



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Four DB Cronin
Sale TL-341-2023-W00852-01

District: Astoria

Date: December 19, 2022

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$1,924,149.60	\$532,335.96	\$2,456,485.56
		Project Work:	(\$558,228.00)
		Advertised Value:	\$1,898,257.56



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Date: December 19, 2022

Timber Description

Location:

Stand Stocking: 60%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	17	0	95
Western Hemlock / Fir	15	0	97
Alder (Red)	15	0	95
Maple	16	0	95

Volume by Grade	2S	3S & 4S 6" - 11"	8" - 9"	10" - 11"	12"+	6" - 7"	8"+	Total
Douglas - Fir	3,146	2,643	0	0	0	0	0	5,789
Western Hemlock / Fir	404	339	0	0	0	0	0	743
Alder (Red)	0	0	858	887	368	898	0	3,011
Maple	0	0	0	0	0	0	12	12
Total	3,550	2,982	858	887	368	898	12	9,555

Comments: Pond Values Used: Local Pond Values, December, 2022.

Expected Log Markets: Tillamook, Banks, Forest Grove, Mistm, Warrenton, Willamina, Garibaldi, North Plains, Wauna, Longview, WA, and Chehalis, WA.

PRICING:

Western Red Cedar and other Cedars stumpage = pond value - (Douglas-fir) logging cost.
\$809.30/MBF = \$1,300/MBF - \$490.70/MBF

Spruce stumpage = pond value - (Douglas-fir) logging cost.
\$59.30/MBF = \$550/MBF - \$490.70/MBF

Fuel cost allowance based on month local pond values were collected.

Other Costs (with Profit & Risk to be added):

Machine Washing for Invasive Weed Compliance = \$2,000

Ditch Filters:

30 bales of straw @ \$12.06/bale = \$361.80
8 hours of labor @ \$45/hr = \$360.00

Deadman anchor for guylines:

\$905 for excavator move in (C315)
12 anchors @ 3 hrs/anchor = 36 hrs
\$114/hr for excavator operation (C315)
\$114/hr x 36 hrs + \$905X2 = \$5,914

Dozer (D7) mobilization for tailhold/guyline anchor:
2 move-in @ \$905/move in = \$1,810

Waterbar and block 1A to 1B:

Move in C315 Excavator @ \$905/move in = \$905
4 hrs w/C315 to construct 8 to 10 waterbars @ \$114/hr = \$456

TOTAL Other Costs (with Profit & Risk to be added):\$11,806.80

ADDITIONAL FIRE EQUIPMENT (1,000 Gal Fire Truck): \$40/Day x 90 Days x 4 Fire Seasons (Logging) = \$14,400

Weyerhaeuser Road Use Permit: \$759.00

TOTAL Other Costs (without Profit and Risk):\$15,159.00

SLASH PILING

(See attached appraisal. Includes move-in, pile materials, and end-hauling) = \$35,762

ROAD MAINTENANCE

(See attached Road Maintenance Cost Summary Sheet)

TOTAL Road Maintenance: \$50,293/9,555 MBF = \$5.26/MBF



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Logging Conditions

Combination#: 1 Douglas - Fir 92.00%
Western Hemlock / Fir 92.00%
Alder (Red) 92.00%
Maple 92.00%

Logging System: Cable: Large Tower >=70 **Process:** Stroke Delimber

yarding distance: Long (1,500 ft) **downhill yarding:** No

tree size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF

loads / day: 6 **bd. ft / load:** 4200

cost / mbf: \$249.28

machines: Log Loader (A)
Stroke Delimber (A)
Tower Yarder (Large)

Combination#: 2 Douglas - Fir 8.00%
Western Hemlock / Fir 8.00%
Alder (Red) 8.00%
Maple 8.00%

Logging System: Shovel **Process:** Feller Buncher

yarding distance: Short (400 ft) **downhill yarding:** No

tree size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF

loads / day: 12 **bd. ft / load:** 4200

cost / mbf: \$70.20

machines: Feller Buncher w/ Delimber



Timber Sale Appraisal
Four DB Cronin
Sale TL-341-2023-W00852-01

District: Astoria

Date: December 19, 2022

Logging Costs

Operating Seasons: 5.00	Profit Risk: 14%
Project Costs: \$558,228.00	Other Costs (P/R): \$11,806.00
Slash Disposal: \$35,762.00	Other Costs: \$15,159.00

Miles of Road	Road Maintenance: \$5.26
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Dirt	Rock (Contractor)	Rock (State)	Paved
0.0	0.0	0.0	0.0

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$0.00	2.0	3.5
Western Hemlock / Fir	\$0.00	3.0	4.0
Alder (Red)	\$0.00	2.0	3.5
Maple	\$0.00	2.0	3.5



"STEWARDSHIP IN FORESTRY"

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Date: December 19, 2022

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Brand & Paint	Other	Total
Douglas - Fir									
\$234.95	\$5.52	\$2.30	\$180.00	\$1.24	\$59.36	\$3.74	\$2.00	\$1.59	\$490.70
Western Hemlock / Fir									
\$234.95	\$5.42	\$2.30	\$103.00	\$1.24	\$48.57	\$3.74	\$2.00	\$1.59	\$402.81
Alder (Red)									
\$234.95	\$5.52	\$2.30	\$180.00	\$1.24	\$59.36	\$3.74	\$2.00	\$1.59	\$490.70
Maple									
\$234.95	\$5.52	\$2.30	\$180.00	\$1.24	\$59.36	\$3.74	\$2.00	\$1.59	\$490.70

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$790.76	\$300.06	\$0.00
Western Hemlock / Fir	\$0.00	\$654.63	\$251.82	\$0.00
Alder (Red)	\$0.00	\$667.46	\$176.76	\$0.00
Maple	\$0.00	\$500.00	\$9.30	\$0.00



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District: Astoria

Date: December 19, 2022

Summary

Amortized

Specie	MBF	Value	Total
Douglas - Fir	0	\$0.00	\$0.00
Western Hemlock / Fir	0	\$0.00	\$0.00
Alder (Red)	0	\$0.00	\$0.00
Maple	0	\$0.00	\$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	5,789	\$300.06	\$1,737,047.34
Western Hemlock / Fir	743	\$251.82	\$187,102.26
Alder (Red)	3,011	\$176.76	\$532,224.36
Maple	12	\$9.30	\$111.60

Gross Timber Sale Value

Recovery: \$2,456,485.56

Prepared By: John Tillotson

Phone: 503-325-5451

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre	Landing Production Rate (hrs/30 acres)
Doug-fir	A	0.5	0.5	6
Hemlock/Fir	B	1.3	4.5	8
Hemlock/Spruce	C	1.8	5.0	10
Hemlock	D	1.8	5.0	8
Conifer/Hardwood	E	1.0	2.0	8
Whole Tree Yarding	F	0.5	0.5	12

Unit	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area	
1	MC	F	18	9	\$145	\$1,305	
2	MC	F	7	4	\$145	\$508	
3	MC	F	0	0	\$145	\$0	
4	MC	F	0	0	\$145	\$0	
					In-unit Piling	Sub Total =	\$1,813
Sale Area	Number of Landings to be Piled	Harvested acres per area	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area	
1	5	105	\$6,090	14	\$5	\$70	
2	6	60	\$3,480	10	\$5	\$48	
3	5	109	\$6,322	5	\$5	\$25	
4	7	106	\$6,148	7	\$5	\$35	
*Cost includes separating firewood					Materials	Sub Total =	\$178
Additonal Move-in allowance					Landing Piling	Sub Total =	\$22,040
Move-In Allowance	Number of Move-In's	Total Move-In Allowance					
\$1,581.00	1.5	\$2,372					
Hourly Rate	Hours	Total					
					Move-In	Sub Total =	\$2,372
Slash Endhaul							
Dump Truck hrs	Cost/Hour	Total	Loader hrs	Cost/Hour	Total		
40	\$89.00	\$3,560	40	\$145	\$5,800		
						Sub Total =	\$9,360
*An Additional 40 hours were costed for for End haul, slash management on tight landings, etc.							
Grand Total =							\$35,762

Road Maintenance Cost Summary (Interim and Post Harvest)

Sale: Four DB Cronin
Date: December 19, 2022
By: Ryan Simpson CB

MBF: 9,555.00
\$\$/MBF: \$5.26

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Interim Operations	Grader 14G	\$875	1	24	\$113	\$3,587
	Dump Truck 12CY	\$184	1	16	\$89	\$1,608
	Rubber tired backhoe	\$361	1	8	\$87	\$1,057
	Vibratory Roller	\$875	1	8	\$87	\$1,571
Interim Operations	Grader 14G	\$875	1	16	\$113	\$2,683
Final Road Maintenance	Grader 14G	\$875	1	90	\$113	\$11,045
	Dump Truck 12CY	\$184	3	40	\$89	\$4,112
	FE Loader C966	\$875	1	24	\$94	\$3,131
	Vibratory Roller	\$875	1	90	\$87	\$8,705
	Water Truck 2,500 gallon	\$214	1	40	\$101	\$4,254
	Excavator C315	\$905	1	24	\$114	\$3,641
	Labor			8	\$45	\$360
Additional 10% Fuel Allowance						\$4,539
Total						\$50,293

Interim Operations Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	2.5	8.1	3.2	26

Final Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	1.5	16.9	11.3	90
Vibratory Roller	1.5	16.9	11.3	90

Process and compact: All crushed rock roads
Spruce Run Road: 0.4 Miles
Quartz Creek Road: 7.0 Miles
North Fork Cronin Creek Road and Cronin Ridge Road: 5.7 Miles
Unnamed Spurs: 1.1 Miles
Long Bell Company Road (100): 2.7 Miles
Grade, Process, and Compact Total = 16.9 Miles

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Four DB Cronin

Project No. 1: ROAD CONSTRUCTION:

	<u>Road segment</u>	<u>Length (Sta)</u>	<u>Length (Mile)</u>	<u>Cost</u>	<u>With additional fuel allowance per project</u>
Surfaced	1A-1B, 1C-1D	96.30	1.82	\$215,573	\$237,130
	1E-1F, 2A-2B				
	2C-2D, 2E-2F				
	3A-3B, 3C-3D				
	4A-4B, 4C-4D				
Unsurfaced	1A-1B (9+00-22+70)	13.70	0.26	\$4,576	\$5,034
	Road Maint.			\$1,992	\$2,191
	Move-In			\$5,383	\$5,921
	TOTALS	110.00	2.08	\$227,523	

Project No. 2: ROAD IMPROVEMENT:

	<u>Road segment</u>	<u>Length (Sta)</u>	<u>Length (Mile)</u>	<u>Cost</u>	
	I1-I2, I3-I4	552.8	10.47	\$157,793	\$173,572
	I5-I6, I7-I6				
	I9-I10, I11-I12				
	Road Maint.			\$1,427	\$1,570
	Move-In			\$3,858	\$4,244
	TOTALS		10.47	\$163,079	

