14	296	1.57	.8		
DF	D	2S		37	1.5	8,428	8,303	1,206									39	15	367	1.95	22.6		
DF	D	3S		7	.4	1,591	1,585	230									35	9	113	0.95	14.0		
DF	D	4S		1	1.2	265	262	38									26	6	35	0.46	7.5		
DF	D	UT															28	2		0.34	.3		
DF	OS	SM		2		350	350	51									40	20	654	3.11	.5		
DF	OS	2S		51	3.6	11,753	11,335	1,646									40	23	895	4.34	12.7		
DF	RO	2S		1	20.3	148	118	17									38	13	182	1.59	.6		
DF Totals				51	2.6	22,777	22,195	3,223			1	7	92	1	2	2	95	37	14	376	2.14	59.1	
WH	D	2S		45	2.4	6,619	6,460	938									39	15	315	1.83	20.5		
WH	D	3S		19	2.7	2,672	2,600	377									38	9	116	0.84	22.3		
WH	D	4S		9	1.5	1,325	1,306	190									30	6	38	0.41	34.6		
WH	D	UT				43	43	6	100								27	2	6	0.18	7.5		
WH	OS	2S		26	2.4	3,684	3,597	522									39	20	661	3.55	5.4		
WH	OS	UT		1		106	106	15									40	16	400	2.40	.3		
WH Totals				33	2.3	14,450	14,112	2,049			0	8	19	72	2	6	4	88	34	9	156	1.10	90.6
RC	D	3S		53	.8	2,064	2,047	297									35	10	129	1.21	15.9		
RC	D	4S		22	1.1	844	835	121									33	5	41	0.45	20.3		
RC	OS	3S		25	7.1	1,034	961	140									36	18	448	4.15	2.1		
RC Totals				9	2.5	3,943	3,843	558			22	36	42	1	16	19	64	34	8	100	1.00	38.3	
RA	D	2S		24		660	660	96									30	13	166	1.28	4.0		
RA	D	3S		18		496	496	72									33	11	141	0.97	3.5		
RA	D	4S		58	2.0	1,572	1,540	224									31	6	46	0.45	33.4		
RA	D	UT															24	2		0.13	15.2		
RA Totals				6	1.2	2,729	2,697	392			32	43	24	5	17	42	37	29	6	48	0.47	56.2	
SS	D	2S		23	1.8	134	131	19									40	15	322	1.81	.4		
SS	D	3S		8		45	45	6									24	10	92	1.16	.5		
SS	D	4S				4	4	1									16	12	80	1.28	.1		
SS	OS	2S		65	6.8	394	367	53									36	24	810	4.66	.5		
SS	RO	2S		4	32.1	29	20	3									40	18	360	3.02	.1		
SS Totals				1	6.4	605	567	82			5	95	15	6	79	33	16	390	2.67	1.5			
Totals					2.4	44,504	43,413	6,304			0	7	16	77	2	6	6	86	34	9	177	1.24	245.6

TC PSTATS		PROJECT STATISTICS							PAGE	1	
		PROJECT NORTHWES							DATE	9/15/2015	
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05	01	NORTHWEST	0001	THR	145.20	72	401	S	W	
18N	04W	31	NORTHWEST	0004							
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL			72	401	5.6						
CRUISE			39	218	5.6	18,236	1.2				
DBH COUNT											
REFOREST											
COUNT			33	183	5.5						
BLANKS											
100 %											
STAND SUMMARY											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR		82	20.6	29.2	109	17.8	96.2	22,777	22,195	4,635	4,635
WHEMLOCK		74	44.3	18.8	71	19.6	85.0	14,450	14,112	3,426	3,426
R ALDER		28	37.7	12.3	45	8.9	31.2	2,729	2,697	775	775
WR CEDAR		30	22.4	18.2	62	9.5	40.7	3,943	3,843	1,301	1,300
S SPRUCE		4	.5	33.9	98	0.6	3.4	605	567	127	127
TOTAL		<i>218</i>	<i>125.6</i>	<i>19.3</i>	<i>68</i>	<i>58.3</i>	<i>256.4</i>	<i>44,503</i>	<i>43,413</i>	<i>10,262</i>	<i>10,263</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		57.3	6.3	1,312	1,401	1,489					
WHEMLOCK		72.2	8.4	483	527	572					
R ALDER		79.2	15.2	89	105	121					
WR CEDAR		81.8	15.2	241	284	327					
S SPRUCE		61.0	34.8	880	1,350	1,820					
TOTAL		<i>96.6</i>	<i>6.5</i>	<i>732</i>	<i>783</i>	<i>834</i>	<i>373</i>	<i>190</i>	<i>93</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		92.0	10.8	18	21	23					
WHEMLOCK		110.2	13.0	39	44	50					
R ALDER		210.6	24.8	28	38	47					
WR CEDAR		210.9	24.8	17	22	28					
S SPRUCE		540.6	63.7	0	1	1					
TOTAL		<i>78.7</i>	<i>9.3</i>	<i>114</i>	<i>126</i>	<i>137</i>	<i>247</i>	<i>126</i>	<i>62</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		87.5	10.3	86	96	106					
WHEMLOCK		116.5	13.7	73	85	97					
R ALDER		191.9	22.6	24	31	38					
WR CEDAR		198.0	23.3	31	41	50					
S SPRUCE		551.2	64.9	1	3	6					
TOTAL		<i>54.1</i>	<i>6.4</i>	<i>240</i>	<i>256</i>	<i>273</i>	<i>117</i>	<i>60</i>	<i>29</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		96.7	11.4	19,668	22,195	24,722					
WHEMLOCK		125.1	14.7	12,033	14,112	16,191					
R ALDER		181.0	21.3	2,122	2,697	3,271					
WR CEDAR		203.5	24.0	2,922	3,843	4,764					
S SPRUCE		522.7	61.6	218	567	915					
TOTAL		<i>52.2</i>	<i>6.1</i>	<i>40,747</i>	<i>43,413</i>	<i>46,079</i>	<i>109</i>	<i>55</i>	<i>27</i>		

PROJECT STATISTICS
PROJECT NORTHWES

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
17N	05	01	NORTHWEST	0001	THR	145.20	72	401	S	W
18N	04W	31	NORTHWEST	0004						

TC TSTATS		STATISTICS							PAGE	1	
		PROJECT NORTHWES							DATE	9/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
17N	05W	01	NORTHWEST	0001	35.00	17	116	S	W		
				TREES	ESTIMATED		PERCENT				
				PER PLOT	TOTAL		SAMPLE				
		PLOTS	TREES		TREES		TREES				
TOTAL		17	116	6.8							
CRUISE		9	59	6.6	4,693		1.3				
DBH COUNT											
REFOREST											
COUNT		8	57	7.1							
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	40	30.6	29.8	121	27.2	148.3	40,025	39,685	7,745	7,746	
R ALDER	11	72.4	11.2	45	14.8	49.4	4,939	4,939	1,349	1,349	
WHEMLOCK	4	25.2	10.7	33	4.8	15.8	912	831	298	298	
WR CEDAR	3	5.7	21.0	69	3.0	13.8	1,427	1,368	467	467	
S SPRUCE	1	.2	40.0	97	0.3	2.0	469	369	95	95	
TOTAL	59	134.1	17.7	61	54.5	229.3	47,772	47,192	9,954	9,955	
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	54.2	8.6	1,518	1,661	1,803						
R ALDER	74.1	23.4	108	141	174						
WHEMLOCK	57.7	33.0	27	40	53						
WR CEDAR	64.0	44.3	163	293	423						
S SPRUCE											
TOTAL	85.4	11.1	1,064	1,197	1,330	291	148	73			
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	79.2	19.8	25	31	37						
R ALDER	156.0	39.0	44	72	101						
WHEMLOCK	134.5	33.6	17	25	34						
WR CEDAR	207.3	51.8	3	6	9						
S SPRUCE	412.3	103.0	0	0	0						
TOTAL	80.5	20.1	107	134	161	275	140	69			
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
DOUG FIR	72.2	18.0	122	148	175						
R ALDER	125.2	31.3	34	49	65						
WHEMLOCK	132.7	33.1	11	16	21						
WR CEDAR	211.3	52.8	7	14	21						
S SPRUCE	412.3	103.0	2	4	4						
TOTAL	35.2	8.8	209	229	250	53	27	13			
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10			
DOUG FIR	72.8	18.2	32,468	39,685	46,901						
R ALDER	123.6	30.9	3,414	4,939	6,464						
WHEMLOCK	132.7	33.1	556	831	1,107						
WR CEDAR	209.9	52.4	650	1,368	2,085						
S SPRUCE	412.3	103.0		369	750						
TOTAL	52.7	13.2	40,986	47,192	53,399	118	60	29			

TC TSTATS		STATISTICS					PAGE	1		
		PROJECT NORTHWES					DATE	9/15/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
18N	04W	20	NORTHWEST	0002	44.00	17	93	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		17	93	5.5						
CRUISE		9	49	5.4	6,775	.7				
DBH COUNT										
REFOREST										
COUNT		8	44	5.5						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	17	54.9	20.9	84	28.7	131.2	22,627	22,401	5,433	5,433
DOUG FIR	8	15.2	27.1	93	11.7	60.8	11,389	11,015	2,566	2,566
R ALDER	12	55.5	13.0	44	14.2	51.2	3,854	3,750	1,152	1,152
WR CEDAR	9	26.8	17.5	56	10.7	44.8	3,646	3,594	1,320	1,320
S SPRUCE	3	1.6	33.2	98	1.7	9.6	1,624	1,576	342	342
TOTAL	49	154.0	18.8	66	68.6	297.6	43,140	42,336	10,814	10,814
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		61.6	15.4	487	576	665				
DOUG FIR		40.4	15.2	691	815	939				
R ALDER		64.0	19.3	63	78	92				
WR CEDAR		84.1	29.7	151	214	278				
S SPRUCE		78.2	54.1	577	1,257	1,936				
TOTAL		99.6	14.2	402	468	535	396	202	99	
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		79.5	19.9	44	55	66				
DOUG FIR		82.9	20.7	12	15	18				
R ALDER		135.2	33.8	37	55	74				
WR CEDAR		174.1	43.5	15	27	39				
S SPRUCE		282.3	70.5	0	2	3				
TOTAL		54.9	13.7	133	154	175	128	65	32	
CL:	68.1 %	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		77.7	19.4	106	131	157				
DOUG FIR		76.7	19.2	49	61	72				
R ALDER		137.9	34.4	34	51	69				
WR CEDAR		183.3	45.8	24	45	65				
S SPRUCE		299.5	74.8	2	10	17				
TOTAL		37.7	9.4	270	298	326	60	31	15	
CL:	68.1 %	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
WHEMLOCK		80.2	20.0	17,916	22,401	26,886				
DOUG FIR		76.7	19.2	8,904	11,015	13,126				
R ALDER		131.8	32.9	2,515	3,750	4,984				
WR CEDAR		196.6	49.1	1,829	3,594	5,359				
S SPRUCE		286.0	71.4	450	1,576	2,701				
TOTAL		35.4	8.8	38,593	42,336	46,078	53	27	13	

Species, Sort Grade - Board Foot Volumes (Type)											Page 1										
T TSPCSTGR											Date 9/15/2015										
Project: NORTHWES											Time 9:56:48AM										
T18N R04W S30 T0003											T18N R04W S30 T0003										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
18N	04W	30	NORTHWEST	0003	63.00	33	92	S	W												
Spp	S	So	Gr	%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
					Net BdFt	Def%	Gross		Net	Log Scale Dia.				Log Length				Ln	Dia		Bd
									2-4	5-7	8-11	12+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
DF	DM	2S		37	2.3	7,921	7,739	488					100	2	1	97	39	15	360	1.98	21.5
DF	DM	3S		8	.7	1,724	1,711	108					100	13	25	62	35	9	114	0.95	15.0
DF	DM	4S		1		174	174	11		87	13			49	22	29	23	6	31	0.42	5.6
DF	DM	UT															28	2		0.34	.7
DF	OS	SM		2		488	488	31					100			100	40	19	600	2.83	.8
DF	OS	2S		51	6.2	11,232	10,540	664					100	4		96	40	23	888	4.51	11.9
DF	RO	2S		1		64	64	4					100			100	32	13	190	1.78	.3
DF	Totals			49	4.1	21,604	20,717	1,305		1	8	91	0	4	3	93	36	14	371	2.20	55.8
WH	DM	2S		49	3.3	7,966	7,707	486					100	4		96	39	15	313	1.83	24.6
WH	DM	3S		15	4.2	2,365	2,266	143					100	8	13	79	37	9	105	0.81	21.7
WH	DM	4S		10		1,462	1,462	92		89	11			22	15	19	29	6	36	0.38	40.8
WH	DM	UT															21	2		0.19	3.7
WH	OS	2S		24	3.2	3,886	3,763	237					100	7		93	40	20	682	3.47	5.5
WH	OS	UT		2		244	244	15					100			100	40	16	400	2.40	.6
WH	Totals			36	3.0	15,924	15,442	973		8	16	76	2	6	4	88	34	9	159	1.13	97.0
RC	DM	3S		60	.8	3,376	3,348	211			63	37	4	10	25	62	36	10	139	1.29	24.1
RC	DM	4S		20	2.0	1,106	1,084	68		100				37	6	58	33	5	41	0.39	26.7
RC	OS	3S		20	9.4	1,196	1,084	68					100			57	33	21	600	5.58	1.8
RC	Totals			13	2.9	5,678	5,516	348		20	38	42	2	22	16	60	34	8	105	1.00	52.6
RA	DM	2S		34		293	293	18					100			100	34	12	170	1.18	1.7
RA	DM	3S		33		278	278	18					100			100	34	10	130	0.89	2.1
RA	DM	4S		33		279	279	18		42	58			100			24	7	35	0.43	7.9
RA	DM	UT															20	2		0.19	4.1
RA	Totals			2		850	850	54		14	52	34		33	67		25	6	54	0.57	15.9
Type Totals					3.5	44,055	42,524	2,679		6	16	78	1	8	6	85	34	10	192	1.36	221.3

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT NORTHWES				DATE	9/15/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
18N	04W	30	NORTHWEST	0003	63.00	33	173	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	33	173	5.2							
CRUISE	17	92	5.4	6,540		1.4				
DBH COUNT										
REFOREST										
COUNT	16	81	5.1							
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	29	19.4	29.8	108	17.2	93.8	21,604	20,717	4,443	4,443
WHEMLOCK	43	46.9	18.7	71	20.7	89.5	15,924	15,442	3,677	3,678
WR CEDAR	17	29.5	18.3	65	12.6	54.0	5,678	5,516	1,791	1,791
R ALDER	3	7.9	14.0	49	2.3	8.5	850	850	231	231
TOTAL	92	103.8	20.8	75	53.9	245.9	44,055	42,524	10,142	10,143
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	46.4	8.8	1,187	1,301	1,415					
WHEMLOCK	67.0	10.2	526	585	645					
WR CEDAR	86.1	21.5	246	314	381					
R ALDER	62.4	43.2	76	133	191					
TOTAL	79.7	8.3	684	746	808	254	129	63		
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	86.1	15.0	17	19	22					
WHEMLOCK	109.5	19.0	38	47	56					
WR CEDAR	187.9	32.7	20	30	39					
R ALDER	225.1	39.2	5	8	11					
TOTAL	67.2	11.7	92	104	116	180	92	45		
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	80.0	13.9	81	94	107					
WHEMLOCK	92.0	16.0	75	90	104					
WR CEDAR	169.7	29.5	38	54	70					
R ALDER	215.4	37.5	5	9	12					
TOTAL	48.9	8.5	225	246	267	95	49	24		
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	81.0	14.1	17,798	20,717	23,636					
WHEMLOCK	96.3	16.8	12,855	15,442	18,028					
WR CEDAR	174.4	30.3	3,843	5,516	7,189					
R ALDER	221.3	38.5	523	850	1,177					
TOTAL	46.6	8.1	39,076	42,524	45,973	87	44	22		

TC TSTATS				STATISTICS				PAGE 1		
PROJECT NORTHWES				DATE 9/15/2015						
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
18N	04W	31	NORTHWEST	0004	3.00	3	13	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL	3	13	4.3							
CRUISE	2	12	6.0	211		5.7				
DBH COUNT										
REFOREST										
COUNT	1	1	1.0							
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
WHEMLOCK	8	55.6	20.3	93	27.7	125.1	22,423	20,468	5,390	5,394
DOUG FIR	3	10.9	32.5	109	11.0	62.5	14,674	14,575	2,995	2,995
WR CEDAR	1	4.1	26.6	67	3.0	15.6	1,499	1,499	515	515
TOTAL	<i>12</i>	<i>70.5</i>	<i>23.0</i>	<i>94</i>	<i>42.4</i>	<i>203.2</i>	<i>38,596</i>	<i>36,542</i>	<i>8,899</i>	<i>8,903</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
WHEMLOCK	52.4	19.8	388	484	579					
DOUG FIR	22.3	15.5	1,158	1,370	1,582					
WR CEDAR										
TOTAL	<i>68.1</i>	<i>20.5</i>	<i>553</i>	<i>696</i>	<i>838</i>	<i>202</i>	<i>103</i>			<i>50</i>
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7			10
WHEMLOCK	110.3	76.3	13	56	98					
DOUG FIR	114.6	79.3	2	11	19					
WR CEDAR	173.2	119.8		4	9					
TOTAL	<i>98.9</i>	<i>68.4</i>	<i>22</i>	<i>70</i>	<i>119</i>	<i>562</i>	<i>287</i>			<i>140</i>
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7			10
WHEMLOCK	94.4	65.3	43	125	207					
DOUG FIR	114.6	79.3	13	63	112					
WR CEDAR	173.2	119.8		16	34					
TOTAL	<i>81.0</i>	<i>56.1</i>	<i>89</i>	<i>203</i>	<i>317</i>	<i>377</i>	<i>192</i>			<i>94</i>
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7			10
WHEMLOCK	96.6	66.9	6,785	20,468	34,150					
DOUG FIR	114.6	79.3	3,023	14,575	26,128					
WR CEDAR	173.2	119.8		1,499	3,295					
TOTAL	<i>87.3</i>	<i>60.4</i>	<i>14,475</i>	<i>36,542</i>	<i>58,608</i>	<i>438</i>	<i>223</i>			<i>109</i>

T18N R04W S30 T05RW										T18N R04W S30 T05RW			
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt				
18N	04W	30	NORTHWEST	05RW	.20	2	6	S	W				

Spp	So	Gr	% 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 Ft	Dia In	Bd Ft	CF/ Lf	
								2-4	5-7	8-11	12+	12-20	21-30	31-35	36-99					
DF	DM	4S	100	853	853	0	100				100				37	5	40	0.48	21.3	
DF	Totals		37	853	853	0	100				100				37	5	40	0.48	21.3	
WH	DM	4S	66	395	395	0	100				100				30	5	30	0.40	13.2	
WH	DM	UT	34	199	199	0	100				100				40	2	10	0.23	19.9	
WH	Totals		26	.0	594	594	0	33	67					67	33	36	3	18	0.29	33.1
RA	DM	4S	100	833	833	0	100				100				27	5	30	0.40	27.8	
RA	Totals		37	833	833	0	100				100				27	5	30	0.40	27.8	
Type Totals				2,280	2,280	0	9	91					54	46	33	4	28	0.37	82.1	

TC TSTATS		STATISTICS				PAGE 1				
		PROJECT NORTHWES				DATE 9/15/2015				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
18N	04W	30	NORTHWEST	05RW	0.20	2	6	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		2	6	3.0						
CRUISE		2	6	3.0	16	36.5				
DBH COUNT										
REFOREST COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	2	21.3	13.1	39	5.5	20.0	853	853	383	383
WHEMLOCK	2	33.1	10.5	40	6.2	20.0	594	594	342	342
R ALDER	2	27.8	11.5	27	5.9	20.0	833	833	297	297
TOTAL	6	82.1	11.6	35	17.6	60.0	2,280	2,280	1,022	1,022
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			40	40	40					
WHEMLOCK	70.7	66.2	7	20	33					
R ALDER			30	30	30					
TOTAL	36.5	16.3	25	30	35	63	32	16		
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	141.4	132.4		21	50					
WHEMLOCK	28.8	26.9	24	33	42					
R ALDER	141.4	132.4		28	64					
TOTAL	.5	.5	82	82	83	0	0	0		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR	141.4	132.4		20	46					
WHEMLOCK			20	20	20					
R ALDER	141.4	132.4		20	46					
TOTAL			60	60	60					
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	141.4	132.4		853	1,983					
WHEMLOCK	46.7	43.7	334	594	854					
R ALDER	141.4	132.4		833	1,935					
TOTAL	10.9	10.2	2,047	2,280	2,512	8	4	2		

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

T17N R05W S01 Ty0001	35.0
T18N R04W S20 Ty0002	44.0
T18N R04W S31 Ty000	3.0

Project NORTHWES
Acres 145.20

Page No 1
Date: 9/15/2015
Time 9:56:48AM

Species	Total	Total	Total	Net Cubic Ft/		CF/	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log	LF	Gross	Net	Gross	Net
DOUG FIR	2,996	8,575	19,180	224.60	78.48	2.17	6,730	6,730	3,307	3,223
WHEMLOCK	6,426	13,157	15,917	77.42	37.81	1.08	4,974	4,974	2,098	2,049
WR CEDAR	3,255	5,567	4,438	58.01	33.92	1.01	1,888	1,888	573	558
R ALDER	5,481	8,155	3,093	20.52	13.79	0.48	1,125	1,125	396	392
S SPRUCE	78	211	478	234.93	87.11	2.65	184	184	88	82
Totals	18,236	35,666	43,105	81.71	41.78	1.24	14,901	14,901	6,462	6,304

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	12,755	27,511	40,012	108.01	50.08	1.43	13,776	13,777	6,066	5,912
H	5,481	8,155	3,093	20.52	13.79	0.48	1,125	1,125	396	392
Totals	18,236	35,666	43,105	81.71	41.78	1.24	14,901	14,901	6,462	6,304



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

FPA/N No: 2418305

Effective Date: 12/01/2015

Expiration Date: 12/01/2018

Shut Down Zone: 651N

EARR Tax Credit: Eligible Non-eligible

Reference: Northwest

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

Decision

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

FPA/N Classification

Number of Years Granted on Multi-Year Request

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

Conditions on Approval / Reasons for Disapproval

Issued By Josh Meek

Region: South Puget Sound Region

Title: Resource Protection Forester

Date: 12/01/2015

Copies to: Landowner, Timber Owner and Operator.

Issued in person: Landowner Timber Owner Operator By: _____

Appeal Information

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

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

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

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

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

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

And

Department Of Natural Resources
South Puget Sound Region
950 Farman Avenue North
Enumclaw Wa 98022

Other Applicable Laws

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

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

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

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

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

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

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

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

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

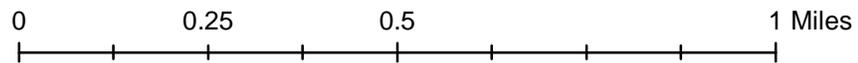
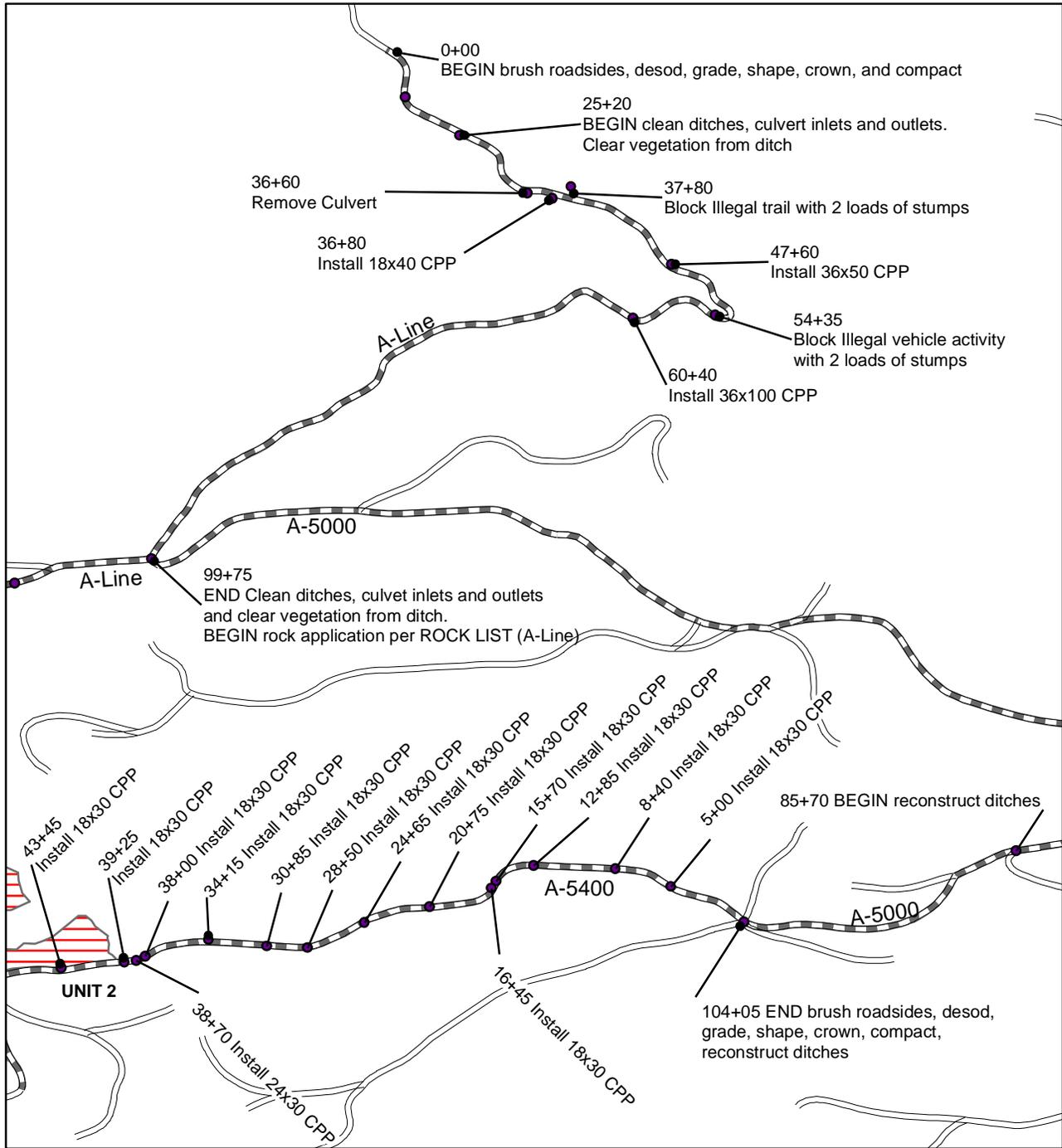
If the seller fails to notify the buyer about the continuing forest land obligation, the seller must pay the buyer's costs related to continuing forest land obligations, including all legal costs and reasonable attorneys' fees incurred by the buyer in enforcing the continuing forest land obligation against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

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

DNR affidavit of mailing:

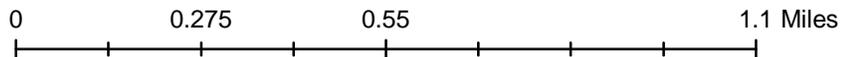
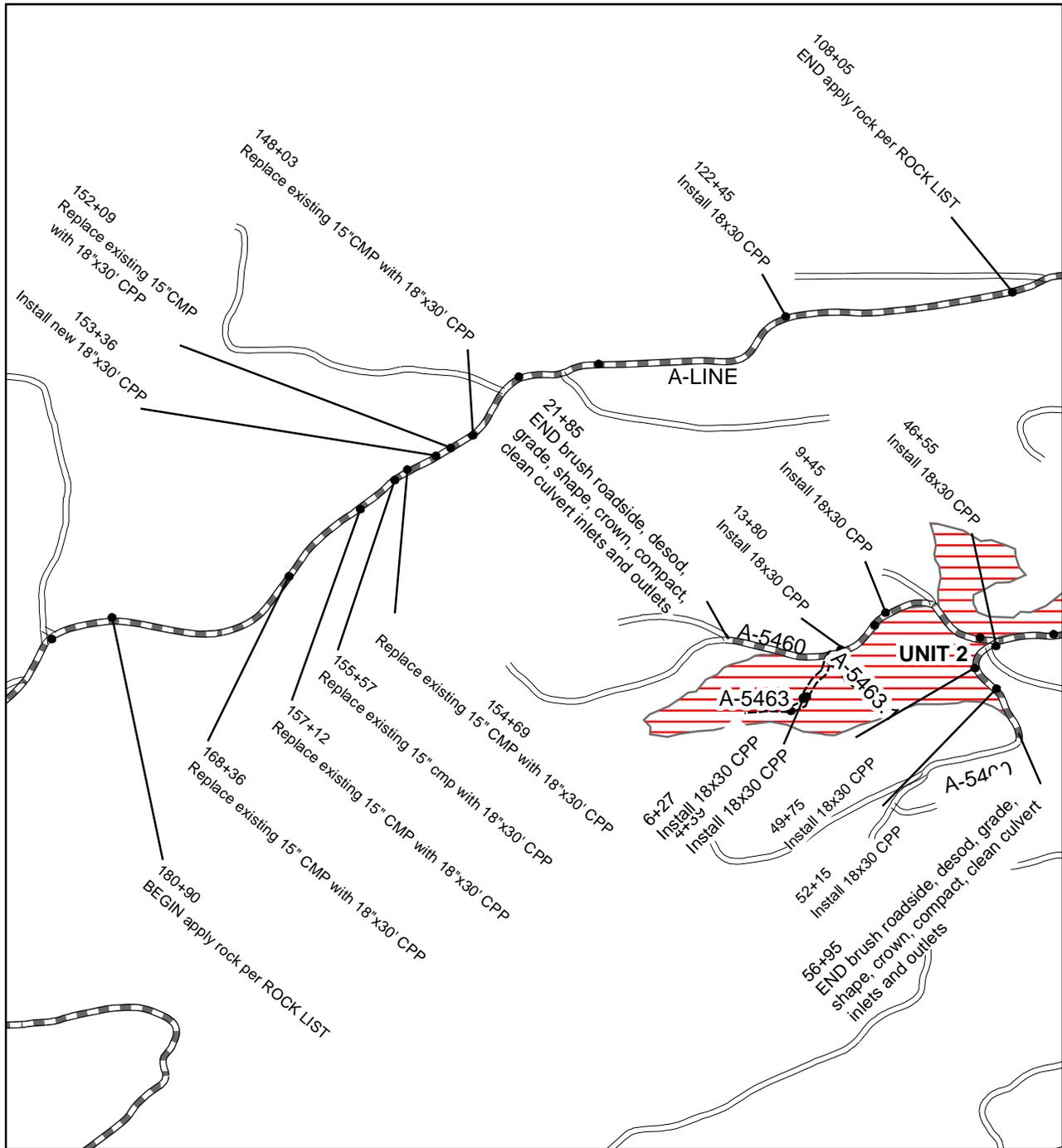
On this day 12/01/2015, I placed in the United States mail at Enumclaw,
WA, (post office location)
postage paid, a true and accurate copy of this document. Notice of Decision FPA # 2418305
Sherry Tomlinson _____
(Printed name) (Signature)

ROAD PLAN DETAIL MAP NORTH WEST TIMBER SALE PAGE 1 OF 6



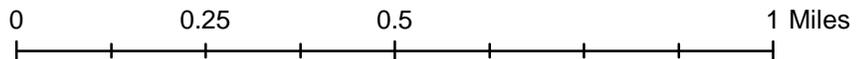
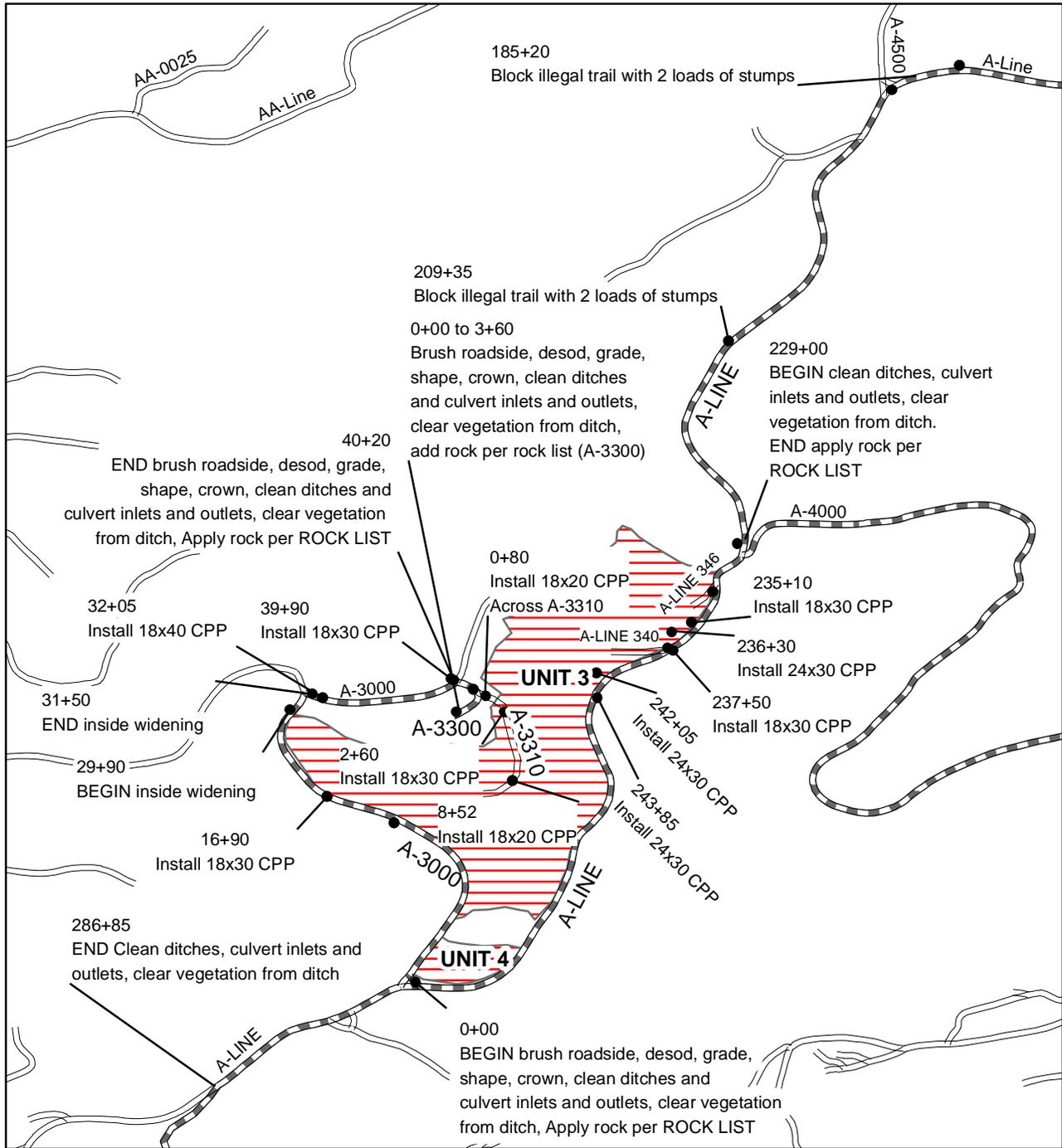
LEGEND	
●	ROAD STATION
====	EXISTING ROADS
-----	NEW ROAD CONSTRUCTION
- - - - -	REQUIRED PRE-HAUL MAINTENANCE

ROAD PLAN DETAIL MAP NORTH WEST TIMBER SALE PAGE 2 OF 6



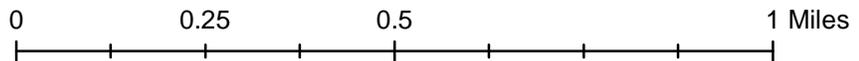
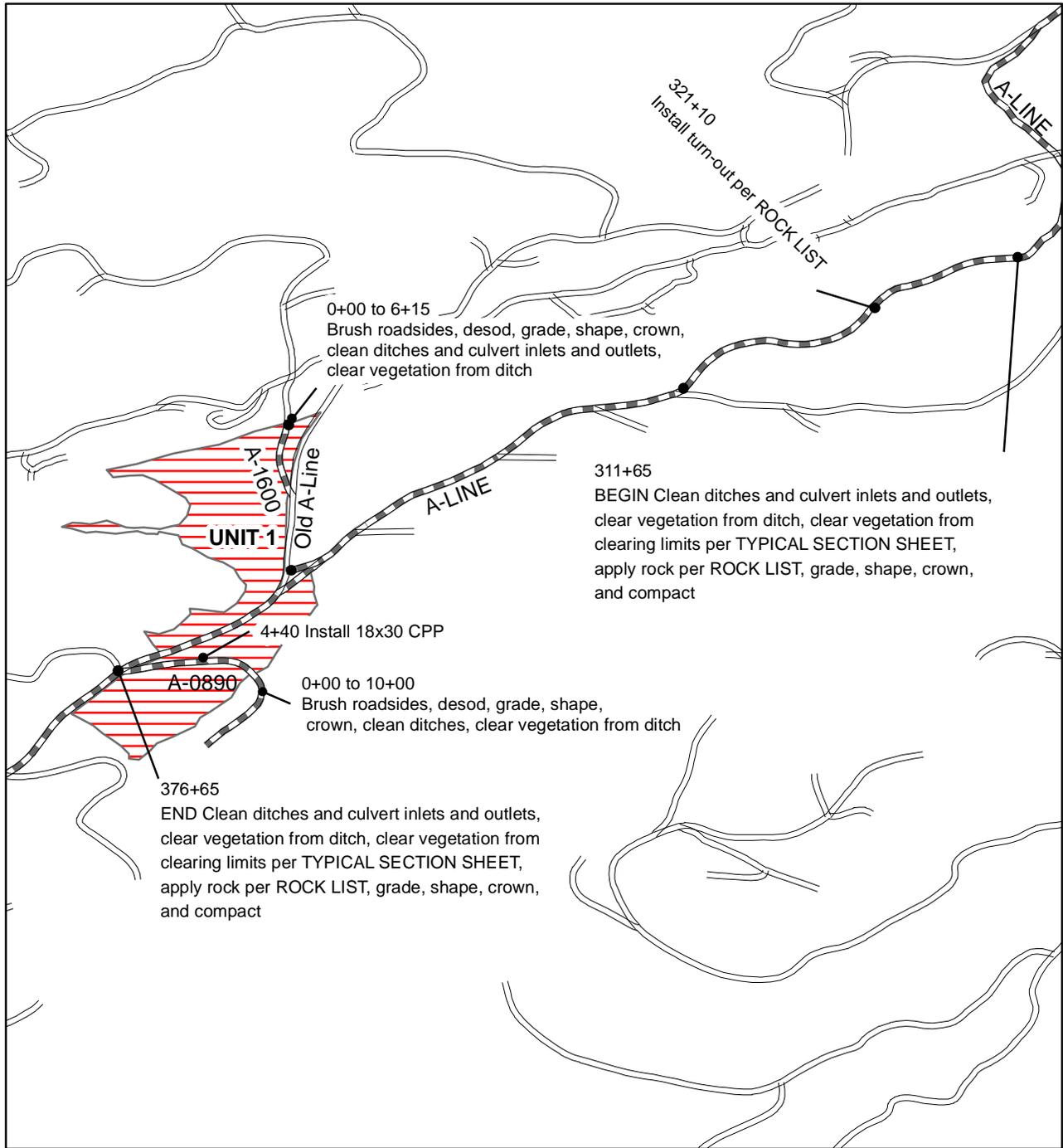
LEGEND	
•	ROAD STATION
====	EXISTING ROADS
-----	NEW ROAD CONSTRUCTION
- - - - -	REQUIRED PRE-HAUL MAINTENANCE

ROAD PLAN DETAIL MAP NORTH WEST TIMBER SALE PAGE 3 OF 6



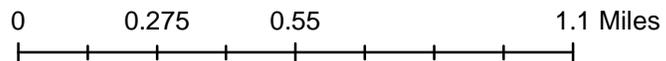
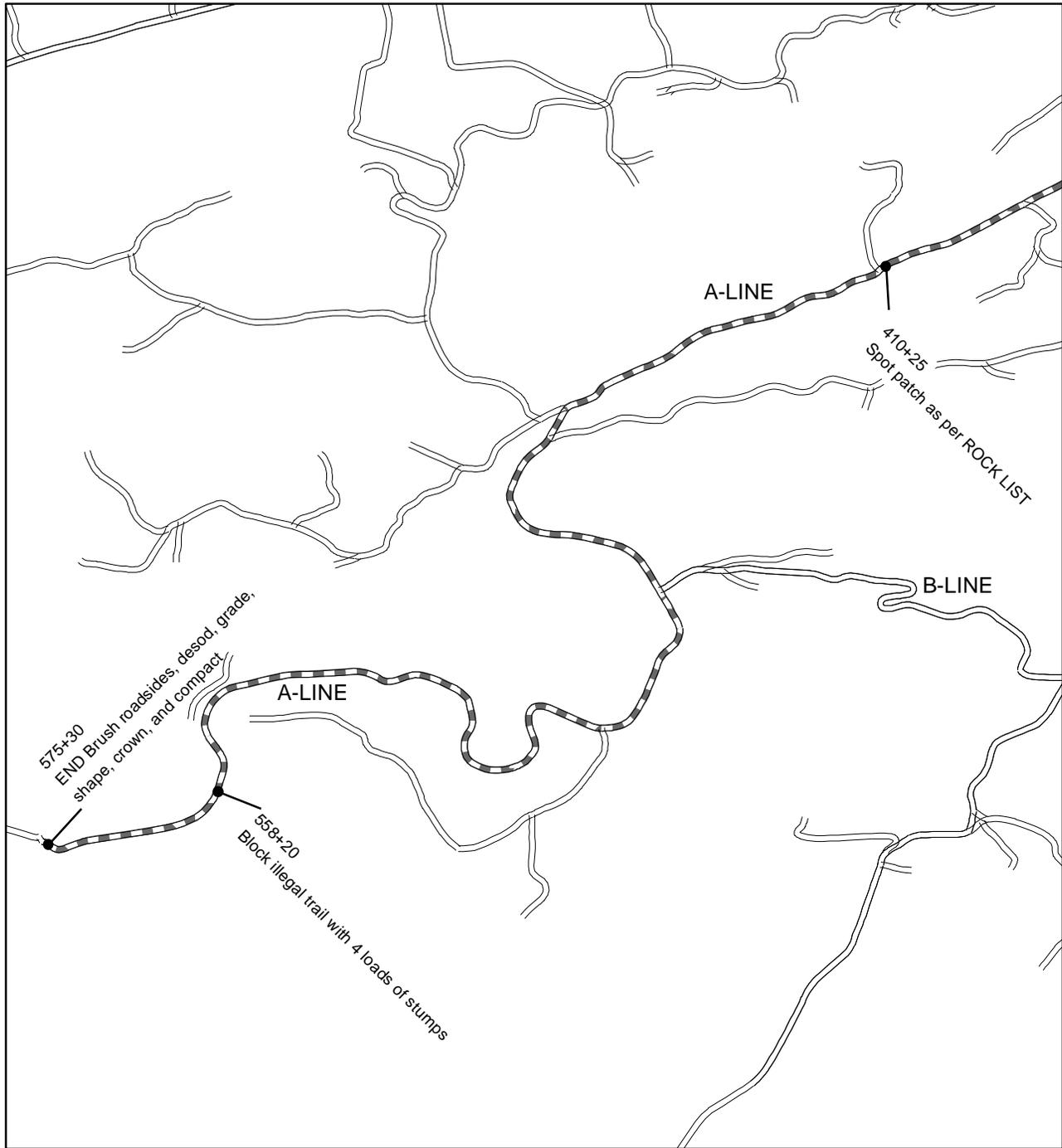
LEGEND	
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———	ROAD TYPES
- - - - -	REQUIRED PRE-HAUL MAINTENANCE

ROAD PLAN DETAIL MAP NORTH WEST TIMBER SALE PAGE 4 OF 6



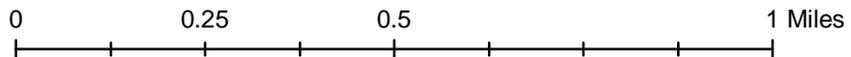
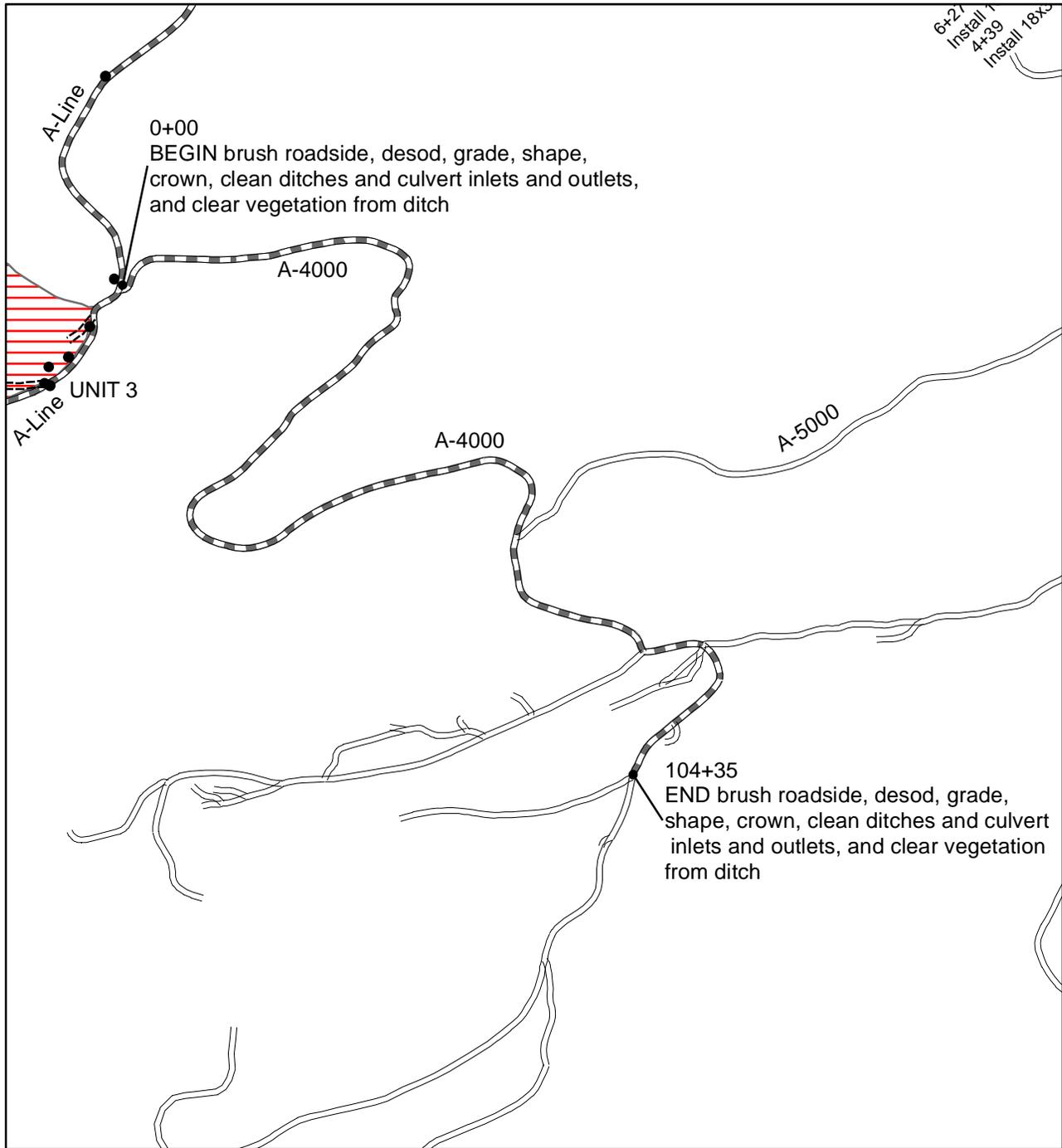
LEGEND	
●	ROAD STATION
====	EXISTING ROADS
-----	NEW ROAD CONSTRUCTION
- - - - -	REQUIRED PRE-HAUL MAINTENANCE

ROAD PLAN DETAIL MAP
NORTH WEST TIMBER SALE
PAGE 5 OF 6



LEGEND	
●	ROAD STATION
====	EXISTING ROADS
-----	NEW ROAD CONSTRUCTION
-----	REQUIRED PRE-HAUL MAINTENANCE

ROAD PLAN DETAIL MAP NORTH WEST TIMBER SALE PAGE 6 OF 6



LEGEND	
●	ROAD STATION
———	EXISTING ROADS
- - - - -	NEW ROAD CONSTRUCTION
- · - · -	REQUIRED PRE-HAUL MAINTENANCE

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

NORTHWEST TIMBER SALE ROAD PLAN
GRAYS HARBOR COUNTY
BLACK HILLS DISTRICT

AGREEMENT NO.: 30-091937

STAFF ENGINEER: GREG JOHNSON

DATE: 7/13/2015

SECTION 0 – SCOPE OF PROJECT

0-1 ROAD PLAN SCOPE

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

0-2 REQUIRED ROADS

The specified work on the following roads is required.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
A-Line	0+00 to 575+30	Pre-haul maintenance
A-890	0+00 to 10+00	Pre-haul maintenance
A-1600	0+00 to 6+15	Pre-haul maintenance
A-3000	0+00 to 40+20	Pre-haul maintenance
A-3000A	0+00 to 1+15	Pre-haul maintenance
A-3300	0+00 to 3+60	Pre-haul maintenance
A-4000	0+00 to 104+35	Pre-haul maintenance
A-5000	0+00 to 104+05	Pre-haul maintenance
A-5400	0+00 to 56+95	Pre-haul maintenance
A-5460	0+00 to 21+85	Pre-haul maintenance
A-5463	0+00 to 9+27	Closure, if built
A-5463.1	0+00 to 3+98	Closure, if built
A-3310	0+00 to 11+18	Closure, if built
A-Line 340	0+00 to 3+40	Closure, if built
A-Line 346	0+00 to 2+50	Closure, if built

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>
A-5463	0+00 to 9+27	Construction
A-5463.1	0+00 to 3+98	Construction
A-3310	0+00 to 11+18	Construction
A-Line 340	0+00 to 3+40	Construction
A-Line 346	0+00 to 2+50	Construction

0-4 CONSTRUCTION

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

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>
A-Line	0+00 to 575+30	Brush roadsides. Desod, grade, shape, crown and compact.
	25+20 to 99+75	Clean ditches, culvert inlets and outlets. Clear vegetation from ditch.
	37+80	Haul and block illegal trail with 2 loads of stumps.
	54+35	Haul 2 loads of stumps and block illegal vehicle activity.
	99+75 to 108+05	Apply rock per ROCK LIST.
	180+90 to 229+00	Apply rock per ROCK LIST.
	185+20	Haul 2 loads of stumps and block illegal vehicle activity.
	209+35	Haul 2 loads of stumps and block illegal trail.
	229+00 to 286+85	Clean ditches, culvert inlets and outlets. Clear vegetation from ditch. Install culverts per CULVERT LIST.
	311+65 to 376+65	Clean ditches, culvert inlets and outlets. Clear vegetation from ditch. Clear vegetation within Clearing Limits per TYPICAL SECTION SHEET. Apply rock per ROCK LIST. Grade, shape, crown and compact.
	321+10	Install turn-out per ROCK LIST.
410+25	Spot patch per ROCK LIST.	
558+20	Haul 4 loads of stumps and block illegal trail.	
A-890	0+00 to 10+00	Brush roadsides. Desod, grade, shape crown. Clean ditches. Clear vegetation from ditch.
	4+40	Install culvert per CULVERT LIST.
A-1600	0+00 to 6+15	Brush roadsides. Desod, grade, shape crown. Clean ditches, culvert inlets and outlets. Clear vegetation from ditch.
A-3000	0+00 to 40+20	Brush roadsides. Desod, grade, shape crown. Clean ditches, culvert inlets and outlets. Clear vegetation from ditch. Install culverts per CULVERT LIST. Apply rock per ROCK LIST.

