WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

TIMBER NOTICE OF SALE

***SALE NAME**: TIGER STRIPES SORTS*

***AGREEMENT NO**: 30-108295 - 30-108318*

AUCTION: March 26, 2025 starting at 10:00 a.m.

COUNTY: Clallam

Olympic Region Office, Forks, WA

SALE LOCATION: Sale located approximately 13 miles west of Port Angeles, WA

PRODUCTS SOLD AND SALE AREA: Contractor shall harvest and deliver, all timber except trees painted with blue paint or bounded out by yellow "Leave Tree Area" tags, bounded by the following: Timber Sale Boundary tags, timber type change, the PA-I-3016 Road, and Kreaman Road in Unit 1; Timber Sale Boundary tags, red painted take trees, flag line, timber type change, and the PA-I-3000 Road in Unit 2; Timber Sale Boundary tags, red painted take trees, timber type change, and the PA-I-3010 Road in Unit 3; Timber Sale Boundary tags, red painted take trees, and timber type change in Unit 4.

All timber bound by Right-of-Way Boundary tags on the PA-I-3010 Road in Unit 5, and the PA-I-3016 road in Unit 6, meeting the specifications described below; on parts of Sections 25, and 26 all in Township 31 North, Range 8 West W.M., containing 123 acres, more or less.

MINIMUM BID AND ESTIMATED LOG VOLUMES:

Agreement #	Sort #	Species and Sort Specifications	Average Log Length	Estimated Volume		Tons Per MBF	Minimum Bid Delivered Prices		Total Appraised Value	Bid Deposit
				Mbf	Tons		$/mbf	$/Ton		
108295	01	DF HQ 12"-19" dib	28	350	1680	4.8	$800.00		$280,000.00	$28,000.00
108296	02	DF 5"-11" dib	N/A	1021	6636	6.5		$90.00	$597,240.00	$59,733.00
108297	03	DF SL 12" - 19" dib	28	1209	6770	5.6	$750.00		$906,750.00	$90,675.00
108298	04	DF SL 20" + dib	28	724	3548	4.9	$650.00		$470,600.00	$47,060.00
108299	05	RC 5"+ dib	28	169	1031	6.1	$1,200.00		$202,800.00	$20,280.00
108300	06	WW SL 5"+ dib	N/A	111	744	6.7		$75.00	$55,800.00	$5,580.00
108301	07	MA SL 5"+ dib	26	207	1470	7.1	$300.00		$62,100.00	$6,210.00
108302	08	RA SL 7"+ dib	26	97	679	7	$450.00		$43,650.00	$5,000.00
108303	09	CONIFER PULP 2"+	N/A	10	90	9		$25.00	$2,250.00	$2,250.00
108304	10	HARDWOOD PULP 2"+ dib	N/A	14	126	9		$25.00	$3,150.00	$3,150.00
108305	11	DF POLES 35' +	N/A	123	713	5.8	$900.00		$110,700.00	$11,070.00

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108318	12	RC POLES 35' +	N/A	10	60	6	$1,400.00		$14,000.00	$5,000.00
Totals:				**4045**	**23547**				**$2,749,130.00**	

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

BID METHOD: Sealed Bids **UNIT OF MEASURE:** MBF Scale/Tonnage Scale

EXPIRATION DATE: December 19, 2025 **ALLOCATION:** Export Restricted

PAYMENT SECURITY: To be determined by the State as described in Clause P-045.2 of the Purchaser's Contract.

BIDDING PROCEDURES: A separate sealed bid and envelope must be submitted for each log sort. Prospective Purchasers may bid on any or all log sorts. On the day of sale the Purchaser must bring their bid deposit up to 10% of their total bid price. Complete bidding procedures and auction information may be obtained from the Olympic Region Office in Forks WA. Phone number (360)374-2800.

TIMBER EXCISE TAX: Purchaser must pay the forest excise taxes associated with the log sorts delivered to them. The tax rate for this sale is 4.2 %. Taxable Stumpage = Total Delivered Value – (Harvest Cost + Estimated Haul Cost + ARRF). For more information contact the Department of Revenue, Forest Tax Section at 1-800-548-8829.

Use the following rates for estimating taxable stumpage:

Harvest Cost = $0.00 per MBF for sorts 01, 03, 04, 05, 07, 08, 11 and 12 and $0.00 per Ton for sorts 02, 06, 09 and 10.

Hauling Services Payment Rate per Ton
= (Base Rate + Mileage Rate) x (Contractor's hauling bid factor)

Base Rate = $2.35 per ton

Mileage Rate = (($0.16 x C miles) + ($0.11 x A miles)) x Fuel Index Factor

ARRF = $0.00 per MBF for sorts 09 and 10 and $26.00 per MBF for sorts 01, 02, 03, 04, 05, 06, 07, 08, 11 and 12.

Note: To calculate ARRF rates per ton use the tons\mbf conversion factor in the table above.

Long-haul surcharge: An additional haul payment of $25/mbf net scale for mbf scale sorts or $4.60/ton for tonnage sorts will be added for delivery destinations in excess of 250 total one-way miles (A miles plus C miles).

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CONFIRMATION: Each sort is subject to confirmation following auction. Sorts will not be confirmed until at least 10 days after auction. Final contract award is contingent upon the State's haul cost analysis. Actual haul route may vary and is subject to change at the State's discretion.

SPECIAL REMARKS: The successful Purchaser(s) will be required to purchase logs from the sale area upon delivery to their location specified in the bid submitted. Logs will be delivered to the Purchaser's delivery location by the State's contract harvester. Purchaser is responsible for weighing and scaling costs. All tonnage loads will be weighed and all mbf loads will be scaled at State approved locations. The State reserves the right to determine where logs are authorized to be scaled and weighed.

There are locked gates on the PA-I-3000 with Camp Hayden Road. Contract Olympic Region Dispatch Center at 360-374-2800 to check out an AA1 key.

Contractor must have utility lines located before beginning operations and/or construction/reconstruction. Contractor is responsible for the cost of repairing any damage to utility lines due to roads or harvest operations.

Hazard abatement in the southern portion of Unit 1 is required within 100 feet of Kreaman Road.

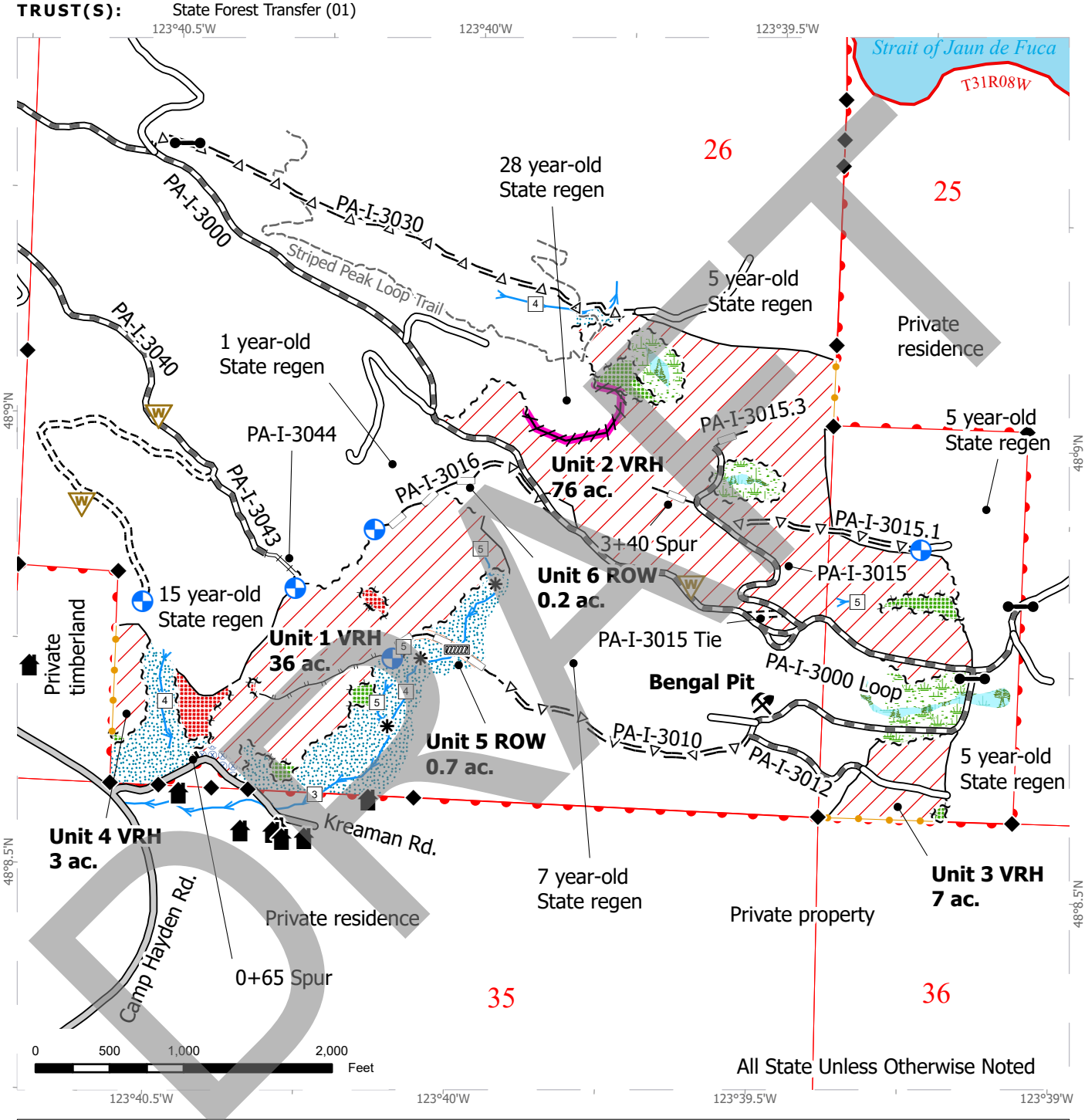
A temporary road approach has been obtained for the optional construction of road Spur 0+65 off Kreaman Road.

For more information regarding this log sort sale visit our web site: http://www.dnr.wa.gov/programs-and-services/product-sales-and-leasing/timber-sales/timber-auction-packets. If you have questions call Jeremy Brown at the Olympic Region Office at (360)391-5976 or Steve Teitzel at the Product Sales and Leasing Division Office in Olympia at (360)902-1741.

TIMBER SALE MAP

SALE NAME: TIGER STRIPES SORTS
AGREEMENT#: 30-106552
TOWNSHIP(S): T31NRO8W, T31NR07W
TRUST(S): State Forest Transfer (01)

REGION: Olympic Region
COUNTY(S): Clallam
ELEVATION RGE: 85' - 945'



- Variable Retention Harvest
- Right-of-Way Harvest
- Public Land Survey Sections
- Public Land Survey Townships
- Leave Tree Area
- Non-Tradeable Leave Tree Area
- Hazard Abatement Area
- Forested Wetland
- Wetland Management Zone
- Riparian Management Zone
- Open Water
- Sale Boundary Tags
- Leave Tree Tags
- Flag Line
- Timber Type Change
- Take / Removal Trees
- Property Line
- Streams
- County Road
- Existing Roads
- Required Pre-Haul Maintenance
- Required Construction
- Required Reconstruction
- Optional Pre-Haul Maintenance
- Optional Construction
- Optional Reconstruction
- Designated Skid Trail
- Old Grades/Trails
- Stream Type
- Stream Break
- Survey Monument
- Gate (AA1,OR1)
- Landing - Proposed
- Culvert Install
- Rock Pit
- Structure
- Waste Area

N

Prepared By: Dsie490
Accessed: 01/09/2025 13:29

Modification Date: Dsie490 10/29/2024

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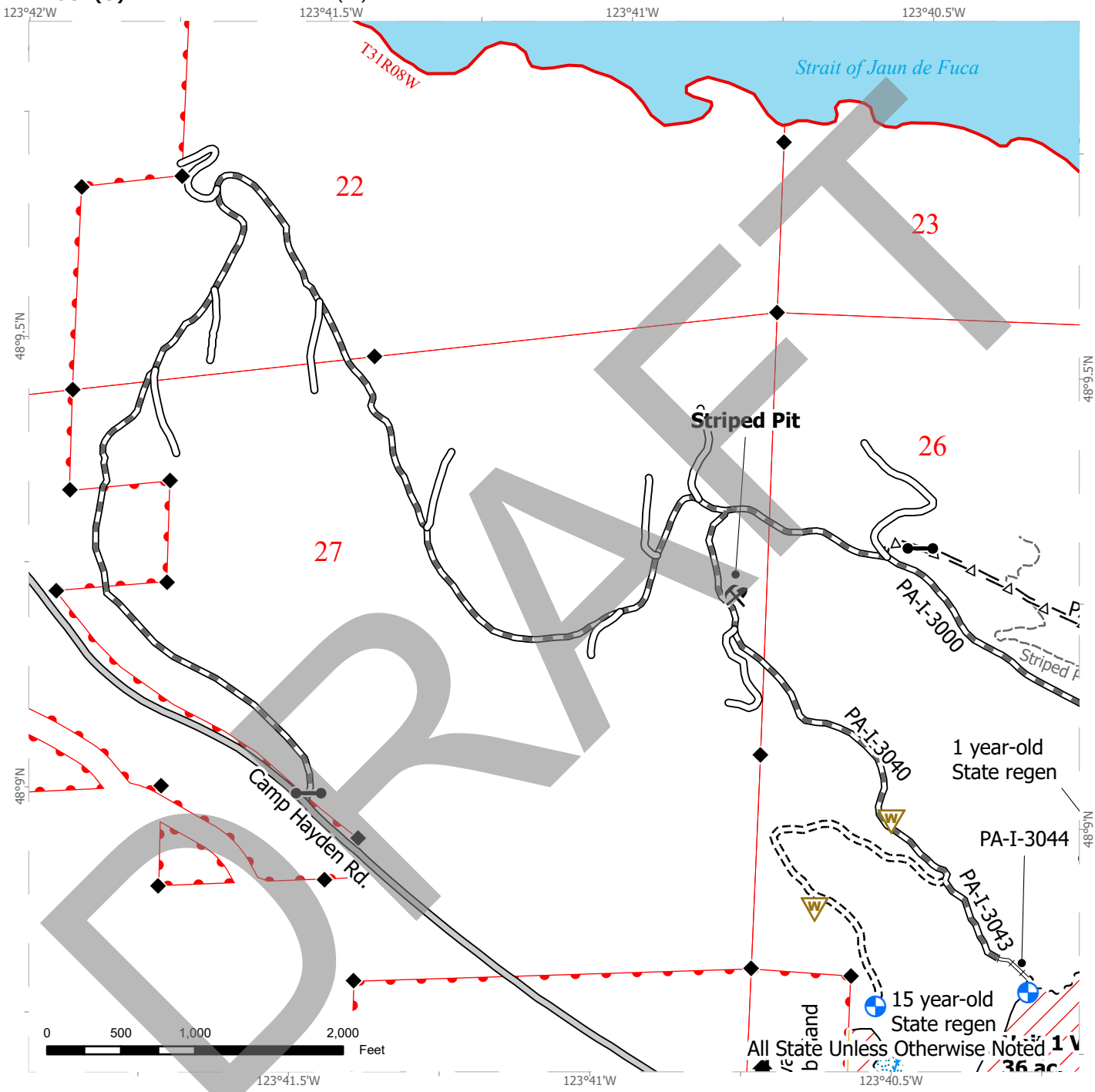

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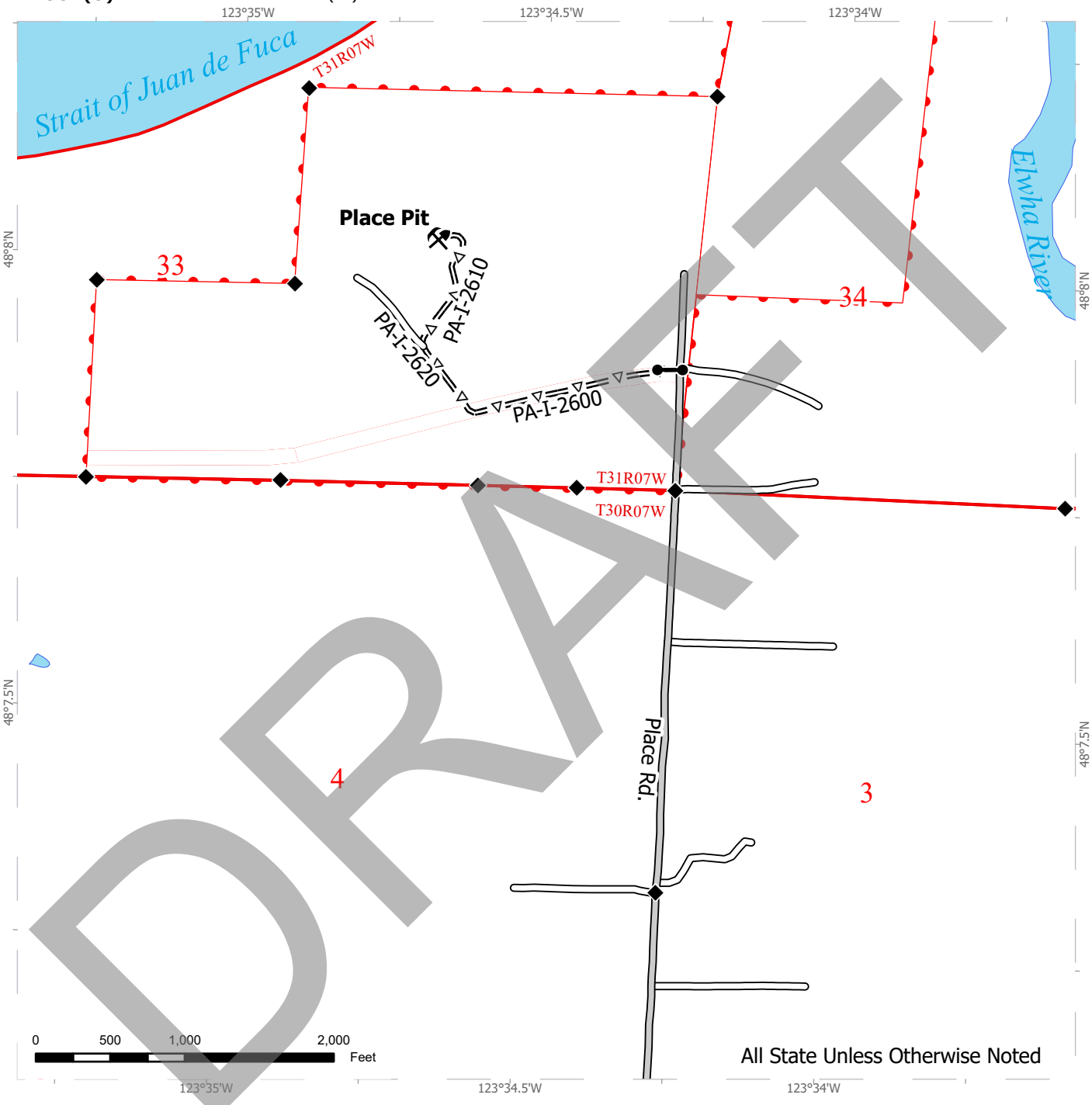

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DRIVING MAP

SALE NAME: TIGER STRIPES SORTS
AGREEMENT#: 30-106552
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TRUST(S): State Forest Transfer (01)

REGION: Olympic Region
COUNTY(S): Clallam
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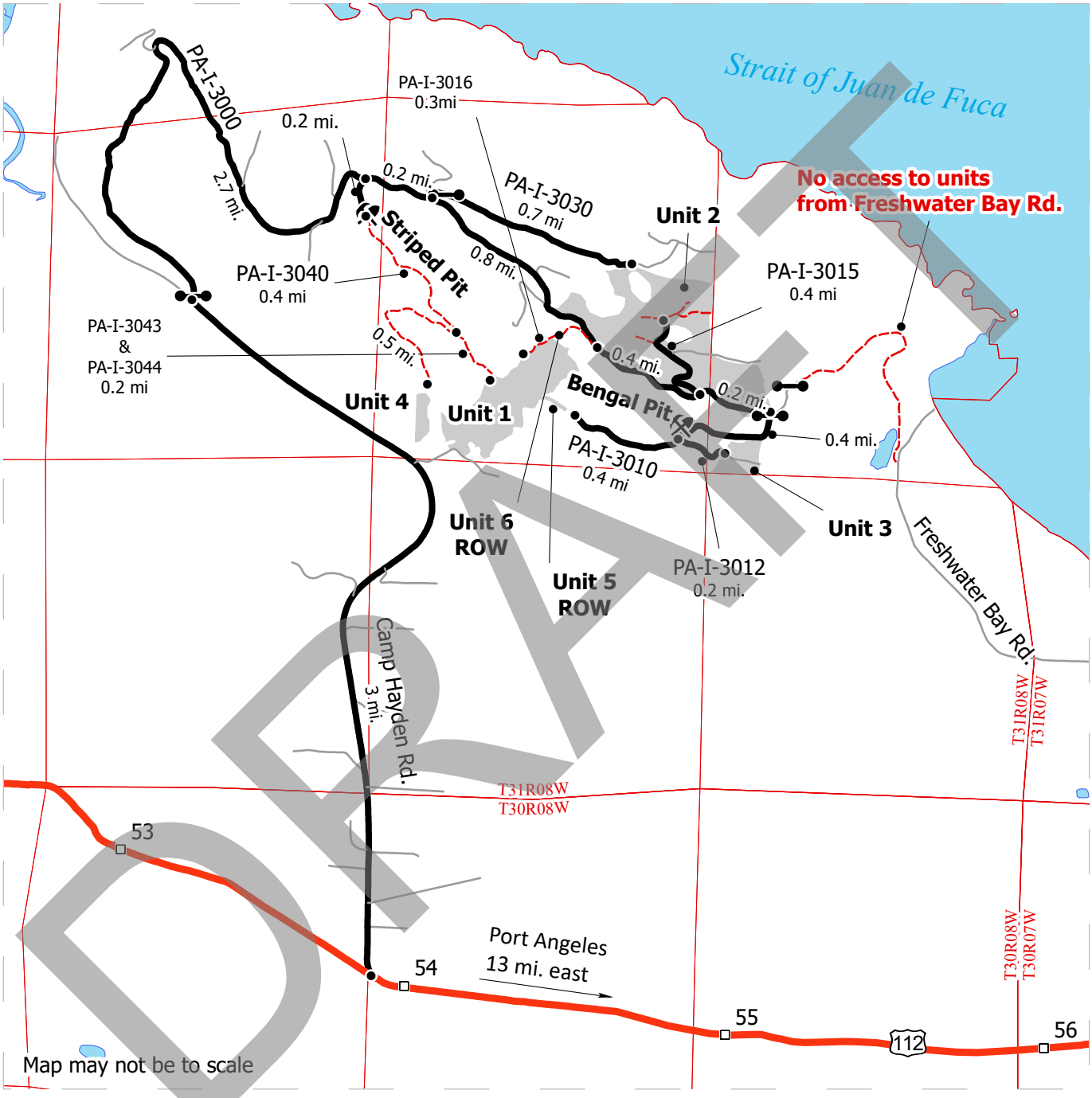

Harvest Unit
Open Water
Public Land Survey Sections
Public Land Survey Townships
Highway
Haul Route
Other Route
View Only Route
Milepost Marker
Distance Indicator
Gate (AA1,OR1)
Rock Pit

DRIVING DIRECTIONS:

See attached document.

