

**TIMBER NOTICE OF SALE**

**SALE NAME: BEACON BITS**

**AGREEMENT NO: 30-092816**

**AUCTION:** March 30, 2016 starting at 10:00 a.m.,  
Olympic Region Office, Forks, WA

**COUNTY:** Jefferson, Mason

**SALE LOCATION:** Sale located approximately 19 miles north of Hoodspport, WA

**PRODUCTS SOLD  
AND SALE AREA:**

All timber, except trees marked with a ring of blue paint or bounded out by Leave Tree Area Tags, bounded by Timber Sale Boundary Tags in Units 1 and 2;

All timber bounded by Right-of-Way Boundary Tags, except that title to the timber within the Right-of-Way Boundary Tags of the 4003.5 Road from station 1+45 to station 18+66 and the 4008 Road from station 0+48 to station 2+57 is not conveyed to the Purchaser unless the road segment is actually constructed; and

Biomass, as described in Schedule C, may be removed.

In no instance shall downed red cedar be removed from the sale area unless it has fine branches and needles. All timber that has been on the ground for 5 years or more shall be left undisturbed and not yarded. (Five years is defined by more than 1.5 inches of sap rot); on part(s) of Sections 1 and 2 all in Township 24 North, Range 3 West, Sections 36 all in Township 25 North, Range 3 West, W.M., containing 47 acres, more or less.

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

**ESTIMATED SALE VOLUMES AND QUALITY:**

Species	Avg DBH	Ring Count	Total MBF	MBF by Grade								
				1P	2P	3P	SM	1S	2S	3S	4S	UT
Douglas fir	17.6	8	971				198		381	291	90	11
Hemlock	12.6	8	447						61	277	61	48
Red cedar	15.9		287							217	70	
Maple	16.3		52						22	17		13
Red alder	14.4		43							31	9	3
Sale Total			1,800									

**MINIMUM BID:** \$418,000.00

**BID METHOD:** Sealed Bids

**PERFORMANCE**

**SECURITY:** \$83,600.00

**SALE TYPE:** Lump Sum

**EXPIRATION DATE:** October 31, 2017

**ALLOCATION:** Export Restricted

**BID DEPOSIT:** \$41,800.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

**HARVEST METHOD:** Cable Methods - 14%, Ground Based Methods - 86% as shown on the timber sale map. Only hand falling methods will be allowed in the cable area of Unit 1. Rubber tired skidders are restricted from November 1 to June 30. Falling, yarding, and timber hauling are not permitted in Unit 2 from 8:00 PM to 6:00 AM or on weekends or on State-recognized holidays unless authorized in writing by Contract Administrator.



## TIMBER NOTICE OF SALE

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**ROADS:** 11.89 stations of required reconstruction. 43.26 stations of optional construction. 362.54 stations of required maintenance. 15.83 stations of required abandonment if roads are built.

The operation of road construction equipment is not allowed on any road from November 1 through April 30 or on weekends or on State recognized holidays. In addition, on Unit 2 roads, construction, reconstruction, maintenance, and rock haul are not permitted from 8:00 PM to 6:00 AM unless authorized in writing by the Contract Administrator.

### ACREAGE DETERMINATION

**CRUISE METHOD:** Unit acreage was determined by GPS. Right-of-Way acreage was determined using laser/compass. Units 1 & 2 and Right-of-Way were cruised using a variable plot sample.

**FEES:** \$31,950.00 is due on day of sale. \$9.00 per MBF is due upon removal. These are in addition to the bid price.

**SPECIAL REMARKS:** 56% of the Douglas fir in this sale is high quality and has an average DBH of 17.6 in. and a bole height of 74 ft.

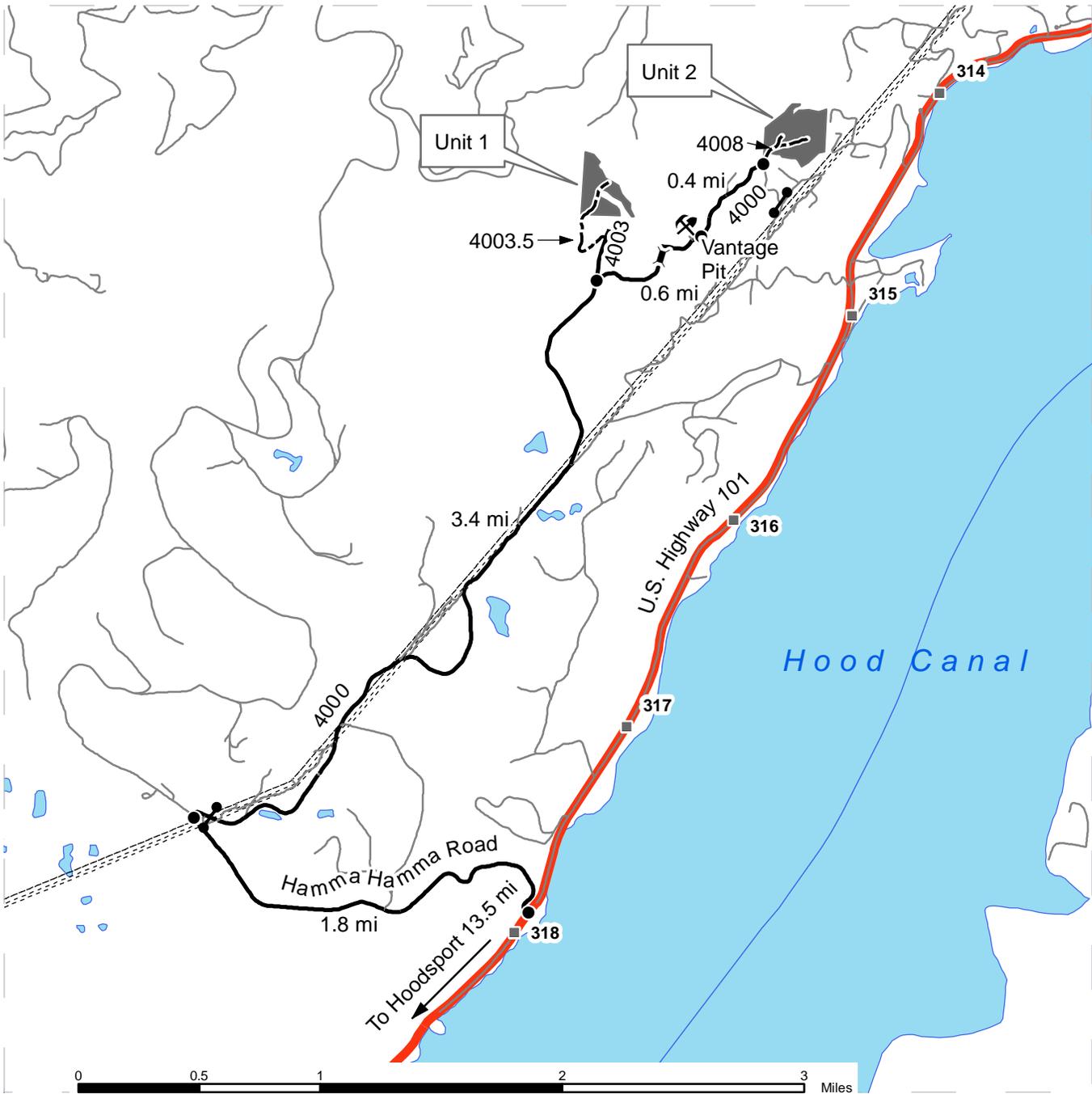
Hazard abatement is required along the eastern boundary of Unit 2.

There is a locked gate on the 4000 Road near the USFS 25 junction. Contact Olympic Region Dispatch Center at 360-374-2800 to obtain an AA1 key.

# DRIVING MAP

**SALE NAME:** Beacon Bits  
**AGREEMENT#:** 30-092816  
**TOWNSHIP(S):** T25N R03W & T24N R03W, W.M.  
**TRUST(S):** Common School (03) & State Forest Board Transfer (01)

**REGION:** Olympic  
**COUNTY(S):** Jefferson & Mason  
**ELEVATION RGE:** 330 ft to 1,260 ft



	Timber Sale Unit
	Highways
	Other Route
	Haul Route
	Construction
	BPA Transmission Lines
	Milepost Markers
	Distance Indicator
	Gate
	Existing Rock Pit
	Bridge

**DRIVING DIRECTIONS:**

From 0.1 of a mile north of milepost 318 on Highway 101 turn northwest onto Hamma Hamma road (USFS 25) and travel 1.8 miles west.

At the intersection with the BPA power lines turn right (north) onto the 4000 road. Go through the gate using an AA-1 key, and travel 3.4 miles northeast to the junction of the 4003 road. Unit 1 is accessed by walking in on the 4003 road grade.

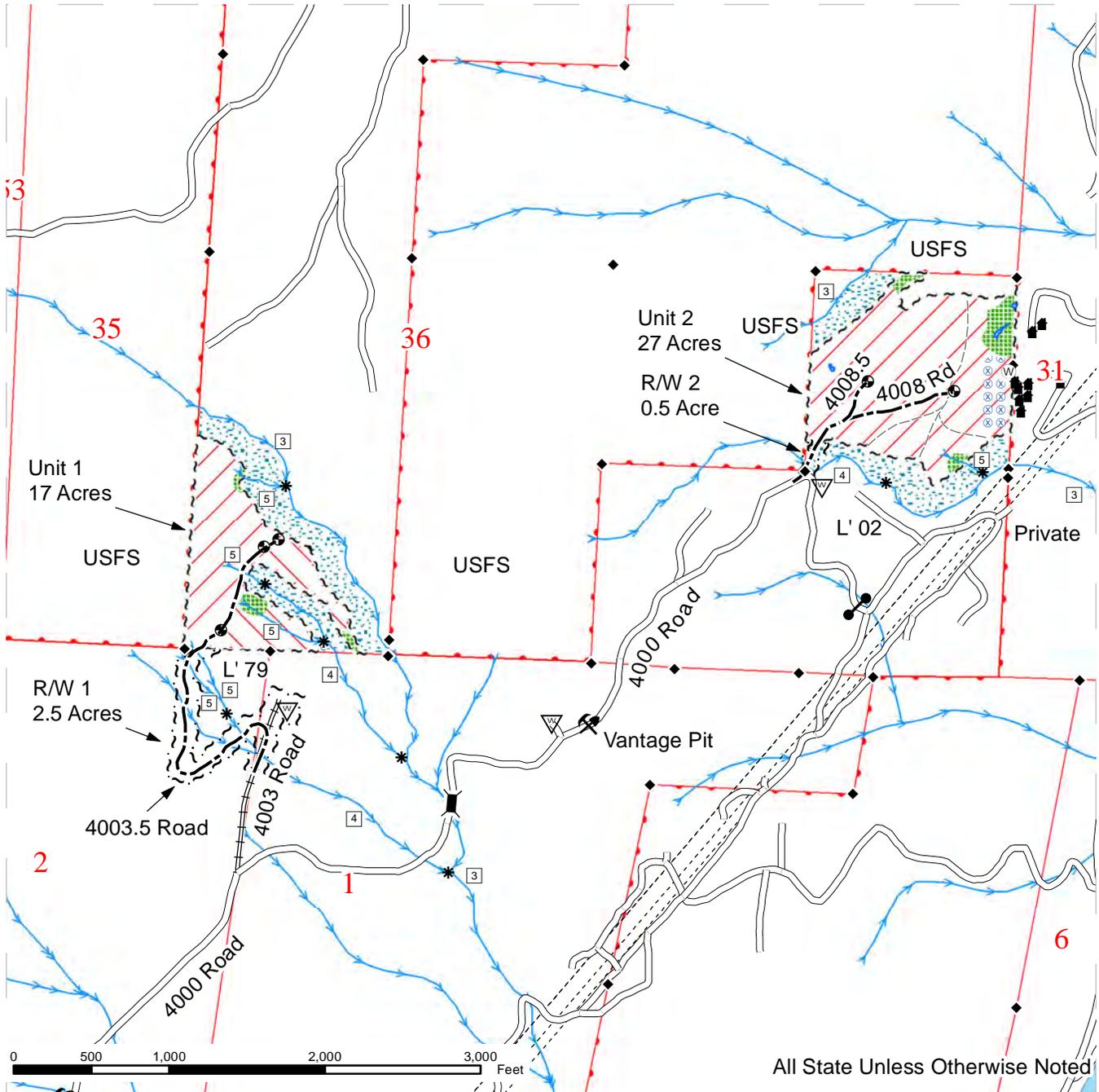
From the 4000/4003 junction continue east on the 4000 0.6 mile further to reach Vantage Pit. From Vantage Pit continue northeast on the 4000 road for 0.4 mile to the junction of the 4008 new construction. Unit 2 is accessed by parking here and walking in on the p-line.



# TIMBER SALE MAP

**SALE NAME:** Beacon Bits  
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Legend			
	Cable		Streams
	Ground		Stream Type
	Leave Tree Areas		Stream Type Break
	hazard_abatement		RMZs
	Sale Boundary Tags		Forested Wetlands
	Right-of-Way Boundary Tags		Existing Roads
	Waste Area		Required Reconstruction
			Optional Construction
			landings
			Existing Rock Pit
			Bridge
			Gate
			Designated Skid Trails
			BPA Transmission Lines
			Monumented Corners
			Structures
			Water Tank
			Public Land Survey Sections
			DNR Managed Lands



**STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES**

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

**Export Restricted Lump Sum AGREEMENT NO. 30-092816**

**SALE NAME: BEACON BITS**

**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 30, 2016 and the sale was confirmed on \_\_\_\_\_. The State, as owner, agrees to sell to Purchaser, and Purchaser agrees to purchase as much of the following forest products as can be cut and removed during the term of this contract: All timber, except trees marked with a ring of blue paint or bounded out by Leave Tree Area Tags, bounded by Timber Sale Boundary Tags in Units 1 and 2;

All timber bounded by Right-of-Way Boundary Tags, except that title to the timber within the Right-of-Way Boundary Tags of the 4003.5 Road from station 1+45 to station 18+66 and the 4008 Road from station 0+48 to station 2+57 is not conveyed to the Purchaser unless the road segment is actually constructed; and

Biomass, as described in Schedule C, may be removed.

In no instance shall downed red cedar be removed from the sale area unless it has fine branches and needles. All timber that has been on the ground for 5 years or more shall be left undisturbed and not yarded. (Five years is defined by more than 1.5 inches of sap rot), located on approximately 47 acres on part(s) of Sections 1 and 2 all in Township 24 North, Range 3 West, Section 36 in Township 25 North, Range 3 West W.M. in Jefferson, and Mason 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 eligible for removal under the terms of this contract.

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

G-020 Inspection By Purchaser

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

G-025 Schedules

The following attached schedules are hereby incorporated by reference:

Schedule	Title
A	Specifications for Slash Piling
B	Green Tree Retention Plan
C	Biomass Removal Schedule

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 \$665.00 per acre per annum for the acres on which an operating release has not been issued.
- f. In no event will the extension charge be less than \$200.00.
- g. Extension payments are non-refundable.

#### G-053 Surveys - Sensitive, Threatened, Endangered Species

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

#### G-060 Exclusion of Warranties

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

- a. The MERCHANTABILITY of the forest products. The use of the term "merchantable" in any document is not intended to vary the foregoing.
- b. The CONDITION of the forest products. The forest products will be conveyed "AS IS."
- c. The ACREAGE contained within any sale area. Any acreage descriptions appearing in the timber notice of sale, timber sale contract, or other documents

are estimates only, provided solely for administrative and identification purposes.

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

#### G-062 Habitat Conservation Plan

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

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

this paragraph void, be deemed a breach of the contract and may subject Purchaser to liability for violation of the Endangered Species Act.

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

**G-063 Incidental Take Permit Notification Requirements**

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

**G-064 Permits**

Purchaser is responsible for obtaining any permits not already obtained by the State that relate to Purchaser's operation. Forest Practice Application / Hydraulic Project

Approval permits obtained by the State shall be transferred to Purchaser. Purchaser is responsible for all permits, amendments and renewals.

G-065 Regulatory Disclaimer

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

G-066 Governmental Regulatory Actions

a. Risk

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

b. Sale Area

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

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

c. Adjustment of Price

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

G-070 Limitation on Damage

In the event of a breach of any provision of this contract by the State, the exclusive remedy available to Purchaser will be limited to a return of the initial deposit,

unapplied payments, and credit for unamortized improvements made by Purchaser. The State shall not be liable for any damages, whether direct, incidental or consequential.

G-080 Scope of State Advice

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

G-091 Sale Area Adjustment

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

G-101 Forest Products Not Designated

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

The pricing schedule has not been set for the sale.

G-106 Adding Naturally Damaged Forest Products

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

G-111 Title and Risk of Loss

Title to the forest products under this contract passes to the Purchaser after they are removed from the sale area, if adequate advance payment or payment security has been provided to the State under this contract. Purchaser bears all risk of loss of, or damage

to, and has an insurable interest in, the forest products described in this contract from the time the sale is confirmed under RCW 79.15.120. Breach of this contract shall have no effect on this provision.

G-116 Sustainable Forestry Initiative® (SFI) Certification

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

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

G-120 Responsibility for Work

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

G-121 Exceptions

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

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

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

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

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

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

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

#### G-140 Indemnity

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

#### G-150 Insurance

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

#### G-160 Agents

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

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

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

G-170 Assignment and Delegation

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

G-180 Modifications

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

G-190 Contract Complete

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

G-200 Notice

Notices required to be given under the following clauses shall be in writing and shall be delivered to Purchaser's authorized agent or sent by certified mail to Purchaser's 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; USFS 25 (Hamma Hamma Road), 4000, 4003, 4003.5, 4008, and 4008.5. 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 USFS 25 Road or the 4000 Road, unless authority is granted in writing by the Contract Administrator.

G-380 Road Easement and Road Use Permit Requirements

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

Easement 55-000429 granted to the Department of Natural Resources by Olympic National Forest dated June 15, 1967.

Easement 55-000625 granted to the Department of Natural Resources by G.R. Kirk Company dated May 1, 1972.

Easement 55-000782 granted to the Department of Natural Resources by Hama Hama Company dated June 5, 1972.

Easement 55-000853 granted to the Department of Natural Resources by Totem Girl Scout Council dated January 1, 1972.

G-430 Open Fires

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

G-450 Encumbrances

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

Easement, including the terms and provisions thereof,  
For: Road  
In Favor of: Bonneville Power Administration  
Disclosed by Application No.: 50-020487  
Granted: 10/18/1949  
Expires: Indefinite

Easement, including the terms and provisions thereof,  
For: Overhead Transmission Lines  
In Favor of: Bonneville Power Administration  
Disclosed by Application No.: 50-020488  
Granted: 10/18/1949  
Expires: Indefinitely

Easement, including the terms and provisions thereof,  
For: Overhead Transmission Lines & Road  
In Favor of: Bonneville Power Administration  
Disclosed by Application No.: 50-032616  
Granted: 9/3/1968  
Expires: Indefinitely

Easement, including the terms and provisions thereof,  
For: Reservoir  
In Favor of: PUD No. 1 of Jefferson County  
Disclosed by Application No.: 50-054355  
Granted: 6/2/1995  
Expires: Indefinitely

## 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 \$48,150.00. The total contract price consists of a \$0.00 contract bid price plus \$48,150.00 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 \$83,600.00. 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-001 Operations Outside the Sale Boundaries

No operations shall occur outside the sale boundaries, as described within the contract, unless approved in writing by the State.

H-010 Cutting and Yarding Schedule

Falling and yarding is not permitted in Unit 2 from 8:00 PM to 6:00 AM or on weekends or on State-recognized holidays. Rubber tired skidders are restricted from November 1 to June 30 unless authorized in writing by the Contract Administrator.

H-013 Reserve Tree Damage Definition

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

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

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

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

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

H-017 Preventing Excessive Soil Disturbance

Operations may be suspended when soil rutting exceeds 10 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-080 Snags Not to be Felled

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

H-120 Harvesting Equipment

Forest products sold under this contract shall be harvested using cable and ground based methods as shown on the timber sale map. Only hand falling methods will be allowed in the cable area of Unit 1 unless authority to use other equipment is granted in writing by the State.

H-125 Log Suspension Requirements

Lead-end suspension is required for all yarding activities.

## H-126 Tailholds on State Land

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

## H-127 Tailholds on Private Land

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

## H-130 Hauling Schedule

The hauling of forest products will not be permitted in Unit 2 from 8:00 PM to 6:00 AM or on weekends or on State recognized holidays unless authorized in writing by the Contract Administrator.

## H-140 Special Harvest Requirements

Purchaser shall accomplish the following during the harvest operations:

1. Purchaser is responsible for any fees or notification requirements associated with power line or water utility shutdowns for operational purposes.
2. Road maintenance is in close proximity to overhead transmission lines managed by the Bonneville Power Administration (BPA). Purchaser is responsible for all liabilities associated with overhead transmission lines, their right-of-way, and following all BPA and other transmission line owner guidelines.
3. Purchaser must notify the BPA and have utility lines located before beginning road maintenance activities. Purchaser is responsible for repairing any damage to utility lines due to road or harvest operations. The following roads have the potential for overhead and/or buried utilities: USFS 25 Road and the 4000 Road.
4. Falling and yarding in Unit 2 is in close proximity to a water tank and buried water lines managed by Jefferson County P.U.D. #1. Purchaser is responsible for all liabilities associated with these utilities and their encumbrances.
5. Purchaser must notify Jefferson County P.U.D. #1 and have water lines located before beginning harvest operations along the east boundary of Unit 2. Purchaser is responsible for repairing any damage to utility lines due to harvest operations.
6. Purchaser shall immediately repair all gate damage resulting from operations to an equal or better condition than existed at the time of the sale.

7. Warning signs for brushing activities, dump truck traffic, and log truck traffic must be placed on both ends of the USFS 25 Road and on the 4000 Road during active operations.
8. Designated skid trails shall be used in Unit 2 as shown on the timber sale map.
9. Purchaser shall perform approximately 2,300 feet of skid trail abandonment in the sale area. The location of this work will be determined by the Contract Administrator. Abandonment shall consist of re-establishing natural drainage and natural slopes, fluffing compacted soil to an 18 inch depth using shovel grapples, placing stumps and debris back onto the trail, and installing water bars as directed by the Contract Administrator.
10. Ground based harvest equipment shall not operate within 30 feet of Type 5 streams within the harvest units. Trees in these areas must be cut and removed while keeping equipment outside of these equipment limitation zones.
11. The Purchaser shall notify all employees and contractors working on this sale that any danger tree, marked or unmarked, may be felled. Any felled marked danger tree shall be replaced with a suitable tree of similar size and species as approved by the Contract Administrator.
12. Directional falling methods are required along the eastern boundary of Unit 2. Timber shall be felled away from private structures along the property line.
13. Designated leave trees shall not be used as tailholds or guyline anchors.
14. Slash which accumulates on landings, or as a result of processing or hazard abatement in Unit 2 shall either be chipped, lopped and scattered within the harvest area, or removed from state land. Slash or residues must be well dispersed and not create an impediment to reforestation as directed by the Contract Administrator. See Schedule A, Specification for Slash Piling for Unit 1.

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

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 hazard abatement area, all live stems over 2 inches in diameter, shall be felled. 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 6/8/2015 are hereby made a part of this contract.

**C-050** Purchaser Road Maintenance and Repair

Purchaser shall perform work at their own expense on USFS 25 (Hamma Hamma Road), 4000, 4003, 4003.5, 4008, and 4008.5 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 roads used and not listed 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's 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-020 Extreme Hazard Abatement**

Purchaser shall provide a written Extreme Hazard Abatement plan that meets the requirements of WAC 332-24 prior to the beginning of logging operations. The plan must be acceptable to the Contract Administrator. The plan will identify how Purchaser will accomplish abatement. Purchaser shall also provide, and keep current, a written timetable for completion of all specified work in the plan. The Contract Administrator's acceptance and approval of Purchaser's hazard abatement plan shall not be construed as any statement or warranty that the hazard abatement plan is adequate for Purchaser's purposes or complies with applicable laws.

**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 equipment may operate within the streams, leave tree areas, or areas of standing water unless authority is granted in writing by the Contract Administrator.

**S-120 Stream Protection**

No timber shall be felled into, across, or yarded through any riparian management zones or leave tree areas.

## 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 sale area.

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

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

\_\_\_\_\_  
Purchaser

\_\_\_\_\_  
Susan K. Trettevik  
Olympic Region Manager

Date: \_\_\_\_\_  
Address: \_\_\_\_\_

Date: \_\_\_\_\_

CORPORATE ACKNOWLEDGEMENT

STATE OF \_\_\_\_\_ )

COUNTY OF \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me personally appeared \_\_\_\_\_

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

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

\_\_\_\_\_  
Notary Public in and for the State of

\_\_\_\_\_  
My appointment expires \_\_\_\_\_

**Schedule A**  
**Specifications for Slash Piling**

In Unit 1, all landing slash and concentrations of processor slash shall be piled by creating circular piles of slash and brush conforming to the following specifications or be removed from State Land:

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

B. Piles shall be free of topsoil, large rotten logs, and large stumps. Any unburnable material shall be well scattered.

C. Piles shall not be placed on large stumps, logs, or against standing snags.

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

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

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

**Schedule B**  
**Green Tree Retention Plan**

Leave the following:

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

Unit #	# of Individually Marked Trees	# of Clumps	# of Trees Clumped	Total # of Leave Trees
1	33	3	107	140
2	28	3	202	230

Permission to substitute leave trees must be granted by the Contract Administrator.

**Schedule C**  
**Biomass Removal Schedule**

Purchaser may remove biomass within 100 feet of roads and landings and in the hazard abatement zone within the sale area.

Biomass is defined as the 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, and is eligible for removal under the terms of this contract.



## 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 4/09)

## PRE-CRUISE NARRATIVE

Sale Name: <b>Beacon Bits</b>	Region: Olympic
Agreement #: <b>30-092816</b>	District: Straits
Contact Forester: Mark Benner Phone / Location: 360-732-6848/Center	County(s): Jefferson
Alternate Contact: Paul LaChance Phone / Location: Same	Other information: Cell 360-708-1989

Type of Sale: Lump Sum	
Harvest System: Ground based 11 Acres of Unit 1, and all 27 acres of Unit 2 are to be ground logged	87%
Harvest System: Uphill Cable 6 Acres of Unit 1 to be cable logged	13%

### UNIT ACREAGES AND METHOD OF DETERMINATION:

Unit # Harvest R/W or RMZ WMZ	Legal Description (Enter only one legal for each unit) Sec/Twp/Rng	Grant or Trust	Gross Proposal Acres	Deductions from Gross Acres (No harvest acres)				Net Harvest Acres	Acreage Determination  (List method and error of closure if applicable)
				RMZ/WMZ Acres	Leave Tree Acres	Existing Road Acres	Other Acres (describe)		
1	Sec 36/T25N/ R03W	03	17.5	0	0.7	0	0	16.8	GPS (Garmin)
2	Sec 36/T25N/R03W	03	28.7	0	1.9	0	0	26.8	GPS (Garmin)
R/W1	Sec 2/T24N/R03W	01	2.4	0	0	<0.1	0	2.4	Laser/compass
R/W2	Sec 36/T25N/R03W	03	0.3	0	0	0	0	0.3	Laser/compass
<b>TOTAL ACRES</b>			48.9	0	2.6	0	0	46.3	

### HARVEST PLAN AND SPECIAL CONDITIONS:

Unit #	Harvest Prescription: (Leave, take, paint color, tags, flagging etc.)	Special Management areas:	Other conditions (# leave trees, etc.)
1	Variable retention harvest, dispersed leave trees marked with blue paint & clumps marked by leave tree area tags	None	33 dispersed leave trees, and 107 clumped

2	Variable retention harvest, dispersed leave trees marked with blue paint & clumps marked by leave tree area tags	None	28 dispersed leave trees, and 202 clumped
R/W1	Clearcut	None	None
R/W2	Clearcut	None	None

**OTHER PRE-CRUISE INFORMATION:**

Unit #	Primary,secondary Species / Estimated Volume (MBF)	Access information (Gates, locks, etc.)	Photos, traverse maps required
1	1 DF, 2 RC/ 756	All units are accessed through gate on the 4000 road system with an OO-1 key. Recommend parking @ 4000/4003 junction	Traverse maps enclosed
2	1 DF, 2 WH/ 1,206	4000 road system is very brushed over. Best turnaround and parking is at the 4000/4008 junction. Lower 4000 is blocked by non-functional gate past this point	Traverse maps enclosed
R/W1	1 DF, 2 RA/ 36	See above	
R/W2	1 DF, 2 WH/ 9	See above	
TOTAL MBF	2,007		

**REMARKS:**

Acreage shown on traverse maps are the rounded net harvest acres as they will appear on the timber sale map. Precise acreage to the nearest tenth are given in the table above.

There are two separate tagged right-of-way segments associated with the sale. The first consists of the clearing limit for the 4003.5 road and the 4003 waste area. The second is the clearing limit for the 4008 road through the RMZ.

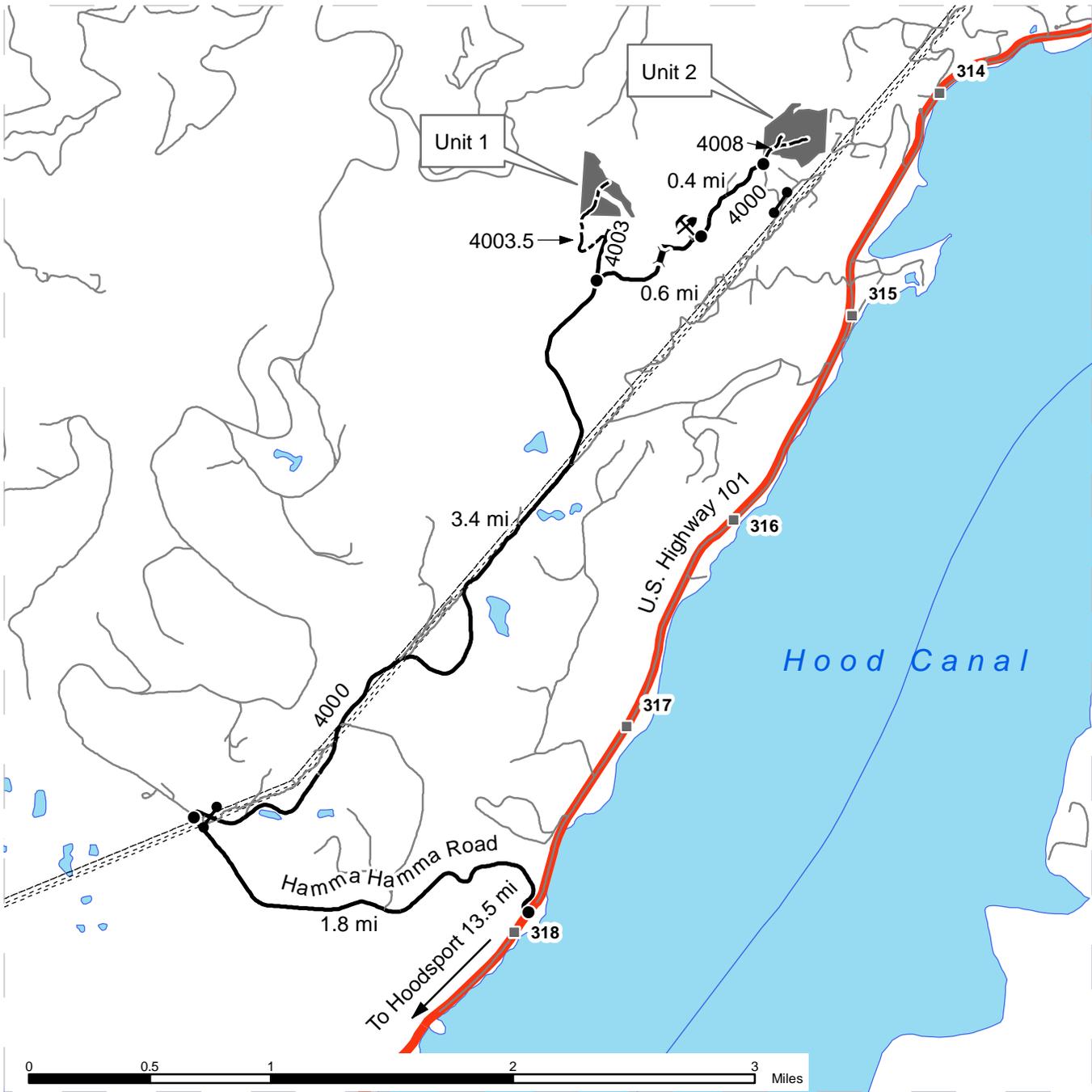
There are easy walk-in opportunities accessing the lower slopes on each of the units. The first is an ATV trail that extends off the end of the 4003 road and comes against lower southern boundary of Unit 1. The second is an old grade that is being used as an ATV trail that departs the 4000 below the broken gate. It departs the 4000 just before it enters the BPA power line right-of-way, and heads north into the lower eastern slopes of Unit 2.

Prepared By: Mark Benner Date: 07/13/2015	Title: Unit Forester	CC:
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# DRIVING MAP

**SALE NAME:** Beacon Bits  
**AGREEMENT#:** 30-092816  
**TOWNSHIP(S):** T25N R03W & T24N R03W, W.M.  
**TRUST(S):** Common School (03) & State Forest Board Transfer (01)

**REGION:** Olympic  
**COUNTY(S):** Jefferson & Mason  
**ELEVATION RGE:** 330 ft to 1,260 ft



	Timber Sale Unit
	Highways
	Other Route
	Haul Route
	Construction
	BPA Transmission Lines
	Milepost Markers
	Distance Indicator
	Gate
	Existing Rock Pit
	Bridge

**DRIVING DIRECTIONS:**

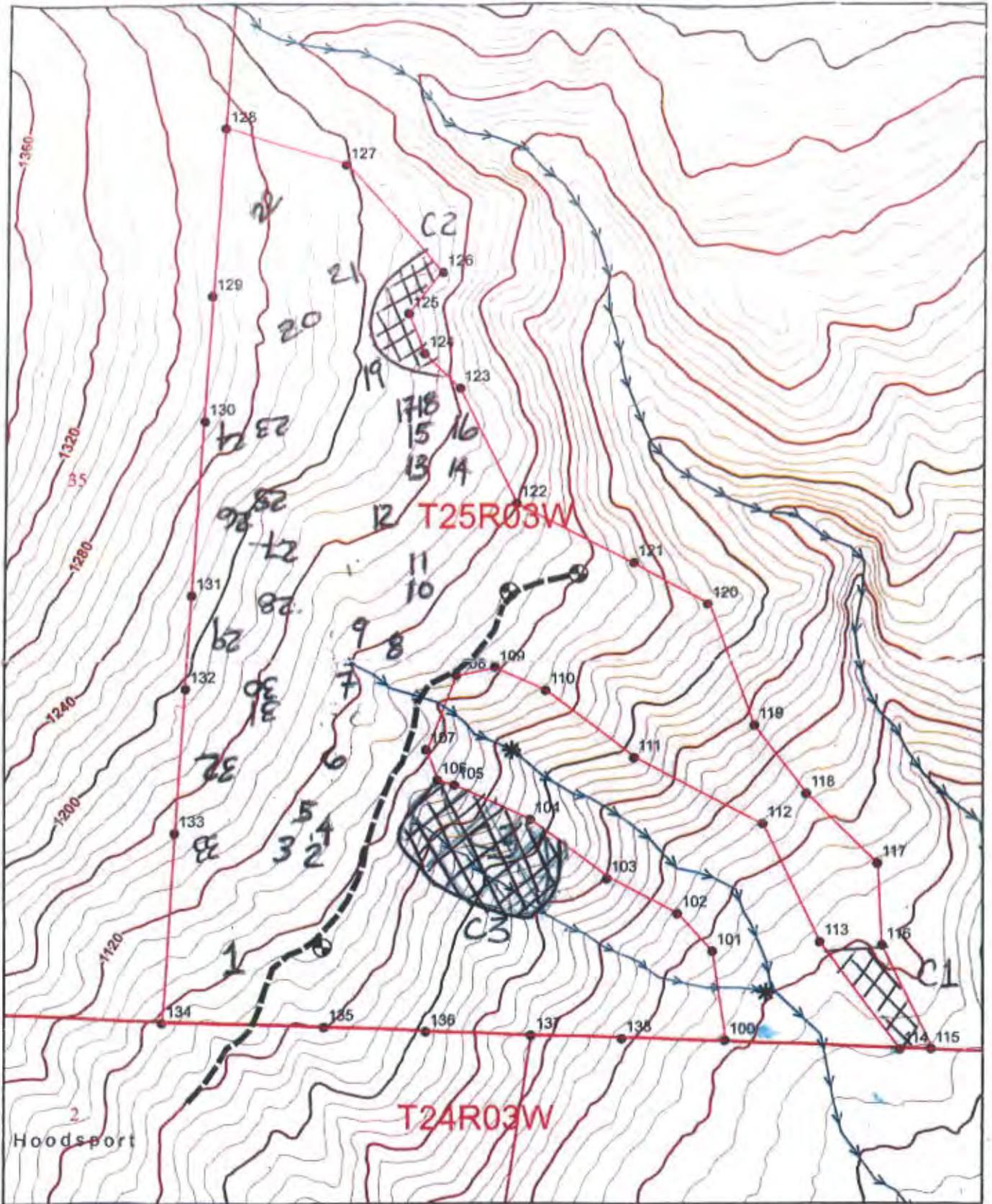
From 0.1 of a mile north of milepost 318 on Highway 101 turn northwest onto Hamma Hamma road (USFS 2500) and travel 1.8 miles west.

At the intersection with the BPA power lines turn right (north) onto the 4000 road. Go through the gate using an AA-1 key, and travel 3.4 miles northeast to the junction of the 4003 road. Unit 1 is accessed by walking in on the 4003 road grade.

From the 4000/4003 junction continue east on the 4000 0.6 mile further to reach Vantage Pit. From Vantage Pit continue northeast on the 4000 road for 0.4 mile to the junction of the 4008 new construction. Unit 2 is accessed by parking here and walking in on the p-line.

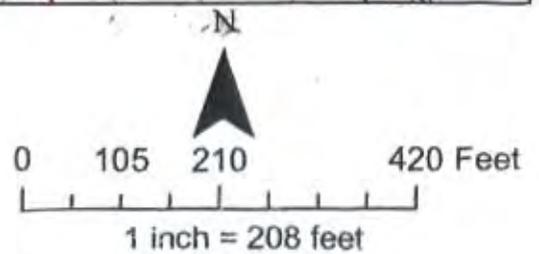


# Beacon Bits Unit 1 Leave Trees



GROSS AREA = 17.5 ACRES

$(18 \text{ ac})(8 \text{ TPA}) = 140 \text{ TREES}$





## Cruise Narrative

<b>Sale Name:</b> Beacon Bits	<b>Region:</b> Olympic
<b>Agreement #:</b> 30-092816	<b>District:</b> Straits
<b>Lead Cruiser:</b> Kevin Peterson	<b>Completion Date:</b> 9/21/15
<b>Other Cruisers:</b> None	

### Unit acreage specifications:

Unit #	Cruised Acres	Cruised acres agree with sale acres? Y/N	If acres do not agree explain why.
1	16.8	Y	
2	26.8	Y	
R/W1	2.4	Y	
R/W2	0.3	Y	
<b>Total</b>	46.3	Y	

### Unit cruise specifications:

Unit #	Sample Type (VP,FP,ITS,100%)	Expansion Factor (baf,full/half)	Sighting Height (4.5', 16')	Grid Size (plot spacing)	Plot Ratio (cruise/count)	Number of plots
1	VP	71.11/54.44	4.5	190 x 190	1:1	20
2	VP	54.44/40	4.5	190 x 190	1:1	28
R/W1	VP	40/20	4.5	Random	Cruise All	4
R/W2	VP	54.44/40	4.5	Random	Cruise All	1

### Sale/Cruise Description:

<b>Minor species cruise intensity</b>	Minor species sampled using same cruise plots.					
<b>Minimum cruise spec:</b>	40% of Form Factor at 16 ft. D.O.B or 5 inch top or merchantable top					
<b>Average ring count:</b>	<b>DF =</b>	8	<b>WH =</b>	8	<b>SS =</b>	--
<b>Leave/take tree description:</b>	Leave tree clumps are bounded out with yellow tags, pink flashers and blue paint. Individual leave trees are marked with blue bands and two blue butt marks.					
<b>Other conditions:</b>	Exterior boundaries are marked with white tags and pink flashers					

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

This is a small 2 unit sale located 7 miles south of Brinnon off of FS Road 25. An OO key is needed to access both units, access is good to both units. 87 percent of this sale is ground based harvest, with 6 acres of unit 1 using uphill cable harvest.

The net volume of this sale was 1,800 MBF with 54% being Douglas Fir, 25% Hemlock, 16% Red Cedar and trace amounts of Alder and Maple. 56% of the DF is high quality and has an average DBH of 17.6” and bole height of 74’. The DF and Hemlock in this sale have minimal defects including spike knots and forked tops, the Red Cedar contains some butt rot.

**Grants:** 01, 03

**Prepared By:** Kevin Peterson

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																		
<div style="border: 1px solid black; padding: 5px;">           T025 R003 S36 Ty00U1            THRU            T025 R003 S36 TyR/W2         </div>				Project: <b>BEACON</b>										Page <b>1</b>								
				Acres <b>46.30</b>										Date <b>9/21/2015</b> Time <b>8:24:36AM</b>								
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		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
DF	HA	SM		20	1.2	4,320	4,266	198			24	76				100	39	18	555	3.18	7.7	
DF	HA	2S		16	1.5	3,407	3,355	155			89	11				100	40	15	331	2.02	10.1	
DF	HA	3S		4		862	862	40		100						100	40	11	180	1.21	4.8	
DF	HB	2S		12	.1	2,547	2,543	118			87	13				100	40	14	311	1.89	8.2	
DF	HB	3S		6	3.3	1,179	1,140	53		100						100	40	10	145	0.97	7.9	
DF	D	2S		11	2.9	2,430	2,360	109			61	39		6	94	39	14	286	1.66	8.3		
DF	D	3S		20	2.3	4,370	4,271	198		100				1	5	94	38	8	102	0.74	41.9	
DF	D	4S		9		1,937	1,937	90		71	29			12	27	12	49	29	6	34	0.34	57.8
DF	D	UT		2		230	230	11		100				53	37	10	14	5	15	0.23	15.7	
<b>DF Totals</b>				54	1.5	21,283	20,965	971	8	33	36	23	2	5	1	92	33	9	129	0.98	162.4	
RC	D	3S		75	13.0	5,394	4,694	217	2	37	45	16	2	1	5	92	38	10	135	1.39	34.7	
RC	D	4S		25	.8	1,519	1,508	70	86	14			7	39	40	14	29	5	32	0.43	47.0	
<b>RC Totals</b>				16	10.3	6,913	6,202	287	22	32	34	12	3	10	14	73	33	7	76	0.90	81.8	
WH	D	2S		13	2.2	1,336	1,307	61			100					100	40	13	253	1.60	5.2	
WH	D	3S		62	2.7	6,172	6,004	278		100						100	40	8	99	0.70	60.4	
WH	D	4S		14	.9	1,321	1,309	61	100				28	35	20	18	24	5	25	0.30	52.6	
WH	D	UT		11		1,035	1,035	48	100				22	65		13	23	5	25	0.25	42.0	
<b>WH Totals</b>				25	2.1	9,864	9,655	447	24	62	14		6	12	3	79	30	6	60	0.55	160.1	
BM	D	2S		41	23.9	623	474	22			57	43	9	78		13	30	15	198	2.22	2.4	
BM	D	3S		33	7.4	401	371	17		100			46	44		9	25	10	86	1.00	4.3	
BM	D	4S		1	25.0	7	5	0		100			100				18	9	30	1.10	.2	
BM	D	UT		25	6.1	299	280	13	50	50			20	27	53		25	6	30	0.43	9.5	
<b>BM Totals</b>				3	14.9	1,329	1,130	52	12	46	24	18	24	54	13	9	26	8	69	0.88	16.3	
RA	D	3S		70	3.7	674	649	30		100			62	38			23	10	80	0.87	8.1	
RA	D	4S		22	1.6	204	201	9	15	85			69	31			23	7	32	0.42	6.3	
RA	D	UT		8	18.1	85	69	3	100				10	35	56		26	5	22	0.33	3.1	
<b>RA Totals</b>				2	4.5	963	919	43	11	89			59	36	4		23	8	53	0.61	17.5	
<b>Totals</b>					3.7	40,352	38,871	1,800	14	42	29	15	5	9	4	81	31	8	89	0.80	438.1	

TC PSTATS		<b>PROJECT STATISTICS</b>							PAGE	1	
		<b>PROJECT</b>			<b>BEACON</b>				DATE	9/21/2015	
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
025	003	36	BEACON	00U1	THR	46.30	53	330	S	W	
025	003	36	BEACON	R/W2							
			PLOTS	TREES	PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL			53	330	6.2						
CRUISE			31	169	5.5	12,038	1.4				
DBH COUNT											
REFOREST											
COUNT			22	152	6.9						
BLANKS											
100 %											
<b>STAND SUMMARY</b>											
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		65	82.5	17.6	74	33.3	139.6	21,102	20,785	5,236	5,237
DOUG FIR-P		1	.5	20.0	87	0.3	1.1	181	181	45	45
WHEMLOCK		39	98.3	12.6	56	23.9	84.8	9,864	9,655	2,643	2,643
WR CEDAR		45	60.1	15.9	51	20.7	82.4	6,913	6,202	2,411	2,410
R ALDER		7	8.8	14.4	56	2.6	9.9	963	919	247	247
BL MAPLE		12	9.9	16.3	45	3.6	14.4	1,329	1,130	371	372
<b>TOTAL</b>		<i>169</i>	<i>260.0</i>	<i>15.3</i>	<i>60</i>	<i>84.9</i>	<i>332.1</i>	<i>40,352</i>	<i>38,871</i>	<i>10,952</i>	<i>10,954</i>
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL	68.1	COEFF	<b>TREES/ACRE</b>				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		96.7	13.3	72	82	93					
DOUG FIR-P		728.0	99.9	0	1	1					
WHEMLOCK		140.6	19.3	79	98	117					
WR CEDAR		100.2	13.7	52	60	68					
R ALDER		277.4	38.1	5	9	12					
BL MAPLE		265.4	36.4	6	10	13					
<b>TOTAL</b>		<i>45.9</i>	<i>6.3</i>	<i>244</i>	<i>260</i>	<i>276</i>	<i>84</i>	<i>43</i>	<i>21</i>		
CL	68.1	COEFF	<b>BASAL AREA/ACRE</b>				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		85.6	11.8	123	140	156					
DOUG FIR-P		728.0	99.9	0	1	2					
WHEMLOCK		123.9	17.0	70	85	99					
WR CEDAR		106.3	14.6	70	82	94					
R ALDER		276.2	37.9	6	10	14					
BL MAPLE		228.0	31.3	10	14	19					
<b>TOTAL</b>		<i>34.4</i>	<i>4.7</i>	<i>316</i>	<i>332</i>	<i>348</i>	<i>47</i>	<i>24</i>	<i>12</i>		
CL	68.1	COEFF	<b>NET BF/ACRE</b>				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR		96.6	13.3	18,030	20,785	23,539					
DOUG FIR-P		728.0	99.9	0	181	361					
WHEMLOCK		126.2	17.3	7,983	9,655	11,327					
WR CEDAR		115.6	15.9	5,217	6,202	7,186					
R ALDER		275.9	37.9	571	919	1,267					
BL MAPLE		234.9	32.2	766	1,130	1,495					
<b>TOTAL</b>		<i>45.4</i>	<i>6.2</i>	<i>36,447</i>	<i>38,871</i>	<i>41,295</i>	<i>82</i>	<i>42</i>	<i>21</i>		
CL	68.1	COEFF	<b>V_BAR/ACRE</b>				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
DOUG FIR				129	149	169					
DOUG FIR-P		728.0	99.9	0	160	321					
WHEMLOCK		65.3	9.0	94	114	134					

TC PSTATS				<u>PROJECT STATISTICS</u>				PAGE	2	
				PROJECT	BEACON			DATE	9/21/2015	
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt
025	003	36	BEACON	00U1	THR	46.30	53	330	S	W
025	003	36	BEACON	R/W2						
CL	68.1		COEFF	<u>V_BAR/ACRE</u>				# OF PLOTS REQ.		INF. POP.
SD:	1.00		VAR.	S.E.%	LOW	AVG	HIGH	5	7	10
WR CEDAR					63	75	87			
R ALDER			163.7	22.5	58	93	129			
BL MAPLE			190.4	26.1	53	79	104			
<b>TOTAL</b>			<i>46.1</i>	<i>6.3</i>	<i>110</i>	<i>117</i>	<i>124</i>	85	43	21

T	TSPCSTGR	Species, Sort Grade - Board Foot Volumes (Type)										Page	1										
												Date		9/21/2015									
												Time		8:24:37AM									
T025 R003 S36 T00U1										T025 R003 S36 T00U1													
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt														
025	003	36	BEACON	00U1	16.80	20	42	S	W														
Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre		
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/ Lf			
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft					
DF	HA	SM		12	1.3	3,826	3,778								100				39	18	526	2.97	7.2
DF	HA	2S		19	1.3	6,249	6,165				84	16			100				40	15	367	2.20	16.8
DF	HA	3S		3		752	752			100					100				40	11	180	1.21	4.2
DF	HB	2S		22		6,920	6,920				87	13			100				40	14	314	1.91	22.0
DF	HB	3S		8	4.2	2,489	2,383			100					100				40	10	144	0.94	16.6
DF	DM	2S		8	3.1	2,624	2,544				100				17		83		38	13	214	1.26	11.9
DF	DM	3S		19	1.5	6,094	6,001			100					5		95		39	8	100	0.67	60.3
DF	DM	4S		8		2,397	2,397			56	44				21	36	13	30	25	6	30	0.35	80.5
DF	DM	UT		1	.0	247	247			100					100				9	5	10	0.15	24.7
<b>DF</b>	<b>Totals</b>			72	1.3	31,599	31,188			524	5	33	44	18	2	5	1	92	32	9	128	1.00	244.2
WH	DM	3S		65		5,577	5,577			94					100				40	8	101	0.63	55.4
WH	DM	4S		14		1,208	1,208			20	100				21	37		42	27	5	30	0.31	40.2
WH	DM	UT		21		1,700	1,700			29	100				37	42		21	21	5	24	0.27	71.7
<b>WH</b>	<b>Totals</b>			19		8,486	8,486			143	34	66			10	14		76	29	6	51	0.44	167.4
RC	DM	4S		100		794	794			13	100					36	41	23	31	5	36	0.52	22.3
<b>RC</b>	<b>Totals</b>			2		794	794			13	100					36	41	23	31	5	36	0.52	22.3
BM	DM	2S		26	5.6	524	495			8					100				30	13	170	1.55	2.9
BM	DM	3S		48	5.0	916	871			15					100				48	52	83	0.89	10.5
BM	DM	UT		26	8.8	520	474			8	69	31				19	81		32	5	35	0.39	13.4
<b>BM</b>	<b>Totals</b>			4	6.1	1,960	1,840			31	18	55	27			23	57	21	29	8	69	0.69	26.8
RA	DM	3S		70		891	891			15					100				20	10	70	0.81	12.7
RA	DM	4S		30		382	382			6					100				20	7	30	0.41	12.7
<b>RA</b>	<b>Totals</b>			3		1,273	1,273			21					100				20	9	50	0.61	25.5
<b>Type Totals</b>					1.2	44,112	43,581			732	13	41	33	13	8	9	2	81	30	8	90	0.76	486.1

TC TSTATS				STATISTICS				PAGE	1	
PROJECT				BEACON				DATE	9/21/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
025	003	36	BEACON	00U1	16.80	20	94	S	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		20	94	4.7						
CRUISE		11	42	3.8	4,390		1.0			
DBH COUNT										
REFOREST										
COUNT		9	43	4.8						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	26	101.0	18.7	84	44.4	192.0	31,599	31,188	7,707	7,707
WHEMLOCK	9	112.0	11.1	51	22.5	74.7	8,486	8,486	2,151	2,151
WR CEDAR	3	22.3	12.5	36	5.4	19.1	794	794	359	359
BL MAPLE	3	13.4	16.1	61	4.7	19.1	1,960	1,840	532	534
R ALDER	1	12.7	14.0	55	3.6	13.6	1,273	1,273	309	309
<b>TOTAL</b>	<b>42</b>	<b>261.3</b>	<b>14.9</b>	<b>63</b>	<b>82.4</b>	<b>318.4</b>	<b>44,112</b>	<b>43,581</b>	<b>11,057</b>	<b>11,059</b>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR		77.3	17.7	83	101	119				
WHEMLOCK		130.8	30.0	78	112	146				
WR CEDAR		143.5	32.9	15	22	30				
BL MAPLE		191.3	43.8	8	13	19				
R ALDER		255.5	58.6	5	13	20				
<b>TOTAL</b>		<b>32.5</b>	<b>7.5</b>	<b>242</b>	<b>261</b>	<b>281</b>	<b>44</b>	<b>23</b>	<b>11</b>	
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		57.8	13.2	167	192	217				
WHEMLOCK		139.8	32.1	51	75	99				
WR CEDAR		139.8	32.1	13	19	25				
BL MAPLE		191.7	43.9	11	19	27				
R ALDER		255.5	58.6	6	14	22				
<b>TOTAL</b>		<b>1.2</b>	<b>.3</b>	<b>317</b>	<b>318</b>	<b>319</b>	<b>0</b>	<b>0</b>	<b>0</b>	
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		59.9	13.7	26,906	31,188	35,471				
WHEMLOCK		159.0	36.4	5,393	8,486	11,578				
WR CEDAR		142.2	32.6	535	794	1,053				
BL MAPLE		194.4	44.6	1,020	1,840	2,660				
R ALDER		255.5	58.6	528	1,273	2,019				
<b>TOTAL</b>		<b>23.9</b>	<b>5.5</b>	<b>41,188</b>	<b>43,581</b>	<b>45,973</b>	<b>24</b>	<b>12</b>	<b>6</b>	
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR				140	162	185				
WHEMLOCK		95.1	21.8	72	114	155				
WR CEDAR		55.0	12.6	28	42	55				
BL MAPLE		109.6	25.1	54	97	140				
R ALDER				39	94	148				
<b>TOTAL</b>		<b>204.8</b>	<b>47.0</b>	<b>129</b>	<b>137</b>	<b>144</b>	<b>1,764</b>	<b>900</b>	<b>441</b>	

T TSPCSTGR	Species, Sort Grade - Board Foot Volumes (Type)										Page 1									
	Project: BEACON										Date 9/21/2015									
											Time 8:24:37AM									
T025 R003 S36 T00U2										T025 R003 S36 T00U2										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
025	003	36	BEACON	00U2	26.80	28	101	S	W											
S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/ Lf	
RC	DM	3S	79	13.0	9,284	8,078	217	2	38	45	16	2	1	5	92	38	10	135	1.39	59.9
RC	DM	4S	21	.9	2,122	2,102	56	83	17			8	39	40	12	28	5	31	0.41	67.1
<b>RC</b>	<b>Totals</b>		26	10.7	11,406	10,180	273	19	33	35	13	3	9	13	76	33	7	80	0.94	126.9
DF	HA	SM	31	1.2	5,065	5,002	134			35	65				100	40	18	571	3.28	8.8
DF	HA	2S	12	1.9	1,969	1,931	52			100					100	40	14	278	1.75	6.9
DF	HA	3S	7		1,019	1,019	27		100						100	40	11	180	1.21	5.7
DF	HB	3S	3		476	476	13		100						100	40	10	150	1.06	3.2
DF	DM	2S	16	2.8	2,553	2,482	67			35	65				100	40	15	364	2.08	6.8
DF	DM	3S	20	3.4	3,375	3,262	87		100			1	7		92	37	9	112	0.85	29.2
DF	DM	4S	10		1,575	1,575	42	81	19			4	21	8	66	33	5	38	0.32	42.0
DF	DM	UT	1		54	54	1	100				100				10	5	10	0.20	5.4
<b>DF</b>	<b>Totals</b>		41	1.8	16,085	15,800	423	8	32	29	31	1	3	1	95	35	9	146	1.05	108.0
WH	DM	2S	19	2.2	2,173	2,125	57			100					100	40	13	256	1.62	8.3
WH	DM	3S	61	4.1	7,019	6,729	180		100						100	40	8	98	0.73	68.4
WH	DM	4S	13	1.4	1,485	1,464	39	100				32	33	31	4	23	5	23	0.30	64.4
WH	DM	UT	7		722	722	19	100					100			25	5	26	0.23	27.6
<b>WH</b>	<b>Totals</b>		29	3.2	11,399	11,040	296	20	61	19		4	11	4	81	31	7	65	0.60	168.7
BM	DM	2S	63	32.0	747	508	14			31	69	14	65		21	29	17	220	2.76	2.3
BM	DM	3S	12	19.2	118	95	3		100			38			62	30	11	105	1.64	.9
BM	DM	4S	1	25.0	12	9	0		100			100				18	9	30	1.10	.3
BM	DM	UT	24	1.5	190	187	5	19	81			52	38	9		18	6	24	0.50	7.9
<b>BM</b>	<b>Totals</b>		2	25.1	1,067	800	21	5	32	20	44	27	50	2	21	21	9	70	1.27	11.4
RA	DM	3S	77	7.0	565	526	14		100			25	75			26	10	93	0.94	5.6
RA	DM	4S	8		51	51	1	100					100			30	5	30	0.40	1.7
RA	DM	UT	15	14.5	118	101	3	100					34	66		30	5	26	0.34	3.9
<b>RA</b>	<b>Totals</b>		2	7.7	734	678	18	22	78			20	70	10		28	8	60	0.63	11.3
<b>Type Totals</b>				5.4	40,691	38,498	1,032	15	41	27	17	3	9	5	82	32	8	90	0.84	426.4

TC TSTATS		STATISTICS								PAGE	1
		PROJECT				BEACON				DATE	9/21/2015
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
025	003	36	BEACON	00U2	26.80	28	210	S	W		
				TREES	ESTIMATED	PERCENT					
		PLOTS	TREES	PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		28	210	7.5							
CRUISE		15	101	6.7	7,051	1.4					
DBH COUNT											
REFOREST											
COUNT		13	109	8.4							
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	
WR CEDAR	41	89.7	16.3	53	32.2	130.0	11,406	10,180	3,925	3,925	
DOUG FIR	21	60.0	17.9	72	24.8	105.0	15,773	15,488	3,909	3,910	
DOUG FIR-P	1	.9	20.0	87	0.4	1.9	312	312	77	77	
WHEMLOCK	26	98.2	13.5	59	26.5	97.2	11,399	11,040	3,128	3,128	
BL MAPLE	9	8.7	16.5	30	3.2	12.9	1,067	800	308	309	
R ALDER	3	5.6	15.2	59	1.8	7.1	734	678	198	199	
<b>TOTAL</b>	<i>101</i>	<i>263.1</i>	<i>15.7</i>	<i>59</i>	<i>89.3</i>	<i>354.1</i>	<i>40,691</i>	<i>38,498</i>	<i>11,545</i>	<i>11,547</i>	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WR CEDAR		56.2	10.8	80	90	99					
DOUG FIR		124.5	24.0	46	60	74					
DOUG FIR-P		529.2	101.8		1	2					
WHEMLOCK		135.2	26.0	73	98	124					
BL MAPLE		310.8	59.8	3	9	14					
R ALDER		310.7	59.8	2	6	9					
<b>TOTAL</b>		<i>47.3</i>	<i>9.1</i>	<i>239</i>	<i>263</i>	<i>287</i>	<i>93</i>	<i>47</i>	<i>23</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		
WR CEDAR		55.9	10.8	116	130	144					
DOUG FIR		111.9	21.5	82	105	128					
DOUG FIR-P		529.2	101.8		2	4					
WHEMLOCK		104.9	20.2	78	97	117					
BL MAPLE		240.3	46.2	7	13	19					
R ALDER		306.9	59.0	3	7	11					
<b>TOTAL</b>		<i>29.7</i>	<i>5.7</i>	<i>334</i>	<i>354</i>	<i>374</i>	<i>36</i>	<i>19</i>	<i>9</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		
WR CEDAR		59.6	11.5	9,013	10,180	11,348					
DOUG FIR		121.6	23.4	11,865	15,488	19,111					
DOUG FIR-P		529.2	101.8		312	629					
WHEMLOCK		99.8	19.2	8,920	11,040	13,159					
BL MAPLE		246.3	47.4	421	800	1,178					
R ALDER		302.5	58.2	283	678	1,072					
<b>TOTAL</b>		<i>43.5</i>	<i>8.4</i>	<i>35,277</i>	<i>38,498</i>	<i>41,718</i>	<i>78</i>	<i>40</i>	<i>20</i>		
CL:	68.1 %	COEFF	V-BAR/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10		
WR CEDAR				69	78	87					
DOUG FIR				113	148	182					
DOUG FIR-P		529.2	101.8		160	324					
WHEMLOCK		30.0	5.8	92	114	135					
BL MAPLE		246.3	47.4	33	62	92					
R ALDER		212.2	40.8	40	95	150					

**STATISTICS**

PROJECT BEACON

DATE 9/21/2015

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
025	003	36	BEACON	00U2	26.80	28	210	S	W

CL:	68.1 %	COEFF	V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.	S.E. %	LOW	AVG	HIGH	5	7	10
<b>TOTAL</b>		209.9	40.4	100	109	118	1,825	931	456

T025 R003 S36 TR/W1										T025 R003 S36 TR/W1				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
025	003	36	BEACON	R/W1	2.40	4	20	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	Dia	Bd	CF/	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
DF	DM	3S	44	3,965	3,965	10	100				100				40	7	65	0.62	60.7	
DF	DM	4S	32	2,871	2,871	7	100				16	34	51	34	5	36	0.39	79.4		
DF	DM	UT	24	.0	2,105	2,105	5	100				78	22		29	5	30	0.30	70.2	
<b>DF</b>	<b>Totals</b>		88	8,941	8,941	21	56	44		24	16	61	34	5	43	0.44	210.2			
RA	DM	3S	32	9.1	448	407	1	100				100				30	10	100	0.89	4.1
RA	DM	4S	51	9.1	700	637	2	100				100				30	8	50	0.55	12.7
RA	DM	UT	17	33.3	313	209	1	100				61	39		17	5	12	0.26	16.8	
<b>RA</b>	<b>Totals</b>		12	14.3	1,462	1,253	3	17	83	10	90		23	7	37	0.50	33.6			
<b>Type Totals</b>				2.0	10,403	10,194	24	51	49	1	32	14	53	33	6	42	0.45	243.8		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	BEACON			DATE	9/21/2015	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
025	003	36	BEACON	R/W1	2.40	4	20	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				TREES	TREES	TREES				
TOTAL	4		20	5.0						
CRUISE	4		20	5.0	545	3.7				
DBH COUNT										
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
DOUG FIR	17	210.2	12.2	41	48.7	170.0	8,941	8,941	3,167	3,167
R ALDER	3	16.8	12.8	52	4.2	15.0	1,462	1,253	392	392
<b>TOTAL</b>	<b>20</b>	<b>227.0</b>	<b>12.2</b>	<b>42</b>	<b>52.9</b>	<b>185.0</b>	<b>10,403</b>	<b>10,194</b>	<b>3,558</b>	<b>3,558</b>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	39.8	22.7	162	210	258					
R ALDER	200.0	114.3	17	17	36					
<b>TOTAL</b>	<b>25.9</b>	<b>14.8</b>	<b>193</b>	<b>227</b>	<b>261</b>	<b>35</b>	<b>18</b>	<b>9</b>		
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	35.3	20.2	136	170	204					
R ALDER	200.0	114.3	15	15	32					
<b>TOTAL</b>	<b>16.2</b>	<b>9.3</b>	<b>168</b>	<b>185</b>	<b>202</b>	<b>14</b>	<b>7</b>	<b>3</b>		
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	33.4	19.1	7,233	8,941	10,650					
R ALDER	200.0	114.3	1,253	1,253	2,685					
<b>TOTAL</b>	<b>5.6</b>	<b>3.2</b>	<b>9,870</b>	<b>10,194</b>	<b>10,518</b>	<b>2</b>	<b>1</b>	<b>0</b>		
CL:	68.1 %	COEFF	V-BAR/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	10	
DOUG FIR	33.4	19.1	43	53	63					
R ALDER	200.0	114.3	84	84	179					
<b>TOTAL</b>	<b>18.0</b>	<b>10.3</b>	<b>53</b>	<b>55</b>	<b>57</b>	<b>17</b>	<b>9</b>	<b>4</b>		

