



TIMBER NOTICE OF SALE

SALE NAME: SYNDROME SWT

AGREEMENT NO: 30-106448

AUCTION: October 30, 2024 starting at 10:00 a.m., COUNTY: Snohomish Northwest Region Office, Sedro Woolley, WA

SALE LOCATION: Sale located approximately 6 miles east of Arlington, WA.

PRODUCTS SOLD AND SALE AREA: All timber as described for removal in Schedule B, bounded by white timber sale boundary tags, flag line, and the JC-22, JC-2227 and JC-2228 roads in Unit #1. All timber as described for removal in Schedule B, bounded by white timber sale boundary tags, flag line, and the JC-2210 and JC-2227 roads in Unit #2. All timber as described for removal in Schedule B, bounded by white timber sale boundary tags, flag line, and the JC-2210 Road in Unit #3. All timber as described for removal in Schedule B, bounded by white timber sale boundary tags, flag line, and the JC-22 Road in Unit #4. All timber as described for removal in Schedule B, bounded by white timber sale boundary tags, flag line, and the JC-ML and JC-45 roads in Unit #5. All timber as described for removal in Schedule B, bounded by white timber sale boundary tags, flag line, and the JC-37 Road in Unit #6. All timber within 30 feet of flagged centerline of roads to be constructed. All forest products above located on part(s) of Sections 1, 11, 12, 13 and 14 all in Township 31 North, Range 6 East, Sections 36 all in Township 32 North, Range 6 East, W.M., containing 310 acres, more or less.

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

ESTIMATED SALE VOLUMES AND QUALITY:

Table with columns: Species, Avg Ring DBH, Ring Count, Total MBF, Total Tons, Price \$/Ton, MBF by Grade (1P, 2P, 3P, SM, 1S, 2S, 3S, 4S, UT). Rows include Hemlock, Douglas fir, Red alder, Cottonwood, Other Conifer, Other Hardwood, and Sale Total.

MINIMUM BID: \$0/ton (est. value \$0.00) BID METHOD: Sealed Bids

PERFORMANCE SECURITY: \$0.00 SALE TYPE: Tonnage Scale



## TIMBER NOTICE OF SALE

**EXPIRATION DATE:** March 31, 2027

**ALLOCATION:** Export Restricted

**BIDDABLE SPECIES:** Hemlock

**BID DEPOSIT:** \$0.00 or Bid Bond. Said deposit shall constitute an opening bid at the appraised price.

**HARVEST METHOD:** Cable OR tethered equipment (See below for restrictions); shovel, "6-wheeled rubber-tired skidders with over-the-tire tracks spanning both sets of rear tires" (See below for restrictions), rubber-tired skidder (See below for restrictions) or tracked equipment on sustained slopes 35% or less; self-leveling equipment on sustained slopes 50% or less (See below for restrictions).

Prior written approval of the Contract Administrator is required before tethered or self-leveling equipment may be used. If ground disturbance is causing excessive damage, as determined by the Contract Administrator, the use of this equipment will no longer be authorized.

Purchaser must obtain prior written approval from the Contract Administrator for areas as to where "6 wheeled rubber tired skidders with over-the-tire tracks spanning both sets of rear tires" or rubber-tired skidder can operate. If ground disturbance is causing excessive damage, as determined by the Contract Administrator, the equipment will no longer be authorized. Ground Based Yarding will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator to reduce soil damage and erosion.

**ROADS:** 18.58 stations of required construction. 127.54 stations of required reconstruction.  
469.52 stations of required prehaul maintenance.

Rock may be obtained from the following source(s) on State land at no charge to the Purchaser: Porter Creek Hardrock Pit at station 57+47 of the JC-22 Road. Running Bear Hardrock Pit at station 14+32 of the JC-44 Road.

Development of existing rock sources will involve clearing, stripping, and blasting to generate riprap, shot rock, and 3-inch-minus ballast rock.

An estimated total quantity of rock needed for this proposal: 469 cubic yards of riprap and 8,170 cubic yards of ballast rock.

Road work and the hauling of rock will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator to reduce soil damage and siltation. The hauling of forest products will not be permitted from November 1 to March 31 unless authorized in writing by the Contract Administrator to reduce soil damage and siltation.

### ACREAGE DETERMINATION

**CRUISE METHOD:** Acres determined by GPS traverse. Cruise was conducted via variable plot sample type. See Cruise Narrative for further details. Shapefiles of units are available upon request, and on the DNR website after the BNR meeting in which the sale is presented.

**FEES:** \$58,701.00 is due on day of sale. \$1.08 per ton is due upon removal. These are in addition to the bid price.



TIMBER NOTICE OF SALE

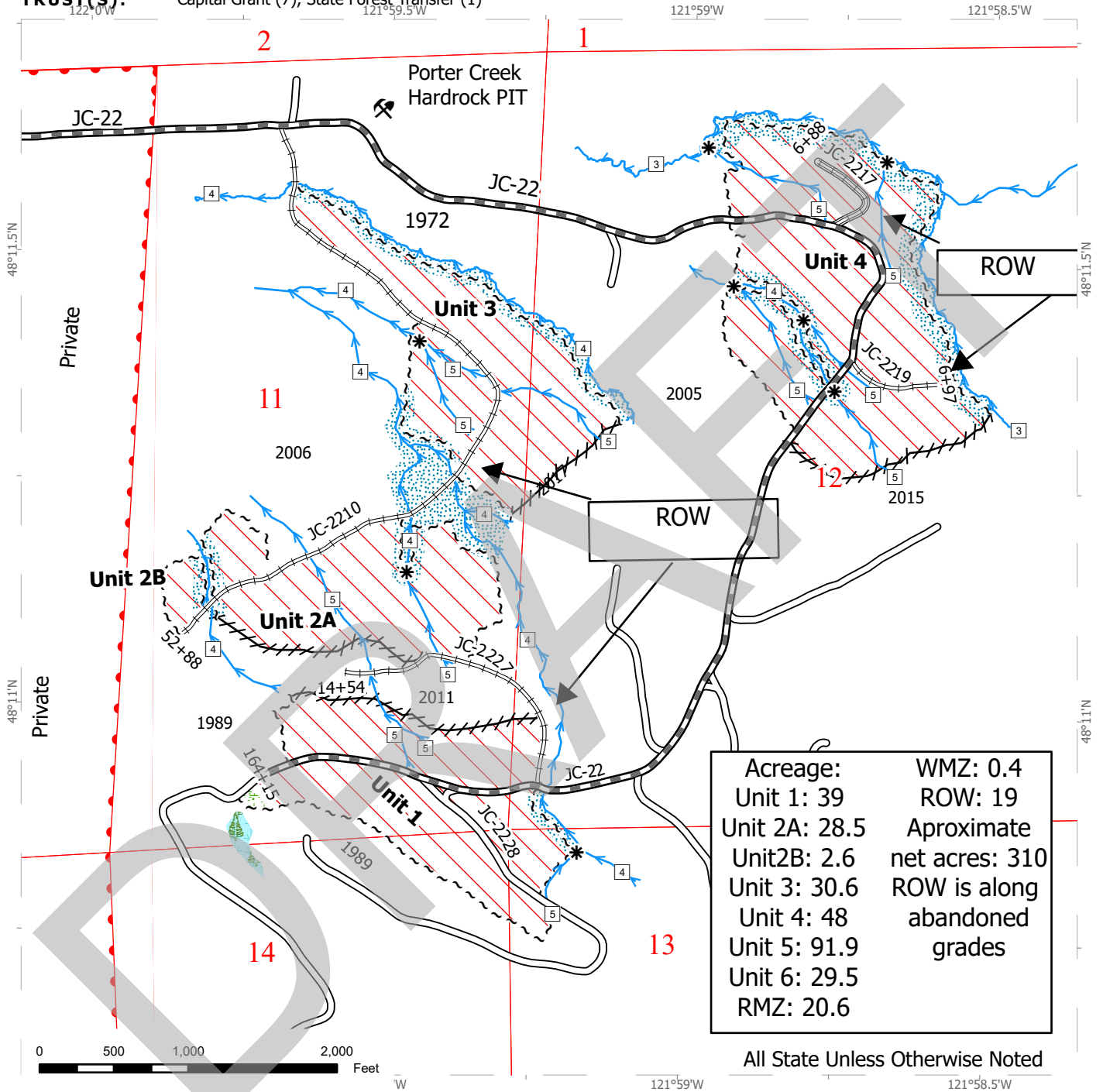
**SPECIAL REMARKS:** 1. Falling and yarding shall not be permitted during the bark slippage season unless authorized in writing by the Contract Administrator. This season is estimated to run from April 1 to July 15 but may vary depending on weather conditions. If permission is granted to operate during the bark slippage season the purchaser shall be required to provide a plan outlining mitigation measures.

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# TIMBER SALE MAP

**SALE NAME:** SYNDROME SWT  
**AGREEMENT #:** 30-106448  
**TOWNSHIP(S):** T31R6E, T32R6E  
**TRUST(S):** Capital Grant (7), State Forest Transfer (1)

**REGION:** Northwest Region  
**COUNTY(S):** Snohomish  
**ELEVATION RGE:** 600-1650



<b>Acreage:</b>	<b>WMZ: 0.4</b>
Unit 1: 39	<b>ROW: 19</b>
Unit 2A: 28.5	<b>Aproximate</b>
Unit 2B: 2.6	<b>net acres: 310</b>
Unit 3: 30.6	<b>ROW is along</b>
Unit 4: 48	<b>abandoned</b>
Unit 5: 91.9	<b>grades</b>
Unit 6: 29.5	
<b>RMZ: 20.6</b>	

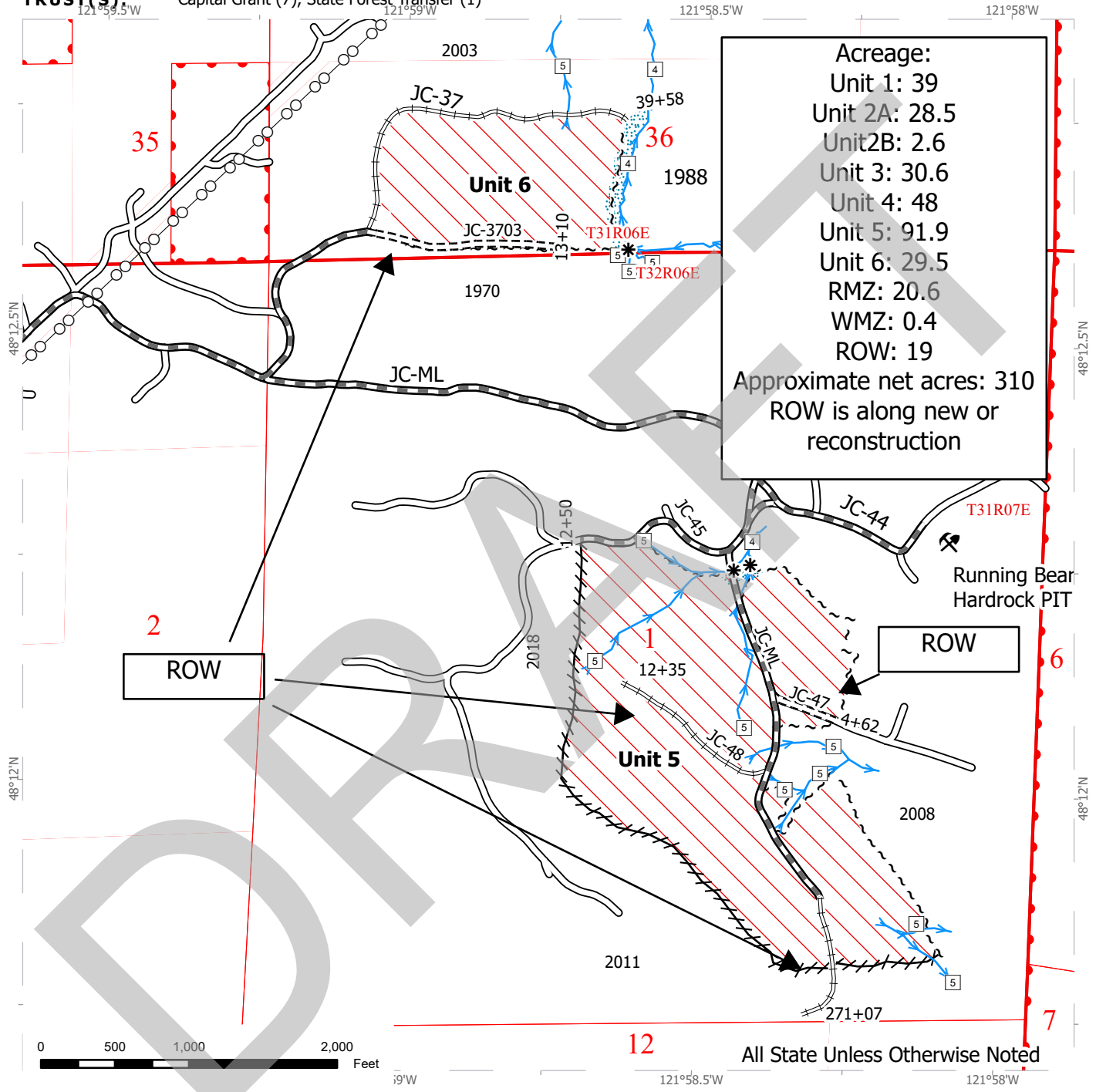
All State Unless Otherwise Noted

Harvest Area	Existing Roads	Streams
Forested Wetland	Required Pre-Haul Maintenance	Stream Type
Wetland Mgt Zone	Required Reconstruction	Stream Break
Riparian Mgt Zone		
Sale Boundary Tags		
Flag Line		