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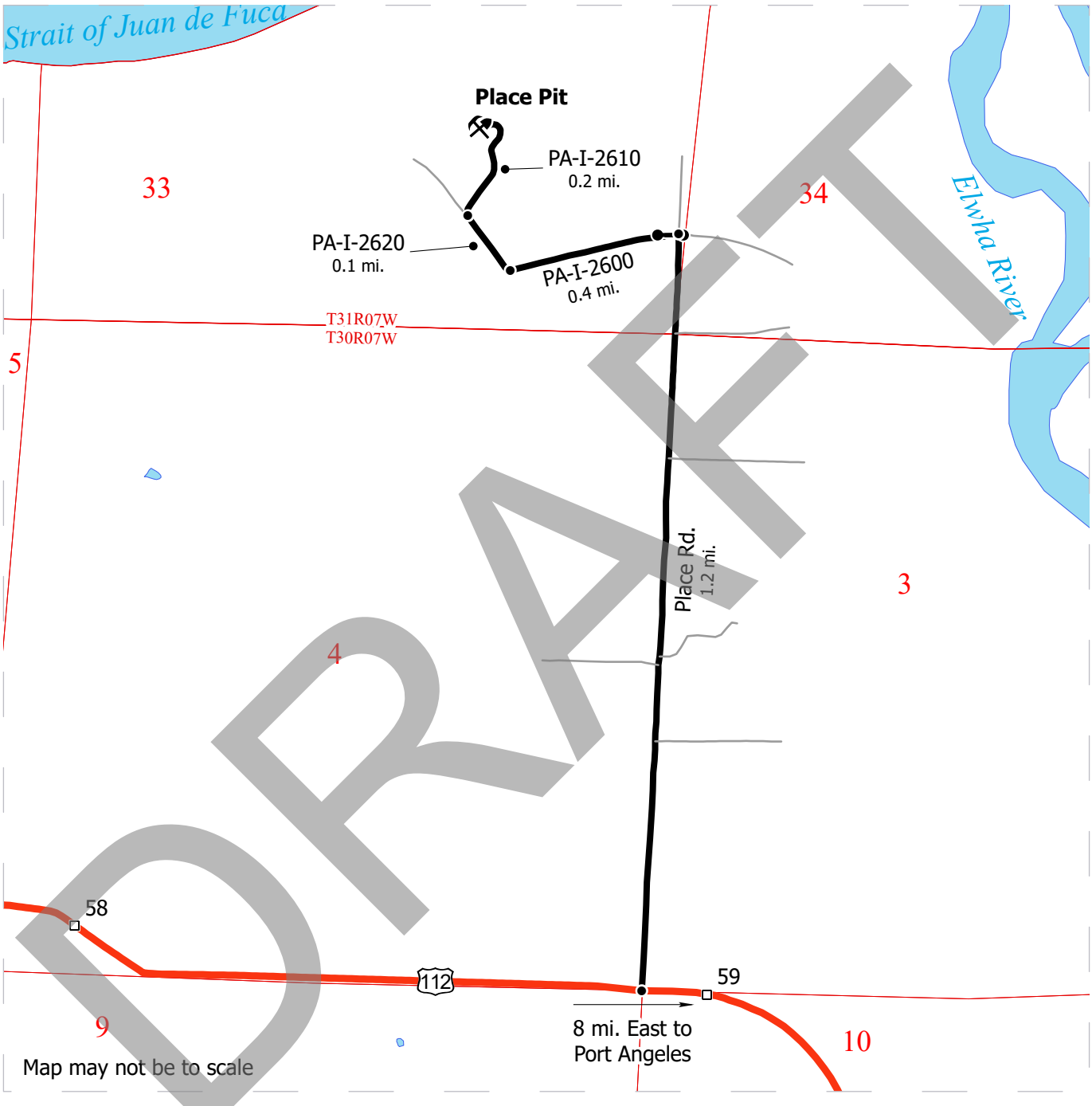

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Tiger Stripes Sorts Directions

From Highway 112, turn north onto Camp Hayden Road and drive for 3 miles before turning right onto the PA-I-3000. Proceed past the locked gate and drive for 2.7 miles.

Units 1, 4, and Striped Pit: From the PA-I-3000, turn south onto the PA-I-3040 and drive for roughly 0.2 miles to reach Striped Pit. From there, proceed on foot for 0.4 miles until the intersection with the PA-I-3043. Proceed southeast along the PA-I-3043 for 0.2 miles to reach Unit 1. To reach Unit 2, stay on the PA-I-3040 and walk southwest from the intersection with the PA-I-3043 for 0.5 miles. Note that this is a decommissioned road and is difficult to traverse.

Units 1, 2, 3, 5 ROW, 6 ROW, and Bengal Pit: Back at the intersection with the PA-I-3040, stay on the PA-I-3000 and continue driving southeast for 1 mile. Park and walk west along the decommissioned road grade for 0.3 miles to reach Units 1 and 6 ROW. Keep driving along the PA-I-3000 past this point for another 0.4 miles. Take a sharp turn north onto the PA-I-3015 and park along the 0.4 mile stretch of road to access Unit 2. Back on the PA-I-3000, proceed east past the junction with the PA-I-3015 for another 0.2 miles before turning south onto the PA-I-3010. Drive for 0.4 miles. Bengal Pit will be along this stretch to the north of the road. At the next intersection, head east on the PA-I-3012 and drive for 0.2 miles to reach Unit 3. On the PA-I-3010, continue west past the intersection for 0.4 miles before parking and proceeding on foot to the west to reach Units 1 and 5 ROW.

Place Pit: From Highway 112, turn north onto Place Road and drive for 1.2 miles. Turn left onto the PA-I-2600 and proceed for 0.4 miles west before veering right onto the PA-I-2620. Drive northwest for 0.1 miles before turning right onto the PA-I-2610 and continuing for another 0.2 miles to reach Place Pit.

* There is no access to the sale area from Freshwater Bay Road.

Timber Sale Cruise Report
Tiger Stripes Sorts

Sale Name: TIGER STRIPES SORTS

Sale Type: SORT

Region: OLYMPIC

District: STRAITS

Lead Cruiser: Aaron Coleman

Other Cruisers: Bailey Vos, Dillon Adair, Alex Vokey

Cruise Narrative:
This sale consists of 2 variable retention harvest (VRH) units and 4 right-of-way (R/W)units located off the PA-I-3000 road system near Striped Peak. An AA1 or OR1 key was needed to access the sale, and there are plenty of good access points into all units.

All units were cruised using variable radius plots with sample trees sighted at 4.5'. Merchantable heights were measured to a break point of 40% of the diameter at 16' or to a 5" top. Logs were scaled to 40' preferred lengths for conifers and 30' for hardwoods.

The primary species for this sale is:
Douglas-fir (85%) with an average DBH of 19 inches.
Bigleaf maple (5%) with an average DBH of 16 inches.
Western redcedar (4%) with an average DBH of 23 inches.
Red alder (3%) with an average DBH of 19 inches.

Units 1 and 2 contain primarily Douglas-fir with a small mix of other species. "Natural" DF poles were captured on VP plots. HQ-A & HQ-B DF prevalent in the VRH units. MA scattered throughout both units 1 & 2 in clumps. The primary observed defect across all units were spike knots and sweep. The recommended harvest systems for this sale are 80% ground based and 20% uphill cable.

Timber Sale Notice Volume (MBF)

				MBF Volume by Grade							
Sp	DBH	Rings/In	Age	All	Peeler	Spec Mill	1 Saw	2 Saw	3 Saw	4 Saw	Utility
DF	19.3	8.0		3,438	19	52		2,262	885	221	
MA	16.2			213				75	35	97	6
RC	23.1			179					152	27	
RA	19.0			105				53	25	27	
GF	25.8			65				54	10	2	
WH	17.1			39			7	8	17	7	
SS	22.0			7				6	1		
ALL	18.6	8.0		4,045	19	52	7	2,457	1,125	380	6

Timber Sale Notice Weight (tons)

	Tons by Grade							
Sp	All	Peeler	Spec Mill	1 Saw	2 Saw	3 Saw	4 Saw	Utility
DF	24,904	94	315		14,765	7,657	2,072	

	Tons by Grade							
Sp	All	Peeler	Spec Mill	1 Saw	2 Saw	3 Saw	4 Saw	Utility
MA	1,877				573	253	1,018	32
RC	1,529					1,282	247	
RA	711				314	160	237	
GF	451				351	80	20	
WH	344			55	79	151	59	
SS	53				42	12		
ALL	29,869	94	315	55	16,124	9,594	3,654	32

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 (%)
227.4	4.4	144.4	2.5	32,912	5.2

Timber Sale Unit Cruise Design

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
TIGER STRIPES SORTS U1	B1C: VR, 1 BAF (54.44) Measure/ Count Plots, Sighting Ht = 4.5 ft	35.9	35.9	36	18	0
TIGER STRIPES SORTS U2	B1C: VR, 1 BAF (54.44) Measure/ Count Plots, Sighting Ht = 4.5 ft	75.6	75.6	77	39	1
TIGER STRIPES SORTS U3	B1: VR, 1 BAF (54.44) Measure All, Sighting Ht = 4.5 ft	7.1	7.1	6	6	0
TIGER STRIPES SORTS U4	FX: FR plots (20 tree / acre expansion)	3.4	3.4	3	3	0
TIGER STRIPES SORTS U5	B1: VR, 1 BAF (33.61) Measure All, Sighting Ht = 0 ft	0.7	0.7	1	1	0
TIGER STRIPES SORTS U6	ST: Strip/Percent Sample (1 tree expansion)	0.2	0.2	1	1	0
All		122.9	122.9	124	68	1

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	16.6	40	15,257	14,785	3.1	11,866.3	1,817.1
DF	LIVE	2 SAW	HQ-A	15.8	40	449	449	0.0	365.1	55.2
DF	LIVE	2 SAW	HQ-B	15.9	40	2,706	2,681	0.9	2,118.8	329.5
DF	LIVE	2 SAW	Pole	13.6	40	489	486	0.6	415.0	59.7
DF	LIVE	3 PEELER	Domestic	29.0	40	155	155	0.0	94.3	19.0

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
DF	LIVE	3 SAW	Domestic	8.7	38	5,966	5,731	3.9	6,346.4	704.4
DF	LIVE	3 SAW	HQ-B	10.3	40	954	951	0.3	887.0	116.8
DF	LIVE	3 SAW	Pole	10.6	51	527	519	1.6	423.3	63.7
DF	LIVE	4 SAW	Domestic	5.5	26	1,829	1,795	1.9	2,072.3	220.6
DF	LIVE	CULL	Cull	35.7	4	23	0	100.0	0.0	0.0
DF	LIVE	SPECIAL MILL	HQ-A	19.9	35	439	423	3.8	315.4	51.9
GF	LIVE	2 SAW	Domestic	16.3	40	446	438	1.8	351.1	53.8
GF	LIVE	3 SAW	Domestic	9.3	36	81	79	2.7	79.7	9.7
GF	LIVE	4 SAW	Domestic	6.1	17	13	13	0.0	20.5	1.6
MA	LIVE	2 SAW	Domestic	14.5	28	668	610	8.6	573.1	75.0
MA	LIVE	3 SAW	Domestic	10.9	25	283	283	0.0	253.0	34.8
MA	LIVE	4 SAW	Domestic	7.6	31	811	789	2.8	1,018.2	97.0
MA	LIVE	CULL	Cull	16.3	3	5	0	100.0	0.0	0.0
MA	LIVE	UTILITY	Pulp	19.0	20	48	48	0.0	32.5	5.8
RA	LIVE	2 SAW	Domestic	17.0	30	435	429	1.5	314.5	52.7
RA	LIVE	3 SAW	Domestic	14.3	25	213	201	5.6	159.9	24.8
RA	LIVE	4 SAW	Domestic	8.3	25	223	223	0.0	237.0	27.4
RA	LIVE	CULL	Cull	7.5	6	2	0	100.0	0.0	0.0
RC	LIVE	3 SAW	Domestic	13.2	38	1,186	1,157	2.4	1,189.9	142.2
RC	LIVE	3 SAW	Pole	8.3	40	82	81	0.8	92.1	10.0
RC	LIVE	4 SAW	Domestic	5.8	30	218	216	0.9	246.7	26.5
SS	LIVE	2 SAW	Domestic	14.7	40	47	47	0.0	41.6	5.8
SS	LIVE	3 SAW	Domestic	7.4	30	8	8	0.0	11.6	1.0
WH	LIVE	1 SAW	Domestic	24.1	40	67	53	20.0	54.9	6.6
WH	LIVE	2 SAW	Domestic	15.2	40	74	65	13.1	78.5	7.9
WH	LIVE	3 SAW	Domestic	10.6	39	140	140	0.0	150.8	17.2
WH	LIVE	4 SAW	Domestic	6.3	22	61	58	3.9	59.4	7.2

Timber Sale Log Sort x Diameter Bin Summary

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	5 - 7	LIVE	Domestic	5.8	29	2,996	1.7	3,488.7	368.2
DF	8 - 11	LIVE	Domestic	9.6	37	4,444	4.0	4,828.1	546.2
DF	8 - 11	LIVE	HQ-B	10.4	39	951	0.3	887.0	116.8
DF	8 - 11	LIVE	Pole	10.6	51	519	1.6	423.3	63.7
DF	12 - 15	LIVE	HQ-B	13.6	40	875	0.5	774.7	107.6
DF	12 - 15	LIVE	Pole	13.6	40	486	0.6	415.0	59.7
DF	12 - 15	LIVE	Domestic	13.8	39	4,454	2.5	4,046.0	547.4

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
DF	12 - 15	LIVE	HQ-A	14.9	40	311	0.0	269.8	38.3
DF	16 - 19	LIVE	HQ-B	17.4	40	1,345	0.3	991.1	165.3
DF	16 - 19	LIVE	Domestic	17.5	40	5,384	3.4	4,312.9	661.6
DF	16 - 19	LIVE	HQ-A	18.8	40	312	5.1	243.7	38.4
DF	20+	LIVE	HQ-A	21.2	35	248	0.0	167.1	30.5
DF	20+	LIVE	HQ-B	21.3	40	461	3.4	353.0	56.6
DF	20+	LIVE	Domestic	23.2	40	5,188	3.7	3,703.7	637.6
DF	20+	LIVE	Cull	35.7	4	0	100.0	0.0	0.0
GF	5 - 7	LIVE	Domestic	5.7	25	18	1.6	26.7	2.3
GF	8 - 11	LIVE	Domestic	9.6	33	40	4.5	48.1	4.9
GF	12 - 15	LIVE	Domestic	14.1	40	165	2.9	144.8	20.3
GF	16 - 19	LIVE	Domestic	18.3	38	240	1.3	184.5	29.5
GF	20+	LIVE	Domestic	20.9	40	66	0.0	47.1	8.2
MA	5 - 7	LIVE	Domestic	6.4	32	404	3.4	579.1	49.7
MA	8 - 11	LIVE	Domestic	9.7	27	539	1.5	583.2	66.2
MA	12 - 15	LIVE	Domestic	13.5	28	530	7.2	510.3	65.1
MA	16 - 19	LIVE	Cull	16.3	3	0	100.0	0.0	0.0
MA	16 - 19	LIVE	Domestic	17.3	27	210	7.3	171.8	25.8
MA	16 - 19	LIVE	Pulp	19.0	20	48	0.0	32.5	5.8
RA	5 - 7	LIVE	Domestic	6.4	28	109	0.0	116.8	13.4
RA	5 - 7	LIVE	Cull	7.5	6	0	100.0	0.0	0.0
RA	8 - 11	LIVE	Domestic	10.3	28	174	0.0	171.4	21.4
RA	12 - 15	LIVE	Domestic	15.1	28	288	3.5	229.5	35.4
RA	16 - 19	LIVE	Domestic	18.2	25	164	4.7	116.6	20.2
RA	20+	LIVE	Domestic	21.6	32	118	0.0	77.0	14.5
RC	5 - 7	LIVE	Domestic	5.7	30	204	0.9	242.8	25.1
RC	8 - 11	LIVE	Pole	8.1	40	28	2.3	43.6	3.5
RC	8 - 11	LIVE	Domestic	9.6	37	212	0.3	236.7	26.0
RC	12 - 15	LIVE	Domestic	13.3	38	361	0.7	399.4	44.4
RC	12 - 15	LIVE	Pole	14.2	40	53	0.0	48.5	6.5
RC	16 - 19	LIVE	Domestic	17.6	38	263	3.5	255.2	32.3
RC	20+	LIVE	Domestic	21.0	38	333	4.6	302.7	40.9
SS	5 - 7	LIVE	Domestic	7.4	30	8	0.0	11.6	1.0
SS	12 - 15	LIVE	Domestic	14.7	40	47	0.0	41.6	5.8
WH	5 - 7	LIVE	Domestic	5.6	21	58	3.9	59.4	7.2
WH	8 - 11	LIVE	Domestic	9.6	38	89	0.0	98.0	10.9
WH	12 - 15	LIVE	Domestic	14.3	40	90	9.8	107.4	11.0
WH	16 - 19	LIVE	Domestic	16.2	40	26	0.0	23.9	3.3

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
WH	20+	LIVE	Domestic	24.1	40	53	20.0	54.9	6.6

Cruise Unit Report
TIGER STRIPES SORTS U1

Unit Sale Notice Volume (MBF): TIGER STRIPES SORTS U1

				MBF Volume by Grade						
Sp	DBH	Rings/In	Age	All	Spec Mill	1 Saw	2 Saw	3 Saw	4 Saw	Utility
DF	21.9	8.0		1,149	26		826	256	40	
MA	15.9			164			65	29	64	6
RC	29.4			87				80	7	
RA	17.4			41			21	10	10	
WH	17.9			30		7	8	12	4	
GF	25.9			28			20	8	1	
ALL	20.0	8.0		1,499	26	7	939	396	126	6

Unit Cruise Design: TIGER STRIPES SORTS U1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (54.44) Measure/Count Plots, Sighting Ht = 4.5 ft	35.9	35.9	36	18	0

Unit Cruise Summary: TIGER STRIPES SORTS U1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	59	105	2.9	1
MA	28	37	1.0	0
RC	14	14	0.4	0
RA	5	5	0.1	0
WH	4	4	0.1	0
GF	3	3	0.1	0
ALL	113	168	4.7	1

Unit Cruise Statistics: TIGER STRIPES SORTS 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	158.8	80.0	13.3	201.6	31.1	4.0	32,009	85.9	13.9
MA	56.0	162.0	27.0	81.7	34.7	6.6	4,572	165.6	27.8
RC	21.2	187.2	31.2	114.9	26.3	7.0	2,433	189.1	32.0
RA	7.6	350.7	58.5	149.2	29.1	13.0	1,128	351.9	59.9
WH	6.0	358.6	59.8	137.8	39.2	19.6	834	360.7	62.9

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 (%)
GF	4.5	336.4	56.1	172.0	25.6	14.8	780	337.3	58.0
ALL	254.1	52.0	8.7	164.4	43.9	4.1	41,757	68.1	9.6

Unit Summary: TIGER STRIPES SORTS U1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	59	ALL	21.9	96	122	32,763	32,009	2.3	60.7	158.8	33.9	1,149.1
GF	LIVE	CUT	3	ALL	25.9	97	121	791	780	1.3	1.2	4.5	0.9	28.0
MA	LIVE	CUT	28	ALL	15.9	59	76	4,758	4,572	3.9	40.6	56.0	14.0	164.1
RA	LIVE	CUT	5	ALL	17.4	65	83	1,140	1,128	1.1	4.6	7.6	1.8	40.5
RC	LIVE	CUT	14	ALL	29.4	82	101	2,495	2,433	2.5	4.5	21.2	3.9	87.4
WH	LIVE	CUT	4	ALL	17.9	61	77	913	834	8.6	3.5	6.0	1.4	29.9
ALL	LIVE	CUT	113	ALL	20.1	80	102	42,860	41,757	2.6	115.1	254.1	56.0	1,499.1
ALL	ALL	CUT	113	ALL	20.1	80	102	42,860	41,757	2.6	115.1	254.1	56.0	1,499.1

Cruise Unit Report
TIGER STRIPES SORTS U2

Unit Sale Notice Volume (MBF): TIGER STRIPES SORTS U2

				MBF Volume by Grade					
Sp	DBH	Rings/In	Age	All	Peeler	Spec Mill	2 Saw	3 Saw	4 Saw
DF	17.8			2,049	19	14	1,288	563	165
RC	16.4			68				52	16
RA	21.6			53			32	13	8
MA	16.3			38			10		28
GF	25.7			37			34	2	1
SS	22.0			7			6	1	
WH	16.3			7				6	1
ALL	17.8			2,259	19	14	1,371	636	219

Unit Cruise Design: TIGER STRIPES SORTS U2

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (54.44) Measure/Count Plots, Sighting Ht = 4.5 ft	75.6	75.6	77	39	1

Unit Cruise Summary: TIGER STRIPES SORTS U2

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	133	275	3.6	0
RC	12	16	0.2	0
RA	6	9	0.1	0
MA	13	13	0.2	0
GF	3	3	0.0	0
SS	1	1	0.0	0
WH	1	1	0.0	0
ALL	169	318	4.1	0

Unit Cruise Statistics: TIGER STRIPES SORTS U2

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	194.4	55.9	6.4	139.4	41.1	3.6	27,107	69.4	7.3
RC	11.3	295.6	33.7	79.2	33.9	9.8	895	297.5	35.1
RA	6.4	650.6	74.1	110.0	14.9	6.1	700	650.8	74.4

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 (%)
MA	9.2	464.8	53.0	55.1	50.6	14.0	506	467.6	54.8
GF	2.1	650.6	74.1	231.3	8.3	4.8	491	650.6	74.3
SS	0.7	877.5	100.0	126.5	0.0	0.0	89	877.5	100.0
WH	0.7	877.5	100.0	123.5	0.0	0.0	87	877.5	100.0
ALL	224.8	45.7	5.2	132.9	45.2	3.5	29,876	64.3	6.3

Unit Summary: TIGER STRIPES SORTS U2

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	133	ALL	17.8	61	80	27,859	27,107	2.7	112.5	194.4	46.1	2,049.3
GF	LIVE	CUT	3	ALL	25.7	112	145	502	491	2.3	0.6	2.1	0.4	37.1
MA	LIVE	CUT	13	ALL	16.3	38	46	548	506	7.7	6.3	9.2	2.3	38.3
RA	LIVE	CUT	6	ALL	21.6	62	71	724	700	3.3	2.5	6.4	1.4	52.9
RC	LIVE	CUT	12	ALL	16.4	46	66	916	895	2.2	7.7	11.3	2.8	67.7
SS	LIVE	CUT	1	ALL	22.0	72	91	89	89	0.0	0.3	0.7	0.2	6.8
WH	LIVE	CUT	1	ALL	16.3	64	79	87	87	0.0	0.5	0.7	0.2	6.6
ALL	LIVE	CUT	169	ALL	17.8	59	77	30,727	29,876	2.8	130.4	224.8	53.3	2,258.6
ALL	ALL	CUT	169	ALL	17.8	59	77	30,727	29,876	2.8	130.4	224.8	53.3	2,258.6

Cruise Unit Report
TIGER STRIPES SORTS U3

Unit Sale Notice Volume (MBF): TIGER STRIPES SORTS U3

				MBF Volume by Grade			
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw
DF	21.7			168	125	37	6
RC	22.6			12		10	1
MA	23.0			9		5	4
WH	9.0			2			2
ALL	19.3			191	125	53	13

Unit Cruise Design: TIGER STRIPES SORTS U3

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (54.44) Measure All, Sighting Ht = 4.5 ft	7.1	7.1	6	6	0

