WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

TIMBER NOTICE OF SALE

***SALE NAME**: RAILROAD CREEK VRH & VDT* ***AGREEMENT NO**: 30-104867*

AUCTION: March 25, 2025 starting at 10:00 a.m., South Puget Sound Region Office, Enumclaw, WA **COUNTY:** Pierce

SALE LOCATION: Sale located approximately 7 miles east of Elbe, WA.

PRODUCTS SOLD AND SALE AREA: All timber as described in Schedule A, except trees marked with a band of blue paint, all trees 60 inches or larger measured at diameter at breast height, snags, and down timber existing more the 5 years from the day of sale, bounded by the following: white timber sale boundary tags in Unit #1;

All timber, except trees bounded out by yellow leave tree area tags, all trees 60 inches or larger measured at diameter at breast height, snags, and down timber existing more the 5 years from the day of sale, bounded by the following: white timber sale boundary tags and the 8 and 8-18 roads in Unit #2; white timber sale boundary tags in Unit #3;

All timber bounded by orange right of way tags, except that title to the timber within the right of way tags is not conveyed to the Purchaser unless the road segment is actually reconstructed in Unit #4;

All forest products above located on part(s) of Sections 20 and 21 all in Township 15 North, Range 6 East, W.M., containing 116 acres, more or less.

CERTIFICATION: This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: BVC-SFIFM-018227) and FSC 100% raw materials under the Forest Stewardship Council® Standard (cert no: BV-FM/COC-080501).

ESTIMATED SALE VOLUMES AND QUALITY:

Species	Avg DBH	Ring Count	Total MBF	Total $/MBF	MBF by Grade 1P	2P	3P	SM	1S	2S	3S	4S	UT
Douglas fir	20.4	7	3,191	$352.50			137	277		1,758	853	166	
Red alder	9.7		76	$133.00								76	
Hemlock	14.9		55	$120.00						14	29	12	
Cottonwood	30.8		13	$20.00						13			
Redcedar	12.7		6	$890.00							4	2	
Other Hardwood				$20.00									
Other Conifer				$120.00									
Sale Total			3,341										

MINIMUM BID: $352.50/MBF (est. value $1,147,000.00) **BID METHOD:** Sealed Bids

PERFORMANCE SECURITY: $100,000.00 **SALE TYPE:** MBF Scale

EXPIRATION DATE: October 31, 2026 **ALLOCATION:** Export Restricted

BIDDABLE SPECIES: **Douglas fir**

TIMBER NOTICE OF SALE

BID DEPOSIT: $114,700.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Harvest activities are estimated to be 100 percent ground based. Self-leveling equipment limited to sustained slopes of 65 percent or less, and all other ground based equipment limited to sustained slopes of 45 percent or less. Yarding may be restricted during wet weather if rutting becomes excessive, per clause H-017.

Falling and yarding will not be permitted on weekends or State recognized holidays, unless approved in writing by the Contract Administrator.

ROADS: 11.00 stations of required reconstruction. 21.80 stations of optional construction. 167.00 stations of required prehaul maintenance. 21.80 stations of abandonment, if constructed. 9.00 stations of required road closure. Purchaser maintenance on the 8-18, and 8-21 roads, and Spurs 1 and 2. Designated maintenance on the 8 Road.

Rock for this proposal may be obtained from the Primo Pit at no cost to the Purchaser or any commercial rock source at the Purchaser's expense. Streambed rock for the culvert replacement on the 8 Road at sta 93+82 must come from a commercial source, at the Purchasers expense per Section 6 of the Road Plan and the rock list. Rock source development is to be completed per Section 6 and as specified in the Rock Source Development Plan for the Primo Pit, if used.

Operation of road construction equipment and rock haul will not be permitted from November 1 to May 15, nor on weekends or State recognized holidays, unless authority to do so is granted, in writing, by the Contract Administrator. If permission is granted to operate from November 1 to May 15, a maintenance plan may be required per Road Plan clause 1-26. In addition, culvert replacement work on the 8 Road from station 92+82 to 94+82 will not be permitted from October 1 to July 7, unless authorized in writing by the **State**.

The hauling of forest products will not be permitted from November 1 to May 15, nor on weekends or State recognized holidays, unless authorized in writing by the Contract Administrator. If permission is granted to operate from November 1 to May 15, preventative measures may be required to protect water, soil, roads and other forest assets.

ACREAGE DETERMINATION

CRUISE METHOD: Acreage was determined by traversing boundaries by GPS. GPS data files are available at DNR's website for timber sale packets. See cruise narrative for cruise method.

FEES: $56,797.00 is due on day of sale. $9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: This sale contains high quality Douglas-fir sawlogs and poles. See Cruise for additional information.

Unit #1 is a variable density thinning (VDT) gap creation unit with the Purchaser creating seven 1/4-acre gaps and six 1/10-acre openings per contract Schedule A. Units #2 and #3 are variable retention harvest (VRH) units.

Purchaser shall cut all vine maple greater than 6 feet in height within Units #2 and #3, leaving a stump no more than 12 inches in height.

Landings shall be constructed a minimum of 30 feet off the 8 and 8-18 roads.

This sale includes the replacement of stream culverts on the 8 Road. One station 87+49 and one at station 93+82 that will be replaced with a fish passable culvert. The 8 Road may be temporarily closed for a maximum of 14 consecutive days, but not during closure prohibited days, during culvert replacements on the 8 Road, see Road Plan clause 1-7. Closure of the 8 Road may impact timber haul on another DNR timber sale. The Purchaser shall notify the Contract Administrator a minimum of 30 calendar days prior to closure of the 8 Road to develop a road closure plan that will minimize impacts to traffic on the 8 Road. Culvert replacement at station 93+82 on the 8 Road shall occur between July 8 and September 30, see Road Plan clause 1-25.

Purchaser shall not block the 8 or 8-18 roads per clause G-370, except as allowed by Road Plan clause 1-7 Temporary Road Closure. The 8-18 Road accesses a rock pit that may be used as a rock source for a DNR sold sale (Ferda VRH & VDT) or for other road maintenance work at any time.

Gate maintenance will be required at the gate located on the 8-18 Road at station 1+50. See Road Plan clause 7-75 for additional information.

Purchaser will be required to acquire, install and maintain road closure signs on the 8 Road at stations 5+49, 136+23 and 141+77. See Road Plan clause 7-1 for additional information.

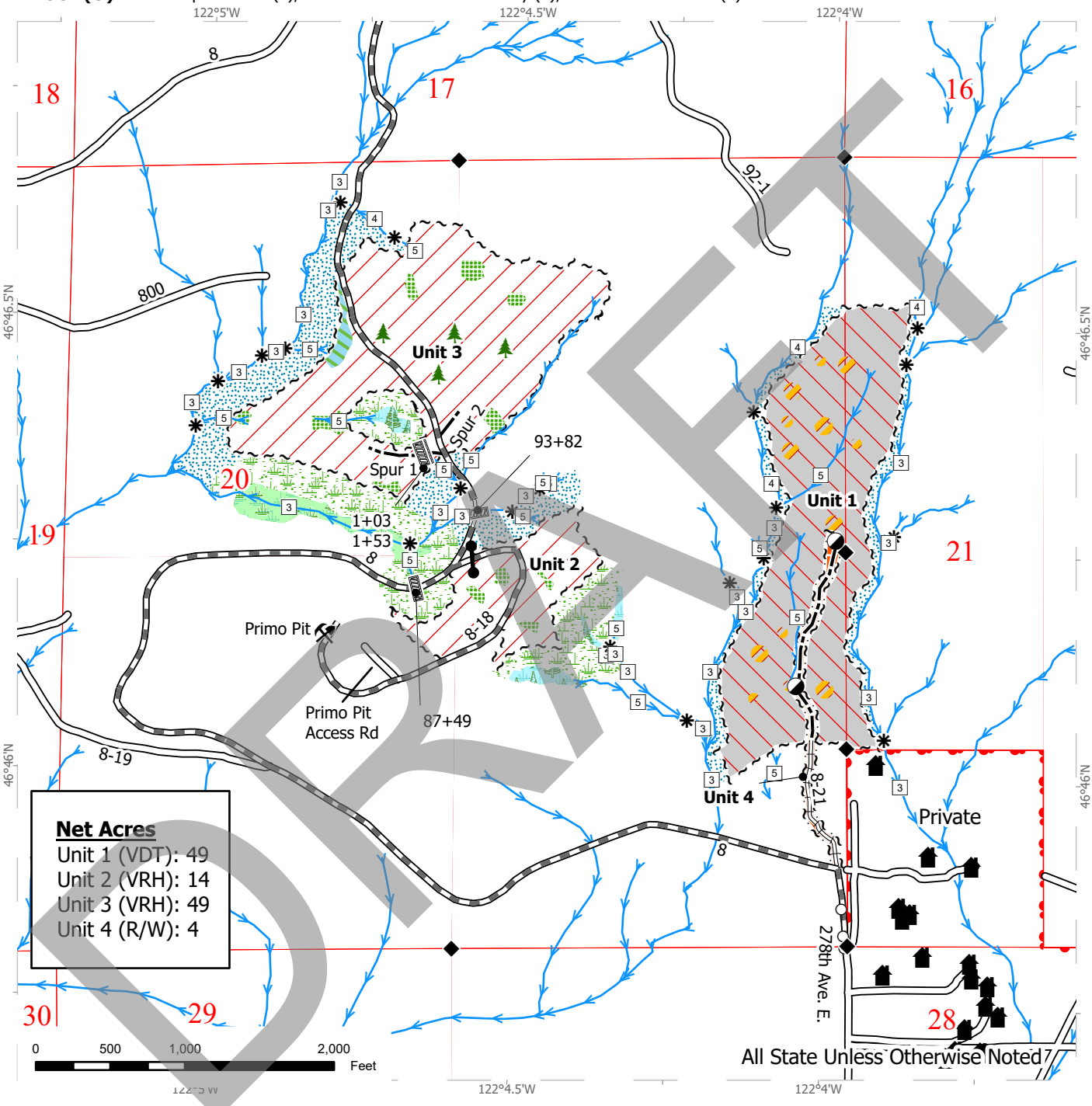
Note to cruisers and appraisers: Please refrain from leaving pink, orange, or blue flagging from your cruises in or around the sale area to avoid confusion with DNR's marking. Additionally, for the safety of the public, please remove from roads all string from string boxes used during appraising or cruising this sale.

See map for gate locations. Gate keys may be obtained by contacting the South Puget Sound Region Office at 360-825-1631 or by contacting Mike Fowler at 380-819-3406.

TIMBER SALE MAP

SALE NAME: RAILROAD CREEK VRH VDT
AGREEMENT#: 30-104867
TOWNSHIP(S): T15R6E
TRUST(S): Capitol Grant (7), Common School and Indemnity (3), State Forest Transfer (1)

REGION: South Puget Sound Region
COUNTY(S): Pierce
ELEVATION RGE: 1800-2600



Net Acres
Unit 1 (VDT): 49
Unit 2 (VRH): 14
Unit 3 (VRH): 49
Unit 4 (R/W): 4

- Variable Retention Harvest
- Variable Density Thinning
- Right-of-Way Harvest
- Leave Tree Area
- Non-Tradeable Leave Tree Area
- Forested Wetland
- Wetlands - Non-forested
- Wetland Mgt Zone
- Riparian Mgt Zone
- Gap Creation Area
- Sale Boundary Tags
- Right of Way Tags
- Property Line
- Power Lines
- Existing Roads
- Required Pre-Haul Maintenance
- Required Reconstruction
- Optional Construction
- Stream Type
- Stream Break
- Streams
- Culvert
- Designated Landing
- Leave Tree Area <1/4-acre
- Rock Pit
- Gate
- Structure
- Survey Monument
- Property Line

N

Prepared By: kfry490
Accessed: 01/09/2025 13:26

Modification Date: kfry490 10/12/2024

DRIVING MAP

SALE NAME: RAILROAD CREEK VRH VDT
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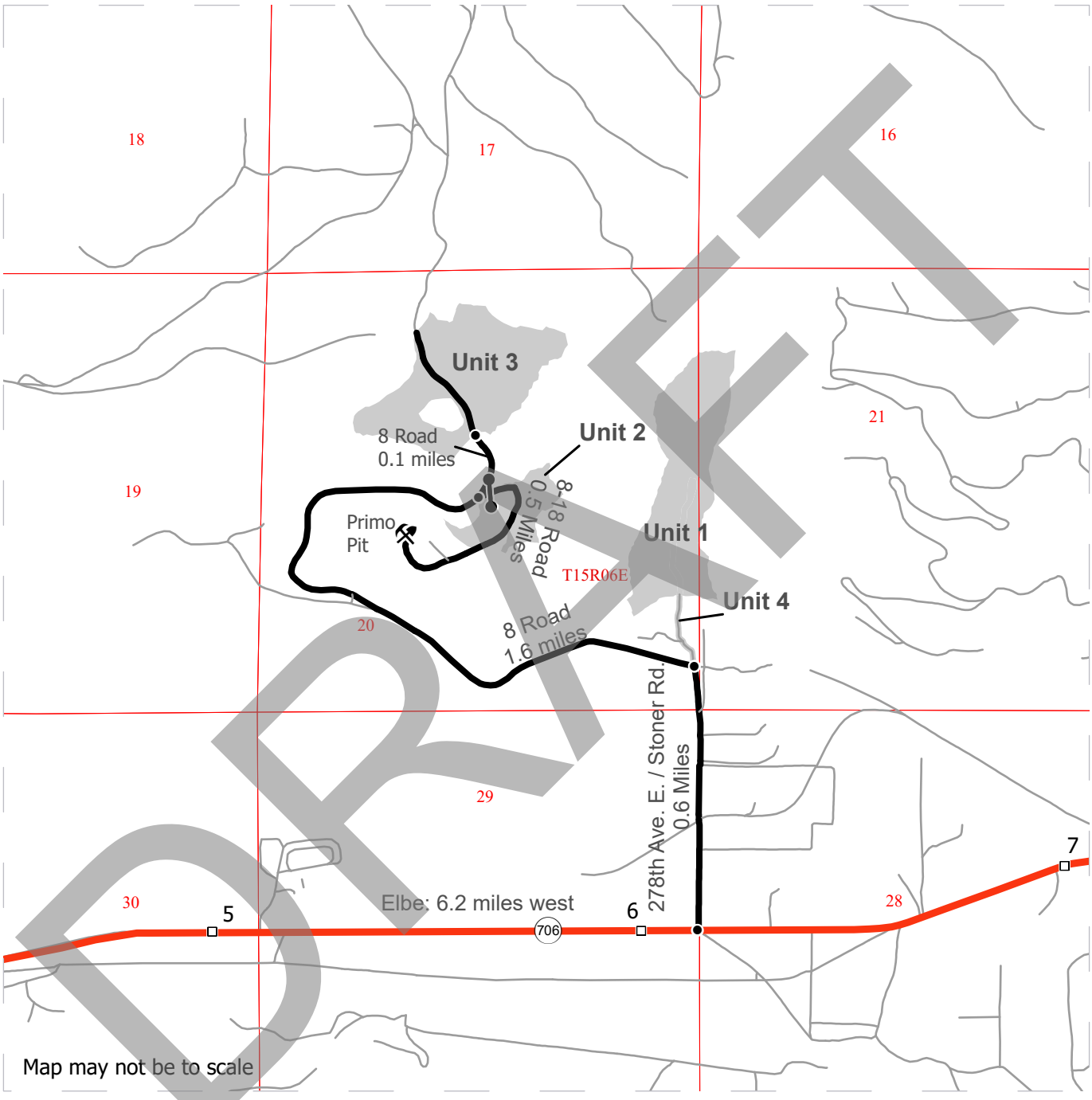

- Harvest Unit
- Highway
- Haul Route
- Other Route
- Milepost Marker
- Distance Indicator
- Gate (383 Master)
- Rock Pit

DRIVING DIRECTIONS:

From Elbe, follow SR-706 east for 6.2 miles. Turn left on 278th Ave. E./Stoner Rd. and follow for 0.6 miles to reach Unit 4. Unit 1 is walk-in access approximately 0.2 miles north along Unit 4.

From 278th Ave. E./Stoner Road, turn left onto the 8 road and follow for 1.6 miles to reach Unit 2. Continue for 0.1 miles to reach Unit 3.

Primo Pit: From 278th Ave. E. follow the 8 road for 1.6 miles and turn right onto the 8-18 road. Follow for 0.5 miles to the pit.

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Prepared By: kfry490
Accessed: 01/09/2025 13:26

Modification Date: kfry490 10/10/2024

Timber Sale Cruise Report
Railroad Creek

Sale Name: RAILROAD CREEK VRH VDT

Sale Type: MBF SCALE

Region: SO PUGET

District: RAINIER

Lead Cruiser: Aaron Coleman

Other Cruisers: Alan Douglas

Cruise Narrative:
This sale consists of 2 variable retention harvest (VRH) units, 1 variable density thinning (VDT) unit, which is a gap-creation unit, and 1 right-of-way (R/W) unit located off the 8 road within the Elbe Hills State Forest. A 383 key was needed to access the gate #507, and all roads were in good condition.

The primary species for this sale is as follows:
Douglas-fir (95%) with an average diameter of 20 inches.
Red alder (2%) with an average diameter of 9 inches.

Approximately 124 MBF of poles were cruised in unit 3, captured using VP plots. Only "natural" poles were sampled and tallied in the cruise. The entire sale is shovel ground. Timber is larger, older and more variable in units 1, 2 & the southern portion of unit 3. The northern portion of unit 3 contains a younger, more uniform DF dominant stand.

Most commonly observed defect was broken/forked tops, spike knots, and signs of butt rot.

Cruise acres differ from precruise narrative acres. Unit 1 take volume comes ONLY from 2.4 acres of gaps and a max of 2.4 acres of skid trails, totaling 4.8 acres; this is noted as U1B in the cruise. Unit 1 is still included in the cruise for purposes of populating a stand table for the remaining leave trees within the unit.

Timber Sale Notice Volume (MBF)

				MBF Volume by Grade					
Sp	DBH	Rings/In	Age	All	Peeler	Spec Mill	2 Saw	3 Saw	4 Saw
DF	20.4	6.7		3,193	137	277	1,760	853	166
RA	9.7			76					76
WH	14.9			55			14	29	12
BC	30.8			13			12		0
RC	12.7			6				4	2
ALL	18.3	6.8		3,341	137	277	1,787	885	256

Timber Sale Notice Weight (tons)

	Tons by Grade					
Sp	All	Peeler	Spec Mill	2 Saw	3 Saw	4 Saw
DF	21,340	680	1,523	10,761	6,804	1,572
RA	634					634
WH	552			105	306	140

	Tons by Grade					
Sp	All	Peeler	Spec Mill	2 Saw	3 Saw	4 Saw
BC	75			74		1
RC	47				29	18
ALL	22,648	680	1,523	10,940	7,140	2,366

Timber Sale Overall Cruise Statistics

BA (sq ft/acre)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR SE (%)	Net Vol (bf/acre)	Vol SE (%)
150.2	5.1	119.7	3.0	28,828	6.1

Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
RAILROAD CREEK U1B	B1C: VR, 1 BAF (54.44) Measure/ Count Plots, Sighting Ht = 4.5 ft	4.8		15	15	0
RAILROAD CREEK U2	B1C: VR, 1 BAF (54.44) Measure/ Count Plots, Sighting Ht = 4.5 ft	13.5	15.8	12	9	1
RAILROAD CREEK U3	B1C: VR, 1 BAF (54.44) Measure/ Count Plots, Sighting Ht = 4.5 ft	49.5	54.4	37	20	0
RAILROAD CREEK U4	FX: FR plots (20 tree / acre expansion)	4.0	4.0	3	3	1
All		71.8	74.2	67	47	2

Timber Sale Log Grade x Sort Summary

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
BC	LIVE	2 SAW	Domestic	16.2	40	117	108	7.8	74.5	12.5
BC	LIVE	4 SAW	Domestic	9.3	22	1	1	9.4	0.9	0.1
BC	LIVE	CULL	Cull	33.4	5	4	0	100.0	0.0	0.0
DF	LIVE	2 SAW	Domestic	16.1	40	10,260	9,857	3.9	6,889.2	1,142.4
DF	LIVE	2 SAW	HQ-B	15.5	39	5,467	5,333	2.5	3,871.4	618.1
DF	LIVE	3 PEELER	Domestic	25.8	40	1,178	1,178	0.0	679.8	136.6
DF	LIVE	3 SAW	Domestic	8.9	39	4,097	3,997	2.5	3,832.2	463.3
DF	LIVE	3 SAW	HQ-B	9.6	40	2,309	2,288	0.9	2,015.4	265.1
DF	LIVE	3 SAW	Pole	8.7	63	1,073	1,073	0.0	956.8	124.3
DF	LIVE	4 SAW	Domestic	5.5	29	1,457	1,433	1.7	1,572.4	166.1
DF	LIVE	CULL	Cull	9.4	8	115	0	100.0	0.0	0.0
DF	LIVE	SPECIAL MILL	HQ-A	20.3	40	2,415	2,388	1.1	1,522.5	276.8
RA	LIVE	4 SAW	Domestic	6.0	28	654	653	0.2	634.4	75.7

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
RA	LIVE	CULL	Cull	5.0	11	19	0	100.0	0.0	0.0
RC	LIVE	3 SAW	Domestic	11.0	36	31	31	0.0	29.0	3.6
RC	LIVE	4 SAW	Domestic	5.1	25	18	18	0.0	18.2	2.1
WH	LIVE	2 SAW	Domestic	15.6	40	123	121	1.4	105.1	14.0
WH	LIVE	3 SAW	Domestic	8.6	40	255	250	1.7	306.3	29.0
WH	LIVE	4 SAW	Domestic	5.2	23	100	99	1.0	140.4	11.5
WH	LIVE	CULL	Cull	5.0	8	3	0	100.0	0.0	0.0

Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
BC	8 - 11	LIVE	Domestic	8.7	34	3	17.5	4.2	0.4
BC	12 - 15	LIVE	Domestic	14.5	40	32	5.4	22.5	3.7
BC	16 - 19	LIVE	Domestic	19.1	40	23	0.0	13.7	2.6
BC	20+	LIVE	Domestic	20.9	40	50	11.7	34.9	5.8
BC	20+	LIVE	Cull	33.4	5	0	100.0	0.0	0.0
DF	5 - 7	LIVE	Domestic	5.7	31	2,013	1.4	2,168.5	233.4
DF	5 - 7	LIVE	Cull	7.0	7	0	100.0	0.0	0.0
DF	8 - 11	LIVE	Pole	8.7	63	1,073	0.0	956.8	124.3
DF	8 - 11	LIVE	Cull	9.6	8	0	100.0	0.0	0.0
DF	8 - 11	LIVE	Domestic	9.7	37	3,417	2.7	3,236.1	396.0
DF	8 - 11	LIVE	HQ-B	9.7	40	2,288	0.9	2,015.4	265.1
DF	12 - 15	LIVE	Cull	12.5	8	0	100.0	0.0	0.0
DF	12 - 15	LIVE	Domestic	13.6	39	2,983	3.0	2,554.1	345.7
DF	12 - 15	LIVE	HQ-B	13.9	39	2,513	1.8	2,046.2	291.2
DF	16 - 19	LIVE	Domestic	17.7	40	3,345	1.4	2,130.2	387.6
DF	16 - 19	LIVE	HQ-A	17.8	40	567	0.0	370.3	65.7
DF	16 - 19	LIVE	HQ-B	18.4	40	638	1.5	437.2	74.0
DF	20+	LIVE	HQ-A	21.2	40	1,821	1.5	1,152.2	211.1
DF	20+	LIVE	HQ-B	23.1	40	2,182	3.5	1,388.0	252.9
DF	20+	LIVE	Domestic	23.9	40	4,708	5.3	2,884.8	545.6
RA	5 - 7	LIVE	Cull	5.0	17	0	100.0	0.0	0.0
RA	5 - 7	LIVE	Domestic	5.7	28	521	0.2	488.7	60.4
RA	8 - 11	LIVE	Domestic	8.6	30	132	0.0	145.6	15.3
RC	5 - 7	LIVE	Domestic	5.1	25	18	0.0	18.2	2.1
RC	8 - 11	LIVE	Domestic	9.9	36	16	0.0	16.9	1.8
RC	12 - 15	LIVE	Domestic	13.2	36	15	0.0	12.0	1.7
WH	5 - 7	LIVE	Cull	5.0	8	0	100.0	0.0	0.0

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
WH	5 - 7	LIVE	Domestic	5.5	30	114	0.9	156.5	13.2
WH	8 - 11	LIVE	Domestic	9.2	39	228	0.7	271.9	26.4
WH	12 - 15	LIVE	Domestic	14.0	40	66	4.0	70.5	7.7
WH	16 - 19	LIVE	Domestic	17.3	40	63	2.7	53.0	7.3

Cruise Unit Report
RAILROAD CREEK U1

Unit Sale Notice Volume (MBF): RAILROAD CREEK U1

No data were provided for this table.

Unit Cruise Design: RAILROAD CREEK U1

No data were provided for this table.

Unit Cruise Summary: RAILROAD CREEK U1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
BC		8	0.2	0
DF		149	3.4	0
RC		6	0.1	0
RA		13	0.3	0
WL		1	0.0	0
MA		1	0.0	0
WH		22	0.5	0

Unit Cruise Statistics: RAILROAD CREEK U1

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
BC	9.9	272.4	41.1						
DF	184.4	75.4	11.4						
RC	7.4	299.7	45.2						
RA	16.1	258.9	39.0						
WL	1.2	663.3	100.0						
MA	1.2	663.3	100.0						
WH	27.2	164.2	24.8						

Unit Summary: RAILROAD CREEK U1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
BC	LIVE	LEA	7	ALL	35.1	111	145				1.5	9.9	1.7	
DF	LIVE	LEA	66	ALL	25.4	117	150				52.4	184.4	36.6	
MA	LIVE	LEA	1	ALL	24.0	83	94				0.4	1.2	0.3	
RA	LIVE	LEA	12	ALL	14.3	64	82				14.4	16.1	4.3	
RC	LIVE	LEA	3	ALL	15.8	40	52				5.5	7.4	1.9	
WH	LIVE	LEA	15	ALL	15.7	60	74				20.2	27.2	6.9	

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WL	LIVE	LEA	0	ALL	15.0						1.0	1.2	0.3	
ALL	LIVE	LEA	104	ALL	21.8	92	118				95.4	247.5	51.8	
ALL	ALL	CUT +LEAVE	104	ALL	21.8	92	118				95.4	247.5	51.8	

Unit Stand Table: RAILROAD CREEK U1

Sp	D	Status	Rx	N	DBH	BL	THT	BF Net	Defect %	TPA	BA	RD	MBF Net
BC	30	LIVE	LEA	2	30.0	96	120			0.5	2.5	0.5	
BC	36	LIVE	LEA	2	35.5	112	163			0.4	2.5	0.4	
BC	38	LIVE	LEA	2	37.5	115	145			0.3	2.5	0.4	
BC	40	LIVE	LEA	2	40.0	116	146			0.3	2.5	0.4	
DF	14	LIVE	LEA	3	13.3	70	94			3.8	3.7	1.0	
DF	16	LIVE	LEA	7	15.3	95	120			6.8	8.7	2.2	
DF	18	LIVE	LEA	8	17.7	89	108			5.8	9.9	2.4	
DF	20	LIVE	LEA	7	20.0	111	138			4.0	8.7	1.9	
DF	22	LIVE	LEA	9	21.9					4.3	11.1	2.4	
DF	24	LIVE	LEA	10	23.7	128	165			4.0	12.4	2.5	
DF	26	LIVE	LEA	18	25.4	123	159			6.3	22.3	4.4	
DF	28	LIVE	LEA	13	27.5	133	172			3.9	16.1	3.1	
DF	30	LIVE	LEA	8	29.5	133	171			2.1	9.9	1.8	
DF	32	LIVE	LEA	9	31.7	120	154			2.0	11.1	2.0	
DF	34	LIVE	LEA	11	33.6	134	173			2.2	13.6	2.3	
DF	36	LIVE	LEA	12	35.7	130	168			2.1	14.8	2.5	
DF	38	LIVE	LEA	12	37.7	133	172			1.9	14.8	2.4	
DF	40	LIVE	LEA	11	39.5	133	168			1.7	14.8	2.4	
DF	42	LIVE	LEA	5	41.6	135	174			0.7	6.2	1.0	
DF	44	LIVE	LEA	2	43.5	146	189			0.2	2.5	0.4	
DF	48	LIVE	LEA	1	47.0					0.1	1.2	0.2	
DF	54	LIVE	LEA	1	53.0	150	194			0.1	1.2	0.2	
DF	58	LIVE	LEA	1	58.0	155	201			0.1	1.2	0.2	
MA	24	LIVE	LEA	1	24.0	83	94			0.4	1.2	0.3	
RA	10	LIVE	LEA	1	10.0	49	71			2.3	1.2	0.4	
RA	12	LIVE	LEA	2	11.0	56	79			3.7	2.5	0.7	
RA	14	LIVE	LEA	1	14.0					1.2	1.2	0.3	
RA	16	LIVE	LEA	3	15.3	70	86			2.9	3.7	0.9	
RA	18	LIVE	LEA	5	17.4	75	90			3.8	6.2	1.5	
RA	20	LIVE	LEA	1	19.0	72	84			0.6	1.2	0.3	

Sp	D	Status	Rx	N	DBH	BL	THT	BF Net	Defect %	TPA	BA	RD	MBF Net
RC	10	LIVE	LEA	1	10.0	25	34			2.3	1.2	0.4	
RC	12	LIVE	LEA	1	12.0					1.6	1.2	0.4	
RC	20	LIVE	LEA	1	20.0	95	122			0.6	1.2	0.3	
RC	22	LIVE	LEA	1	22.0					0.5	1.2	0.3	
RC	28	LIVE	LEA	1	27.0					0.3	1.2	0.2	
RC	32	LIVE	LEA	1	31.0	50	61			0.2	1.2	0.2	
WH	10	LIVE	LEA	3	9.6	41	52			7.3	3.7	1.2	
WH	12	LIVE	LEA	2	11.5	61	75			3.5	2.5	0.7	
WH	14	LIVE	LEA	1	14.0	70	87			1.2	1.2	0.3	
WH	16	LIVE	LEA	2	16.0	57	70			1.8	2.5	0.6	
WH	18	LIVE	LEA	2	18.0	66	81			1.4	2.5	0.6	
WH	20	LIVE	LEA	4	19.7	70	86			2.3	4.9	1.1	
WH	22	LIVE	LEA	1	22.0	101	127			0.5	1.2	0.3	
WH	24	LIVE	LEA	2	23.5	105	133			0.8	2.5	0.5	
WH	26	LIVE	LEA	1	25.0					0.4	1.2	0.2	
WH	28	LIVE	LEA	3	28.0					0.9	3.7	0.7	
WH	30	LIVE	LEA	1	30.0					0.3	1.2	0.2	
WL	16	LIVE	LEA	1	15.0					1.0	1.2	0.3	