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
A-3000	29+90 to 31+50	Widen traveled way two feet to inside of curve: Apply rock per ROCK LIST.
A-3000A	0+00 to 1+15	Brush roadsides. Grade, shape crown.
A-3300	0+00 to 3+60	Brush roadsides. Desod, grade, shape crown. Clean ditches, culvert inlets and outlets. Clear vegetation from ditch. Apply rock per ROCK LIST
A-4000	0+00 to 104+35	Brush roadsides. Desod, grade, shape crown. Clean ditches, culvert inlets and outlets.
A-5000	0+00 to 104+05 85+70 to 104+05	Brush roadsides. Desod, grade, shape crown and compact. Reconstruct ditches.
A-5400	0+00 to 56+95	Brush roadsides. Desod, grade, shape crown and compact. Clean culvert inlets and outlets. Install culverts per CULVERT LIST.
A-5460	0+00 to 21+85	Brush roadsides. Desod, grade, shape crown and compact. Clean culvert inlets and outlets. Install culverts per CULVERT LIST.

0-7 POST-HAUL MAINTENANCE

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

0-8 CLOSURE

This project includes road closure listed in Clause 9-15 ROAD CLOSURE.

0-12 DEVELOP ROCK SOURCE

Purchaser may develop an existing rock source. Rock source development will involve clearing, grubbing, overburden removal by end-hauling or end-pushing, drilling, blasting and processing rock. Rock source development will also involve manufacture of 2,000 cubic yard crushed rock stockpile in the North Rim Quarry. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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

1-4 ROAD TOLERANCES

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

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

1-6 ORDER OF PRECEDENCE

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

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

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

1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS

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

1-15 ROAD MARKING

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

- Wooden stakes for construction and pre-haul maintenance.

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 any hauling other than timber cut on the right-of-way, without written approval from the Contract Administrator.

1-25 ACTIVITY TIMING RESTRICTION

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

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

1-26 OPERATING DURING CLOSURE PERIOD

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

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

- Wheel track rutting exceeds 6 inches on roads.
- Surface or base stability problems persist.
- Weather is such that satisfactory results cannot be obtained in an area of operations.

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

1-32 BRIDGE AND ASPHALT SURFACE RESTRICTION

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

If tracked equipment is used on bridge or asphalt surfaces, Purchaser shall immediately cease all road construction and hauling operations. Purchaser shall remove any dirt, rock, or other material tracked or spilled on the bridge or asphalt surfaces and have surfaces evaluated 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. 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

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

<u>Road</u>	<u>Stations</u>
A-Line	0+00 to 575+30

2-5 MAINTENANCE GRADING – EXISTING ROAD

On the following roads, Purchaser shall use a grader to shape the existing surface before hauling. Purchaser shall accomplish all grading using a motor grader with a minimum of 175 horsepower.

<u>Road</u>	<u>Stations</u>
A-Line	0+00 to 575+30
A-890	0+00 to 10+00
A-1600	0+00 to 6+15
A-5000	0+00 to 104+05

<u>Road</u>	<u>Stations</u>
A-5400	0+00 to 56+95
A-5460	0+00 to 21+85
A-3000	0+00 to 40+20
A-3000A	0+00 to 1+15
A-3300	0+00 to 3+60
A-4000	0+00 to 104+35

2-6 CLEANING CULVERTS

On the following roads, Purchaser shall clean the inlets and outlets of all culverts.

<u>Road</u>	<u>Stations</u>
A-Line	25+20 to 99+75, 229+00 to 286+85, 311+65 to 376+65
A-1600	0+00 to 6+15
A-5400	0+00 to 56+95
A-5460	0+00 to 21+85
A-3000	0+00 to 40+20
A-3300	0+00 to 3+60
A-4000	0+00 to 104+35

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

On the following roads, Purchaser shall clean ditches, headwalls, and catchbasins. Work must be completed before hauling and must be done in accordance with the TYPICAL SECTION SHEET.

<u>Road</u>	<u>Stations</u>
A-Line	25+20 to 99+75, 229+00 to 286+85, 311+65 to 376+65
A-890	0+00 to 10+00
A-1600	0+00 to 6+15
A-5000	85+70 to 104+05
A-3000	0+00 to 40+20
A-3300	0+00 to 3+60

2-8 MAINTAINING EROSION CONTROL STRUCTURES

Purchaser shall clean and maintain all erosion control structures. Work must be completed before haul. Excavated material must be scattered outside the grubbing limits.

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-1 BRUSHING

On the following roads, Purchaser shall cut vegetative material up to 8 inches in diameter, including limbs, as shown on the BRUSHING DETAIL. Vegetative material shall be cut as near flush with the ground as possible, but shall not extend more than 3 inches above the ground. Brushing must be achieved by manual or mechanical cutting of brush, trees, and branches. Root systems and stumps of cut vegetation may not be disturbed unless directed by the Contract Administrator. Purchaser shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

<u>Road</u>	<u>Stations</u>
A-Line	0+00 to 575+30
A-890	0+00 to 10+00
A-1600	0+00 to 6+15
A-5000	0+00 to 104+05
A-5400	0+00 to 56+95
A-5460	0+00 to 21+85
A-3000	0+00 to 40+20
A-3000A	0+00 to 1+15
A-3300	0+00 to 3+60
A-4000	0+00 to 104+35

3-2 BRUSHING RESTRICTION

Pulling, digging, pushing over, and other non-cutting methods used for vegetation removal may not be used for brushing. Excavator buckets, log loaders and similar equipment may not be used for brushing unless otherwise approved in writing by the Contract Administrator.

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.

3-7 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.

3-10 GRUBBING

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

3-14 STUMPS WITHIN DESIGNATED WASTE AREAS

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 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 haul.

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

- Within 25 feet of a cross drain culvert.
- Within 50 feet of a live stream or wetland.
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 50%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush can fall into the ditch or onto the road surface.
- Against standing timber.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

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

3-30 EXCLUSION OF DOZER BLADES

Purchaser shall not use dozer blades for the piling of organic debris.

SECTION 4 – EXCAVATION

4-2 PIONEERING

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

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

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 15 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 5% in 100 feet.
- Maximum grade change for crest vertical curves is 5% in 100 feet.

4-5 CUT SLOPE RATIO

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

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

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

4-22 TURNAROUNDS

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

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

Purchaser shall construct ditches into the subgrade as specified on the TYPICAL SECTION SHEET.

4-27 DITCH WORK – MATERIAL USE PROHIBITED

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

<u>Road</u>	<u>Stations</u>
A-Line	25+20 to 99+75, 229+00 to 286+85, 311+65 to 376+65
A-890	0+00 to 10+00
A-1600	0+00 to 6+15
A-5000	85+70 to 104+05
A-3000	0+00 to 40+20
A-3000A	0+00 to 1+15
A-3300	0+00 to 3+60
A-4000	0+00 to 104+35

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

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

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

Purchaser may sidecast waste material on side slopes up to 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 areas identified or approved by the Contract Administrator. The amount of material allowed in a waste area is at the discretion of the Contract Administrator.

4-38 PROHIBITED WASTE DISPOSAL AREAS

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

- Within 50 feet of a cross drain culvert.
- Within 100 feet of a live stream or wetland.
- On side slopes steeper than 45%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Against standing timber.

4-47 NATIVE MATERIAL

Native material consists of naturally occurring material that is free of organic debris, trash, and rocks greater than 3 inches in any dimension.

4-48 BORROW MATERIAL

Borrow material may not contain more than 5% clay, organic debris, or trash by volume.

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.

4-60 FILL COMPACTION

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

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed 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 hauling.

4-63 EXISTING SURFACE COMPACTION

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

SECTION 5 – DRAINAGE

5-1 REMOVAL OF SHOULDER BERMS

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

5-5 CULVERTS

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

5-11 UNUSED MATERIALS STATE PROPERTY

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

5-15 CULVERT INSTALLATION

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

5-17 CROSS DRAIN SKEW AND SLOPE

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

5-18 CULVERT DEPTH OF COVER

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

5-20 ENERGY DISSIPATERS

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

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts. Rock used for headwalls must Quarry Spalls. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets. Minimum specifications require that rock be placed at a width of one culvert diameter on each side of the culvert opening, and to a height of one culvert diameter above the top of the culvert. Rock may not restrict the flow of water into culvert inlets or catch basins. Placement must be by zero-drop-height method only.

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 working days before starting any operations in the listed locations.

<u>Source</u>	<u>Location</u>
North Rim Quarry	NW ¼, Section 32, T18N, R04W

6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE

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

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>	<u>Quantity</u>	<u>Comment</u>
North Rim Quarry	NW ¼, Section 32, T18N, R04W	4 Inch Jaw Run	3050 cubic yards	Jaw run stockpile shall not be used to create the 2 Inch Minus Crushed stockpile

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 are subject to written approval by the Contract Administrator before their use.

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

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

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 1% of the total volume mined in that source.
- Oversize material is defined as rock fragments larger than two feet in any dimension.
- Oversized rock that exceeds the maximum allowable amount must be processed to make rock that is specified in this road plan.
- 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.
- 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 when placed in hauling vehicles. Purchaser shall provide a sieve analysis upon request from the Contract Administrator.

6-23 ROCK CRUSHING OPERATIONS

Rock crushing operations must conform to the following specifications:

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

6-30 2-INCH MINUS CRUSHED ROCK

% Passing 2" square sieve	100%
% Passing 1" square sieve	50 - 85%
% Passing U.S. #4 sieve	30 - 50%
% Passing U.S. #40 sieve	16% maximum
% Passing U.S. #200 sieve	5% maximum

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

6-34 4-INCH JAW RUN BALLAST ROCK

Ballast rock must be 100% equal to, or smaller than, 4 inches in at least one dimension.

% Passing 1 1/2" square sieve	45 - 65%
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Rock may contain no more than 5 percent organic debris, dirt, and trash.

6-41 SELECT PIT RUN ROCK

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

6-43 QUARRY SPALLS

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

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

6-55 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 quantities specified in the ROCK LIST are in-bank yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction.

6-56 ROCK MEASUREMENT BY TRUCK VOLUME

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

6-65 ROCK STOCKPILE LOCATION

Purchaser shall stockpile rock as listed below.

<u>Rock Source</u>	<u>Rock Type</u>	<u>Quantity (c.y.)</u>	<u>Stockpile Location</u>
North Rim Quarry	2 Inch Minus Crushed	2000	North Rim Quarry

6-67 ROCK STOCKPILE SPECIFICATIONS

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

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

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

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

6-70 APPROVAL BEFORE ROCK APPLICATION

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

6-71 ROCK APPLICATION

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

6-73 ROCK FOR WIDENED PORTIONS

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

6-75 OPTIONAL ROCK EXCEPTION

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

If less rock is applied, Purchaser shall submit a written plan, for approval in writing, describing how these roads will be constructed, used, maintained, and treated post-haul. Construction, use, and deactivation shall occur between May 1 and September 30 of the same operating season. At a minimum, deactivation shall consist of ripping the road surface, water barring the road, pulling slash on the road surface, and blocking the road with earthen barricades (in accordance with the attached EARTHEN BARRICADE DETAIL). All work shall be approved in writing by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
A-5463	0+00 to 9+27
A-5463.1	0+00 to 3+98
A-3310	0+00 to 11+18
A-Line 340	0+00 to 3+40
A-Line 346	0+00 to 2+50

SECTION 8 – EROSION CONTROL

8-15 REVEGETATION

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

<u>Road</u>	<u>Location</u>	<u>Qty (lbs)*</u>	<u>Type</u>
A-5463	0+00 to 9+27	25	Seed
A-5463.1	0+00 to 3+98	10	Seed
A-3310	0+00 to 11+18	30	Seed
A-Line 340	0+00 to 3+40	10	Seed
A-Line 346	0+00 to 2+50	8	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.

8-25 GRASS SEED

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

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

<u>Kind and Variety of Seed in Mixture</u>	<u>% by Weight</u>	<u>Minimum % pure seed</u>
Perennial Rye	25-35	90
Red Fescue	45-55	90
Highland Bent	5-15	85
White Clover	10-20	90
Inert and Other Crop	0.5	

SECTION 9 – POST-HAUL ROAD WORK

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

9-5 POST-HAUL MAINTENANCE

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

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-11 LANDING EMBANKMENT

Purchaser shall slope landing embankments to the original construction specifications.

9-15 ROAD CLOSURE

Purchaser shall close the following roads at the termination of use.

<u>Road</u>	<u>Stations</u>
A-5463	0+00 to 9+27
A-5463.1	0+00 to 3+98
A-3310	0+00 to 11+18
A-Line 340	0+00 to 3+40
A-Line 346	0+00 to 2+50

9-16 CLOSURE

At a minimum, closure consists of:

- Maintain road according to the FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.
- Construct non-drivable waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL immediately upslope of each culvert. Avoid installing intermediate waterbars between culverts. If it is necessary to install intermediate waterbars, they may not be keyed into the ditch. They should function only as road surface drains.
- Block roads with earthen barricades in accordance with the attached SPOILS BERM DETAIL.

SECTION 10 MATERIALS

10-17 CORRUGATED PLASTIC CULVERT

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

10-22 PLASTIC BAND

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

SECTION 11 SPECIAL NOTES

11-1 WET WEATHER ROCK APPLICATION

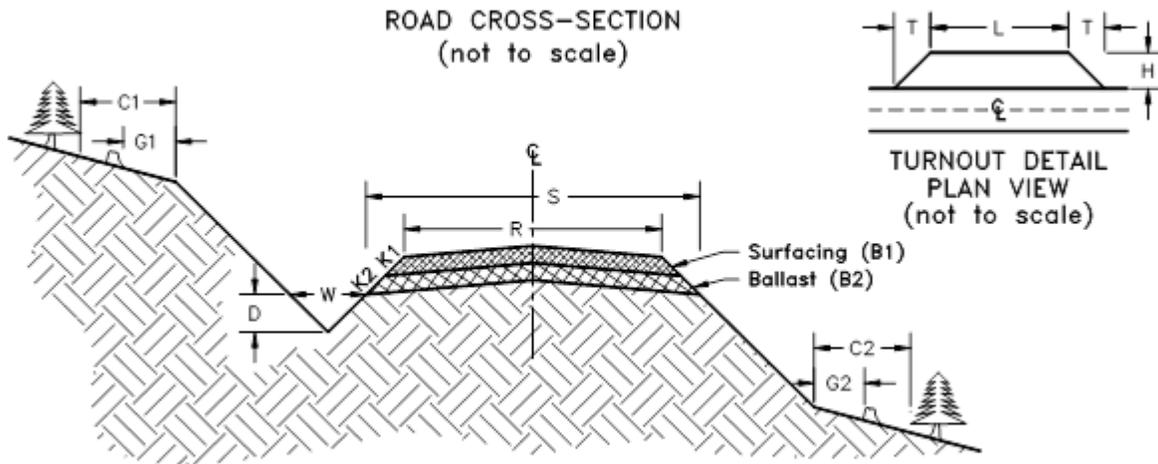
Additional rock may be needed on the following roads to haul in wet weather. It is recommended, but not required to apply rock during dry conditions prior to wet weather haul.

<u>Road</u>	<u>Stations</u>
A-890	0+00 to 10+00
A-1600	0+00 to 6+15
A-3000	0+00 to 40+20
A-3000A	0+00 to 1+15
A-3300	0+00 to 3+60
A-4000	0+00 to 104+35
A-5000	0+00 to 104+05
A-5400	0+00 to 56+95
A-5460	0+00 to 21+85

11-2 STUMPS USED FOR BLOCKAGES

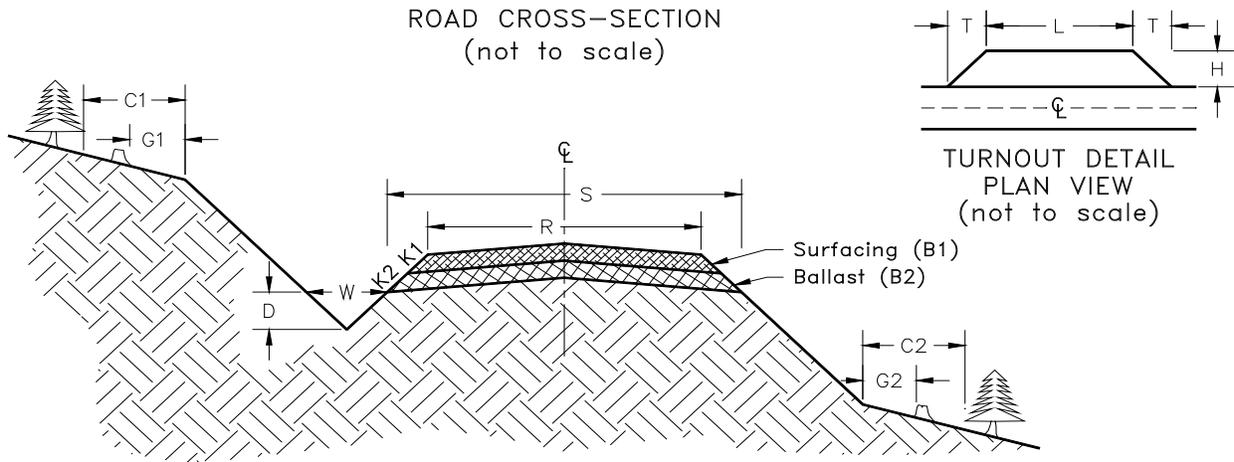
Purchaser shall use stumps from the optional road construction right of ways for blockages as listed in Clause 0-6 PRE-HAUL MAINTENANCE. Locations of additional blockage stumps are subject to written approval by the Contract Administrator.

TYPICAL SECTION SHEET



Road Number	From Station	To Station	Tolerance Class	Subgrade Width (ft)	Road Width(ft)	Ditch (ft)		Crown in. @ CL	Grubbing Limits (ft)		Clearing Limits (ft)	
				S	R	Width	Depth		G1	G2	C1	C2
A-Line 346	0+00	2+50	C	16	12	3	1	4	3	3	10	10
A-Line 340	0+00	3+40	C	16	12	3	1	4	3	3	10	10
A-5463	0+00	9+27	C	16	12	3	1	4	3	3	10	10
A-5463.1	0+00	3+98	C	16	12	3	1	4	3	3	10	10
A-3310	0+00	1+20	C	16	12	3	1	4	3	3	tags	tags
A-3310	1+20	11+18	C	16	12	3	1	4	3	3	10	10
A-Line	0+00	311+65	C	16	12	3	1	4	-	-	-	-
A-Line	311+65	376+65	C	16	12	3	1	4	-	-	10	10
A-Line	376+65	575+30	C	16	12	3	1	4	-	-	-	-
A-890	0+00	10+00	C	16	12	3	1	4	-	-	-	-
A-1600	0+00	6+15	C	16	12	3	1	4	-	-	-	-
A-3000	0+00	40+20	C	16	12	3	1	4	-	-	-	-
A-3000A	0+00	1+15	C	16	12	3	1	4	-	-	-	-
A-3300	0+00	3+60	C	16	12	3	1	4	-	-	-	-
A-4000	0+00	104+35	C	16	12	3	1	4	-	-	-	-
A-5000	0+00	104+05	C	16	12	3	1	4	-	-	-	-
A-5400	0+00	56+95	C	16	12	3	1	4	-	-	-	-
A-5460	0+00	21+85	C	16	12	3	1	4	-	-	-	-

ROCK LIST
(Page 1 of 2)



BALLAST

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in.)	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout		
									Length	Width	Taper
			K2	B2	4 INCH JAW				L	H	T
A-Line	321+10	322+10	1 ½:1	15	64	1	64	North Rim Quarry or commercial source	60	10	20
A-3000	29+90	31+50	1 ½:1	15	64	1.6	103				
A-3300	0+00	3+60	1 ½:1	15	64	3.6	230				
A-5463*	0+00	9+27	1 ½:1	15	64	9.27	595				
A-5463.1*	0+00	3+98	1 ½:1	15	64	3.99	256				
A-3310*	0+00	11+18	1 ½:1	15	64	11.16	717				
A-Line 340*	0+00	3+40	1 ½:1	15	64	3.4	218				
A-Line 346*	0+00	2+50	1 ½:1	15	64	2.5	160				

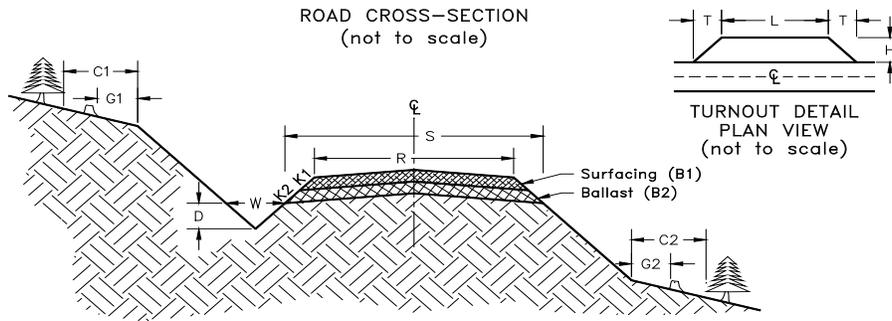
* Optional Rock

4 INCH JAW RUN Total 2343 Cubic Yards

If Purchaser elects to haul on optional rock roads in dry weather, the depth listed above is recommended but not required.

NOTE: Yardages are estimated on a (in-place) basis. Compliance of rock will be based on compacted depth measurement. Apply appropriate factors to determine loose amounts for estimating purposes.

ROCK LIST
(Page 2 of 2)



SURFACE

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in.)	C.Y./ Station	# of Stations	C.Y. Total	Rock Source
			K1	B1	2 INCH MINUS			
A-Line	99+75	108+05	1 ½:1	6	24	8.3	249	North Rim Quarry or commercial source
	150+00	152+00	1 ½:1	6	24	2	48	
	157+00	160+57	1 ½:1	6	24	3.6	86	
	180+90	229+00	1 ½:1	6	24	48.1	1443	
	311+65	376+65	1 ½:1	6	24	65	1950	
	SPOT PATCH		-	-	-	-	500	
ALL	CULVERT BEDDING		-	-	20	9	180	
	2 Inch Minus Crushed Stockpile						2000	

*Optional Rock

SURFACE TOTAL 4456 cubic yards
Stockpile TOTAL: 2000 cubic yards

NOTE: Yardages are estimated on a (in-place) basis. Compliance of rock will be based on compacted depth measurement, except for stockpile. Apply appropriate factors to determine loose amounts for estimating purposes.

ARMOR, ENERGY DISSIPATER & SELECT FILL

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Total	Rock Source
			K1	B1	Quarry Spalls			
All	PER CULVERT LIST				PER CULVERT LIST		53	North Rim Quarry or Commercial

*Optional Rock

TOTAL 53 Cubic Yards

If Purchaser elects to haul on optional rock roads in dry weather, the depth listed above is recommended but not required.

CULVERT AND DRAINAGE LIST, pg 1 of 2

Road Number	Location	Culvert		Length (ft)			ARMOR & EN. DISP. (C.Y.)			Backfill Material	Placement Method	Const. Staked	Remarks
		Dia. (in)	Type	Culvert	Downspt	Flume	Inlet	Outlet	Type				
A-Line	36+60	18	PD	-	-	-	-	-	-	-	-	-	Remove culvert
	36+80	18	PD	40	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	47+60	36	PD	50	-	-	2	2	QS	2"-	-	-	Live stream
	60+40	36	PD	100	-	-	2	2	QS	2"-	-	-	Live stream
	122+45	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	148+03	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Replace existing 15"cmp. Cross drain.
	152+09	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Replace existing 15"cmp. Cross drain.
	153+36	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	154+69	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Replace existing 15"cmp. Cross drain.
	155+57	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Replace existing 15"cmp. Cross drain.
	157+12	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Replace existing 15"cmp. Cross drain.
	168+36	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Replace existing 15"cmp. Cross drain.
	235+10	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	236+30	24	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Live stream
	237+50	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	242+05	24	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Live stream
	243+85	24	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Live stream
A-890	4+40	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
A-5400	5+00	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	8+40	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	12+85	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	15+70	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	16+45	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	20+75	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	24+65	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	28+50	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	30+85	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	34+15	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	38+00	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	38+70	24	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Live stream
	39+25	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	43+45	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	46+55	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	49+75	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	52+15	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain

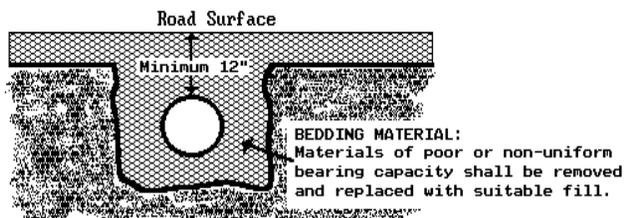
CULVERT AND DRAINAGE LIST, pg 2 of 2

Road Number	Location	Culvert		Length (ft)			ARMOR & EN. DISP. (C.Y.)			Backfill Material	Placement Method	Const. Staked	Remarks
		Dia. (in)	Type	Culvert	Downspt	Flume	Inlet	Outlet	Type				
A-5460	9+45	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	13+80	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
A-5463	4+39	18	PD	30	-	-	0.5	0.5	QS	NT	-	-	Cross drain
	6+27	18	PD	30	-	-	0.5	0.5	QS	NT	-	-	Cross drain
A-3000	16+90	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	32+05	18	PD	40	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	39+90	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
A-3310	0+80	18	PD	20	-	-	0.5	0.5	QS	NT	-	-	Install across A-3310
	2+60	18	PD	30	-	-	0.5	0.5	QS	NT	-	-	Cross drain
	8+52	18	PD	20	-	-	0.5	0.5	QS	NT	-	-	Cross drain
ANY ROAD LISTED IN CLAUSE 0-2		18	PD	30	-	-	0.5	0.5	QS	NT	-	-	INSTALL AT C.A. DISCRETION
		18	PD	30	-	-	0.5	0.5	QS	NT	-	-	
		18	PD	30	-	-	0.5	0.5	QS	NT	-	-	

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

PS = Polyethylene Pipe Single Wall AASHTO No. M294 Type C or ASTM F2648

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



Key:

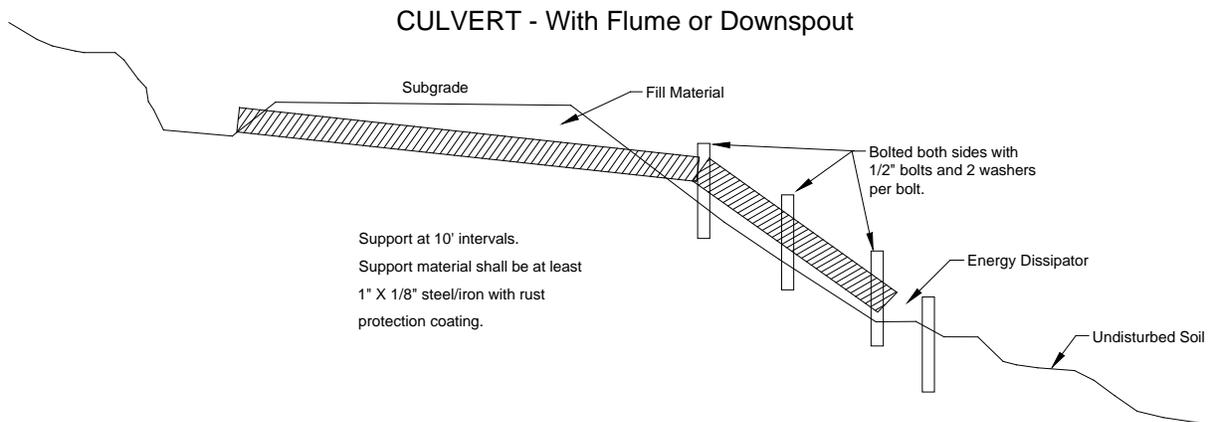
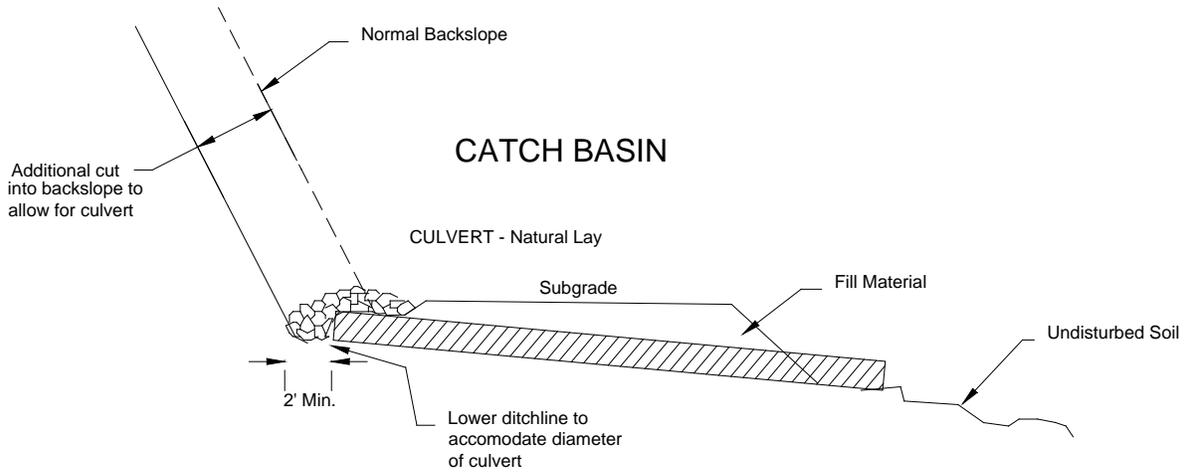
- 2"- - Two Inch Minus
- NT - Native (bank run)
- QS - Quarry Spalls
- Flume - Half round pipe
- Downspout - Full round pipe
- En. Disp – Energy dissipater

COMPACTION LIST

Road	From Station	To Station	Type	Max Depth Per Lift (inches)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)	Maximum Amount of Deflection (inches)
All	All		Subgrade	12	Vibratory Smooth Drum	14000	4	3	2
All	All		Rock		Vibratory Smooth Drum	14000	5	3	1
All	All		Pre-haul Surface	6	Vibratory Smooth Drum	14000	5	3	1
All	All		Embankment	24	Excavation	40,000	-	-	2
All	All		Waste Area	24	Excavation	40,000	-	-	2

CULVERT AND DRAINAGE SPECIFICATION DETAIL

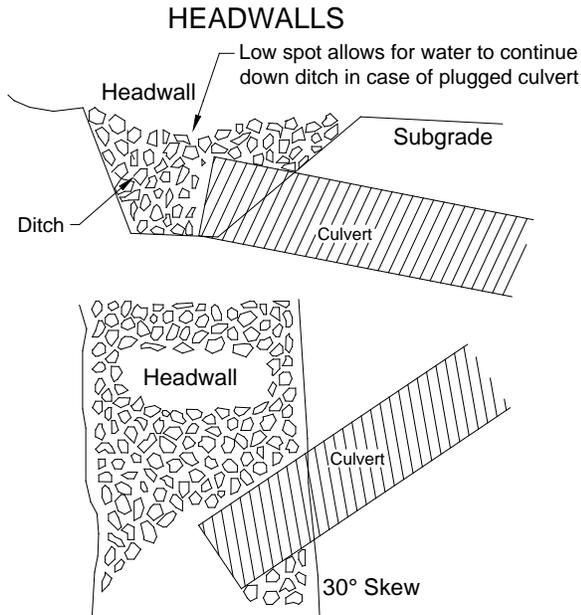
(Page 1 of 3)



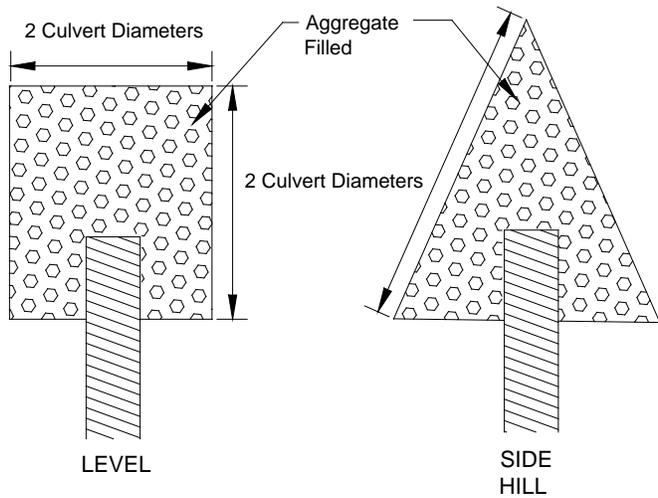
CULVERT AND DRAINAGE SPECIFICATION DETAIL

(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.

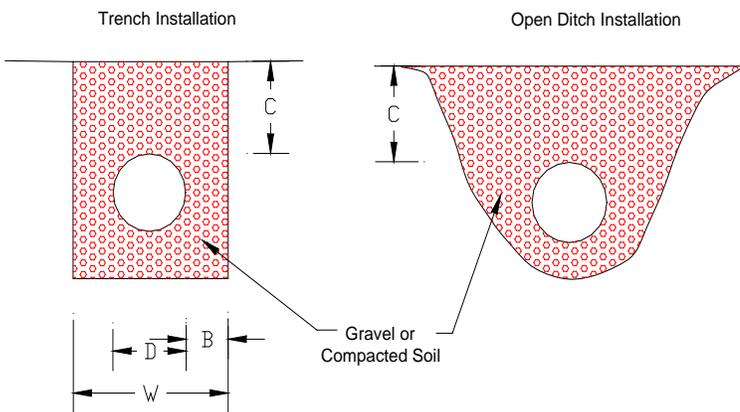
CULVERT AND DRAINAGE SPECIFICATION DETAIL

(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

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

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS, page 1 of 2

Cuts and Fills

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

Surface

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

Drainage

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

Preventative Maintenance

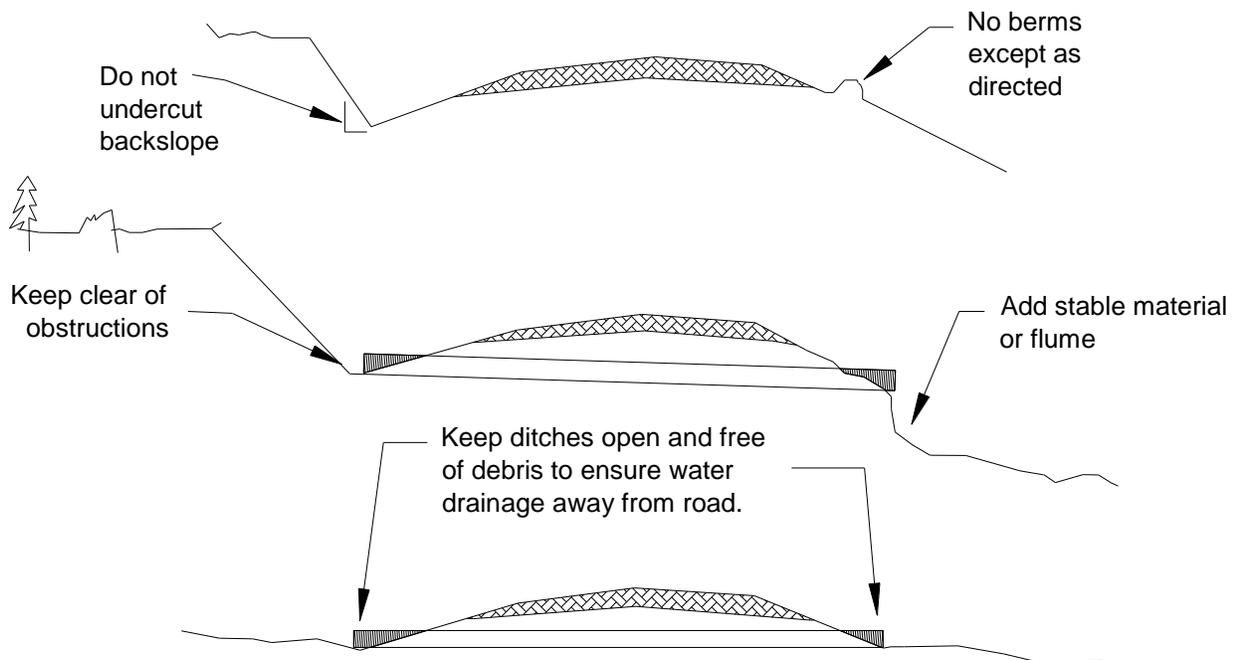
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

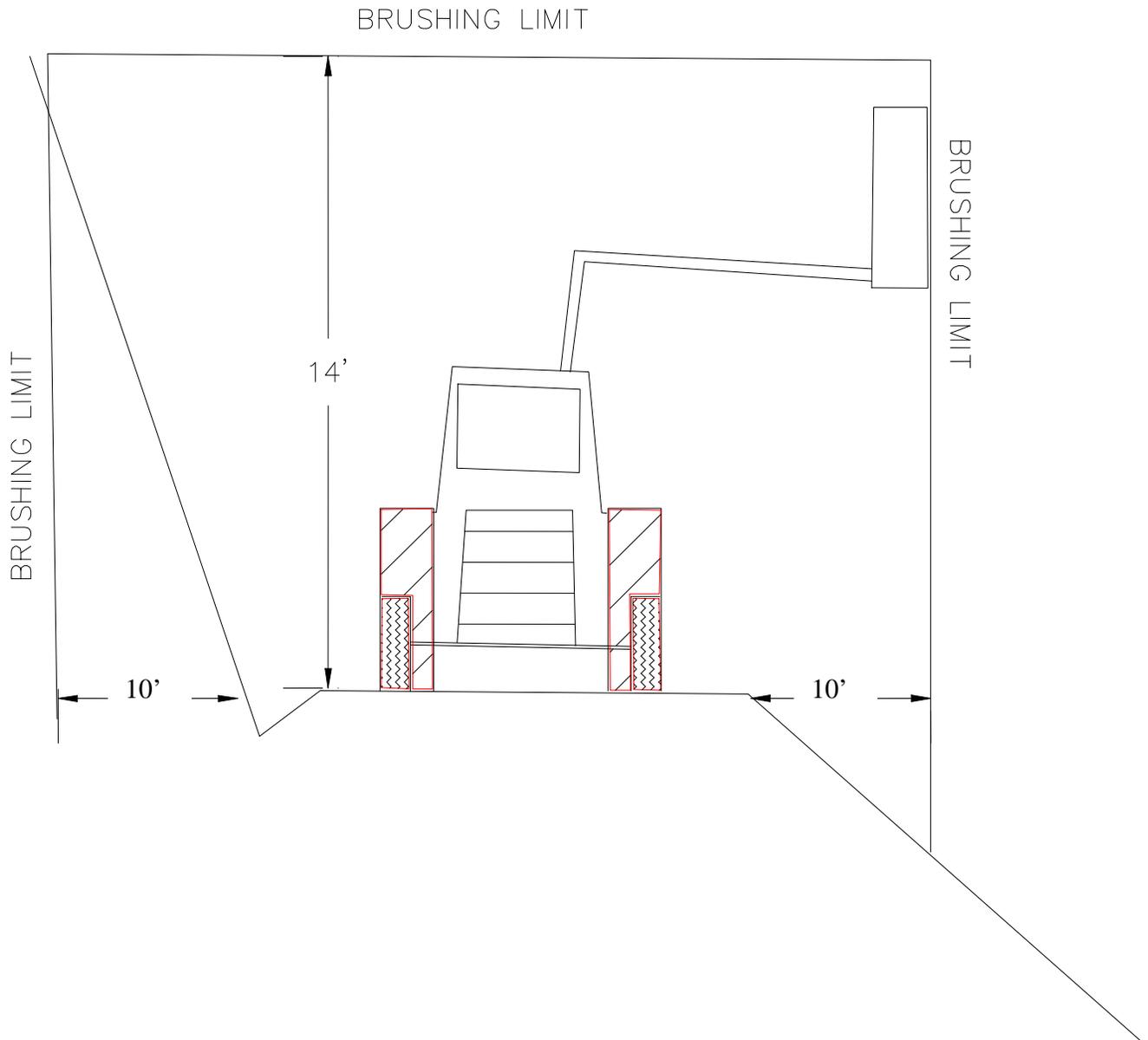
- At the conclusion of logging operations, ensure all conditions of these specifications have been met.

Debris

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

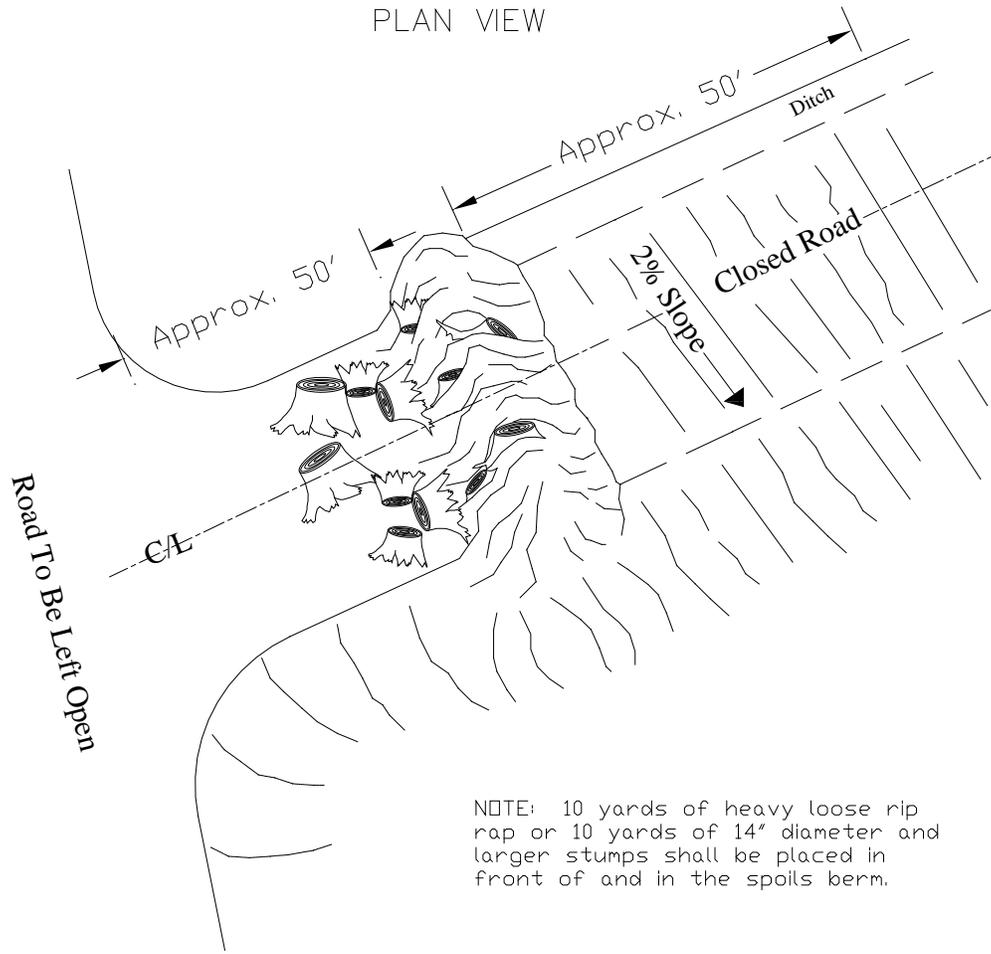


BRUSHING SECTION DETAIL



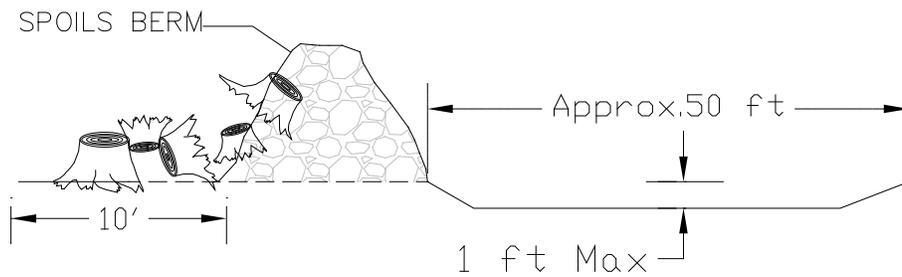
SPOILS BERM DETAIL

PLAN VIEW



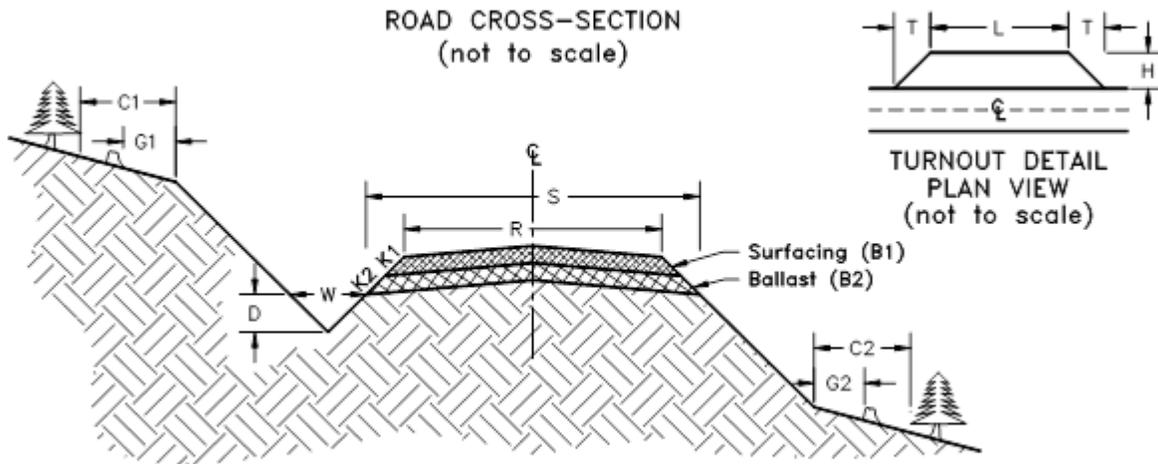
NOTE: 10 yards of heavy loose rip rap or 10 yards of 14" diameter and larger stumps shall be placed in front of and in the spoils berm.

CROSS SECTION AT CENTERLINE



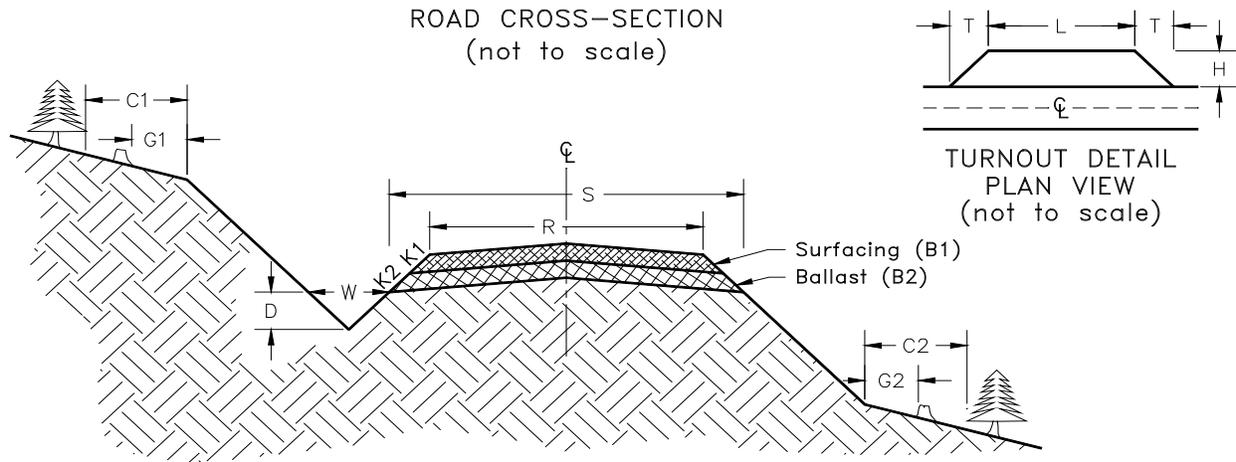
Note: $\frac{1}{3}$ of stumps or rip rap shall be partially buried in the spoils berm and/or road surface.

TYPICAL SECTION SHEET



Road Number	From Station	To Station	Tolerance Class	Subgrade Width (ft)		Ditch (ft)		Crown in. @ CL	Grubbing Limits (ft)		Clearing Limits (ft)	
				S	R	W	D		G1	G2	C1	C2
A-Line 346	0+00	2+50	C	16	12	3	1	4	3	3	10	10
A-Line 340	0+00	3+40	C	16	12	3	1	4	3	3	10	10
A-5463	0+00	9+27	C	16	12	3	1	4	3	3	10	10
A-5463.1	0+00	3+98	C	16	12	3	1	4	3	3	10	10
A-3310	0+00	1+20	C	16	12	3	1	4	3	3	tags	tags
A-3310	1+20	11+18	C	16	12	3	1	4	3	3	10	10
A-Line	0+00	311+65	C	16	12	3	1	4	-	-	-	-
A-Line	311+65	376+65	C	16	12	3	1	4	-	-	10	10
A-Line	376+65	575+30	C	16	12	3	1	4	-	-	-	-
A-890	0+00	10+00	C	16	12	3	1	4	-	-	-	-
A-1600	0+00	6+15	C	16	12	3	1	4	-	-	-	-
A-3000	0+00	40+20	C	16	12	3	1	4	-	-	-	-
A-3000A	0+00	1+15	C	16	12	3	1	4	-	-	-	-
A-3300	0+00	3+60	C	16	12	3	1	4	-	-	-	-
A-4000	0+00	104+35	C	16	12	3	1	4	-	-	-	-
A-5000	0+00	104+05	C	16	12	3	1	4	-	-	-	-
A-5400	0+00	56+95	C	16	12	3	1	4	-	-	-	-
A-5460	0+00	21+85	C	16	12	3	1	4	-	-	-	-

ROCK LIST
(Page 1 of 2)



BALLAST

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in.)	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout		
									Length	Width	Taper
			K2	B2	4 INCH JAW				L	H	T
A-Line	321+10	322+10	1 ½:1	15	64	1	64	North Rim Quarry or commercial source	60	10	20
A-3000	29+90	31+50	1 ½:1	15	64	1.6	103				
A-3300	0+00	3+60	1 ½:1	15	64	3.6	230				
A-5463*	0+00	9+27	1 ½:1	15	64	9.27	595				
A-5463.1*	0+00	3+98	1 ½:1	15	64	3.99	256				
A-3310*	0+00	11+18	1 ½:1	15	64	11.16	717				
A-Line 340*	0+00	3+40	1 ½:1	15	64	3.4	218				
A-Line 346*	0+00	2+50	1 ½:1	15	64	2.5	160				

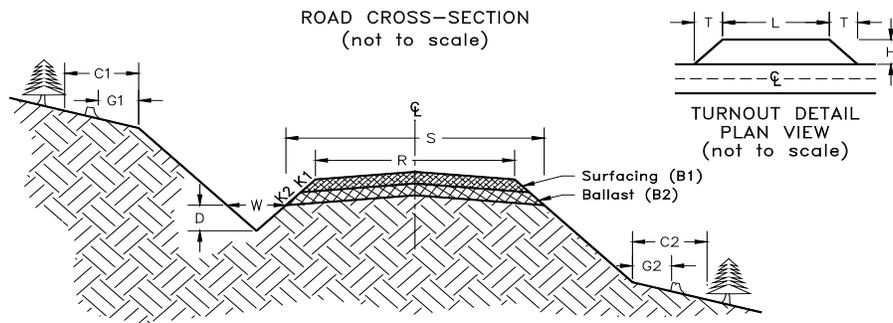
* Optional Rock

4 INCH JAW RUN Total 2343 Cubic Yards

If Purchaser elects to haul on optional rock roads in dry weather, the depth listed above is recommended but not required.