T025 R003 S36 TR/W2										T025 R003 S36 TR/W2				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt					
025	003	36	BEACON	R/W2	.30	1	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	Dia	Bd	CF/				
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf				
WH	DM	2S	41	2.1	12,150	11,901	4	100				100				40	12	213	1.40	55.8			
WH	DM	3S	46		13,194	13,194	4	100				100				40	9	128	0.87	102.9			
WH	DM	4S	13		3,572	3,572	1	100					65	35			31	5	33	0.38	108.8		
<b>WH</b>	<b>Totals</b>		76	.9	28,916	28,666	9	12	46	42					8	92			36	8	107	0.82	267.5
DF	HB	2S	81	10.0	5,530	4,977	1	100				100				40	12	180	1.38	27.6			
DF	DM	4S	19		1,106	1,106	0	100					100				36	5	40	0.46	27.6		
<b>DF</b>	<b>Totals</b>		16	8.3	6,636	6,083	2	18	82			100				38	9	110	0.94	55.3			
RC	DM	3S	85	10.0	3,031	2,727	1	100				100				40	12	180	1.84	15.2			
RC	DM	4S	15		455	455	0	100				100				26	6	30	0.49	15.2			
<b>RC</b>	<b>Totals</b>		8	8.7	3,485	3,182	1	14	86			14		86		33	9	105	1.31	30.3			
<b>Type Totals</b>				2.8	39,037	37,931	11	12	36	52	7				93		36	8	107	0.88	353.1		

**STATISTICS**

PROJECT BEACON

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
025	003	36	BEACON	R/W2	0.30	1	6	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	1	6	6.0		
CRUISE	1	6	6.0	53	11.3
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

**STAND SUMMARY**

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	4	133.7	17.3	74	52.4	217.8	28,916	28,666	7,962	7,962
DOUG FIR	1	27.6	19.0	78	12.5	54.4	6,636	6,083	1,982	1,982
WR CEDAR	1	15.2	22.0	68	8.5	40.0	3,485	3,182	1,306	1,306
<b>TOTAL</b>	<b>6</b>	<b>176.5</b>	<b>18.0</b>	<b>74</b>	<b>73.6</b>	<b>312.2</b>	<b>39,037</b>	<b>37,931</b>	<b>11,250</b>	<b>11,250</b>

CONFIDENCE LIMITS OF THE SAMPLE

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

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

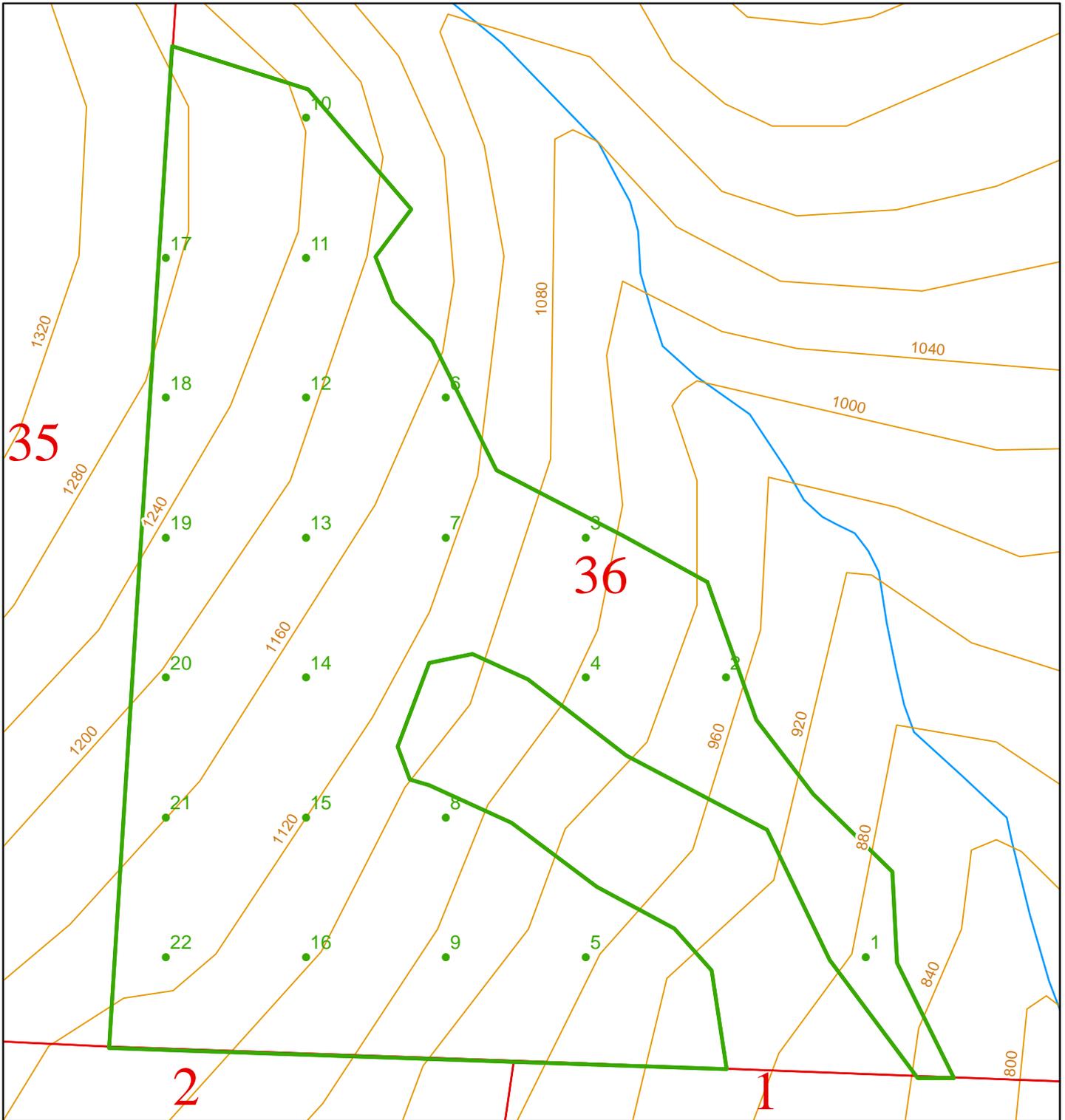
T025 R003 S36 Ty00U1	16.8
T025 R003 S36 Ty00U2	26.8
T025 R003 S36 TyR/W	.3

Project **BEACON**  
Acres **46.30**

Page No **1**  
Date: **9/21/2015**  
Time **8:24:37AM**

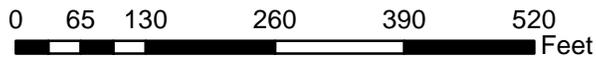
Species	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
DOUG FIR	3,841	7,518	6,968	63.65	32.52	1.00	2,445	2,445	985	971
WHEMLOCK	4,552	7,414	3,915	26.88	16.50	0.56	1,223	1,223	457	447
WR CEDAR	2,782	3,785	2,623	40.12	29.48	0.92	1,116	1,116	320	287
BL MAPLE	458	757	456	37.68	22.78	0.88	172	172	62	52
R ALDER	405	811	315	28.26	14.13	0.61	114	115	45	43
<b>Totals</b>	12,038	20,285	14,276	42.13	25.00	0.81	5,071	5,072	1,868	1,800

Wood Type Species	Total	Total	Total	Net Cubic Ft/		CF/ LF	Total CCF		Total MBF	
	Trees	Logs	Tons	Tree	Log		Gross	Net	Gross	Net
C	11,175	18,718	13,506	42.81	25.56	0.82	4,784	4,785	1,762	1,705
H	863	1,567	770	33.26	18.31	0.75	286	287	106	95
<b>Totals</b>	12,038	20,285	14,276	42.13	25.00	0.81	5,071	5,072	1,868	1,800



**Cruiser Sample Point Locations**

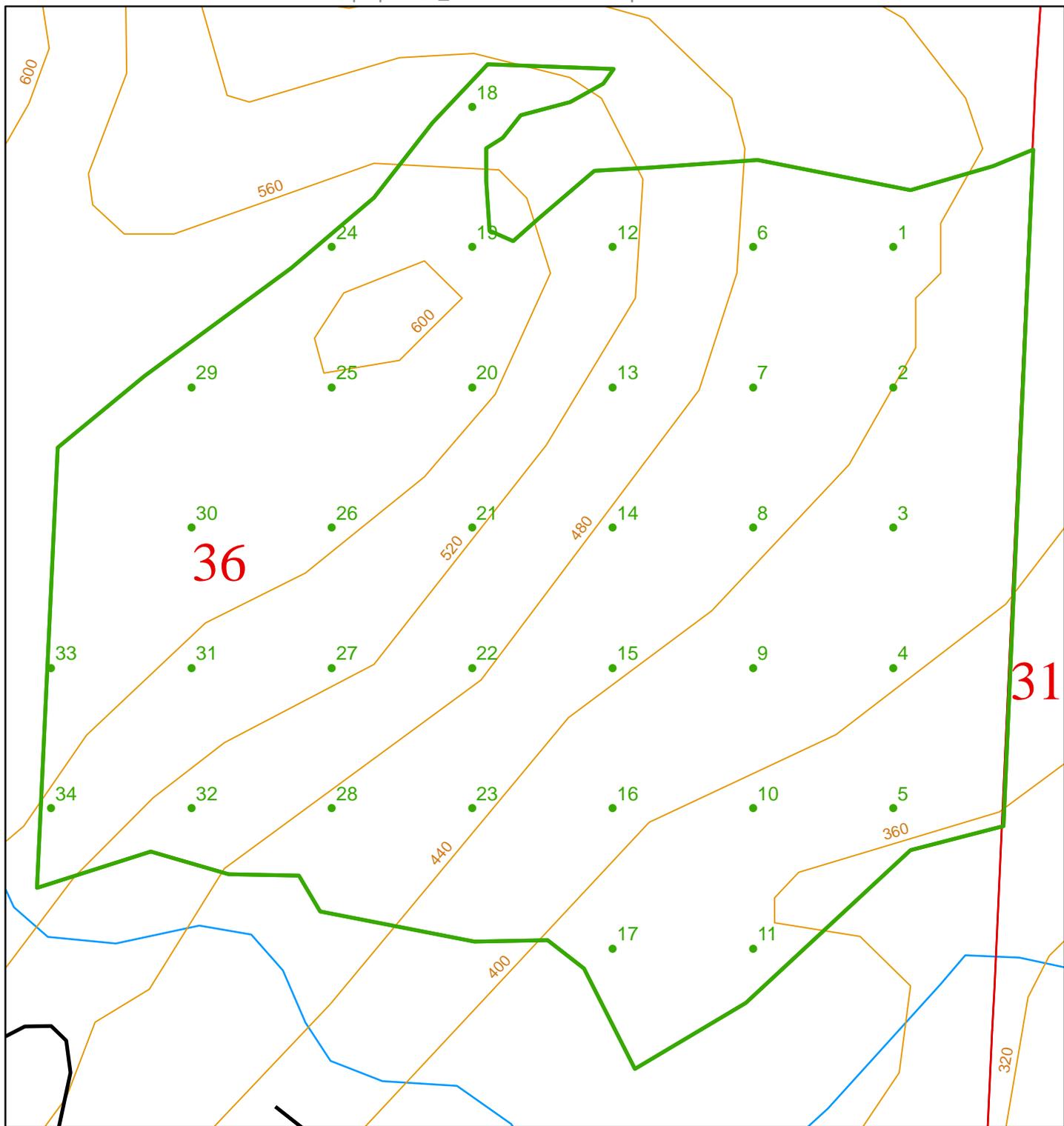
LAYER NAME:	unit_1	Township:	T25R03W
POLY ID:	1	Total Sample Points:	22
Acres:	18	Spacing Between Points:	Width: 190 Height: 190
		Point Rotation Degrees:	0



Scale 1:2,300

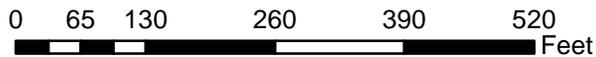
**Legend**

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



**Cruiser Sample Point Locations**

LAYER NAME:	unit_2	Township:	T25R03W
POLY ID:	1	Total Sample Points:	34
Acres:	29	Spacing Between Points:	Width: 190 Height: 190
		Point Rotation Degrees:	0



Scale 1:2,300

**Legend**

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



**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  
Olympic Region  
411 Tillicum Lane  
Forks, WA 98331

**Other Applicable Laws**

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

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

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

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

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

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

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

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

**DNR affidavit of mailing:**

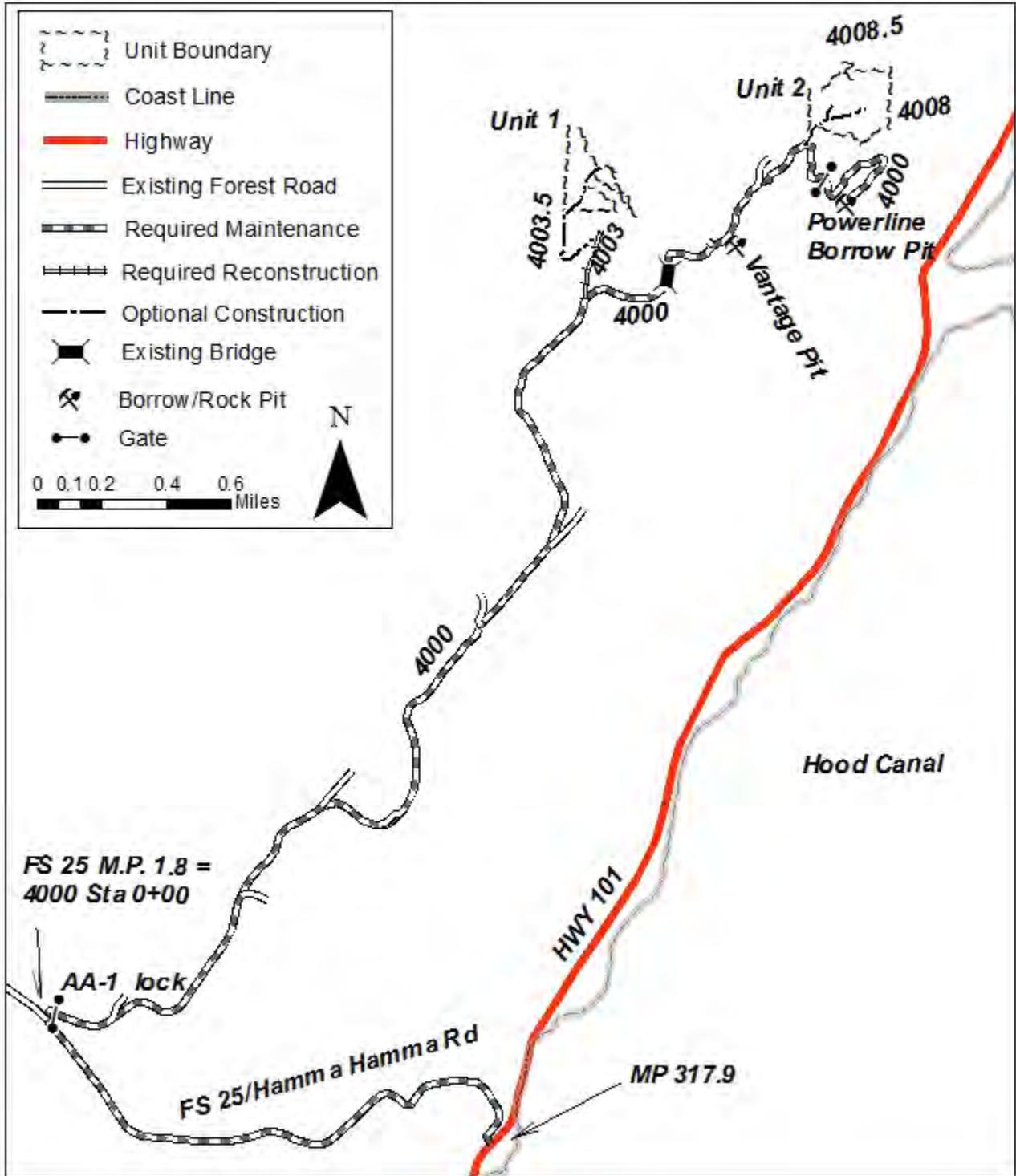
On this day _____, I placed in the United States mail at _____, WA,	
(date)	(post office location)
postage paid, a true and accurate copy of this document. Notice of Decision FPA # <u>2613944</u>	
_____	_____
(Printed name)	(Signature)

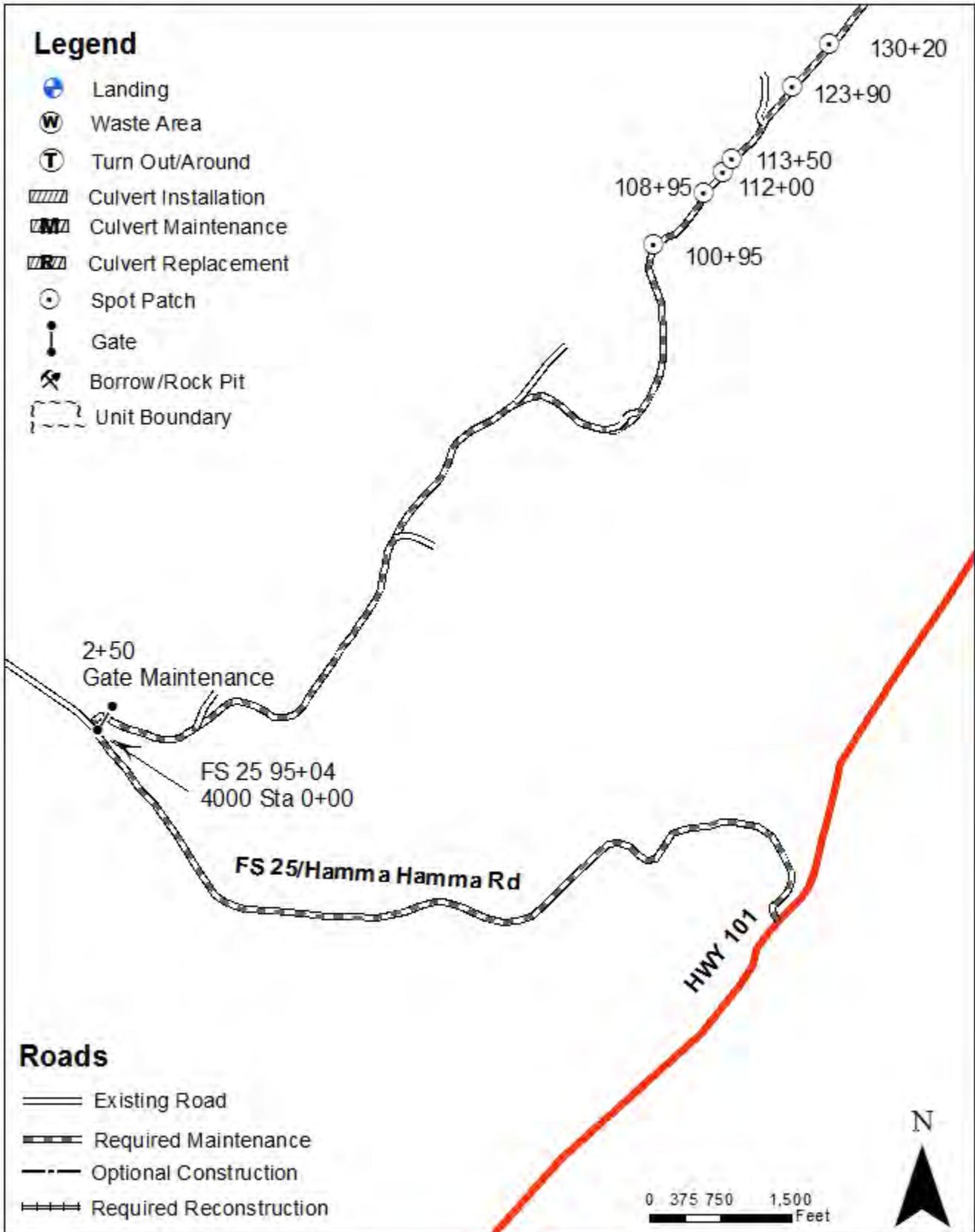
STATE OF WASHINGTON, DEPARTMENT OF NATURAL RESOURCES  
 BEACON BITS TIMBER SALE ROAD PLAN  
 OLYMPIC REGION, STRAITS DISTRICT, JEFFERSON COUNTY

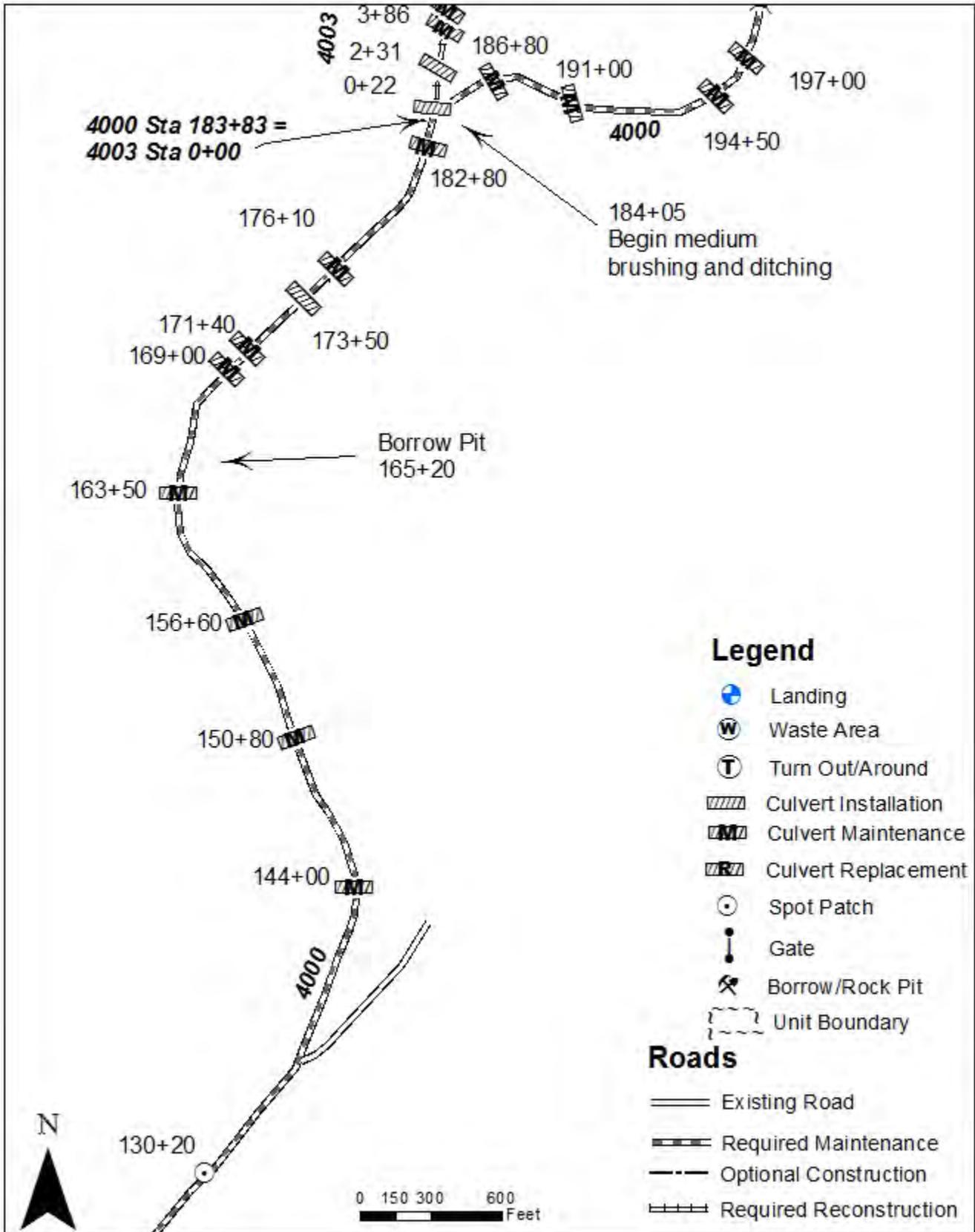
AGREEMENT NO.: 30-092816  
 DATE: 6/08/2015

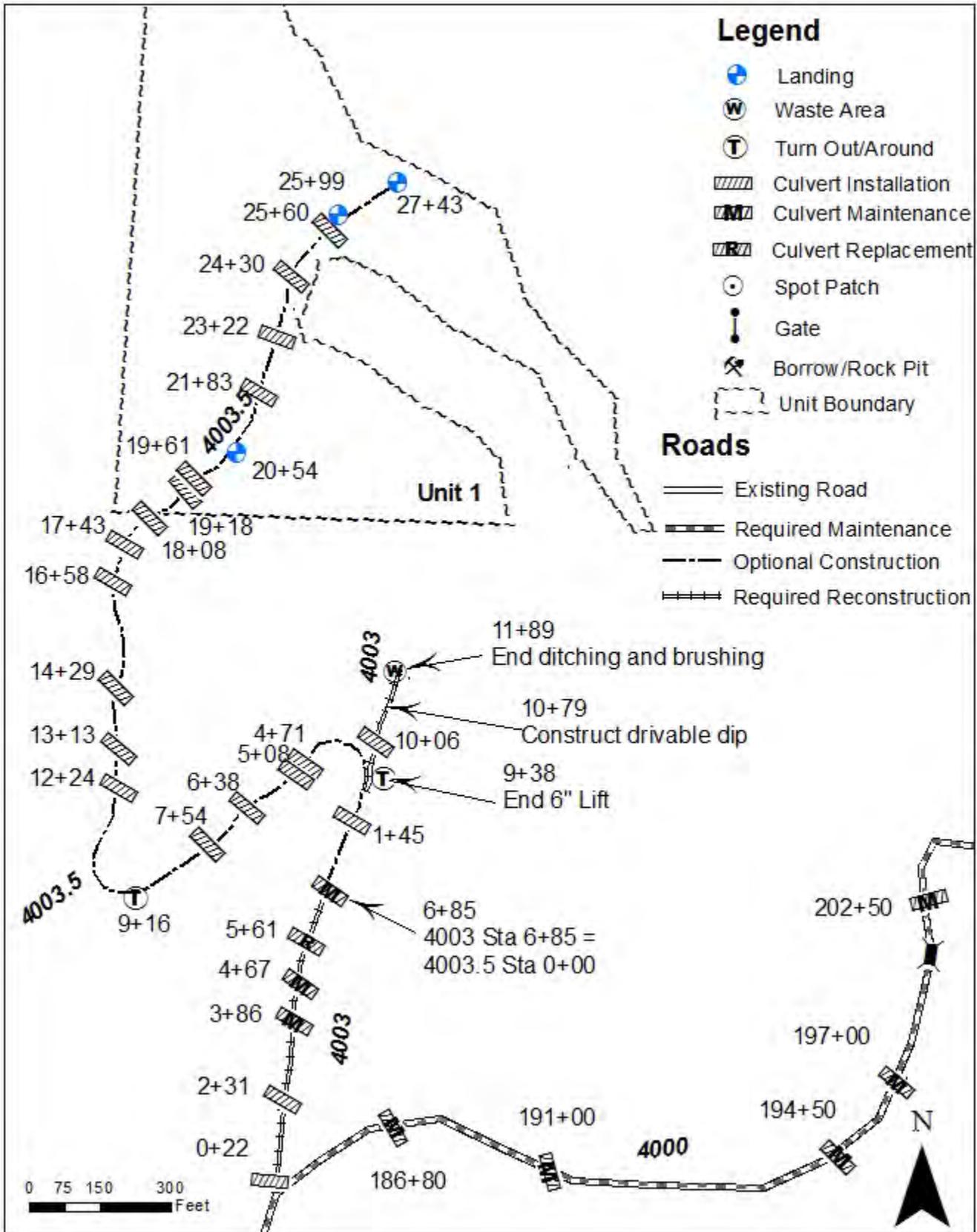
STAFF ENGINEER: JEFF KECK  
 DISTRICT ENGINEER: TOM BARNES

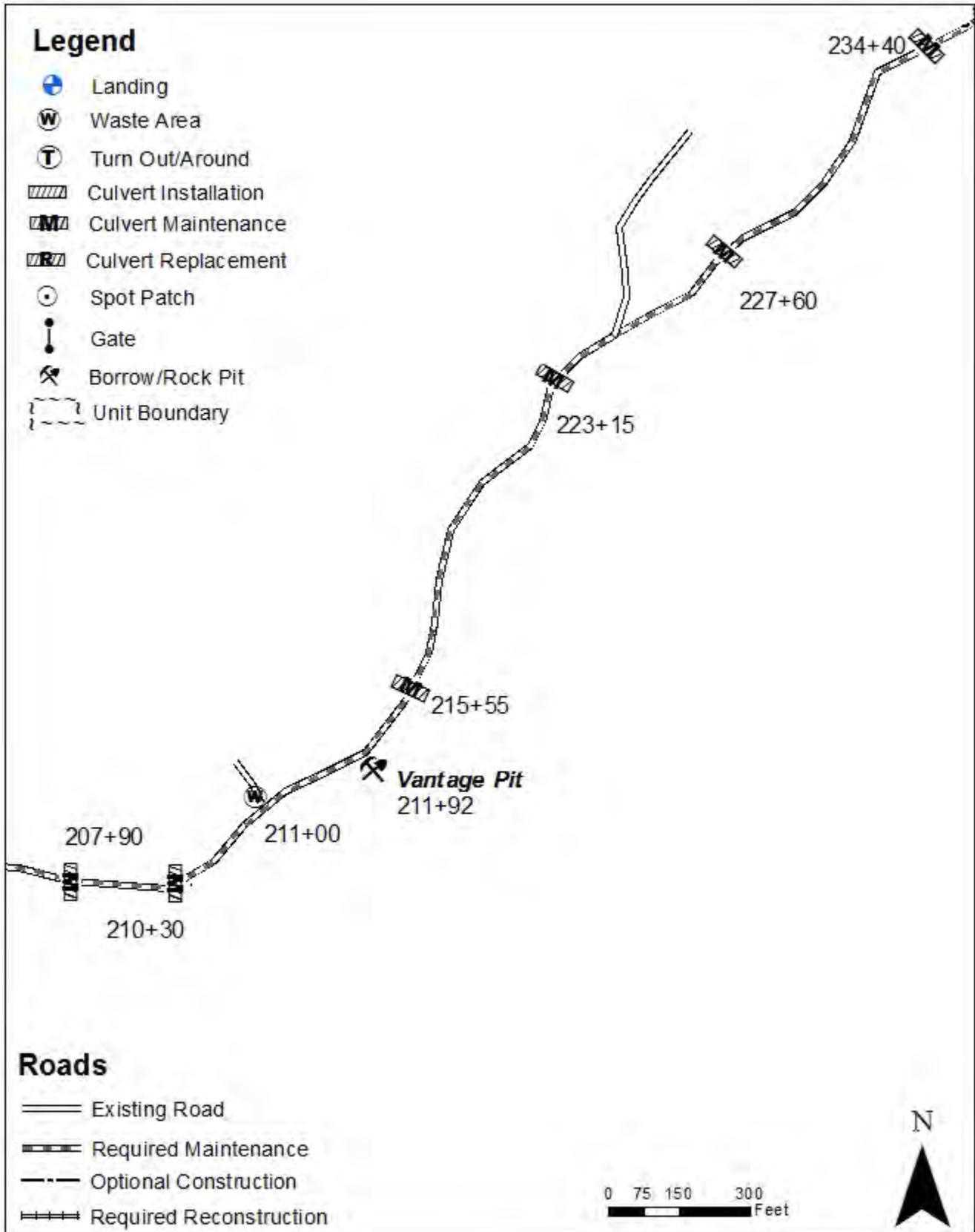
Map 1 of 6

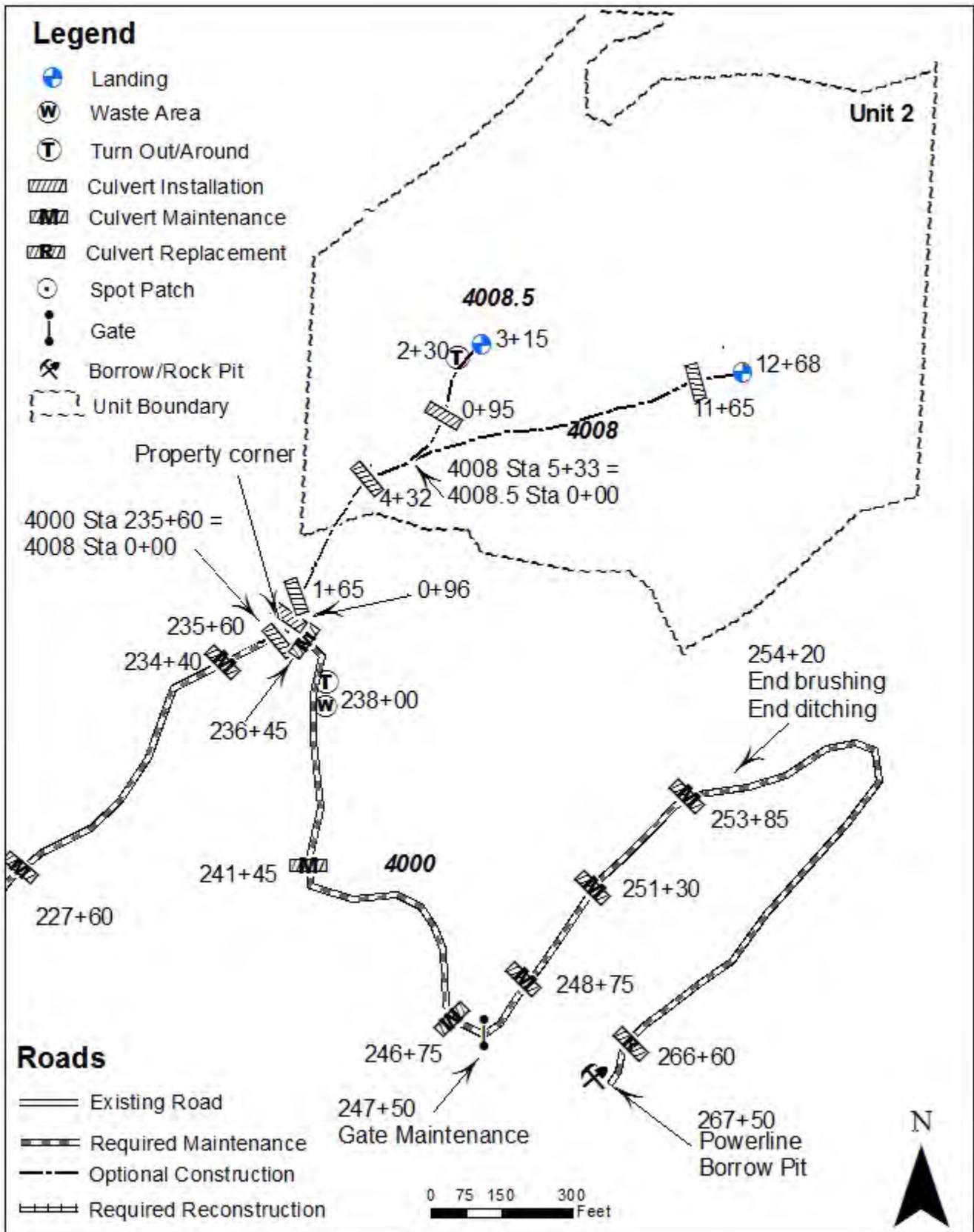












SECTION 0 – SCOPE OF PROJECT

**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>
4000	0+00 to 267+50	Maintenance
4003	0+00 to 11+89	Reconstruction
FS-25	0+00 to 95+04	Maintenance
4008	0+00 to 12+68	Abandonment
4008.5	0+00 to 3+15	Abandonment

**0-3 OPTIONAL ROADS**

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
4003.5	0+00 to 27+43	Construction
4008	0+00 to 12+68	Construction
4008.5	0+00 to 3+15	Construction

**0-4 CONSTRUCTION**

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
4003.5	0+00 to 27+43	Construction according to the specifications in the TYPICAL SECTION SHEET, COMPACTION SHEET, ROCK LIST and CULVERT LIST; Post haul maintenance according to Clause 9-5
4008	0+00 to 12+68	
4008.5	0+00 to 3+15	

**0-5 RECONSTRUCTION**

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
4003	0+00 to 11+89	Reconstruction according to the specifications in the TYPICAL SECTION SHEET, COMPACTION SHEET, ROCK LIST and CULVERT LIST; Post haul maintenance according to Clause 9-5

**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>
4000	0+00 to 267+50	Brushing specified in Clause 3-1, grading, compacting and work specified in TYPICAL SECTION SHEET, COMPACTION SHEET, CULVERT LIST and ROCK LIST, Post haul maintenance according to Clause 9-5
FS-25	0+00 to 95+04	Brushing specified in Clause 3-1.

**0-7 POST-HAUL MAINTENANCE**

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

**0-10 ABANDONMENT**

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

**0-12 DEVELOP ROCK SOURCE**

Purchaser may develop an existing rock source. Rock source development will involve the following requirements in the Rock Source Development Plan. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

**0-14 PIT DEVELOPMENT**

If purchaser elects to use rock from a commercial source and not use rock from a State source, then pit development is not required.

**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 non-compliance or the Purchaser's choice of construction techniques will be at the Purchaser's expense.

**1-3 ROAD DIMENSIONS**

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

**1-4 ROAD TOLERANCES**

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

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

**1-5 DESIGN DATA**

Design data is available upon request at the Department of Natural Resources, Straits District Office in Port Angeles, WA.

**1-6 ORDER OF PRECEDENCE**

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

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

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

**1-7 TEMPORARY ROAD CLOSURE**

Purchaser shall notify the Contract Administrator a minimum of 7 calendar days before the closure of any road. Construction may not close any road for more than 1 calendar days.

**1-8 REPAIR OR REPLACEMENT OF DAMAGED MATERIALS**

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

**1-9 DAMAGED METALLIC COATING**

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

**1-10 WSDOT STANDARD SPECIFICATION REFERENCE**

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

**1-15 ROAD MARKING**

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

- Construction, Reconstruction, and Pre-haul Maintenance will be marked with orange ribbon or paint and wooden stakes for road centerline or aluminum RP tags for road centerline.

**1-16 CONSTRUCTION STAKES SET BY STATE**

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

<u>Road</u>	<u>Stations</u>	<u>Type</u>
4003.5	0+00 to 27+43	RPs
4008	0+00 to 4+00	RPs

**1-18 REFERENCE POINT DAMAGE**

Purchaser shall reset 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.

**1-20 COMPLETE BY DATE**

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

**1-21 HAUL APPROVAL**

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

**1-22 WORK NOTIFICATIONS**

Purchaser shall notify the Contract Administrator a minimum of 7 calendar days before work begins on any road.

**1-23 ROAD WORK PHASE APPROVAL**

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

- Drainage installation
- Subgrade compaction and crowning
- Ballast application and compaction
- Surfacing application and compaction
- Final haul approval

**1-25 ACTIVITY TIMING RESTRICTION**

The operation of road construction equipment is not allowed on weekends or state recognized holidays, unless authorized in writing by the Contract Administrator.

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

<u>Road</u>	<u>Stations</u>	<u>Activity</u>	<u>Closure Period</u>
All	All	All	Nov. 1 to April 30, weekends, and state recognized holidays
Unit 2 roads	All	Construction, reconstruction, maintenance, and rock haul	8:00 pm to 6:00 am

**1-26 OPERATING DURING CLOSURE PERIOD**

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION, the Purchaser shall provide a maintenance plan to include further protection of State resources. 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-060.1 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-220.1 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 ballast only roads.
- Wheel track rutting exceeds 4 inches on crushed rock roads.
- Surface or base stability problems persist.
- Weather is such that satisfactory results cannot be obtained in an area of operations.
- In the opinion of the Contract Administrator excessive road damage or rutting may occur.

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

**1-32 BRIDGE SURFACE RESTRICTION**

The use of metal tracked equipment is not allowed on the bridge at any time. If Purchaser must run equipment on the bridge, 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 operations. Purchaser shall remove any dirt, rock, or other material tracked or spilled on the bridge or asphalt surface(s) and have surface(s) evaluated for any damage caused by transporting equipment. Any damage to the surface(s) will be repaired, at the Purchaser’s expense, as directed by the Contract Administrator. All damage to the bridge from transporting equipment will be repaired at the Purchaser’s expense.

**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.

**1-42 UTILITY ACCESS ROAD**

The following road(s) intersect(s) existing utility access roads. Purchaser shall conduct road work on the intersecting roads so that the utility access roads are accessible at all times.

<u>Road</u>	<u>Stations</u>
4000	0+00 to 144+00

**1-43 ROAD WORK AROUND UTILITIES**

Road work is in close proximity to a utility. Known utilities are listed, but it is the Purchaser’s responsibility to identify any utilities not listed. Purchaser shall work in accordance with all applicable laws or rules concerning utilities. Purchaser is responsible for all notification, including “call before you dig”, and liabilities associated with the utilities and their rights-of-way.

<u>Road</u>	<u>Stations</u>	<u>Utility</u>	<u>Utility Contact</u>
4000	0+00 to 144+00	Elevated utilities	BPA – Lee Webb:360-791-3838

**SECTION 2 – MAINTENANCE**

**2-1 GENERAL ROAD MAINTENANCE**

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

**2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE**

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

**2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER**

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

**2-4 PASSAGE OF LIGHT VEHICLES**

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

<u>Road</u>	<u>Stations</u>
4000	All
4003	All

**2-5 MAINTENANCE GRADING – EXISTING ROAD**

On all roads designated for maintenance, a grader shall be used to shape the existing surface before the application of rock or hauling.

**2-6 CLEANING CULVERTS**

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

<u>Road</u>	<u>Stations</u>
4000	0+00 to 267+50
4003	0+00 to 11+89

**2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS**

Purchaser shall clean the ditchline, culvert headwalls, catch basins and sediment traps listed for such work in the CULVERT LIST. Work shall be completed before timber haul and shall be done in accordance with the TYPICAL SECTION SHEET and the SEDIMENT TRAP DETAIL. Pulling ditch material across the road or mixing in the road surface will not be allowed.

<u>Road</u>	<u>Stations</u>	<u>Left or Right</u>
4000	182+80	Both

**SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL**

**3-1 BRUSHING**

On the following roads, Purchaser shall cut vegetative material up to 2 inches in diameter, including limbs, as shown on the BRUSHING DETAIL. Brushing must be achieved by manual or mechanical cutting

of brush, trees, and branches. Root systems and stumps of cut vegetation may not be disturbed unless directed by the Contract Administrator. Purchaser shall remove brushing debris from the road surface, ditch lines, and culvert inlets and outlets.

<u>Road</u>	<u>Stations</u>
4000	0+00 to 267+50
4003	0+00 to 6+85
FS-25	0+00 to 95+04

**3-2 BRUSHING RESTRICTION**

Pulling, digging, pushing over, and other non-cutting methods used for vegetation removal may not be used for brushing. Purchaser shall submit a detailed list of equipment and methods to be used during brushing, for approval by the Contract Administrator before starting work.

**3-5 CLEARING**

Purchaser shall fall all vegetative material larger than 2 inches DBH or over 4 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 55%.
- 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. Grubbing must be completed before starting excavation and embankment. Purchaser shall also remove stumps with undercut roots outside the grubbing limits.

**3-12 STUMP PLACEMENT**

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

**3-14 STUMPS WITHIN DESIGNATED WASTE AREAS**

In the following waste area(s), Purchaser is not required to remove stumps within waste areas if they are cut flush with the ground.

Road	Waste Area
4003	11+89
4000	211+00
4000	238+00

**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 and within the clearing and brushing limits shown on the TYPICAL SECTION SHEET and the BRUSHING SECTION DETAIL.

**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 the application of rock

**3-23 PROHIBITED DISPOSAL AREAS**

Purchaser shall not place organic debris in the following areas:

- Within 50 feet of a cross drain culvert
- Within 100 feet of a live stream, or wetland
- On road subgrades, or excavation and embankment slopes
- On slopes greater than 45%
- Within the operational area for cable landings where debris may shift or roll
- On locations where brush can fall into the ditch or onto the road surface
- Against standing timber

**3-24 BURYING ORGANIC DEBRIS RESTRICTED**

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

**3-25 SCATTERING ORGANIC DEBRIS**

Purchaser shall scatter organic debris in natural openings outside of the clearing and brushing limits unless otherwise detailed in this road plan or as directed by the Contract Administrator. Where natural openings are unavailable or restrictive, alternative debris disposal methods shall be subject to the written approval of the Contract Administrator.

**3-30 EXCLUSION OF DOZER BLADES**

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

**3-32 END HAULING ORGANIC DEBRIS**

On slopes greater than 45%, Purchaser shall end haul or push organic debris to a waste area located by the Contract Administrator.

## SECTION 4 – EXCAVATION

### 4-1 EXCAVATOR CONSTRUCTION

Purchaser shall use a track mounted hydraulic excavator for construction work.

### 4-2 PIONEERING

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

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

### 4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Purchaser shall follow these standards for road grade and alignment:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 12 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 5% in 75 feet.
- Maximum grade change for crest vertical curves is 5% in 100 feet.

\*Unless otherwise controlled by design or RPs.

### 4-4 SWITCHBACK STANDARDS

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

- Maximum adverse grades for switchbacks is 10%
- Maximum favorable grades for switchbacks is 13%.
- Maximum transition grades entering and leaving switchbacks is a 5% grade change.
- Transition grades required to meet switchback grade limitations must be constructed on the tangents preceding and departing from the switchbacks.

### 4-5 CUT SLOPE RATIO

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

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

**4-6 EMBANKMENT SLOPE RATIO**

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

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

**4-7 SHAPING CUT AND FILL SLOPE**

Purchaser shall construct excavation and embankment slopes to a uniform plane 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 4 to 6 feet.
- 4 feet for embankment heights at centerline of greater than 6 feet.

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

**4-12 FULL BENCH CONSTRUCTION**

On the following roads and where side slopes exceed 55%, Purchaser shall use full bench construction for the entire subgrade width except as construction staked or designed. Purchaser shall end haul waste material to the locations specified in Clause 4-37 WASTE AREA LOCATION.

<u>Road</u>	<u>Full Bench Location</u>
4003.5	Sta 6+80 to 7+20
	Sta 14+80 to 15+00
	Sta 22+60 to 23+00
4008	Sta 2+10 to 3+40

**4-13 DAYLIGHT EXCAVATION ON EXISTING ROADS**

Where directed by the Contract Administrator, Purchaser shall excavate the outside shoulder to daylight.

**4-21 TURNOUTS**

Turnouts shall be constructed as designated on the ROCK LIST. Locations shall be adjusted to fit the final subgrade alignment and sight distances. Turnout locations shall be subject to written approval by the Contract Administrator. Minimum dimensions are shown on the TYPICAL SECTION SHEET.

**4-22 TURNAROUNDS**

Turnarounds shall be constructed as designated on the ROCK LIST. Turnarounds shall be no larger than 30 feet long and 30 feet wide. Locations shall be 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. Ditches must be constructed concurrently with construction of the subgrade.

**4-27 DITCH WORK – MATERIAL USE PROHIBITED**

Pulling ditch material across the road or mixing in with the road surface will not be allowed. Excavated material shall be disposed of as specified in Clause 4-36 DISPOSAL OF WASTE MATERIAL.

**4-28 DITCH DRAINAGE**

Ditches must drain to cross-drain culverts or ditchouts.

**4-29 DITCHOUTS**

Purchaser shall construct ditchouts as directed and as needed 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 embankment sites and waste areas identified in Clause 4-37 WASTE AREA LOCATION.

**4-37 WASTE AREA LOCATION**

Purchaser shall deposit waste material in the listed designated areas and areas identified or approved by the Contract Administrator. Additional waste areas may also be identified or approved by the Contract Administrator.

<u>Road</u>	<u>Station</u>	<u>Volume (approx.) Estimated Bank yd<sup>3</sup></u>
4000	211+00	3000 yd <sup>3</sup>
4000	238+00	1200 yd <sup>3</sup>
4003	11+89	1500 yd <sup>3</sup>

**4-38 PROHIBITED WASTE DISPOSAL AREAS**

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

- Within 50 feet of a cross drain culvert
- Within 100 feet of a live stream or wetland
- Within a riparian management zone
- On side slopes steeper than 45%
- In locations that interfere with the construction of the road prism
- In locations that impede drainage
- Within the operational area for cable landings
- Against standing timber

**4-46 COMMON BORROW**

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

**4-48 BORROW MATERIAL**

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

**4-49 BORROW SOURCE**

Purchaser shall obtain borrow material from borrow sources identified or approved by the Contract Administrator.

**4-50 BORROW APPLICATION**

Purchaser shall apply borrow in accordance with quantities shown on the ROCK LIST and CULVERT LIST. Borrow must be spread, shaped, and compacted full width concurrent with hauling operations.

<u>Road</u>	<u>Stations</u>	<u>Location</u>
4000	267+50	Powerline Borrow Pit

**4-55 ROAD SHAPING**

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

**4-56 DRY WEATHER SHAPING**

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

**4-60 FILL COMPACTION**

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

too narrow to accommodate equipment. Waste material may be placed by end-dumping or sidecasting until sufficiently wide enough to support the equipment.

**4-61 SUBGRADE COMPACTION**

Purchaser shall compact constructed and reconstructed subgrades deeper than 5 feet at the road shoulder in accordance with the COMPACTION LIST by routing equipment over the entire width. Purchaser shall obtain written approval from the Contract Administrator for subgrade compaction before beginning rock application.

**4-62 DRY WEATHER COMPACTION**

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

**4-63 EXISTING SURFACE COMPACTION**

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

SECTION 5 – DRAINAGE

**5-1 REMOVAL OF SHOULDER BERMS**

Purchaser shall maintain roads free of berms and remove existing 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 LIST. Culvert 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 specifications in Section 10.

**5-7 TEMPORARY STREAM CULVERT INSTALLATION**

Purchaser shall install temporary culverts as shown in the 4008 Design Specifications. Temporary stream culverts must be located in the natural channel of the stream. Temporary culverts must be removed as directed by the Contract Administrator.

<u>Road</u>	<u>Stations</u>
4008	0+96

**5-11 UNUSED MATERIALS STATE PROPERTY**

On required roads, any materials listed on the CULVERT LIST or ROCK LIST that are not installed will become the property of the State. Purchaser shall stockpile materials at the Work Center.

**5-15 CULVERT INSTALLATION**

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

**5-16 APPROVAL FOR LARGER CULVERT INSTALLATION**

Purchaser shall obtain written approval from the Contract Administrator before backfilling culverts equal to or greater than 24 inches in diameter.

**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 no 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 specified in the Engineer’s design, or to the minimum depth recommended by the culvert manufacturer for the type of cover material over the pipe, whichever is greater.

**5-20 ENERGY DISSIPATERS**

Purchaser shall install energy dissipaters in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all culverts listed in the CULVERT LIST that specify the placement of rip rap.

**5-26 HEADWALLS FOR CROSS DRAIN CULVERTS**

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all culverts listed in the CULVERT LIST that specify the placement of rip rap. 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.

**5-27 ARMORING FOR CULVERTS**

At the following culverts, Purchaser shall place rip rap immediately following construction of the embankment. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the CULVERT LIST.

<u>Road</u>	<u>Stations</u>
4000	266+60
4003.5	1+45
	4+71
	5+08
	6+38
	14+29
	17+43
	18+08

	24+30
4008	0+96

**5-31 DRIVABLE DIP CONSTRUCTION**

Purchaser shall construct drivable dips in accordance with the DRIVABLE DIP DETAIL and as specified on the CULVERT LIST. Drivable dips must be installed concurrently with construction of the subgrade and must be maintained in an operable condition.

**SECTION 6 – ROCK AND SURFACING**

**6-5 ROCK FROM COMMERCIAL SOURCE**

Rock used in accordance with the quantities in the ROCK LIST may be obtained from any commercial source, including the following commercial sources at the Purchaser’s expense. Rock sources are subject to written approval by the Contract Administrator before their use. Purchaser shall submit a sieve analysis for the rock to be used to the Contract Administrator before the application of rock.

<u>Source</u>	<u>Location</u>
Penny Creek Quarry	450 Penny Creek Road, Quilcene, WA 98376

**6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE**

Purchaser may conduct rock source development 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 7 calendar days before starting any operations in the rock source.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
Vantage Pit	T24N, R03W, Sec 1	6” Jaw, 3”-0

**6-20 ROCK GRADATION TYPES**

Purchaser shall provide 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.

**6-22 FRACTURE REQUIREMENT FOR ROCK**

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

**6-23 ROCK CRUSHING OPERATIONS**

Rock crushing operations must conform to the following specifications:

- Purchaser required to produce sieve analysis for crushing operations every 750 yards for each rock gradation type.
- Purchaser may use a commercial testing lab to produce sieve analyses.



**6-33 3-INCH MINUS CRUSHED ROCK**

% Passing 3" square sieve	100%
% Passing 1½" square sieve	55 - 75%
% Passing U.S. #4 sieve	15 - 45%

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

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

**6-39 6-INCH JAW RUN ROCK**

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

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

**6-50 LIGHT LOOSE RIP RAP**

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

<u>At Least/Not More Than</u>	<u>Weight Range</u>	<u>Size Range</u>
20% / 90%	300 lbs. to 1 ton	20" - 36"
15% / 80%-	50 lbs. to ½ ton	12" - 30"
10% / 20%	50 lbs. max	3" - 8"

**6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH**

Measurement of specified rock depths, are defined as the compacted depth(s) using the compaction methods required in this road plan. Estimated quantities specified in the ROCK LIST are loose yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction.

**6-71 ROCK APPLICATION**

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

**6-73 ROCK FOR WIDENED PORTIONS**

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

SECTION 7 – STRUCTURES

**7-6 STREAM CROSSING INSTALLATION**

Purchaser shall install stream crossing structures in accordance with the manufacturer's requirements, and the 4003.5 Design Specifications and 4008 Design Specifications.

**7-55 LARGE CULVERT INSTALLATION**

On the following road(s), Purchaser shall provide and install large culverts. The installation of the culvert shall follow the 4003.5 Design Specifications, 4008 Design Specifications, design details listed below and any requirements of an associated FPHP.

<u>Road</u>	<u>4003.5</u>	<u>4003.5</u>	<u>4003.5</u>
<u>Station</u>	1+45	4+71	5+08
<u>Stream Type</u>	4	5	4
<u>Material and Coating Type</u>	Plastic or Steel	Plastic or Steel	Plastic or Steel
<u>Diameter (in)</u>	24	24	36
<u>Length (ft.)</u>	50	40	35
<u>Gauge</u>	14	14	14

<u>Road</u>	<u>4003.5</u>	<u>4003.5</u>	<u>4003.5</u>
<u>Station</u>	6+38	14+29	17+43
<u>Stream Type</u>	4	4	5
<u>Material and Coating Type</u>	Steel	Steel	Plastic or Steel
<u>Diameter (in)</u>	48	48	24
<u>Length (ft.)</u>	45	45	30
<u>Gauge</u>	14	14	14

<u>Road</u>	<u>4003.5</u>	<u>4003.5</u>	<u>4008</u>
<u>Station</u>	18+08	24+30	0+96
<u>Stream Type</u>	5	5	4
<u>Material and Coating Type</u>	Plastic or Steel	Plastic or Steel	Steel
<u>Diameter (in)</u>	36	24	48
<u>Length (ft.)</u>	40	40	48
<u>Gauge</u>	14	14	14

\* See Clause 10-15 CORRUGATED STEEL CULVERT and 10-17 CORRUGATED PLASTIC CULVERT for culvert specifications

**7-56 STEEL PIPE, PIPE ARCH, AND STRUCTURAL PLATE INSTALLATION**

Purchaser shall install steel pipe, pipe arches, and structural plate culverts in accordance with the National Corrugated Steel Pipe Association "Installation Manual for Corrugated Steel Pipe, Pipe Arches, and Structural Plate." Installation is subject to the inspection and approval of the Contract Administrator before placement and backfill. The latest edition of the NCSA Installation Manual can be found at [www.ncspa.org](http://www.ncspa.org).

**7-57 CULVERT SHAPE CONTROL**

Purchaser shall monitor the culvert shape during backfill and compaction. Special attention must be paid to maintaining the structure’s rise dimensions, concentricity, and smooth uniform curvature. If compaction methods are resulting in peaking or deflection of the culvert, Purchaser shall modify the compaction method to achieve the appropriate end result.

**7-70 GATE CLOSURE**

On the following roads, Purchaser shall keep gates closed and locked except during periods of haul. All gates that remain open during haul must be locked or securely fastened in the open position. All gates must be closed at termination of use.

<u>Road</u>	<u>Station</u>	<u>Comment</u>
4000	2+50	AA-1 Lock

**7-75 GATE MAINTENANCE**

Purchaser shall conduct gate maintenance on the gates listed below. Gate maintenance shall include cutting off the cross arm and replacing the bent portion, ensuring the tang fits in the bell housing properly, lubrication, removal of loose paint, rust and vegetative growth on the gate and application of yellow paint.

<u>Road</u>	<u>Station</u>	<u>Requirements</u>
4000	2+50	Lubricate
	247+50	Replace last four feet of gate arm, lubricate, brush clean, sand, and paint yellow in accordance with the Gate Detail Sheet. Install a “do not block gate” sign on the arm with reflective tape.

**SECTION 8 – EROSION CONTROL**

**8-1 SEDIMENT CONTROL STRUCTURES**

Purchaser shall install sediment traps in accordance with the SEDIMENT TRAP DETAIL.

**8-2 PROTECTION FOR EXPOSED SOIL**

Purchaser shall provide and evenly spread a 4-inch layer of straw to all exposed soils within 100 feet of a stream or wetland. Soils shall be covered before the first anticipated storm event.

**8-15 REVEGETATION**

On the following road(s), Purchaser shall spread grass seed on all exposed soils resulting from road work activities. Cover all exposed soils by hand. 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>	<u>Comments</u>
4000	0+00 to 267+50	10	Grass Seed	Seed all exposed soil
4003	0+00 to 11+89	60	Grass Seed	Seed all exposed soil
4003.5	0+00 to 27+43	139	Grass Seed	Seed all exposed soil
4008	0+00 to 12+68	64	Grass Seed	Seed all exposed soil
4008.5	0+00 to 3+15	16	Grass Seed	Seed all exposed soil

\*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.

**8-17 REVEGETATION TIMING**

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

**8-19 ASSURANCE FOR SEEDED AREA**

Purchaser shall ensure the growth of a uniform and dense crop at least 50% coverage of 3-inch tall grass. Purchaser shall reapply the grass seed in areas that have failed to germinate or have been damaged through any cause. Restore eroded or disturbed areas, clean up and properly dispose of eroded materials, and reapply the grass seed at no addition cost to the state.

**8-25 GRASS SEED**

Purchaser shall evenly spread the seed mixture listed below on all exposed soil inside the grubbing limits at a rate of 40 pounds per acre of exposed soil. Grass seed must meet the following specifications:

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

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

**SECTION 9 POST HAUL MAINTENANCE**

**9-1 EARTHEN BARRICADES**

Purchaser shall construct barricades in accordance with the EARTHEN BARRICADE DETAIL.

<u>Road</u>	<u>Stations</u>
4008	0+15

**9-2 CULVERT REMOVAL FROM LIVE STREAM**

On the following road, Purchaser shall remove existing culverts from live streams and leave the resulting channel open with excavation slope and excavated channel width as specified. Place excavated material at station 0+15 to be used in the construction of the Earthen Barricade.

<u>Road</u>	<u>Stations</u>	<u>Excavated Channel Width</u>	<u>Slope Ratio</u>	<u>Comments</u>
4008	0+96	10	1 ½:1	Excavate slope to match natural channel slope

**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.

<u>Road</u>	<u>Stations</u>
4000	0+00 to 267+50
4003	0+00 to 6+85
FS-25	0+00 to 95+04
4003.5	0+00 to 27+43

**9-10 LANDING DRAINAGE**

Purchaser shall provide for drainage of the landing surface.

**9-21 ROAD ABANDONMENT**

Purchaser shall abandon the following roads before the termination of this contract in accordance with Clause 9-22 Light Abandonment.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
4008	All	Light Abandonment
4008.5	All	Light Abandonment

**9-22 LIGHT ABANDONMENT**

- Remove road shoulder berms except as directed
- Construct non-drivable waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL adjacent to cross drain culverts on the uphill side without removing or damaging the culvert and at a maximum spacing that will produce a vertical drop of no more than 10 feet between waterbars or between natural drainage paths and with a maximum spacing of 100 feet. The bottom of the waterbar should tie in with the bottom of the ditchline.
- Cover, concurrently with abandonment, all exposed soils within 100 feet of any live stream, with a 8-inch deep layer of straw.
- Remove the stream pipe at 0+96 and the cross drain at 1+65 on the 4008 as per Cross Drain Removal Detail Sheet.
- Block roads with earthen barricades in accordance with the attached BARRICADE DETAIL.

SECTION 10 MATERIALS

**10-15 CORRUGATED STEEL CULVERT**

Metallic coated steel culverts must meet AASHTO M-36 (ASTM A-760) specifications. Culverts must be galvanized (zinc coated meeting AASHTO M-218) except culverts over 24 inches must be aluminized (aluminum type 2 coated meeting AASHTO M-274 or aluminized (aluminum type 2 coated meeting AASHTO M-274).

**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.

**10-20 FLUME AND DOWNSPOUT**

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

**10-21 METAL BAND**

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

**10-22 PLASTIC BAND**

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

**10-23 RUBBER CULVERT GASKETS**

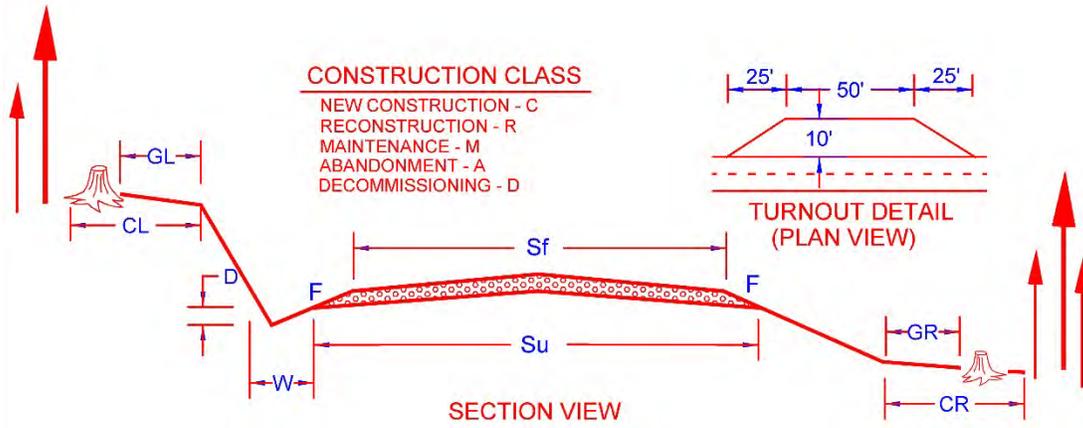
Rubber gaskets must be continuous closed cell, synthetic expanded rubber gaskets conforming to the requirements of ASTM D 1056. Rubber gaskets must be used with all corrugated metal pipe coupling bands.