Cruise Unit Report
RAILROAD CREEK U1B

Unit Sale Notice Volume (MBF): RAILROAD CREEK U1B

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	Spec Mill	2 Saw	3 Saw	4 Saw
DF	25.7	12.0		286	16	232	32	5
WH	16.0			30		14	12	4
BC	30.8			13		12		0
RC	12.7			6			4	2
RA	11.0			1				1
ALL	21.5	12.0		336	16	259	48	13

Unit Cruise Design: RAILROAD CREEK U1B

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (54.44) Measure/Count Plots, Sighting Ht = 4.5 ft	4.8		15	15	0

Unit Cruise Summary: RAILROAD CREEK U1B

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	60	62	4.1	1
WH	13	13	0.9	0
BC	4	4	0.3	0
RC	4	4	0.3	0
RA	1	1	0.1	0
ALL	82	84	5.6	1

Unit Cruise Statistics: RAILROAD CREEK U1B

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	225.0	49.1	12.7	265.1	20.3	2.6	59,649	53.2	13.0
WH	47.2	137.0	35.4	132.6	49.9	13.8	6,255	145.8	38.0
BC	14.5	171.7	44.3	180.4	26.1	13.0	2,619	173.6	46.2
RC	14.5	222.6	57.5	81.5	63.1	31.5	1,183	231.4	65.6
RA	3.6	387.3	100.0	65.2	0.0	0.0	236	387.3	100.0
ALL	304.9	24.1	6.2	229.4	36.2	4.0	69,943	43.5	7.4

Unit Summary: RAILROAD CREEK U1B

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
BC	LIVE	CUT	4	ALL	30.8	110	139	2,942	2,619	11.0	2.8	14.5	2.6	12.6
DF	LIVE	CUT	60	ALL	25.5	116	149	60,152	59,649	0.8	63.4	225.0	44.6	286.3
RA	LIVE	CUT	1	ALL	11.0	57	81	412	236	42.7	5.5	3.6	1.1	1.1
RC	LIVE	CUT	4	ALL	12.7	44	56	1,183	1,183	0.0	16.5	14.5	4.1	5.7
WH	LIVE	CUT	13	ALL	16.0	69	85	6,408	6,255	2.4	33.8	47.2	11.8	30.0
ALL	LIVE	CUT	82	ALL	21.4	90	116	71,098	69,943	1.6	122.0	304.9	64.1	335.7
ALL	ALL	CUT +LEAVE	82	ALL	21.4	90	116	71,098	69,943	1.6	122.0	304.9	64.1	335.7

Unit Stand Table: RAILROAD CREEK U1B

Sp	D	Status	Rx	N	DBH	BL	THT	BF Net	Defect %	TPA	BA	RD	MBF Net
BC	28	LIVE	CUT	1	27.0	122	154	845	4.7	0.9	3.6	0.7	4.1
BC	30	LIVE	CUT	2	30.0	103	129	1,343	11.7	1.5	7.3	1.3	6.4
BC	40	LIVE	CUT	1	40.0	111	140	430	19.5	0.4	3.6	0.6	2.1
DF	12	LIVE	CUT	1	12.0	80	114	596	0.0	4.6	3.6	1.0	2.9
DF	14	LIVE	CUT	1	14.0	82	108	540	0.0	3.4	3.6	1.0	2.6
DF	16	LIVE	CUT	1	16.0	84	106	509	0.0	2.6	3.6	0.9	2.4
DF	18	LIVE	CUT	3	18.0	105	132	2,486	0.3	6.2	10.9	2.6	11.9
DF	20	LIVE	CUT	2	19.5	105	131	1,349	0.3	3.5	7.3	1.6	6.5
DF	22	LIVE	CUT	5	21.4	106	135	3,687	0.8	7.3	18.1	3.9	17.7
DF	24	LIVE	CUT	4	23.2	125	161	3,565	0.6	4.9	14.5	3.0	17.1
DF	26	LIVE	CUT	5	25.4	116	148	4,182	0.0	5.2	18.1	3.6	20.1
DF	28	LIVE	CUT	8	27.4	136	176	8,260	1.0	7.1	29.0	5.6	39.6
DF	30	LIVE	CUT	8	29.5	135	174	8,434	0.7	6.1	29.0	5.3	40.5
DF	32	LIVE	CUT	6	31.7	134	172	6,255	1.2	4.0	21.8	3.9	30.0
DF	34	LIVE	CUT	3	33.3	129	167	3,000	0.0	1.8	10.9	1.9	14.4
DF	36	LIVE	CUT	2	36.0	148	191	2,125	2.6	1.0	7.3	1.2	10.2
DF	38	LIVE	CUT	5	37.6	137	177	5,677	0.0	2.4	18.1	3.0	27.3
DF	40	LIVE	CUT	4	39.2	127	164	5,556	1.0	2.2	18.1	2.9	26.7
DF	42	LIVE	CUT	3	41.7	137	177	3,427	3.1	1.2	10.9	1.7	16.4
RA	12	LIVE	CUT	1	11.0	57	81	236	42.7	5.5	3.6	1.1	1.1
RC	10	LIVE	CUT	2	10.0	35	45	359	0.0	13.3	7.3	2.3	1.7
RC	20	LIVE	CUT	1	20.0	95	122	571	0.0	1.7	3.6	0.8	2.7
RC	22	LIVE	CUT	1	21.0	67	84	253	0.0	1.5	3.6	0.8	1.2
WH	10	LIVE	CUT	1	10.0	55	67	286	0.0	6.7	3.6	1.1	1.4
WH	12	LIVE	CUT	1	11.0	60	73	346	0.0	5.5	3.6	1.1	1.7

Sp	D	Status	Rx	N	DBH	BL	THT	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	14	LIVE	CUT	1	13.0	67	83	433	0.0	3.9	3.6	1.0	2.1
WH	16	LIVE	CUT	3	15.6	63	78	1,033	0.0	8.2	10.9	2.8	5.0
WH	18	LIVE	CUT	1	18.0	50	59	181	9.3	2.1	3.6	0.9	0.9
WH	22	LIVE	CUT	2	22.0	97	121	1,015	8.3	2.7	7.3	1.5	4.9
WH	24	LIVE	CUT	3	23.3	102	128	2,194	0.0	3.7	10.9	2.3	10.5
WH	26	LIVE	CUT	1	26.0	112	142	767	5.2	1.0	3.6	0.7	3.7

Cruise Unit Report
RAILROAD CREEK U2

Unit Sale Notice Volume (MBF): RAILROAD CREEK U2

				MBF Volume by Grade					
Sp	DBH	Rings/In	Age	All	Peeler	Spec Mill	2 Saw	3 Saw	4 Saw
DF	24.9			735	37	128	471	90	9
WH	17.3			5				3	2
ALL	24.3			740	37	128	471	93	11

Unit Cruise Design: RAILROAD CREEK U2

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (54.44) Measure/Count Plots, Sighting Ht = 4.5 ft	13.5	15.8	12	9	1

Unit Cruise Summary: RAILROAD CREEK U2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	38	46	3.8	0
WH	2	2	0.2	0
ALL	40	48	4.0	0

Unit Cruise Statistics: RAILROAD CREEK U2

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	208.7	49.5	14.3	261.0	20.4	3.3	54,474	53.6	14.7
WH	9.1	233.5	67.4	41.2	50.4	35.7	374	238.9	76.3
ALL	217.8	48.9	14.1	251.9	28.3	4.5	54,847	56.4	14.8

Unit Summary: RAILROAD CREEK U2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	38	ALL	24.9	115	148	56,374	54,474	3.4	61.7	208.7	41.8	735.4
WH	LIVE	CUT	2	ALL	17.3	42	49	408	374	8.5	5.6	9.1	2.2	5.0
ALL	LIVE	CUT	40	ALL	24.4	109	140	56,783	54,847	3.4	67.3	217.8	44.0	740.4
ALL	ALL	CUT +LEAVE	40	ALL	24.4	109	140	56,783	54,847	3.4	67.3	217.8	44.0	740.4

Unit Stand Table: RAILROAD CREEK U2

Sp	D	Status	Rx	N	DBH	BL	THT	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	14	LIVE	CUT	1	13.0	79	108	709	7.0	6.0	5.5	1.5	9.6
DF	16	LIVE	CUT	1	15.0	69	88	649	0.0	4.5	5.5	1.4	8.8
DF	18	LIVE	CUT	2	17.5	89	111	1,549	4.2	6.6	11.0	2.6	20.9
DF	20	LIVE	CUT	2	19.5	114	146	2,426	0.4	5.3	11.0	2.5	32.7
DF	22	LIVE	CUT	1	22.0	132	170	1,300	3.5	2.1	5.5	1.2	17.6
DF	24	LIVE	CUT	2	24.0	130	167	2,991	1.7	3.5	11.0	2.2	40.4
DF	26	LIVE	CUT	6	25.0	126	163	8,500	1.4	9.7	33.0	6.6	114.7
DF	28	LIVE	CUT	8	27.6	128	166	11,856	2.7	10.6	43.9	8.4	160.1
DF	30	LIVE	CUT	5	29.6	135	174	7,754	5.4	5.8	27.5	5.0	104.7
DF	32	LIVE	CUT	1	32.0	128	165	1,611	1.6	1.0	5.5	1.0	21.7
DF	34	LIVE	CUT	3	33.7	138	178	4,897	4.7	2.7	16.5	2.8	66.1
DF	38	LIVE	CUT	2	37.0	135	174	3,428	6.6	1.5	11.0	1.8	46.3
DF	40	LIVE	CUT	4	39.0	132	170	6,805	3.7	2.6	22.0	3.5	91.9
WH	16	LIVE	CUT	1	16.0	36	42	120	0.0	3.2	4.5	1.1	1.6
WH	20	LIVE	CUT	1	19.0	50	58	253	12.0	2.3	4.5	1.0	3.4

Cruise Unit Report
RAILROAD CREEK U3

Unit Sale Notice Volume (MBF): RAILROAD CREEK U3

				MBF Volume by Grade					
Sp	DBH	Rings/In	Age	All	Peeler	Spec Mill	2 Saw	3 Saw	4 Saw
DF	18.2	6.0		2,043	25	133	1,033	708	145
RA	9.7			74					74
WH	12.7			19				14	6
ALL	15.7	6.0		2,137	25	133	1,033	722	224

Unit Cruise Design: RAILROAD CREEK U3

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (54.44) Measure/Count Plots, Sighting Ht = 4.5 ft	49.5	54.4	37	20	0

Unit Cruise Summary: RAILROAD CREEK U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	83	155	4.2	1
RA	12	12	0.3	0
WH	3	3	0.1	0
ALL	98	170	4.6	1

Unit Cruise Statistics: RAILROAD CREEK U3

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	228.1	48.0	7.9	181.0	39.8	4.4	41,281	62.3	9.0
RA	17.7	371.0	61.0	84.3	18.3	5.3	1,489	371.4	61.2
WH	4.4	341.3	56.1	88.9	48.5	28.0	393	344.7	62.7
ALL	250.1	35.0	5.7	172.6	43.5	4.4	43,162	55.8	7.2

Unit Summary: RAILROAD CREEK U3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	83	ALL	18.2	86	108	42,642	41,281	3.2	126.2	228.1	53.5	2,043.4
RA	LIVE	CUT	12	ALL	9.7	40	67	1,519	1,489	2.0	34.4	17.7	5.7	73.7

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	3	ALL	12.7	47	58	393	393	0.0	5.0	4.4	1.2	19.4
ALL	LIVE	CUT	98	ALL	16.6	75	98	44,554	43,162	3.1	165.6	250.1	60.4	2,136.5
ALL	ALL	CUT +LEAVE	98	ALL	16.6	75	98	44,554	43,162	3.1	165.6	250.1	60.4	2,136.5

Unit Stand Table: RAILROAD CREEK U3

Sp	D	Status	Rx	N	DBH	BL	THT	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	12	LIVE	CUT	2	11.5	45	56	364	1.9	7.7	5.5	1.6	18.0
DF	14	LIVE	CUT	10	13.4	72	91	3,369	0.4	28.2	27.5	7.5	166.7
DF	16	LIVE	CUT	14	15.5	83	103	5,389	1.2	29.4	38.5	9.8	266.8
DF	18	LIVE	CUT	15	17.4	87	111	5,819	3.8	24.8	41.2	9.9	288.0
DF	20	LIVE	CUT	11	19.4	93	118	4,966	1.2	14.7	30.2	6.9	245.8
DF	22	LIVE	CUT	8	21.5	98	124	3,572	3.4	8.7	22.0	4.7	176.8
DF	24	LIVE	CUT	2	24.0	102	131	1,109	0.4	1.7	5.5	1.1	54.9
DF	28	LIVE	CUT	5	28.0	132	171	3,967	2.4	3.2	13.7	2.6	196.4
DF	30	LIVE	CUT	4	29.5	138	178	3,211	4.1	2.3	11.0	2.0	158.9
DF	32	LIVE	CUT	4	31.7	131	169	3,111	3.5	2.0	11.0	2.0	154.0
DF	34	LIVE	CUT	2	33.5	136	175	1,777	1.7	0.9	5.5	0.9	88.0
DF	36	LIVE	CUT	2	35.5	118	152	1,474	4.3	0.8	5.5	0.9	73.0
DF	38	LIVE	CUT	2	37.5	125	161	1,372	16.2	0.7	5.5	0.9	67.9
DF	40	LIVE	CUT	1	40.0	138	178	853	7.6	0.3	2.7	0.4	42.2
DF	46	LIVE	CUT	1	45.0	141	182	928	7.9	0.2	2.7	0.4	45.9
RA	8	LIVE	CUT	3	8.0	28	60	371	0.0	12.6	4.4	1.6	18.4
RA	10	LIVE	CUT	5	9.6	42	67	513	5.5	14.8	7.4	2.4	25.4
RA	12	LIVE	CUT	3	11.6	55	78	462	0.0	6.0	4.4	1.3	22.9
RA	14	LIVE	CUT	1	14.0	67	87	143	0.0	1.4	1.5	0.4	7.1
WH	12	LIVE	CUT	1	11.0	25	31	58	0.0	2.2	1.5	0.4	2.9
WH	14	LIVE	CUT	1	13.0	67	83	174	0.0	1.6	1.5	0.4	8.6
WH	16	LIVE	CUT	1	15.0	60	74	161	0.0	1.2	1.5	0.4	8.0

Cruise Unit Report
RAILROAD CREEK U4

Unit Sale Notice Volume (MBF): RAILROAD CREEK U4

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	Peeler	2 Saw	3 Saw	4 Saw
DF	17.9			128	74	24	22	6
RA	10.0			1				1
ALL	17.4			128	74	24	22	7

Unit Cruise Design: RAILROAD CREEK U4

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
FX: FR plots (20 tree / acre expansion)	4.0	4.0	3	3	1

Unit Cruise Summary: RAILROAD CREEK U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	13	13	4.3	0
RA	1	1	0.3	0
ALL	14	14	4.7	0

Unit Cruise Statistics: RAILROAD CREEK U4

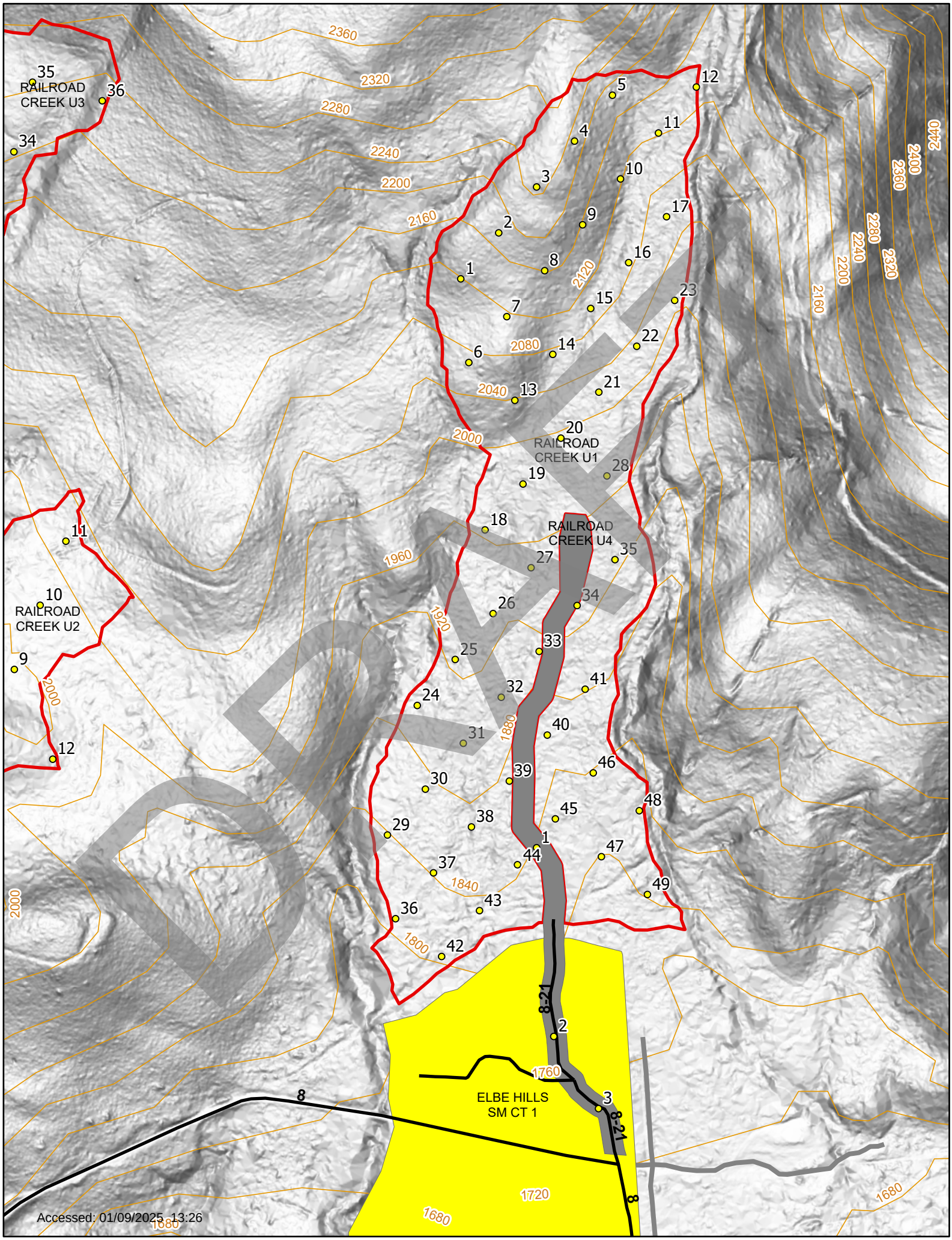
Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	151.3	92.3	53.3	210.8	32.3	9.0	31,893	97.8	54.1
RA	3.6	173.2	100.0	58.7	0.0	0.0	213	173.2	100.0
ALL	154.9	93.3	53.9	207.2	32.6	8.7	32,107	98.9	54.6

Unit Summary: RAILROAD CREEK U4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	13	ALL	17.9	70	87	31,940	31,893	0.1	86.6	151.3	35.8	127.6
RA	LIVE	CUT	1	ALL	10.0	40	47	213	213	0.0	6.7	3.6	1.2	0.9
ALL	LIVE	CUT	14	ALL	17.5	68	85	32,153	32,107	0.1	93.3	154.9	36.9	128.4
ALL	ALL	CUT +LEAVE	14	ALL	17.5	68	85	32,153	32,107	0.1	93.3	154.9	36.9	128.4

Unit Stand Table: RAILROAD CREEK U4

Sp	D	Status	Rx	N	DBH	BL	THT	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	10	LIVE	CUT	3	9.7	49	61	833	0.0	20.0	10.2	3.3	3.3
DF	12	LIVE	CUT	4	11.8	62	77	1,960	0.0	26.7	20.1	5.9	7.8
DF	14	LIVE	CUT	1	14.0	69	87	713	6.1	6.7	7.1	1.9	2.9
DF	16	LIVE	CUT	3	15.3	74	92	3,253	0.0	20.0	25.7	6.6	13.0
DF	24	LIVE	CUT	1	24.0	81	102	2,820	0.0	6.7	20.9	4.3	11.3
DF	44	LIVE	CUT	1	43.0	140	181	22,313	0.0	6.7	67.2	10.3	89.3
RA	10	LIVE	CUT	1	10.0	40	47	213	0.0	6.7	3.6	1.2	0.9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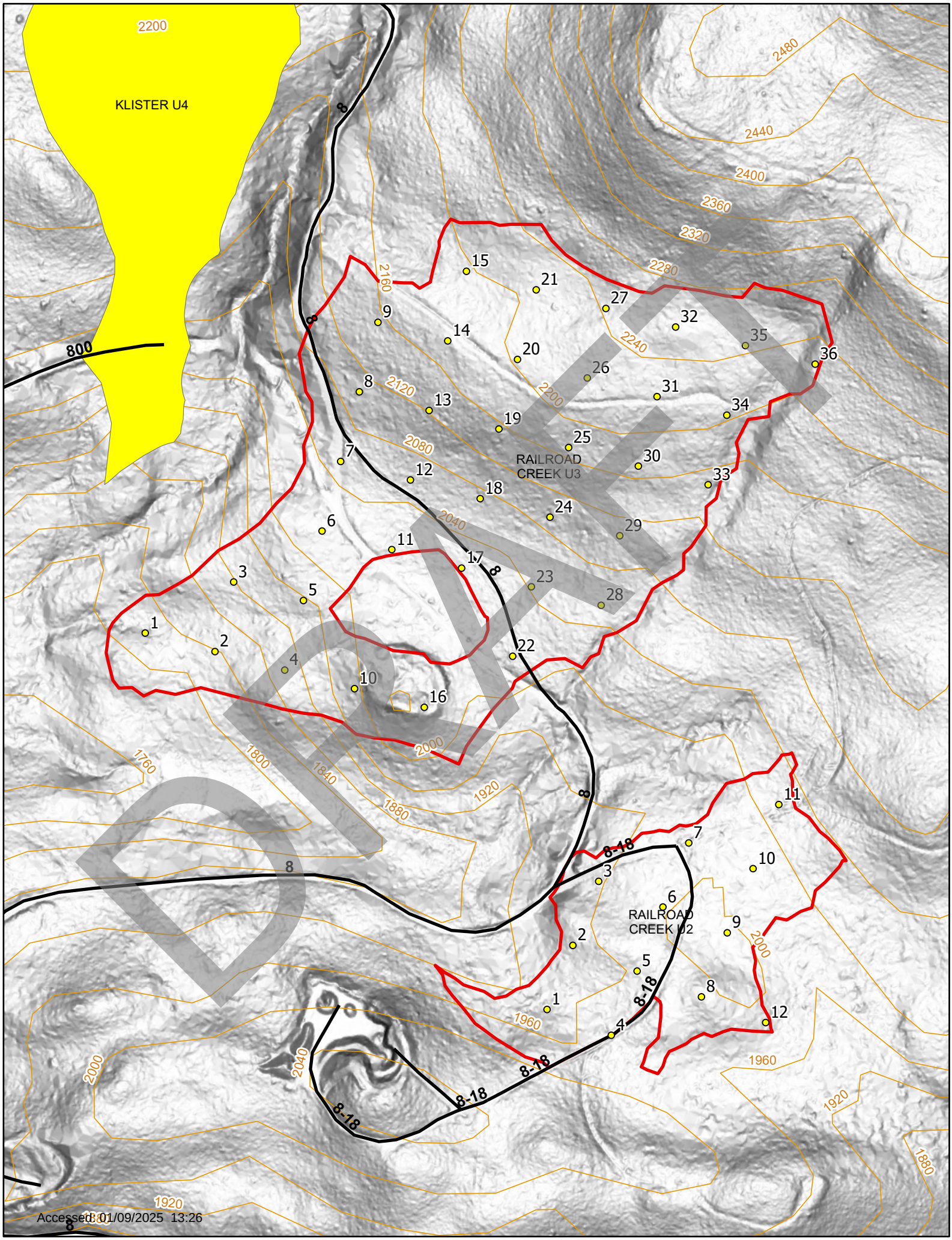
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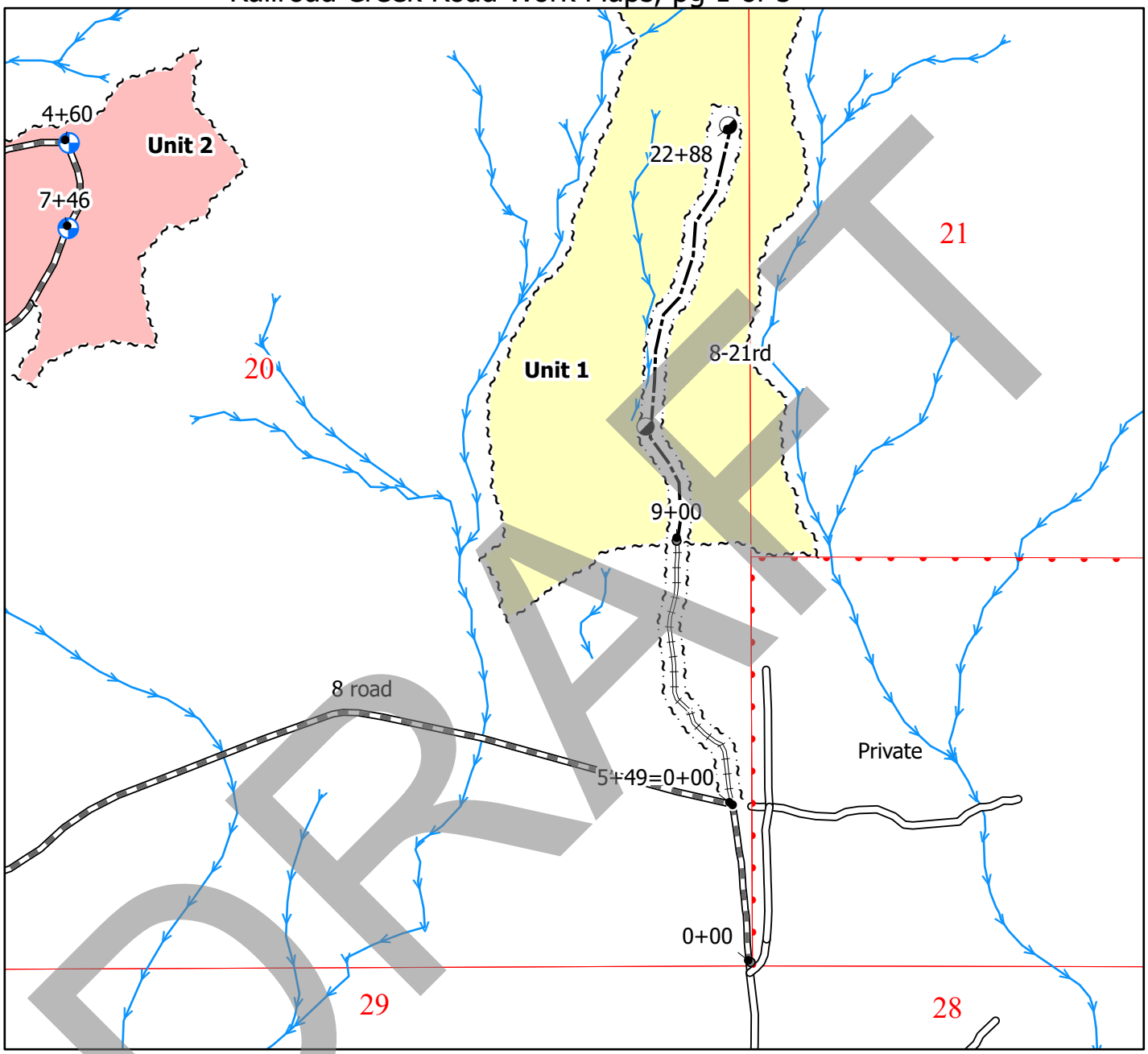

See road plan for additional road work.