NOTE: Yardages are estimated on a (in-place) basis. Compliance of rock will be based on compacted depth measurement. Apply appropriate factors to determine loose amounts for estimating purposes.

ROCK LIST
(Page 2 of 2)



SURFACE

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth (in.)	C.Y./ Station	# of Stations	C.Y. Total	Rock Source
			K1	B1	2 INCH MINUS			
A-Line	99+75	108+05	1 ½:1	6	24	8.3	249	North Rim Quarry or commercial source
	150+00	152+00	1 ½:1	6	24	2	48	
	157+00	160+57	1 ½:1	6	24	3.6	86	
	180+90	229+00	1 ½:1	6	24	48.1	1443	
	311+65	376+65	1 ½:1	6	24	65	1950	
	SPOT PATCH		-	-	-	-	500	
ALL	CULVERT BEDDING		-	-	20	9	180	
2 Inch Minus Crushed Stockpile							2000	

*Optional Rock

SURFACE TOTAL 4456 cubic yards
Stockpile TOTAL: 2000 cubic yards

NOTE: Yardages are estimated on a (in-place) basis. Compliance of rock will be based on compacted depth measurement, except for stockpile. Apply appropriate factors to determine loose amounts for estimating purposes.

ARMOR, ENERGY DISSIPATER & SELECT FILL

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Total	Rock Source
			K1	B1	Quarry Spalls			
All	PER CULVERT LIST				PER CULVERT LIST		53	North Rim Quarry or Commercial

*Optional Rock

TOTAL 53 Cubic Yards

If Purchaser elects to haul on optional rock roads in dry weather, the depth listed above is recommended but not required.

CULVERT AND DRAINAGE LIST, pg 1 of 2

Road Number	Location	Culvert		Length (ft)			ARMOR & EN. DISP. (C.Y.)			Backfill Material	Placement Method	Const. Staked	Remarks
		Dia. (in)	Type	Culvert	Downspt	Flume	Inlet	Outlet	Type				
A-Line	36+60	18	PD	-	-	-	-	-	-	-	-	-	Remove culvert
	36+80	18	PD	40	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	47+60	36	PD	50	-	-	2	2	QS	2"-	-	-	Live stream
	60+40	36	PD	100	-	-	2	2	QS	2"-	-	-	Live stream
	122+45	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	148+03	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Replace existing 15"cmp. Cross drain.
	152+09	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Replace existing 15"cmp. Cross drain.
	153+36	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	154+69	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Replace existing 15"cmp. Cross drain.
	155+57	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Replace existing 15"cmp. Cross drain.
	157+12	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Replace existing 15"cmp. Cross drain.
	168+36	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Replace existing 15"cmp. Cross drain.
	235+10	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	236+30	24	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Live stream
	237+50	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	242+05	24	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Live stream
	243+85	24	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Live stream
A-890	4+40	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
A-5400	5+00	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	8+40	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	12+85	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	15+70	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	16+45	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	20+75	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	24+65	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	28+50	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	30+85	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	34+15	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	38+00	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	38+70	24	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Live stream
	39+25	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	43+45	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	46+55	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	49+75	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	52+15	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain

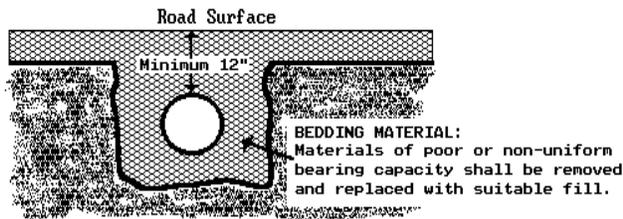
CULVERT AND DRAINAGE LIST, pg 2 of 2

Road Number	Location	Culvert		Length (ft)			ARMOR & EN. DISP. (C.Y.)			Backfill Material	Placement Method	Const. Staked	Remarks
		Dia. (in)	Type	Culvert	Downspt	Flume	Inlet	Outlet	Type				
A-5460	9+45	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	13+80	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
A-5463	4+39	18	PD	30	-	-	0.5	0.5	QS	NT	-	-	Cross drain
	6+27	18	PD	30	-	-	0.5	0.5	QS	NT	-	-	Cross drain
A-3000	16+90	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	32+05	18	PD	40	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
	39+90	18	PD	30	-	-	0.5	0.5	QS	2"-	-	-	Cross drain
A-3310	0+80	18	PD	20	-	-	0.5	0.5	QS	NT	-	-	Install across A-3310
	2+60	18	PD	30	-	-	0.5	0.5	QS	NT	-	-	Cross drain
	8+52	18	PD	20	-	-	0.5	0.5	QS	NT	-	-	Cross drain
ANY ROAD LISTED IN CLAUSE 0-2		18	PD	30	-	-	0.5	0.5	QS	NT	-	-	INSTALL AT C.A. DISCRETION
		18	PD	30	-	-	0.5	0.5	QS	NT	-	-	
		18	PD	30	-	-	0.5	0.5	QS	NT	-	-	

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

PS = Polyethylene Pipe Single Wall AASHTO No. M294 Type C or ASTM F2648

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



Key:

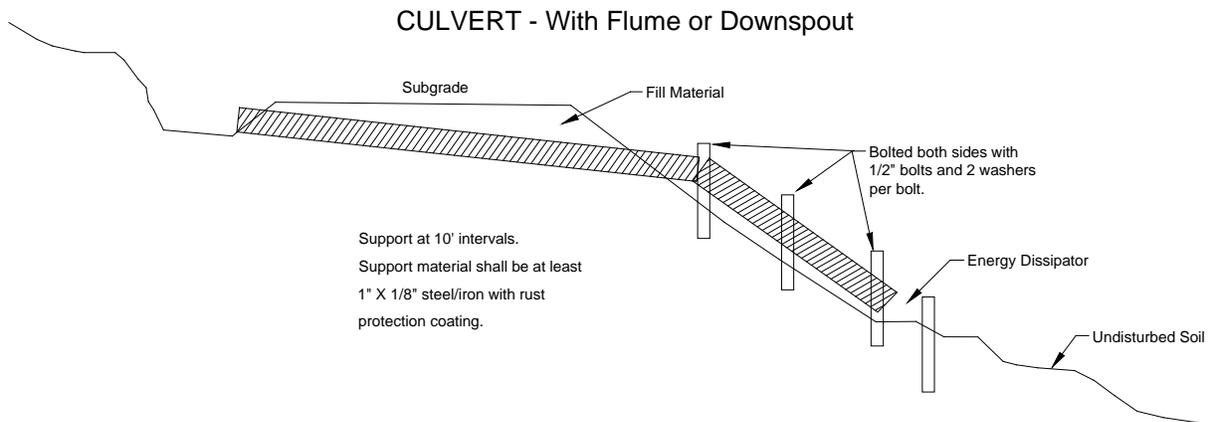
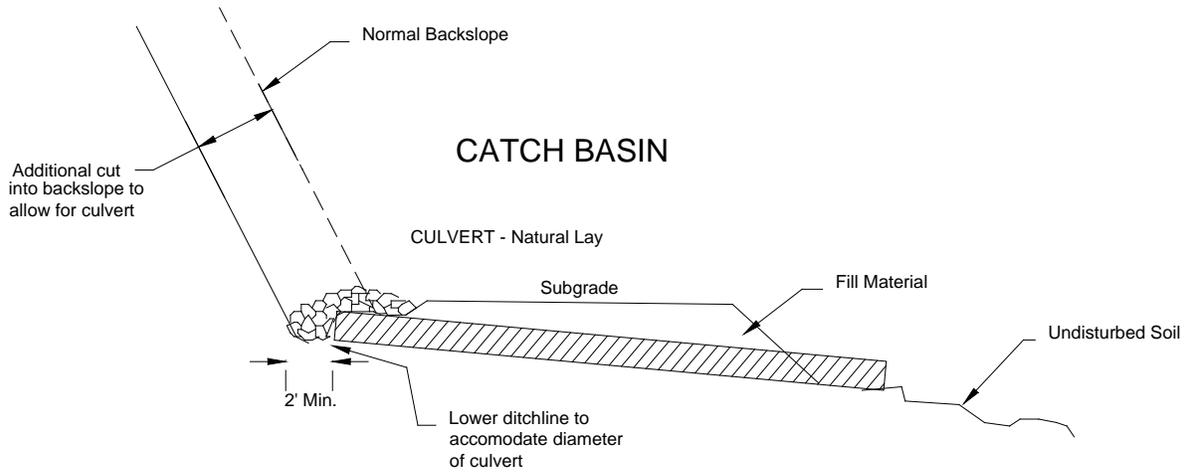
- 2"- - Two Inch Minus
- NT - Native (bank run)
- QS - Quarry Spalls
- Flume - Half round pipe
- Downspout - Full round pipe
- En. Disp – Energy dissipater

COMPACTION LIST

Road	From Station	To Station	Type	Max Depth Per Lift (inches)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)	Maximum Amount of Deflection (inches)
All	All		Subgrade	12	Vibratory Smooth Drum	14000	4	3	2
All	All		Rock		Vibratory Smooth Drum	14000	5	3	1
All	All		Pre-haul Surface	6	Vibratory Smooth Drum	14000	5	3	1
All	All		Embankment	24	Excavation	40,000	-	-	2
All	All		Waste Area	24	Excavation	40,000	-	-	2

CULVERT AND DRAINAGE SPECIFICATION DETAIL

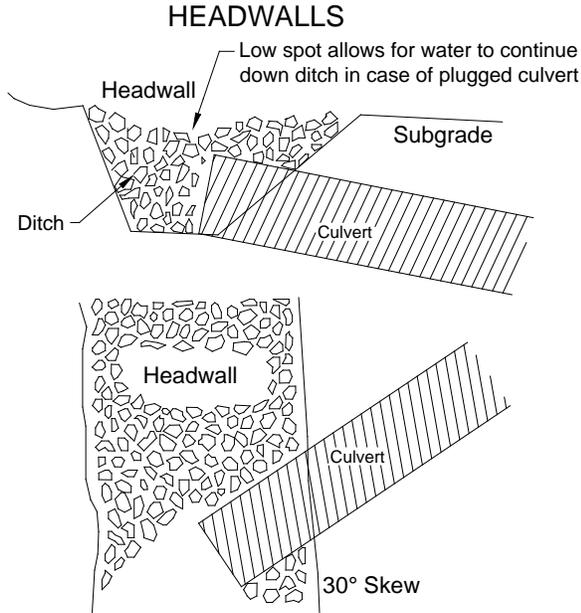
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CULVERT AND DRAINAGE SPECIFICATION DETAIL

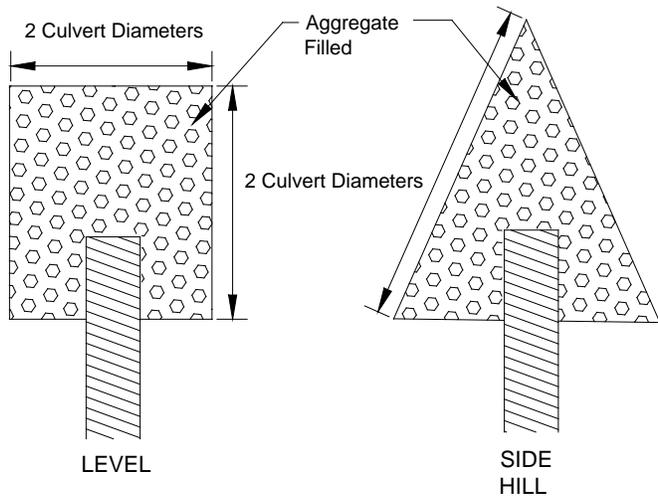
(Page 2 of 3)

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



Headwalls to be constructed of material that will resist erosion.

ENERGY DISSIPATORS



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

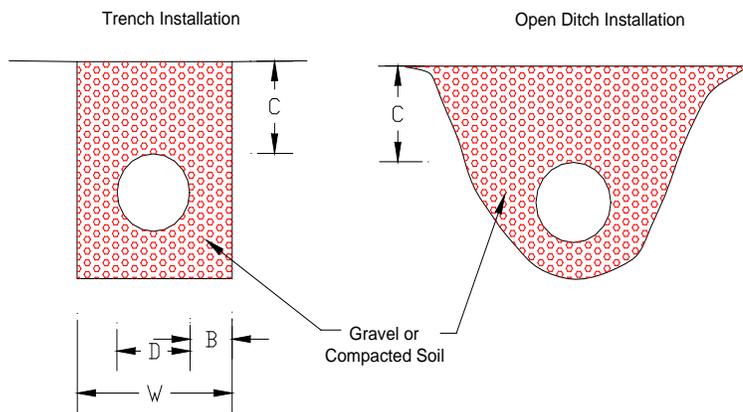
CULVERT AND DRAINAGE SPECIFICATION DETAIL

(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

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

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS, page 1 of 2

Cuts and Fills

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

Surface

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

Drainage

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

Preventative Maintenance

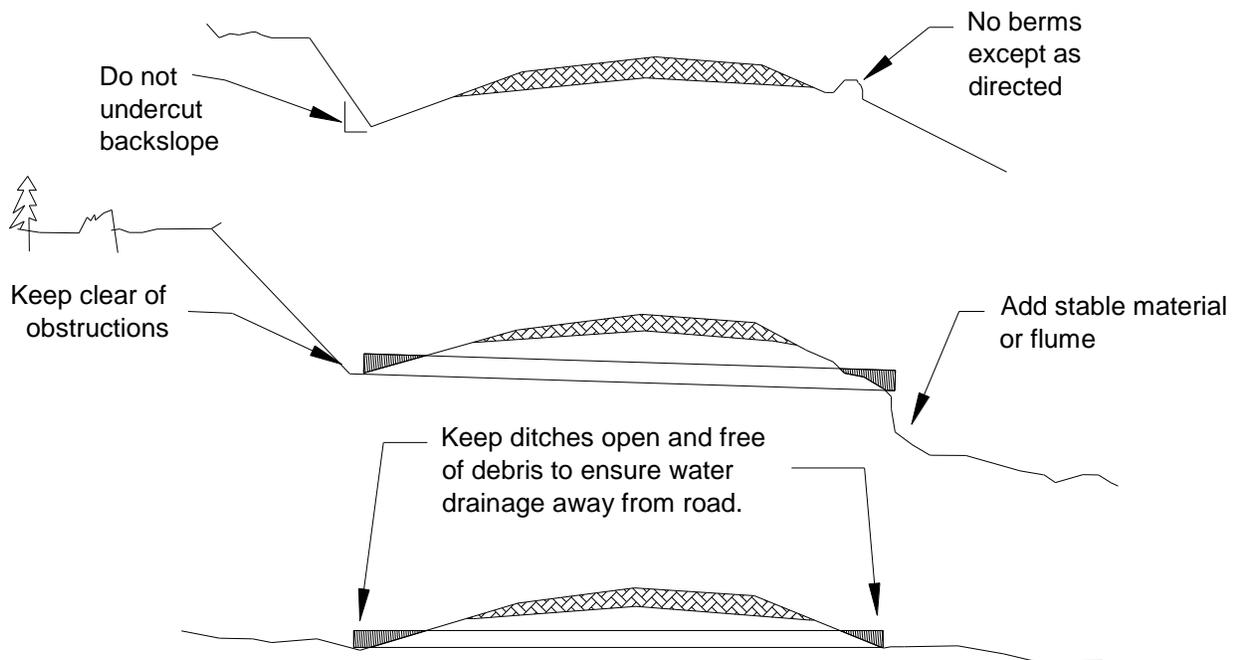
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

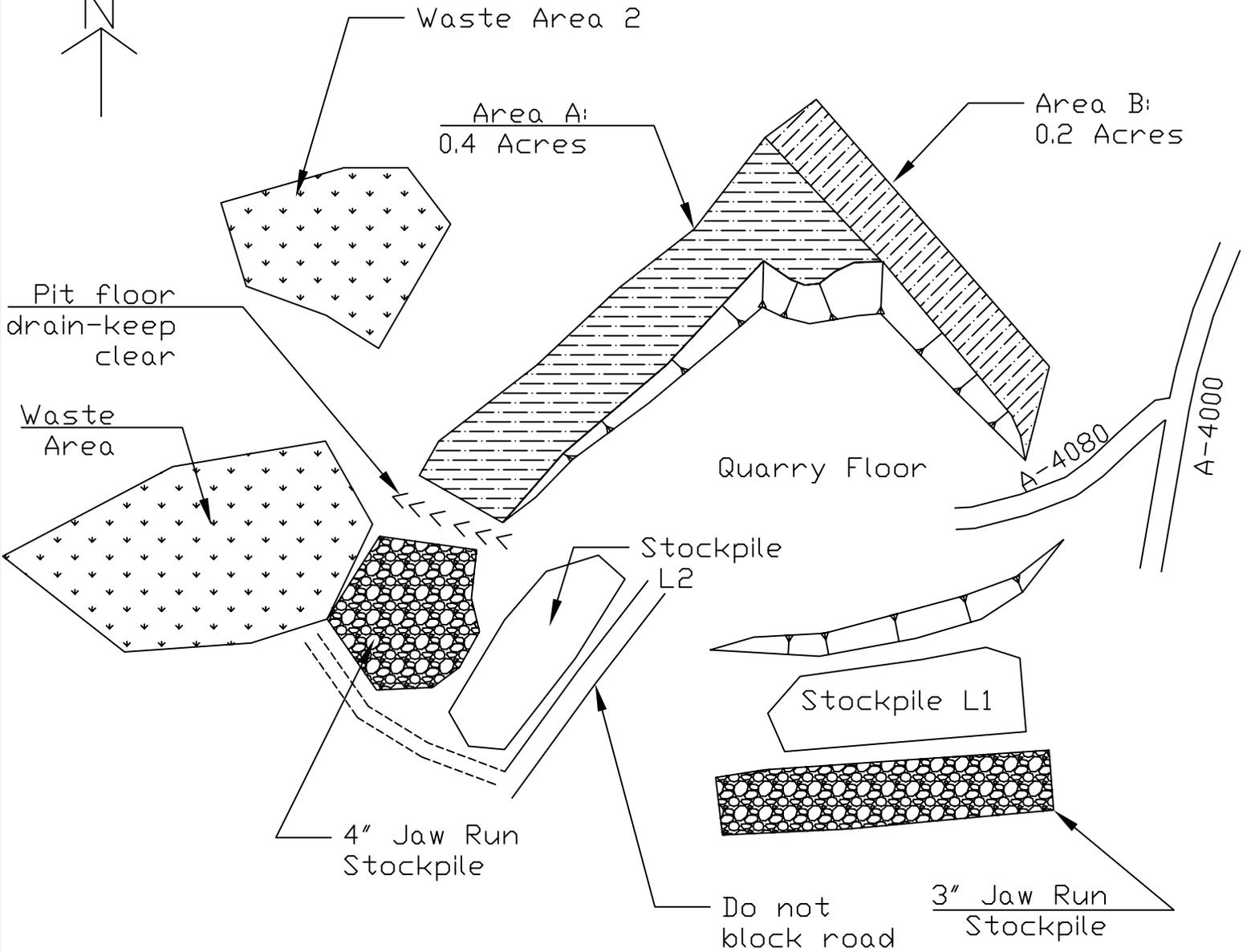
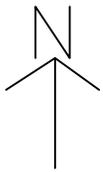
Termination of Use or End of Season

- 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.





LEGEND:

- Highwall (arrow indicates slope)
- Waste Area
- Stockpile
- Access Road
- Mining Area
- Access Trail



STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
PACIFIC CASCADE REGION

NORTH RIM QUARRY DEVELOPMENT PLAN

NW ¼, NW ¼, Section 32, Township 18 North, Range 4 West, W.M.

(Page 1 of 3)

1. Push waste from Area A into Waste Area 2 so that Area A is roughly level with Quarry Floor. Create a working platform as needed. Rock from Area A may be used for temporary roads, if approved by Contract Administrator.
2. Mining shall begin in Quarry Floor by Area A. Shoot Quarry Floor by Area A for rock for roads and stockpile creation. Rock to be used for crushing or road application shall be approved for quality in writing by Contract Administrator prior to rock crushing operation and rock application. Rock not approved for roads shall be considered waste and transported to Waste Areas.
3. 2 Inch Minus stockpile may be placed in Stockpile L1 and Stockpile L2 as shown on the plan view. Additional stockpile areas shall be approved by the Contract Administrator.
4. Existing stockpiles shall not be used without written permission of the Contract Administrator.
5. All vegetation including stumps shall be cleared a minimum of 30 feet beyond the top of all working faces. Trees shall be cleared to a minimum of ¼ of the height of the tallest tree adjacent to the pit. The Contractor shall maintain a minimum of 25 foot wide stripped area from the pit face at all times.
6. Overburden shall be pushed to the designated waste areas and compacted. Minimal acceptable compaction is achieved by placing waste material in 2 foot or shallower lifts and routing excavation equipment over entire width of the lifts. End pushing over drain is ok as long as drain is re-opened prior to rainfall.
7. 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.
8. Quarry faces shall not exceed 30 feet in height and shall be sloped no steeper than 1/2:1.
9. Working bench width shall be a minimum of 25 feet.
10. The quarry floor shall have continuity of slope be left in a smooth and neat condition, providing drainage to the southwest 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.
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, oversize material shall be placed as directed by the Contract Administrator. All existing oversize material shall be utilized prior to the development of that area.

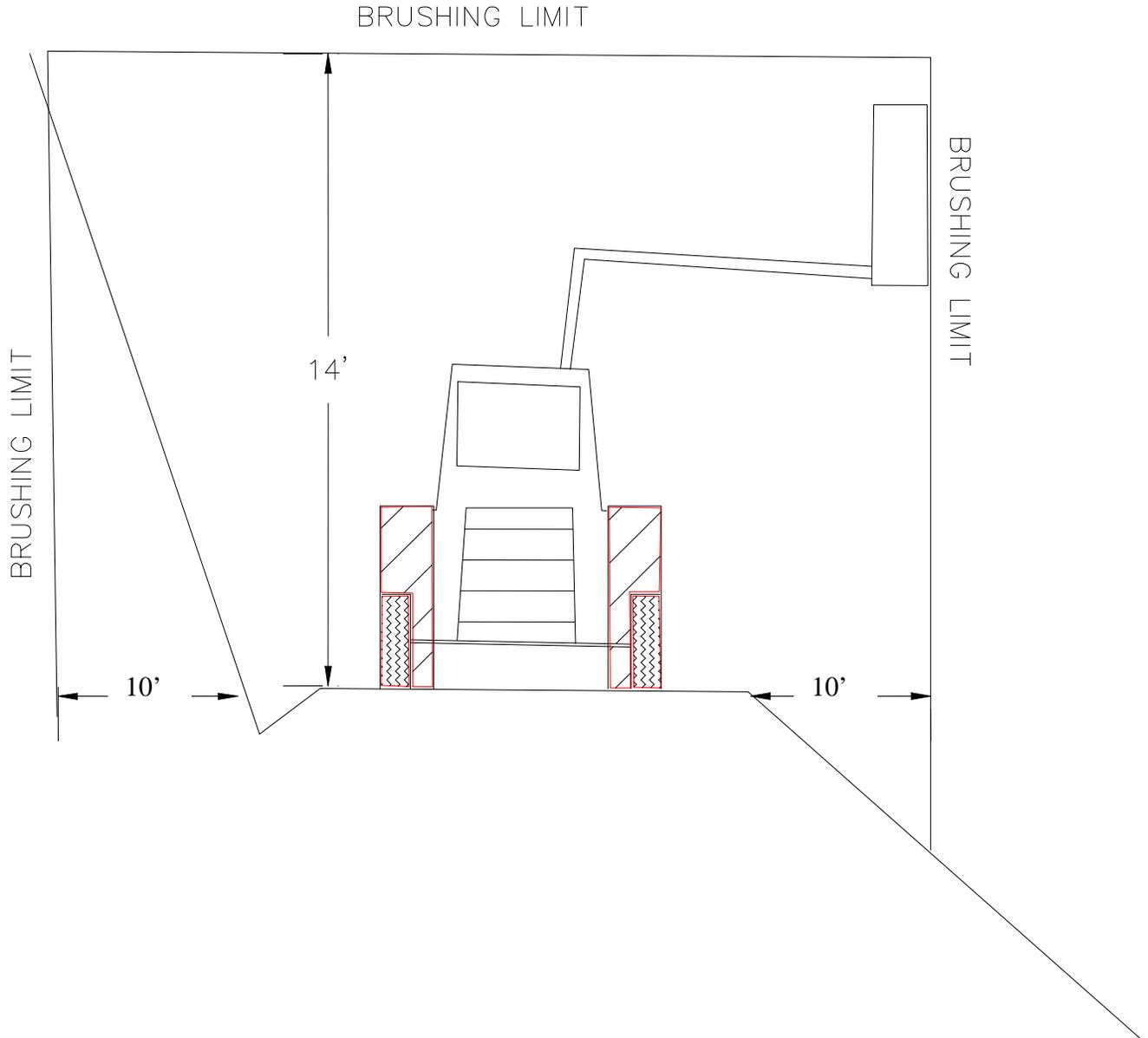
NORTH RIM QUARRY DEVELOPMENT PLAN, cont.

(Page 2 of 3)

12. At the end of operations, quarry 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. Berms shall be at least mid-axle height of the largest self-propelled mobile equipment which usually travels adjacent to benches. Upon completion of operations in the pit, the area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life.
13. All exposed soil in the waste area shall be grass seeded in accordance with Road Plan clause 5.4-3.1.
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 Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator 5 working days prior to any drilling.
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, and shall be left in a neat and presentable condition.

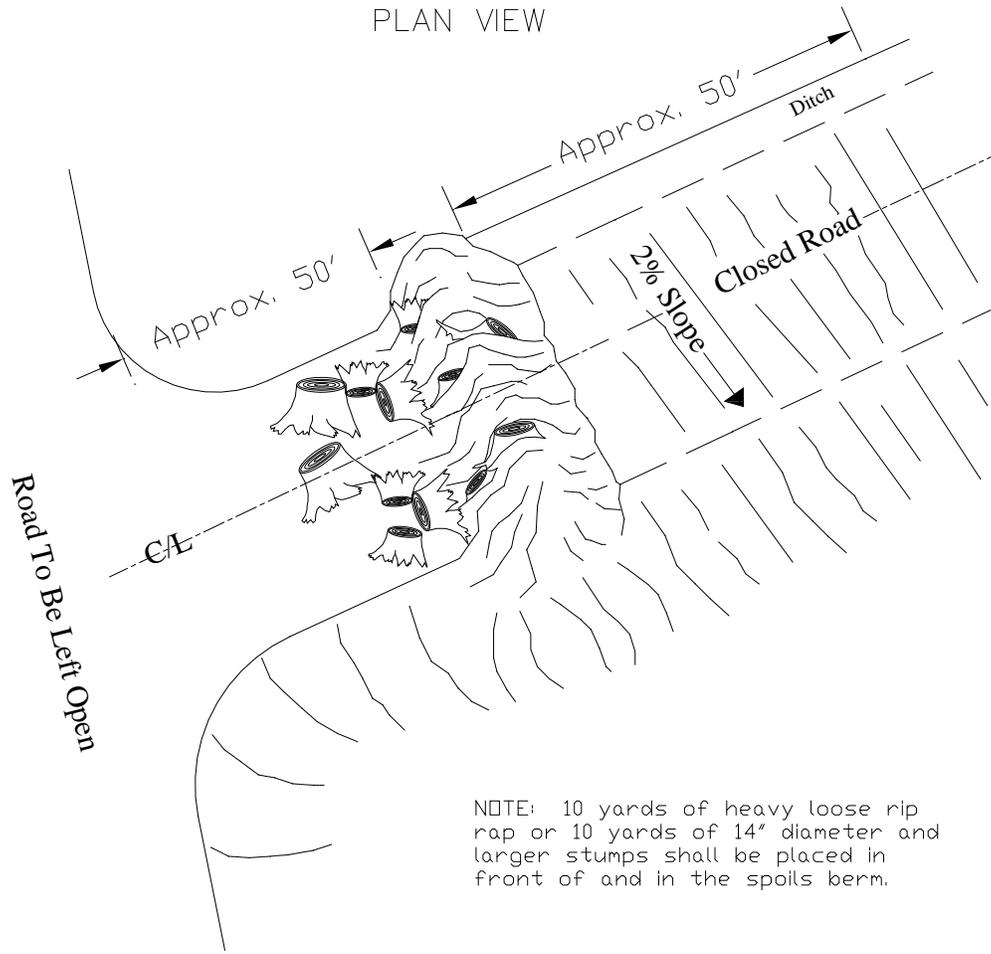
Date of update 8/27/2015.

BRUSHING SECTION DETAIL



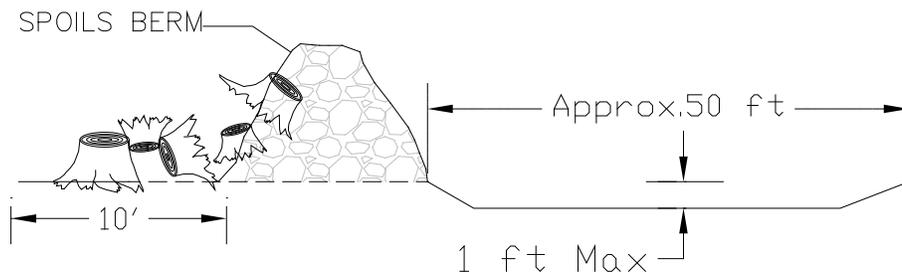
SPOILS BERM DETAIL

PLAN VIEW



NOTE: 10 yards of heavy loose rip rap or 10 yards of 14" diameter and larger stumps shall be placed in front of and in the spoils berm.

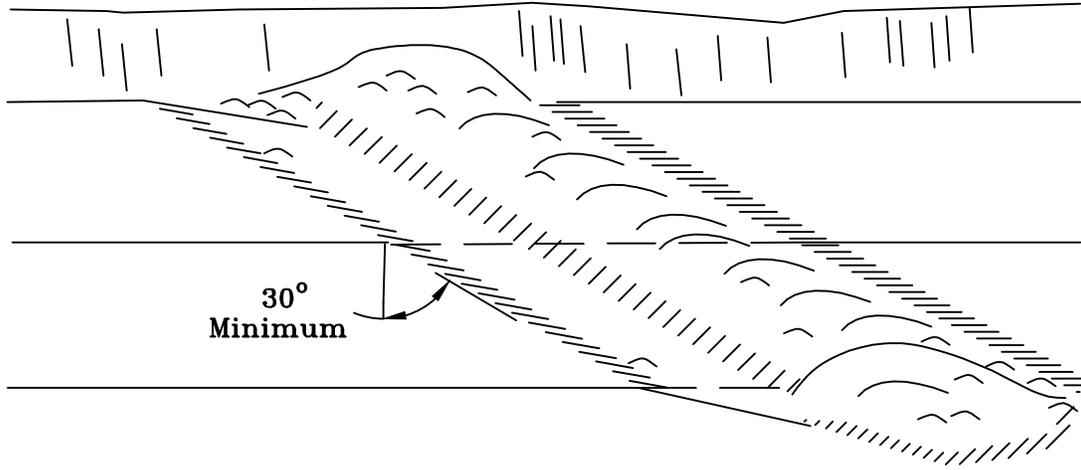
CROSS SECTION AT CENTERLINE



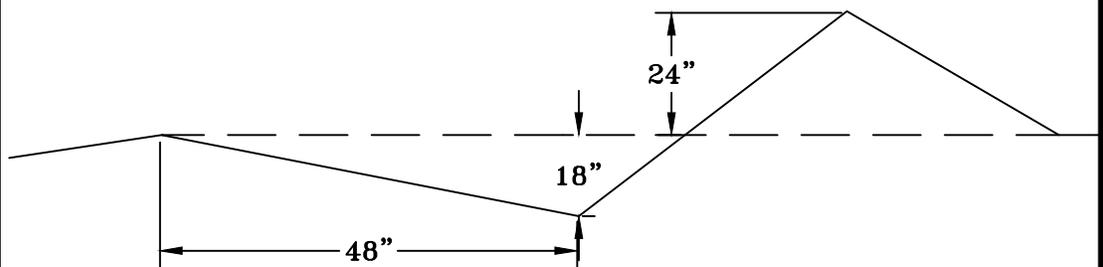
Note: $\frac{1}{3}$ of stumps or rip rap shall be partially buried in the spoils berm and/or road surface.

Non-Drivable Water Bar Detail

Cross Ditch



Cross Section at Centerline

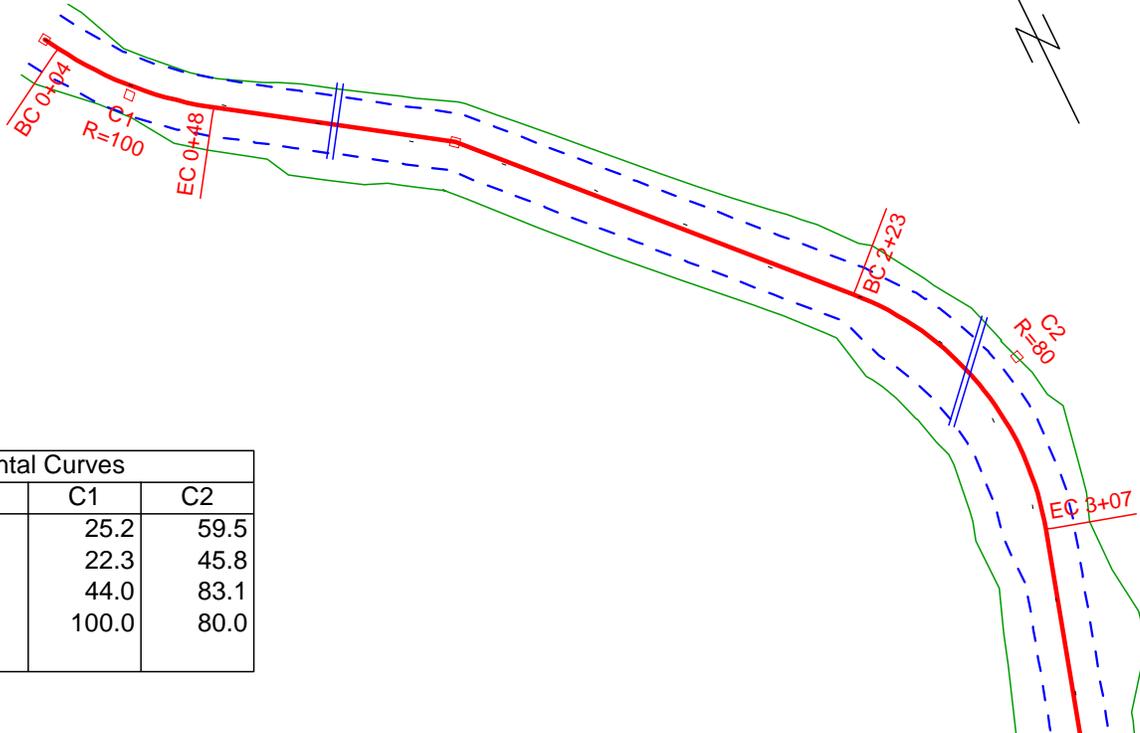


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Scale : None
App#
Drawn by: M.A.D.

Water Bar Detail	
	WASHINGTON STATE DEPARTMENT OF Natural Resources
	<small>SPS Region</small>

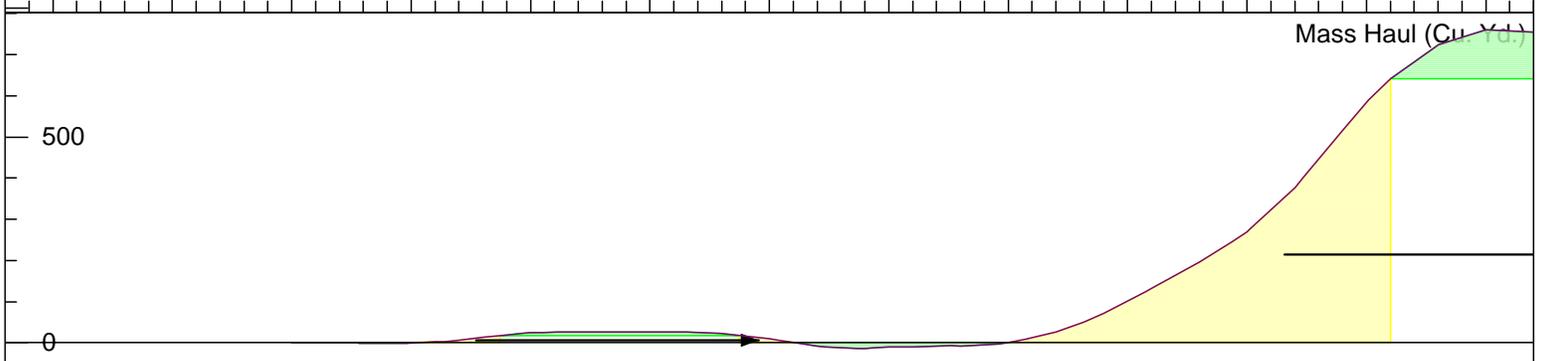
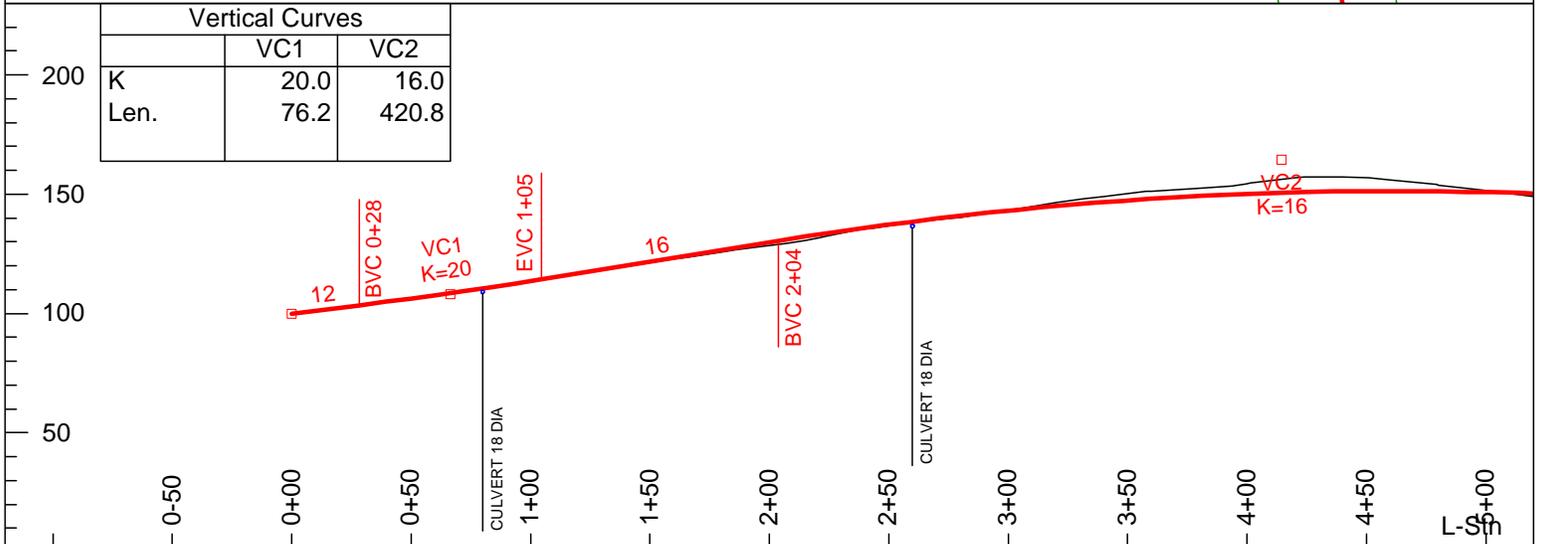
ROAD PLAN A-3310 DESIGN NORTH WEST TIMBER SALE

Page 1 of 3

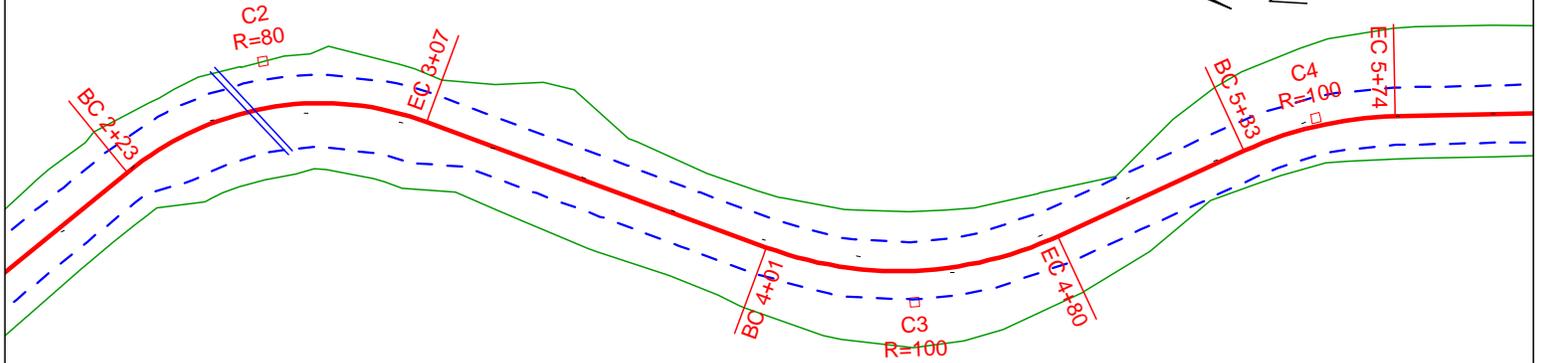


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	C1	C2
Angle	25.2	59.5
Tangent	22.3	45.8
Arc. Len.	44.0	83.1
Radius	100.0	80.0

Vertical Curves		
	VC1	VC2
K	20.0	16.0
Len.	76.2	420.8

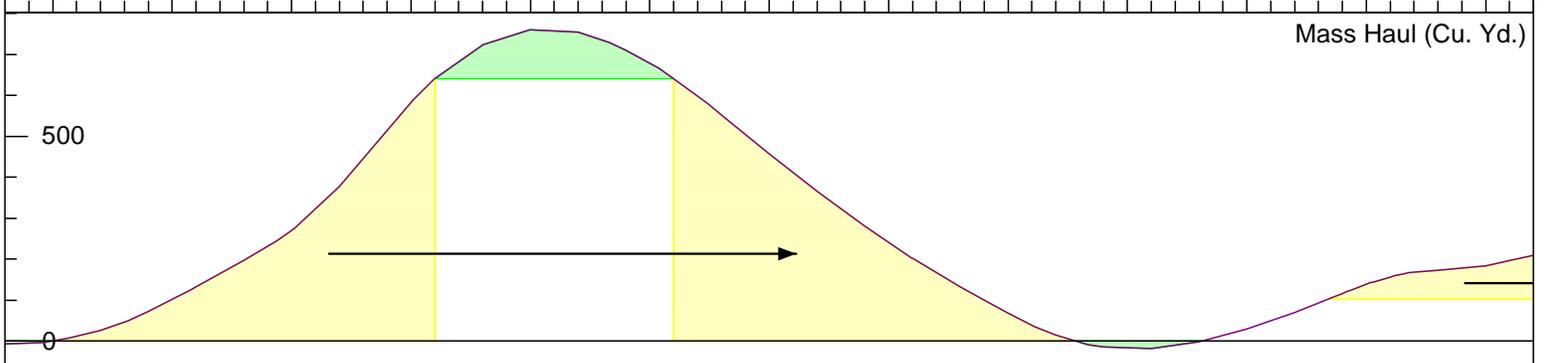
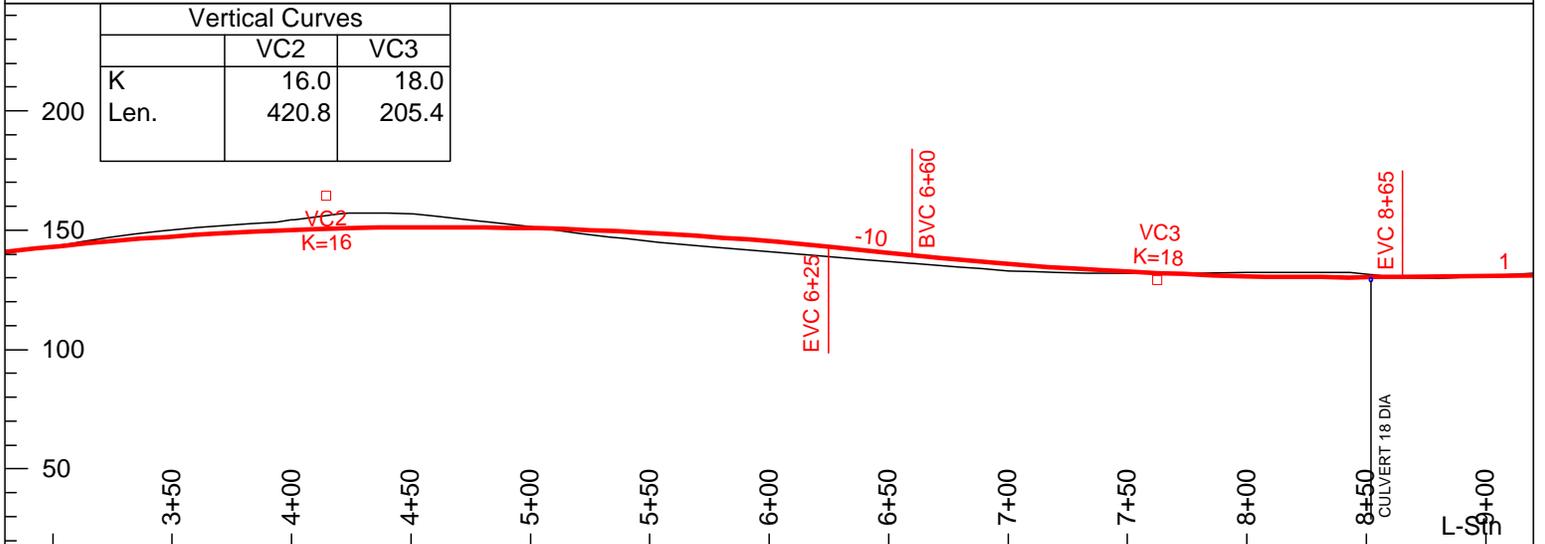


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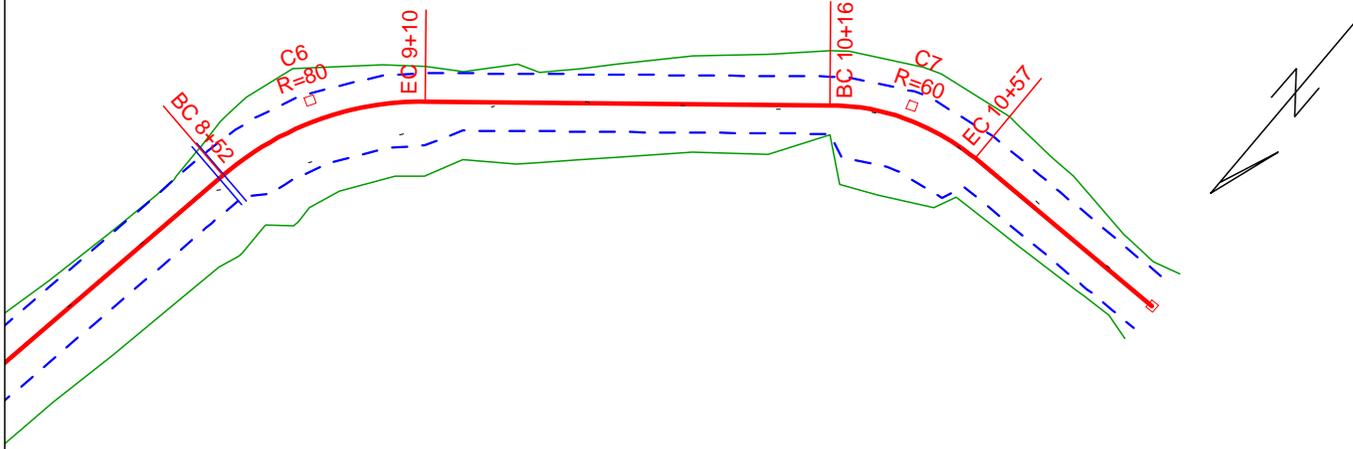
Horizontal Curves			
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Tangent	41.4	20.8	22.4
Arc. Len.	78.4	41.0	44.6
Radius	100.0	100.0	180.0

Vertical Curves		
	VC2	VC3
K	16.0	18.0
Len.	420.8	205.4



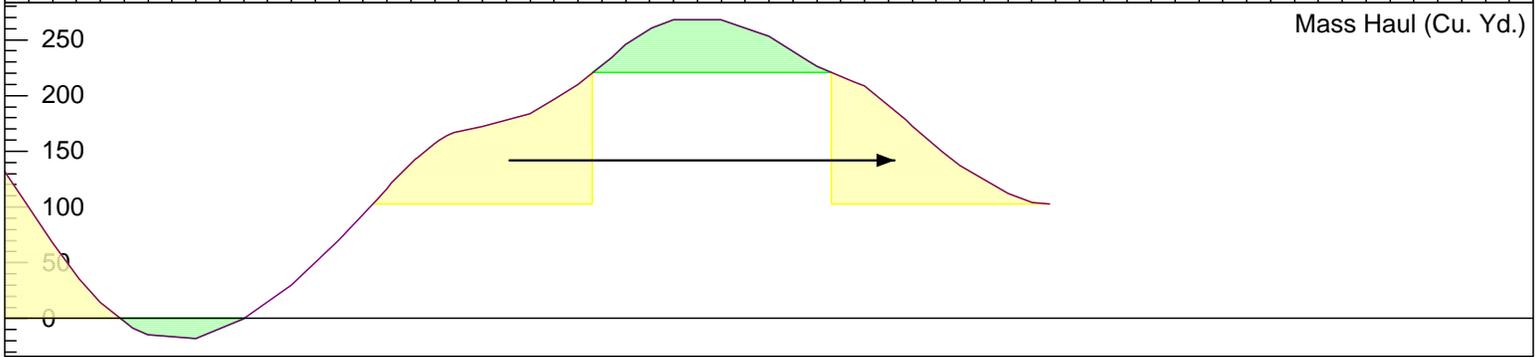
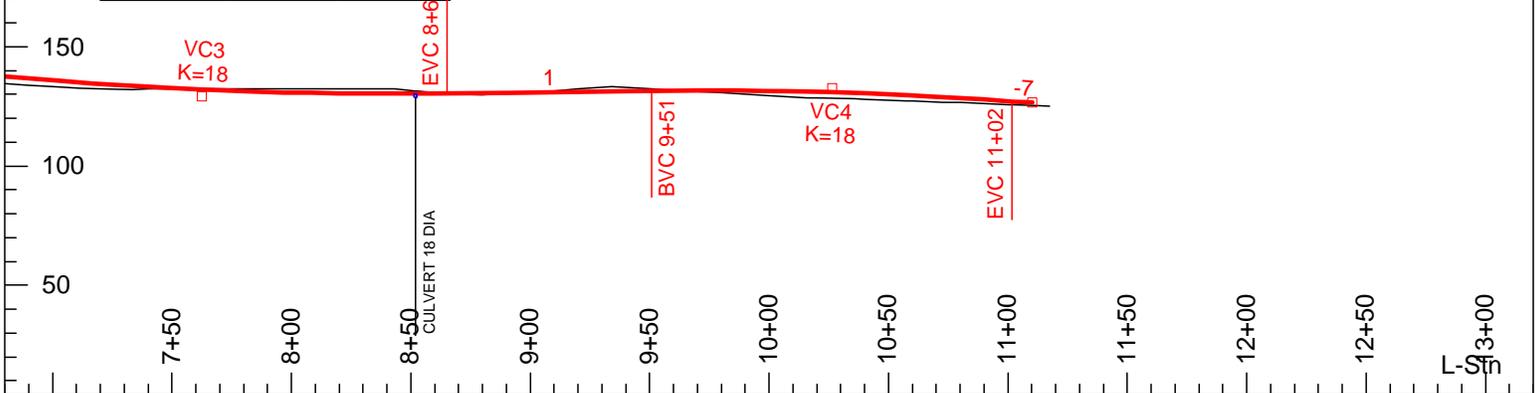
ROAD PLAN A-3310 DESIGN NORTH WEST TIMBER SALE