**10-24 GAGE AND CORRUGATION**

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

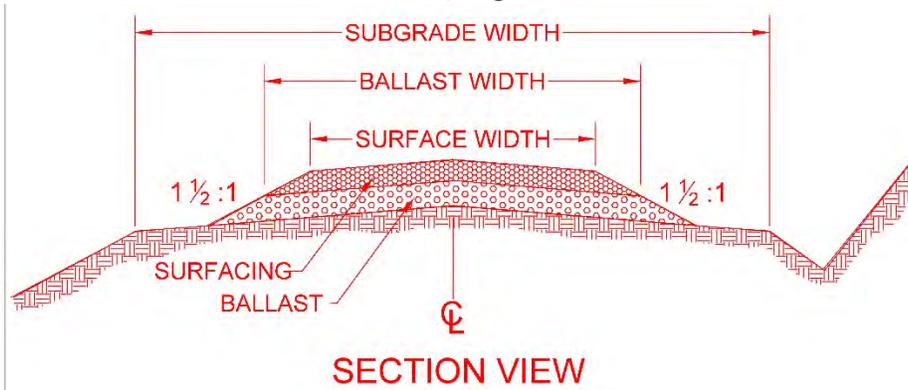
<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>
18"	16 (0.064")	2 2/3" X 1/2"
24" to 48"	14 (0.079")	2 2/3" X 1/2"

**TYPICAL SECTION SHEET**



ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS	TOLERANCE CLASS	SUBGRADE WIDTH (Su,ft)	SURFACE WIDTH (Sf,ft)	CROWN AT CL (in)	BALLAST AND SURFACE FILL SLOPE(F, H:V)	DITCH WIDTH (W,ft)	DITCH DEPTH (D,ft)	GRUBBING LEFT (GL,ft)	GRUBBING RIGHT (GR,ft)	CLEARING LEFT (CL,ft)	CLEARING RIGHT (CR,ft)
4000	0+00	267+50	M	C	16	12	3	1.5:1	3	1	3	3	5	5
4003	0+00	11+89	R	C	16	12	3	1.5:1	3	1	3	3	5	5
4003.5	0+00	27+43	C	C	16	12	3	1.5:1	3	1	3	3	5	5
4008	0+00	12+68	C	C	16	12	3	1.5:1	3	1	3	3	5	5
4008.5	0+00	3+15	C	C	16	12	3	1.5:1	3	1	3	3	5	5
<sup>1</sup> Subgrade width varies for curve and fill widening see Clauses 4-8 and 4-9														

ROCK LIST, Page 1 of 1



1. Rock quantities, subtotals and totals are “truck measure” estimates. Rock shall be applied to at least the depth listed. All depths are compacted depths.
2. All rock sources are subject to written approval by the contract administrator  
 A= Vantage Pit(6"0 Jaw, 3"-0), B = Approved commercial source, C = Approved borrow source

ROAD NAME	WORK	START STATION	END STATION	BALLAST SOURCE	BALLAST TYPE	BALLAST WIDTH (ft)	BALLAST DEPTH (in)	BALLAST UNIT VOL (cu.yd./sta)	BALLAST SUBTOTAL (cu.yd)	SURFACE SOURCE	SURFACE TYPE	SURFACE WIDTH (ft)	SURFACE DEPTH (in)	SURFACE UNIT VOLUME (cu.yd./sta)	SURFACE SUBTOTAL (cu.yd)
4000	Maintenance rock	0+00	39+55							A, B	3'-0				300
		100+95								B	3'-0				10
		108+95									B	3'-0			10
	Spot patch	112+00									B	3'-0			10
		113+50									B	3'-0			10
		123+90									B	3'-0			20
		130+20									B	3'-0			10
4003	Lift	0+00	9+38							A, B	3'-0	12	6	33	310
4003.5	Lift	0+00	27+43	A, B	6" Jaw	12	12	70	1920						
		0+00	18+66							A, B	3'-0	12	6	33	620
	Turn out left	9+16		A, B	6" Jaw				50						
	Landing	20+54		A, B	6" Jaw				50						
	Landing	25+60		A, B	6" Jaw				50						
	Landing	27+43		A, B	6" Jaw				50						
4008	Lift	0+00	4+32	A, B	6" Jaw	12	18	110	470						
	Lift	4+32	12+68	A, B	6" Jaw	12	12	70	590						
	Landing	12+68		A, B	6" Jaw				50						
4008.5	Lift	0+00	3+15	A, B	6" Jaw	12	12	70	220						
		3+15		A, B	6" Jaw				50						
<b>Totals</b>		(cy)						<b>Ballast</b>	<b>3500</b>					<b>Surfacing</b>	<b>1300</b>

**CULVERT LIST, Page 1 of 2**

1. All rock sources are subject to written approval by the contract administrator
2. A= Vantage Pit(6"0 Jaw, 3"-0), B = Approved commercial source, C = Approved borrow source

ROAD NAME	NOTES	BEGIN STATION	END STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)	LL RIP RAP - INLET (cy)	LL RIP RAP - OUTLET (cy)	LL RIP RAP SOURCE	BACKFILL VOLUME(cy)	BACKFILL MATERIAL	BACKFILL SOURCE	SURFACE VOLUME(cy)	SURFACE MATERIAL	SURFACE SOURCE
4000	Clean inlet/outlet	144+00													
	Clean inlet/outlet	150+80													
	Clean inlet/outlet	156+60													
	Clean inlet/outlet	163+50													
	Clean inlet/outlet	169+00													
	Clean inlet/outlet	171+40													
	Install culvert	173+50		18	40					20	3" minus	C			
	Clean inlet/outlet	176+10													
	Clean inlet/outlet	182+80													
	Ditch cleaning, left and right	182+80													
	Clean inlet/outlet	186+80													
	Clean inlet/outlet	191+00													
	Clean inlet/outlet	194+50													
	Clean inlet/outlet	197+00													
	Clean inlet/outlet	202+50													
	Clean inlet/outlet	207+90													
	Clean inlet/outlet	210+30													
	Clean inlet/outlet	215+55													
	Clean inlet/outlet	223+15													
	Clean inlet/outlet	227+60													
	Clean inlet/outlet	234+40													
	Install culvert	235+60			18	30		1	2	A,B	10	3" minus	C		
	Clean inlet/outlet	241+45													
	Clean inlet/outlet	246+75													
	Clean inlet/outlet	248+75													
	Clean inlet/outlet	251+30													
Clean inlet/outlet	253+85														
Replace culvert	266+60			36	36		2	4	A,B	10	3" minus	C			
4003	Install culvert	0+22		18	40		1	2	A,B	10	3" minus	A,B			
	Install culvert	2+31		18	30		1	2	A,B	10	3" minus	A,B			
	Clean inlet/outlet	3+86													
	Clean inlet/outlet	4+67													
	Replace culvert	5+61		18	30		1	2	A,B	10	3" minus	A,B			
	Clean inlet/outlet	6+85													
	Install culvert	10+06		18	30		1	2	A,B	10	3" minus	A,B			
	Construct drivable dip	10+79													



**COMPACTION SHEET**

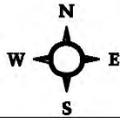
<b>ROAD NAME</b>	<b>START STATION</b>	<b>END STATION</b>	<b>TYPE</b>	<b>MAX DEPTH PER LIFT(in)</b>	<b>EQUIPMENT TYPE**</b>	<b>MIN. EQUIPMENT WEIGHT(lbs)</b>	<b>MIN NUMBER OF PASSES</b>	<b>MAX OPERATING SPEED(mph)</b>
4000	0+00	267+50	All	9	Vibratory smooth drum roller	20000	1	3
4003	0+00	11+89	All	9		20000	3	3
4003.5	0+00	27+43	All	9		20000	3	3
4008	0+00	12+68	All	9		20000	3	3
4008.5	0+00	3+15	All	9		20000	3	3
Waste Areas			All	24	Excavation	Varies	2	-

**VANTAGE PIT DEVELOPMENT PLAN**  
**Sec. 1, T.24N, R.3W, W.M.**

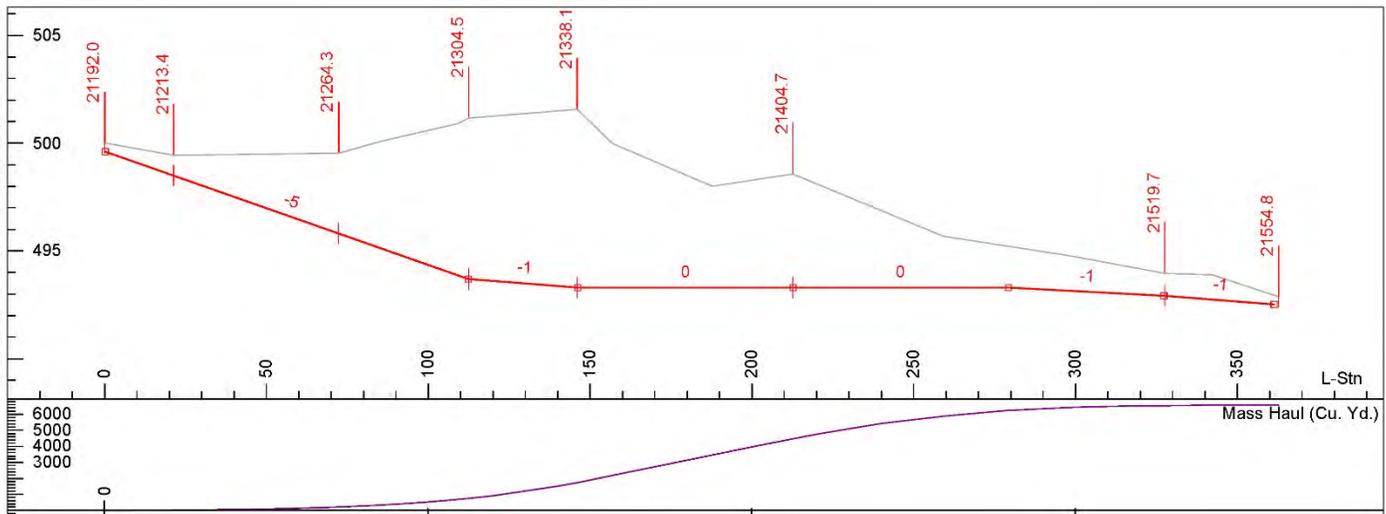
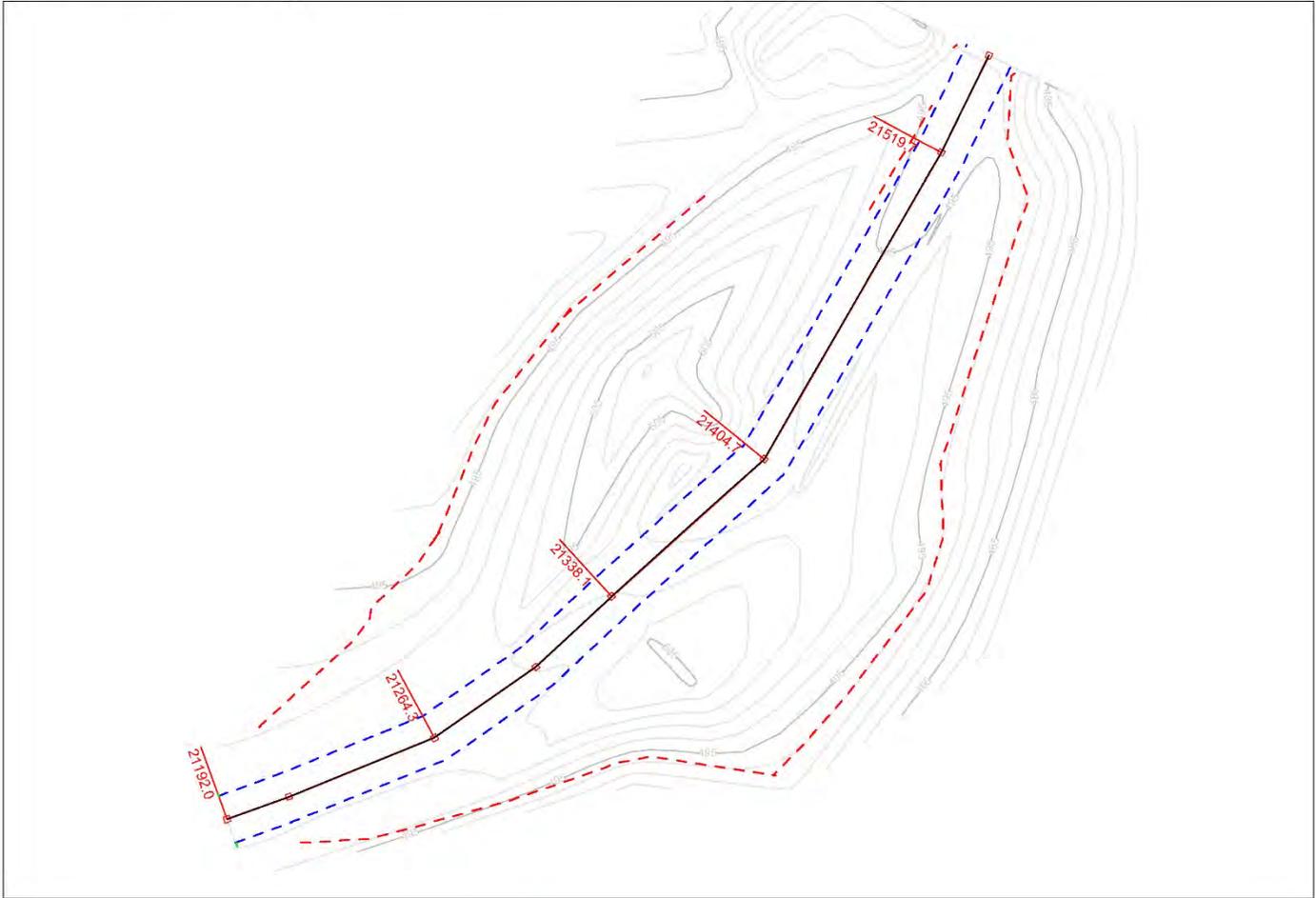
1. Mining shall begin in the development shown on the plan view.
2. All vegetation including stumps shall be cleared a minimum of 20 feet beyond the top of all working faces. Trees shall be cleared to a minimum of  $\frac{3}{4}$  of the height of the tallest tree adjacent to the pit. The Contractor shall maintain a minimum of 10 foot wide stripped area from the pit face at all times.
3. Root wads and organic debris larger than one cubic foot in volume shall be separated from overburden material and piled in an area designated by the Contract Administrator.
4. Pit faces shall not exceed 30 feet in height and shall be sloped no steeper than 1/4:1.
5. Working bench width shall be a minimum of 20 feet.
6. The pit floor shall have continuity of slope be left in a smooth and neat condition, providing drainage to the west 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.
7. 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 in the Rip Rap Area as located on the Pit Plan.
8. At the end of operations, pit faces and walls shall be scaled and cleared of loose and overhanging material, benches shall have safety berms constructed or access blocked to highway vehicles. Upon completion of operations in the pit, the area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life. The contractor shall use Heavy Loose Rip Rap to block the drill trail.
9. All exposed soils shall be grass seeded in accordance with Road Plan clause 8-25.
10. 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.

11. The Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator 10 working days prior to any drilling (Form #M-126PAC).
12. At the completion of rock source operations, Purchaser shall obtain written approval of final rock source condition and compliance with the terms of this plan from the Contractor Administrator.
13. The pit area shall be worked and left in a condition that future operations may proceed in an orderly manner.
14. 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.

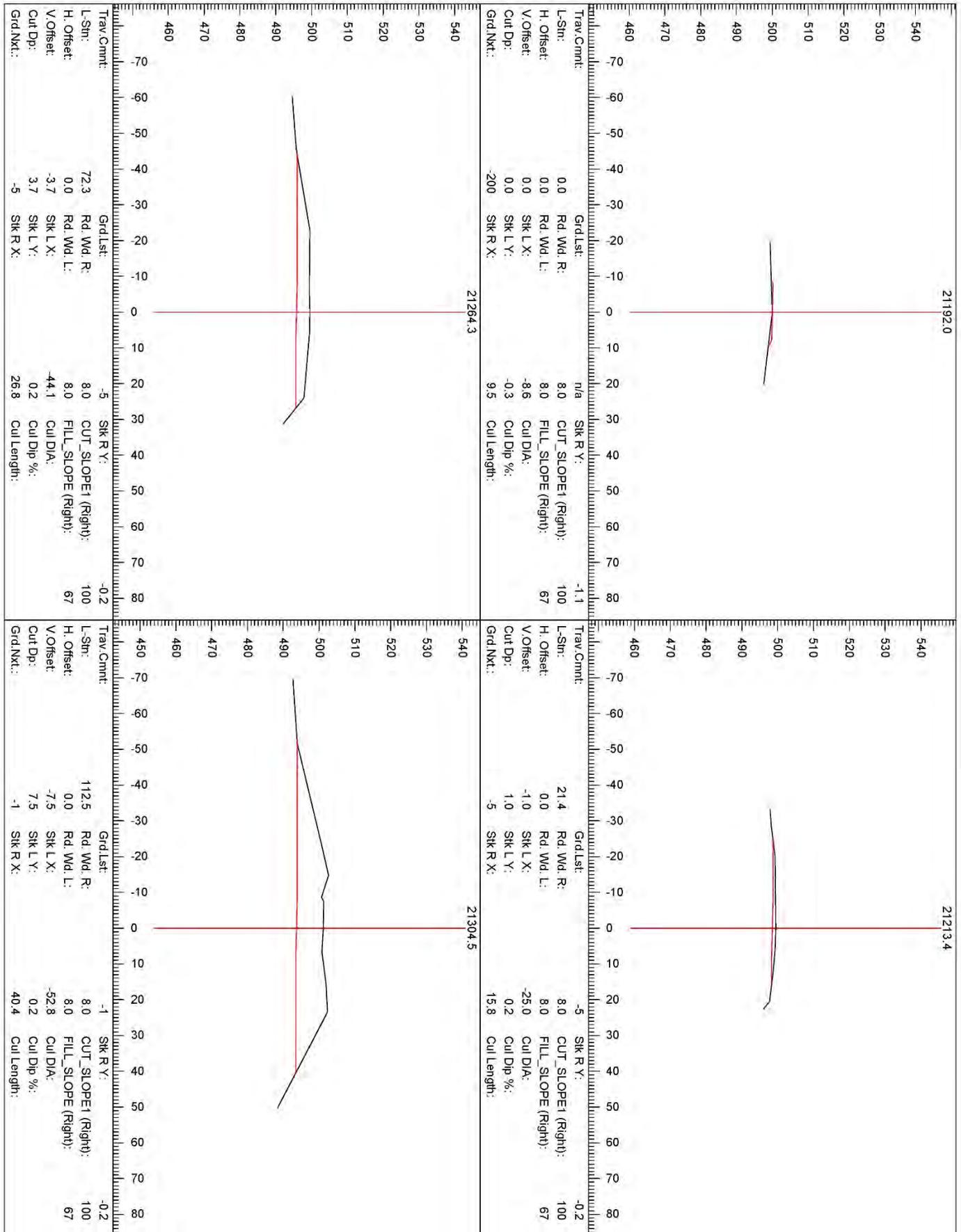
### Vantage Pit Design Specifications



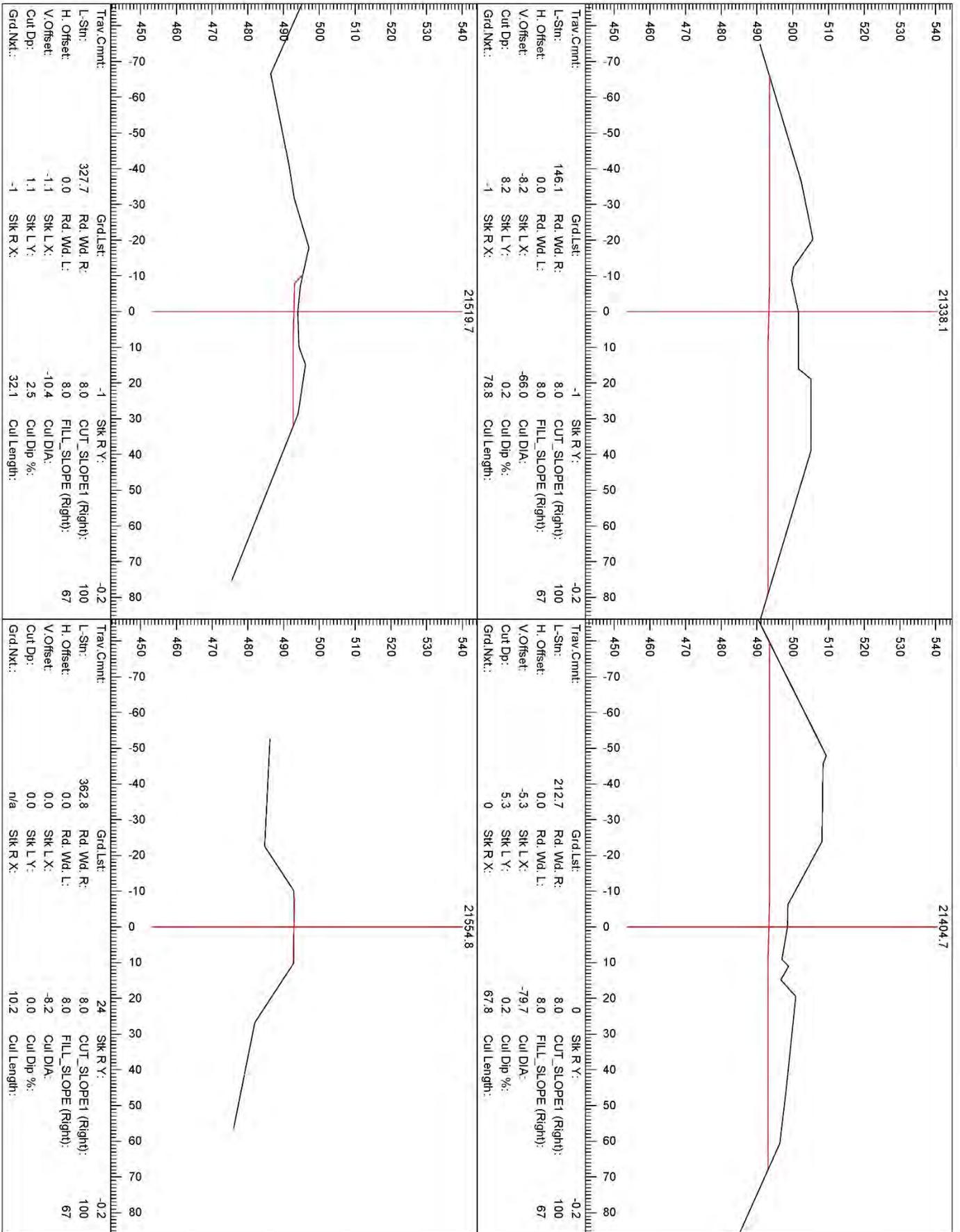
Legend			
	Preliminary(P) line		Toe of fill
	Location(L) line		Top of cut
	Left and right edge subgrade		Cumulative excavation and fill volume



Vantage Pit, Page 3 of 4, T24N, R03W, Sec 1



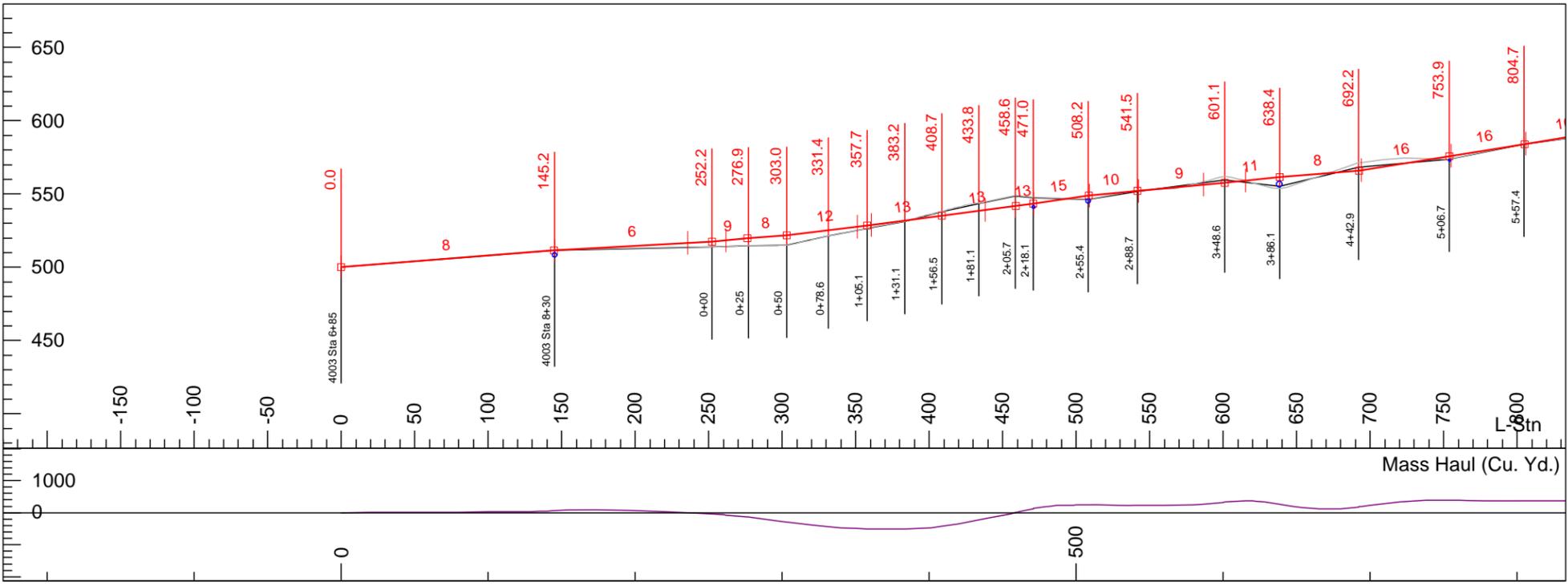
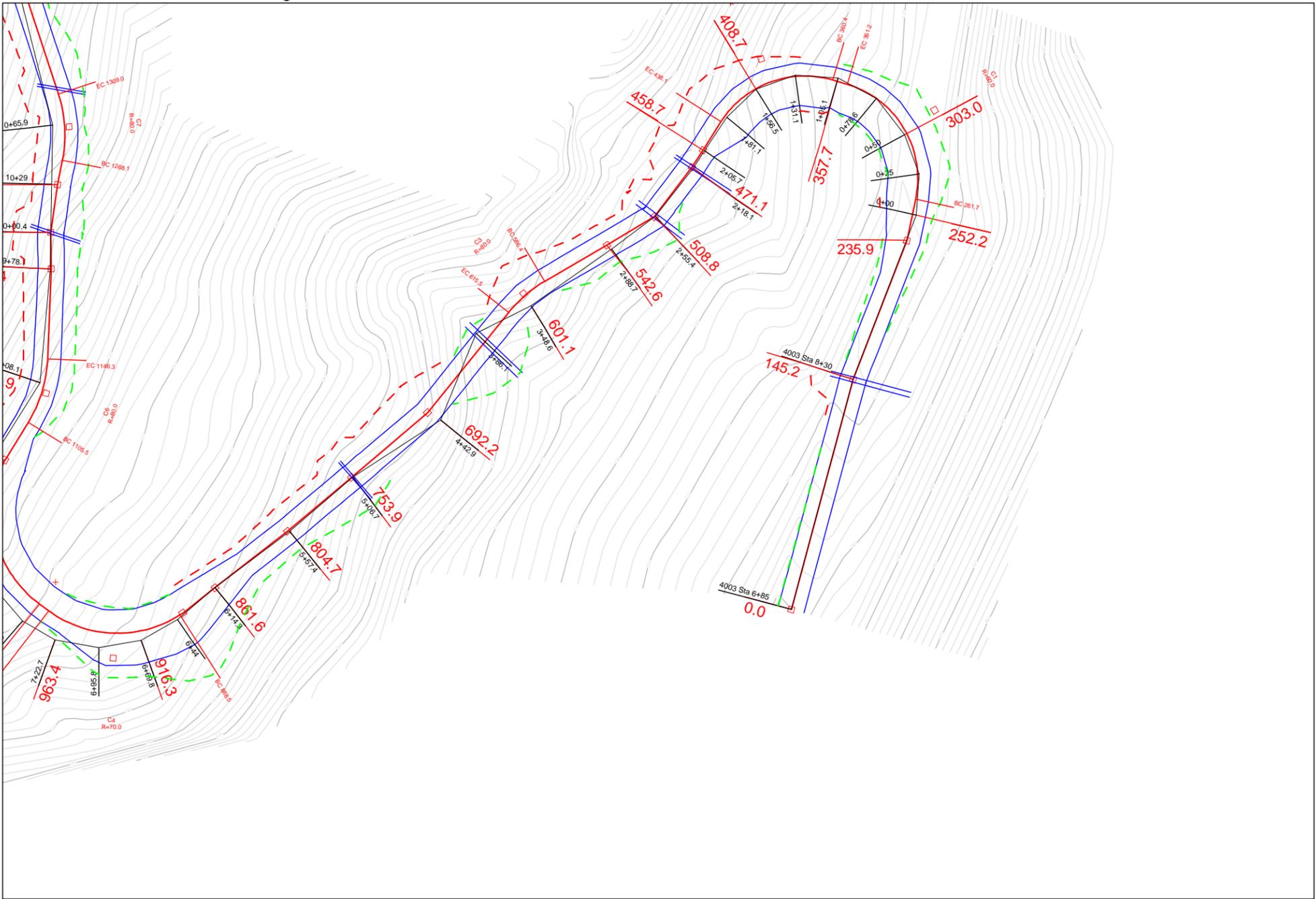
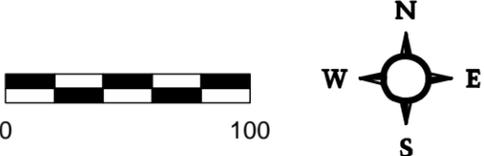
Vantage Pit, Page 4 of 4, T24N, R03W, Sec 1





# 4003.5 Design Specifications

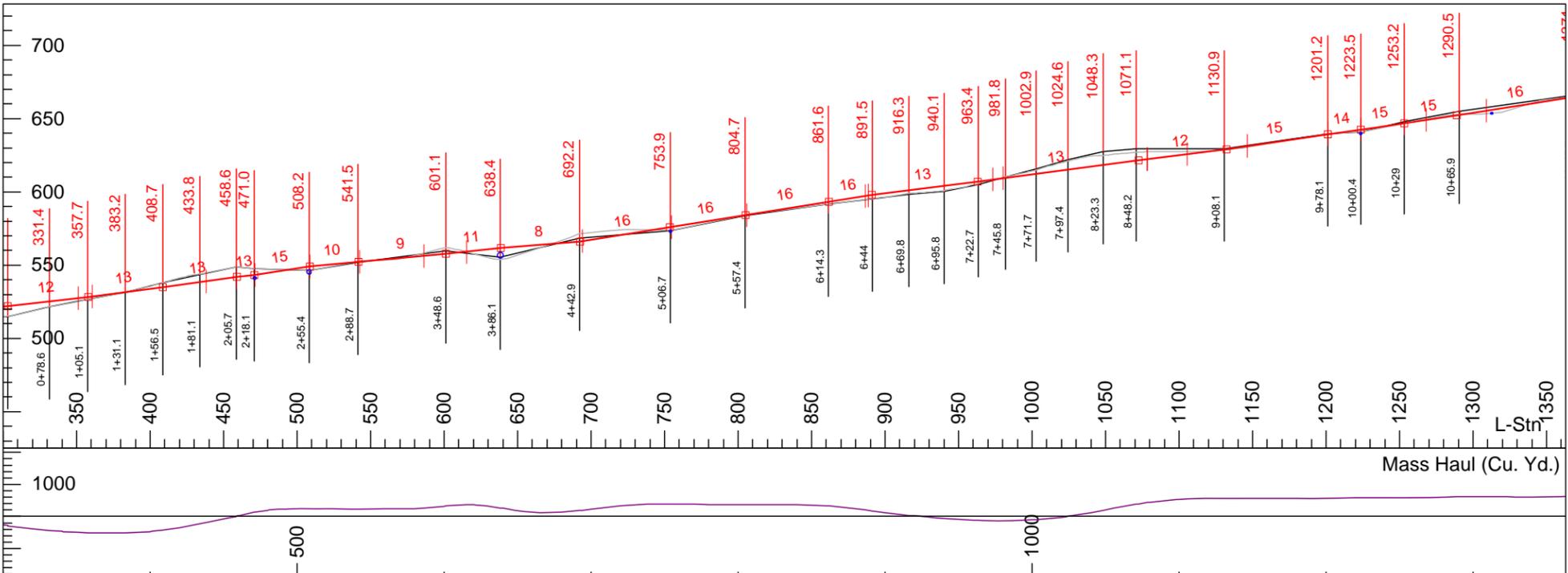
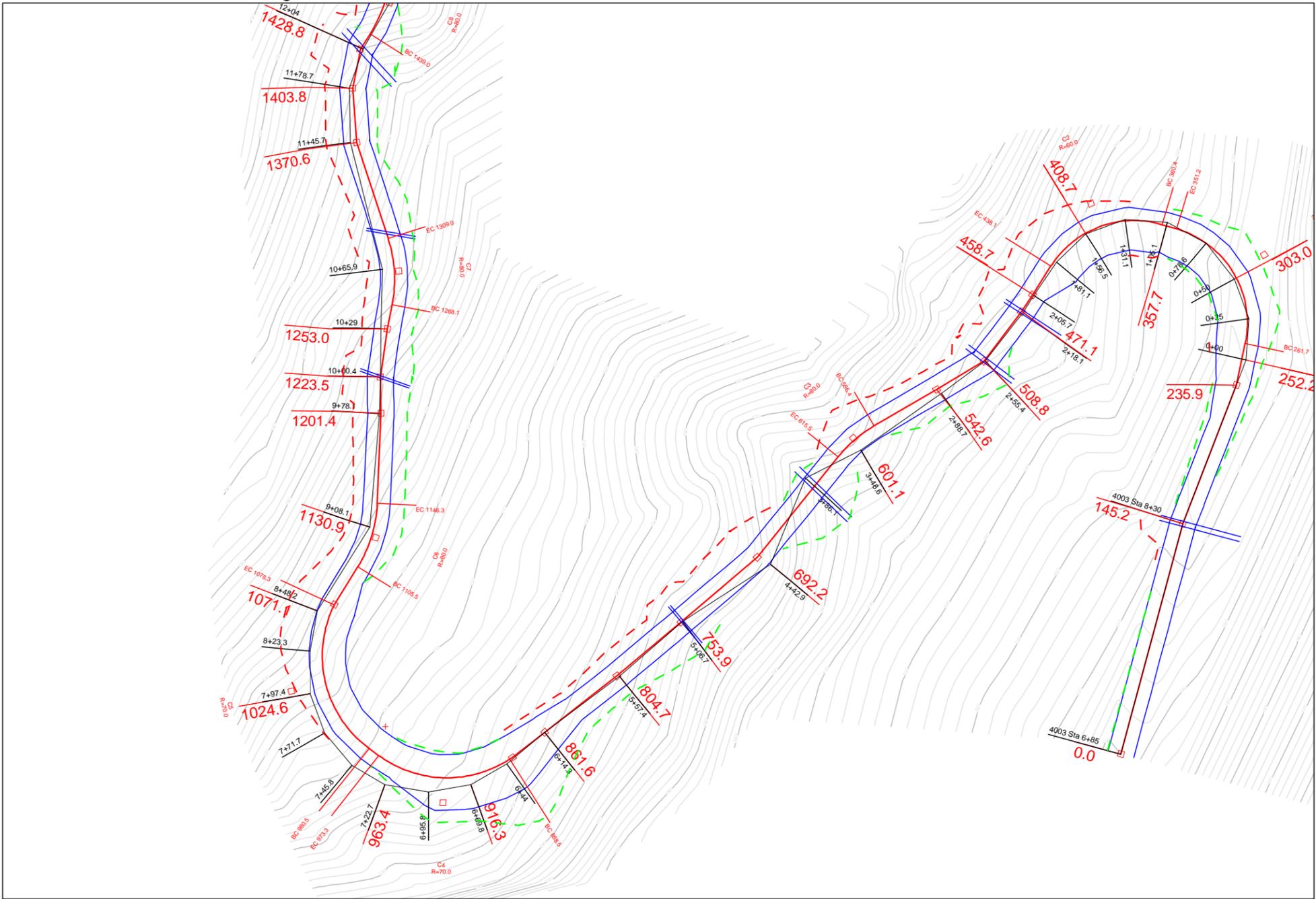
Legend	
	Preliminary(P) line
	Location(L) line
	Left and right edge subgrade
	Toe of fill
	Top of cut
	Cumulative excavation and fill volume



Comment	L-Stn ft.	H.Offset ft.	V.Offset ft.	Cut Dp. ft.	Rd. Wd. L ft.	Rd. Wd. R ft.	CUT_SLOPE %	FILL_SLOPE %	(Ri)Stk L X ft.	Stk L Y ft.	Stk R X ft.	Stk R Y ft.
4003 Sta 6+8	0.0	0.0	0.0	0.0	8.0	8.0	100	67	-8.4	-0.5	13.1	-0.2
4003 Sta 8+3	145.2	0.0	-0.3	0.4	8.0	8.0	100	67	-26.5	6.2	14.2	-0.2
0+00	252.2	-2.4	3.5	-3.7	16.1	8.0	100	67	-20.2	1.2	12.5	-3.2
0+25	276.9	-0.9	5.0	-5.0	18.0	8.0	100	67	-18.4	-0.8	19.7	-8.1
0+50	303.0	1.4	6.9	-6.8	18.0	8.0	100	67	-19.7	-1.7	17.7	-6.7
0+78.6	331.4	-0.1	3.8	-3.8	18.0	8.0	100	67	-20.1	-1.9	14.0	-4.3
1+05.1	357.7	-2.1	1.8	-1.7	16.7	8.0	100	67	-19.5	-0.2	10.9	-2.1
1+31.1	383.2	-0.8	0.3	-0.3	18.0	8.0	100	67	-21.4	0.3	12.0	1.3
1+56.5	408.7	0.4	-3.0	3.0	18.0	8.0	100	67	-38.3	-0.5	20.2	9.5
1+81.1	433.8	1.5	-5.0	5.5	18.0	8.0	100	67	-31.9	-0.5	27.2	16.4
2+05.7	458.6	0.9	-6.9	7.1	8.0	8.0	100	67	-24.7	-0.2	27.7	13.4
2+18.1	471.0	1.0	-4.0	4.3	8.0	8.0	100	67	-23.5	-0.2	27.6	11.1
2+55.4	508.2	0.4	2.6	-2.4	8.0	8.0	100	67	-18.5	-7.2	22.1	4.3
2+88.7	541.5	3.6	0.4	0.3	8.0	8.0	100	67	-12.9	-3.5	13.6	2.8

# 4003.5 Design Specifications

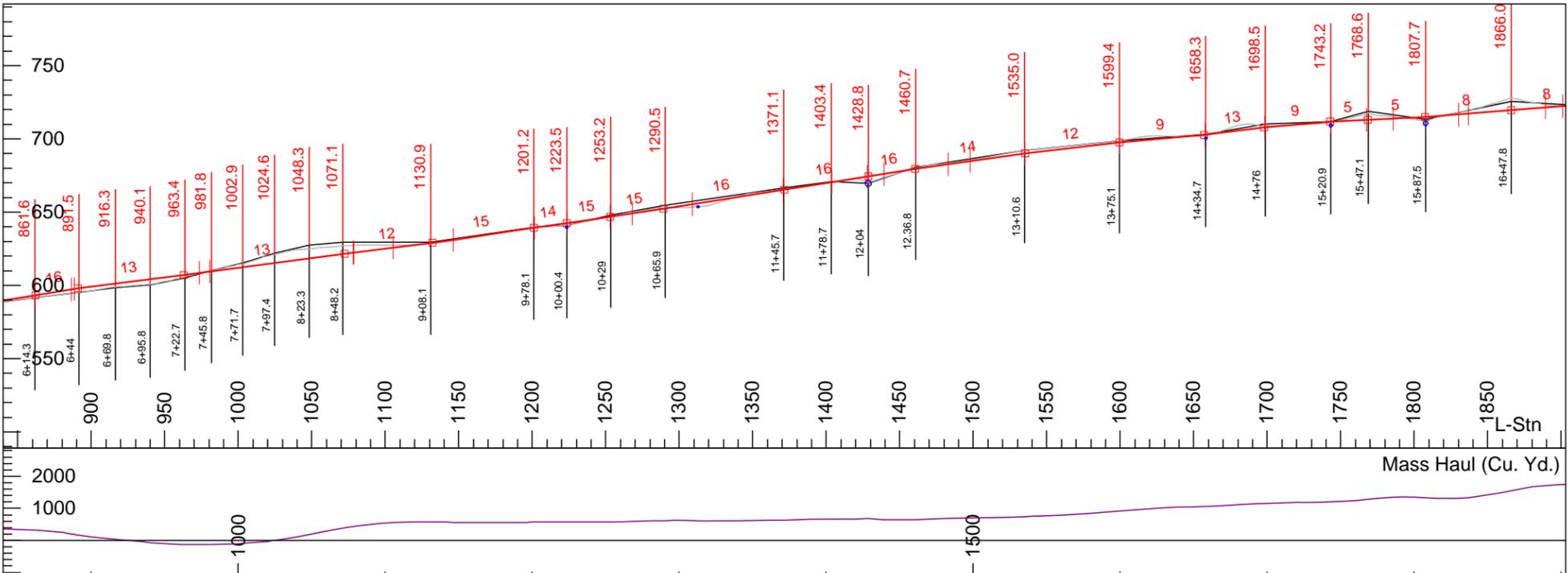
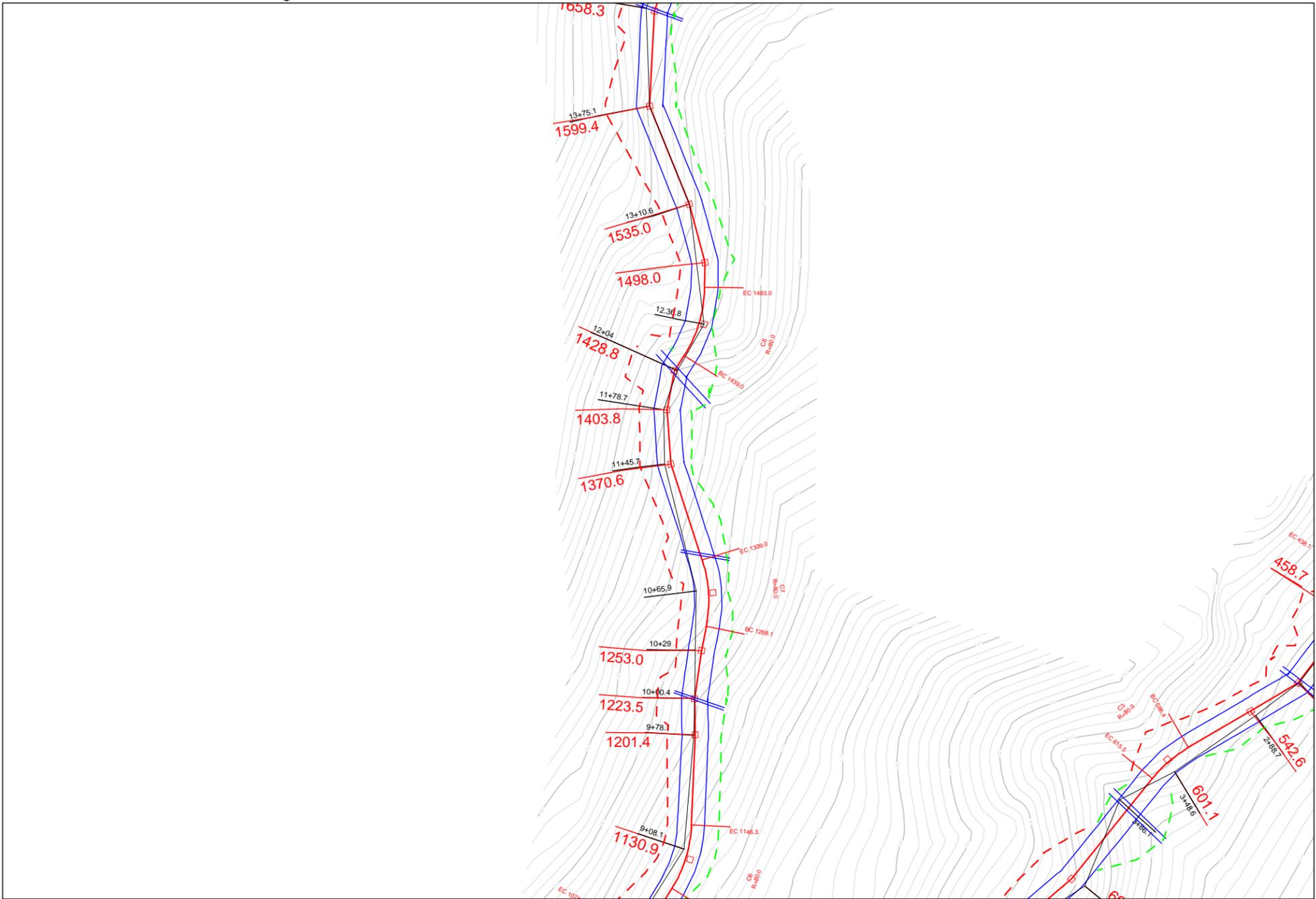
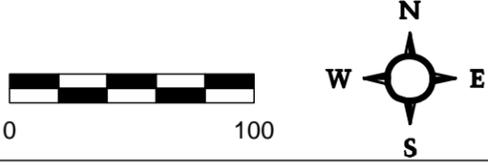
Legend	
	Preliminary(P) line
	Location(L) line
	Left and right edge subgrade
	Toe of fill
	Top of cut
	Cumulative excavation and fill volume



Comment	L-Stn ft.	H.Offset ft.	V.Offset ft.	Cut Dp. ft.	Rd. Wd. L ft.	Rd. Wd. R ft.	CUT_SLOPE %	FILL_SLOPE %	(RiStk L X ft.	Stk L Y ft.	Stk R X ft.	Stk R Y ft.
2+88.7	541.5	3.6	0.4	0.3	8.0	8.0	100	67	-12.9	-3.5	13.6	2.8
3+48.6	601.1	7.1	-2.1	4.5	8.0	8.0	100	67	-12.4	-0.2	22.1	11.4
3+86.1	638.4	-7.4	6.3	-7.8	8.0	8.0	100	67	-27.9	-13.5	13.3	-3.8
4+42.9	692.2	9.1	-2.3	5.4	8.0	8.0	100	67	-14.1	-0.2	23.1	12.3
5+06.7	753.9	0.3	2.3	-2.2	8.0	8.0	100	67	-22.0	-9.6	20.7	5.5
5+57.4	804.7	1.1	0.1	0.2	8.0	8.0	100	67	-13.6	-4.0	15.5	4.7
6+14.3	861.6	0.0	1.7	-1.8	13.4	10.8	100	67	-25.8	-8.7	14.8	1.2
6+44	891.5	1.5	3.0	-2.8	20.0	14.0	100	67	-41.4	-14.9	14.5	-0.7
6+69.8	916.3	5.7	2.8	-2.2	20.0	14.0	100	67	-27.5	-5.6	14.6	-0.8
6+95.8	940.1	9.7	4.0	-3.4	17.5	14.0	100	67	-24.2	-5.0	16.2	-1.9
7+22.7	963.4	13.3	2.3	-1.2	8.0	14.0	100	67	-10.2	-1.7	15.4	-1.4
7+45.8	981.8	14.6	-0.6	0.5	8.0	14.0	100	67	-22.3	-0.2	17.3	-0.4
7+71.7	1002.9	13.2	-3.1	2.3	8.0	14.0	100	67	-13.5	2.8	23.4	-0.4
7+97.4	1024.6	10.8	-6.6	5.8	8.0	14.0	100	67	-17.7	7.0	24.4	-0.4
8+23.3	1048.3	7.4	-9.0	6.4	8.0	14.0	100	67	-25.2	14.4	24.8	-0.4
8+48.2	1071.1	8.0	-8.0	5.5	8.2	14.0	100	67	-26.7	15.8	19.1	-0.4
9+08.1	1130.9	2.5	-0.4	-0.5	8.5	8.0	100	67	-15.4	4.2	17.2	-6.3

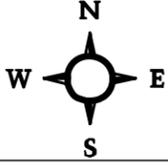
# 4003.5 Design Specifications

Legend	
	Preliminary(P) line
	Location(L) line
	Left and right edge subgrade
	Toe of fill
	Top of cut
	Cumulative excavation and fill volume

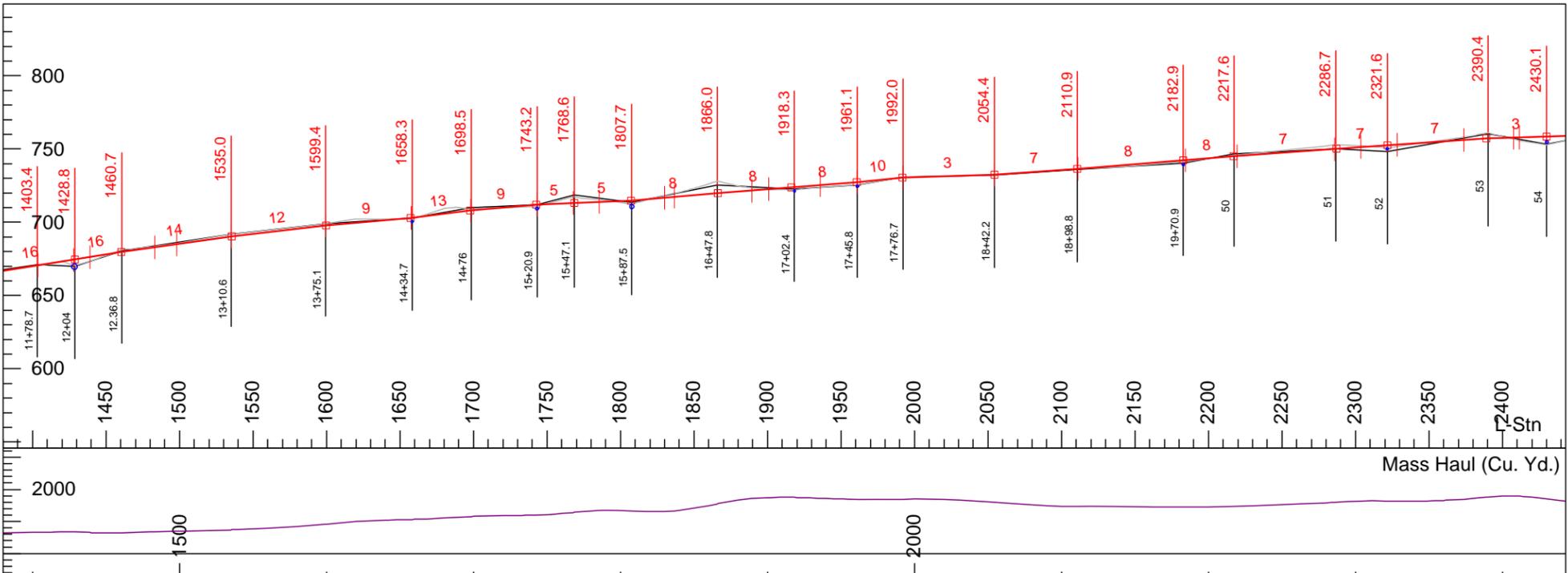
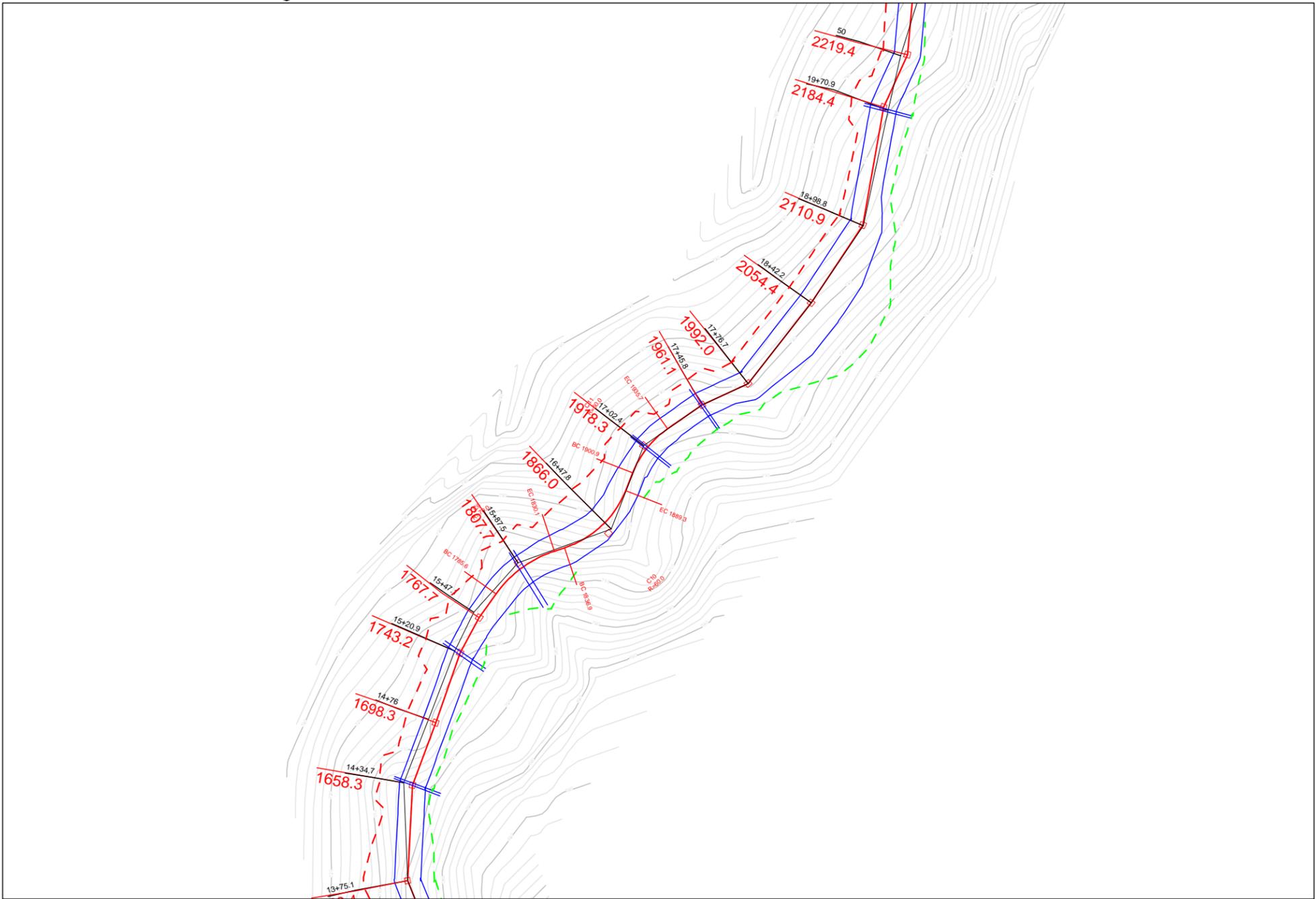


Comment	L-Stn ft.	H.Offset ft.	V.Offset ft.	Cut Dp. ft.	Rd. Wd. L ft.	Rd. Wd. R ft.	CUT_SLOPE %	FILL_SLOPE %	(Ri)Stk L X ft.	Stk L Y ft.	Stk R X ft.	Stk R Y ft.
9+08.1	1130.9	2.5	-0.4	-0.5	8.5	8.0	100	67	-15.4	4.2	17.2	-6.3
9+78.1	1201.2	0.7	-0.5	0.2	8.0	8.0	100	67	-17.3	6.5	15.9	-5.5
10+00.4	1223.5	0.0	1.7	-1.7	8.0	8.0	100	67	-22.7	7.5	19.9	-8.2
10+29	1253.2	3.7	-0.9	-0.1	8.1	8.0	100	67	-15.6	4.7	15.3	-5.1
10+65.9	1290.5	7.2	-2.3	0.4	8.5	8.0	100	67	-15.9	4.6	11.8	-2.7
11+45.7	1371.1	3.7	-1.0	0.1	8.0	8.0	100	67	-18.7	7.9	12.5	-3.3
11+78.7	1403.4	2.0	-0.4	-0.3	8.0	8.0	100	67	-16.7	6.0	14.1	-4.3
12+04	1428.8	-1.4	4.7	-4.1	8.2	8.0	100	67	-27.1	7.8	25.3	-11.8
12.36.8	1460.7	-3.1	-1.1	1.9	8.5	8.0	100	67	-16.3	5.0	8.2	-0.4
13+10.6	1535.0	0.0	-1.8	1.9	8.0	8.0	100	67	-17.5	6.7	14.6	-4.6
13+75.1	1599.4	0.0	-1.2	1.3	8.0	8.0	100	67	-26.9	16.1	16.4	-5.8
14+34.7	1658.3	5.4	-0.1	-0.9	8.0	8.0	100	67	-21.4	6.1	12.5	-3.2

# 4003.5 Design Specifications



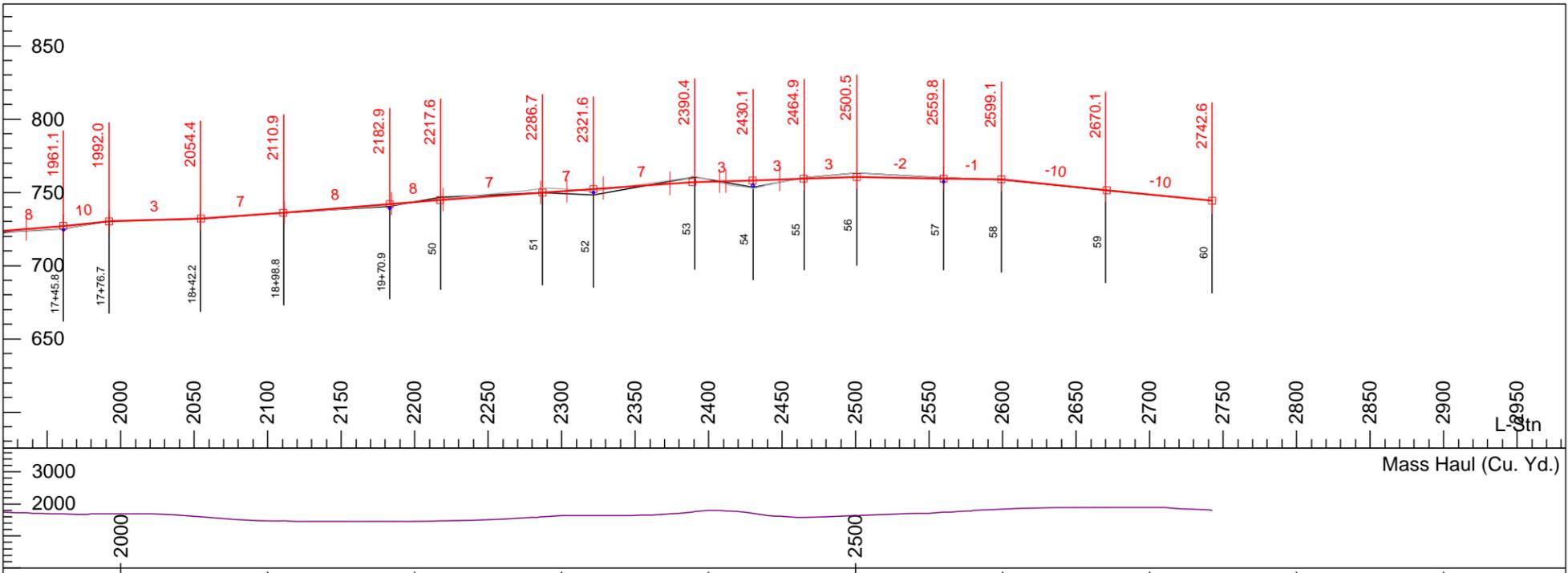
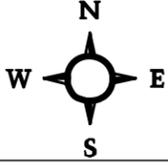
Legend	
	Preliminary(P) line
	Location(L) line
	Left and right edge subgrade
	Toe of fill
	Top of cut
	Cumulative excavation and fill volume



Comment	L-Stn ft.	H.Offset ft.	V.Offset ft.	Cut Dp. ft.	Rd. Wd. L ft.	Rd. Wd. R ft.	CUT_SLOPE %	FILL_SLOPE %	(Ri)Stk L X ft.	Stk L Y ft.	Stk R X ft.	Stk R Y ft.
14+34.7	1658.3	5.4	-0.1	-0.9	8.0	8.0	100	67	-21.4	6.1	12.5	-3.2
14+76	1698.5	4.9	-2.2	0.7	8.0	8.0	100	67	-18.5	7.7	11.5	-2.6
15+20.9	1743.2	3.6	0.0	-1.0	8.0	8.5	100	67	-22.6	6.1	15.6	-5.0
15+47.1	1768.6	4.7	-5.8	4.5	8.0	10.0	100	67	-21.8	11.0	17.3	-0.3
15+87.5	1807.7	3.7	1.3	-2.8	8.0	11.0	100	67	-20.1	2.9	30.7	-13.5
16+47.8	1866.0	-5.6	-5.7	8.3	11.0	8.0	100	67	-28.5	14.7	20.2	-0.2
17+02.4	1918.3	2.6	1.2	-2.1	8.0	9.0	100	67	-20.1	4.9	23.0	-9.6
17+45.8	1961.1	0.0	2.1	-2.0	8.0	8.0	100	67	-17.6	2.4	17.9	-6.8
17+76.7	1992.0	0.0	-0.4	0.5	8.0	10.9	100	67	-16.4	5.7	15.6	-3.5
18+42.2	2054.4	0.0	0.4	-0.4	8.0	20.0	100	67	-16.4	5.6	44.6	-17.0
18+98.8	2110.9	-0.5	0.3	-0.1	8.0	12.6	100	67	-15.1	4.3	23.2	-7.4
19+70.9	2182.9	-2.9	1.7	-0.9	8.0	8.0	100	67	-19.8	4.6	17.6	-6.6
50	2217.6	3.6	-1.6	0.8	8.0	8.0	100	67	-15.3	4.6	11.2	-2.4

# 4003.5 Design Specifications

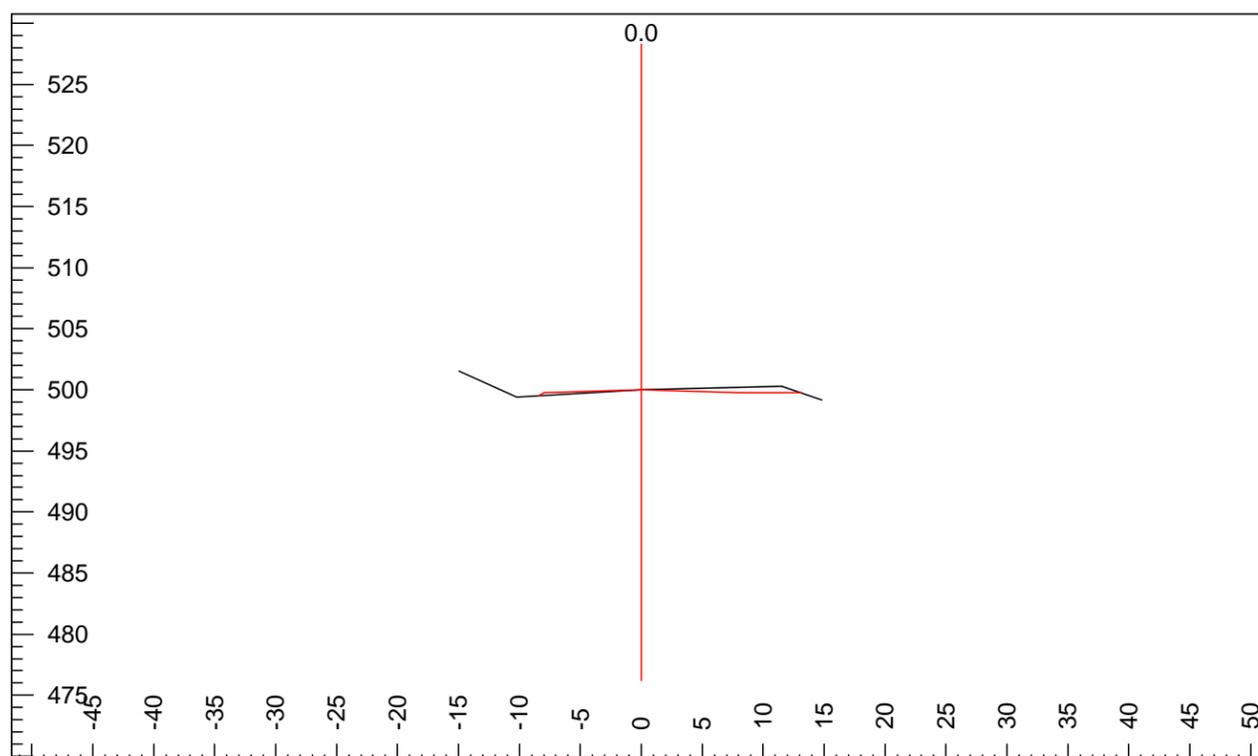
Legend	
	Preliminary(P) line
	Location(L) line
	Left and right edge subgrade
	Toe of fill
	Top of cut
	Cumulative excavation and fill volume