0 200 400 800 Feet

~~~ Sale Boundary Tags
~·~ Right of Way Tags
Property Line
Streams
Designated Landing
Landing - Proposed
Distance Indicator
Public Land Survey Sections
Optional Construction
Required Pre-Haul Maintenance
Required Reconstruction
Existing Roads
Variable Retention Harvest
Variable Density Thinning

N

Drawn by: M. Bell
Date: 7/12/2024
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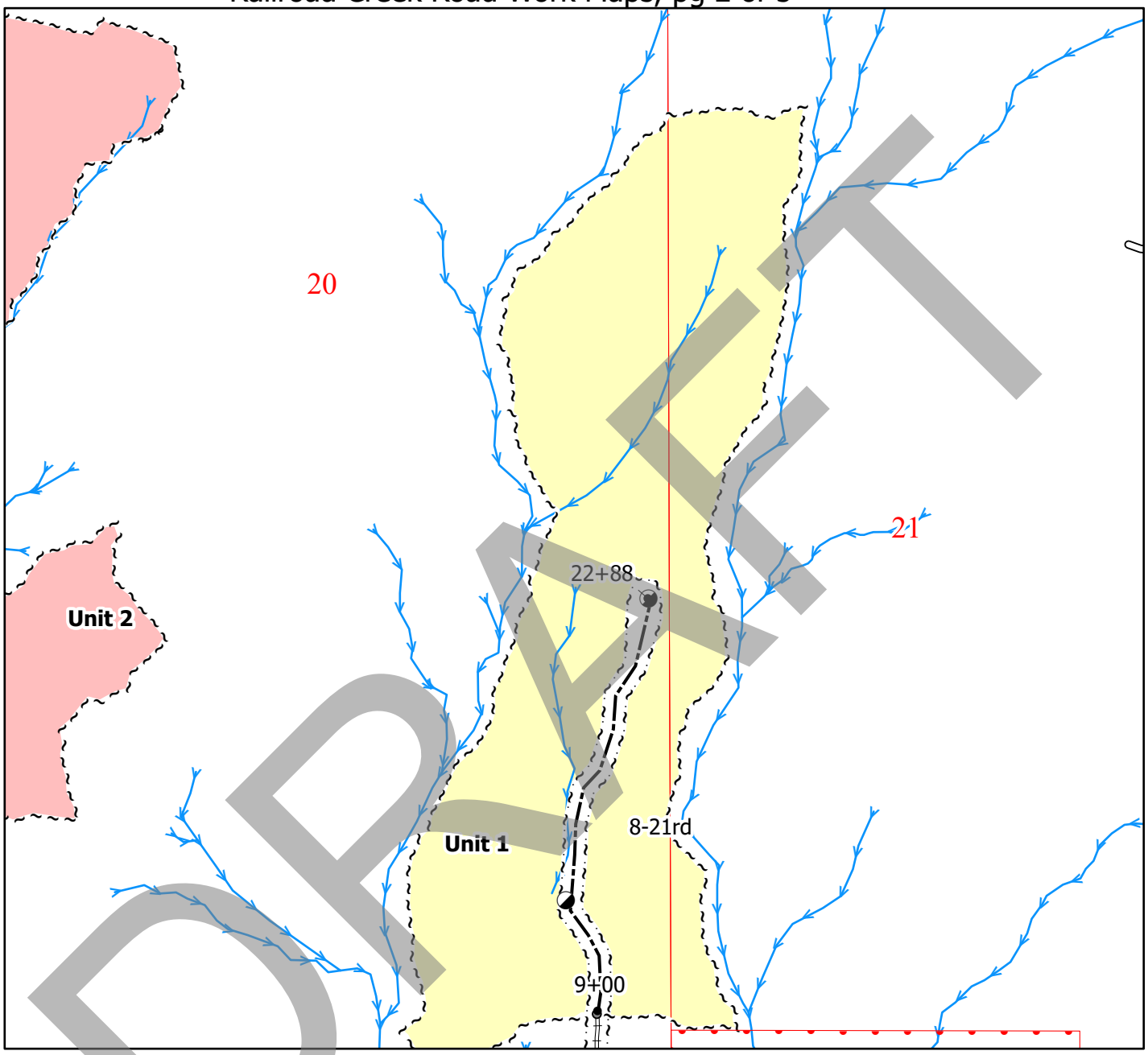
Railroad Creek Road Work Maps, pg 2 of 5



See road plan for additional road work.

0 200 400 800 Feet

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N

Drawn by: M. Bell
Date: 7/12/2024
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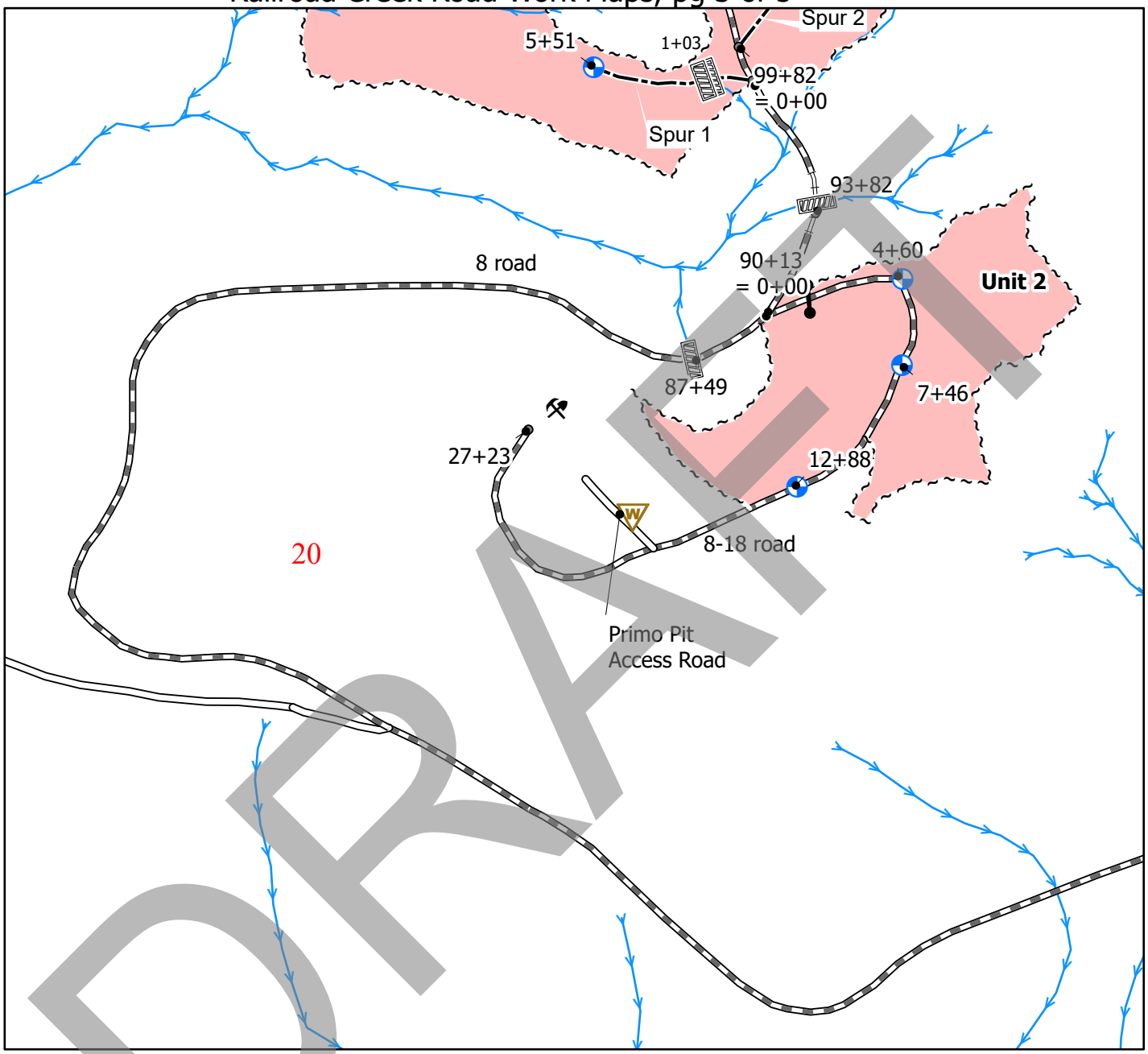
Railroad Creek Road Work Maps, pg 3 of 5



See road plan for additional road work.

0 200 400 800 Feet

~~~ Sale Boundary Tags
Streams
Culvert
Landing - Proposed
Gate
Distance Indicator
Waste Area
Public Land Survey Sections
Optional Construction
Required Pre-Haul Maintenance
Required Reconstruction
Existing Roads
Variable Retention Harvest

N

Drawn by: M. Bell
Date: 7/12/2024
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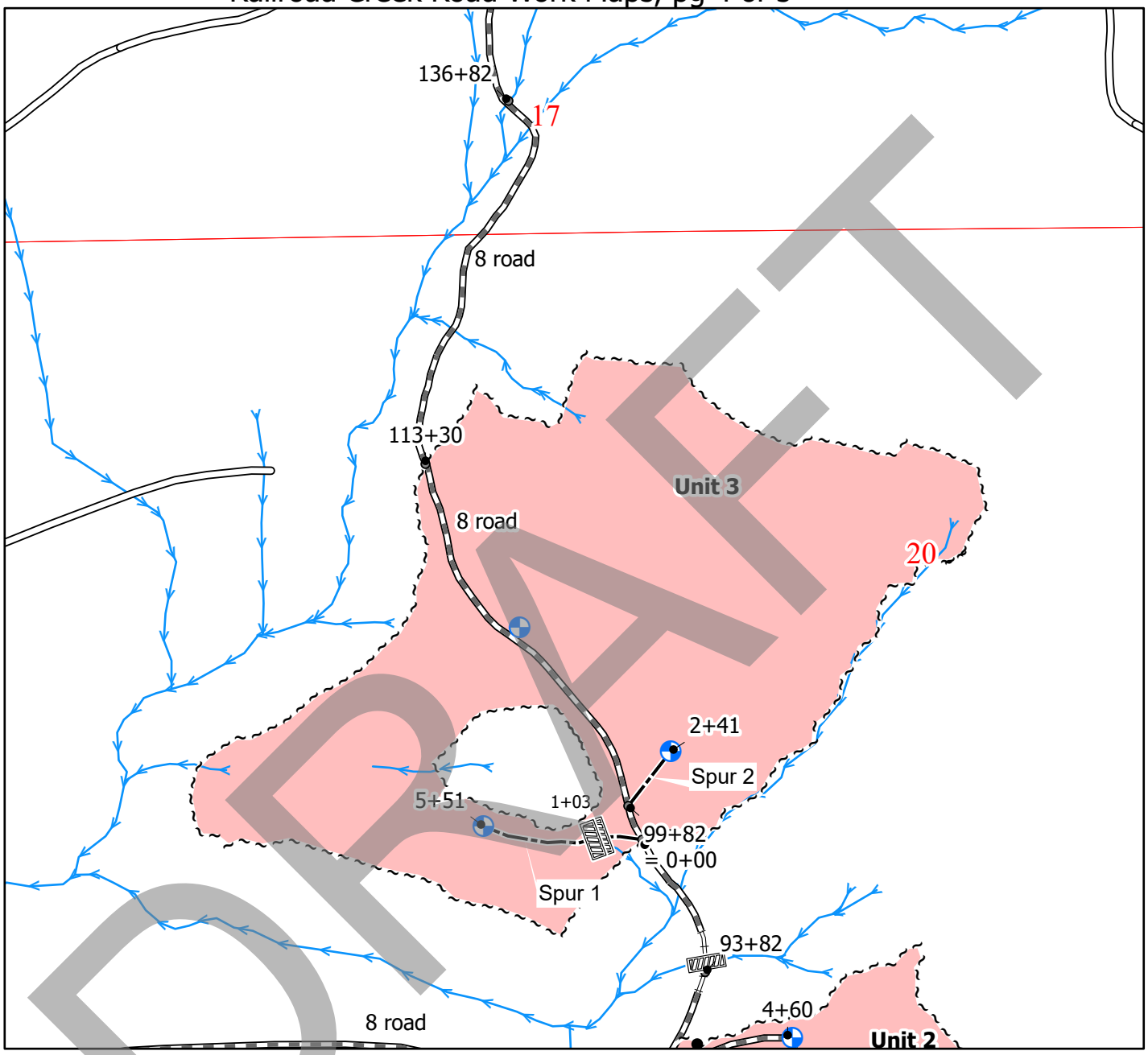
Railroad Creek Road Work Maps, pg 4 of 5



See road plan for additional road work.

0 200 400 800 Feet

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Date: 7/12/2024
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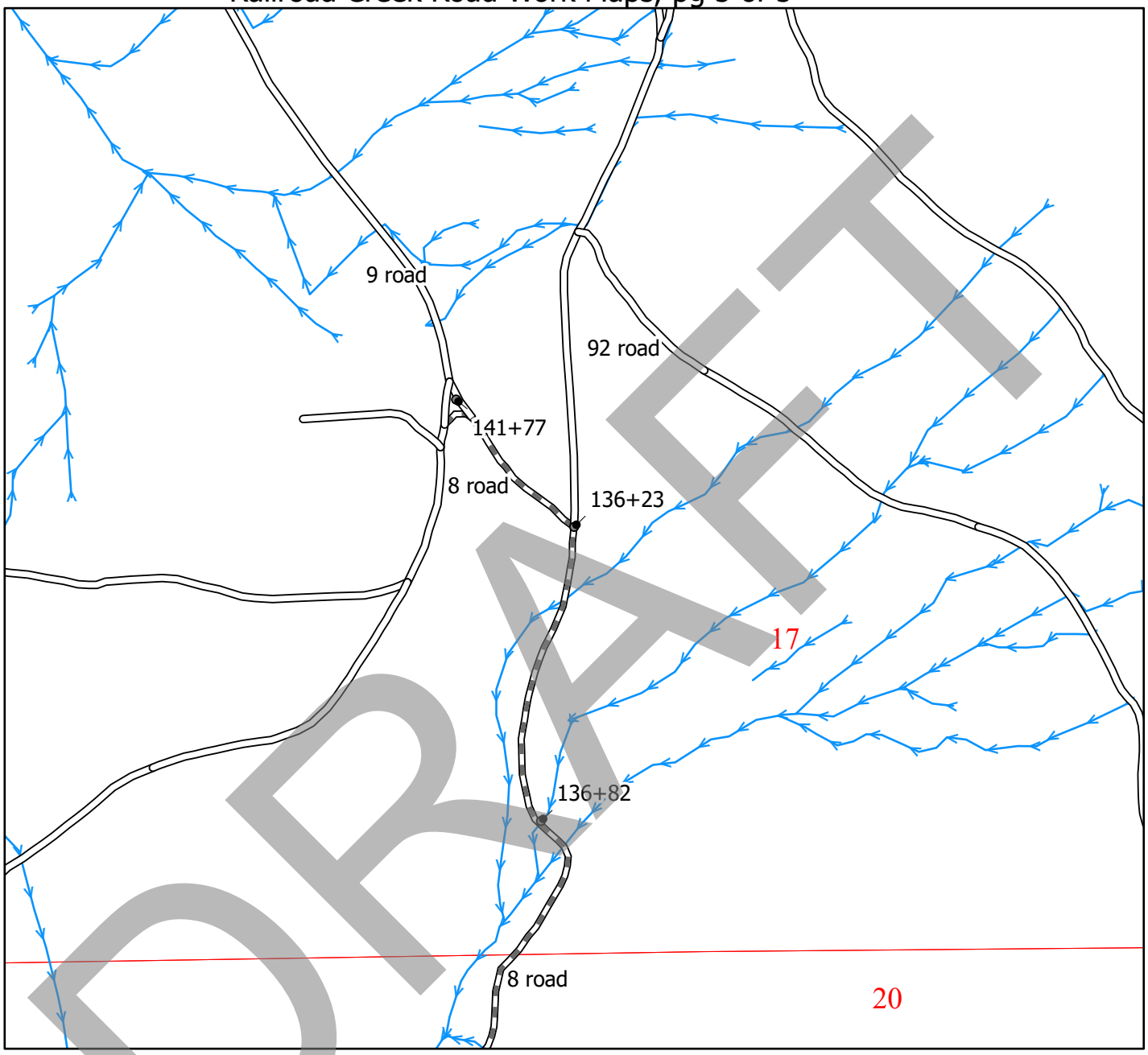
Railroad Creek Road Work Maps, pg 5 of 5



See road plan for additional road work.

0 200 400 800 Feet

Streams
Public Land Survey Sections
Required Pre-Haul Maintenance
Existing Roads

N

Drawn by: M. Bell
Date: 7/12/2024

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

RAILROAD CREEK TIMBER SALE ROAD PLAN
PIERCE COUNTY
RAINIER DISTRICT
SOUTH PUGET SOUND REGION

AGREEMENT NO.: 30-104867 STAFF ENGINEER: M. BELL

DATE: 7/12/2024

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.

Road	Stations	Type
8	0+00 to 92+82	Pre-haul maintenance
8	92+82 to 94+82	Reconstruction
8	94+82 to 141+77	Pre-haul maintenance
8-18	0+00 to 27+23	Pre-haul maintenance
8-21	0+00 to 9+00	Reconstruction
8-21	0+00 to 9+00	Closure
8-21	9+00 to 22+88	Abandon, if built
Spur 1	0+00 to 5+51	Abandon, if built
Spur 2	0+00 to 2+41	Abandon, if built

0-3 OPTIONAL ROADS

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

Road	Stations	Type
8-21	9+00 to 22+88	Construction
Spur 1	0+00 to 5+51	Construction
Spur 2	0+00 to 2+41	Construction

0-4 CONSTRUCTION

Construction includes, but is not limited to:

- Clearing.
- Grubbing.
- Right of way debris disposal.
- Excavation and/or embankment to subgrade.
- Landing construction.
- Acquistion and installation of drainage structures.
- Manufacture or acquisition and application of optional rock.
- Road abandonment.

0-5 RECONSTRUCTION

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

Road	Stations	Requirements
8	92+82 to 94+82	84 inch x 70 ft fish passage culvert installation
8-21	0+00 to 9+00	• Clearing. • Grubbing. • Right of way debris disposal. • Excavation and/or embankment to subgrade. • Landing construction. • Manufacture or acquisition and application of optional rock.

0-6 PRE-HAUL MAINTENANCE

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

- Grading, shaping, and compaction of road surface.
- Acquisition and installation of drainage structure.
- Manufacture or acquisition and application of optional rock.
- Gate repair.

0-7 POST-HAUL MAINTENANCE

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

0-8 CLOSURE

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

0-10 ABANDONMENT

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

0-12 DEVELOP ROCK SOURCE

Purchaser may develop an existing rock source. Rock source development will involve Clearing, Stripping, Drilling, Blasting and Crushing. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

0-13 STRUCTURES

Purchaser shall provide and install 84 inch x 70 ft Aluminized Steel Culvert. Requirements for these structures are listed in Section 7 STRUCTURES.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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

1-4 ROAD TOLERANCES

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

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

1-6 ORDER OF PRECEDENCE

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

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

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 30 calendar days before the closure of any road. Construction may not close any road for more than 14 calendar days. Roads shall not be closed during the Closure Prohibited Dates listed below.

Road	Total Number of Allowable Closed Days	Closure Prohibited Dates
8	14	August 28, 2025 to September 3, 2025 September 2, 2026 to September 8, 2026

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 cut ends, or 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 or cold galvanizing compound.

SUBSECTION ROAD MARKING

1-15 ROAD MARKING

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

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

1-16 CONSTRUCTION STAKES SET BY STATE

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

1-18 REFERENCE POINT DAMAGE

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

SUBSECTION TIMING

1-20 COMPLETE BY DATE

Purchaser shall complete pre-haul road work before the start of timber haul, unless authorized in writing by the Contract Administrator.

1-21 HAUL APPROVAL

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

1-22 WORK NOTIFICATIONS

On the following road(s), Purchaser shall notify the Contract Administrator a minimum number of days before work begins or roads are closed as specified in table.

Road	Minimum Calendar Days Notification
8	30
All other roads	5

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 construction
- Rock compaction

SUBSECTION RESTRICTIONS

1-25 ACTIVITY TIMING RESTRICTION

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

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

Activity	Closure Period
Operation of road construction equipment or rock haul	November 1 to May 15

On the following road(s), Purchaser shall complete road work within the specified period unless authorized in writing by the State.

Road	Stations	Date
8	92+82 to 94+82	The stream culvert replacement shall occur between July 8 and September 30.

1-26 OPERATING DURING CLOSURE PERIOD

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

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

- Wheel track rutting exceeds 6 inches on new construction rocked 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.
- When, in the opinion of the Contract Administrator, excessive road damage or rutting may occur.

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

1-33 SNOW PLOWING RESTRICTION

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

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

Excepted during allowed closure, Purchaser shall maintain the following road(s) in a condition that will allow the passage of light administrative vehicles.

Road	Stations
8	0+00 to 141+77

2-5 MAINTENANCE GRADING – EXISTING ROAD

On the following road(s), Purchaser shall use a grader to shape the existing surface before timber haul.

Road	Stations
8	0+00 to 141+77
8-18	0+00 to 27+23

2-8 MAINTAINING EROSION CONTROL STRUCTURES

On the following road(s), Contractor shall clean and maintain all erosion control devices including but not limited to rock berms.

Road	Stations	Comments
8	136+82	Clean inlet and outlet of 18” culvert. Clean and maintain sediment traps.

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-5 CLEARING

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

3-8 PROHIBITED DECKING AREAS

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

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

3-10 GRUBBING

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

SUBSECTION ORGANIC DEBRIS

3-20 ORGANIC DEBRIS DEFINITION

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

3-21 DISPOSAL COMPLETION

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

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

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

Road	Disposal Location	Requirements
Primo Pit Access Rd	Adjacent to east side of Primo Pit Access Road	Pile organic and waste material separately. See Primo Pit Plan for additional details.

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

- Within 20 feet of a cross drain culvert.
- Within 100 feet of a live stream or wetland.
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 55%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush can fall into the ditch or onto the road surface.
- Against standing timber.
- In location that would impede drainage.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

Purchaser shall scatter organic debris outside of the clearing limits.

SECTION 4 – EXCAVATION

4-1 EXCAVATOR CONSTRUCTION

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

4-2 PIONEERING

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

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

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

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 12 percent adverse.
- Minimum curve radius is 60 feet at centerline.

4-5 CUT SLOPE RATIO

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

Material Type	Excavation Slope Ratio	Excavation Slope Percent
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:

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

4-7 SHAPING CUT AND FILL SLOPE

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

4-8 CURVE WIDENING

The minimum widening placed on the inside of curves is:

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

4-9 EMBANKMENT WIDENING

The minimum embankment widening is:

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

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

SUBSECTION INTERSECTIONS, TURNOUTS AND TURNAROUNDS

4-21 TURNOUTS

Purchaser shall construct turnouts intervisible with a maximum distance of 1,000 feet between turnouts unless otherwise shown on drawings. Locations may be adjusted to fit the final subgrade alignment and sight distances. Minimum dimensions are shown on the TYPICAL SECTION SHEET.

SUBSECTION DITCH CONSTRUCTION

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

The Purchaser shall construct and reconstruct ditches into the subgrade as specified on the TYPICAL SECTION SHEET. Excavated slopes shall be consistent with Clause 4-5 CUT SLOPE RATIO. Ditches shall be constructed concurrently with construction of the subgrade.

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

Purchaser shall construct ditchouts as needed. 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.

SUBSECTION WASTE MATERIAL (DIRT)

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

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

4-37 WASTE AREA LOCATION

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

Road	Waste Area Location	Comments
Primo Pit Access Rd	Adjacent to east side of Primo Pit Access Road	Pile organic and waste material separately. See Primo Pit Plan for additional details.

4-38 PROHIBITED WASTE DISPOSAL AREAS

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

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

SUBSECTION BORROW

4-45 SELECT BORROW

Select borrow consists of granular material, either naturally occurring or processed, and contains no more than 5% clay, organic debris, or trash by volume. Select borrow material must be free of rocks greater than 6 inches in any dimension.

4-48 NATIVE MATERIAL

Native material consists of naturally occurring material that is free of organic debris, trash, and rocks greater than 6 inches in any dimension.

4-49 BORROW SOURCE

Purchaser shall obtain borrow material from the listed borrow source(s). Development of the borrow source must be in accordance with Pit Plan.

Source
Primo Pit

4-50 BORROW APPLICATION

Purchaser shall apply borrow in accordance with quantities shown below**.**

Road	Stations	Cubic Yards	Type
8	92+82 to 94+82 (stream culvert installation)	Approximately 650	Select Borrow

SUBSECTION SHAPING

4-55 ROAD SHAPING

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

SUBSECTION COMPACTION

4-60 FILL COMPACTION

Purchaser shall compact all embankment and waste material in accordance with the COMPACTION LIST by routing equipment over the entire width of each lift. A plate compactor must be used for areas specifically requiring keyed embankment construction and for embankment and waste area segments too narrow to accommodate equipment. Waste material may be placed by end-dumping or sidecasting until sufficiently wide enough to support the equipment.

4-61 SUBGRADE COMPACTION

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

4-62 DRY WEATHER COMPACTION

On the following road(s), 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.

Road	Stations
8	86+59 to 87+99
8	92+82 to 94+82

4-63 EXISTING SURFACE COMPACTION

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

SUBSECTION CULVERTS

5-5 CULVERTS

Purchaser shall install culverts as part of this contract. Culverts must be installed concurrently with subgrade work and must be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the CULVERT AND DRAINAGE LIST. Culvert, downspout, and flume lengths may be adjusted to fit as-built conditions and may not terminate directly on unprotected soil. Culverts must be new material and meet the specifications in Clauses 10-15 through 10-24.

5-6 CULVERT TYPE

Purchaser shall install culverts in accordance with Clauses 10-15 through 10-24.

5-7 USED CULVERT MATERIAL

On temporary roads, Purchaser may install used culverts. All other roads must have new culverts installed.

Road	Stations
8-21	9+00 to 22+88
Spur 1	0+00 to 5+51
Spur 2	0+00 to 2+41

5-12 UNUSED MATERIALS STATE PROPERTY

On required roads, any materials listed on the CULVERT AND DRAINAGE LIST that are not installed will become the property of the state. Purchaser shall stockpile materials at the Ashford Cooler Compound at the start of the 8 road.

5-13 CONTINGENCY CULVERTS

The following culverts will be supplied by the Purchaser and are available for installation as directed by the Contract Administrator.

Road	Size
On any portion of road used for timber or rock haul.	Two 18” x 30’ culvert One 18” culvert band

SUBSECTION CULVERT INSTALLATION

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL and the National Corrugated Metal Pipe Association’s "Installation Manual for Corrugated Steel Drainage Structures" and the Corrugated Polyethylene Pipe Association’s “Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings”. Corrugated Polyethylene pipe must be installed in a manner consistent with the manufacturer’s recommendations. Culverts shall be banded using lengths of no less than 10 feet, and no more than one length less than 16 feet**.** Shorter section of banded culvert shall be installed at the inlet end.

5-16 APPROVAL FOR LARGER CULVERT INSTALLATION

Purchaser shall obtain written approval from the Contract Administrator for the installation of culverts 84 inches in diameter and over before backfilling.

5-17 CROSS DRAIN SKEW AND SLOPE

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

5-18 CULVERT DEPTH OF COVER

Cross drain culverts must be installed with a depth of cover of not less than 1 foot of compacted subgrade over the top of the culvert at the shallowest point. Stream crossing culverts must be installed with a depth of cover specified in the Engineer’s design.

SUBSECTION ENERGY DISSIPATERS

5-20 ENERGY DISSIPATERS

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

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

SUBSECTION CATCH BASINS, HEADWALLS, AND ARMORING

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

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

5-27 ARMORING FOR STREAM CROSSING CULVERTS

Purchaser shall place LIGHT LOOSE RIP RAP in conjunction with or immediately following construction of the embankment. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the ROCK LIST and attached culvert design. Rock may not restrict the flow of water into culvert inlets or catch basins. Placement must be with a zero-drop-height only. No placement by end dumping or dropping of rock is allowed.

5-33 NATIVE SURFACE ROADS

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

SECTION 6 – ROCK AND SURFACING

SUBSECTION ROCK SOURCE

6-2 ROCK SOURCE ON STATE LAND

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the following source(s) on state land at no charge to the Purchaser. Purchaser shall obtain written approval from the Contract Administrator for the use of material from any other source. If other operators are using, or desire to use the rock source(s), a joint operating plan must be developed. All parties shall follow this plan. Purchaser shall notify the Contract Administrator a minimum of 5 calendar days before starting any operations in the listed locations.

Source	Location	Rock Type
Primo Pit	NE ¼ SW ¼ Section 20, T15N, R6E, W.M.	2 Inch Minus Crushed 4 Inch in Place Quarry Spalls Rip Rap

6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE

Rock used in accordance with the Primo Pit Development Plan may be obtained from the following existing stockpile(s) on state land at no charge to the Purchaser. Purchaser shall not remove additional yardage without prior written approval from the Contract Administrator. Other stockpiles may not be used without prior written approval from the Contract Administrator**.**

Source	Location	Rock Type	Quantity
Primo Pit	NE ¼ SW ¼ Section 20, T15N, R6E, W.M.	2 Inch Minus Crushed	828 cubic truck yards

6-5 ROCK FROM COMMERCIAL SOURCE

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

SUBSECTION ROCK SOURCE DEVELOPMENT

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

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

Source
Primo Pit

6-12 ROCK SOURCE SPECIFICATIONS

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

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

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

- Pit walls must be maintained in a condition to minimize the possibility of the walls sliding or failing.
- The width of pit benches must be a minimum of 25 feet.
- The surface of pit floors and benches must be uniform and free-draining at a minimum 2% outslope gradient except as approved by the Contract Administrator.
- All operations must be carried out in compliance with all regulations of the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- All vehicle access to the top of the pit faces must be blocked.

6-14 DRILL AND SHOOT

Rock drilling and shooting must meet the following specifications:

- Additional oversize material remaining in the rock source at the conclusion of the timber sale may not exceed 5% of the total volume mined in that source.
- Oversize material is defined as rock fragments larger than 1.5 feet in any dimension.
- Oversized rock that exceeds the maximum allowable amount must be reduced to a smaller size within the rock source.
- Purchaser shall notify the Contract Administrator a minimum of 3 working days before blasting operations.
- Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator within 3 working days after drilling.
- All operations must be carried out in compliance with the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and the Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- Purchaser shall block access roads before blasting operations.

SUBSECTION ROCK MANUFACTURE

6-20 ROCK CRUSHING OPERATIONS

Rock crushing operations must conform to the following specifications:

- Operations and placement of oversize material must be conducted in or near the rock source site, as approved in writing by the Contract Administrator.
- If a smooth roll crusher is used, the maximum size of material fed into it shall be equal to the largest size of the material coming out of it plus 8.5 percent of the roll radius.
- The crushing operation per pit must be concluded within 45 working days from the time it begins in that pit unless approved in writing by the Contract Administrator.

6-21 IN-PLACE PROCESSING

Purchaser may use in-place processing, such as a grid roller or other method, if suitable crushing can be demonstrated to meet the surfacing size specified in Clause 6-38 4-INCH IN-PLACE ROCK. Purchaser shall remove any existing organic debris before the start of in-place crushing operations. The use of in-place processing methods is subject to written approval by the Contract Administrator.

6-23 ROCK GRADATION TYPES

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

SUBSECTION ROCK GRADATIONS

6-38 4-INCH IN-PLACE ROCK

4-inch in-place rock must have a minimum of 90 percent of the top 4 inches of the running surface pass a 4-inch square opening.

In-place rock may not contain more than 5 percent by weight of organic debris and trash. No more than 50 percent of rock may be larger than 8 inches in any dimension and no rock may be larger than 12 inches in any dimension.

6-43 QUARRY SPALLS

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

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

6-45 1-FOOT MINUS ENGINEERED STREAMBED MATERIAL

% Passing 12” square sieve	80 - 95%
% Passing 5” square sieve	70 - 90%
% Passing 2” square sieve	40 - 60%
% Passing 5/8” square sieve	15 - 35%
% Passing U.S. #4 sieve	26 - 44 %
% Passing U.S. #200 sieve	5 - 9%

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

6-49 ROCK BANDS

Rock Bands must consist of angular, hard, sound, and durable stone.

Quantity	Approximate Size Range
90%	18”- 24”
5%	8”- 18”
5%	3”- 8”

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

6-50 LIGHT LOOSE RIP RAP

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

Quantity	Approximate Size Range
20% to 90%	500 lbs. to 1 ton (18”- 28”)
15% to 80%	50 lbs. to 500 lbs. (8”- 18”)
10% to 20%	3 inch to 50 lbs. (3”- 8”)

6-51 HEAVY LOOSE RIP RAP

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

Quantity	Size Range
30% to 90%	1 ton to 2 ton (28”- 36”)
30% to 70%	500 lbs. to 1 ton (18”- 28”)
20% to 50%	50 lbs. to 500 lbs. (8”- 18”)
10% to 20%	3 inch to 50 lbs. (3”- 8”)

SUBSECTION ROCK MEASUREMENT

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

Measurement of 4 INCH IN PLACE is defined as the compacted depth(s) using the compaction methods required in this road plan. Estimated quantities specified in the ROCK LIST are compacted yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction. Unless otherwise stated in Clause 6-75 OPTIONAL ROCK EXCEPTION.