Unit Cruise Summary: TIGER STRIPES SORTS U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	13	13	2.2	0
RC	2	2	0.3	0
MA	1	1	0.2	0
WH	1	1	0.2	0
ALL	17	17	2.8	0

Unit Cruise Statistics: TIGER STRIPES SORTS U3

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	118.0	79.5	32.5	200.8	25.2	7.0	23,683	83.4	33.2
RC	18.1	244.9	100.0	89.4	8.4	5.9	1,623	245.1	100.2
MA	9.1	244.9	100.0	137.6	0.0	0.0	1,249	244.9	100.0
WH	9.1	244.9	100.0	36.2	0.0	0.0	329	244.9	100.0
ALL	154.2	52.0	21.2	174.3	39.2	9.5	26,882	65.1	23.2

Unit Summary: TIGER STRIPES SORTS U3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	13	ALL	21.7	102	132	25,830	23,683	8.3	45.9	118.0	25.3	168.1
MA	LIVE	CUT	1	ALL	23.0	95	109	1,343	1,249	7.0	3.1	9.1	1.9	8.9
RC	LIVE	CUT	2	ALL	22.6	76	92	1,623	1,623	0.0	6.5	18.1	3.8	11.5
WH	LIVE	CUT	1	ALL	9.0	18	21	370	329	11.1	20.5	9.1	3.0	2.3
ALL	LIVE	CUT	17	ALL	19.3	77	98	29,165	26,882	7.8	76.0	154.2	34.1	190.9
ALL	ALL	CUT	17	ALL	19.3	77	98	29,165	26,882	7.8	76.0	154.2	34.1	190.9

Cruise Unit Report
TIGER STRIPES SORTS U4

Unit Sale Notice Volume (MBF): TIGER STRIPES SORTS U4

				MBF Volume by Grade				
Sp	DBH	Rings/In	Age	All	Spec Mill	2 Saw	3 Saw	4 Saw
DF	15.9			66	13	18	26	9
RC	14.9			12			10	2
MA	11.3			1				1
ALL	15.3			80	13	18	36	12

Unit Cruise Design: TIGER STRIPES SORTS U4

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
FX: FR plots (20 tree / acre expansion)	3.4	3.4	3	3	0

Unit Cruise Summary: TIGER STRIPES SORTS U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	14	14	4.7	0
RC	5	5	1.7	0
MA	2	2	0.7	0
ALL	21	21	7.0	0

Unit Cruise Statistics: TIGER STRIPES SORTS U4

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
DF	129.1	67.0	38.7	150.9	20.1	5.4	19,480	70.0	39.1
RC	40.2	107.2	61.9	88.3	32.4	14.5	3,547	111.9	63.5
MA	9.3	173.2	100.0	44.5	31.8	22.5	413	176.1	102.5
ALL	178.6	53.0	30.6	131.3	33.1	7.2	23,440	62.5	31.4

Unit Summary: TIGER STRIPES SORTS U4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	14	ALL	15.9	73	98	19,907	19,480	2.1	93.6	129.1	32.4	66.2
MA	LIVE	CUT	2	ALL	11.3	25	33	413	413	0.0	13.3	9.3	2.8	1.4
RC	LIVE	CUT	5	ALL	14.9	47	65	3,573	3,547	0.7	33.2	40.2	10.4	12.1
ALL	LIVE	CUT	21	ALL	15.3	62	84	23,893	23,440	1.9	140.1	178.6	45.5	79.7

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	ALL	CUT	21	ALL	15.3	62	84	23,893	23,440	1.9	140.1	178.6	45.5	79.7

Cruise Unit Report
TIGER STRIPES SORTS U5

Unit Sale Notice Volume (MBF): TIGER STRIPES SORTS U5

				MBF Volume by Grade		
Sp	DBH	Rings/In	Age	All	3 Saw	4 Saw
RA	13.0			11	2	10
ALL	13.0			11	2	10

Unit Cruise Design: TIGER STRIPES SORTS U5

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (33.61) Measure All, Sighting Ht = 0 ft	0.7	0.7	1	1	0

Unit Cruise Summary: TIGER STRIPES SORTS U5

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
RA	4	4	4.0	0
ALL	4	4	4.0	0

Unit Cruise Statistics: TIGER STRIPES SORTS U5

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 (%)
RA	134.4	0.0	0.0	121.5	3.8	1.9	16,329	3.8	1.9
ALL	134.4	0.0	0.0	121.5	3.8	1.9	16,329	3.8	1.9

Unit Summary: TIGER STRIPES SORTS U5

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
RA	LIVE	CUT	4	ALL	13.0	75	104	16,737	16,329	2.4	145.9	134.4	37.3	11.4
ALL	LIVE	CUT	4	ALL	13.0	75	104	16,737	16,329	2.4	145.9	134.4	37.3	11.4
ALL	ALL	CUT	4	ALL	13.0	75	104	16,737	16,329	2.4	145.9	134.4	37.3	11.4

Cruise Unit Report
TIGER STRIPES SORTS U6

Unit Sale Notice Volume (MBF): TIGER STRIPES SORTS U6

				MBF Volume by Grade			
Sp	DBH	Rings/In	Age	All	2 Saw	3 Saw	4 Saw
DF	16.9			5	3	2	0
ALL	16.9			5	3	2	0

Unit Cruise Design: TIGER STRIPES SORTS U6

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
ST: Strip/Percent Sample (1 tree expansion)	0.2	0.2	1	1	0

Unit Cruise Summary: TIGER STRIPES SORTS U6

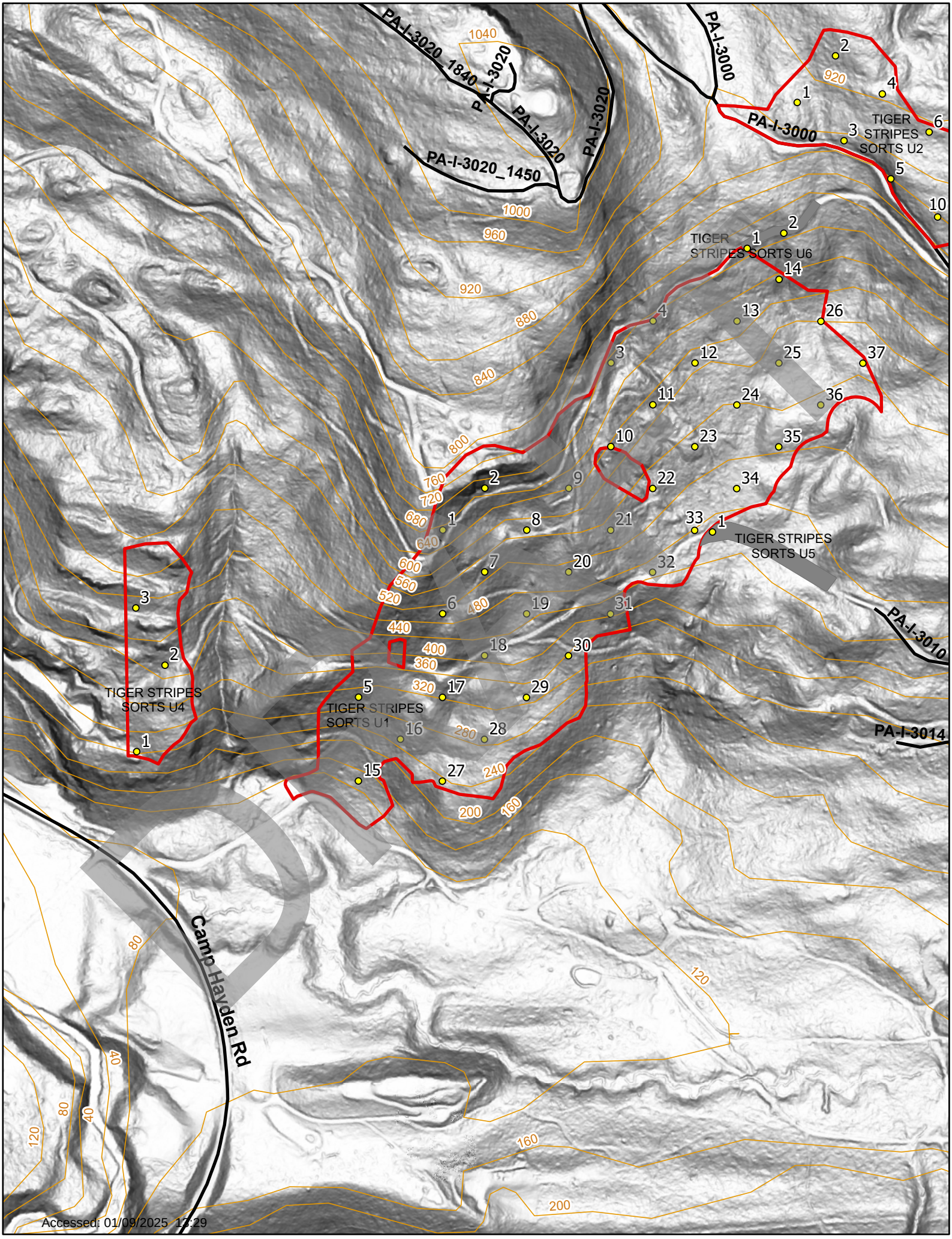
Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
DF	21	21	21.0	0
ALL	21	21	21.0	0

Unit Cruise Statistics: TIGER STRIPES SORTS U6

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	163.5	0.0	0.0	159.1	27.6	6.0	26,025	27.6	6.0
ALL	163.5	0.0	0.0	159.1	27.6	6.0	26,025	27.6	6.0

Unit Summary: TIGER STRIPES SORTS U6

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	21	ALL	16.9	73	92	26,025	26,025	0.0	105.0	163.5	39.8	5.2
ALL	LIVE	CUT	21	ALL	16.9	73	92	26,025	26,025	0.0	105.0	163.5	39.8	5.2
ALL	ALL	CUT	21	ALL	16.9	73	92	26,025	26,025	0.0	105.0	163.5	39.8	5.2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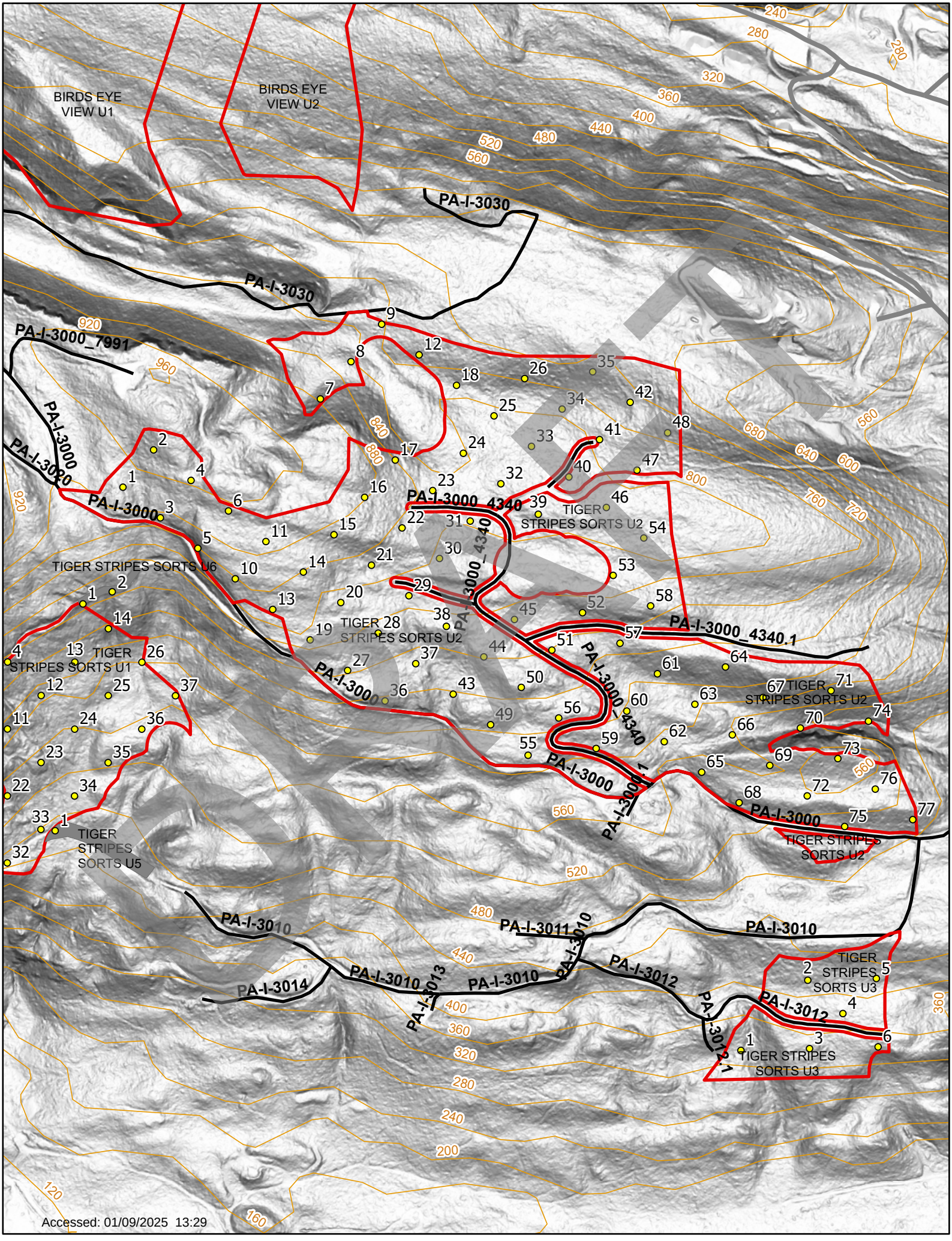
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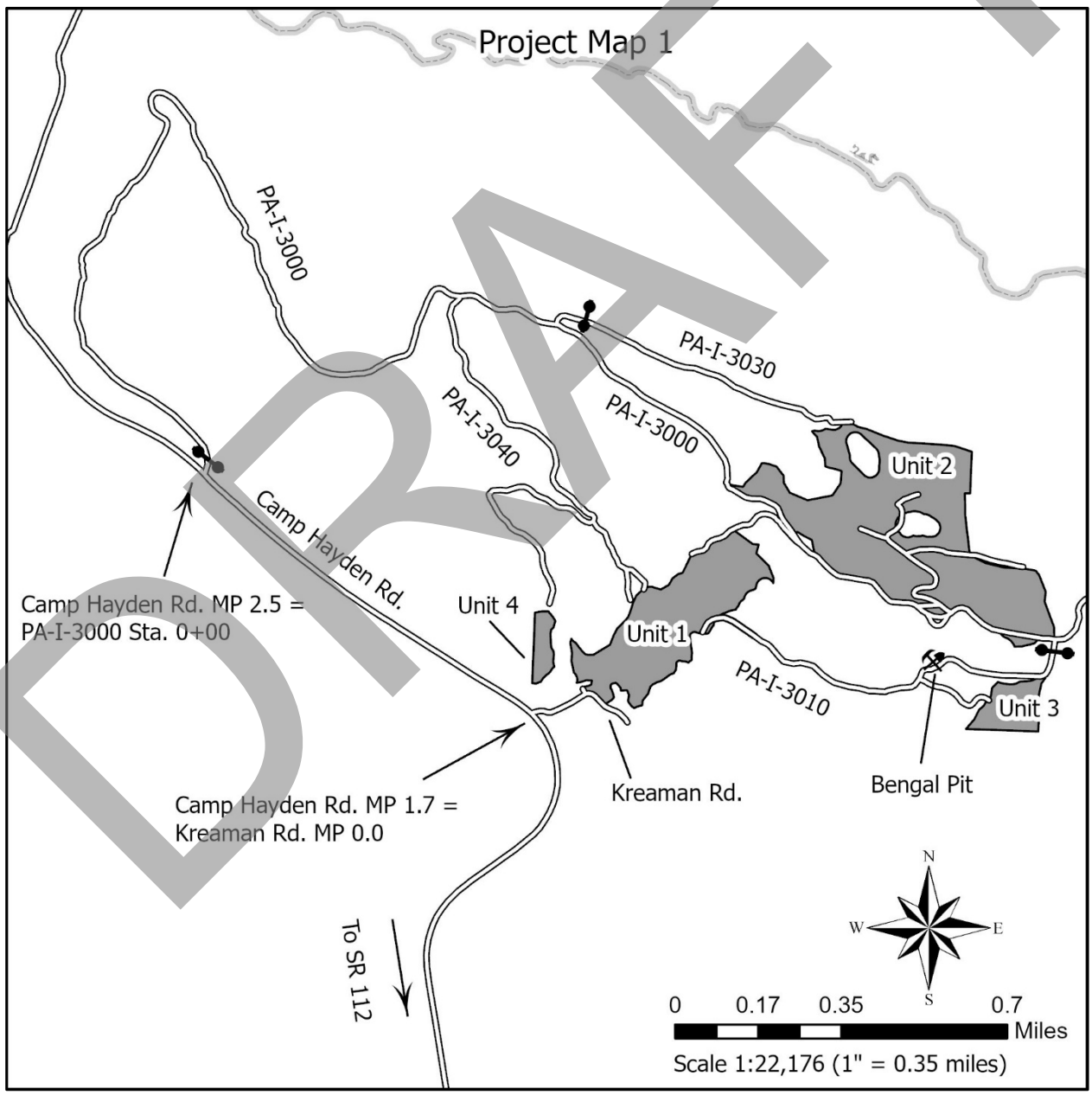
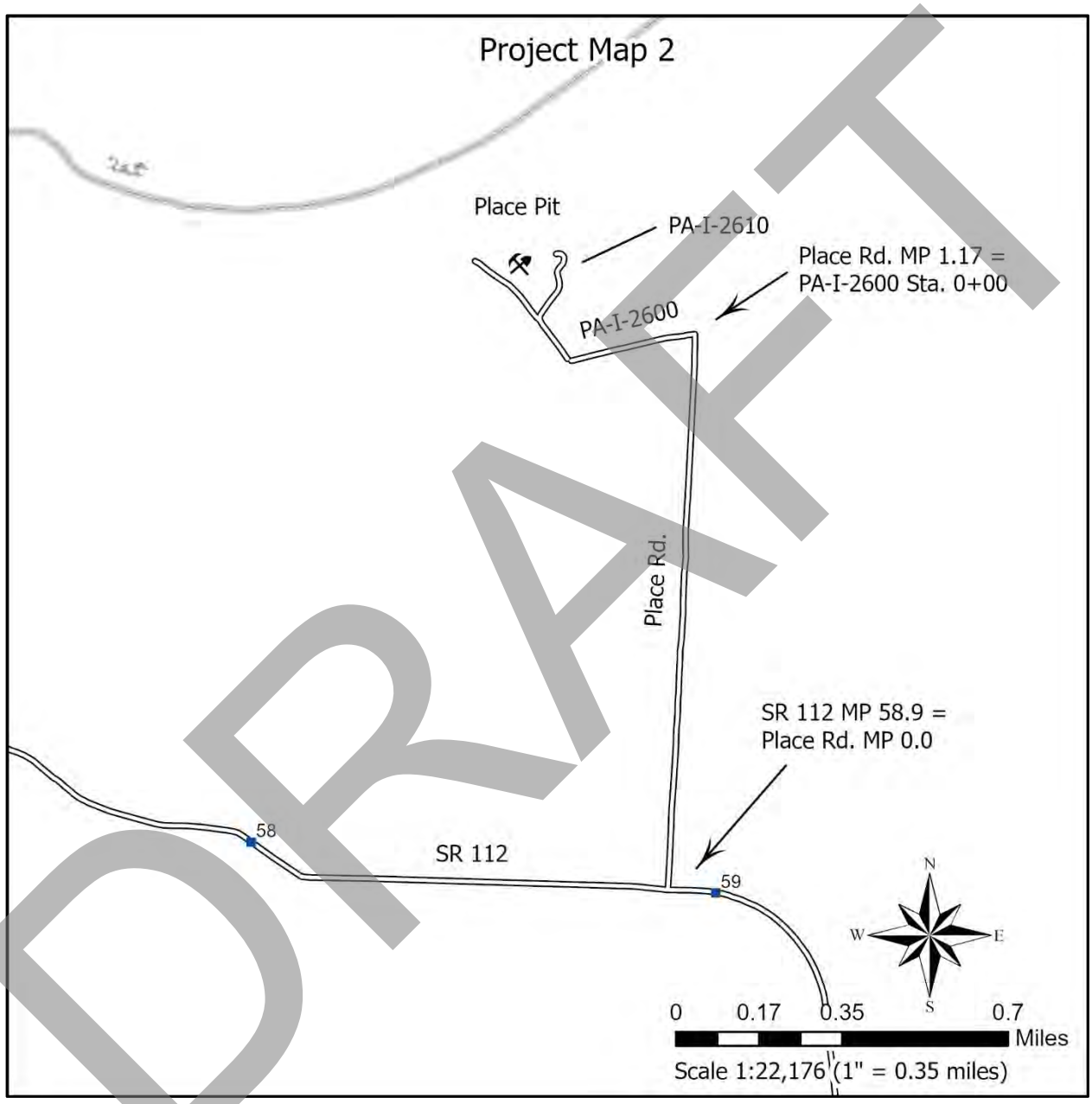
STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

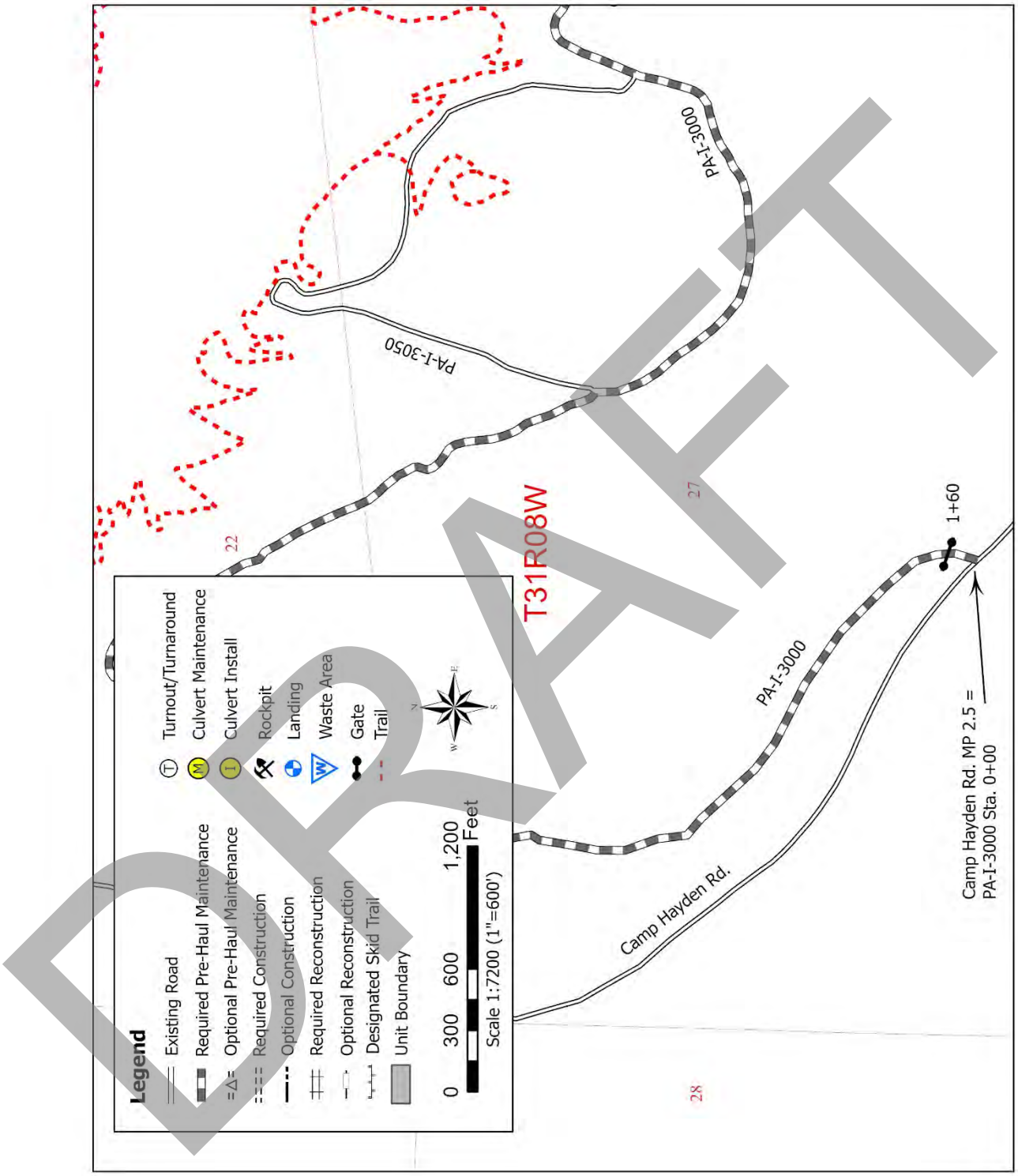
TIGER STRIPES SORTS TIMBER SALE ROAD PLAN
CLALLAM COUNTY
STRAITS DISTRICT
OLYMPIC REGION