SPECIAL PROJECTS (Move-In and Road Maint. are included separately as needed, for each Special Project):

<u>Description</u>	<u>Length/Vol.</u>	<u>Cost</u>	
Proj. 3 Rock Crushing		\$116,878	\$128,566
TOTAL		\$116,878	
10% Increase Fuel Allowance		\$50,747.97	

GRAND TOTAL **\$558,228**

Compiled By: Kraig Kirkpatrick

Date: 03/15/2022

Move In and Maintenance Calculator for Construction and Improvement

SALE NAME: Four DB Cronin

Project No. 1: ROAD CONSTRUCTION:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Length/Mile</u>	<u>Cost</u>	
Surfaced	1A-1B, 1C-1D	96.30	1.82	\$215,573	
	1E-1F, 2A-2B				
	2C-2D, 2E-2F				
	3A-3B, 3C-3D				
	4A-4B, 4C-4D				
Unsurfaced	1A-1B (9+00-22+70)	13.70	0.26	\$4,576.00	
TOTALS		96.30	2.08		\$220,149

Project No. 2: ROAD IMPROVEMENT:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Length/Mile</u>	<u>Cost</u>	
	I1-I2, I3-I4	552.80	10.47	\$157,793	
	I5-I6, I7-I6				
	I9-I10, I11-I12				
TOTALS			10.47		\$157,793

MOVE IN (Construction & Improvement Only)

	<u>Equipment</u>	<u>Length/Mile</u>	<u>Cost</u>	
	D8 Dozer		\$1,581.00	
	C330 Excavator		\$1,581.00	
	C315 Excavator		\$905.00	
	14G Grader		\$875.00	
	C966 Loader		\$875.00	
	Water Truck (2,500 gal)		\$214.00	
	Vibratory Roller		\$875.00	
	C580 Backhoe		\$361.00	
	10-12cy Highway Dump (X6)		\$1,104.00	
	24cy Off Highway Dump		\$870.00	
TOTAL				\$9,241.00

ROAD MAINTENANCE (Construction & Improvement Only)

	<u>Length/Mile</u>	<u>Cost</u>	
Project Road Maintenance	1.5	\$3,419.00	
TOTAL			\$3,419.00

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Four DB Cronin NEW CONSTRUCTION: 110.00 STATIONS 2.08 MILES
ROAD: 1A to 1B(22.7), 1C to 1D(1.7), 1E to 1F(3.85), 2A to 2B(17.65), 2C to 2D(26.3), 2E to 2F(4.55), 3A to 3B(6.8), 3C to 3D(14.40),
POINTS: 4A to 4B(5.6), 4C to 4D(6.45)

CLEARING & GRUBBING						
	Method	Acres/amount	x	Rate	=	Cost
All Segments	Scatter outside of R\W (\$/ac)	10.10	x	\$ 1,503	=	\$15,180.30
						\$0.00
						\$0.00
						\$0.00
						\$0.00
SUB TOTAL FOR CLEARING & GRUBBING						\$15,180

EXCAVATION						
	Material	Cy/amount	x	Rate	=	Cost
1A to 1B	Balanced Construction (\$/sta)	22.7	x	\$138.00	=	\$3,132.60
	Landing Construction (\$/ldg)	1	x	\$438.00	=	\$438.00
1C to 1D	Balanced Construction (\$/sta)	1.7	x	\$138.00	=	\$234.60
	Landing Construction (\$/ldg)	1	x	\$438.00	=	\$438.00
1E to 1F	Full Design, Common Drift (\$/cy)	750	x	\$2.02	=	\$1,515.00
	Road Prism Drill and Shoot (\$/cy)	375	x	\$7.53	=	\$2,823.75
	Rock Hammer\330 Excavator (\$/hr)	4	x	\$225.00	=	\$900.00
	Embankment Compaction, (\$/cy)	900	x	\$0.79	=	\$711.00
	Landing Construction (\$/ldg)	1	x	\$438.00	=	\$438.00
2A to 2B	Full Design, Common Drift (\$/cy)	1,195	x	\$2.02	=	\$2,413.90
	End-Haul Excavation to Landing(\$/cy)	1,100	x	\$4.50	=	\$4,950.00
	Road Prism Drill and Shoot (\$/cy)	550	x	\$7.53	=	\$4,141.50
	Rock Hammer\330 Excavator (\$/hr)	5	x	\$225.00	=	\$1,125.00
	Embankment Compaction, (\$/cy)	2,295	x	\$0.79	=	\$1,813.05
2C to 2D	Landing Construction (\$/ldg)	2	x	\$438.00	=	\$876.00
	Road\Fill Reconstruction w\330 (\$/hr)	30	x	\$175.00	=	\$5,250.00
	End-Haul Excavation to waste area(\$/cy)	1,450	x	\$4.50	=	\$6,525.00
	Sidecast Pullback (\$/sta)	9	x	\$627.00	=	\$5,329.50
	Rock Hammer\330 Excavator (\$/hr)	16	x	\$225.00	=	\$3,600.00
	Embankment Compaction, (\$/cy)	390	x	\$0.79	=	\$308.10
	Waste Material Compaction (\$/cy)	1,450	x	\$0.45	=	\$652.50
	Landing Construction (\$/ldg)	3	x	\$438.00	=	\$1,314.00
	Install Culvert Dissipator w\330 (\$/hr)	4	x	\$175.00	=	\$700.00
	Full Design, Common Drift (\$/cy)	545	x	\$2.02	=	\$1,100.90
2E to 2F	End-Haul Excavation to Waste Area (\$/cy)	2,145	x	\$4.50	=	\$9,652.50
	Road Prism Drill and Shoot (\$/cy)	1,070	x	\$7.53	=	\$8,057.10
	Rock Hammer\330 Excavator (\$/hr)	8	x	\$225.00	=	\$1,800.00
	Embankment Compaction, (\$/cy)	545	x	\$0.79	=	\$430.55
	Waste Material Compaction (\$/cy)	2,145	x	\$0.45	=	\$965.25
3A to 3B	Landing Construction (\$/ldg)	1	x	\$438.00	=	\$438.00
	Full Design, Common Drift (\$/cy)	515	x	\$2.02	=	\$1,040.30
	End-Haul Excavation to Waste Area(\$/cy)	1,495	x	\$4.50	=	\$6,727.50
	Road Prism Drill and Shoot (\$/cy)	1,005	x	\$7.53	=	\$7,567.65
	Rock Hammer\330 Excavator (\$/hr)	8	x	\$225.00	=	\$1,800.00
3C to 3D	Embankment Compaction, (\$/cy)	515	x	\$0.79	=	\$406.85
	Waste Material Compaction (\$/cy)	1,495	x	\$0.45	=	\$672.75
	Landing Construction (\$/ldg)	1	x	\$438.00	=	\$438.00
	Full Design, Common Drift (\$/cy)	1,620	x	\$2.02	=	\$3,272.40
	End-Haul Excavation to Waste Area(\$/cy)	1,890	x	\$4.50	=	\$8,505.00
	Road Prism Drill and Shoot (\$/cy)	950	x	\$7.53	=	\$7,153.50
	Rock Hammer\330 Excavator (\$/hr)	8	x	\$225.00	=	\$1,800.00
	Embankment Compaction, (\$/cy)	1,620	x	\$0.79	=	\$1,279.80
	Waste Material Compaction (\$/cy)	1,890	x	\$0.45	=	\$850.50
	Landing Construction (\$/ldg)	1	x	\$438.00	=	\$438.00
4A to 4B	Full Design, Common Drift (\$/cy)	1,270	x	\$2.02	=	\$2,565.40
	Road Prism Drill and Shoot (\$/cy)	635	x	\$7.53	=	\$4,781.55
	Rock Hammer\330 Excavator (\$/hr)	5	x	\$225.00	=	\$1,125.00
	Embankment Compaction, (\$/cy)	1,270	x	\$0.79	=	\$1,003.30
	Landing Construction (\$/ldg)	1	x	\$438.00	=	\$438.00
4C to 4D	Full Design, Common Drift (\$/cy)	490	x	\$2.02	=	\$989.80
	End-Haul Excavation to Waste Area(\$/cy)	2,215	x	\$4.50	=	\$9,967.50
	Road Prism Drill and Shoot (\$/cy)	1,105	x	\$7.53	=	\$8,320.65
	Rock Hammer\330 Excavator (\$/hr)	8	x	\$225.00	=	\$1,800.00
	Embankment Compaction, (\$/cy)	490	x	\$0.79	=	\$387.10
	Waste Material Compaction (\$/cy)	2,215	x	\$0.45	=	\$996.75
	Landing Construction (\$/ldg)	1	x	\$438.00	=	\$438.00
SUB TOTAL FOR EXCAVATION						\$146,839

CULVERT MATERIALS AND INSTALLATION					
Location	Dia/type	Lineal ft.	Rate	Cost	
2C to 2D					\$0.00
9+70	36 ASCP	35	\$44.61	\$1,561.35	\$0.00
12+45	36 ASCP	55	\$44.61	\$2,453.55	\$0.00
17+55	36 ASCP	60	\$44.61	\$2,676.60	\$0.00
18+80	18 ASCP	30	\$27.74	\$832.20	\$0.00
20+85	18 ASCP	30	\$27.74	\$832.20	\$0.00
21+70	36 ASCP	50	\$44.61	\$2,230.50	\$0.00
		Description	Quantity	Rate	Cost
Other/miscellaneous:		6' x 2 1/2" fiberglass post	2.00	\$23.00	
Culvert stakes & markers:		6' x 2 1/2" fiberglass post	2.00	\$23.00	\$46.00
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION					\$10,632
					<i>Subtotal of Clearing, Exc., Culv.</i>
					\$172,652

SURFACING				Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade prep: Description							
Grade, Shape and outslope 14'				110	x	\$20.63	\$2,269.30
Subgrade Compaction				110	x	\$22.69	\$2,495.90

ROAD SEGMENT	1A to 1B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B		0+00 to 22+70				
				Volume (CY) per		Number of				
Base Rock	4"-0" crushed	0+00 to 9+00	8	station	50	stations	9.00	450	\$9.67	\$4,352
Junction Rock	4"-0" crushed	0+00	8	junctions	22	junctions	1	22	\$9.67	\$213
Turnarounds	4"-0" crushed	1+15	8	TA	22	TA's	1	22	\$9.67	\$213
Turnouts	4"-0" crushed	1+15	8	TO	22	TO's	1	22	\$9.67	\$213