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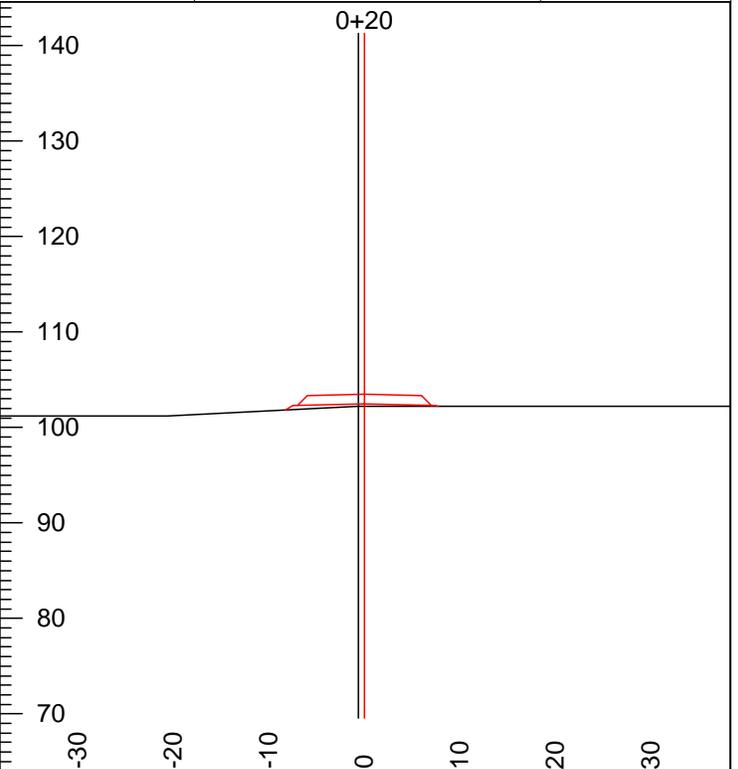
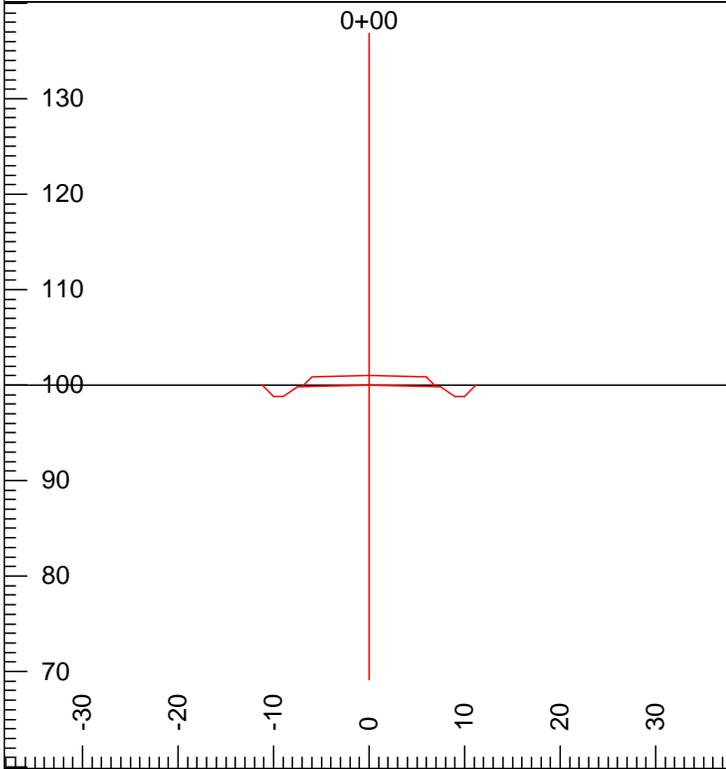


Horizontal Curves		
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Tangent	30.1	21.4
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Radius	80.0	60.0

Vertical Curves		
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Len.	205.4	150.8

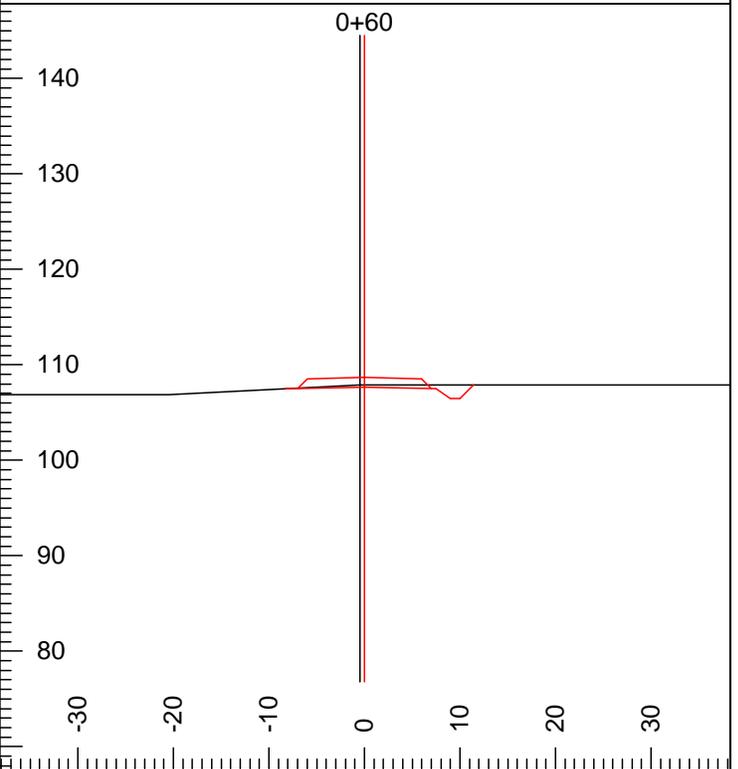
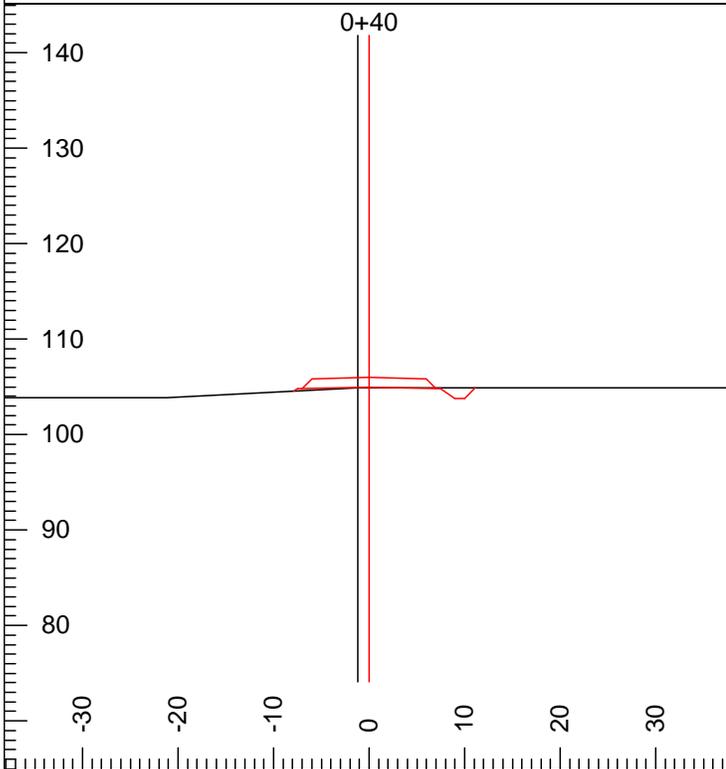


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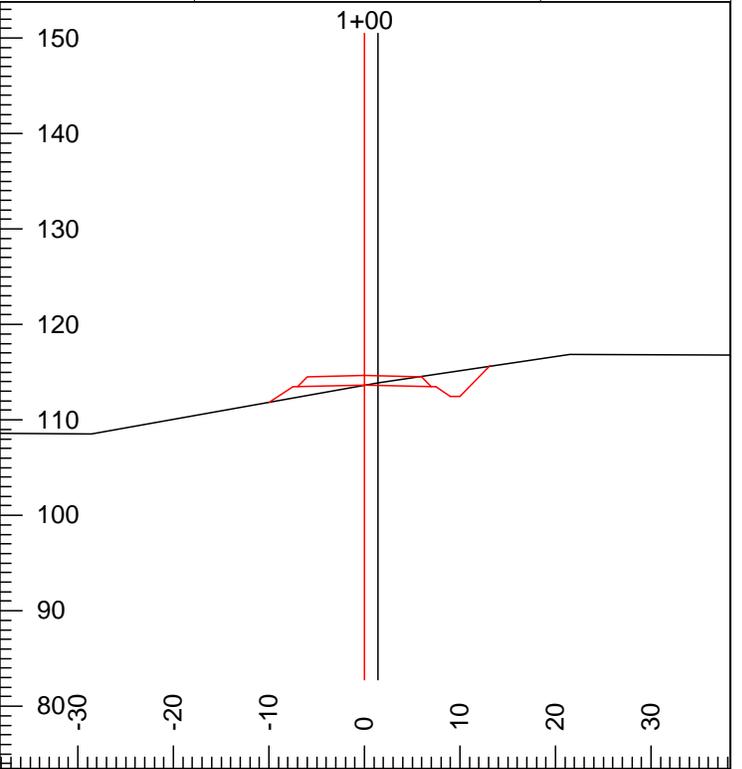
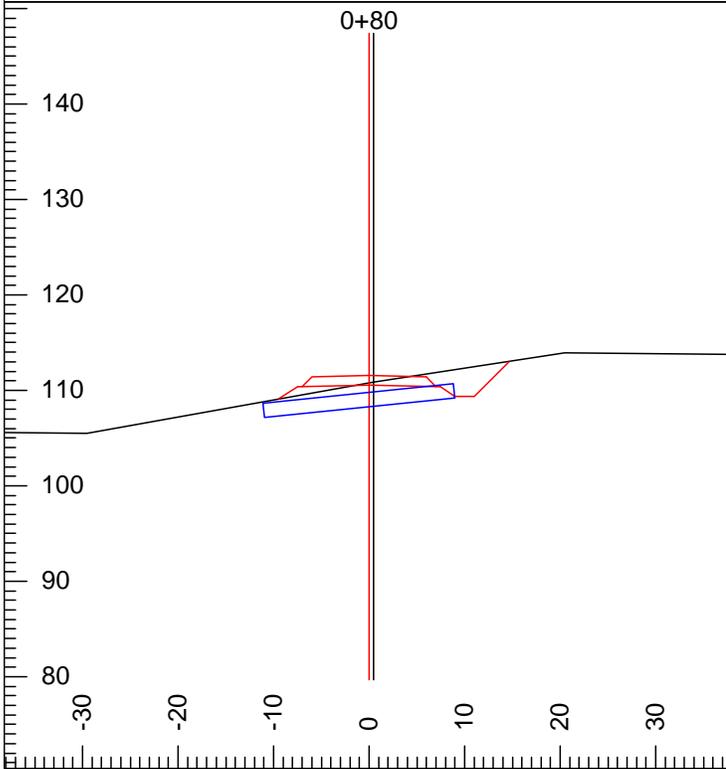
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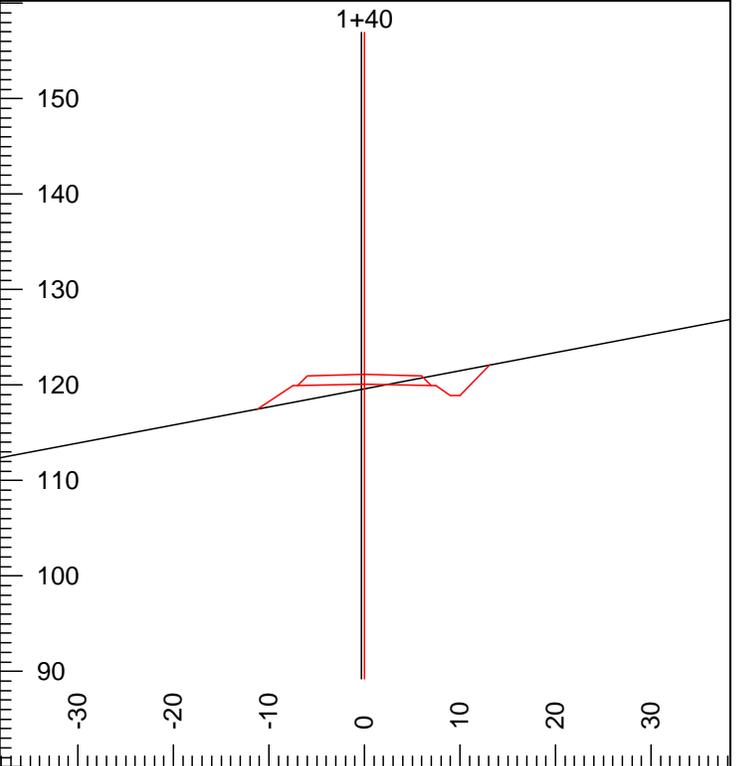
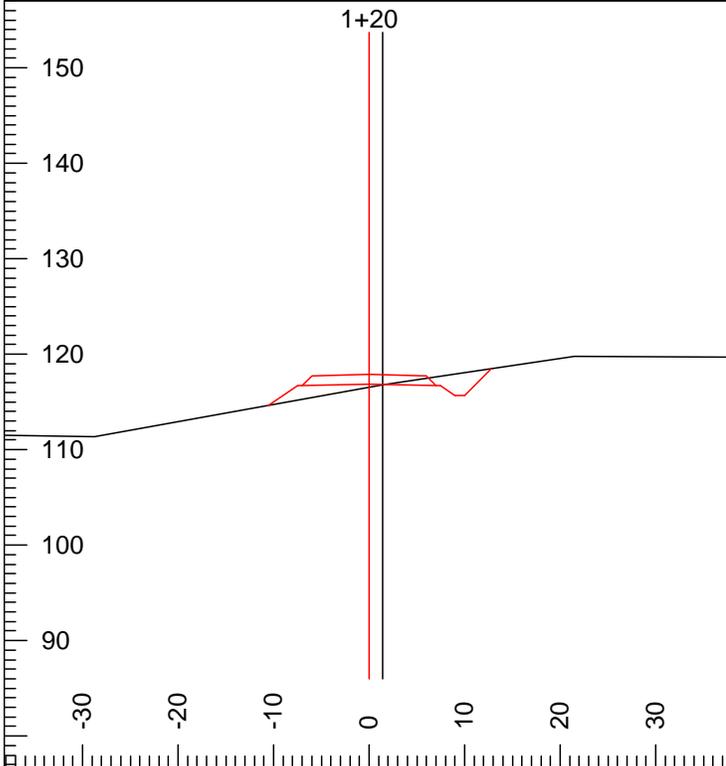
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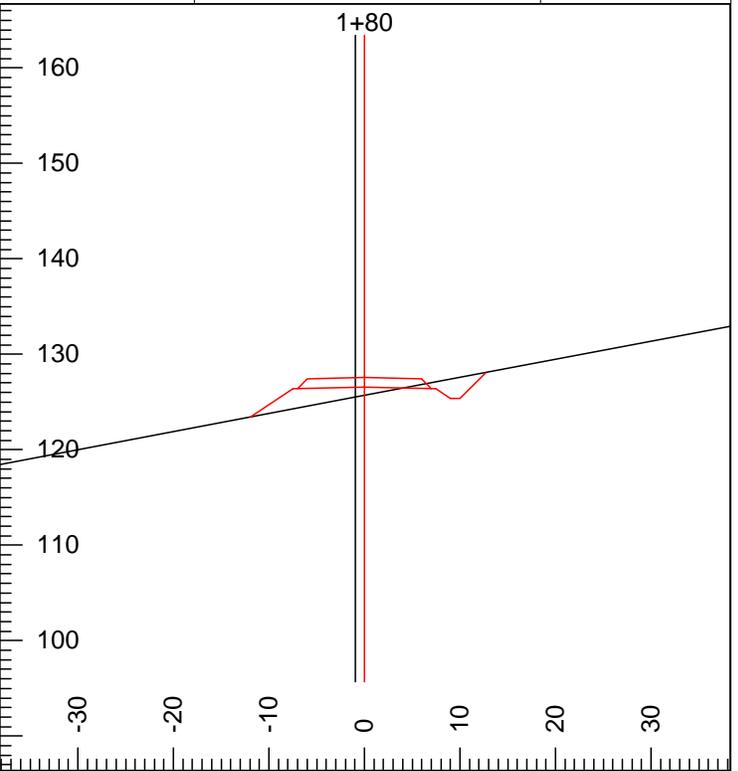
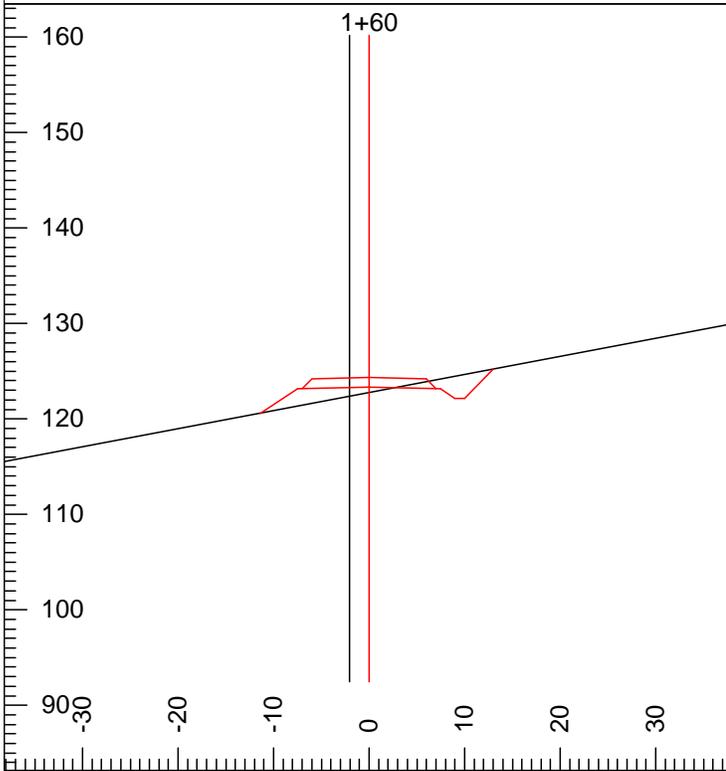
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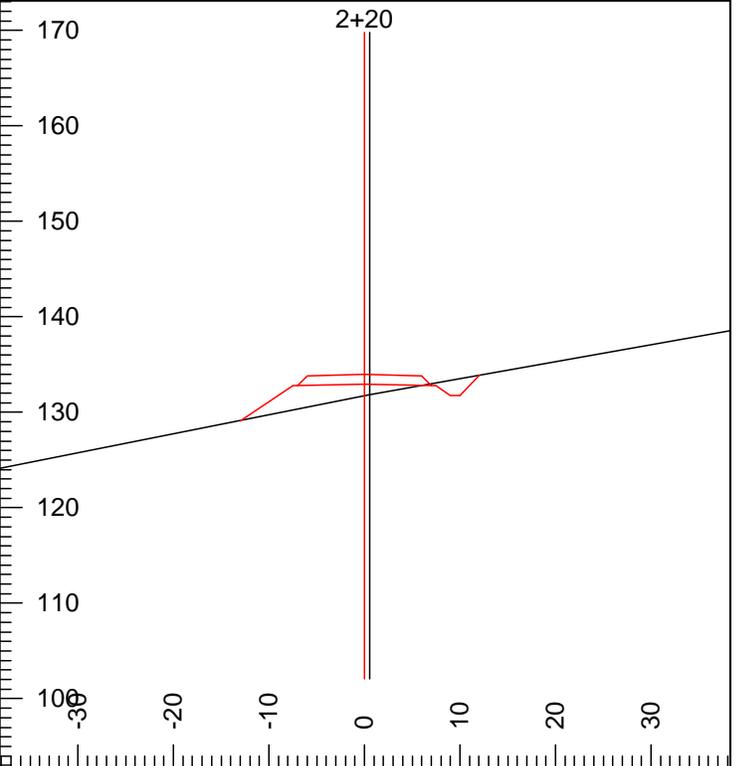
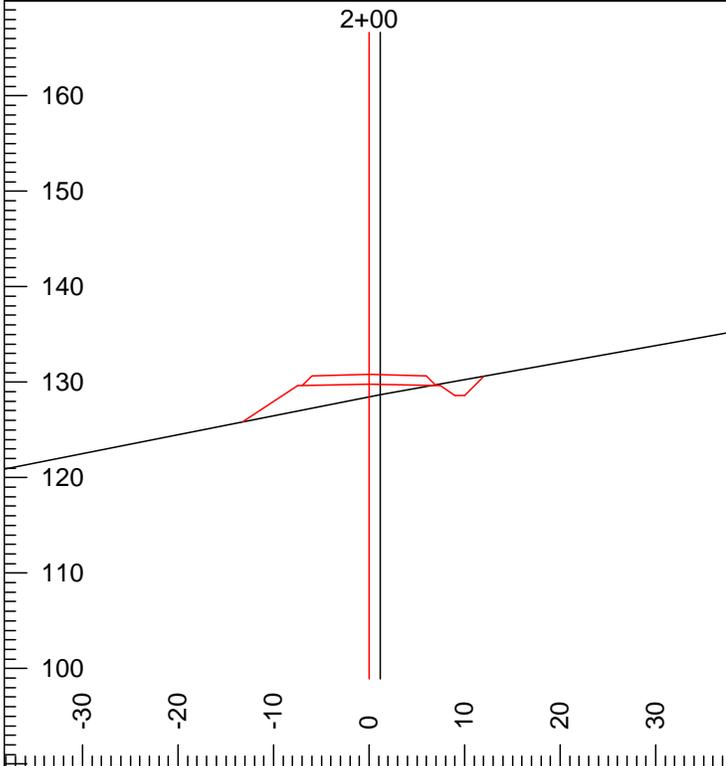
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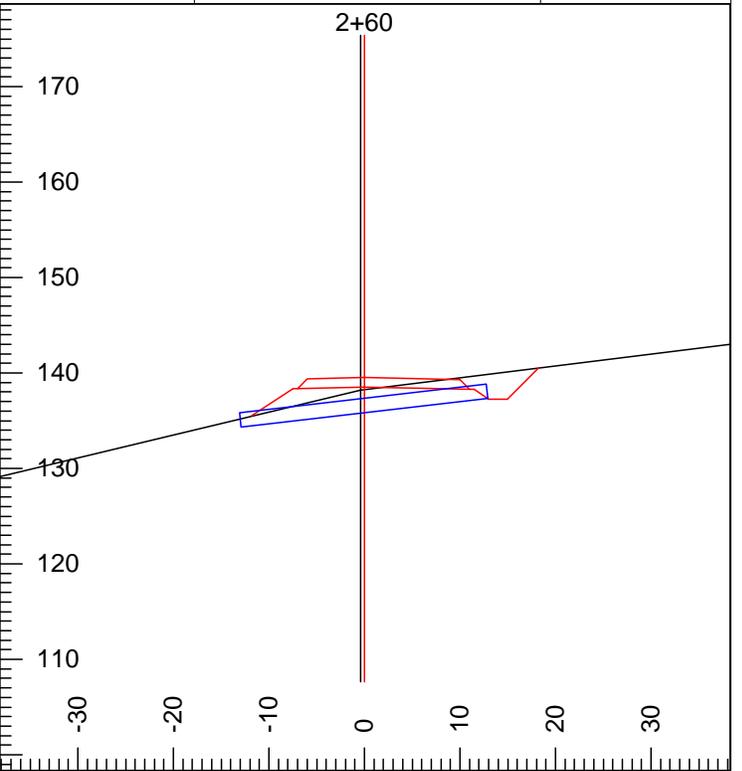
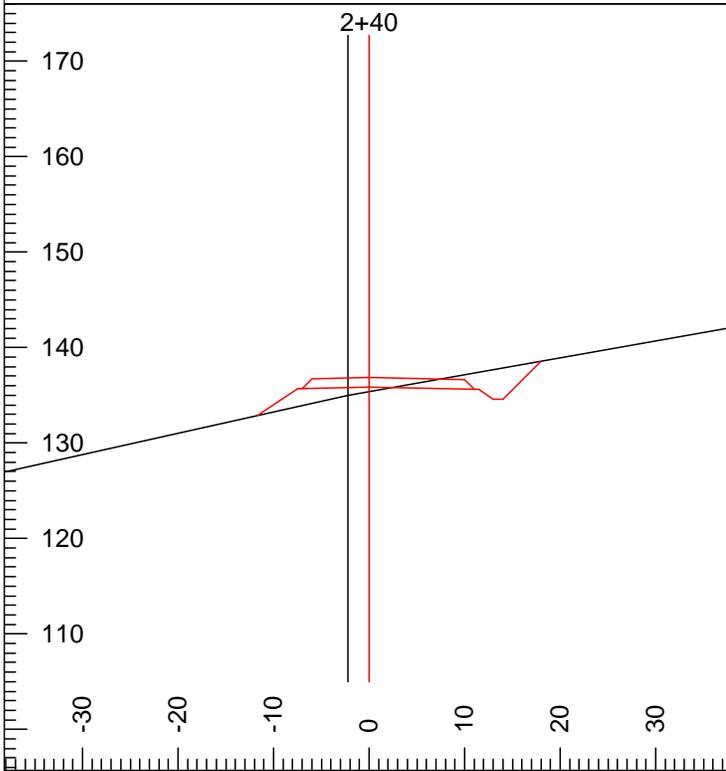
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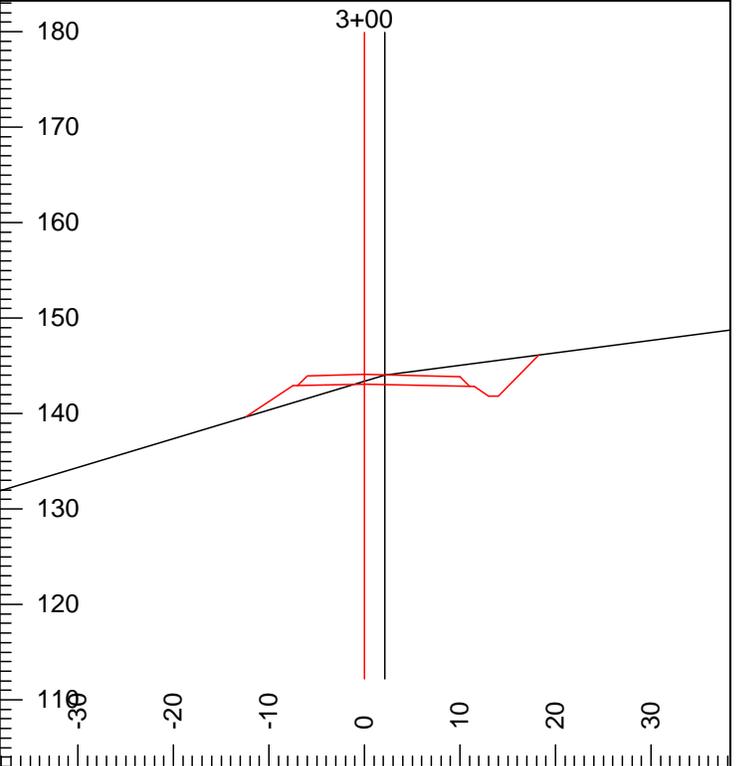
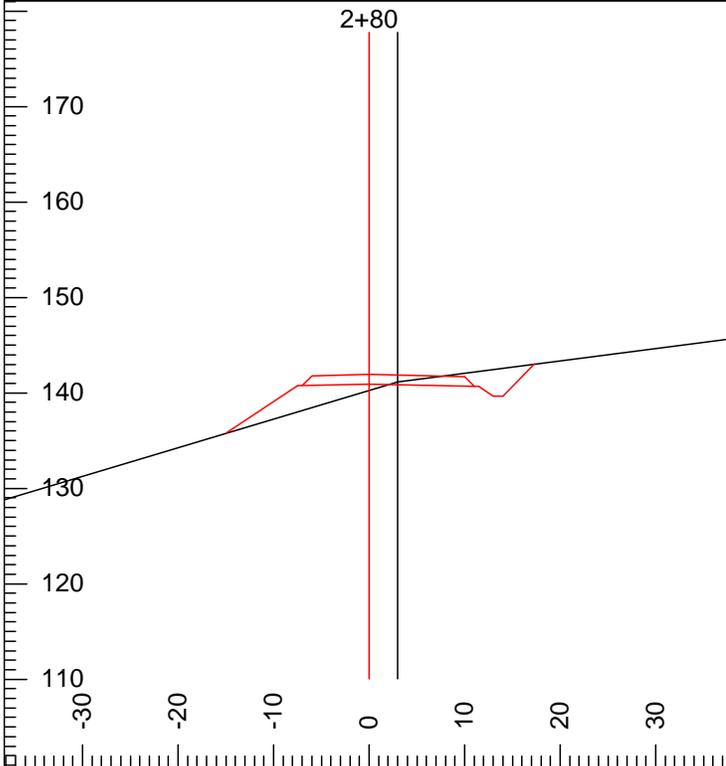
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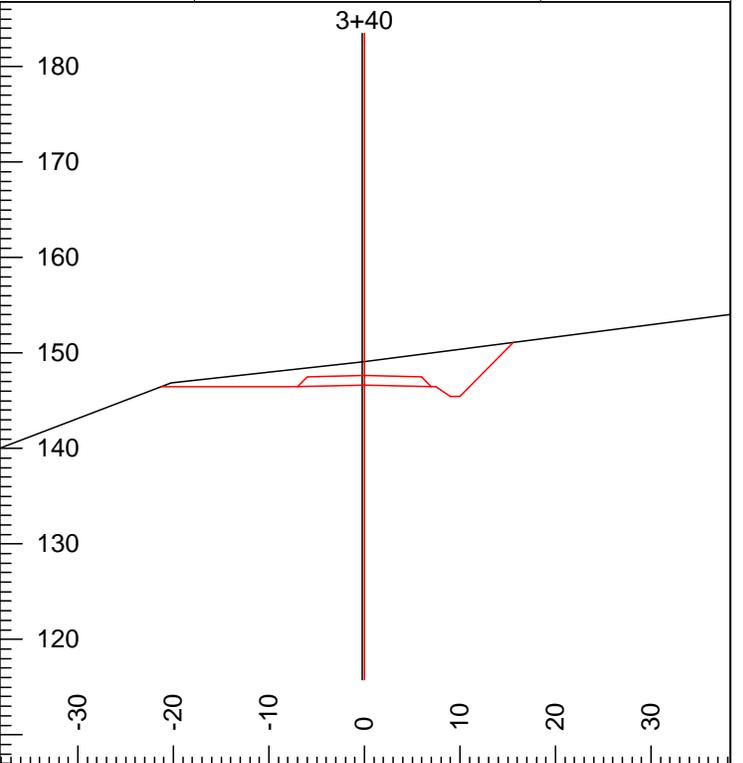
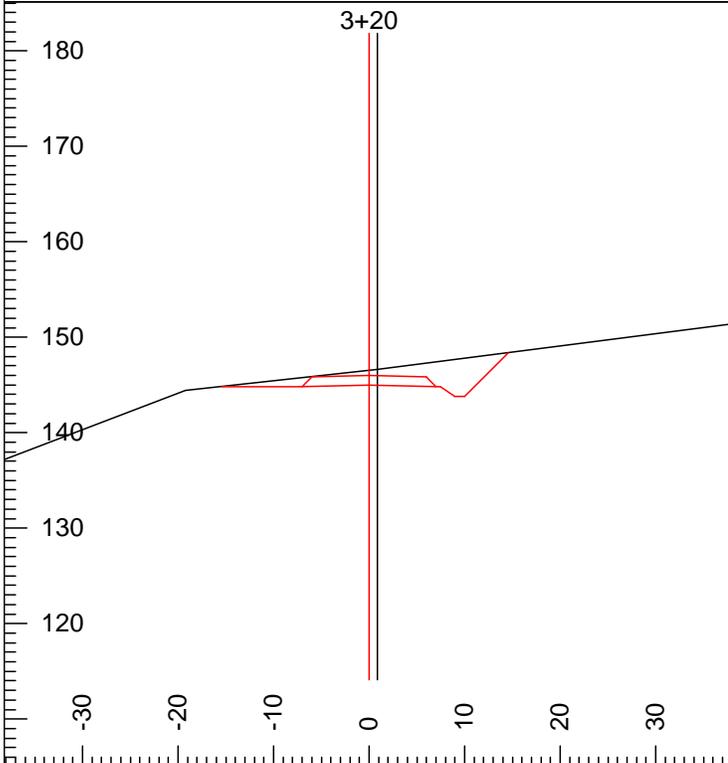
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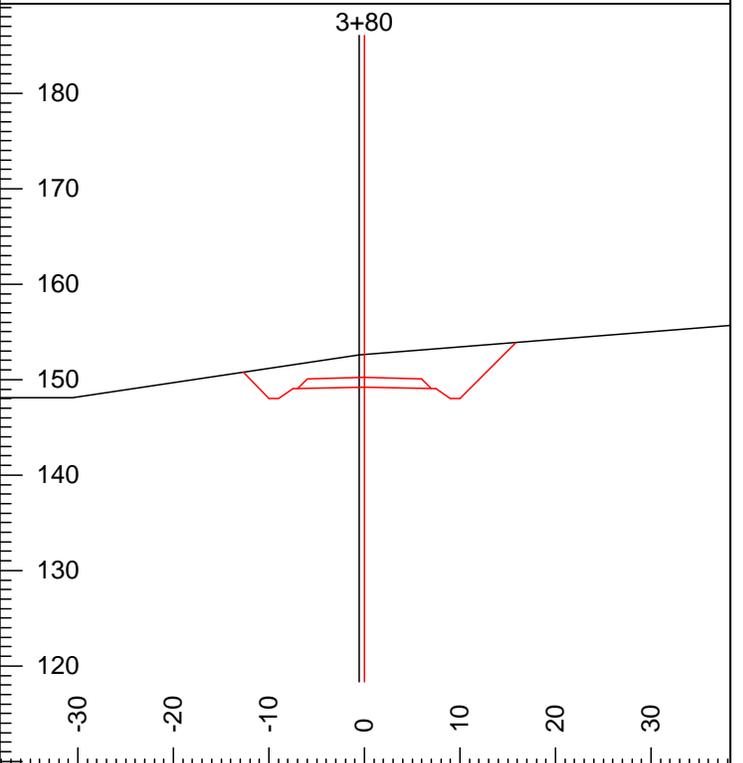
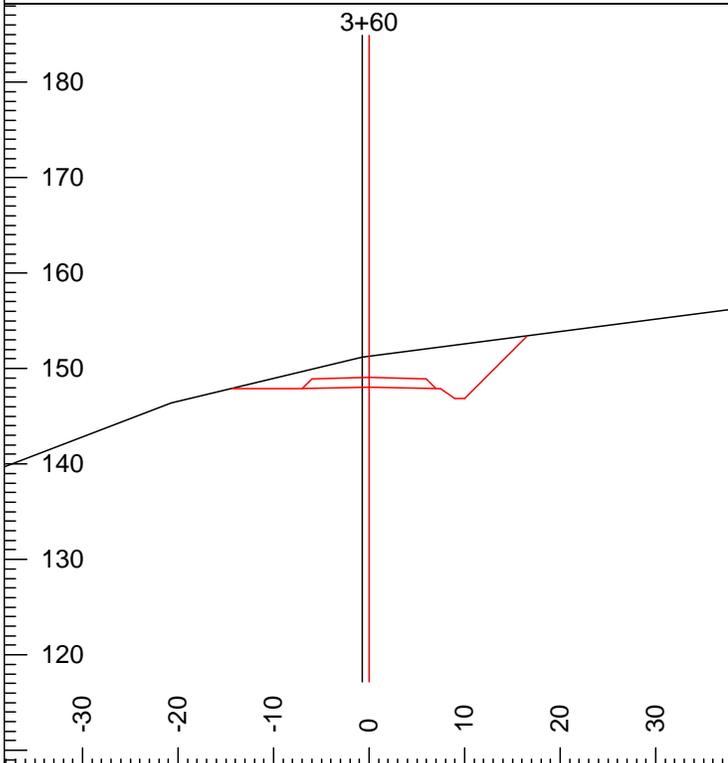
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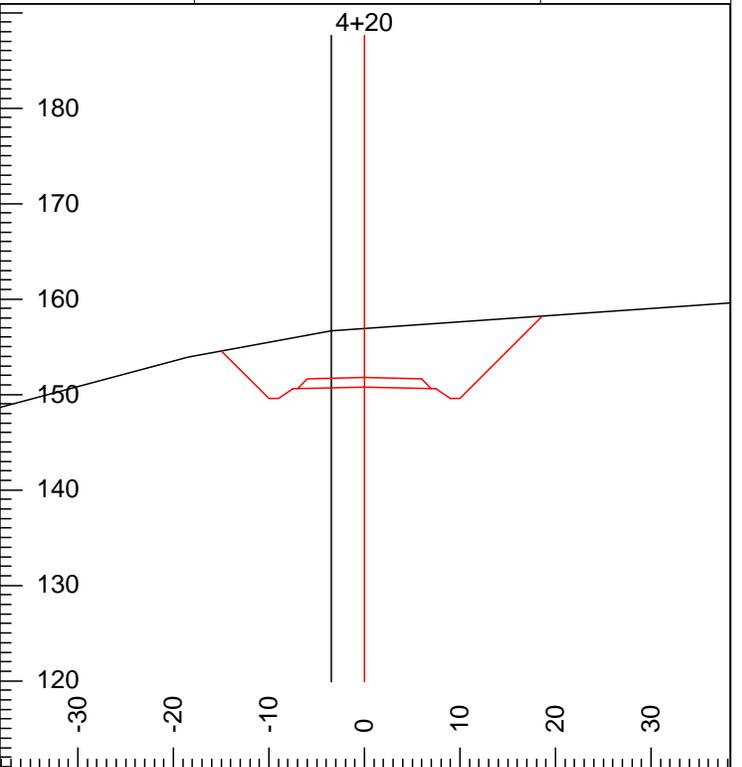
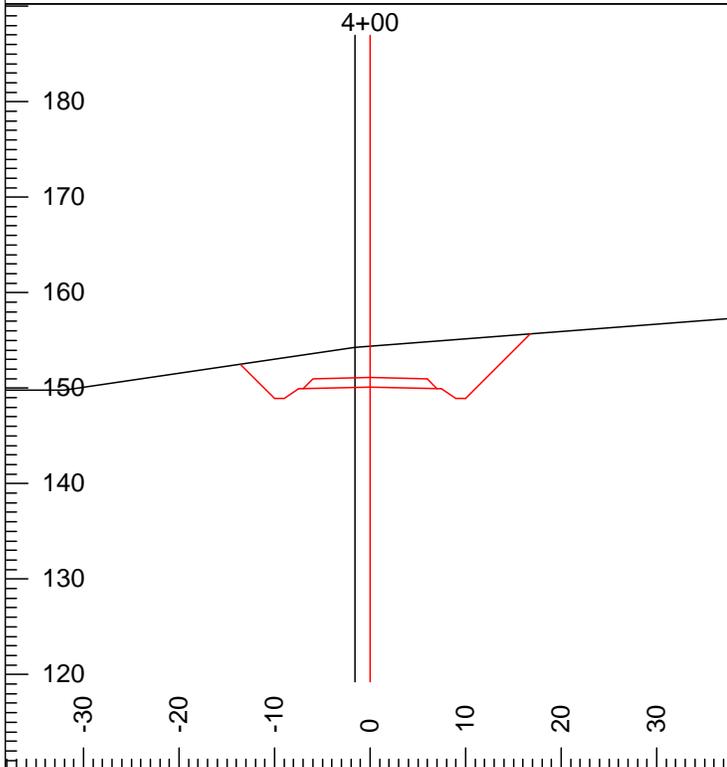
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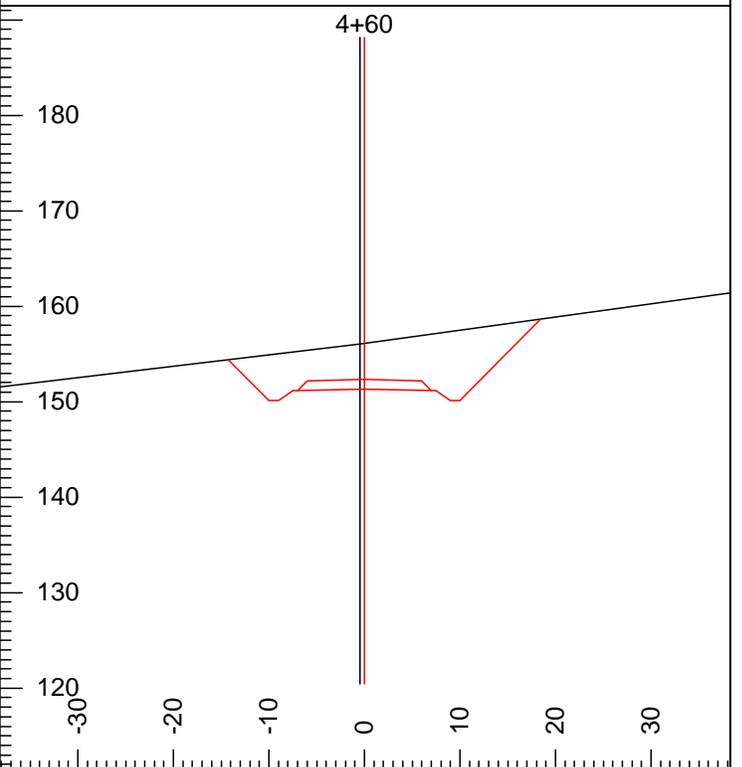
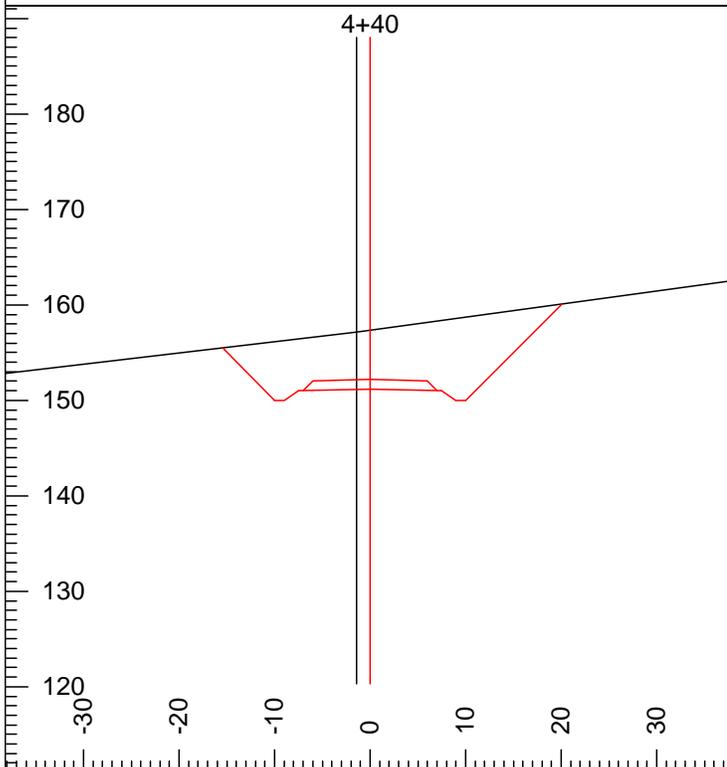
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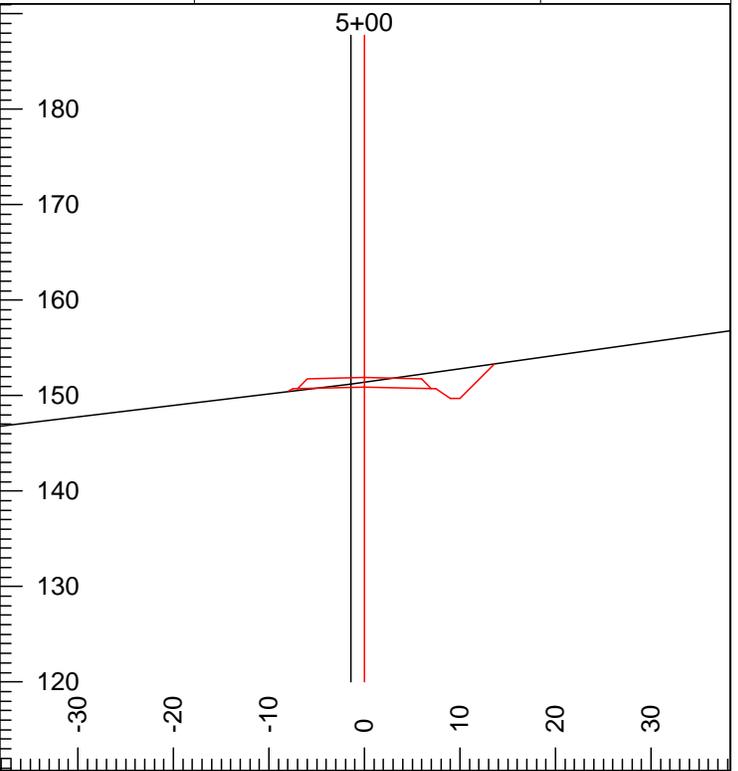
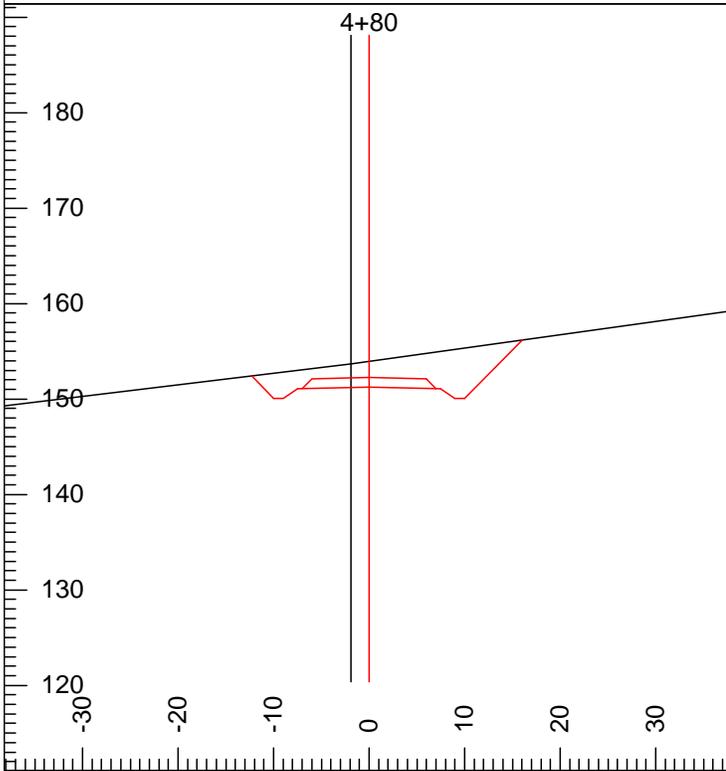
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P-Stn:	4+00	L-Ssr: (Av)	8	F Slope R:	100
Grd.Nxt.:	4	Super L:	-2	Cut Dp:	4
Grd.Lst:	4	Super R:	-2		

L-Stn:	4+20	L-Ssl: (Av)	-14	F Slope L:	100
P-Stn:	4+20	L-Ssr: (Av)	7	F Slope R:	100
Grd.Nxt.:	3	Super L:	-2	Cut Dp:	6
Grd.Lst:	3	Super R:	-2		



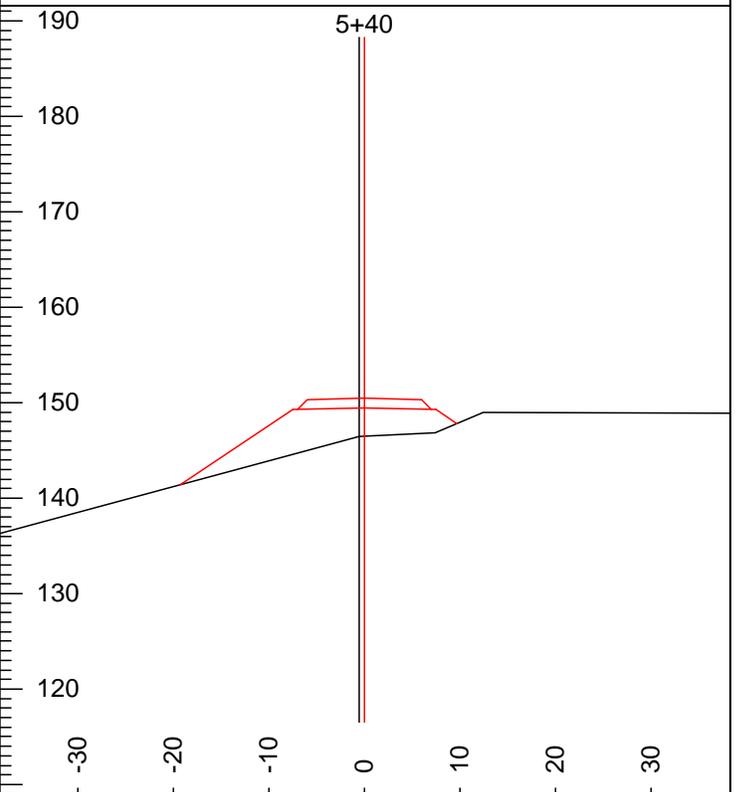
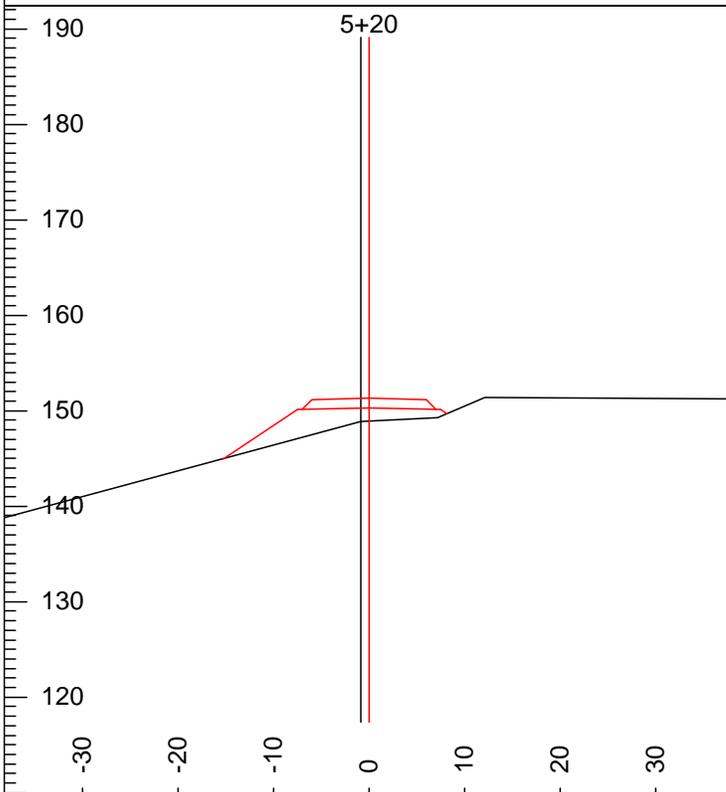
L-Stn:	4+40	L-Ssl: (Av)	-12	F Slope L:	100
P-Stn:	4+40	L-Ssr: (Av)	14	F Slope R:	100
Grd.Nxt.:	1	Super L:	-2	Cut Dp:	6
Grd.Lst:	1	Super R:	-2		