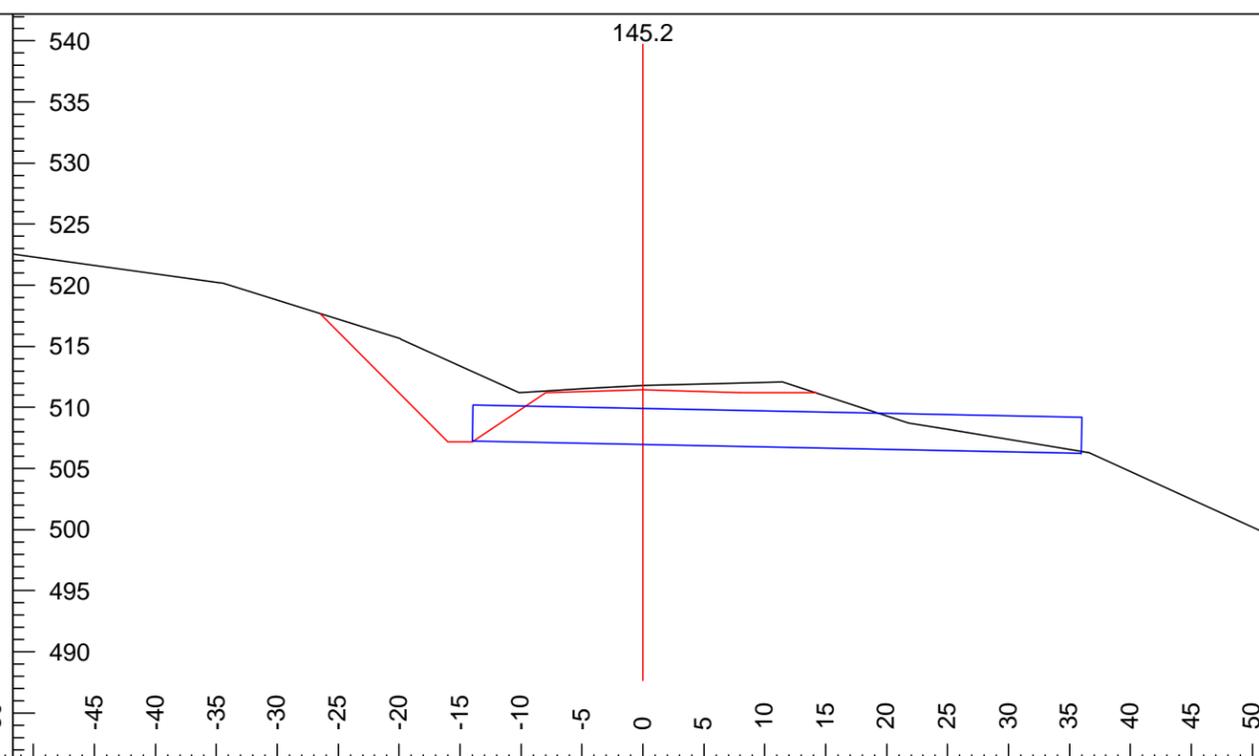
Comment	L-Stn ft.	H.Offset ft.	V.Offset ft.	Cut Dp. ft.	Rd. Wd. L ft.	Rd. Wd. R ft.	CUT_SLOPE %	FILL_SLOPE %	(RiStk L X ft.	Stk L Y ft.	Stk R X ft.	Stk R Y ft.
19+70.9	2182.9	-2.9	1.7	-0.9	8.0	8.0	100	67	-19.8	4.6	17.6	-6.6
50	2217.6	3.6	-1.6	0.8	8.0	8.0	100	67	-15.3	4.6	11.2	-2.4
51	2286.7	-10.1	0.0	2.9	8.0	8.5	100	67	-18.9	8.1	10.5	-0.3
52	2321.6	-8.6	4.2	-1.6	8.0	11.0	100	67	-20.1	4.8	25.9	-10.3
53	2390.4	-2.3	-3.3	4.0	8.0	8.0	100	67	-19.9	9.2	17.4	-0.2
54	2430.1	2.2	5.1	-5.6	8.0	11.0	100	67	-9.6	-1.3	30.1	-13.1
55	2464.9	0.0	-0.5	0.4	8.0	10.0	100	67	-18.0	7.3	21.3	-7.8
56	2500.5	0.0	-2.5	2.4	8.0	8.0	100	67	-15.6	4.8	8.7	-0.2
57	2559.8	0.0	-0.7	0.7	8.0	8.0	100	67	-21.3	6.1	11.6	-2.6
58	2599.1	0.0	0.4	-0.5	20.0	8.0	100	67	-27.6	4.5	13.2	-3.7
59	2670.1	0.0	0.1	-0.2	8.0	8.0	100	67	-13.6	2.8	12.9	-3.5
60	2742.6	0.0	-1.0	-0.2	20.0	25.0	100	67	-32.1	9.0	35.0	-7.4

# 4003.5 Design Specifications

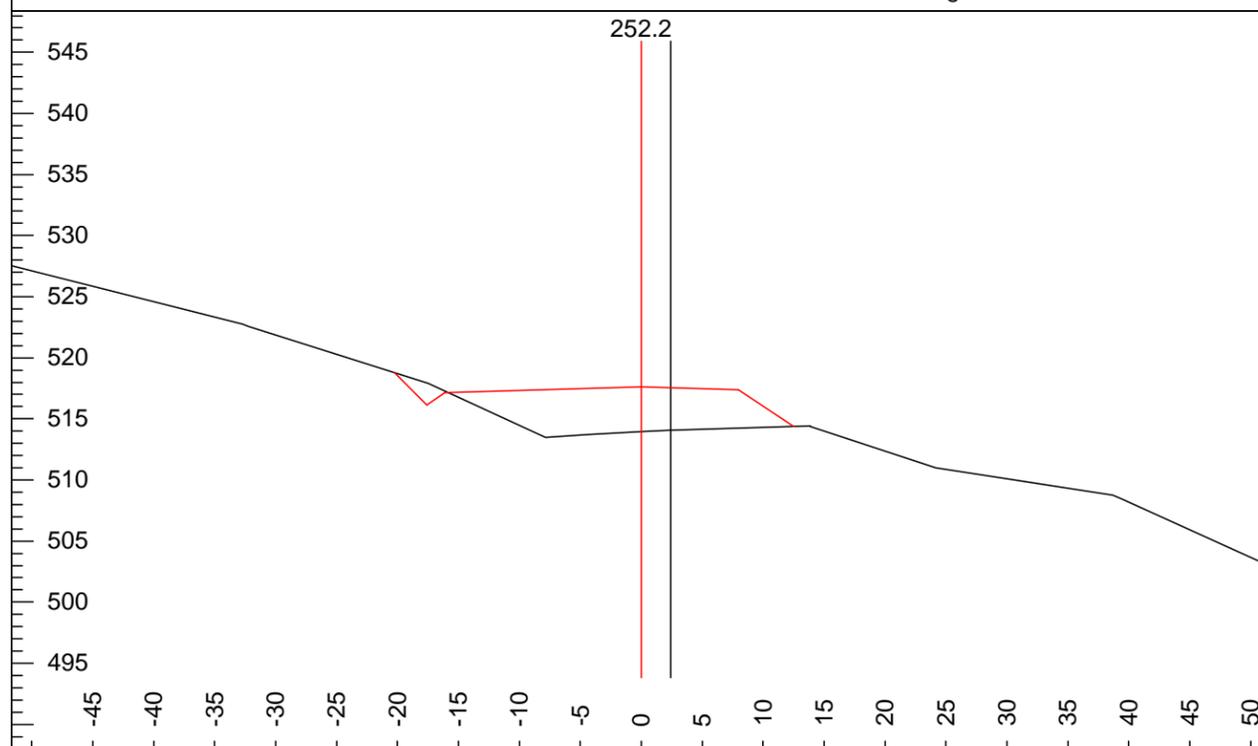
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



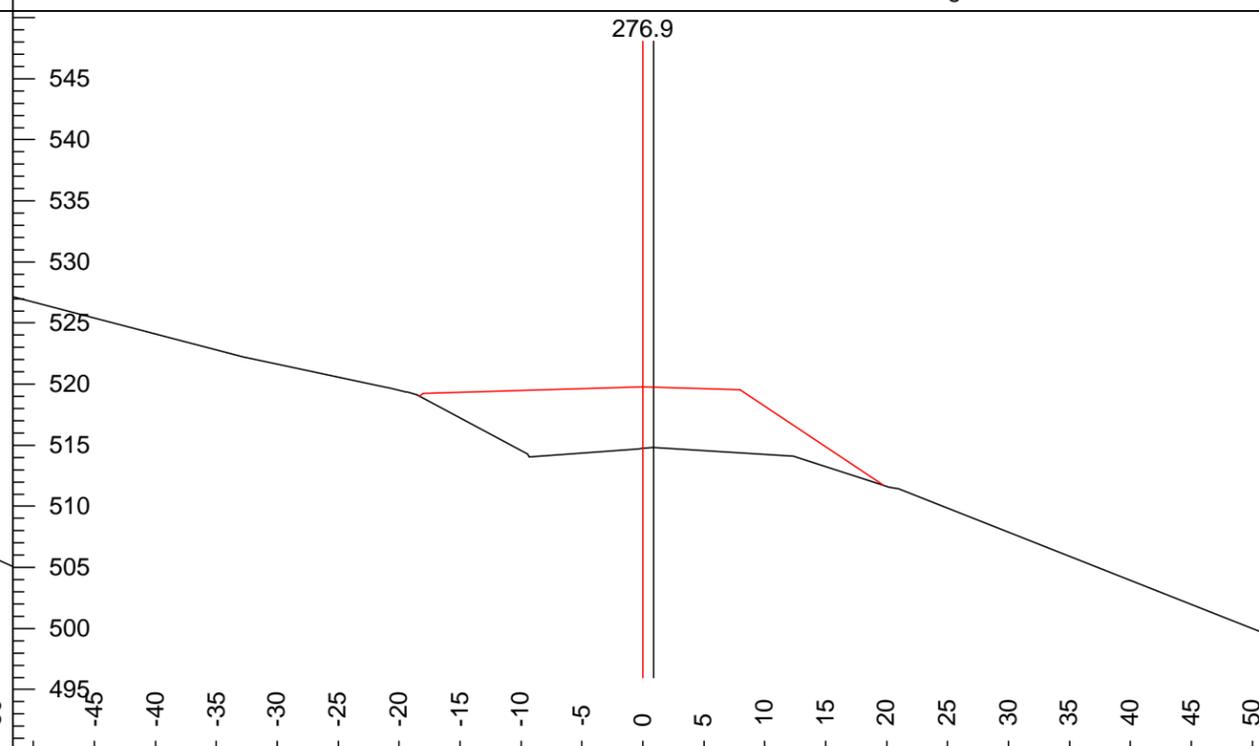
Trav.Cmnt:	4003 Sta 6+85	Grd.Lst:	n/a	Stk R Y:	-0.2
L-Stn:	0.0	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	0.0	Stk L X:	-8.4	Cul DIA:	
Cut Dp:	0.0	Stk L Y:	-0.5	Cul Dip %:	
Grd.Nxt.:	8	Stk R X:	13.1	Cul Length:	



Trav.Cmnt:	4003 Sta 8+30	Grd.Lst:	6	Stk R Y:	-0.2
L-Stn:	145.2	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-0.3	Stk L X:	-26.5	Cul DIA:	36in
Cut Dp:	0.4	Stk L Y:	6.2	Cul Dip %:	2
Grd.Nxt.:	6	Stk R X:	14.2	Cul Length:	50.0



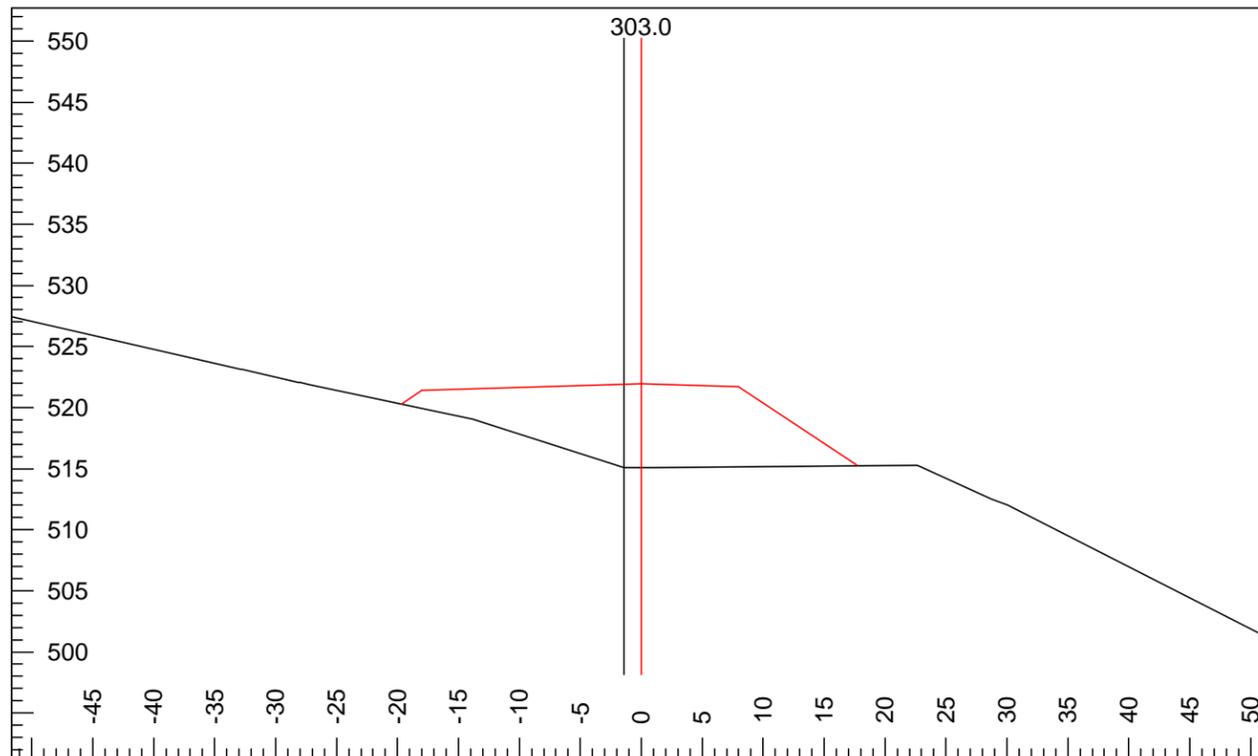
Trav.Cmnt:	0+00	Grd.Lst:	6	Stk R Y:	-3.2
L-Stn:	252.2	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-2.4	Rd. Wd. L:	16.1	FILL_SLOPE (Right):	67
V.Offset:	3.5	Stk L X:	-20.2	Cul DIA:	
Cut Dp:	-3.7	Stk L Y:	1.2	Cul Dip %:	
Grd.Nxt.:	6	Stk R X:	12.5	Cul Length:	



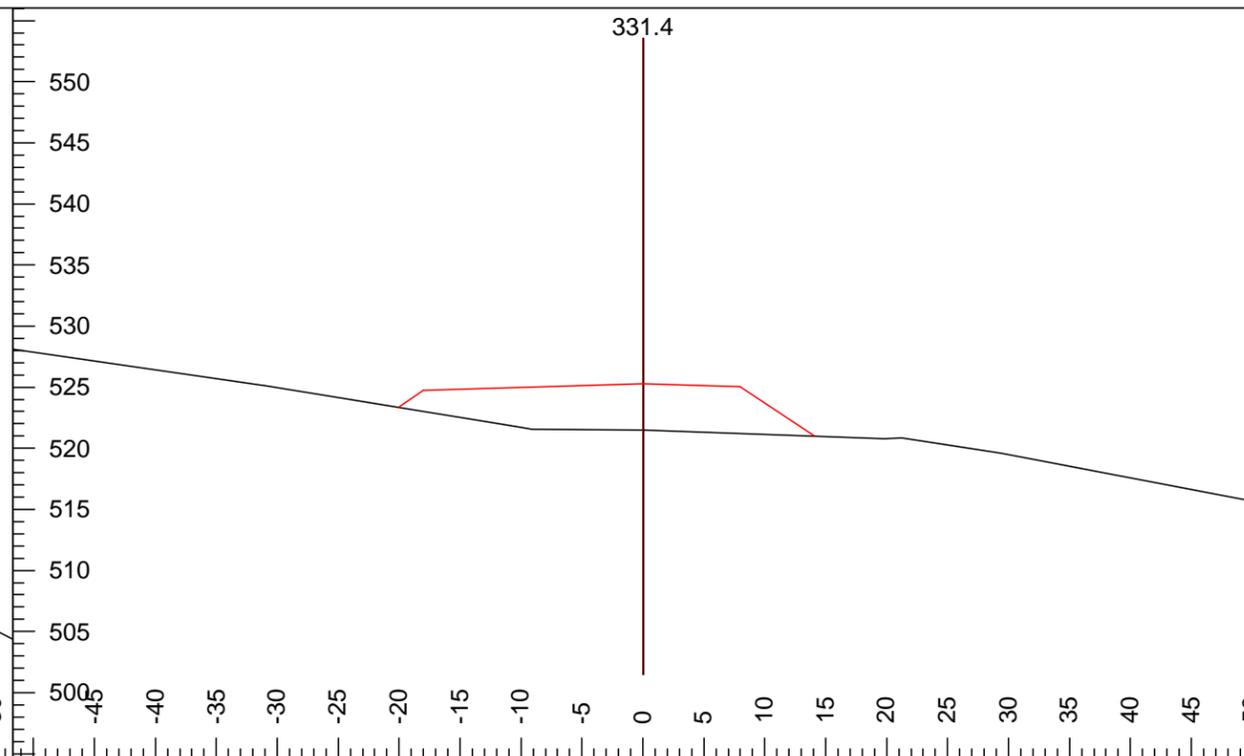
Trav.Cmnt:	0+25	Grd.Lst:	8	Stk R Y:	-8.1
L-Stn:	276.9	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-0.9	Rd. Wd. L:	18.0	FILL_SLOPE (Right):	67
V.Offset:	5.0	Stk L X:	-18.4	Cul DIA:	
Cut Dp:	-5.0	Stk L Y:	-0.8	Cul Dip %:	
Grd.Nxt.:	8	Stk R X:	19.7	Cul Length:	

# 4003.5 Design Specifications

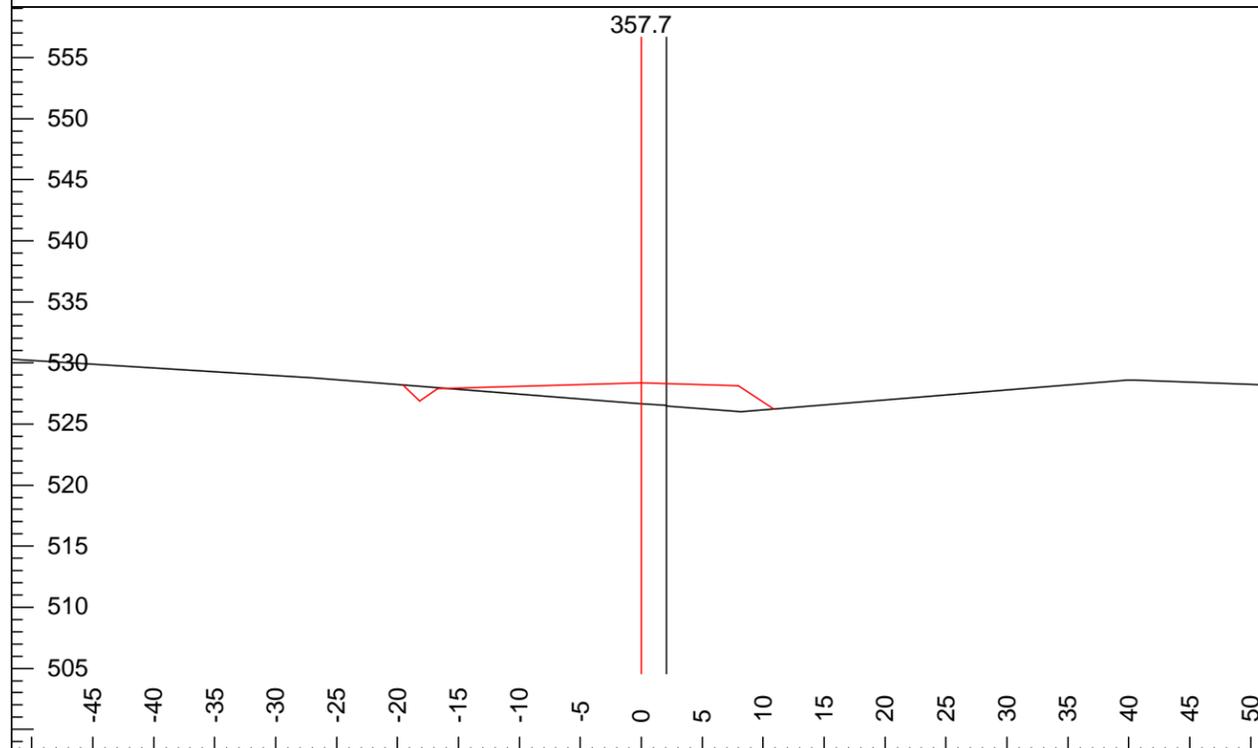
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



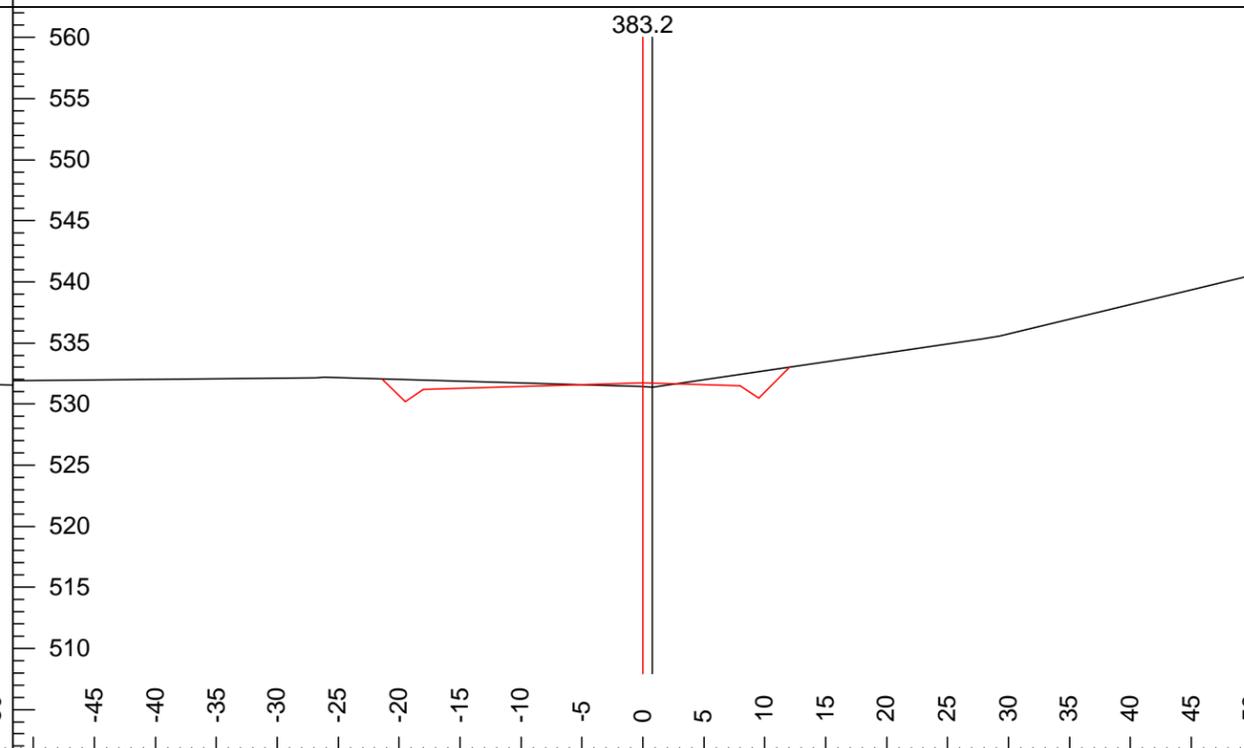
Trav.Cmnt:	0+50	Grd.Lst:	8	Stk R Y:	-6.7
L-Stn:	303.0	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	1.4	Rd. Wd. L:	18.0	FILL_SLOPE (Right):	67
V.Offset:	6.9	Stk L X:	-19.7	Cul DIA:	
Cut Dp:	-6.8	Stk L Y:	-1.7	Cul Dip %:	
Grd.Nxt.:	8	Stk R X:	17.7	Cul Length:	



Trav.Cmnt:	0+78.6	Grd.Lst:	12	Stk R Y:	-4.3
L-Stn:	331.4	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-0.1	Rd. Wd. L:	18.0	FILL_SLOPE (Right):	67
V.Offset:	3.8	Stk L X:	-20.1	Cul DIA:	
Cut Dp:	-3.8	Stk L Y:	-1.9	Cul Dip %:	
Grd.Nxt.:	12	Stk R X:	14.0	Cul Length:	



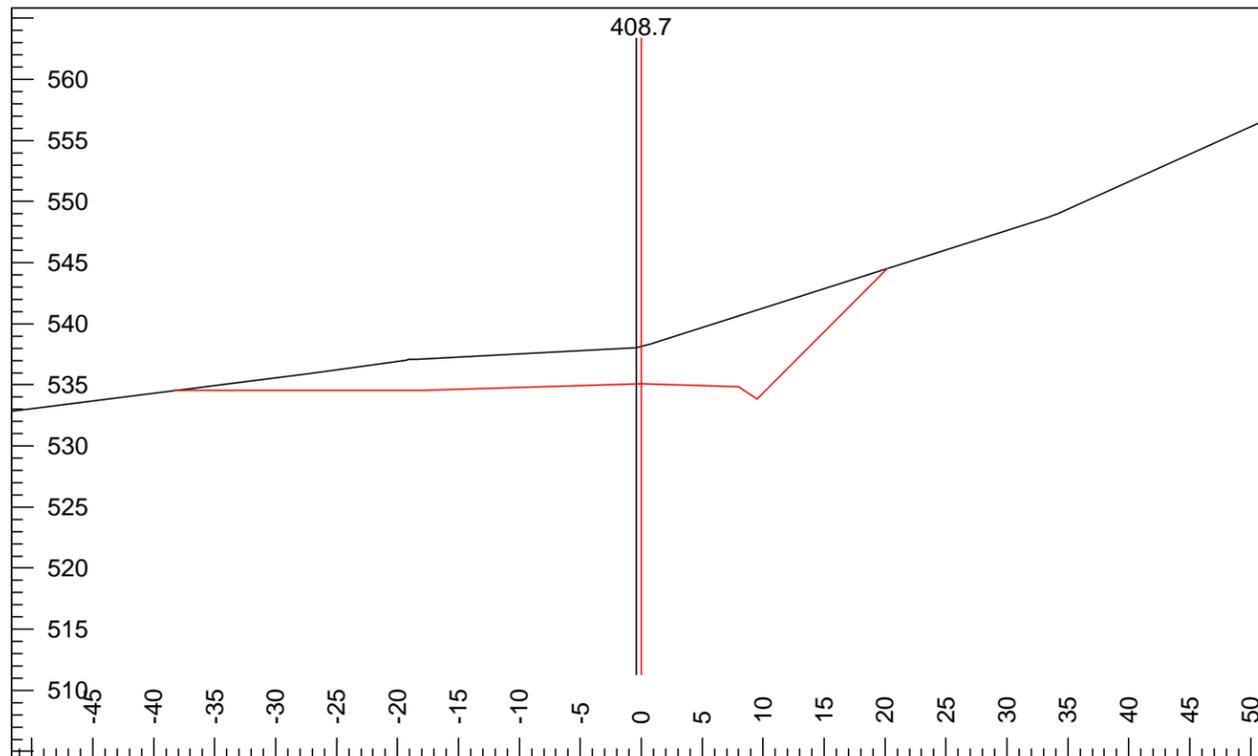
Trav.Cmnt:	1+05.1	Grd.Lst:	12	Stk R Y:	-2.1
L-Stn:	357.7	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-2.1	Rd. Wd. L:	16.7	FILL_SLOPE (Right):	67
V.Offset:	1.8	Stk L X:	-19.5	Cul DIA:	
Cut Dp:	-1.7	Stk L Y:	-0.2	Cul Dip %:	
Grd.Nxt.:	12	Stk R X:	10.9	Cul Length:	



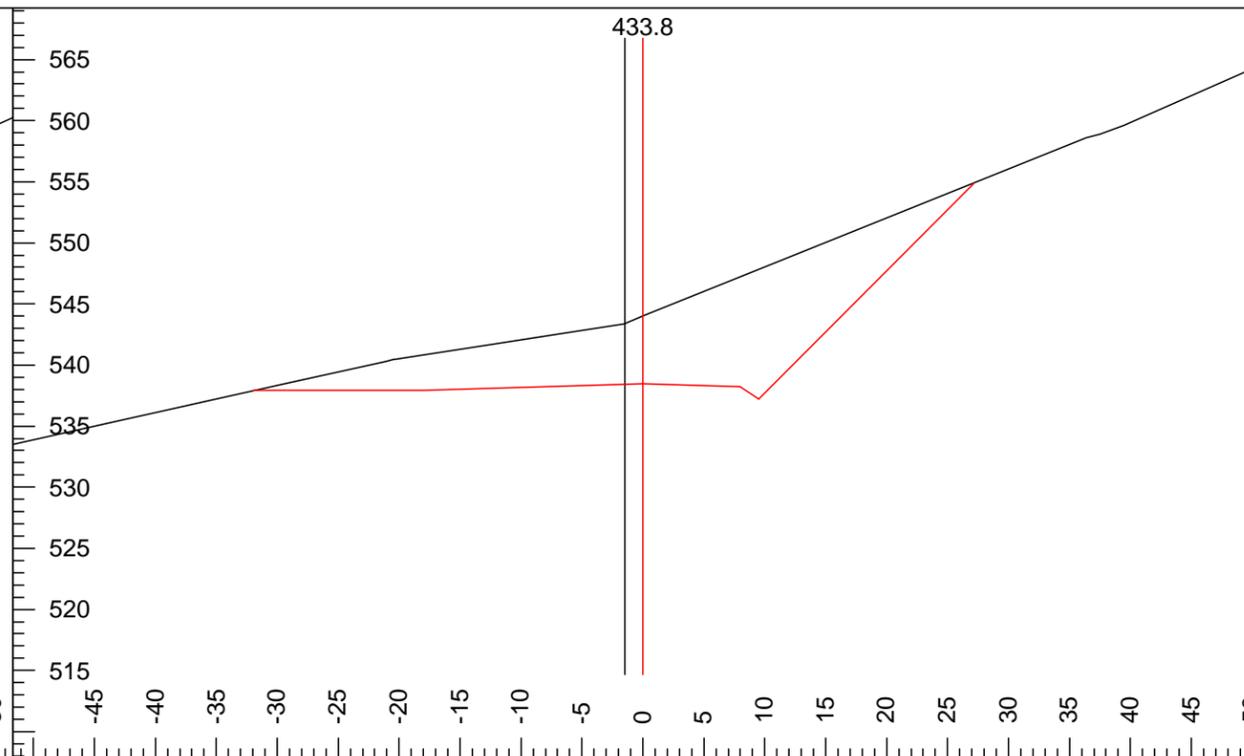
Trav.Cmnt:	1+31.1	Grd.Lst:	13	Stk R Y:	1.3
L-Stn:	383.2	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-0.8	Rd. Wd. L:	18.0	FILL_SLOPE (Right):	67
V.Offset:	0.3	Stk L X:	-21.4	Cul DIA:	
Cut Dp:	-0.3	Stk L Y:	0.3	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	12.0	Cul Length:	

# 4003.5 Design Specifications

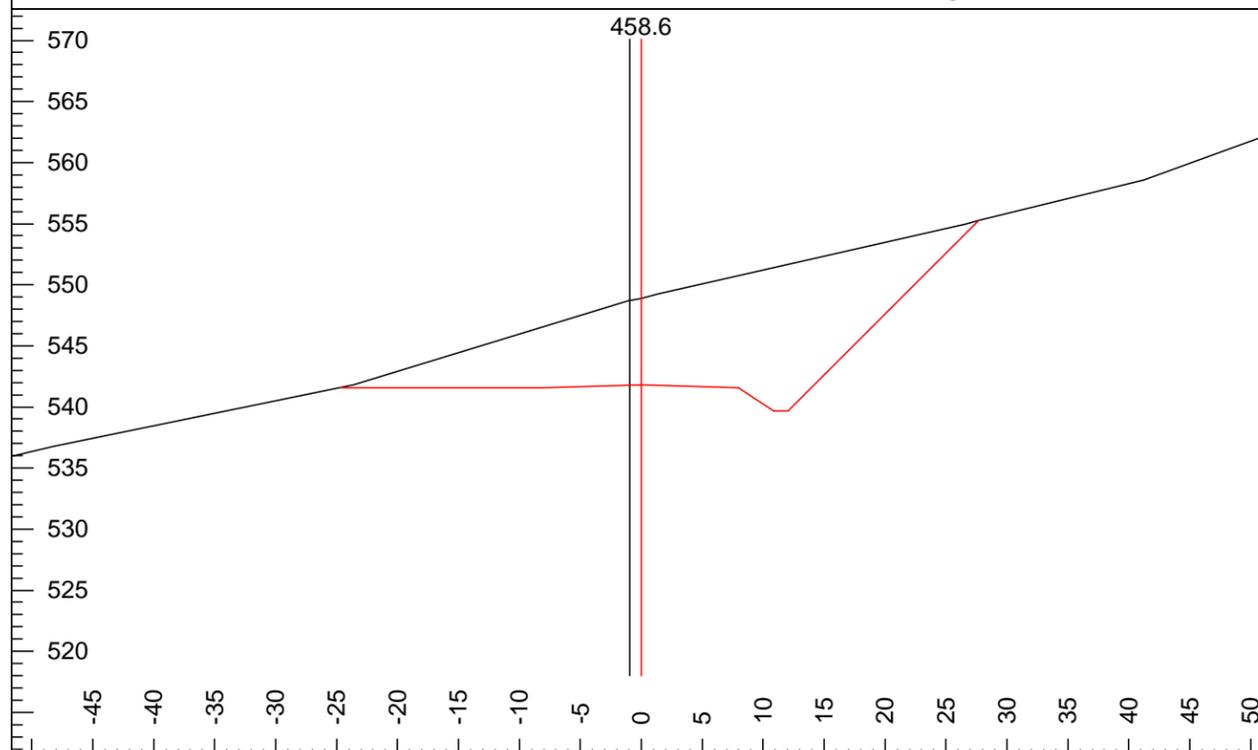
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



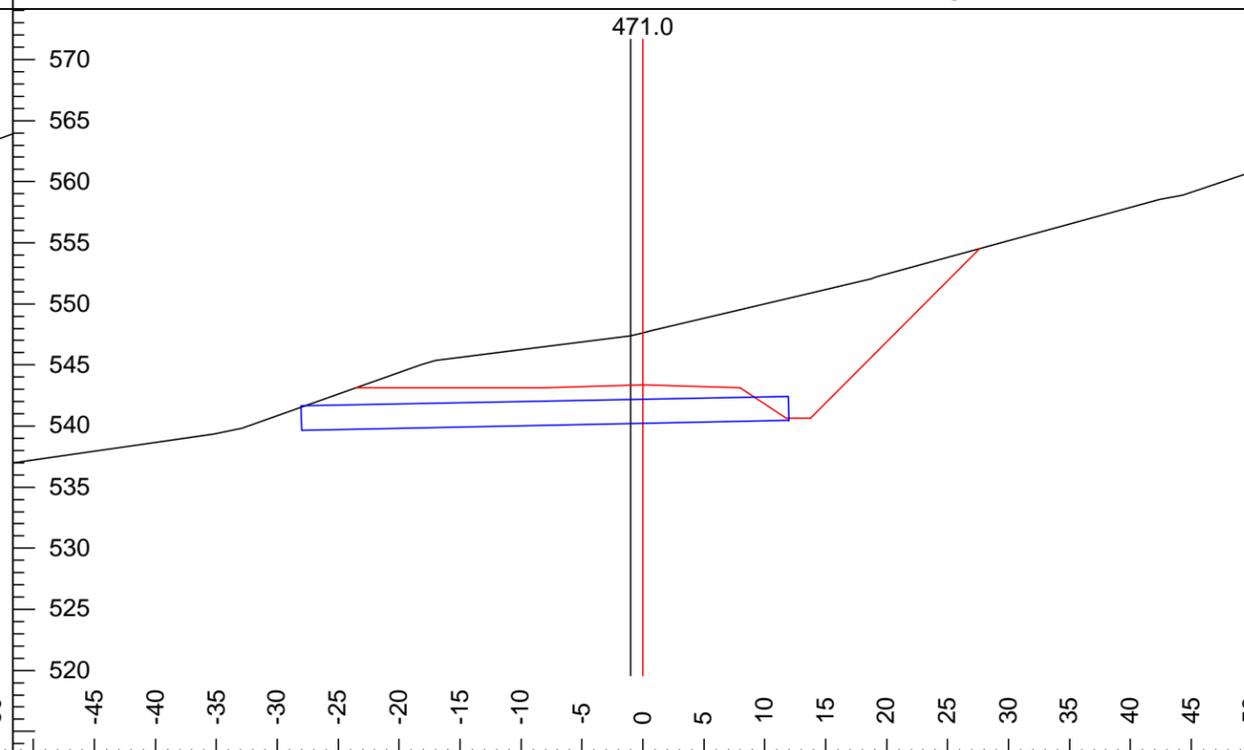
Trav.Cmnt:	1+56.5	Grd.Lst:	13	Stk R Y:	9.5
L-Stn:	408.7	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.4	Rd. Wd. L:	18.0	FILL_SLOPE (Right):	67
V.Offset:	-3.0	Stk L X:	-38.3	Cul DIA:	
Cut Dp:	3.0	Stk L Y:	-0.5	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	20.2	Cul Length:	



Trav.Cmnt:	1+81.1	Grd.Lst:	13	Stk R Y:	16.4
L-Stn:	433.8	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	1.5	Rd. Wd. L:	18.0	FILL_SLOPE (Right):	67
V.Offset:	-5.0	Stk L X:	-31.9	Cul DIA:	
Cut Dp:	5.5	Stk L Y:	-0.5	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	27.2	Cul Length:	



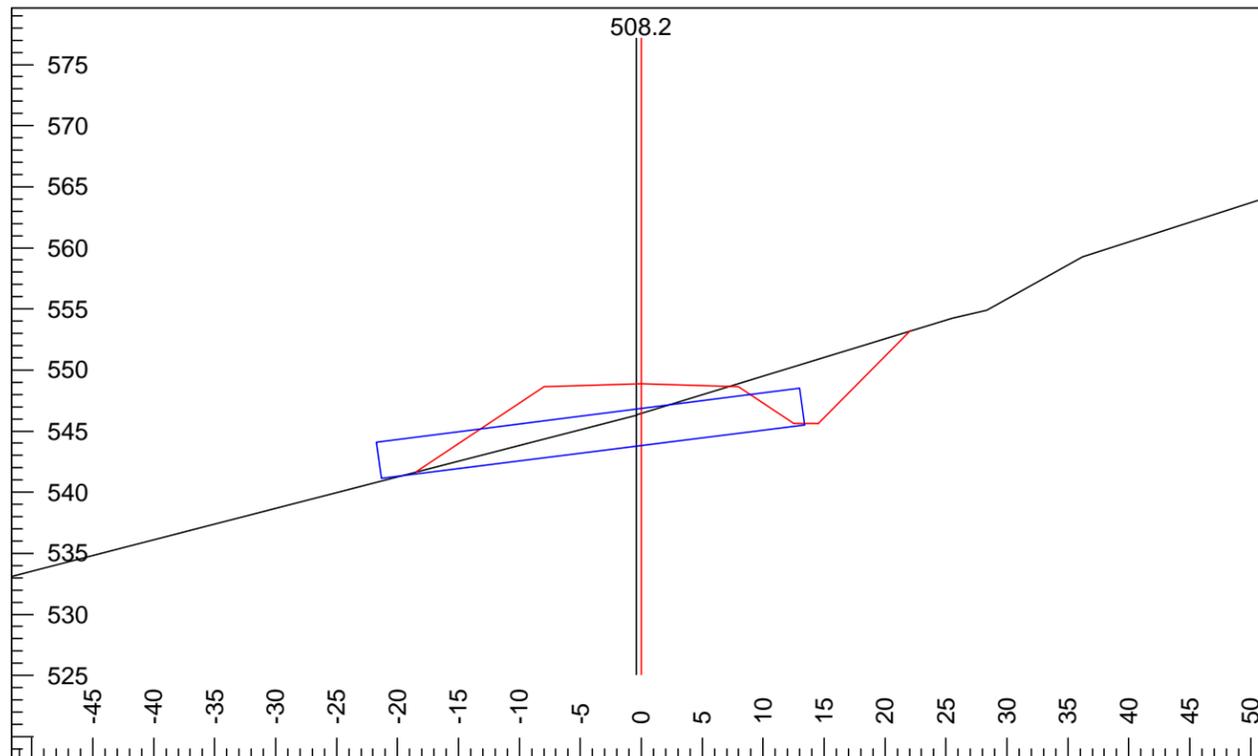
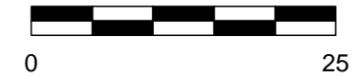
Trav.Cmnt:	2+05.7	Grd.Lst:	13	Stk R Y:	13.4
L-Stn:	458.6	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.9	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-6.9	Stk L X:	-24.7	Cul DIA:	
Cut Dp:	7.1	Stk L Y:	-0.2	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	27.7	Cul Length:	



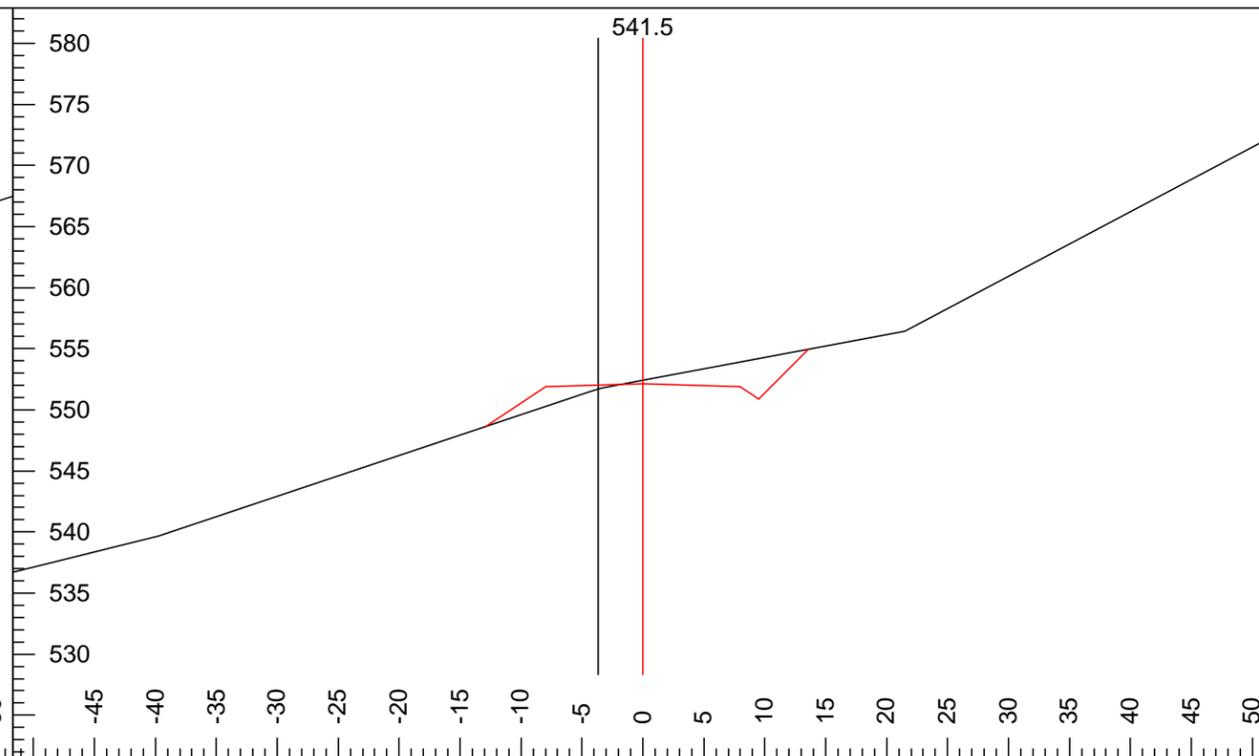
Trav.Cmnt:	2+18.1	Grd.Lst:	15	Stk R Y:	11.1
L-Stn:	471.0	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	1.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-4.0	Stk L X:	-23.5	Cul DIA:	24in
Cut Dp:	4.3	Stk L Y:	-0.2	Cul Dip %:	-2
Grd.Nxt.:	15	Stk R X:	27.6	Cul Length:	40.0

# 4003.5 Design Specifications

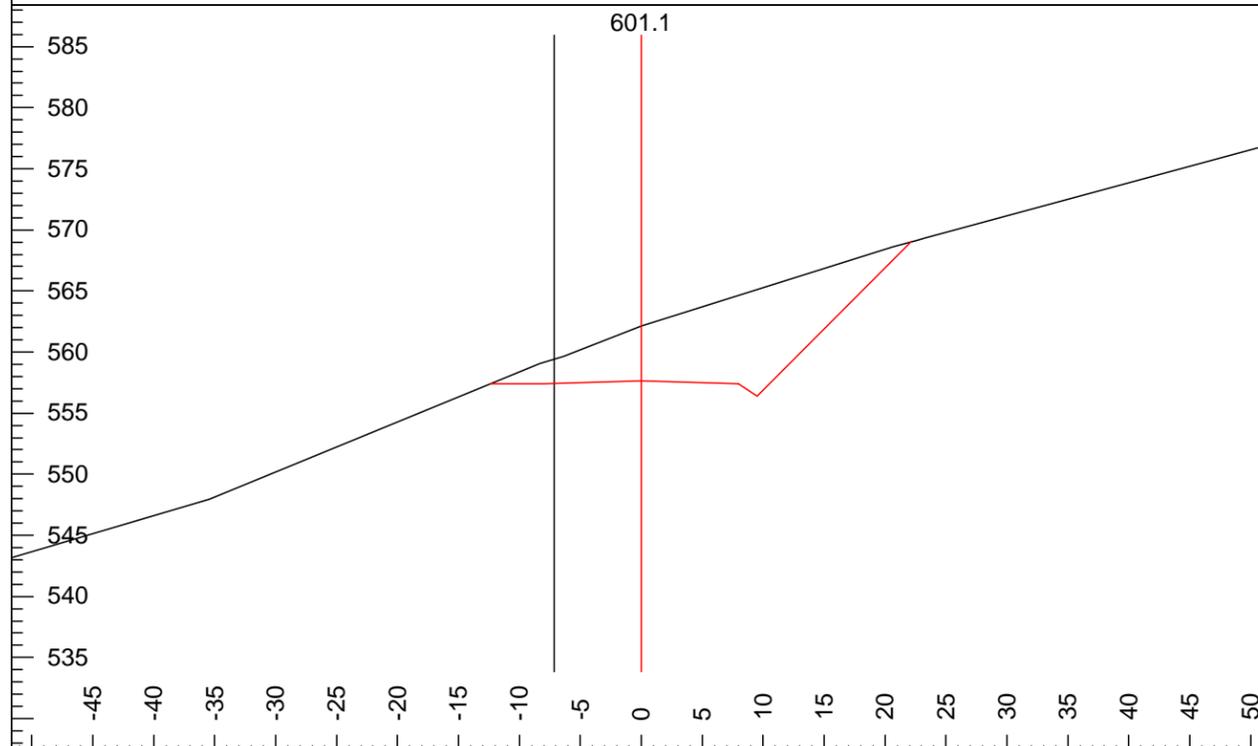
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



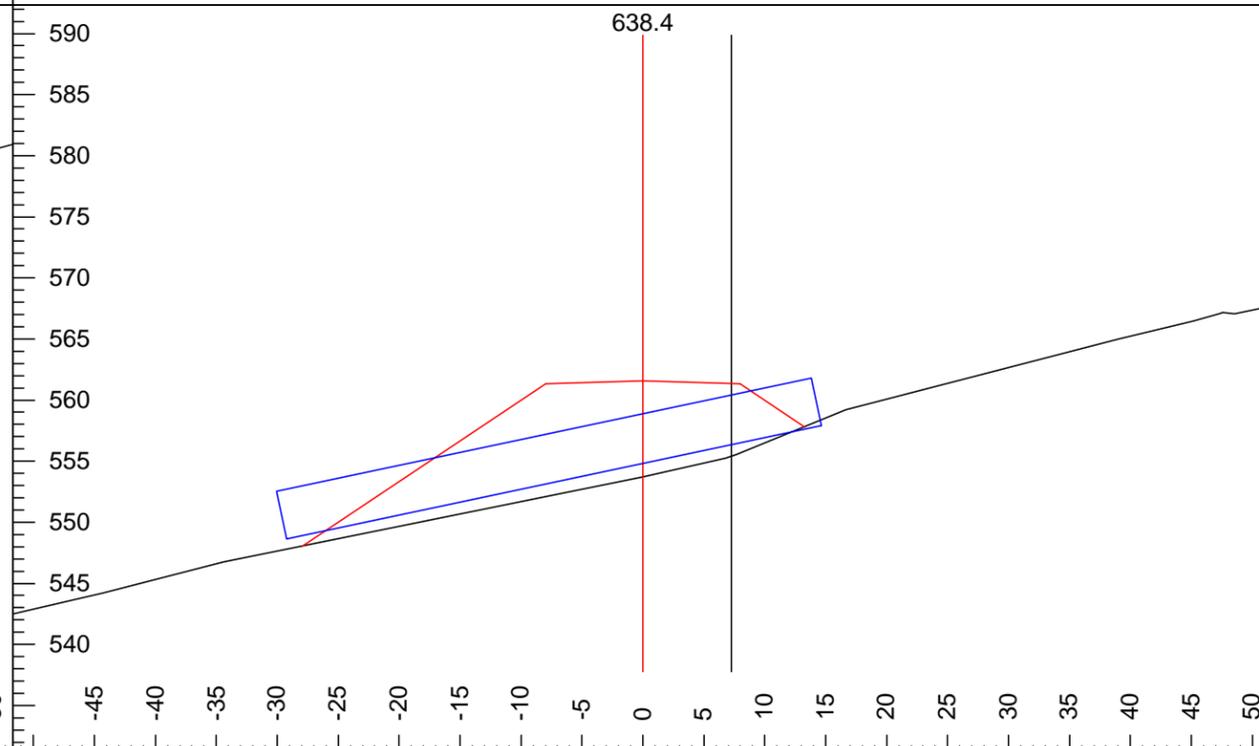
Trav.Cmnt:	2+55.4	Grd.Lst:	15	Stk R Y:	4.3
L-Stn:	508.2	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.4	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	2.6	Stk L X:	-18.5	Cul DIA:	36in
Cut Dp:	-2.4	Stk L Y:	-7.2	Cul Dip %:	-13
Grd.Nxt.:	15	Stk R X:	22.1	Cul Length:	35.0



Trav.Cmnt:	2+88.7	Grd.Lst:	10	Stk R Y:	2.8
L-Stn:	541.5	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	3.6	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	0.4	Stk L X:	-12.9	Cul DIA:	
Cut Dp:	0.3	Stk L Y:	-3.5	Cul Dip %:	
Grd.Nxt.:	10	Stk R X:	13.6	Cul Length:	



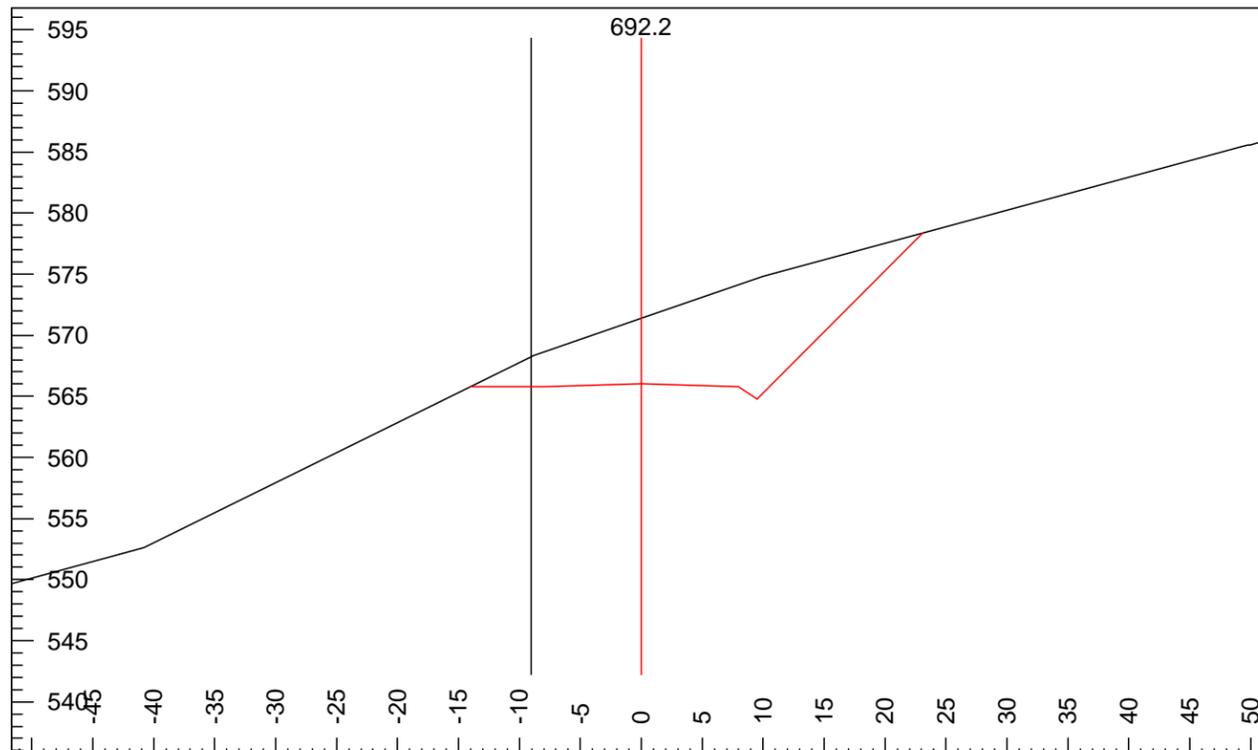
Trav.Cmnt:	3+48.6	Grd.Lst:	9	Stk R Y:	11.4
L-Stn:	601.1	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	7.1	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-2.1	Stk L X:	-12.4	Cul DIA:	
Cut Dp:	4.5	Stk L Y:	-0.2	Cul Dip %:	
Grd.Nxt.:	9	Stk R X:	22.1	Cul Length:	



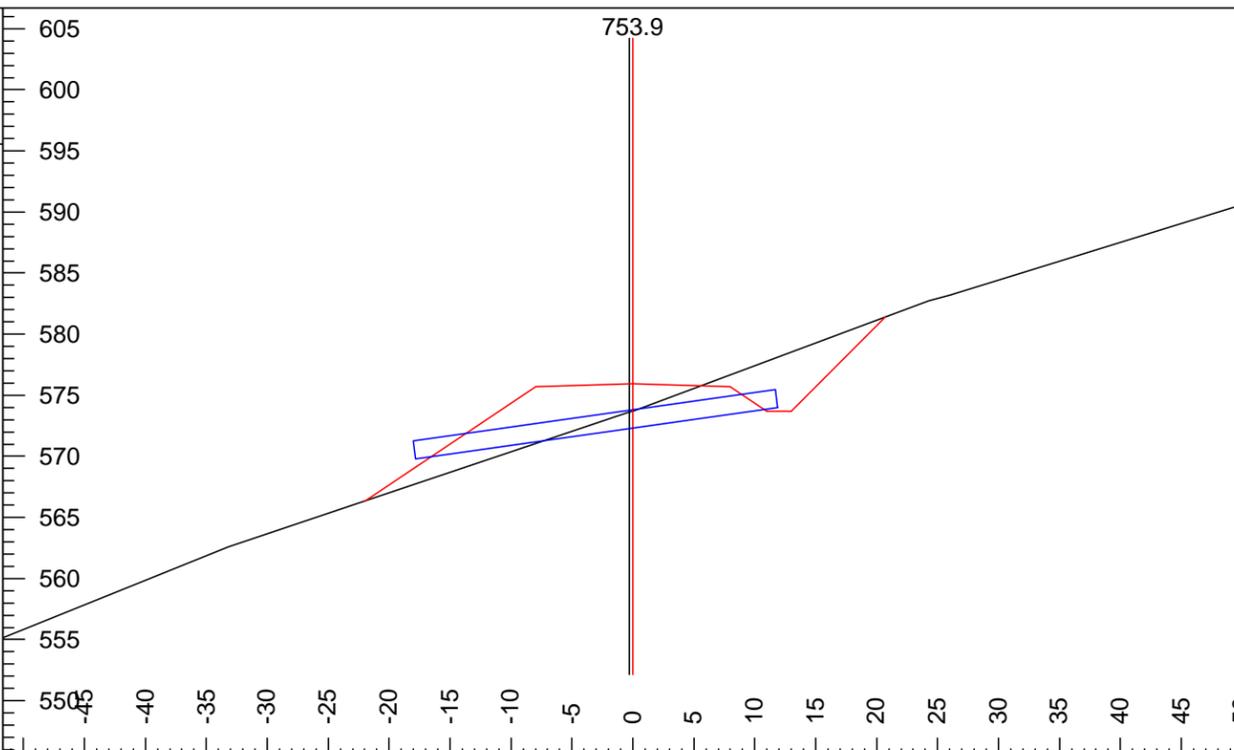
Trav.Cmnt:	3+86.1	Grd.Lst:	11	Stk R Y:	-3.8
L-Stn:	638.4	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-7.4	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	6.3	Stk L X:	-27.9	Cul DIA:	48in
Cut Dp:	-7.8	Stk L Y:	-13.5	Cul Dip %:	-21
Grd.Nxt.:	11	Stk R X:	13.3	Cul Length:	45.0

# 4003.5 Design Specifications

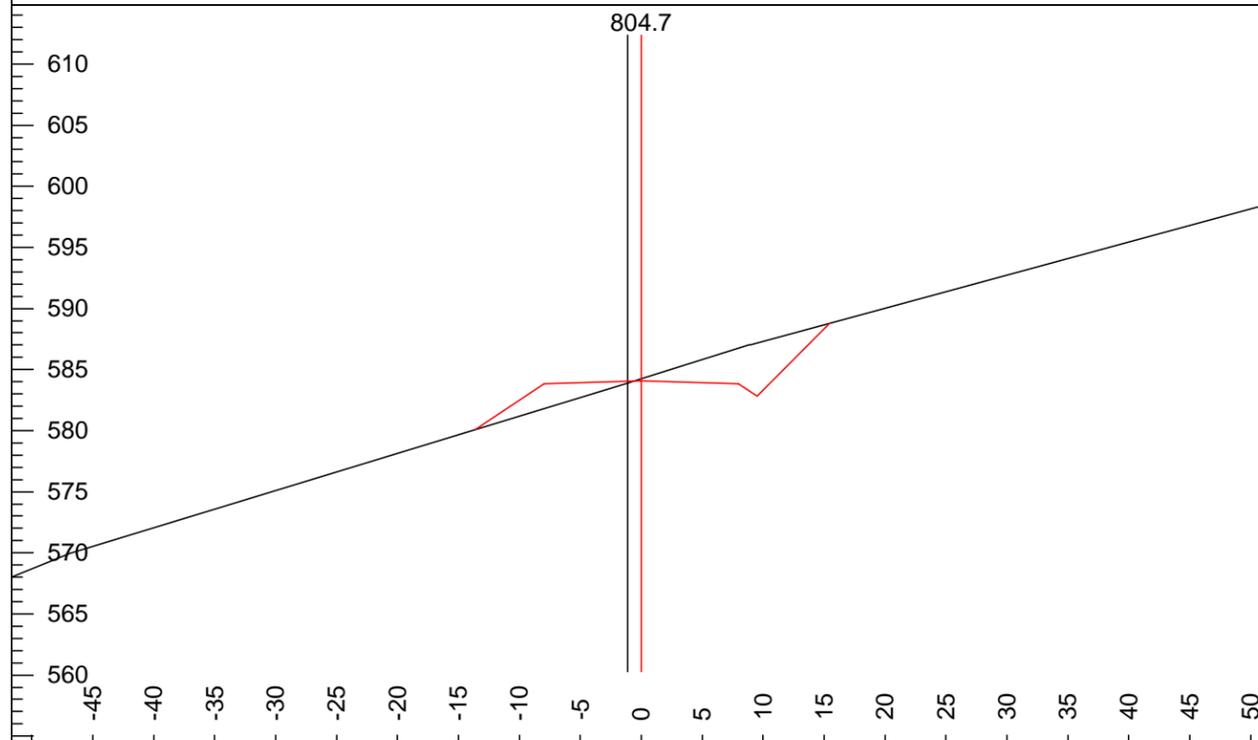
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



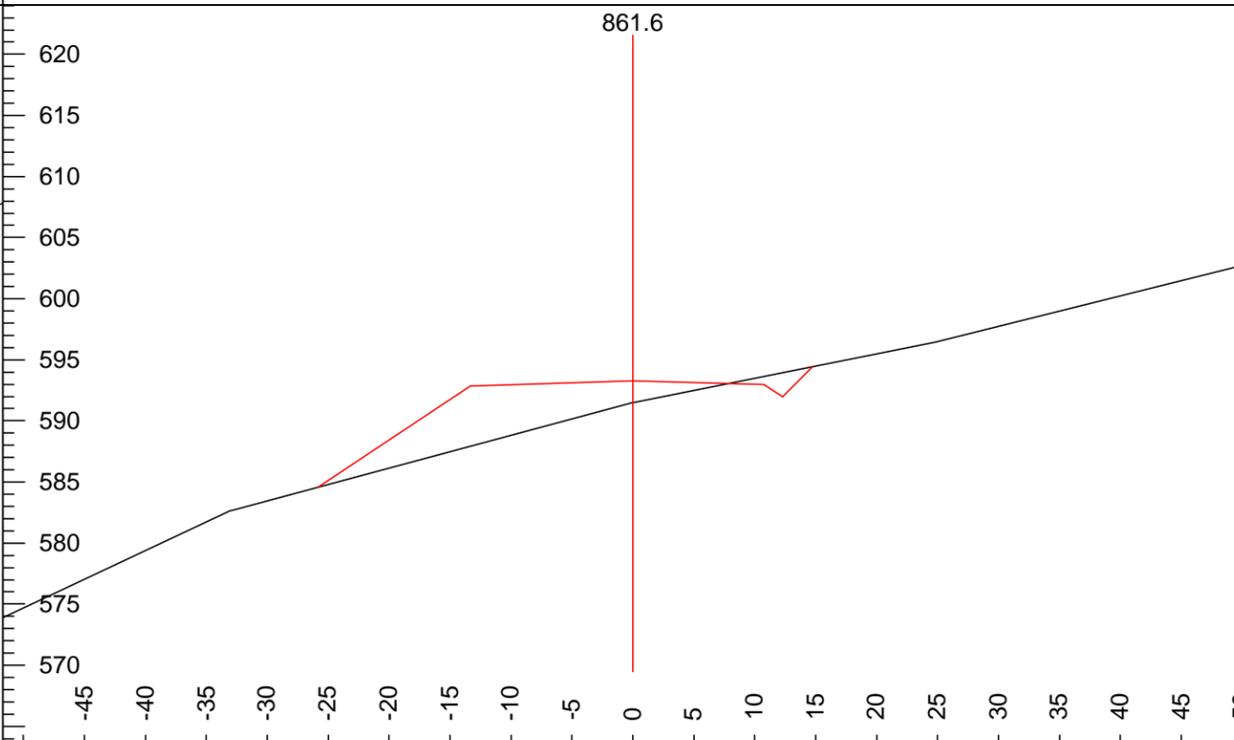
Trav.Cmnt:	4+42.9	Grd.Lst:	8	Stk R Y:	12.3
L-Stn:	692.2	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	9.1	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-2.3	Stk L X:	-14.1	Cul DIA:	
Cut Dp:	5.4	Stk L Y:	-0.2	Cul Dip %:	
Grd.Nxt.:	8	Stk R X:	23.1	Cul Length:	



Trav.Cmnt:	5+06.7	Grd.Lst:	16	Stk R Y:	5.5
L-Stn:	753.9	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.3	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	2.3	Stk L X:	-22.0	Cul DIA:	18in
Cut Dp:	-2.2	Stk L Y:	-9.6	Cul Dip %:	-14
Grd.Nxt.:	16	Stk R X:	20.7	Cul Length:	30.0



