WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

TIMBER NOTICE OF SALE

***SALE NAME**: NASH* ***AGREEMENT NO**: 30-107218*

AUCTION: March 27, 2025 starting at 10:00 a.m., Pacific Cascade Region Office, Castle Rock, WA **COUNTY:** Lewis

SALE LOCATION: Sale located approximately 3 miles northeast of Mossyrock, WA

PRODUCTS SOLD AND SALE AREA: All timber, except leave trees bound by yellow "Leave Tree Area" tags, leave trees marked with blue paint, and all down timber existing 5 years prior to the day of sale, all down timber 40 inches diameter and greater, all timber 60 inches DBH and larger, and snags bound by the following;

Unit 1, white "Timber Sale Boundary" tags with pink flagging, pink flagging, property lines marked with white Carsonite posts with pink flagging and timber type;

Unit 2, white "Timber Sale Boundary" tags with pink flagging, H-9200 road, H-9225 road, property lines marked with white Carsonite posts with pink flagging and timber type;

All forest products above located on part(s) of Sections 31, 32 and 33 all in Township 13 North, Range 3 East, W.M., containing 149 acres, more or less.

CERTIFICATION: This sale is certified under the Sustainable Forestry Initiative® program Standard (cert no: BVC-SFIFM-018227)

ESTIMATED SALE VOLUMES AND QUALITY:

	Avg	Ring	Total	MBF by Grade								
Species	DBH	Count	MBF	1P	2P	3P	SM	1S	2S	3S	4S	UT
Hemlock	17.3		2,570						1,471	902	192	5
Douglas fir	17	9	2,000				35		840	935	170	20
Red alder	12.1		164						20	23	119	2
Redcedar	33		31							29	2	
Maple	27		5								3	2
Sale Total			4,770									

MINIMUM BID: $1,405,000.00 **BID METHOD:** Sealed Bids

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

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

BID DEPOSIT: $140,500.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

HARVEST METHOD: Harvesting activities are estimated to be 100 percent ground based. Shovel is restricted to sustained slopes of 40 percent and less, and shall operate only during dry soil conditions. Self-Leveling ground based yarding equipment is restricted to sustained slopes to 60 percent or less. 6-wheeled rubber-tired skidders with over-the-tire-tracks spanning both sets of rear tires restricted to sustained slopes of 45 percent or less. See Clause H-120 for

further harvest requirements. Falling and Yarding will not be permitted from November 1 to April 30 unless authorized in writing by the Contract Administrator.

ROADS: 3.00 stations of required construction. 6.35 stations of optional construction. 22.60 stations of optional reconstruction. 74.80 stations of required prehaul maintenance. 16.30 stations of optional prehaul maintenance. 19.80 stations of abandonment.

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the Harmony Quarry located in Section 33, T13N, R3E, W.M. on state land at no charge to the Purchaser.

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the H-9600 (@ Station 3+20) existing stockpile located in Section 33, T13N, R3E, W.M. on state land at no charge to the Purchaser.

Rock used in accordance with the quantities on the ROCK LIST may be obtained from commercial source at the Purchaser's expense.

Purchaser shall conduct rock source development and use at the following sources, in accordance with the written HARMONY QUARRY ROCK SOURCE DEVELOPMENT PLAN prepared by the state and included in this road plan.

See Road Plan for further details. The hauling of forest products will not be permitted from November 1 to April 30 unless authorized in writing by the Contract Administrator.

ACREAGE DETERMINATION

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

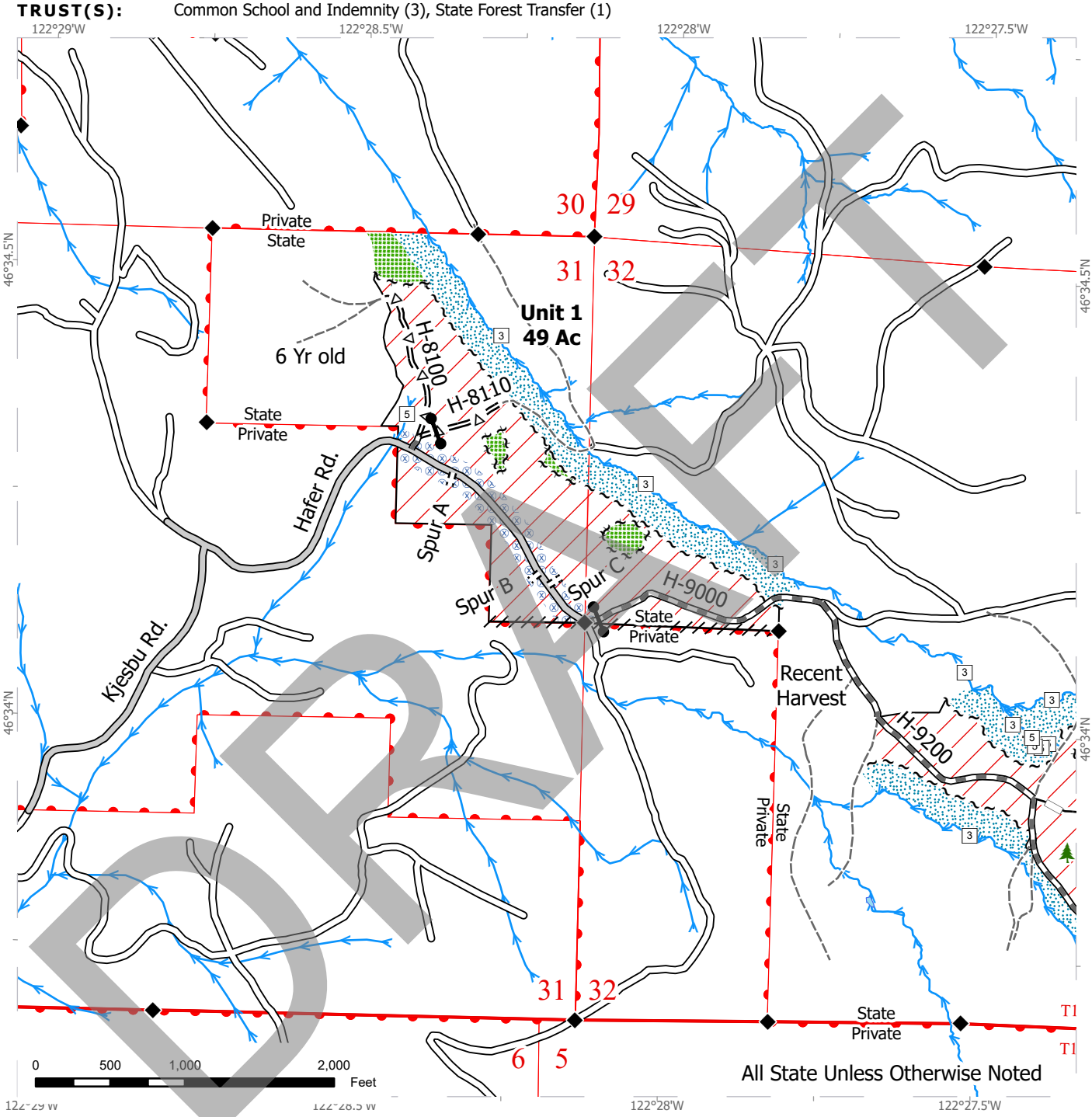
FEES: $81,000.00 is due on day of sale. $9.00 per MBF is due upon removal. These are in addition to the bid price.

SPECIAL REMARKS: Hazard Abatement will be required within 200 feet of Hafer Rd. and 200 feet from any structures present on private property adjacent to Unit 1. No loading of log trucks upon Hafer Rd. Purchaser is required to obtain County Road Approach permits for Spur A, Spur B and Spur C along Hafer Rd. in Unit 1.

TIMBER SALE MAP

SALE NAME: NASH
AGREEMENT#: 30-170218
TOWNSHIP(S): T13R3E
TRUST(S): Common School and Indemnity (3), State Forest Transfer (1)

REGION: Pacific Cascade Region
COUNTY(S): Lewis
ELEVATION RGE: 1280-1960



- Variable Retention Harvest
- Leave Tree Area
- Riparian Mgt Zone
- Hazard Abatement Area
- Sale Boundary Tags
- Leave Tree Tags
- Timber Type Change
- Flag Line
- County Road
- Existing Roads
- Required Pre-Haul Maintenance
- Required Construction
- Optional Pre-Haul Maintenance
- Optional Reconstruction
- Old Grades/Trails
- Property Line
- Streams
- Stream Type
- Stream Break
- Leave Tree Area <1/4-acre
- Gate
- Survey Monument

N

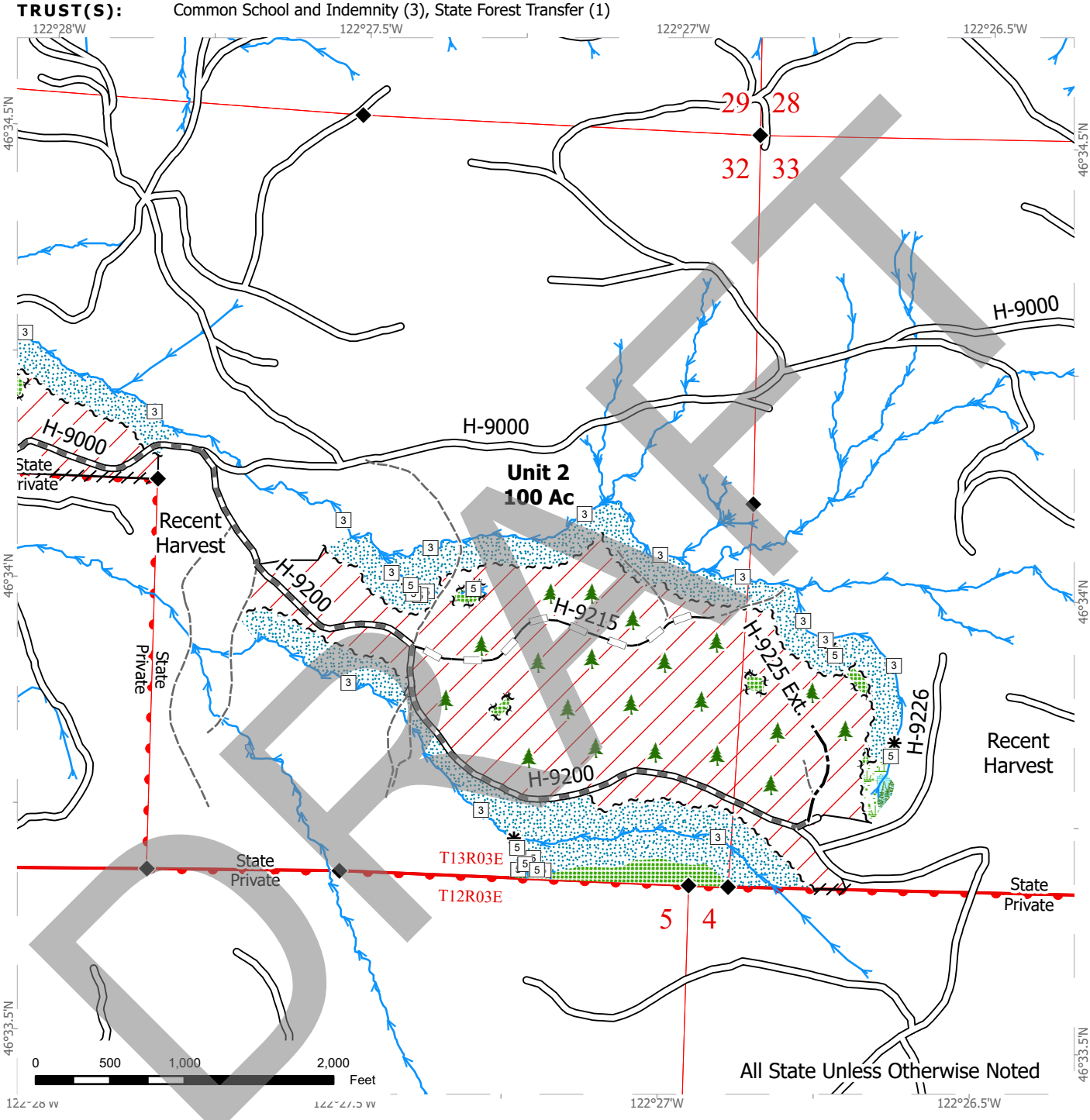
Prepared By: sjoh490
Accessed: 01/09/2025 13:21

Modification Date: sjoh490 5/29/2024

TIMBER SALE MAP

SALE NAME: NASH
AGREEMENT#: 30-170218
TOWNSHIP(S): T13R3E
TRUST(S): Common School and Indemnity (3), State Forest Transfer (1)

REGION: Pacific Cascade Region
COUNTY(S): Lewis
ELEVATION RGE: 1280-1960



- Variable Retention Harvest
- Leave Tree Area
- Forested Wetland
- Wetland Mgt Zone
- Riparian Mgt Zone
- Sale Boundary Tags
- Leave Tree Tags
- Timber Type Change
- Flag Line
- Existing Roads
- Required Pre-Haul Maintenance
- Optional Construction
- Optional Reconstruction
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N

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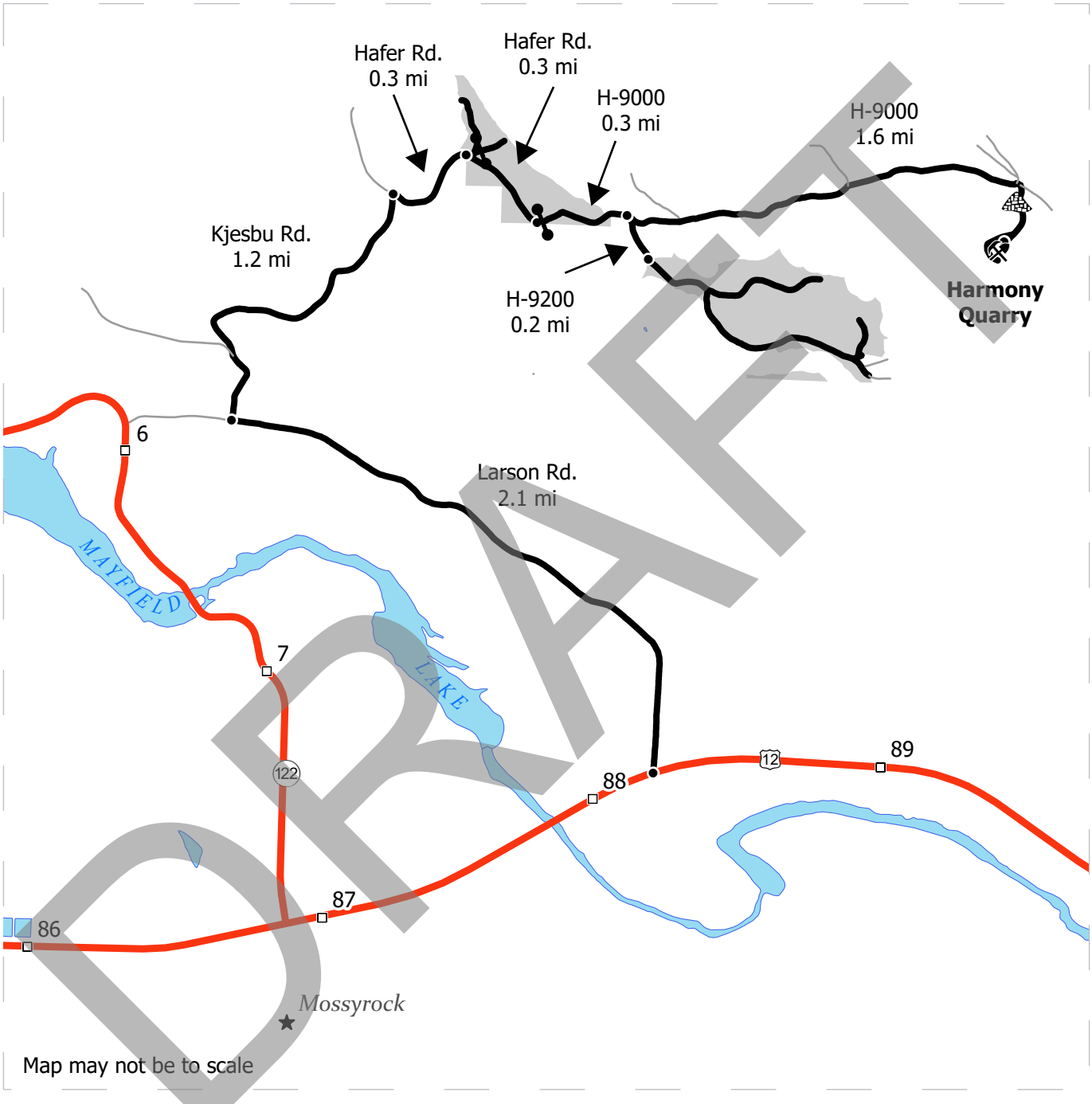
DRIVING MAP

SALE NAME: NASH
AGREEMENT#: 30-107218
TOWNSHIP(S): T13R3E
TRUST(S): Common School and Indemnity (3), State Forest Transfer (1)

REGION: Pacific Cascade Region
COUNTY(S): Lewis
ELEVATION RGE: 1280-1960



- Harvest Unit
- Highway
- Haul Route
- Other Route
- Milepost Marker
- Distance Indicator
- Gate
- Rock Pit
- Stockpile

DRIVING DIRECTIONS:

Between MP 88 and 89 on Highway 12, turn north onto Larson Rd.
Follow Larson Rd. for 2.1 miles.
Turn right onto Kjesbu Rd. and follow for 1.2 miles.
Turn right onto Hafer Rd. and follow 0.3 miles to arrive at Unit 1.
For Unit 2 and the Harmony Quarry continue on Hafer Rd. for 0.3 miles, here Hafer Rd. turns into the H-9000.
Continue on the H-9000 for 0.3 miles to the H-9000/H-9200 junction.
For Unit 2, turn right onto the H-9200 and continue for 0.2 miles to arrive at Unit 2.
For the Harmony quarry stay left on the H-9000 for 1.6 miles to arrive at the Harmony Quarry.