L-Stn:	4+60	L-Ssl: (Av)	-12	F Slope L:	100
P-Stn:	4+60	L-Ssr: (Av)	14	F Slope R:	100
Grd.Nxt.:	0	Super L:	-2	Cut Dp:	5
Grd.Lst:	0	Super R:	-2		



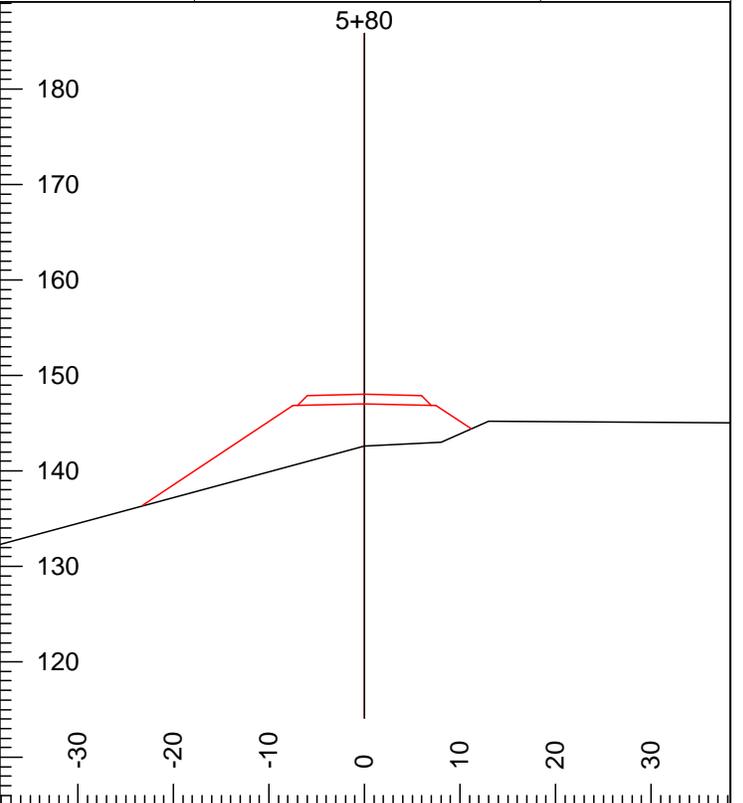
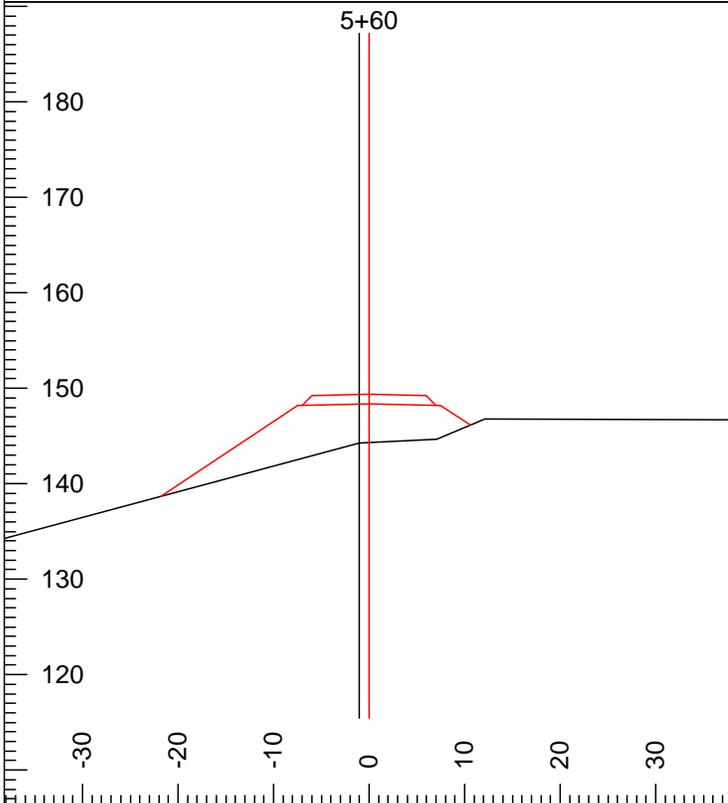
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P-Stn:	4+80	L-Ssr: (Av)	14	F Slope R:	100
Grd.Nxt.:	-1	Super L:	-2	Cut Dp:	3
Grd.Lst:	-1	Super R:	-2		

L-Stn:	5+00	L-Ssl: (Av)	-12	F Slope L:	-67
P-Stn:	5+00	L-Ssr: (Av)	14	F Slope R:	100
Grd.Nxt.:	-2	Super L:	-2	Cut Dp:	1
Grd.Lst:	-2	Super R:	-2		



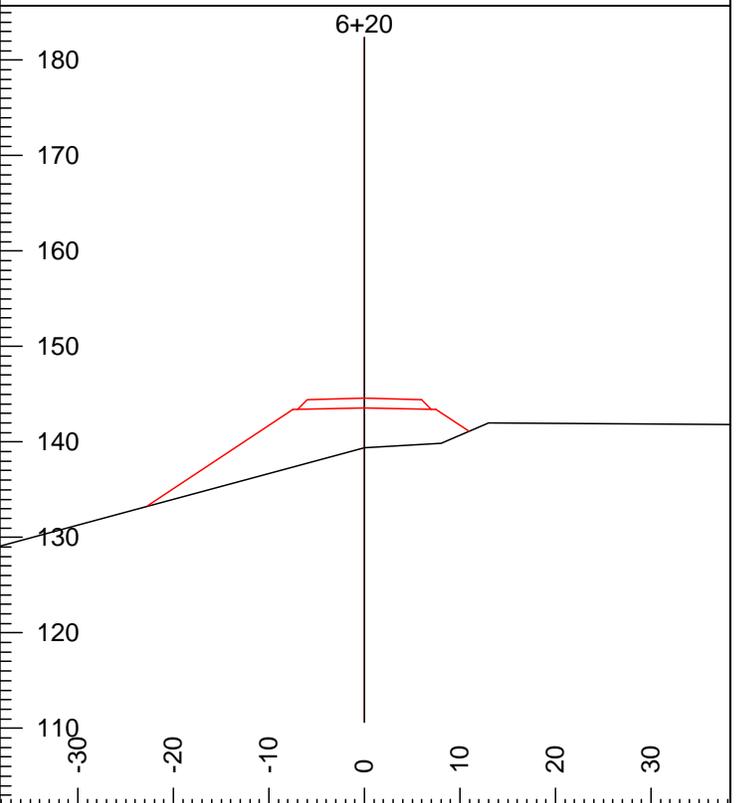
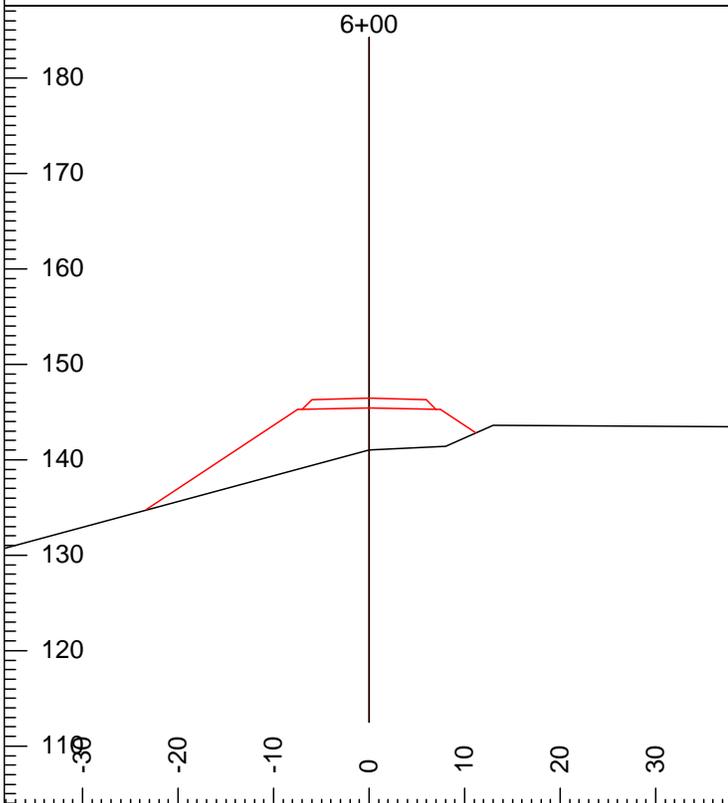
L-Stn:	5+20	Grd.Lst:	-4	Super L:	-2	F Slope R:	-67
P-Stn:	5+20	L-Ssl: (Av)	-25	Super R:	-2	Cut Dp:	-1
Grd.Nxt.:	-4	L-Ssr: (Av)	16	F Slope L:	-67		

L-Stn:	5+40	Grd.Lst:	-5	Super L:	-2	F Slope R:	-67
P-Stn:	5+40	L-Ssl: (Av)	-26	Super R:	-2	Cut Dp:	-3
Grd.Nxt.:	-5	L-Ssr: (Av)	15	F Slope L:	-67		



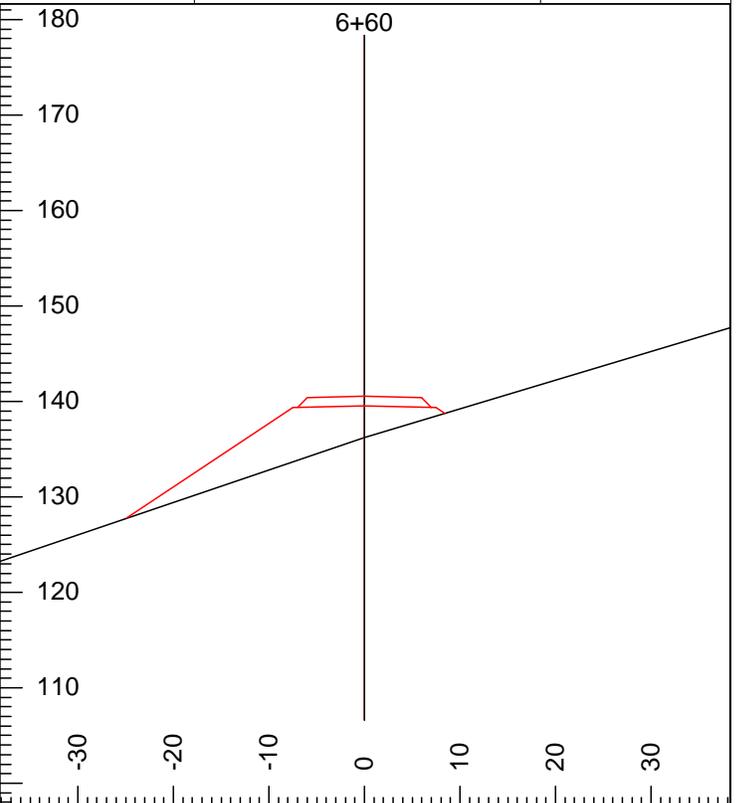
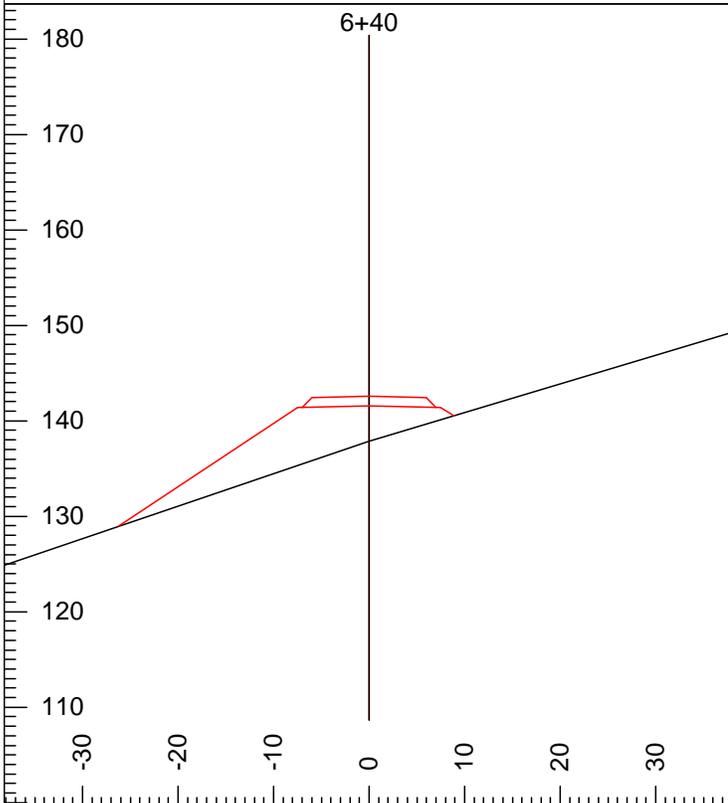
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 P-Stn: 5+61 L-Ssl: (Av) -25 Super R: -2 Cut Dp: -4
 Grd.Nxt.: -6 L-Ssr: (Av) 16 F Slope L: -67

L-Stn: 5+80 Grd.Lst: -7 Super L: -2 F Slope R: -67
 P-Stn: 5+81 L-Ssl: (Av) -27 Super R: -2 Cut Dp: -4
 Grd.Nxt.: -7 L-Ssr: (Av) 13 F Slope L: -67



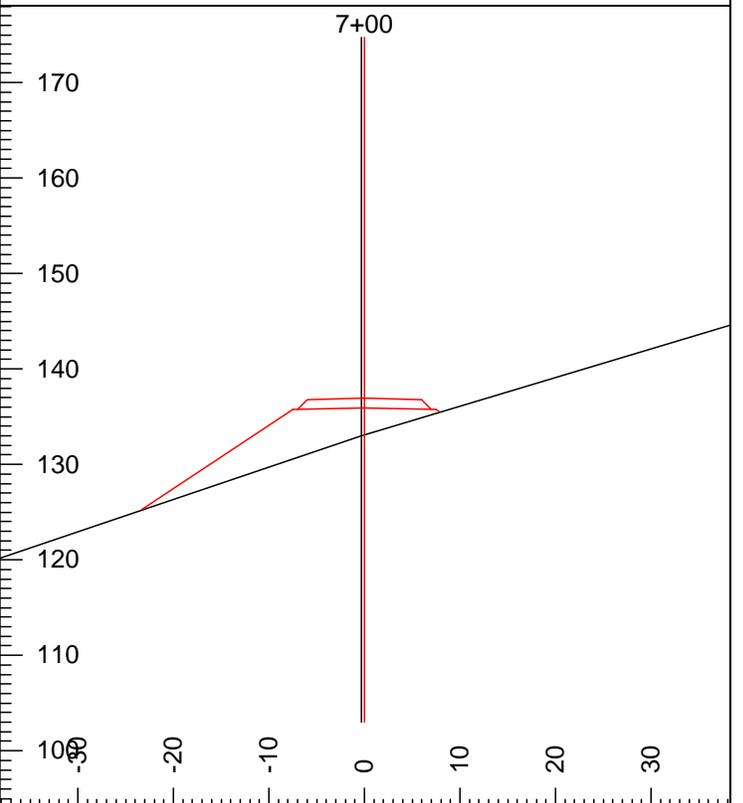
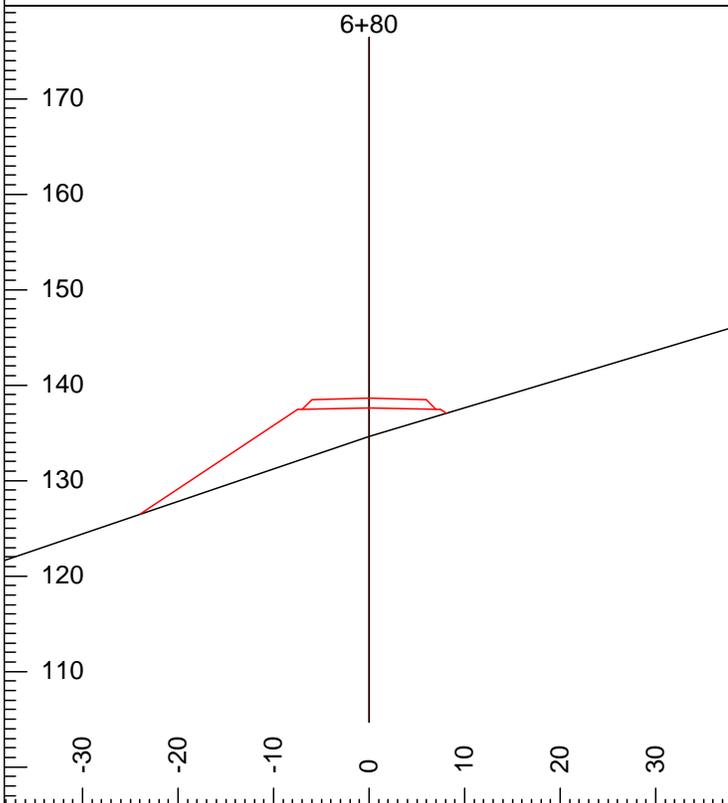
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 Grd.Nxt.: -9 L-Ssr: (Av) 13 F Slope L: -67

L-Stn: 6+20 Grd.Lst: -10 Super L: -2 F Slope R: -67
 P-Stn: 6+21 L-Ssl: (Av) -27 Super R: -2 Cut Dp: -4
 Grd.Nxt.: -10 L-Ssr: (Av) 13 F Slope L: -67



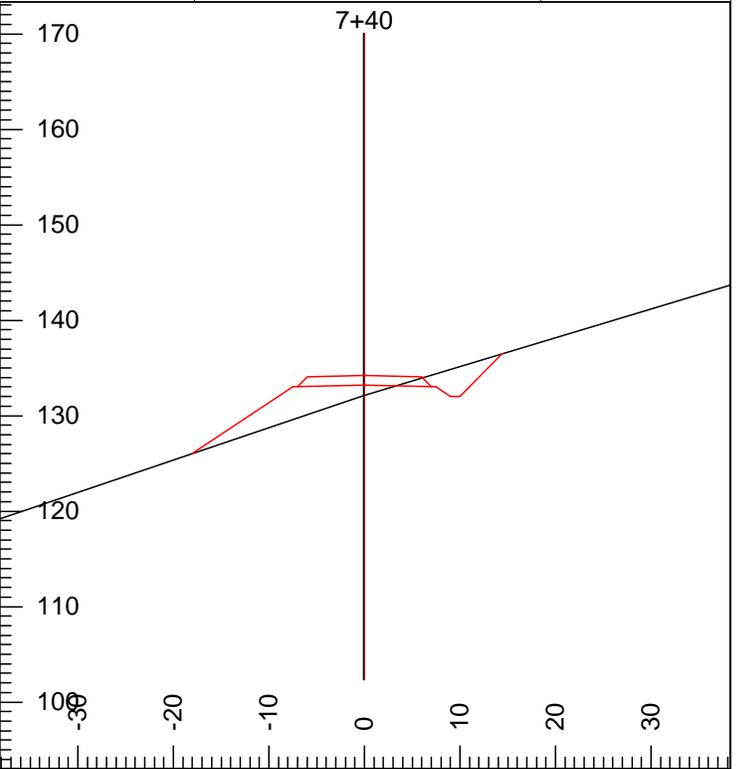
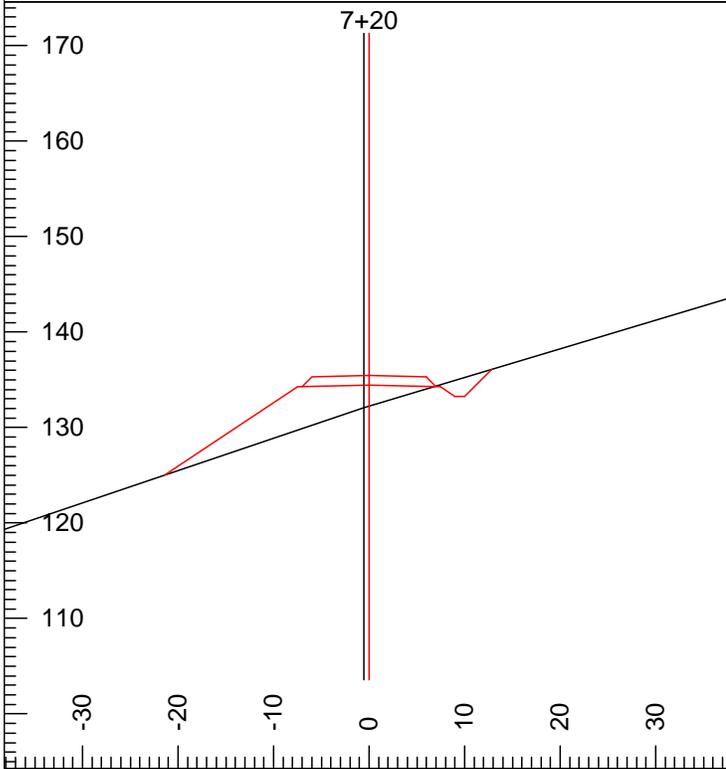
L-Stn: 6+40 Grd.Lst: -10 Super L: -2 F Slope R: -67
 P-Stn: 6+41 L-Ssl: (Av) -34 Super R: -2 Cut Dp: -4
 Grd.Nxt.: -10 L-Ssr: (Av) 30 F Slope L: -67

L-Stn: 6+60 Grd.Lst: -10 Super L: -2 F Slope R: -67
 P-Stn: 6+61 L-Ssl: (Av) -34 Super R: -2 Cut Dp: -3
 Grd.Nxt.: -10 L-Ssr: (Av) 30 F Slope L: -67



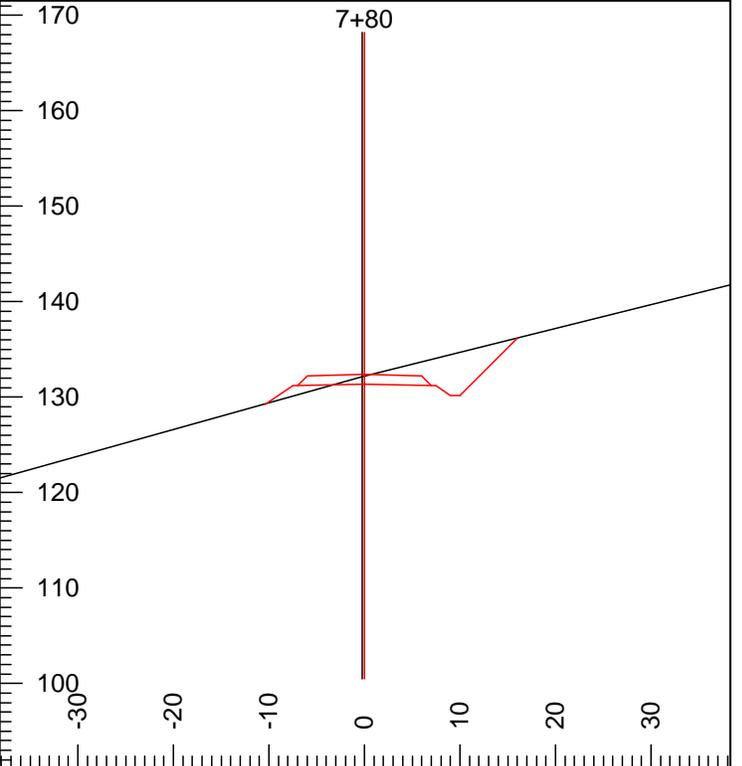
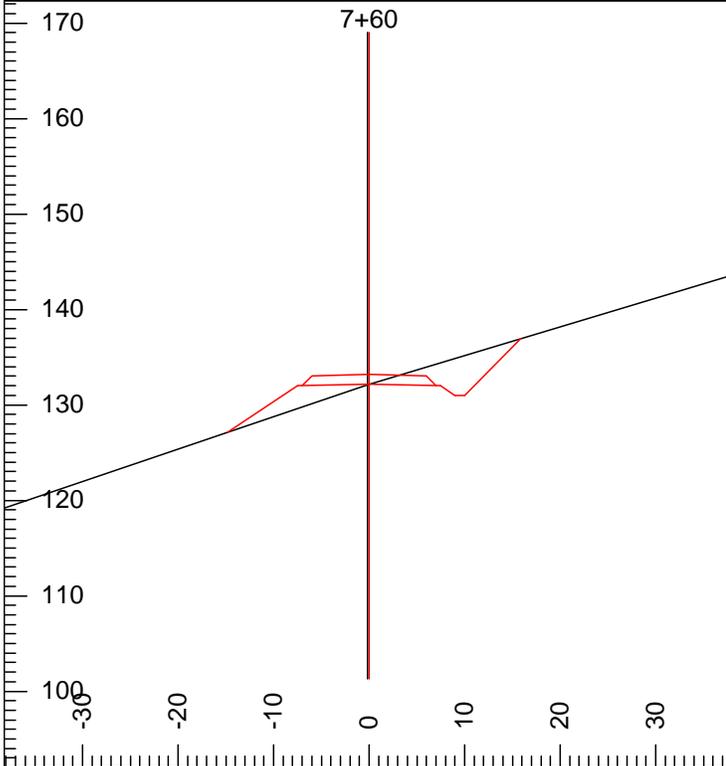
L-Stn: 6+80 Grd.Lst: -9 Super L: -2 F Slope R: -67
 P-Stn: 6+81 L-Ssl: (Av) -34 Super R: -2 Cut Dp: -3
 Grd.Nxt.: -9 L-Ssr: (Av) 30 F Slope L: -67

L-Stn: 7+00 Grd.Lst: -8 Super L: -2 F Slope R: -67
 P-Stn: 7+01 L-Ssl: (Av) -34 Super R: -2 Cut Dp: -3
 Grd.Nxt.: -8 L-Ssr: (Av) 30 F Slope L: -67



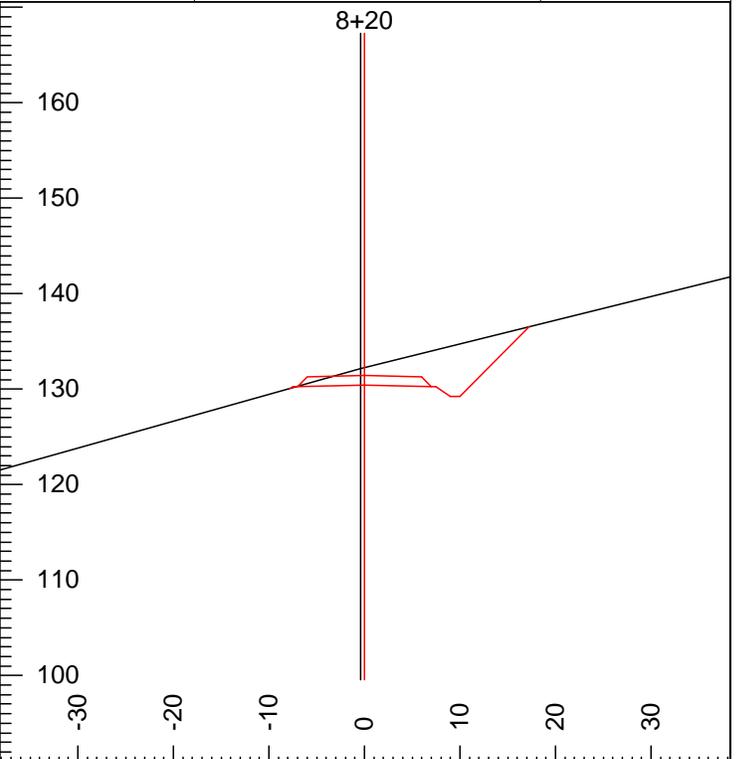
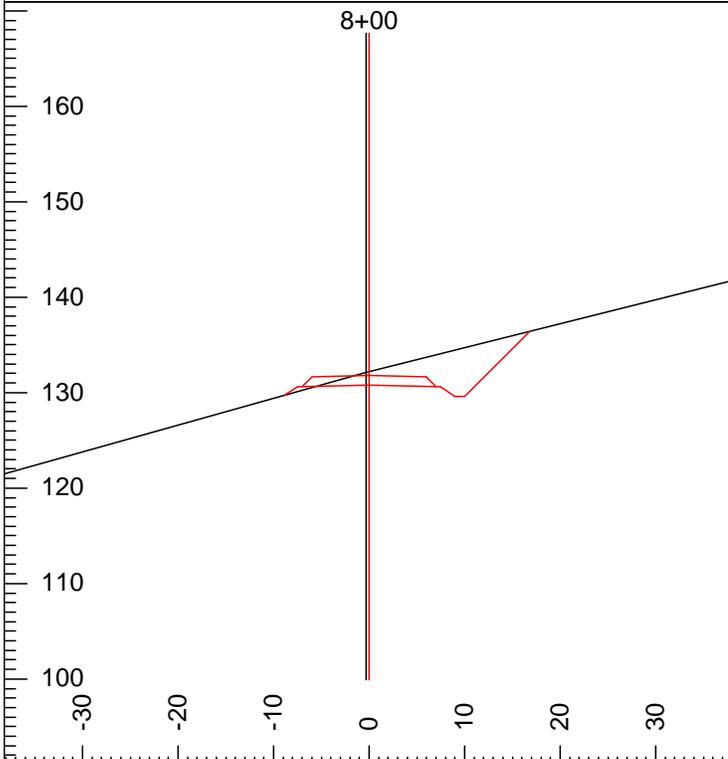
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P-Stn:	7+21	L-Ssr: (Av)	30	F Slope R:	100
Grd.Nxt.:	-7	Super L:	-2	Cut Dp:	-2
Grd.Lst:	-7	Super R:	-2		

L-Stn:	7+40	L-Ssl: (Av)	-34	F Slope L:	-67
P-Stn:	7+41	L-Ssr: (Av)	30	F Slope R:	100
Grd.Nxt.:	-6	Super L:	-2	Cut Dp:	-1
Grd.Lst:	-6	Super R:	-2		



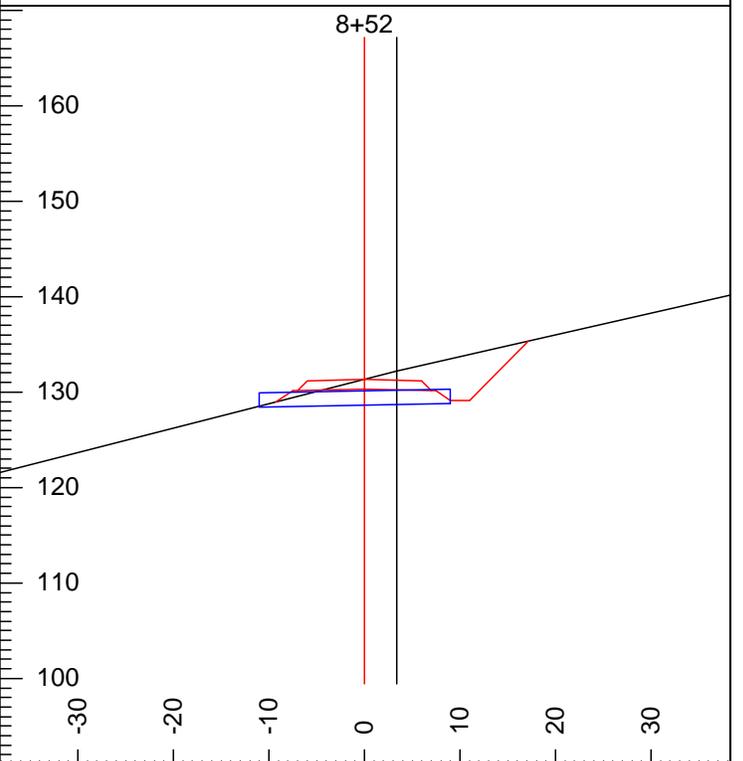
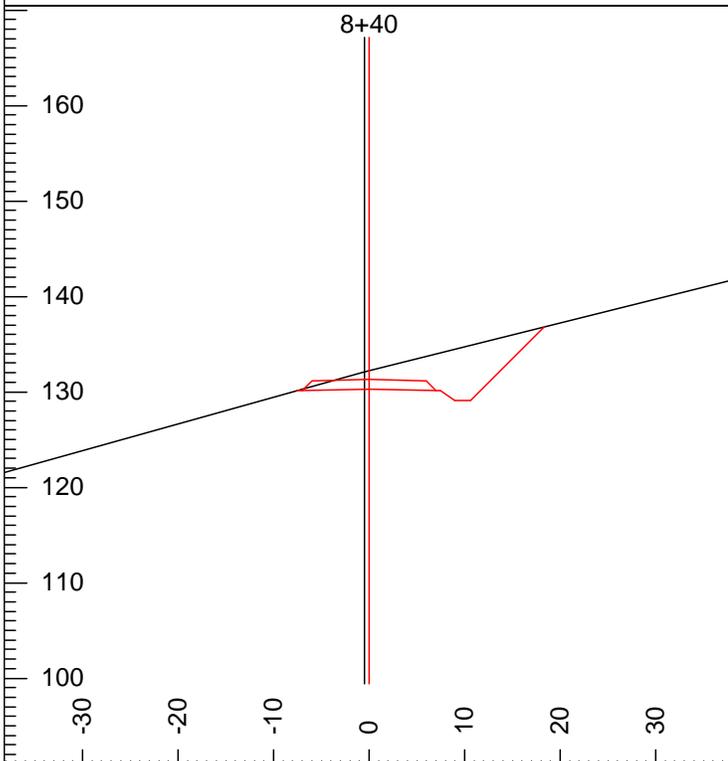
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P-Stn:	7+61	L-Ssr: (Av)	30	F Slope R:	100
Grd.Nxt.:	-5	Super L:	-2	Cut Dp:	0
Grd.Lst:	-5	Super R:	-2		

L-Stn:	7+80	L-Ssl: (Av)	-28	F Slope L:	-67
P-Stn:	7+81	L-Ssr: (Av)	25	F Slope R:	100
Grd.Nxt.:	-3	Super L:	-2	Cut Dp:	1
Grd.Lst:	-3	Super R:	-2		



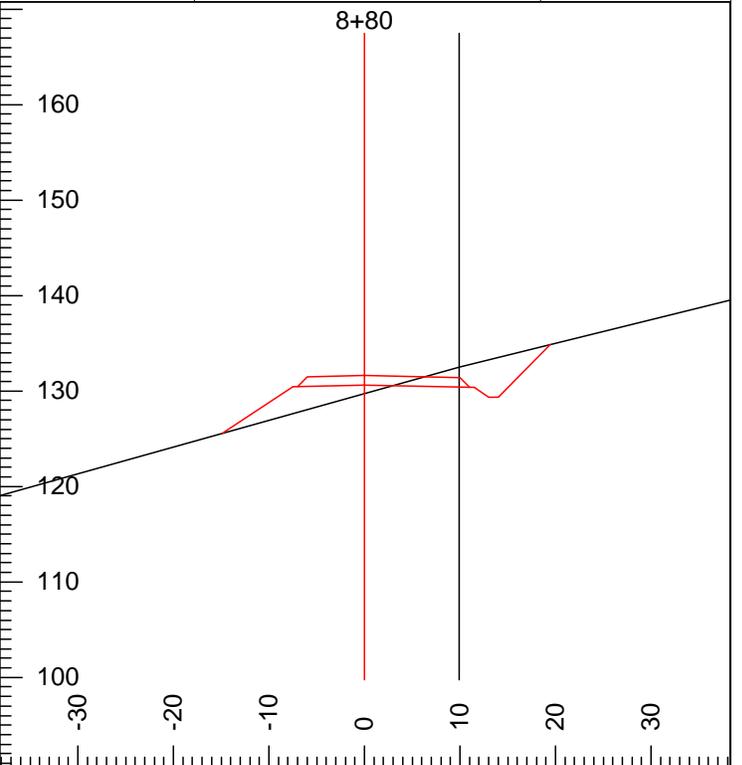
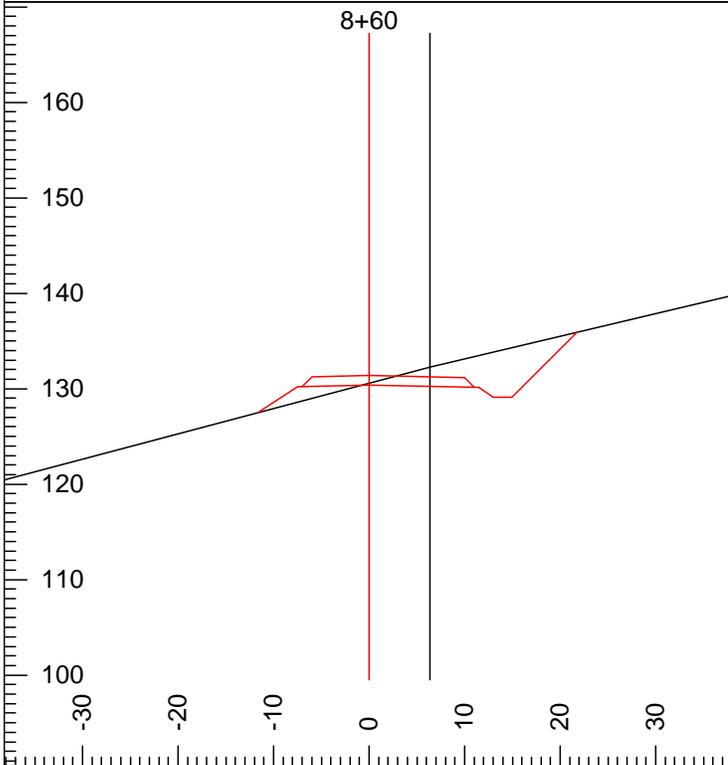
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P-Stn:	8+01	L-Ssr: (Av)	25	F Slope R:	100
Grd.Nxt.:	-2	Super L:	-2	Cut Dp:	1
Grd.Lst:	-2	Super R:	-2		

L-Stn:	8+20	L-Ssl: (Av)	-28	F Slope L:	-67
P-Stn:	8+21	L-Ssr: (Av)	25	F Slope R:	100
Grd.Nxt.:	-1	Super L:	-2	Cut Dp:	2
Grd.Lst:	-1	Super R:	-2		



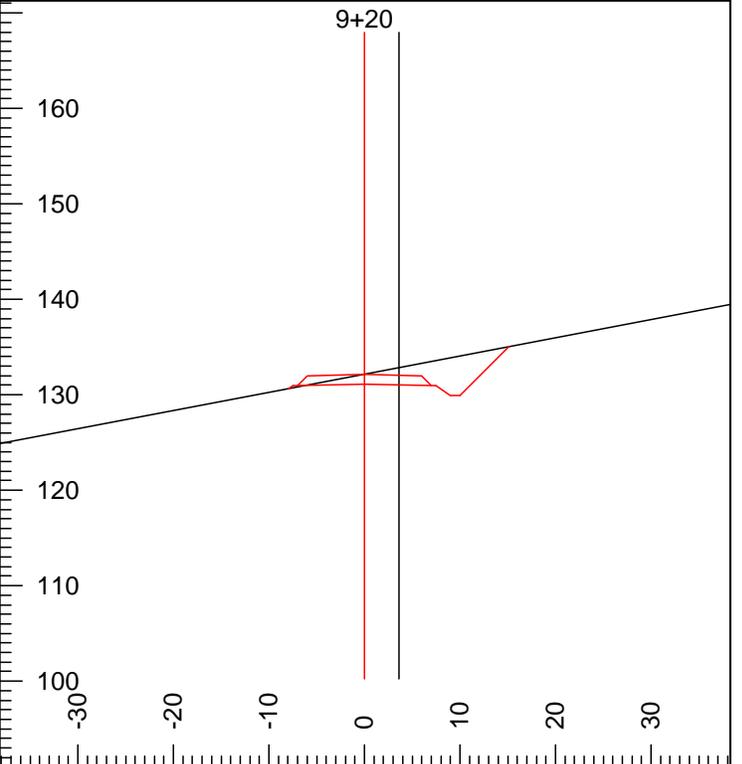
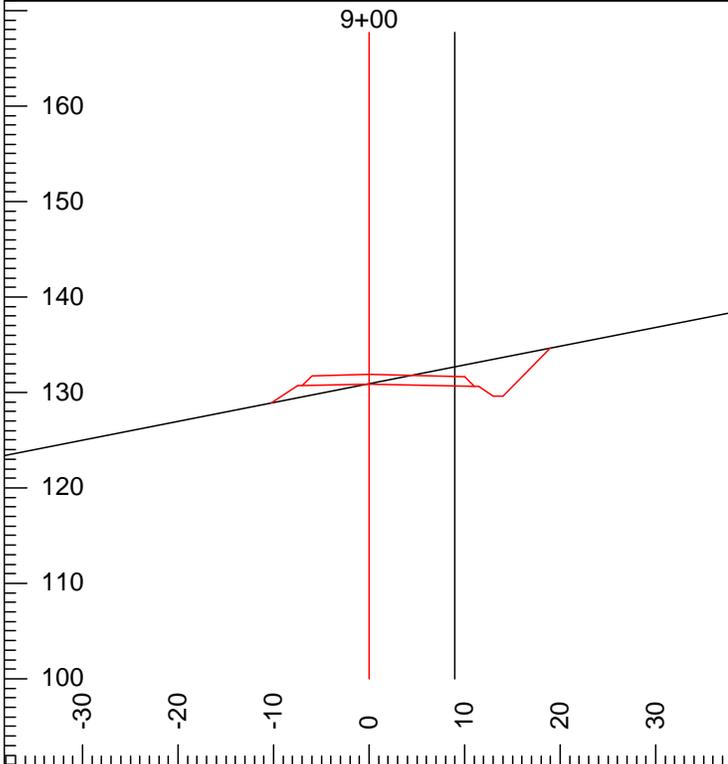
L-Stn:	8+40	L-Ssl: (Av)	-28	F Slope L:	0
P-Stn:	8+41	L-Ssr: (Av)	25	F Slope R:	100
Grd.Nxt.:	0	Super L:	-2	Cut Dp:	2
Grd.Lst:	0	Super R:	-2		

L-Stn:	8+52	L-Ssl: (Av)	-26	F Slope L:	-67
P-Stn:	8+52	L-Ssr: (Av)	24	F Slope R:	100
Grd.Nxt.:	1	Super L:	-2	Cut Dp:	1
Grd.Lst:	1	Super R:	-2		



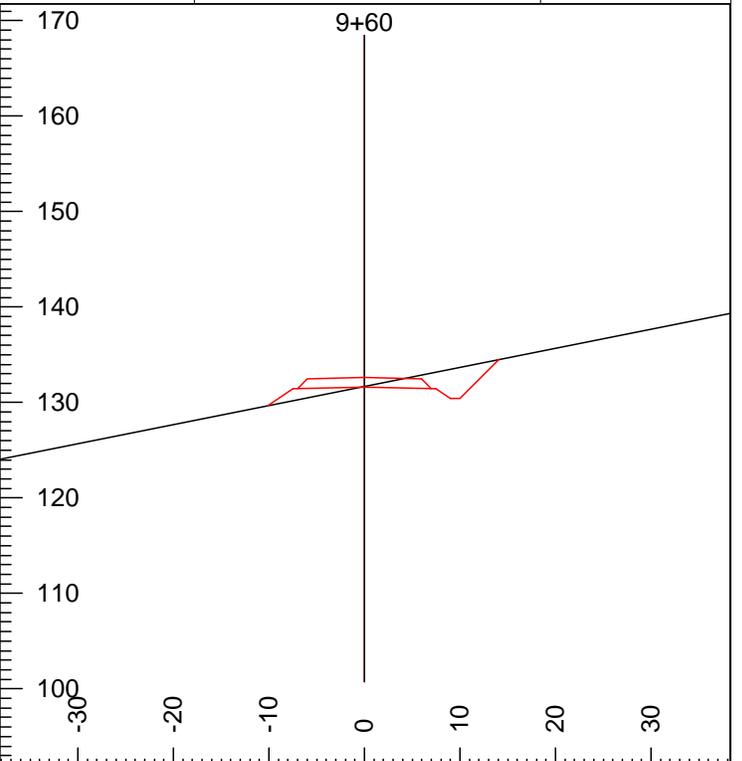
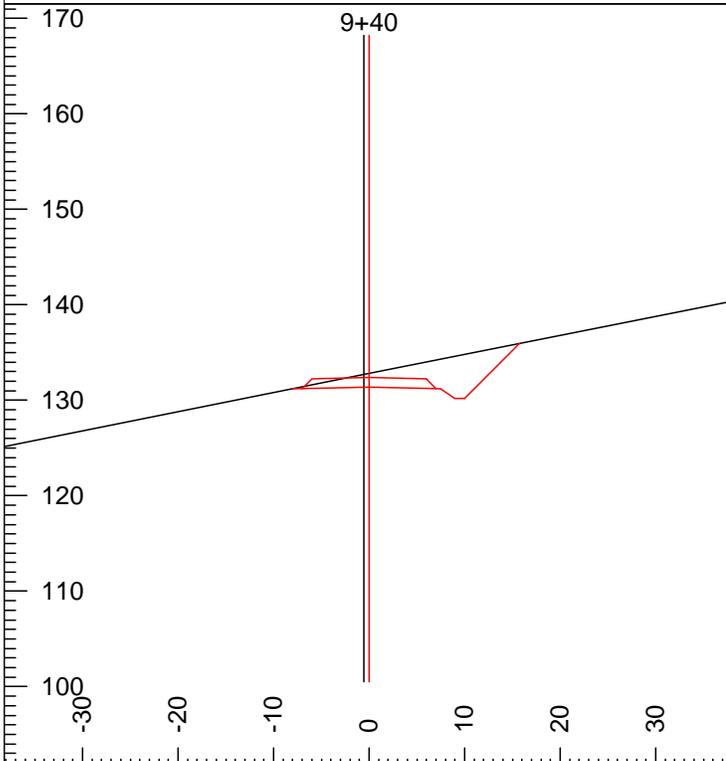
L-Stn:	8+60	L-Ssl: (Av)	-27	F Slope L:	-67
P-Stn:	8+60	L-Ssr: (Av)	26	F Slope R:	100
Grd.Nxt.:	1	Super L:	-2	Cut Dp:	0
Grd.Lst:	1	Super R:	-2		

L-Stn:	8+80	L-Ssl: (Av)	-28	F Slope L:	-67
P-Stn:	8+79	L-Ssr: (Av)	28	F Slope R:	100
Grd.Nxt.:	1	Super L:	-2	Cut Dp:	-1
Grd.Lst:	1	Super R:	-2		



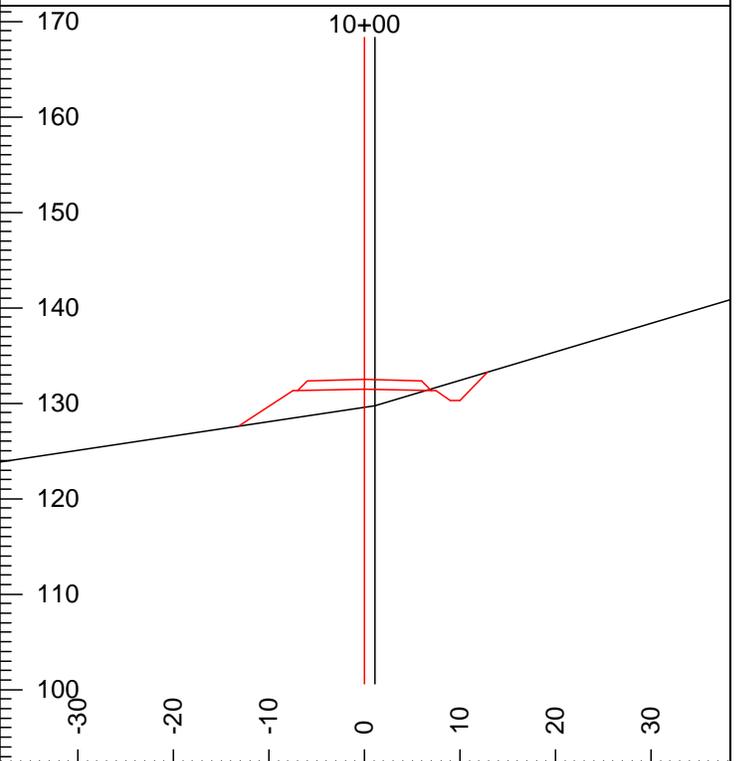
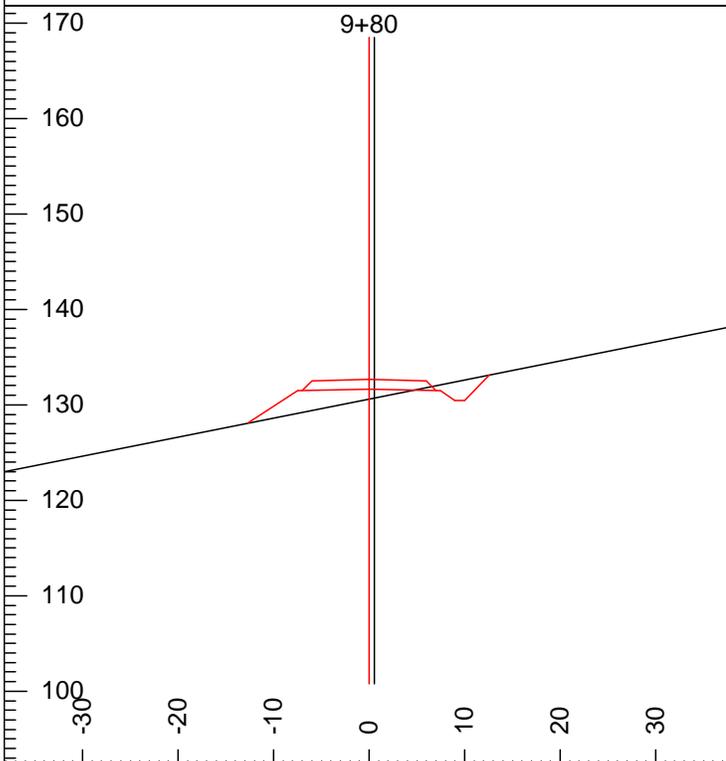
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P-Stn:	8+99	L-Ssr: (Av)	20	F Slope R:	100
Grd.Nxt.:	1	Super L:	-2	Cut Dp:	0
Grd.Lst:	1	Super R:	-2		

L-Stn:	9+20	L-Ssl: (Av)	-19	F Slope L:	-67
P-Stn:	9+18	L-Ssr: (Av)	19	F Slope R:	100
Grd.Nxt.:	1	Super L:	-2	Cut Dp:	1
Grd.Lst:	1	Super R:	-2		