Total Rock for Road Segment: 1A to 1B 516 \$4,990

ROAD SEGMENT	1C to 1D			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1C to 1D		0+00 to 1+70				
				Volume (CY) per		Number of				
Base Rock	4"-0" crushed	0+00 to 1+70	8	station	50	stations	1.70	85	\$9.67	\$822
Junction Rock	4"-0" crushed	0+00	8	junctions	22	junctions	1	22	\$9.67	\$213
Landings	6"-0" pit run	1+70	N/A	landing	110	landing	1	110	\$8.42	\$926

Total Rock for Road Segment: 1C to 1D 217 \$1,961

ROAD SEGMENT	1E to 1F			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1E to 1F		0+00 to 3+85				
				Volume (CY) per		Number of				
Base Rock	4"-0" crushed	0+00 to 3+85	8	station	50	stations	3.85	193	\$9.67	\$1,866
Junction Rock	4"-0" crushed	0+00	8	junctions	22	junctions	1	22	\$9.67	\$213
Landings	6"-0" pit-run	3+85	N/A	landing	110	landing	1	110	\$8.42	\$926

Total Rock for Road Segment: 1E to 1F 325 \$3,005

ROAD SEGMENT	2A to 2B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B		0+00 to 17+65				
				Volume (CY) per		Number of				
Base Rock	6"-0" jaw-run	0+00 to 17+65	8	station	50	stations	17.65	883	\$3.58	\$3,161
Junction Rock	6"-0" jaw-run	0+00	8	junctions	22	junctions	1	22	\$3.58	\$79
Turnouts	6"-0" jaw-run	5+25, 16+50	8	TO	22	TO's	2	44	\$3.58	\$158
Turnarounds	6"-0" jaw-run	14+65	8	TA	22	TA's	1	22	\$3.58	\$79
		6+00 to 7+25,8+50 to 9+50,13+70								
Traction Rock	1 1/2"-0"crushed	to	2	station	13	stations	3.75	49	\$9.67	\$474
Turnouts	1 1/2"-0"crushed	16+50	2	TO	11	TO's	1	11	\$9.67	\$106
Landings	6"-0" jaw-run	15+65, 17+65	N/A	landing	110	landing	2	220	\$3.58	\$788
Total Rock for Road Segment:			2A to 2B					1,251		

Total Rock for Road Segment: 2A to 2B 1,251 \$4,844

ROAD SEGMENT 2C to 2D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C to 2D		0+00 to 26+30				
				Volume (CY) per	Number of					
Base Rock	6"-0" jaw-run	0+00 to 26+30	8	station	50	stations	26.30	1,315	\$3.58	\$4,708
Junction Rock	6"-0" jaw-run	0+00	8	junctions	22	junctions	1	22	\$3.58	\$79
Turnouts	6"-0" jaw-run	3+50, 11+00, 15+90,	8	TO	22	TO's	3	66	\$3.58	\$236
Turnarounds	6"-0" jaw-run	23+90	8	TA	22	TA's	1	22	\$3.58	\$79
Traction Rock	1 1/2"-0"crushed	1+50 to 3+85,4+75 to	2	station	13	stations	5.65	74	\$9.67	\$716
Culvert Bedding	1 1/2"-0"crushed	9+70, 12+45, 17+55, 18+80, 20+85, 21+70	N/A	culvert	see spec. instr.	culverts	6	275	\$9.67	\$2,659
Landings	6"-0" jaw-run	14+40, 19+75, 26+30	N/A	landing	110	landing	3	330	\$3.58	\$1,181
Total Rock for Road Segment:				2C to 2D				2,104		
ROAD SEGMENT 2E to 2F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2E to 2F		0+00 to 4+55				
				Volume (CY) per	Number of					
Base Rock	6"-0" jaw-run	0+00 to 4+55	8	station	50	stations	4.55	228	\$3.58	\$814
Junction Rock	6"-0" jaw-run	0+00	8	junctions	22	junctions	1	22	\$3.58	\$79
Landings	6"-0" jaw-run	4+55	N/A	landing	110	landing	1	110	\$3.58	\$394
Total Rock for Road Segment:				2E to 2F				360		
ROAD SEGMENT 3A to 3B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A to 3B		0+00 to 6+80				
				Volume (CY) per	Number of					
Base Rock	6"-0" jaw-run	0+00 to 6+80	8	station	50	stations	6.80	340	\$3.58	\$1,217
Junction Rock	6"-0" jaw-run	0+00	8	junctions	22	junctions	1	22	\$3.58	\$79
Traction Rock	1 1/2"-0"crushed	2+30 to 3+30	2	station	13	stations	1.00	13	\$9.67	\$126
Landings	6"-0" jaw-run	6+80	N/A	landing	110	Landings	1	110	\$3.58	\$394
Total Rock for Road Segment:				3A to 3B				485		
ROAD SEGMENT 3C to 3D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3C to 3D		0+00 to 14+40				
				Volume (CY) per	Number of					
Base Rock	6"-0" jaw-run	0+00 to 14+40	8	station	50	stations	14.40	720	\$3.58	\$2,578
Junction Rock	6"-0" jaw-run	0+00	8	junctions	22	junctions	1	22	\$3.58	\$79
Curve Widening	6"-0" jaw-run	7+20	8	curve	44	curve	1	44	\$3.58	\$158
Turnouts	6"-0" jaw-run	7+20,11+50	8	TO	22	TO's	2	44	\$3.58	\$158
Turnarounds	6"-0" jaw-run	7+20	8	TA	22	TA's	1	22	\$3.58	\$79
Traction Rock	1 1/2"-0"crushed	1+80 to 6+95,7+75 to	2	station	13	stations	10.45	136	\$9.67	\$1,314
Turnouts	1 1/2"-0"crushed	11+50	2	TO	11	TO's	1	11	\$9.67	\$106
Landings	6"-0" jaw-run	14+40	N/A	landing	110	Landings	1	110	\$3.58	\$394
Total Rock for Road Segment:				3C to 3D				1,109		

\$9,658

\$1,287

\$1,815

\$4,864

ROAD SEGMENT 4A to 4B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	4A to 4B		0+00 to 5+60				
				Volume (CY) per		Number of				
Base Rock	6"-0" jaw-run	0+00 to 5+60	8	station	50	stations	5.60	280	\$3.58	\$1,002
Junction Rock	6"-0" jaw-run	0+00	8	junctions	22	junctions	1	22	\$3.58	\$79
Landings	6"-0" jaw-run	5+60	N/A	landing	110	landing	1	110	\$3.58	\$394
Total Rock for Road Segment:			4A to 4B				412			\$1,475
ROAD SEGMENT 4C to 4D			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	4C to 4D		0+00 to 6+45				
				Volume (CY) per		Number of				
Base Rock	6"-0" jaw-run	0+00 to 6+45	8	station	50	stations	6.45	323	\$3.58	\$1,155
Junction Rock	6"-0" jaw-run	0+00	8	junctions	22	junctions	1	22	\$3.58	\$79
Traction Rock	1 1/2"-0"crushed	2+50 to 3+50	2	station	13	stations	1.00	13	\$9.67	\$126
Landings	6"-0" jaw-run	6+45	N/A	landing	110	Landings	1	110	\$3.58	\$394
Total Rock for Road Segment:			4C to 4D				468			\$1,753
Processing:										
Description								No.sta	Rate/sta	Cost
Spread & Compact Jaw Run w/D8								110	\$35.45	\$3,899.50
Water, Process & Compact Base Rock (4"-0"):								28.25	\$63.48	\$1,793.31
Water, Process & Compact Traction Rock (1 1/2"-0"):								21.85	\$63.48	\$1,387.04
				6"-0"pr	6"-0"jr	4"-0"crushed	1 1/2"-0"crushed	Total		
SUB TOTAL FOR SURFACING				220	5,606	838	582	7,246	7,246	
SPECIAL PROJECTS										
Description								Cost		
SUB TOTAL FOR SPECIAL PROJECTS										
Subtotal of Surfacing & Spec. Proj.										
Subtotal of Clearing, Exc.,Culv.										
GRAND TOTAL										

Compiled By: Kraig Kirkpatrick

Date: 03/15/2022

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Four DB Cronin

ROAD: I1 to I2 (80.0), I3 to I4 (347.6), I5 to I6 (98.5), I7 to I8 (9.6), I9 to I10 (12.6), and I11 to I12 (4.5)

POINTS:

NEW CONSTRUCTION: STATIONS 0.00 MILES

IMPROVEMENT: 499.90 STATIONS 9.47 MILES

CLEARING & GRUBBING					
Method	Acres/amount	x	Rate	=	Cost
		x		=	\$0.00
SUB TOTAL FOR CLEARING & GRUBBING					\$0

EXCAVATION					
	Material	Cy/amount	x	Rate	= Cost
I1 to I2					
7+75	Remove trees from fill w/C315 (\$/hr).	1	x	\$114.00	= \$114.00
8+00, 13+90	Install series of 3 rock ditch filters w/C315 (\$/hr)	2	x	\$114.00	= \$228.00
76+50	Landing construction (\$/ldg).	1	x	\$438.00	= \$438.00
76+50	End haul excavation to 1E to 1F (\$/cy).	276.0	x	\$4.50	= \$1,242.00
76+50	Ripping for landing construction w/ D8 (\$/hr).	5	x	\$178.00	= \$890.00
I3 to I4					
202+70, 205+90, 313+30	Remove bank slough and open ditch w/C315 and 12cy dump truck (\$/hr).	2	x	\$203.00	= \$406.00
202+70, 205+90, 313+30	End haul debris and waste material w/ 12cy dump truck (\$/hr).	2	x	\$89.00	= \$178.00
252+90, 308+25	Install series of 3 rock ditch filters w/C315 (\$/hr)	2	x	\$114.00	= \$228.00
325+80	Clear roundabout turnout w/C315 (\$/hr)	2	x	\$114.00	= \$228.00
I5 to I6					
8+10, 9+80	Install series of 3 rock ditch filters w/C315 (\$/hr)	2	x	\$114.00	= \$228.00
14+30, 89+10	Remove bank slough and open ditch w/C315 and 12cy dump truck (\$/hr).	4	x	\$203.00	= \$812.00
21+30	Remove debris for road prism w/C315 and 12cy dump truck (\$/hr).	1	x	\$203.00	= \$203.00
56+85	Clear and haul rock and debris to crusher or designated site w/C330 and 12cy dump truck (\$/hr).	8	x	\$264.00	= \$2,112.00
84+90 to 87+35	Remove bank slough w/C315 and 12cy dump truck (\$/hr).	2	x	\$203.00	= \$406.00
I7 to I8					
0+00, 6+30	Landing construction (\$/ldg).	2	x	\$438.00	= \$876.00
I9 to I10					
6+35, 8+30, 12+60	Clear alder and reprod from landing w/C315 (\$/hr)	5	x	\$114.00	= \$570.00
8+00	Clear alder and reprod from turnaround w/C315 (\$/hr)	1	x	\$114.00	= \$114.00
I11 to I12					
0+00 to 3+50	Remove bank slough w/C315 and 12cy dump truck (\$/hr).	5	x	\$203.00	= \$1,015.00
SUB TOTAL FOR EXCAVATION					\$10,288