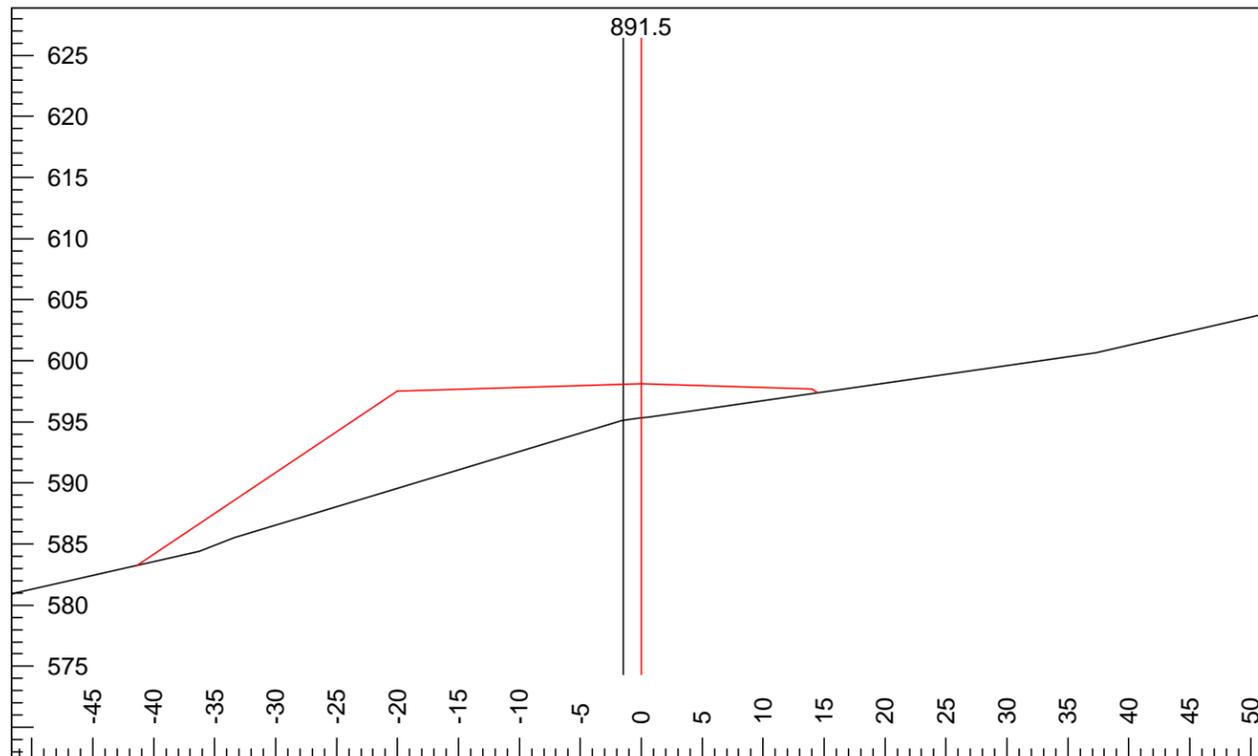
Trav.Cmnt:	5+57.4	Grd.Lst:	16	Stk R Y:	4.7
L-Stn:	804.7	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	1.1	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	0.1	Stk L X:	-13.6	Cul DIA:	
Cut Dp:	0.2	Stk L Y:	-4.0	Cul Dip %:	
Grd.Nxt.:	16	Stk R X:	15.5	Cul Length:	



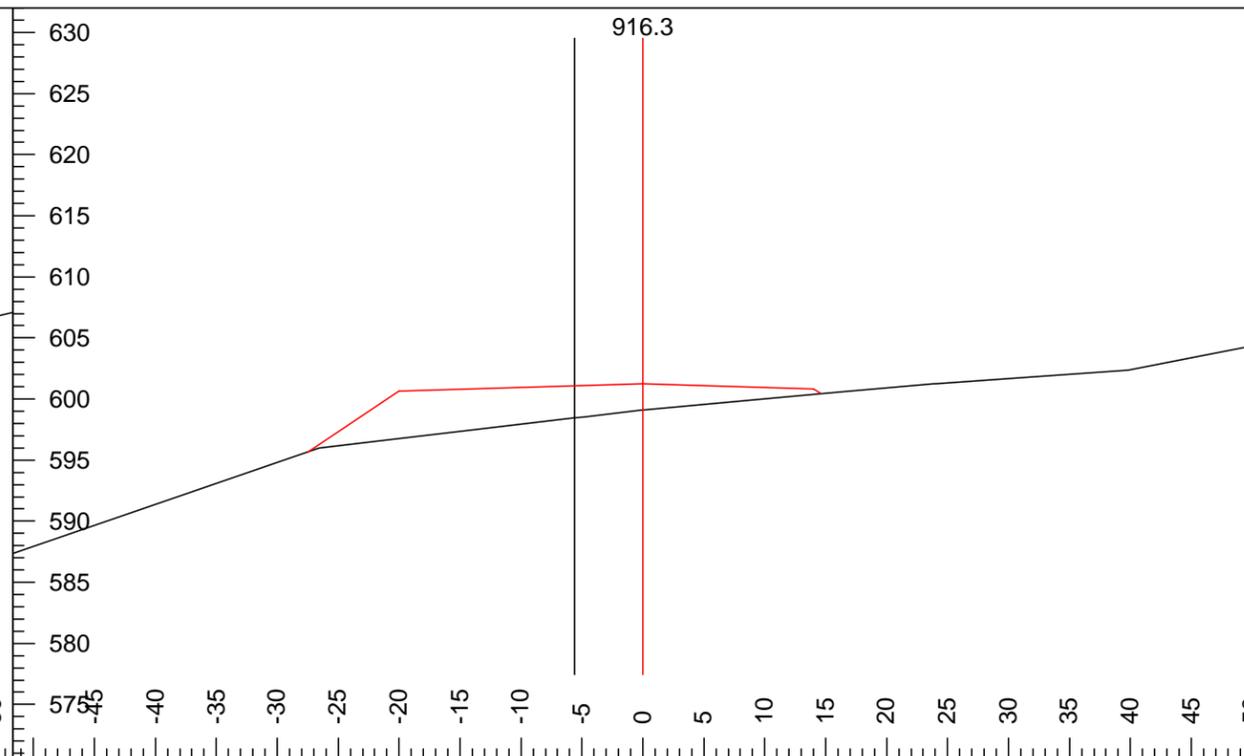
Trav.Cmnt:	6+14.3	Grd.Lst:	16	Stk R Y:	1.2
L-Stn:	861.6	Rd. Wd. R:	10.8	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	13.4	FILL_SLOPE (Right):	67
V.Offset:	1.7	Stk L X:	-25.8	Cul DIA:	
Cut Dp:	-1.8	Stk L Y:	-8.7	Cul Dip %:	
Grd.Nxt.:	16	Stk R X:	14.8	Cul Length:	

# 4003.5 Design Specifications

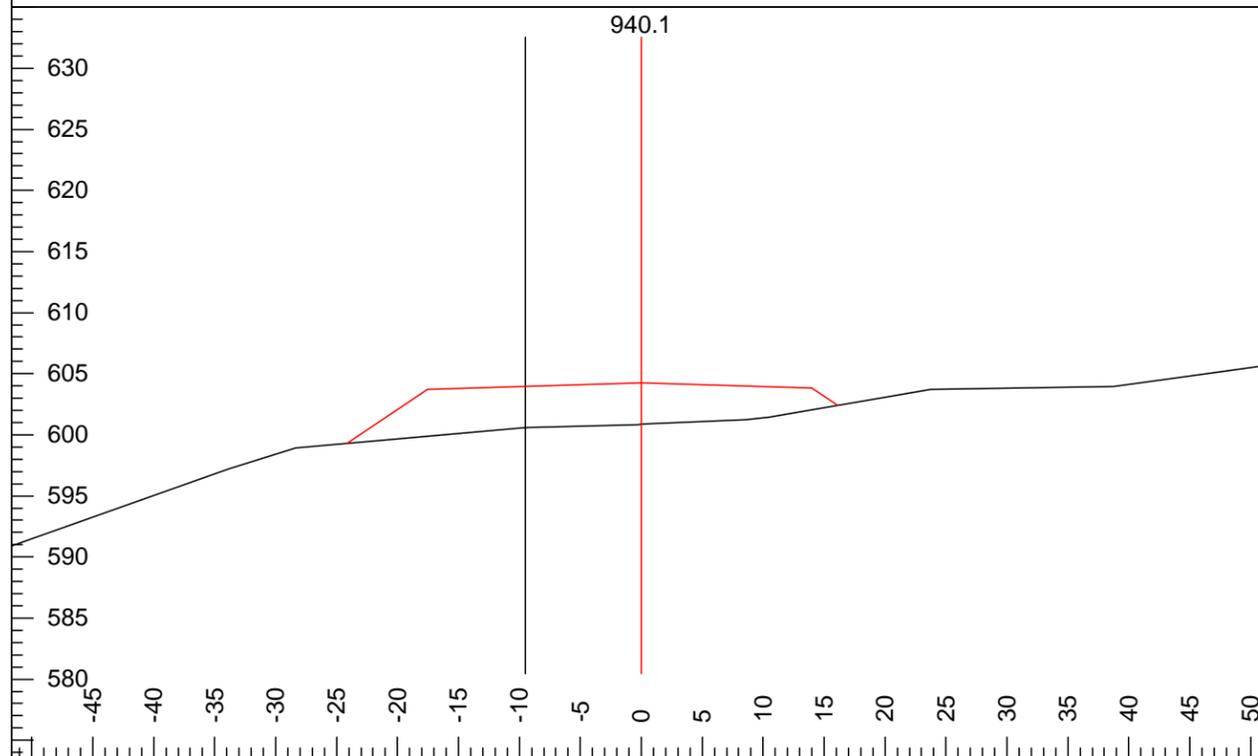
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



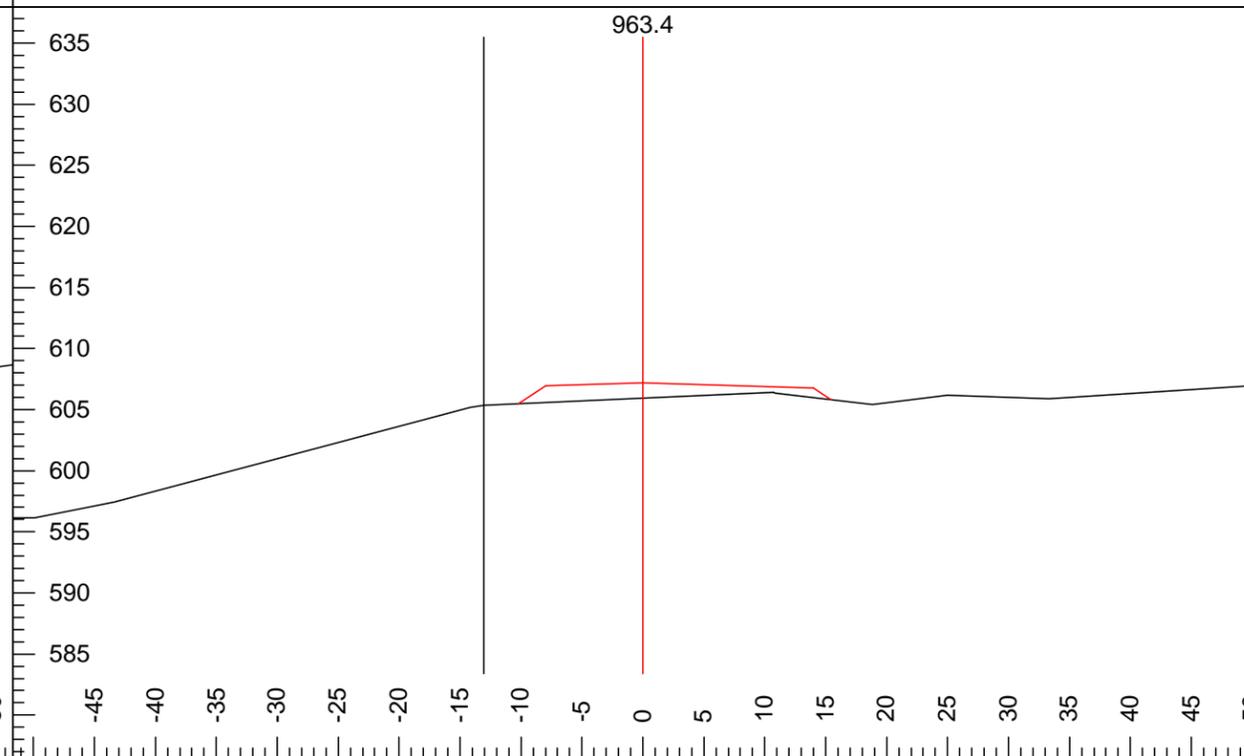
Trav.Cmnt:	6+44	Grd.Lst:	13	Stk R Y:	-0.7
L-Stn:	891.5	Rd. Wd. R:	14.0	CUT_SLOPE1 (Right):	100
H. Offset:	1.5	Rd. Wd. L:	20.0	FILL_SLOPE (Right):	67
V.Offset:	3.0	Stk L X:	-41.4	Cul DIA:	
Cut Dp:	-2.8	Stk L Y:	-14.9	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	14.5	Cul Length:	



Trav.Cmnt:	6+69.8	Grd.Lst:	13	Stk R Y:	-0.8
L-Stn:	916.3	Rd. Wd. R:	14.0	CUT_SLOPE1 (Right):	100
H. Offset:	5.7	Rd. Wd. L:	20.0	FILL_SLOPE (Right):	67
V.Offset:	2.8	Stk L X:	-27.5	Cul DIA:	
Cut Dp:	-2.2	Stk L Y:	-5.6	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	14.6	Cul Length:	



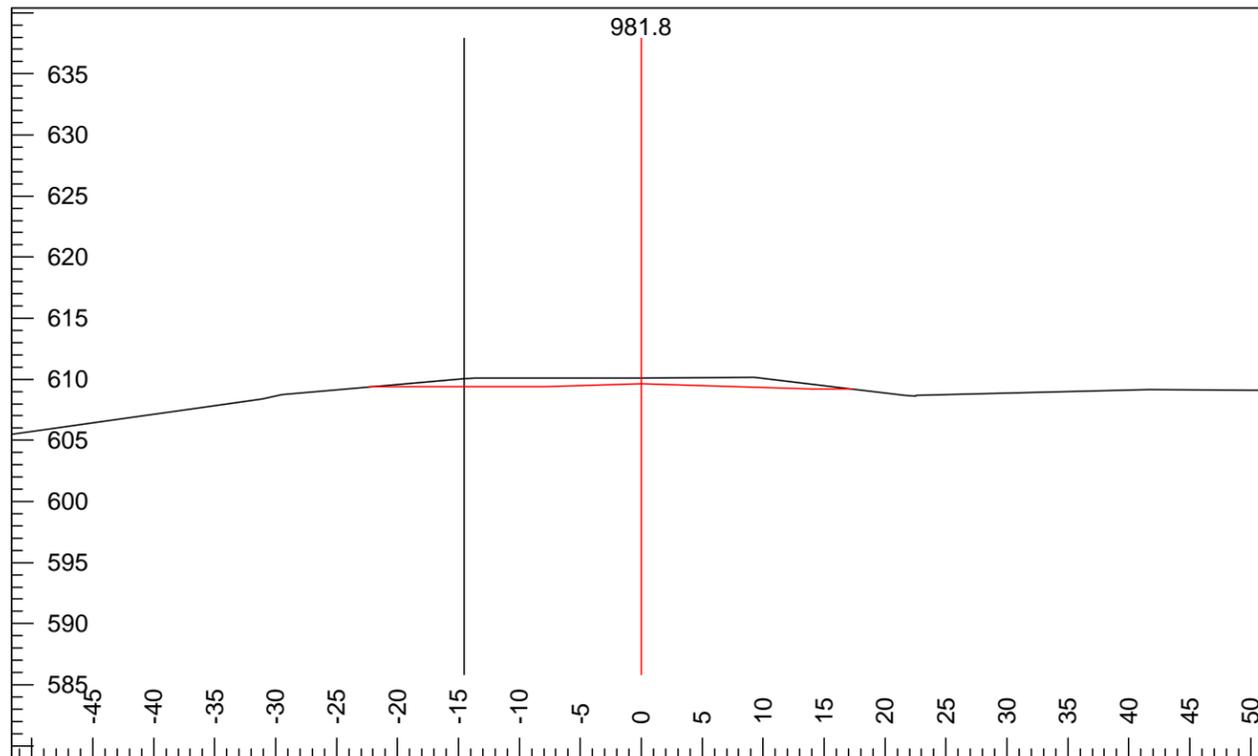
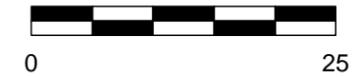
Trav.Cmnt:	6+95.8	Grd.Lst:	13	Stk R Y:	-1.9
L-Stn:	940.1	Rd. Wd. R:	14.0	CUT_SLOPE1 (Right):	100
H. Offset:	9.7	Rd. Wd. L:	17.5	FILL_SLOPE (Right):	67
V.Offset:	4.0	Stk L X:	-24.2	Cul DIA:	
Cut Dp:	-3.4	Stk L Y:	-5.0	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	16.2	Cul Length:	



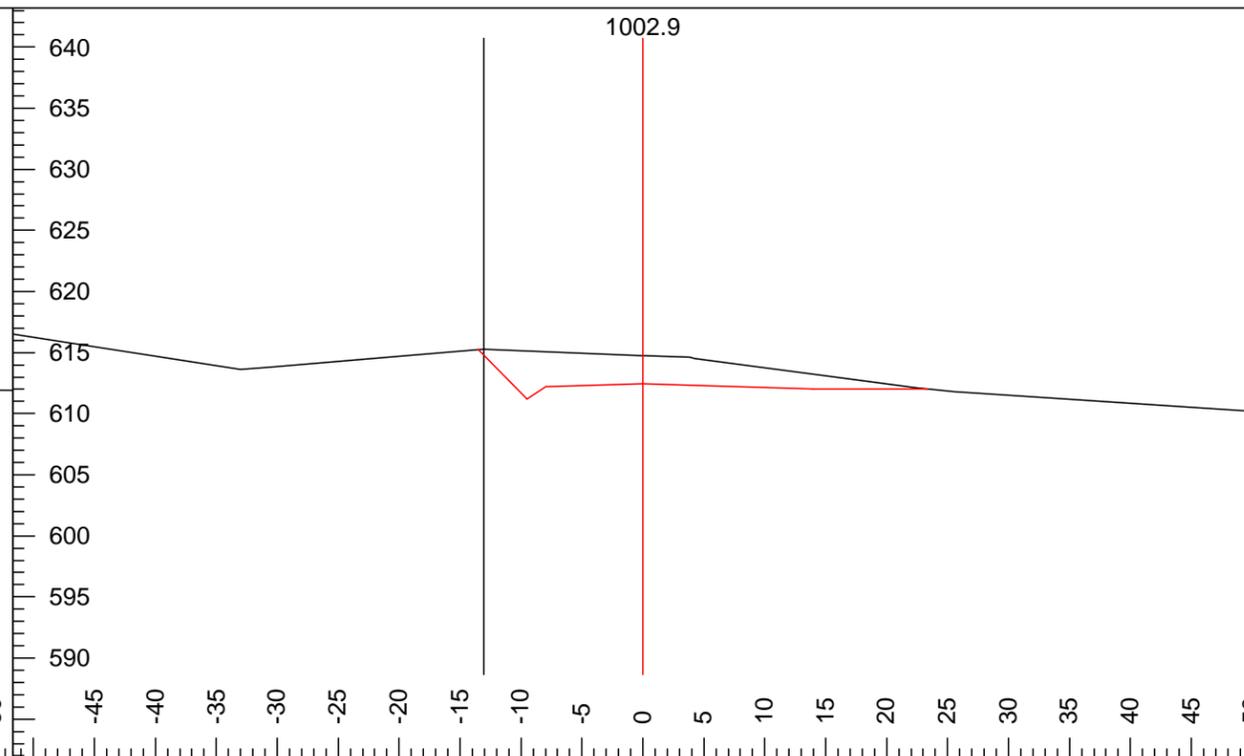
Trav.Cmnt:	7+22.7	Grd.Lst:	13	Stk R Y:	-1.4
L-Stn:	963.4	Rd. Wd. R:	14.0	CUT_SLOPE1 (Right):	100
H. Offset:	13.3	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	2.3	Stk L X:	-10.2	Cul DIA:	
Cut Dp:	-1.2	Stk L Y:	-1.7	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	15.4	Cul Length:	

# 4003.5 Design Specifications

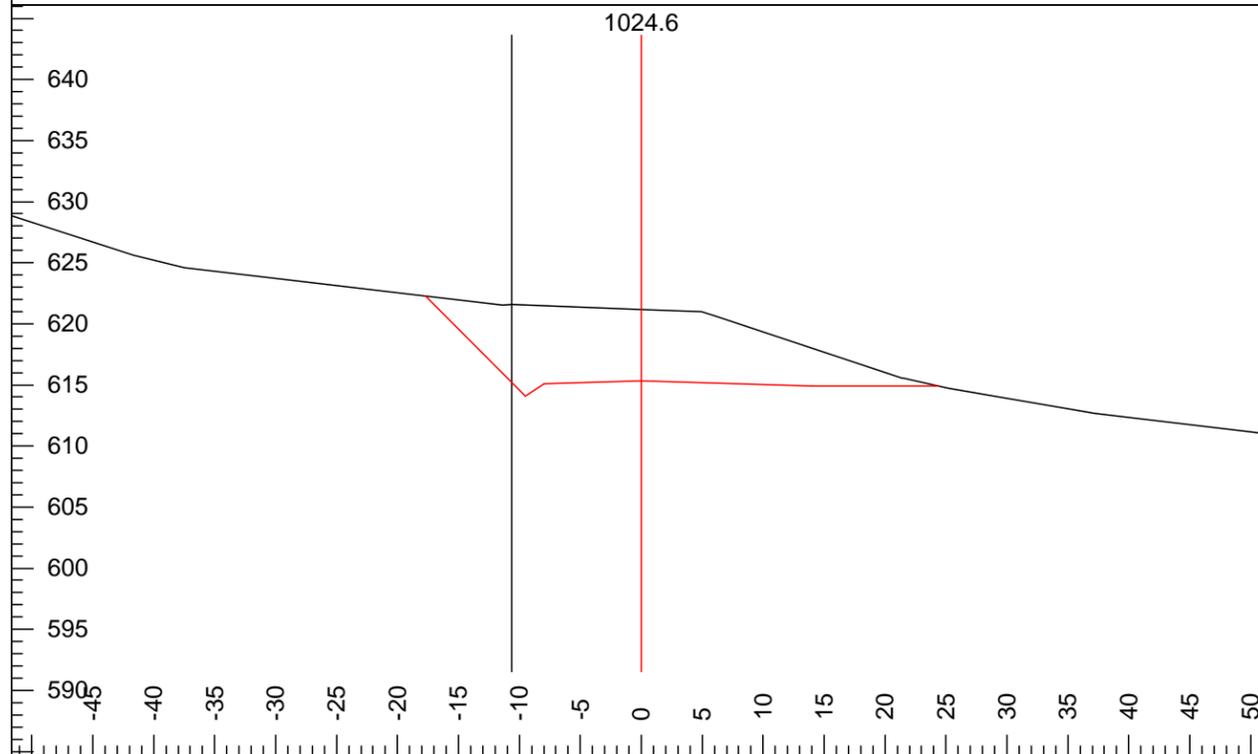
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



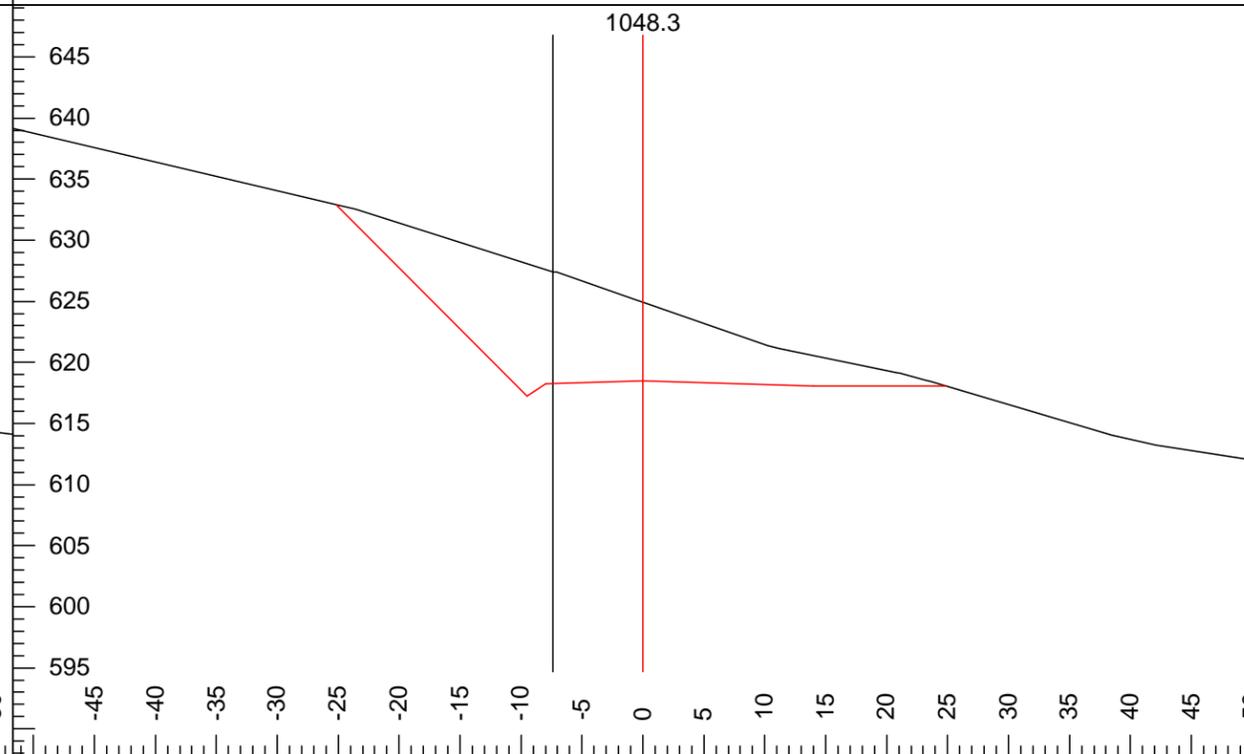
Trav.Cmnt:	7+45.8	Grd.Lst:	13	Stk R Y:	-0.4
L-Stn:	981.8	Rd. Wd. R:	14.0	CUT_SLOPE1 (Right):	100
H. Offset:	14.6	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-0.6	Stk L X:	-22.3	Cul DIA:	
Cut Dp:	0.5	Stk L Y:	-0.2	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	17.3	Cul Length:	



Trav.Cmnt:	7+71.7	Grd.Lst:	13	Stk R Y:	-0.4
L-Stn:	1002.9	Rd. Wd. R:	14.0	CUT_SLOPE1 (Right):	100
H. Offset:	13.2	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-3.1	Stk L X:	-13.5	Cul DIA:	
Cut Dp:	2.3	Stk L Y:	2.8	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	23.4	Cul Length:	



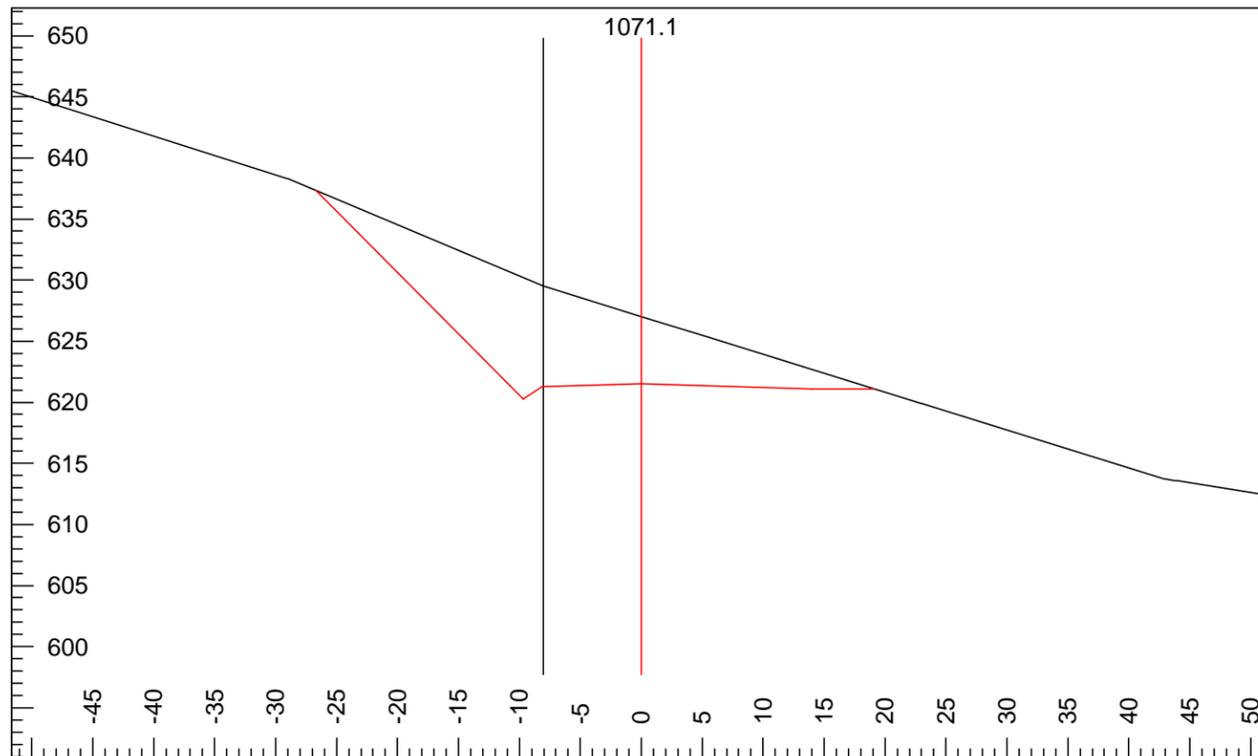
Trav.Cmnt:	7+97.4	Grd.Lst:	13	Stk R Y:	-0.4
L-Stn:	1024.6	Rd. Wd. R:	14.0	CUT_SLOPE1 (Right):	100
H. Offset:	10.8	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-6.6	Stk L X:	-17.7	Cul DIA:	
Cut Dp:	5.8	Stk L Y:	7.0	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	24.4	Cul Length:	



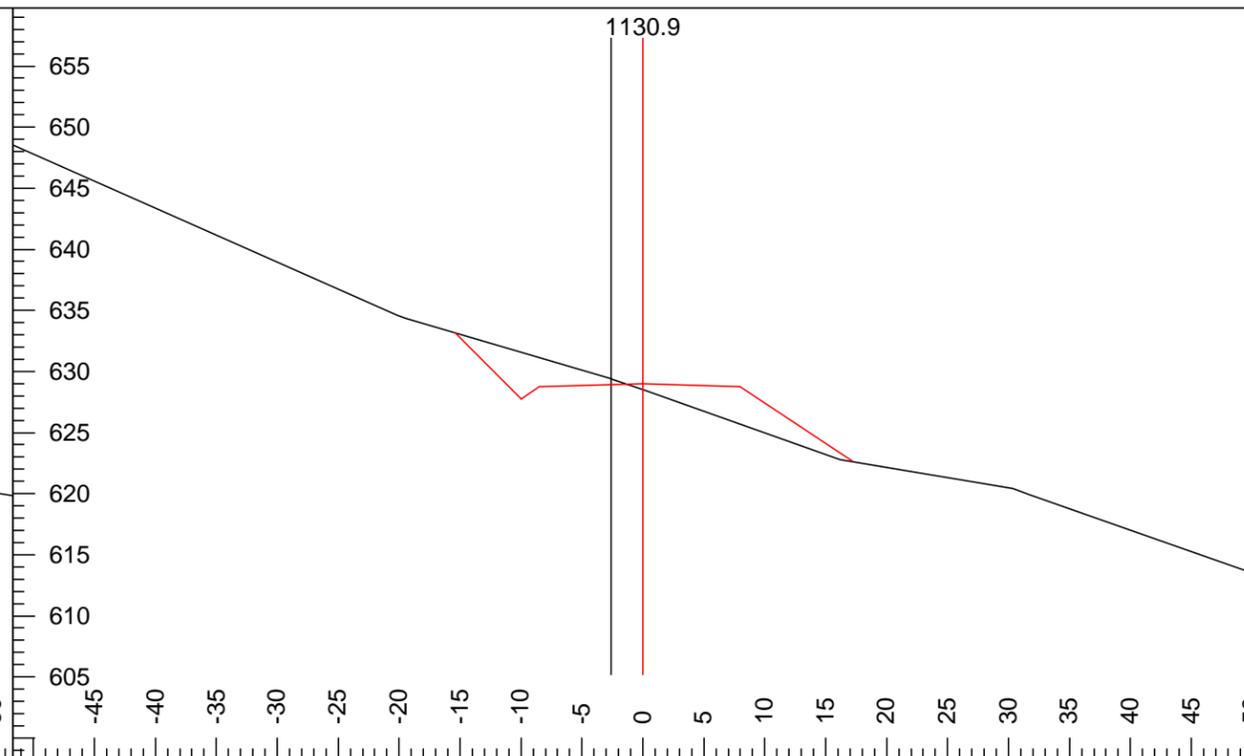
Trav.Cmnt:	8+23.3	Grd.Lst:	13	Stk R Y:	-0.4
L-Stn:	1048.3	Rd. Wd. R:	14.0	CUT_SLOPE1 (Right):	100
H. Offset:	7.4	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-9.0	Stk L X:	-25.2	Cul DIA:	
Cut Dp:	6.4	Stk L Y:	14.4	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	24.8	Cul Length:	

# 4003.5 Design Specifications

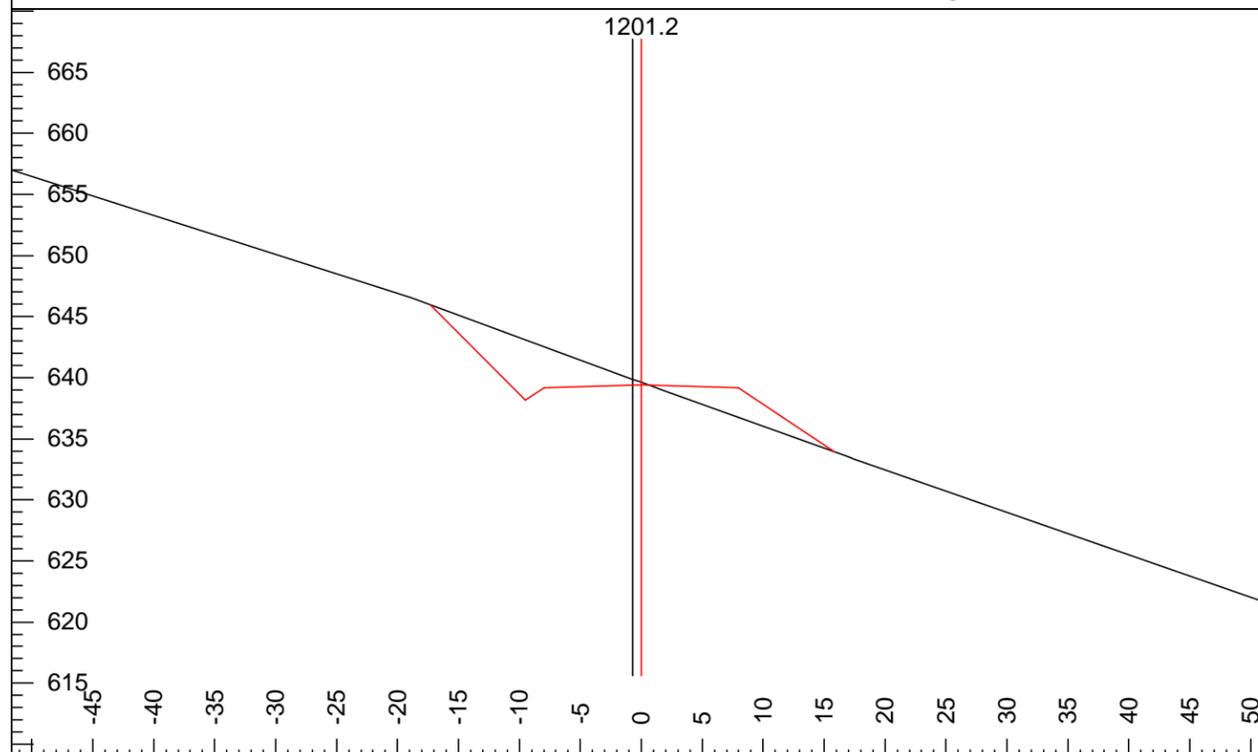
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



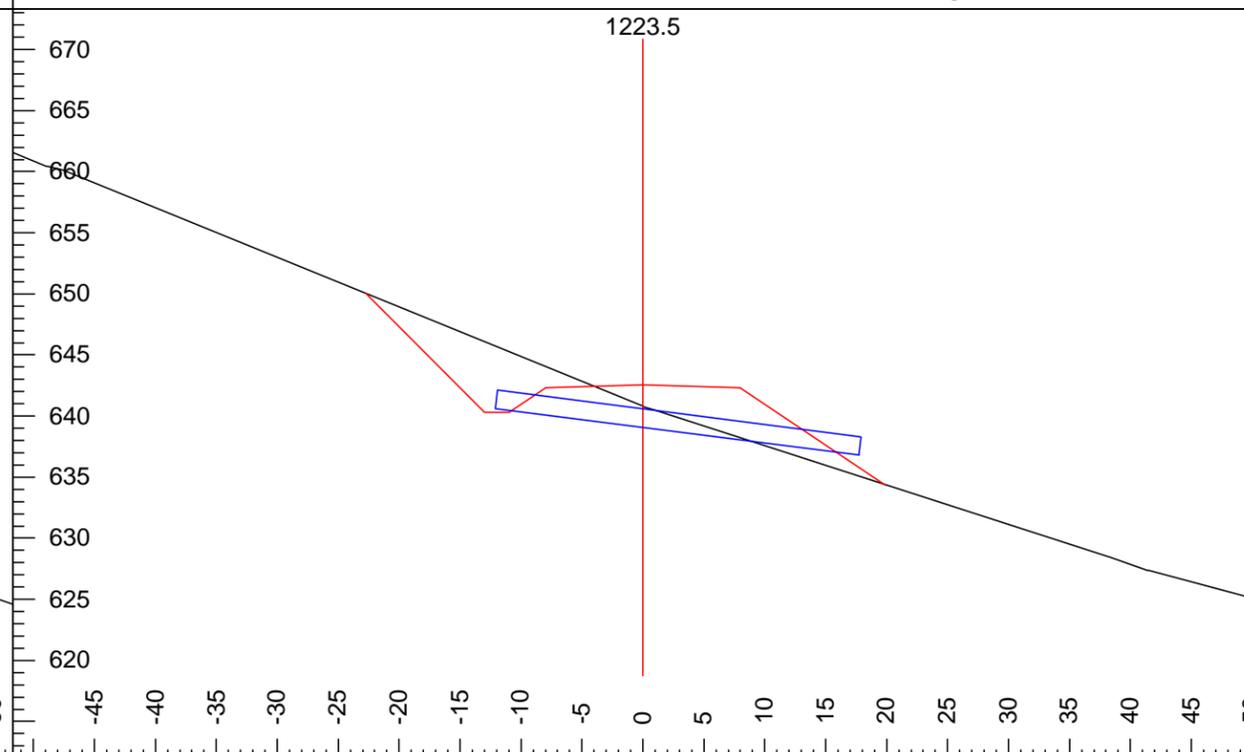
Trav.Cmnt:	8+48.2	Grd.Lst:	13	Stk R Y:	-0.4
L-Stn:	1071.1	Rd. Wd. R:	14.0	CUT_SLOPE1 (Right):	100
H. Offset:	8.0	Rd. Wd. L:	8.2	FILL_SLOPE (Right):	67
V.Offset:	-8.0	Stk L X:	-26.7	Cul DIA:	
Cut Dp:	5.5	Stk L Y:	15.8	Cul Dip %:	
Grd.Nxt.:	13	Stk R X:	19.1	Cul Length:	



Trav.Cmnt:	9+08.1	Grd.Lst:	12	Stk R Y:	-6.3
L-Stn:	1130.9	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	2.5	Rd. Wd. L:	8.5	FILL_SLOPE (Right):	67
V.Offset:	-0.4	Stk L X:	-15.4	Cul DIA:	
Cut Dp:	-0.5	Stk L Y:	4.2	Cul Dip %:	
Grd.Nxt.:	12	Stk R X:	17.2	Cul Length:	



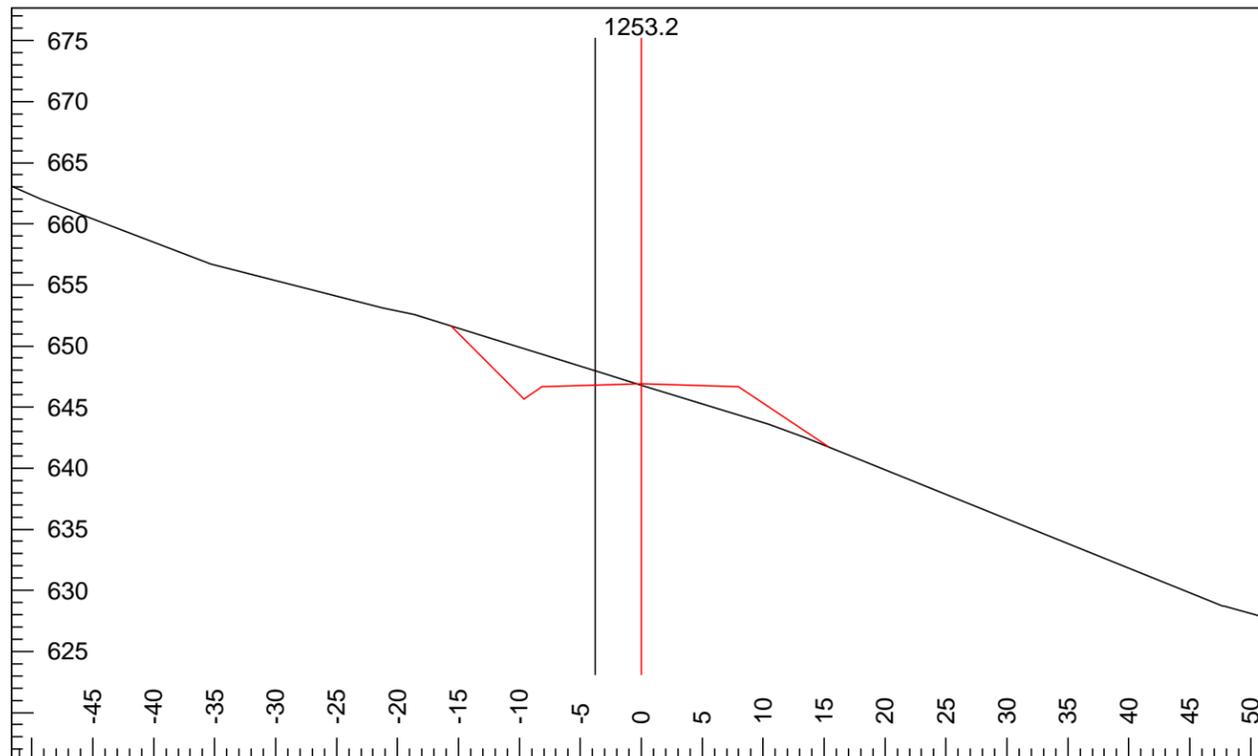
Trav.Cmnt:	9+78.1	Grd.Lst:	14	Stk R Y:	-5.5
L-Stn:	1201.2	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.7	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-0.5	Stk L X:	-17.3	Cul DIA:	
Cut Dp:	0.2	Stk L Y:	6.5	Cul Dip %:	
Grd.Nxt.:	14	Stk R X:	15.9	Cul Length:	



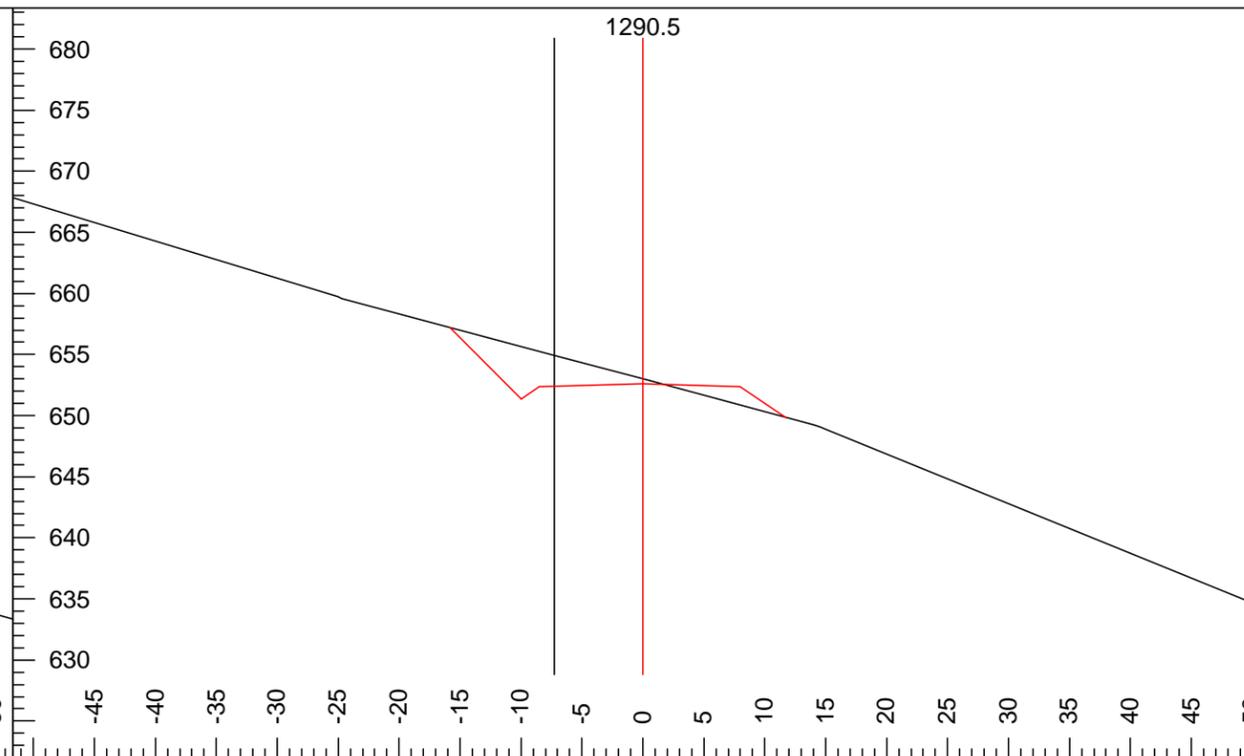
Trav.Cmnt:	10+00.4	Grd.Lst:	14	Stk R Y:	-8.2
L-Stn:	1223.5	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	1.7	Stk L X:	-22.7	Cul DIA:	18in
Cut Dp:	-1.7	Stk L Y:	7.5	Cul Dip %:	12
Grd.Nxt.:	14	Stk R X:	19.9	Cul Length:	32.0

# 4003.5 Design Specifications

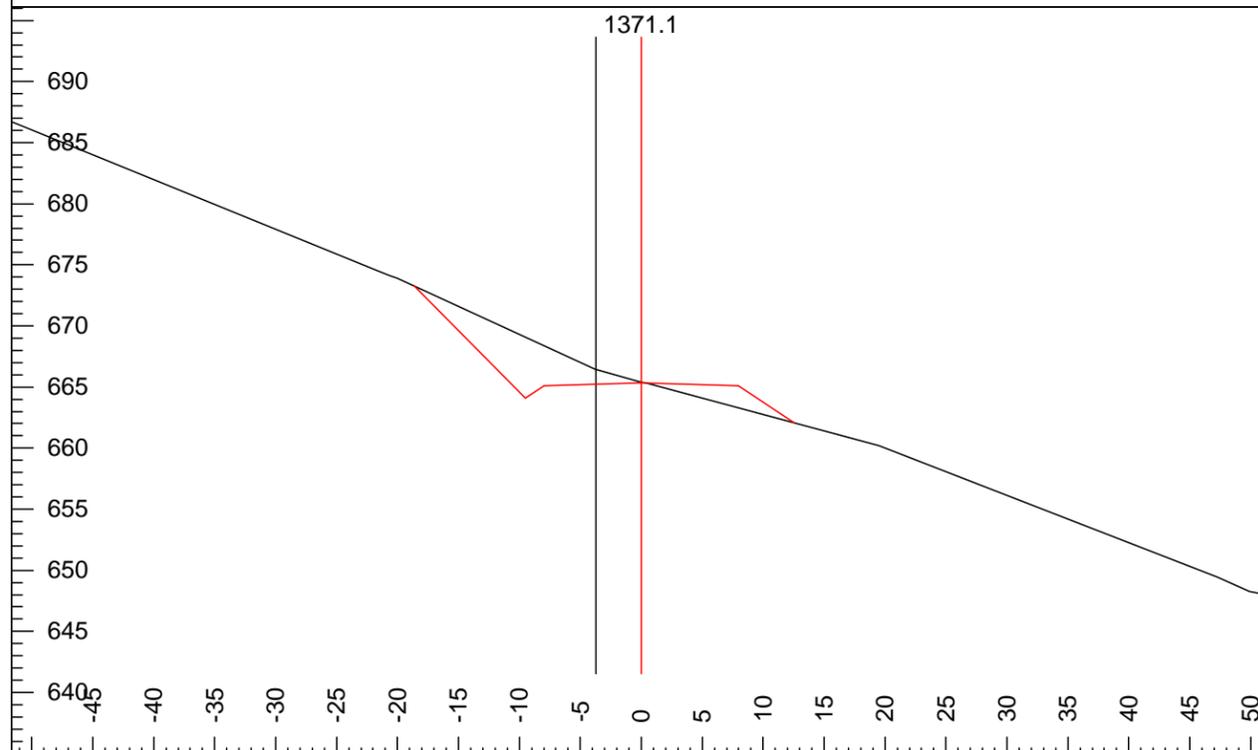
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



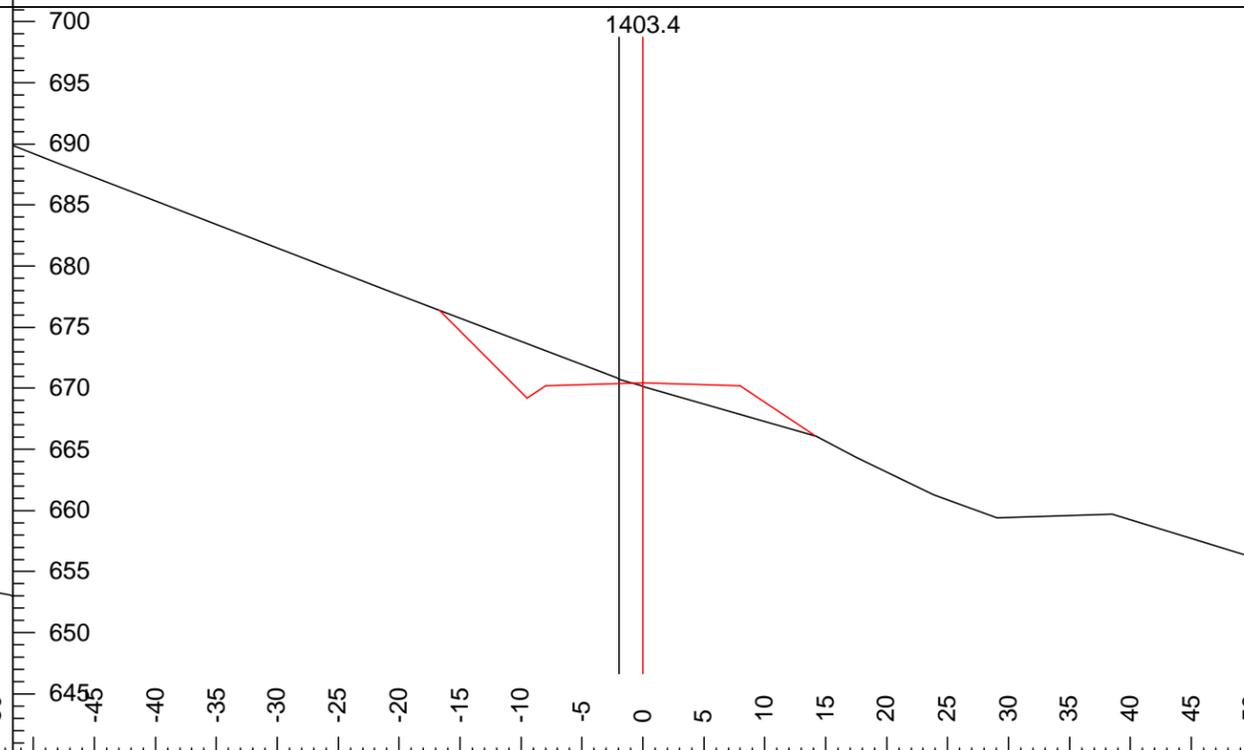
Trav.Cmnt:	10+29	Grd.Lst:	15	Stk R Y:	-5.1
L-Stn:	1253.2	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	3.7	Rd. Wd. L:	8.1	FILL_SLOPE (Right):	67
V.Offset:	-0.9	Stk L X:	-15.6	Cul DIA:	
Cut Dp:	-0.1	Stk L Y:	4.7	Cul Dip %:	
Grd.Nxt.:	15	Stk R X:	15.3	Cul Length:	



Trav.Cmnt:	10+65.9	Grd.Lst:	16	Stk R Y:	-2.7
L-Stn:	1290.5	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	7.2	Rd. Wd. L:	8.5	FILL_SLOPE (Right):	67
V.Offset:	-2.3	Stk L X:	-15.9	Cul DIA:	
Cut Dp:	0.4	Stk L Y:	4.6	Cul Dip %:	
Grd.Nxt.:	16	Stk R X:	11.8	Cul Length:	



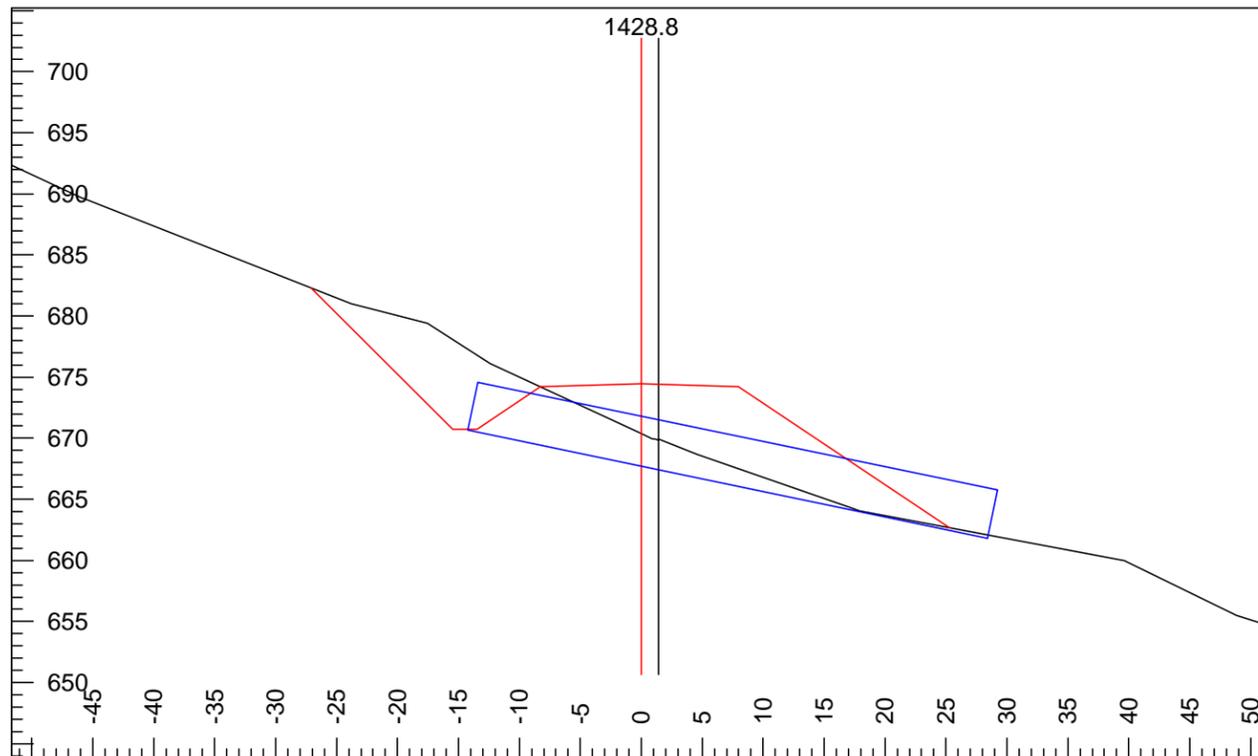
Trav.Cmnt:	11+45.7	Grd.Lst:	16	Stk R Y:	-3.3
L-Stn:	1371.1	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	3.7	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-1.0	Stk L X:	-18.7	Cul DIA:	
Cut Dp:	0.1	Stk L Y:	7.9	Cul Dip %:	
Grd.Nxt.:	16	Stk R X:	12.5	Cul Length:	



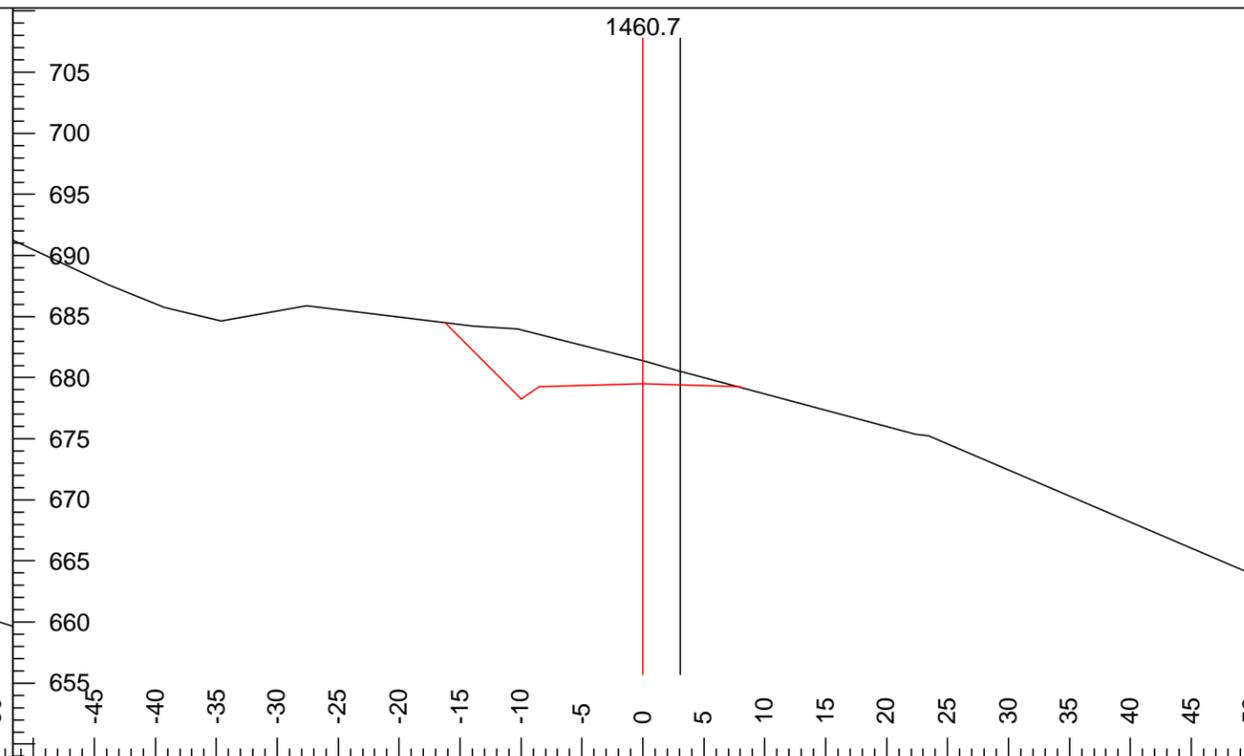
Trav.Cmnt:	11+78.7	Grd.Lst:	16	Stk R Y:	-4.3
L-Stn:	1403.4	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	2.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-0.4	Stk L X:	-16.7	Cul DIA:	
Cut Dp:	-0.3	Stk L Y:	6.0	Cul Dip %:	
Grd.Nxt.:	16	Stk R X:	14.1	Cul Length:	

# 4003.5 Design Specifications

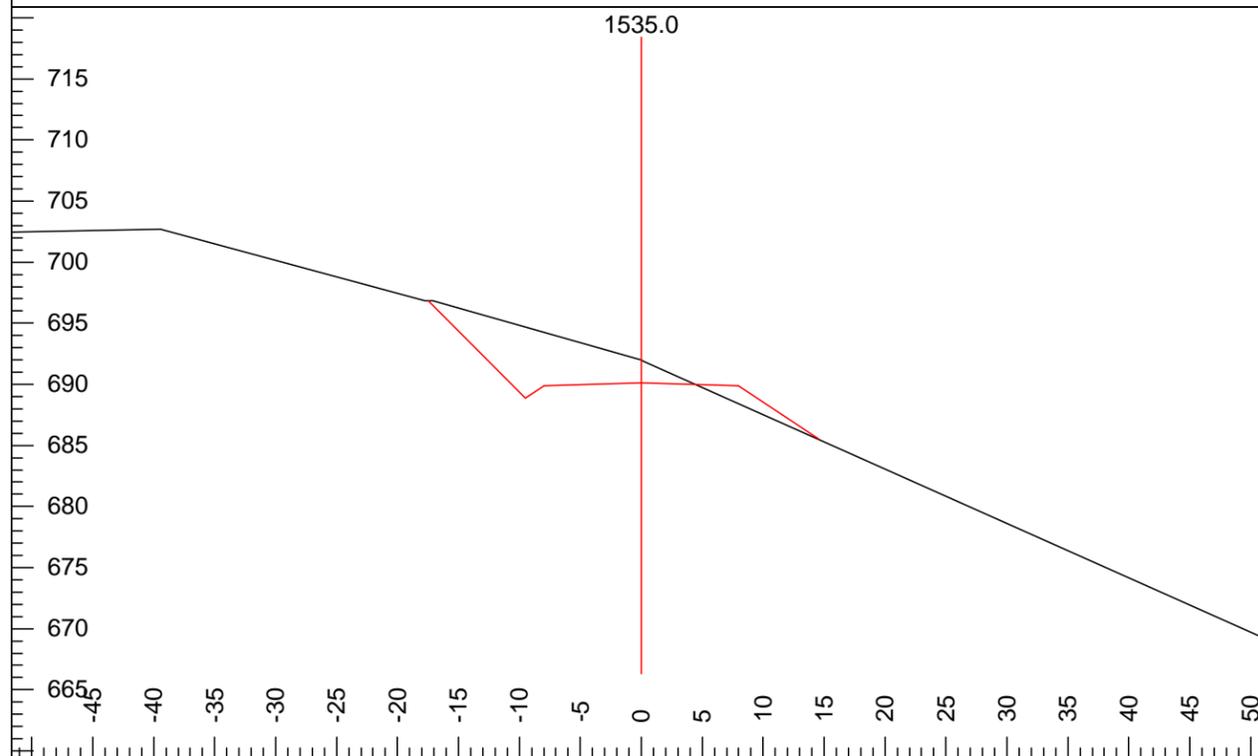
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



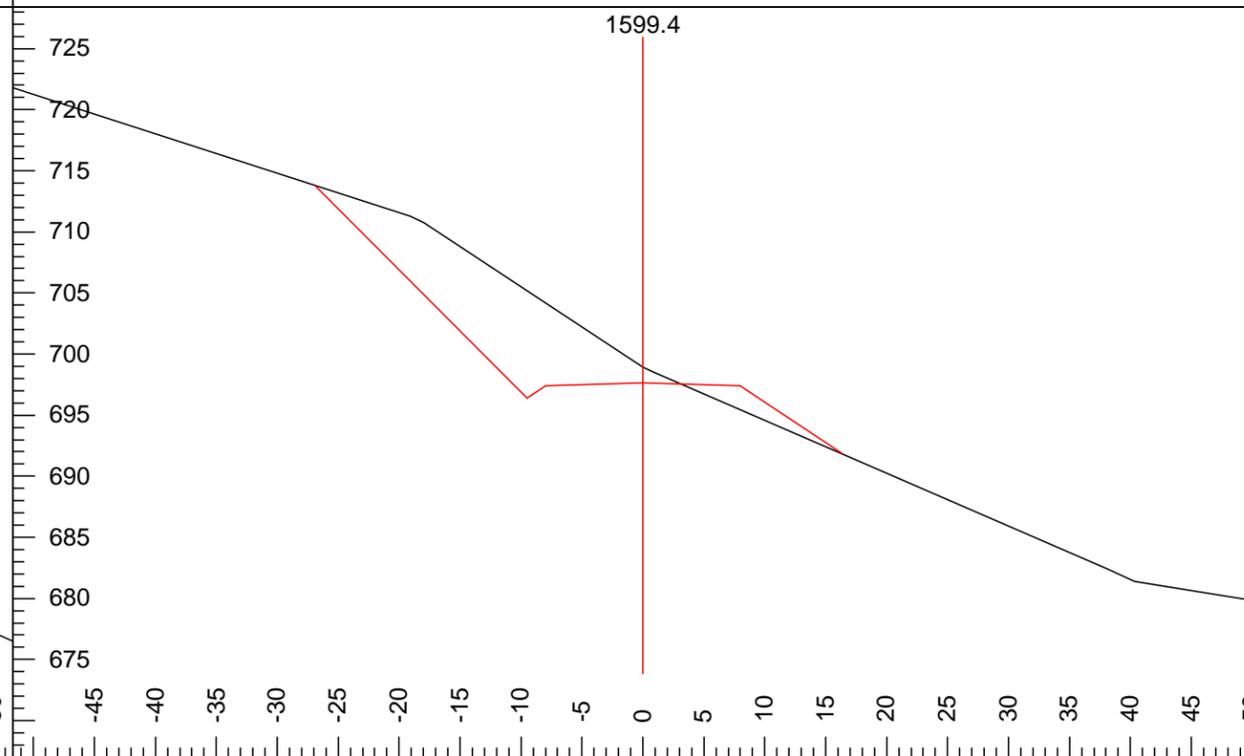
Trav.Cmnt:	12+04	Grd.Lst:	16	Stk R Y:	-11.8
L-Stn:	1428.8	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-1.4	Rd. Wd. L:	8.2	FILL_SLOPE (Right):	67
V.Offset:	4.7	Stk L X:	-27.1	Cul DIA:	48in
Cut Dp:	-4.1	Stk L Y:	7.8	Cul Dip %:	20
Grd.Nxt.:	16	Stk R X:	25.3	Cul Length:	45.0