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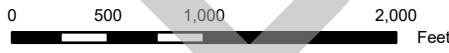
**REGION:** Northwest Region  
**COUNTY(S):** Snohomish  
**ELEVATION RGE:** 600-1650



**Acreage:**  
 Unit 1: 39  
 Unit 2A: 28.5  
 Unit 2B: 2.6  
 Unit 3: 30.6  
 Unit 4: 48  
 Unit 5: 91.9  
 Unit 6: 29.5  
 RMZ: 20.6  
 WMZ: 0.4  
 ROW: 19  
 Approximate net acres: 310  
 ROW is along new or reconstruction

ROW

ROW



All State Unless Otherwise Noted

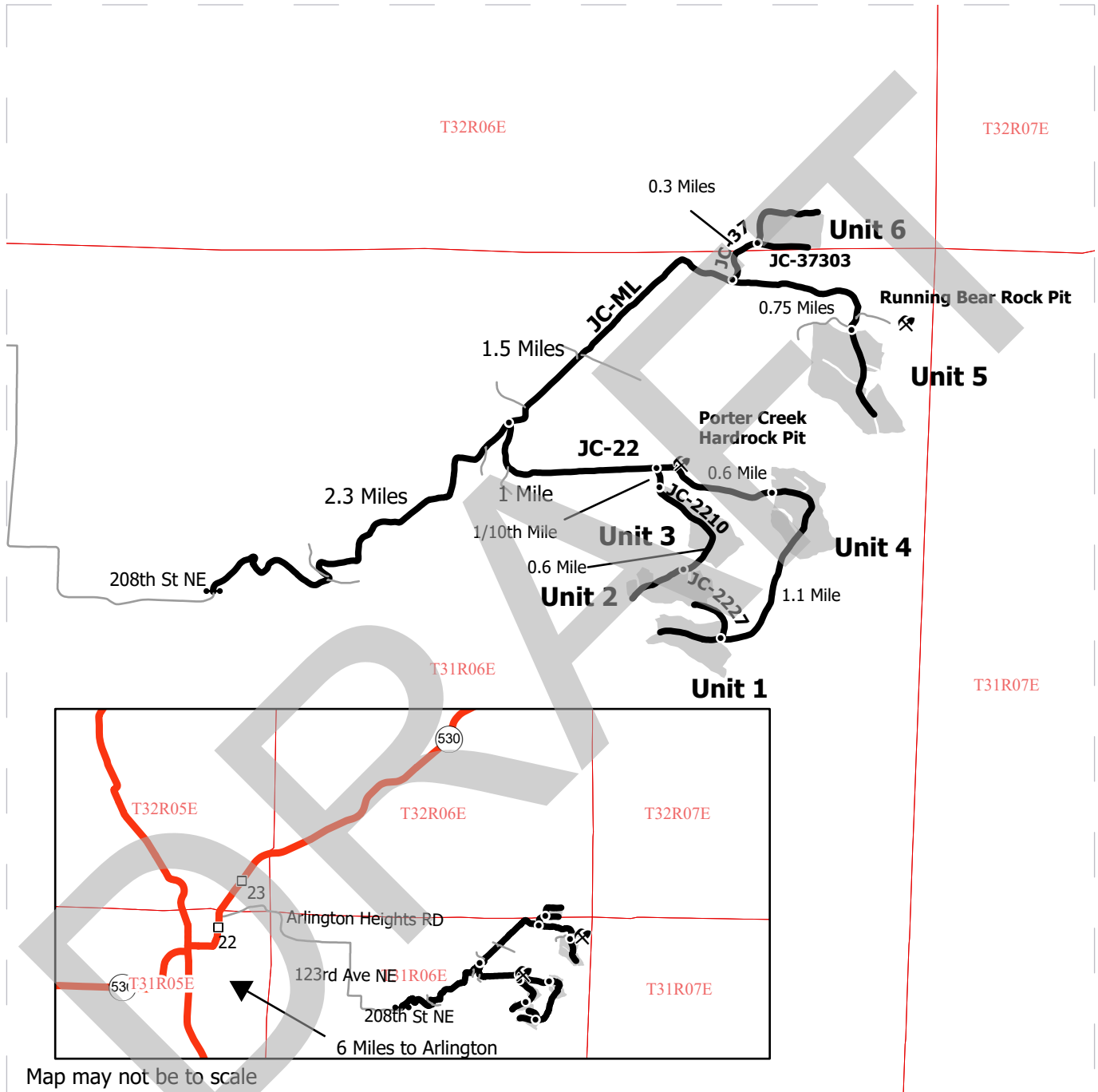
Harvest Area	Existing Roads	Streams
Riparian Mgt Zone	Required Pre-Haul Maintenance	Stream Type
Sale Boundary Tags	Required Construction	Stream Break
Flag Line	Required Reconstruction	
Power Lines		



# DRIVING MAP

**SALE NAME:** SYNDROME SWT  
**AGREEMENT #:** 30-106448  
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**REGION:** Northwest Region  
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**ELEVATION RGE:** 600-1650



Map may not be to scale

- Harvest Unit
- Highway
- Haul Route
- Other Route
- Distance Indicator
- Gate (F1-3)
- Rock Pit

**DRIVING DIRECTIONS:**

From Arlington head east on HWY 530 for 1 mile. Turn right onto Arlington Heights Road, travel for 4 miles. Turn right onto 123rd Ave NE (turns into 208th St NE), travel for 2.25 miles to reach the JC-ML.  
 From the gate travel 2.3 miles to reach the JC-22. Travel on the JC-22 for 1 mile to reach the JC-2211. Travel for 1/10th of a mile to reach unit 3. From unit 3 travel an additional 0.6 miles to reach unit 2. From the intersection of the JC-ML and JC-22 travel for 1.6 miles on the JC-22 to reach unit 4. From the intersection of the JC-ML and the JC-22 travel on the JC-ML for 1.5 miles to reach JC-37. Continue on JC-37 for 0.3 miles to reach unit 6. From the intersection of the JC-37 and the JC-ML continue on the JC-ML for 0.75 miles to reach unit 5.



## Timber Sale Cruise Report Syndrome SWT - NW

**Sale Name:** SYNDROME SWT

**Sale Type:** MBF SCALE

**Region:** NORTHWEST

**District:** CASCADE

**Lead Cruiser:** Matt Llobet

**Other Cruisers:** Bailey Vos

**Cruise Narrative:**

The Syndrome Small Wood Thin Timber Sale is a 6 unit timber sale located east of Arlington, off the Arlington Heights Road. The sale ranges from 208 feet to 1650 feet in elevation and forest roads provide good drivable access.

All thinning units were sampled using a full 40.0 BAF. The smallest merchantable tree cruised throughout the sale had a DBH of 7.0 inches and 5.0 inches at 16 feet. My plots were generated in GIS and located in the field using Avenza Maps. Bole height was measured with a laser and taken to a 5" top or break point (40% of diameter at 16 feet). Trees were segmented into preferred west-side log lengths and defect was taking into account within each tree cruised.

- Conifer log lengths were cruised in 2 foot multiples - maximizing 32-40 ft. lengths.
- Hardwood log lengths were cruised in 10 foot multiples - no longer than 30 feet long.

My total net cruise volume for Syndrome SWT is 3,078 MBF. The stand characteristics throughout the sale showed uniformly stocked, "plantation-style" western hemlock and Douglas fir in the small-medium diameter range. Syndrome SWT cruised out at 9,929 BF per acre and all live timber showed excellent form. The species composition consists of western hemlock, Douglas fir, and scattered hardwoods.

**Right of Way:**

The ROW volume is primarily scattered timber adjacent to old road grade. The ROW cruised out at 9,894 BF per acre.

**Logging and Stand Conditions:**

Approximately 100% of the sale is ground base harvest. All units consist of an open understory with mild topography, making for productive operator ground.

**Timber Sale Notice Volume (MBF)**

Sp	DBH	Rings/In	Age	MBF Volume by Grade				
				All	2 Saw	3 Saw	4 Saw	Utility
WH	12.5			2,298	32	1,819	444	3
DF	13.3	5.0		760	40	558	154	8
RA	9.3			15			15	
BC	17.0			6	6			
ALL	12.6	5.0		3,078	78	2,377	613	11

**Timber Sale Notice Weight (tons)**

Sp	Tons by Grade				
	All	2 Saw	3 Saw	4 Saw	Utility
WH	19,607	256	15,209	4,117	25
DF	5,871	271	4,305	1,223	72
RA	110			110	
BC	39	39			
ALL	25,628	566	19,514	5,450	98

**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 (%)
208.9	3.0	108.7	1.6	22,781	3.4

**Timber Sale Unit Cruise Design**

Unit	Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
SYNDROME SWT U1	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	39.0	41.0	11	11	0
SYNDROME SWT U2A	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	28.5	28.5	8	8	0
SYNDROME SWT U2B	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	1.8	1.9	2	2	0
SYNDROME SWT U3	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	31.3	31.3	8	8	0
SYNDROME SWT U4	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	48.0	49.5	15	15	0
SYNDROME SWT U5	B1C: VR, 1 BAF (40) Measure/ Count Plots, Sighting Ht = 4.5 ft	91.9	92.5	24	12	0
SYNDROME SWT U6	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	29.5	29.5	9	9	0
SYNDROME RMZ	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	20.6	20.7	7	7	0
SYNDROME WMZ	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 0 ft	0.4	0.4	3	3	0
SYNDROME ROW	B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	19.0	19.2	16	16	0
All		310.0	314.4	103	91	0



**Timber Sale Log Grade x Sort Summary**

Sp	Status	Grade	Sort	Dia	Len	BF Gross	BF Net	Defect %	Tons	MBF Net
BC	LIVE	2 SAW	Domestic	9.7	30	19	18	4.1	39.1	5.6
DF	LIVE	2 SAW	Domestic	14.1	36	130	130	0.0	271.1	40.2
DF	LIVE	3 SAW	Domestic	8.4	34	1,821	1,799	1.2	4,305.3	557.6
DF	LIVE	4 SAW	Domestic	5.5	23	499	496	0.5	1,222.6	153.8
DF	LIVE	CULL	Cull	12.3	5	20	0	100.0	0.0	0.0
DF	LIVE	UTILITY	Pulp	8.5	24	26	26	0.0	72.4	8.0
RA	LIVE	4 SAW	Domestic	6.4	29	48	48	0.0	110.3	14.8
WH	LIVE	2 SAW	Domestic	14.2	37	102	102	0.0	255.6	31.7
WH	LIVE	3 SAW	Domestic	8.5	33	5,880	5,869	0.2	15,209.0	1,819.5
WH	LIVE	4 SAW	Domestic	5.9	22	1,433	1,433	0.0	4,117.2	444.1
WH	LIVE	UTILITY	Pulp	5.5	18	8	8	0.0	25.5	2.5

**Timber Sale Log Sort x Diameter Bin Summary**

Sp	Bin	Status	Sort	Dia	Len	BF Net	Defect %	Tons	MBF Net
BC	5 - 7	LIVE	Domestic	7.3	30	4	16.7	11.8	1.2
BC	12 - 15	LIVE	Domestic	12.1	30	14	0.0	27.3	4.4
DF	5 - 7	LIVE	Domestic	6.0	27	1,152	0.2	2,827.7	357.1
DF	8 - 11	LIVE	Pulp	8.5	24	26	0.0	72.4	8.0
DF	8 - 11	LIVE	Domestic	9.5	33	1,143	1.9	2,700.3	354.4
DF	12 - 15	LIVE	Cull	12.3	5	0	100.0	0.0	0.0
DF	12 - 15	LIVE	Domestic	13.2	35	84	0.0	190.2	26.1
DF	16 - 19	LIVE	Domestic	17.1	40	21	0.0	40.2	6.6
DF	20+	LIVE	Domestic	20.0	40	24	0.0	40.6	7.5
RA	5+	LIVE	Domestic	6.4	29	48	0.0	110.3	14.8
WH	5 - 7	LIVE	Pulp	5.5	18	8	0.0	25.5	2.5
WH	5 - 7	LIVE	Domestic	6.2	27	2,925	0.0	8,126.7	906.8
WH	8 - 11	LIVE	Domestic	9.4	33	4,342	0.2	11,114.0	1,346.2
WH	12 - 15	LIVE	Domestic	13.6	34	137	0.0	341.1	42.4

## Cruise Unit Report SYNDROME SWT U1

### Unit Sale Notice Volume (MBF): SYNDROME SWT U1

Sp	DBH	Rings/In	Age	MBF Volume by Grade		
				All	3 Saw	4 Saw
DF	14.8			74	60	14
WH	14.0			50	34	16
ALL	14.4			124	93	31