6-56 ROCK MEASURMENT BY TRUCK VOLUME

Measurement of 2 INCH MINUS CRUSHED, QUARRY SPALLS, LIGHT LOOSE RIP RAP and HEAVY LOOSE RIP RAP rock is on a cubic yard truck measure basis. The Contract Administrator will measure each truck box before rock hauling. An average of such volumes for each truck will be used to tally the volume hauled. The Contract Administrator may periodically require that a load be flattened off and its volume calculated. Purchaser shall maintain load tally sheets for each truck as shown in ROCK ACCOUNTABILITY DETAIL and shall give them to the Contract Administrator on a weekly basis during rocking operations.

SUBSECTION ROCK APPLICATION

6-70 APPROVAL BEFORE ROCK APPLICATION

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

6-71 ROCK APPLICATION

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

6-73 ROCK FOR WIDENED PORTIONS

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

6-75 OPTIONAL ROCK EXCEPTION

On the following road(s), Purchaser may place less rock than shown on the ROCK LIST, when approved in writing by the Contract Administrator.

Road	Stations
8-21	9+00 to 22+88
Spur 1	0+00 to 5+51
Spur 2	0+00 to 2+41

6-76 DRY WEATHER ROCK COMPACTION

On the following roads, the Contract Administrator may require the application of water to facilitate compaction of the rock surfacing. The method of water application is subject to approval by the Contract Administrator.

Road	Stations
8	92+82 to 94+82

SECTION 7 – STRUCTURES

SUBSECTION SIGNS

7-1 SIGN INSTALLATION

Purchaser shall aquire, install, and maintain the following road signs prior to road closure. Purchaser shall remove signs from State Land at end of road closures and prior to the termination of this contract. Signs must comply with the Federal Highway Administration's Manual on Uniform Traffic Control Devices.

Road	Station	Sign
8	5+49	Road Closed 1.6 miles ahead. No Turnaround
8	136+23	Road Closed
8	141+77	Road Closed

SUBSECTION STREAM CROSSING STRUCTURES GENERAL

7-5 STRUCTURE DEBRIS

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

7-6 STREAM CROSSING INSTALLATION

Purchaser shall install stream crossing structures in accordance with the manufacturer's requirements, Designs, Specifications and/or DETAILS.

7-55 LARGE CULVERT INSTALLATION

Purchaser shall provide and install large culverts in accordance with the T15R06E-24 DESIGN. Culvert designs must meet or exceed the following specifications:

Road	8
Station	94+32
Type	CMP
Material and Coating Type*	Aluminized Steel Type 2
Diamter (in.)	84
Length (ft.)	70
Depth of Cover Material (ft. in.)	Per Design
Corrugations	3"x1" or 5"x1"
Gauge	12

* See Clause 10-15 CORRUGATED STEEL CUVLERT 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 NCSPA Installation Manual can be found at 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.

7-58 MATERIAL INSIDE CULVERT

Purchaser shall provide and install 1 FOOT MINUS ENGINEERED STREAMBED MATERIAL and ROCK BANDS inside the following culvert(s) as specified in the T15R06E-24 design.

Road	Stations
8	93+82

SUBSECTION GATE CLOSURE

7-70 GATE CLOSURE

On the following road(s), 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.

Road	Station	Gate No.	Comment
8-18	1+50	507	To Primo Pit

7-75 GATE MAINTENANCE

Purchaser shall conduct gate maintenance as listed.

Road	Station	Requirements
8-18	1+50	Place HEAVY LOOSE RIP RAP on both sides of the gate to block vehicle passage around the gate.

SECTION 8 – EROSION CONTROL

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a 3-inch layer of straw to all exposed soils within 50 feet of a stream or wetland. Soils must be covered before the first anticipated storm event. Soils may not sit exposed during any rain event.

SUBSECTION REVEGETATION

8-15 REVEGETATION

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

Road	Location	Qty (lbs)*	Comments
8	92+82 to 94+82	50	
Spur 1	0+00 to 5+51	50	Apply grass seed to all exposed soil within the right of way.

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

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the seed and certified weed-free straw.

8-17 REVEGETATION TIMING

On the following road(s), Purchaser shall revegetate as specified in Comments unless otherwise approved in writing by the Contract Administrator.

Road	Location	Comments
8	92+82 to 94+82	After road work is completed grass seed all exposed soils within the right of way.
Spur 1	0+00 to 5+51	After abandonment is completed grass seed all exposed soils within the right of way.

SUBSECTION SEED, FERTILIZER, AND MULCH

8-25 GRASS SEED

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

1. Seed shall be certified weed-free.
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 inert material

5. Seed must conform to the following mixture unless a comparable mix is approved in writing by the Contract Administrator.

Kind and Variety of Seed in Mixture	% by Weight
Perennial Rye	10
Annual Rye Grass	90
Inert Material	0.5

SECTION 9 – POST-HAUL ROAD WORK

SUBSECTION STRUCTURES

9-1 EARTHEN BARRICADES

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

Road	Station
8-21	0+00
8-21	9+00
Spur 1	0+00
Spur 2	0+00

9-2 CULVERT REMOVAL FROM LIVE STREAM

On the following road(s), Purchaser shall remove existing culverts from live streams and leave the resulting channel open with excavation slope and excavated channel width as specified.

Road	Stations	Excavated Channel Width	Slope Ratio
Spur 1	1+03	2.5	2:1
Spur 1	1+53	2.5	2:1

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

SUBSECTION POST-HAUL MAINTENANCE

9-5 POST-HAUL MAINTENANCE

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

Road	Stations	Additional Requirements
8	0+00 to 141+77	Grade, shape, and compact
8-18	0+00 to 27+23	Grade, shape, and compact

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

SUBSECTION CLOSURE

9-15 ROAD CLOSURE

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

Road	Stations
8-21	0+00 to 9+00

9-16 CLOSURE

At a minimum, closure consists of:

- Maintain road according to the FOREST ACCESS ROAD SPECIFICATIONS.
- Construct drivable waterbars according to the attached DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical drop of no more than 30 feet between waterbars or between natural drainage paths and with a maximum spacing of 300 feet, or as marked in the field.
- Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
- Key waterbars into the cut-slope to intercept the ditch. Waterbars must be outsloped to provide positive drainage. Outlets must drain onto stable locations.
- Block roads with earthen barricades in accordance with the attached BARRICADE DETAIL.

SUBSECTION ABANDONMENT

9-21 ROAD ABANDONMENT

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

Road	Stations	Type
8-21	9+00 to 22+88	Abandonment
Spur 1	0+00 to 5+51	Abandonment
Spur 2	0+00 to 2+41	Abandonment

9-22 ABANDONMENT

- Remove road shoulder berms.
- Construct non-drivable waterbars according to the attached NON-DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical drop of no more than 10 feet between waterbars or between natural drainage paths and with a maximum spacing of 100 feet.
- Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
- Key waterbars into the cut-slope to intercept the ditch. Waterbars must be outsloped to provide positive drainage. Outlets must be on stable locations.
- Block roads with earthen barricades in accordance with the attached EARTHEN BARRICADE DETAIL.
- Remove culverts.
- Remove ditch cross drain culverts and leave the resulting trench open.
- Slope all trench walls and approach embankments no steeper than 1.5:1.

SECTION 10 MATERIALS

SUBSECTION CULVERTS

10-15 CORRUGATED STEEL CULVERT

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

10-17 CORRUGATED PLASTIC CULVERT

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

10-21 METAL BAND

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

10-22 PLASTIC BAND

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

10-23 RUBBER CULVERT GASKETS

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

10-24 GAUGE AND CORRUGATION

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

Diameter	Gauge	Corrugation
18"	16 (0.064”)	$2\ ^{2}/_{3}$" X $^{1}/_{2}$"
24" to 48"	14 (0.079”)	$2\ ^{2}/_{3}$" X $^{1}/_{2}$"
54" to 96"	12 (0.109”)	3”x1” or 5”x 1”

SECTION 11 SPECIAL NOTES

11-1 STREAM PROTECTION

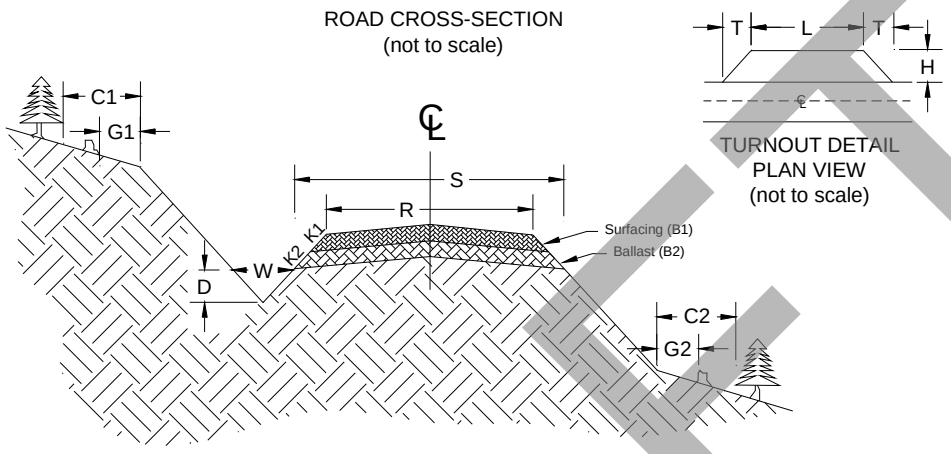
Disturbance of the streambed, banks, and riparian vegetation shall be limited to that necessary to construct the project. Project activities shall not degrade water quality downstream to the detriment of fish life. Equipment working in and around streams shall be free of external petroleum-based products or leaks. Equipment shall be checked daily for leaks and any necessary repairs shall be completed at an upland location prior to use in or near the water. Upon completion of the in-stream work, all materials used for temporary silt fences, check dams or other temporary in-stream structures shall be removed and the stream returned to pre-project conditions or better.

11-3 SETTLING POND AND PUMP

On the following roads, Purchaser shall construct the streambed inside fish passage culvert. Streambed construction shall be in accordance with the FPA, and Live Stream Culvert Installation Procedure unless authorized in writing by the Contract Administrator.

Road	Stations
8	94+32

TYPICAL SECTION SHEET



Road Number	From Station	To Station	Tolerance Class	Subgrade Width (feet)	Road Width (feet)	Ditch Width (feet)	Ditch Depth (feet)	Crown in. @ CL	Grubbing Limits (feet)		Clearing Limits* (feet)	
				S	R	W	D		G1	G2	C1	C2
8	0+00	141+77	A	-	14	4	2	4	-	-	5	5
8-18	0+00	27+23	A	-	14	4	2	4	-	-	5	5
8-21	0+00	9+00	C	15	12	4	2	4	2	2	tags	tags
8-21	9+00	22+88	C	15	12	2	1	4	0	0	tags	tags
Spur 1	0+00	5+51	C	15	12	2	1	4	0	0	0	0
Spur 2	0+00	2+41	C	15	12	2	1	4	0	0	0	0

*Tags are Right of Way Tags

COMPACTION LIST

Road	From Station	To Station	Type	Max Depth Per Lift (inches)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
All new construction and reconstruction			Culvert Installations	12	Smooth Drum Vibratory Roller	14,000	4 low freq. with Vibe on	3
			Embankment	12				
			Fill & select borrow	12				
			Subgrade					
			Rock	12				
			Waste Area	12				
All pre-haul and post haul			After grading existing road surface and prior to rocking					
			Culvert Installations	12				
			Rock	6				
Culvert Fill Compaction			Fill & select borrow	10	Plate Compactor or Jumping Jack	Compact to density of 90-95% of the AASHTO T-99 maximum density		

ROCK LIST

BALLAST

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y. Station	# of Stations	C.Y. Subtotal	Rock Source
			K2	B2	4 Inch In Place			
8-21	0+00	9+00	1.5:1	12"	50	9	450	Primo Pit
8-21*	9+00	22+88	1.5:1	12"	50	13.88	694	
Spur 1	0+00	5+51	1.5:1	12"	50	5.51	276	
Spur 2	0+00	2+41	1.5:1	12"	50	2.41	121	
8	86+99	87+99	1.5:1	12"	74	1	74	
8	92+82	94+82	1.5:1	12"	74	2	148	
8rd 87+49 2 Inch Minus Crushed Culvert Bedding							85	
Quarry spalls for non-fish culvert Installations. See Culvert List for locations							5	
Heavy Loose Rip Rap for blocking around 8-18rd gate							20	

*Optional Rock

4 Inch In Place BALLAST TOTAL: 1763 Cubic Yards

SURFACE

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	Truck C.Y. Station	# of Stations	Truck C.Y. Subtotal	Comments Rock Source
			K2	B2	2 Inch Minus Crushed			
8	86+99	87+99	1.5:1	6"	37	1	37	Primo Pit Stockpile
8	92+82	94+82	1.5:1	6"	37	2	74	

SURFACE TOTAL: 111 Truck Cubic Yards

93+82 CULVERT INSTALLATION MATERIALS

Material Type	Compacted Rock Depth	Truck C.Y. Subtotal	Comments Rock Source
2 Inch Minus Crushed Bedding	6"	610	Primo Pit Stockpile
Select Borrow for Backfill	-	Approx. 650	Primo Pit
Streambed Material	-	65	Commercial Source
Rock Bands	-	45	Primo Pit or Commerical Source
Heavy Loose Rip Rap Inlet	-	61	Primo Pit
Heavy Loose Rip Rap Outlet	-	21	Primo Pit
Light Loose Rip Rap Outlet	-	40	Primo Pit

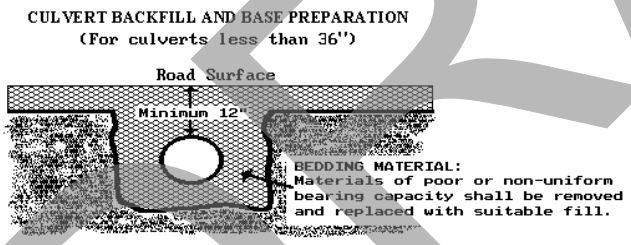
NOTE: Except for rock types listed in Clause 6-56, yardages are estimated on a compacted (In-Place) basis. **Apply appropriate factors to determine loose amounts for estimating purposes.** Factor of 1.3 was applied to estimate truck yardage for surfacing rock.

CULVERT AND DRAINAGE LIST

Road Number	Location	Culvert Dia. (in)	Culvert Type	Length (ft) Culvert	Length (ft) Downspt	Length (ft) Flume	Riprap (C.Y.) Inlet	Riprap (C.Y.) Outlet	Riprap (C.Y.) Type	Backfill Material*	Placement Method*	Const. Staked*	Remarks
8	87+49	36	PD	40			0.5	0.5	QS	SR/SL			Type Np stream culvert replacement
	93+82	84	AS12	70			61	21 40	HL LL	SR/SL			Type F stream culvert replacement
Spur 1	1+03	24	TEMP	30			0.5	0.5	QS	NT			Np culvert install
	1+53	24	TEMP	30			0.5	0.5	QS	NT			NP culvert install (side channel)
Contingency culverts		18	PD	30			0.5	0.5	QS	NT			
		18	PD	30			0.5	0.5	QS	NT			

* SEE CULVERT AND DRAINAGE SPECIFICATION DETAIL

PD = Polyethylene Pipe Dual Wall AASHTO No. M294 Type S or ASTM F2648
AS12 = Aluminized Steel AASHTO No. M274, 12 Gauge
TEMP = Temporary Culvert



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

CULVERT AND DRAINAGE SPECIFICATION DETAIL

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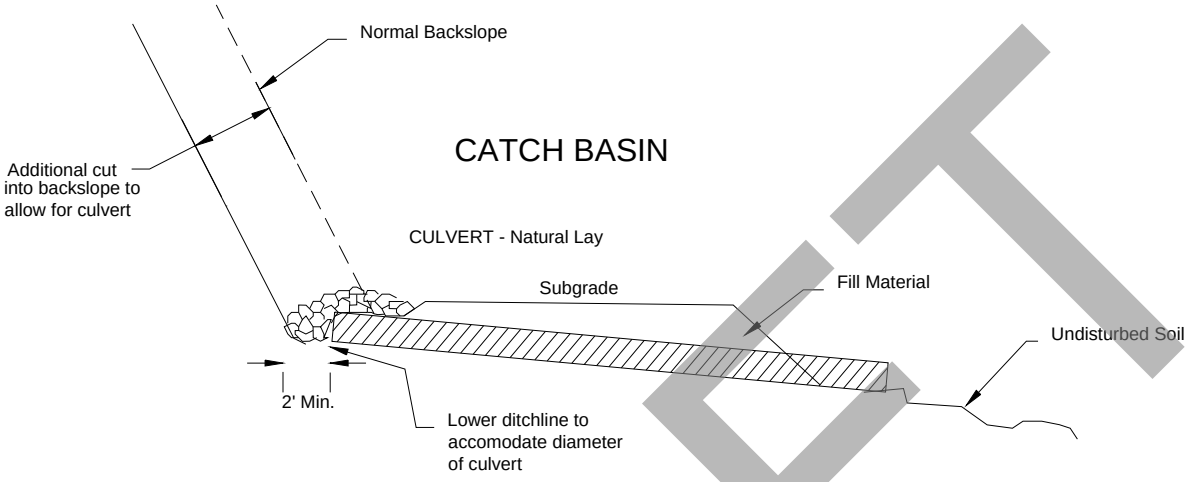
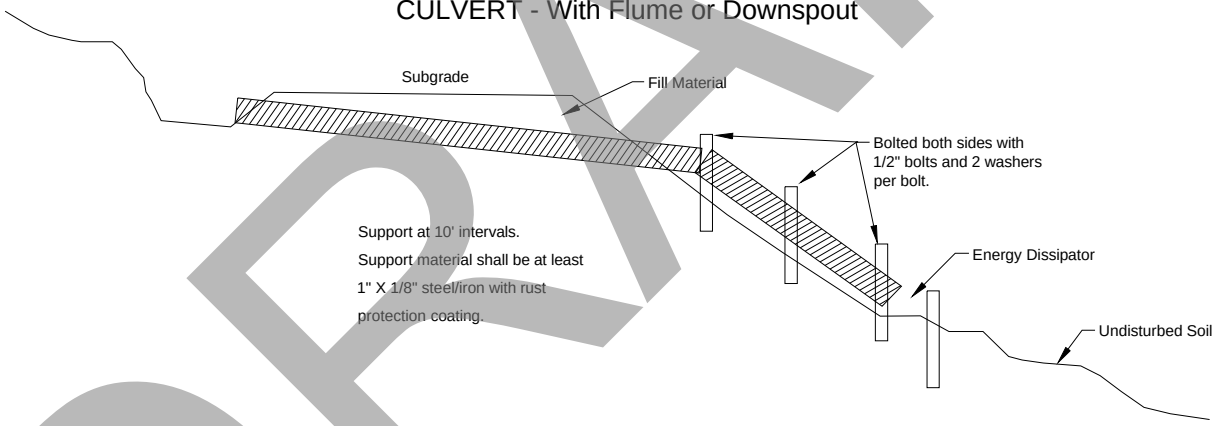
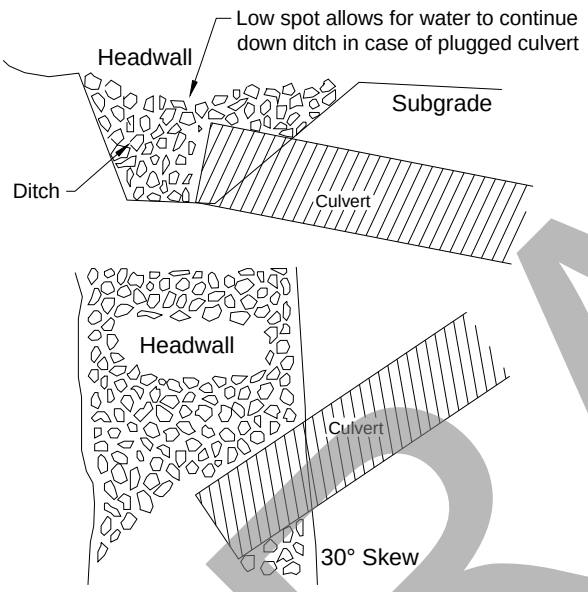




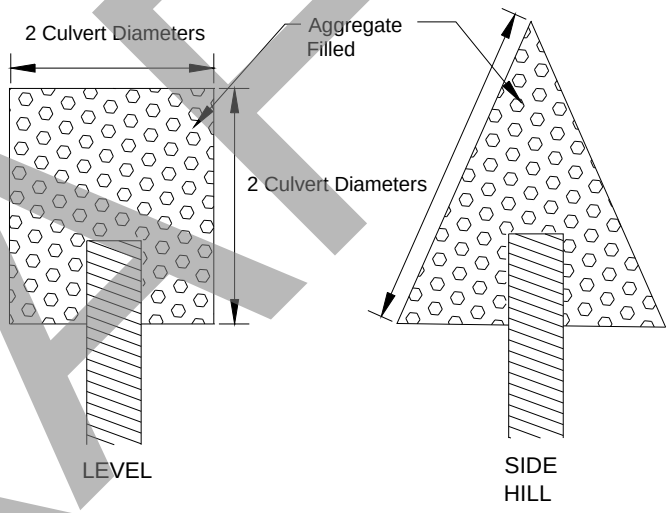
CULVERT AND DRAINAGE SPECIFICATION DETAIL

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



ENERGY DISSIPATORS



Headwalls to be constructed of material that will resist erosion.

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

CULVERT AND DRAINAGE SPECIFICATION DETAIL

(Page 3 of 3)

POLYETHYLENE PIPE INSTALLATION

INSTALLATION REQUIREMENTS:

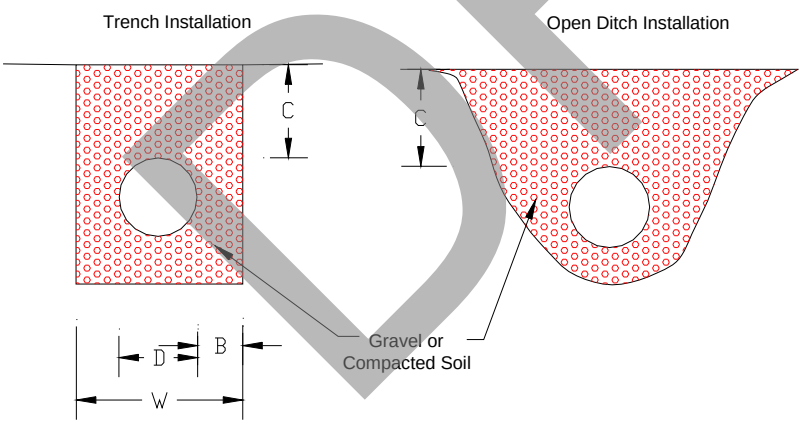
1. Crushed stone, gravel, or compacted soil backfill material shall be used as the bedding and envelope material around the culvert. The aggregate size shall not exceed 1/6 pipe diameter or 4" diameter, whichever is smaller.

2. The corrugated pipe shall be laid on grade, on a layer of bedding material as shown for the two types of installations. If native soil is used as the bedding and backfill material, it shall be well compacted in six inch layers under the haunches, around the sides and above the pipe to the recommended minimum height of cover.

3. Either crushed aggregate or flexible (asphalt) pavement may be laid as part of the minimum cover requirements.

4. Site conditions and availability of bedding materials often dictate the type of installation method used.

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



MINIMUM DIMENSIONS
Trench or Open Ditch Installation

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

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS, page 1of 2

Cuts and Fills

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

Surface

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

Drainage

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

Preventative Maintenance

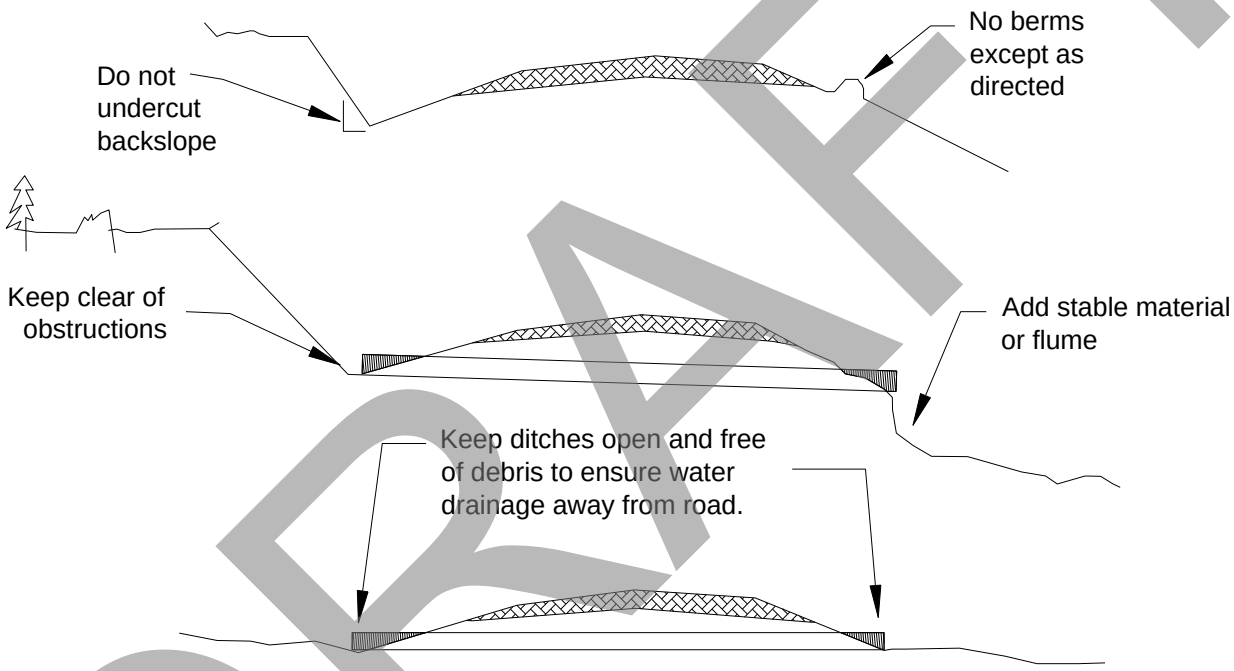
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

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

Debris

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



LIVE STREAM CULVERT INSTALLATION PROCEDURE

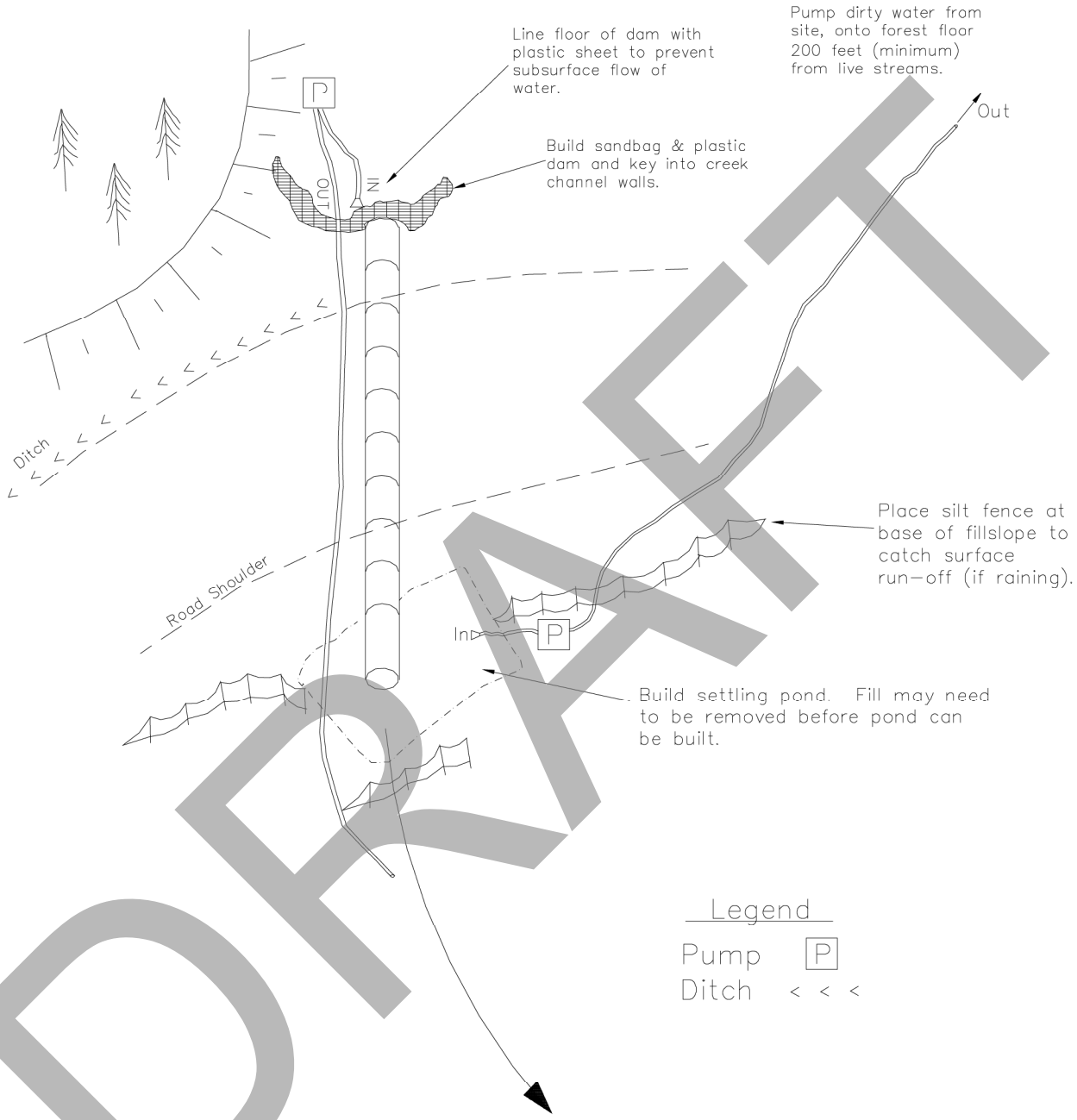
Order of work is as follows, deviations such as stream diversions shall be approved, in writing, by the Contract Administrator.

1) Purchaser shall notify the Contract Administrator a minimum of 30 days prior to intent to start project, and a pre-work conference shall be held before move in of equipment. State will designate a representative that will inspect site when work is being performed in creek channel.
2) Assemble the items on the Materials List onsite before proceeding.
3) Set up pumps (2 required, with one as backup).
4) Dam up stream with sandbags and line floor of dam with plastic (to prevent sub-surface water flow), place clean rock on plastic to hold in place, and key leading edge of plastic into channel bottom - see SETTLING POND AND PUMP DETAIL. Build a settling pond at culvert outlet. Fill may need to be removed before the settling pond installation due to space limitations. Pump clean water at catch basin around work site and back into stream. Dirty water shall be pumped away from site and onto forest floor a minimum of 200 feet from live streams.
5) Construct streambed per plans.
6) Backfill settling pond.