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
I1 to I2									
1+55	24" CPP	40	\$30.39	\$1,215.60					\$0.00
35+65	18" CPP	40	\$21.95	\$878.00					
44+80	18" CPP	30	\$21.95	\$658.50					
I3 to I4									\$0.00
11+35	18" CPP	30	\$21.95	\$658.50					\$0.00
122+90	18" CPP	30	\$21.95	\$658.50					\$0.00
242+55	18" CPP	30	\$21.95	\$658.50					\$0.00
247+80	18" CPP	30	\$21.95	\$658.50					\$0.00
268+00	18" CPP	30	\$21.95	\$658.50					\$0.00

Other/miscellaneous:			
Description	Quantity	Rate	Cost
Culvert stakes & markers:			
Installation of 6' X 2½" white fiberglass posts.	8	\$23.00	\$184.00
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION			\$6,229

Subtotal of Clearing, Exc., Culv. \$16,517

SURFACING				Stations/amount				x	Rate/ sta/amt	Cost	
Subgrade prep:				Description							
I1 to I2, I3 to I4 (Sta. 0+00 to 252+65, 282+95 to 320+55, and 329+50 to 347+60), and I7 to I8 All "I" segments				Grade, Shape and Ditch 16'				397.95	x	\$27.91	\$11,106.78
				Subgrade Compaction				552.80	x	\$22.69	\$12,543.03
I3 to I4 (Sta. 252+65 to 282+95 and 320+55 to 329+50), I5 to I6, I9 to I10, and I11 to I12				Grade, Shape and Outslope 14'				154.85	x	\$20.63	\$3,194.56
I1 to I2 (Sta. 0+00 to 27+10), I3 to I4 (Sta. 234+30 to 298+90, 307+75 to 315+90, and 320+55 to 347+60), I5 to I6, I7 to I8, I9 to I10, and I11 to I12				Sod Removal, Reestablish Ditch, and Scatter on Site				252.10	x	\$36.28	\$9,146.19
I3 to I4 (Sta. 298+90 to 307+75 and 315+90 to 320+55)				Sod Removal, Reestablish Ditch, and End Haul to Waste Area				13.50	x	\$46.63	\$629.51
				Spot Grade				308.40	x	\$9.21	\$2,840.46
I13 to I14											
ROAD SEGMENT I1 to I2				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2		0+00 to 80+00					
				Volume (CY) per		Number of					
Surfacing	4"-0" crushed	0+00 to 27+10	4	station	25	stations	27.1	678	\$9.67	\$6,556	
Surfacing	1 1/2"-0" crushed	0+00 to 27+10	2	station	13	stations	27.1	353	\$9.67	\$3,414	
Culvert Bedding and Backfill	1 1/2"-0" crushed	1+55, 35+65, 44+80	N/A	culvert	33	culverts	3	99	\$9.67	\$957	
Rock Ditch Filters	6"-4" pit-run	8+00, 13+90	N/A	filter	11	filters	2	22	\$8.42	\$185	
Junctions	1 1/2"-0" crushed	21+75, 27+10, 62+75, 80+00	N/A	junction	11	junctions	4	44	\$9.67	\$425	
Turnouts	1 1/2"-0" crushed	41+40, 55+10, 75+70	N/A	turnout	11	turnouts	3	33	\$9.67	\$319	
Turnaround/Turnout	4"-0" crushed	59+85	N/A	TA/TO	44	TA/Tos	1	44	\$9.67	\$425	
Leveling Rock	1 1/2"-0" crushed	27+10 to 80+00	N/A	load	11	loads	20	220	\$9.67	\$2,127	
Landings	6"-0" pit-run	76+50	N/A	landing	55	landings	1	55	\$8.42	\$463	
Total Rock for Road Segment:				I1 to I2				1,548			\$14,873
ROAD SEGMENT I3 to I4				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I3 to I4		0+00 to 347+60					
				Volume (CY) per		Number of					
Surfacing	1 1/2"-0" crushed	149+90 to 234+30, 282+95 to 320+55, 329+50 to 347+60	2	station	13	stations	140.1	1,822	\$9.67	\$17,619	
Junctions	1 1/2"-0" crushed	2+55, 50+20, 279+55, 295+05	N/A	junction	11	junctions	4	44	\$9.67	\$425	
Turnouts	1 1/2"-0" crushed	18+15, 31+95, 42+35, 80+00, 110+70, 117+30, 125+65,131+80, 149+90, 168+40, 174+40, 194+20, 213+50, 340+20	N/A	turnout	11	turnouts	14	154	\$9.67	\$1,489	
Leveling Rock	1 1/2"-0" crushed	218+70, 228+90	N/A	location	22	locations	2	44	\$9.67	\$425	
Leveling Rock	1 1/2"-0" crushed	0+00 to 149+90, 230+95, 234+30	N/A	location	11	locations	40	440	\$9.67	\$4,255	
Surfacing	6"-0" jaw-run	234+30 to 282+95, 320+55 to 329+50	4	station	25	stations	58	1,440	\$3.58	\$5,155	
Leveling Rock	6"-0" jaw-run	235+15, 239+25, 251+80, 266+60, 267+30, 274+00, 274+60, 277+10, 279+40	N/A	location	11	locations	9	99	\$3.58	\$354	
Turnouts	6"-0" jaw-run	239+25, 273+85	N/A	turnout	11	turnouts	2	22	\$3.58	\$79	
Culvert Bedding and Backfill	1 1/2"-0" crushed	11+35, 122+90, 242+55, 247+80, 268+00	N/A	culvert	33	culverts	5	165	\$9.67	\$1,596	
Rock Ditch Filters	6"-4" pit-run	252+90, 308+25	N/A	filter	11	filters	2	22	\$8.42	\$185	
Turnouts	6"-0" jaw-run	261+40	N/A	turnout	33	turnouts	1	33	\$3.58	\$118	
Curve Widening	1 1/2"-0" crushed	293+20	N/A	load	11	loads	2	22	\$9.67	\$213	
Roundabout Surfacing	6"-0" jaw-run	325+80	4	station	25	stations	4.8	120	\$3.58	\$430	
Roundabout TA/TO	6"-0" jaw-run	325+80	N/A	location	11	locations	1	11	\$3.58	\$39	
Turnaround	1 1/2"-0" crushed	347+60	N/A	maround	22	urnaround	1	22	\$9.67	\$213	
Total Rock for Road Segment:				I3 to I4				4,460			\$32,595

ROAD SEGMENT			I5 to I6		POINT TO POINT			Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I5 to I6		0+00 to 98+50						
				Volume (CY) per	Number of							
Surfacing	6"-0" jaw-run	0+00 to 34+60, 44+00 to 98+50	4	station	25	stations	89.1	2,228	\$3.58	\$7,976		
Leveling Rock	6"-0" jaw-run	0+50, 10+80, 66+50, 92+65, 93+70	N/A	location	22	locations	5	110	\$3.58	\$394		
Turnouts	6"-0" jaw-run	3+95, 20+70, 47+80, 55+45	N/A	turnout	11	turnouts	4	44	\$3.58	\$158		
Leveling Rock	6"-0" jaw-run	4+80, 5+30, 5+80, 6+20, 6+75, 9+80, 12+20, 14+80, 15+80, 28+00, 71+45, 72+45, 76+45, 78+95, 83+50	N/A	location	11	locations	15	165	\$3.58	\$591		
Rock Ditch Filters	6"-4" pit-run	8+10, 9+80	N/A	filter	11	filters	2	22	\$8.42	\$185		
Turnouts	6"-0" jaw-run	24+55, 82+05	N/A	turnout	33	turnouts	2	66	\$3.58	\$236		
Surfacing	1 1/2"-0" crushed	34+60 to 44+00	2	station	13	stations	9.4	123	\$9.67	\$1,189		
Turnaround/Turnout	6"-0" jaw-run	34+60, 50+35, 56+85	N/A	TA/TO	44	TA/TOs	3	132	\$3.58	\$473		
Leveling Rock	1 1/2"-0" crushed	38+00, 40+50, 42+20	N/A	location	11	locations	3	33	\$9.67	\$319		
Turnouts	1 1/2"-0" crushed	39+50	N/A	turnout	22	turnouts	1	22	\$9.67	\$213		
Turnouts	1 1/2"-0" crushed	41+40	N/A	turnout	11	turnouts	1	11	\$9.67	\$106		
Landings	6"-0" jaw-run	56+85, 68+05, 83+90	N/A	landing	110	landings	3	330	\$3.58	\$1,181		
Total Rock for Road Segment:				I5 to I6				3,286			\$13,021	
ROAD SEGMENT			I7 to I8		POINT TO POINT			Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I7 to I8		0+00 to 9+60						
				Volume (CY) per	Number of							
Surfacing	1 1/2"-0" crushed	0+00 to 9+60	2	station	13	stations	9.6	125	\$9.67	\$1,209		
Landings	6"-0" jaw-run	0+00	N/A	landing	110	landings	1	110	\$3.58	\$394		
Landings	6"-0" jaw-run	6+30	N/A	landing	55	landings	1	55	\$3.58	\$197		
Landings	6"-0" jaw-run	9+60	N/A	landing	88	landings	1	88	\$3.58	\$315		
Total Rock for Road Segment:				I7 to I8				378			\$2,114	
ROAD SEGMENT			I9 to I10		POINT TO POINT			Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I9 to I10		0+00 to 12+60						
				Volume (CY) per	Number of							
Surfacing	1 1/2"-0" crushed	0+00 to 12+60	2	station	13	stations	12.6	164	\$9.67	\$1,586		
Junctions	1 1/2"-0" crushed	0+00, 8+30	N/A	junction	11	junctions	2	22	\$9.67	\$213		
Landings	6"-0" jaw-run	6+35, 8+30	N/A	landing	55	landings	2	110	\$3.58	\$394		
Turnaround	1 1/2"-0" crushed	8+00	N/A	turnaround	22	turnaround	1	22	\$9.67	\$213		
Landings	6"-0" jaw-run	12+60	N/A	landing	88	landings	1	88	\$3.58	\$315		
Total Rock for Road Segment:				I9 to I10				406			\$2,720	
ROAD SEGMENT			I11 to I12		POINT TO POINT			Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I11 to I12		0+00 to 4+50						
				Volume (CY) per	Number of							
Surfacing	6"-0" jaw-run	0+00 to 4+50	4	station	25	stations	4.5	113	\$3.58	\$405		
Leveling Rock	6"-0" jaw-run	3+50	N/A	load	22	loads	1	22	\$3.58	\$79		
Landings	6"-0" jaw-run	4+50	N/A	landing	88	landings	1	88	\$3.58	\$315		
Total Rock for Road Segment:				I11 to I12				223			\$798	
ROAD SEGMENT			I13 to I14		POINT TO POINT			Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I13 to I14		0+00 to 308+40						
				Volume (CY) per	Number of							
Leveling Rock	3/4"-0" crushed	5+80, 50+30, 77+20, 91+10, 101+15, 115+95, 127+40, 223+70, 261+60	N/A	load	11	loads	9	99	\$6.07	\$601		
Total Rock for Road Segment:				I13 to I14				99			\$601	