### Unit Cruise Design: SYNDROME SWT U1

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	39.0	41.0	11	11	0

### Unit Cruise Summary: SYNDROME SWT U1

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
RA		1	0.1	0
DF	5	24	2.2	1
WH	4	20	1.8	0
ALL	9	45	4.1	1

### Unit Cruise Statistics: SYNDROME SWT 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 (%)
RA	3.6	331.7	100.0						
DF	87.3	60.9	18.4	104.2	7.5	3.4	9,094	61.3	18.7
WH	72.7	88.1	26.6	88.1	24.6	12.3	6,408	91.4	29.3
ALL	163.6	35.3	10.7	96.9	17.2	5.7	15,855	39.3	12.1

### Unit Summary: SYNDROME SWT U1

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	5	ALL	14.8	58	72	1,917	1,895	1.2	15.2	18.2	4.7	73.9
DF	LIVE	LEA	19	ALL	15.0	57	70	7,285	7,199	1.2	56.3	69.1	17.8	280.8
RA	LIVE	LEA	1	ALL	14.9	50	60				3.0	3.6	0.9	

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
WH	LIVE	CUT	4	ALL	14.0	53	64	1,282	1,282	0.0	13.6	14.5	3.9	50.0
WH	LIVE	LEA	16	ALL	13.2	52	64	5,127	5,127	0.0	61.2	58.2	16.0	199.9
ALL	LIVE	CUT	9	ALL	14.4	56	69	3,199	3,176	0.7	28.8	32.7	8.6	123.9
ALL	LIVE	LEA	36	ALL	14.1	54	67	12,412	12,326	0.7	120.5	130.9	34.8	480.7
ALL	ALL	CUT +LEAVE	45	ALL	14.2	55	67	15,610	15,503	0.7	149.3	163.6	43.4	604.6

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## Cruise Unit Report SYNDROME SWT U2A

### Unit Sale Notice Volume (MBF): SYNDROME SWT U2A

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	3 Saw	4 Saw	Utility
DF	12.5	5.0		155	117	29	8
WH	13.2			145	121	24	
ALL	12.8	5.0		300	238	53	8

### Unit Cruise Design: SYNDROME SWT U2A

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	28.5	28.5	8	8	0

### Unit Cruise Summary: SYNDROME SWT U2A

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	9	27	3.4	0
DF	11	15	1.9	1
ALL	20	42	5.3	1

### Unit Cruise Statistics: SYNDROME SWT U2A

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	135.0	61.2	21.6	113.1	20.8	6.9	15,265	64.6	22.7
DF	75.0	77.7	27.5	98.8	16.3	4.9	7,409	79.4	27.9
ALL	210.0	34.9	12.3	108.0	19.0	4.3	22,674	39.7	13.1

### Unit Summary: SYNDROME SWT U2A

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	11	ALL	12.5	58	74	5,511	5,434	1.4	64.5	55.0	15.6	154.9
DF	LIVE	LEA	4	ALL	15.1	68	85	2,004	1,976	1.4	16.1	20.0	5.1	56.3
WH	LIVE	CUT	9	ALL	13.2	63	79	5,088	5,088	0.0	47.4	45.0	12.4	145.0
WH	LIVE	LEA	18	ALL	12.5	57	70	10,176	10,176	0.0	105.6	90.0	25.5	290.0
ALL	LIVE	CUT	20	ALL	12.8	60	76	10,599	10,522	0.7	111.9	100.0	27.9	299.9

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	LEA	22	ALL	12.9	58	72	12,180	12,152	0.2	121.7	110.0	30.6	346.3
ALL	ALL	CUT +LEAVE	42	ALL	12.8	59	74	22,780	22,674	0.5	233.6	210.0	58.5	646.2

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## Cruise Unit Report SYNDROME SWT U2B

### Unit Sale Notice Volume (MBF): SYNDROME SWT U2B

Sp	DBH	Rings/In	Age	MBF Volume by Grade		
				All	3 Saw	4 Saw
WH	14.4			21	17	4
DF	15.0			4	4	1
ALL	14.5			26	21	5

### Unit Cruise Design: SYNDROME SWT U2B

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	1.8	1.9	2	2	0

### Unit Cruise Summary: SYNDROME SWT U2B

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	5	9	4.5	0
DF	1	3	1.5	1
ALL	6	12	6.0	1

### Unit Cruise Statistics: SYNDROME SWT U2B

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	180.0	15.7	11.1	118.9	11.5	5.1	21,404	19.5	12.2
DF	60.0	141.4	100.0	123.9	0.0	0.0	7,433	141.4	100.0
ALL	240.0	47.1	33.3	120.2	10.3	4.2	28,836	48.3	33.6

### Unit Summary: SYNDROME SWT U2B

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	1	ALL	15.0	65	81	2,478	2,478	0.0	16.3	20.0	5.2	4.5
DF	LIVE	LEA	2	ALL	12.2	62	77	4,955	4,955	0.0	49.3	40.0	11.5	8.9
WH	LIVE	CUT	5	ALL	14.4	65	80	11,891	11,891	0.0	88.4	100.0	26.4	21.4
WH	LIVE	LEA	4	ALL	14.4	63	78	9,513	9,513	0.0	70.7	80.0	21.1	17.1
ALL	LIVE	LEA	6	ALL	13.5	63	78	14,468	14,468	0.0	120.0	120.0	32.5	26.0

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	CUT	6	ALL	14.5	65	80	14,368	14,368	0.0	104.7	120.0	31.5	25.9
ALL	ALL	CUT +LEAVE	12	ALL	14.0	64	79	28,836	28,836	0.0	224.7	240.0	64.1	51.9

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## Cruise Unit Report SYNDROME SWT U3

### Unit Sale Notice Volume (MBF): SYNDROME SWT U3

Sp	DBH	Rings/In	Age	MBF Volume by Grade		
				All	3 Saw	4 Saw
WH	12.9			205	163	42
DF	10.2			52	26	26
ALL	12.0			257	190	67

### Unit Cruise Design: SYNDROME SWT U3

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	31.3	31.3	8	8	0

### Unit Cruise Summary: SYNDROME SWT U3

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	12	32	4.0	0
DF	4	7	0.9	1
ALL	16	39	4.9	1

### Unit Cruise Statistics: SYNDROME SWT 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 (%)
WH	160.0	42.3	14.9	109.2	17.8	5.1	17,475	45.8	15.8
DF	35.0	95.4	33.7	82.9	18.8	9.4	2,901	97.2	35.0
ALL	195.0	37.1	13.1	104.5	20.6	5.2	20,376	42.4	14.1

### Unit Summary: SYNDROME SWT U3

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	4	ALL	10.2	49	59	1,658	1,658	0.0	35.2	20.0	6.3	51.9
DF	LIVE	LEA	3	ALL	11.5	52	81	1,243	1,243	0.0	20.8	15.0	4.4	38.9
WH	LIVE	CUT	12	ALL	12.9	59	73	6,655	6,553	1.5	66.1	60.0	16.7	205.1
WH	LIVE	LEA	20	ALL	13.7	62	78	11,091	10,922	1.5	97.7	100.0	27.0	341.9
ALL	LIVE	CUT	16	ALL	12.0	55	69	8,313	8,211	1.2	101.3	80.0	23.0	257.0



Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	LEA	23	ALL	13.3	60	78	12,335	12,165	1.4	118.5	115.0	31.4	380.8
ALL	ALL	CUT +LEAVE	39	ALL	12.8	58	74	20,647	20,376	1.3	219.8	195.0	54.4	637.8

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## Cruise Unit Report SYNDROME SWT U4

### Unit Sale Notice Volume (MBF): SYNDROME SWT U4

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	3 Saw	4 Saw	Utility
WH	11.9			446	360	83	3
DF	13.9			93	75	17	
ALL	12.2			538	436	100	3

### Unit Cruise Design: SYNDROME SWT U4

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	48.0	49.5	15	15	0

### Unit Cruise Summary: SYNDROME SWT U4

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	35	76	5.1	0
DF	6	17	1.1	2
ALL	41	93	6.2	2

### Unit Cruise Statistics: SYNDROME SWT 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 (%)
WH	202.7	28.4	7.3	99.5	20.4	3.4	20,155	34.9	8.1
DF	45.3	99.3	25.6	120.8	15.2	6.2	5,476	100.5	26.4
ALL	248.0	19.5	5.0	103.4	20.5	3.2	25,631	28.3	6.0

### Unit Summary: SYNDROME SWT U4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	6	ALL	13.9	67	88	2,004	1,933	3.6	15.2	16.0	4.3	92.8
DF	LIVE	LEA	11	ALL	15.6	66	85	3,675	3,543	3.6	22.1	29.3	7.4	170.1
WH	LIVE	CUT	35	ALL	11.9	54	71	9,282	9,282	0.0	120.8	93.3	27.1	445.5
WH	LIVE	LEA	41	ALL	14.1	58	76	10,873	10,873	0.0	100.8	109.3	29.1	521.9
ALL	LIVE	LEA	52	ALL	14.4	60	77	14,548	14,416	0.9	122.9	138.7	36.5	692.0

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	CUT	41	ALL	12.1	55	73	11,286	11,215	0.6	136.0	109.3	31.3	538.3
ALL	ALL	CUT +LEAVE	93	ALL	13.3	57	75	25,835	25,631	0.8	258.9	248.0	67.9	1,230.3

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## Cruise Unit Report SYNDROME SWT U5

### Unit Sale Notice Volume (MBF): SYNDROME SWT U5

Sp	DBH	Rings/In	Age	MBF Volume by Grade		
				All	3 Saw	4 Saw
WH	12.4			1,136	921	215
DF	14.7	5.0		87	73	14
ALL	12.6	5.0		1,223	995	229

### Unit Cruise Design: SYNDROME SWT U5

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1C: VR, 1 BAF (40) Measure/Count Plots, Sighting Ht = 4.5 ft	91.9	92.5	24	12	0

### Unit Cruise Summary: SYNDROME SWT U5

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	34	139	5.8	0
DF	3	13	0.5	1
ALL	37	152	6.3	1

### Unit Cruise Statistics: SYNDROME SWT 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 (%)
WH	231.7	28.8	5.9	117.8	17.7	3.0	27,279	33.8	6.6
DF	21.7	143.8	29.4	113.9	16.8	9.7	2,468	144.8	30.9
ALL	253.3	20.1	4.1	117.4	17.4	2.9	29,747	26.6	5.0

### Unit Summary: SYNDROME SWT U5

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	3	ALL	13.3	70	88	1,016	949	6.6	8.6	8.3	2.3	87.2
DF	LIVE	LEA	4	ALL	15.2	67	84	1,625	1,519	6.6	10.6	13.3	3.4	139.6
WH	LIVE	CUT	34	ALL	12.2	57	73	12,364	12,364	0.0	129.3	105.0	30.1	1,136.2
WH	LIVE	LEA	34	ALL	14.3	64	79	14,915	14,915	0.0	113.6	126.7	33.5	1,370.7

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	LEA	38	ALL	14.4	64	79	16,541	16,434	0.6	124.2	140.0	36.9	1,510.3
ALL	LIVE	CUT	37	ALL	12.3	58	74	13,380	13,313	0.5	137.9	113.3	32.3	1,223.5
ALL	ALL	CUT +LEAVE	75	ALL	13.3	61	77	29,921	29,747	0.6	262.1	253.3	69.3	2,733.7

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## Cruise Unit Report SYNDROME SWT U6

### Unit Sale Notice Volume (MBF): SYNDROME SWT U6

Sp	DBH	Rings/In	Age	MBF Volume by Grade		
				All	3 Saw	4 Saw
DF	11.8	5.0		189	149	40
WH	11.7			89	64	25
ALL	11.8	5.0		278	213	65

### Unit Cruise Design: SYNDROME SWT U6

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	29.5	29.5	9	9	0

### Unit Cruise Summary: SYNDROME SWT U6

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
RC		1	0.1	0
MA		2	0.2	0
DF	13	24	2.7	1
WH	6	9	1.0	0
ALL	19	36	4.0	1

### Unit Cruise Statistics: SYNDROME SWT 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 (%)
RC	4.4	300.0	100.0						
MA	8.9	300.0	100.0						
DF	106.7	70.2	23.4	111.1	20.6	5.7	11,852	73.1	24.1
WH	40.0	150.0	50.0	112.8	23.3	9.5	4,511	151.8	50.9
ALL	160.0	41.5	13.8	111.6	20.9	4.8	17,851	46.4	14.6

### Unit Summary: SYNDROME SWT U6

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	13	ALL	11.8	55	78	6,432	6,420	0.2	76.1	57.8	16.8	189.4

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	LEA	11	ALL	10.6	47	70	5,442	5,432	0.2	79.8	48.9	15.0	160.3
MA	LIVE	LEA	2	ALL	13.2	32	39				9.4	8.9	2.4	
RC	LIVE	LEA	1	ALL	20.0	78	93				2.0	4.4	1.0	
WH	LIVE	CUT	6	ALL	11.7	54	74	3,007	3,007	0.0	35.7	26.7	7.8	88.7
WH	LIVE	LEA	3	ALL	9.2	40	78	1,504	1,504	0.0	28.9	13.3	4.4	44.4
ALL	LIVE	LEA	17	ALL	10.7	45	70	6,946	6,936	0.1	120.1	75.6	22.9	204.6
ALL	LIVE	CUT	19	ALL	11.8	54	76	9,439	9,427	0.1	111.8	84.4	24.6	278.1
ALL	ALL	CUT +LEAVE	36	ALL	11.2	49	73	16,386	16,363	0.1	231.9	160.0	47.5	482.7