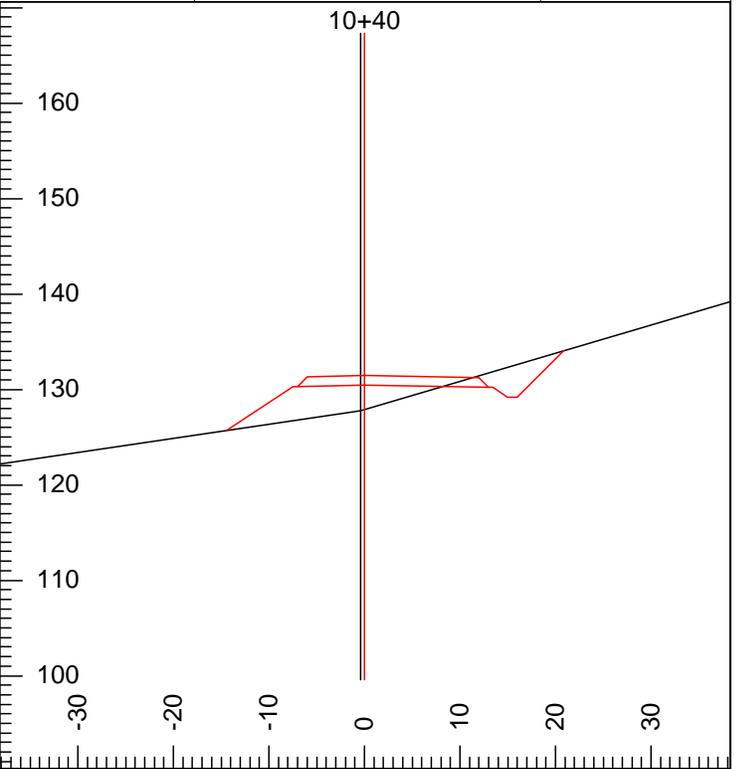
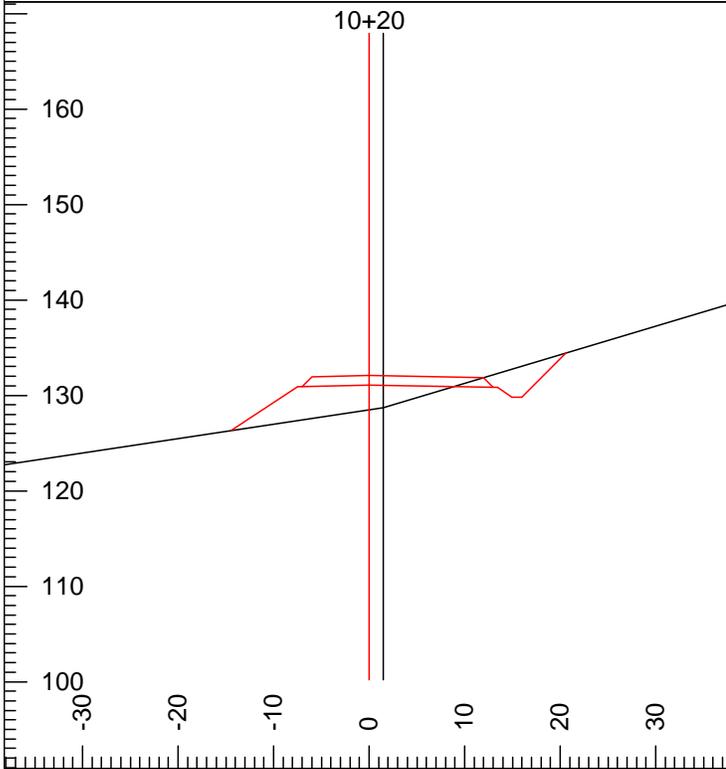
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P-Stn:	9+38	L-Ssr: (Av)	20	F Slope R:	100
Grd.Nxt.:	1	Super L:	-2	Cut Dp:	1
Grd.Lst:	1	Super R:	-2		

L-Stn:	9+60	L-Ssl: (Av)	-20	F Slope L:	-67
P-Stn:	9+58	L-Ssr: (Av)	20	F Slope R:	100
Grd.Nxt.:	1	Super L:	-2	Cut Dp:	0
Grd.Lst:	1	Super R:	-2		



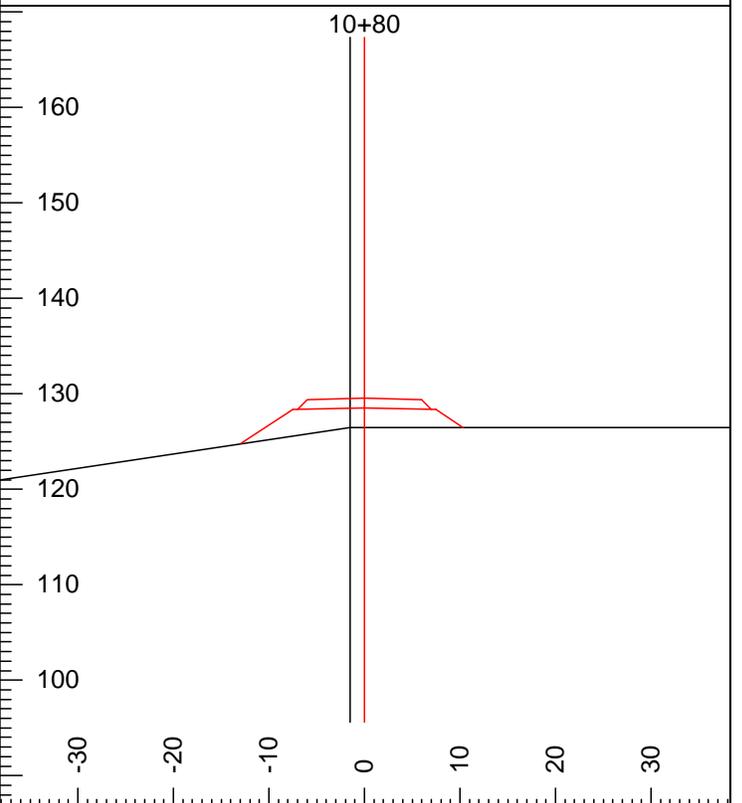
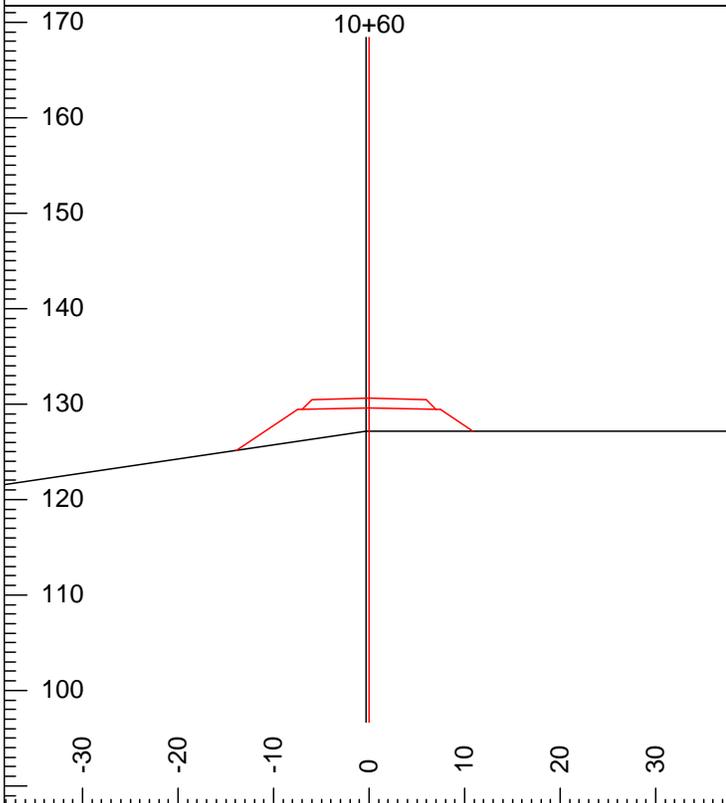
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P-Stn:	9+78	L-Ssr: (Av)	20	F Slope R:	100
Grd.Nxt.:	0	Super L:	-2	Cut Dp:	-1
Grd.Lst:	0	Super R:	-2		

L-Stn:	10+00	L-Ssl: (Av)	-15	F Slope L:	-67
P-Stn:	9+98	L-Ssr: (Av)	28	F Slope R:	100
Grd.Nxt.:	-1	Super L:	-2	Cut Dp:	-2
Grd.Lst:	-1	Super R:	-2		



L-Stn: 10+20 L-Ssl: (Av) -15 F Slope L: -67
 P-Stn: 10+18 L-Ssr: (Av) 28 F Slope R: 100
 Grd.Nxt.: -3 Super L: -2 Cut Dp: -3
 Grd.Lst: -3 Super R: -2

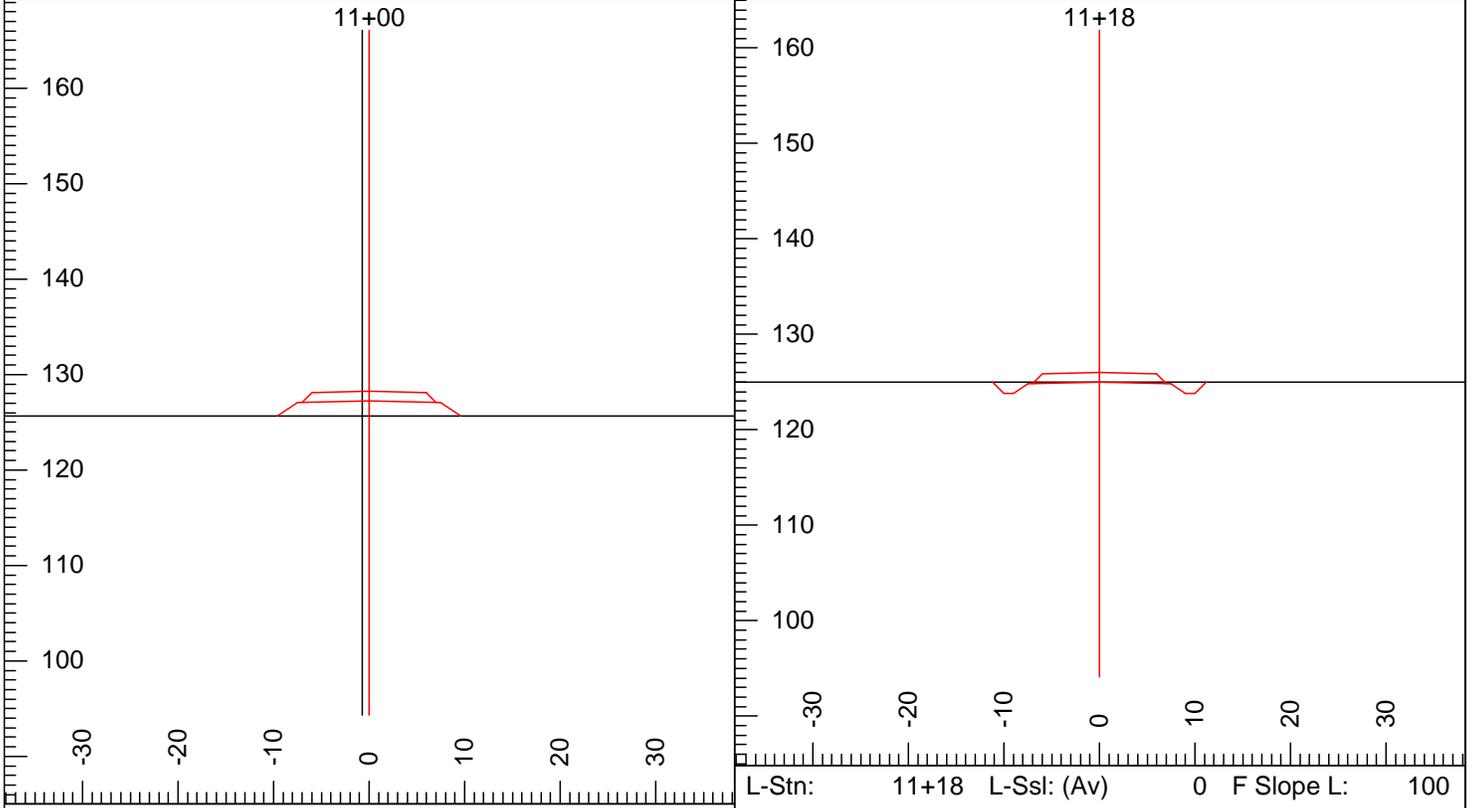
L-Stn: 10+40 L-Ssl: (Av) -15 F Slope L: -67
 P-Stn: 10+38 L-Ssr: (Av) 30 F Slope R: 100
 Grd.Nxt.: -4 Super L: -2 Cut Dp: -3
 Grd.Lst: -4 Super R: -2



L-Stn: 10+60 Grd.Lst: -5 Super L: -2 F Slope R: -67
 P-Stn: 10+58 L-Ssl: (Av) -14 Super R: -2 Cut Dp: -2
 Grd.Nxt.: -5 L-Ssr: (Av) 0 F Slope L: -67

L-Stn: 10+80 Grd.Lst: -6 Super L: -2 F Slope R: -67
 P-Stn: 10+78 L-Ssl: (Av) -13 Super R: -2 Cut Dp: -2
 Grd.Nxt.: -6 L-Ssr: (Av) 0 F Slope L: -67

J:\SHARED\BlackHillsDistrict\TIMBER SALES\2016 Sales\North West\Engineering\Northwest Roadplan\New \$r15/08/28\1008262015

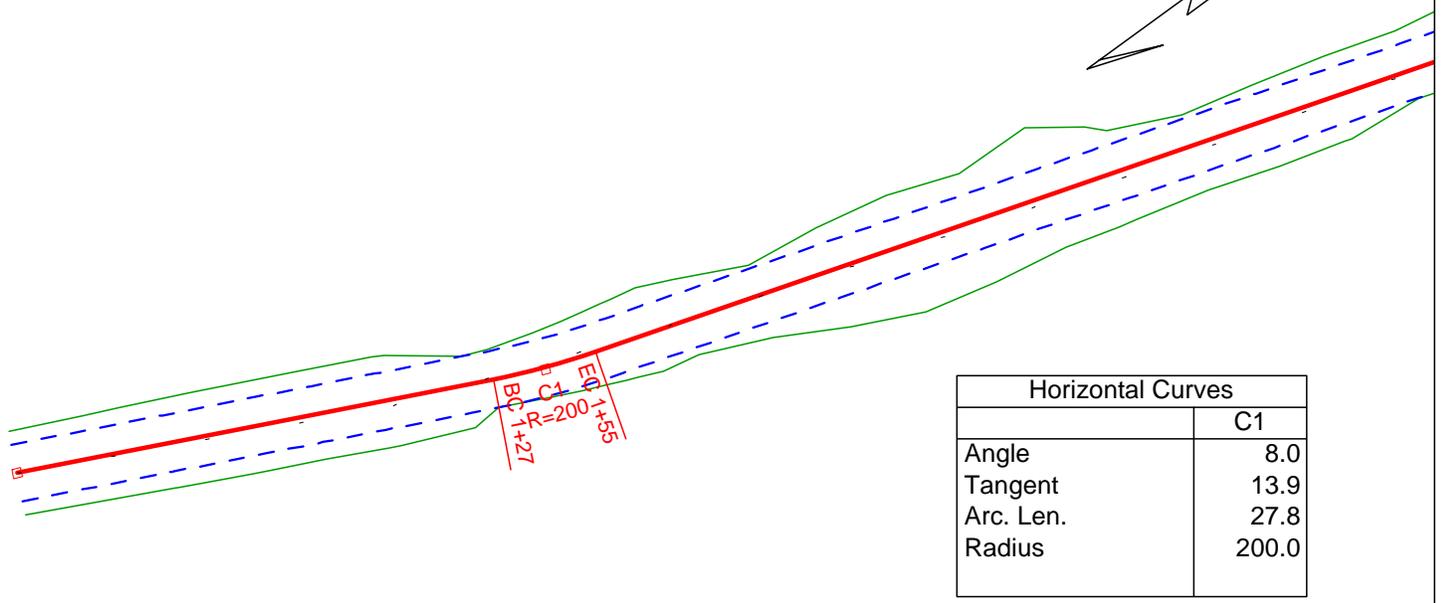
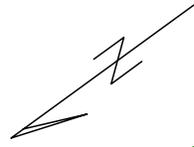


L-Stn: 11+00 Grd.Lst: -7 Super L: -2 F Slope R: -67
 P-Stn: 10+98 L-Ssl: (Av) 0 Super R: -2 Cut Dp: -2
 Grd.Nxt.: -7 L-Ssr: (Av) 0 F Slope L: -67

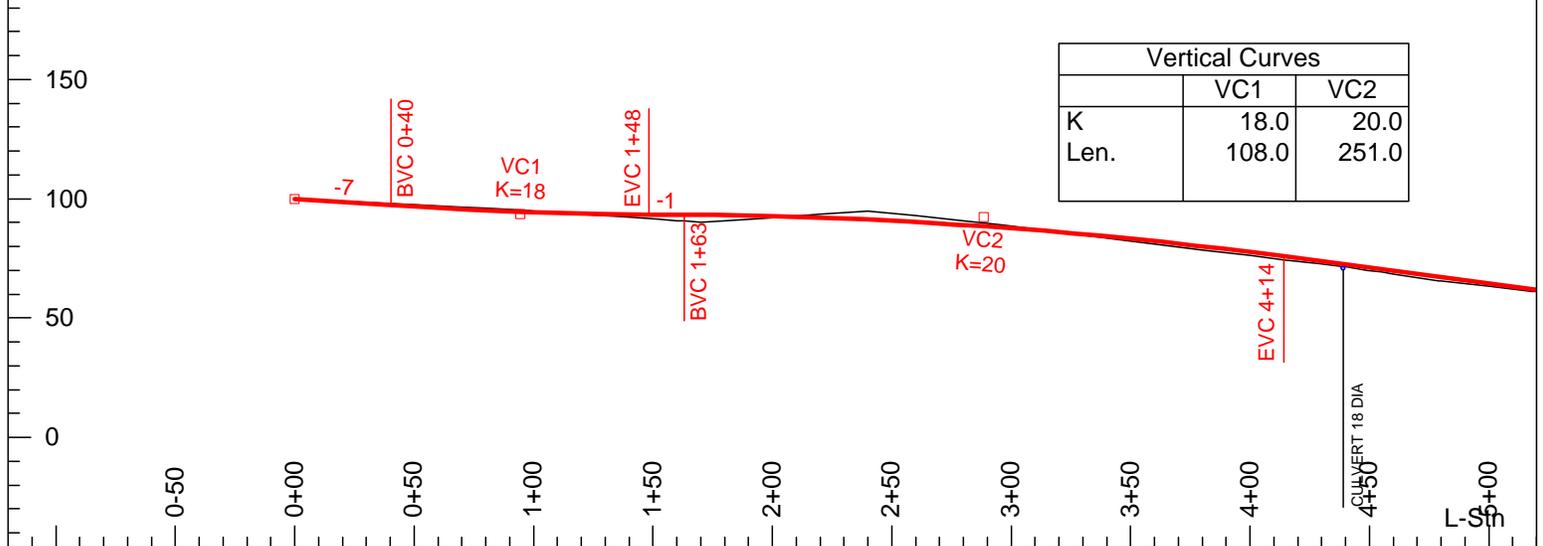
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 P-Stn: 11+16 L-Ssr: (Av) 0 F Slope R: 100
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 Grd.Lst: -21 Super R: -2

ROAD PLAN A-5463 DESIGN NORTH WEST TIMBER SALE

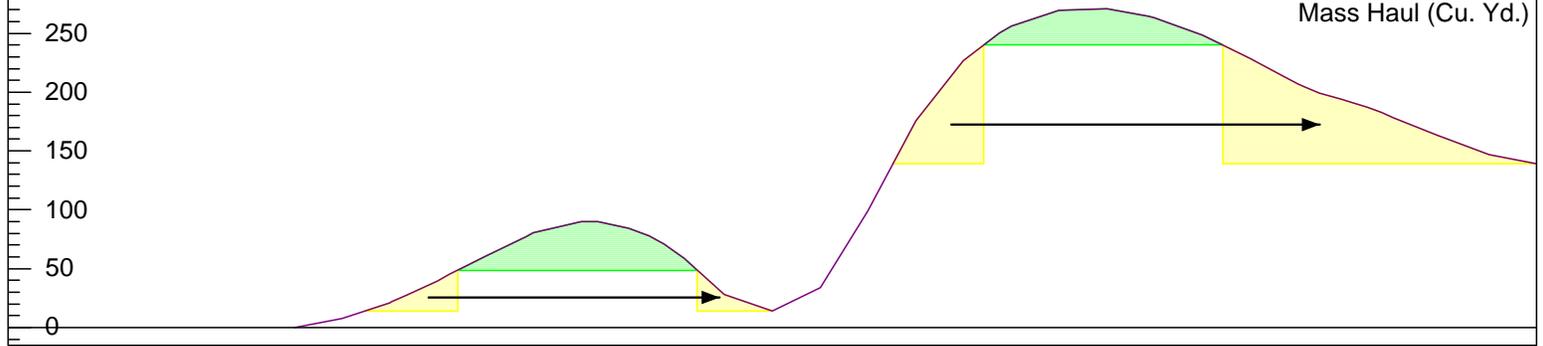
Page 1 of 3



Horizontal Curves	
	C1
Angle	8.0
Tangent	13.9
Arc. Len.	27.8
Radius	200.0

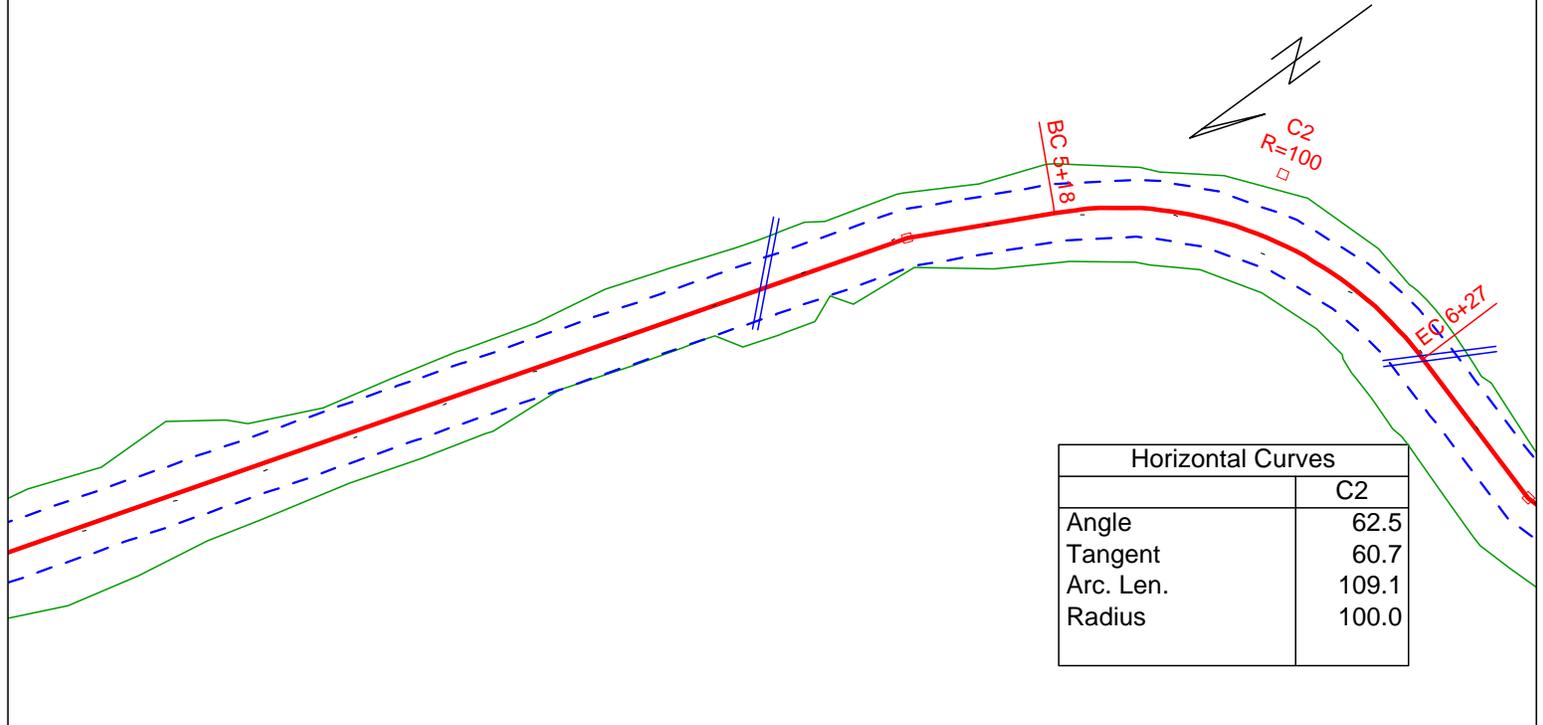
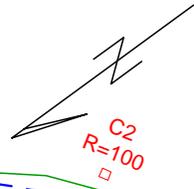


Vertical Curves		
	VC1	VC2
K	18.0	20.0
Len.	108.0	251.0

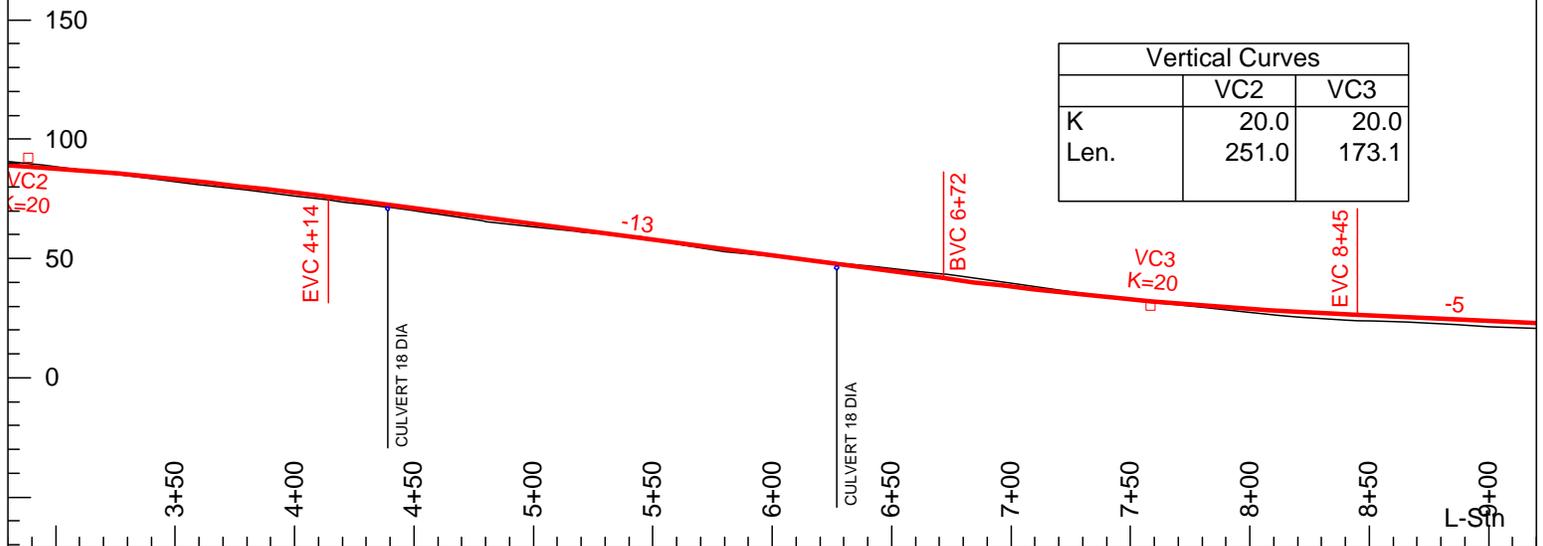


ROAD PLAN A-5463 DESIGN NORTH WEST TIMBER SALE

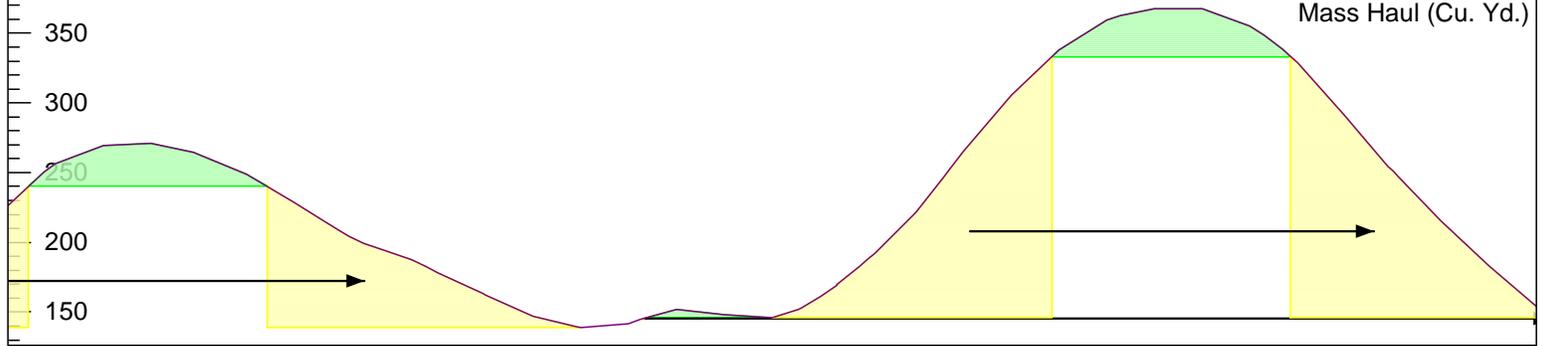
Page 2 of 3



Horizontal Curves	
	C2
Angle	62.5
Tangent	60.7
Arc. Len.	109.1
Radius	100.0

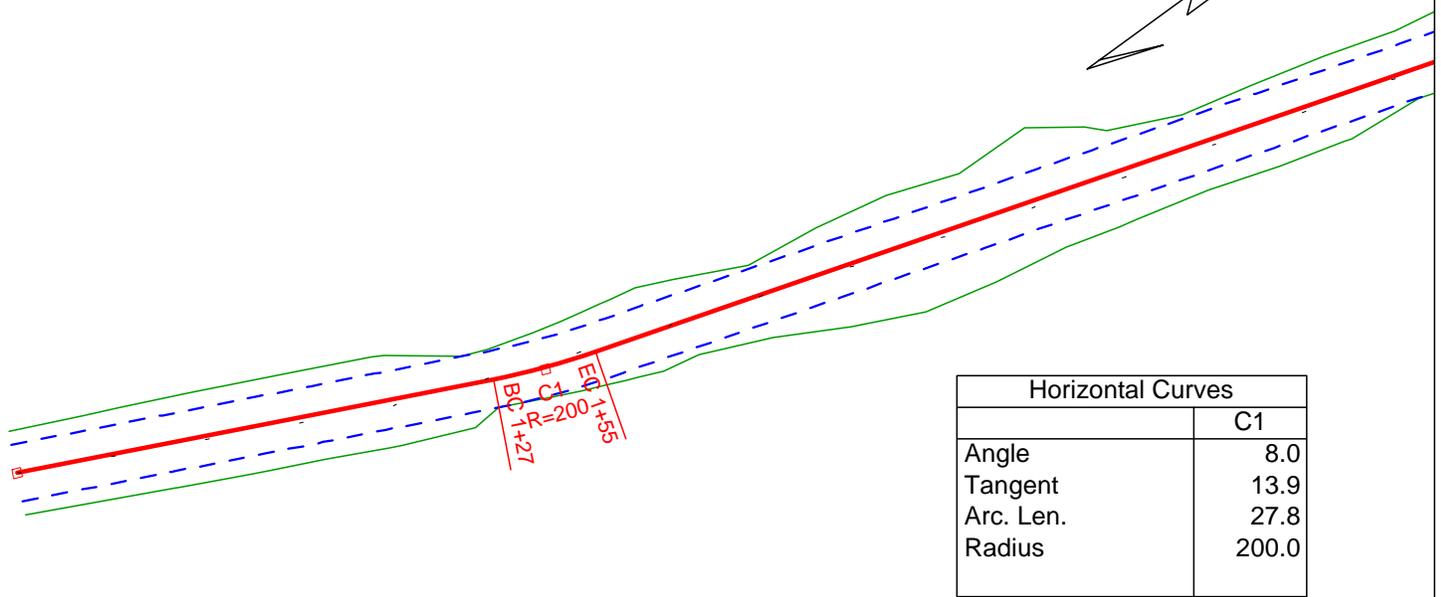
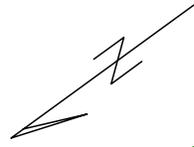


Vertical Curves		
	VC2	VC3
K	20.0	20.0
Len.	251.0	173.1

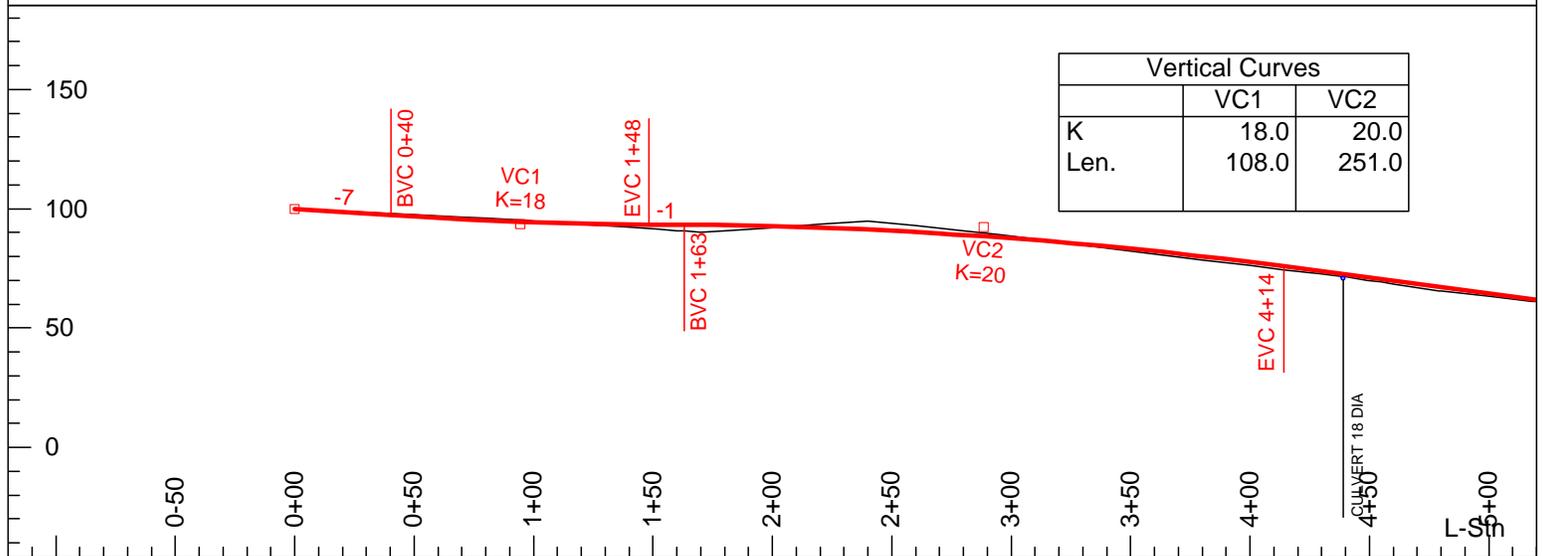


ROAD PLAN A-5463 DESIGN NORTH WEST TIMBER SALE

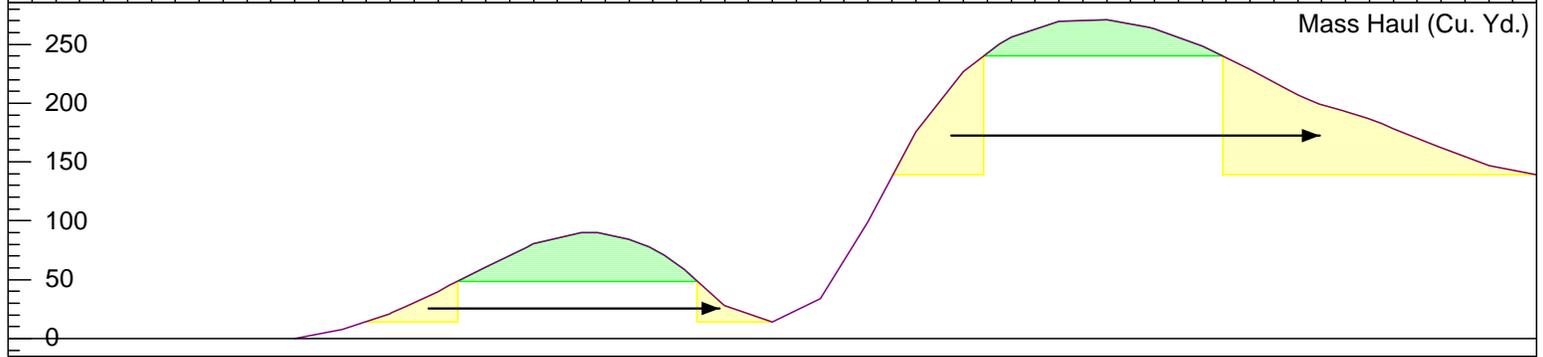
Page 1 of 3

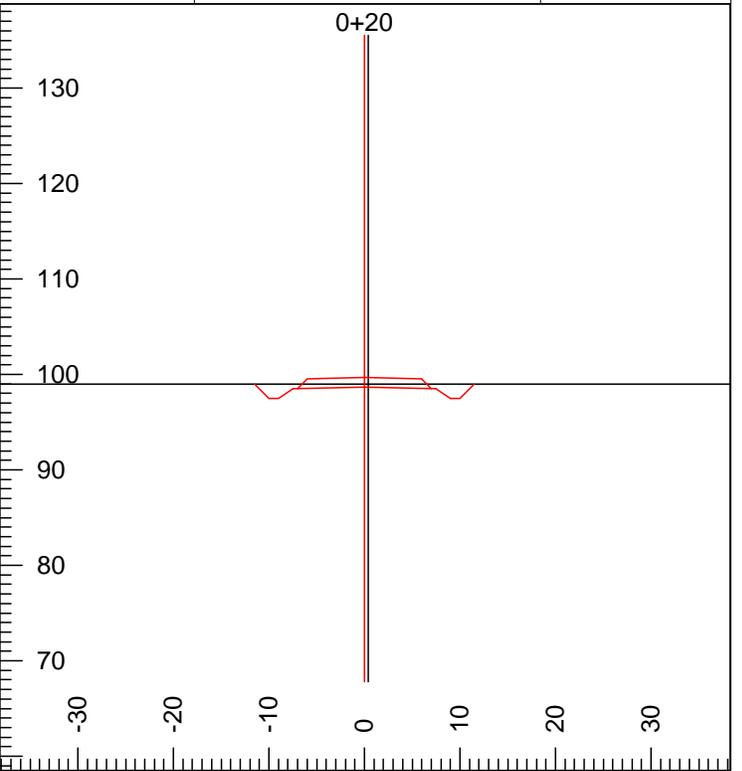
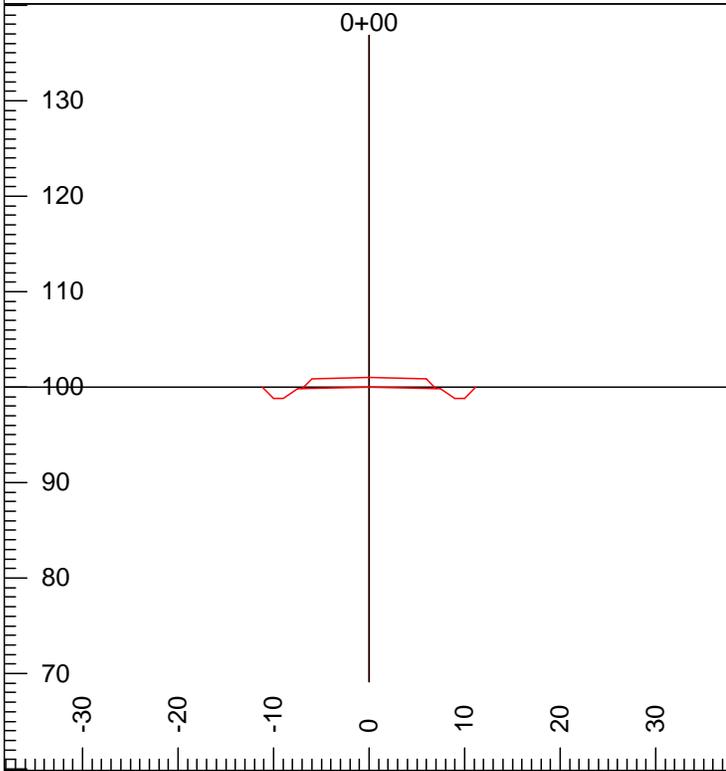


Horizontal Curves	
	C1
Angle	8.0
Tangent	13.9
Arc. Len.	27.8
Radius	200.0



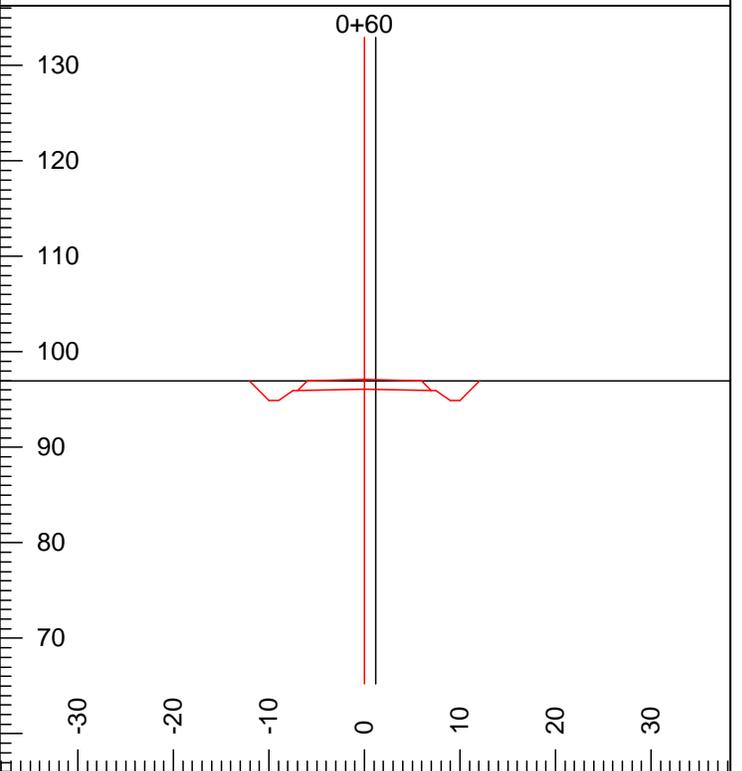
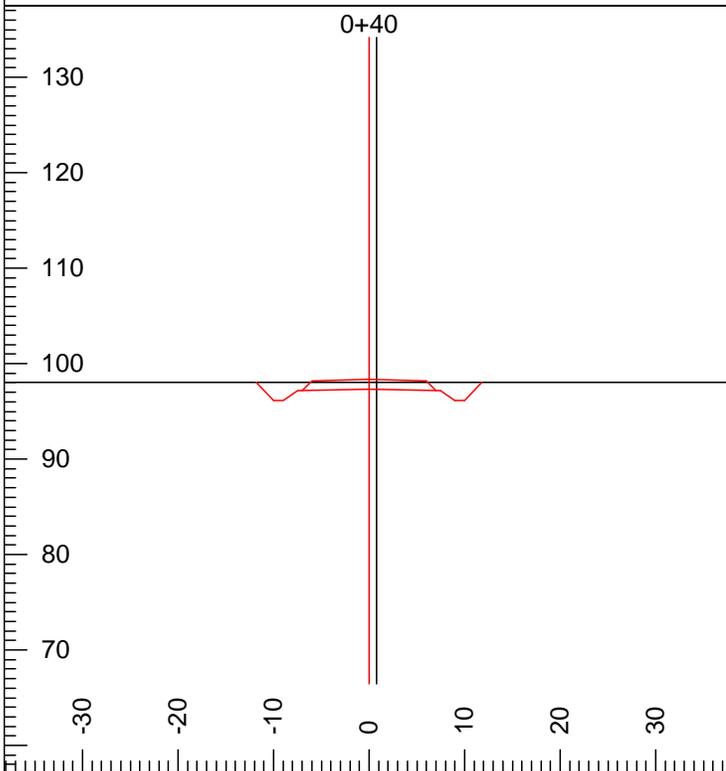
Vertical Curves		
	VC1	VC2
K	18.0	20.0
Len.	108.0	251.0





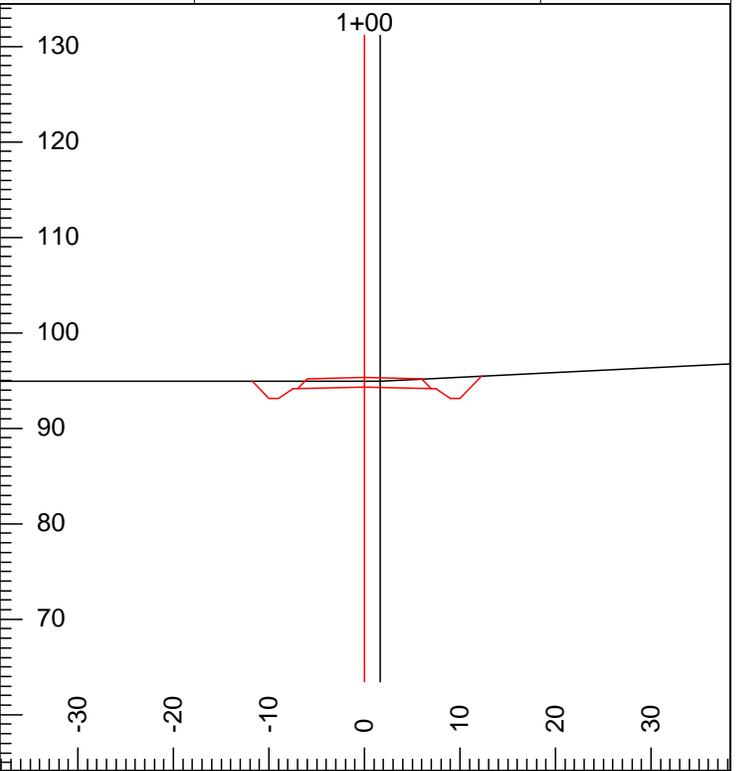
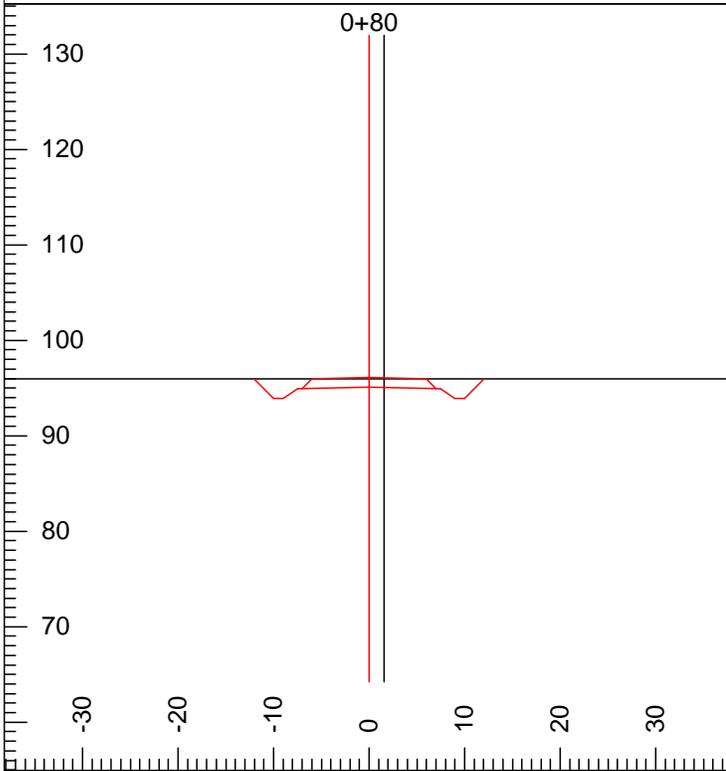
L-Stn:	0+00	L-Ssl: (Av)	0	F Slope L:	100
P-Stn:	0+00	L-Ssr: (Av)	0	F Slope R:	100
Grd.Nxt.:	-7	Super L:	-2	Cut Dp:	0
Grd.Lst:	n/a	Super R:	-2		

L-Stn:	0+20	L-Ssl: (Av)	0	F Slope L:	100
P-Stn:	0+20	L-Ssr: (Av)	0	F Slope R:	100
Grd.Nxt.:	-7	Super L:	-2	Cut Dp:	0
Grd.Lst:	-7	Super R:	-2		



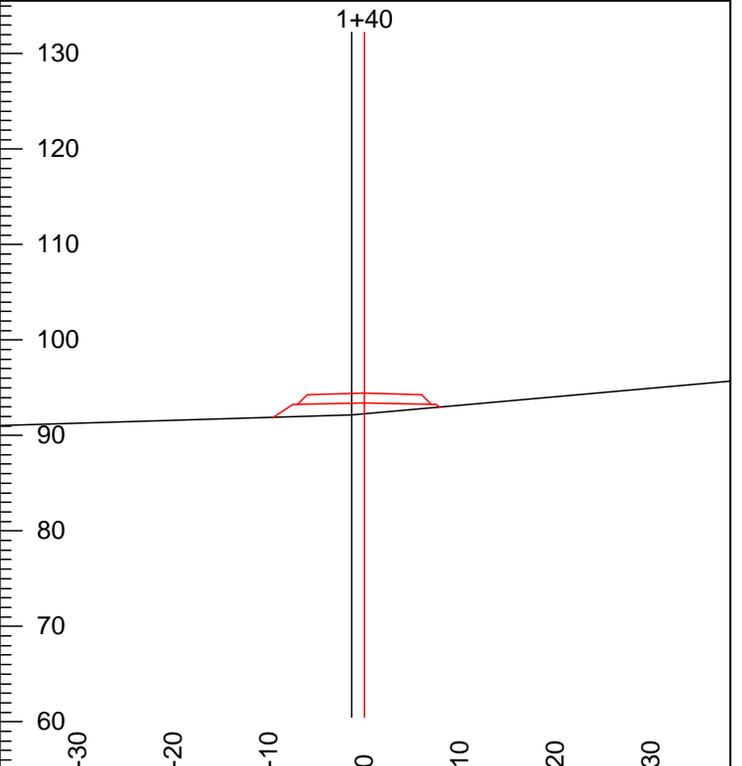
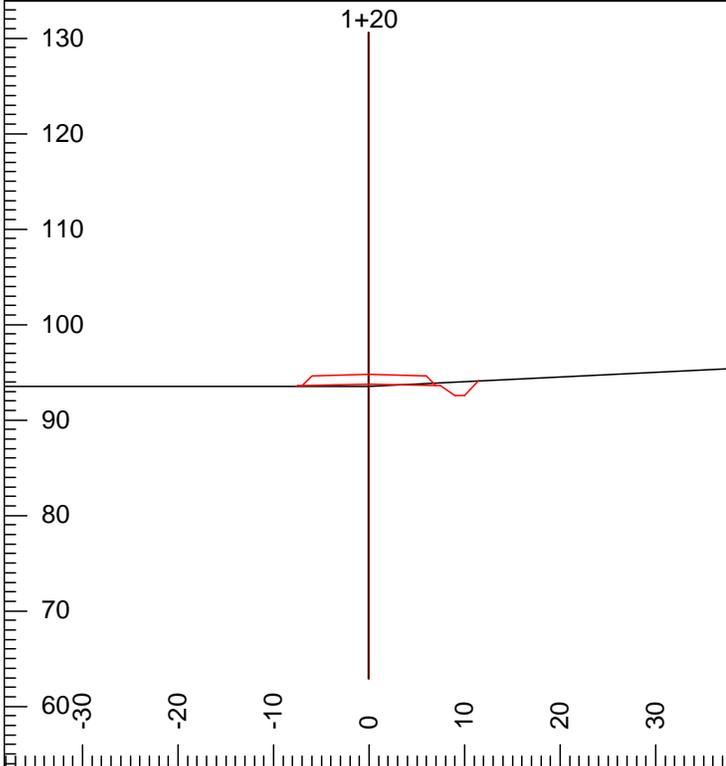
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P-Stn:	0+40	L-Ssr: (Av)	0	F Slope R:	100
Grd.Nxt.:	-7	Super L:	-2	Cut Dp:	1
Grd.Lst:	-7	Super R:	-2		