Materials List:

- 3 pumps. The clean water pump (dam at culvert catch basin), dirty water pump (settling pond) and the backup pump shall each have a minimum capacity to keep pace with current and anticipated flows.
- 240 square feet plastic sheet;
- 10 bales of straw;

SETTLING POND AND PUMP DETAIL



LIVE STREAM CULVERT REPLACEMENT DETAIL, pg 1 of 2
Project: 8 Road Station 94+32

Controlling sediment and erosion

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

Fill material that does not meet the specification for reuse as road fill will be placed in a waste area to prevent delivery to any water course.

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

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

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

Clearing vegetation, minimizing disturbance

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

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

Operating and staging heavy equipment

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

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

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

Petroleum leaks and/or spills

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

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

Equipment crossings of the stream are to be minimized.

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

Bypass methods for flowing water

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

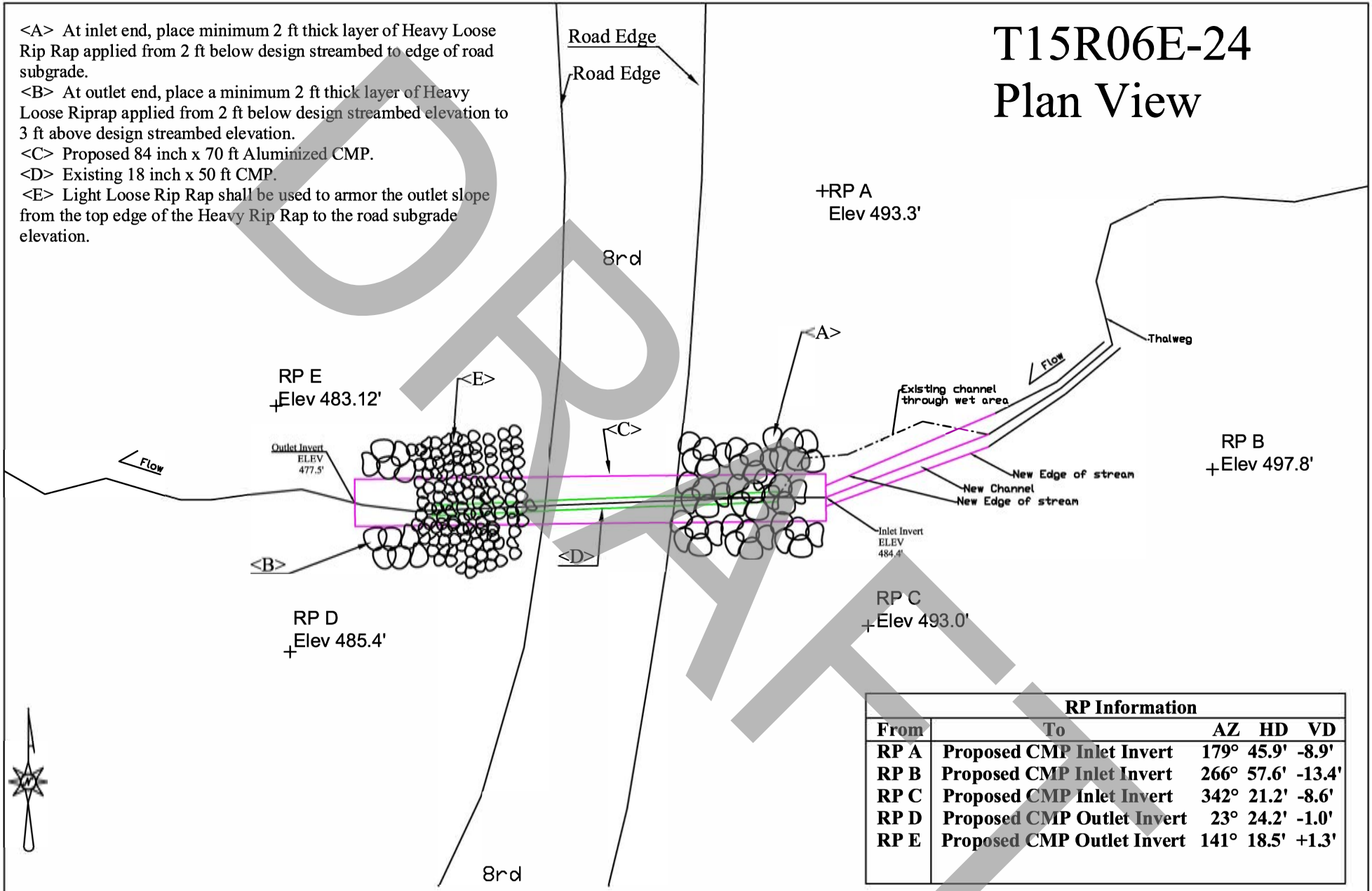
Upon completion of the project, all material used in the temporary bypass shall be removed from the site and the channel bed, bank and shoreline areas restored similar to pre-project natural condition or better.

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

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

T15R06E-24
Plan View

<A> At inlet end, place minimum 2 ft thick layer of Heavy Loose Rip Rap applied from 2 ft below design streambed to edge of road subgrade.
<B> At outlet end, place a minimum 2 ft thick layer of Heavy Loose Riprap applied from 2 ft below design streambed elevation to 3 ft above design streambed elevation.
<C> Proposed 84 inch x 70 ft Aluminized CMP.
<D> Existing 18 inch x 50 ft CMP.
<E> Light Loose Rip Rap shall be used to armor the outlet slope from the top edge of the Heavy Rip Rap to the road subgrade elevation.



RP Information				
From	To	AZ	HD	VD
RP A	Proposed CMP Inlet Invert	179°	45.9'	-8.9'
RP B	Proposed CMP Inlet Invert	266°	57.6'	-13.4'
RP C	Proposed CMP Inlet Invert	342°	21.2'	-8.6'
RP D	Proposed CMP Outlet Invert	23°	24.2'	-1.0'
RP E	Proposed CMP Outlet Invert	141°	18.5'	+1.3'

Average Bank Full Width of Stream : 2.1 ft
Stream is Tributary to Sahara Creek

RMAP Culvert ID: T15R06E-24
Sec. 20 T15N R05E

8 Road Fish Passage Installation
8 Rd 93+82

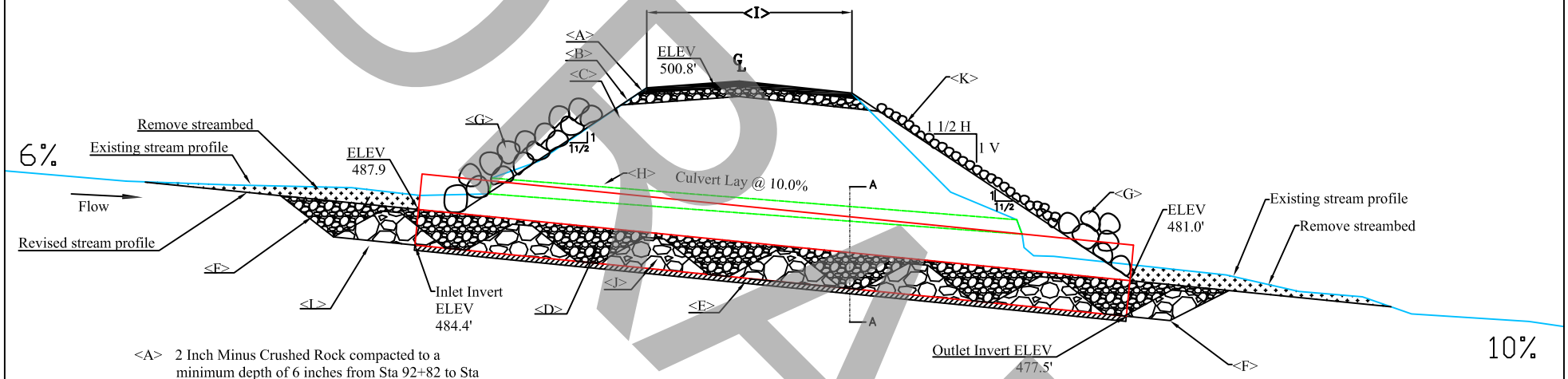
Designed By: M. Bell

WASHINGTON STATE DEPARTMENT OF
Natural Resources

Date: 7/12/24
Sheet 1 of 3

1 Inch
20 Feet

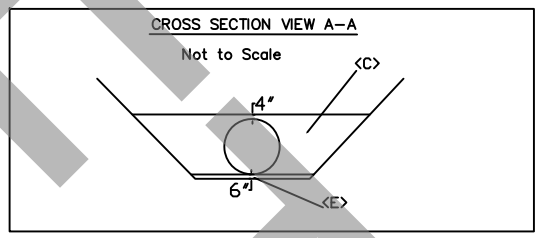
T15R06E-24 PROFILE
Centerline of Culvert



<A> 2 Inch Minus Crushed Rock compacted to a minimum depth of 6 inches from Sta 92+82 to Sta 94+82.
<B> 4 Inch In Place compacted to a minimum depth of 12 inches over excavation extents.
<C> Select Borrow fill material.
<D> 1-Foot Minus Engineered Streambed Material.
<E> 2 Inch Minus Crushed Rock Bedding Material compacted to a min. depth of 6 inches before proposed culvert is placed at grade.
<F> Streambed material removed to facilitate installation shall be replaced with 1-Foot Minus Engineered Streambed Material or Rock Bands as designed.
<G> Heavy Loose Rip Rap.
<H> Existing 18 inch CMP.
<I> Road width is 20 ft.
<J> Rock Bands. See detail page 3.
<K> Light Loose Rip Rap.
<L> A corduroy pad may be built to facilitate installation. Pad shall be removed prior to streambed material installation at inlet.

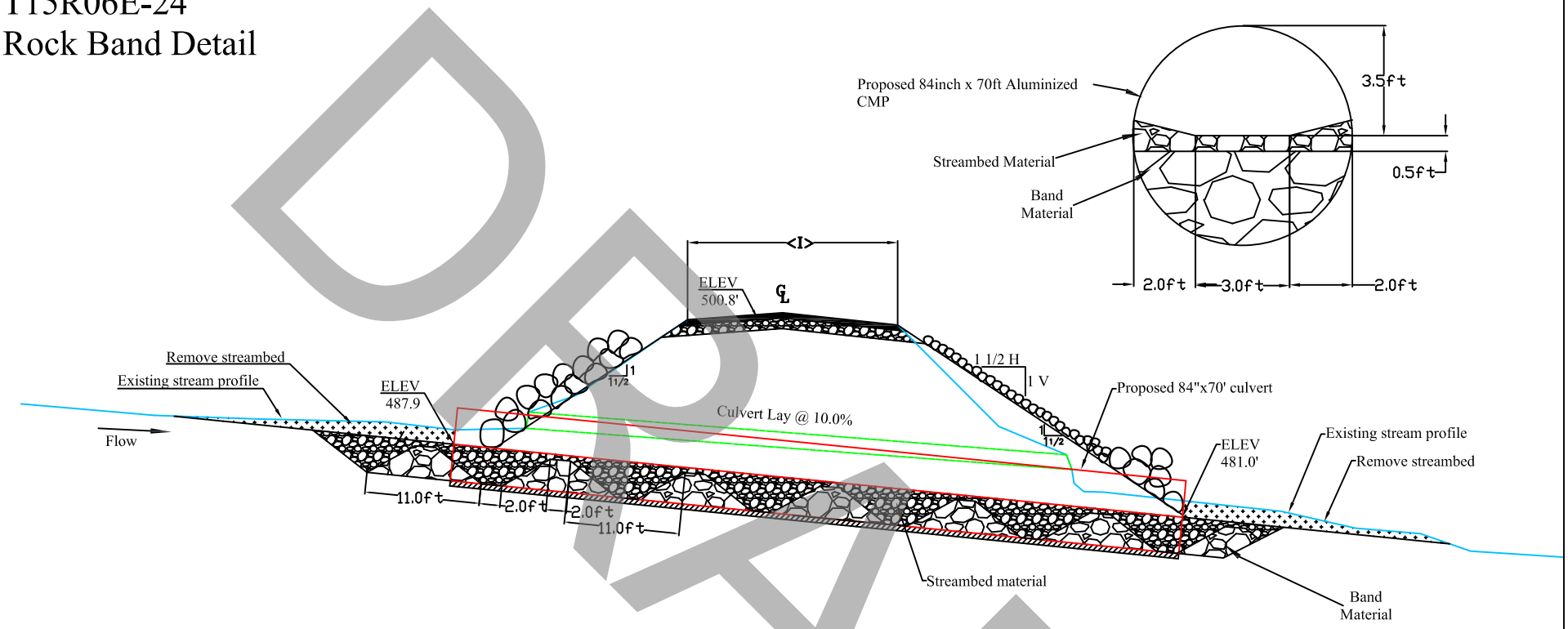
Construct embankment slopes at a ration of 1-1/2 horizontal to 1 vertical (1-1/2H: 1V). Cover all exposed soil with grass seed and straw.

Note:
1) 5% Crown at road centerline
2) Culvert Dimensions:
84 inch dia x 70 ft long,
12 gauge aluminized steel
3) Culvert lay = 10.0%

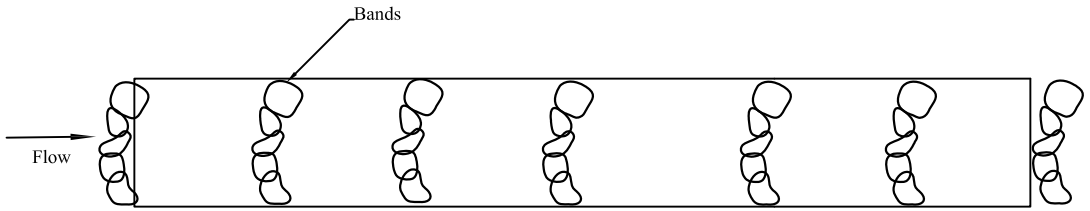


8 Road Fish Passage Installation 8 Rd 93+82 Designed By: M. Bell	WASHINGTON STATE DEPARTMENT OF Natural Resources	Date: 7/12/24 Sheet 2 of 3	1 Inch 15 Feet

T15R06E-24
Rock Band Detail



Band Plan View



Streambed Material:
Rock shall be rounded
or sub-rounded,
mixed gravels up to 12 inch
approximately 65 cu yds

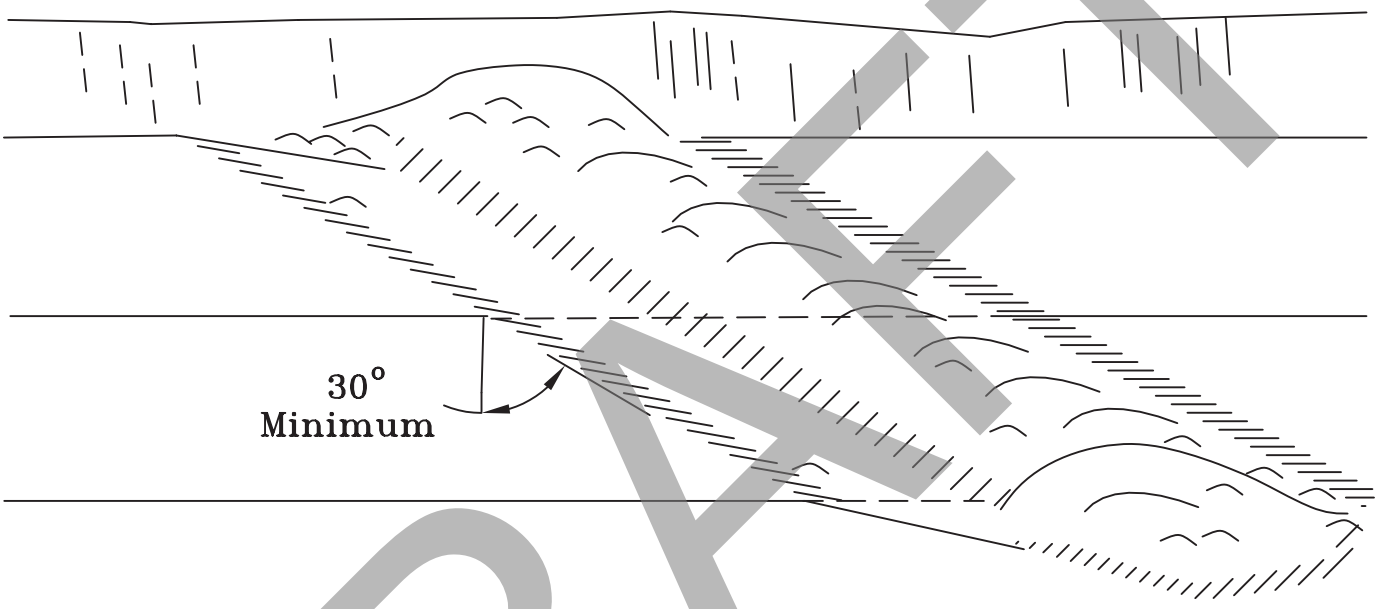
Band Material:
Rock shall be angular.
approximately 45 cu yds:
90% 18 inch - 24 inch

Note: Volumes are estimated on In-Place basis.

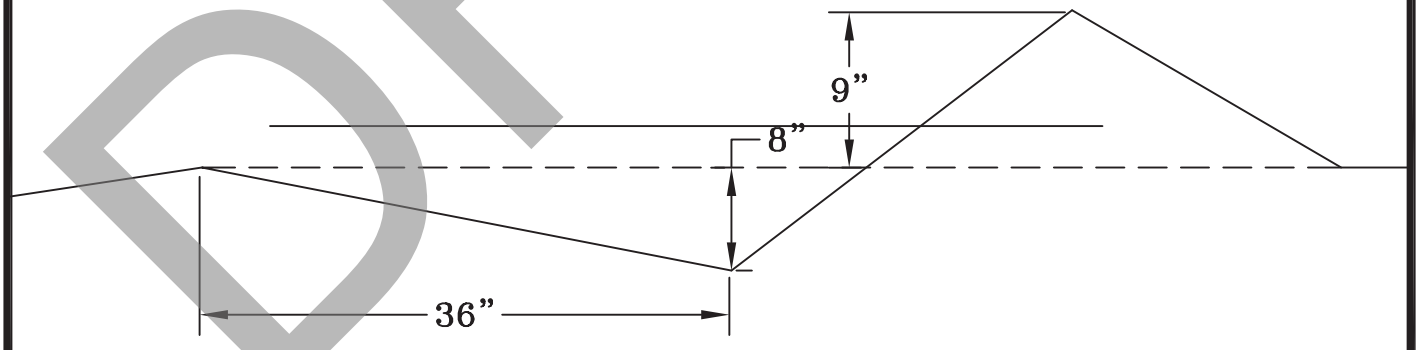
8 Road Fish Passage Installation 8 Rd 93+82 Designed By: M. Bell	WASHINGTON STATE DEPARTMENT OF Natural Resources	Date: 7/12/24 Sheet 3 of 3	1 Inch 15 Feet

Drivable Water Bar Detail

Cross Ditch



Cross Section at Centerline

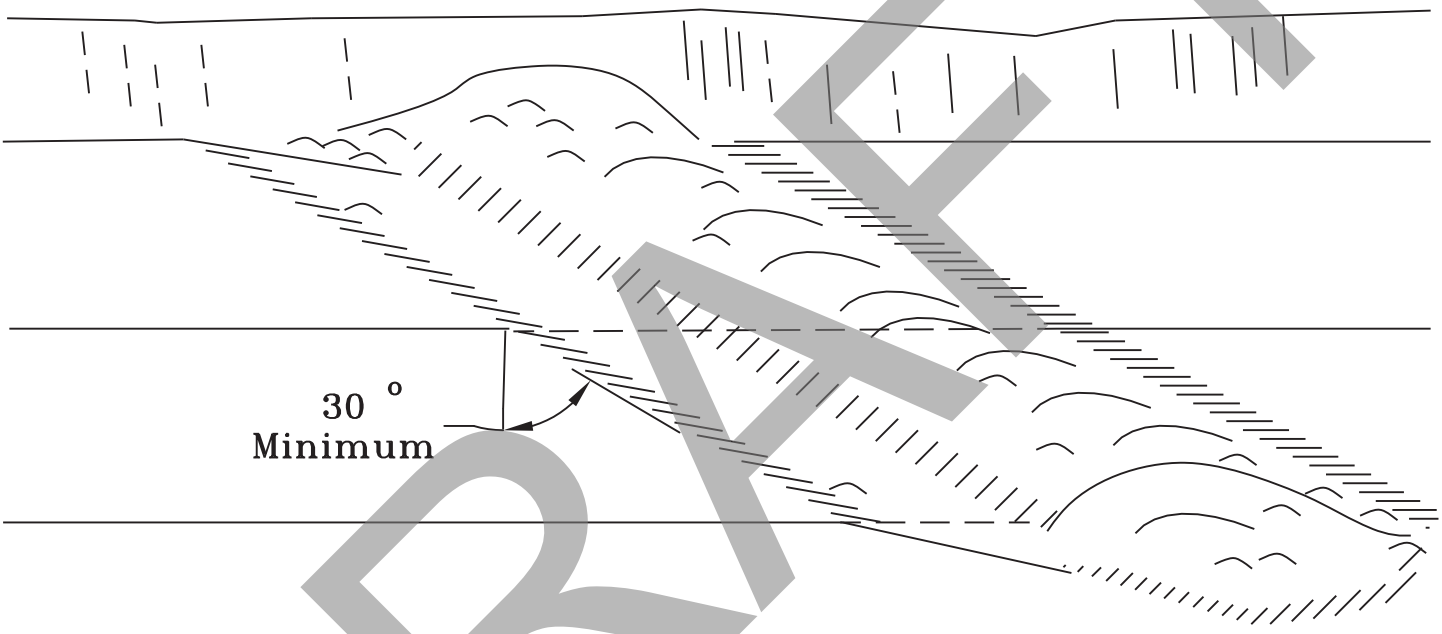


Drivable Water Bar Detail

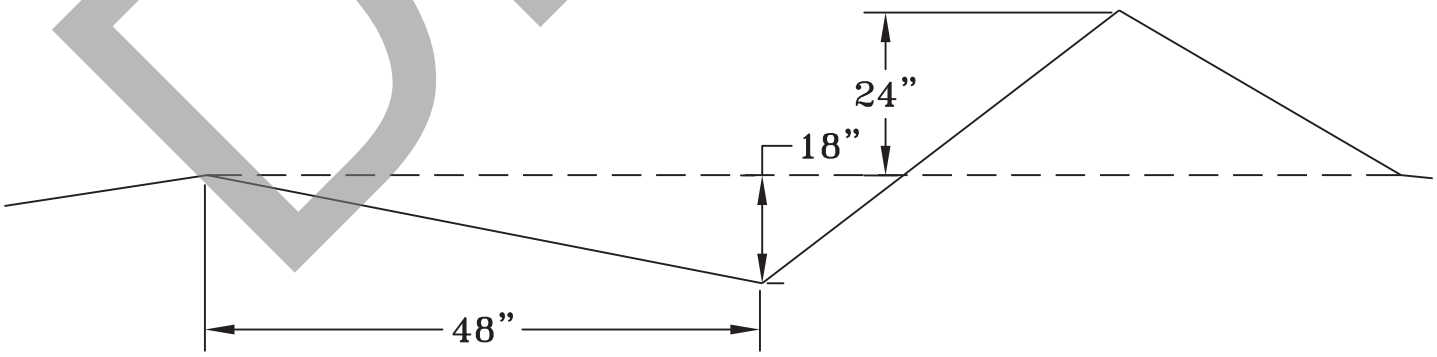
Scale : None
Drawn by: M.A.D.

Non-Drivable Water Bar Detail

Cross Ditch



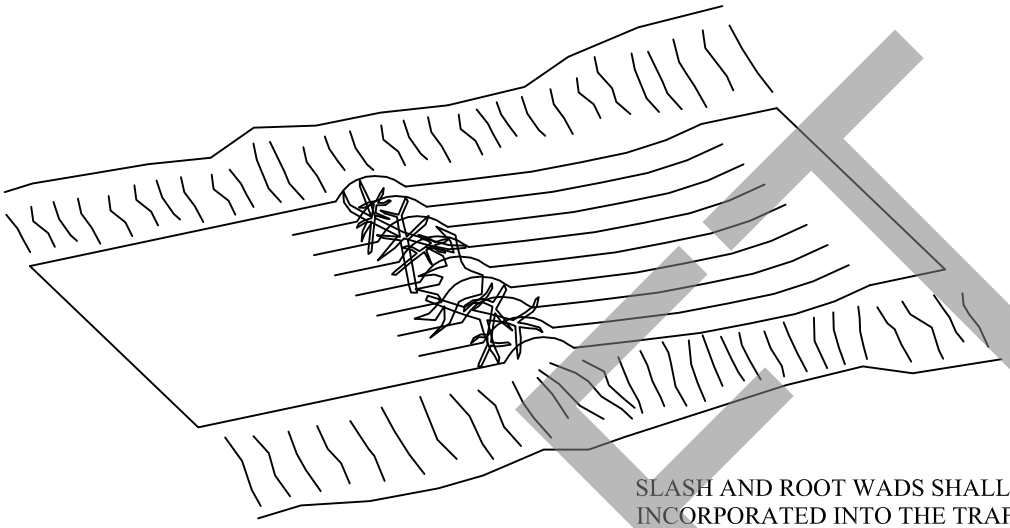
Cross Section at Centerline



Non-Drivable Water Bar Detail

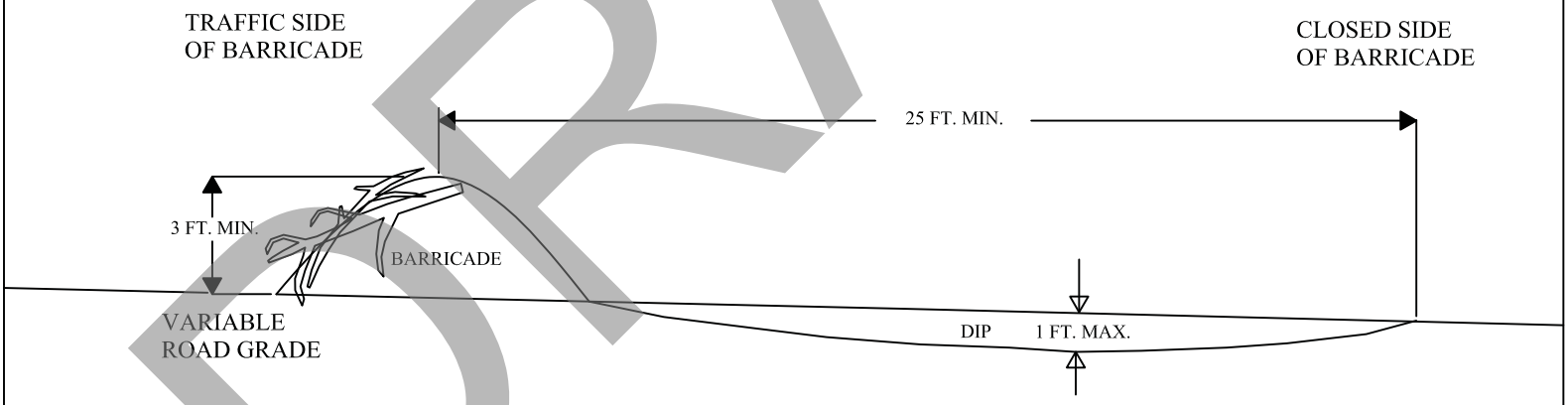
Scale : None
Drawn by: M.A.D.

BARRICADE DETAIL



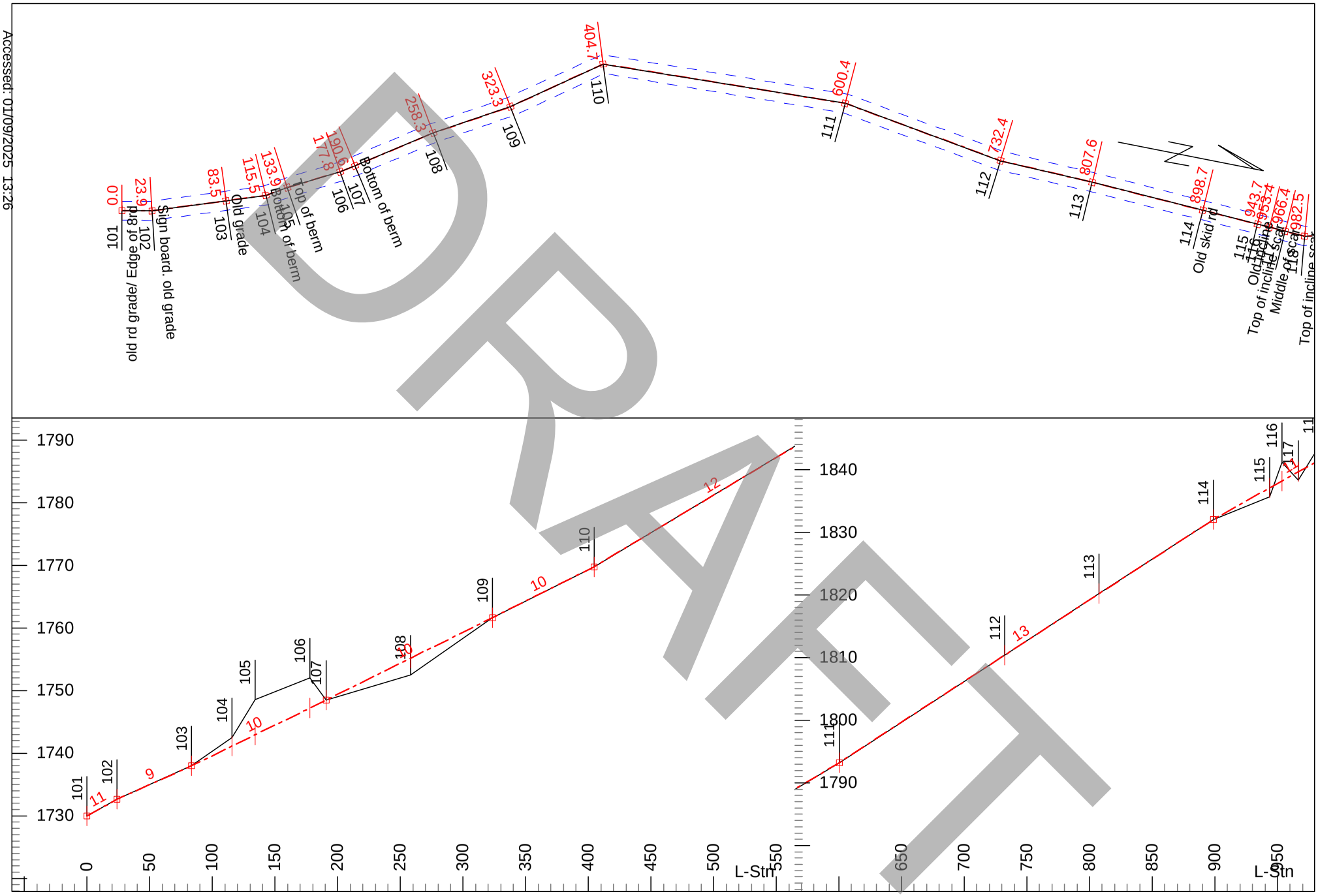
SLASH AND ROOT WADS SHALL BE INCORPORATED INTO THE TRAFFIC SIDE OF THE BARRICADE.