SUB TOTAL FOR SURFACING	Processing:					Description	No.sta	Rate/sta	Cost	
						Water, Process & Compact:	552.80	\$63.48	\$35,092	
									\$0	
	24"-12" rr	24"-6" rr	6"-4" pr	6"-0" Jr	6"-0" pr	4"-0" crushed	1 1/2"-0" crushed	3/4"-0" crushed	Total	
			66	5,474	55	722	3,984	99	10,400	10,400 \$141,276

SPECIAL PROJECTS									
Description							Cy/Amour	Rate	Cost
pit-run development									\$0.00
riprap development									\$0.00
SUB TOTAL FOR SPECIAL PROJECTS									
									\$0
Subtotal of Surfacing & Spec. Proj.									\$141,276
Subtotal of Clearing, Exc.,Culv.									\$16,517
GRAND TOTAL									
									\$157,793

Compiled By: Cole Hatcher

Date: 03/15/2022

Projects Road Maintenance Cost Summary

Sale: Four DB Cronin
Date: 15-Mar-22
By: Kraig Kirkpatrick

Type	Equipment/Rationale			Hours	Rate	Cost
Project Work	Grader 14G			12	\$113	\$1,356
Final Haul	Dump Truck 12CY			1	\$89	\$89
Road	FE Loader C966			1	\$94	\$94
Maintenance	Vibratory Roller			10	\$87	\$870
	Water Truck 2,500 gallon			10	\$101	\$1,010
Total						\$3,419

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	1.50	1.0
Vibratory Roller	1.5	1.50	1.0

NOTE:		1.50	Miles
Preliminary	Spot Grade w/14G, Sterling Ridge Quarry to Quartz Creek Road (2hrs)		Miles
	Spot Grade from Flat Iron Stockpile (STATE) to Pt. I11 to I12 w/14G (2hrs)		Miles
Final	Sterling Ridge Quarry to Quartz Creek Road		Miles
	TOTAL=	1.50	Miles

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3

Quarry: Roundabout Quarry

Location: SE 1/4, Sec. 31, T4N, R7W

County: Clatsop

By: C.Bangs

Date: 12/07/2022

Timber Sale Name: Four DB Cronin

Swell:

Shrink: 16%

Loading Hopper: No

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
		CR			
		CR			
6"-0"	5%	CR		11,580	11,580
24"-6"		RR			
36"		RR			
TOTAL CUBIC YARDS OF ROCK:				11,580	11,580

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Dump Trucks	2	\$184	\$368	Off Highway Dump Truck	1	\$622	\$622
D6 Cat	1	\$875	\$875	Loader	1	\$905	\$905
Drill & Compressor	1	\$1,581	\$1,581	1 Stage Crusher	1	\$1,626	\$1,626
Powder	1	\$395	\$395	Excavator	1	\$1,581	\$1,581

SUB TOTAL FOR MOBILIZATION

\$7,953

EQUIPMENT SET UP	TIMES	RATE	COST
1 Stage Crusher	1	\$1,131	\$1,131
Original Calibration	1	\$612	\$612

SUB TOTAL FOR SET UP COSTS

\$1,743

TOTAL MOBILIZATION & SET UP COSTS

\$9,696

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear, Pile & Burn Slash and Stumps	2.0	ac	\$3,038	\$6,076
Move-in Fire Truck for the burning of the Clearing Debris	1.0	ea	\$214	\$214

TOTAL CLEARING & GRUBBING COSTS

\$6,290

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, spread)	1,000	bcy	\$2.60	\$2,600

TOTAL EXCAVATION COSTS \$2,600

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	20%	2,394	\$3.40	\$8,140
jaw run	11,970	100%	Drill & shoot	80%	10,039	\$3.50	\$35,137
pit run	0	0	Oversize red	5%	599	\$6.90	\$4,130
rip rap	0	0	Other				
Total	11,970						
reject	579	4.8%					

TOTAL ROCK DEVELOPMENT COSTS \$47,406

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate			
Calibrate			
Test			
Test			

TOTAL CALIBRATION & TESTING COSTS

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY		COST CU. YD.	TOTAL COST
Dig & Feed Rock	12,549		\$0.82	\$10,290
Shot Rock Handling	Exc. 40	hr	\$189.00	\$7,560
Shot Rock Handling	OR Truck 40	hr	\$143.00	\$5,720

TOTAL FEEDING & LOADING COSTS \$23,570

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
6"-0"	Jaw run	11,580	1 stage w/s	150	\$1.00	\$11,580

TOTAL ROCK CRUSHING COSTS \$11,580

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer		\$120.00	
Compactor		\$72.00	
Grader		\$90.00	
Excavator		\$138.00	

Rock for Floor (CY)	\$/CY Haul	Total
500	\$6.30	\$3,150.00

SUB TOTAL \$3,150

HAUL & STOCKPILE

STOCKPILE LOCATION

	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1. Cronin	6"-0" JawRun	3	500	\$6.30	\$3,152
2.					
3.					
4.					
5.					
6.					

SUB TOTAL \$3,152

TOTAL STOCKPILING COSTS \$6,302

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	\$2,189
\$3.78 /CY 579 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage,	\$2,565
Block Quarry Access	
Construct stockpile site (clear, grub, burn, excavation, rock spread)	\$4,680

TOTAL MISCELLANEOUS COSTS \$9,433

10) GRAND TOTAL: \$116,878

\$/Cubic Yard \$9.76

Footnotes:

HAUL and STOCKPILE COST

SALE NAME: Four DB Cronin
 QUARRY: Roundabout Quarry ROCK TYPE: Crushed

Location 1. Cronin 6"-0" JawR	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				0.10	0.30	0.30	0.20
Truck type: <u>D12</u> No. trucks: <u>3</u> Delay min.: <u>15</u> Efficiency: <u>75%</u> Ave haul: \$3.73 /cy Load: \$0.90 /cy Stockpile: \$1.67 /cy Truck type: <u>D12</u> No. trucks: _____ Delay min.: <u>12</u> Efficiency: <u>75%</u> Production: cy/day = 572 Truck type: _____ No. trucks: _____ Delay min.: <u>10</u> Efficiency: <u>75%</u>							
Location 1. Cronin			Haul and Stockpile Cost			\$6.30 /cy	

Location 2. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
Truck type: <u>D20</u> No. trucks: _____ Delay min.: <u>15</u> Efficiency: <u>75%</u> Ave haul: #DIV/0! /cy Load: #N/A /cy Stockpile: #N/A /cy Truck type: <u>D12</u> No. trucks: _____ Delay min.: <u>12</u> Efficiency: <u>75%</u> Production: cy/day = 0 Truck type: <u>D10</u> No. trucks: _____ Delay min.: <u>10</u> Efficiency: <u>75%</u>							
Location 2. 0			Haul and Stockpile Cost			#DIV/0! /cy	

Location 3. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
Truck type: <u>D20</u> No. trucks: _____ Delay min.: <u>15</u> Efficiency: <u>75%</u> Ave haul: #DIV/0! /cy Load: #N/A /cy Stockpile: #N/A /cy Truck type: <u>D12</u> No. trucks: _____ Delay min.: <u>12</u> Efficiency: <u>75%</u> Production: cy/day = 0 Truck type: <u>D10</u> No. trucks: _____ Delay min.: <u>10</u> Efficiency: <u>75%</u>							
Location 3. 0			Haul and Stockpile Cost			#DIV/0! /cy	

CRUSHED ROCK COST

SALE NAME:	Four DB Cronin
PROJECT:	No. 2
Stockpile:	Flat Iron Stockpile

MATERIAL: 3/4"-0"

DATE: 12/07/2022
BY: C. Hatcher

[illegible]

ROCK HAUL:

Truck type: D20 No. trucks:
 Delay min.: 8 Efficiency: 85%

Ave haul:	\$4.57	/cy
Load:	\$0.54	/cy
Spread:	\$0.96	/cy

Truck type: D12 No. trucks: 6
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks:
 Delay min.: 5 Efficiency: 85%

Production: cy/day = 829

CRUSHED ROCK HAUL COSTS

99 cy @ \$6.07 /cy

CRUSHED ROCK COST

SALE NAME: Four DB Cronin
PROJECT: No. 1 and 2
Quarry: Sterling Ridge Quarry

DATE: 12/07/2022
BY: K. Kirkpatrick

[illegible]

ROCK HAUL:

Truck type: D20 No. trucks:
 Delay min.: 8 Efficiency: 85%

Ave haul:	\$7.27	/cy
Load:	\$0.84	/cy
Spread:	\$1.56	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>6</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

Truck type: D10 No. trucks:
 Delay min.: 5 Efficiency: 85%

Production: cy/day = 521

CRUSHED ROCK HAUL COSTS 6,126 cy @ \$9.67 /cy

CRUSHED ROCK COST

SALE NAME:	Four DB Cronin
PROJECT:	No. 1 and 2
Quarry:	Roundabout Quarry

MATERIAL: 6"-0" Jaw-Run

DATE: 12/07/2022
BY: C. Hatcher

[illegible]

ROCK HAUL:

Truck type:	<u>D20</u>	No. trucks:	<u> </u>
Delay min.:	<u>8</u>	Efficiency:	<u>85%</u>
Truck type:	<u>D12</u>	No. trucks:	<u>4</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

Ave haul:	\$2.32	/cy
Load:	\$0.48	/cy
Spread:	\$0.78	/cy

Truck type: D10 No. trucks:
 Delay min.: 5 Efficiency: 85%

Production: cy/day = 1,089

CRUSHED ROCK HAUL COSTS 11,080 cy @ \$3.58 /cy

PIT RUN ROCK COST

SALE NAME: Four DB Cronin
PROJECT: No. 1 and 2
QUARRY: Sterling Ridge Quarry

MATERIAL: Pit Run

DATE: 12/07/2022
BY: K. Kirkpatrick

[illegible]

ROCK HAUL:

Truck type: D20 No. trucks:
 Delay min.: 8 Efficiency: 85%

Ave haul:	\$5.42	/cy
Load:	\$1.08	/cy
Spread:	\$1.92	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>4</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

Truck type: D10 No. trucks:
 Delay min.: 5 Efficiency: 85%

Production: cy/day = 466

PIT RUN ROCK HAUL COSTS

341 cy @ \$8.42 /cy

**Four DB Cronin
TIMBER CRUISE REPORT
FY 2023**

1. **Sale Area Location:** Portions of Sections 5 & 6 of T3N, R7W and Portions of Section 1 of T3N, R8W, W.M. Tillamook County and Portions of Sections 29, 31 and 32 of T4N R7W, W.M. Clatsop County.
2. **Fund Distribution:** BOF 100% Tax Code: 56-1 (52.06%)
8-01 (47.94%)
3. **Sale Acreage by Area:**

Unit	Harvest Type	Gross Acres	Stream Buffer Acres	Existing R/W Acres	New R/W Acres (Stocked)	New R/W Acres (Non-stocked)	GTRA	Net Acres	Survey Method
1	Modified Clearcut	125	17	-	2	<1	1	105	GIS
2	Modified Clearcut	75	13	-	<1	2	-	60	GIS
3	Modified Clearcut	128	12	1	1	-	5	109	GIS
4	Modified Clearcut	130	19	3	1	-	1	106	GIS
5	R/W (In-unit)	6	-	-	-	2		4	L x W
5	R/W (Out-of-Unit)	6	-	-	-	5		1	L x W
TOTALS		470	61	4	4	9	7	385	

4. Cruisers and Cruise Dates:

Avery Petersen, Justin Bush, Kevin Berry, John Choate, John Czarnecki and Ryan Simpson (3/14/22 – 3/25/22).