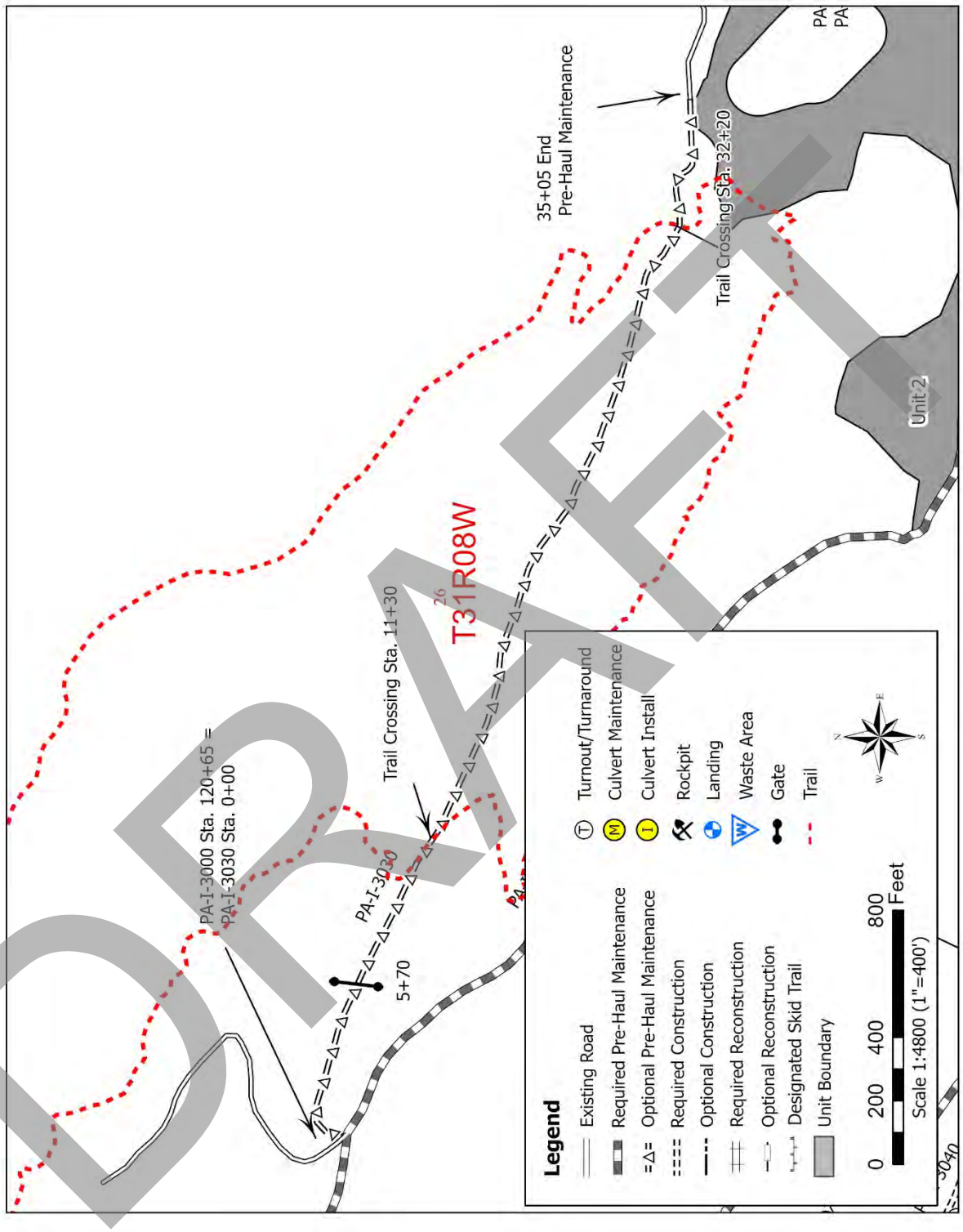
AGREEMENT NO.: 30-106552 DISTRICT ENGINEER: GREG ELLIS

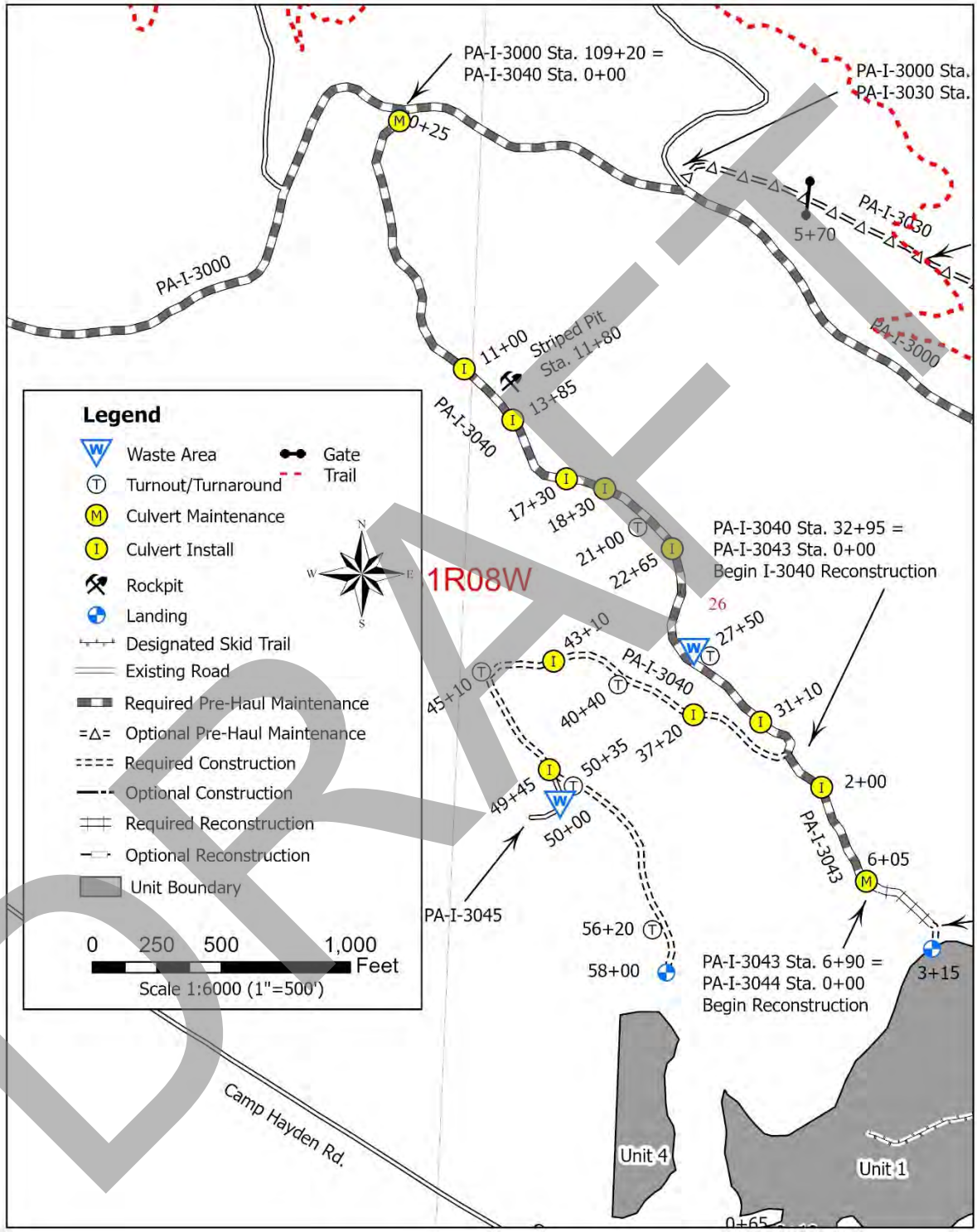
DATE: 10/31/2024 DRAWN & COMPILED BY: EMMA HEIN

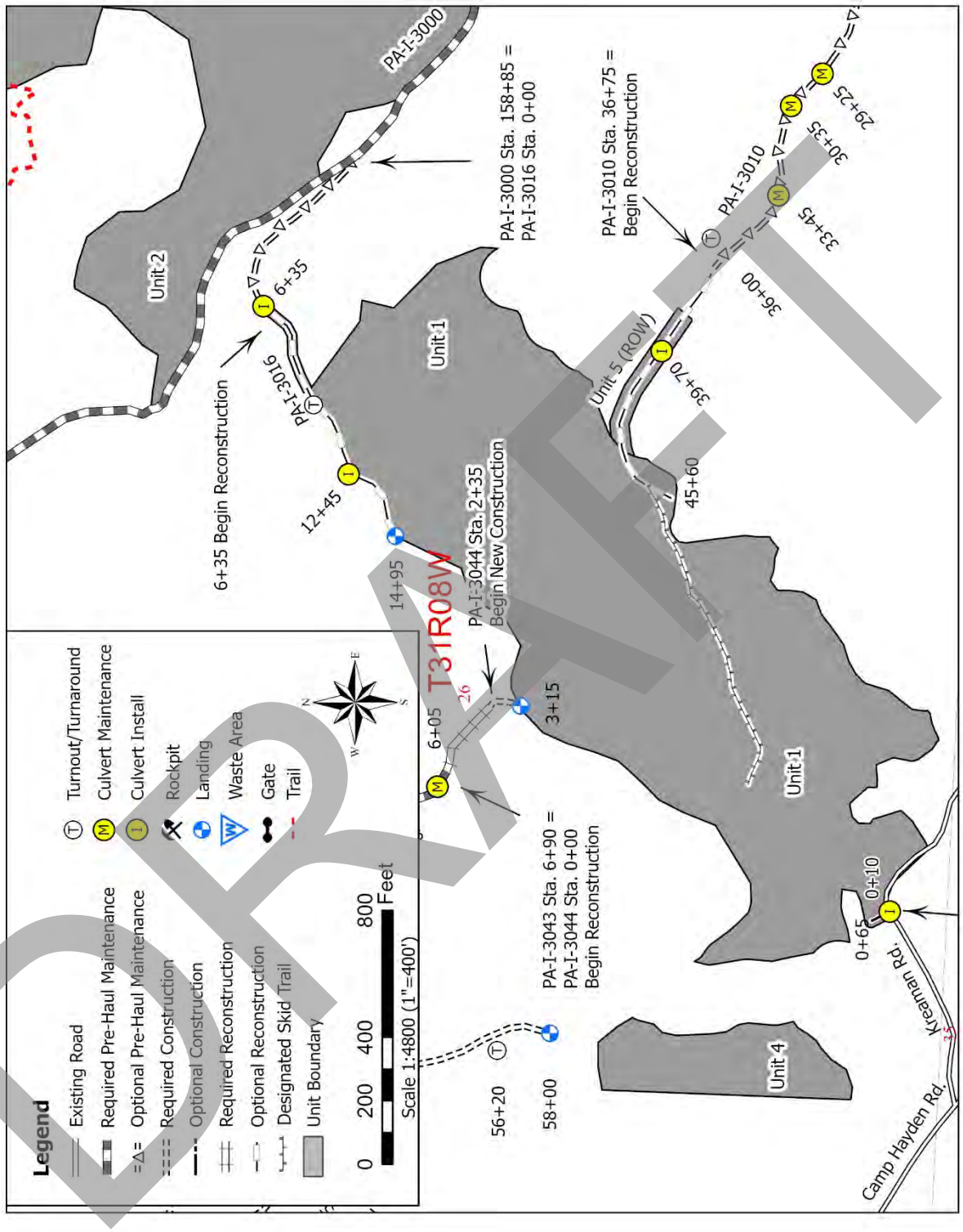


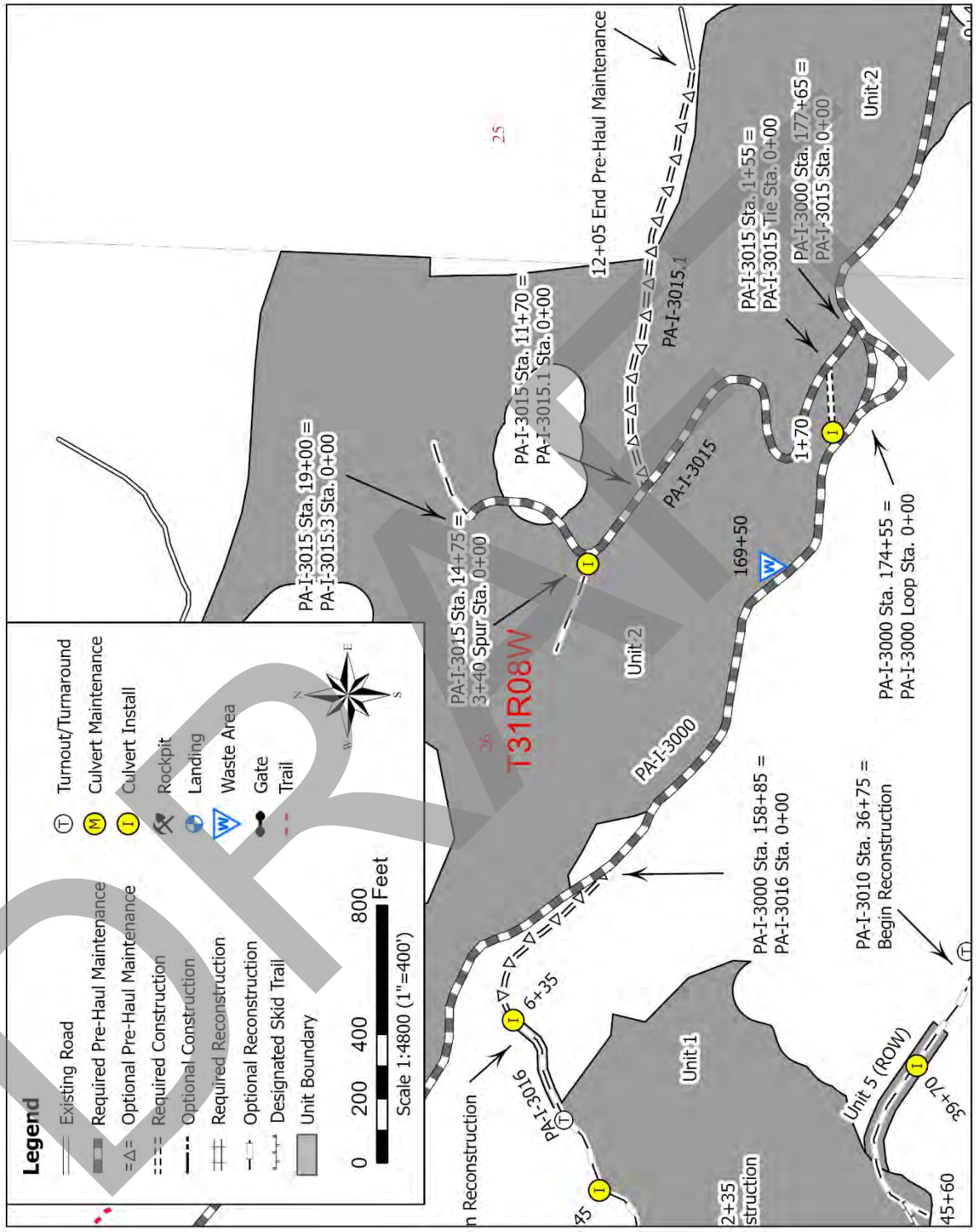


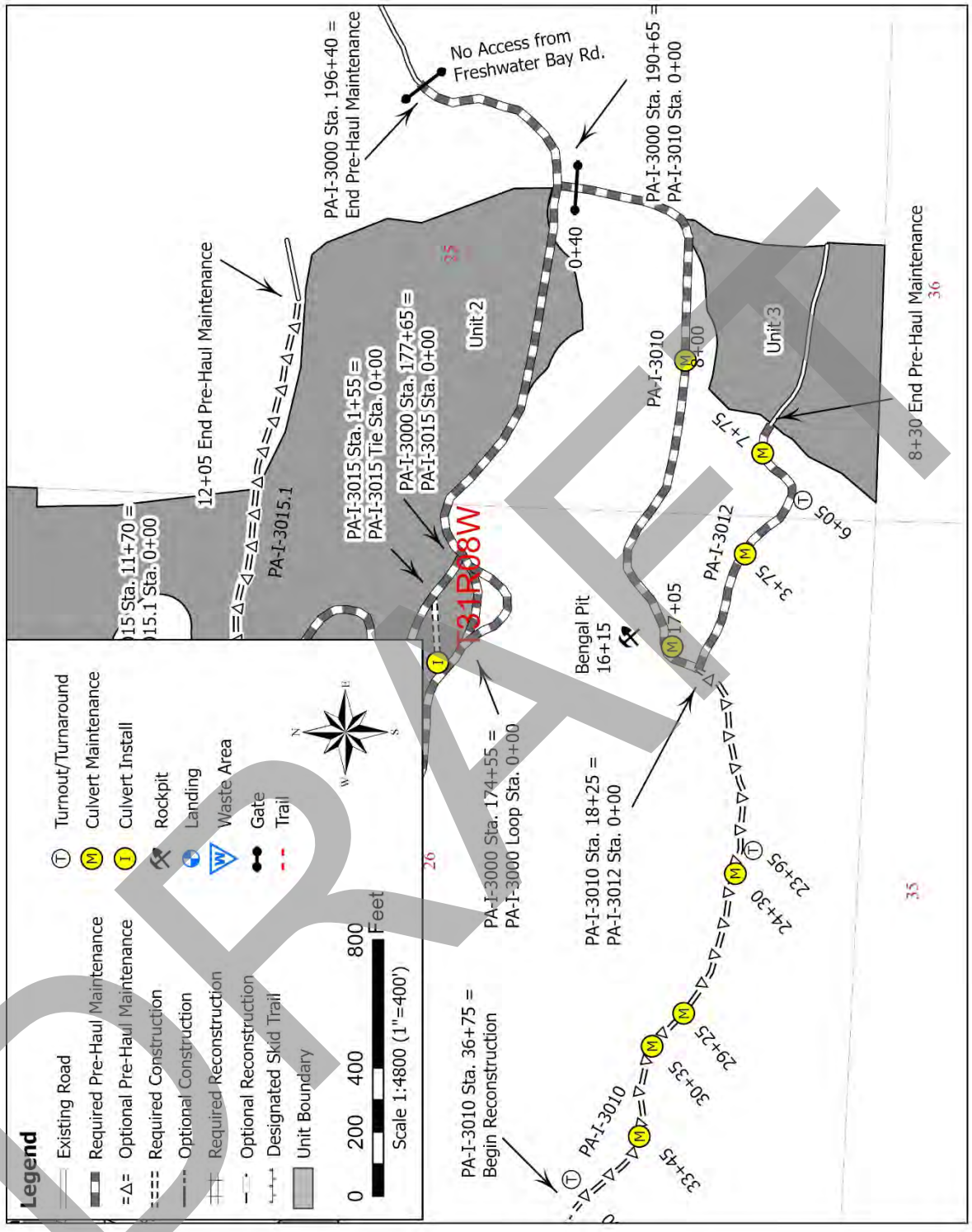


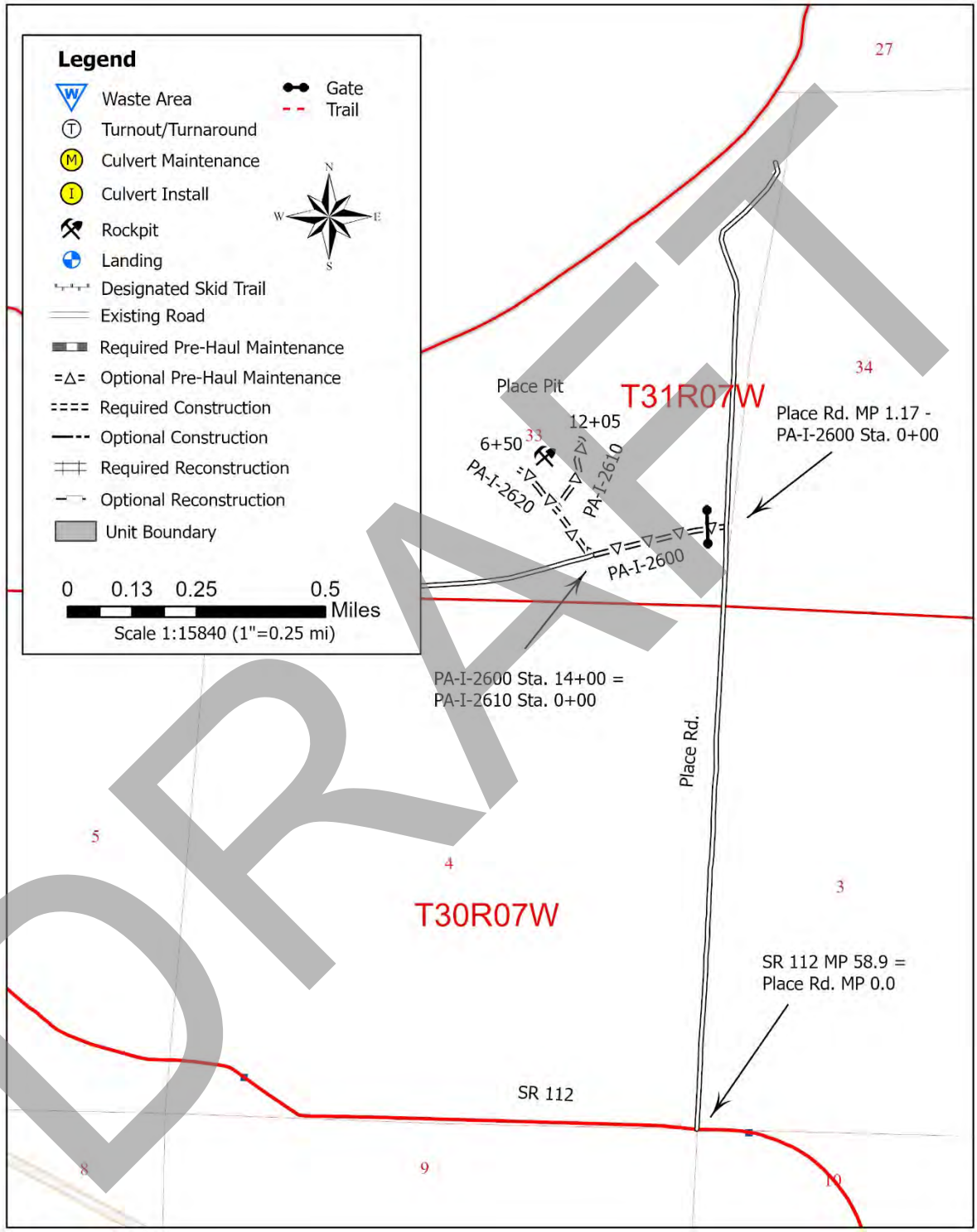












SECTION 0 – SCOPE OF PROJECT

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
PA-I-3000	0+00 – 196+40	Pre-Haul Maintenance
PA-I-3010	0+00 – 18+25	Pre-Haul Maintenance
PA-I-3012	0+00 – 8+30	Pre-Haul Maintenance
PA-I-3015	0+00 – 19+00	Pre-Haul Maintenance
PA-I-3040	0+00 – 32+95	Pre-Haul Maintenance
PA-I-3040	32+95 – 58+00	Construction
PA-I-3043	0+00 – 6+90	Pre-Haul Maintenance
PA-I-3044	0+00 – 2+35	Reconstruction
PA-I-3044	2+35 – 3+15	Construction
PA-I-3000 Loop	0+00 – 2+50	Pre-Haul Maintenance
PA-I-3015 Tie	0+00 – 2+00	Construction

0-3 OPTIONAL ROADS

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

Road	Stations	Type
PA-I-2600	0+00 – 14+00	Pre-Haul Maintenance
PA-I-2610	0+00 – 12+05	Pre-Haul Maintenance
PA-I-2620	0+00 – 6+50	Pre-Haul Maintenance
PA-I-3010	18+25 – 36+75	Pre-Haul Maintenance
PA-I-3010	36+75 – 45+60	Reconstruction
PA-I-3015.1	0+00 – 12+05	Pre-Haul Maintenance
PA-I-3015.3	0+00 – 2+10	Reconstruction
3+40 Spur	0+00 – 3+40	Reconstruction
PA-I-3016	0+00 – 6+35	Pre-Haul Maintenance
PA-I-3016	6+35 – 14+95	Reconstruction
PA-I-3030	0+00 – 35+05	Pre-Haul Maintenance
0+65 Spur	0+00 – 0+65	Construction

0-4 CONSTRUCTION

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

Road	Stations	Requirements
PA-I-3040	32+95 – 58+00	See Below
PA-I-3044	2+35 – 3+15	
PA-I-3015 Tie	0+00 – 2+00	
0+65 Spur	0+00 – 0+65	
Total Stations	28.50 Stations	

Construction includes, but is not limited to: Clearing, grubbing, right-of-way debris disposal, excavation and/or embankment to subgrade, end hauling material for construction, compacting road surfaces, constructing ditchlines, constructing ditchouts, constructing turnouts and turnarounds, curve widening, acquisition and installation of drainage structures, application of rock, spreading grass seed and hay.