## Cruise Unit Report SYNDROME RMZ

### Unit Sale Notice Volume (MBF): SYNDROME RMZ

Sp	DBH	Rings/In	Age	MBF Volume by Grade		
				All	3 Saw	4 Saw
WH	12.7			106	88	18
DF	13.4	5.0		34	29	5
ALL	12.9	5.0		140	117	23

### Unit Cruise Design: SYNDROME RMZ

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	20.6	20.7	7	7	0

### Unit Cruise Summary: SYNDROME RMZ

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	9	26	3.7	0
DF	3	10	1.4	2
ALL	12	36	5.1	2

### Unit Cruise Statistics: SYNDROME RMZ

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	148.6	70.7	26.7	99.9	27.7	9.2	14,846	76.0	28.3
DF	57.1	79.4	30.0	96.8	24.3	14.0	5,534	83.0	33.1
ALL	205.7	34.5	13.0	99.1	25.9	7.5	20,380	43.1	15.0

### Unit Summary: SYNDROME RMZ

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	3	ALL	13.4	59	74	1,660	1,660	0.0	17.5	17.1	4.7	34.2
DF	LIVE	LEA	7	ALL	17.3	71	91	3,874	3,874	0.0	24.5	40.0	9.6	79.8
WH	LIVE	CUT	9	ALL	12.7	55	69	5,139	5,139	0.0	58.5	51.4	14.4	105.9
WH	LIVE	LEA	17	ALL	13.6	57	73	9,707	9,707	0.0	96.3	97.1	26.3	200.0
ALL	LIVE	CUT	12	ALL	12.9	56	70	6,799	6,799	0.0	76.0	68.6	19.1	140.1



Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	LEA	24	ALL	14.4	60	77	13,581	13,581	0.0	120.8	137.1	36.0	279.8
ALL	ALL	CUT +LEAVE	36	ALL	13.8	58	74	20,380	20,380	0.0	196.8	205.7	55.1	419.8

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## Cruise Unit Report SYNDROME WMZ

### Unit Sale Notice Volume (MBF): SYNDROME WMZ

Sp	DBH	Rings/In	Age	MBF Volume by Grade		
				All	3 Saw	4 Saw
WH	14.0			2	2	0
DF	9.3	5.0		1		1
ALL	11.7	5.0		3	2	1

### Unit Cruise Design: SYNDROME WMZ

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 0 ft	0.4	0.4	3	3	0

### Unit Cruise Summary: SYNDROME WMZ

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	2	10	3.3	0
DF	2	9	3.0	2
ALL	4	19	6.3	2

### Unit Cruise Statistics: SYNDROME WMZ

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	133.3	34.6	20.0	98.8	26.6	18.8	13,171	43.7	27.4
DF	120.0	115.5	66.7	76.2	18.7	13.2	9,144	117.0	68.0
ALL	253.3	36.5	21.1	88.1	24.5	12.3	22,315	44.0	24.4

### Unit Summary: SYNDROME WMZ

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
DF	LIVE	CUT	2	ALL	9.3	56	69	2,032	2,032	0.0	56.5	26.7	8.7	0.8
DF	LIVE	LEA	5	ALL	16.2	63	79	7,112	7,112	0.0	65.2	93.3	23.2	2.8
WH	LIVE	CUT	2	ALL	14.0	56	69	5,269	5,269	0.0	49.9	53.3	14.3	2.1
WH	LIVE	LEA	4	ALL	15.5	55	67	7,903	7,903	0.0	61.1	80.0	20.3	3.2
ALL	LIVE	LEA	9	ALL	15.9	59	73	15,015	15,015	0.0	126.3	173.3	43.5	6.0

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
ALL	LIVE	CUT	4	ALL	11.7	56	69	7,301	7,301	0.0	106.4	80.0	23.0	2.9
ALL	ALL	CUT +LEAVE	13	ALL	14.1	58	71	22,315	22,315	0.0	232.7	253.3	66.5	8.9

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## Cruise Unit Report SYNDROME ROW

### Unit Sale Notice Volume (MBF): SYNDROME ROW

Sp	DBH	Rings/In	Age	MBF Volume by Grade			
				All	2 Saw	3 Saw	4 Saw
WH	13.5			98	32	50	16
DF	17.5			70	40	24	6
RA	9.3			15			15
BC	17.0			6	6		
ALL	13.7			188	78	74	37

### Unit Cruise Design: SYNDROME ROW

Design	Cruise Acres	FMA Acres	N Plots	N Cruise Plots	N Void Plots
B1: VR, 1 BAF (40) Measure All, Sighting Ht = 4.5 ft	19.0	19.2	16	16	0

### Unit Cruise Summary: SYNDROME ROW

Sp	Cruised Trees	All Trees	Trees/Plot	Ring-Count Trees
WH	16	17	1.1	0
DF	11	12	0.8	0
RA	4	4	0.3	0
BC	1	1	0.1	0
ALL	32	34	2.1	0

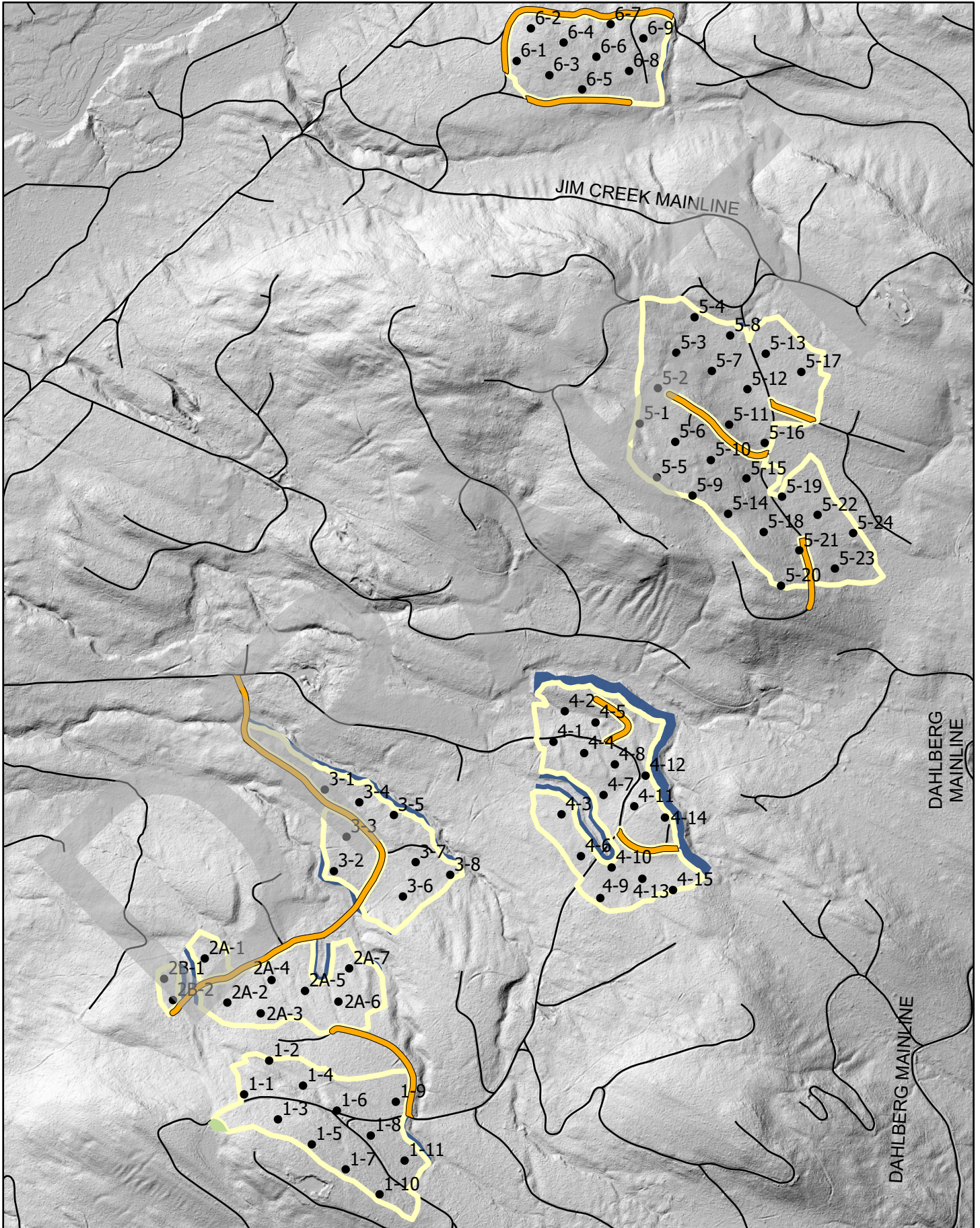
### Unit Cruise Statistics: SYNDROME ROW

Sp	BA (sq ft/acre)	BA CV (%)	BA SE (%)	V-BAR (bf/sq ft)	V-BAR CV (%)	V-BAR SE (%)	Net Vol (bf/acre)	Vol CV (%)	Vol SE (%)
WH	42.5	151.6	37.9	121.2	20.3	5.1	5,150	153.0	38.2
DF	30.0	150.1	37.5	123.1	45.0	13.6	3,694	156.7	39.9
RA	10.0	230.9	57.7	77.8	22.6	11.3	778	232.0	58.8
BC	2.5	400.0	100.0	118.7	0.0	0.0	297	400.0	100.0
ALL	85.0	59.2	14.8	116.7	33.7	6.0	9,918	68.2	16.0

## Unit Summary: SYNDROME ROW

Sp	Status	Rx	N	D	DBH	BL	THT	BF Gross	BF Net	Defect %	TPA	BA	RD	MBF Net
BC	LIVE	CUT	1	ALL	17.0	70	86	309	297	4.1	1.6	2.5	0.6	5.6
DF	LIVE	CUT	11	ALL	17.5	66	82	3,744	3,694	1.3	18.0	30.0	7.2	70.2
RA	LIVE	CUT	4	ALL	9.3	41	63	778	778	0.0	21.2	10.0	3.3	14.8
WH	LIVE	CUT	16	ALL	13.5	51	82	5,150	5,150	0.0	42.8	42.5	11.6	97.8
ALL	LIVE	CUT	32	ALL	13.7	52	77	9,981	9,918	0.6	83.6	85.0	22.6	188.4
ALL	ALL	CUT +LEAVE	32	ALL	13.7	52	77	9,981	9,918	0.6	83.6	85.0	22.6	188.4

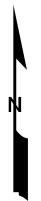
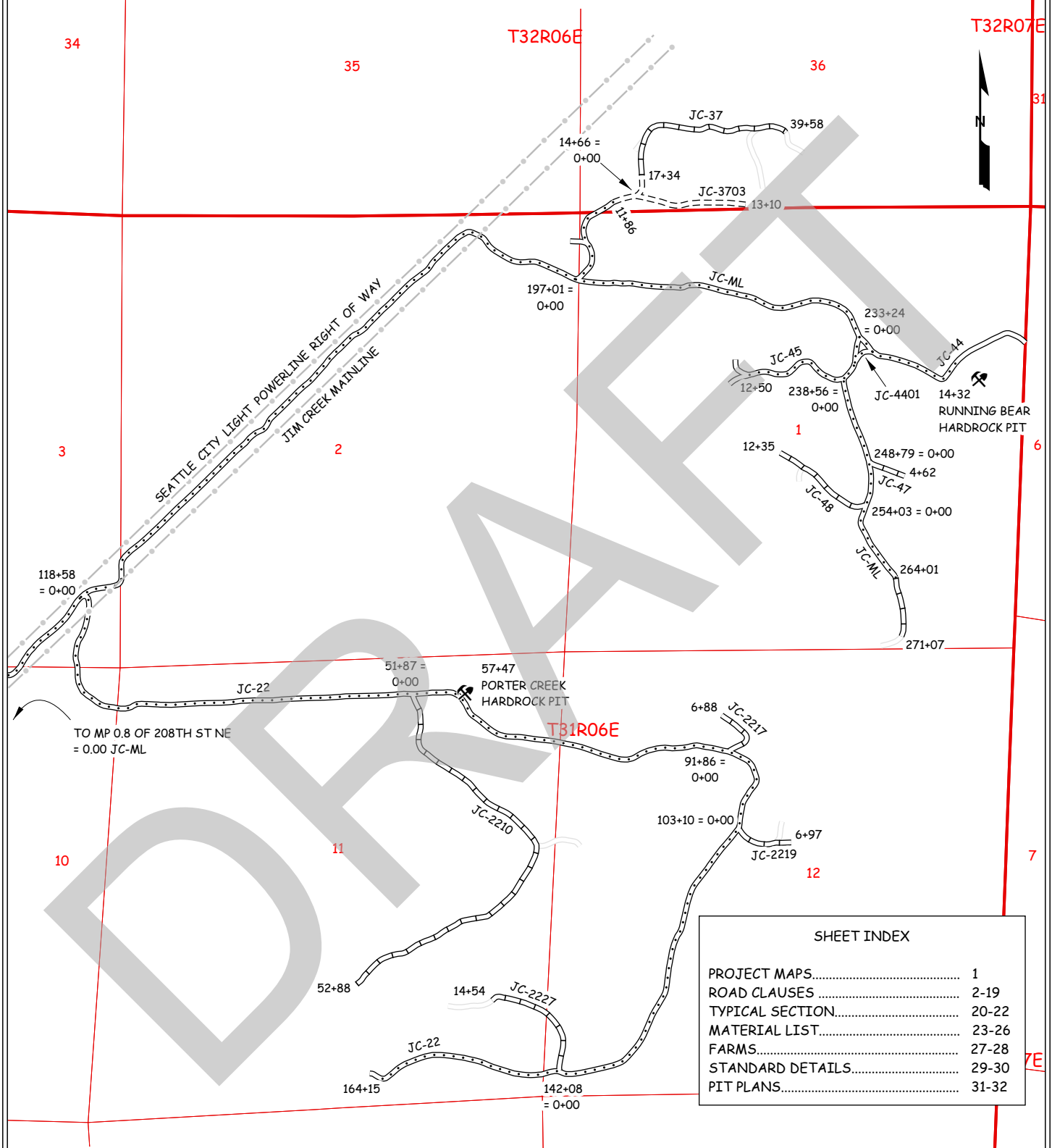
# Syndrome SWT - NW