5. Cruise Method and Computation:

Unit 1 and 2S (South)*: Unit 1 and 2S was a variable plot cruised with a 40 BAF for Conifers and a 33.61 BAF for Hardwoods. A total of 65 plots were sampled on a 7 by 3 chain spacing with a grade to count ratio of 2:1, resulting in 26 grade plots and 39 count plots.

Unit 2N (North)* and 4: Unit 2N and U4 was a variable plot cruised with a 40 BAF for Conifers and a 33.61 BAF for Hardwoods. A total of 66 plots were sampled on a 6.5 by 3.5 chain spacing with a grade to count ratio of 2:1, resulting in 25 grade plots and 41 count plots.

Unit 3: Unit 3 was a variable plot cruised with a 40 BAF for Conifers and a 27.78 BAF for Hardwoods. A total of 65 plots were sampled on a 6 by 3 chain spacing with a grade to count ratio of 2:1, resulting in 24 grade plots and 41 count plots.

Unit 5 (R/W): Unit 5 was broken into two cruises based upon similar timber types. Stocked R/W in Unit 1 and 2 utilized cruise data from Unit 1 & 2S, while R/W in Units 3 and 4 utilized cruise data from Unit 3.

*Unit 2 was broken into two sub-units (North and South) based upon similar timber types.

Data was collected on Allegro 2 data collectors and downloaded to the Atterbury SuperACE 2008 program for computing. See the attached Cruise Designs for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

UNIT(s)	CRUISE	TRACT	TYPE	ACRES
1 & 2S	4DBC	12S	00MC	137
2N & 4	4DBC	2N4	00MC	134
3	4DBC	3	00MC	109
R/W (1&2S)	4DBC	12S	RWTK	3
R/W (3 & 4)	4DBC	2N4	RWTK	2

6. Timber Description:

Units 1 & 2S are modified clearcuts with an average age of 50 years. The stands consist of Douglas-fir, red alder, western hemlock, and a minor component of bigleaf maple. The average take Douglas-fir is approximately 20 inches DBH and 63 feet to a merchantable top. The average take red alder is approximately 15 inches DBH and 51 feet to a merchantable top. The average take western hemlock is approximately 15 inches DBH and 51 feet to a merchantable top. The average take red alder is approximately 15 inches DBH and 43 to a merchantable top. The average take bigleaf maple is approximately 16 inches DBH and 38 to a merchantable top. Average net volume to be harvested per acre is 28 MBF. All trees were cruised to a merchantable top of six inches DIB, 40% of form point, or an otherwise anticipated break point.

Units 2N & 4 are modified clearcuts with an age of 55-77 years old. The stands consist of red alder, Douglas-fir and western hemlock. The average take red alder is approximately 15 inches DBH and 45 feet to a merchantable top. The average take Douglas-fir is approximately 15 inches DBH and 44 feet to a merchantable top. The average take western hemlock is approximately 16 inches DBH and 49 feet to a merchantable top. Average net volume to be harvested per acre is 21 MBF. All trees were cruised to a merchantable top of six inches DIB, 40% of form point, or an otherwise anticipated break point.

Unit 3 is a modified clearcut with an average age of 70 years. The stands consist of Douglas-fir and red alder. The average take Douglas-fir is approximately 16 inches DBH and 57 feet to a merchantable top. The average take red alder is approximately 14 inches DBH and 41 feet to a merchantable top. Average net volume to be harvested per acre is 26 MBF. All trees were cruised to a merchantable top of six inches DIB, 40% of form point, or an otherwise anticipated break point.

Unit 5 R/W (Unit 1 and 2) is similar to the timber description above in Units 1 and 2. Average net volume to be harvested per acre is 28 MBF.

Unit 5 R/W (Unit 3 and 4) is similar to the timber description above in Unit 3. Average net volume to be harvested per acre is 26 MBF.

7. Statistical Analysis and Stand Summary:

Statistics for Stand B.F. volumes

Unit	Estimated CV	Target SE%	Actual CV	Actual SE%
1 & 2S	45	10	47.1	5.8
2N & 4	55	11	38.9	4.8
3	45	10	45.9	5.7

8. Volumes by Species and Log Grade:

Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Conifer

Species	DBH	Net Vol.	2 Saw	3 Saw	4 Saw	% D & B	% Sale
Douglas-fir	17	5,789	3,146	2,025	618	1.0	60%
Western hemlock	15	743	404	261	78	1.4	8%
TOTALS	--	6,532	3,550	2,286	696	--	--

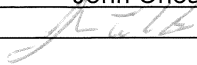
Hardwood

Species	DBH	Net Vol.	12"+	10"-11"	8"-9"	6"-7"	% D & B	% Sale
Red alder	15	3,011	858	887	368	898	11.0	32%
Bigleaf maple	16	12	9	-	3	-	0.0	<1%
TOTALS	--	3,023	867	887	371	898	--	--

*An additional 10% of defect was taken for hidden defect.

TOTAL VOLUME	9,555 MBF
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9. Approvals:

Prepared by: John Choate Date: 04/14/2022
 Unit Forester Approval:  Date: 4/20/2022

10. Attachments: Cruise Design and Map (11 pages)
 Volume Report (6 pages)
 Statistics Report (10 pages)
 Log Stock Table (3 pages)
 Stand Table Summary (2 page)

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Four DB Cronin

Units 1 & 2S (South)

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 142 **Estimated CV%** 45 Net BF/Acre **SE% Objective** 10% Net BF/Acre

Planned Sale Volume : 2,840 MBF **Estimated Sale Area Value/Acre:** \$4,860/Acre

A. Cruise Goals: (a) Grade minimum 100 conifer trees.
(b) Sample 65 cruise plots (26 grade/ 39 count); (c) Other goals (Determine "automark" thinning standards; X Determine log grades for sale value; Determine snag and leave tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF(Conifer) 40
BAF(Hardwood) 33.61
Cruise Line Direction: Unit 1: 0°/180°, Unit 2 (South): 0°/180°,
Cruise Line Spacing 7 (chains) 462 (Feet)
Cruise Plot Spacing 3 (chains) 198 (Feet)
Grade/Count Ratio 1:2

Take plots as marked on cruise map.

Grade minor species (true fir, spruce, cedar, maple, etc.) on count plots if encountered.

DO NOT: record any 22' log lengths, or any 12', 24', or 32' log lengths for hardwoods.

DO NOT: record snags < 12" DBH or record snag measurements on count plots.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 20" dbh and 40% of dob @ FP for conifer trees > 20" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors will be measured.

5. **Tree Segments:** Record log segments in “standard” log lengths in general use, such as 32’ and 40’ lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12’; for hardwoods, it’s 8’. Maximum segment length is 40’. One foot of trim is assumed for each merch segment. Do not use “double dash” (--) feature on the data recorder except for the top segment of the tree. Hardwoods shall be recorded in 8’ and 10’ multiples.

6. **Species, Sort, and Grade Codes:**

A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple); SN (Snag). For “leave trees”, add an “L” to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code “1” (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12” + = 1 Sawmill; 10”-12” = 2 Sawmill; 10”-8” = 3 Sawmill; and 8”-6” 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R

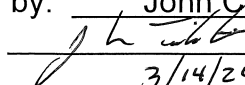
Grade oversized 3-SAW (DIB $\geq$ 12”, knots $> 2\frac{1}{2}$ ” inside scaling cylinder affecting $> 50\%$ of log)

7. **Deductions:** Estimate visible defect or damage as a “length deduction” (most often), or as a “diameter deduction,” as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a “per tree” basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100’ apart. On “measure/grade” plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger’s Tape (with dbh on back), Compass, Allegro II Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint, Permanent Marker.

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: John Choate
Approved by: 
Date: 3/14/2022