L-Stn:	0+60	L-Ssl: (Av)	0	F Slope L:	100
P-Stn:	0+60	L-Ssr: (Av)	0	F Slope R:	100
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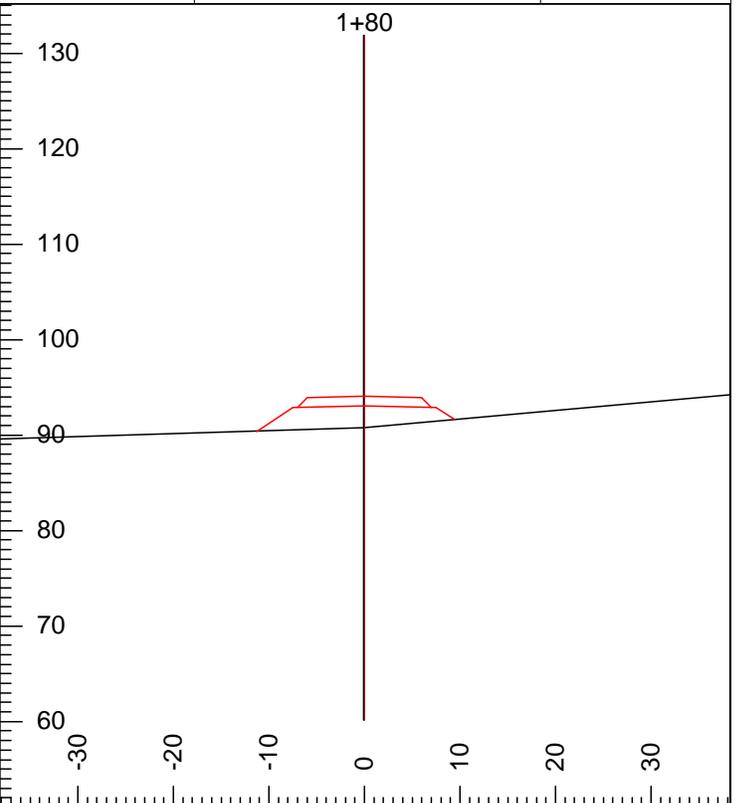
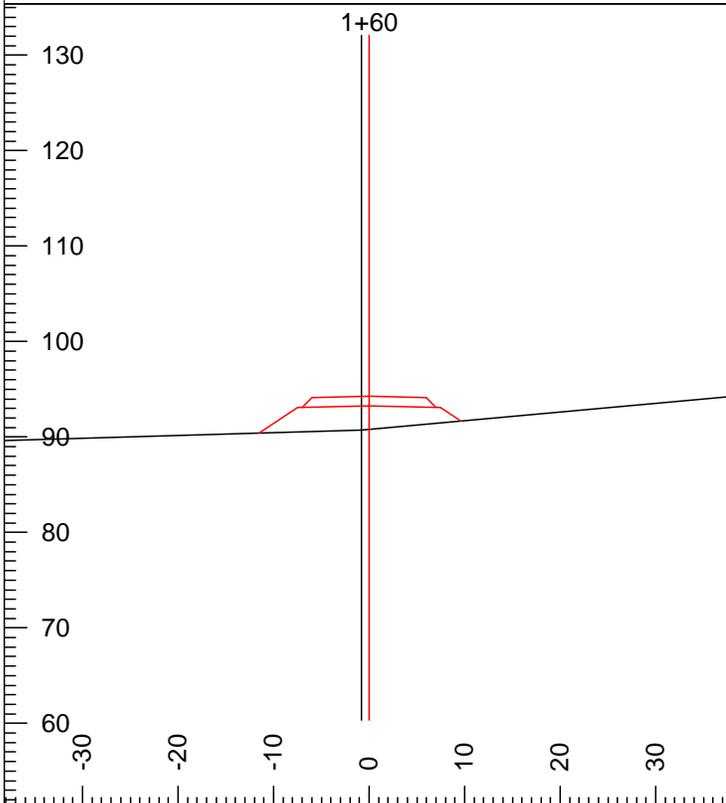
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Grd.Lst:	-4	Super R:	-2		

L-Stn:	1+00	L-Ssl: (Av)	0	F Slope L:	100
P-Stn:	1+00	L-Ssr: (Av)	4	F Slope R:	100
Grd.Nxt.:	-3	Super L:	-2	Cut Dp:	1
Grd.Lst:	-3	Super R:	-2		



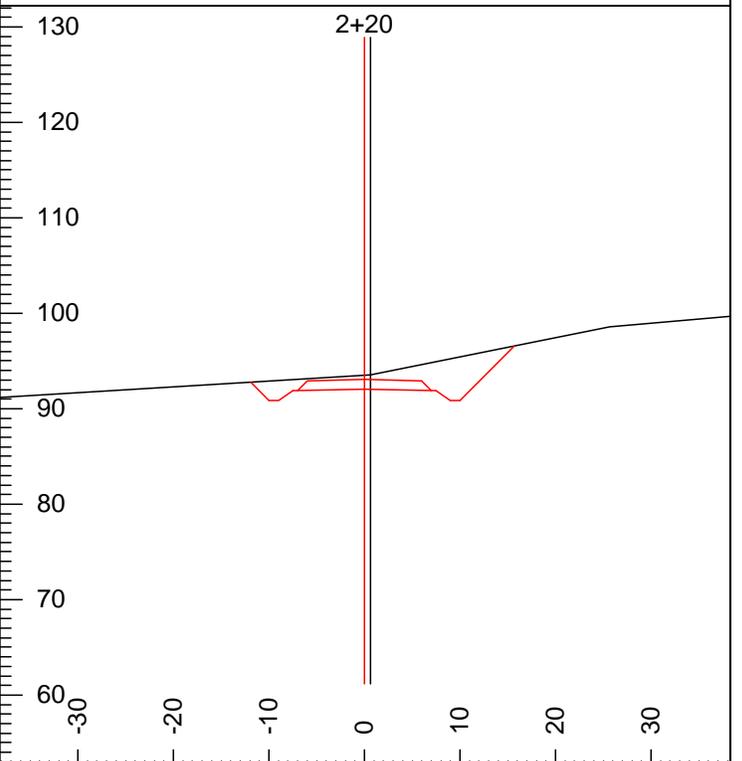
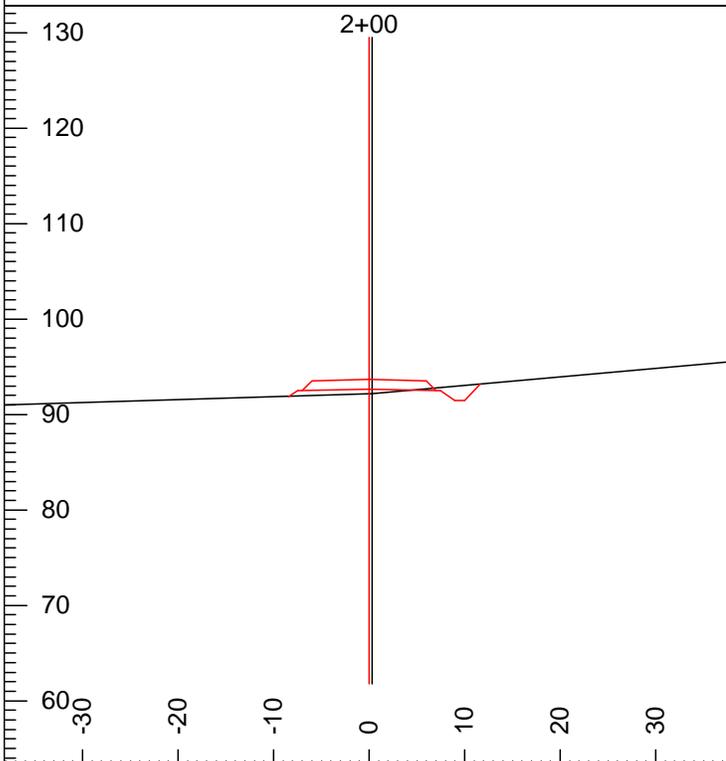
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Grd.Nxt.:	-2	Super L:	-2	Cut Dp:	0
Grd.Lst:	-2	Super R:	-2		

L-Stn:	1+40	Grd.Lst:	-1	Super L:	-2	F Slope R:	-67
P-Stn:	1+40	L-Ssl: (Av)	-4	Super R:	-2	Cut Dp:	-1
Grd.Nxt.:	-1	L-Ssr: (Av)	9	F Slope L:	-67		



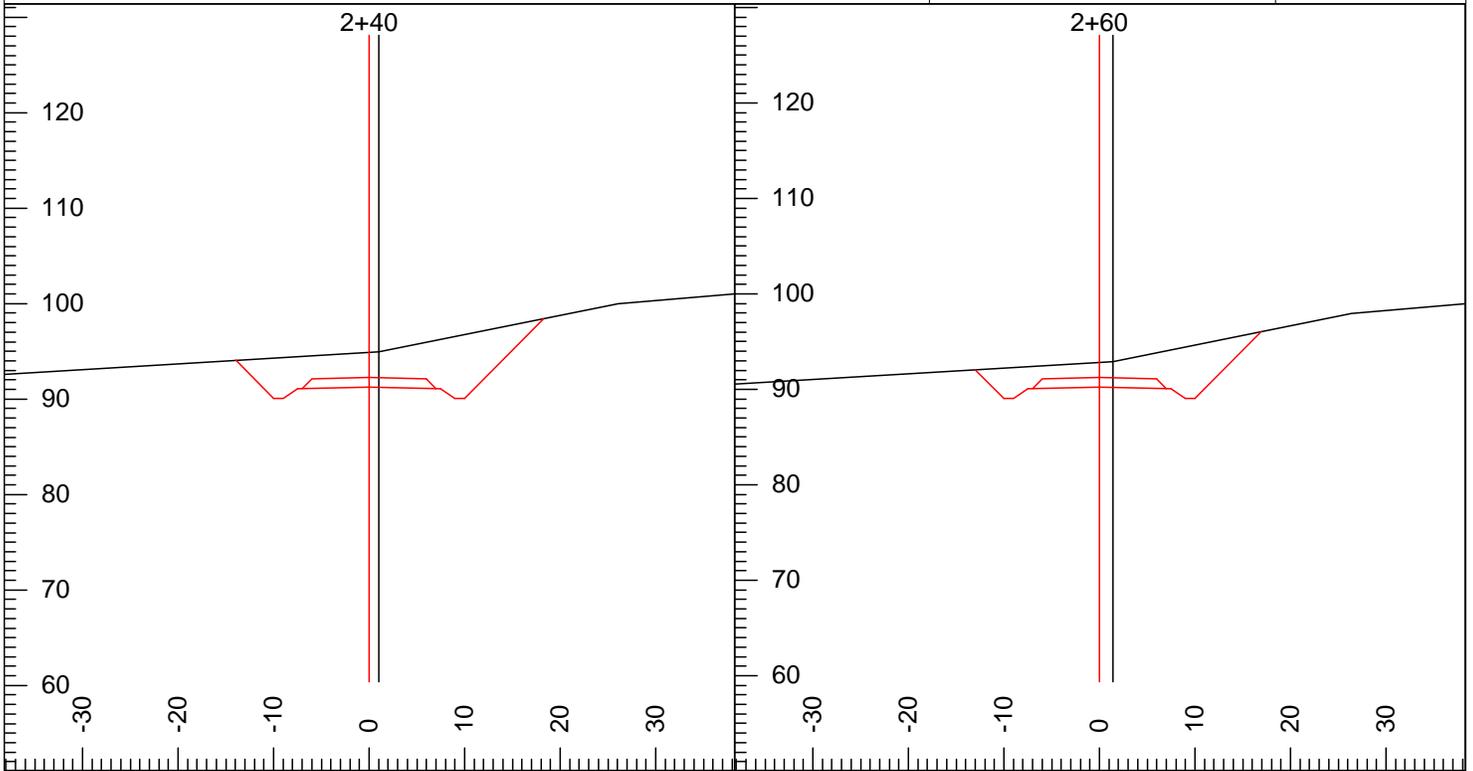
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 Grd.Nxt.: -1 L-Ssr: (Av) 9 F Slope L: -67

L-Stn: 1+80 Grd.Lst: -2 Super L: -2 F Slope R: -67
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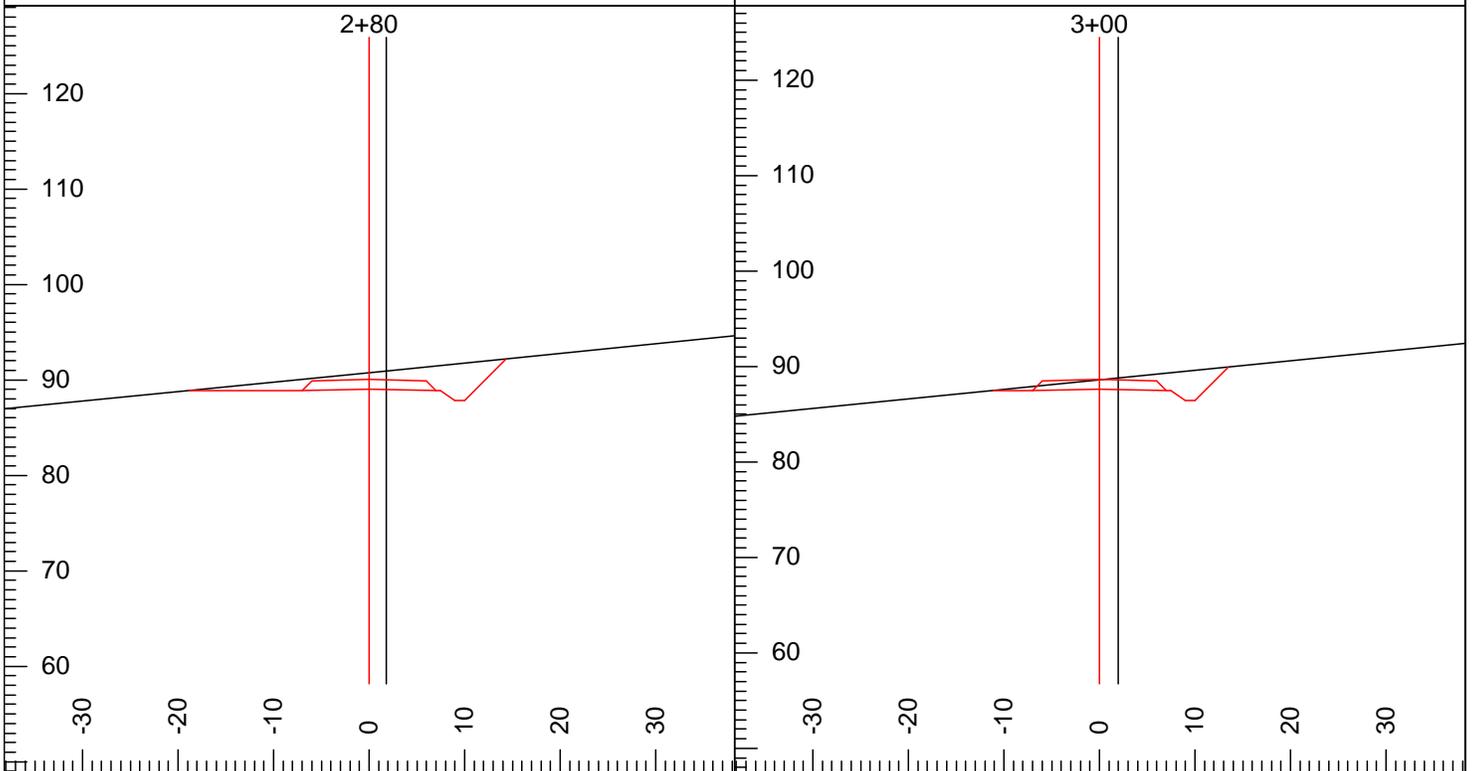
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 Grd.Nxt.: -3 Super L: -2 Cut Dp: -1
 Grd.Lst: -3 Super R: -2

L-Stn: 2+20 L-Ssl: (Av) -6 F Slope L: 100
 P-Stn: 2+20 L-Ssr: (Av) 19 F Slope R: 100
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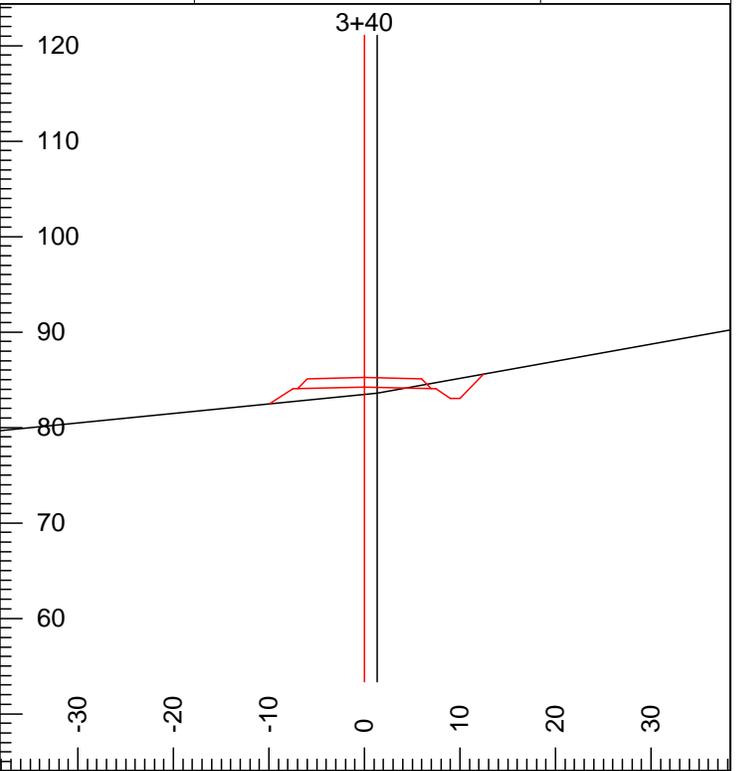
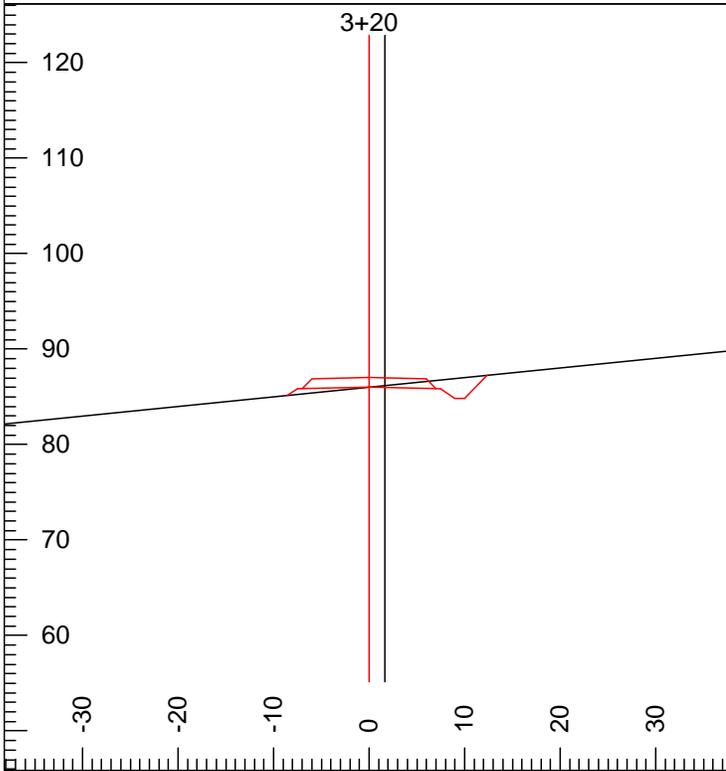
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P-Stn:	2+40	L-Ssr: (Av)	19	F Slope R:	100
Grd.Nxt.:	-5	Super L:	-2	Cut Dp:	4
Grd.Lst:	-5	Super R:	-2		

L-Stn:	2+60	L-Ssl: (Av)	-6	F Slope L:	100
P-Stn:	2+60	L-Ssr: (Av)	18	F Slope R:	100
Grd.Nxt.:	-6	Super L:	-2	Cut Dp:	3
Grd.Lst:	-6	Super R:	-2		



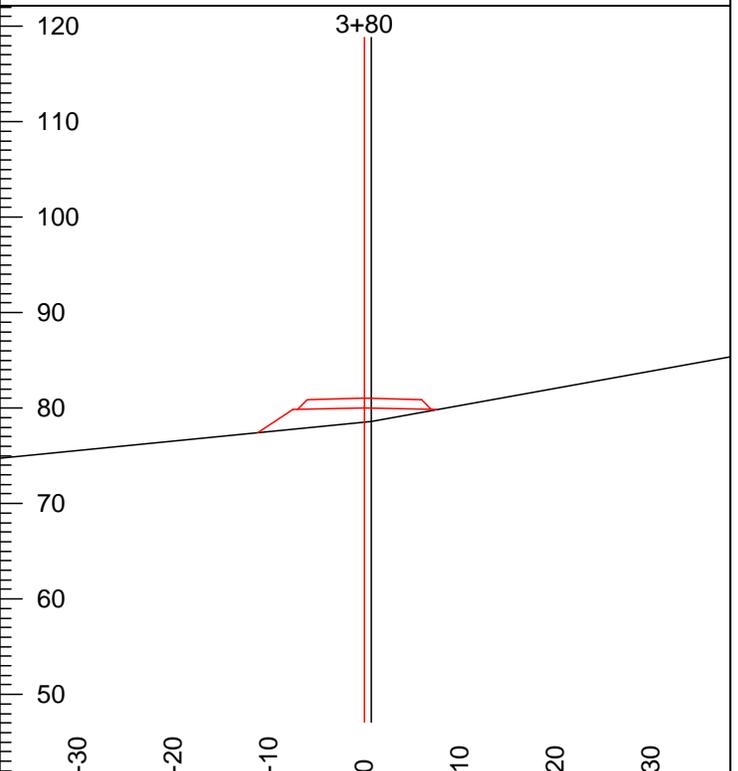
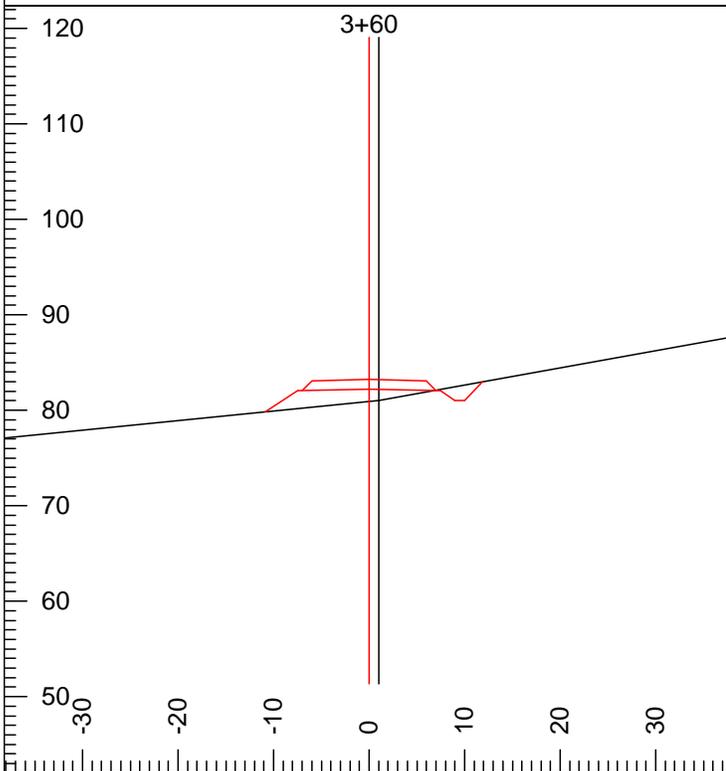
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P-Stn:	2+80	L-Ssr: (Av)	10	F Slope R:	100
Grd.Nxt.:	-7	Super L:	-2	Cut Dp:	2
Grd.Lst:	-7	Super R:	-2		

L-Stn:	3+00	L-Ssl: (Av)	-10	F Slope L:	0
P-Stn:	3+00	L-Ssr: (Av)	10	F Slope R:	100
Grd.Nxt.:	-8	Super L:	-2	Cut Dp:	1
Grd.Lst:	-8	Super R:	-2		



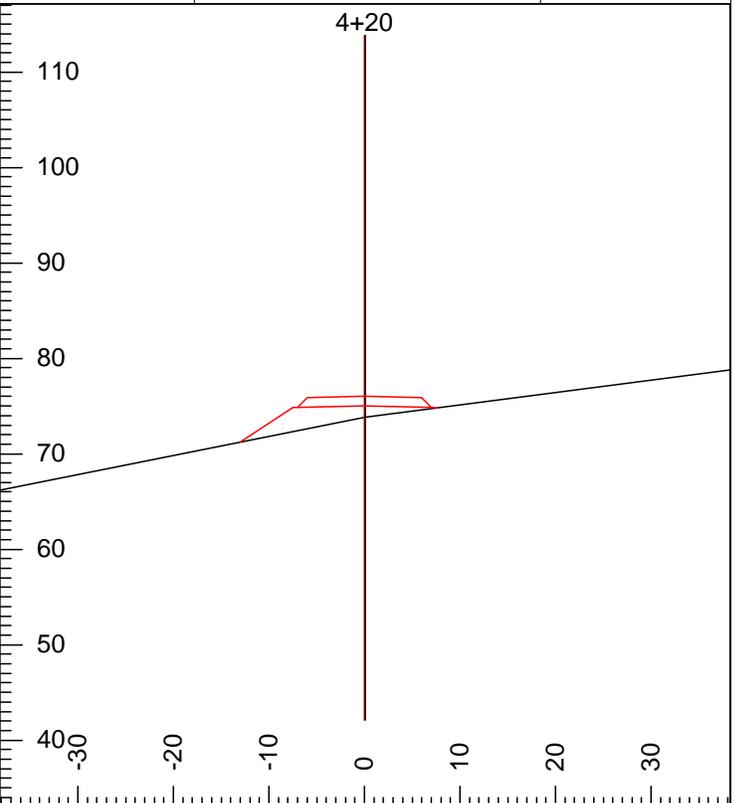
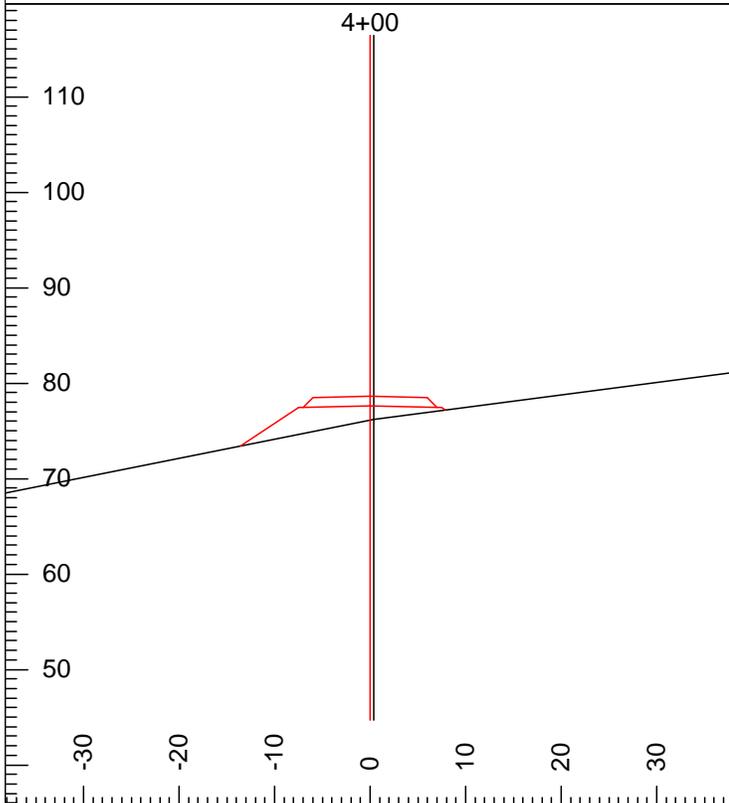
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Grd.Nxt.:	-9	Super L:	-2	Cut Dp:	0
Grd.Lst:	-9	Super R:	-2		

L-Stn:	3+40	L-Ssl: (Av)	-10	F Slope L:	-67
P-Stn:	3+40	L-Ssr: (Av)	17	F Slope R:	100
Grd.Nxt.:	-10	Super L:	-2	Cut Dp:	-1
Grd.Lst:	-10	Super R:	-2		



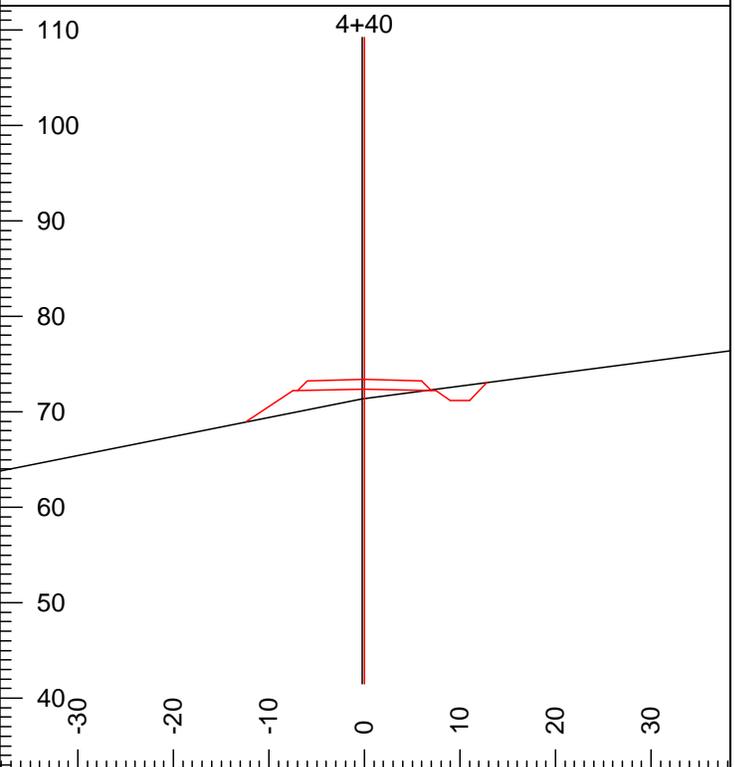
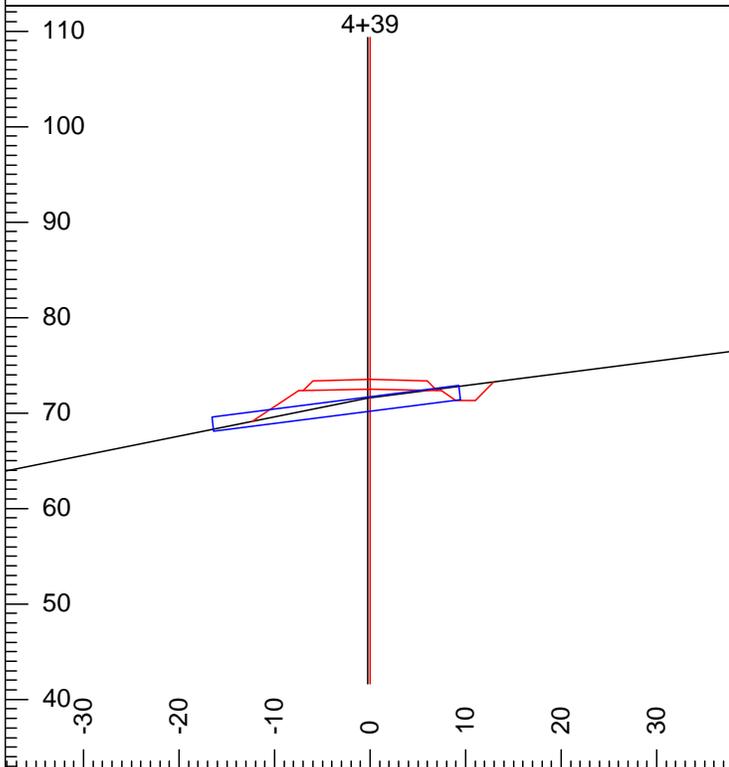
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P-Stn:	3+60	L-Ssr: (Av)	17	F Slope R:	100
Grd.Nxt.:	-11	Super L:	-2	Cut Dp:	-1
Grd.Lst:	-11	Super R:	-2		

L-Stn:	3+80	Grd.Lst:	-12	Super L:	-2	F Slope R:	-67
P-Stn:	3+80	L-Ssl: (Av)	-10	Super R:	-2	Cut Dp:	-1
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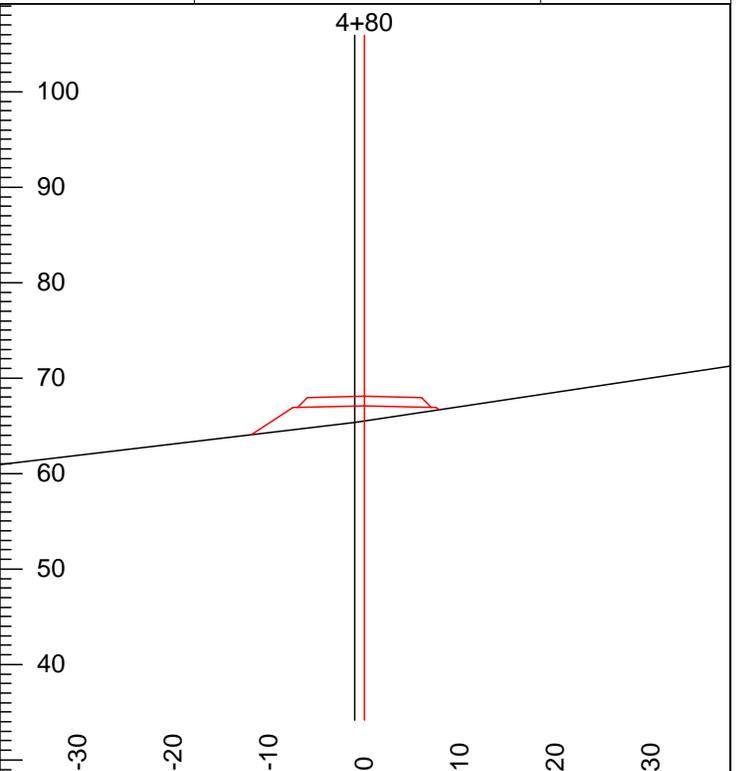
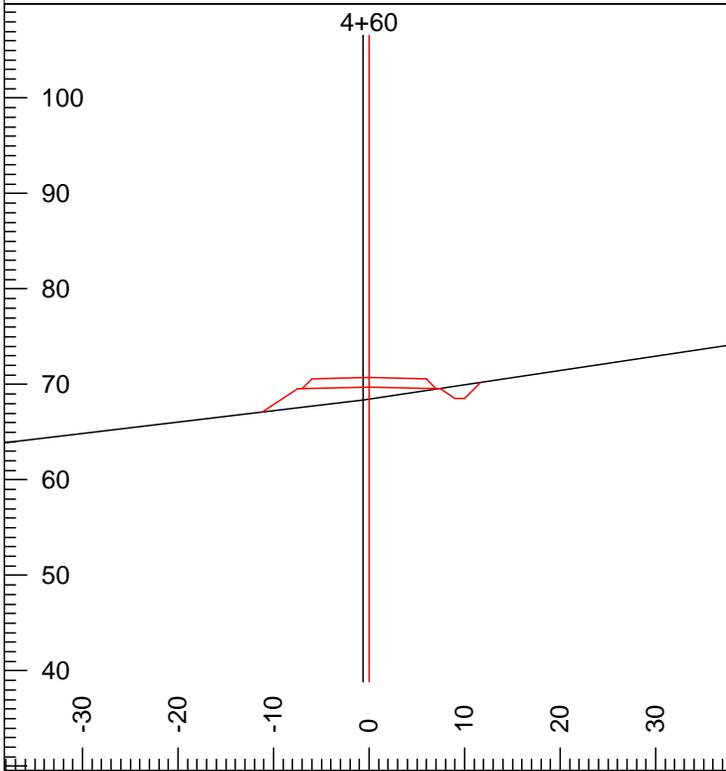
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 Grd.Nxt.: -13 L-Ssr: (Av) 13 F Slope L: -67

L-Stn: 4+20 Grd.Lst: -13 Super L: -2 F Slope R: -67
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 Grd.Nxt.: -13 L-Ssr: (Av) 13 F Slope L: -67



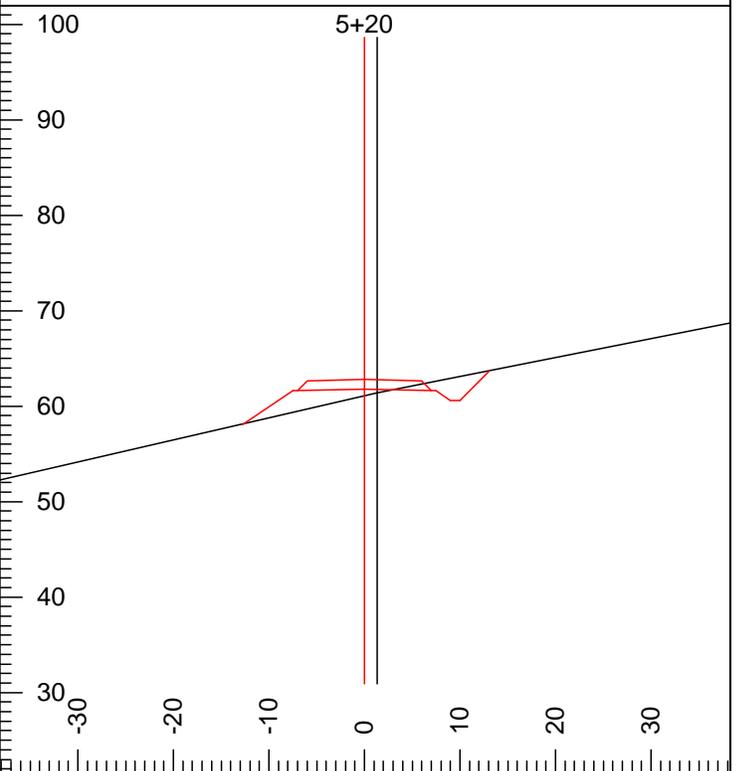
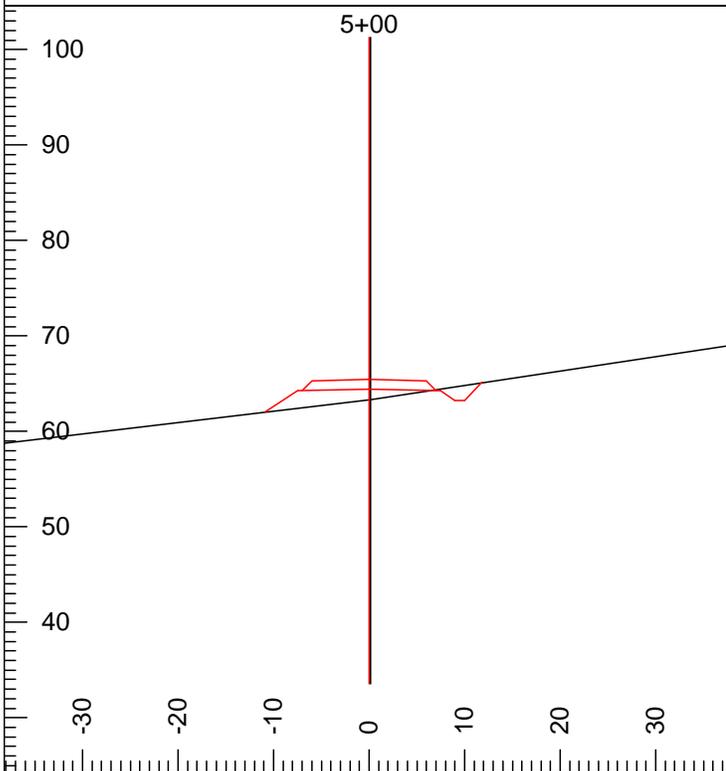
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 Grd.Lst: -13 Super R: -2

L-Stn: 4+40 L-Ssl: (Av) -20 F Slope L: -67
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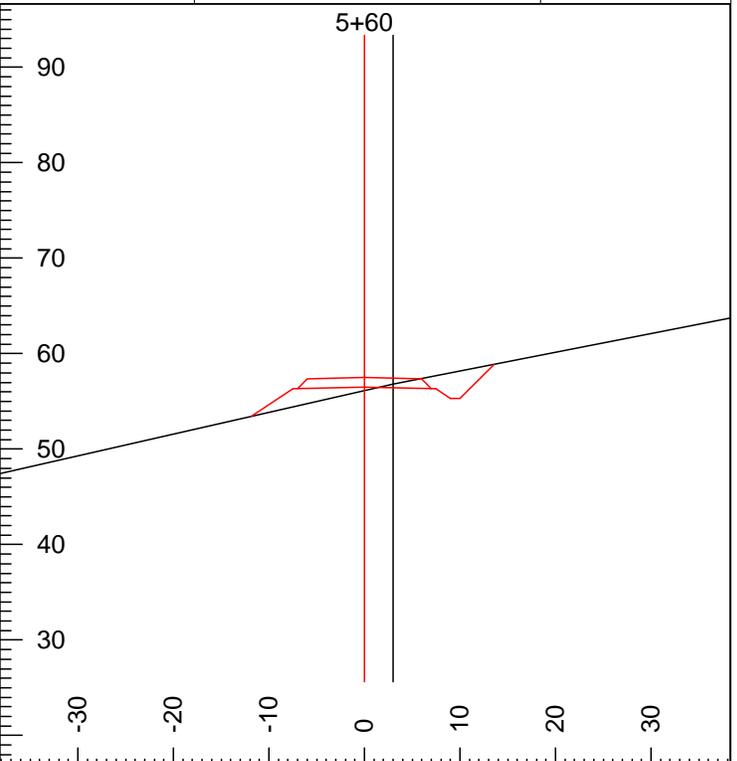
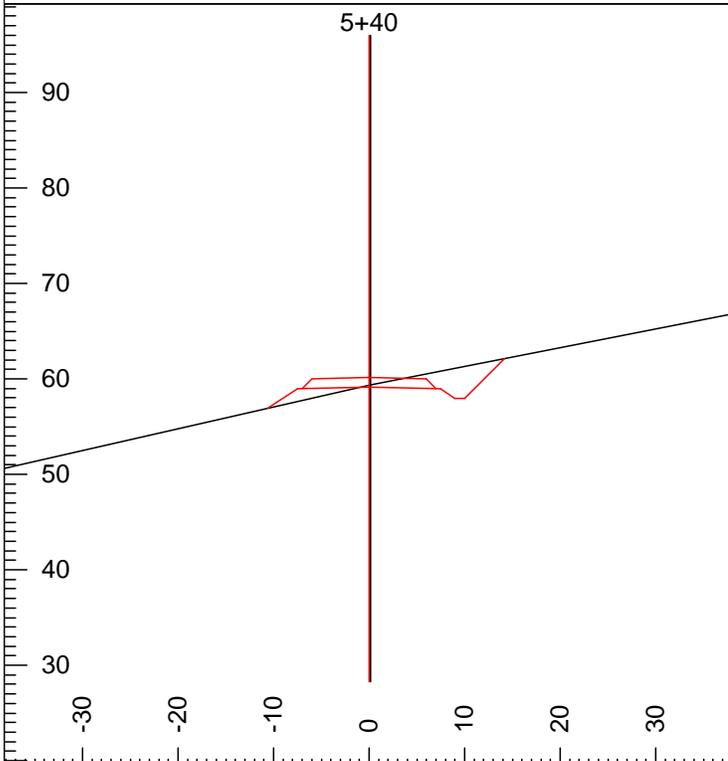
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 Grd.Nxt.: -13 Super L: -2 Cut Dp: -1
 Grd.Lst: -13 Super R: -2

L-Stn: 4+80 Grd.Lst: -13 Super L: -2 F Slope R: -67
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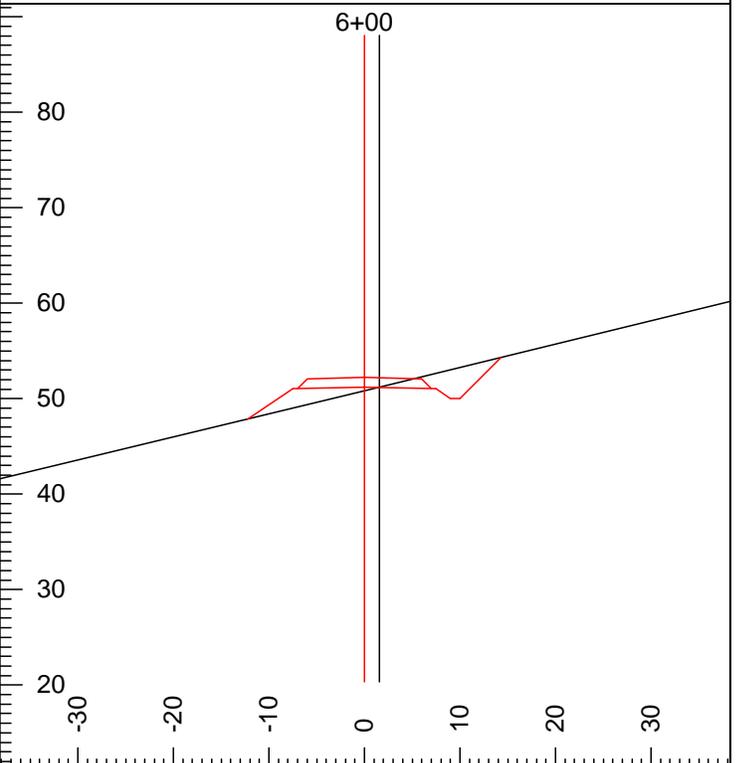
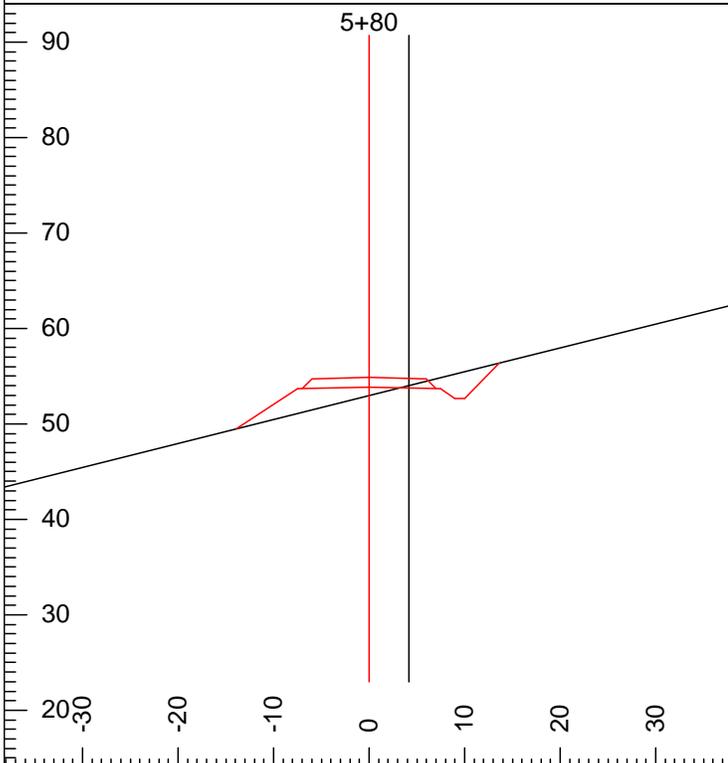
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 Grd.Nxt.: -13 Super L: -2 Cut Dp: -1
 Grd.Lst: -13 Super R: -2

L-Stn: 5+20 L-Ssl: (Av) -23 F Slope L: -67
 P-Stn: 5+20 L-Ssr: (Av) 20 F Slope R: 100
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 Grd.Lst: -13 Super R: -2



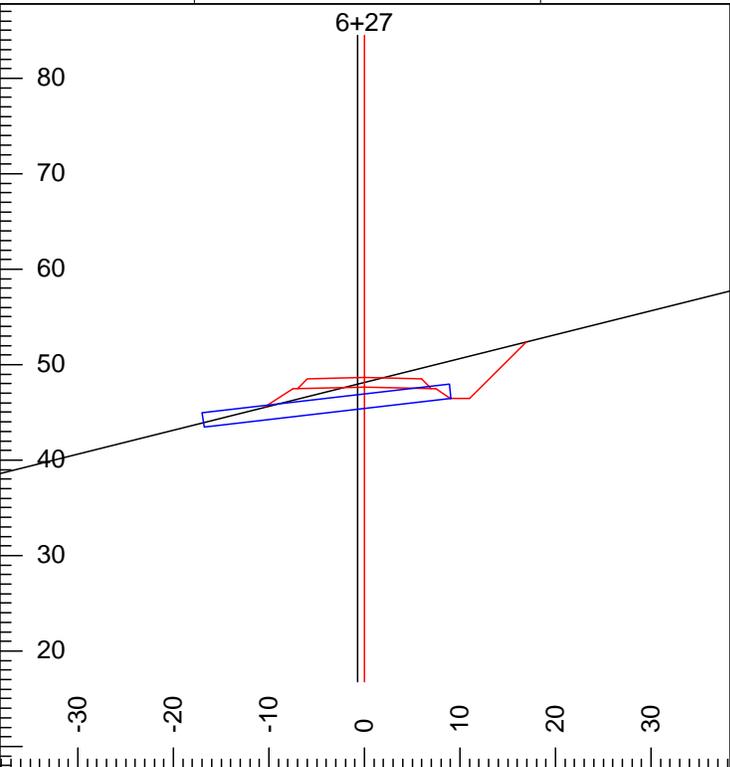
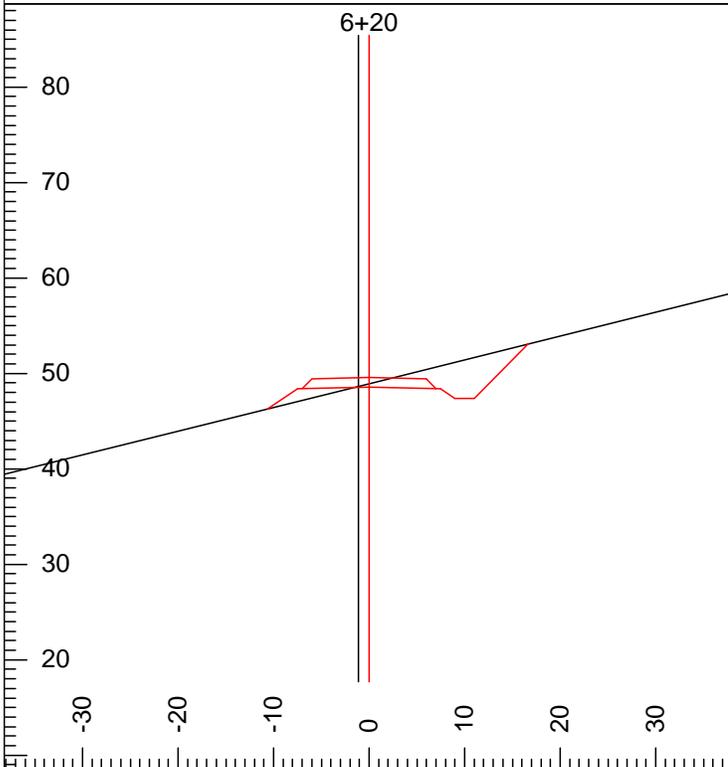
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P-Stn:	5+40	L-Ssr: (Av)	20	F Slope R:	100
Grd.Nxt.:	-13	Super L:	-2	Cut Dp:	0
Grd.Lst:	-13	Super R:	-2		