PLAN VIEW



BOTTOM OF DIP SHALL BE OUTSLOPED SO AS TO DRAIN FREELY

PROFILE VIEW



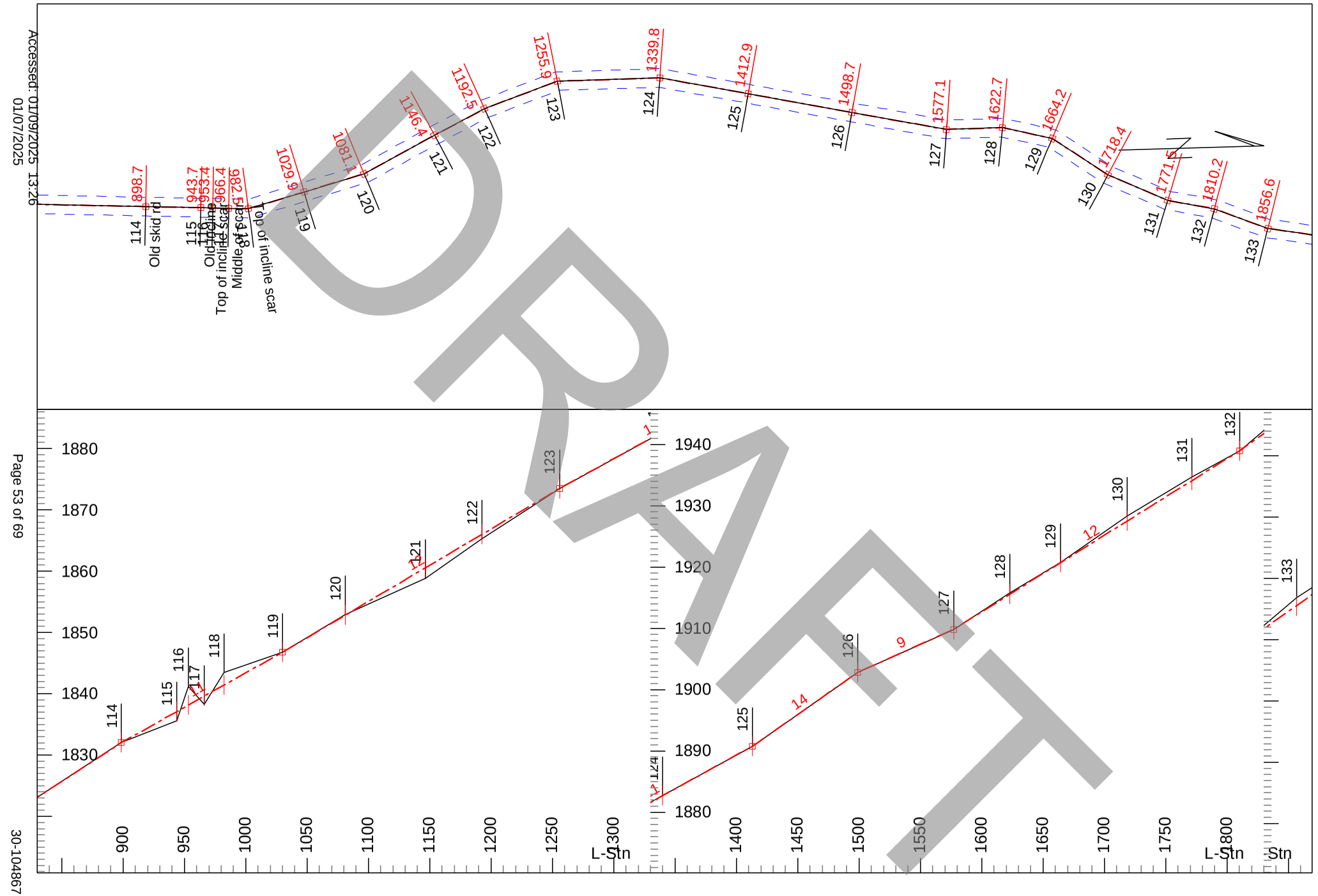
Railroad Creek VRH & VDT Timber Sale
8-21 Road
July 12, 2024
Contract #: 30-104867

Washington State Department of Natural Resources
South Puget Sound Region

Plan Scale 1:1200

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

Engineer: M. Bell
Page 1 of 10
Printed: 24/08/05



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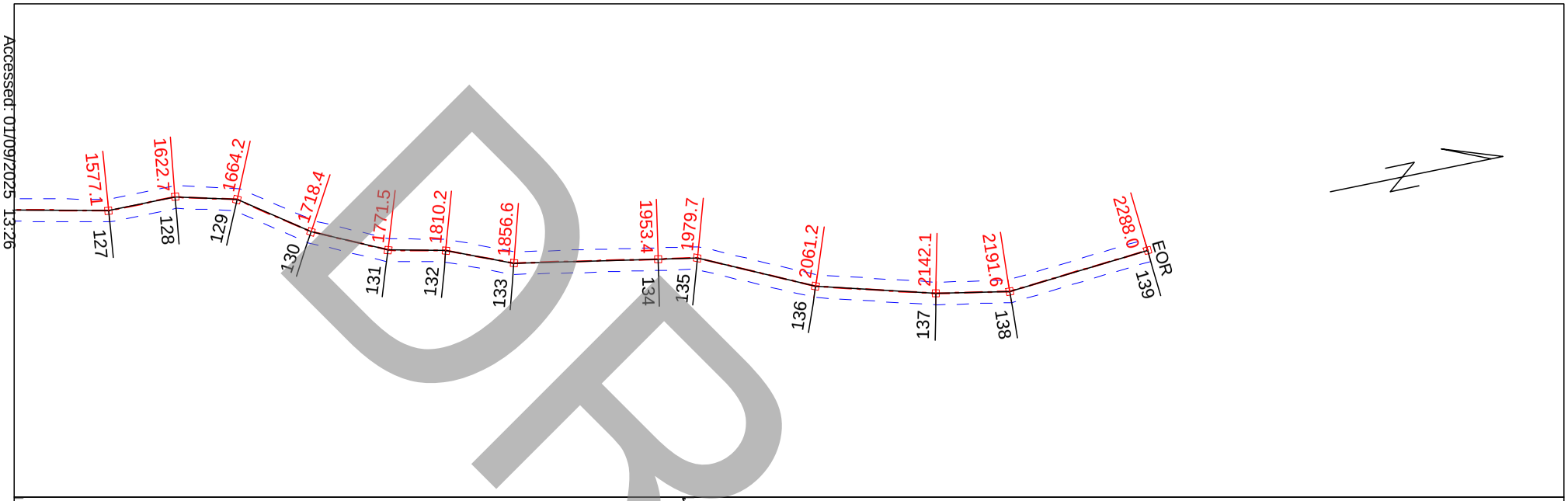
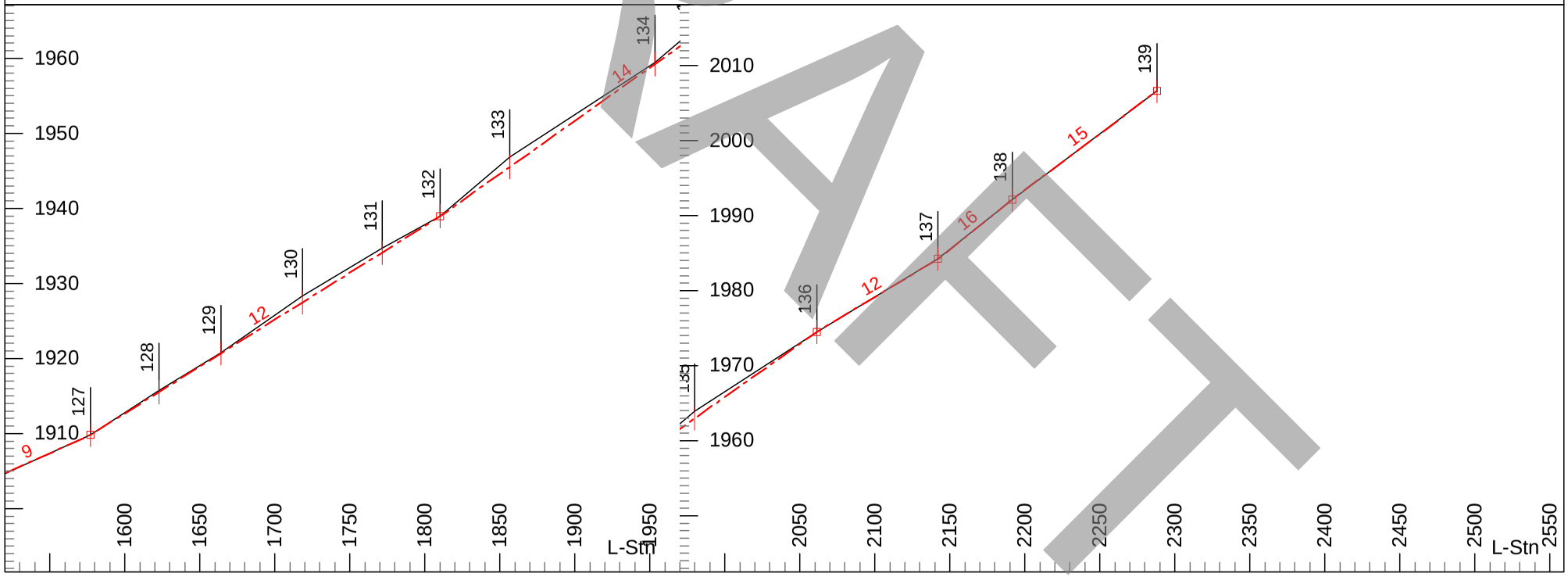
30-104867

Railroad Creek VRH & VDT Timber Sale 8-21 Road July 12, 2024 Contract #: 30-104867	Washington State Department of Natural Resources South Puget Sound Region	Plan Scale 1:1200 Profile Vert Scale 1:240 Profile Horz Scale 1:1200	Engineer: M. Bell Page 2 of 10 Printed: 24/08/05





Railroad Creek VRH & VDT Timber Sale 8-21 Road July 12, 2024 Contract #: 30-104867	Washington State Department of Natural Resources South Puget Sound Region	Plan Scale 1:1200 Profile Vert Scale 1:240 Profile Horz Scale 1:1200	Engineer: M. Bell Page 3 of 10 Printed: 24/08/05

ROADENG Section	Section Scale 1:240	Page 4 of 10
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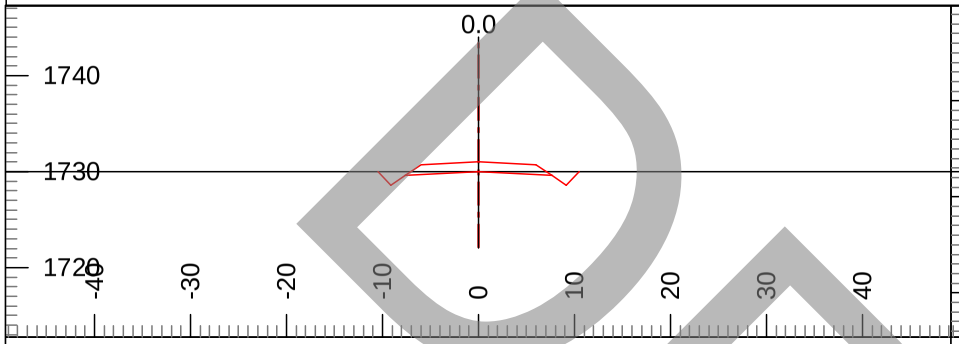

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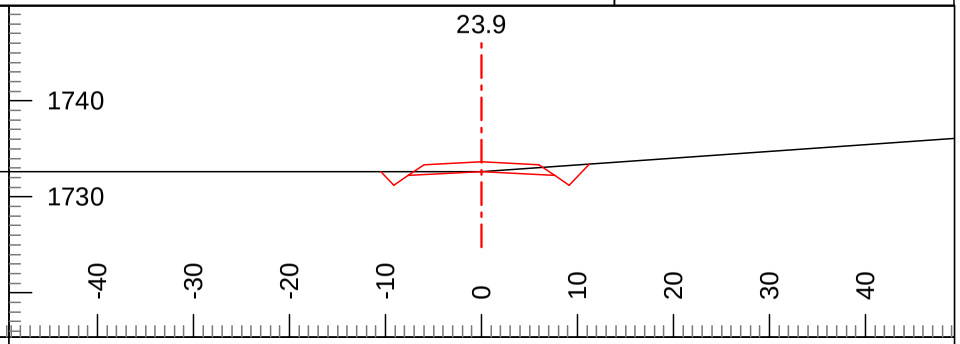

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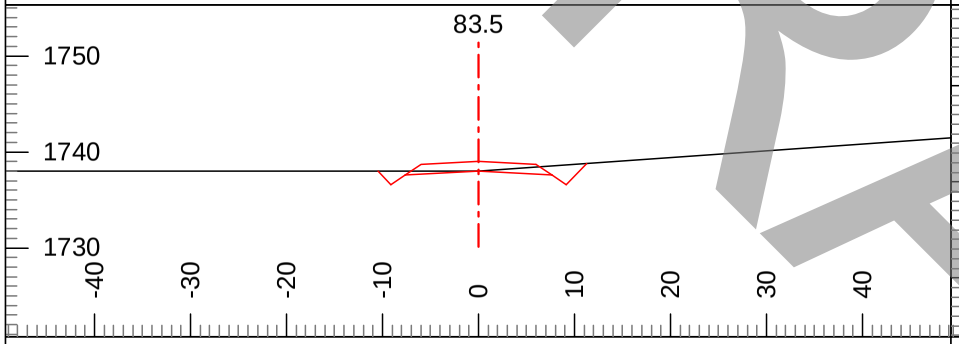

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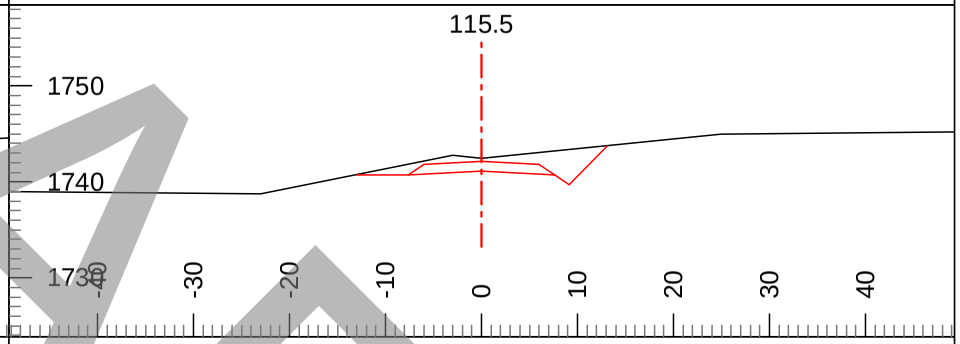

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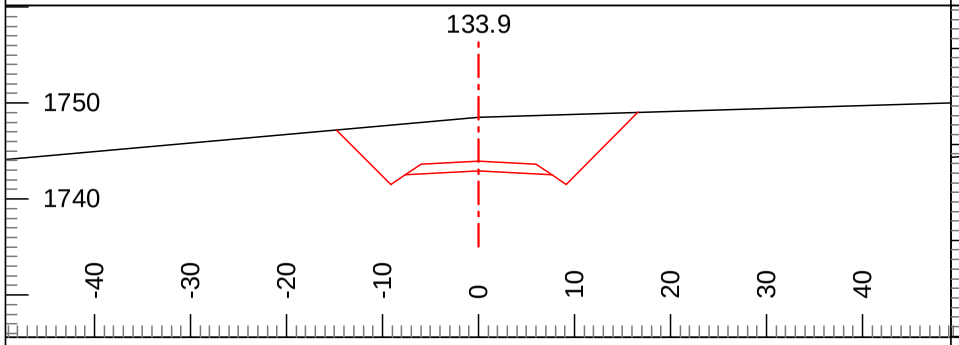

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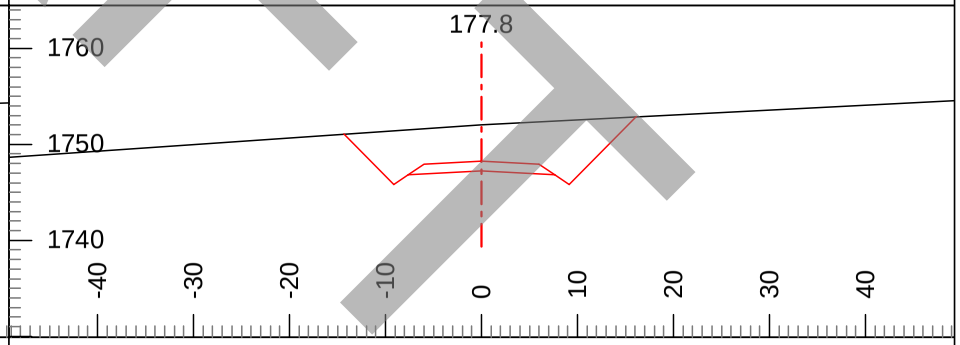

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ROADENG Section	Section Scale 1:240	Page 5 of 10
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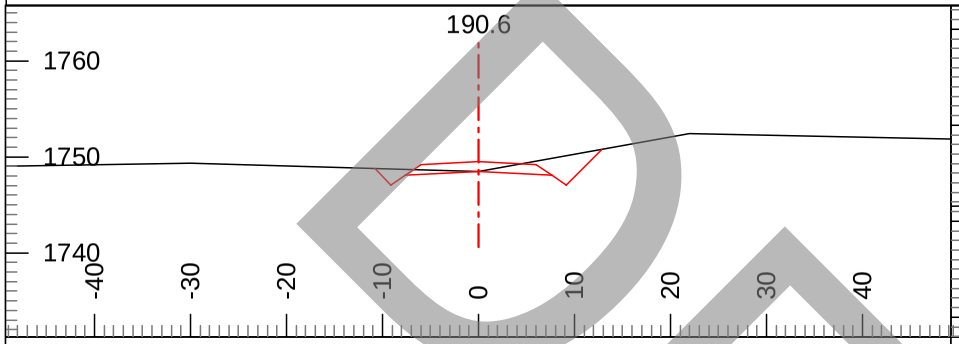

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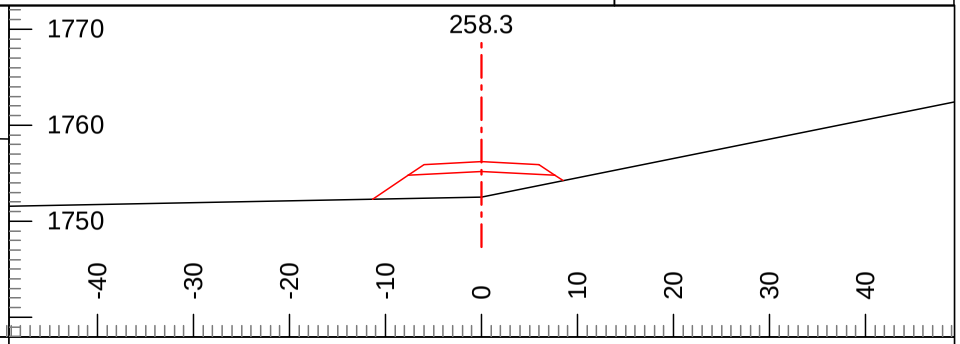

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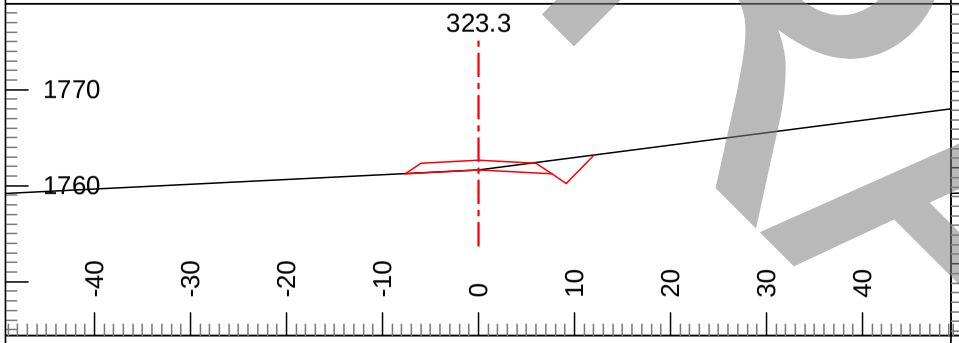
Grd.Nxt.:	10	Ssr:	20	CL Elev:	1755.2	Rd. Wd. R:	7.6



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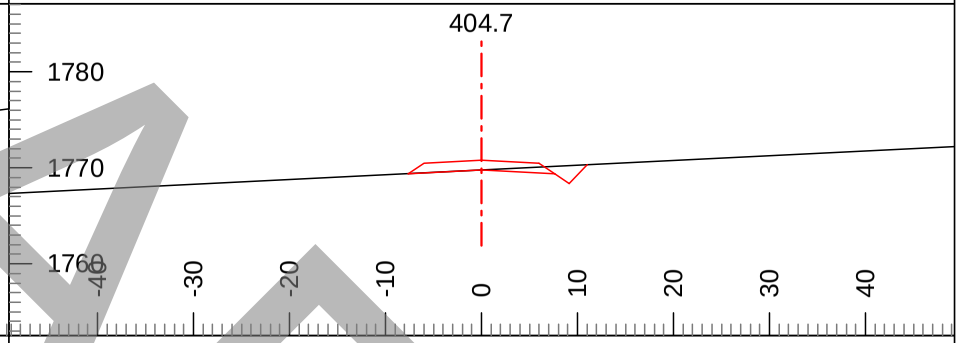
Grd.Nxt.:	10	Ssr:	13	CL Elev:	1761.6	Rd. Wd. R:	7.6



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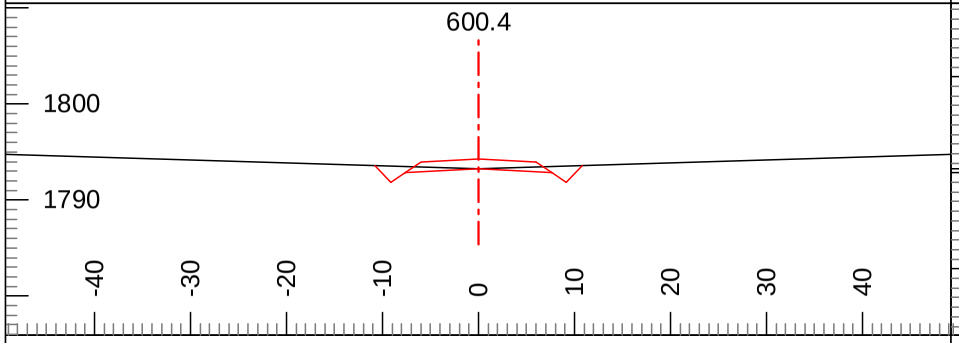

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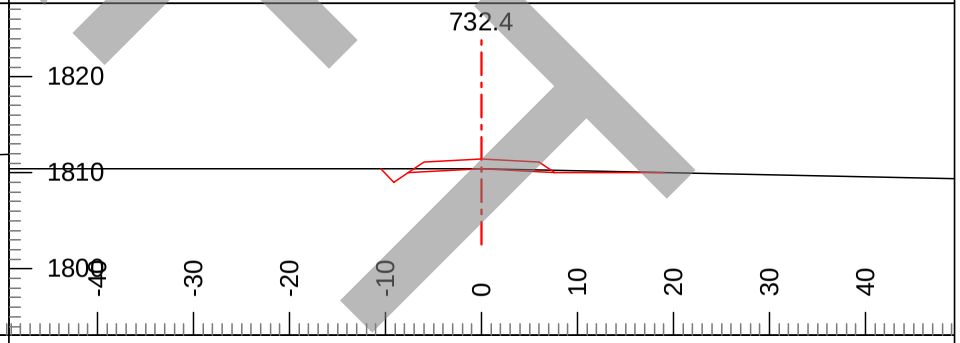
Index:	111	Ssl:	3	Cut Dp:	0.0	Rd. Wd. L:	7.6
Grd.Nxt.:	13	Ssr:	3	CL Elev:	1793.3	Rd. Wd. R:	7.6



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Index:	112	Ssl:	0	Cut Dp:	0.0	Rd. Wd. L:	7.6
Grd.Nxt.:	13	Ssr:	-2	CL Elev:	1810.4	Rd. Wd. R:	7.6

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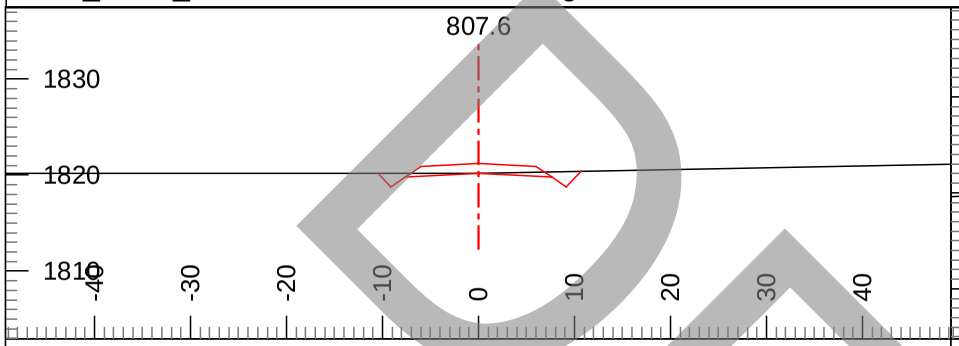

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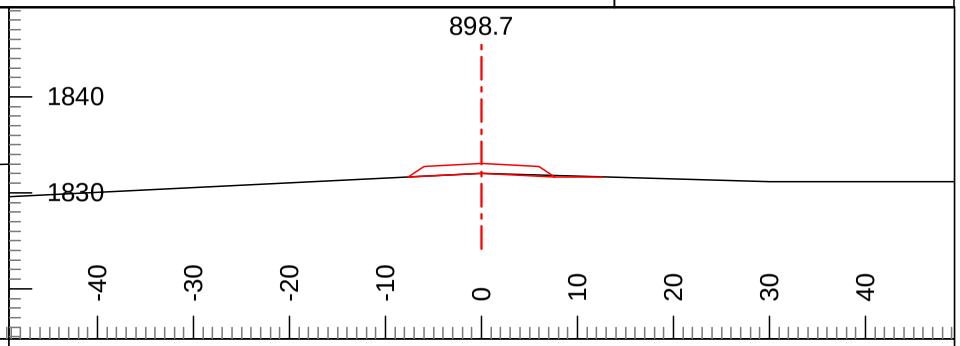
Grd.Nxt.:	13	Ssr:	2	CL Elev:	1820.2	Rd. Wd. R:	7.6



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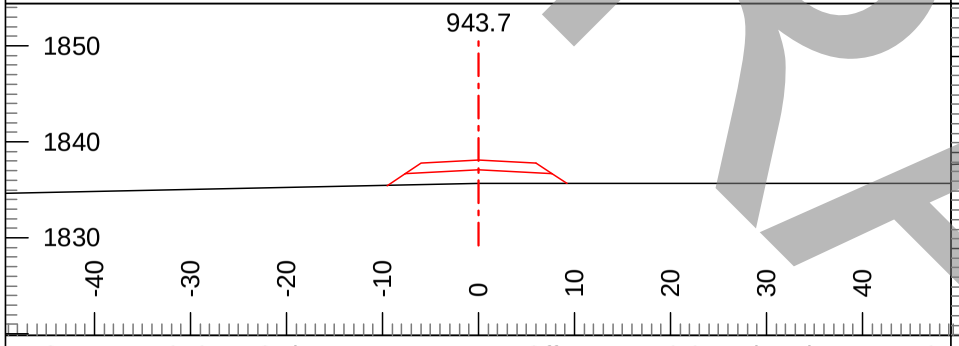

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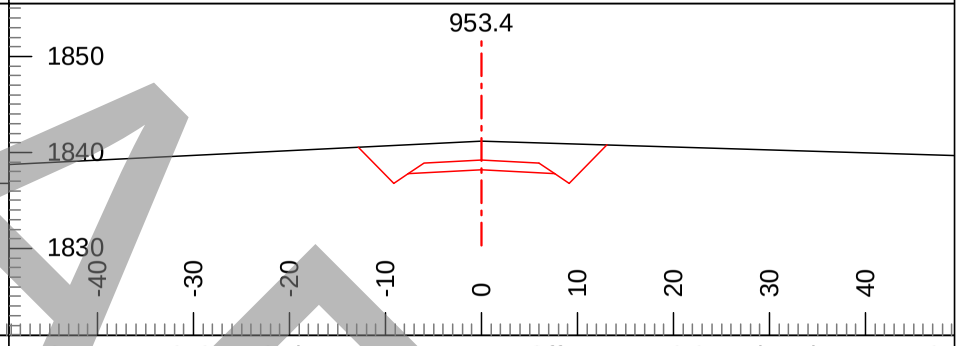
Index:	115	Ssl:	-2	Cut Dp:	-1.5	Rd. Wd. L:	7.6
Grd.Nxt.:	11	Ssr:	0	CL Elev:	1837.1	Rd. Wd. R:	7.6



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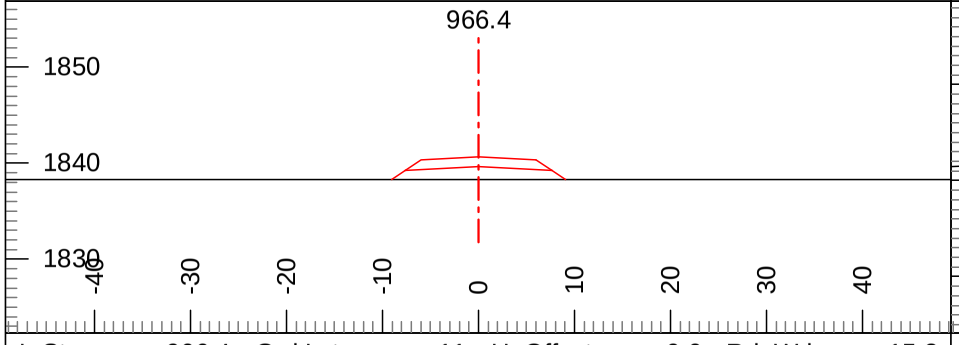