TIMBER CRUISE

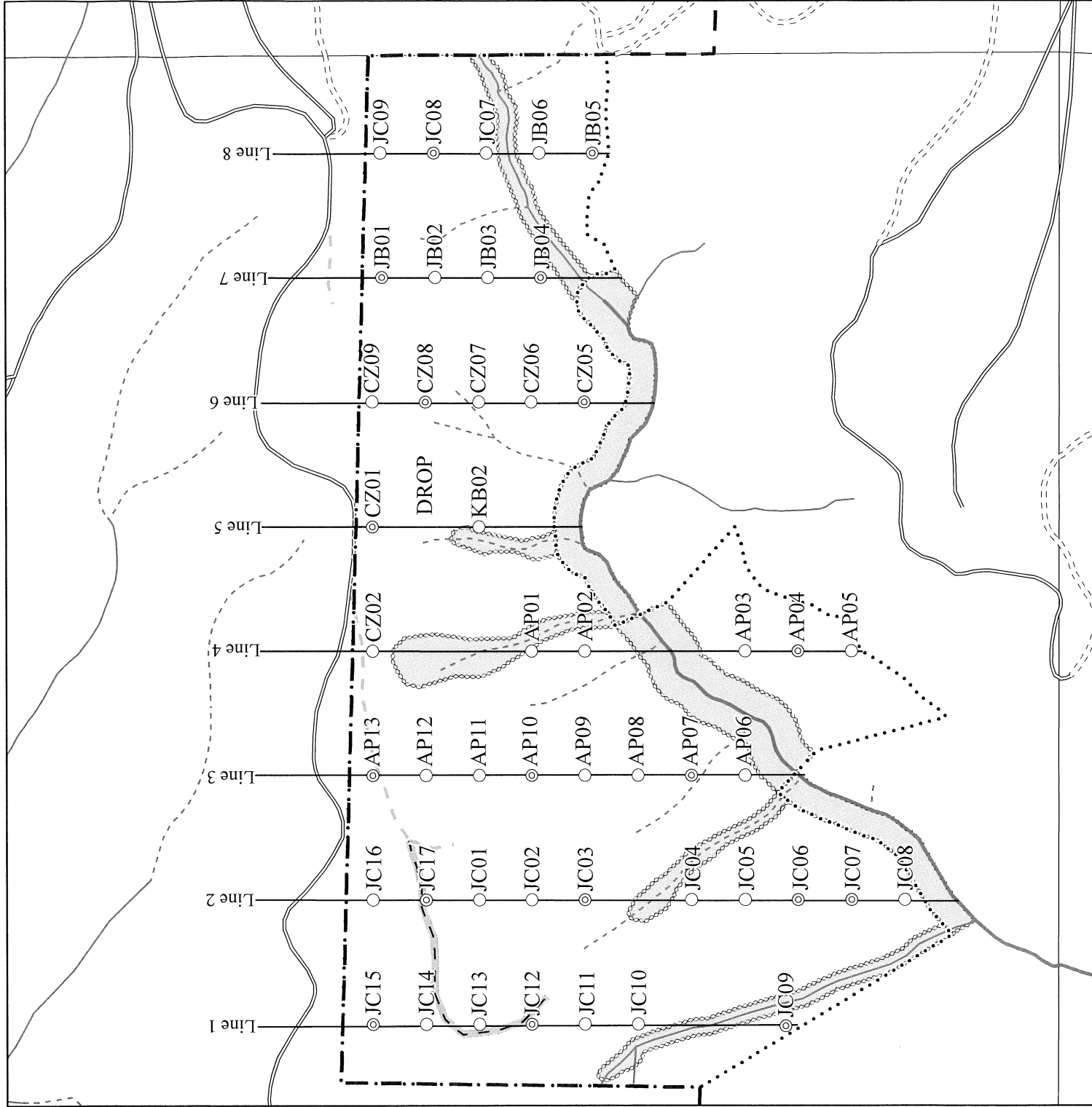
OF TIMBER SALE CONTRACT
FOUR DB CRONIN
PORTIONS OF SECTIONS 5 & 6
OF T3N, R7W, W.M.,
CLATSOP COUNTY, OREGON AND
PORTIONS OF SECTION 1
OF T3N, R8W, W.M., AND
PORTIONS OF SECTIONS 29, 31 & 32
OF T4N, R7W, W.M.,
TILLAMOOK COUNTY, OREGON

BAF (Conifer) = 40
BAF (HW) = 33.61
Net Acres = 142
Grade Plots = 26
Count Plots = 39
Total Plots = 65
Unit 1 AZ = 0°/180°
Unit 2S AZ = 0°/180°
Line Spacing = 7 ch. (462 ft.)
Plot Spacing = 3 ch. (198 ft.)



Legend

- Ownership Boundary
- Timber Sale Boundary
- Timber Cruise Boundary
- Type F Stream
- Type N Stream
- Seasonal Stream
- Paved Road
- Surfaced Road
- Unsurfaced Road
- New Construction - Dirt
- New Construction - Rocked
- Stream Buffer
- Count Plot
- Grade Plot



TIMBER CRUISE

OF TIMBER SALE CONTRACT
FOUR DB CRONIN
PORTIONS OF SECTIONS 5 & 6
OF T3N, R7W, W.M.,
CLATSOP COUNTY, OREGON AND
PORTIONS OF SECTION 1
OF T3N, R8W, W.M., AND
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OF T4N, R7W, W.M.,
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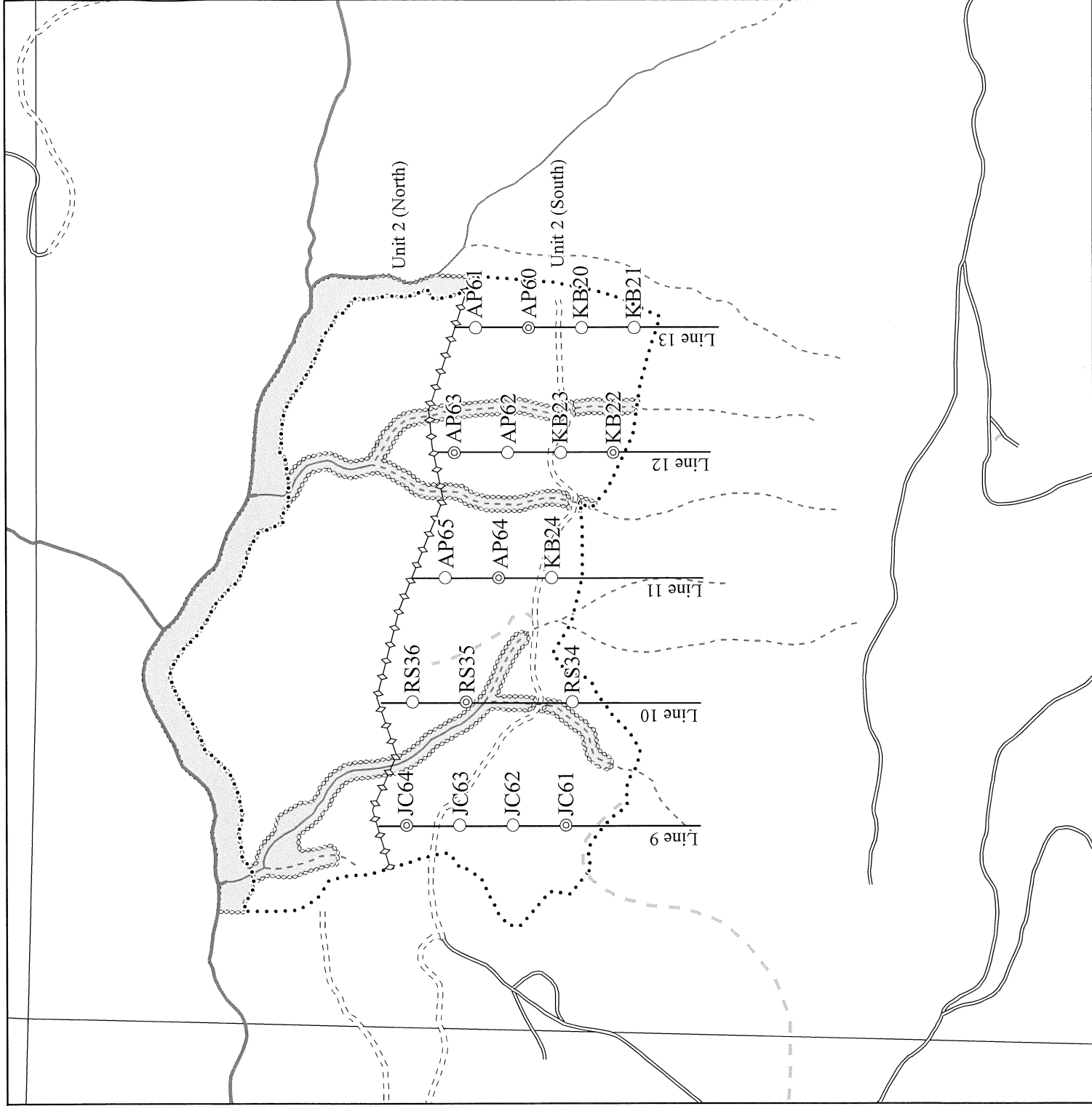
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Legend

- Ownership Boundary
- Timber Sale Boundary
- Timber Cruise Boundary
- Type F Stream
- Type N Stream
- Seasonal Stream
- Paved Road
- Surfaced Road
- Unsurfaced Road
- New Construction - Dirt
- New Construction - Rocked
- Stream Buffer

- Count Plot
- Grade Plot



**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Four DB Cronin

Units 2N & 4

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 134 **Estimated CV%** 55 Net BF/Acre **SE% Objective** 11% Net BF/Acre

Planned Sale Volume : 2,680 MBF **Estimated Sale Area Value/Acre:** \$4,860/Acre

A. Cruise Goals: (a) Grade minimum 100 conifer trees.
(b) Sample 66 cruise plots (25 grade/ 41 count); (c) Other goals (Determine "automark" thinning standards; X Determine log grades for sale value; Determine snag and leave tree species and sizes.

B. Cruise Design:

- 1. Plot Cruises:** BAF(Conifer): 40
BAF(Hardwood): 33.61
Cruise Line Direction: Unit 2N: 0°/180°, Unit 4 148°/328°,
Cruise Line Spacing 6 (chains) 396 (Feet)
Cruise Plot Spacing 3.5 (chains) 231 (Feet)
Grade/Count Ratio 1:2

Take plots as marked on cruise map.

Grade minor species (true fir, spruce, cedar, maple, etc.) on count plots if encountered.

DO NOT: record any 22' log lengths, or any 12', 24', or 32' log lengths for hardwoods.

DO NOT: record snags < 12" DBH or record snag measurements on count plots.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 20" dbh and 40% of dob @ FP for conifer trees > 20" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors will be measured.

5. **Tree Segments:** Record log segments in “standard” log lengths in general use, such as 32’ and 40’ lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12’; for hardwoods, it’s 8’. Maximum segment length is 40’. One foot of trim is assumed for each merch segment. Do not use “double dash” (--) feature on the data recorder except for the top segment of the tree. Hardwoods shall be recorded in 8’ and 10’ multiples.

6. **Species, Sort, and Grade Codes:**

A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple); SN (Snag). For “leave trees”, add an “L” to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code “1” (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12” + = 1 Sawmill; 10”-12” = 2 Sawmill; 10”-8” = 3 Sawmill; and 8”-6” 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R

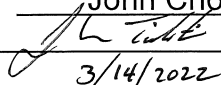
Grade oversized 3-SAW (DIB $\geq$ 12”, knots $>$ 2½” inside scaling cylinder affecting $>$ 50% of log)

7. **Deductions:** Estimate visible defect or damage as a “length deduction” (most often), or as a “diameter deduction,” as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees $>$ 100 feet in height) on a “per tree” basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100’ apart. On “measure/grade” plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger’s Tape (with dbh on back), Compass, Allegro II Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint, Permanent Marker.