# ROAD PLAN AND SPECIFICATIONS

## #30-106448 SYNDROME TIMBER SALE



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PRE-HAUL MAINTENANCE	
REQUIRED CONSTRUCTION	
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OPTIONAL RECONSTRUCTION	



DESIGNED BY	REVIEWED BY	APPROVED BY	PLAN DATE	SHEET
SYMMANK	STUART 3/25/2024	STUART 3/25/2024	03/06/2024	1 OF 32

STATE OF WASHINGTON  
DEPARTMENT OF NATURAL RESOURCES

SYNDROME TIMBER SALE ROAD PLAN  
SNOHOMISH COUNTY  
CASCADE DISTRICT  
NORTHWEST REGION

AGREEMENT NO.: 30-106448

STAFF ENGINEER: D. SYMMANK

DATE: MARCH 6, 2024

SECTION 0 – SCOPE OF PROJECT

**0-1 ROAD PLAN SCOPE**

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

**0-2 REQUIRED ROADS**

The specified work on the following roads is required.

<u>Road</u>	<u>Stations</u>	<u>Type</u>
JC-ML	0+00 to 264+01	PRE-HAUL MAINTENANCE
JC-ML	264+01 to 271+07	RECONSTRUCTION
JC-22	0+00 to 164+15	PRE-HAUL MAINTENANCE
JC-2210	0+00 to 52+88	RECONSTRUCTION
JC-2217	0+00 to 6+88	RECONSTRUCTION
JC-2219	0+00 to 6+97	RECONSTRUCTION
JC-2227	0+00 to 14+54	RECONSTRUCTION
JC-37	0+00 to 11+86	PRE-HAUL MAINTENANCE
JC-37	11+86 to 17+34	CONSTRUCTION
JC-37	17+34 to 39+58	RECONSTRUCTION
JC-3703	0+00 to 13+10	CONSTRUCTION
JC-44	0+00 to 14+32	PRE-HAUL MAINTENANCE
JC-4401	0+00 to 2+68	PRE-HAUL MAINTENANCE
JC-45	0+00 to 12+50	PRE-HAUL MAINTENANCE
JC-47	0+00 to 4+62	RECONSTRUCTION
JC-48	0+00 to 12+35	RECONSTRUCTION



**0-4 CONSTRUCTION**

Construction includes, but is not limited to clearing, grubbing, excavation and embankment to sub-grade, landing and turnout construction, culvert installation, and application of 3-inch minus ballast.

**0-5 RECONSTRUCTION**

Reconstruction includes, but is not limited to clearing, grubbing, excavation and embankment to sub-grade, landing and turnout construction, culvert installation, and application of 3-inch minus ballast.

**0-6 PRE-HAUL MAINTENANCE**

Pre-haul maintenance includes, blading, shaping, and ditching the road surface, and culvert installation.

**0-7 POST-HAUL MAINTENANCE**

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

**0-12 DEVELOP ROCK SOURCE**

Purchaser may develop existing rock sources. Rock source development may involve clearing, stripping, and blasting. Work for developing rock sources is listed in Section 6 ROCK AND SURFACING.

SECTION 1 – GENERAL

**1-1 ROAD PLAN CHANGES**

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

**1-2 UNFORESEEN CONDITIONS**

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

**1-3 ROAD DIMENSIONS**

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

**1-4 ROAD TOLERANCES**

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

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

**1-6 ORDER OF PRECEDENCE**

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

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

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

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

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

**1-9 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.

**1-18 REFERENCE POINT DAMAGE**

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

**1-21 HAUL APPROVAL**

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

**1-25 ACTIVITY TIMING RESTRICTION**

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

<u>Activity</u>	<u>Closure Period</u>
Rock hauling, construction, reconstruction, or maintenance	November 1 to March 31

**1-26 OPERATING DURING CLOSURE PERIOD**

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

**1-29 SEDIMENT RESTRICTION**

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

**1-30 CLOSURE TO PREVENT DAMAGE**

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

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

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

**1-33 SNOW PLOWING RESTRICTION**

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

**1-40 ROAD APPROACHES TO COUNTY ROADS AND STATE HIGHWAYS**

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

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

**SECTION 2 – MAINTENANCE**

**2-1 GENERAL ROAD MAINTENANCE**

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

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

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

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

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

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

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

<u>Road</u>	<u>Stations</u>	<u>Requirements</u>
JC-ML	0+00 to 264+01	– As directed by Contract Administrator.
JC-22	0+00 to 164+15	
JC-37	0+00 to 11+86	
JC-44	0+00 to 14+32	
JC-4401	0+00 to 2+68	
JC-45	0+00 to 12+50	

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

Purchaser shall clean ditches, headwalls, and catchbasins. Work must be completed before application of rock and must be done in accordance with the TYPICAL SECTION. Pulling ditch material across the road or mixing in with the road surface is not allowed.

**2-8 MAINTAINING EROSION CONTROL STRUCTURES**

Purchaser shall clean and maintain all erosion control structures. Work must be completed before hauling of rock or timber and must be done as approved by the Contract Administrator. Excavated material must be scattered outside the grubbing limits.

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

**3-5 CLEARING**

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

**3-8 PROHIBITED DECKING AREAS**

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

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

**3-10 GRUBBING**

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

**3-20 ORGANIC DEBRIS DEFINITION**

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

### **3-21 DISPOSAL COMPLETION**

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

### **3-23 PROHIBITED DISPOSAL AREAS**

Purchaser shall not place organic debris in the following areas:

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

### **3-24 BURYING ORGANIC DEBRIS RESTRICTED**

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

### **3-25 SCATTERING ORGANIC DEBRIS**

Purchaser shall scatter organic debris outside of the clearing limits in natural openings unless otherwise detailed in this road plan.

## **SECTION 4 – EXCAVATION**

### **4-2 PIONEERING**

Pioneering may not extend past construction that will be completed during the current construction season. Pioneering may not extend more than 500 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 prior to embankment.

### **4-3 ROAD GRADE AND ALIGNMENT STANDARDS**

Purchaser shall follow these standards for road grade and alignment:

- Grade and alignment must have smooth continuity, without abrupt changes in direction.
- Maximum grades may not exceed 18 percent favorable and 12 percent adverse.
- Minimum curve radius is 60 feet at centerline.
- Maximum grade change for sag vertical curves is 5% in 100 feet.
- Maximum grade change for crest vertical curves is 4% in 100 feet.

**4-5 CUT SLOPE RATIO**

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

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

**4-6 EMBANKMENT SLOPE RATIO**

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

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

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

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

**4-8 CURVE WIDENING**

The minimum widening placed on the inside of curves is:

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

**4-9 EMBANKMENT WIDENING**

The minimum embankment widening is:

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

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

#### **4-21 TURNOUTS**

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

#### **4-22 TURNAROUNDS**

Purchaser shall construct turnarounds in accordance with the TURNAROUND DETAIL on all roads. Turnarounds must be no larger than 30 feet long and 30 feet wide. Locations are subject to written approval by the Contract Administrator.

#### **4-25 DITCH CONSTRUCTION AND RECONSTRUCTION**

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

#### **4-28 DITCH DRAINAGE**

Ditches must drain to cross-drain culverts or ditchouts.

#### **4-29 DITCHOUTS**

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

#### **4-35 WASTE MATERIAL DEFINITION**

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

#### **4-36 DISPOSAL OF WASTE MATERIAL**

Purchaser may sidecast waste material on side slopes up to 50% if the waste material is compacted and free of organic debris. On side slopes greater than 50%, all waste material must be end hauled or pushed to the designated embankment sites and waste areas approved by the Contract Administrator.

#### **4-38 PROHIBITED WASTE DISPOSAL AREAS**

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

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



**4-55 ROAD SHAPING**

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

**4-60 FILL COMPACTION**

Purchaser shall compact all embankment and waste material by routing equipment over the entire width of each lift.

**4-61 SUBGRADE COMPACTION**

Purchaser shall compact constructed or reconstructed subgrades by routing equipment over the entire width.

**4-63 EXISTING SURFACE COMPACTION**

Purchaser shall compact maintained road surfaces by routing equipment over the entire width.

SECTION 5 – DRAINAGE

**5-5 CULVERTS**

Purchaser shall install culverts as part of this contract. Culverts must be installed concurrently with subgrade work and must be installed before subgrade compaction and rock application. Culvert locations and the minimum requirements for culvert length and diameter are designated on the MATERIAL 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 MATERIAL LIST that are not installed will become the property of the state. Purchaser shall stockpile materials as directed by the Contract Administrator.

**5-15 CULVERT INSTALLATION**

Culvert installation must be in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL and the 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 18 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.

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

Purchaser shall obtain written approval from the Contract Administrator for the installation of culverts 36 inches in diameter and over before backfilling.

**5-17 CROSS DRAIN SKEW AND SLOPE**

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

**5-18 CULVERT DEPTH OF COVER**

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

**5-20 ENERGY DISSIPATERS**

Purchaser shall install energy dissipaters in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL. Energy dissipater installation is subject to approval by the Contract Administrator.

The type of energy dissipater and the amount of material must be consistent with the specifications listed on the CULVERT AND DRAINAGE SPECIFICATION DETAIL

**5-21 DOWNSPOUTS AND FLUMES**

Downspouts and flumes must be staked on both sides at a maximum interval of 10 feet with 6-foot heavy-duty steel posts and fastened securely to the posts in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL.

**5-25 CATCH BASINS**

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

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

Purchaser shall construct headwalls in accordance with the CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts. Rock used for headwalls must weigh at least 50 pounds. 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.

**5-27 ARMORING FOR STREAM CROSSING CULVERTS**

At stream crossing culverts, Purchaser shall place riprap in conjunction with construction of the embankment. Rock must be placed on shoulders, slopes, and around culvert inlets and outlets as designated on the MATERIALS LIST or as directed by the Contract Administrator. Rock may not restrict the flow of water into culvert inlets or catch basins. Placement must be by zero-drop-height method only. No placement by end dumping or dropping of rock is allowed.

**SECTION 6 – ROCK AND SURFACING**

**6-2 ROCK SOURCE ON STATE LAND**

Rock used in accordance with the quantities on the TYPICAL SECTION and MATERIALS LIST may be obtained from the following sources on state land at no charge to the Purchaser. Purchaser shall obtain written approval from the Contract Administrator for the use of material from any other source. If other operators are using, or desire to use the rock sources, a joint operating plan must be developed. All parties shall follow this plan.

<u>Source</u>	<u>Location</u>	<u>Rock Type</u>
PORTER CREEK Hardrock Pit	JC-22 57+47	3-inch minus ballast, Shot rock, and Rip rap
RUNNING BEAR Hardrock Pit	JC-44 14+32	3-inch minus ballast, Shot rock, and Rip rap

**6-5 ROCK FROM COMMERCIAL SOURCE**

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

**6-11 ROCK SOURCE DEVELOPMENT PLAN BY PURCHASER**

Purchaser 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 Purchaser. 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.

<u>Source</u>	<u>Rock Type</u>	<u>Use requirements</u>
PORTER CREEK Hardrock Pit	JC-22 57+47	- See attached pit plan maps.
RUNNING BEAR Hardrock Pit	JC-44 14+32	- Approval by Contract Administrator prior to use.

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.

**6-12 ROCK SOURCE SPECIFICATIONS**

Rock sources must be in accordance with the following specifications:

- 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.

**6-23 ROCK GRADATION TYPES**

Purchaser shall provide rock in accordance with the types and amounts listed in the TYPICAL SECTION and MATERIALS LIST. Rock must meet the following specifications for gradation and uniform quality when placed in hauling vehicles or during manufacture and placement into a stockpile. The exact point of evaluation for conformance to specifications will be determined by the Contract Administrator.