0-5 RECONSTRUCTION

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

Road	Stations	Requirements
PA-I-3010	36+75 – 45+60	See Below
PA-I-3015.3	0+00 – 2+10	
3+40 Spur	0+00 – 3+40	
PA-I-3016	6+35 – 14+95	
PA-I-3044	0+00 – 2+35	
Total Stations	25.30 Stations	

Reconstruction includes, but is not limited to: Removal of all vegetative material with minimum loss of rock and dispose of in accordance with Clause 2-9 and Clause 3-23. Cleaning ditches and constructing ditches, constructing headwalls, cleaning culvert inlets and outlets in accordance with Clause 2-6 and Clause 2-7. Installing additional culverts and replacing culverts in accordance with the culvert list. Grading, shaping and compacting existing road surface, turnouts and turnaround in accordance with Clause 2-5, realigning road segments, spreading grass seed and hay, and the application of rock in accordance with the Rock List.

0-6 PRE-HAUL MAINTENANCE

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

Road	Stations	Requirements
PA-I-2600	0+00 – 14+00	Grade, shape, and compact existing running surface in accordance with Clause 2-5.

PA-I-2610	0+00 – 12+05	Grade, shape, and compact existing running surface in accordance with Clause 2-5.
PA-I-2620	0+00 – 6+50	Grade, shape, and compact existing running surface in accordance with Clause 2-5.
PA-I-3000	0+00 – 196+40	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Brush road in accordance with Clause 3-1.
PA-I-3010	0+00 – 36+75	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Clean culverts in accordance with Clause 2-6. Clean/construct ditches in accordance with Clause 2-7. Brush road in accordance with Clause 3-1. Apply rock in accordance with Rock List.
PA-I-3012	0+00 – 8+30	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Clean culverts in accordance with Clause 2-6. Clean/ construct ditches in accordance with Clause 2-7. Brush road in accordance with Clause 3-1. Apply rock in accordance with Rock List.
PA-I-3015	0+00 – 19+00	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Brush road in accordance with Clause 3-1.
PA-I-3015.1	0+00 – 12+05	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Brush road in accordance with Clause 3-1.
PA-I-3016	0+00 – 6+35	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Clean/construct ditches in accordance with Clause 2-7. Brush road in accordance with Clause 3-1. Apply rock in accordance with Rock List.
PA-I-3030	0+00 – 35+05	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Brush road in accordance with Clause 3-1.
PA-I-3040	0+00 – 32+95	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Clean/construct ditches in accordance with Clause 2-7. Brush road in accordance with Clause 3-1. Install culverts in accordance with Culvert List. Apply rock in accordance with Rock List.

PA-I-3043	0+00 – 6+90	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Clean culverts in accordance with Clause 2-6. Clean/construct ditches in accordance with 2-7. Brush road in accordance with Clause 3-1. Install culverts in accordance with Culvert List. Apply rock in accordance with Rock List.
PA-I-3000 Loop	0+00 – 2+50	Grade, shape, and compact existing running surface in accordance with Clause 2-5. Brush road in accordance with Clause 3-1.
Total Stations	388.80 Stations	

Pre-haul maintenance includes, but is not limited to: Brushing right-of-way, right-of-way debris disposal, cleaning ditches, constructing ditches, installing additional culverts, widening road segments, constructing headwalls, cleaning culvert inlets and outlets, cross drain culvert replacements, installing erosion control materials and sediment removal structures, spot rocking, grading and shaping existing road surface and turnouts, constructing additional turnouts, compaction of road surface, application of rock, acquisition and application of grass seed and hay.

0-7 POST-HAUL MAINTENANCE

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

0-9 DECOMMISSIONING

This project includes decommissioning listed in Clause 9-20 ROAD DECOMMISSIONING.

0-12 DEVELOP ROCK SOURCE

Contractor may develop a new rock source called Bengal Pit. Rock source development will involve stripping approximately 0.5 acres to useable rock as determined by the Contract Administrator and possible drilling and shooting to obtain a minimum of 2770 yd^3 Shot Rock Ballast and approximately 3860 yd^3 of 3" Jaw Run Rock in accordance with Clause 6-20.

Contractor may develop an existing rock source called Striped Pit. Rock source development will involve stripping approximately 0.5 acres to useable rock as determined by the Contract Administrator and possible drilling and shooting to obtain a minimum of 2770 yd^3 Shot Rock Ballast and approximately 3860 yd^3 of 3" Jaw Run Rock in accordance with Clause 6-20.

Rock Source development may be performed at Bengal Pit and/or Striped Pit. Rock totals listed above are total yards for the sale. Contractor may divide yardage between pits as long as total yardage is manufactured as listed in the ROCK LIST and above.

Contractor may develop an existing rock source called Place Pit. Rock source development will involve digging and loading useable rock as determined by the Contract Administrator out of the existing 1 ¼" Minus Crushed Rock stockpile to obtain 400 yd^3 of surfacing material. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

All rock manufactured out of rock sources listed above shall meet specfications as listed in Section 6 ROCK AND SURFACING. In the event that rock does not meet specifications, which will be determined by the Contact Administrator, a commercial source shall be used at the Contractor's expense meeting listed specifications.

0-13 STRUCTURES

Contractor shall provide and install all structures. Requirements for these structures are listed in Section 7 STRUCTURES.

SECTION 1 – GENERAL

1-1 ROAD PLAN CHANGES

If the Contractor 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, Contractor 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 Contractor's choice of construction season or techniques will be at the Contractor's expense. Unforeseen conditions include, but are not limited to, solid subsurface rock, subsurface springs, saturated ground, and unstable soils.

1-3 ROAD DIMENSIONS

Contractor 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

Contractor 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

Contractor 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.

1-12 SURVEY MONUMENTS

At no time during construction, reconstruction, or maintenance shall survey monuments, witness trees, or bearing trees be disturbed or damaged. If damaged or disturbed, Contractor shall hire a licensed land surveyor to repair, replace, and/or reset them.

SUBSECTION ROAD MARKING

1-15 ROAD MARKING

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

- Orange ribbon and paint for construction centerlines.
- Construction stakes for everything else.

1-18 REFERENCE POINT DAMAGE

Contractor 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 Contractor resets all moved or damaged RPs.

SUBSECTION TIMING

1-20 COMPLETE BY DATE

Contractor shall complete reconstruction, construction and pre-haul road work before the start of timber haul.

1-21 HAUL APPROVAL

Contractor shall not use roads under this road plan without written approval from the Contract Administrator.

1-22 WORK NOTIFICATIONS

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

1-23 ROAD WORK PHASE APPROVAL

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

- Subgrade construction
- Drainage installation
- Subgrade compaction
- Rock application
- Rock compaction

1-25 ACTIVITY TIMING RESTRICTION

On the following road(s), are not allowed during the listed closure period(s) unless authorized in writing by the Contract Administrator.

Road	Stations	Activity	Closure Period
All	All	All	Weekends and State Recognized Holidays
All	All	Rock Haul and rock pit development.	8:00 pm – 6:00 am
All	All	Timber Haul	8:00 pm – 4:00 am

1-26 OPERATING DURING CLOSURE PERIOD

If permission is granted to operate during a closure period listed in Clause 1-25 ACTIVITY TIMING RESTRICTION or Contract Clause H-130 HAULING SCHEDULE, Contractor shall provide a maintenance plan to include further protection of state resources. Contractor 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. Contractor is required to maintain all haul roads at their own expense including those listed in Contract Clause C-060 DESIGNATED ROAD MAINTAINER. If other operators are using, or desire to use these designated maintainer roads, a joint operating plan must be developed. All parties shall follow this plan.

1-27 TIMING RESTRICTION FOR MARBLED MURRELET

On the following road(s), timber felling, road work or operation of heavy equipment performed during the marbled murrelet nesting season (April 1 through September 23), is restricted to, two hours after sunrise to two hours before sunset. This does not apply to hauling timber, rock or equipment.

Road	Stations
PA-I-2600	0+00 – 14+00
PA-I-2610	0+00 – 12+05
PA-I-2620	0+00 – 6+50

1-29 SEDIMENT RESTRICTION

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

1-30 CLOSURE TO PREVENT DAMAGE

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

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

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

1-32 ASPHALT SURFACE RESTRICTION

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

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

1-33 SNOW PLOWING RESTRICTION

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

SUBSECTION OTHER INFRASTRUCTURE

1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS

Contractor 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 Contractor's expense, as directed by the Contract Administrator when authorized by the county or WSDOT.

The following county roads and state highways are affected by this sale:

Road Name
Camp Hayden Rd.
Place Rd.
Kreaman Rd.

1-41 REQUIREMENTS FOR PAVED ROAD APPROACHES

Requirements for paved road approaches:
Contractor shall build up approaches to allow a smooth grade transition between DNR roads and paved roads. The top of DNR road surfacing must be kept level with the surface of paved road at all times. The surface of the DNR road approach must slope from the edge of the paved road at the rate of 2%, unless otherwise directed by the Contract Administrator.

1-42 UTILITY ACCESS ROAD

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

Road	Stations
PA-I-3000	0+00 – 196+40

1-43 ROAD WORK AROUND UTILITIES

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

Road	Stations	Utility	Utility Contact
Kreaman Rd.	MP 0.0 – 0.1	Buried utilities	**811**
PA-I-3000	149+00 – 196+40	Buried utilities	**811**

SECTION 2 – MAINTENANCE

2-1 GENERAL ROAD MAINTENANCE

Contractor 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 – CONTRACTOR MAINTENANCE

Contractor shall perform maintenance on roads listed in Contract Clause C-050.1 CONTRACTOR ROAD MAINTENANCE AND REPAIR in accordance with FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

2-3 ROAD MAINTENANCE – DESIGNATED MAINTAINER

Contractor may be required to perform maintenance on roads listed in Contract Clause C-060.1 DESIGNATED ROAD MAINTAINER as directed by the Contract Administrator. Contractor shall maintain roads in accordance with FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS.

2-4 PASSAGE OF LIGHT VEHICLES

Contractor shall maintain all road(s) in a condition that will allow the passage of light administrative vehicles.

2-5 MAINTENANCE GRADING – EXISTING ROAD

On the following road(s), Contractor shall use a grader to shape the existing surface.

Road	Stations	Requirements
PA-I-2600	0+00 – 14+00	Grade, shape, and compact existing running surface
PA-I-2610	0+00 – 12+05	
PA-I-2620	0+00 – 6+50	
PA-I-3000	0+00 – 196+40	
PA-I-3010	0+00 – 36+75	
PA-I-3012	0+00 – 8+30	
PA-I-3015	0+00 – 19+00	
PA-I-3015.1	0+00 – 12+05	
PA-I-3016	0+00 – 6+35	
PA-I-3030	0+00 – 35+05	
PA-I-3040	0+00 – 32+95	
PA-I-3043	0+00 – 6+90	
PA-I-3000 Loop	0+00 – 2+50	

2-6 CLEANING CULVERTS

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

Road	Stations
PA-I-3010	8+00, 17+05, 24+30, 29+25, 30+35, 33+45
PA-I-3012	3+75, 7+75
PA-I-3043	6+05

2-7 CLEANING DITCHES, HEADWALLS, AND CATCH BASINS

On the following road(s), Contractor shall clean and/or construct ditches, headwalls, and catchbasins. Work must be completed before the start of 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. Ditchlines, headwalls, and catch basins shall not encroach into the existing road.

Road	Stations	Left and/or Right	Comments
PA-I-3010	0+00 – 36+75	Right	Ditching where ditchline is present
PA-I-3012	0+00 – 8+30	Left	
PA-I-3016	0+00 – 14+95	Right	
PA-I-3040	0+00 – 45+10	Right	
PA-I-3040	45+10 – 58+00	Left	
PA-I-3043	0+00 – 6+90	Left	

2-9 REMOVING VEGETATIVE MATERIAL

On the following road(s), Contractor shall remove all vegetative material, dirt, mud and other debris on the existing road surface with a minimum loss of rock. Material must disposed of as specified in Clauses 4-35 through 4-38.

Road	Stations
PA-I-3040	32+95 – 58+00

SECTION 3 – CLEARING, GRUBBING, AND DISPOSAL

SUBSECTION BRUSHING

3-1 BRUSHING

On the following road(s), Contractor shall cut vegetative material up to 5 inches in diameter, including limbs, as shown on the 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. Contractor shall remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets.

Road	Stations
PA-I-3000	0+00 – 196+40
PA-I-3010	0+00 – 36+75
PA-I-3012	0+00 – 8+30
PA-I-3015	0+00 – 19+00
PA-I-3015.1	0+00 – 12+05
PA-I-3016	0+00 – 14+95
PA-I-3030	0+00 – 35+05
PA-I-3040	0+00 – 32+95
PA-I-3043	0+00 – 6+90
PA-I-3044	0+00 – 2+35
PA-I-3000 Loop	0+00 – 2+50

3-2 BRUSHING RESTRICTION

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

3-3 BRUSH REMOVAL

Remove brushing debris from the road surface, ditchlines, and culvert inlets and outlets. Brush should be disposed of so that it will not fall back onto the road prism.

SUBSECTION CLEARING

3-5 CLEARING

Contractor shall fall all vegetative material larger than 5 inches DBH or over 15 feet high between the marked right-of-way boundaries, or as approved by Contract Administrator. Clearing must be completed before starting excavation and embankment.

3-7 RIGHT-OF-WAY DECKING

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

3-8 PROHIBITED DECKING AREAS

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

- Within the grubbing limits.
- Within 50 feet of any stream.
- In locations that interfere with the construction of the road prism.
- In locations that impede drainage.
- On slopes greater than 40%.
- Against standing trees.

SUBSECTION GRUBBING

3-10 GRUBBING

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

3-12 STUMP PLACEMENT

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

SUBSECTION ORGANIC DEBRIS

3-20 ORGANIC DEBRIS DEFINITION

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

3-21 DISPOSAL COMPLETION

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

3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS

Waste areas for organic debris are located as listed below.

Road	Stations	Disposal Location	Requirements
PA-I-3016	6+35 – 14+95	Waste Area Location PA-I-3000 Sta. 169+50	Deposit organic waste from road building between stations 6+35 – 14+95 into waste area
PA-I-3040	33+80 – 40+20	Waste Area Location PA-I-3040 Sta. 27+50	Deposit organic waste from road building between stations 33+80 – 40+20 into waste area
PA-I-3040	45+10 – 49+30, 52+30 – 56+10	Waste Area Location PA-I-3040 Sta. 50+00	Deposit organic waste from road building between stations 45+10 – 49+30, 52+30 – 56+10 into waste area

3-23 PROHIBITED DISPOSAL AREAS

Contractor shall not place organic debris in the following areas:

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

3-24 BURYING ORGANIC DEBRIS RESTRICTED

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

3-25 SCATTERING ORGANIC DEBRIS

Contractor shall scatter organic debris outside of the grubbing limits in accordance with Clause 3-23 unless otherwise detailed in this road plan and as directed by the Contract Administrator**.**

SUBSECTION PILE

3-30 EXCLUSION OF DOZER BLADES

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

3-31 PILING

Contractor shall pile organic debris no closer than 20 feet from standing timber and no higher than 20 feet in areas specified in Clause 3-22DESIGNATED WASTE AREA FOR ORGANIC DEBRIS. Piles must be free of rock and soil.

3-32 END HAULING ORGANIC DEBRIS

On the following road(s), and on slopes greater than 45%, Contractor shall end haul or push organic debris to the designated waste areas specified in Clause 3-22 DESIGNATED WASTE AREA FOR ORGANIC DEBRIS.

Road	Stations
PA-I-3016	6+35 – 14+95
PA-I-3040	33+80 – 40+20, 45+10 – 49+30, 52+30 – 56+10

SECTION 4 – EXCAVATION

4-1 EXCAVATOR CONSTRUCTION

Contractor shall use a track mounted hydraulic excavator for construction, reconstruction and maintenance work unless stated otherwise within this Road Plan or authorized in writing by the Contract Administrator.

4-2 PIONEERING

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

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

4-3 ROAD GRADE AND ALIGNMENT STANDARDS

Contractor shall follow these standards for road grade and alignment:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 16 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.

4-4 SWITCHBACK STANDARDS

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

- Maximum adverse grades for switchbacks is 10%.
- Maximum favorable grades for switchbacks is 12%.
- Maximum transition grades entering and leaving switchbacks is a 5% grade change.
- Transition grades required to meet switchback grade limitations must be constructed on the tangents preceding and departing from the switchbacks.

4-5 CUT SLOPE RATIO

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

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

4-6 EMBANKMENT SLOPE RATIO

Contractor 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

Contractor 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.

4-10 WIDEN THE EXISTING SUBGRADE

On the following road(s), Contractor shall widen the subgrade and fill slopes to the dimensions shown on the TYPICAL SECTION SHEET. If necessary, Contractor shall reconstruct excavation slopes to provide sufficient width for the road surface and any ditches. Pulling excavation material across the road or mixing in with the existing road surface is not allowed.

4-12 FULL BENCH CONSTRUCTION

On the following road(s), and where side slopes exceed 45%, Contractor shall use full bench construction for the entire subgrade width. Contractor shall end haul waste material to the location specified in Clause 4-37 WASTE AREA LOCATION.

Road	Full Bench Location
PA-I-3016	6+35 – 14+95
PA-I-3040	33+80 – 40+20, 45+10 – 49+30, 52+30 – 56+10

SUBSECTION INTERSECTIONS, TURNOUTS AND TURNAROUNDS

4-21 TURNOUTS

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

4-22 TURNAROUNDS

Turnarounds must be no larger than 50 feet long and 30 feet wide. Locations are subject to written approval by the Contract Administrator.

SUBSECTION DITCH CONSTRUCTION

4-25 DITCH CONSTRUCTION AND RECONSTRUCTION

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

4-27 DITCH WORK – MATERIAL USE PROHIBITED

Contractor shall not pull ditch material across the road or mix in with the road surface. Excavated material must be end hauled to the location specified in Clauses 4-36 through 4-38.

4-28 DITCH DRAINAGE

Ditches must drain to cross-drain culverts or ditchouts.

SUBSECTION WASTE MATERIAL (DIRT)

4-35 WASTE MATERIAL DEFINITION

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

4-36 DISPOSAL OF WASTE MATERIAL

Contractor 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

Contractor shall deposit waste material in the listed designated areas. The amount of material allowed in a waste area is at the discretion of the Contract Administrator.
Note: All amount values are estimated bank yards.

Waste Area Location	Waste Generated From Road	Waste Generated at Stations	Estimated Volume
PA-I-3000 Sta. 169+50	PA-I-3016	6+35 – 14+95	500 yd^3
PA-I-3040 Sta. 27+50	PA-I-3040	33+80 – 40+20	400 yd^3
PA-I-3040 Sta. 50+00 (JCT with PA-I-3045)	PA-I-3040	45+10 – 49+30	300 yd^3
PA-I-3040 Sta. 50+00 (JCT with PA-I-3045)	PA-I-3040	52+30 – 56+10	300 yd^3

4-38 PROHIBITED WASTE DISPOSAL AREAS

Contractor shall not deposit waste material in the following areas:

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

4-39 WASTE AREA COMPACTION

Excavated material may be deposited adjacent to the road prism on side slopes up to 45% if the waste material is compacted and free of debris. On side slopes of 45% or more, all excavation shall be end hauled or pushed to designated waste areas. All waste material shall be compacted. The minimum acceptable compaction is achieved by placing embankments in 2 foot or shallower lifts and routing excavation equipment over the entire width of the lifts, with the exception of side hill embankments too narrow to accommodate excavation equipment which may be placed by end-dumping or sidecasting until sufficiently wide to support the equipment.

SUBSECTION BORROW

4-47 NATIVE MATERIAL

Native material consists of naturally occurring material that is free of organic debris, trash, and rocks greater than 12 inches in any dimension.

SUBSECTION SHAPING

4-55 ROAD SHAPING

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

4-56 DRY WEATHER SHAPING

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

SUBSECTION COMPACTION

4-60 FILL COMPACTION

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

4-61 SUBGRADE COMPACTION

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

4-62 DRY WEATHER COMPACTION

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

4-63 EXISTING SURFACE COMPACTION

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

4-64 WASTE MATERIAL COMPACTION

All waste material shall be compacted by running equipment over it or bucket tamping.

4-65 CULVERT BACKILL COMPACTION

Culvert backfills shall be accomplished by using a jumping jack compactor, performing at least 2 passes per lift, in lifts not to exceed 8 inches.