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Prepared By: sjoh490
Accessed: 01/09/2025 13:21

Modification Date: sjoh490 11/22/2024

Timber Sale Cruise Report
NASH

Sale Name: NASH

Sale Type: LUMP SUM

Region: PACIFIC CASC

District: LEWIS

Lead Cruiser: Blake Warnstadt

Other Cruisers: Dylan Buchanan , Dillon Adair

Cruise Narrative:
Location: The NASH timber sale is located 2-3 miles northeast of Mossyrock. It can be accessed between MP 88 and 89 on Highway 12, turn north onto Larson Rd.
Follow Larson Rd for 2.1 miles. Turn right onto Kjesbu Rd and follow for 1.2 miles.
Turn right onto Hafer Rd and follow 0.3 miles to arrive at Unit 1.
For Unit 2 continue on Hafer Rd for 0.3 miles, here Hafer Rd turns
into the H-9000. Continue on the H-9000 for 0.3 miles to the H-9000/H-9200 junction.
For Unit 2, turn right onto the H-9200 and continue for 0.2 miles to arrive at unit 2.
For the Harmony quarry stay left on the H-9000 for 1.6 miles to arrive at the Harmony Quarry.

Cruise Design: This sale consists of two variable retention harvest units and one leave tree unit tied into Unit 2. Both VRH units were cruised using variable radius plots sighted at 4.5'. Unit 1 hardwoods were cruised using a 33.61 BAF with all other species cruised with a 40 BAF. U1 plots were cruised with a measure to count plot ratio of 1:1. Unit 2 was cruised using a 46.94 BAF with a measure to count plot ratio of 1:2. Bole lengths were cruised to 40' preferred lengths for conifers and 30' for hardwoods.

Timber Quality: The NASH timber sale is mainly Douglas Fir and Western Hemlock. There is some Red Alder and Red Cedar available with a trace amount of Maple. Unit 1 average diameters at 4.5' include DF 15.8", WH 19.5", RA 13.6", RC 42", and MA 32". Unit 2 average diameters include DF 17.9", WH 16.8", RA 11.9", RC 15.2", and MA 18". The DF looks good with a nice mix of mostly domestic sorts and HQ B. There is a trace of HQ A, SM, and poles scattered throughout. There is some windfall and small mortality pockets. The dominant defect observed in DF is spike knots. The WH looks decent with little defect. Most of the RC is on the western edge of U1 and has fairly heavy branching. The RA here has a mix of 2,3, and 4SAW logs and looks nice. Minimal defect in RA observed with just a few forked tops.

Logging and Stand Conditions: Nash is estimated to be 100% ground-based logging. Terrain is flat with heavy understory vegetation consisting of hemlock, salmonberry, huckleberry, blackberry, and vine maple.

General Remarks: The majority of both units 1 and 2 have been previously commercial thinned between 2006,2007, and 2016.

Timber Sale Notice Volume (MBF)

				MBF Volume by Grade					
Sp	DBH	Rings/In	Age	All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
WH	17.3			2,569		1,471	902	192	5
DF	17.0	8.7		2,000	35	840	935	170	20
RA	12.1			164		20	23	119	2
RC	33.0			32			29	2	
MA	27.0			5				3	2
ALL	16.5	9.1		4,770	35	2,331	1,890	486	29

Timber Sale Notice Weight (tons)

	Tons by Grade					
Sp	All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
WH	21,918		11,292	8,605	1,972	48
DF	15,982	218	6,093	7,829	1,685	157
RA	1,493		135	165	1,181	13
RC	241			221	21	
MA	55				46	9
ALL	39,689	218	17,520	16,819	4,905	227

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 (%)
222.8	2.9	143.5	1.4	32,011	3.2

Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
NASH U1	B2C: VR, 2 BAF (40, 33.61 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	49.0	57.7	53	30	0
NASH U2	B1C: VR, 1 BAF (46.94) Measure/Count Plots, Sighting Ht = 4.5 ft	100.0	108.0	106	39	0
All		149.0	165.7	159	69	0

Timber Sale Log Grade x Sort Summary

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
DF	LIVE	2 SAW	Domestic	14.1	40	3,864	3,730	3.5	4,029.7	555.8
DF	LIVE	2 SAW	HQ-A	13.7	40	965	961	0.5	998.9	143.1
DF	LIVE	2 SAW	HQ-B	13.1	40	970	949	2.2	1,064.7	141.4
DF	LIVE	3 SAW	Domestic	8.7	39	5,017	4,742	5.5	6,121.3	706.6
DF	LIVE	3 SAW	HQ-B	10.3	40	1,267	1,232	2.8	1,402.6	183.6
DF	LIVE	3 SAW	Pole	9.0	43	299	299	0.0	305.0	44.6
DF	LIVE	4 SAW	Domestic	5.4	30	1,192	1,142	4.2	1,684.6	170.1
DF	LIVE	CULL	Cull	5.8	5	115	0	100.0	0.0	0.0
DF	LIVE	SPECIAL MILL	HQ-A	16.8	40	234	234	0.0	218.4	34.8
DF	LIVE	UTILITY	Pulp	6.5	13	137	133	2.9	156.6	19.8
MA	LIVE	4 SAW	Domestic	7.8	23	29	21	30.1	46.0	3.1
MA	LIVE	UTILITY	Pulp	25.2	12	13	13	0.0	8.7	1.9
RA	LIVE	2 SAW	Domestic	12.7	30	134	132	1.8	134.6	19.7
RA	LIVE	3 SAW	Domestic	10.8	28	167	157	5.7	164.6	23.4
RA	LIVE	4 SAW	Domestic	6.3	33	882	797	9.6	1,181.2	118.8
RA	LIVE	CULL	Cull	5.1	3	4	0	100.0	0.0	0.0
RA	LIVE	UTILITY	Pulp	5.0	14	16	16	0.0	13.0	2.4
RC	LIVE	3 SAW	Domestic	20.3	36	215	198	8.0	220.7	29.5
RC	LIVE	4 SAW	Domestic	5.0	33	16	14	8.6	20.5	2.1
RC	LIVE	CULL	Cull	5.0	12	0	0	100.0	0.0	0.0
WH	LIVE	2 SAW	Domestic	14.8	40	10,186	9,870	3.1	11,291.7	1,470.6
WH	LIVE	3 SAW	Domestic	8.6	40	6,198	6,056	2.3	8,605.2	902.4
WH	LIVE	4 SAW	Domestic	5.4	30	1,312	1,285	2.1	1,972.3	191.5
WH	LIVE	CULL	Cull	6.4	6	153	0	100.0	0.0	0.0
WH	LIVE	UTILITY	Pulp	7.0	14	33	31	6.1	48.3	4.6

Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	5 - 7	LIVE	Cull	5.8	5	0	100.0	0.0	0.0
DF	5 - 7	LIVE	Domestic	5.8	33	2,327	4.1	3,356.9	346.7
DF	5 - 7	LIVE	Pole	6.2	40	33	0.0	36.1	5.0
DF	5 - 7	LIVE	Pulp	6.2	13	122	3.2	142.7	18.2
DF	8 - 11	LIVE	Pulp	8.6	12	11	0.0	13.8	1.6
DF	8 - 11	LIVE	Domestic	9.9	39	3,557	6.0	4,449.0	530.0
DF	8 - 11	LIVE	HQ-B	10.3	40	1,232	2.8	1,402.6	183.6
DF	8 - 11	LIVE	Pole	10.3	46	266	0.0	268.9	39.6

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	12 - 15	LIVE	HQ-B	12.9	40	865	2.0	983.4	128.9
DF	12 - 15	LIVE	Domestic	13.7	40	2,986	3.7	3,298.3	444.9
DF	12 - 15	LIVE	HQ-A	13.8	40	961	0.5	998.9	143.1
DF	16+	LIVE	Domestic	16.4	40	744	2.3	731.5	110.9
DF	16+	LIVE	HQ-A	16.8	40	234	0.0	218.4	34.8
DF	16+	LIVE	HQ-B	17.4	40	84	5.0	81.3	12.5
MA	5 - 7	LIVE	Domestic	5.0	16	3	0.0	3.3	0.4
MA	8 - 11	LIVE	Domestic	9.5	28	10	27.1	31.4	1.5
MA	16+	LIVE	Domestic	17.5	30	8	39.9	11.4	1.2
MA	16+	LIVE	Pulp	25.2	12	13	0.0	8.7	1.9
RA	5 - 7	LIVE	Pulp	5.0	14	16	0.0	13.0	2.4
RA	5 - 7	LIVE	Cull	5.1	3	0	100.0	0.0	0.0
RA	5 - 7	LIVE	Domestic	5.4	34	503	10.0	768.9	74.9
RA	8 - 11	LIVE	Domestic	9.5	29	452	7.8	576.9	67.3
RA	12 - 15	LIVE	Domestic	12.9	30	132	1.8	134.6	19.7
RC	5 - 7	LIVE	Cull	5.0	12	0	100.0	0.0	0.0
RC	5 - 7	LIVE	Domestic	5.0	33	14	8.6	20.5	2.1
RC	8 - 11	LIVE	Domestic	10.8	38	11	4.1	15.3	1.6
RC	12 - 15	LIVE	Domestic	13.7	30	14	1.0	19.2	2.1
RC	16+	LIVE	Domestic	25.3	40	173	8.7	186.2	25.8
WH	5 - 7	LIVE	Pulp	5.6	14	14	0.0	17.5	2.0
WH	5 - 7	LIVE	Domestic	6.0	34	2,923	1.2	4,553.9	435.6
WH	5 - 7	LIVE	Cull	6.1	6	0	100.0	0.0	0.0
WH	8 - 11	LIVE	Cull	8.6	7	0	100.0	0.0	0.0
WH	8 - 11	LIVE	Pulp	8.8	14	17	10.4	30.8	2.6
WH	8 - 11	LIVE	Domestic	9.8	39	4,368	2.9	5,981.9	650.8
WH	12 - 15	LIVE	Domestic	13.8	40	6,120	2.6	7,324.3	911.8
WH	16+	LIVE	Domestic	18.4	40	3,800	3.9	4,009.2	566.3

Cruise Unit Report
NASH U1

Unit Sale Notice Volume (MBF): NASH U1

				MBF Volume by Grade					
Sp	DBH	Rings/In	Age	All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
DF	15.8	7.0		854	8	273	461	102	11
WH	19.5			453		341	90	21	2
RA	13.6			24		4	8	13	
RC	42.0			21			21		
MA	32.0			3				1	2
ALL	16.6	7.0		1,355	8	617	579	136	14

Unit Cruise Design: NASH U1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B2C: VR, 2 BAF (40, 33.61 for some species) Measure/Count Plots, Sighting Ht = 4.5 ft	49.0	57.7	53	30	0

Unit Cruise Summary: NASH U1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	98	176	3.3	1
WH	41	71	1.3	0
RA	10	12	0.2	0
RC	4	5	0.1	0
MA	1	1	0.0	0
ALL	154	265	5.0	1

Unit Cruise Statistics: NASH 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 (%)
DF	132.8	76.0	10.4	131.2	26.0	2.6	17,427	80.4	10.8
WH	53.6	145.6	20.0	172.6	26.5	4.1	9,249	148.0	20.4
RA	7.6	282.6	38.8	64.1	62.2	19.7	487	289.3	43.5
RC	3.8	312.8	43.0	113.8	11.4	5.7	429	313.0	43.3
MA	0.6	728.0	100.0	103.0	0.0	0.0	65	728.0	100.0
ALL	198.4	35.8	4.9	139.4	32.7	2.6	27,657	48.4	5.6

Unit Summary: NASH U1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	98	ALL	15.8	70	92	18,383	17,427	5.2	97.6	132.8	33.4	853.9
MA	LIVE	CUT	1	ALL	32.0	62	76	83	65	21.3	0.1	0.6	0.1	3.2
RA	LIVE	CUT	10	ALL	13.3	46	58	572	487	14.8	7.9	7.6	2.1	23.9
RC	LIVE	CUT	4	ALL	42.0	79	101	464	429	7.5	0.4	3.8	0.6	21.0
WH	LIVE	CUT	41	ALL	19.5	72	91	9,548	9,249	3.1	25.8	53.6	12.1	453.2
ALL	LIVE	CUT	154	ALL	16.6	69	89	29,049	27,657	4.8	131.8	198.4	48.3	1,355.2
ALL	ALL	CUT	154	ALL	16.6	69	89	29,049	27,657	4.8	131.8	198.4	48.3	1,355.2

Cruise Unit Report
NASH U2

Unit Sale Notice Volume (MBF): NASH U2

				MBF Volume by Grade					
Sp	DBH	Rings/In	Age	All	Spec Mill	2 Saw	3 Saw	4 Saw	Utility
WH	16.8			2,116		1,130	813	171	3
DF	17.9	10.0		1,146	27	568	474	69	9
RA	11.9			140		16	16	106	2
RC	15.2			11			8	2	
MA	18.0			2				2	
ALL	16.5	10.0		3,414	27	1,713	1,311	350	14

Unit Cruise Design: NASH U2

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (46.94) Measure/Count Plots, Sighting Ht = 4.5 ft	100.0	108.0	106	39	0

Unit Cruise Summary: NASH U2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	108	314	3.0	0
DF	81	180	1.7	1
RA	17	33	0.3	0
RC	2	2	0.0	0
MA	1	1	0.0	0
ALL	209	530	5.0	1

Unit Cruise Statistics: NASH 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 (%)
WH	139.0	80.6	7.8	152.2	19.6	1.9	21,159	82.9	8.0
DF	79.7	106.3	10.3	143.7	20.6	2.3	11,458	108.3	10.6
RA	14.6	301.9	29.3	96.1	30.1	7.3	1,404	303.4	30.2
RC	0.9	1,029.6	100.0	119.7	84.2	59.6	106	1,033.0	116.4
MA	0.4	1,029.6	100.0	40.2	0.0	0.0	18	1,029.6	100.0
ALL	234.7	36.2	3.5	145.5	23.7	1.6	34,145	43.3	3.9

Unit Summary: NASH U2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	81	ALL	17.9	79	101	11,943	11,458	4.1	45.6	79.7	18.8	1,145.8
MA	LIVE	CUT	1	ALL	18.0	48	59	22	18	20.2	0.3	0.4	0.1	1.8
RA	LIVE	CUT	17	ALL	11.9	52	71	1,513	1,404	7.2	18.9	14.6	4.2	140.4
RC	LIVE	CUT	2	ALL	15.2	37	49	117	106	9.4	0.7	0.9	0.2	10.6
WH	LIVE	CUT	108	ALL	16.8	74	98	21,967	21,159	3.7	90.3	139.0	33.9	2,115.9
ALL	LIVE	CUT	209	ALL	16.6	73	95	35,562	34,145	4.0	155.8	234.7	57.3	3,414.5
ALL	ALL	CUT	209	ALL	16.6	73	95	35,562	34,145	4.0	155.8	234.7	57.3	3,414.5

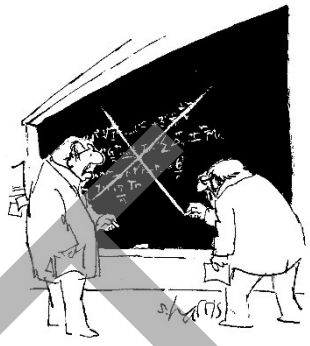
FPHP NEEDED (Y/N) N

Is abandonment of existing road required? (Y/N) N

PACIFIC CASCADE REGION - ENGINEERING

ROAD PLAN PEER REVIEW CHECKLIST

PROJECT: NASH



"That's it? That's peer review?"

This project has been reviewed for the following:

Initials:

____ KW **CONTRACT CLAUSES –** Selection of proper clauses. Clauses adequately describe desired work. Clauses do not conflict with maps, details, pit plans, etc. Punctuation, syntax, grammar and organization is correct.

____ KW **TYPICAL SECTION SHEET, ROCK LIST, & CULVERT LIST –** Sheets match clauses and maps. Requirements and quantities make sense. Rock List adds up correctly.

____ KW **MAPS –** All roads listed in Section 1 are shown on maps. Maps identify locations of all culverts, landings, waste areas, endhaul/overhaul areas, etc. Legend, north arrow and scale are shown. Line types are easy to identify. Map is at a legible scale.

____ KW **DETAIL SHEETS** – All detail sheets referred to in the clauses are included. Detail sheets have been edited as necessary.

____ KW **PIT PLANS –** Selection of proper clauses. Map clearly shows all areas of development, wasting, stockpiling, reclamation, etc. Development plan appears logical for long term use of pit. Development plan allows for safe operation in the pit.

____ KW **ROAD COST SPREADSHEET –**All cost elements captured. Material costs used are current. Summary cells are adding correctly. No conflicts exist between pages. Stationing, culverts and rock volume match the road plan.

____ KW **EXCISE TAX SHEET** – Totals match road plan.

____ KW **LOGGING PLAN –** Plan matches road plan clauses and maps.

I certify that I have reviewed this project for the elements initialed above and have found that it meets or exceeds Department and Regional Standards to the best of my knowledge.