**6-34 3-INCH MINUS BALLAST ROCK**

Ballast rock must be 100% equal to, or smaller than, 3 inches in at least one dimension.

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 weight may exceed 12 inches in any dimension and no rock may be larger than 18 inches in any dimension. Shot Ballast rock may not contain more than 5 percent by weight of organic debris, dirt, and trash.

**6-50 LIGHT LOOSE RIP RAP**

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

<u>Quantity</u>	<u>Approximate Size Range</u>
20% to 90%	300 lbs. to 1 ton (18"- 36")
15% to 80%	50 lbs. to 500 lbs. (8"- 18")
10% to 20%	50 lbs. max (3"- 8")

**6-51 HEAVY LOOSE RIP RAP**

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

<u>Quantity</u>	<u>Size Range</u>
30% to 90%	1 ton to 3 ton (36" - 54")
70% to 90%	500 lbs. to 1½ ton (24" - 42")
10% to 30%	50 lbs. max (3" - 8")

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

Measurement of specified rock depths are defined as the compacted depths using the compaction methods required in this road plan. Estimated quantities specified in the TYPICAL SECTION are loose yards. Purchaser shall apply adequate amounts of rock to meet the specified rock depths. Specified rock depths are minimum requirements and are not subject to reduction. Unless otherwise stated in Clause 6-75 OPTIONAL ROCK EXCEPTION.

**6-70 APPROVAL BEFORE ROCK APPLICATION**

Purchaser shall obtain written approval from the Contract Administrator for culvert installation, ditch construction, ditch reconstruction, headwall construction, and headwall reconstruction before rock application.

**6-71 ROCK APPLICATION**

Purchaser shall apply rock in accordance with the specifications and quantities shown on the TYPICAL SECTION. 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 by routing equipment over the entire width.

**6-73 ROCK FOR WIDENED PORTIONS**

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

**SECTION 7 – STRUCTURES**

**7-70 GATE CLOSURE**

On the following road, Purchaser shall keep gates closed and locked except during periods of haul. All gates must be closed at termination of use.

<u>Road</u>	<u>Station</u>
JC-ML	0+00

## SECTION 8 – EROSION CONTROL

### **8-2 PROTECTION FOR EXPOSED SOIL**

Purchaser shall provide and evenly spread a 4-inch layer of straw to all exposed soils within 25 feet of a stream or wetland. Soils must be covered before the first anticipated storm event.

### **8-15 REVEGETATION**

Purchaser shall spread seed and fertilizer on all exposed soils within the grubbing limits resulting from road work activities using manual dispersal. Other methods of covering must be approved in writing by the Contract Administrator.

### **8-16 REVEGETATION SUPPLY**

The Purchaser shall provide the seed and fertilizer.

### **8-17 REVEGETATION TIMING**

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

### **8-18 PROTECTION FOR SEED**

Purchaser shall provide a protective cover for seed if revegetation occurs between July 1 and March 31. The protective cover may consist of straw, jute matting, or clear plastic sheets. The protective cover requirement may be waived in writing by the Contract Administrator if Purchaser is able to demonstrate a revegetation plan that will result in the establishment of a uniform dense crop (at least 50% coverage) of 3-inch tall grass by October 31.

### **8-19 ASSURANCE FOR SEEDED AREA**

Purchaser shall ensure the growth of a uniform and dense crop (at least 50% coverage) of 3-inch tall grass. Purchaser shall reapply the grass seed and fertilizer 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 fertilizer at no additional cost to the state.

### **8-25 GRASS SEED**

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

1. Weed seed may not exceed 0.5% by weight.
2. All seed species must have a minimum 90% germination rate, unless otherwise specified.

3. Seed must be certified.
4. Seed must be furnished in standard containers showing the following information:
  - a. Common name of seed
  - b. Net weight
  - c. Percent of purity
  - d. Percentage of germination
  - e. Percentage of weed seed and inert material
5. Seed must conform to the following mixture unless a comparable mix is approved in writing by the Contract Administrator.

<u>Kind and Variety of Seed in Mixture</u>	<u>% by Weight</u>
Creeping Red Fescue	50
Elf Perennial Rye Grass	25
Highland Colonial Bentgrass	15
White Clover	10
Inert and Other Crop	0.5

**8-27 FERTILIZER**

Purchaser shall evenly spread the fertilizer listed below on all exposed soil inside the grubbing limits at a rate of 200 pounds per acre of exposed soil. Fertilizer must meet the following specifications:

<u>Chemical Component</u>	<u>% by Weight</u>
Nitrogen	16
Phosphorous	16
Potassium	16
Sulphur	3
Inerts	49

**SECTION 9 – POST-HAUL ROAD WORK**

**9-5 POST-HAUL MAINTENANCE**

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

**9-10 LANDING DRAINAGE**

Purchaser shall provide for drainage of the landing surface.



**9-12 LANDING EMBANKMENT REMOVAL**

The Purchaser shall reduce or relocate landing embankment, in a manner approved, in writing, by the Contract Administrator. Excavated material shall be placed in a waste area designated by the Contract Administrator.

**SECTION 10 MATERIALS**

**10-15 CORRUGATED STEEL CULVERT**

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

**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.

**10-20 FLUME AND DOWNSPOUT**

Downspouts and flumes must meet the AASHTO specification designated for the culvert. Plastic downspouts and flumes must be Type C – corrugated single walled pipe.

**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.

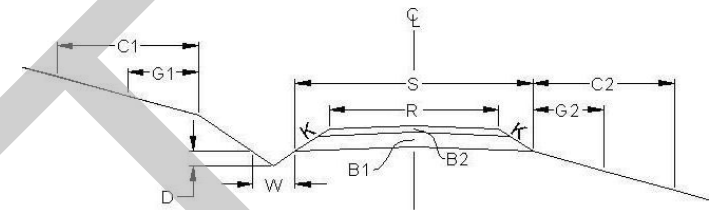
**10-24 GAUGE AND CORRUGATION**

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

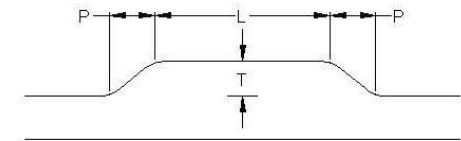
<u>Diameter</u>	<u>Gauge</u>	<u>Corrugation</u>
18"	16 (0.064")	2 2/3" X 1/2"
24" to 48"	14 (0.079")	2 2/3" X 1/2"
54" to 96"	12 (0.109")	3" X 1"

ROAD #		JC-ML	JC-ML	JC-ML	JC-22
REQUIRED / OPTIONAL		Required	Required	Required	Required
CONSTRUCT / RECONSTRUCT		Pre-Haul	Pre-Haul	Reconstruction	Pre-Haul
TOLERANCE CLASS (A/B/C)		C	C	C	C
STATION / MP TO		0+00	238+56	264+01	0+00
STATION / MP		238+56	264+01	271+07	164+15
ROAD WIDTH	R	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3
DITCH WIDTH	W	3	3	3	3
DITCH DEPTH	D	1	1	1	1
TURNOUT LENGTH	L	50	50	50	50
TURNOUT WIDTH	T	10	10	10	10
TURNOUT TAPER	P	25	25	25	25
GRUBBING	G1	--	--	5	--
	G2	--	--	5	--
CLEARING	C1	--	--	10	--
	C2	--	--	10	--
ROCK FILLSLOPE	K:1	1½	1½	1½	1½
❖ BALLAST DEPTH	B1	--	6	6	--
CUBIC YARDS / STATION		--	34	34	--
➤ TOTAL CY BALLAST		--	866	241	--
❖ SURFACING DEPTH	B2	--	--	--	--
CUBIC YARDS / STATION		--	--	--	--
➤ TOTAL CY SURFACING		--	--	--	--
➤ TOTAL CUBIC YARDS		--	866	241	--
SUBGRADE WIDTH	S	--	13.5	13.5	--
BRUSHCUT (Y/N)		Y	Y	N/A	Y
BLADE, SHAPE, & DITCH (Y/N)		Y	Y	N/A	Y

### TYPICAL SECTION



### TURNOUT DETAIL (PLAN VIEW)



### SYMBOL NOTES

- ❖ Specified Rock Depth is FINISHED COMPACTED DEPTH in inches.
- Specified Rock Quantity is LOOSE MEASURE (Truck Cubic Yards) needed to accomplish specified FINISHED COMPACTED DEPTH. Rock quantities include volume for turnouts, curve widening and landings.

### Rock Totals Summary

Type	Quantity (Cubic Yards)
Shot rock	Optional fill material
Rip Rap	469
3-inch minus ballast	8,170

ROAD #		JC-2210	JC-2217	JC-2219	JC-2227	JC-37	JC-37	JC-37	JC-37
REQUIRED / OPTIONAL		Required	Required	Required	Required	Required	Required	Required	Required
CONSTRUCT / RECONSTRUCT		Reconstruction	Reconstruction	Reconstruction	Reconstruction	Pre-Haul	Construction	Reconstruction	Construction
TOLERANCE CLASS (A/B/C)		C	C	C	C	C	C	C	C
STATION / MP TO		0+00	0+00	0+00	0+00	0+00	11+86	17+34	0+00
STATION / MP		52+88	6+88	6+97	14+54	11+86	17+34	39+58	13+10
ROAD WIDTH	R	12	12	12	12	12	12	12	12
CROWN (INCHES @ C/L)		3	3	3	3	3	3	3	3
DITCH WIDTH	W	3	3	3	3	3	3	3	3
DITCH DEPTH	D	1	1	1	1	1	1	1	1
TURNOUT LENGTH	L	50	50	50	50	50	50	50	50
TURNOUT WIDTH	T	10	10	10	10	10	10	10	10
TURNOUT TAPER	P	25	25	25	25	25	25	25	25
GRUBBING	G1	5	5	5	5	--	5	5	5
	G2	5	5	5	5	--	5	5	5
CLEARING	C1	10	10	10	10	--	10	10	10
	C2	10	10	10	10	--	10	10	10
ROCK FILLSLOPE	K:1	1½	1½	1½	1½	1½	1½	1½	1½
❖ BALLAST DEPTH	B1	6	6	6	6	--	18	12	18
CUBIC YARDS / STATION		34	34	34	34	--	114	72	114
➤ TOTAL CY BALLAST		1,798	234	237	495	--	625	1,602	1,494
❖ SURFACING DEPTH	B2	--	--	--	--	--	--	--	--
CUBIC YARDS / STATION		--	--	--	--	--	--	--	--
➤ TOTAL CY SURFACING		--	--	--	--	--	--	--	--
➤ TOTAL CUBIC YARDS		1,798	234	237	495	--	625	1,602	1,494
SUBGRADE WIDTH	S	13.5	13.5	13.5	13.5	--	16.5	15	16.5
BRUSHCUT (Y/N)		N/A	N/A	N/A	N/A	Y	N/A	N/A	N/A
BLADE, SHAPE, & DITCH (Y/N)		N/A	N/A	N/A	N/A	Y	N/A	N/A	N/A

ROAD #		JC-44	JC-4401	JC-45	JC-47	JC-48		
REQUIRED / OPTIONAL		Required	Required	Required	Required	Required		
CONSTRUCT / RECONSTRUCT		Pre-Haul	Pre-Haul	Pre-Haul	Reconstruction	Reconstruction		
TOLERANCE CLASS (A/B/C)		C	C	C	C	C		
STATION / MP TO		0+00	0+00	0+00	0+00	0+00		
STATION / MP		14+32	2+68	12+50	4+62	12+35		
ROAD WIDTH	R	12	12	12	12	12		
CROWN (INCHES @ C/L)		3	3	3	3	3		
DITCH WIDTH	W	3	3	3	3	3		
DITCH DEPTH	D	1	1	1	1	1		
TURNOUT LENGTH	L	50	50	50	50	50		
TURNOUT WIDTH	T	10	10	10	10	10		
TURNOUT TAPER	P	25	25	25	25	25		
GRUBBING	G1	--	--	--	5	5		
	G2	--	--	--	5	5		
CLEARING	C1	--	--	--	10	10		
	C2	--	--	--	10	10		
ROCK FILLSLOPE	K:1	1½	1½	1½	1½	1½		
❖ BALLAST DEPTH	B1	--	--	--	6	6		
CUBIC YARDS / STATION		--	--	--	34	34		
➤ TOTAL CY BALLAST		--	--	--	158	420		
❖ SURFACING DEPTH	B2	--	--	--	--	--		
CUBIC YARDS / STATION		--	--	--	--	--		
➤ TOTAL CY SURFACING		--	--	--	--	--		
➤ TOTAL CUBIC YARDS		--	--	--	158	420		
SUBGRADE WIDTH	S	--	--	--	13.5	13.5		
BRUSHCUT (Y/N)		Y	Y	Y	N/A	N/A		
BLADE, SHAPE, & DITCH (Y/N)		Y	Y	Y	N/A	N/A		

## MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS										
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:  <table style="margin-left: auto; margin-right: auto; border: none;"> <tr> <td style="text-align: center;"><u>Diameter</u></td> <td style="text-align: center;"><u>Gage</u></td> <td style="text-align: center;"><u>Corrugation</u></td> </tr> <tr> <td style="text-align: center;">18"</td> <td style="text-align: center;">16</td> <td style="text-align: center;">2 2/3" x 1/2"</td> </tr> <tr> <td style="text-align: center;">24" – 48"</td> <td style="text-align: center;">14</td> <td style="text-align: center;">2 2/3" x 1/2"</td> </tr> <tr> <td style="text-align: center;">54" – 96"</td> <td style="text-align: center;">14</td> <td style="text-align: center;">3" x 1"</td> </tr> </table>	<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>	18"	16	2 2/3" x 1/2"	24" – 48"	14	2 2/3" x 1/2"	54" – 96"
<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>																				
18"	16	2 2/3" x 1/2"																				
24" – 48"	14	2 2/3" x 1/2"																				
54" – 96"	14	3" x 1"																				
JC-ML	264+24	18	35	PD			2	3	L	NT	C											
JC-ML	266+22											Existing Waterbar										
JC-ML	267+73	18	35	PD			2	3	L	NT	C											
JC-ML	269+83											Existing Waterbar										
JC-2210	0+42	18	40	PD			2	3	L	NT	C											
JC-2210	1+97	18	35	PD			2	3	L	NT	C											
JC-2210	4+12	72	60	GM			50	100	H/L	NT	C	Type 4 Stream										
JC-2210	4+91	18	30	PD			2	6	L	NT	C											
JC-2210	5+79	18	35	PD			2	3	L	NT	C											
JC-2210	7+83											Existing Waterbar										
JC-2210	10+28											Existing Waterbar										
JC-2210	11+93	18	30	PD			2	3	L	NT	C											
JC-2210	14+83											Existing Waterbar										
JC-2210	16+46											Existing Waterbar										
JC-2210	19+61	18	35	PD			2	3	L	NT	C											
JC-2210	21+74											Existing Waterbar										
JC-2210	23+72	24	35	PD			3	6	H/L	NT	C											
JC-2210	24+14	18	35	PD			2	3	L	NT	C											
JC-2210	24+92	24	35	PD			3	6	H/L	NT	C	Type 5 Stream										
JC-2210	25+52	18	35	PD			2	3	L	NT	C											
JC-2210	28+17	24	35	PD			3	6	H/L	NT	C											

GM – Galvanized Metal    PS – Polyethylene Pipe Single Wall    PD – Polyethylene Pipe Dual Wall    AM – Aluminized Metal    C – Concrete    XX – PD or GM  
 H – Heavy Loose Riprap    L – Light Loose Riprap    SR – Shot Rock    NT – Native (Bank Run)    QS – Quarry Spalls

## MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS										
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:  <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>Diameter</u></td> <td style="text-align: center;"><u>Gage</u></td> <td style="text-align: center;"><u>Corrugation</u></td> </tr> <tr> <td style="text-align: center;">18"</td> <td style="text-align: center;">16</td> <td style="text-align: center;">2 2/3" x 1/2"</td> </tr> <tr> <td style="text-align: center;">24" – 48"</td> <td style="text-align: center;">14</td> <td style="text-align: center;">2 2/3" x 1/2"</td> </tr> <tr> <td style="text-align: center;">54" – 96"</td> <td style="text-align: center;">14</td> <td style="text-align: center;">3" x 1"</td> </tr> </table>	<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>	18"	16	2 2/3" x 1/2"	24" – 48"	14	2 2/3" x 1/2"	54" – 96"
<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>																				
18"	16	2 2/3" x 1/2"																				
24" – 48"	14	2 2/3" x 1/2"																				
54" – 96"	14	3" x 1"																				
JC-2210	29+92	24	35	PD			6	6	H/L	NT	C											
JC-2210	31+32	48	40	PD			15	30	H/L	NT	C	Type 4 Stream										
JC-2210	32+38	18	30	PD			2	3	L	NT	C											
JC-2210	33+38											Existing Waterbar										
JC-2210	35+32	24	30	PD			6	6	H/L	NT	C	Type 4 Stream										
JC-2210	38+18	18	35	PD			2	3	L	NT	C											
JC-2210	39+03	18	30	PD			2	3	L	NT	C											
JC-2210	41+21	18	30	PD			2	3	L	NT	C											
JC-2210	42+74	24	30	PD			3	6	H/L	NT	C	Type 5 Stream										
JC-2210	43+21	18	30	PD			2	3	L	NT	C											
JC-2210	44+99	18	30	PD			2	3	L	NT	C											
JC-2210	46+25	18	30	PD			2	3	L	NT	C											
JC-2210	47+76	18	30	PD			2	3	L	NT	C											
JC-2210	50+05	30	30	PD			6	8	H/L	NT	C	Type 4 Stream										
JC-2210	51+01	18	30	PD			2	3	L	NT	C											
JC-2210	52+07											Existing Waterbar										
JC-2217	1+69											Existing Waterbar										
JC-2217	4+95											Existing Waterbar										
JC-2219	2+30											Existing Waterbar										

GM – Galvanized Metal    PS – Polyethylene Pipe Single Wall    PD – Polyethylene Pipe Dual Wall    AM – Aluminized Metal    C – Concrete    XX – PD or GM  
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## MATERIALS LIST

LOCATION		CULVERT			DWNSPT		RIPRAP			FILL TYPE	TOLERANCE	REMARKS										
ROAD #	STATION	DIAMETER	LENGTH	TYPE	LENGTH	TYPE	INLET	OUTLET	TYPE			Note: Galvanized metal culverts shall conform to the following specifications for gage and corrugation as a function of the diameter:  <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>Diameter</u></td> <td style="text-align: center;"><u>Gage</u></td> <td style="text-align: center;"><u>Corrugation</u></td> </tr> <tr> <td style="text-align: center;">18"</td> <td style="text-align: center;">16</td> <td style="text-align: center;">2 2/3" x 1/2"</td> </tr> <tr> <td style="text-align: center;">24" – 48"</td> <td style="text-align: center;">14</td> <td style="text-align: center;">2 2/3" x 1/2"</td> </tr> <tr> <td style="text-align: center;">54" – 96"</td> <td style="text-align: center;">14</td> <td style="text-align: center;">3" x 1"</td> </tr> </table>	<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>	18"	16	2 2/3" x 1/2"	24" – 48"	14	2 2/3" x 1/2"	54" – 96"
<u>Diameter</u>	<u>Gage</u>	<u>Corrugation</u>																				
18"	16	2 2/3" x 1/2"																				
24" – 48"	14	2 2/3" x 1/2"																				
54" – 96"	14	3" x 1"																				
JC-2227	1+45										Existing Waterbar											
JC-2227	3+45										Existing Waterbar											
JC-2227	6+48	18	30	PD			2	3	L	NT	C											
JC-2227	7+94										Existing Waterbar											
JC-2227	9+28	18	30	PD			2	3	L	NT	C											
JC-2227	10+60										Existing Waterbar											
JC-2227	11+93	18	30	PD			2	3	L	NT	C											
JC-2227	13+03	24	30	PD			3	6	H/L	NT	C											
JC-37	11+86	18	35	PD			2	3	L	NT	C											
JC-37	15+12	18	35	PD			2	3	L	NT	C											
JC-37	18+72	18	35	PD			2	3	L	NT	C											
JC-37	19+98										Existing Waterbar											
JC-37	21+99	18	35	PD			2	3	L	NT	C											
JC-37	23+64										Existing Waterbar											
JC-37	26+18										Existing Waterbar											
JC-37	29+27	18	30	PD			2	3	L	NT	C											
JC-37	31+54	18	30	PD			2	3	L	NT	C											
JC-37	32+85	18	30	PD			2	3	L	NT	C											
JC-37	35+46	24	35	PD			3	6	H/L	NT	C											
JC-37	36+57	18	30	PD			2	3	L	NT	C											
JC-37	38+15										Existing Waterbar											

GM – Galvanized Metal    PS – Polyethylene Pipe Single Wall    PD – Polyethylene Pipe Dual Wall    AM – Aluminized Metal    C – Concrete    XX – PD or GM  
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## FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

### Cuts and Fills

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

### Surface

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

### Drainage

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

### Preventative Maintenance

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

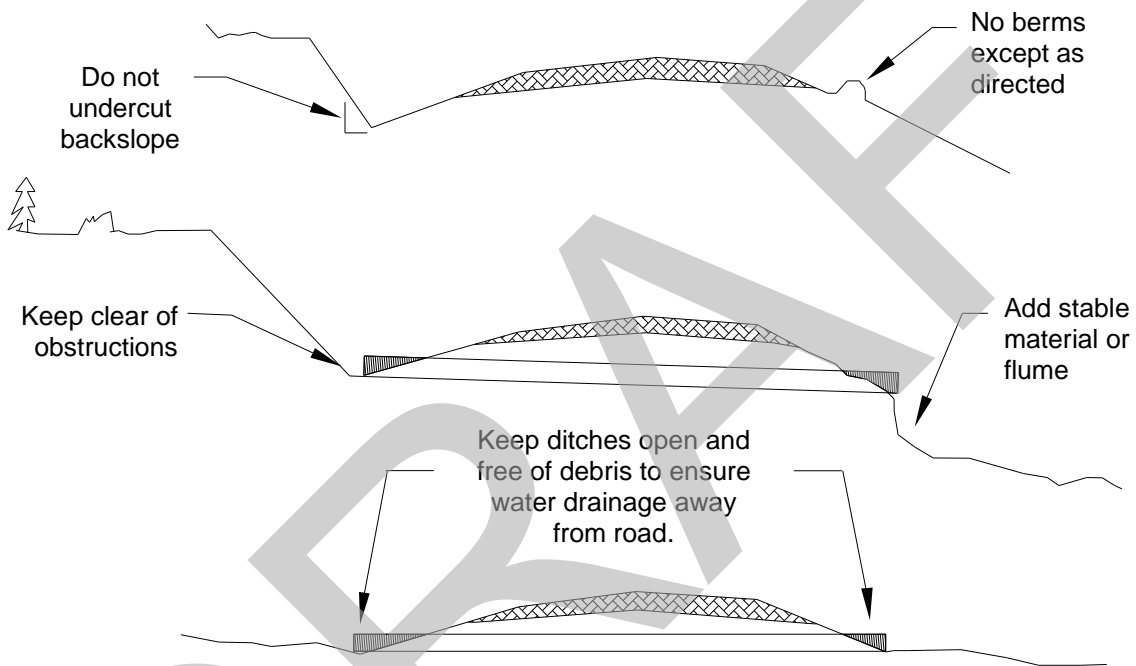
## FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