Trav.Cmnt:	12.36.8	Grd.Lst:	14	Stk R Y:	-0.4
L-Stn:	1460.7	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-3.1	Rd. Wd. L:	8.5	FILL_SLOPE (Right):	67
V.Offset:	-1.1	Stk L X:	-16.3	Cul DIA:	
Cut Dp:	1.9	Stk L Y:	5.0	Cul Dip %:	
Grd.Nxt.:	14	Stk R X:	8.2	Cul Length:	



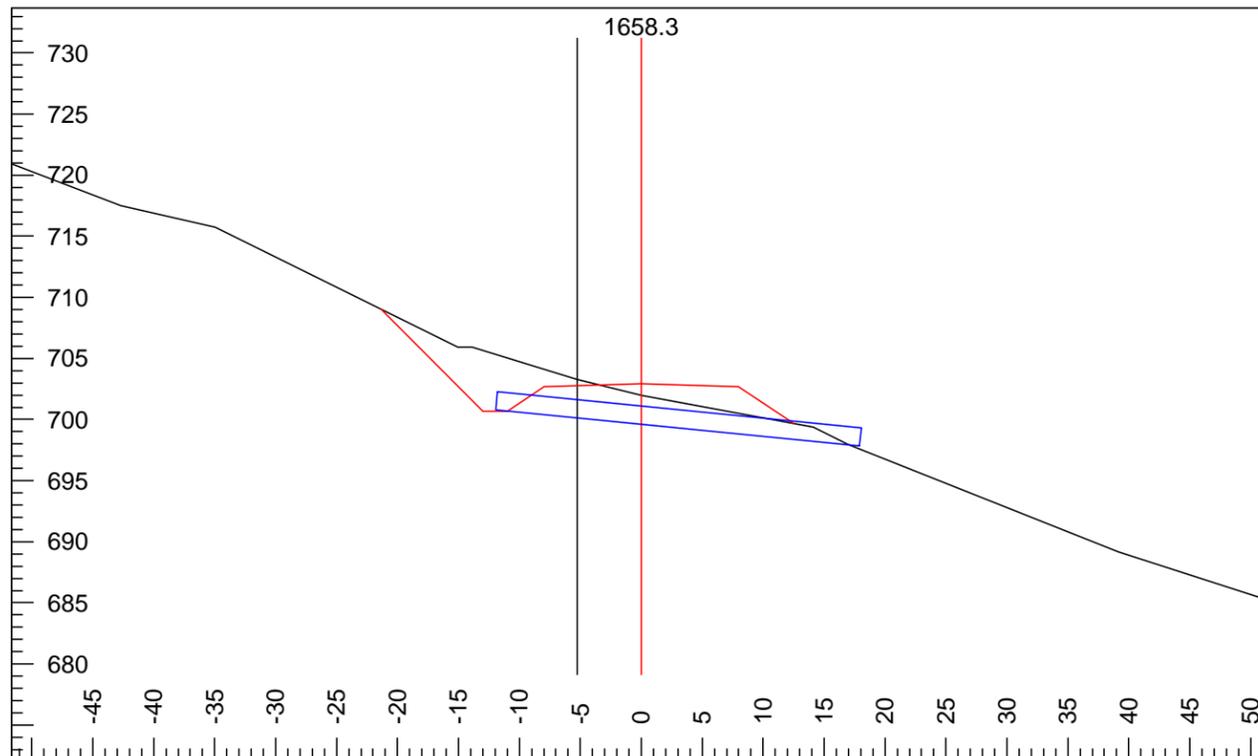
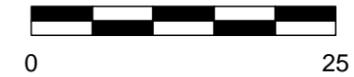
Trav.Cmnt:	13+10.6	Grd.Lst:	14	Stk R Y:	-4.6
L-Stn:	1535.0	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-1.8	Stk L X:	-17.5	Cul DIA:	
Cut Dp:	1.9	Stk L Y:	6.7	Cul Dip %:	
Grd.Nxt.:	14	Stk R X:	14.6	Cul Length:	



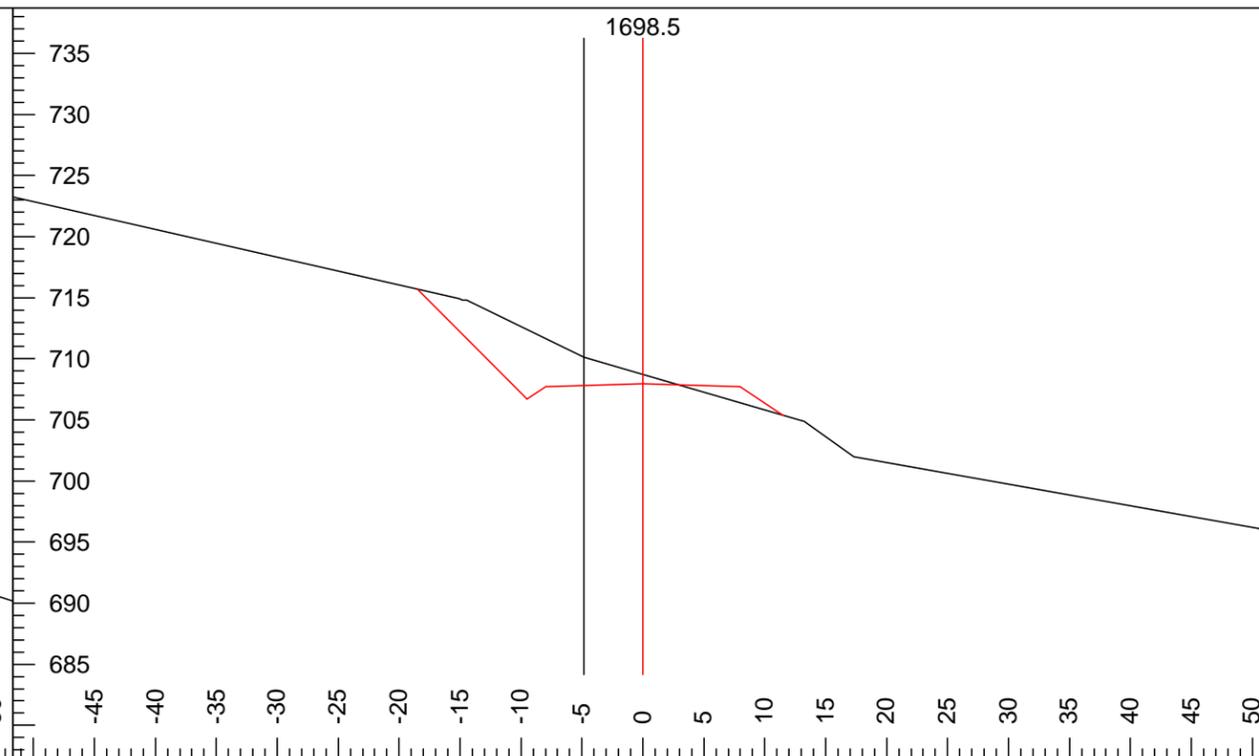
Trav.Cmnt:	13+75.1	Grd.Lst:	12	Stk R Y:	-5.8
L-Stn:	1599.4	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-1.2	Stk L X:	-26.9	Cul DIA:	
Cut Dp:	1.3	Stk L Y:	16.1	Cul Dip %:	
Grd.Nxt.:	12	Stk R X:	16.4	Cul Length:	

# 4003.5 Design Specifications

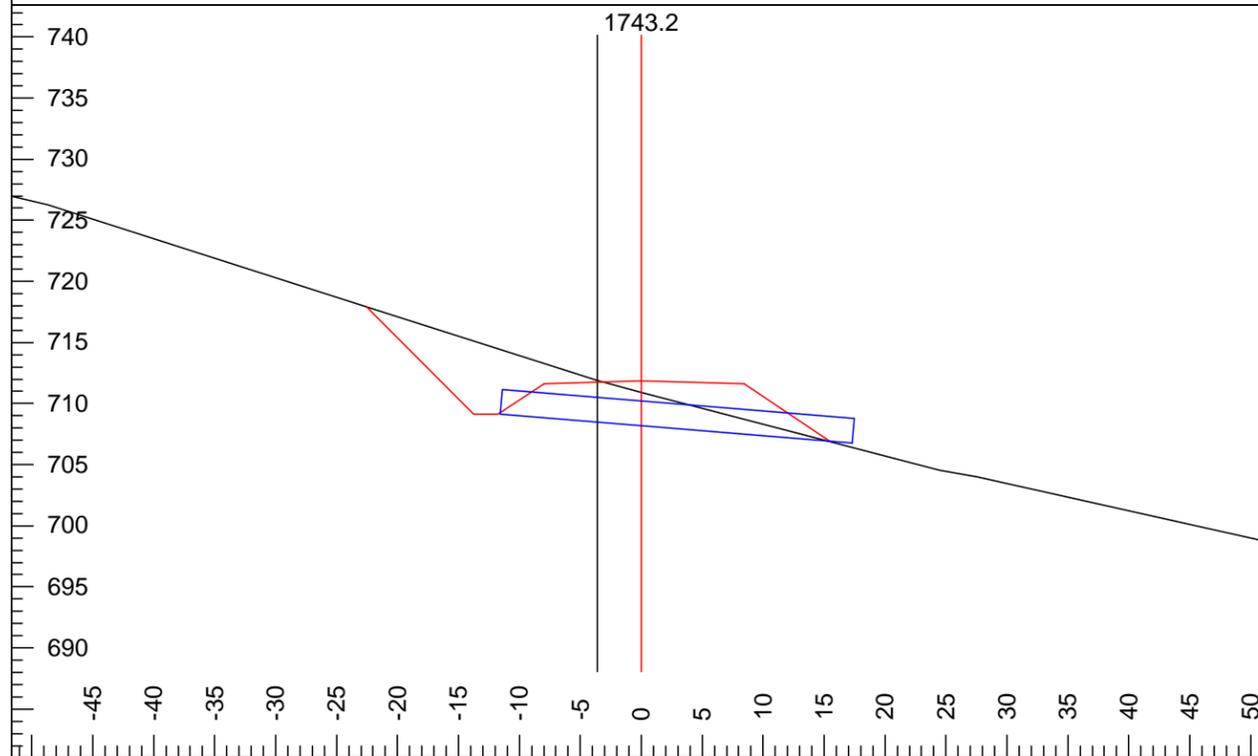
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



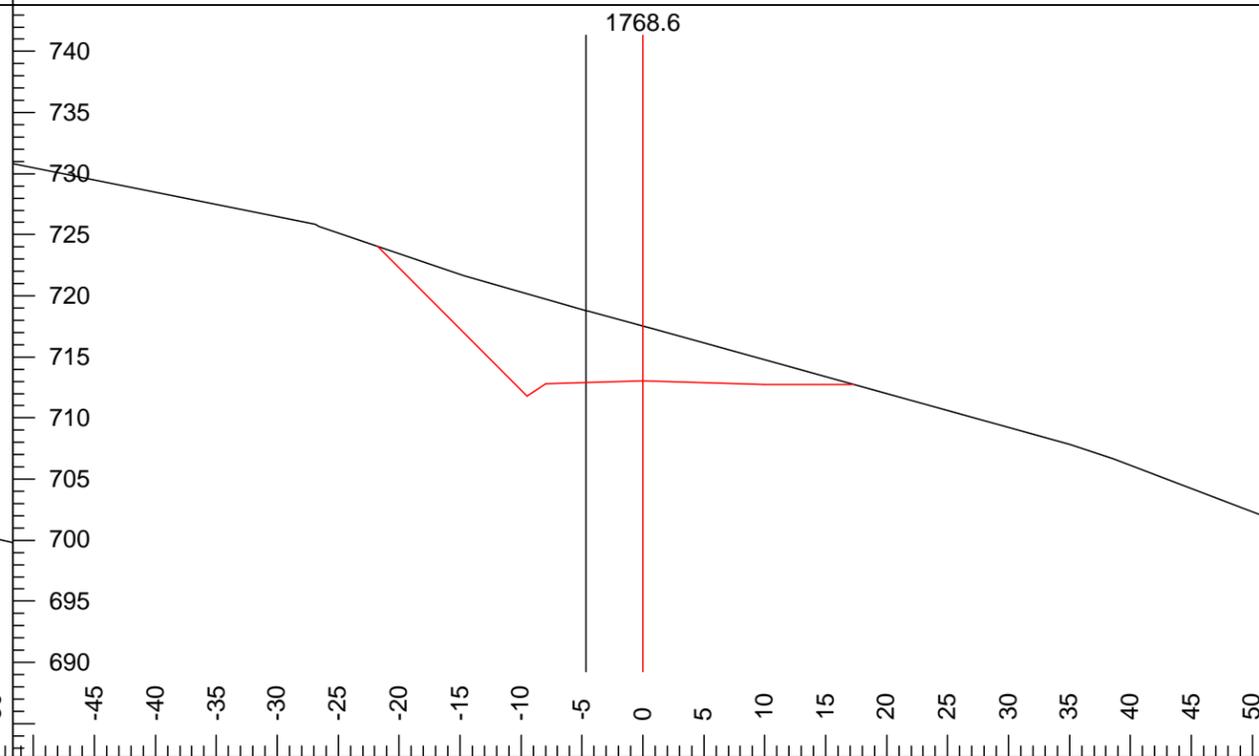
Trav.Cmnt:	14+34.7	Grd.Lst:	13	Stk R Y:	-3.2
L-Stn:	1658.3	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	5.4	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-0.1	Stk L X:	-21.4	Cul DIA:	18in
Cut Dp:	-0.9	Stk L Y:	6.1	Cul Dip %:	10
Grd.Nxt.:	13	Stk R X:	12.5	Cul Length:	30.0



Trav.Cmnt:	14+76	Grd.Lst:	9	Stk R Y:	-2.6
L-Stn:	1698.5	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	4.9	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-2.2	Stk L X:	-18.5	Cul DIA:	
Cut Dp:	0.7	Stk L Y:	7.7	Cul Dip %:	
Grd.Nxt.:	9	Stk R X:	11.5	Cul Length:	



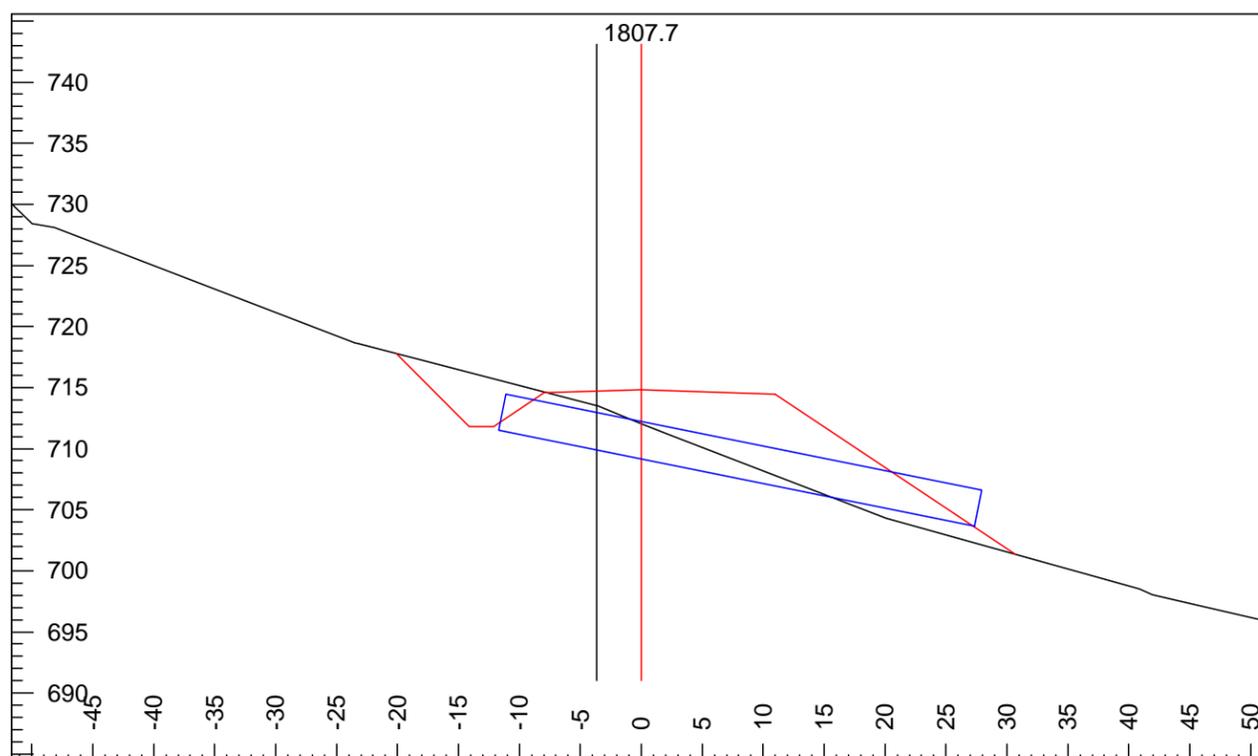
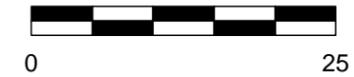
Trav.Cmnt:	15+20.9	Grd.Lst:	5	Stk R Y:	-5.0
L-Stn:	1743.2	Rd. Wd. R:	8.5	CUT_SLOPE1 (Right):	100
H. Offset:	3.6	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	0.0	Stk L X:	-22.6	Cul DIA:	24in
Cut Dp:	-1.0	Stk L Y:	6.1	Cul Dip %:	8
Grd.Nxt.:	5	Stk R X:	15.6	Cul Length:	30.0



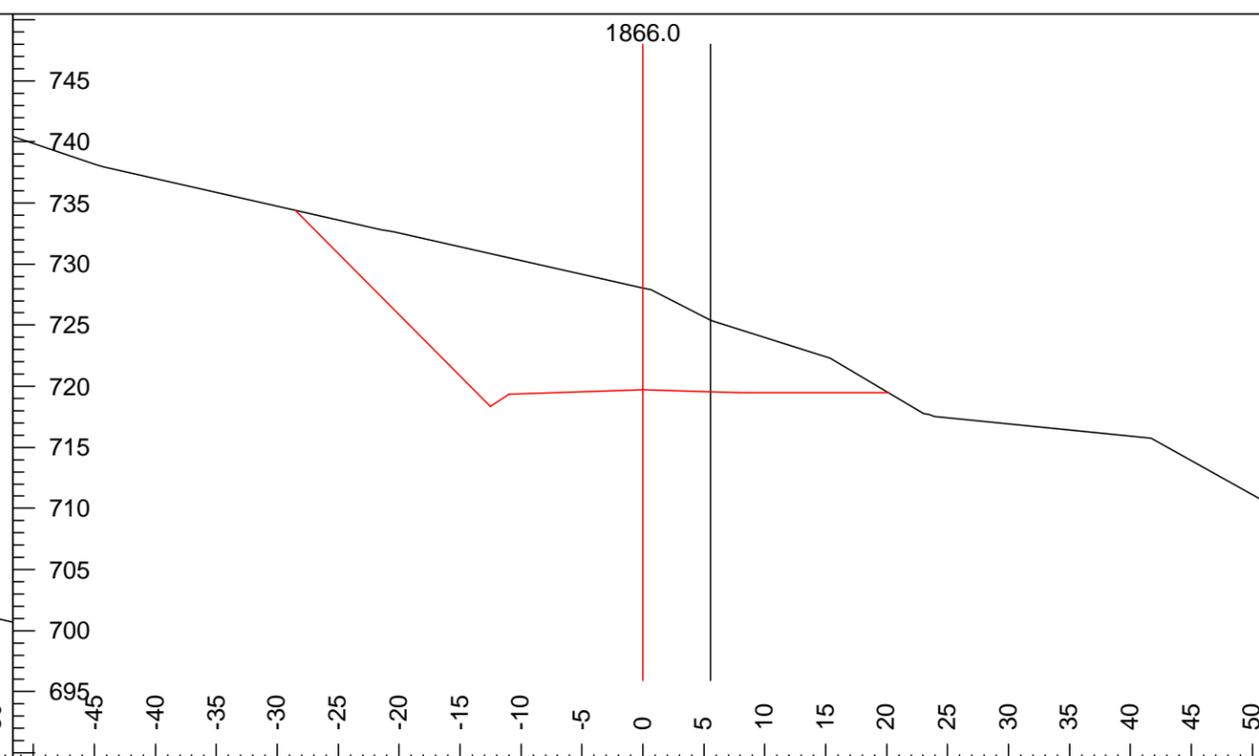
Trav.Cmnt:	15+47.1	Grd.Lst:	5	Stk R Y:	-0.3
L-Stn:	1768.6	Rd. Wd. R:	10.0	CUT_SLOPE1 (Right):	100
H. Offset:	4.7	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-5.8	Stk L X:	-21.8	Cul DIA:	
Cut Dp:	4.5	Stk L Y:	11.0	Cul Dip %:	
Grd.Nxt.:	5	Stk R X:	17.3	Cul Length:	

# 4003.5 Design Specifications

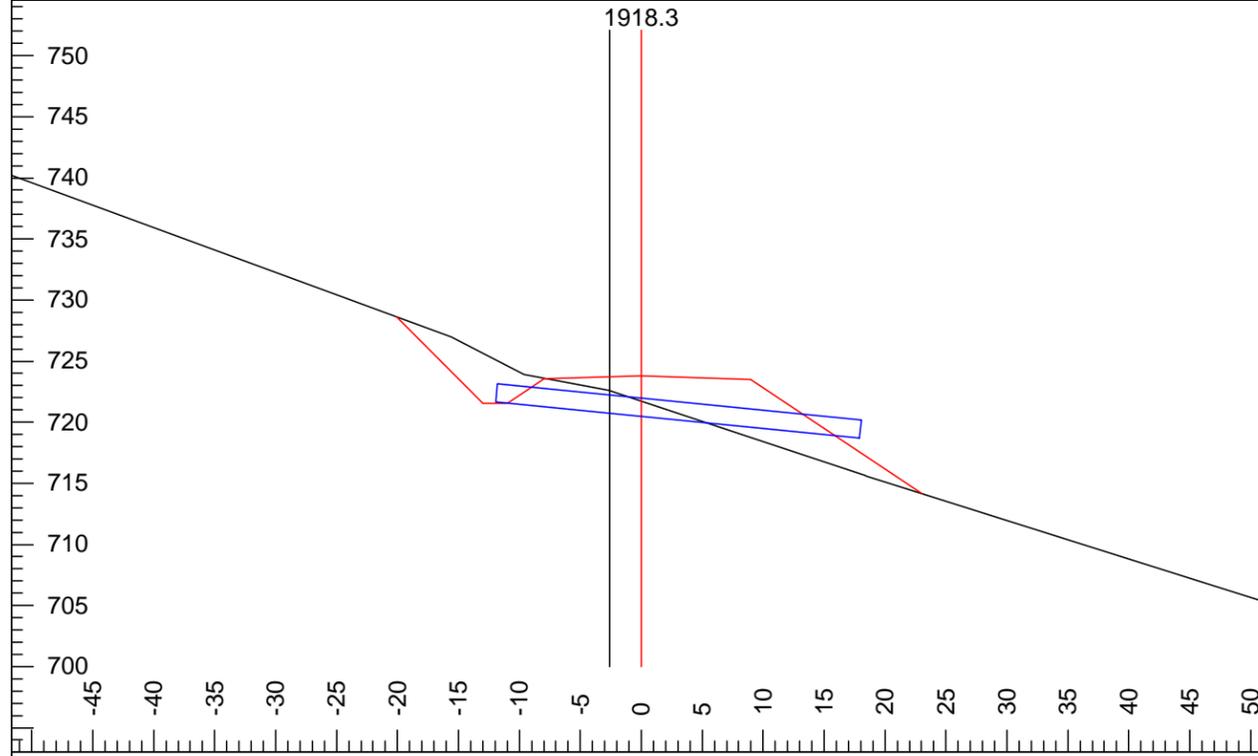
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



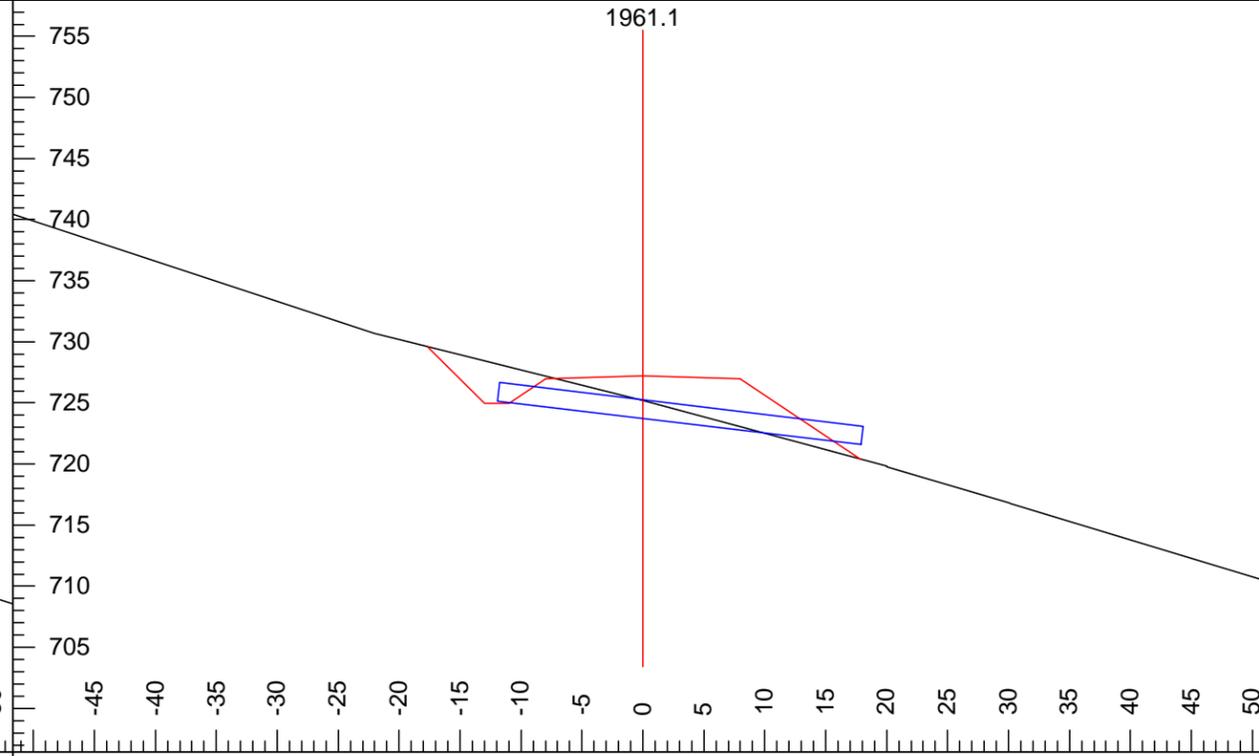
Trav.Cmnt:	15+87.5	Grd.Lst:	8	Stk R Y:	-13.5
L-Stn:	1807.7	Rd. Wd. R:	11.0	CUT_SLOPE1 (Right):	100
H. Offset:	3.7	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	1.3	Stk L X:	-20.1	Cul DIA:	36in
Cut Dp:	-2.8	Stk L Y:	2.9	Cul Dip %:	20
Grd.Nxt.:	8	Stk R X:	30.7	Cul Length:	40.0



Trav.Cmnt:	16+47.8	Grd.Lst:	8	Stk R Y:	-0.2
L-Stn:	1866.0	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-5.6	Rd. Wd. L:	11.0	FILL_SLOPE (Right):	67
V.Offset:	-5.7	Stk L X:	-28.5	Cul DIA:	
Cut Dp:	8.3	Stk L Y:	14.7	Cul Dip %:	
Grd.Nxt.:	8	Stk R X:	20.2	Cul Length:	



Trav.Cmnt:	17+02.4	Grd.Lst:	8	Stk R Y:	-9.6
L-Stn:	1918.3	Rd. Wd. R:	9.0	CUT_SLOPE1 (Right):	100
H. Offset:	2.6	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	1.2	Stk L X:	-20.1	Cul DIA:	18in
Cut Dp:	-2.1	Stk L Y:	4.9	Cul Dip %:	10
Grd.Nxt.:	8	Stk R X:	23.0	Cul Length:	30.0



Trav.Cmnt:	17+45.8	Grd.Lst:	10	Stk R Y:	-6.8
L-Stn:	1961.1	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	2.1	Stk L X:	-17.6	Cul DIA:	18in
Cut Dp:	-2.0	Stk L Y:	2.4	Cul Dip %:	12
Grd.Nxt.:	10	Stk R X:	17.9	Cul Length:	30.0

# 4003.5 Design Specifications

Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



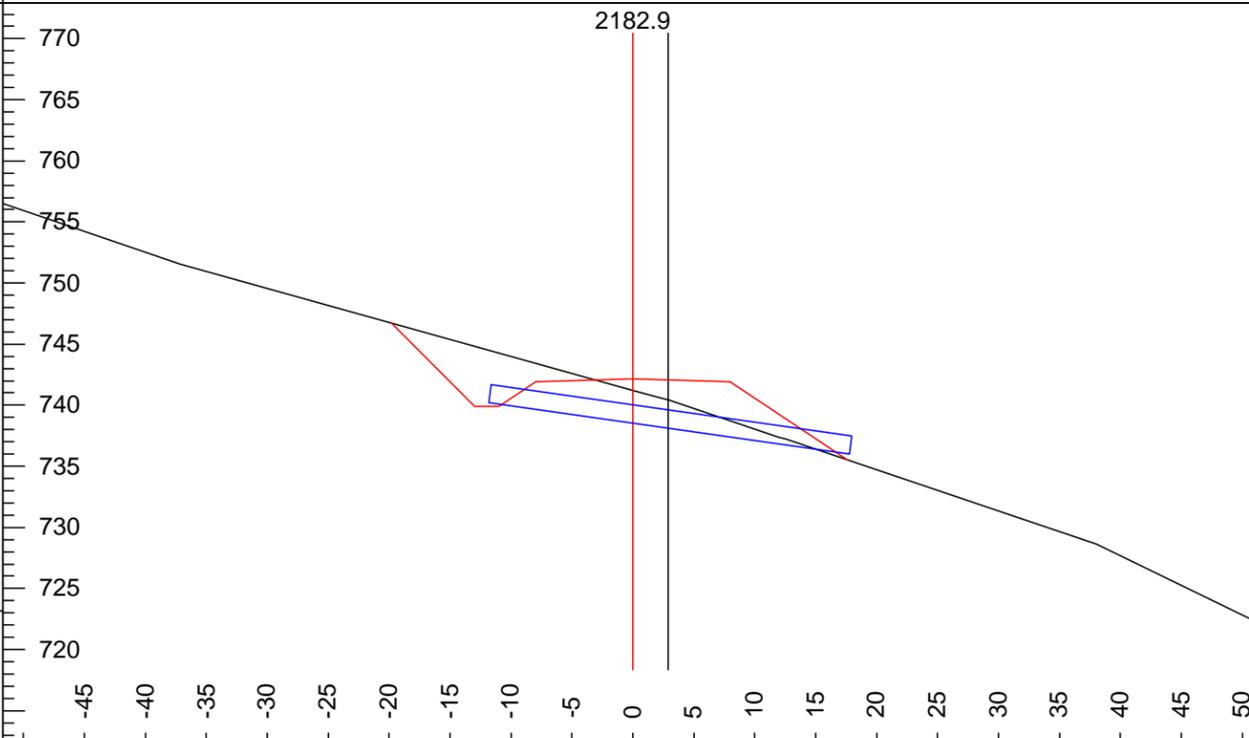
Trav.Cmnt:	17+76.7	Grd.Lst:	3	Stk R Y:	-3.5
L-Stn:	1992.0	Rd. Wd. R:	10.9	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-0.4	Stk L X:	-16.4	Cul DIA:	
Cut Dp:	0.5	Stk L Y:	5.7	Cul Dip %:	
Grd.Nxt.:	3	Stk R X:	15.6	Cul Length:	



Trav.Cmnt:	18+42.2	Grd.Lst:	3	Stk R Y:	-17.0
L-Stn:	2054.4	Rd. Wd. R:	20.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	0.4	Stk L X:	-16.4	Cul DIA:	
Cut Dp:	-0.4	Stk L Y:	5.6	Cul Dip %:	
Grd.Nxt.:	3	Stk R X:	44.6	Cul Length:	



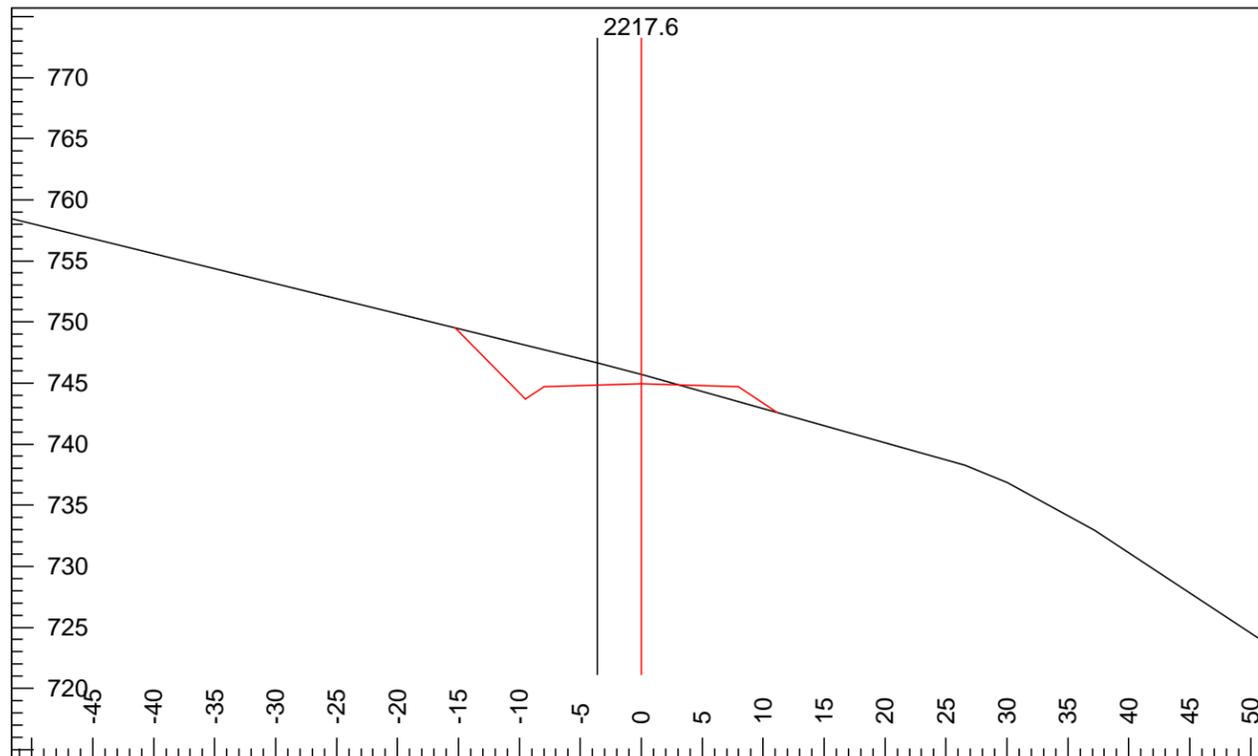
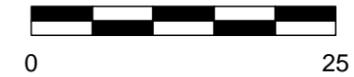
Trav.Cmnt:	18+98.8	Grd.Lst:	8	Stk R Y:	-7.4
L-Stn:	2110.9	Rd. Wd. R:	12.6	CUT_SLOPE1 (Right):	100
H. Offset:	-0.5	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	0.3	Stk L X:	-15.1	Cul DIA:	
Cut Dp:	-0.1	Stk L Y:	4.3	Cul Dip %:	
Grd.Nxt.:	8	Stk R X:	23.2	Cul Length:	



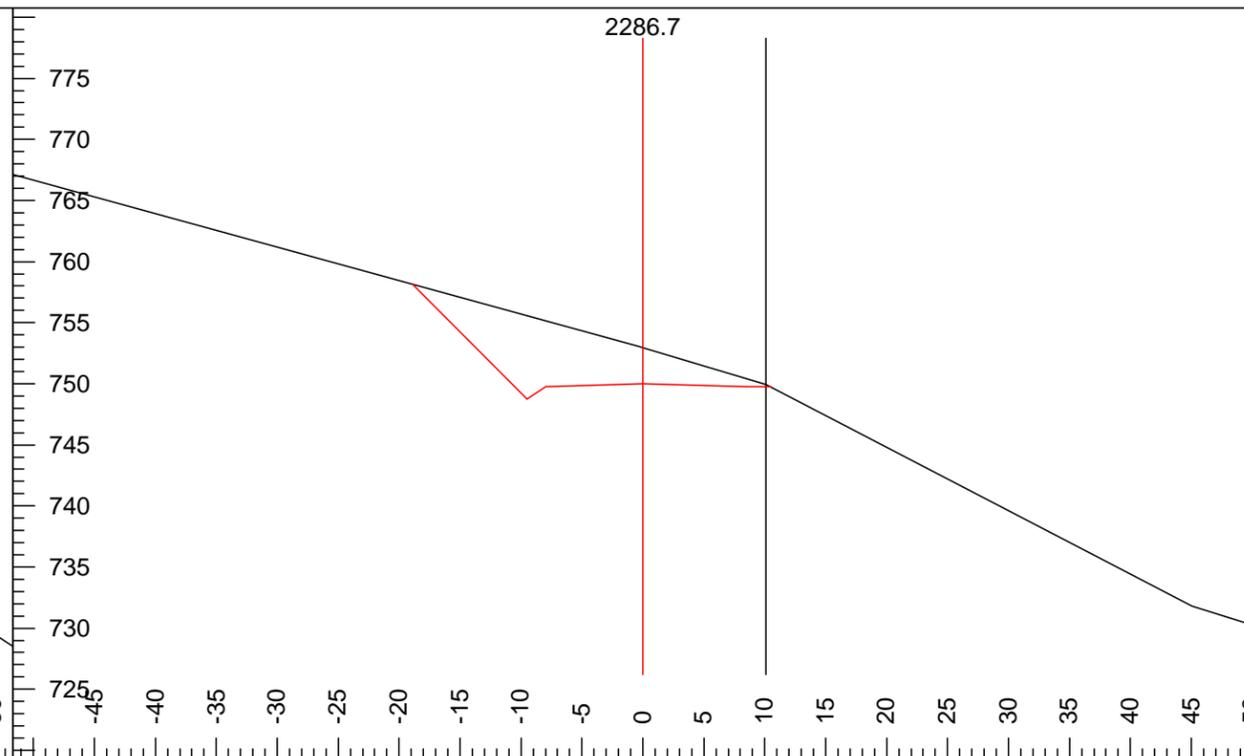
Trav.Cmnt:	19+70.9	Grd.Lst:	8	Stk R Y:	-6.6
L-Stn:	2182.9	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-2.9	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	1.7	Stk L X:	-19.8	Cul DIA:	18in
Cut Dp:	-0.9	Stk L Y:	4.6	Cul Dip %:	14
Grd.Nxt.:	8	Stk R X:	17.6	Cul Length:	30.0

# 4003.5 Design Specifications

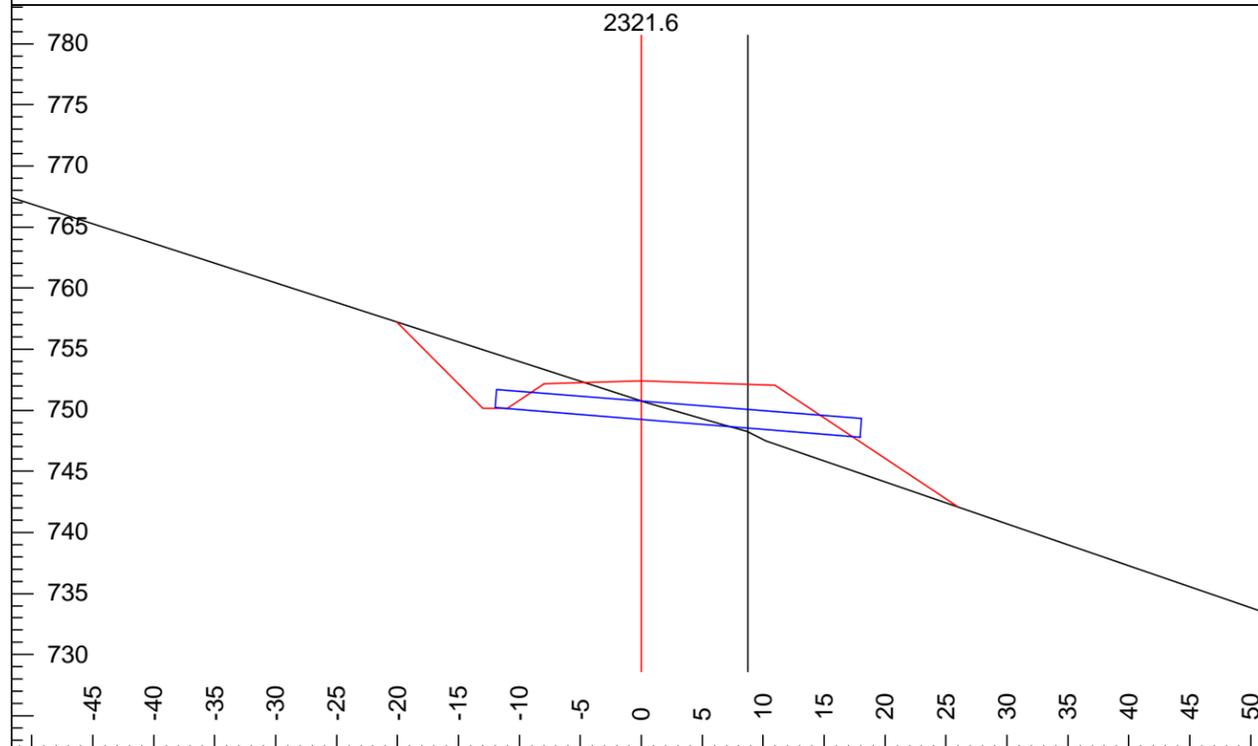
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



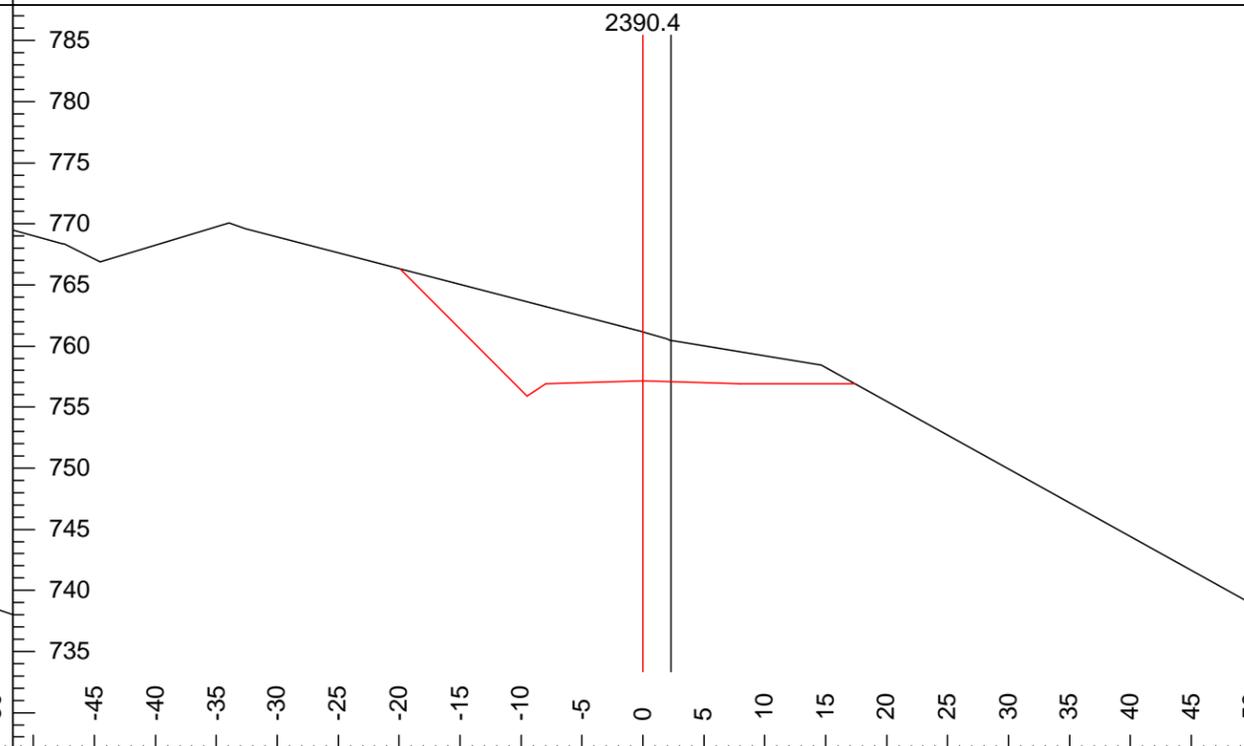
Trav.Cmnt:	50	Grd.Lst:	7	Stk R Y:	-2.4
L-Stn:	2217.6	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	3.6	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-1.6	Stk L X:	-15.3	Cul DIA:	
Cut Dp:	0.8	Stk L Y:	4.6	Cul Dip %:	
Grd.Nxt.:	7	Stk R X:	11.2	Cul Length:	



Trav.Cmnt:	51	Grd.Lst:	7	Stk R Y:	-0.3
L-Stn:	2286.7	Rd. Wd. R:	8.5	CUT_SLOPE1 (Right):	100
H. Offset:	-10.1	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	0.0	Stk L X:	-18.9	Cul DIA:	
Cut Dp:	2.9	Stk L Y:	8.1	Cul Dip %:	
Grd.Nxt.:	7	Stk R X:	10.5	Cul Length:	



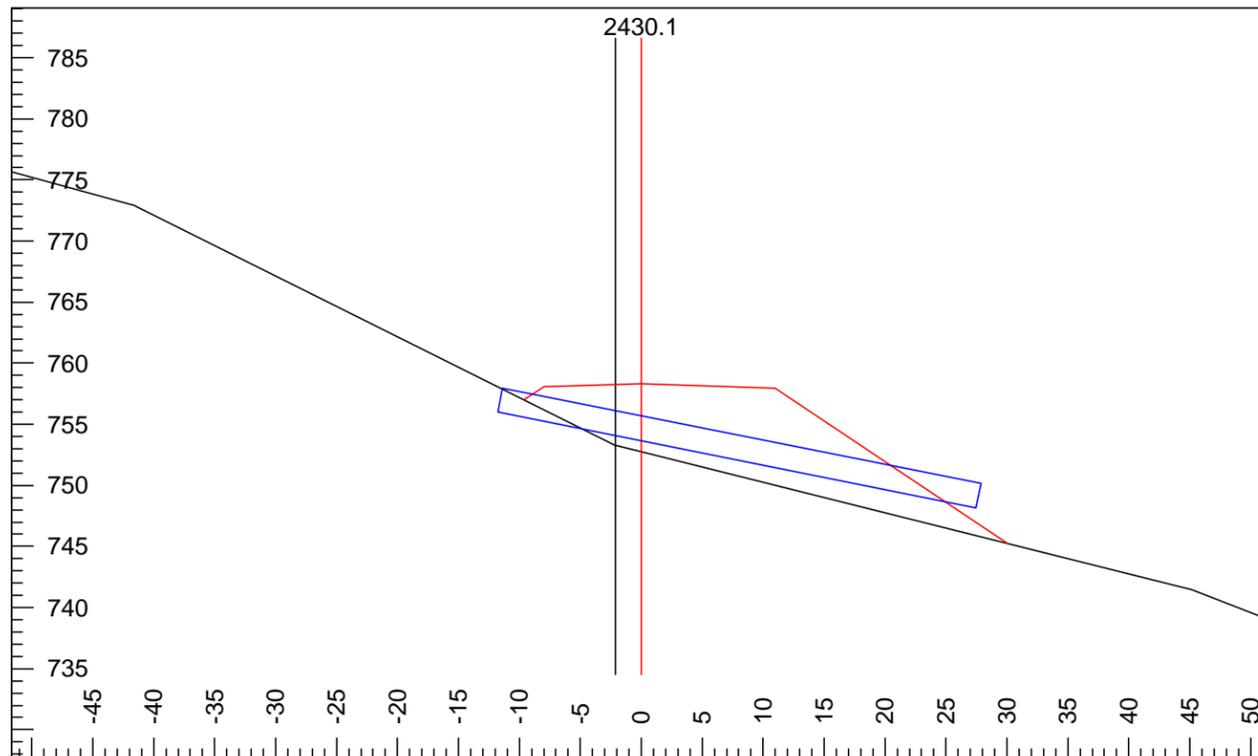
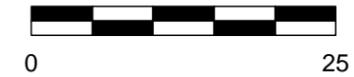
Trav.Cmnt:	52	Grd.Lst:	7	Stk R Y:	-10.3
L-Stn:	2321.6	Rd. Wd. R:	11.0	CUT_SLOPE1 (Right):	100
H. Offset:	-8.6	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	4.2	Stk L X:	-20.1	Cul DIA:	18in
Cut Dp:	-1.6	Stk L Y:	4.8	Cul Dip %:	8
Grd.Nxt.:	7	Stk R X:	25.9	Cul Length:	30.0



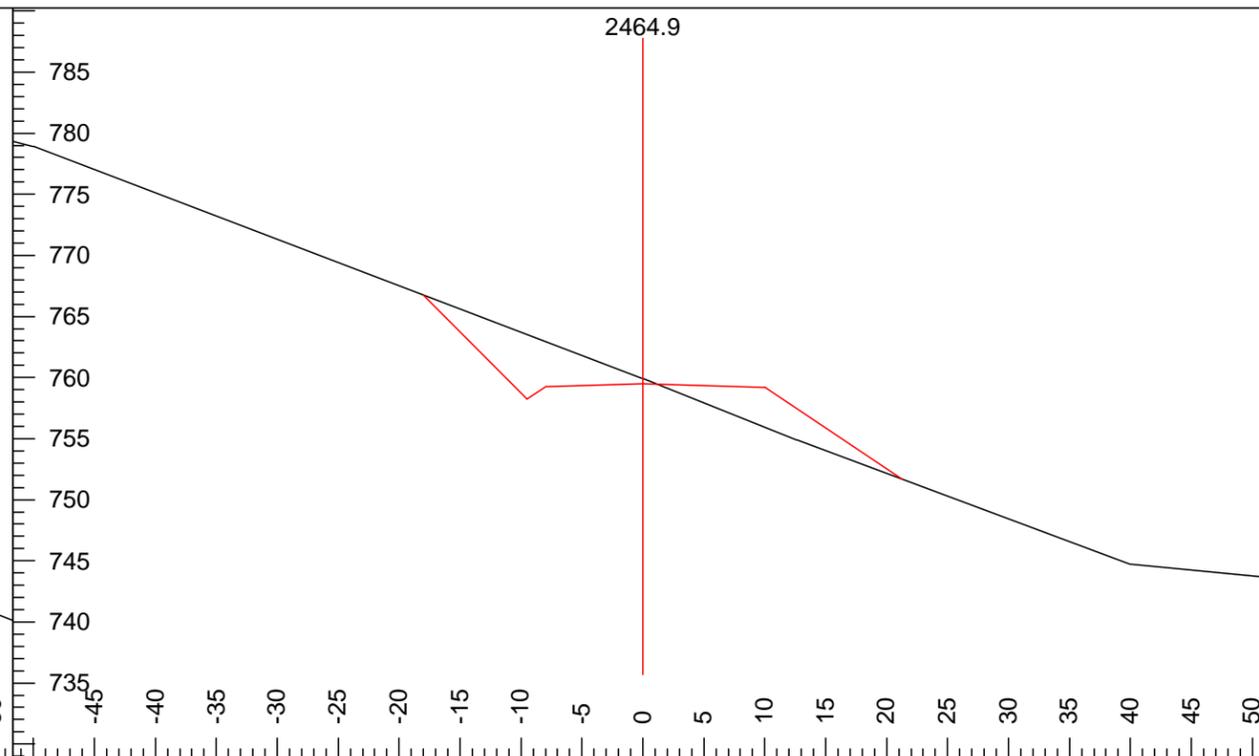
Trav.Cmnt:	53	Grd.Lst:	3	Stk R Y:	-0.2
L-Stn:	2390.4	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-2.3	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-3.3	Stk L X:	-19.9	Cul DIA:	
Cut Dp:	4.0	Stk L Y:	9.2	Cul Dip %:	
Grd.Nxt.:	3	Stk R X:	17.4	Cul Length:	

# 4003.5 Design Specifications

Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



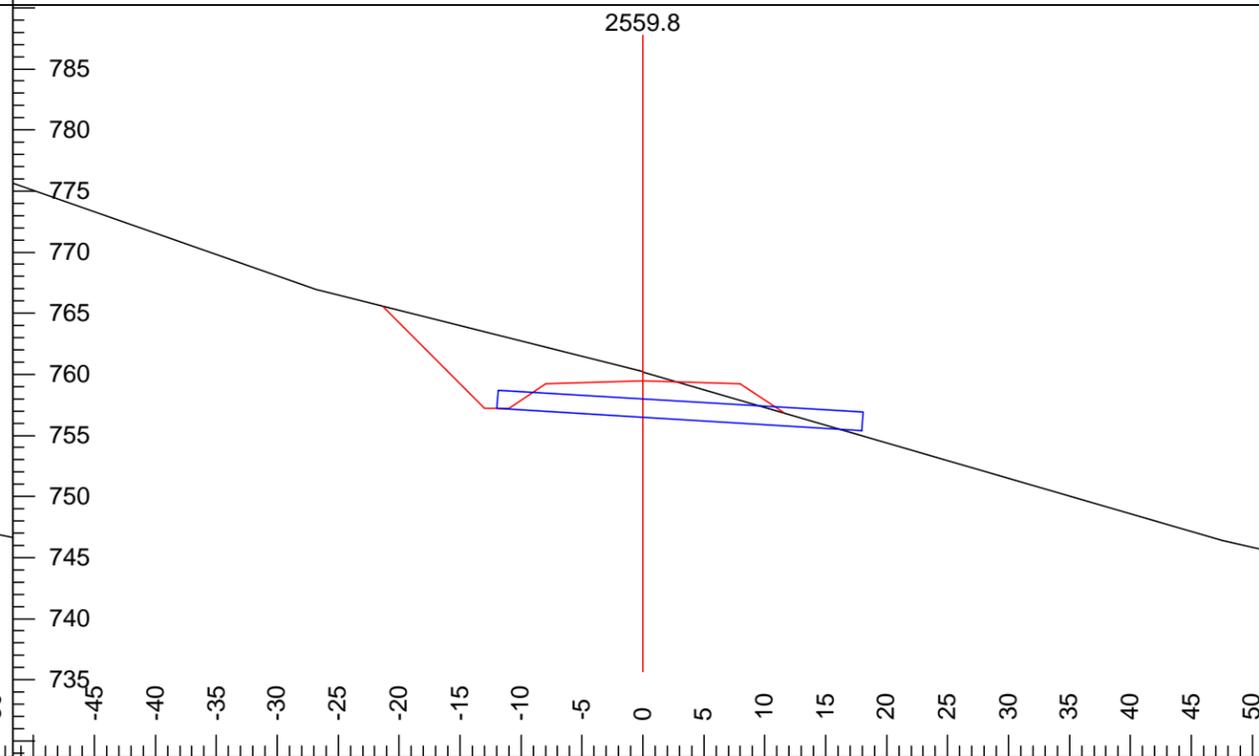
Trav.Cmnt:	54	Grd.Lst:	3	Stk R Y:	-13.1
L-Stn:	2430.1	Rd. Wd. R:	11.0	CUT_SLOPE1 (Right):	100
H. Offset:	2.2	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	5.1	Stk L X:	-9.6	Cul DIA:	24in
Cut Dp:	-5.6	Stk L Y:	-1.3	Cul Dip %:	20
Grd.Nxt.:	3	Stk R X:	30.1	Cul Length:	40.0



Trav.Cmnt:	55	Grd.Lst:	3	Stk R Y:	-7.8
L-Stn:	2464.9	Rd. Wd. R:	10.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-0.5	Stk L X:	-18.0	Cul DIA:	
Cut Dp:	0.4	Stk L Y:	7.3	Cul Dip %:	
Grd.Nxt.:	3	Stk R X:	21.3	Cul Length:	

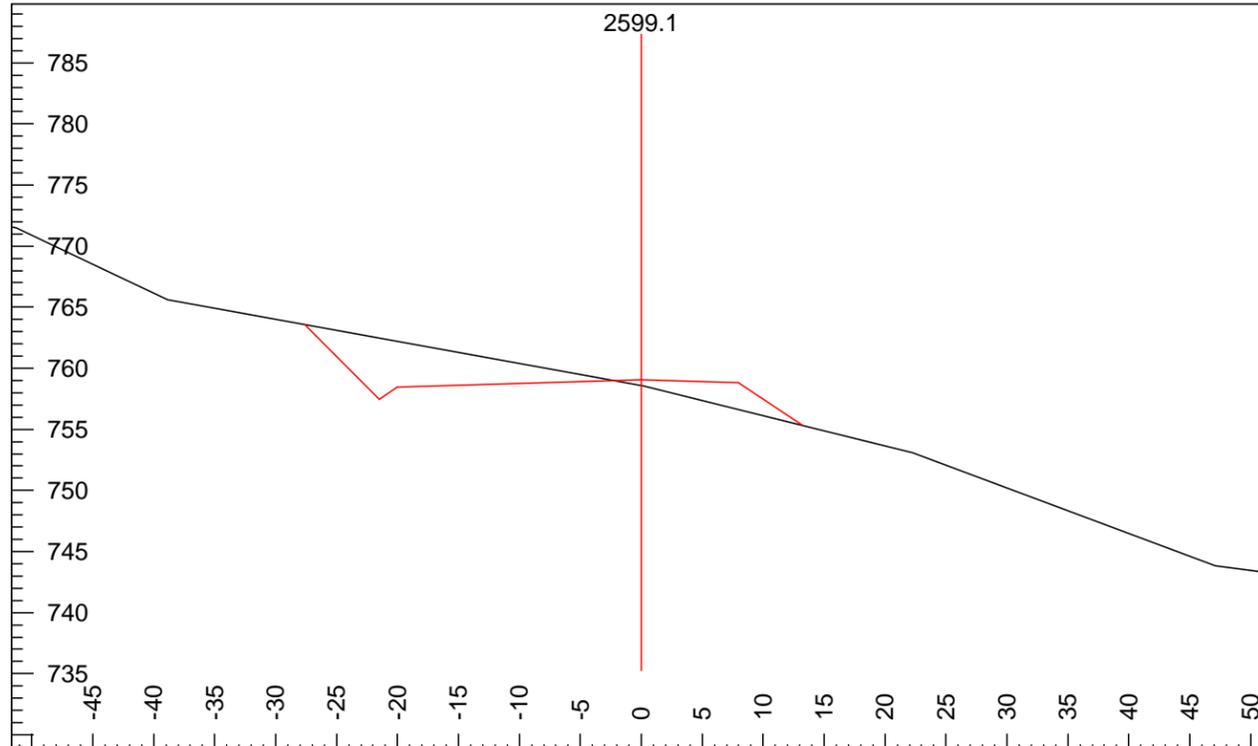


Trav.Cmnt:	56	Grd.Lst:	-2	Stk R Y:	-0.2
L-Stn:	2500.5	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-2.5	Stk L X:	-15.6	Cul DIA:	
Cut Dp:	2.4	Stk L Y:	4.8	Cul Dip %:	
Grd.Nxt.:	-2	Stk R X:	8.7	Cul Length:	

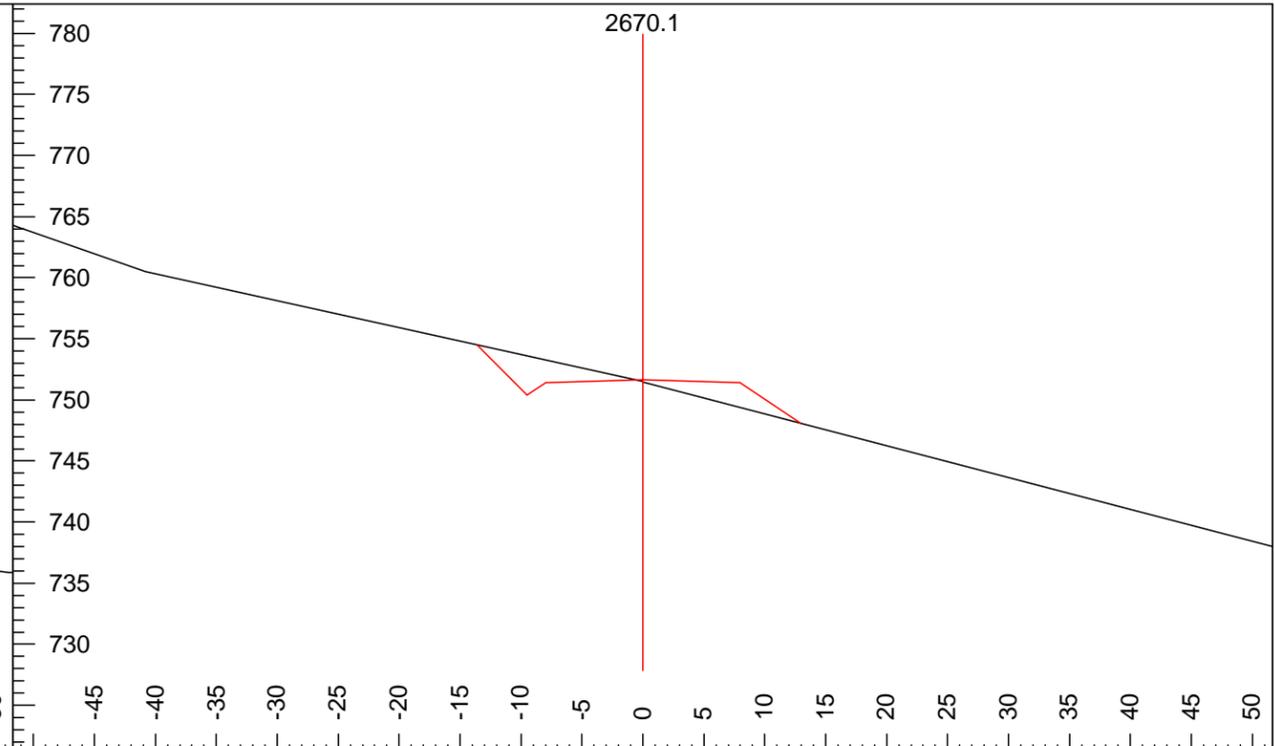


Trav.Cmnt:	57	Grd.Lst:	-1	Stk R Y:	-2.6
L-Stn:	2559.8	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-0.7	Stk L X:	-21.3	Cul DIA:	18in
Cut Dp:	0.7	Stk L Y:	6.1	Cul Dip %:	6
Grd.Nxt.:	-1	Stk R X:	11.6	Cul Length:	30.0

# 4003.5 Design Specifications



Trav.Cmnt:	58	Grd.Lst:	-10	Stk R Y:	-3.7
L-Stn:	2599.1	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	20.0	FILL_SLOPE (Right):	67
V.Offset:	0.4	Stk L X:	-27.6	Cul DIA:	
Cut Dp:	-0.5	Stk L Y:	4.5	Cul Dip %:	
Grd.Nxt.:	-10	Stk R X:	13.2	Cul Length:	



Trav.Cmnt:	59	Grd.Lst:	-10	Stk R Y:	-3.5
L-Stn:	2670.1	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	0.1	Stk L X:	-13.6	Cul DIA:	
Cut Dp:	-0.2	Stk L Y:	2.8	Cul Dip %:	
Grd.Nxt.:	-10	Stk R X:	12.9	Cul Length:	