RICH WALLMOW — Originator of Project — 03/12/2024 — Date

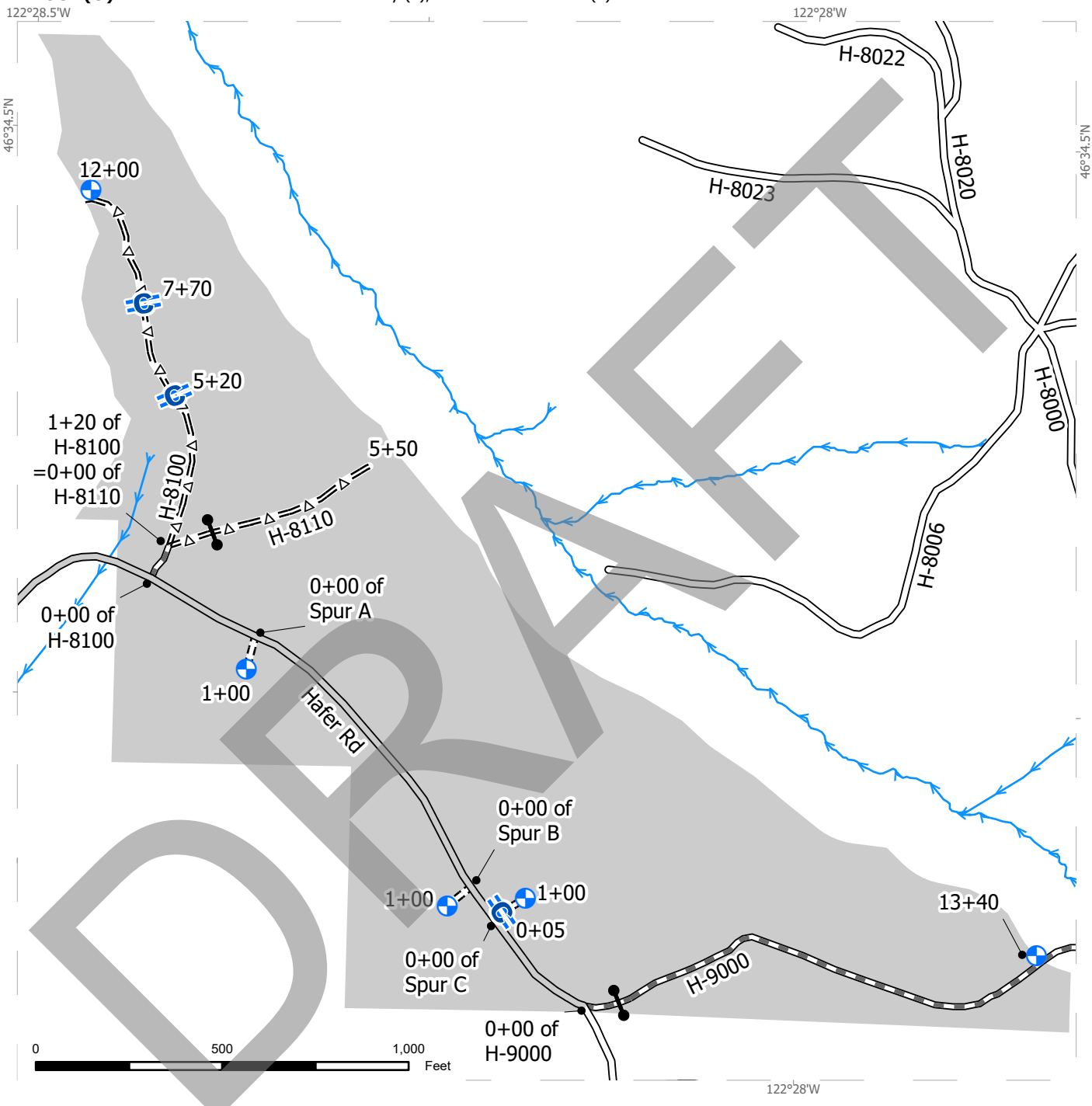
KEITH WYATT — Peer Reviewer — 03/22/2024 — Date

Comments:

ROAD PLAN MAP

SALE NAME: NASH
AGREEMENT#: 30-107218
TOWNSHIP(S): T13R3E
TRUST(S): Common School and Indemnity (3), State Forest Transfer (1)

REGION: Pacific Cascade Region
COUNTY(S): Lewis
ELEVATION RGE: 1280-1960



County Road
Existing Roads
Required Pre-Haul Maintenance
Required Construction
Optional Pre-Haul Maintenance
Cross-drain Culvert
Gate (PCP 1-1)
Landing - Proposed
Harvest Unit

N

Prepared By: accc490
Accessed: 01/09/2025 13:21

Modification Date: accc490 11/20/2024

ROAD PLAN MAP

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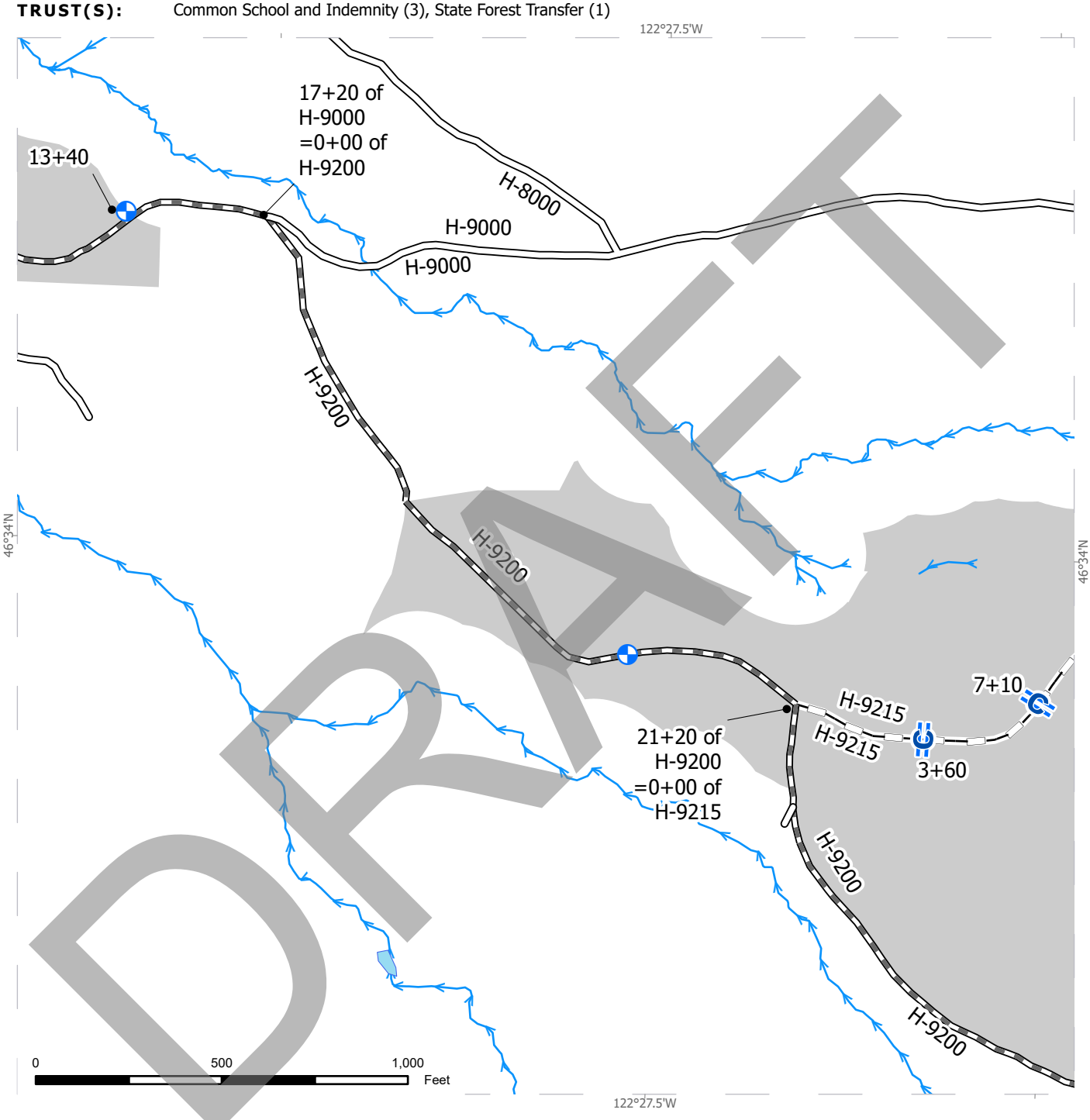

Existing Roads
Required Pre-Haul Maintenance
Optional Reconstruction
Cross-drain Culvert
Landing - Proposed
Harvest Unit

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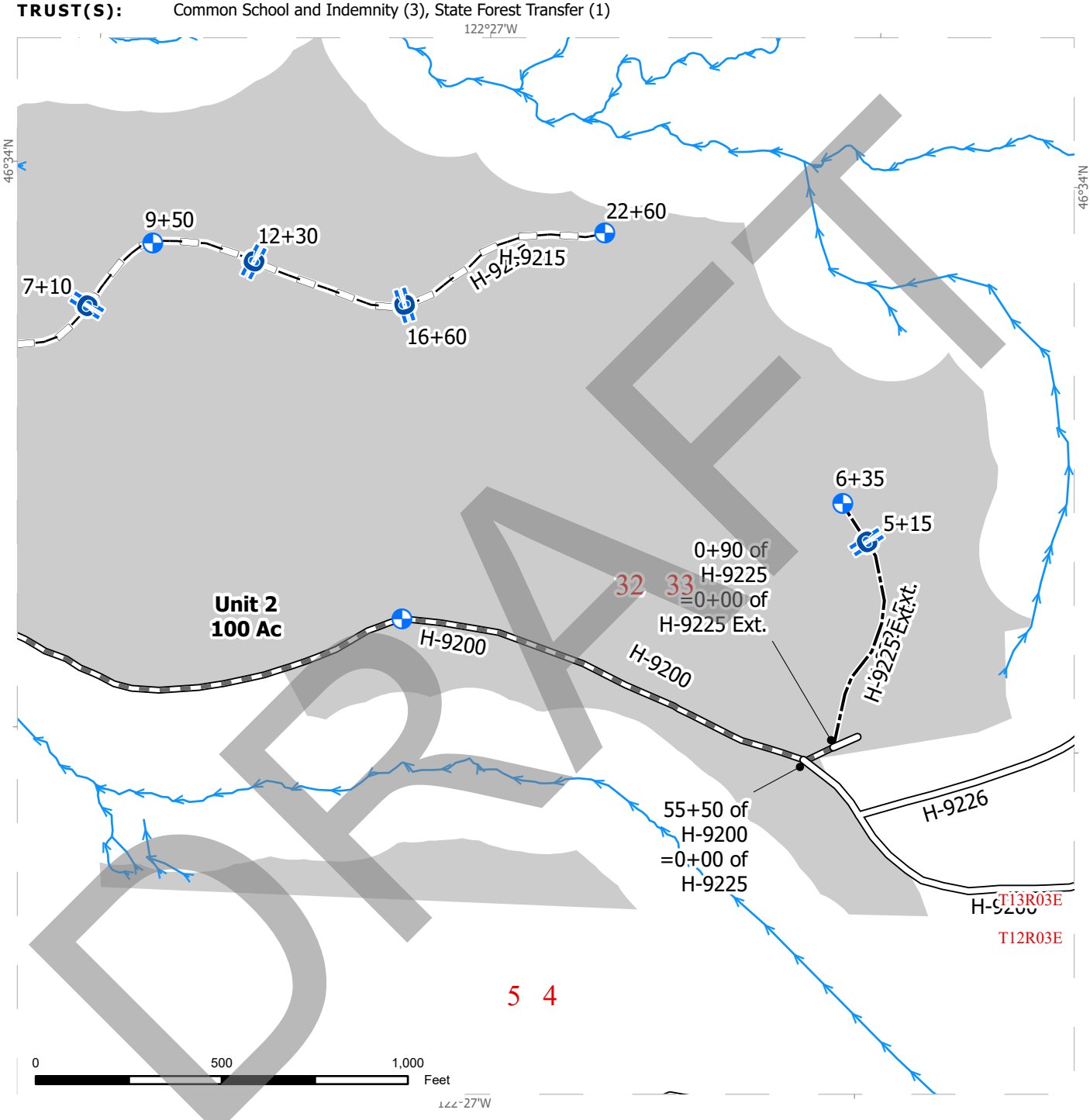

Existing Roads
Required Pre-Haul Maintenance
Optional Construction
Optional Reconstruction
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Landing - Proposed
Harvest Unit

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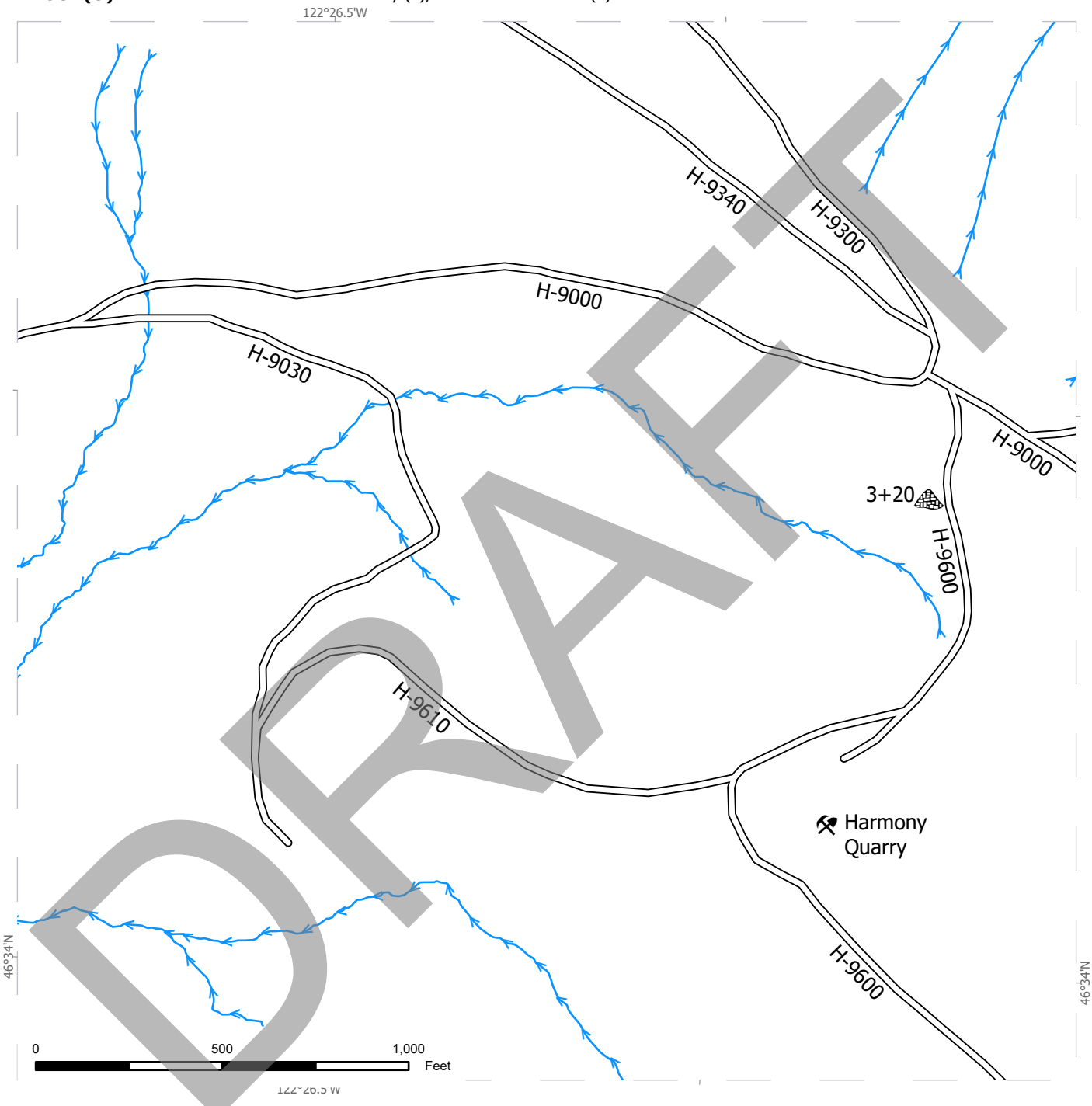


Existing Roads
Rock Pit
Stockpile

N

Prepared By: accc490
Accessed: 01/09/2025 13:21

Modification Date: accc490 11/20/2024

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

NASH TIMBER SALE ROAD PLAN
LEWIS COUNTY
LEWIS DISTRICT
PACIFIC CASCADE REGION

AGREEMENT NO.: 30-107218 STAFF ENGINEER: RICH WALLMOW

DRAWN & COMPILED BY: ALICIA COMPTON

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
H-8100	0+00 to 1+20	Pre-haul Maintenance
	0+70 to 1+20	Abandonment
Spur A	0+00 to 1+00	Construction & Abandonment
Spur B	0+00 to 1+00	Construction & Abandonment
Spur C	0+00 to 1+00	Construction & Abandonment
H-9000	0+00 to 17+20	Pre-haul Maintenance
H-9200	0+00 to 55+50	Pre-haul Maintenance
H-9225	0+00 to 0+90	Pre-haul Maintenance

0-3 OPTIONAL ROADS

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

Road	Stations	Type
H-8100	1+20 to 12+00	Pre-haul Maintenance & Abandonment
H-8110	0+00 to 5+50	Pre-haul Maintenance & Abandonment
H-9215	0+00 to 22+60	Reconstruction
H-9225 Ext.	0+00 to 6+35	Construction

0-4 CONSTRUCTION

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

0-5 RECONSTRUCTION

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

Road	Stations	Requirements
H-9215	0+00 to 22+60	Clear and grub in accordance with TYPICAL SECTION SHEET. Grade, shape and compact prior to rock application; install culverts as shown on the CULVERT LIST, apply rock as shown on the ROCK LIST; grade, shape and compact the applied rock.

0-6 PRE-HAUL MAINTENANCE

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

Road	Stations	Requirements
H-8100	0+00 to 12+00	Brush; clean ditch; replace culverts as shown on CULVERT LIST; construct landing; grade and shape existing road surface prior to application of rock, apply rock in accordance with the ROCK LIST; grade, shape and compact after rock application.
H-8110	0+00 to 5+50	Brush; remove waterbars; grade and shape existing road surface and compact, apply rock as shown on the ROCK LIST.
H-9000	0+00 to 17+20	Remove debris from ditches and roadside; clean culverts; grade and shape existing road surface and compact; rock landing.
H-9200	0+00 to 55+50	Remove debris from ditches and roadside; clean culverts; grade and shape existing road surface.
H-9225	0+00 to 0+90	Brush; remove debris from ditch and roadside; grade and shape existing road surface.

0-7 POST-HAUL MAINTENANCE

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

0-10 ABANDONMENT

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

0-12 DEVELOP ROCK SOURCE

Purchaser shall develop an existing rock source. Rock source development will involve manufacturing rock. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

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

1-2 UNFORESEEN CONDITIONS

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

1-3 ROAD DIMENSIONS

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

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

1-8 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.

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 construction stakes, orange paint and orange flagging for new construction.
- Orange painted trees, flagging for reconstruction.
- Orange painted trees or road stakes for pre-haul maintenance.