### Termination of Use or End of Season

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

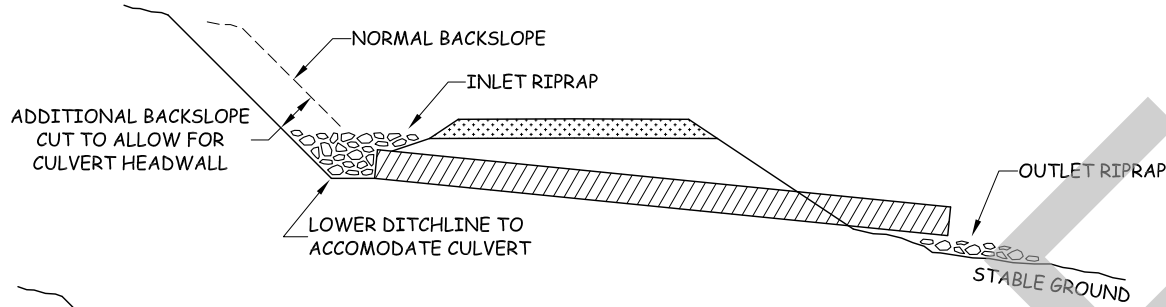
### Debris

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

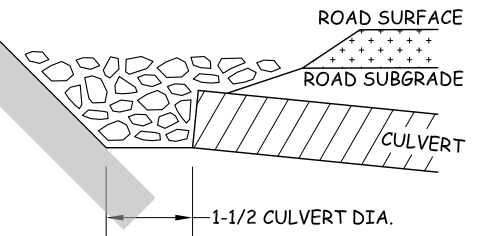


# CULVERT AND DRAINAGE SPECIFICATIONS

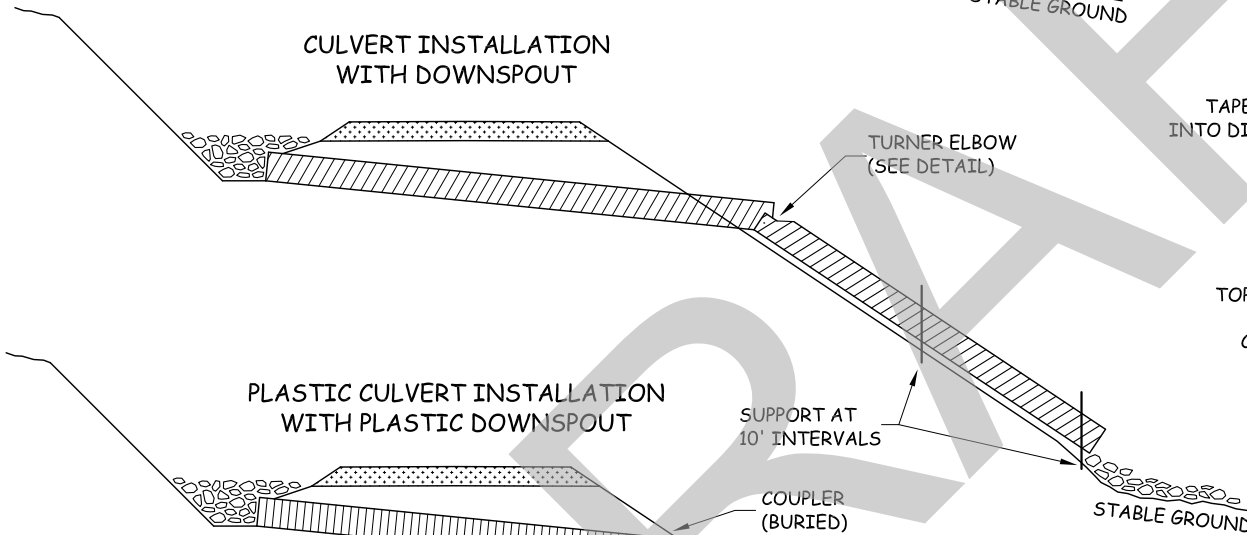
**CULVERT INSTALLATION (TYPICAL)**



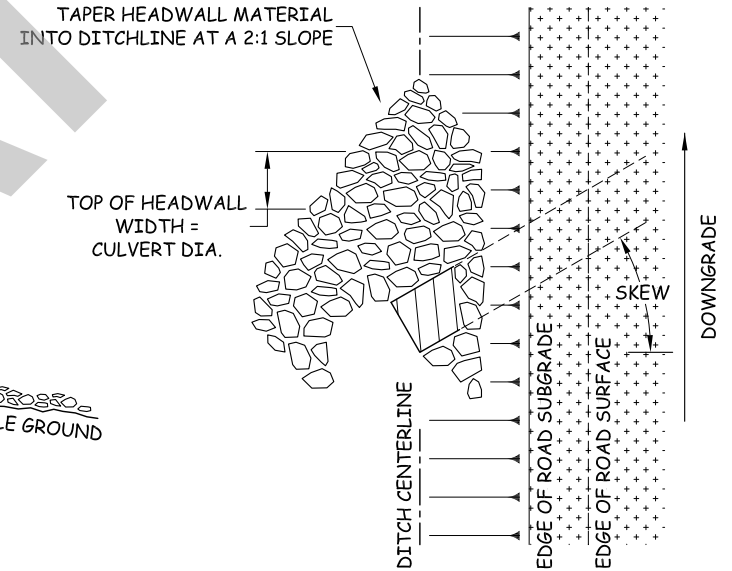
**CULVERT HEADWALL - SECTION VIEW**



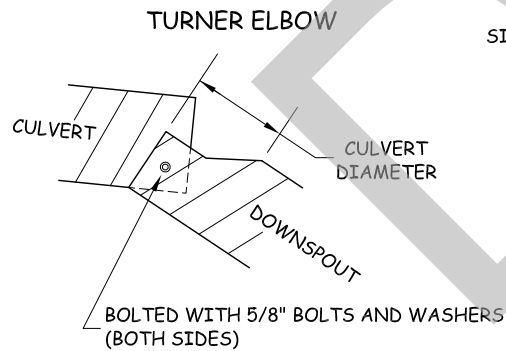
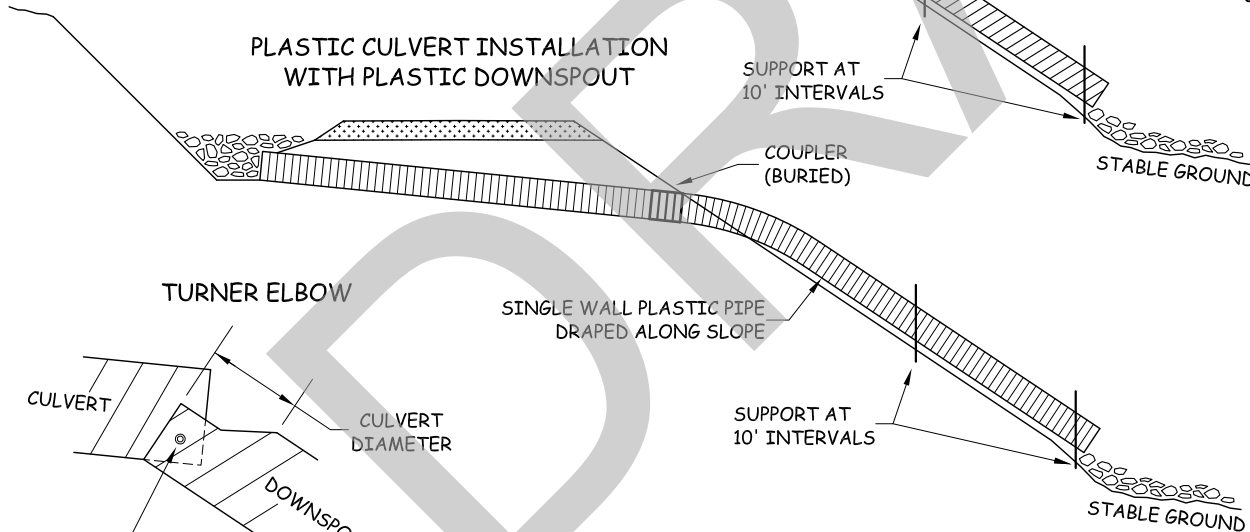
**CULVERT INSTALLATION WITH DOWNSPOUT**



**CULVERT HEADWALL - PLAN VIEW**



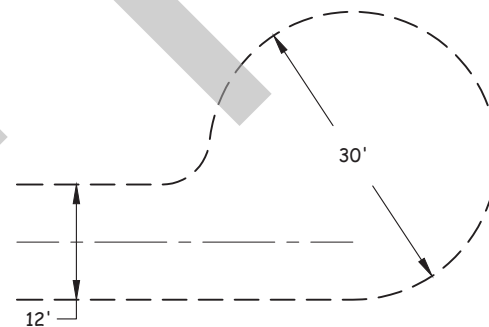
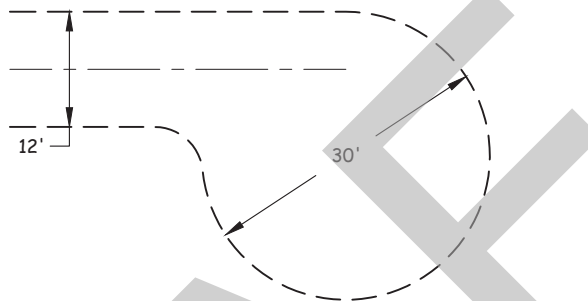
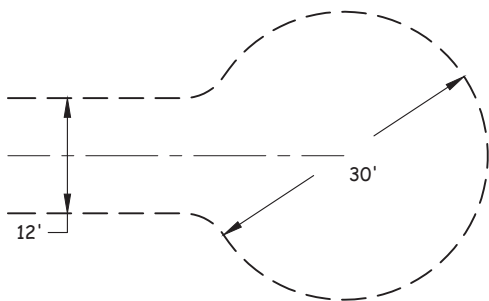
**PLASTIC CULVERT INSTALLATION WITH PLASTIC DOWNSPOUT**



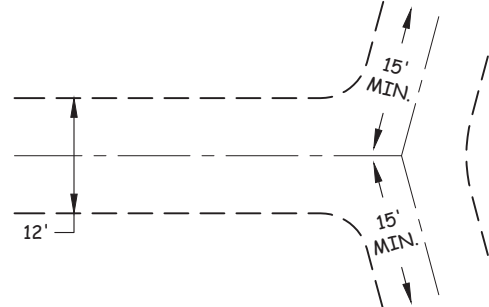
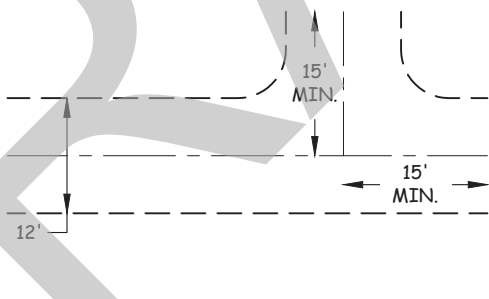
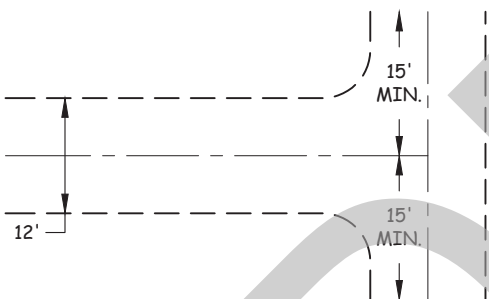
**HEADWALL NOTE:**  
 HEADWALL TO BE CONSTRUCTED OF IMPERVIOUS MATERIAL THAT WILL RESIST EROSION AND ARMORED WITH RIPRAP QUANTITY SPECIFIED IN ROAD PLAN.

CONTRACT #	PROJECT	SHEET
30-106448	SYNDROME	29 OF 32

## TURNAROUND DETAILS



CUL-DE-SAC



HAMMERHEAD

3-POINT SIDE

3-POINT WYE

TURNAROUND TYPE AND TURNAROUND LOCATION ARE SUBJECT TO THE APPROVAL OF THE CONTRACT ADMINISTRATOR.

ROCK SHALL BE APPLIED THROUGHOUT THE TURNAROUND TO THE SAME DEPTH AND SPECIFICATIONS AS LISTED IN THE TYPICAL SECTION.

CONTRACT #	PROJECT	SHEET
30-106448	SYNDROME	30 OF 32

# ROCK SOURCE DEVELOPMENT PLAN

## PORTER CREEK HARDROCK PIT

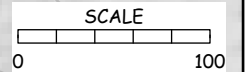


11

T31R06E

JC-22

1. PURCHASER TO SUBMIT PLAN FOR DEVELOPING THIS ROCK SOURCE
2. AN ONSITE MEETING WITH ENGINEER IS REQUIRED PRIOR TO WORK
3. SEE SECTION 6-11 ROCK SOURCE DEVELOPMENT PLAN BY PURCHASER
4. SEE SECTION 6-12 ROCK SOURCE SPECIFICATIONS



LiDAR BASE 2017  
10 FOOT CONTOURS



CONTRACT #  
30-106448

PROJECT  
SYNDROME

SHEET  
31 OF 32

# ROCK SOURCE DEVELOPMENT PLAN

## RUNNING BEAR HARDROCK PIT

JC-44

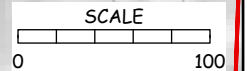
JC-403

1

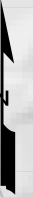
T3103E

1,500 CUBIC YARD STOCKPILE NOT FOR USE WITHOUT PRIOR APPROVAL WHICH WILL REQUIRE REPLACEMENT IN KIND.

1. PURCHASER TO SUBMIT PLAN FOR DEVELOPING THIS ROCK SOURCE
2. AN ONSITE MEETING WITH ENGINEER IS REQUIRED PRIOR TO WORK
3. SEE SECTION 6-11 ROCK SOURCE DEVELOPMENT PLAN BY PURCHASER
4. SEE SECTION 6-12 ROCK SOURCE SPECIFICATIONS



LiDAR BASE 2017  
10 FOOT CONTOURS



CONTRACT #  
30-106448

PROJECT  
SYNDROME

SHEET  
32 OF 32

## SUMMARY - Road Development Costs

REGION: NW  
DISTRICT: CASCADE

SALE/PROJECT NAME: SYNDROME

CONTRACT #: 30-106448

ROAD NUMBERS:	JC-37, JC-3703	JC-ML, JC-2210, JC-2217, JC-2219, JC-ML, JC-22, JC-37, JC-44, JC-4401, JC-45	JC-2227, JC-37, JC-47, JC-48
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ROAD STANDARD:	Construction	Reconstruction	Maintenance
NUMBER OF STATIONS:	18+58	127+54	469+52
CLEARING & GRUBBING:	\$3,335	\$26,151	\$0
EXCAVATION AND FILL:	\$8,671	\$15,267	\$0
MISC. MAINTENANCE:	\$59	\$31	\$6,598
ROAD ROCK:	\$25,894	\$67,485	\$9,951
ROCK STOCKPILE PROD:	\$0	\$0	\$0
CULVERTS AND FLUMES:	\$2,951	\$42,319	\$1,528
STRUCTURES:	\$0	\$0	\$0
MOBILIZATION:	\$1,293	\$4,352	\$2,355
<b>TOTAL COSTS:</b>	<b>\$42,203</b>	<b>\$155,604</b>	<b>\$20,432</b>
<b>COST PER STATION:</b>	<b>\$2,271</b>	<b>\$1,220</b>	<b>\$30</b>
ROAD DEACTIVATION & ABANDONMENT COSTS:		\$0	

Pre-Cruise Estimated Sale Volume

<b>TOTAL (All Roads)</b>	<b>=</b>	<b>\$218,239</b>
<b>SALE VOLUME MBF</b>	<b>=</b>	<b>2,500</b>
<b>TOTAL \$/MBF</b>	<b>=</b>	<b>\$87</b>

Compiled by: Symmank

Date: 03/08/24