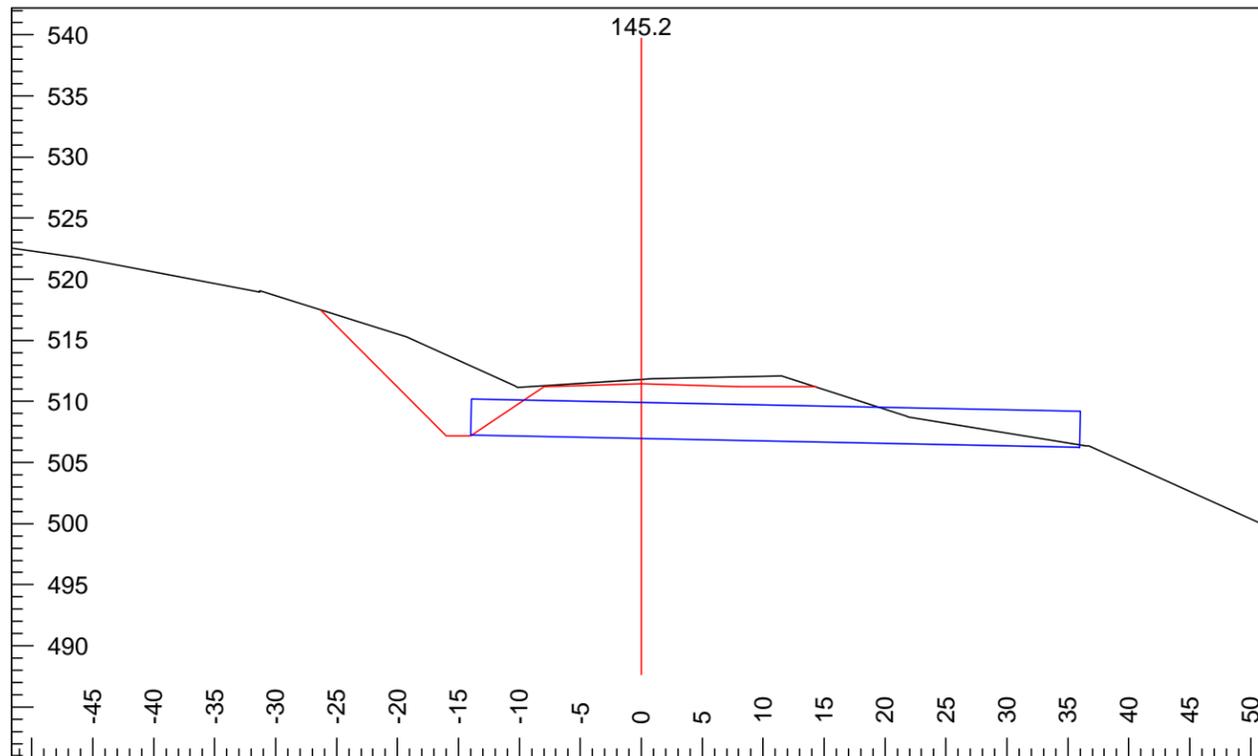
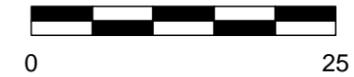
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



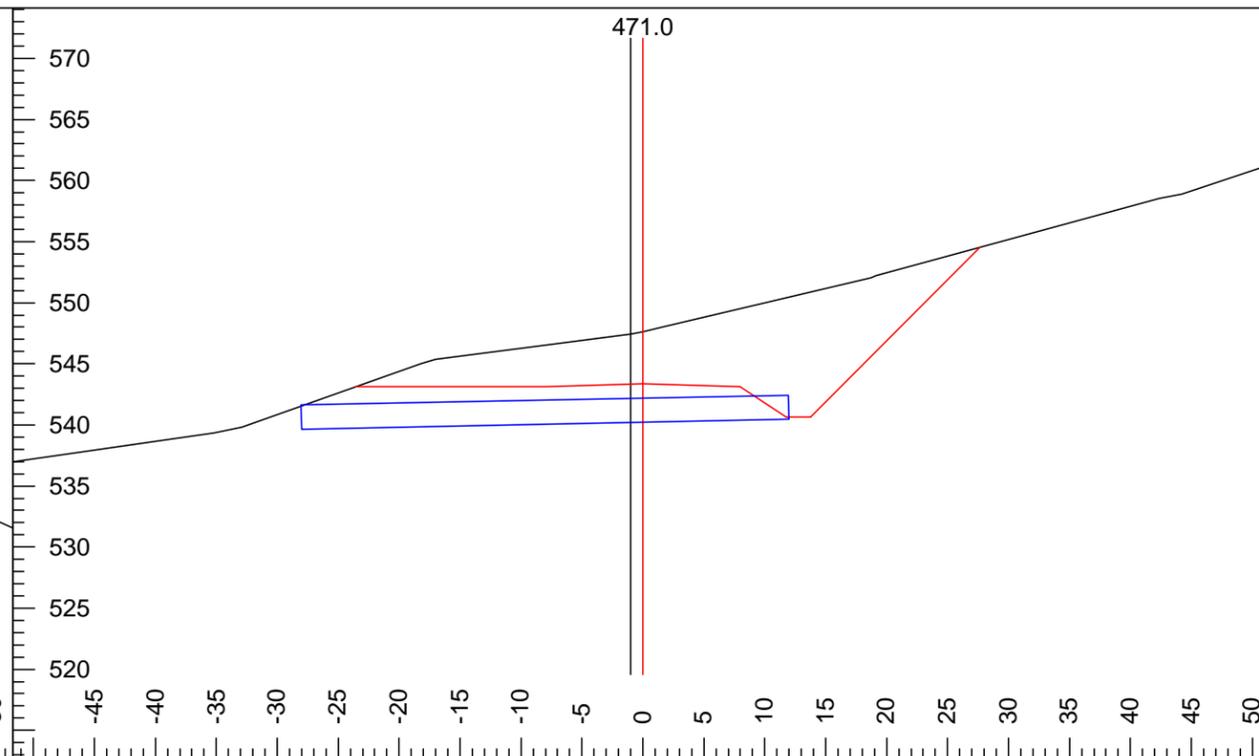
Trav.Cmnt:	60	Grd.Lst:	-386	Stk R Y:	-7.4
L-Stn:	2742.6	Rd. Wd. R:	25.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	20.0	FILL_SLOPE (Right):	67
V.Offset:	-1.0	Stk L X:	-32.1	Cul DIA:	
Cut Dp:	-0.2	Stk L Y:	9.0	Cul Dip %:	
Grd.Nxt.:	n/a	Stk R X:	35.0	Cul Length:	

# 4003.5 Design Specifications

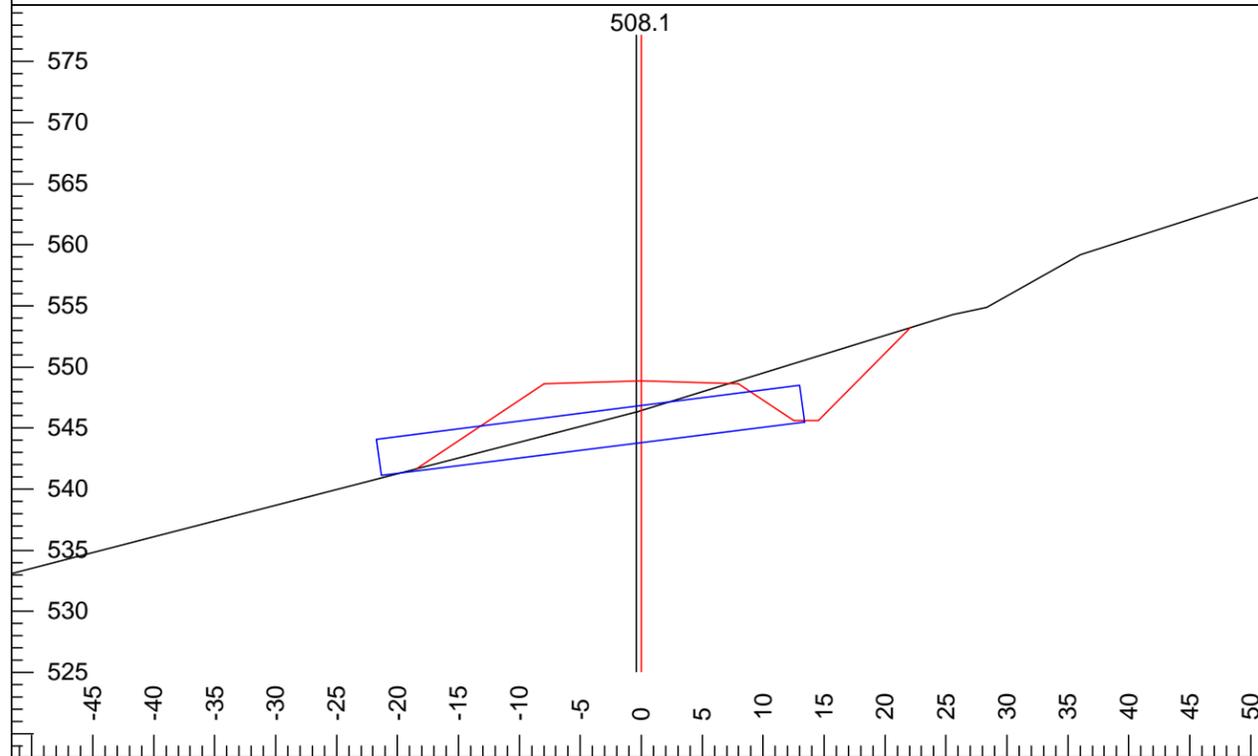
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



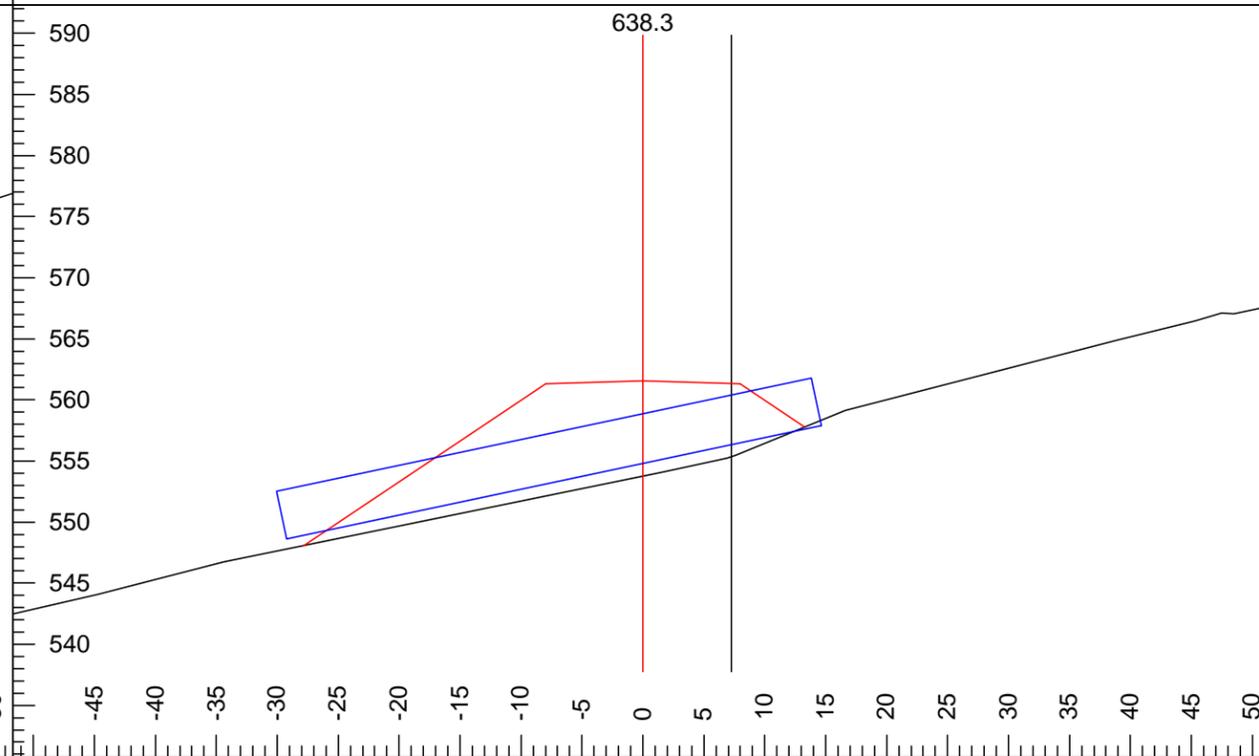
Trav.Cmnt:	4003 Sta 8+30	Grd.Lst:	6	Stk R Y:	-0.2
L-Stn:	145.2	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-0.3	Stk L X:	-26.3	Cul DIA:	36in
Cut Dp:	0.4	Stk L Y:	6.0	Cul Dip %:	2
Grd.Nxt.:	6	Stk R X:	14.3	Cul Length:	50.0



Trav.Cmnt:	2+18.1	Grd.Lst:	15	Stk R Y:	11.2
L-Stn:	471.0	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	1.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-4.0	Stk L X:	-23.6	Cul DIA:	24in
Cut Dp:	4.3	Stk L Y:	-0.2	Cul Dip %:	-2
Grd.Nxt.:	15	Stk R X:	27.6	Cul Length:	40.0



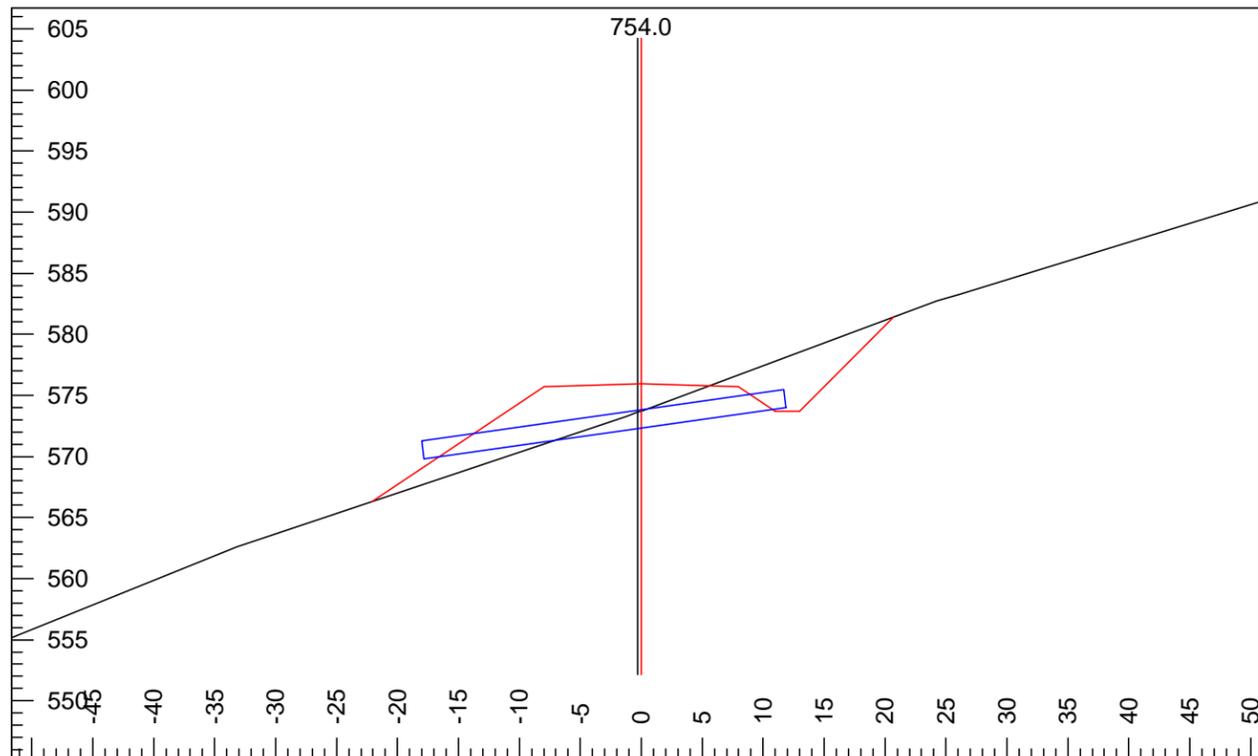
Trav.Cmnt:	2+55.4	Grd.Lst:	15	Stk R Y:	4.3
L-Stn:	508.1	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.4	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	2.6	Stk L X:	-18.4	Cul DIA:	36in
Cut Dp:	-2.4	Stk L Y:	-7.2	Cul Dip %:	-13
Grd.Nxt.:	15	Stk R X:	22.1	Cul Length:	35.0



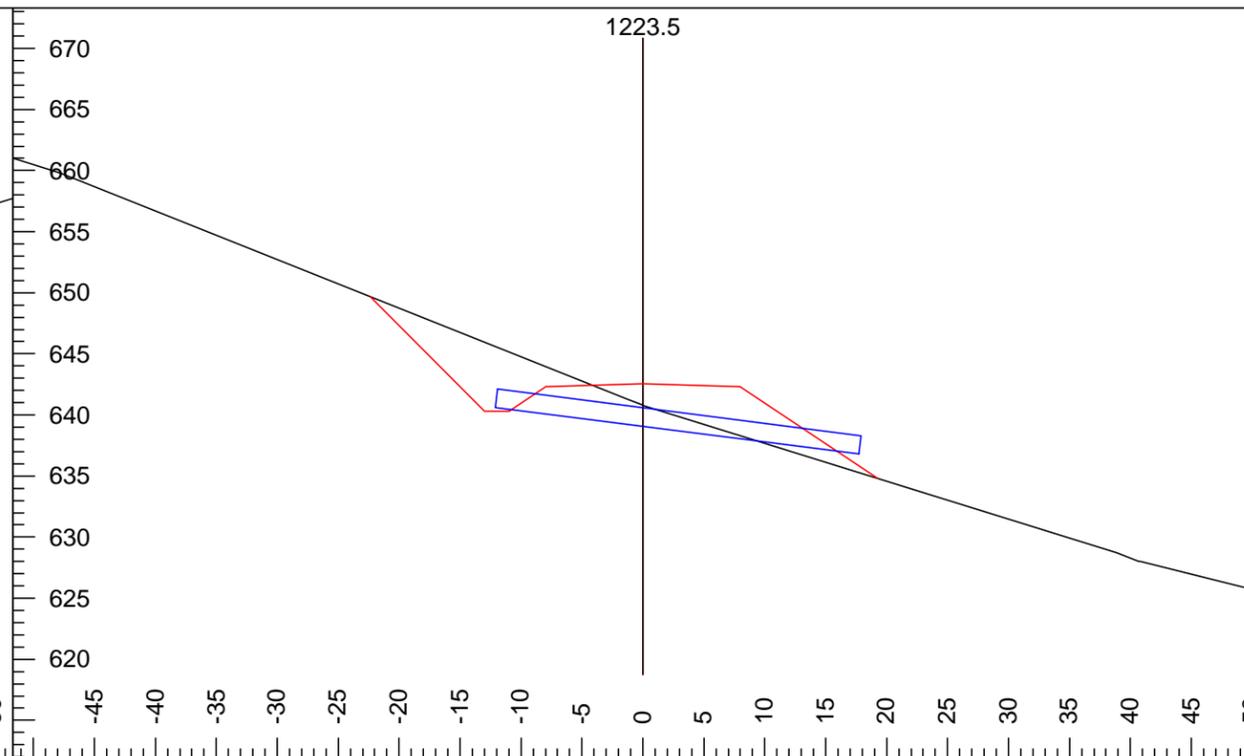
Trav.Cmnt:	n/a	Grd.Lst:	11	Stk R Y:	-3.8
L-Stn:	638.3	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-6.9	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	5.9	Stk L X:	-27.9	Cul DIA:	48in
Cut Dp:	-7.8	Stk L Y:	-13.5	Cul Dip %:	-21
Grd.Nxt.:	11	Stk R X:	13.3	Cul Length:	45.0

# 4003.5 Design Specifications

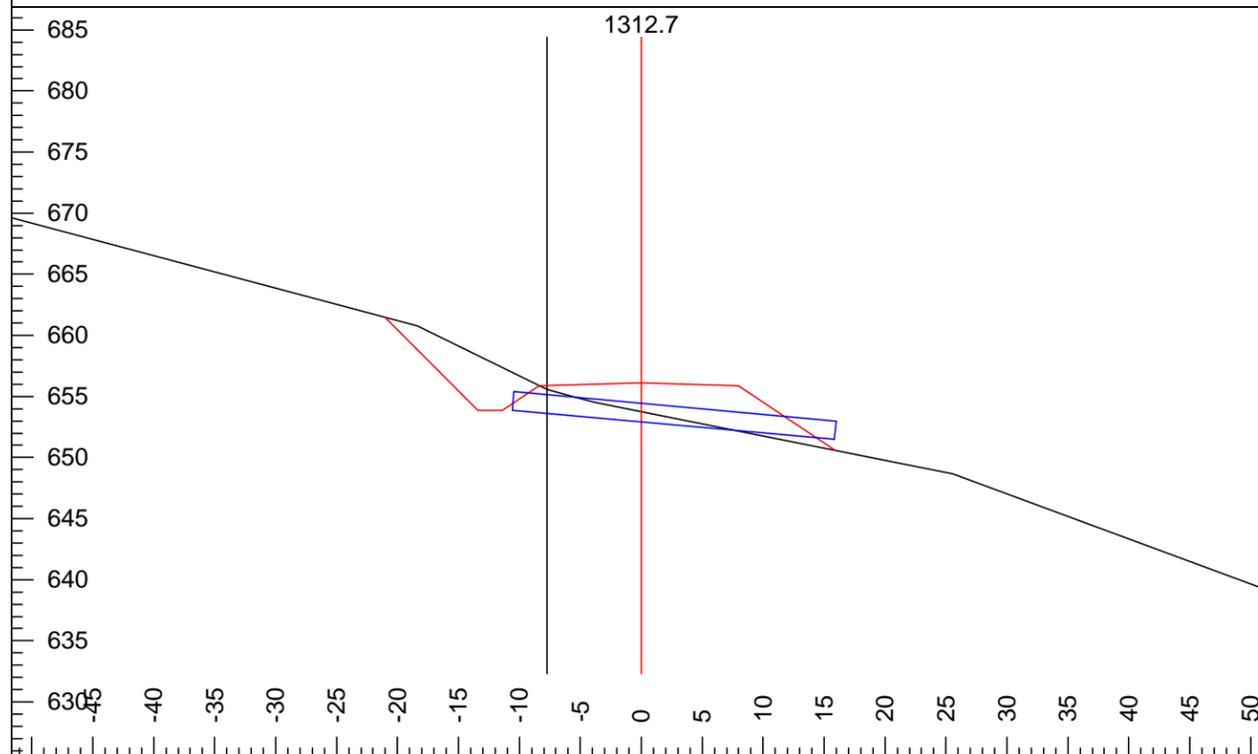
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



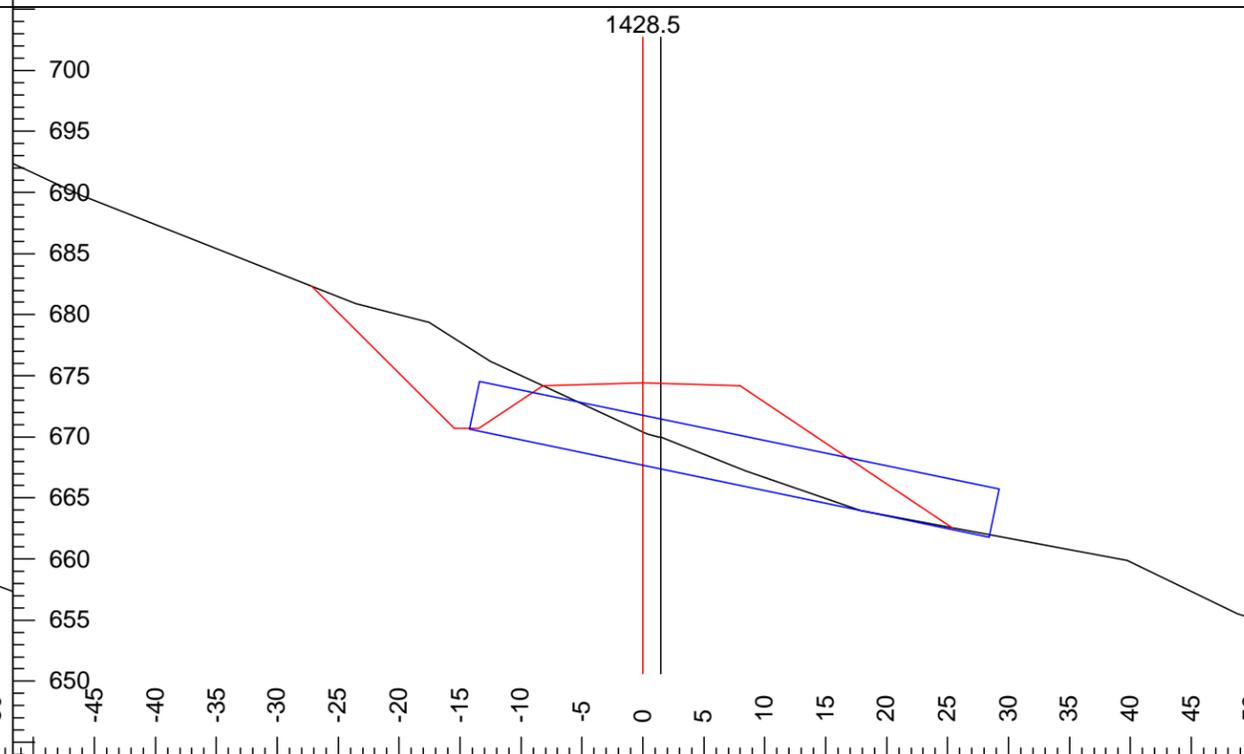
Trav.Cmnt:	5+06.7	Grd.Lst:	16	Stk R Y:	5.5
L-Stn:	754.0	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.3	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	2.3	Stk L X:	-22.1	Cul DIA:	18in
Cut Dp:	-2.2	Stk L Y:	-9.6	Cul Dip %:	-14
Grd.Nxt.:	16	Stk R X:	20.7	Cul Length:	30.0



Trav.Cmnt:	10+00.4	Grd.Lst:	14	Stk R Y:	-7.7
L-Stn:	1223.5	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	1.7	Stk L X:	-22.4	Cul DIA:	18in
Cut Dp:	-1.7	Stk L Y:	7.1	Cul Dip %:	12
Grd.Nxt.:	14	Stk R X:	19.2	Cul Length:	32.0



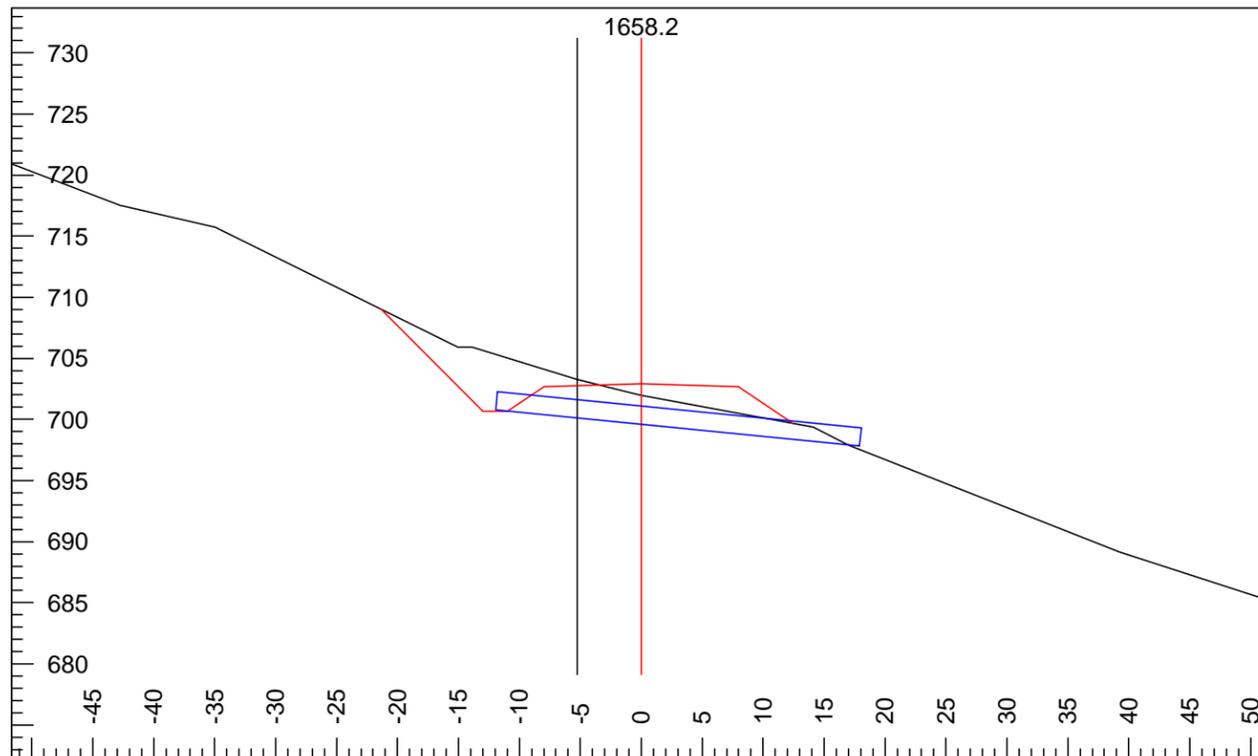
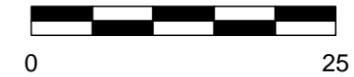
Trav.Cmnt:	n/a	Grd.Lst:	16	Stk R Y:	-5.5
L-Stn:	1312.7	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	7.7	Rd. Wd. L:	8.4	FILL_SLOPE (Right):	67
V.Offset:	-1.8	Stk L X:	-21.0	Cul DIA:	18in
Cut Dp:	-2.3	Stk L Y:	5.4	Cul Dip %:	8
Grd.Nxt.:	16	Stk R X:	15.9	Cul Length:	30.0



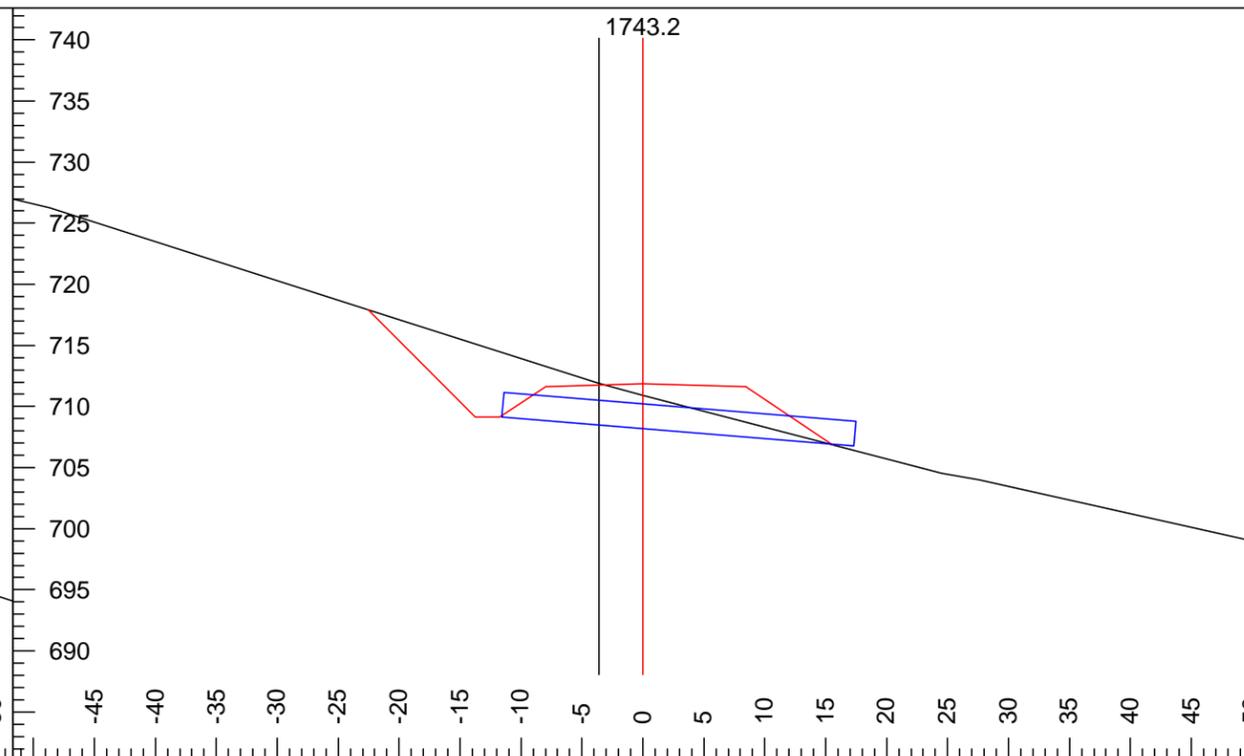
Trav.Cmnt:	n/a	Grd.Lst:	16	Stk R Y:	-11.8
L-Stn:	1428.5	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-1.4	Rd. Wd. L:	8.2	FILL_SLOPE (Right):	67
V.Offset:	4.6	Stk L X:	-27.2	Cul DIA:	48in
Cut Dp:	-4.0	Stk L Y:	7.9	Cul Dip %:	20
Grd.Nxt.:	16	Stk R X:	25.4	Cul Length:	45.0

# 4003.5 Design Specifications

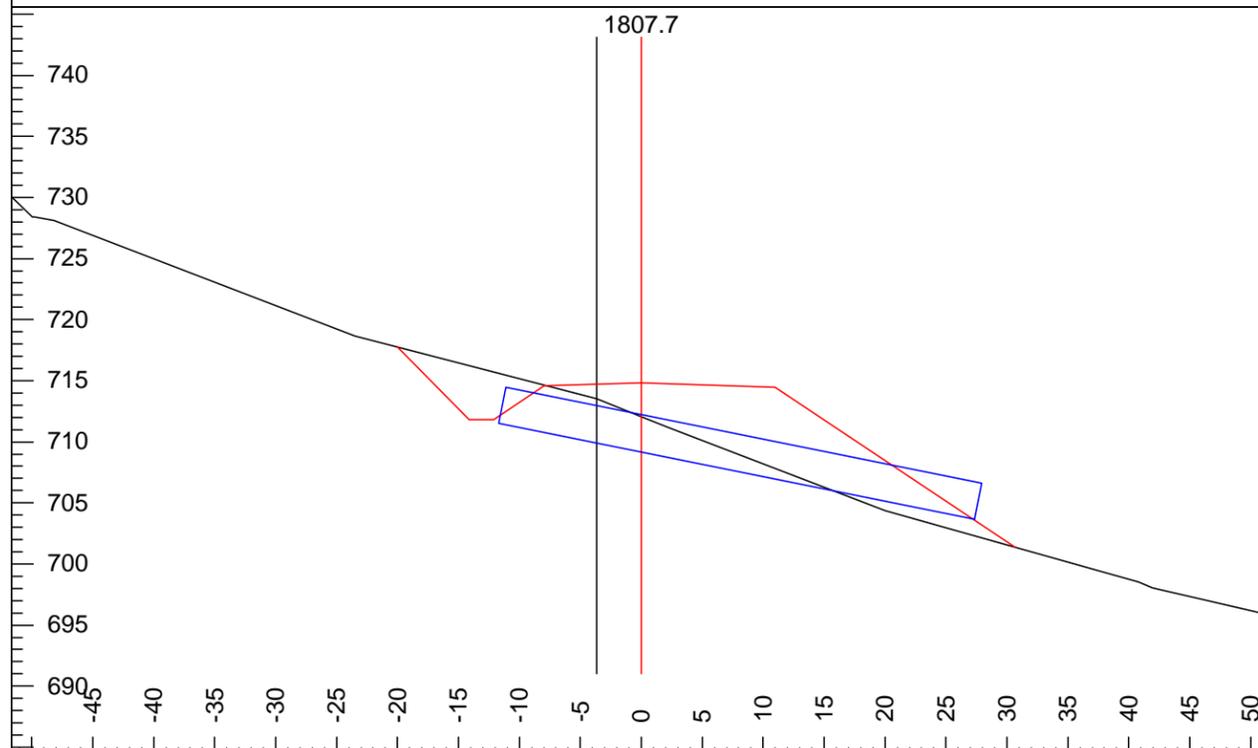
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



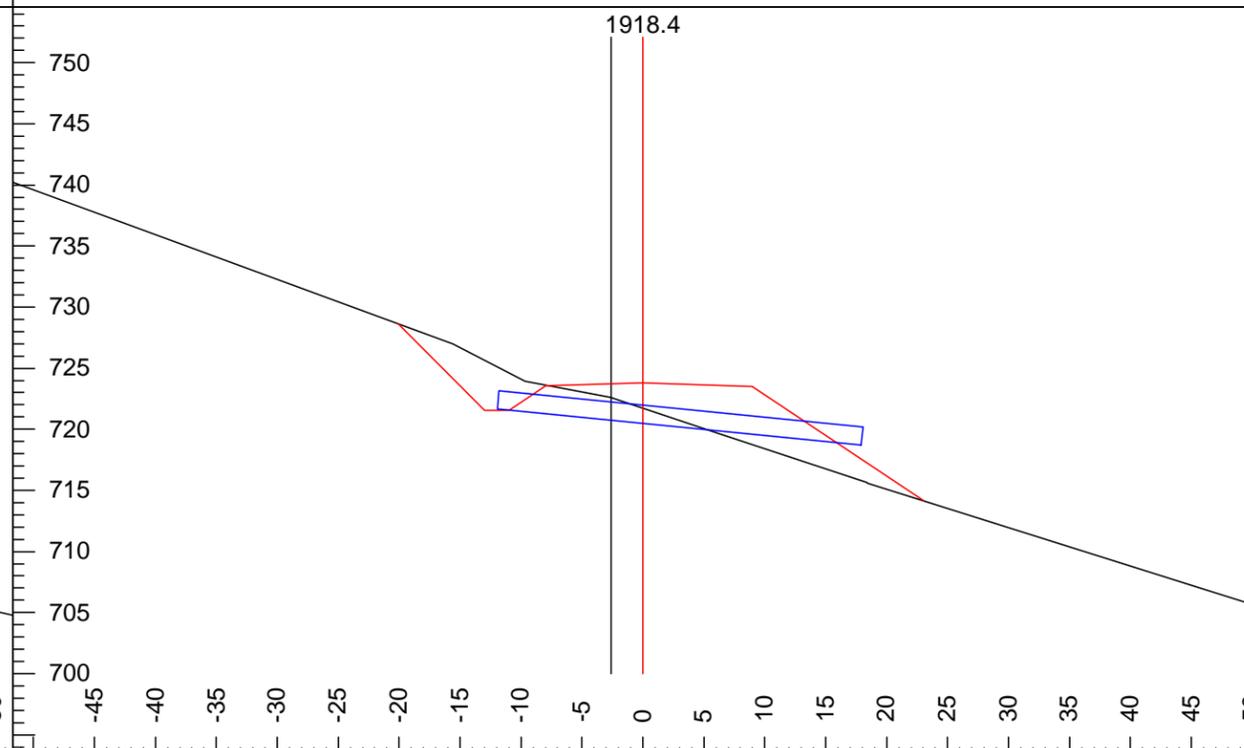
Trav.Cmnt:	14+34.7	Grd.Lst:	13	Stk R Y:	-3.2
L-Stn:	1658.2	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	5.2	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	0.0	Stk L X:	-21.4	Cul DIA:	18in
Cut Dp:	-0.9	Stk L Y:	6.1	Cul Dip %:	10
Grd.Nxt.:	13	Stk R X:	12.5	Cul Length:	30.0



Trav.Cmnt:	15+20.9	Grd.Lst:	5	Stk R Y:	-5.0
L-Stn:	1743.2	Rd. Wd. R:	8.5	CUT_SLOPE1 (Right):	100
H. Offset:	3.6	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	0.0	Stk L X:	-22.6	Cul DIA:	24in
Cut Dp:	-1.0	Stk L Y:	6.1	Cul Dip %:	8
Grd.Nxt.:	5	Stk R X:	15.6	Cul Length:	30.0



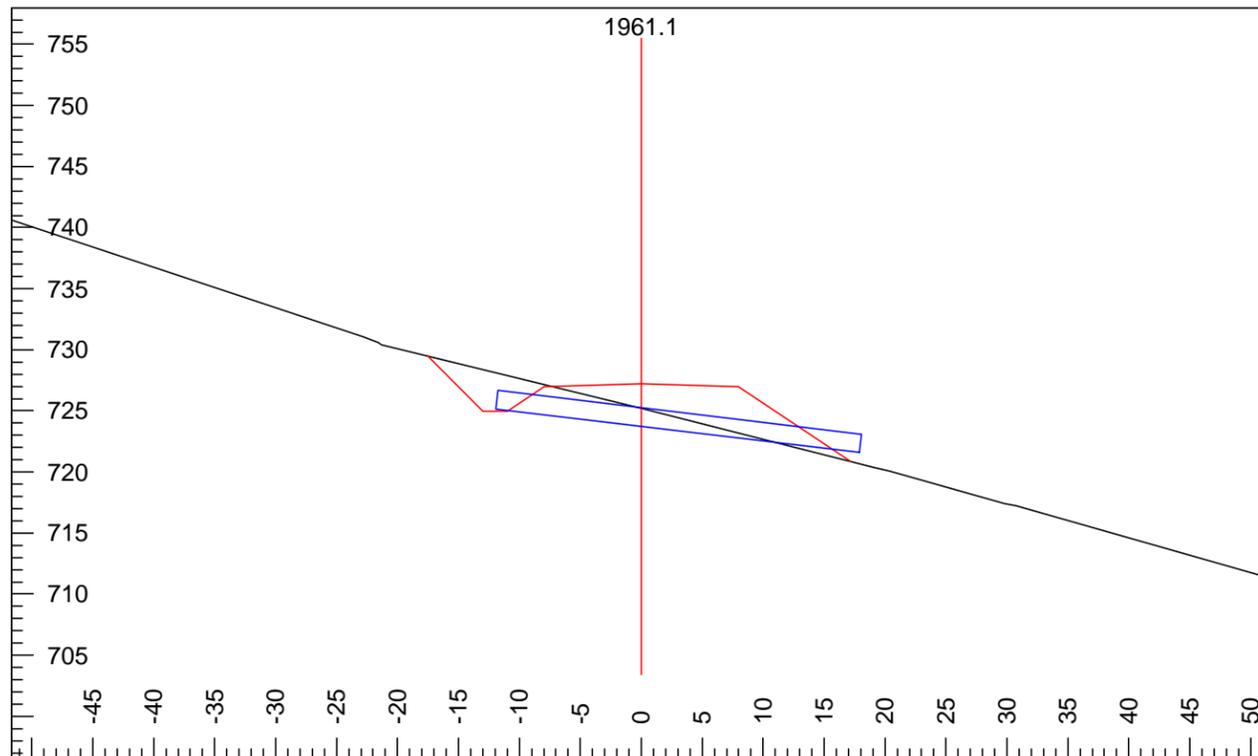
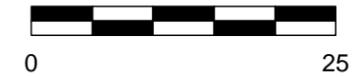
Trav.Cmnt:	15+87.5	Grd.Lst:	8	Stk R Y:	-13.5
L-Stn:	1807.7	Rd. Wd. R:	11.0	CUT_SLOPE1 (Right):	100
H. Offset:	3.6	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	1.1	Stk L X:	-20.0	Cul DIA:	36in
Cut Dp:	-2.8	Stk L Y:	2.9	Cul Dip %:	20
Grd.Nxt.:	8	Stk R X:	30.7	Cul Length:	40.0



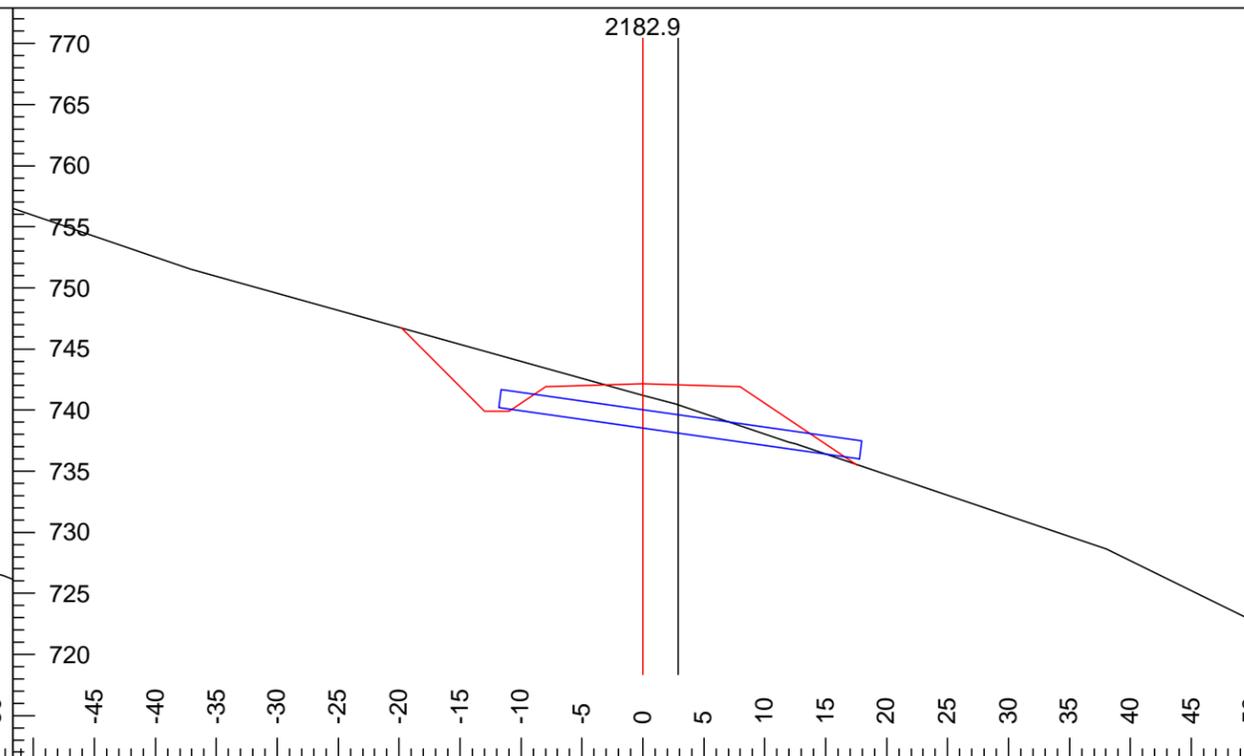
Trav.Cmnt:	17+02.4	Grd.Lst:	8	Stk R Y:	-9.6
L-Stn:	1918.4	Rd. Wd. R:	9.0	CUT_SLOPE1 (Right):	100
H. Offset:	2.5	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	1.2	Stk L X:	-20.1	Cul DIA:	18in
Cut Dp:	-2.1	Stk L Y:	4.9	Cul Dip %:	10
Grd.Nxt.:	8	Stk R X:	23.1	Cul Length:	30.0

# 4003.5 Design Specifications

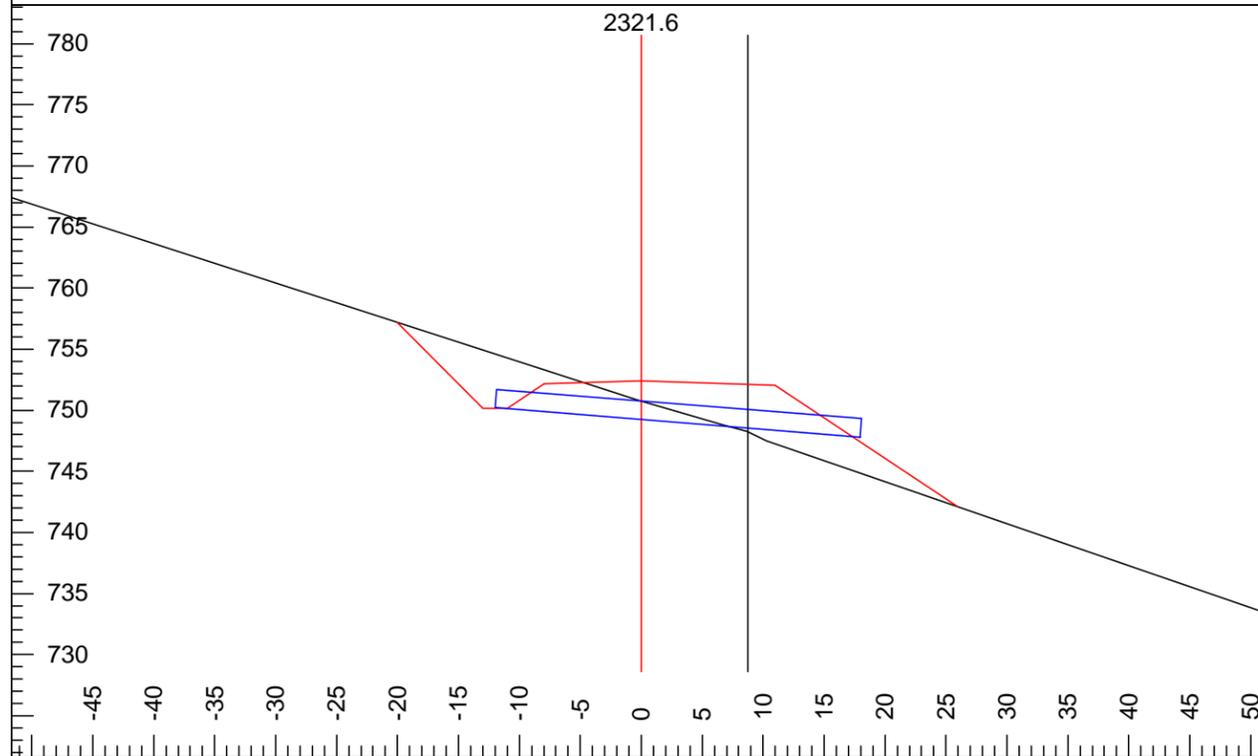
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



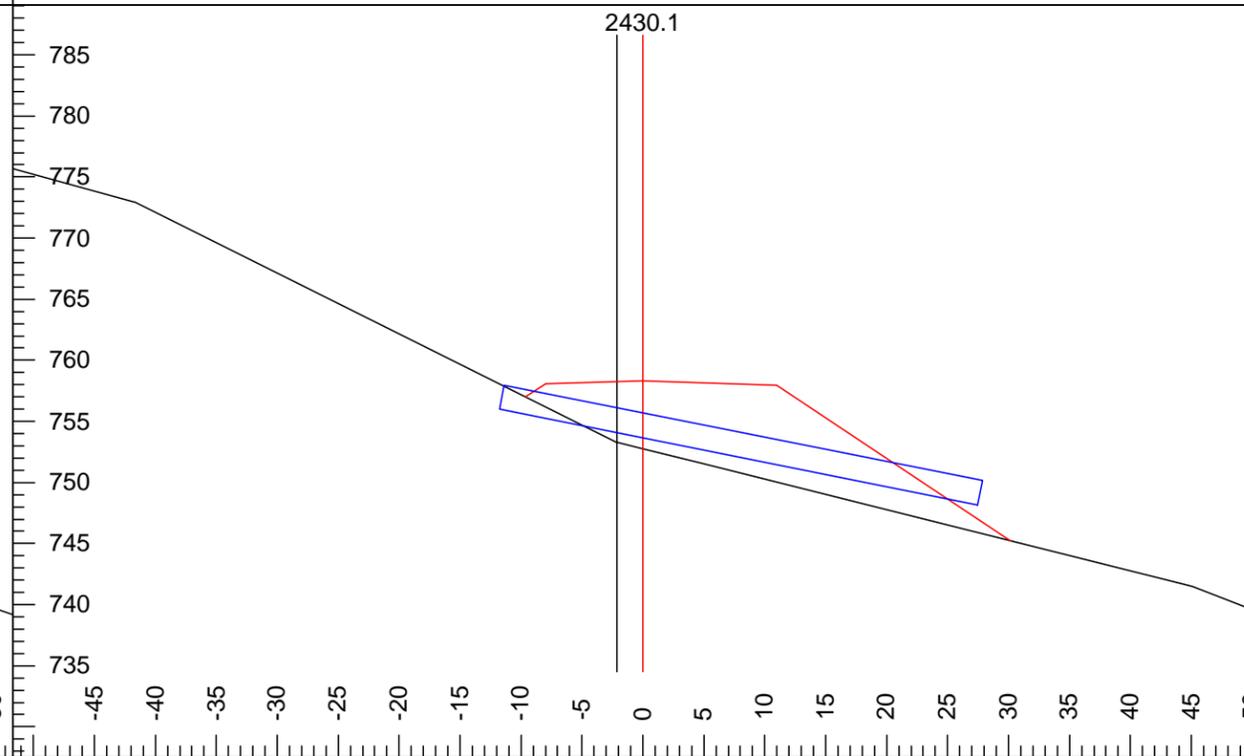
Trav.Cmnt:	17+45.8	Grd.Lst:	10	Stk R Y:	-6.3
L-Stn:	1961.1	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	2.0	Stk L X:	-17.5	Cul DIA:	18in
Cut Dp:	-2.0	Stk L Y:	2.3	Cul Dip %:	12
Grd.Nxt.:	10	Stk R X:	17.1	Cul Length:	30.0



Trav.Cmnt:	19+70.9	Grd.Lst:	8	Stk R Y:	-6.6
L-Stn:	2182.9	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	-2.9	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	1.7	Stk L X:	-19.8	Cul DIA:	18in
Cut Dp:	-0.9	Stk L Y:	4.6	Cul Dip %:	14
Grd.Nxt.:	8	Stk R X:	17.6	Cul Length:	30.0



Trav.Cmnt:	52	Grd.Lst:	7	Stk R Y:	-10.3
L-Stn:	2321.6	Rd. Wd. R:	11.0	CUT_SLOPE1 (Right):	100
H. Offset:	-8.6	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	4.1	Stk L X:	-20.0	Cul DIA:	18in
Cut Dp:	-1.6	Stk L Y:	4.8	Cul Dip %:	8
Grd.Nxt.:	7	Stk R X:	25.9	Cul Length:	30.0



Trav.Cmnt:	54	Grd.Lst:	3	Stk R Y:	-13.1
L-Stn:	2430.1	Rd. Wd. R:	11.0	CUT_SLOPE1 (Right):	100
H. Offset:	2.1	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	5.0	Stk L X:	-9.6	Cul DIA:	24in
Cut Dp:	-5.6	Stk L Y:	-1.3	Cul Dip %:	20
Grd.Nxt.:	3	Stk R X:	30.2	Cul Length:	40.0

# 4003.5 Design Specifications

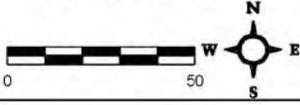


Trav.Cmnt:	57	Grd.Lst:	-1	Stk R Y:	-2.6
L-Stn:	2559.8	Rd. Wd. R:	8.0	CUT_SLOPE1 (Right):	100
H. Offset:	0.0	Rd. Wd. L:	8.0	FILL_SLOPE (Right):	67
V.Offset:	-0.7	Stk L X:	-21.4	Cul DIA:	18in
Cut Dp:	0.7	Stk L Y:	6.1	Cul Dip %:	6
Grd.Nxt.:	-1	Stk R X:	11.6	Cul Length:	30.0

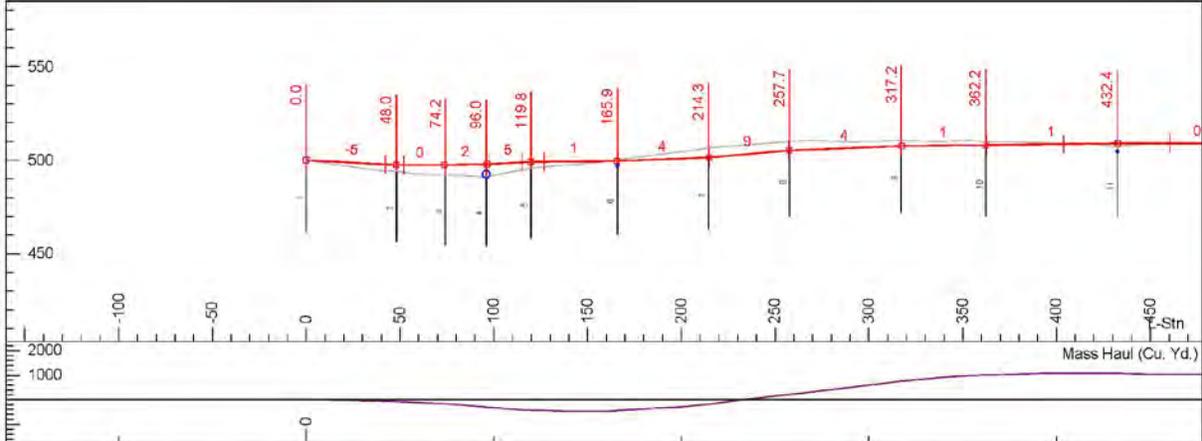
Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



4008  
 Design Specifications  
 Sta 0+96 48 in pipe

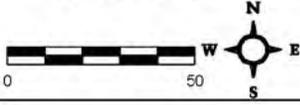


Legend	
	Preliminary(P) line
	Location(L) line
	Left and right edge subgrade
	Toe of fill
	Top of cut
	Cumulative excavation and fill volume

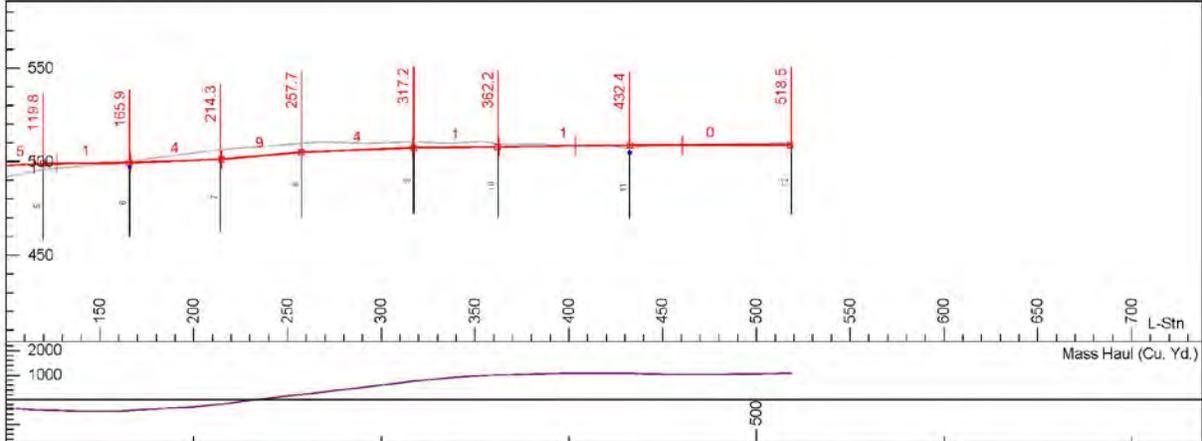
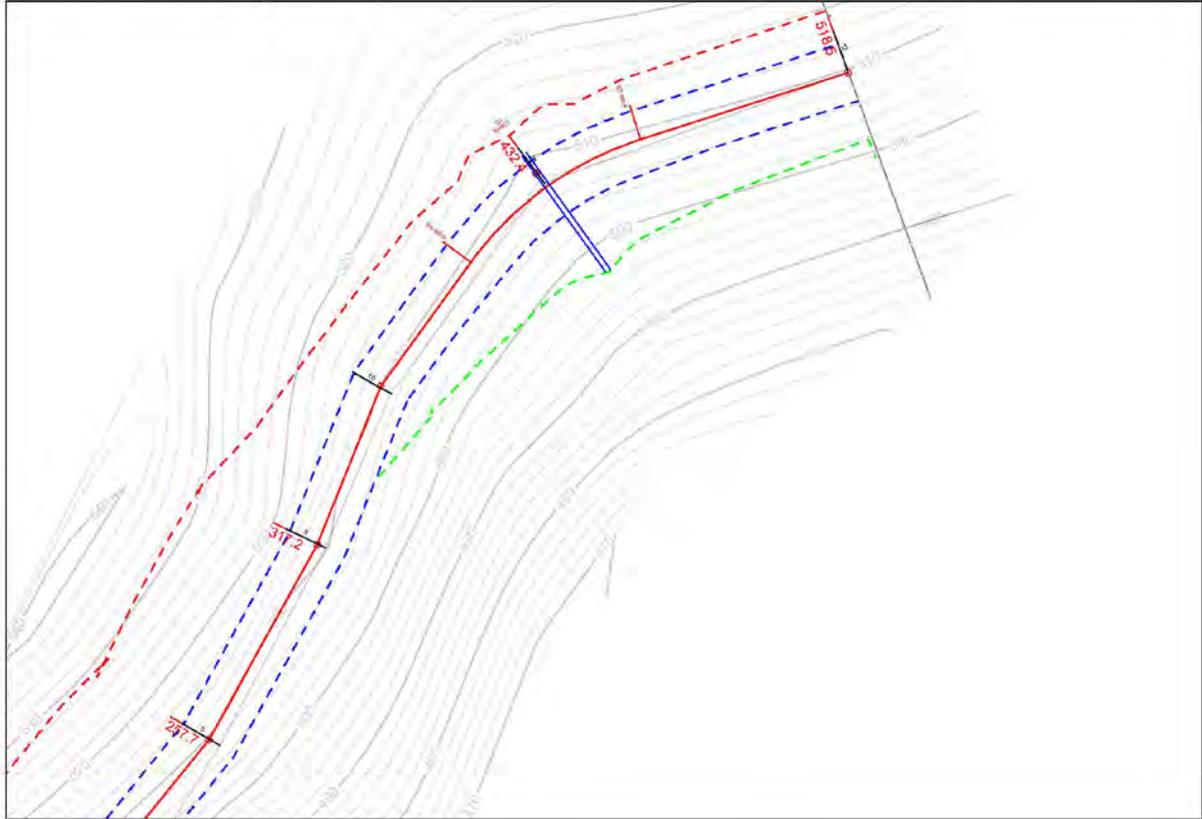


Comment	L-Stn ft	H. Offset ft	V. Offset ft	Cut Dp. ft	Rd. Wd. L ft	Rd. Wd. R ft	CUT_SLOPE %	FILL_SLOPE %	(R)Stk L X ft	Stk L Y ft	Stk R X ft	Stk R Y ft
1	0.0	0.0	0.0	0.0	8.0	8.0	100	67	-8.2	0.0	8.1	-0.2
2	48.0	3.8	3.2	-3.3	8.9	8.0	100	67	-9.2	-0.5	12.9	-3.5
3	74.2	0.3	5.1	-5.2	9.0	8.0	100	67	-10.6	-1.3	19.9	-8.1
4	96.0	2.9	5.9	-6.8	9.0	8.0	200	75	-14.0	-4.0	26.0	-13.7
5	119.8	1.0	2.9	-3.1	8.6	8.0	100	67	-8.9	-0.5	19.3	-7.8
6	165.9	-4.5	1.4	0.7	8.0	8.0	100	67	-29.0	13.8	19.4	-7.8
7	214.3	-8.5	0.4	5.1	8.0	8.0	100	67	-34.1	23.4	8.4	-0.2
8	257.7	-3.4	-2.9	4.7	8.0	8.0	100	67	-34.2	23.4	9.1	-0.2