4-66 COMPACTION BY METHOD

Compaction shall consist of three complete passes over the entire width of each lift with a vibratory drum roller weighing a minimum of 6,000 pounds at a maximum operating speed of 3 mph. For embankment segments too narrow to accommodate a drum roller, a plate compactor shall be used.

SECTION 5 – DRAINAGE

5-4 PUNCHEON RESTRICTED

At no time shall puncheon be used in the subgrade, unless approved by the Contract Administrator.

SUBSECTION CULVERTS

5-5 CULVERTS

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

5-12 UNUSED MATERIALS STATE PROPERTY

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

SUBSECTION CULVERT INSTALLATION

5-15 CULVERT INSTALLATION

Culvert installation must be in accordance with the TYPICAL CROSS DRAIN CULVERT INSTALLATION DETAIL SHEET, TYPICAL TYPE NS NP CULVERT INSTALLATION DETAIL SHEET, the National Corrugated Metal Pipe Association's "Installation Manual for Corrugated Steel Drainage Structures"and the Corrugated Polyethylene Pipe Association's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings". Corrugated Polyethylene pipe must be installed in a manner consistent with the manufacturer's recommendations. Culverts over 15 inches diameter shall be banded using lengths of no less than 10 feet, and no more than one length less than 16 feet. Shorter section of banded culvert shall be installed at the inlet end.

5-17 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 18 inches of compacted subgrade over the top of the culvert at the shallowest point. Stream crossing culverts must be installed with a depth of cover specified in the Engineer's design, TYPICAL TYPE NS NP DETAIL SHEET, or recommended by the culvert manufacturer for the type and size of the pipe, whichever is greater.

SUBSECTION CATCH BASINS, HEADWALLS, AND ARMORING

5-25 CATCH BASINS

Contractor shall construct catch basins to resist erosion. Minimum dimensions of catch basins are 1-2 feet wide, 1-2 feet deep and 2-4 feet long.

5-26 HEADWALLS FOR CROSS DRAIN CULVERTS

Contractor shall construct headwalls in accordance with the TYPICAL CROSS DRAIN CULVERT INSTALLATION DETAIL at all cross drain culverts that specify the placement of rock. Rock used for headwalls must consist of oversize or quarry spall material. 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. No placement by end dumping or dropping of rock is allowed.

SECTION 6 – ROCK AND SURFACING

SUBSECTION ROCK SOURCE

6-2 ROCK SOURCE ON STATE LAND

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

Source	Location	Rock Type
Bengal Pit	T31N R08W Sec 26	Clean Rock Shot Ballast, 3” Jaw Run Rock
Striped Pit	T31R08W Sec 26 & 27	Clean Rock Shot Ballast, 3” Jaw Run Rock
Place Pit	T31R08W Sec 33	1 ¼” Minus Crushed Rock

6-3 ROCK SOURCE STATE LAND, EXISTING STOCKPILE

Rock used in accordance with the quantities on the ROCK LIST may be obtained from the following existing stockpile(s) on state land at no charge to the Contractor. Contractor shall not remove more than 1950 cubic yards of 3” Minus Crushed Rock and 400 cubic yards of 1 ¼” Minus Crushed Rock. Contractor 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
Place Pit	T31N R08W Sec 33	1 ¼" Minus Crushed Rock	400 yd^3

6-5 ROCK FROM COMMERCIAL SOURCE

Rock used in accordance with the quantities on the ROCK LIST may be obtained from any commercial source at the Contractor's expense. Rock sources are subject to written approval by the Contract Administrator before their use. Prior to approval, Contractor shall submit a passing sieve test performed by procedure described in WSDOT FOP for WAQTC T 27/11.

SUBSECTION ROCK SOURCE DEVELOPMENT

6-10 ROCK SOURCE DEVELOPMENT PLAN BY STATE

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

Source	Rock Type
Place Pit	1 ¼" Minus Crushed Rock

6-11 ROCK SOURCE DEVELOPMENT PLAN BY CONTRACTOR

Contractor shall conduct rock source development and use at the following sources, in accordance with a written ROCK SOURCE DEVELOPMENT PLAN to be prepared by the Contractor as well as the Pit Use Requirements included in this road plan. The plan is subject to written approval by the Contract Administrator before any rock source operations. Upon completion of operations, the rock source must be left in the condition specified in the ROCK SOURCE DEVELOPMENT PLAN, and approved in writing by the Contract Administrator. Contractor shall notify the Contract Administrator a minimum of 5 business days before starting any operations in the rock source.

Source	Rock Type
Bengal Pit	Clean Rock Shot Ballast, 3" Minus Jaw Run Rock
Striped Pit	Clean Rock Shot Ballast, 3" Minus Jaw Run Rock

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

- Rock source location.
- Rock source overview showing access roads, development areas, stockpile locations, waste areas, and floor drainage.
- Rock source profiles showing development areas, bench locations including widths, and wall faces including heights.
- Rock source pit plan describing how the area will be left in a condition that will ensure public safety and minimize environmental impacts.
- Contractor shall address and follow attached pit use requirements when working in Striped Pit.
- Existing stokpiles in pit or adjacent to PA-I-3040 are not available for use.

6-12 ROCK SOURCE SPECIFICATIONS

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

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

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

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

6-14 DRILL AND SHOOT

Rock drilling and shooting must meet the following specifications:

- Oversize material remaining in the rock source at the conclusion of the timber sale may not exceed 5% of the total volume mined in that source.
- Oversize material is defined as rock fragments larger than five feet in any dimension.
- Oversized rock that exceeds the maximum allowable amount must be shot or broken up.
- Contractor shall notify the Contract Administrator a minimum of 3 working days before blasting operations.
- Contractor shall submit an informational drilling and shooting plan to the Contract Administrator 10 working days before any drilling (Form #M-126PAC).
- All operations must be carried out in compliance with the Regulations and Standards Applicable to Metal and Nonmetal Mining and Milling Operations (30 CFR) U.S. Department of Labor, Mine Safety and Health Administration and the Safety Standards for Construction Work (296-155 WAC), Washington Department of Labor and Industries.
- Contractor is require to inform Clallam County Dispatch (PenCom) of a day and approximate time of the pit blasting.
- Contractor shall block access roads and trails before blasting operations.

6-16 DRILL AND SHOOT TECHNICAL SPECIFICATIONS

DRILLING

The Contractor shall drill in accordance to an approved Shot Plan. Drill depth shall not extend more than 5 feet below existing pit floor. The District Engineer or their designee and Contractor shall jointly measure and determine drill depths, hole spacing and pattern and must be approved prior to loading explosives. During drilling operation, drill operator shall keep a bore log which includes the depth and location of each hole drilled. The District Engineer or their designee may ask to see the bore log during and after the drilling process has completed.

BLASTING

The Contractor shall furnish and load appropriate explosives, detonators, and ignition sources in accordance to all State and Federal laws and in accordance to an approved Shot Plan.

DRILLING AND SHOOTING PLAN "SHOT PLAN"

The Contractor shall submit a written drilling and shooting plan, including drawings, to the District Engineer or their designee, which must meet the approval of the District Engineer or their designee prior to the start of the drilling operation. The plan and drawing(s) shall include the following proposals: drill hole diameter, drill hole spacing, drill hole pattern, drill hole depth, any stemming depths, type and depth of explosive

including amount per drill hole, detonator and ignition type, and proposed delay pattern. Any adjustment or modifications to the proposals during operations must be noted and resubmitted prior to loading of explosives.

WEATHER LIMITATIONS

When, in the opinion of the District Engineer or their designee, the weather is such that satisfactory results cannot be obtained in any phase of operation, Contractor shall suspend operations until the weather is favorable. Before and during any suspension, Contractor shall protect the work from damage or deterioration.

SUBSECTION ROCK MANUFACTURE

6-20 ROCK CRUSHING OPERATIONS

Rock crushing operations must conform to the following specifications:

- Operations and placement of oversize material must be conducted in or near the rock source site, as approved in writing by the Contract Administrator.
- The crushing operation must be concluded within 30 working days from the time it begins.
- All testing and operations must be performed in accordance with the attached ROCK CRUSHING COMPLIANCE PROCEDURE.
- Contractor may use a commercial testing lab to produce sieve analyses.
- Sieve analysis for acceptance of aggregate shall be performed by procedure described in WSDOT FOP for WAQTC T 27/11.

6-23 ROCK GRADATION TYPES

Contractor shall manufacture rock in accordance with the types and amounts listed in the Manufacturing list below. Rock must meet the following specifications for gradation and uniform quality during manufacture and placement into a stockpile. Contractor shall provide a sieve analysis upon request from the Contract Administrator.

Rock Type	Amount
Clean Rock, Shot Ballast	2770 yd^3
3” Jaw Run Rock	3860 yd^3

6-24 ROCK CRUSHING COMPLIANCE PROCEDURE

Phase I. Equipment Adjustment

Step 1:

At start up of crushing operations, the Contractor will notify the Contract Administrator when the rock meets the gradation specifications in the contract. None of the rock crushed during this calibration period will be counted toward the amount required to be crushed, and this rock must be kept separate from accepted rock crushed later.

Step 2:
The Contractor will test the rock. Two samples will be taken. If the rock meets specifications, crushing may begin. If the rock does not meet specifications, return to Step 1.

Phase II. Production

Step 3:
The Contractor will continue periodic testing to ensure that rock stays in spec. Testing will take place according to the following schedule:

- After the first 500 yards
- After every 2,000 yards thereafter.

a) Any time a sample is out of spec, but is within 5%*, the Contractor will be notified and a second sample will be taken later in the day. If the second sample meets specifications, the rock crushed during that day will be accepted. If the second sample also fails to meet spec, none of the rock crushed since the last acceptable test will be counted toward the amount to be crushed.

b) Any time a sample is out of spec and is more than 5% off in any category, none of the rock crushed since the last acceptable test will be accepted and that rock must be kept separate from the stockpile. Return to Step 1.

c) Contractor is strongly encouraged to take their own samples regularly and keep their operations in spec to avoid unnecessary expenses.

- The 5% will be applied only to sieve specs for 2" to ¼"; rock that is out of spec in larger sizes must be kept separate from the acceptable rock. Periodic visual inspection required for all rock gradations larger than 2". If in the opinion of the Contract Administrator that gradations are not meeting specifications, Contract Administrator my require testing of material 2" or larger.

SUBSECTION ROCK GRADATIONS

6-28 1 ¼-INCH MINUS CRUSHED ROCK

% Passing 1 ¼" square sieve	100%
% Passing 5/8" square sieve	55 - 75%
% Passing U.S. #4 sieve	20 - 50%

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

6-34 3-INCH JAW RUN ROCK

% Passing 3" square sieve	100%
% Passing 1 ½" square sieve	45 - 65%

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

6-42 CLEAN ROCK, SHOT BALLAST

No more than 10 percent of the rock by visual inspection may exceed 8 inches in any dimension and no rock may be larger than 12 inches in any dimension. Shot Ballast rock may not contain more than 5 percent by weight of organic debris, dirt, and trash.

SUBSECTION ROCK MEASUREMENT

6-55 ROCK APPLICATION MEASURED BY COMPACTED DEPTH

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

SUBSECTION ROCK APPLICATION

6-70 APPROVAL BEFORE ROCK APPLICATION

Contractor shall obtain written approval from the Contract Administrator for subgrade drainage installation included grading and compaction before rock application.

6-71 ROCK APPLICATION

Contractor shall apply rock in accordance with the specifications and quantities shown on the ROCK LIST. Rock must be spread, shaped, and compacted full width concurrent with rock hauling operations. The Contract Administrator will direct locations for rock that is to be applied as spot patching. Road surfaces must be compacted in accordance with the COMPACTION LIST by routing equipment over the entire width and in lifts not to exceed 6 inches.

6-72 ROCK APPLICATION AFTER HAULING

On the following road(s), upon completion of all hauling operations, Contractor shall apply rock in accordance with the quantities shown on the ROCK LIST.

Road	Stations	Rock Type	Amount
PA-I-3000	0+00 – 196+40	Commercial 1 ¼" Minus Crushed Rock	400 yd^3

6-73 ROCK FOR WIDENED PORTIONS

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

6-76 DRY WEATHER ROCK COMPACTION

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

6-78 ROCK FOR SPOT PATCHING

Rock for spot patching shall be applied before any grading is done and before any rock lifts are applied. Once applied, spot patches shall be graded into the existing running surface.

SECTION 7 – STRUCTURES

SUBSECTION SIGNS

7-2 SIGN INSTALLATION (NON-HIGHWAY)

The Contractor shall be responsible for the purchase, installation, and maintenance of the following road signs. Signs shall be installed a minimum of 7 days before hauling logs and/or rock. Signs shall be at least 2 feet in any direction, and shall be orange with black lettering.

Road	Station	Sign
Camp Hayden Rd.	MP 2.5 (JCT of PA-I-3000 and Camp Hayden Rd.)	2 Truck Crossing Signs East and West

SUBSECTION STREAM CROSSING STRUCTURES GENERAL

7-5 STRUCTURE DEBRIS

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

7-6 STREAM CROSSING INSTALLATION

Contractor shall install stream crossing structures in accordance with the manufacturer's requirements, and as directed by the District Engineer or their designee.

7-7 BANK PROTECTION FOR STREAM CROSSING STRUCTURES

Contractor shall design and construct bank protection to prevent the undermining of the structure.

SUBSECTION GATE CLOSURE

7-70 GATE CLOSURE

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

Road	Station
PA-I-3000	1+60
PA-I-3010	0+40
PA-I-3030	5+70
PA-I-2600	0+25

SECTION 8 – EROSION CONTROL

8-2 PROTECTION FOR EXPOSED SOIL

Contractor shall provide and evenly spread a 3-inch layer of straw or hay to all exposed soils at culvert installations within 100 feet of a stream or wetland. Soils must be covered before the first anticipated storm event. Soils may not sit exposed during any rain event.

SUBSECTION REVEGETATION

8-15 REVEGETATION

Contractor shall spread grass seed and straw and/or hay mulch on all exposed soils including, but not limited to, stream culverts, waste areas, sidecast pullback areas, stream crossing removals, bridge installations, and other areas directed by the Contract Administrator. Revegetation of exposed soils shall be accomplished by manual dispersal of grass seed unless otherwise detailed in this Road Plan. Other methods of covering must be approved in writing by the Contract Administrator.

8-16 REVEGETATION SUPPLY

The Contractor shall provide the all seed, mulch, straw and/or hay, matting etc..

8-17 REVEGETATION TIMING

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

8-18 PROTECTION FOR SEED

Contractor shall provide a protective cover over the revegetated area. The protective cover may consist of but not be limited to, such items as dispersed hay mulch 3" thick or jute matting . Seed must be covered before the first anticipated storm event.

8-19 ASSURANCE FOR SEEDED AREA

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

SUBSECTION SEED, FERTILIZER, AND MULCH

8-25 GRASS SEED

Contractor shall evenly spread the seed mixture listed below on all exposed soil inside the grubbing limits at a rate of 60 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	Minimum % germination
Perennial Rye	35-45	90
Red Fescue	30-40	90
Highland Bent	5-15	85
White Clover	10-20	90
Inert and Other Crop	0.5	

SECTION 9 – POST-HAUL ROAD WORK

9-3 CULVERT MATERIAL REMOVED FROM STATE LAND

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

SUBSECTION POST-HAUL MAINTENANCE

9-5 POST-HAUL MAINTENANCE

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

Road	Stations	Additional Requirements
All	All	Clean culverts, clean ditches, grade road shape and compact as directed by the Contract Administrator.
PA-I-3000	0+00 – 196+40	Apply post haul rock per Clause 6-72.

SUBSECTION POST-HAUL LANDING MAINTENANCE

9-10 LANDING DRAINAGE

Contractor shall provide for drainage of the landing surface as approved in writing by the Contract Administrator.

9-11 LANDING EMBANKMENT

Contractor shall slope landing embankments to the original construction specifications.

SUBSECTION DECOMMISSIONING AND ABANDONMENT

9-20 ROAD DECOMMISSIONING

Contractor shall decommission the following roads before the termination of this contract.

Road	Stations	Type
0+65 Spur	0+00 – 0+65	Heavy Decommissioning

9-24 HEAVY DECOMMISSIONING

- Fill in ditches.
- Rip the surface to a minimum depth of 10 inches.
- Remove road shoulder berms except as directed.
- Construct non-drivable waterbars in accordance with the attached NON-DRIVABLE WATERBAR DETAIL at a maximum spacing that will produce a vertical drop of no more than 10 feet between waterbars or between natural drainage paths and with a maximum spacing of 100 feet, 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 culverts.
- Remove ditch cross drain culverts and leave the resulting trench open.
- Slope all trench walls and approach embankments no steeper than 1.5:1.
- Cover, concurrently with decommissioning, all exposed soils within 100 feet of any live stream, with a 8-inch deep layer of straw.
- Provide and evenly spread a 6-inch layer of straw and/or hay to all exposed soils associated with stream culvert and puncheon removals, as well as all waste material generated by fill removal that are within 30 feet of excavation limits.
- Scatter woody debris onto decommissioned road surfaces.

SECTION 10 MATERIALS

SUBSECTION CULVERTS

10-15 CORRUGATED STEEL CULVERT

Metallic coated steel culverts must meet AASHTO M-36 (ASTM A-760) specifications. Culverts must be galvanized (zinc coated meeting AASHTO M-218).

10-16 CORRUGATED ALUMINUM CULVERT

Aluminum culverts must meet AASHTO M-196 (ASTM A-745) specifications.

10-17 CORRUGATED PLASTIC CULVERT

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

10-21 METAL BAND

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

10-22 PLASTIC BAND

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

10-23 RUBBER CULVERT GASKETS

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

10-24 GAUGE AND CORRUGATION

Unless otherwise stated in the engineer's design, metal culverts must conform to the following specifications for gage and corrugation as a function of diameter.

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

SECTION 11 SPECIAL NOTES

11-1 TRAIL AND ROAD INTERSECTIONS

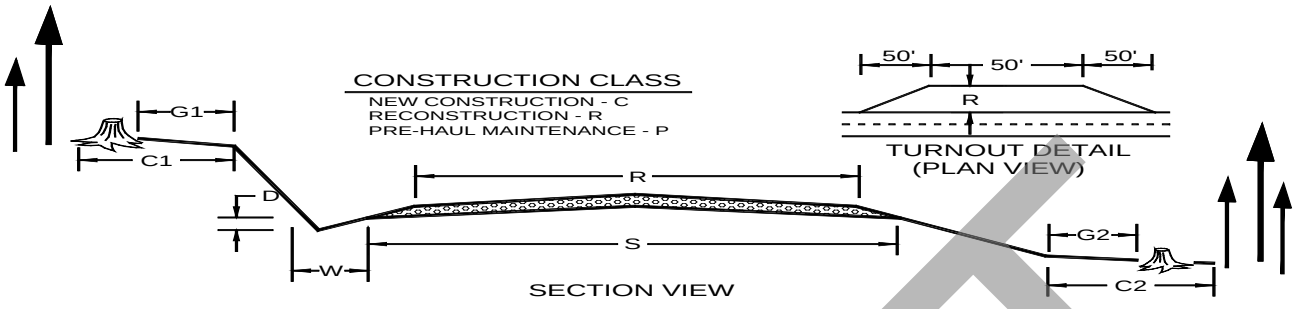
On the following roads, Purchaser shall construct dirt ramps on the trails to allow for a smooth transition between the Little River trail and road surface.

Road	Stations
PA-I-3030	11+30, 32+20

11-7 COUNTY ROAD APPROACH PERMITS

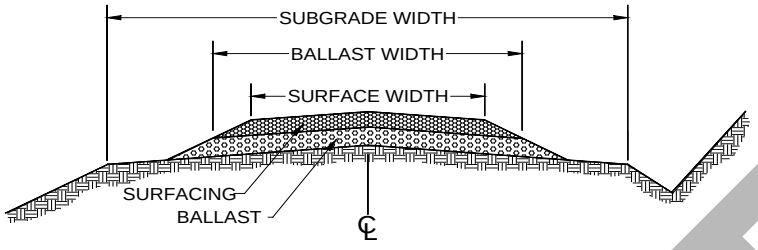
All county road approach permit(s) must be followed. This includes posting, correspondence with the County Public works department and construction requirements.