1-18 REFERENCE POINT DAMAGE

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

1-21 HAUL APPROVAL

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

1-22 WORK NOTIFICATIONS

Purchaser shall notify the Contract Administrator a minimum of 3 business days before work begins.

1-23 ROAD WORK PHASE APPROVAL

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

- Subgrade construction, subgrade compaction and drainage installation
- Rock application and compaction
- Rock Pit Final Cleanup
- Abandonment
- Final Road Maintenance

1-25 ACTIVITY TIMING RESTRICTION

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

Road	Activity	Closure Period
All Roads	Pre-haul Maintenance, Construction, Reconstruction	October 1 to April 30

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION, Purchaser shall provide a maintenance plan to include further protection of state resources. Purchaser shall obtain written approval from the Contract Administrator for the maintenance plan and shall put preventative measures in place before operating during the closure period. Purchaser is required to maintain all haul roads at their own expense.

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 pit run, jaw run, or native surface roads.
- Wheel track rutting exceeds 2 inches on crushed rock roads.
- Surface or base stability problems persist.
- 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. If damage occurs while plowing, further permission to plow may be revoked by the Contract Administrator.

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

Purchaser shall immediately remove any mud, dirt, rock, or other material tracked or spilled on to county roads and state highways.

If additional damage to the surface, signs, guardrails, etc. occurs then the damage will be repaired, at the Purchaser's expense, as directed by the Contract Administrator when authorized by the county or WSDOT.

1-41 REQUIREMENTS FOR COUNTY ROAD APPROACHES

Requirements for Hafer Road approaches:
Purchaser shall build up approaches to allow a smooth grade transition between Spur A, B, C and Hafer Rd. The top of Spur A, B, and C road surfacing must be kept level with the surface of Hafer Road at all times. The surface of the Spur A, B, and C approach must slope down from the edge of Hafer Road at the rate of 2 inch(es) per foot for a distance of 5 feet, unless otherwise shown in the approach permit.

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

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

2-2 ROAD MAINTENANCE – PURCHASER MAINTENANCE

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

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

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

2-4 PASSAGE OF LIGHT VEHICLES

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

2-5 MAINTENANCE GRADING – EXISTING ROAD

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

Road	Stations	Requirements
H-8100	0+00 to 12+00	Grade, shape and compact.
H-8110	0+00 to 5+50	Grade, shape and compact.
H-9000	0+00 to 17+20	Grade, shape and compact.
H-9200	0+00 to 55+50	Grade, shape and compact.
H-9225	0+00 to 0+90	Grade, shape and compact.

2-6 CLEANING CULVERTS

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

Road	Stations
H-9000	0+00 to 17+20
H-9200	0+00 to 55+50

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

On the following roads, Purchaser shall clean ditches, headwalls, and catchbasins. Work must be completed before rocking and/or timber haul and must be done in accordance with the TYPICAL SECTION SHEET. Pulling ditch material across the road or mixing in with the road surface is not allowed.

Road	Stations
H-8100	0+00 to 12+00
H-9000	0+00 to 17+20
H-9200	0+00 to 55+50
H-9225	0+00 to 0+90

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

3-1 BRUSHING

On the following road(s), Purchaser shall cut vegetative material up to 4 inches in diameter, including limbs, as shown on the ROADSIDE BRUSHING DETAIL. Brushing must be achieved by mechanical cutting of brush, trees, and branches. Root systems and stumps of cut vegetation may not be disturbed unless directed by the Contract Administrator. Purchaser shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

Road	Stations
H-8100	0+00 to 12+00
H-8110	0+00 to 5+50
H-9225	0+00 to 0+90

3-5 CLEARING

Purchaser shall fall all vegetative material larger than 2 inches DBH or over 4 feet high between the marked right-of-way boundaries and within waste and debris areas, or if not marked in the field, between the clearing limits specified on the TYPICAL SECTION SHEET. Clearing must be completed before starting excavation and embankment.

3-8 PROHIBITED DECKING AREAS

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

- Within the grubbing limits.
- Within 50 feet of any stream.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- On slopes greater than 45%.
- Against standing trees, unless approved by the Contract Administrator.

3-10 GRUBBING

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

3-12 STUMP PLACEMENT

Purchaser shall place grubbed stumps adjacent to the road shoulder and in compliance with all other clauses in this road plan.

3-14 STUMPS WITHIN DESIGNATED WASTE AREAS

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

3-20 ORGANIC DEBRIS DEFINITION

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

3-21 DISPOSAL COMPLETION

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

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

Waste areas for organic debris are located within the cleared right-of-way or in natural openings as designated by the Contract Administrator.

3-23 PROHIBITED DISPOSAL AREAS

Purchaser shall not place organic debris in the following areas:

- Within 25 feet of a crossdrain culvert.
- Within 50 feet of a live stream, or wetland.
- On road subgrades, or excavation and embankment slopes.
- On slopes greater than 45%.
- Within the operational area for cable landings where debris may shift or roll.
- On locations where brush can fall into the ditch or onto the road surface.
- Against standing timber.

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

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

4-2 PIONEERING

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

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

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

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 15 percent favorable and 12 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 5% in 100 feet.
- Maximum grade change for crest vertical curves is 4% in 100 feet.

4-5 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 70%)	1:1	100
Common Earth (on slopes over 70%)	¾:1	133
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.

4-10 WIDEN THE EXISTING SUBGRADE

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

Road	Stations
H-9215	0+00 to 22+60

4-21 TURNOUTS

Purchaser shall construct turnouts as designated on the ROCK LIST. Locations changes are subject to written approval by the Contract Administrator. Minimum dimensions are shown on the ROCK LIST.

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

4-29 DITCHOUTS

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

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

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

4-37 WASTE AREA LOCATION

Purchaser shall deposit waste material in areas identified or approved by the Contract Administrator. 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.

4-38 PROHIBITED WASTE DISPOSAL AREAS

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

- Within 25 feet of a cross drain culvert.
- Within 50 feet of a live stream or wetland.
- On side slopes steeper than 45%.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- Against standing timber.

4-48 NATIVE MATERIAL

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

4-55 ROAD SHAPING

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

4-60 FILL COMPACTION

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

4-61 SUBGRADE COMPACTION

Purchaser shall compact constructed and reconstructed subgrades in accordance with the COMPACTION LIST by routing equipment over the entire width, except ditch.

4-63 EXISTING SURFACE COMPACTION

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

5-5 CULVERTS

Purchaser shall install culverts as part of this contract. Culverts must be installed concurrently with subgrade work and must be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the CULVERT LIST. Culvert, downspout, and flume lengths may be adjusted to fit as-built conditions and may not terminate directly on unprotected soil. Culverts must be new material and meet the specifications in Clauses 10-17 through 10-22.

5-7 USED CULVERT MATERIAL

On temporary roads, Purchaser may install used culverts. All other roads must have new culverts installed. Purchaser shall obtain approval from the Contract Administrator for the quality of the used culverts before installation. Culverts must meet the specifications in Clauses 10-15 through 10-22.

5-10 CULVERT MARKER INSTALLATION

Purchaser shall provide and install culvert markers at the inlet in accordance with the the CULVERT LIST and the CULVERT AND DRAINAGE SPECIFICATION DETAIL.

5-12 UNUSED MATERIALS STATE PROPERTY

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

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL and the 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 sections of banded culvert shall be installed at the inlet end.

5-17 CROSS DRAIN SKEW AND SLOPE

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

5-18 CULVERT DEPTH OF COVER

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

5-20 ENERGY DISSIPATERS

Purchaser shall install energy dissipaters in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all culverts on the CULVERT LIST that specify the placement of rock. The type of energy dissipater and the amount of material and must be consistent with the specifications on the CULVERT LIST, except for temporary culverts. Placement must be by zero drop-height method only. Energy dissipater installation is subject to approval by the Contract Administrator.

5-25 CATCH BASINS

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

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all culverts on the CULVERT LIST that specify placement of rock, except for temporary culverts. Rock may not restrict the flow of water into culvert inlets or catch basins. 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.

5-33 NATIVE SURFACE ROADS

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

SECTION 6 – ROCK AND SURFACING

6-2 ROCK SOURCE ON STATE LAND

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the following source on state land at no charge to the Purchaser. Purchaser shall obtain written approval from the Contract Administrator for the use of material from any other source. If other operators are using, or desire to use the rock source, a joint operating plan must be developed. All parties shall follow this plan. Purchaser shall notify the Contract Administrator a minimum of 3 business days before starting any operations in the listed locations.

Source	Location
Harmony Quarry	Sec. 33, T13N R3E

6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the following existing stockpile 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
H-9600 @ 3+20	Sec. 33, T13N R3E	1-1/2" Minus Crushed	732

6-5 ROCK FROM COMMERCIAL SOURCE

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

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

Purchaser shall conduct rock source development and use at the following sources, in accordance with the written HARMONY QUARRY ROCK SOURCE DEVELOPMENT PLAN prepared by the state and included in this road plan. Upon completion of operations, the rock source must be left in the condition specified in the HARMONY QUARRY ROCK SOURCE DEVELOPMENT PLAN and approved in writing by the Contract Administrator. Purchaser shall notify the Contract Administrator a minimum of 3 business days before starting any operations in the rock source.

Source
Harmony Quarry

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. Purchaser shall provide a sieve analysis upon request from the Contract Administrator.

6-41 SELECT PIT RUN ROCK

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

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

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

6-56 ROCK MEASURMENT BY TRUCK VOLUME

Measurement of spot rock, culvert backfill/bedding, energy dissipater and landing rock is on a cubic yard truck measure basis. The Purchaser shall measure each truck box before rock hauling. An average of such volumes for each truck will be used to tally the volume hauled. The Contract Administrator may periodically require that a load be flattened off and its volume calculated. Purchaser shall maintain load tally sheets for each truck and shall give them to the Contract Administrator on a weekly basis during rocking operations.

6-70 APPROVAL BEFORE ROCK APPLICATION

Purchaser shall obtain written approval from the Contract Administrator for SUBGRADE CONSTRUCTION AND DRAINAGE INSTALLATION 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. 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 turnouts and areas with curve widening to the same depth and specifications as the traveled way, unless otherwise specified in the ROCK LIST.

6-75 OPTIONAL ROCK EXCEPTION

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

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

Road	Stations
H-8100	1+20 to 12+00
H-8110	0+00 to 5+50
H-9225 Ext.	0+00 to 6+35

8-1 SEDIMENT CONTROL STRUCTURES

Sediment control shall be accomplished using sediment traps, settling ponds, or other methods as approved in writing by the Contract Administrator.

8-2 PROTECTION FOR EXPOSED SOIL

Purchaser shall provide and evenly spread a 4-inch layer of straw to all exposed soils within 50 feet of a stream or wetland. Soils must be covered before the first anticipated storm event. Soils may not sit exposed during any rain event.

8-15 REVEGETATION

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

Road	Location	Qty (lbs)*	Type	Remarks
H-8100	0+70 to 12+00	20	Grass Seed	Abandonment only
H-8110	0+00 to 5+50	10	Grass Seed	Abandonment only
Spur A	0+00 to 1+00	4	Grass Seed	Abandonment only
Spur B	0+00 to 1+00	4	Grass Seed	Abandonment only
Spur C	0+00 to 1+00	4	Grass Seed	Abandonment only
H-9215	0+00 to 22+60	46	Grass Seed	
H-9225	0+00 to 6+35	18	Grass Seed	
	Total:	104		

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

8-16 REVEGETATION SUPPLY

The Purchaser shall provide the grass seed.

8-17 REVEGETATION TIMING

Purchaser shall revegetate after road work is completed and between March 15 and September 30, unless otherwise approved by Contract Administrator.

8-19 ASSURANCE FOR SEEDED AREA

Purchaser shall ensure the growth of a uniform and dense crop (at least 50% coverage) of 2-inch tall grass. Purchaser shall reapply the grass seed in areas that have failed to germinate or have been damaged through any cause. Restore eroded or disturbed areas, clean up and properly dispose of eroded materials, and reapply the grass seed at no additional cost to the state.

8-25 GRASS SEED

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

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

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

SECTION 9 – POST-HAUL ROAD WORK

9-1 EARTHEN BARRICADES

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

Road	Stations
H-8100	0+70
Spur A	0+00
Spur B	0+00
Spur C	0+00

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

9-5 POST-HAUL MAINTENANCE

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

9-10 LANDING DRAINAGE

Purchaser shall provide for drainage of the landing surface.

9-11 LANDING EMBANKMENT

Purchaser shall slope landing embankments to the original construction specifications.

9-21 ROAD ABANDONMENT

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

Road	Stations	Type
H-8100	0+70 to 12+00	Light
H-8110	0+00 to 5+50	Light
Spur A	0+00 to 1+00	Light
Spur B	0+00 to 1+00	Light
Spur C	0+00 to 1+00	Light

9-22 LIGHT ABANDONMENT

- 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 150 feet, or as marked in the field.
- Skew waterbars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3 percent grade.
- Key waterbars into the cut-slope to intercept the ditch. Waterbars must be outsloped to provide positive drainage. Outlets must be on stable locations.
- Block roads with earthen barricades in accordance with the attached EARTHEN BARRICADE DETAIL.
- Remove ditch cross drain culverts and leave the resulting trench open in accordance with CROSSDRAIN REMOVAL DETAIL.
- Apply grass seed concurrently with abandonment and in accordance with Section 8 EROSION CONTROL.

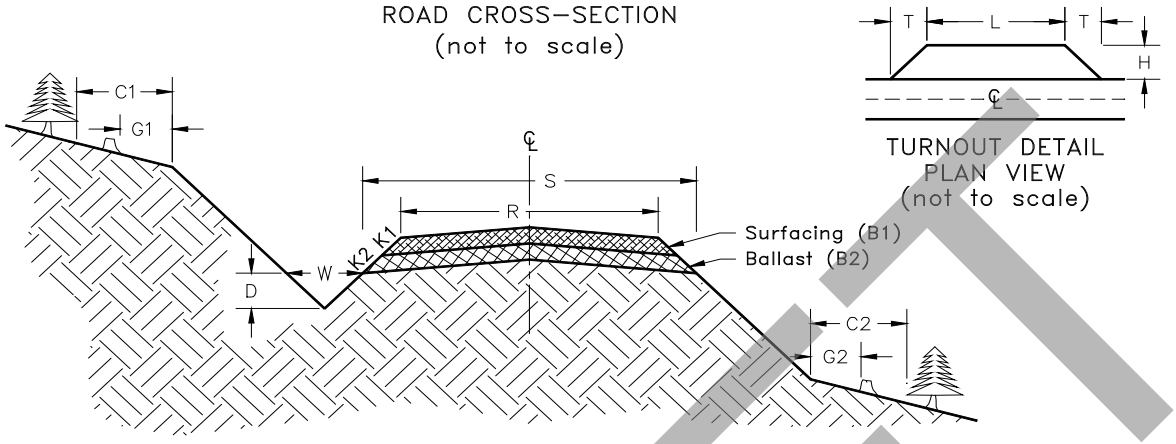
10-17 CORRUGATED PLASTIC CULVERT

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

10-22 PLASTIC BAND

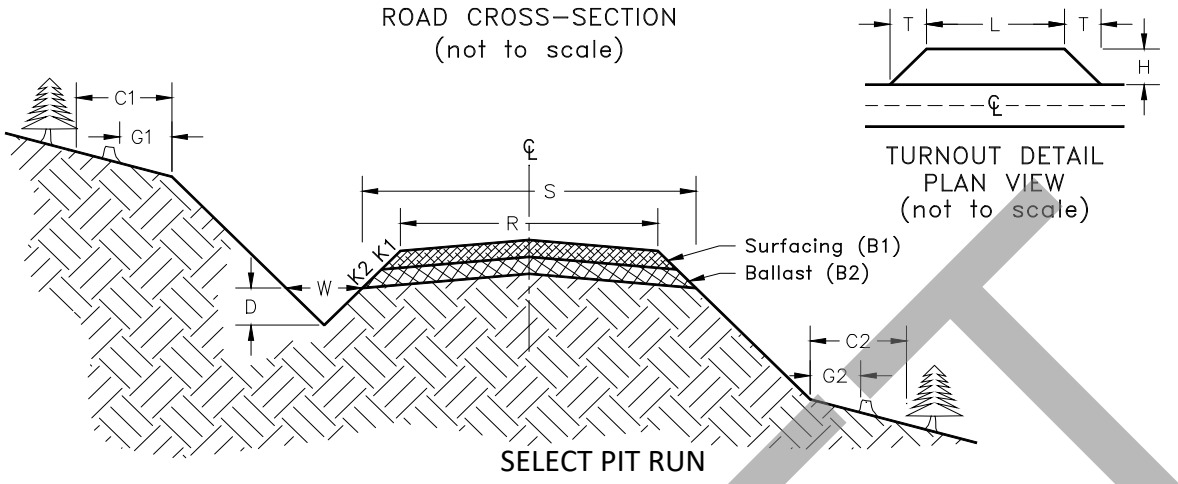
Plastic coupling and end bands must meet the AASHTO specification designated for the culvert. Only fittings supplied or recommended by the culvert manufacturer may be used. Couplings must be split coupling band. Split coupling bands must have a minimum of four corrugations, two on each side of the pipe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

TYPICAL SECTION SHEET



Road Number	From Station	To Station	Tolerance Class	Subgrade Width ft	Road Width ft	Ditch Width ft	Ditch Depth ft	Crown @ CL in	Grubbing Limits ft		Clearing Limits ft	
				S	R	W	D		G1	G2	C1	C2
H-8100	0+00	12+00	A	-	12	3	1	4	-	-	-	-
H-8110	0+00	5+50	A	-	12	-	-	4	-	-	-	-
Spur A	0+00	1+00	C	16	12	3	1	4	2	2	5	5
Spur B	0+00	1+00	C	16	12	3	1	4	2	2	5	5
Spur C	0+00	1+00	C	16	12	3	1	4	2	2	5	5
H-9000	0+00	17+20	A	-	14	3	1	4	-	-	-	-
H-9200	0+00	55+50	A	-	12	3	1	4	-	-	-	-
H-9215	0+00	22+60	B	14	12	3	1	4	2	2	10	10
H-9225	0+00	0+90	A	-	12	3	1	4	-	-	-	-
H-9225 Ext.	0+00	6+35	C	16	12	3	1	4	2	2	10	10