4008  
Design Specifications  
Sta 0+96 48 in pipe



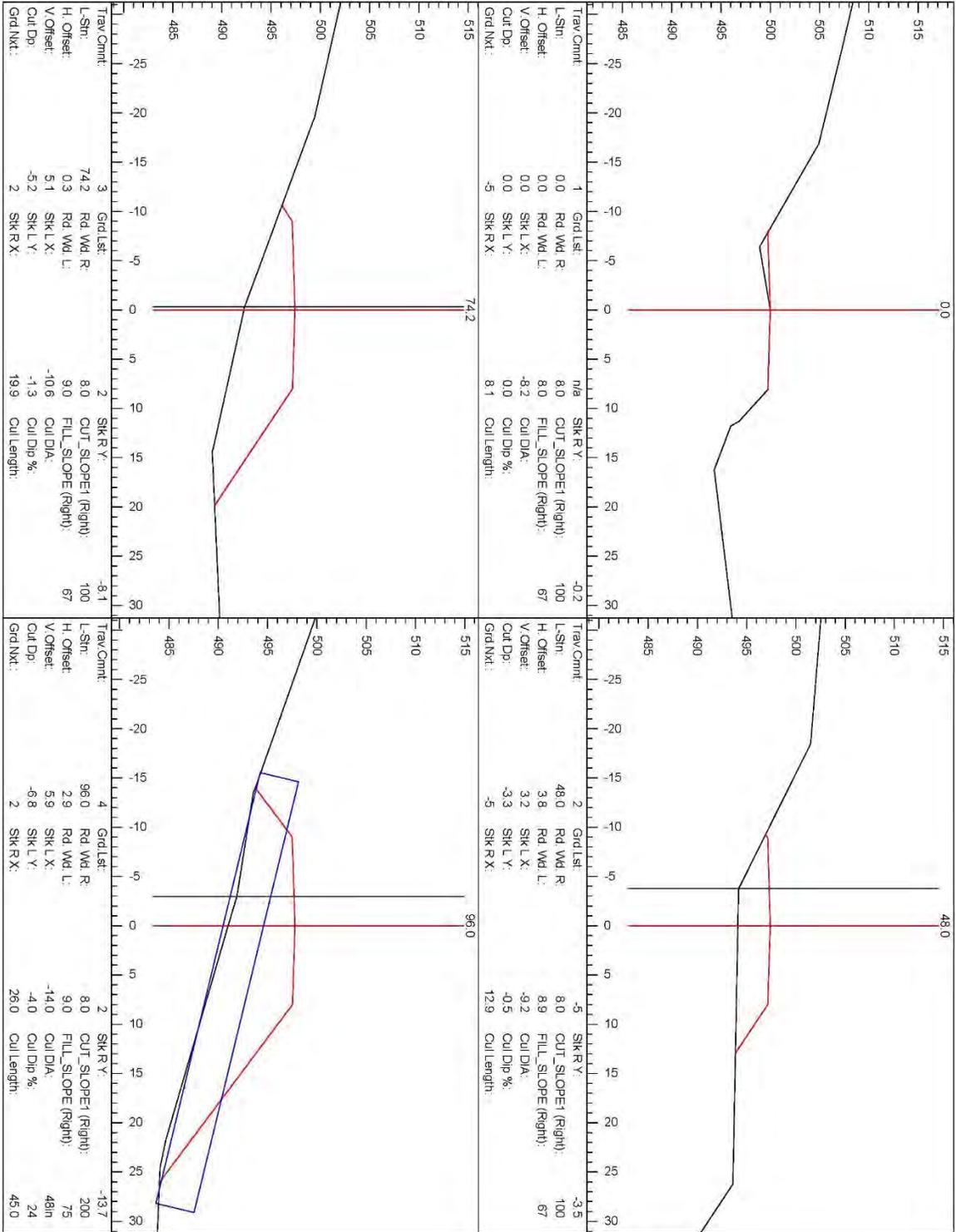
Legend	
	Preliminary(P) line
	Location(L) line
	Left and right edge subgrade
	Toe of fill
	Top of cut
	Cumulative excavation and fill volume



Comment	L-Strn ft	H. Offset ft	V. Offset ft	Cut Dp ft	Rd. Wd. L ft	Rd. Wd. R ft	CUT_SLOPE %	FILL_SLOPE %	(R)Stk L X ft	Stk L Y ft	Stk R X ft	Stk R Y ft
9	317.2	-2.4	-2.7	3.1	8.0	8.0	100	67	-34.4	23.7	10.9	-0.2
10	362.2	-3.4	-0.2	1.6	8.0	8.0	100	67	-21.3	10.6	14.8	-4.8
11	432.4	1.1	1.4	-1.9	8.0	9.0	100	67	-16.9	2.9	28.1	-13.0
12	518.5	0.0	0.0	0.0	8.0	8.0	100	67	-15.9	5.2	23.8	-10.7

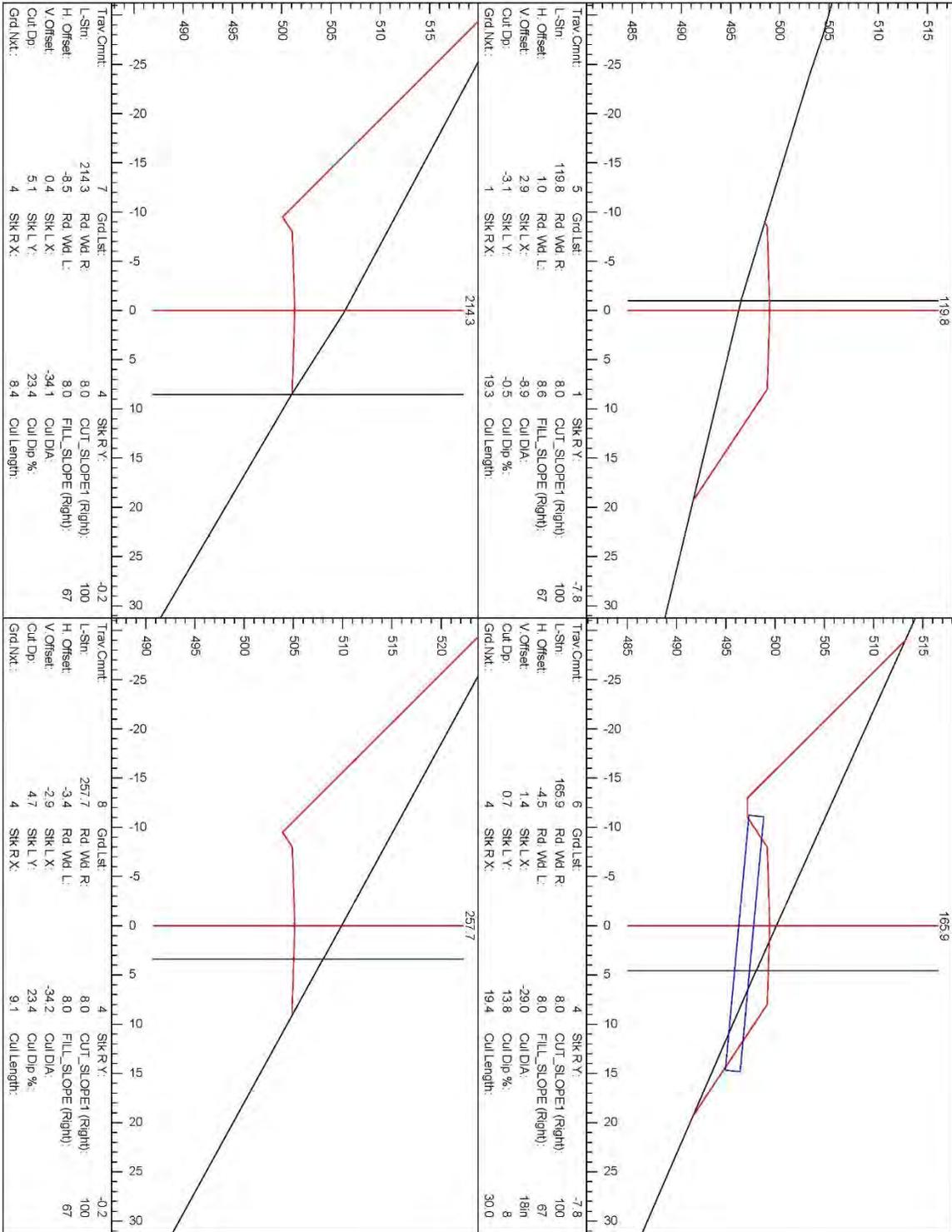
# 4008 Design Specifications Sta 0+96 - 48in pipe

Legend	
	Location(L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



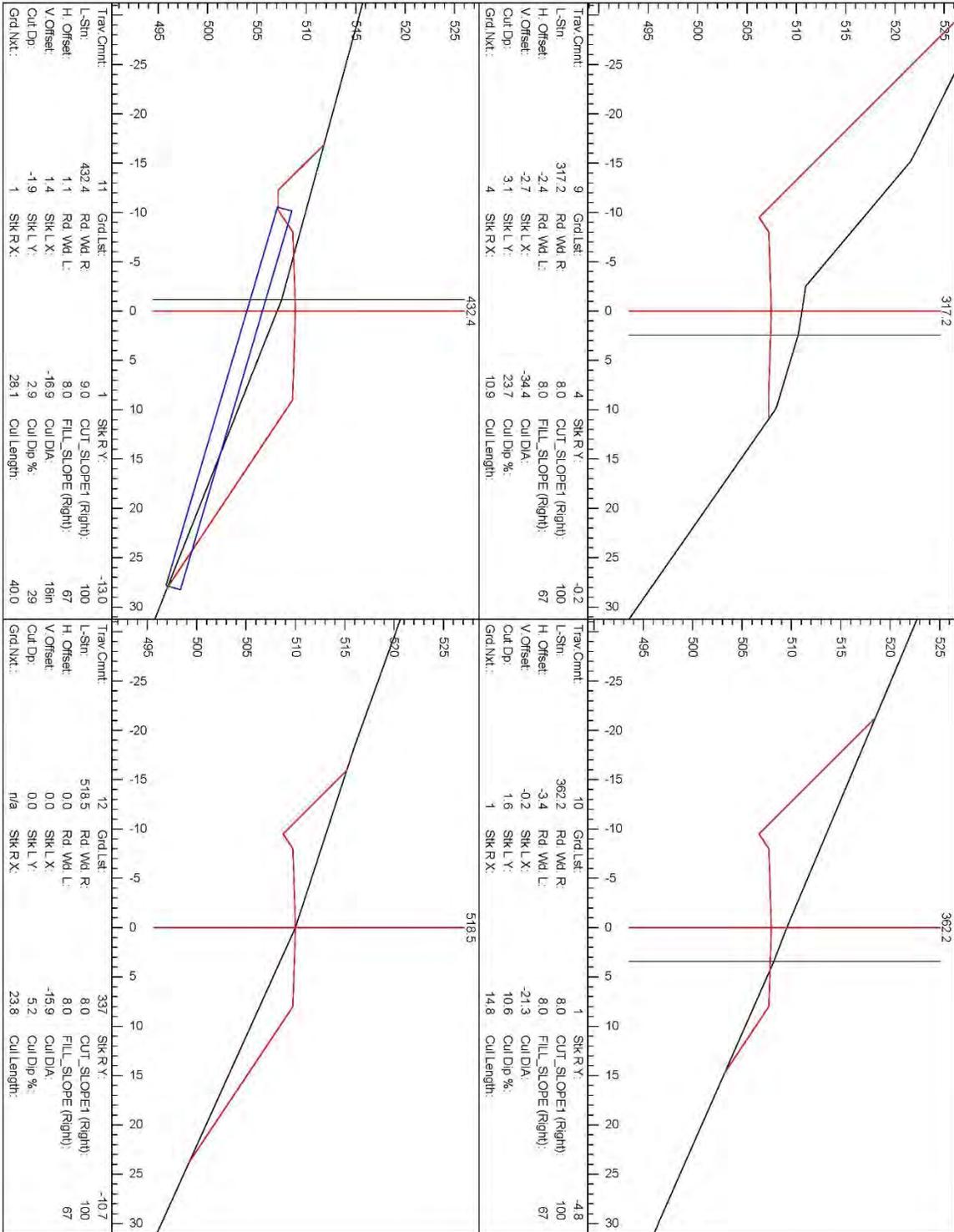
# 4008 Design Specifications Sta 0+96 - 48in pipe

Legend	
	Location (L) line
	Preliminary(P) line
	Road prism
	Existing ground profile
	Culvert



# 4008 Design Specifications Sta 0+96 - 48in pipe

Legend	
	Location (L) line
	Preliminary (P) line
	Road prism
	Existing ground profile
	Culvert



# FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Page 1 of 2

## Cuts and Fills

- Maintain slope lines as constructed. 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 as directed, 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 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 drivable 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 dissipators at culvert outlets with non-erodible material or rock.
- Keep ditches and culverts 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.

## Structures

- Repair culverts, bridges, gates, fences, cattle guards, signs, and other road structures as required because of purchaser use.

# FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

Page 2 of 2

## Preventative Maintenance

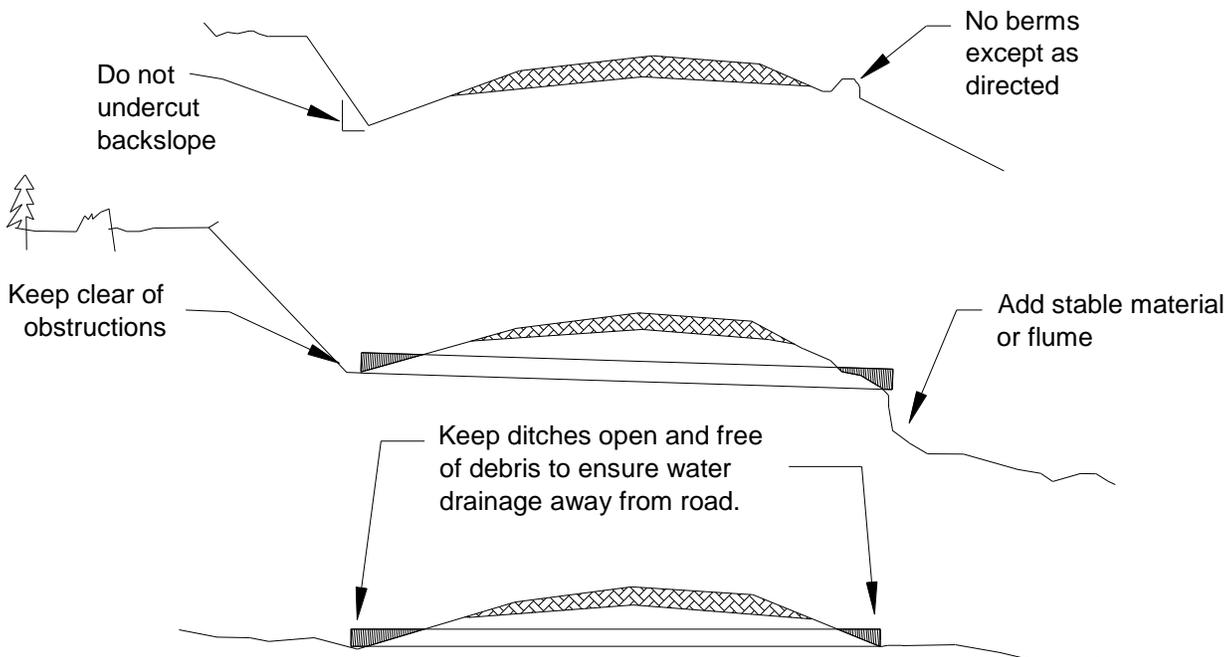
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

## Termination of Use or End of Season

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

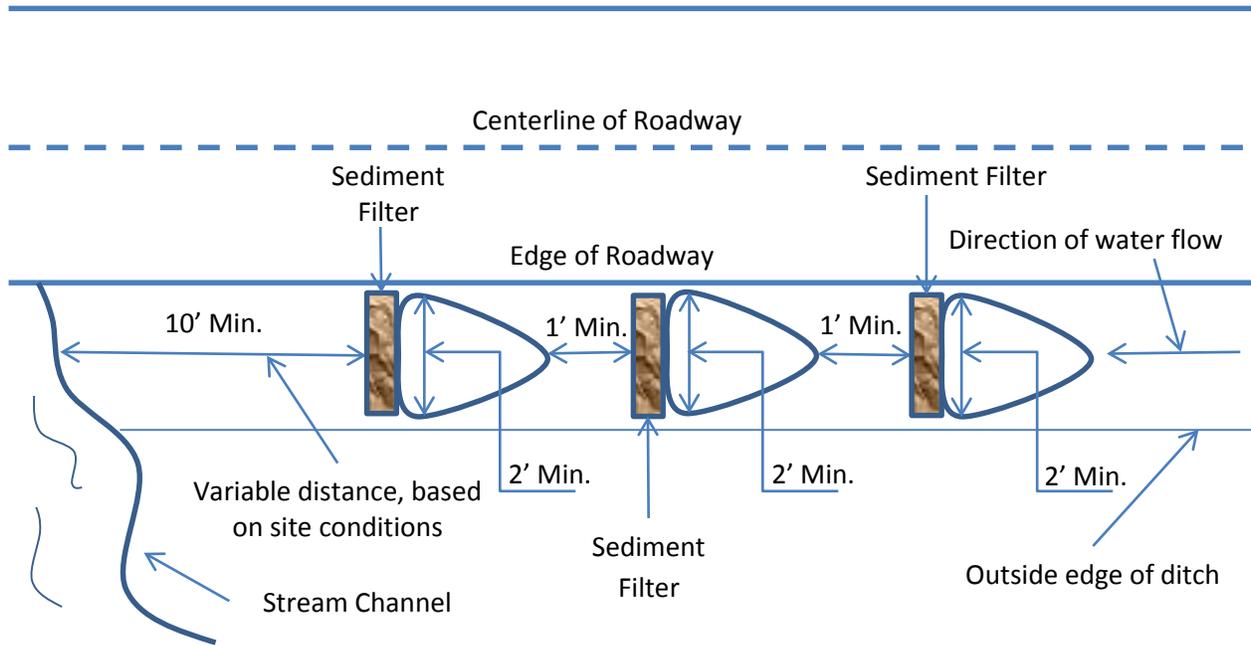
## Debris

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

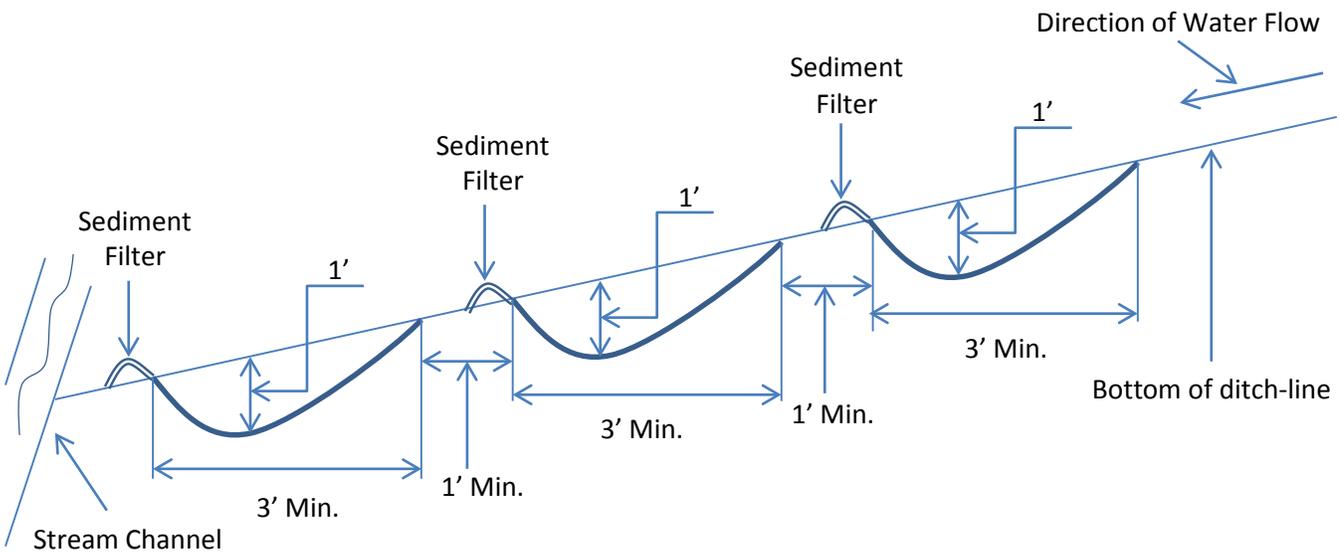


# SEDIMENT TRAP DETAIL

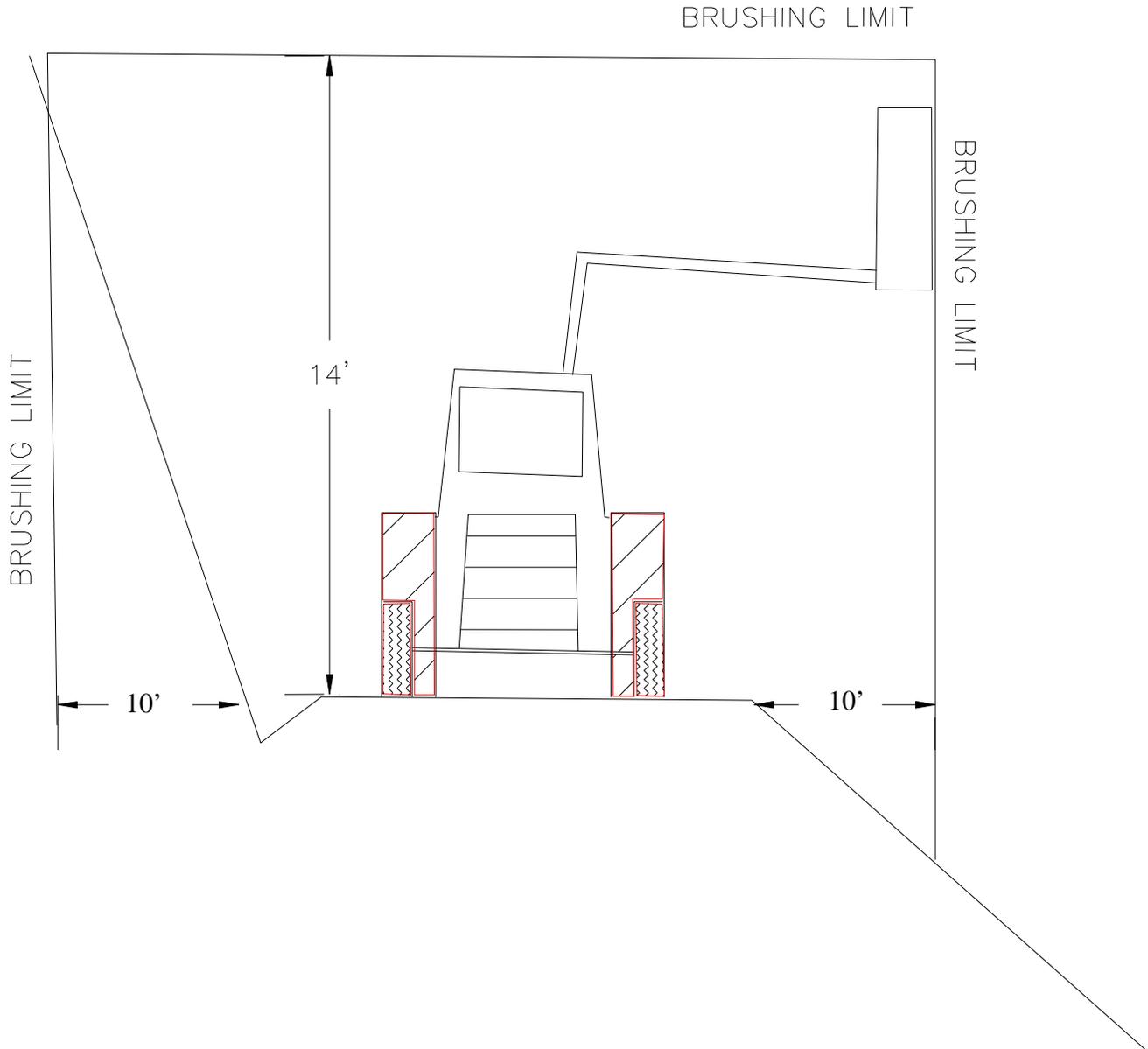
## Top View



## Profile View

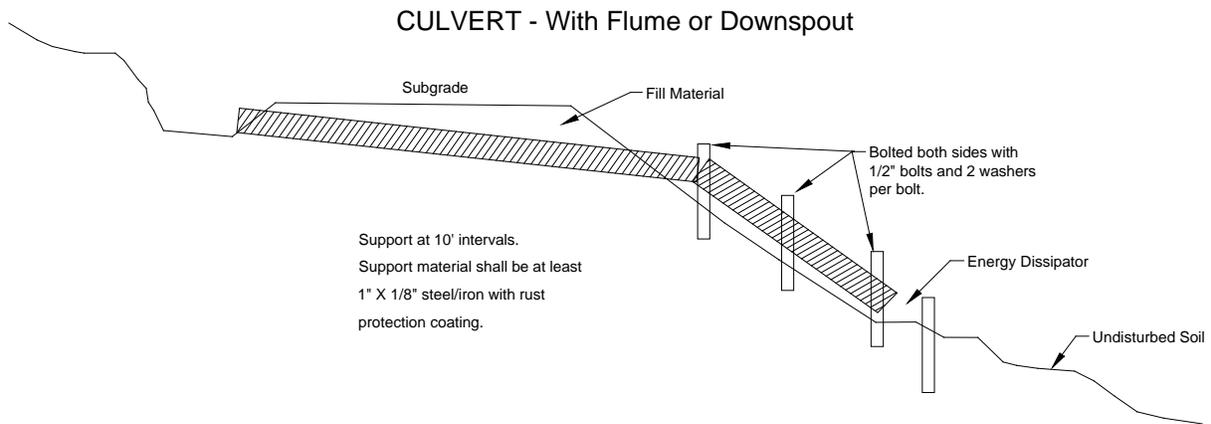
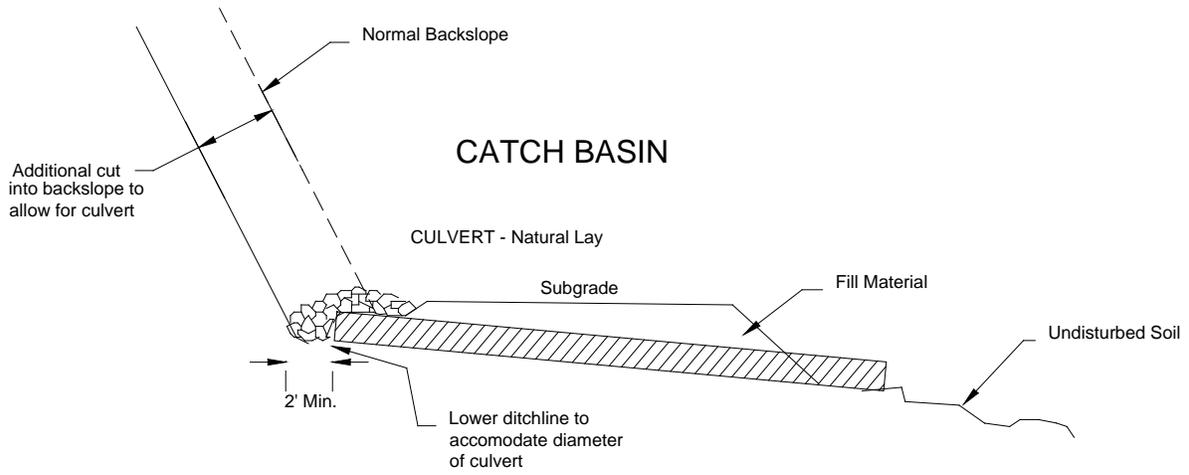


# BRUSHING SECTION DETAIL



# CULVERT AND DRAINAGE SPECIFICATION DETAIL

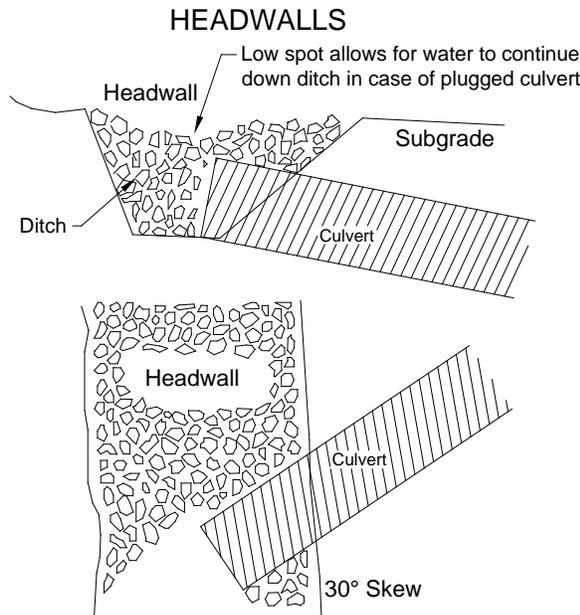
(Page 1 of 3)



## CULVERT AND DRAINAGE SPECIFICATION DETAIL

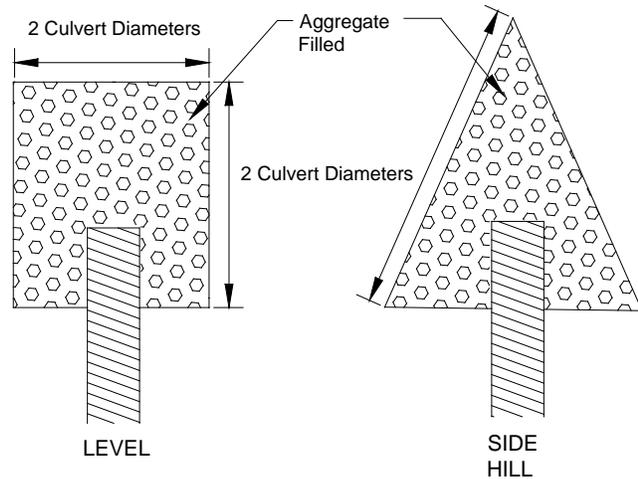
(Page 2 of 3)

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.



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.

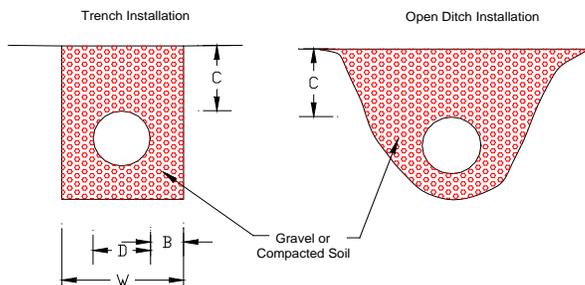
## CULVERT AND DRAINAGE SPECIFICATION DETAIL

(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. Site conditions and availability of bedding materials often dictate the type of installation method used.
4. The load bearing capability of flexible conduits is dependent on the type of backfill material used and the degree of compaction achieved. Crushed stone and gravel backfill materials typically reach a compaction level of 90-95% AASHTO standard density without compaction. When native soils are used as backfill material, a compaction level of 85% is required. This minimum compaction can be achieved by either hand or mechanical tamping.



**MINIMUM DIMENSIONS**

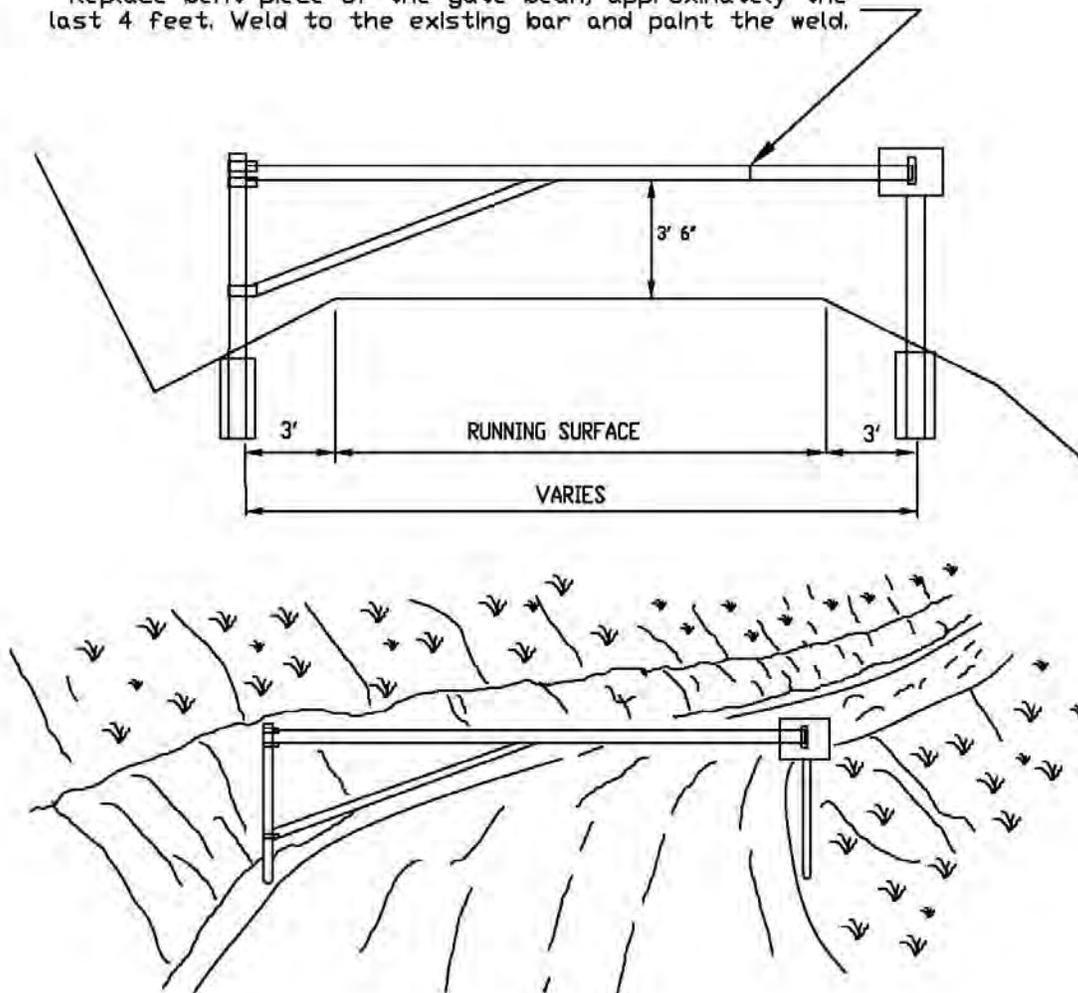
**Trench or Open Ditch Installation**

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

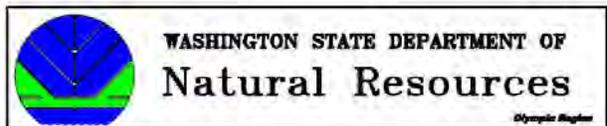
# Gate Detail

- 1.) Gate beam shall be a minimum of 3' diameter steel pipe with a minimum 1/4' wall thickness.
- 2.) All metal surfaces, including welds, shall be painted with at least two coats of safety yellow paint.
- 3.) Gate post shall be equipped with an enclosed, lock bell.
- 4.) Place stumps and waste around gate to prevent vehicles from driving around the gate.
- 5.) Grease hinges.

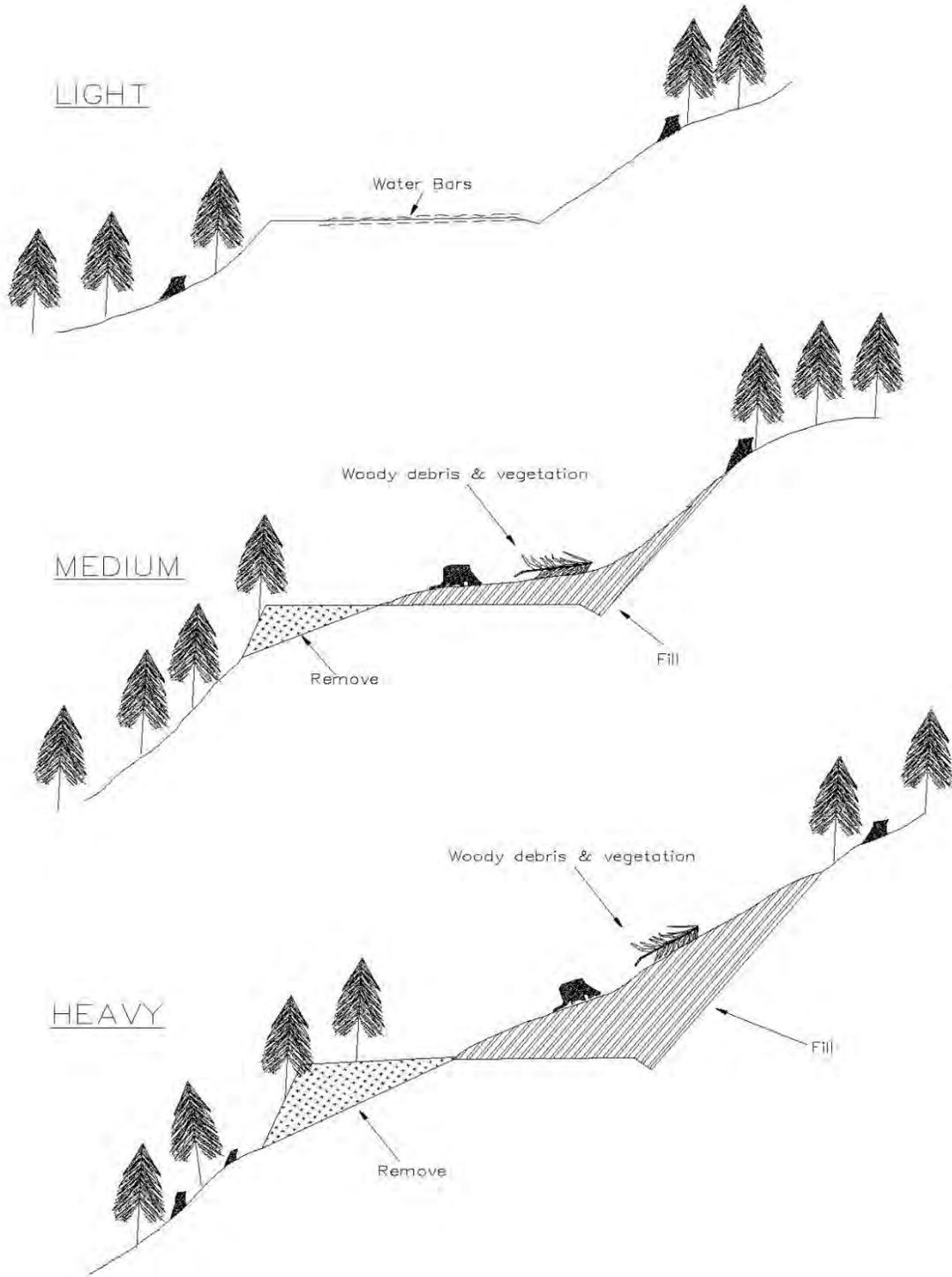
Replace bent piece of the gate beam, approximately the last 4 feet. Weld to the existing bar and paint the weld.



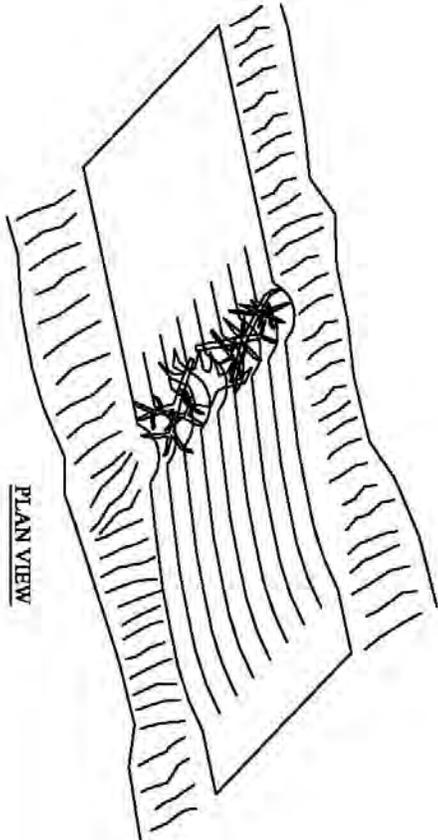
Drawn by: Madisen Warnstadt  
7/13/15



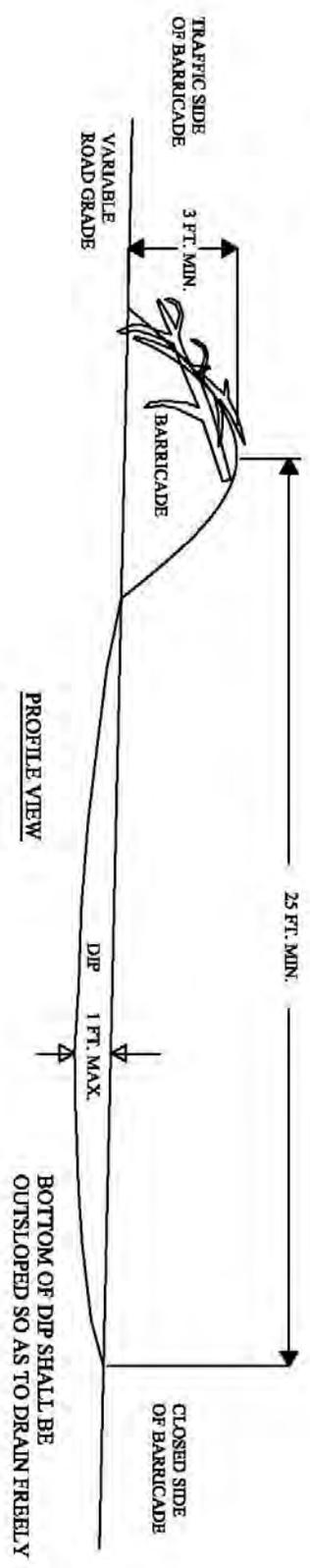
# ROAD ABANDONMENT CROSS SECTIONS



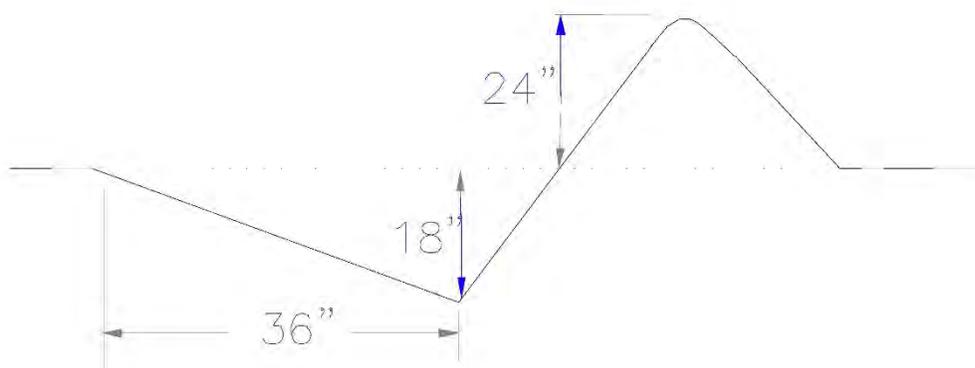
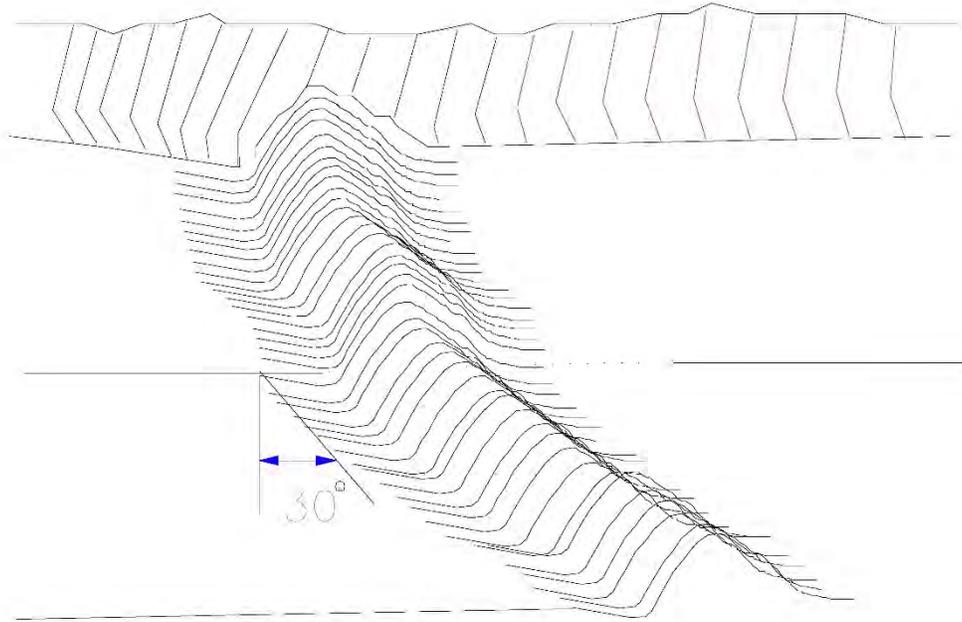
# EARTHEN BARRICADE DETAIL



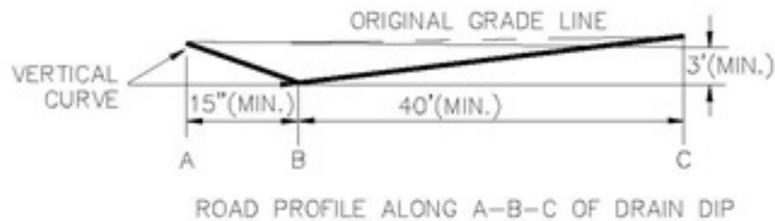
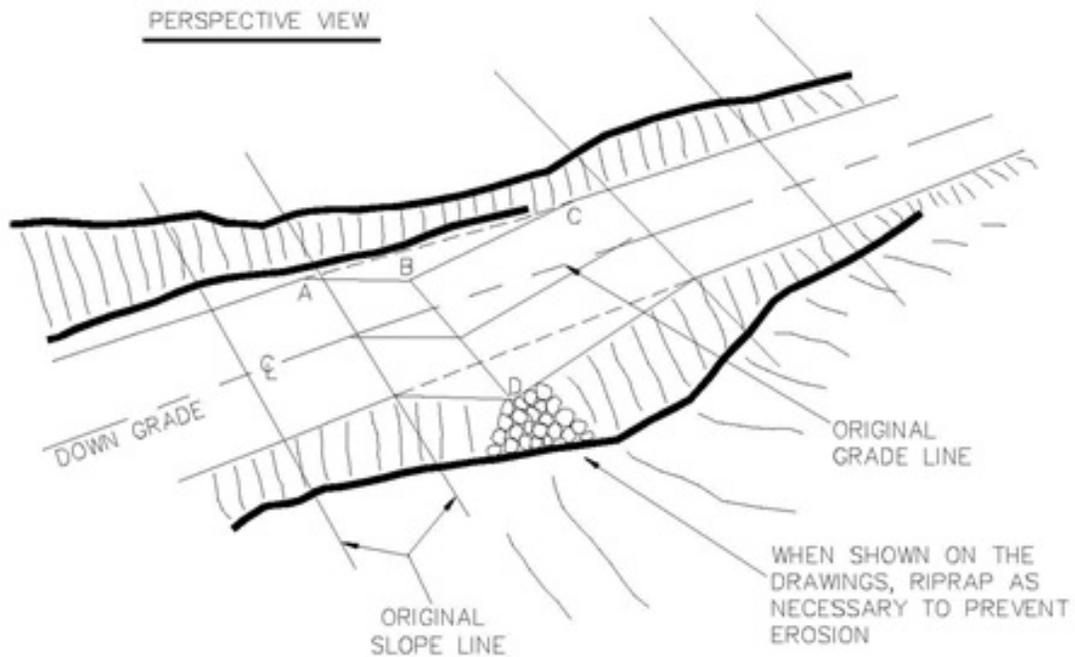
SLASH AND ROOT WADS SHALL BE INCORPORATED INTO THE TRAFFIC SIDE OF THE BARRICADE.



# NON-DRIVABLE WATER BAR DETAIL

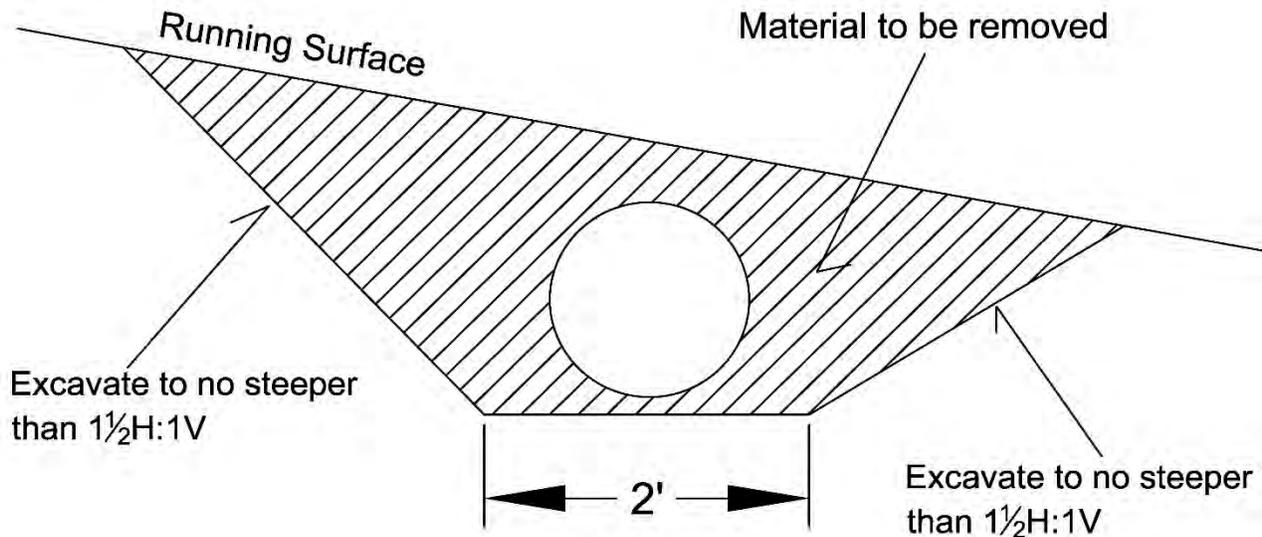


## DRIVABLE DIP DETAIL



- Notes:
- 1) Plan shown is for outsloped dip. Dips may be either insloped or outsloped.
  - 2) When insloped, dips shall discharge into a culvert, drop inlet, or ditch out.
  - 3) The minimum cross grade from "B" to "D" shall be 6%.
  - 4) Skew line B-D to fit low point in draw if located in natural drain.
  - 5) Preferred construction is to excavate entire dip. If embankment is used, it shall be rock.

# CROSSDRAIN REMOVAL DETAIL



1) Excavated material may be wasted on the road surface on the downhill side of the excavation. Waste material shall be sloped at no steeper than  $\frac{1}{2}$  H:1V.

2) Resulting trench shall be keyed into the ditchline and sloped towards the outside edge of the road with a drop of at least 1 foot in 10 feet.

## SUMMARY - Road Development Costs

REGION: Olympic

DISTRICT: Straits

SALE/PROJECT NAME: Beacon Bits

CONTRACT #: 30-092816

---

ROAD NUMBERS:	4003.5, 4008, 4008.5	4003	25, 4000
ROAD STANDARD:	Construction	Reconstruction	Maintenance
NUMBER OF STATIONS:	43.26	11.89	362.54
CLEARING & GRUBBING:	\$ 11,323	\$ 3,112	-
EXCAVATION AND FILL:	\$ 67,345	\$ 1,881	-
MISC. MAINTENANCE:	\$ 2,819	\$ 662	\$ 23,957
ROAD & LANDING ROCK:	\$ 64,918	\$ 4,699	\$ 8,785
CULVERTS AND FLUMES:	\$ 28,939	\$ 2,851	\$ 2,851
STRUCTURES:	-	-	-
MOBILIZATION:	\$ 3,233	\$ 3,233	\$ 3,233
TOTAL COSTS:	\$ 178,577	\$ 16,438	\$ 38,826
COST PER STATION:	\$ 4,128	\$ 1,382	\$107
ABANDONMENT COST:	\$4,953		

**\*TOTAL (All Roads): \$238,794**  
**SALE VOLUME MBF: 1800**  
**TOTAL \$/MBF: \$132.66**

Compiled by: Tom Barnes

Date: 10/7/2015

MOBILIZATION

SALE/PROJECT NAME: Beacon Bits

CONTRACT #: 30-092816

ROAD BUILDING EQUIPMENT

Grader	1 @	\$ 500	each	\$	500
Loader	@	\$ 500	each	\$	-
Dozer (small)	@	\$ 300	each	\$	-
Dozer (large)	1 @	\$ 500	each	\$	500
Excavator (small)	1 @	\$ 300	each	\$	300
Excavator (large)	2 @	\$ 500	each	\$	1,000
Roller	1 @	\$ 300	each	\$	300
ROAD BUILDING EQUIPMENT SUBTOTAL:					\$ 2,600

ROCK SOURCE EQUIPMENT

Loader	1 @	\$ 500	each	\$	500
Dozer (small)	1 @	\$ 300	each	\$	300
Dozer (large)	1 @	\$ 500	each	\$	500
Excavator (small)	1 @	\$ 300	each	\$	300
Excavator (large)	@	\$ 500	each	\$	-
Roller	@	\$ 300	each	\$	-
Rock drill	1 @	\$ 500	each	\$	500
Jaw (mobile, includes set up)	@	\$ 1,500	each	\$	-
Jaw (stationary, includes set up)	@	\$ 4,000	each	\$	-
Jaw & cone (includes set up)	1 @	\$ 5,000	each	\$	5,000
Jaw, cone, rolls (includes set up)	@	\$ 6,000	each	\$	-
ROCK SOURCE EQUIPMENT SUBTOTAL:					\$ 7,100

MOBILIZATION TOTAL: \$ 9,700

SALE/PROJECT NAME: Beacon Bits

CONTRACT #: 30-092816

ROAD NUMBER: 25

Total road length (feet): 9504

Distance to Vantage Pit (feet) 65000

Average Haul Speed (mph) 12

Truck Load Time (minutes) 6

Volume per Truck (CY) 10

PREHAUL MAINTENANCE

MISC. MAINTENANCE

Brushing (heavy)

95+04 stations @

\$56.70 per station \$

5,388.77

Misc. Maintenance Total \$

5,388.77

PREHAUL MAINTENANCE TOTAL \$

5,388.77

SALE/PROJECT NAME: Beacon Bits

CONTRACT #: 30-092816

ROAD NUMBER: 4000

Total road length (feet) 26750

Distance to Vantage Pit (feet) 5558

Average Haul Speed (mph) 12

Truck Load Time (minutes) 6

Volume per Truck (CY) 10

PREHAUL MAINTENANCE

MISC. MAINTENANCE

Brushing (heavy)	267+50 stations @	\$56.70 per station	\$	15,167.25
Cleaning Inlets & Outlets	267+50 stations @	\$3.96 per station	\$	1,059.30
Maintenance grading & compacting	267+50 stations @	\$8.75 per station	\$	2,341.48
		Misc. Maintenance Total	\$	18,568.03

ROCK

Stripping overburden	370 CY @	\$ 1.40 per CY	\$	518.00
Drill & shoot	370 CY @	\$ 2.50 per CY	\$	925.00
Push rock	370 CY @	\$ 0.68 per CY	\$	251.60
Load crusher	370 CY @	\$ 1.30 per CY	\$	481.00
Crushing (3-INCH MINUS CRUSHED ROCK)	370 CY @	\$ 4.20 per CY	\$	1,554.00
Load dump truck	370 CY @	\$ 0.83 per CY	\$	308.33
Rock haul	Round Trip (feet) 64616	41 Hours @	\$ 98.00 per hour	\$ 4,060.48
Process/Compacting Surfacing (6" Lift)	370 CY @	\$ 1.86 per CY	\$	686.81
Light Loose Rip Rap	8 CY @	\$ 15.00 per CY	\$	120.00
		Rock Total	\$	8,785.22

CULVERTS & FLUMES

18" Polyethylene, double wall	0+70 feet @	\$ 21.93 per foot	\$	1,535.10
36" Polyethylene, double wall	36 feet @	\$ 59.09 per foot	\$	2,127.24
		Culvert & Flume Total	\$	3,662.34

MISC. MAINTENANCE

Grass seed (spread by hand)	10 pounds @	\$ 3.00 per pound	\$	30.30
Straw mulching (spread by hand)	0.20 acres @	\$ 595.00 per acre	\$	120.20
Gate Maintenance	2.00 gates	\$ 50.00	\$	100.00
		Misc Maintenance Total	\$	250.51

PREHAUL MAINTENANCE TOTAL \$ 31,266.10

SALE/PROJECT NAME: Beacon Bits

CONTRACT #: 30-092816

ROAD NUMBER: 4003

Total road length (feet): 1189

Distance to Vantage Pit (feet) 2809

Average Haul Speed (mph) 12

Truck Load Time (minutes) 6

Volume per Truck (CY) 10

RECONSTRUCTION

CLEARING & GRUBBING

Scatter	11.89 stations @	\$	261.75	per station	\$	3,112.21
					C & G Total	\$ 3,112.21

EXCAVATION AND FILL

Reconstruction (light)	11.89 stations @	\$	123.07	per station	\$	1,463.27
Turnaround	1.00 each @	\$	187.60	each	\$	187.60
Rip, Grade, shape, compact subgrade	11.89 per station	\$	19.32	per station	\$	229.75
					Excavation Total	\$ 1,880.63

ROCK

Stripping overburden	310 CY @	\$	1.40	per CY	\$	433.36
Drill & shoot	310 CY @	\$	2.50	per CY	\$	773.85
Push rock	310 CY @	\$	0.68	per CY	\$	210.49
Load crusher	310 CY @	\$	1.30	per CY	\$	402.40
Crushing (3-INCH MINUS CRUSHED ROCK)	310 CY @	\$	4.20	per CY	\$	1,300.07
Load dump truck	310 CY @	\$	0.83	per CY	\$	257.95
Rock haul	Round Trip (feet) 7996		7 Hours @	\$ 98.00 per Hour	\$	686.17
Process/Compacting Surfacing (6" Lift)	309.54 CY @	\$	1.86	per CY	\$	574.58
Light Loose Rip Rap	4.00 CY @	\$	15.00	per CY	\$	60.00
					Rock Total	\$ 4,698.87

CULVERTS & FLUMES

18" Polyethylene, double wall	130 feet @		\$21.93	per foot		\$2,850.90
					Culvert & Flume Total	\$2,850.90

MISC. MAINTENANCE

Brushing (medium)	11.89 stations @	\$	40.50	per station	\$	481.55
Grass seed (spread by hand)	60 pounds @	\$	3.00	per pound	\$	180.15
					Misc Maintenance Total	\$ 661.70

Reconstruction Total \$ 13,204.31

SALE/PROJECT NAME: Beacon Bits

CONTRACT #: 30-092816

ROAD NUMBER: 4003.5

Total road length (feet): 2743

Distance to Vantage Pit (feet): 2750

Average Haul Speed (mph) 10

Truck Load Time (minutes) 6

Volume per Truck (CY) 10

CONSTRUCTION

CLEARING & GRUBBING

Scatter	27.43 stations @	\$	261.75 per station	\$	7,179.80
				C & G Total	\$ 7,179.80

EXCAVATION AND FILL

Construction (full bench/end haul, heavy) > 70% SS	27.43 stations @	\$	2,142.17 per station	\$	58,759.65
Landing (small)	2.00 each @	\$	184.02 each	\$	368.04
Turnaround	1.00 each @	\$	187.60 each	\$	187.60
Embankment Compaction	CY @	\$	4.80 per CY	\$	-
				Excavation Total	\$ 59,315.30

ROCK

Stripping overburden	2956 CY @	\$	1.40 per CY	\$	4,138.23
Drill & shoot	2956 CY @	\$	2.50 per CY	\$	7,389.70
Push rock	2956 CY @	\$	0.68 per CY	\$	2,010.00
Load crusher	2956 CY @	\$	1.30 per CY	\$	3,842.64
Crushing (3-INCH MINUS CRUSHED ROCK)	836 CY @	\$	4.20 per CY	\$	3,510.28
Crushing (6-INCH JAW RUN ROCK)	2120 CY @	\$	3.70 per CY	\$	7,844.37
Load dump truck	2956 CY @	\$	0.83 per CY	\$	2,463.23
Rock haul	Round Trip (feet) 10986	91 Hours @	\$ 98.00 per Hour	\$	8,924.00
Process/Compacting Ballast (12" Lift)	2120 CY @	\$	1.23 per CY	\$	2,609.34
Process/Compacting Surfacing (6" Lift)	836 CY @	\$	1.86 per CY	\$	1,551.42
Light Loose Rip Rap	111 CY @	\$	15.00 per CY	\$	1,665.00
				Rock Total	\$ 45,948.21

CULVERTS & FLUMES

18" Polyethylene, double wall	220 feet @	\$21.93 per foot	\$4,824.60
24" Polyethylene, double wall	150 feet @	\$34.43 per foot	\$5,164.50
36" Polyethylene, double wall	75 feet @	\$59.09 per foot	\$4,431.75
48" Polyethylene, double wall	90 feet @	\$90.90 per foot	\$8,181.00
		Culvert & Flume Total	\$22,601.85

MISC. MAINTENANCE

Grass seed (spread by hand)	139 pounds @	\$	3.00 per pound	\$	415.61
Straw mulching (spread by hand)	3 acres @	\$	595.00 per acre	\$	2,043.43
				Misc Maintenance Total	\$ 2,459.04

Construction Total \$ 78,188.90

SALE/PROJECT NAME: Beacon Bits

CONTRACT #: 30-092816

ROAD NUMBER: 4008

Total road length (feet): 1268

Distance to Vantage Pit (feet) 2370

Average Haul Speed (mph) 15

Truck Load Time (minutes) 6

Volume per Truck (CY) 10

CONSTRUCTION

CLEARING & GRUBBING

Scatter	12.68 stations @	\$	261.75 per station	\$	3,318.99
					C & G Total \$ 3,318.99

EXCAVATION AND FILL

Construction (balanced, heavy)	12.68 stations @	\$	474.15 per station	\$	6,012.19
Landing (medium)	1.00 each @	\$	271.27 each	\$	271.27
					Excavation Total \$ 6,283.46

ROCK

Stripping overburden	1110 CY @	\$	1.40 per CY	\$	1,554.56
Drill & shoot	1110 CY @	\$	2.50 per CY	\$	2,776.00
Push rock	1110 CY @	\$	0.68 per CY	\$	755.07
Load crusher	1110 CY @	\$	1.30 per CY	\$	1,443.52
Crushing (6-INCH JAW RUN ROCK)	1110 CY @	\$	3.70 per CY	\$	4,108.48
Load dump truck	1110 CY @	\$	0.83 per CY	\$	925.33
Rock haul	Round Trip (feet) 7276	21 Hours @	\$	98.00 per Hour	\$ 2,087.90
Process/Compacting Ballast (12" Lift)	1110 CY @	\$	1.23 per CY	\$	1,366.64
Light Loose Rip Rap	33.00 CY @	\$	15.00 per CY	\$	495.00
					Rock Total \$ 15,512.50

CULVERTS & FLUMES

18" Polyethylene, double wall	60 feet @	\$21.93 per foot	\$1,315.80
48" Polyethylene, double wall	48 feet @	\$90.90 per foot	\$4,363.20
			Culvert & Flume Total \$5,679.00

MISC. MAINTENANCE

Grass seed (spread by hand)	64 pounds @	\$	3.00 per pound	\$	192.12
Straw mulching (spread by hand)	0.20 acres @	\$	595.00 per acre	\$	120.20
					Misc Maintenance Total \$ 312.32

Construction Total \$ 31,106.28

SALE/PROJECT NAME: Beacon Bits

CONTRACT #: 30-092816

ROAD NUMBER: 4008.5

Total road length (feet): 315

Distance to Vantage Pit (feet) 2870

Average Haul Speed (mph) 12

Truck Load Time (minutes) 6

Volume per Truck (CY) 10

CONSTRUCTION

CLEARING & GRUBBING

Scatter	3.15 stations @	\$	261.75	per station	\$	824.51
						C & G Total \$ 824.51

EXCAVATION AND FILL

Construction (balanced, medium)	3.15 stations @	\$	408.57	per station	\$	1,286.99
Landing (medium)	1.00 each @	\$	271.27	each	\$	271.27
Turnaround	1.00 each @	\$	187.60	each	\$	187.60
						Excavation Total \$ 1,745.86

ROCK

Stripping overburden	221 CY @	\$	1.40	per CY	\$	308.70	
Rip rock	221 CY @	\$	2.00	per CY	\$	441.00	
Drill & shoot	221 CY @	\$	2.50	per CY	\$	551.25	
Push rock	221 CY @	\$	0.68	per CY	\$	149.94	
Load crusher	221 CY @	\$	1.30	per CY	\$	286.65	
Crushing (6-INCH JAW RUN ROCK)	221 CY @	\$	3.70	per CY	\$	815.85	
Load dump truck	221 CY @	\$	0.83	per CY	\$	183.75	
Rock haul	Round Trip (feet) 6370	4 Hours @	\$	98.00	per Hour	\$	433.34
Process/Compacting Ballast (12" Lift)	221 CY @	\$	1.23	per CY	\$	271.38	
Light Loose Rip Rap	1 CY @	\$	15.00	per CY	\$	15.00	
						Rock Total \$ 3,456.86	

CULVERTS & FLUMES

18" Polyethylene, double wall	30 feet @	\$21.93	per foot	\$657.90
				Culvert & Flume Total \$657.90

MISC. MAINTENANCE

Grass seed (spread by hand)	16 pounds @	\$	3.00	per pound	\$	47.73
						Misc Maintenance Total \$ 47.73

Construction Total \$ 6,732.86

SALE/PROJECT NAME: Beacon Bits

CONTRACT #: 30-092816

ROAD NAMES: 4008 & 4008.5

ROAD DEACTIVATION & ABANDONMENT

ROAD DEACTIVATION & ABANDONMENT

Light abandonment	15+83 stations @	\$ 142.00 per station	\$	2,247.86
Fill Removal	500 per CY	\$ 5.24 per CY	\$	2,620.00
Earthen Barricade	1.00 @	\$85.20 per each	\$	85.20
		TOTAL	\$	4,953.06

TOTAL ABANDONMENT COST: \$ 4,953.06