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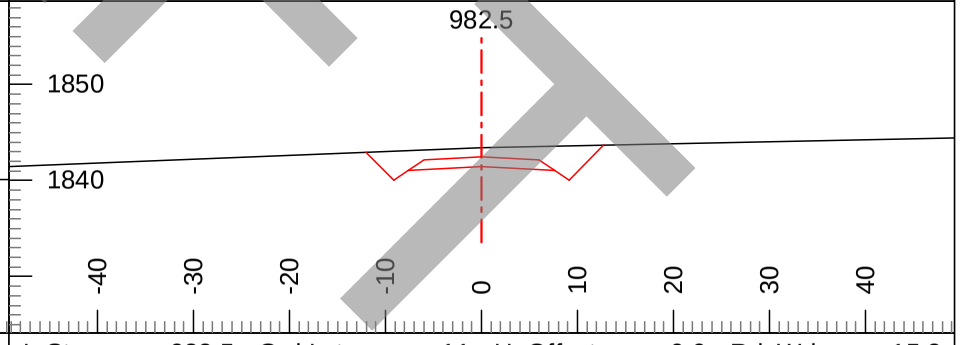
Index:	117	Ssl:	0	Cut Dp:	-1.3	Rd. Wd. L:	7.6
Grd.Nxt.:	11	Ssr:	0	CL Elev:	1839.6	Rd. Wd. R:	7.6



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Grd.Nxt.:	11	Ssr:	2	CL Elev:	1841.5	Rd. Wd. R:	7.6

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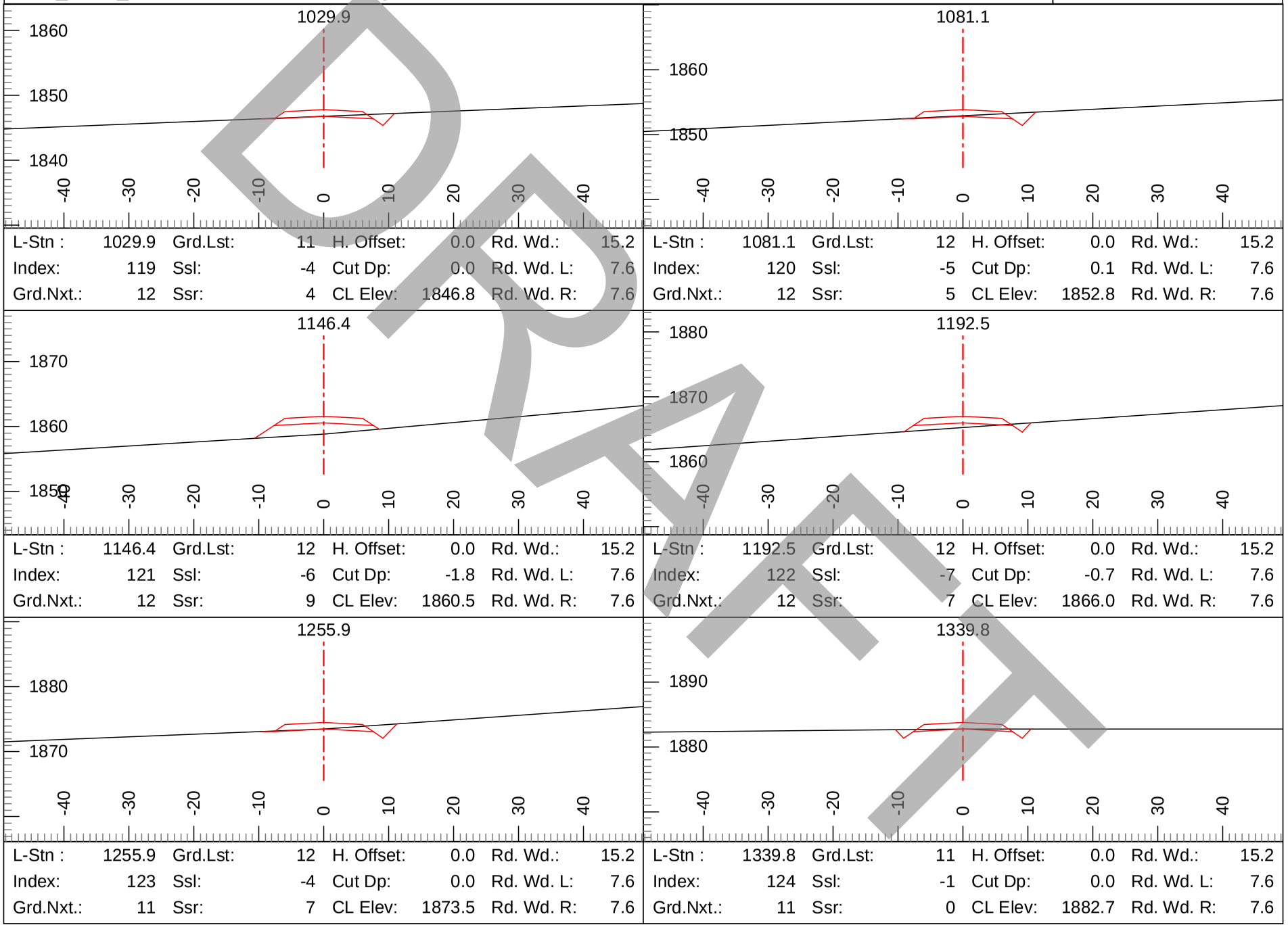
E:\00_FY25_Railroad Creek\RR RoadEng\8-21road.tr1		24/08/05



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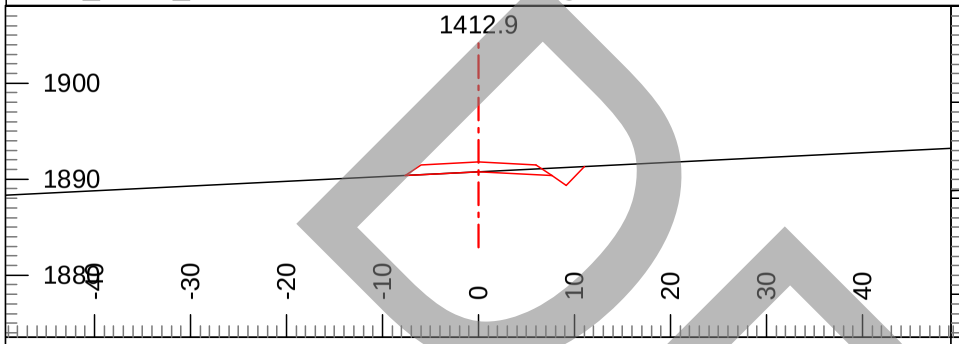

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Index:	125	Ssl:	-5	Cut Dp:	0.0	Rd. Wd. L:	7.6
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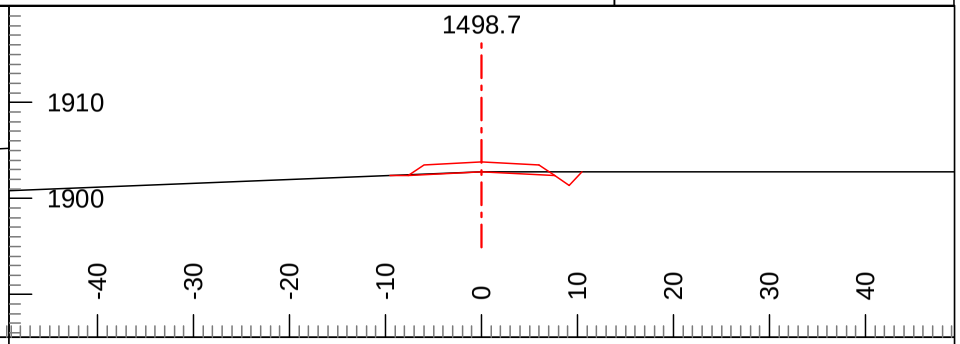

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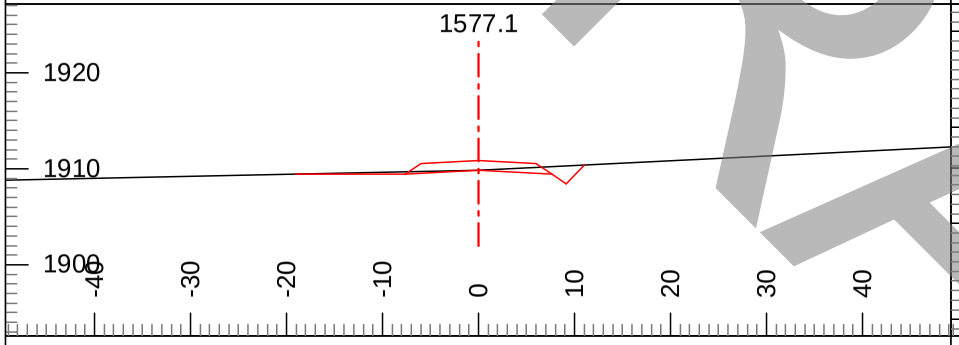
Grd.Nxt.:	9	Ssr:	0	CL Elev:	1902.8	Rd. Wd. R:	7.6



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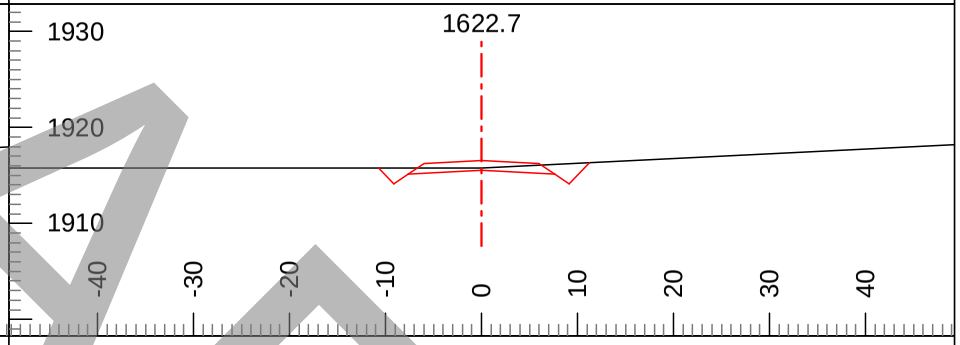
Index:	127	Ssl:	-2	Cut Dp:	0.0	Rd. Wd. L:	7.6
Grd.Nxt.:	12	Ssr:	5	CL Elev:	1909.8	Rd. Wd. R:	7.6



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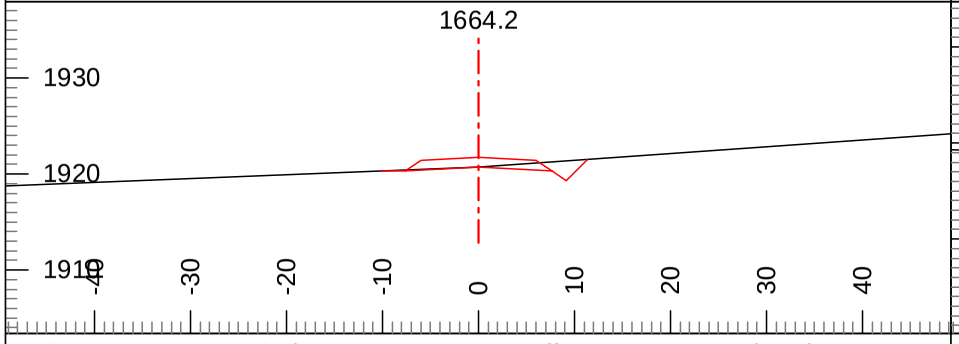
Grd.Nxt.:	12	Ssr:	5	CL Elev:	1915.5	Rd. Wd. R:	7.6



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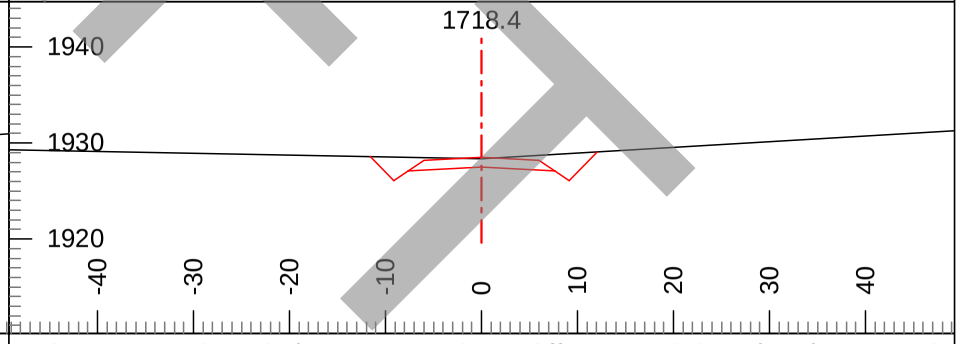
Grd.Nxt.:	12	Ssr:	7	CL Elev:	1920.7	Rd. Wd. R:	7.6



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Grd.Nxt.:	12	Ssr:	6	CL Elev:	1927.5	Rd. Wd. R:	7.6

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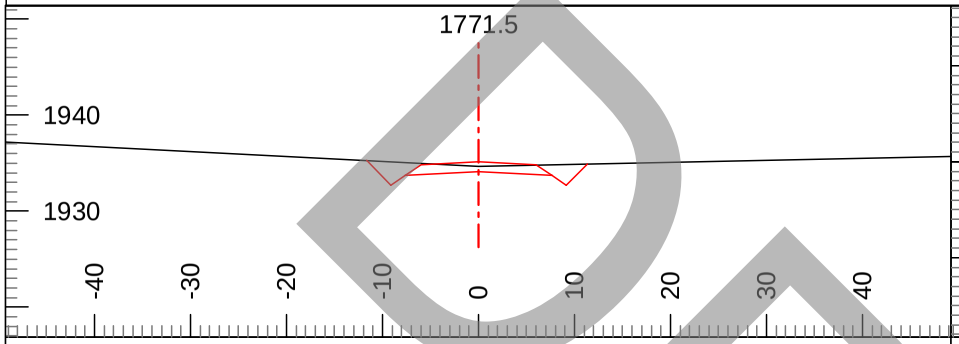

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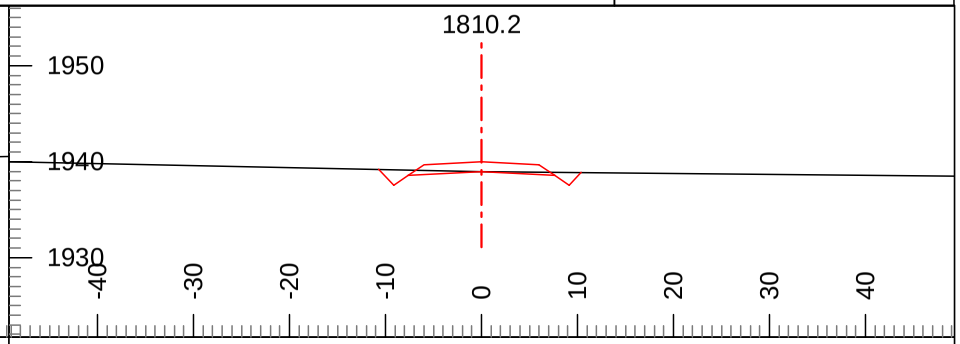
Index:	131	Ssl:	5	Cut Dp:	0.6	Rd. Wd. L:	7.6
Grd.Nxt.:	12	Ssr:	2	CL Elev:	1934.1	Rd. Wd. R:	7.6



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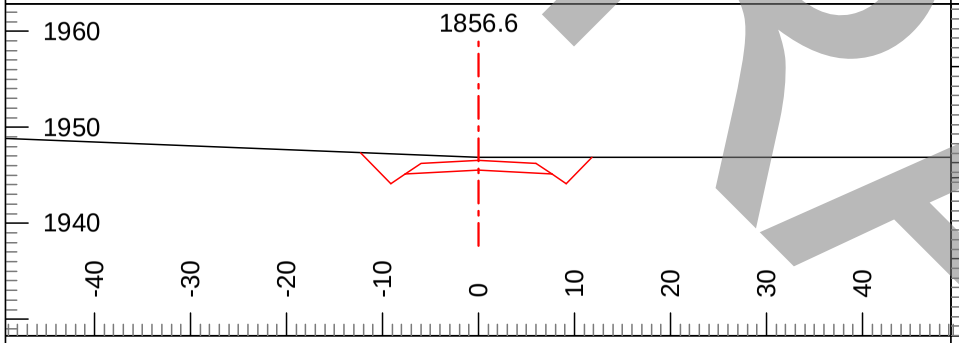
Grd.Nxt.:	14	Ssr:	-1	CL Elev:	1939.0	Rd. Wd. R:	7.6



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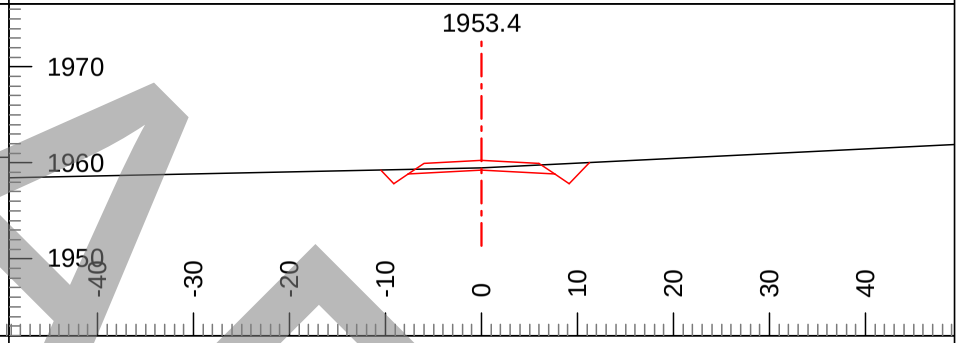
Grd.Nxt.:	14	Ssr:	0	CL Elev:	1945.5	Rd. Wd. R:	7.6



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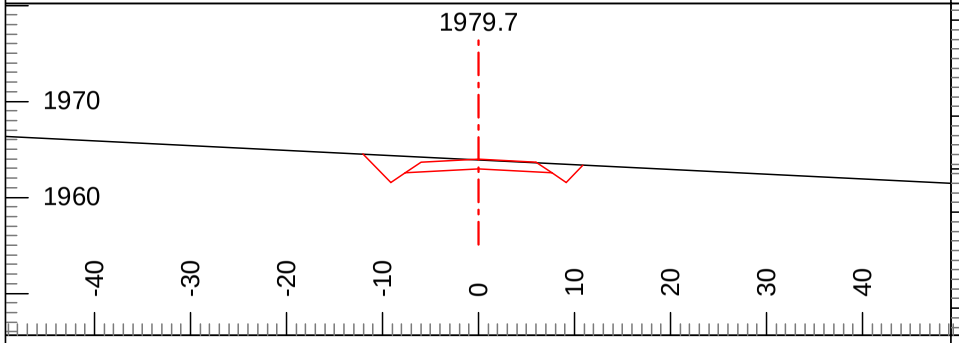
Grd.Nxt.:	14	Ssr:	5	CL Elev:	1959.2	Rd. Wd. R:	7.6



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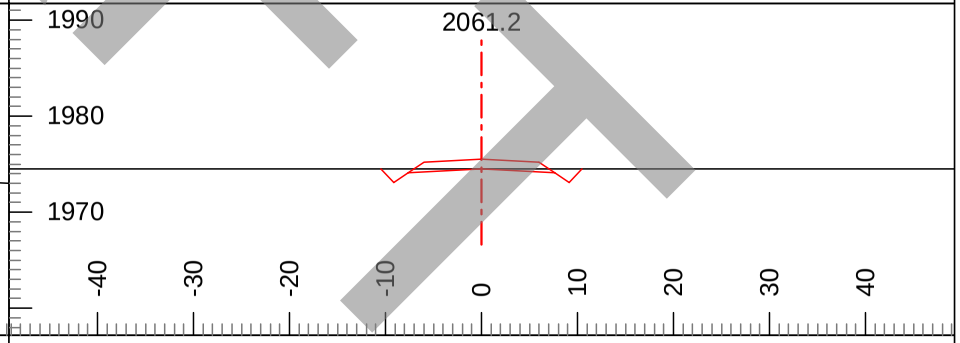

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Index:	136	Ssl:	0	Cut Dp:	0.0	Rd. Wd. L:	7.6
Grd.Nxt.:	12	Ssr:	0	CL Elev:	1974.5	Rd. Wd. R:	7.6

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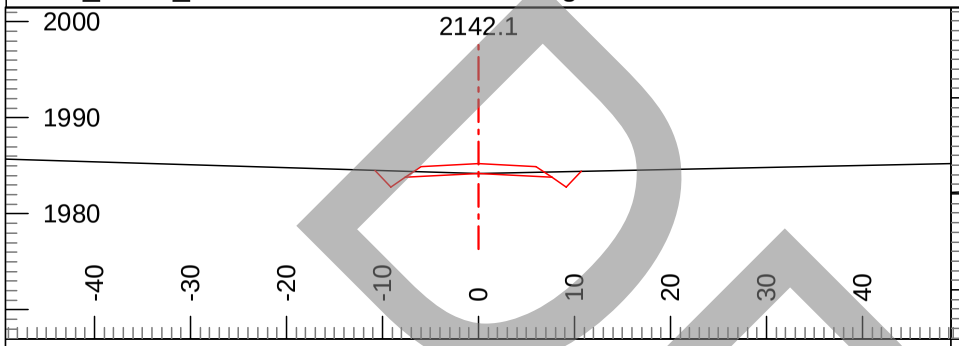

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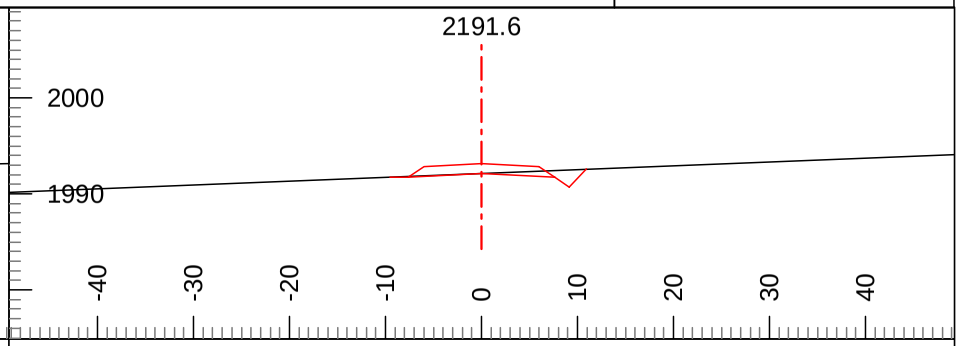

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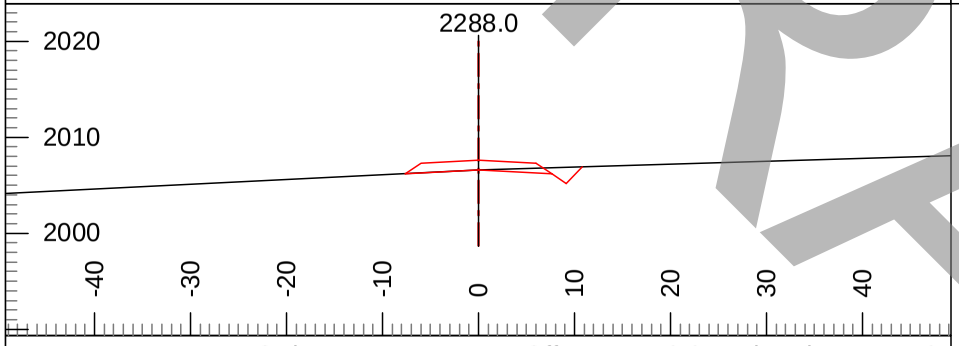

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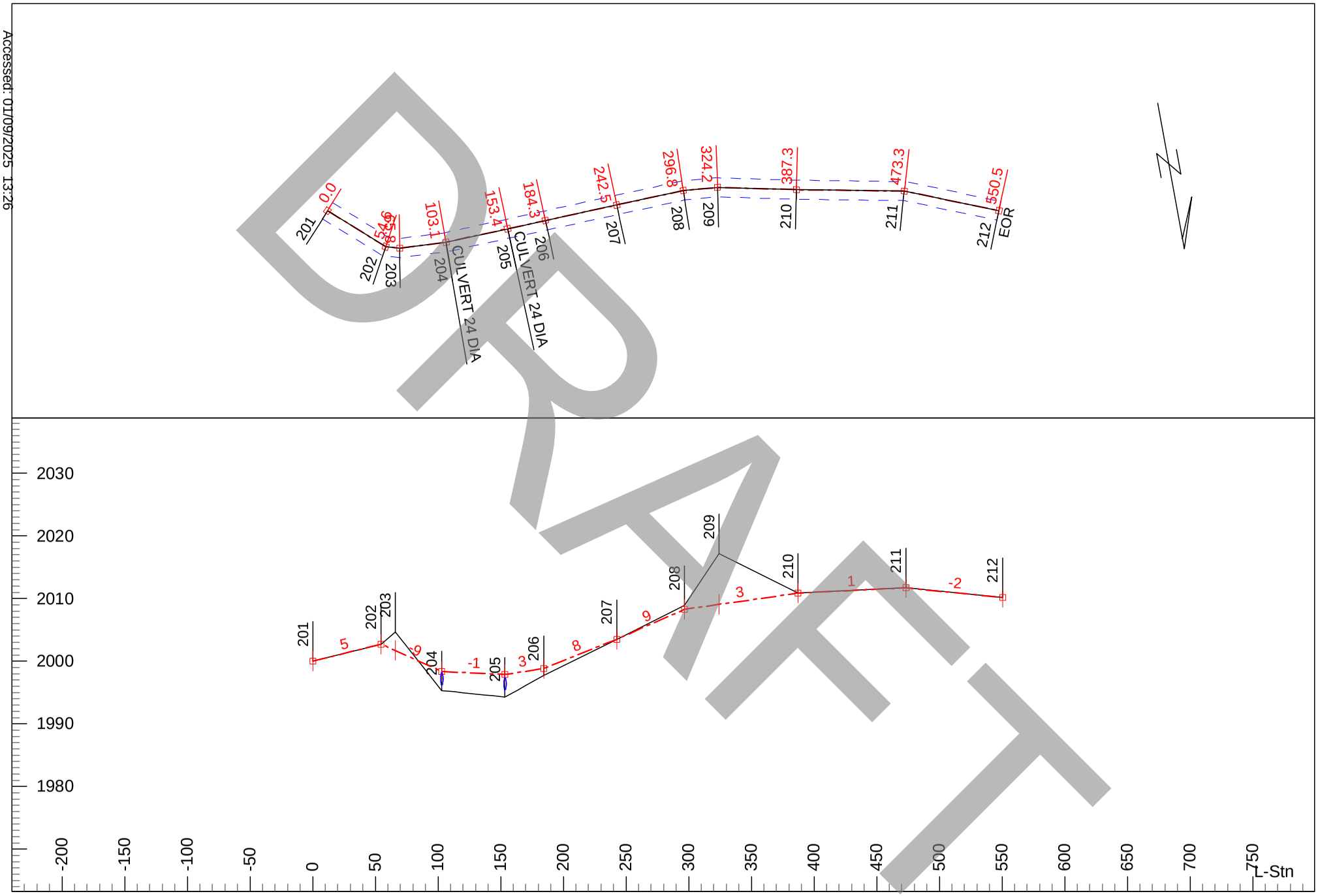
Grd.Nxt.:	n/a	Ssr:	3	CL Elev:	2006.6	Rd. Wd. R:	7.6



Railroad Creek VRH & VDT Timber Sale
Spur 1
July 12, 2024
Contract #: 30-104867

Washington State Department of Natural Resources
South Puget Sound Region

Plan Scale 1:1200

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

Engineer: M. Bell
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Printed: 24/08/05

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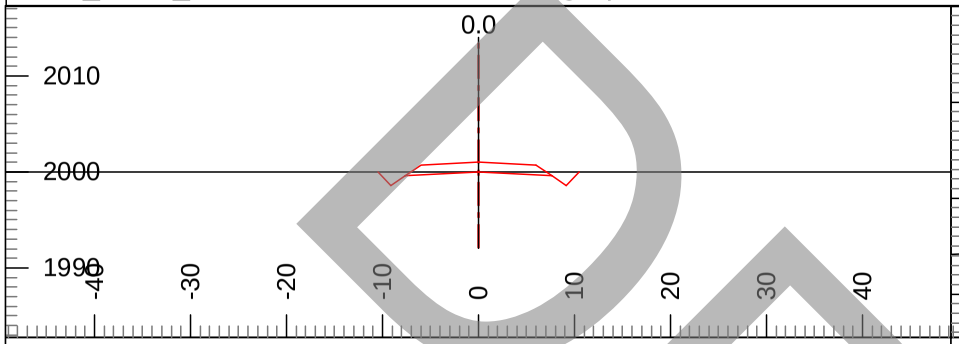

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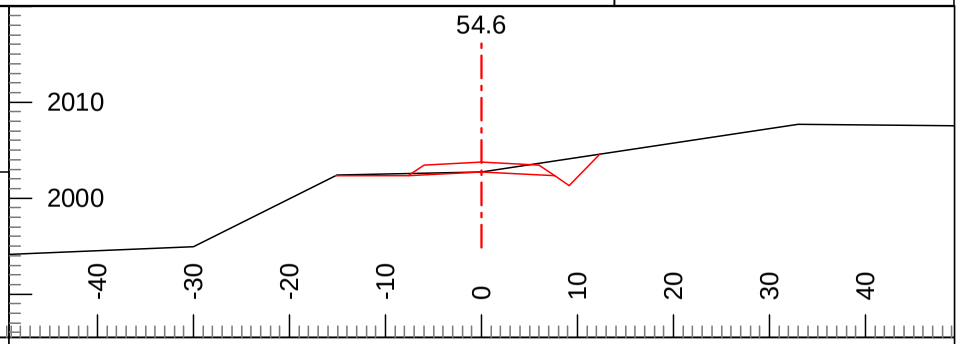

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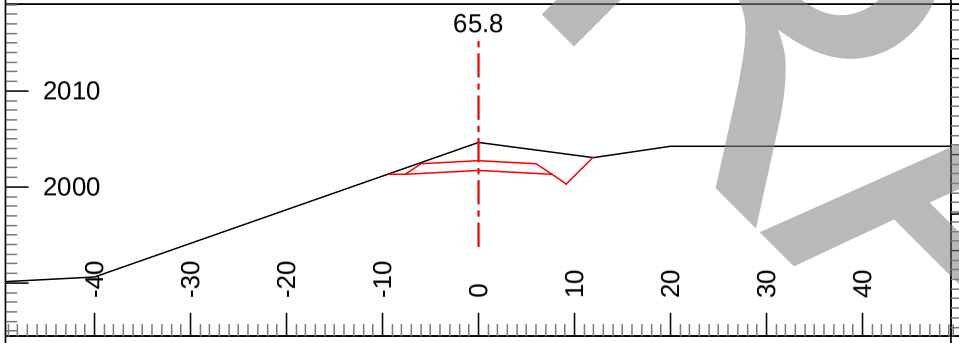