ROCK LIST

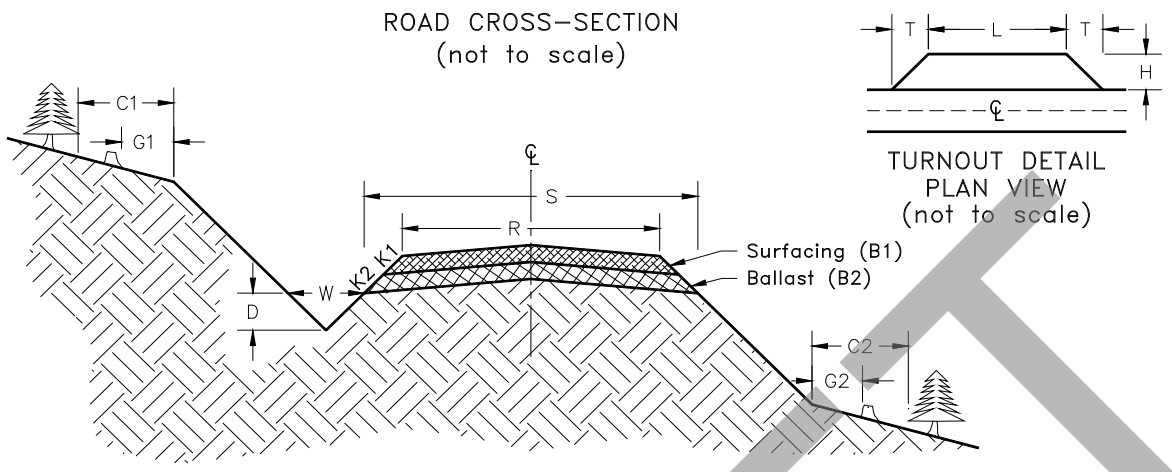


Road Number		From Station	To Station	Rock Slope	Compacted Rock Depth (in)	C.Y. per Station or Unit	# of Stations or Units	C.Y. Subtotal	Rock Source	Turnout Length	Turnout Width	Turnout Taper
				K2	B2				Harmony Pit	L (ft)	H (ft)	T (ft)
H-8100	*	Landing (12+00)				100	1	100				
H-8100	*	Energy Dissipater				2	1	2				
Spur A		0+00	1+00	1 1/2:1	15	81	1.00	81				
		Junctions				15	1	15				
		Landings				50	1	50				
Spur B		0+00	1+00	1 1/2:1	15	81	1.00	81				
		Junctions				15	1	15				
		Landings				50	1	50				
Spur C		0+00	1+00	1 1/2:1	15	81	1.00	81				
		Energy Dissipater						1				
		Junctions				15	1	15				
		Landings				50	1	50				
H-9000		Landing (13+40)				50	1	50				
H-9215		Turnarounds				34	1	34				
		Turnouts				19	1	19		40	10	25
		Energy Dissipater						4				
		Landings (9+50, 22+60)				50	2	100				
H-9225 Ext.	*	0+00	6+35	1 1/2:1	15	81	6.35	514				
	*	Turnarounds				43	1	43				
	*	Turnouts				23	1	23		40	10	25
	*	Curve Widening						18				
	*	Junctions				15	1	15				
	*	Landing				70	1	70				
		Energy Dissipater						1				

*Optional Rock in accordance with 6-75

REQUIRED SELECT PIT RUN: 647 CY
OPTIONAL SELECT PIT RUN: 785 CY
TOTAL SELECT PIT RUN: 1432 CY

ROCK LIST



1 1/2 INCH MINUS CRUSHED ROCK

Road Number		From Station	To Station	Rock Slope	Compacted Rock Depth (in)	C.Y. per Station or Unit	# of Stations or Units	C.Y. Subtotal	Rock Source	Turnout Length	Turnout Width	Turnout Taper
				K1	B1				Harmony Stockpile	L (ft)	H (ft)	T (ft)
H-8100		0+00	1+20	1 1/2:1	6	30	1.20	36				
		Curve Widening						1				
		Junctions				15	1	15				
	*	Spot Rock (1+20 to 12+00)						50				
	*	Culvert Backfill/Bedding				20	2	40				
H-8110	*	Spot Rock						40				
H-9215		0+00	22+60	1 1/2:1	4	20	22.60	452				
		Culvert Backfill/Bedding				20	4	80				
		Curve Widening						14				
		Junctions				4	1	4				

*Optional Rock in accordance with 6-75

REQUIRED 1 1/2 INCH MINUS CRUSHED ROCK: 602 CY
OPTIONAL 1 1/2 INCH MINUS CRUSHED ROCK: 130 CY
TOTAL 1 1/2 INCH MINUS CRUSHED ROCK: 732 CY

CULVERT LIST

Road Number	Location	Culvert			(C.Y.)			Backfill	Bedding	Inlet	Remarks
		Dia (In)	Length	Type	Inlet	Outlet	Type	Material	Material	Marker	
H-8100	5+20	18	30	PD	0.5	0.5	SP	CR	CR	N	
	7+70	18	30	PD	0.5	0.5	SP	CR	CR	N	
Spur C	0+05	18	40	PD	0.5	0.5	SP	NT	NT	N	
H-9215	3+60	18	30	PD	0.5	0.5	SP	CR	CR	Y	
	7+10	18	30	PD	0.5	0.5	SP	CR	CR	Y	Replace
	12+30	18	30	PD	0.5	0.5	SP	CR	CR	Y	
	16+60	18	30	PD	0.5	0.5	SP	CR	CR	Y	
H-9225 Ext.	5+15	18	30	PD	0.5	0.5	SP	NT	NT	Y	

Key:

SP - Select Pit Run
NT - Native (bank run)
CR - 1 1/2 Inch Minus Crushed
LL - Light Loose Riprap
PD - Polyethylene Pipe Double Wall
PSDS - Polyethylene Downspout Single Wall

COMPACTION LIST

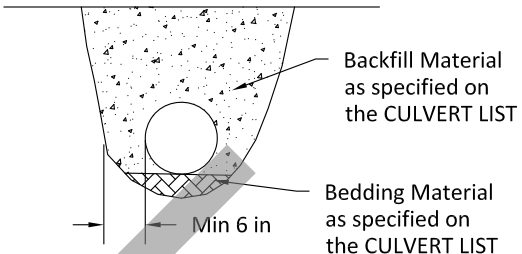
Road	Type	Max Depth Per Lift (inches)	Equipment Type	Equipment Weight (lbs)	Minimum Number of Passes
All Roads	Subgrade	12	Vibratory Smooth Drum	14,000	4
All Roads	Embankment or Fill	18	Vibratory Smooth Drum	14,000	4
All Roads	Waste Area	24	Excavation	28,000	-
All Roads	Pre-haul Surface	6	Vibratory Smooth Drum	14,000	5
All Roads	Rock	12	Vibratory Smooth Drum	14,000	3

INSTALLATION REQUIREMENTS:

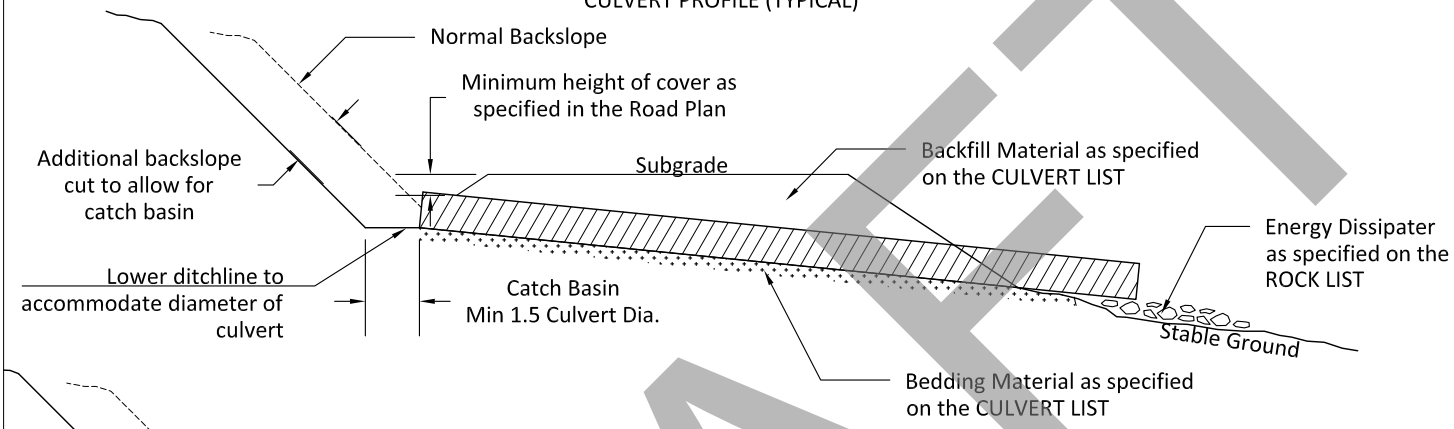
1. Proper preparation of foundation and placement of any required bedding material shall precede the installation of all culverts. This includes necessary leveling of the native trench bottom and compaction of required bedding material to form a uniform, dense, unyielding base. The pipe must be uniformly supported along the barrel.
2. Backfill material shall be compacted under the culvert haunches, around the sides, and above the culvert in accordance with the COMPACTION LIST.

ALL DRAWINGS ARE NOT TO SCALE

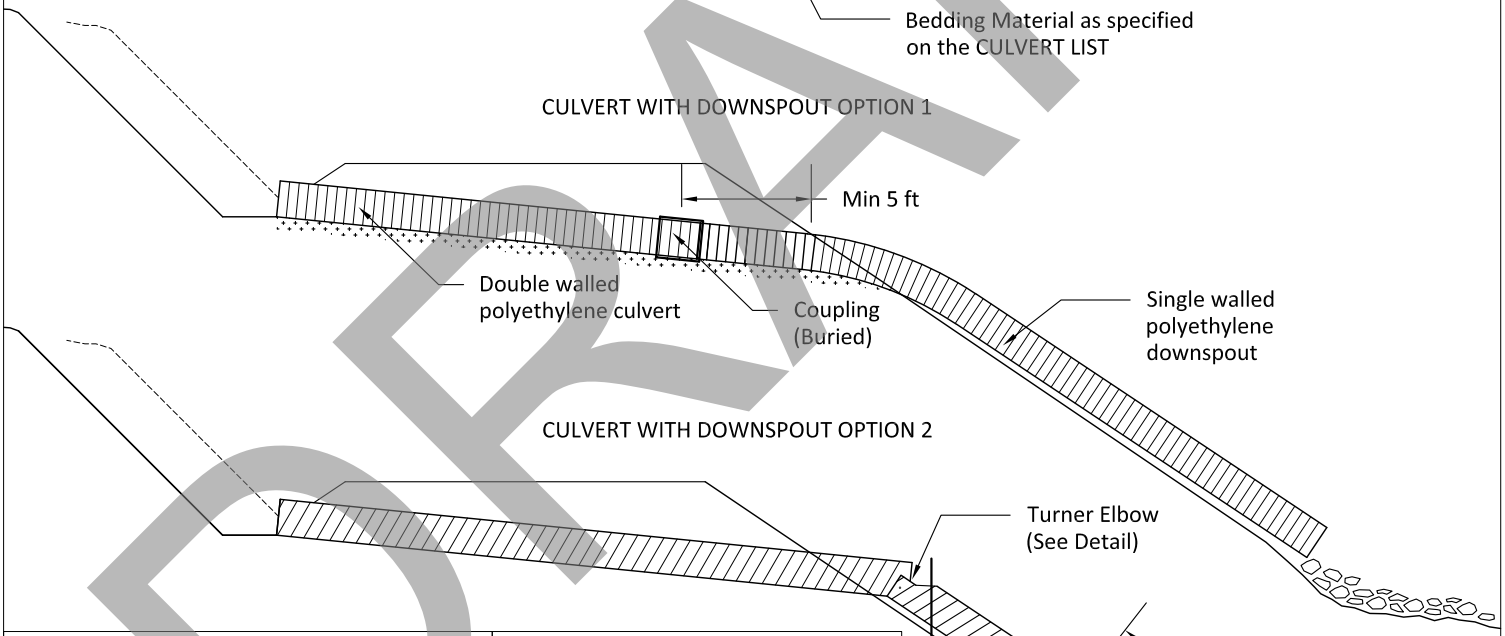
CROSS SECTION



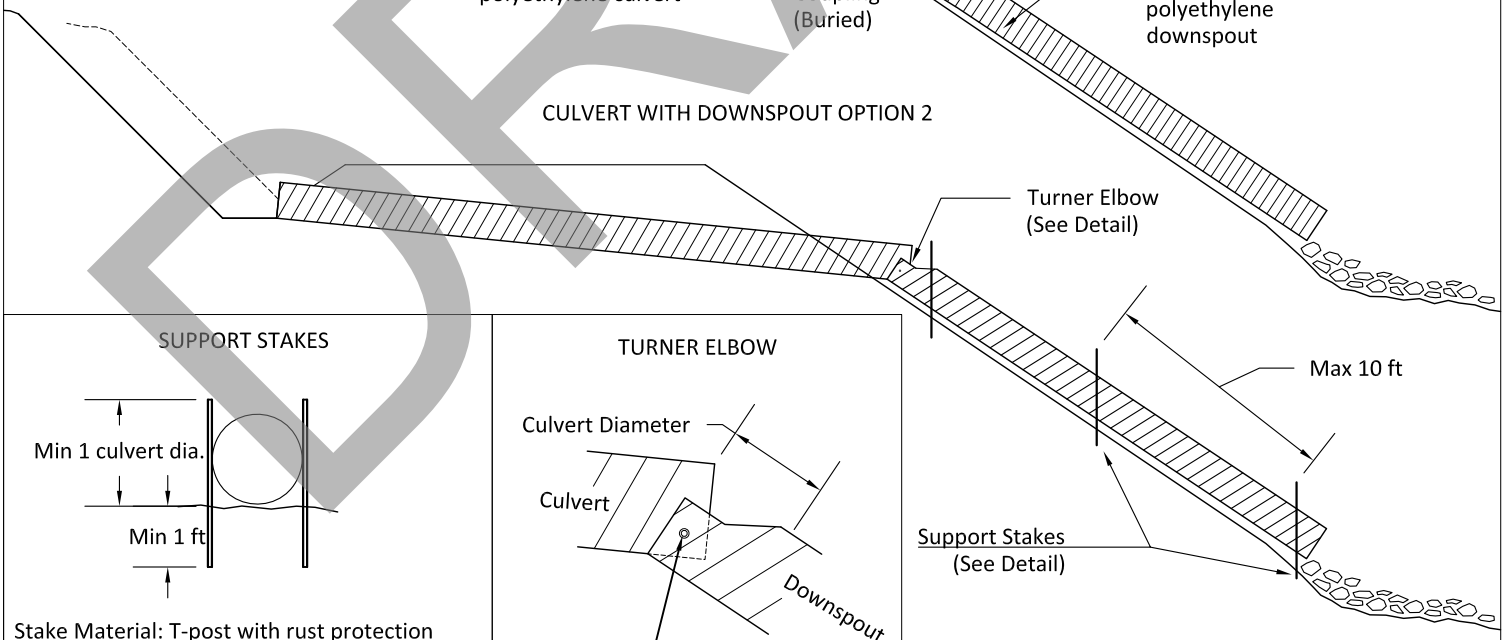
CULVERT PROFILE (TYPICAL)



CULVERT WITH DOWNSPOUT OPTION 1



CULVERT WITH DOWNSPOUT OPTION 2



SUPPORT STAKES

Stake Material: T-post with rust protection coating.
Connections: Bolt support stakes to the culvert with $\frac{5}{8}$" u-bolts, with washers on both the inside and outside of the culvert.
Alternative staking methods may be approved, in writing, by the Contract Administrator.

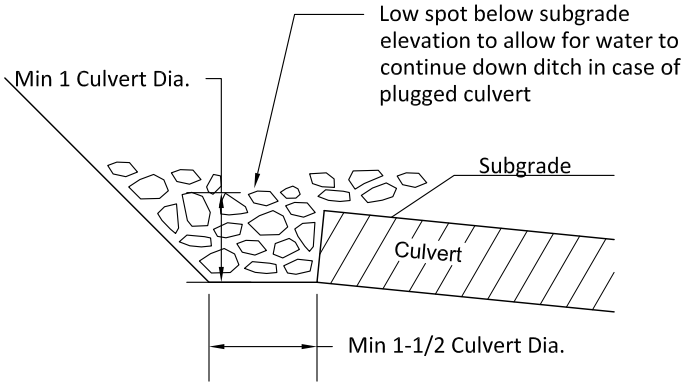
TURNER ELBOW

Bolted with $\frac{5}{8}$" galvanized bolts and washers (both sides)

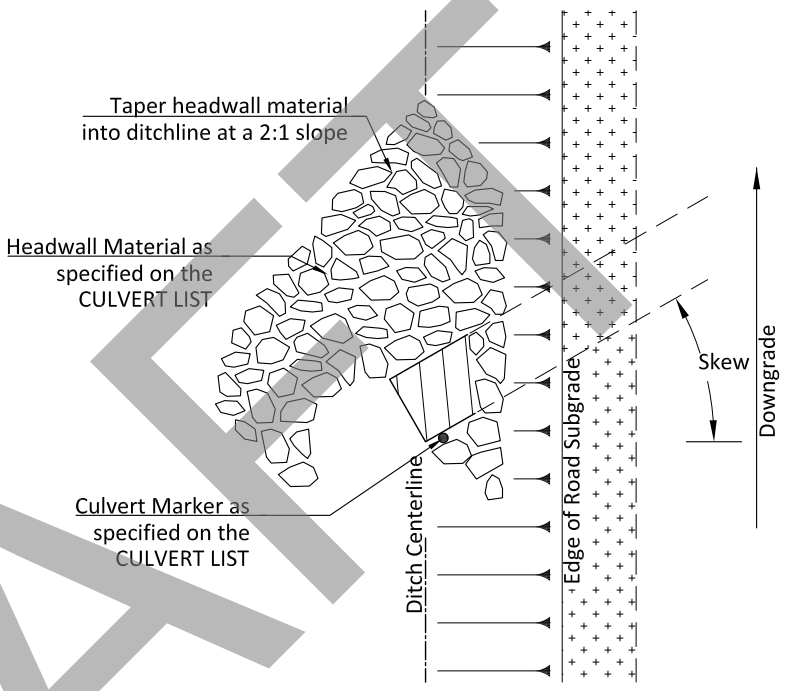
Downspout must be 6 inches larger in diameter than the culvert.