TYPICAL SECTION SHEET



ROAD NAME	START STATION	END STATION	CONSTRUCTION CLASS	TOLERANCE CLASS	SUBGRADE WIDTH (S)	ROAD WIDTH (R)	CROWN AT CL (in)	DITCH WIDTH (W)	DITCH DEPTH (D)	GRUBBING CUT BANK (G1)	GRUBBING FILL TOE (G2)	ROAD CUT CLEARING (C1)	ROAD FILL CLEARING (C2)
PA-I-2600	0+00	14+00	P			12’	3”	3’	1’				
PA-I-2610	0+00	12+05	P			12’	3”	3’	1’				
PA-I-2620	0+00	6+50	P			12’	3”	3’	1’				
PA-I-3000	0+00	196+40	P			12’	3”	3’	1’				
PA-I-3010	0+00	36+75	P			12’	3”	3’	1’				
PA-I-3010	36+75	45+60	R	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
PA-I-3012	0+00	8+30	P			12’	3”	3’	1’				
PA-I-3015	0+00	19+00	P			12’	3”	3’	1’				
PA-I-3015.1	0+00	12+05	P			12’	3”	3’	1’				
PA-I-3015.3	0+00	2+10	R	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
3+40 Spur	0+00	3+40	R	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
PA-I-3016	0+00	6+35	P			12’	3”	3’	1’				
PA-I-3016	6+35	14+95	R	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
PA-I-3030	0+00	35+05	P			12’	3”	3’	1’				
PA-I-3040	0+00	32+95	P			12’	3”	3’	1’				
PA-I-3040	32+95	58+00	C	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
PA-I-3043	0+00	6+90	P			12’	3”	3’	1’				
PA-I-3044	0+00	2+35	R	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
PA-I-3044	2+35	3+15	C	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
PA-I-3000 Loop	0+00	2+50	P			12’	3”	3’	1’				
PA-I-3015 Tie	0+00	2+00	C	C	17’	12’	3”	3’	1’	5’	5’	10’	5’
0+65 Spur	0+00	0+65	C	C	17’	12’	3”	3’	1’	5’	5’	10’	5’

ROCK LIST SHEET

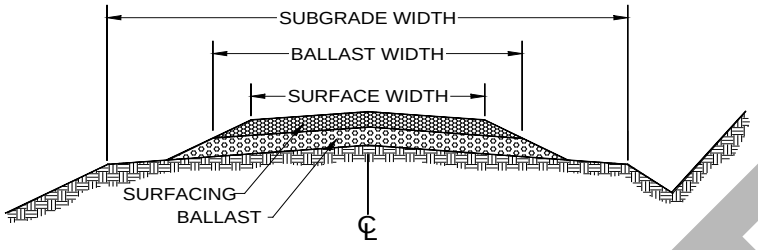


SECTION VIEW

1. Rock quantities, subtotals and totals are "truck measure" estimates. Rock shall be applied to at least the depths listed.
2. All depths are compacted depths.
3. Rock slopes shall be 1½ (H) : 1 (V).
4. All rock sources are subject to approval by the Contract Administrator.
5. Pitrun is defined as pitrun or ballast per Line 6. Crushed is defined as any crushed rock from ¼" minus to 4" minus per Line 6. Oversize is defined as oversize, quarry spalls, light loose rip rap, or heavy loose rip rap per Line 6.
6. Rock sources = 1: Bengal Pit Shot Ballast, 2: Bengal Pit 3" Jaw, 3: Place Pit 1 1/4" Minus

ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd^3/sta)	Pitrun SUBTOTAL(yd^3)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd^3/sta)	Crushed Subtotal(yd^3)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd^3)
PA-I-3000															
Curve Widening				1				100							
Post-Haul	0+00	196+40							3				400		
PA-I-3010															
Misc	0+00	18+25							2				100		
Misc	18+25	36+75							2				100		
Turnaround	23+95			1				50							
Turnaround	36+00			1				50							
Lift	36+75	45+60	17	1	13	12	70	620	2	12	6	35	310		
Culvert Install	39+70								2				20		
PA-I-3012															
Misc	0+00	8+30							2				50		
Turnaround	6+05			1				50							
PA-I-3015.3															
Lift	0+00	2+10	17	1	13	12	70	150	2	12	6	35	70		
Culvert Install	0+10								2				20		
3+40 Spur															
Lift	0+00	3+40	17	1	13	12	70	240	2	12	6	35	120		
Culvert	0+10								2				20		
PA-I-3030															
Post-Haul	0+00	35+05							2				50		
Totals:								1: 1260					2: 860, 4: 400		

ROCK LIST SHEET CONTINUED



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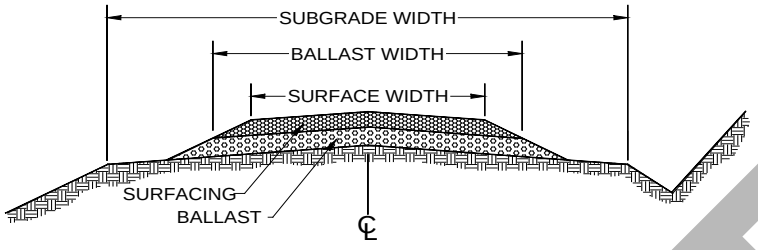
PA-I-3016															
Misc	0+00	6+35							2				200		
Lift	6+35	14+95	17	1	13	12	70	670	2	12	6	35	340		
Culvert Install	6+35								2				20		
Turnaround				1				50							
Culvert Install	12+45								2				20		
Landing	14+95			1				50							
PA-I-3040															
Misc	0+00	32+95							2				200		
Culvert Install	11+00								2				20		
Culvert Install	13+85								2				20		
Culvert Install	17+30								2				20		
Culvert Install	18+30								2				20		
Turnout	21+00			1				30							
Culvert Install	22+65								2				20		
Turnout	27+50			1				30							
Misc	32+95	58+00							2				1750		
Culvert Install	37+20								2				20		
Turnaround	40+40			1				50							
Culvert Install	43+10								2				20		
Turnout	45+10			1				30							
Totals:								1:910					2:2670		

ROCK LIST SHEET CONTINUED



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ROAD NAME	START STATION	END STATION	SUBGRADE WIDTH (ft)	Pitrun SOURCE	Pitrun WIDTH (ft)	Pitrun DEPTH (in)	Pitrun Quantity(yd^3/sta)	Pitrun SUBTOTAL(yd^3)	Crushed SOURCE	Crushed WIDTH (ft)	Crushed DEPTH (in)	Crushed Quantity(yd^3/sta)	Crushed Subtotal(yd^3)	Oversize/ Rip rap Source	Oversize/Rip Rap Quantity(yd^3)
PA-I-3040 (cont.)															
Culvert Install	49+45								2				20		
Turnout	50+35			1				30							
Turnaround	56+20			1				50							
Landing	58+00			1				50							
PA-I-3043															
Misc	0+00	6+90							2				50		
Culvert Install	2+00								2				20		
PA-I-3044															
Lift	0+00	2+35	17	1	13	12	70	170	2	12	6	35	80		
Lift	2+35	3+15	17	1	13	12	70	60	2	12	6	35	30		
Landing	3+15			1				50							
PA-I-3015 Tie															
Lift	0+00	2+00	17	1	13	12	70	140	2	12	6	35	70		
Culvert Install	1+70								2				20		
0+65 Spur															
Lift	0+00	0+65	17	1	13	12	75	50	2	12	4	20	20		
Culvert Install	0+10								2				20		
Totals:								1: 600					2: 330		
Grand Totals:								1: 2770					2: 3860, 4: 400		

CULVERT LIST

ROAD NAME	STATION	CULVERT DIAMETER (in)	CULVERT LENGTH (ft)	FLUME LENGTH (ft)	RIP RAP - INLET (cy)	RIP RAP – OUTLET (cy)	BACKFILL MATERIAL	NOTES
PA-I-3010	8+00	18						Clean Inlet and Oulet
PA-I-3010	17+05	18						Clean Inlet and Outlet
PA-I-3010	24+30	18						Clean Inlet and Outlet
PA-I-3010	29+25	18						Clean Inlet and Outlet
PA-I-3010	30+35	18						Clean Inlet and Outlet
PA-I-3010	33+45	18						Clean Inlet and Outlet
PA-I-3010	39+70	24	30				CR	Culvert Install*
PA-I-3012	3+75	18						Clean Inlet and Outlet
PA-I-3012	7+75	18						Clean Inlet and Outlet
3+40 Spur	0+10	18	30				CR	Culvert Install
PA-I-3016	6+35	18	30				CR	Culvert Install
PA-I-3016	12+45	18	30				CR	Culvert Install
PA-I-3040	0+25	24	20					Culvert Maintenance Band onto existing 24” culvert at outlet to extend to a total length of 60’
PA-I-3040	11+00	18	30				CR	Culvert Install
PA-I-3040	13+85	18	30				CR	Culvert Install
PA-I-3040	17+30	18	30				CR	Culvert Install
PA-I-3040	18+30	18	30				CR	Culvert Install
PA-I-3040	22+65	18	30				CR	Culvert Install
PA-I-3040	31+10	18	30				CR	Culvert Install
PA-I-3040	37+20	18	30				CR	Culvert Install
PA-I-3040	43+10	18	30				CR	Culvert Install
PA-I-3040	49+45	18	30				CR	Culvert Install
PA-I-3043	2+00	18	30				CR	Culvert Install
PA-I-3043	6+05	18						Clean Inlet and Outlet
PA-I-3015 Tie	1+70	18	30				CR	Culvert Install
0+65 Spur	0+10	12	40				CR	Culvert Install Install in accordance with Clause 11-7 and County Road Approach Permit

All rip rap shall be Oversize unless specified in the Rock List, or in the field.

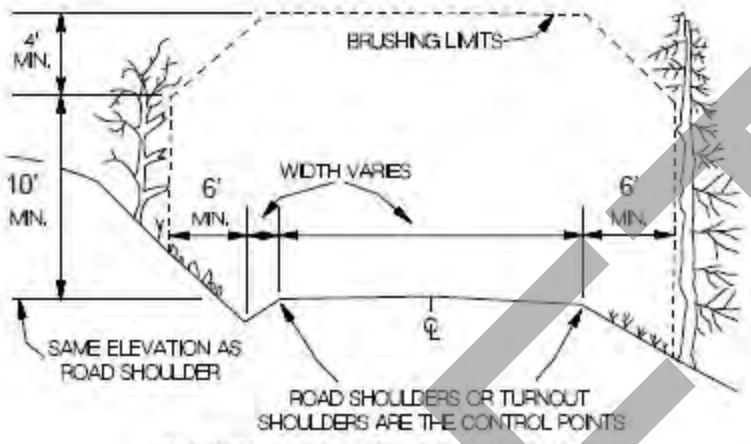
All backfill shall be native material (NT) unless specified otherwise. CR= 3” minus jaw run rock, PR= Pit Run Rock

COMPACTION LIST

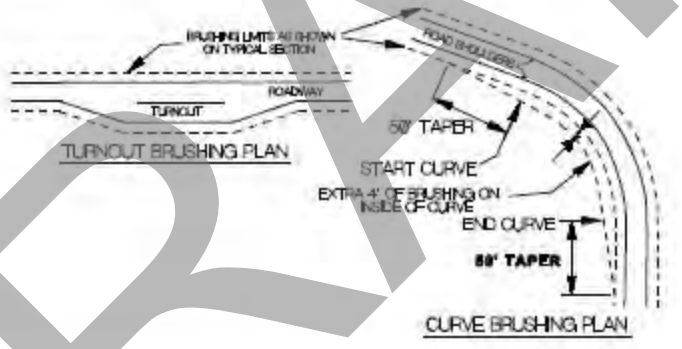
Alternate forms/methods to using vibratory smooth drum compactor to compact the road classes listed in the table below shall be approved per District Engineer.

Road	Stations	Type	Max Depth Per Lift (inches)	Equipment Type	Minimum Equipment Weight (lbs)	Minimum Number of Passes	Maximum Operating Speed (mph)
Pre-Haul	All	Culvert Backfill	8”	Jumping Jack		3	
Pre-Haul	All	Rock Lifts	6”	Vibratory Smooth Drum	6,000	3	3
Pre-Haul	All	Pre-Haul Surface		Vibratory Smooth Drum	6,000	3	3
Construction	All	Subgrade (Except Puncheon)	6”	Vibratory Smooth Drum	6,000	2	3
Construction	All	Culvert Backfill	8”	Jumping Jack		3	
Construction	All	Rock Placement	6”	Vibratory Smooth Drum	6,000	2	3
Reconstruction	All	Subgrade (Except Puncheon)	6”	Vibratory Smooth Drum	6,000	2	3
Reconstruction	All	Culvert Backfill	8”	Jumping Jack		3	
Reconstruction	All	Rock Placement	6”	Vibratory Smooth Drum	6,000	2	3
Post-Haul Maintenance	All	Rock Placement	6”	Vibratory Smooth Drum	6,000	2	3

BRUSHING DETAIL



TYPICAL BRUSHING LIMITS SECTION

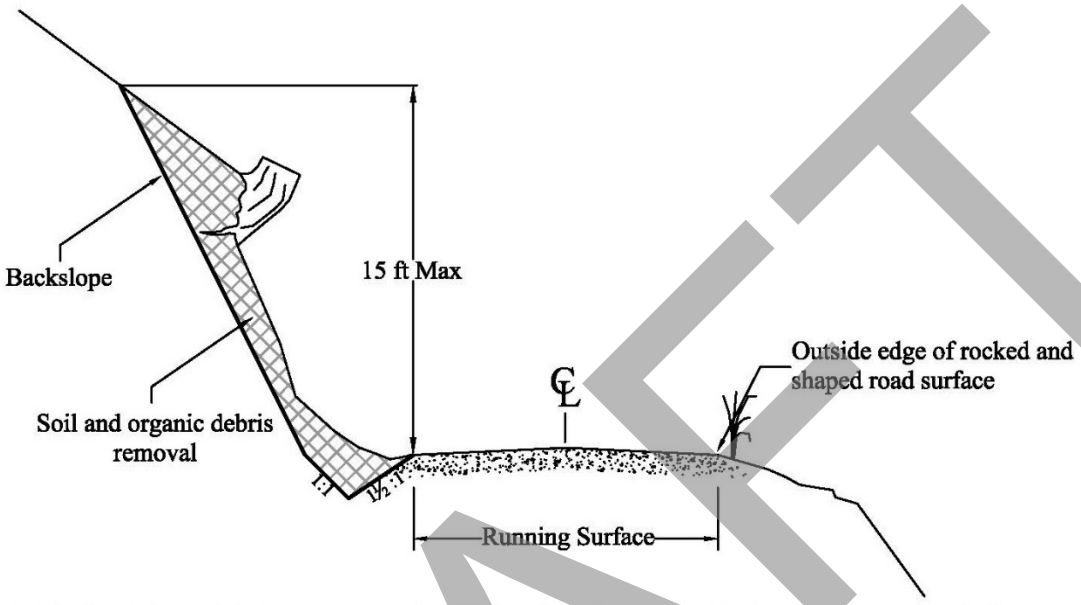


TURNOUT BRUSHING PLAN

CURVE BRUSHING PLAN

1. All vegetation within the brushing limits shall be cut to within 3 inches of the ground, unless otherwise directed by the Contract Administrator
2. All brush, trees, limbs, etc. shall be removed from the road surface, cut banks, culvert inlets/outlets, and ditch lines
3. All debris that may roll or move into the ditch line shall be removed and placed in a stable location

Ditch Cleaning Detail



1. The backslope shall be no steeper than ½:1, unless the material is hardpan or solid rock, in which case it may be ¼:1.

2. If there is sufficient width for the ditch without affecting the cut bank, than removing bank material is not required.

3. Bank material above the ditch shall be removed to a maximum height of 15 feet, if needed to meet the requirements of this detail.

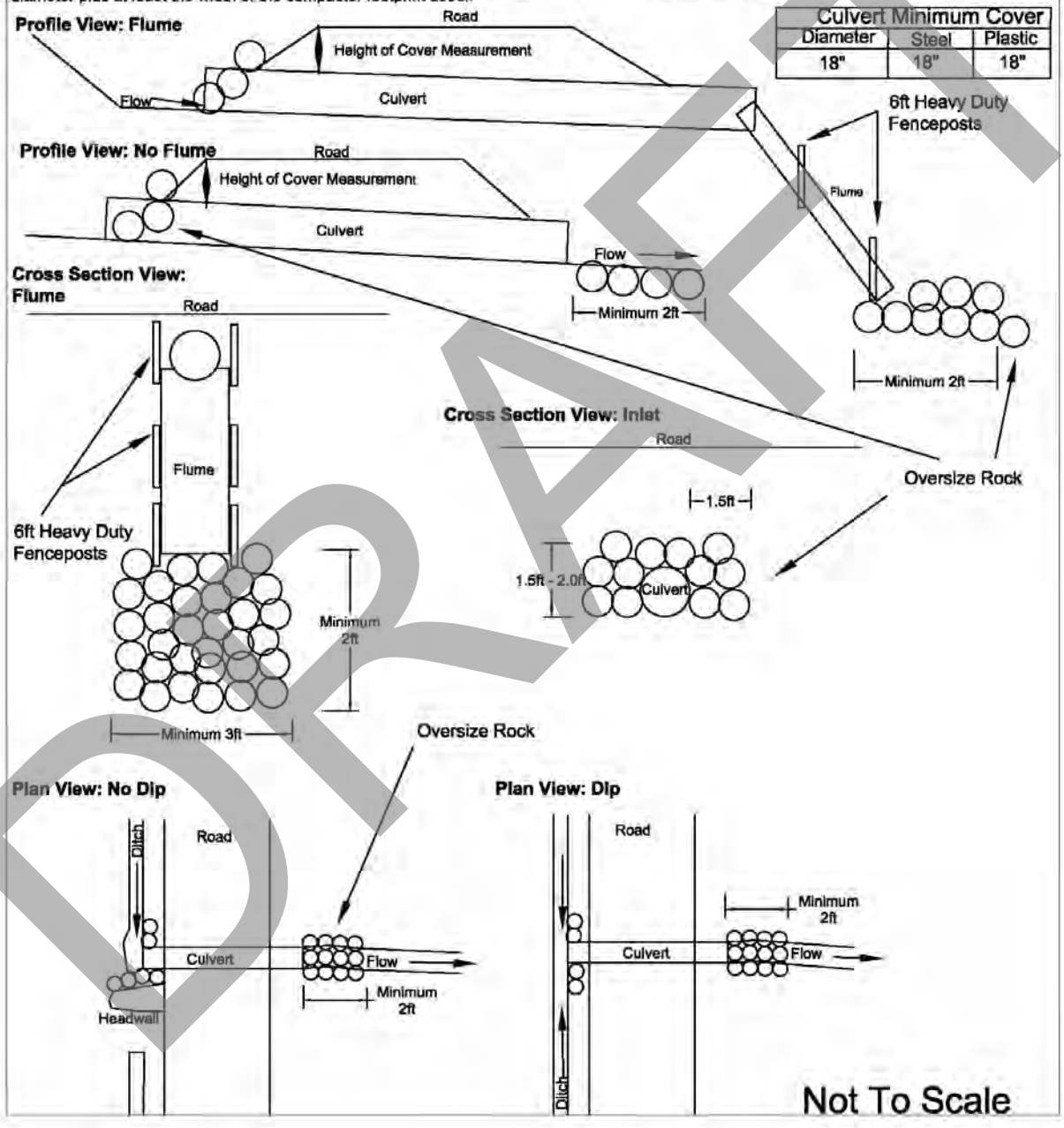
4. If there is insufficient width to clean or construct a ditch without disturbing more than 15 vertical feet of bank, the Contract Administrator may authorize changes to this plan in order to still meet the intent of having a ditch, while staying within the excavation limits already set.

5. Ditch cleaning or construction shall not shrink the running surface of the road.

Typical Cross Drain Culvert Installation Detail Sheet

-Culvert lay shall not exceed 10%.
-Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.
-Oversize shall be placed using a "zero height drop method", and shall be set in conjunction with the culvert installation.
-Oversize shall be placed at headwalls, along the fill at the inlet, and at the end off flumes in accordance with this Detail. On culverts with no flume oversize shall be placed at the outlet as an energy dissipater as specified in this Detail. All oversize distance to be determined by the Contract Administrator.
-Backfill compaction for installations on existing roads shall be achieved using a jumping jack, or plate compactor on lifts not to exceed 8in. 3 complete passes per lift is required for compaction. Backfill shall be placed and compacted evenly on both sides of the culvert. Care shall be taken to ensure adequate compaction of backfill material under the haunches of the pipe. Excavation trench width shall be at least culvert diameter plus at least the width of the compactor footprint used..

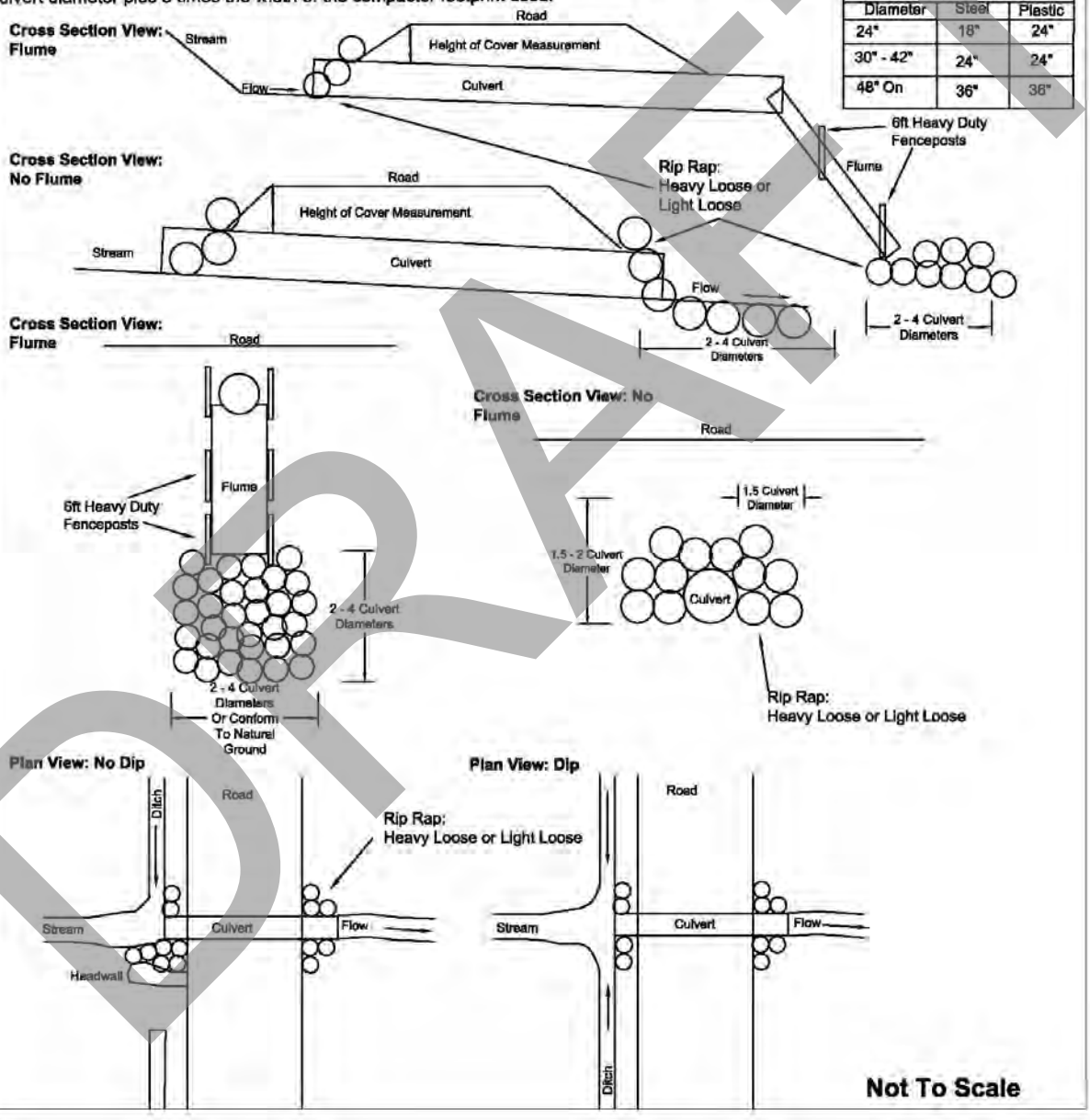
Culvert Minimum Cover		
Diameter	Steel	Plastic
18"	18"	18"

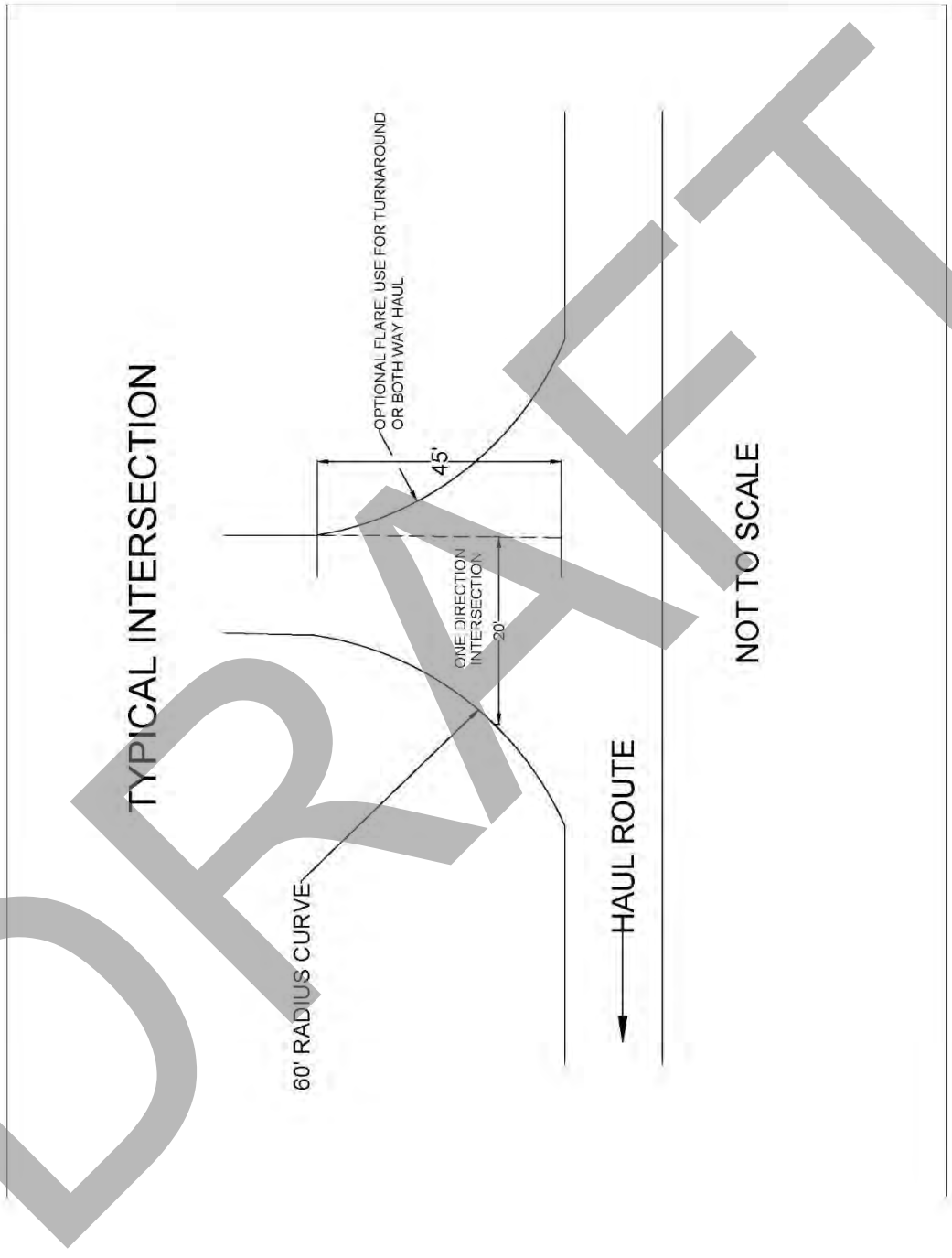


Typical Type Ns, Np Culvert Installation Detail Sheet.