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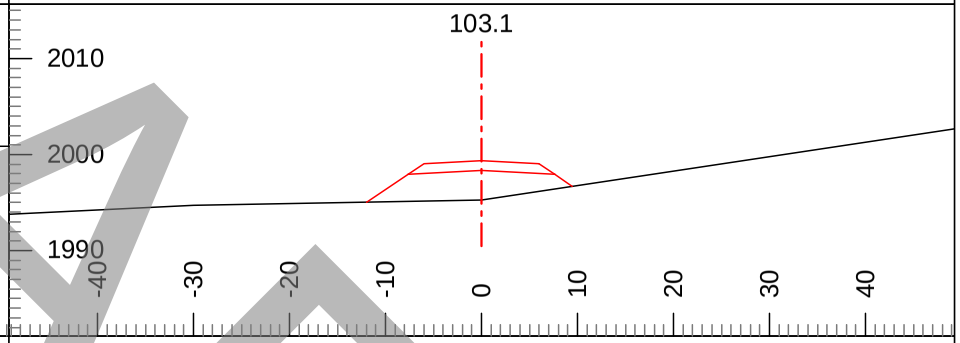

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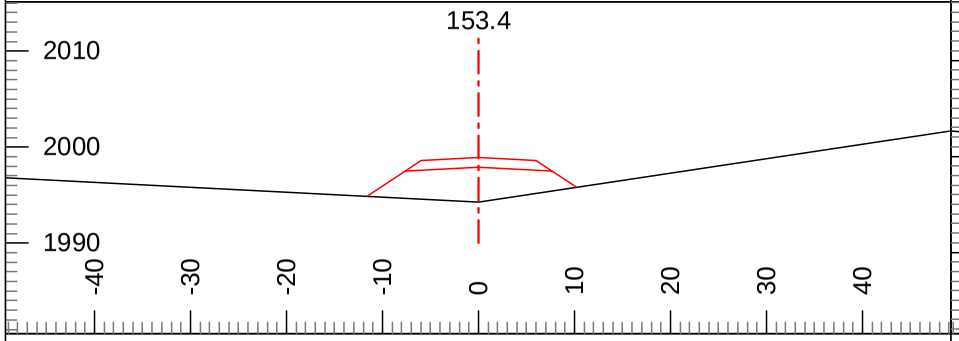

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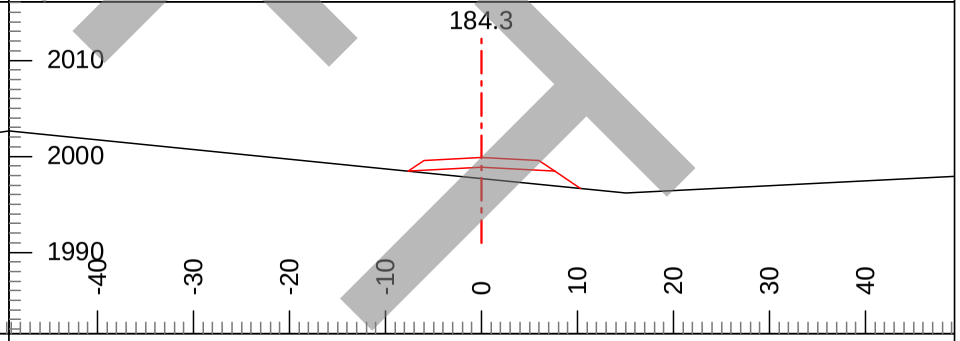
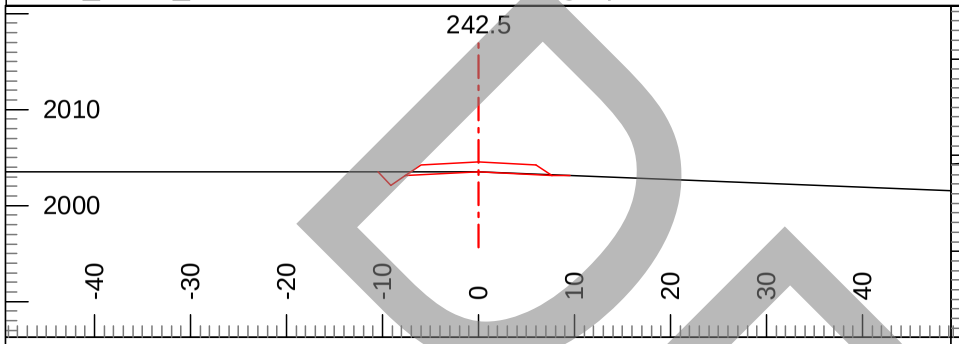
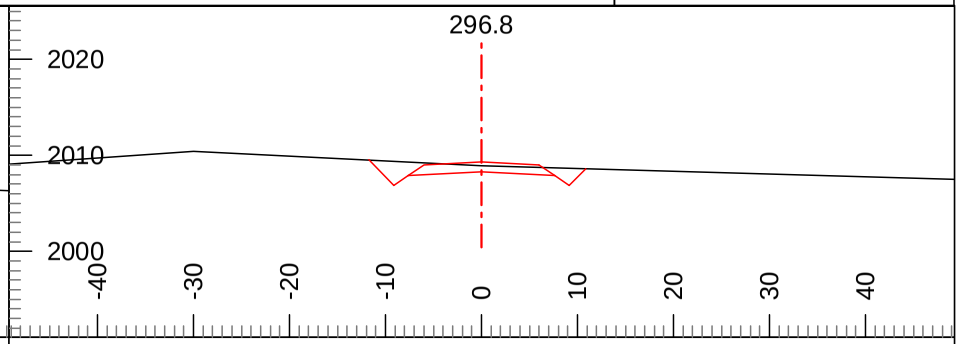


L-Stn :	184.3	Grd.Lst:	3	H. Offset:	0.0	Rd. Wd.:	15.2
Index:	206	Ssl:	10	Cut Dp:	-1.2	Rd. Wd. L:	7.6
Grd.Nxt.:	8	Ssr:	-10	CL Elev:	1998.9	Rd. Wd. R:	7.6

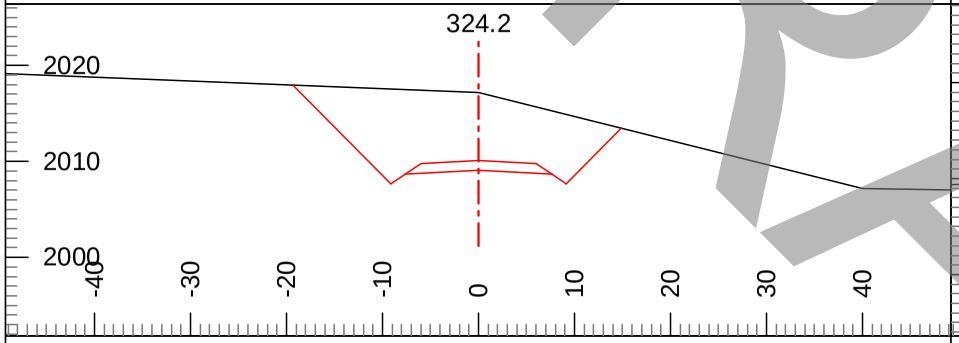
ROADENG Section	Section Scale 1:240	Page 3 of 3
E:\00_FY25_Railroad Creek\RR RoadEng\Spur1.tr1		24/08/05



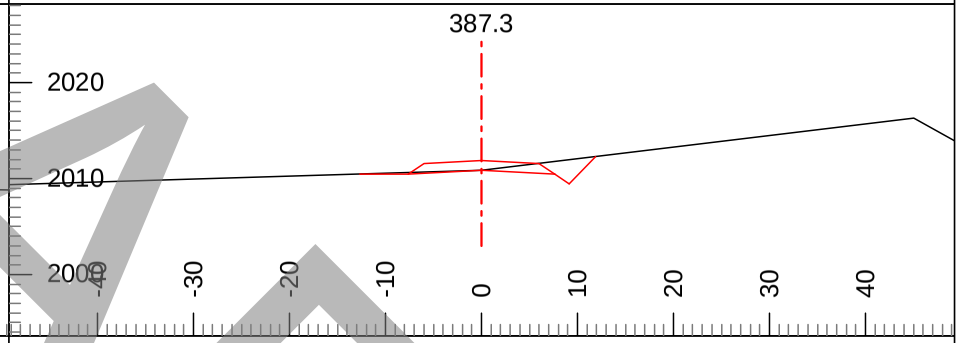
L-Stn :	242.5	Grd.Lst:	8	H. Offset:	0.0	Rd. Wd.:	15.2
Index:	207	Ssl:	0	Cut Dp:	0.0	Rd. Wd. L:	7.6
Grd.Nxt.:	9	Ssr:	-4	CL Elev:	2003.5	Rd. Wd. R:	7.6



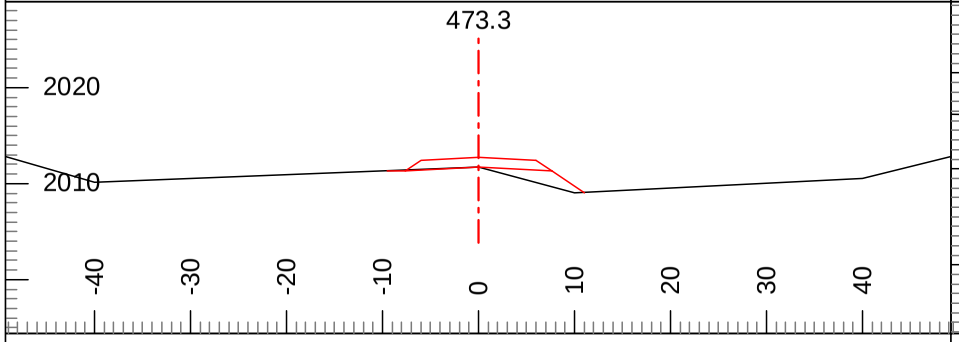
L-Stn :	296.8	Grd.Lst:	9	H. Offset:	0.0	Rd. Wd.:	15.2
Index:	208	Ssl:	5	Cut Dp:	0.7	Rd. Wd. L:	7.6
Grd.Nxt.:	3	Ssr:	-3	CL Elev:	2008.3	Rd. Wd. R:	7.6



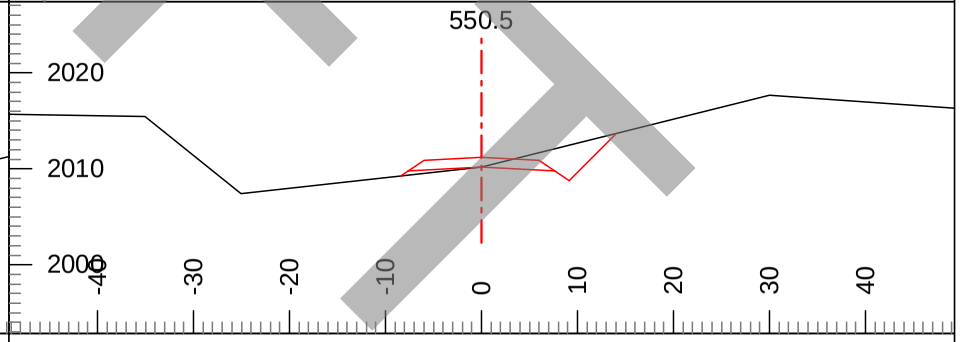
L-Stn :	324.2	Grd.Lst:	3	H. Offset:	0.0	Rd. Wd.:	15.2
Index:	209	Ssl:	4	Cut Dp:	8.1	Rd. Wd. L:	7.6
Grd.Nxt.:	3	Ssr:	-25	CL Elev:	2009.1	Rd. Wd. R:	7.6



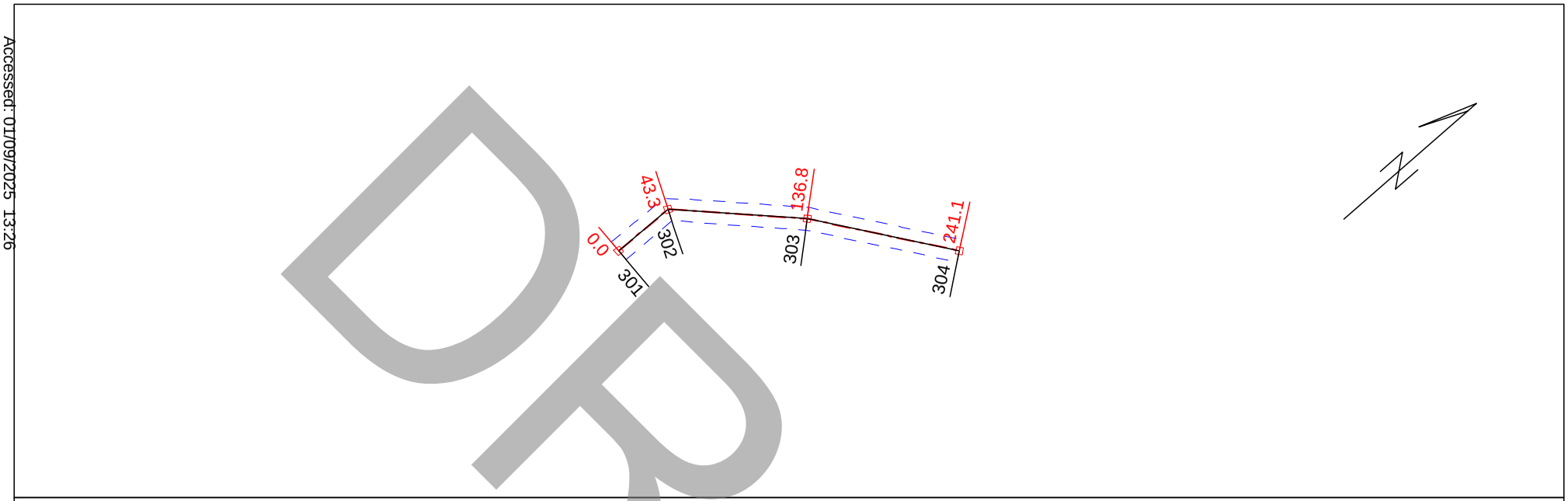
L-Stn :	387.3	Grd.Lst:	3	H. Offset:	0.0	Rd. Wd.:	15.2
Index:	210	Ssl:	-3	Cut Dp:	0.0	Rd. Wd. L:	7.6
Grd.Nxt.:	1	Ssr:	12	CL Elev:	2010.9	Rd. Wd. R:	7.6

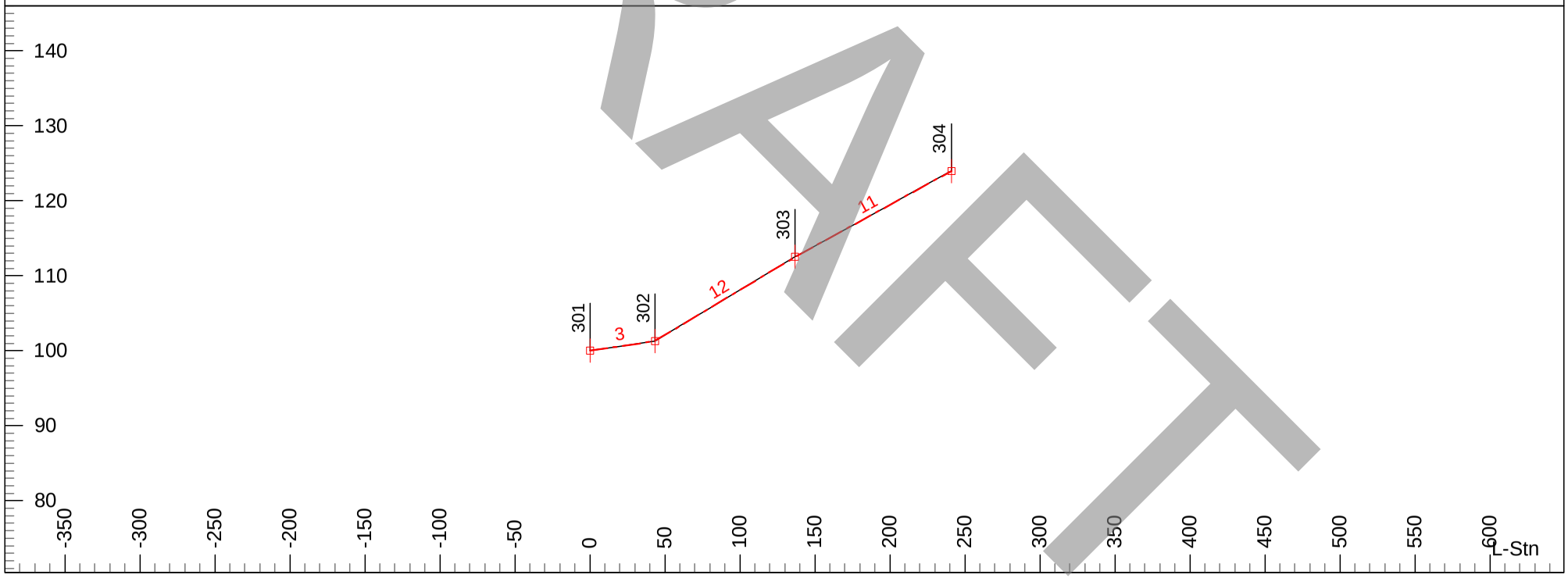


L-Stn :	473.3	Grd.Lst:	1	H. Offset:	0.0	Rd. Wd.:	15.2
Index:	211	Ssl:	-4	Cut Dp:	0.0	Rd. Wd. L:	7.6
Grd.Nxt.:	-2	Ssr:	-27	CL Elev:	2011.7	Rd. Wd. R:	7.6



L-Stn :	550.5	Grd.Lst:	-2	H. Offset:	0.0	Rd. Wd.:	15.2
Index:	212	Ssl:	-11	Cut Dp:	0.0	Rd. Wd. L:	7.6
Grd.Nxt.:	n/a	Ssr:	25	CL Elev:	2010.2	Rd. Wd. R:	7.6





30-104867

Railroad Creek VRH & VDT Timber Sale
Spur 2
July 12, 2024
Contract #: 30-104867

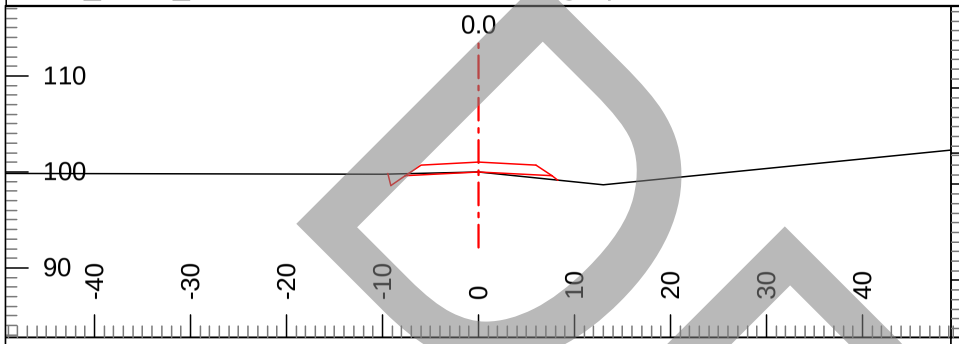
Washington State Department of Natural Resources
South Puget Sound Region

Plan Scale 1:1200

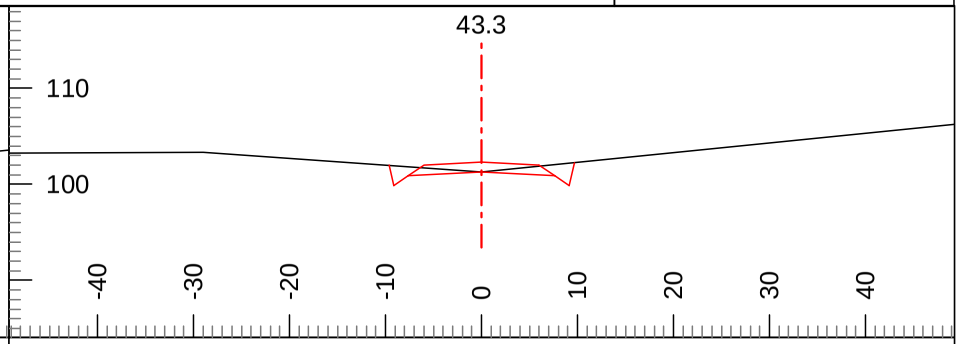
Profile Vert Scale 1:240
Profile Horz Scale 1:1200

Engineer: M. Bell
Page 1 of 2
Printed: 24/08/05

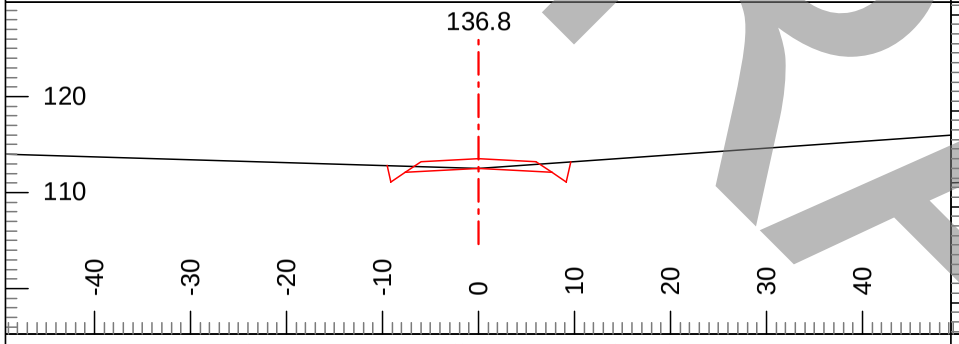
ROADENG Section	Section Scale 1:240	Page 2 of 2
E:\00_FY25_Railroad Creek\RR RoadEng\Spur 2.tr1		24/08/05



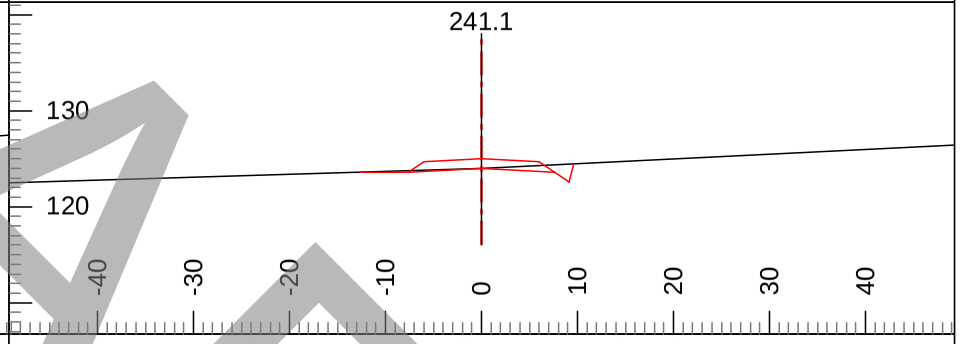
L-Stn :	0.0	Grd.Lst:	n/a	H. Offset:	0.0	Rd. Wd.:	15.2
Index:	301	Ssl:	-2	Cut Dp:	0.0	Rd. Wd. L:	7.6
Grd.Nxt.:	3	Ssr:	-10	CL Elev:	100.0	Rd. Wd. R:	7.6



L-Stn :	43.3	Grd.Lst:	3	H. Offset:	0.0	Rd. Wd.:	15.2
Index:	302	Ssl:	7	Cut Dp:	0.0	Rd. Wd. L:	7.6
Grd.Nxt.:	12	Ssr:	10	CL Elev:	101.3	Rd. Wd. R:	7.6



L-Stn :	136.8	Grd.Lst:	12	H. Offset:	0.0	Rd. Wd.:	15.2
Index:	303	Ssl:	3	Cut Dp:	0.0	Rd. Wd. L:	7.6
Grd.Nxt.:	11	Ssr:	7	CL Elev:	112.5	Rd. Wd. R:	7.6



L-Stn :	241.1	Grd.Lst:	11	H. Offset:	0.0	Rd. Wd.:	15.2
Index:	304	Ssl:	-3	Cut Dp:	0.0	Rd. Wd. L:	7.6
Grd.Nxt.:	n/a	Ssr:	5	CL Elev:	124.0	Rd. Wd. R:	7.6

Legal Description: NE1/4 SW1/4, Section 20, T15N, R6E, W.M.
Rock Pit Name: Primo Pit

PIT DEVELOPMENT PLAN, pg 1 of 2

In additional to Clause 6-12 ROCK SOURCE SPECIFICATIONS, the following apply:

1) Pit floor shall be sloped to allow drainage as shown. No ponding will be allowed.

2) Do not mix rock stockpiles. Rock shall not be used from any stockpile unless it is specified in the road plan.

3) At the termination of use, all overburden shall have a maximum backslope of 1:1.

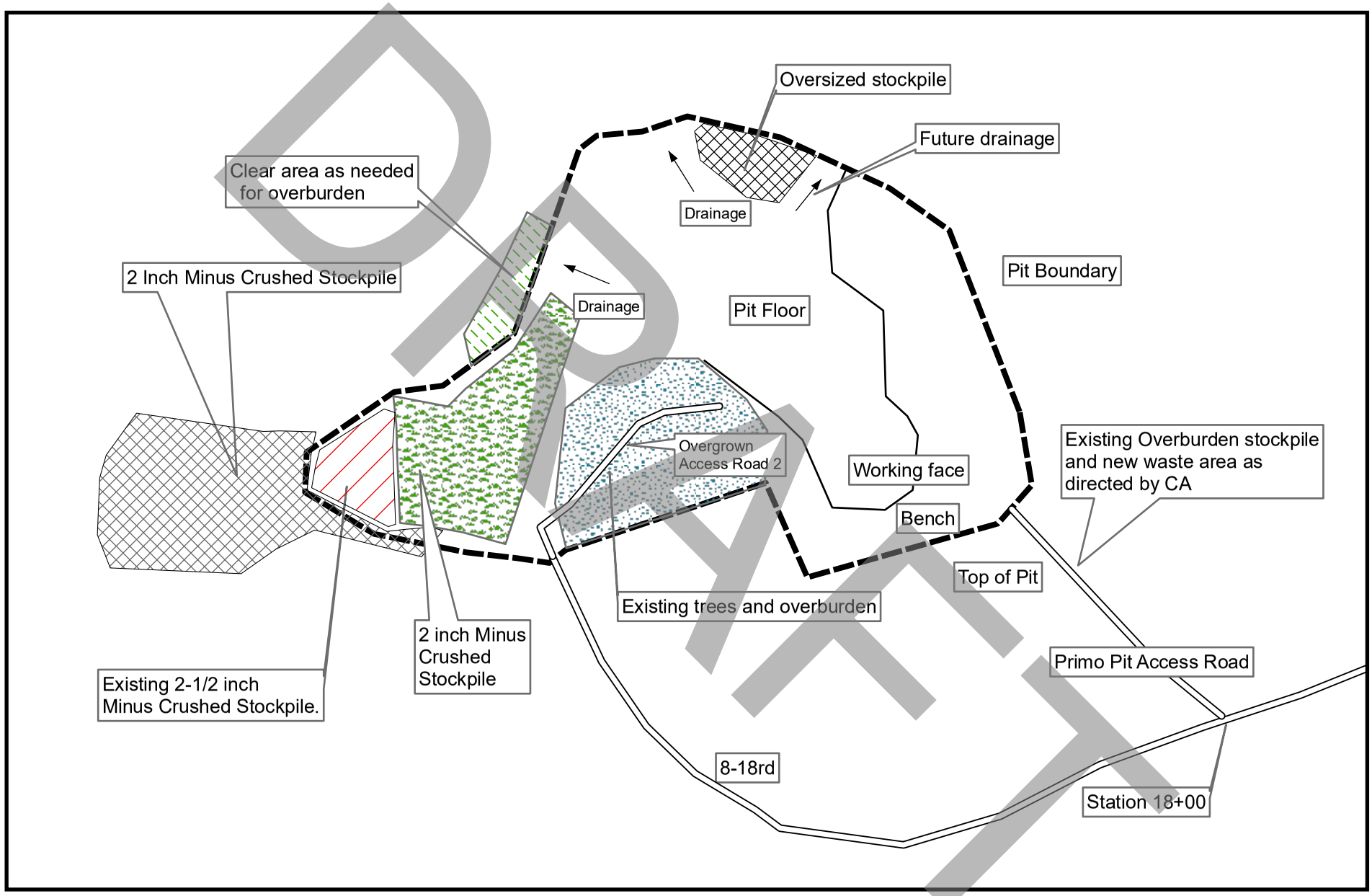
4) At the termination of use, both access roads shall be blocked to all motorized traffic.

5) At the completion of operations, Contractor shall request written approval from the Contract Administrator for final rock source condition and compliance with the terms of this plan.

6) Quantity and Quality of ballast pit is not guaranteed by the State.

7) See “Primo Pit Plan View, pg 2 of 2” drawing for additional information.

Primo Pit Plan View, pg 2 of 2



0 50 100 Feet

Note: Scale is approximate. Plan View drawn from aerial photo.

N

Prepared By: hadm490 5/3/2021
Modification Date: hadm490 10/11/2024

ROCK ACCOUNTABILITY DETAIL

SALE NAME: _____ Purchaser:_____

Agreement #:_____ Contractor:_____

Rock Quarry/Pit: Truck No:_____ Truck No:_____

DAILY ROCK LOAD RECORD

DATE	LOAD TIME	ROAD NO.	TYPE OF ROCK	QUANTITY	COMMENTS

Truck Driver Signature _____

SIGNATURE DATE

DEPARTMENT OF NATURAL RESOURCES - SOUTH PUGET SOUND REGION

SUMMARY - ROAD DEVELOPMENT COSTS

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

SALE/PROJECT NAME: **Railroad Creek** CONTRACT NUMBER: **30-104867**

TYPE:	Construction	Reconstruction	Pre-Haul Maintenance
NUMBER OF STATIONS:	21.80	9.00	167.00
AVG. SIDESLOPE:	28	25	
CLEARING AND GRUBBING:	$2,429	$879	
EXCAVATION AND FILL:	$12,446	$13,293	
MISC. MAINTENANCE:			$1,260
ROCK TOTALS:			
Ballast:	$15,870	$8,707	Surface: $63,657
Surfacing:	$0	$3,250	Riprap: $126
Riprap/Quarry Spalls:	$220	8,593	
Stockpile:			$0
CULVERTS AND FLUMES:	$2,645	$19,410	$1,451
STRUCTURES:	$0	$0	$0
GENERAL EXPENSES:	$3,025	$4,872	$5,984
MOBILIZATION:	$1,605	$1,605	$1,605
TOTAL COSTS:	**$38,240**	**$60,609**	**$74,083**
COST PER STATION:	$1,754	$6,734	$444

POST HAUL COSTS: **$4,273**

NOTE1: This appraisal has no allowance for profit and risk.

TOTAL (All Roads) =	$177,205
SALE VOLUME MBF =	3,341
TOTAL COST PER MBF =	$53.04

Compiled by: M. Bell Date: 08/05/24