HEADWALLS

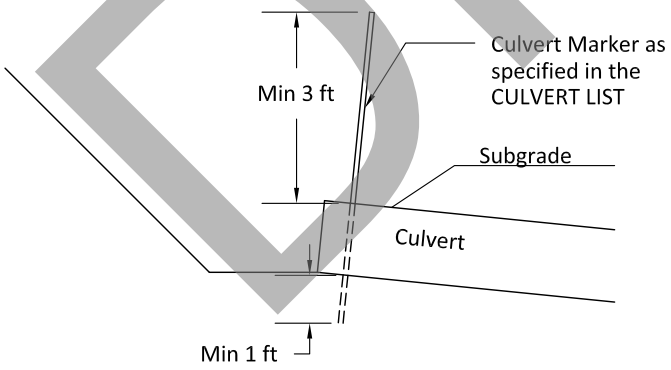
Section View



Plan View

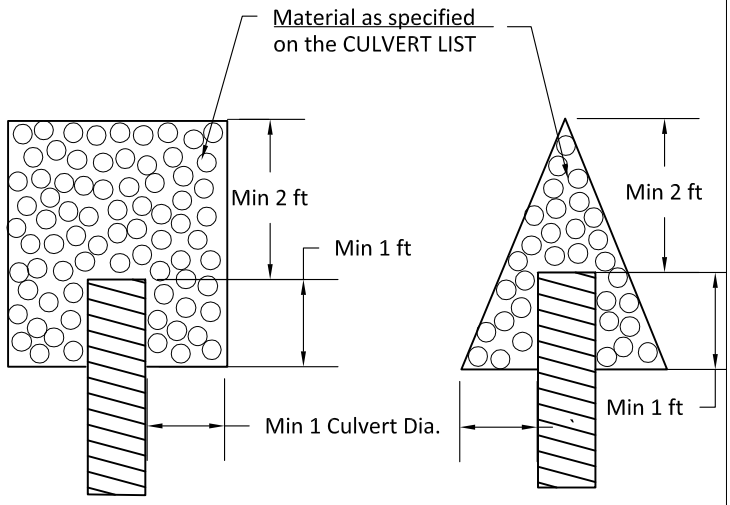


CULVERT MARKERS



Culvert Marker Material: 1 Inch I.D., Schedule 40 PVC Pipe, White. Marker must be capped on the top.
Culvert Marker Placement: Place on uphill side of culvert, between corrugations if possible.
Alternative culvert marker types may be approved, in writing, by the Contract Administrator.

ENERGY DISSIPATERS



Min Energy Dissipater Depth: 1 Culvert Dia.

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

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 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

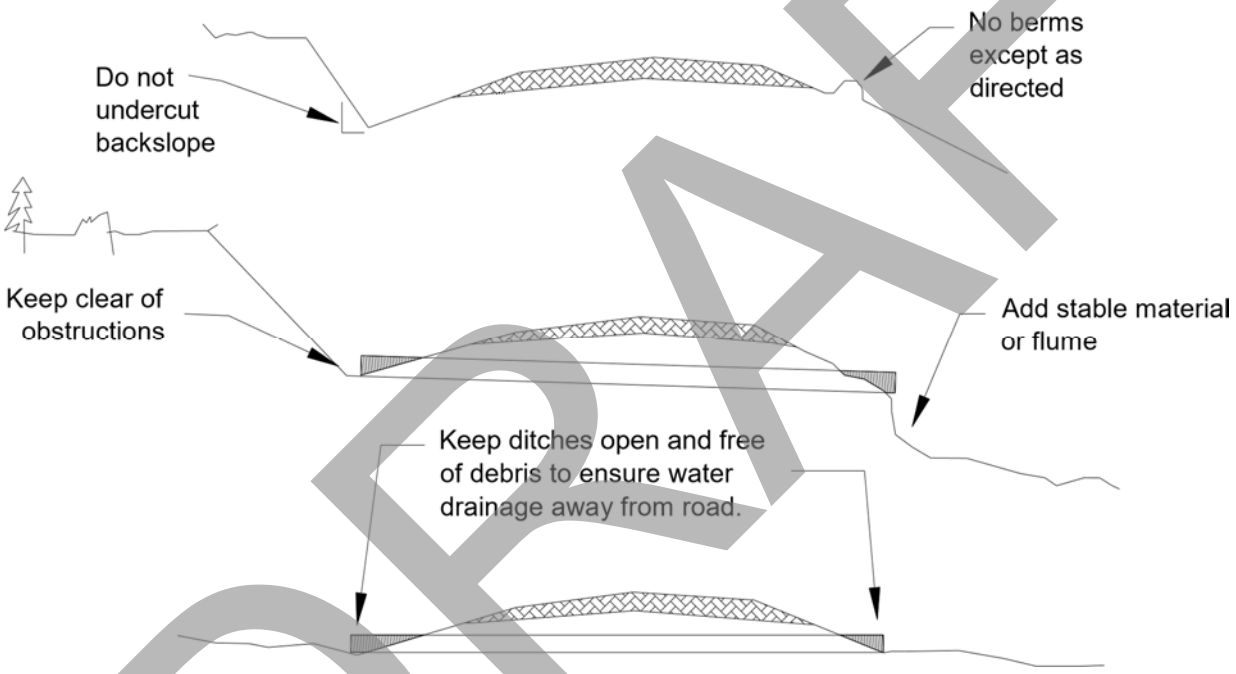
- Perform preventative maintenance work to safeguard against storm damage, such as blading to ensure correct runoff, ditch and culvert cleaning, and waterbar maintenance.

Termination of Use or End of Season

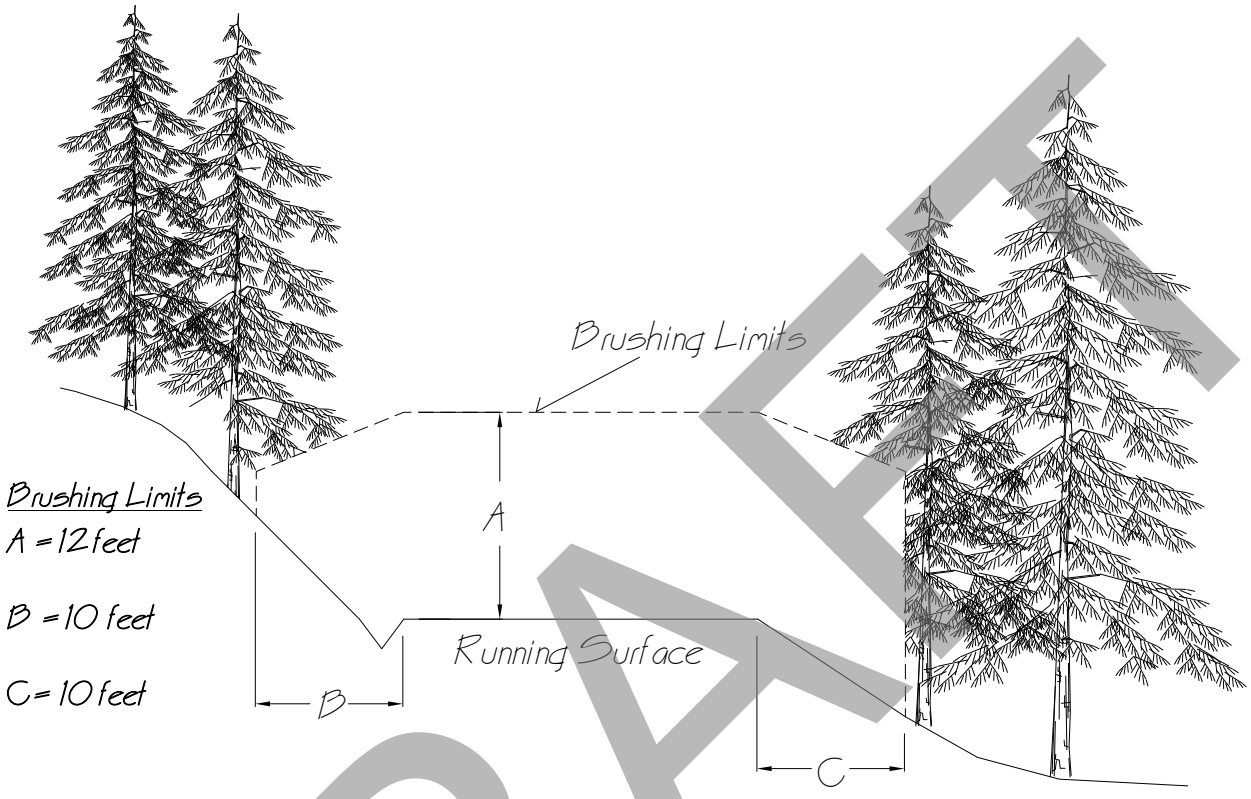
- At the conclusion of logging operations, ensure all conditions of these specifications have been met.

Debris

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



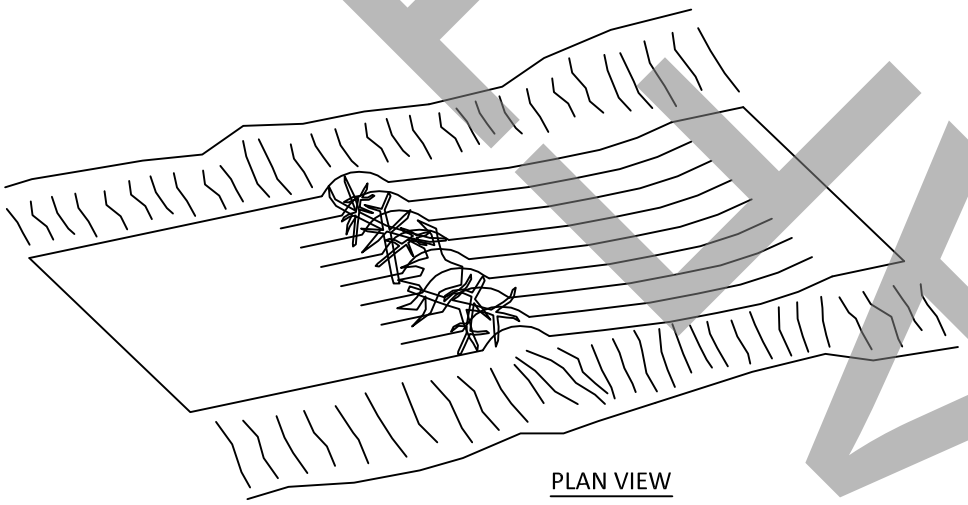
ROADSIDE BRUSHING DETAIL



GENERAL NOTES

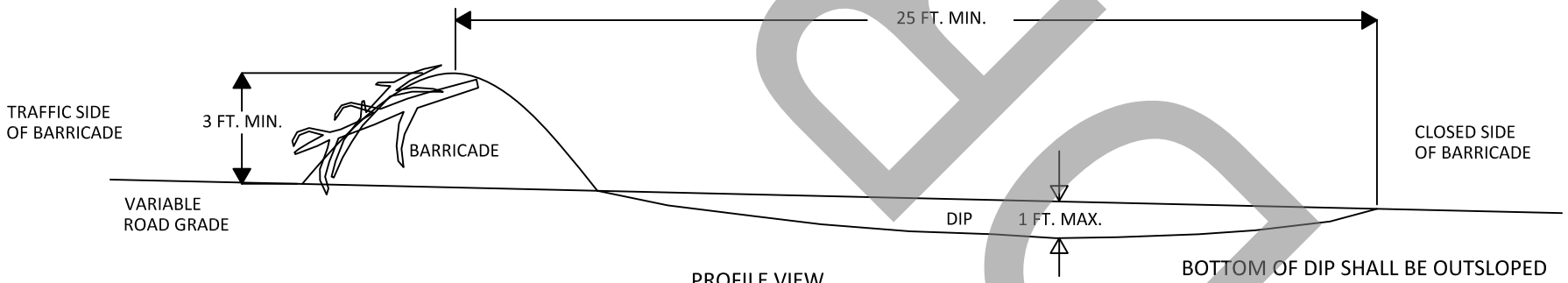
1) Vegetative material, including limbs, up to 4 inches in diameter shall be cut within the brushing limits shown on the drawing above. This includes vegetative material growing on the running surface.
2) Vegetative material shall be cut as near flush with the ground as possible, but shall not extend more than 6 inches above the ground.
3) Brushing Limit C may be increased on the inside of curves to improve sight distance if approved by the Contract Administrator

EARTHEN BARRICADE DETAIL



PLAN VIEW

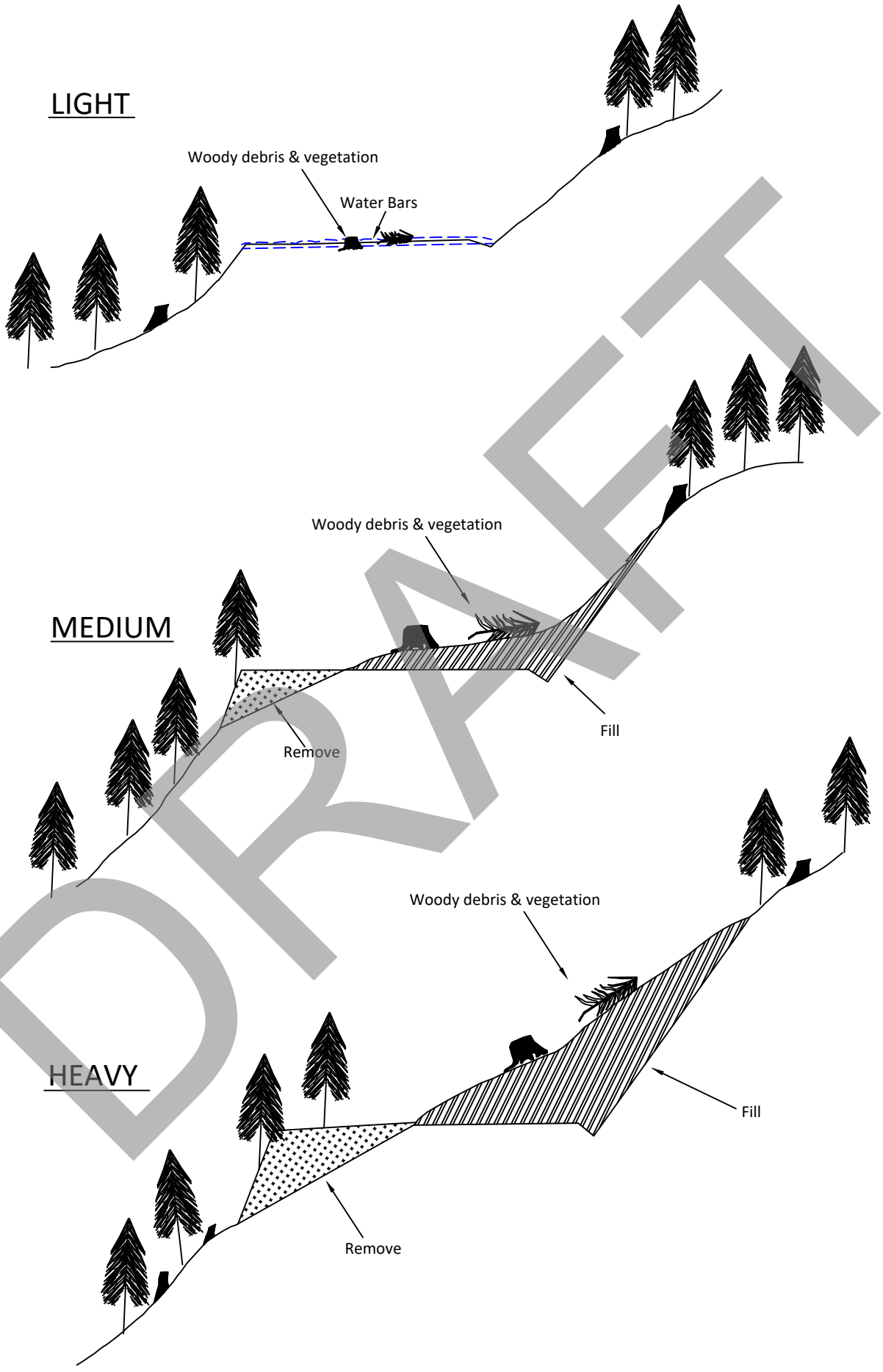
SLASH AND ROOT WADS SHALL BE INCORPORATED INTO THE TRAFFIC SIDE OF THE BARRICADE.