-Water shall be diverted away from the work site before any "In stream" work begins, and shall continue until culvert installation is complete.
-Culvert lay shall match stream gradient up to 5%.
-Flumes longer than 10ft shall be staked on both sides at maximum intervals of 10ft with 6ft heavy duty steel fence posts, and fastened securely to the posts with No. 10 galvanized smooth wire or bolted to the fence posts.
-Rip rap shall be placed using a "zero height drop method", and shall be set in conjunction with the culvert installation.
-Rip rap shall be placed at headwalls, along the fill at the inlet, and at the end off flumes in accordance with this Detail. On culverts with no flume rip rap shall be placed along the fill at the outlet, unless there is stream drop or it is called for in the Road Plan, at which point it will be installed as an energy dissipater at the end of the culvert as specified in this Detail. All rip rap distance to be determined by the Contract Administrator or the District Engineer.
-Backfill compaction shall be achieved using a jumping jack, walk behind vibratory roller, or plate compactor on lifts not to exceed 8in. 3 complete passes per lift is required for compaction. Backfill shall be placed and compacted evenly on both sides of the culvert. Care shall be taken to ensure adequate compaction of backfill material under the haunches of the pipe. Excavation trench width shall be at least culvert diameter plus 3 times the width of the compactor footprint used.

Culvert Minimum Cover		
Diameter	Steel	Plastic
24"	18"	24"
30" - 42"	24"	24"
48" On	36"	36"





Bengal Pit
Pit Use Requirements
T31N R08W Sec 26

1. Pit expansion shall commence in after Contract Administrator approval of Contractors Rock Source Development Plan in accordance with Clause 6-11.
2. Activity restrictions per Clause 1-25.
3. Only the quanities and sorts specified in this road plan for this sale may be used or manufactured, unless otherwise approved by the Contract Adminstrator in writing.
4. Maintain drainage of the pit floor and all drainage structures within the pit boundaries. The pit floor shall have continuity of slope be left in a smooth and neat condition, providing drainage to the southwest at a minimum of 2 percent. All knobs, bumps, or extrusions shall be removed to the designated floor level by excavation or drill and shoot techniques.
5. Excavated face height shall not exceed 20 feet and shall be sloped no steeper than 1/4:1.
6. Excavated slopes shall have a 1 1/2:1 backslope or less at the completion of operations.
7. A minimum 4 foot high berm shall be constructed and constantly maintained along the upper edge of excavated pit faces. No pit faces shall be left unblocked at any time.
8. All operations shall be completed prior to the end of each operating season, including but not limited to: drainage maintenance, sloping of the excavated face, and construction of berms, unless otherwise approved in writing by the Constract Adminstrator.
9. At the end of operations, pit faces and walls shall be scaled and cleared of loose and overhanging material, benches shall have safety berms constructed or access blocked to highway vehicles. Upon completion of operations in the pit, the area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life. The Contractor shall use Light Loose Rip Rap to block the drill trail.
10. All material shall remain the property of the State.
11. At the conclusion of operations, Contractor shall ask the Contract Administrator for written approval of the final rock source condition and comptiance with the terms of this plan.
12. All work shall be conducted according to relevant specifications in this Road Plan, and the Contract Adminstrator.
13. All operations shall be carried out in compliance with the regulation 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
14. Contractor shall give the Contract Administrator a minimum of 7 days notice prior to commencing any operations.
15. Contractor is required to inform Clallam County Dispatch (PenCom) of a day and approximate time of the pit blasting.
16. Existing stockpile is not to be used for road construction or maintenance.

Existing pit floor must remain undisturbed.

Striped Pit
Pit Use Requirements
Sec. 26 & 27, T.31N., R.08W.
PIT USE REQUIREMENTS

1. Pit expansion shall commence in the following order until the desired quantity of rock is achieved; Mid Pit Stripped Areas; then Upper Pit Stripped Areas and then Expasion area.
2. Activity restrictions per Clause 1-25.
3. Only the quanities and sorts specified in this road plan for this sale may be used or manufactured, unless otherwise approved by the Contract Adminstrator in writing.
4. Maintain drainage of the pit floor and all drainage structures within the pit boundaries. The pit floor shall have continuity of slope be left in a smooth and neat condition, providing drainage to the southwest at a minimum of 2 percent. All knobs, bumps, or extrusions shall be removed to the designated floor level by excavation or drill and shoot techniques.
5. Excavated face height shall not exceed 20 feet and shall be sloped no steeper than 1/4:1.
6. Excavated slopes shall have a 1 1/2:1 backslope or less at the completion of operations.
7. A minimum 4 foot high berm shall be constructed and constantly maintained along the upper edge of excavated pit faces. No pit faces shall be left unblocked at any time.
8. All operations shall be completed prior to the end of each operating season, including but not limited to: drainage maintenance, sloping of the excavated face, and construction of berms, unless otherwise approved in writing by the Constract Adminstrator.
9. At the end of operations, pit faces and walls shall be scaled and cleared of loose and overhanging material, benches shall have safety berms constructed or access blocked to highway vehicles. Upon completion of operations in the pit, the area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life. The Purchaser shall use Light Loose Rip Rap to block the drill trail.
10. All material shall remain the property of the State.
11. At the conclusion of operations, Purchaser shall ask the Contract Administrator for written approval of the final rock source condition and comptiance with the terms of this plan.
12. All work shall be conducted according to relevant specifications in this Road Plan, and the Contract Adminstrator.
13. All operations shall be carried out in compliance with the regulation 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
14. Purchaser shall give the Contract Administrator a minimum of 7 days notice prior to commencing any operations.
15. Purchaser is require to inform Clallam County Dispatch (PenCom) of a day and approximate time of the pit blasting.

Place Pit
ROCK SOURCE DEVELOPMENT PLAN
T31N R08W Sec 33

1. Pit expansion shall commence in after Contract Administrator approval of Contractors Rock Source Development Plan in accordance with Clause 6-11.
2. Activity restrictions per Clause 1-25.
3. Only the quanities and sorts specified in this road plan for this sale may be used or manufactured, unless otherwise approved by the Contract Adminstrator in writing.
4. Maintain drainage of the pit floor and all drainage structures within the pit boundaries. The pit floor shall have continuity of slope be left in a smooth and neat condition, providing drainage to the southwest at a minimum of 2 percent. All knobs, bumps, or extrusions shall be removed to the designated floor level by excavation or drill and shoot techniques.
5. Excavated face height shall not exceed 20 feet and shall be sloped no steeper than 1/4:1.
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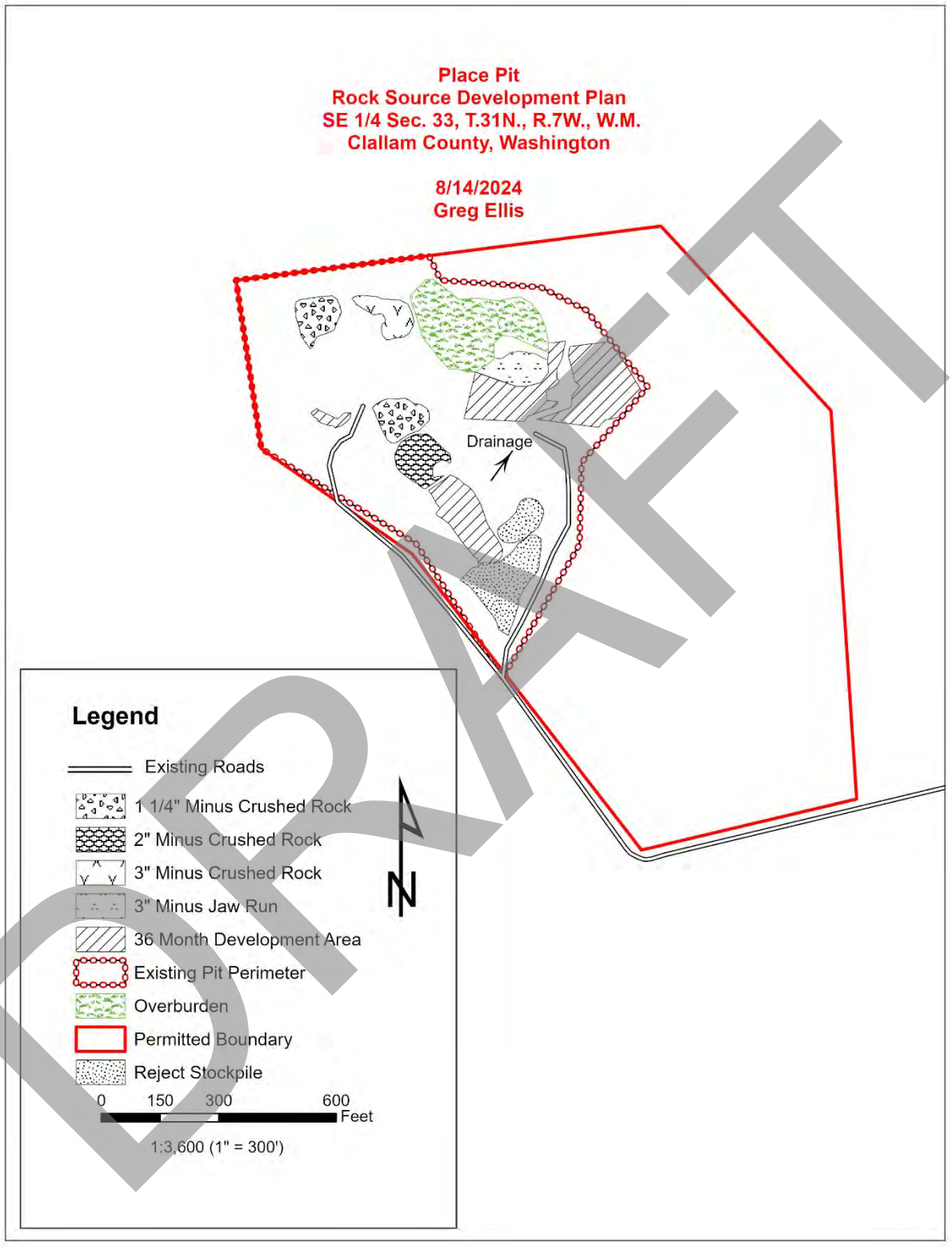
7. A minimum 4 foot high berm shall be constructed and constantly maintained along the upper edge of excavated pit faces. No pit faces shall be left unblocked at any time.
8. All operations shall be completed prior to the end of each operating season, including but not limited to: drainage maintenance, sloping of the excavated face, and construction of berms, unless otherwise approved in writing by the Constract Adminstrator.
9. At the end of operations, pit faces and walls shall be scaled and cleared of loose and overhanging material, benches shall have safety berms constructed or access blocked to highway vehicles. Upon completion of operations in the pit, the area will be left in a condition that will not endanger public safety, damage property, or be hazardous to animal or human life. The Contractor shall use Light Loose Rip Rap to block the drill trail.
10. All material shall remain the property of the State.
11. At the conclusion of operations, Contractor shall ask the Contract Administrator for written approval of the final rock source condition and comptiance with the terms of this plan.
12. All work shall be conducted according to relevant specifications in this Road Plan, and the Contract Adminstrator.
13. All operations shall be carried out in compliance with the regulation 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
14. Contractor shall give the Contract Administrator a minimum of 7 days notice prior to commencing any operations.
15. Contractor is required to inform Clallam County Dispatch (PenCom) of a day and approximate time of the pit blasting.
16. Existing stockpile is not to be used for road construction or maintenance.

Existing pit floor must remain undisturbed.



STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
OLYMPIC REGION

INFORMATIONAL BLASTING PLAN

Timber Sale/Project Name: _____ App./Project No.: _____

1. Blaster-in-Charge: Name: _____
   Company: _____
   Address: _____
   _____
   Telephone: _____
2. Quarry Name/Location: _____
3. Total Estimated Cubic Yards in Blast (loose): _____
4. Hole Spacing: _____
5. Burden: _____
6. Hole Diameter: _____
7. Hole Depth: _____
8. Sub Drill: _____
9. Number of Holes: _____
10. Stemming Depth: _____
11. Explosive (mfg., name, density, %, V.O.D.): _____
    _____
12. Type and Size of Primer (if applicable): _____
13. Total Weight of Primers for Shot: _____
14. Calculated Powder Factor/Cubic Yard: _____
15. Number of Delays (in M.S.): _____
    _____
16. Number of Holes Fired on Each Delay: _____
    _____
17. Total Amount of Explosives Fired on Each Delay: _____
    _____
18. Type of Blasting Machine: _____
    _____
19. Date, Start Drilling: _____
20. Date and Time, Start Loading: _____
21. Date and Time of Blast (approx.): _____

22. Detail drawing of delay system (show hole pattern and delays in milliseconds). Attach additional sheets if required:

23. Typical cross-section of hole (show primer, main charge, sub drill, and stemming):

23. Submitted by: _____ Date: _____

24. Received by: _____ Date: _____

Note: Attach copies of manufacturer=s data sheet(s) for explosive and caps.

INFORMATIONAL BLASTING PLAN
M-126PAC (03/04)

Page 2 of 2

SUMMARY - Road Development Costs

SALE NAME:	Tiger Stripes Sorts	CONTRACT#: 30-106552			REGION:	Olympic		DISTRICT: Straits								
	LEGAL DESCRIPTION: 0															
ROAD NAME:	I-3040	I-3044	I-3015 Tie	0+65 Spur	I-3010	I-3015.3	3+40 Spur	I-3016	I-3044	I-3000	I-3010 (R)	TOTAL:	TOTAL SHEET #2-5
ROAD TYPE:	Construction	Construction	Construction	Construction	Recon.	Recon.	Recon.	Recon.	Recon.	Prehaul	Prehaul		
NUMBER OF STATIONS:	25.05	0.80	2.00	0.65	8.85	2.10	3.40	8.60	2.35	196.40	18.25	268.45	616.10
SIDESLOPE:	30%	20%	20%	10%	20%	20%	20%	45%	20%	0%	0%	205%	0%
CLEARING AND GRUBBING:	$4,960	$106	$322	$75	$1,425	$139	$393	$1,267	$271	$0	$0	$8,958	$0
ROAD BRUSHING:	$0	$0	$0	$0	$159	$38	$61	$155	$42	$3,535	$329	$4,319	$2,549
EXCAVATION AND FILL:	$30,035	$210	$524	$128	$0	$0	$0	$9,036	$0	$0	$0	$39,933	$0
ROAD GRADING:	$0	$0	$0	$0	$75	$18	$29	$73	$20	$1,660	$154	$2,028	$5,206
DITCH CLEANING/CONSTRUCTION:	$0	$0	$0	$0	$0	$0	$0	$374	$0	$0	$712	$1,086	$2,847
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:													
Ballast: 2769	2,770	210	110	140	50	620	150	240	770	170	100	0	2559	210
	$4,328	$2,267	$2,071	$1,311	$8,884	$1,953	$3,730	$12,443	$2,449	$1,736	$0	$41,172	$3,308
Surface: 4260	4,260	1,810	30	90	40	330	90	140	380	80	0	100	3090	1170
	$51,784	$858	$2,051	$1,380	$7,367	$1,881	$3,296	$9,181	$835	$0	$2,203	$80,836	$26,136
Oversize: 0	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CULVERTS AND FLUMES:	$2,772	$0	$924	$480	$1,092	$0	$0	$1,848	$0	$0	$0	$7,116	$6,272
STRUCTURES:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MISC. EXPENSES:	$198	$6	$16	$5	$70	$17	$27	$68	$19	$1,552	$192	$2,169	$5,035
OVERHEAD:	$7,526	$276	$473	$270	$1,716	$364	$678	$3,100	$327	$763	$323	$15,817	$4,770
TOTAL COSTS:	$101,603	$3,723	$6,380	$3,649	$20,788	$4,409	$8,213	$37,545	$3,964	$9,246	$3,913	$203,433	$56,122
COST PER STATION:	$4,056	$4,653	$3,190	$5,614	$2,349	$2,100	$2,416	$4,366	$1,687	$47	$214	$758	$91.09
MOBILIZATION:			$17,600										
ROAD DEACTIVATION AND ABANDONMENT COSTS:			$867										
Pit Work	$15,000												

Road Standard	Const.	Reconst.	Prehaul	Posthaul		TOTAL (All Roads) =	$294,222
Total Costs =	135,955	79,320	57,414	20,667		SALE VOLUME MBF =	3,834
Total Sta. =	29	25	389	442		TOTAL COST PER MBF =	$76.74
Cost per Sta. =	4,770	3,135	148	47		TOTAL COST PER STATION=	$332.62
Compiled by:	E Hein					Date: 10/17/24	

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

Sheet 1 of 4

ns to be furnished by:G.Ellis

SUMMARY - Road Development Costs

SALE NAME:	Tiger Stripes Sorts	CONTRACT#:	30-106552		REGION:	Olympic			DISTRICT:	Straits						
	LEGAL DESCRIPTION:	0														
ROAD NAME:		I-3010 (O	I-3012	I-3015	I-3015.1	I-3016	I-3030	I-3040	I-3043	I-3000 Lp	I-2600	I-2610	I-2620	I-3000		
ROAD TYPE:		Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Prehaul	Posthaul		
NUMBER OF STATIONS:		18.50	8.30	19.00	12.05	6.35	35.05	32.95	6.90	2.50	14.00	12.05	6.50	196.40		
SIDESLOPE:		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		
CLEARING AND GRUBBING:		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
ROAD BRUSHING:		$333	$149	$342	$217	$114	$631	$593	$124	$45	$0	$0	$0	$0	$0	
EXCAVATION AND FILL:		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
ROAD GRADING:		$156	$70	$161	$102	$54	$296	$278	$58	$21	$118	$102	$55	$1,660		
DITCH CLEANING/CONSTRUCTION:		$722	$324	$0	$0	$248	$0	$1,285	$269	$0	$0	$0	$0	$0		
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:																
Ballast:		100	50	0	0	0	0	60	0	0	0	0	0	0		
		$1,403	$669	$0	$0	$0	$0	$1,236	$0	$0	$0	$0	$0	$0		
Surface:		100	50	0	0	200	0	300	70	0	0	0	0	400		
		$2,203	$1,069	$0	$0	$4,748	$0	$8,580	$1,974	$0	$0	$0	$0	$6,132		
Oversize:		0	0	0	0	0	0	0	0	0	0	0	0	0		
		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0		
CULVERTS AND FLUMES:		$0	$0	$0	$0	$0	$0	$6,272	$0	$0	$0	$0	$0	$0		
STRUCTURES:		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
MISC. EXPENSES:		$242	$114	$150	$95	$50	$277	$260	$79	$20	$111	$95	$51	$1,552		
OVERHEAD:		$455	$215	$59	$37	$469	$108	$1,665	$225	$8	$21	$18	$10	$934		
TOTAL COSTS:		$5,514	$2,609	$711	$451	$5,683	$1,312	$20,171	$2,729	$94	$250	$215	$116	$10,277		
COST PER STATION:		$298	$314	$37	$37	$895	$37	$612	$396	$37	$18	$18	$18	$52		

SUMMARY - Road Development

SALE NAME: Tiger Stripes Sorts CONTRACT#: 30-106552 REGION: Olympic DISTRICT: Straits

LEGAL DESCRIPTION: 0

ROAD NAME:	I-3010	I-3012	I-3015	I-3015.1	I-3015.3	I-3015 Tie	I-3016	3+40 Spur	I-3030	I-3040	I-3043	I-3044	I-3000 Lp
ROAD TYPE:	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul	Posthaul
NUMBER OF STATIONS:	45.60	8.30	19.00	12.05	2.10	2.00	15.95	3.40	35.05	58.00	6.90	3.15	2.50
SIDESLOPE:	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
CLEARING AND GRUBBING:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
ROAD BRUSHING:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
EXCAVATION AND FILL:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
ROAD GRADING:	$385	$70	$161	$102	$18	$17	$135	$29	$296	$490	$58	$27	$21
DITCH CLEANING/CONSTRUCTION:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:													
Ballast:	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Surface:	0	0	0	0	0	0	0	0	50	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$1,430	$0	$0	$0	$0
Oversize:	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CULVERTS AND FLUMES:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
STRUCTURES:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MISC. EXPENSES:	$360	$66	$150	$95	$17	$16	$126	$27	$277	$458	$55	$25	$20
OVERHEAD:	$75	$14	$31	$20	$3	$3	$26	$6	$200	$95	$11	$5	$4
TOTAL COSTS:	$820	$149	$342	$217	$38	$36	$287	$61	$2,203	$1,043	$124	$57	$45
COST PER STATION:	$18	$18	$18	$18	$18	$18	$18	$18	$63	$18	$18	$18	$18

SUMMARY - Road Development Costs

SALE NAME: Tiger Stripes Sorts	CONTRACT#: 30-106552				REGION: Olympic				DISTRICT: Straits									
LEGAL DESCRIPTION:	0																	
ROAD NAME:	I-2600		I-2610		I-2620		0		0		0		0		0		0	
ROAD TYPE:	Posthaul		Posthaul		Posthaul		Posthaul		Posthaul		Posthaul		Posthaul		Posthaul		Posthaul	
NUMBER OF STATIONS:	14.00		12.05		6.50	0.00	0.00		0.00		0.00		0.00		0.00		0.00	
SIDESLOPE:	0%		0%		0%	0%	0%		0%		0%		0%		0%		0%	
CLEARING AND GRUBBING:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
ROAD BRUSHING:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
EXCAVATION AND FILL:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
ROAD GRADING:	$118	$102	$55	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
DITCH CLEANING/CONSTRUCTION:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
ROCK TOTALS (Cu. Yds.)/ROCK COSTS:																		
Ballast: 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Surface: 100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Oversize: 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CULVERTS AND FLUMES:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
STRUCTURES:	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
MISC. EXPENSES:	$111	$95	$51	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
OVERHEAD:	$23	$20	$11	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL COSTS:	$252	$217	$117	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
COST PER STATION:	$18	$18	$18	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

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

Drainage

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

Forest Access Road Maintenance Specifications

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.