L-Stn:	5+60	L-Ssl: (Av)	-23	F Slope L:	-67
P-Stn:	5+60	L-Ssr: (Av)	21	F Slope R:	100
Grd.Nxt.:	-13	Super L:	-2	Cut Dp:	0
Grd.Lst:	-13	Super R:	-2		



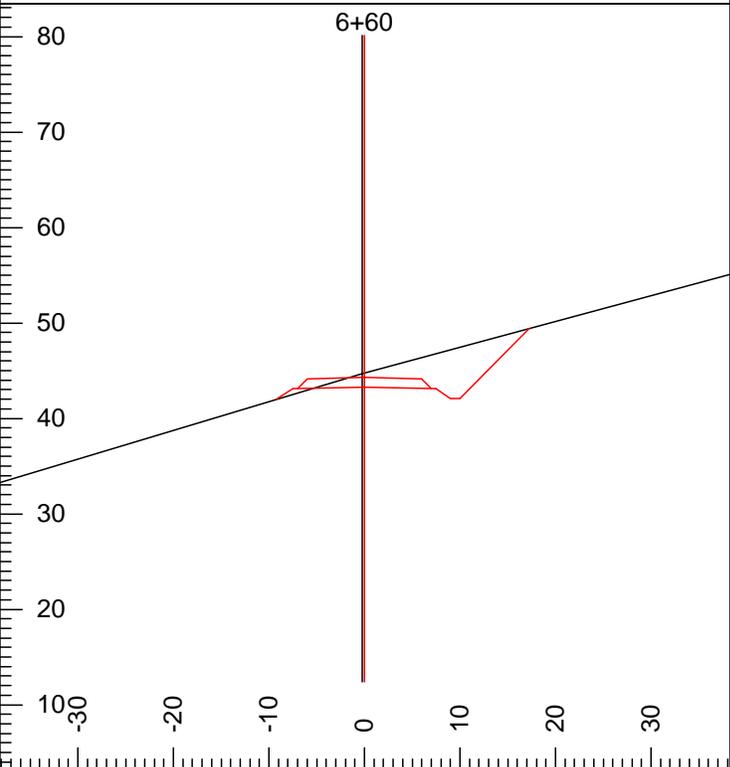
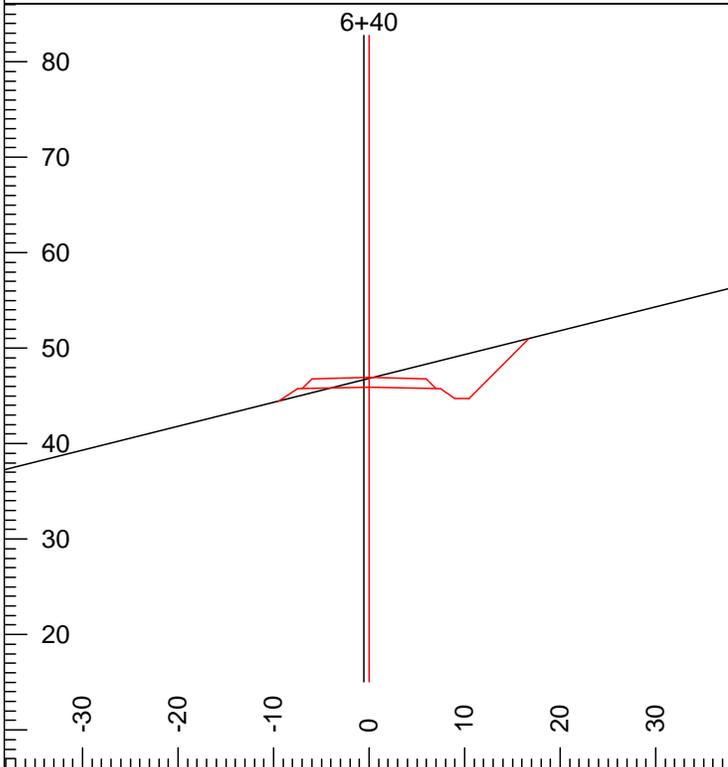
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P-Stn:	5+80	L-Ssr: (Av)	25	F Slope R:	100
Grd.Nxt.:	-13	Super L:	-2	Cut Dp:	-1
Grd.Lst:	-13	Super R:	-2		

L-Stn:	6+00	L-Ssl: (Av)	-24	F Slope L:	-67
P-Stn:	6+00	L-Ssr: (Av)	24	F Slope R:	100
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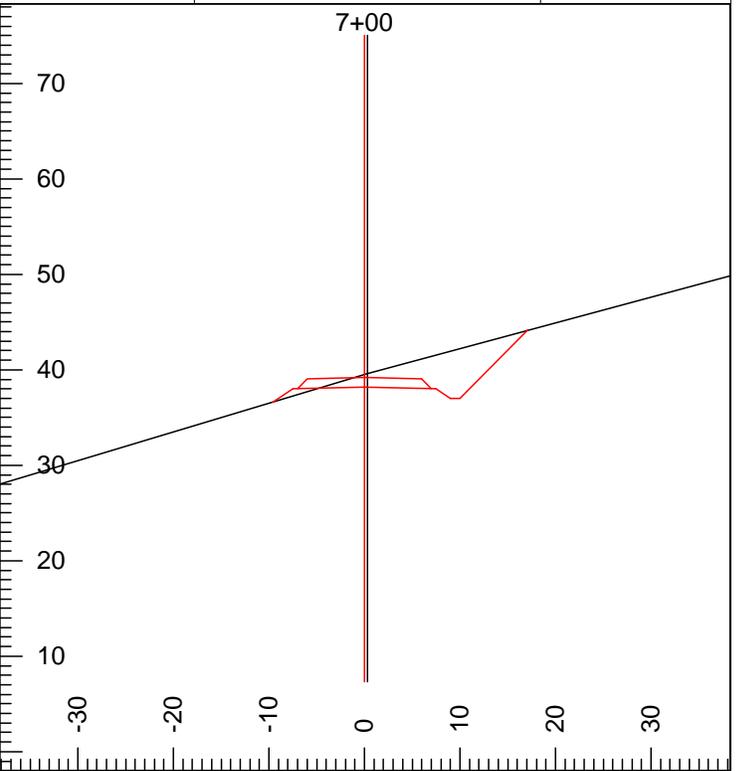
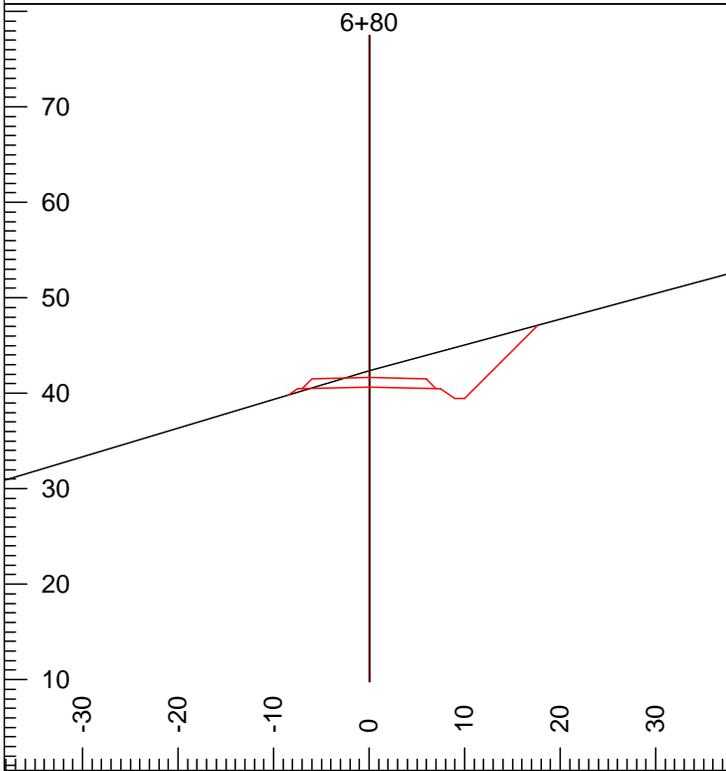
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 Grd.Lst: -13 Super R: -2

L-Stn: 6+27 L-Ssl: (Av) -25 F Slope L: -67
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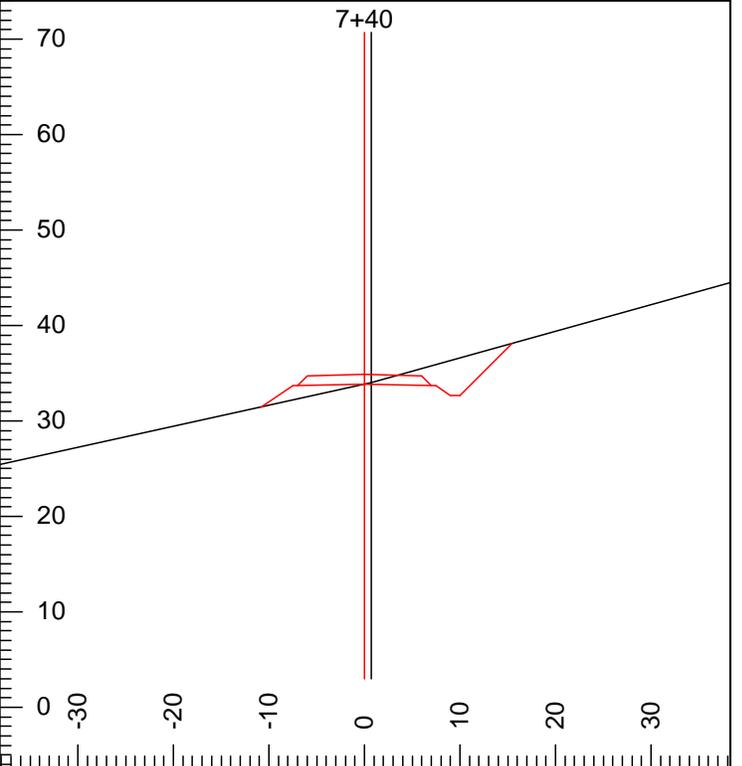
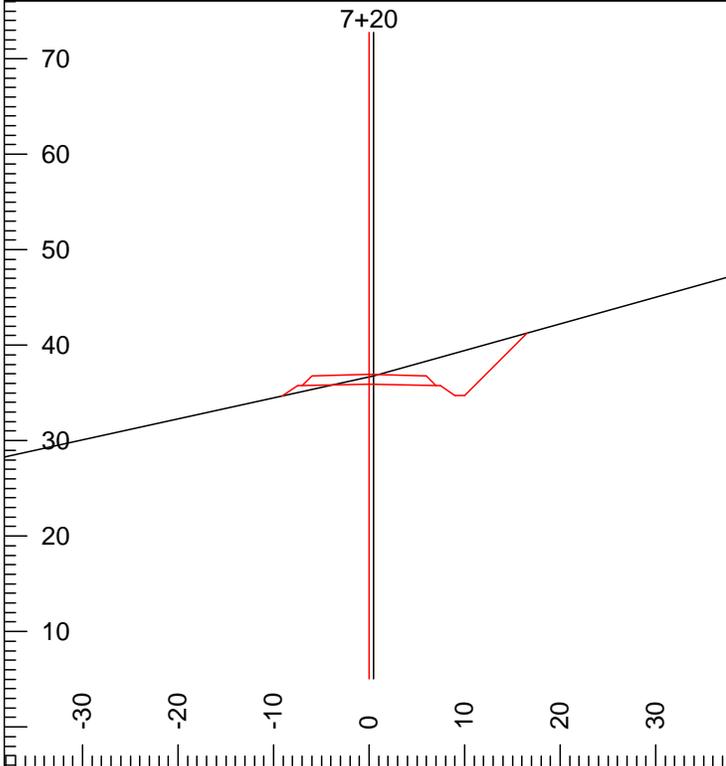
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 Grd.Nxt.: -13 Super L: -2 Cut Dp: 1
 Grd.Lst: -13 Super R: -2

L-Stn: 6+60 L-Ssl: (Av) -30 F Slope L: -67
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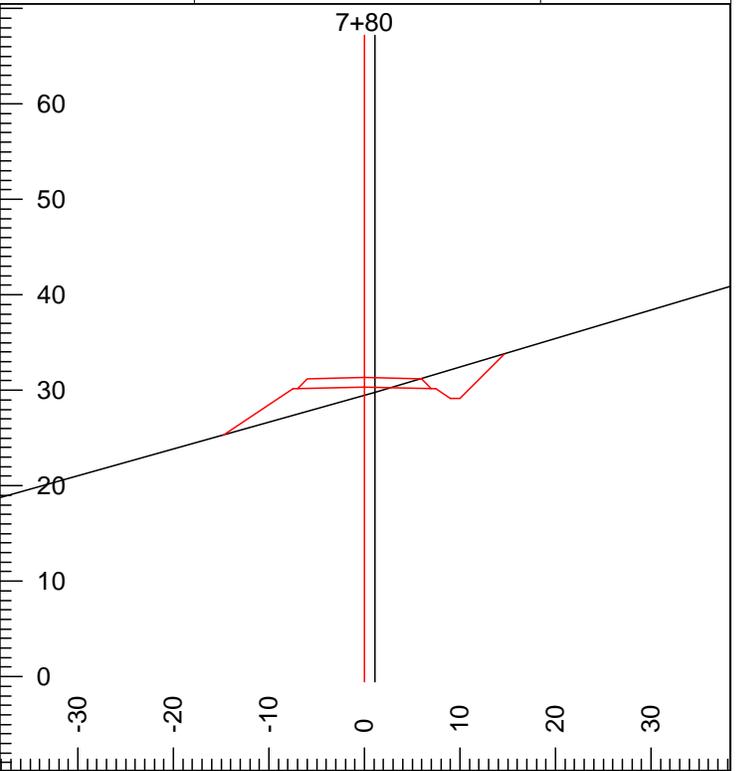
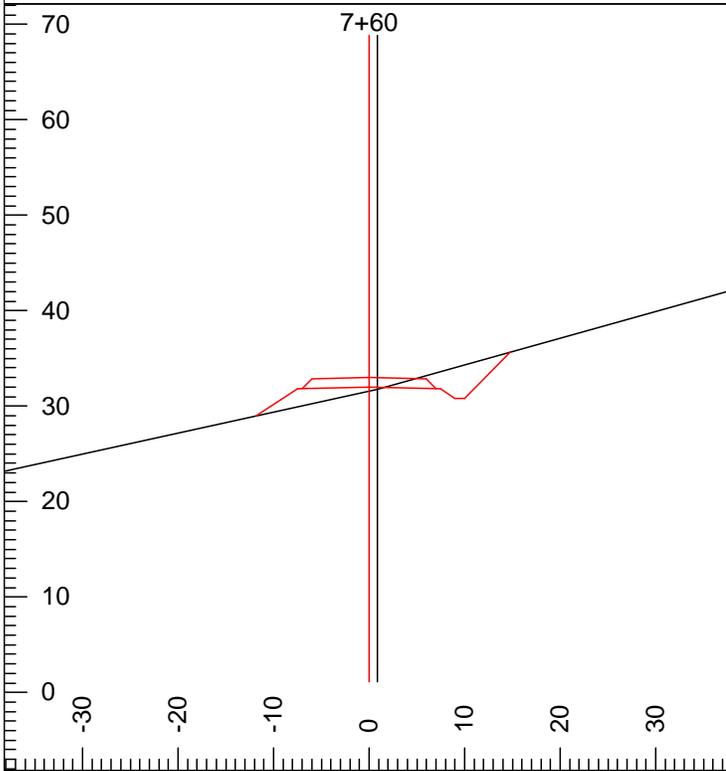
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Grd.Nxt.:	-13	Super L:	-2	Cut Dp:	2
Grd.Lst:	-13	Super R:	-2		

L-Stn:	7+00	L-Ssl: (Av)	-30	F Slope L:	-67
P-Stn:	7+00	L-Ssr: (Av)	27	F Slope R:	100
Grd.Nxt.:	-12	Super L:	-2	Cut Dp:	1
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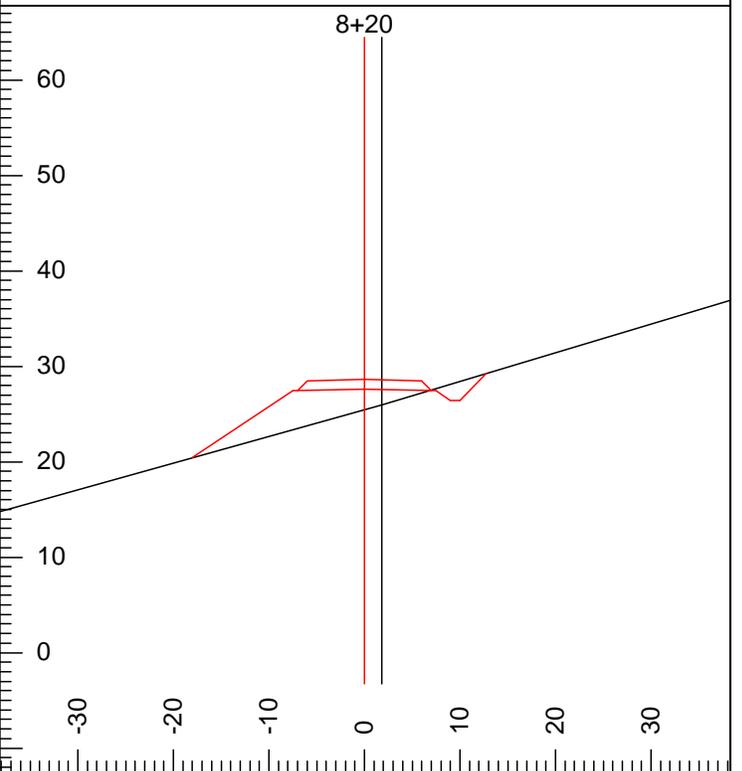
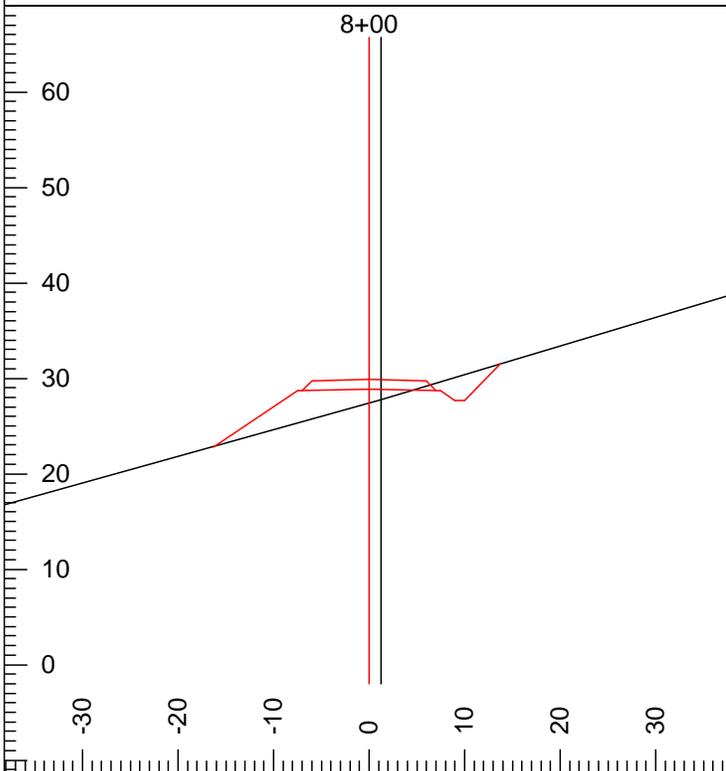
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Grd.Lst:	-11	Super R:	-2		

L-Stn:	7+40	L-Ssl: (Av)	-22	F Slope L:	-67
P-Stn:	7+40	L-Ssr: (Av)	28	F Slope R:	100
Grd.Nxt.:	-10	Super L:	-2	Cut Dp:	0
Grd.Lst:	-10	Super R:	-2		



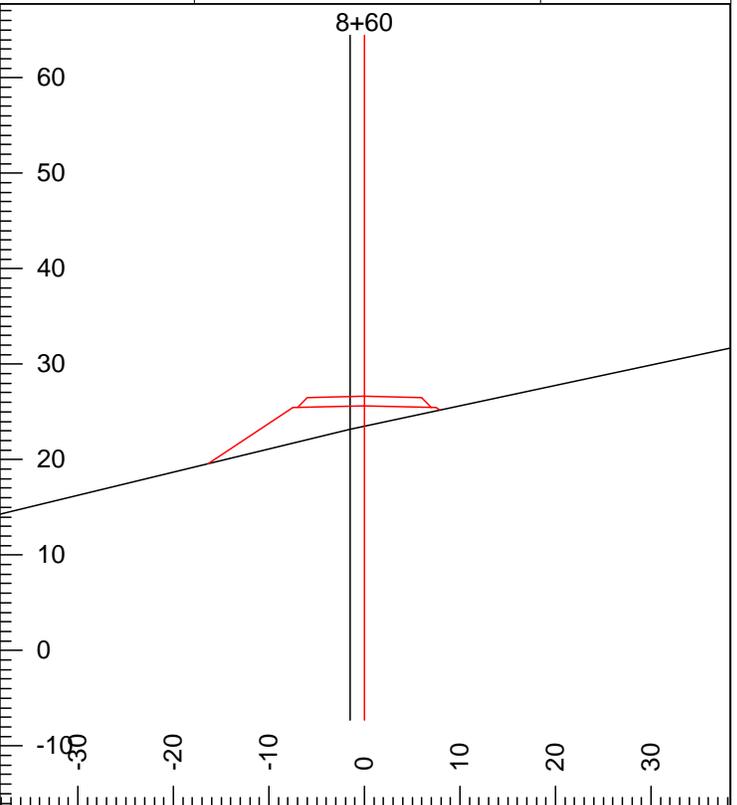
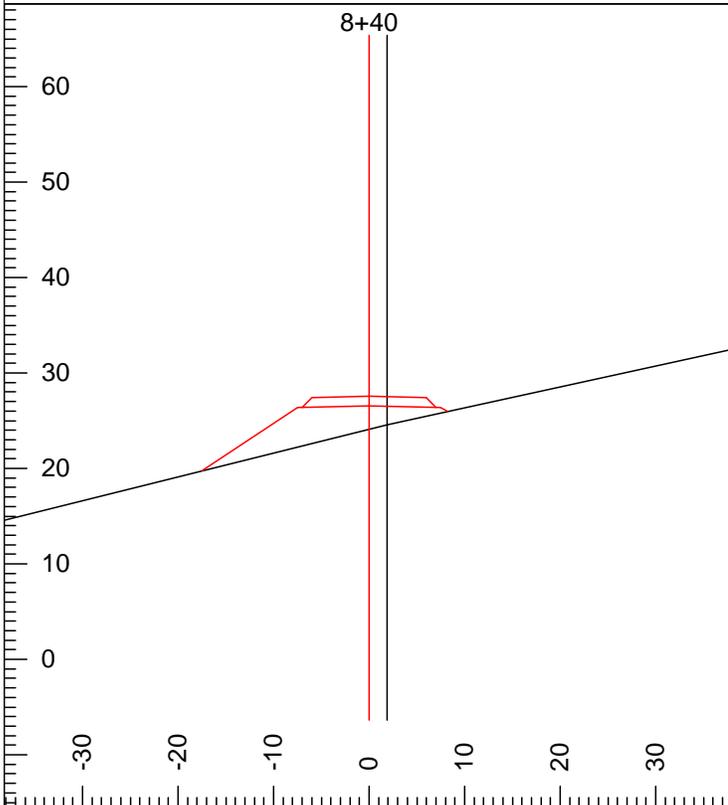
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Grd.Nxt.:	-9	Super L:	-2	Cut Dp:	0
Grd.Lst:	-9	Super R:	-2		

L-Stn:	7+80	L-Ssl: (Av)	-28	F Slope L:	-67
P-Stn:	7+80	L-Ssr: (Av)	30	F Slope R:	100
Grd.Nxt.:	-8	Super L:	-2	Cut Dp:	-1
Grd.Lst:	-8	Super R:	-2		



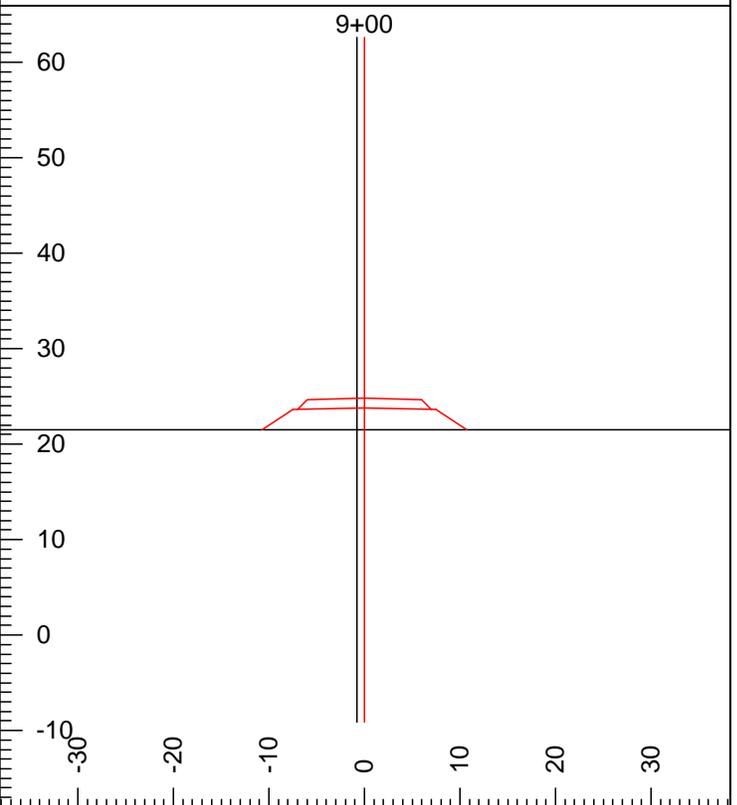
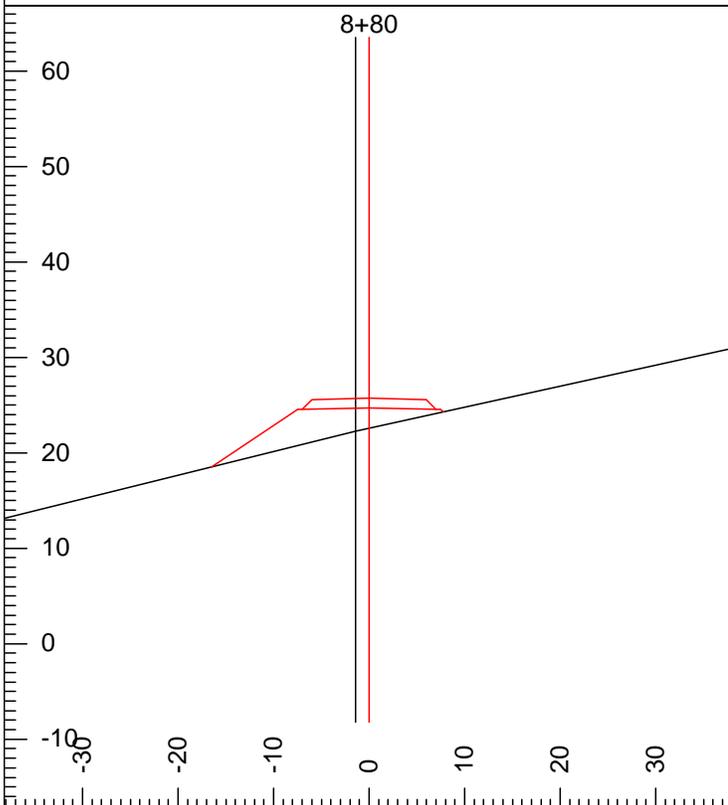
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P-Stn:	8+00	L-Ssr: (Av)	30	F Slope R:	100
Grd.Nxt.:	-7	Super L:	-2	Cut Dp:	-1
Grd.Lst:	-7	Super R:	-2		

L-Stn:	8+20	L-Ssl: (Av)	-28	F Slope L:	-67
P-Stn:	8+20	L-Ssr: (Av)	30	F Slope R:	100
Grd.Nxt.:	-6	Super L:	-2	Cut Dp:	-2
Grd.Lst:	-6	Super R:	-2		



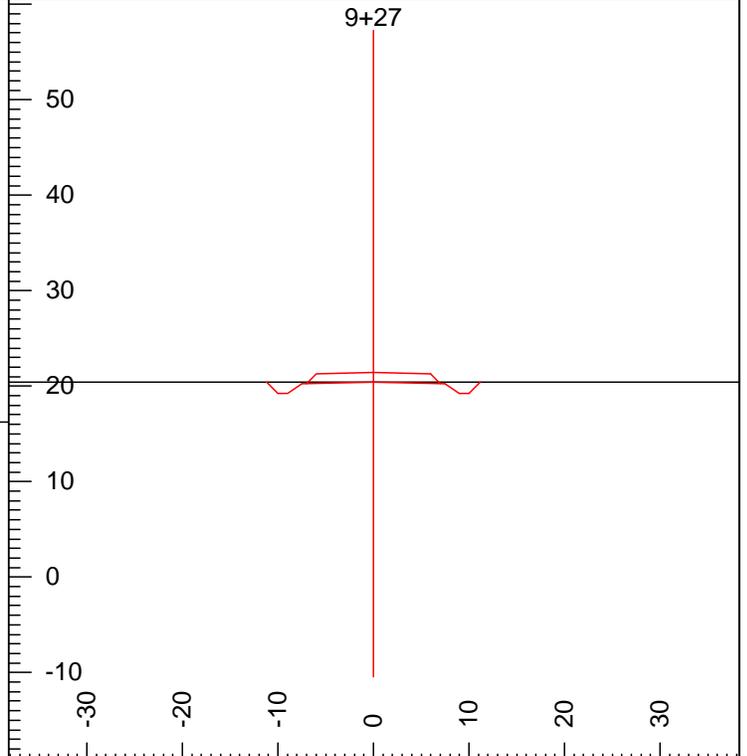
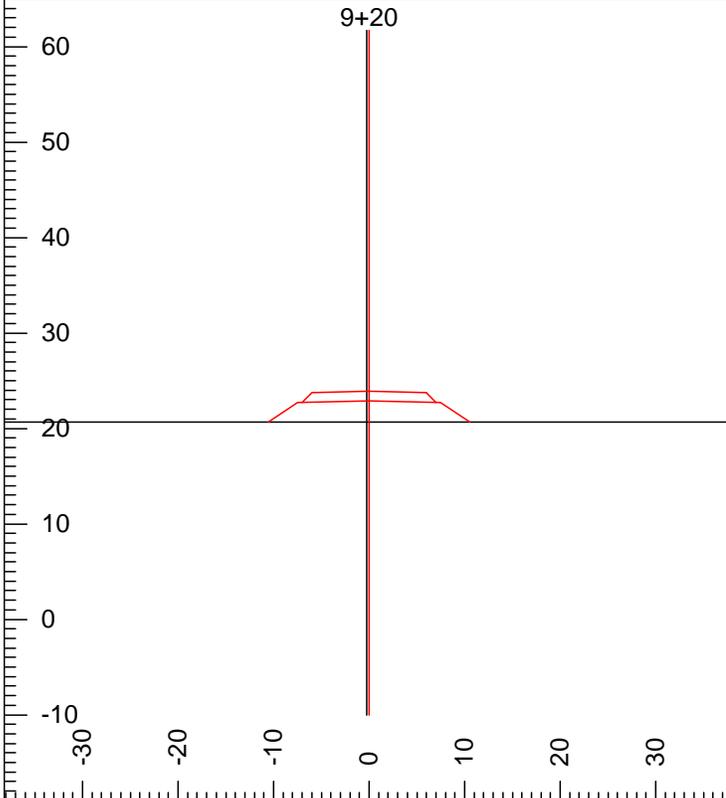
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L-Stn: 8+60 Grd.Lst: -5 Super L: -2 F Slope R: -67
 P-Stn: 8+60 L-Ssl: (Av) -24 Super R: -2 Cut Dp: -2
 Grd.Nxt.: -5 L-Ssr: (Av) 21 F Slope L: -67



L-Stn: 8+80 Grd.Lst: -5 Super L: -2 F Slope R: -67
 P-Stn: 8+80 L-Ssl: (Av) -25 Super R: -2 Cut Dp: -2
 Grd.Nxt.: -5 L-Ssr: (Av) 22 F Slope L: -67

L-Stn: 9+00 Grd.Lst: -5 Super L: -2 F Slope R: -67
 P-Stn: 9+00 L-Ssl: (Av) 0 Super R: -2 Cut Dp: -2
 Grd.Nxt.: -5 L-Ssr: (Av) 0 F Slope L: -67



L-Stn: 9+20 Grd.Lst: -5 Super L: -2 F Slope R: -67
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 Grd.Nxt.: -5 L-Ssr: (Av) 0 F Slope L: -67

L-Stn: 9+27 L-Ssl: (Av) 0 F Slope L: 100
 P-Stn: 9+27 L-Ssr: (Av) 0 F Slope R: 100
 Grd.Nxt.: n/a Super L: -2 Cut Dp: 0
 Grd.Lst: -361 Super R: -2

**SUMMARY - ROAD DEVELOPMENT COSTS
(FOR INTERNAL DNR USE ONLY)**

UNIT: DELPHI

DISTRICT: BLACK HILLS

SALE/PROJECT NAME: **NORTHWEST**

CONTRACT NUMBER: **30-091937**

TYPE:	CONSTRUCTION	RECONSTRUCTION	PRE-HAUL MAINT
ROAD STANDARD:	C	C	A
NUMBER OF STATIONS:	30.33	0.00	923.60
AVG. SIDESLOPE:	24	-	
CLEARING AND GRUBBING:	\$5,946	\$0	
EXCAVATION AND FILL:	\$15,698	\$0	
MISC. MAINTENANCE:			\$65,381
ROCK TOTALS (Cu. Yds.):			
Ballast: 3046	\$24,657	\$0	\$5,030
Surface: 5793	\$0	\$0	\$87,686
Riprap: 53	\$131	\$0	\$499
Stockpile: 2,000			12,524
CULVERTS AND FLUMES:	\$6,420	\$0	\$26,458
STRUCTURES:	\$0	\$0	\$0
GENERAL EXPENSES:	\$4,757	\$0	\$15,806
MOBILIZATION:	\$4,690	\$0	\$4,690
TOTAL COSTS:	\$62,298	\$0	\$218,073
COST PER STATION:	\$2,054	\$0	\$236
ROAD DEACTIVATION AND ABANDONMENT COSTS:		\$1,860	

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

TOTAL (All Roads) =	\$282,232
SALE VOLUME MBF =	6,304
TOTAL COST PER MBF =	\$44.77

Plans to be furnished by:

Compiled by: WPH

Date: 09/11/15

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

SALE NAME: Northwest

CONTRACT NUMBER: 30-091937

I. CLEARING AND GRUBBING:

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
A-5463	30	40	1.00	4.89	\$40	1.00	9.30	\$1,819
A-5463.1	30	40	1.00	4.89	\$40	1.00	4.00	\$782
A-3310	30	40	1.00	4.89	\$40	1.00	11.20	\$2,191
A-Line 340	30	40	1.00	4.89	\$40	1.00	3.40	\$665
A-Line 250	30	40	1.00	4.89	\$40	1.00	2.50	\$489

Clear and Grub TOTAL = \$5,946

II. EXCAVATION:

Flat Rate -	% Side Slope	MBF/ac	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
A-5463	30	40	1.2	4.89	\$88	1.00	9.30	\$4,802
A-5463.1	30	40	1.2	4.89	\$88	1.00	4.00	\$2,066
A-3310	30	40	1.2	4.89	\$88	1.00	11.20	\$5,784
A-Line 340	30	40	1.2	4.89	\$88	1.00	3.40	\$1,756
A-Line 250	30	40	1.2	4.89	\$88	1.00	2.50	\$1,291

*End Haul, Over Haul, Large Fills/Cuts

End Haul/ Over Haul Large Fills/ Cuts	Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
				\$0
				\$0

Excavation TOTAL = \$15,698

III. BALLAST AND SURFACING :

Ballast source: North Rim Quarry stockpile
Surface source: North Rim
Riprap source: North Rim

UNIT COSTS	Ballast	Surfacing	Riprap
Drill & Shoot		\$1.50	\$1.50
Dig and load	\$0.50	\$0.50	\$0.75
Crushing		\$3.75	\$0.00
Purchase			
Haul *	\$7.15	\$7.15	\$7.15
Spread	\$0.80	\$0.50	\$1.50
Compact	\$0.50	\$0.50	\$0.00
Strip			
Reclamation			
Use tax	\$0.80	\$1.24	\$0.97
TOTAL (\$/cy)	\$9.75	\$15.14	\$11.87

Description	cu.yds x compaction factor =	cubic yards	Landings
Ballast (4"-)	1946 1.30	2,530	
Surfacing (2"-)**	0 1.30	0	
Riprap (Quarry Spalls)	11 1.00	11	

**Rock for culvert installations included in pre-haul

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

R.T. Miles =	8.5	Ballast (4"-)	2530 Cu. yds @	\$9.75 /cu. yd =	\$24,657
Ave. Speed =	20	Surfacing (2"-)**	0 Cu. yds @	\$15.14 /cu. yd =	\$0
Delay (Hrs.)=	0.5	Riprap (Quarry Spalls)	11 Cu. yds @	\$11.87 /cu. yd =	\$131
Cost / Hour =	\$85.00				
CY / Load =	11				

Rock total = \$24,787

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter	No./Length	Installed Cost/ft	Sub-total
Ditch Reliefs	2	HDPE	18	20	\$20.00	\$800
Ditch Reliefs	8	HDPE	18	30	\$20.00	\$4,800
Ditch Reliefs (with band)	1	HDPE	18	41	\$20.00	\$820
			48		\$40.00	\$0
			72		\$96.00	\$0
Bands & Gaskets					\$20.00	\$0

Culvert total = \$6,420

V. STRUCTURES

Description	Type	Width	Length	Cost/ft.	Sub-total
					\$0
					\$0
					\$0

NOTES:

Structure total = \$0

Sub-TOTAL = \$52,852

VI. GENERAL EXPENSES:

Overhead & General Exp. Add 9% \$4,757

VII. MOBILIZATION:

Description	\$ per Move	# of Moves	Sub-total
Dump Trucks	100	8	\$800
Grader	400	2	\$800
Compactor	400	4	\$1,600
Excavator	450	4	\$1,800
Dozer (D8)	400	4	\$1,600
Front end loader	400	1	\$400
Rock crusher	\$1,500	1	\$1,500
Drill	\$400	1	\$400
Dozer (D5)	\$240	2	\$480

* Move in costs are averaged over all three sheets.

Total Mobilization = \$9,380 Mobilization sub-total = \$4,690

Road No. #REF!
Standard: #REF!
Stations: 30.40

SHEET TOTAL = \$62,298

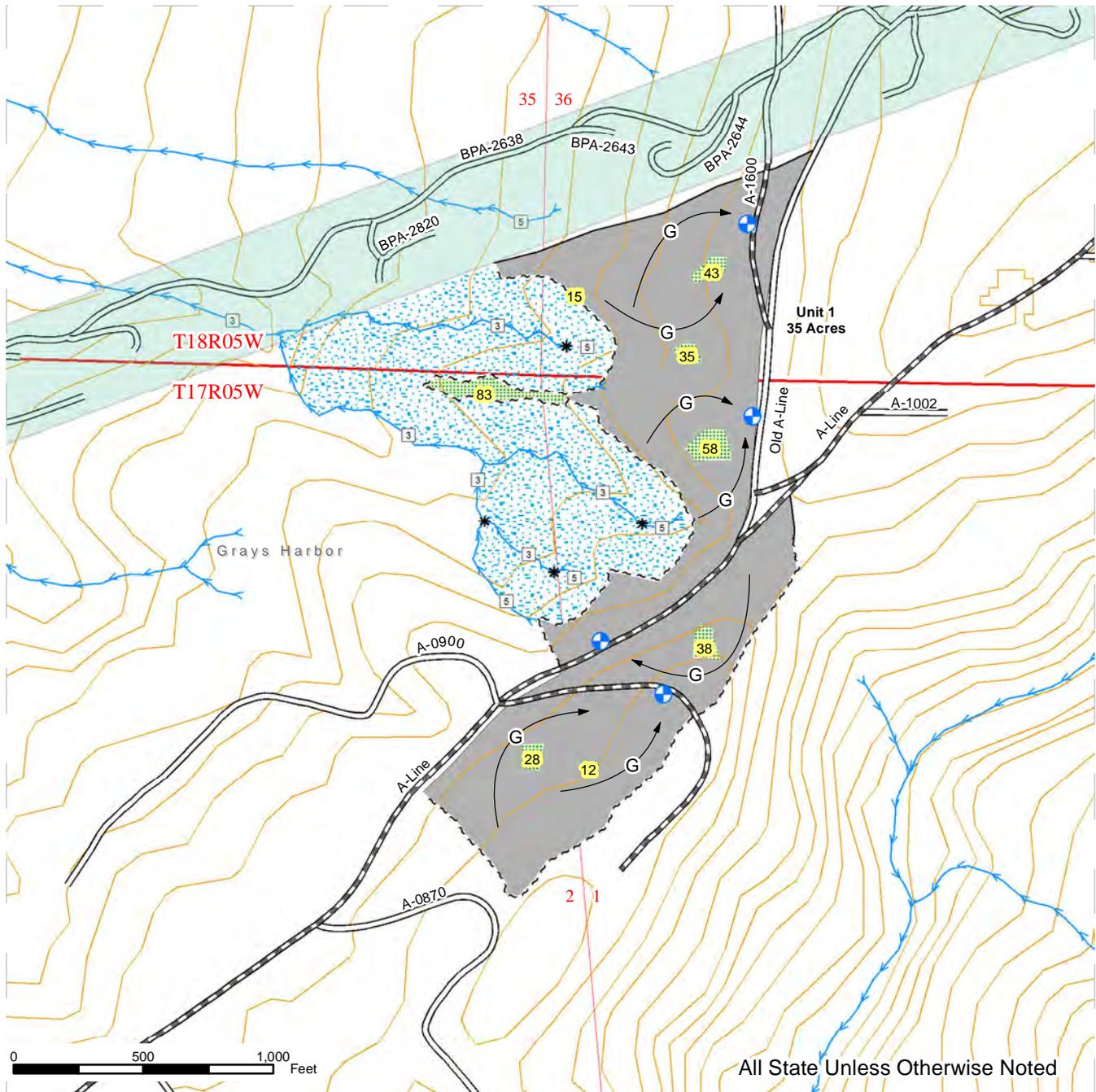
By: WPH

Date: 09/11/15

LOGGING PLAN MAP

SALE NAME: NORTHWEST
AGREEMENT#: 91937
TOWNSHIP(S): T17R05W, T18R04W, T18R05W
TRUST(S): State Forest Purchase(2), Common School and Indemnity(3), Forest Board Repayment(42)

REGION: South Puget Sound Region
COUNTY(S): GRAYS HARBOR, THURSTON
ELEVATION RGE: 421-1318



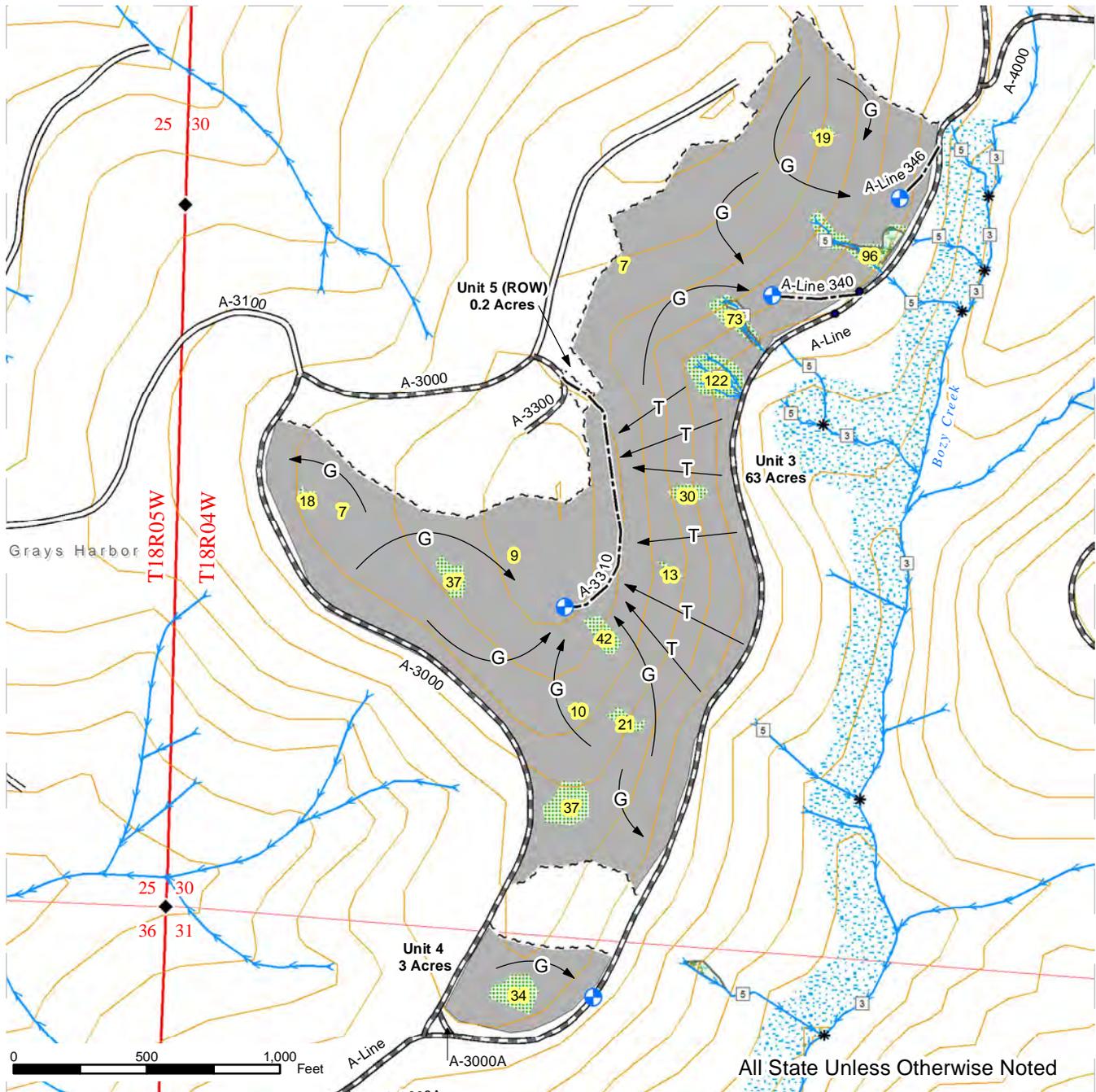
Sale Area	Sale Boundary Tags	Trail
Forested Wetland	Right of Way Tags	Streams
Wetland Mgt Zone	Reprod	Stream Type
Riparian Mgt Zone	Existing Roads	Stream Type Break
Leave Tree Area- Marked with Yellow "Leave Tree Area" Tags	Optional Construction	Monumented Corners
Overhead Power Line and ROW	Required Pre-Haul Maintenance	Single Leave Trees
	Ground Logging	Wetland <0.25 ac.
	Cable Logging	Landing - Proposed



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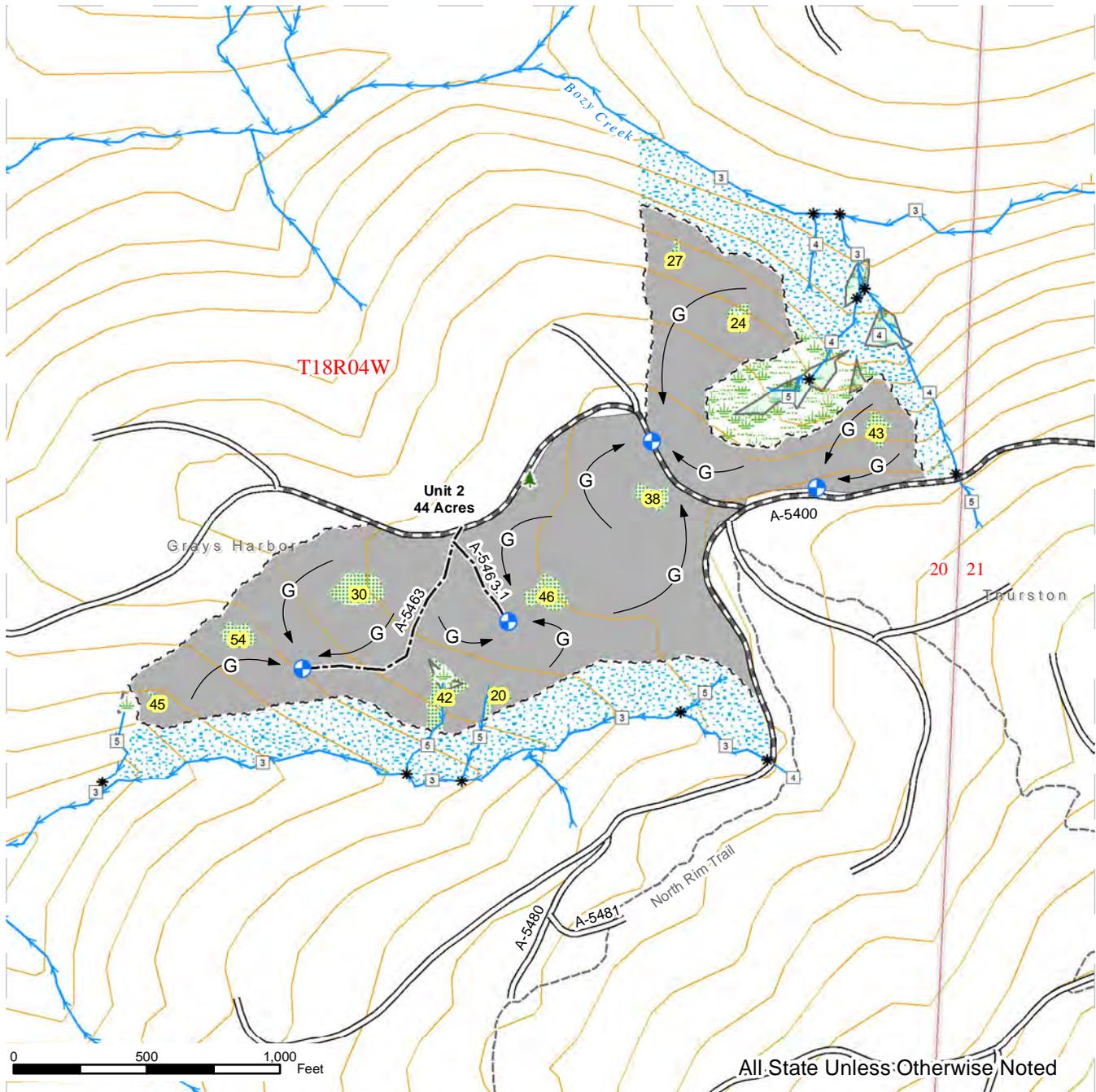
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