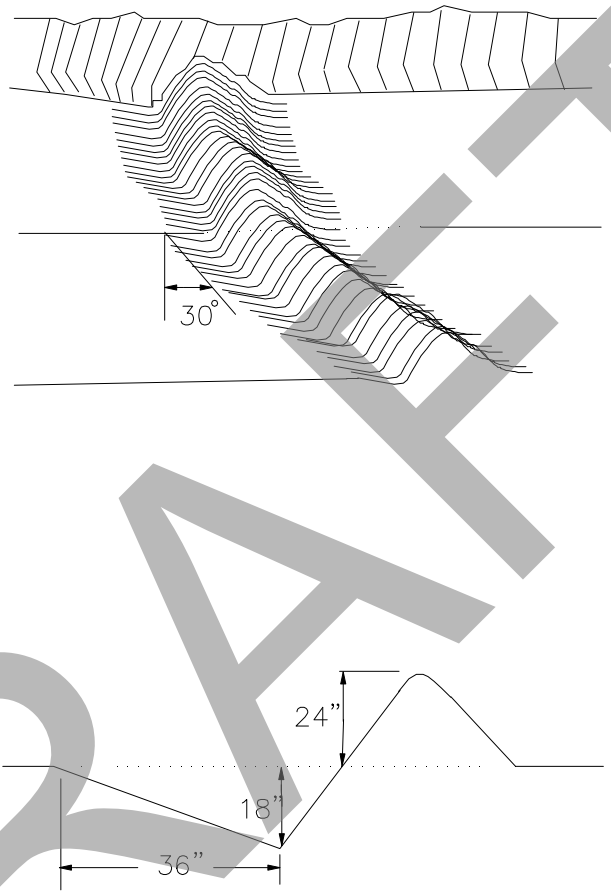
PROFILE VIEW

BOTTOM OF DIP SHALL BE OUTSLOPED SO AS TO DRAIN FREELY

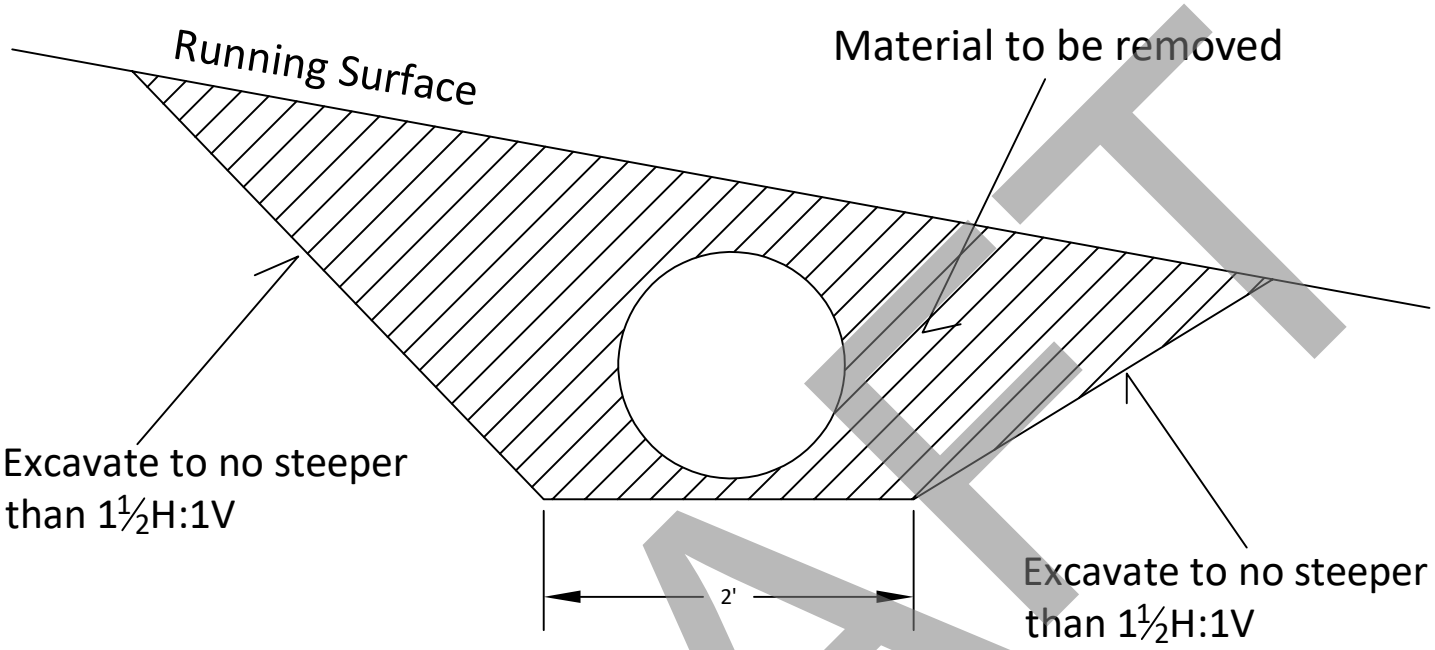
ROAD ABANDONMENT CROSS SECTIONS



NON-DRIVABLE WATER BAR DETAIL



CROSSDRAIN REMOVAL DETAIL



1) Excavated material may be wasted on the road surface on the downhill side of the excavation. Waste material shall be sloped at no steeper than 1½ H:1V.

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

HARMONY QUARRY
ROCK SOURCE DEVELOPMENT PLAN
Sec 33 T13N R03E W.M.

1. All operations shall be carried out in compliance with all the regulations of:
    a. Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration.
    b. "Safety Standards for Construction Work" (296-155 WAC), Washington Department of Labor and Industries.

2. Development shall be in Area A and proceed to Area B. Development in any other area, must be approved in writing by the Contract Administrator. Pit floor shall be free-draining by daylighting to the northwest.

3. All vegetation including stumps shall be cleared a minimum of 30 feet beyond the top of all working faces. Trees shall be cleared to a minimum of ¾ of the height of the tallest tree adjacent to the pit.

4. All overburden and soil shall be stripped a minimum of 15 feet beyond the top of all working faces. Overburden shall be end hauled to the designated waste area and compacted in accordance with the COMPACTION LIST.

5. Purchaser shall submit an informational drilling and shooting plan 3 business days before any drilling.

6. Pit faces created or modified by this sale shall not exceed 20 feet in height and shall be sloped no steeper than ¼:1.

7. Working bench width shall be a minimum of 20 feet.

8. Upon request by the Contract Administrator, Purchaser shall submit an informational drilling and shooting report after blasting has occurred.

9. Oversize material remaining in the rock source at the conclusion of use shall not exceed 5 percent of the total volume mined during that operation. Oversize material is defined as rock fragments larger than two feet in any direction. At the conclusion of operations, all remaining oversize material shall be placed as directed by the Contract Administrator.

10. Purchaser shall stockpile all unused rock ripped or shot for this sale in locations designated by the Contract Administrator.

11. Upon completion of pit operations:

    a The pit floor shall be left in a smooth and neat condition. The surface of pit floors and benches must be uniform and free-draining at a minimum 2% outslope gradient.

    b All exposed soil in the waste area shall be grass seeded in accordance with Road Plan Clauses 8-15 REVEGETATION and 8-25 GRASS SEED.

    c Pit faces and walls shall be scaled and cleared of loose and overhanging material.

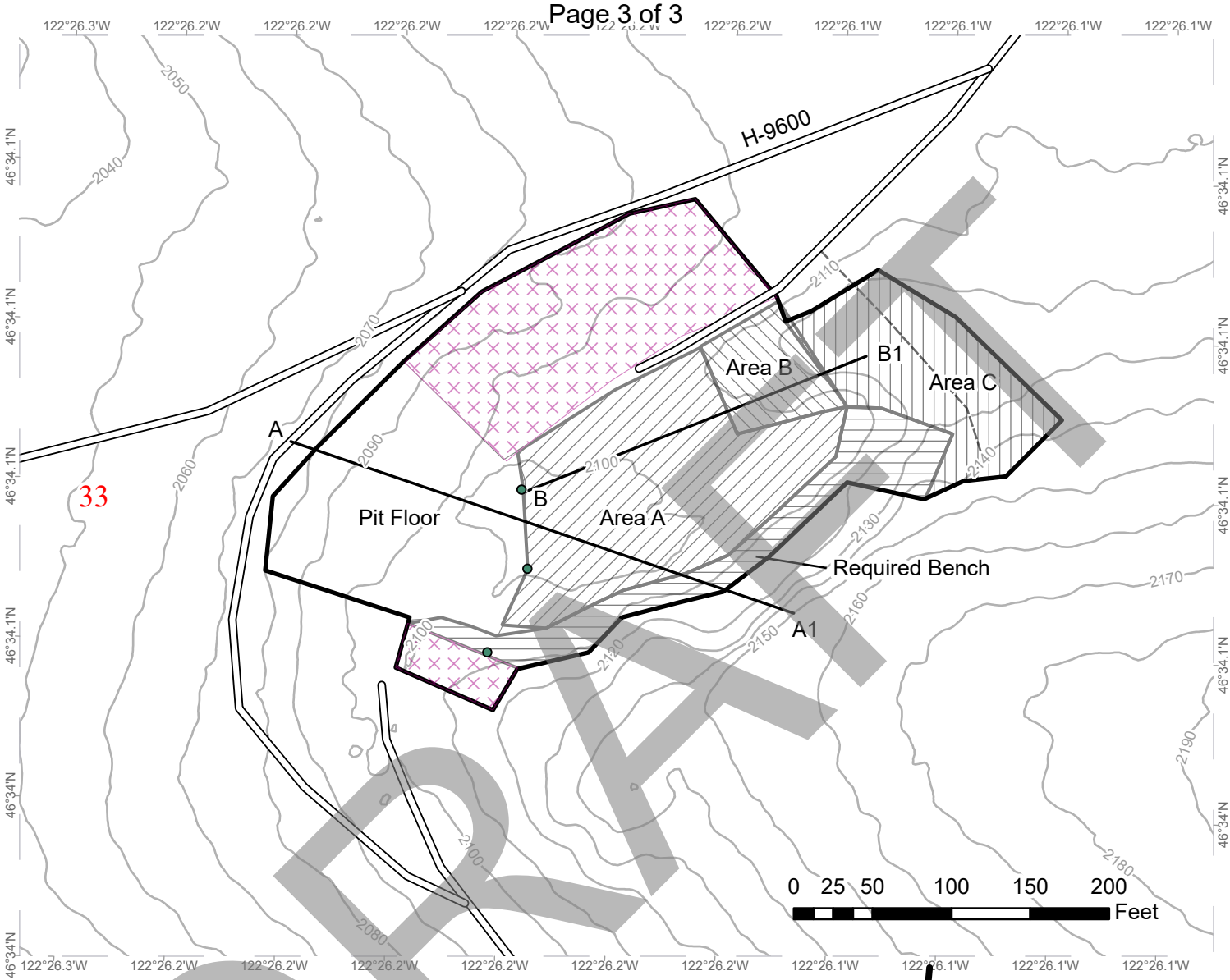
    d Benches and faces shall have safety berms constructed or access blocked to highway vehicles.

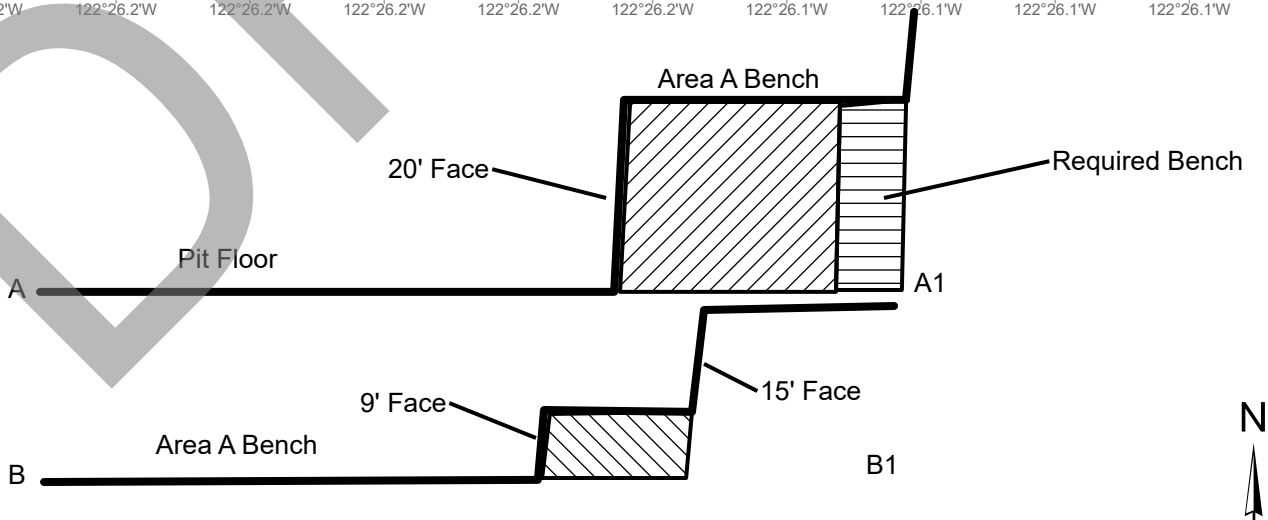
    e The area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life. The site shall be cleared of all temporary structures, equipment and rubbish, and shall be left in a neat and presentable condition.

    f Prior to termination of the contract, quarry condition and compliance with all terms of the contract shall be approved in writing by the Contract Administrator.

12. Reclamation will not be required following use.

HARMONY QUARRY DEVELOPMENT PLAN
Sec. 33, T13N, R3E, W.M.





N

Pit Floor | Area B | Area C | Quarry Outline
Area A | Required Bench | Waste | Trails
Contours 10 ft

Prepared By: rwal490
Accessed: 01/09/2025 13:21

Modification Date: rwal490 3/5/2024

SUMMARY - Road Development Costs

REGION: Pacific Cascade
DISTRICT: Lewis

SALE/PROJECT NAME: Nash AGREEMENT #: 30-107218

ROAD NUMBERS: Optional: H-8100 (1+20 to 12+00), H-8110, H-9215, H-9225 Ext.

Required: H-8100 (0+00 to 1+20), Spur A, Spur B, Spur C, H-9000, H-9200 H-9225

ROAD STANDARD:		Construction	Reconstruction	Maintenance
NUMBER OF STATIONS:		9.35	22.60	91.10
CLEARING & GRUBBING, EXCAVATION AND FILL, MISC.:		$6,820.90	$6,487.18	$8,091.10
ROAD ROCK:				
	Optional:	$8,240.36	$0.00	$2,732.90
	Required:	$4,549.94	$6,912.26	$506.50
	Total:	$12,790.30	$6,912.26	$3,239.40
STOCKPILE:		-	-	$0.00
CULVERTS AND FLUMES:		$2,151.00	$3,692.00	$1,830.00
STRUCTURES:		-	-	-
MOBILIZATION:		$2,395.82	$2,278.60	$2,841.98
TOTAL COSTS:		$24,158.02	$19,370.04	$16,002.48
COST PER STATION:		$2,584	$857	$176
ROAD DEACTIVATION & ABANDONMENT COSTS:		$1,157.12	$0.00	$1,329

10% OVERHEAD AND GENERAL EXPENSE = $5,953.05
TOTAL (All Roads) = $67,969.71
TOTAL (Minus Optional Rock) = $56,996.45
SALE VOLUME MBF = 4,770
TOTAL $/MBF = $14.25
TOTAL $/MBF (Minus Optional Rock) = $11.95

Profit and Risk costs are accounted on an individual basis.

SUMMARY OF ROAD

Sale: **Nash** Road: **H-8100**

Required/Optional Pre-Haul Maintenance-	12+00	stations	Required Reconstruction -	0+00	stations	Required Construction -	0+00	stations
	0.23	miles		0.00	miles		0.00	miles
Required Abandonment-	11+30	stations	Optional Reconstruction -	0+00	stations	Optional Construction -	0+00	stations
	0.21	miles		0.00	miles		0.00	miles

PRE-HAUL MAINTENANCE

CLEARING

Roadside Brushing	0.23	miles @	$1,560.00	per mile =	$358.80	

EXCAVATION

Construct Landing - 12+00	1.00	@	$538.46	each	$538.46	
Clean ditch-	12.00	stations @	$67.19	per station	$806.28	

MISC.

Grade and shape existing road surface -	12.00	stations @	$18.25	per station	$219.00	
Roll shaped road surface w/ vibratory roller prior to rocking -	12.00	stations @	$9.70	per station	$116.40	
				TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		**$2,038.94**

CULVERTS - MATERIALS & INSTALLATION

Culverts						
	60	LF of 18"	$1,830.00	0 LF of 24"	$0.00	
Culvert Stakes & Markers						
	2	markers	$16.00			
					TOTAL CULVERTS	**$1,830.00**

ROCK

0+00 to	1+20	52	cy. of	Crushed	@	$8.94	per c.y.=	$464.88
Culvert Backfill/Bedding	See Rock List	40	cy. of	Crushed	@	$8.94	per c.y.=	$357.60
Spot Rock	See Rock List	50	cy. of	Crushed	@	$8.94	per c.y.=	$447.00
Energy Dissipator	See Rock List	2	cy. of	Pit-Run	@	$15.81	per c.y.=	$31.62
0+00 to	0+00	100	cy. of	Pit Run	@	$10.81	per c.y.=	$1,081.00
							TOTAL ROCK	**$2,382.10**

ABANDONMENT

Construct waterbar -	8.00	@	$60.00	each	$480.00	
Construct Earthen Barricade -	1.00	@	$180.00	each	$180.00	
Grass seed -	20.00	lbs @	$4.00	per lbs	$80.00	
Remove culverts from state lands -	2.00	@	$309.10	total	$309.10	
					TOTAL ABANDONMENT	**$1,049.10**

	SUBTOTAL	**$7,300.14**
MOBILIZATION	SUBTOTAL	**$716.17**
OVERHEAD & GENERAL EXPENSES 10%	SUBTOTAL	**$801.63**
	TOTAL	**$8,817.94**
Optional Rock? YES	**COST PER STATION**	**$734.83**

SUMMARY OF ROAD

Sale: **Nash** Road: **H-8110**

Required Pre-Haul Maintenance-	5+50	stations	Required Reconstruction -	0+00	stations	Required Construction -	0+00	stations
	0.10	miles		0.00	miles		0.00	miles
Required Abandonment-	5+50	stations	Optional Reconstruction -	0+00	stations	Optional Construction -	0+00	stations
	0.10	miles		0.00	miles		0.00	miles

PRE-HAUL MAINTENANCE

CLEARING

Roadside Brushing	0.10	miles	@	$1,560.00	per mile =	$156.00	
MISC.							
Grade and shape existing road surface, remove waterbars -	5.50	stations	@	$54.75	per station	$301.13	
Roll shaped road surface w/ vibratory roller prior to rocking -	5.50	stations	@	$9.70	per station	$53.35	
					TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		**$510.48**

ROCK

Spot Rock	See Rock List	40	cy. of	Pit Run	@	$8.77	per c.y.=	$350.80
							TOTAL ROCK	**$350.80**

ABANDONMENT

Construct waterbar -	4.00	@	$60.00	each	$240.00		
Grass seed -	10.00	lbs @	$4.00	per lbs	$40.00		
					TOTAL ADDITIONAL REQUIREMENTS		**$280.00**

	SUBTOTAL	**$1,141.28**
MOBILIZATION	SUBTOTAL	**$179.30**
OVERHEAD & GENERAL EXPENSES 10%	SUBTOTAL	**$132.06**
	TOTAL	**$1,452.64**
	COST PER STATION	**$264.12**

Optional Rock? YES

SUMMARY OF ROAD

Sale: **Nash** Road: **Spur A**

Required Pre-Haul Maintenance-	0+00 stations 0.00 miles	Required Reconstruction -	0+00 stations 0.00 miles	Required Construction -	1+00 stations 0.02 miles
Required Abandonment-	1+00 stations 0.02 miles	Optional Reconstruction -	0+00 stations 0.00 miles	Optional Construction -	0+00 stations 0.00 miles

CONSTRUCTION

CLEARING/GRUBBING						
Scattering Organic Debris	1.00	sta @	$280.00	per sta	$280.00	
EXCAVATION						
Road Construction Earthwork	1.00	sta. @	$152.17	per sta. =	$152.17	
Grade and shape subgrade -	1.00	stations @	$14.60	per station	$14.60	
MISC.						
Roll subgrade w/ vibratory roller prior to rocking -	1.00	stations @	$12.12	per station	$12.12	
Construct landing -	1.00	@	$538.46	each	$538.46	
Grass seed and fertilize -	4.00	lbs @	$4.00	per lbs	$16.00	
				TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		**$1,013.35**

ROCK

0+00	to	1+00	146	cy. of	Pit Run	@	$10.64	per c.y.= $1,553.44
							TOTAL ROCK	**$1,553.44**

ABANDONMENT

Construct waterbar -	2.00	@	$60.00	each	$120.00	
Construct Spoil Berm -	1.00	@	$180.00	each	$180.00	
Grass seed -	4.00	lbs @	$4.00	per lbs	$16.00	
				TOTAL ADDITIONAL REQUIREMENTS		**$316.00**

	SUBTOTAL	**$2,882.79**
MOBILIZATION	SUBTOTAL	**$355.94**
OVERHEAD & GENERAL EXPENSES 10%	SUBTOTAL	**$323.87**
	TOTAL	**$3,562.60**
Optional Rock? NO	**COST PER STATION**	**$3,562.60**

SUMMARY OF ROAD

Sale: **Nash** Road: **Spur B**

Required Pre-Haul Maintenance-	0+00	stations	Required Reconstruction -	0+00	stations	Required Construction -	1+00	stations
	0.00	miles		0.00	miles		0.02	miles
Required Abandonment-	1+00	stations	Optional Reconstruction -	0+00	stations	Optional Construction -	0+00	stations
	0.02	miles		0.00	miles		0.00	miles

CONSTRUCTION

CLEARING/GRUBBING						
Scattering Organic Debris	1.00	sta @	$280.00	per sta	$280.00	
EXCAVATION						
Road Construction Earthwork	1.00	sta. @	$152.17	per sta. =	$152.17	
Grade and shape subgrade -	1.00	stations @	$14.60	per station	$14.60	
MISC.						
Roll subgrade w/ vibratory roller prior to rocking -	1.00	stations @	$12.12	per station	$12.12	
Construct landing -	1.00	@	$538.46	each	$538.46	
Grass seed and fertilize -	4.00	lbs @	$4.00	per lbs	$16.00	
				TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		**$1,013.35**

ROCK

0+00	to	1+00	146	cy. of	Pit Run	@	$10.24	per c.y.=	$1,495.04
								TOTAL ROCK	**$1,495.04**

ABANDONMENT

Construct waterbar -	2.00	@	$60.00	each	$120.00	
Construct Earthen Barricade -	1.00	@	$180.00	each	$180.00	
Grass seed -	4.00	lbs @	$4.00	per lbs	$16.00	
				TOTAL ADDITIONAL REQUIREMENTS		**$316.00**

	SUBTOTAL	**$2,824.39**
MOBILIZATION	SUBTOTAL	**$355.94**
OVERHEAD & GENERAL EXPENSES 10%	SUBTOTAL	**$318.03**
	TOTAL	**$3,498.36**
Optional Rock? NO	**COST PER STATION**	**$3,498.36**

SUMMARY OF ROAD

Sale: **Nash** Road: **Spur C**

Required Pre-Haul Maintenance-	0+00	stations	Required Reconstruction -	0+00	stations	Required Construction -	1+00	stations
	0.00	miles		0.00	miles			miles
Required Abandonment-	1+00	stations	Optional Reconstruction -	0+00	stations	Optional Construction -	0+00	stations
	0.02	miles		0.00	miles		0.00	miles

CONSTRUCTION

CLEARING/GRUBBING

Scattering Organic Debris	1.00	sta @	$280.00	per sta	$280.00	

EXCAVATION

Road Construction Earthwork	1.00	sta. @	$152.17	per sta. =	$152.17	
Grade and shape subgrade -	1.00	stations @	$14.60	per station	$14.60	

MISC.

Roll subgrade w/ vibratory roller prior to rocking -	1.00	stations @	$12.12	per station	$12.12	
Construct landing -	1.00	@	$538.46	each	$538.46	
Grass seed and fertilize -	2.40	lbs @	$4.00	per lbs	$9.60	
				TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		**$1,006.95**

CULVERTS - MATERIALS & INSTALLATION

Culverts

40	LF of 18"	$1,220.00	0	LF of 24"	$0.00	
		$1,220.00			$0.00	

Culvert Stakes & Markers

1 markers	$8.00	
	$8.00	TOTAL CULVERTS **$1,228.00**

ROCK

0+00	to	1+00	146	cy. of	Pit Run	@	$10.18	per c.y.= $1,486.28
								TOTAL ROCK **$1,501.46**

ABANDONMENT

Construct waterbar -	2.00	@	$60.00	each	$120.00
Construct Earthen Barricade -	1.00	@	$180.00	each	$180.00
Grass seed -	4.00	lbs @	$4.00	per lbs	$16.00
Remove culverts from state lands -	1.00	@	$209.12	total	$209.12
				TOTAL ADDITIONAL REQUIREMENTS	**$525.12**

SUBTOTAL **$4,261.53**

MOBILIZATION

SUBTOTAL **$353.69**

OVERHEAD & GENERAL EXPENSES

10%

SUBTOTAL **$461.52**

TOTAL **$5,076.74**

Optional Rock? NO

COST PER STATION **$5,076.74**

SUMMARY OF ROAD

Sale: **Nash** Road: **H-9000**

Required Pre-Haul Maintenance-	17+20	stations	Required Reconstruction -	0+00	stations	Required Construction -	0+00	stations
	0.33	miles		0.00	miles		0.00	miles
Required Abandonment-	0+00	stations	Optional Reconstruction -	0+00	stations	Optional Construction -	0+00	stations
	0.00	miles		0.00	miles		0.00	miles

PRE-HAUL MAINTENANCE

CLEARING							
Roadside Brushing	0.00	miles	@	$1,170.00	per mile =	$0.00	
EXCAVATION							
Clean ditch & culverts	17.20	stations	@	$67.19	per station	$1,155.67	
MISC.							
Grade and shape existing road surface -	17.20	stations	@	$18.25	per station	$313.90	
Roll shaped road surface w/ vibratory roller prior to rocking -	17.20	stations	@	$9.70	per station	$166.84	
					TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		**$1,636.41**

ROCK

Landing	50	cy. of	Pit Run	@	$10.13	per c.y.=	$506.50
						TOTAL ROCK	**$506.50**

	SUBTOTAL	**$2,142.91**
MOBILIZATON	SUBTOTAL	**$574.78**
OVERHEAD & GENERAL EXPENSES 10%	SUBTOTAL	**$271.77**
	TOTAL	**$2,989.46**
Optional Rock? NO	**COST PER STATION**	**$173.81**

SUMMARY OF ROAD

Sale: **Nash** Road: **H-9200**

Required Pre-Haul Maintenance-	55+50	stations	Required Reconstruction -	0+00	stations	Required Construction -	0+00	stations
	1.05	miles		0.00	miles		0.00	miles
Required Abandonment-	0+00	stations	Optional Reconstruction -	0+00	stations	Optional Construction -	0+00	stations
	0.00	miles		0.00	miles		0.00	miles

PRE-HAUL MAINTENANCE

EXCAVATION

Remove debris from ditch & roadside-	55.50	stations @	$40.31	per station	$2,237.21	
MISC.						
Grade and shape existing road surface -	55.50	stations @	$18.25	per station	$1,012.88	
Roll shaped road surface w/ vibratory roller prior to rocking -	55.50	stations @	$9.70	per station	$538.35	
			TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.			**$3,788.44**

	SUBTOTAL	**$3,788.44**
MOBILIZATION	SUBTOTAL	**$1,330.68**
OVERHEAD & GENERAL EXPENSES 10%	SUBTOTAL	**$511.91**
	TOTAL	**$5,631.03**
	COST PER STATION	**$101.46**

Optional Rock? NO

SUMMARY OF ROAD

Sale: **Nash** Road: **H-9215**

Required Pre-Haul Maintenance-	0+00	stations	Required Reconstruction -	0+00	stations	Required Construction -	0+00	stations
	0.00	miles		0.00	miles		0.00	miles
Required Abandonment-	0+00	stations	Optional Reconstruction -	22+60	stations	Optional Construction -	0+00	stations
	0.00	miles		0.43	miles		0.00	miles

RECONSTRUCTION

CLEARING/GRUBBING						
Scattering Organic Debris	22.60	sta @	$140.00	per sta	$3,164.00	
EXCAVATION						
Clean ditch-	22.60	stations @	$67.19	per station	$1,518.49	
Grade and shape subgrade -	22.60	stations @	$14.60	per station	$329.96	
MISC.						
Roll subgrade w/ vibratory roller prior to rocking -	22.60	stations @	$12.12	per station	$273.91	
Reconstruct turnouts @ sta. -	1.00	@	$134.62	each	$134.62	
Reconstruct turnaround @ sta. -	1.00	@	$134.62	each	$134.62	
Reconstruct landing -	2.00	@	$269.23	each	$538.46	
Remove culverts from state lands -	1.00	@	$209.12	total	$209.12	
Grass seed -	46.00	lbs @	$4.00	per lbs	$184.00	
				TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		**$6,487.18**

CULVERTS - MATERIALS & INSTALLATION

Culverts							
120	LF of 18"	$3,660.00		0	LF of 24"	$0.00	
		$3,660.00				$0.00	
Culvert Stakes & Markers							
4 markers		$32.00					
		$32.00				TOTAL CULVERTS	**$3,692.00**

ROCK

0+00 to	22+60	470	cy. of	Crushed	@	$9.34	per c.y.=	$4,389.80	
Culvert Backfill/Bedding	See Rock List	80	cy. of	Crushed	@	$9.34	per c.y.=	$747.20	
Energy Dissipator	See Rock List	4	cy. of	Pit-Run	@	$16.18	per c.y.=	$64.72	
Turnout, Turnaround, Landing	0+00	153	cy. of	Pit Run	@	$11.18	per c.y.=	$1,710.54	
								TOTAL ROCK	**$6,912.26**

	SUBTOTAL	**$17,091.44**
MOBILIZATION	SUBTOTAL	**$2,278.60**
OVERHEAD & GENERAL EXPENSES 10%	SUBTOTAL	**$1,937.00**
	TOTAL	**$21,307.04**
	COST PER STATION	**$942.79**

Optional Rock? NO

SUMMARY OF ROAD

Sale: **Nash** Road: **H-9225**

Required Pre-Haul Maintenance-	0+90 stations 0.02 miles	Required Reconstruction -	0+00 stations 0.00 miles	Required Construction -	0+00 stations 0.00 miles
Required Abandonment-	0+00 stations 0.00 miles	Optional Reconstruction -	0+00 stations 0.00 miles	Optional Construction -	0+00 stations 0.00 miles

PRE-HAUL MAINTENANCE

CLEARING						
Roadside Brushing	0.02	miles @	$1,560.00	per mile =	$31.20	
EXCAVATION						
Clean ditch & debris-	0.90	stations @	$67.19	per station	$60.47	
MISC.						
Grade and shape existing road surface -	0.90	stations @	$18.25	per station	$16.43	
Roll shaped road surface w/ vibratory roller prior to rocking -	0.90	stations @	$9.70	per station	$8.73	
			TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.			**$116.83**

MOBILIZATION

SUBTOTAL **$41.04**

OVERHEAD & GENERAL EXPENSES

10% SUBTOTAL **$15.79**

TOTAL **$173.66**

Optional Rock? NO

COST PER STATION **$192.96**

SUMMARY OF ROAD

Sale: **Nash** Road: **H-9225 Ext.**

Required Pre-Haul Maintenance-	0+00	stations	Required Reconstruction -	0+00	stations	Required Construction -	0+00	stations
	0.00	miles		0.00	miles		0.00	miles
Required Abandonment-	0+00	stations	Optional Reconstruction -	0+00	stations	Optional Construction -	6+35	stations
	0.00	miles		0.00	miles		0.12	miles

CONSTRUCTION

CLEARING/GRUBBING						
Scattering Organic Debris	6.35	sta @	$280.00	per sta	$1,778.00	
EXCAVATION						
Road Construction Earthwork	6.35	sta. @	$152.17	per sta. =	$966.28	
Grade and shape subgrade -	6.35	stations @	$14.60	per station	$92.71	
MISC.						
Roll subgrade w/ vibratory roller prior to rocking -	6.35	stations @	$12.12	per station	$76.96	
Construct turnouts @ sta. -	1.00	@	$134.62	each	$134.62	
Construct turnaround @ sta. -	1.00	@	$134.62	each	$134.62	
Construct landing -	1.00	@	$538.46	each	$538.46	
Grass seed and fertilize -	16.40	lbs @	$4.00	per lbs	$65.60	
				TOTAL CLEARING, GRUBBING, EXCAVATION, FILL, and MISC.		**$3,787.25**

CULVERTS - MATERIALS & INSTALLATION

Culverts

30	LF of 18"	$915.00	0	LF of 24"	$0.00	
		$915.00			$0.00	
Culvert Stakes & Markers						
1	markers	$8.00				
		$8.00			TOTAL CULVERTS	**$923.00**

ROCK

Energy Dissipator		1	cy. of	Pit Run	@	$17.04	per c.y.=	$17.04
0+00 to	6+35	683	cy. of	Pit Run	@	$12.04	per c.y.=	$8,223.32
							TOTAL ROCK	**$8,240.36**

SUBTOTAL	**$12,950.61**
MOBILIZATION SUBTOTAL	**$1,330.26**
OVERHEAD & GENERAL EXPENSES 10% SUBTOTAL	**$1,428.09**
TOTAL	**$15,708.96**
COST PER STATION	**$2,473.85**

Optional Rock? YES

ROCK DEVELOPMENT COST SUMMARY

Pit:	Harmony Pit	Location:	Sec. 33, T13N R3E
Sale:	**Nash**	Road:	1432 c.y.
Swell:	1.40	Stockpile:	c.y.
Shrinkage	1.16	Total Truck Loads:	1432 c.y.

Sort Available Shot Rock:	$2.50	/cu.yd x	1432	cu.yds.	$3,580.00
Load Dump Truck:	$1.50	/cu.yd x	1432	cu.yds.	$2,148.00
				Subtotal	$5,728.00
				TOTAL PRODUCTION COSTS	$5,728.00

Base Cost= $4.00 Per Cu.Yd.

Road Segment	Haul Cost /cu.yd.	Application Cost /cu.yd.	Base Cst. /cu.yd.	Cost /cu.yd.	Number Cu. Yds	Speed (Mi/hr.)	One-Way Dist (ft)	ROCK COST
H-8100 Energy Dissipator	$5.81	$6.00	$4.00	$15.81	2	20	13400	$31.62
H-8100	$5.81	$1.00	$4.00	$10.81	100	20	13400	$1,081.00
Spur A	$5.64	$1.00	$4.00	$10.64	146	20	12800	$1,553.44
Spur B	$5.24	$1.00	$4.00	$10.24	146	20	11400	$1,495.04
Spur C Energy Dissipator	$5.18	$6.00	$4.00	$15.18	1	20	11200	$15.18
Spur C	$5.18	$1.00	$4.00	$10.18	146	20	11200	$1,486.28
H-9000	$5.13	$1.00	$4.00	$10.13	50	20	11000	$506.50
H-9215 Energy Dissipator	$6.18	$6.00	$4.00	$16.18	4	20	14710	$64.72
H-9215	$6.18	$1.00	$4.00	$11.18	153	20	14710	$1,710.54
H-9225 Ext. Energy Dissipator	$7.04	$6.00	$4.00	$17.04	1	20	17730	$17.04
H-9225 Ext.	$7.04	$1.00	$4.00	$12.04	683	20	17730	$8,223.32
				Total C.Y.	1432		Sub Total	$16,184.68

TOTAL ROCKING COSTS $16,184.68

ROCK DEVELOPMENT COST SUMMARY

Pit:	Harmony Stockpile	Location:	Sec. 33, T13N R3E		
Sale:	**Nash**		Road:	732 c.y.	
Swell:	1.40		Stockpile:	c.y.	
Shrinkage	1.16		Total Truck Loads:	732 c.y.	

Load Dump Truck:	$2.25	/cu.yd x	732	cu.yds.	$1,647.00
				Subtotal	$1,647.00
				TOTAL PRODUCTION COSTS	$1,647.00

Base Cost= $2.25 Per Cu.Yd. (existing 1 1/2 inch minus crushed stockpile)

Road Segment	Haul Cost /cu.yd.	Application Cost /cu.yd.	Base Cst. /cu.yd.	Cost /cu.yd.	Number Cu. Yds	Speed (Mi/hr.)	One-way Dist (ft)	ROCK COST
H-8100	$5.69	$1.00	$2.25	$8.94	52	20	13000	$464.88
H-8100 Culvert Backfill/Beddin	$5.69	$1.00	$2.25	$8.94	40	20	13000	$357.60
H-8100 Spot Rock	$5.69	$1.00	$2.25	$8.94	50	20	13000	$447.00
H-8110 Spot Rock	$5.52	$1.00	$2.25	$8.77	40	20	12400	$350.80
H-9215	$6.09	$1.00	$2.25	$9.34	470	20	14400	$4,389.80
H-9215 Culvert Backfill/Beddin	$6.09	$1.00	$2.25	$9.34	80	20	14400	$747.20
				Total C.Y.	732		Sub Total	$6,757.28

TOTAL ROCKING COSTS $6,757.28