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: John Choate
Approved by: 
Date: 3/14/2022

TIMBER CRUISE

OF TIMBER SALE CONTRACT
FOUR DB CRONIN
PORTIONS OF SECTIONS 5 & 6
OF T3N, R7W, W.M.,
CLATSOP COUNTY, OREGON AND
PORTIONS OF SECTION 1
OF T3N, R8W, W.M., AND
PORTIONS OF SECTIONS 29, 31 & 32
OF T4N, R7W, W.M.,
TILLAMOOK COUNTY, OREGON

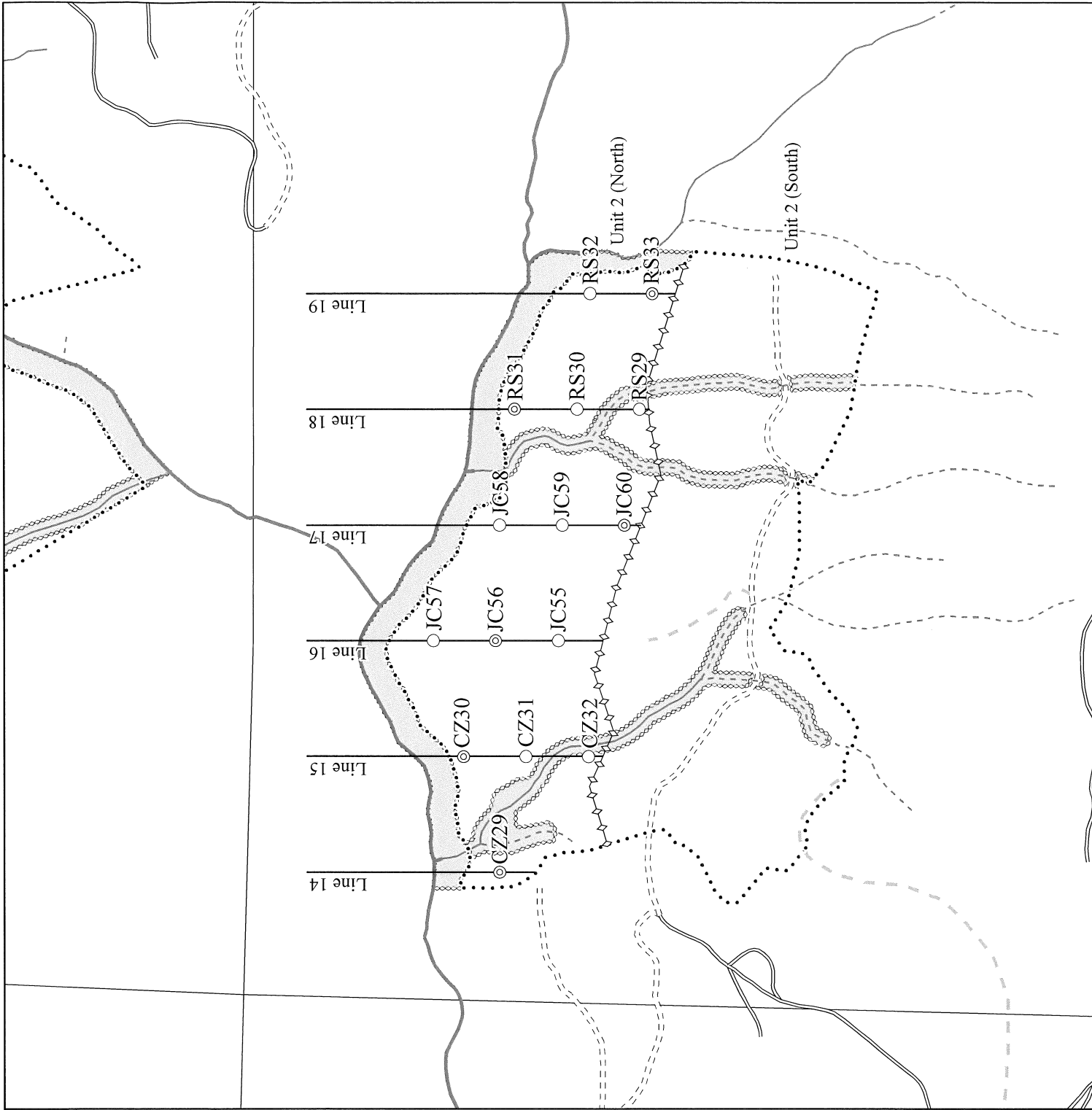
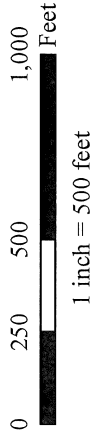
BAF (Conifer) = 40
BAF (HW) = 33.61
Net Acres = 142
Grade Plots = 25
Count Plots = 41
Total Plots = 66

Unit 2N AZ = 0°/180°
Unit 4 AZ = 148°/328°
Line Spacing = 6.5 ch. (429 ft.)
Plot Spacing = 3.5 ch. (231 ft.)

Legend

- Ownership Boundary
- Timber Sale Boundary
- Timber Cruise Boundary
- Type F Stream
- Type N Stream
- Seasonal Stream
- Paved Road
- Surfaced Road
- Unsurfaced Road
- New Construction - Dirt
- New Construction - Rocked
- Stream Buffer

- Count Plot
- Grade Plot



TIMBER CRUISE

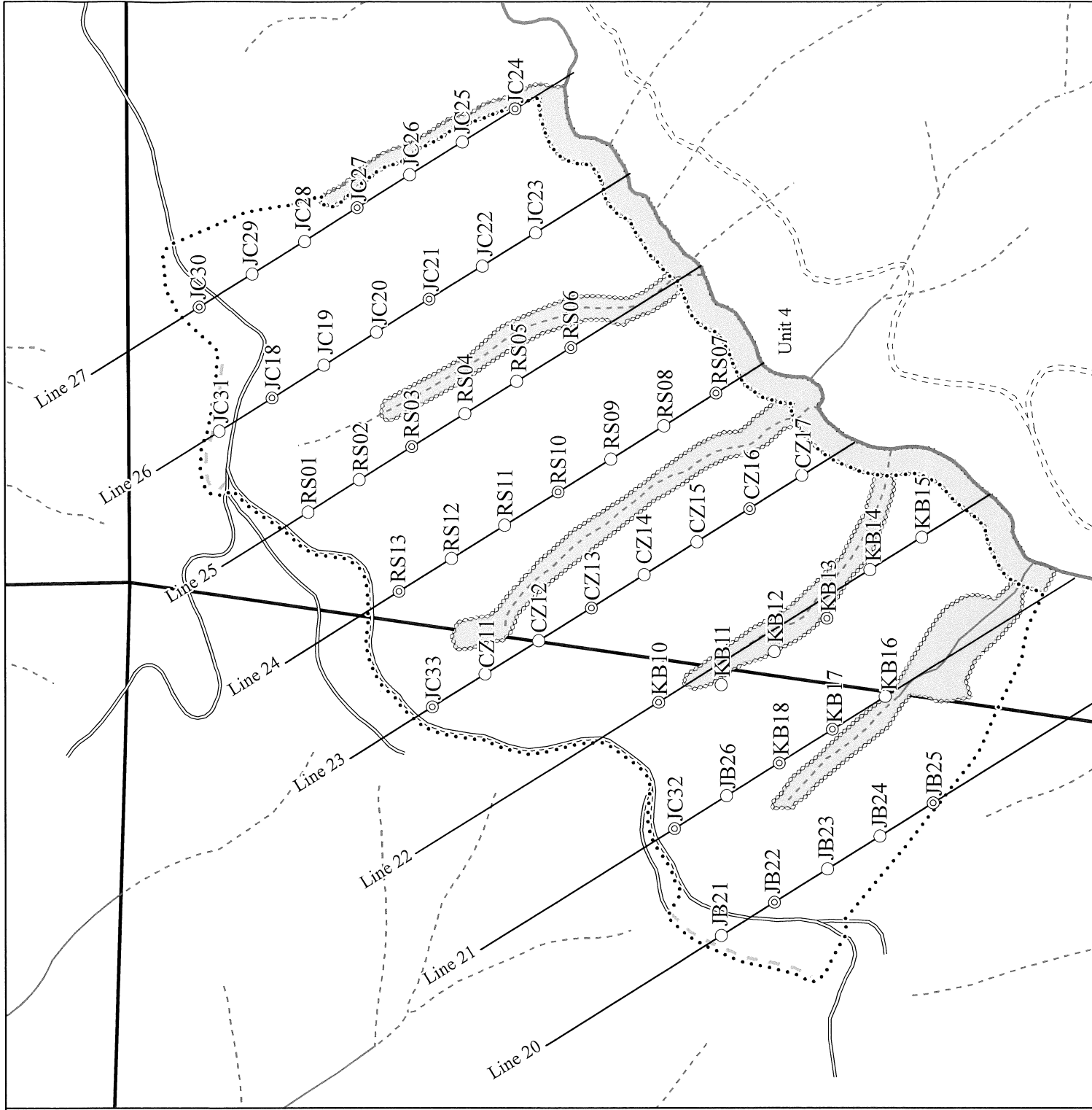
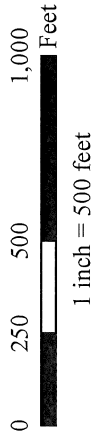
OF TIMBER SALE CONTRACT
FOUR DB CRONIN
PORTIONS OF SECTIONS 5 & 6
OF T3N, R7W, W.M.,
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PORTIONS OF SECTION 1
OF T3N, R8W, W.M., AND
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BAF (Conifer) = 40
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Unit 2N AZ = 0°/180°
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Plot Spacing = 3.5 ch. (231 ft.)

Legend

- Ownership Boundary
- Timber Sale Boundary
- Timber Cruise Boundary
- Type F Stream
- Type N Stream
- Seasonal Stream
- Paved Road
- Surfaced Road
- Unsurfaced Road
- New Construction - Dirt
- New Construction - Rocked
- Stream Buffer
- Count Plot
- Grade Plot



**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Four DB Cronin **Unit** 3

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 113 **Estimated CV%** 40 Net BF/Acre **SE% Objective** 10% Net BF/Acre

Planned Sale Volume : 2,260 MBF **Estimated Sale Area Value/Acre:** \$4,860/Acre

A. Cruise Goals: (a) Grade minimum 100 conifer trees.
(b) Sample 65 cruise plots (24 grade/ 41 count); (c) Other goals (Determine "automark" thinning standards; X Determine log grades for sale value; Determine snag and leave tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF(Conifer): 40
BAF (HW): 27.78
Cruise Line Direction: Unit 3: 0°/180°
Cruise Line Spacing 6 (chains) 396 (Feet)
Cruise Plot Spacing 3 (chains) 198 (Feet)
Grade/Count Ratio 1:2

Take plots as marked on cruise map.

Grade minor species (true fir, spruce, cedar, maple, etc.) on count plots if encountered.

DO NOT: record any 22' log lengths, or any 12', 24', or 32' log lengths for hardwoods.

DO NOT: record snags < 12" DBH or record snag measurements on count plots.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 20" dbh and 40% of dob @ FP for conifer trees > 20" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors will be measured.

5. **Tree Segments:** Record log segments in “standard” log lengths in general use, such as 32’ and 40’ lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12’; for hardwoods, it’s 8’. Maximum segment length is 40’. One foot of trim is assumed for each merch segment. Do not use “double dash” (--) feature on the data recorder except for the top segment of the tree. Hardwoods shall be recorded in 8’ and 10’ multiples.

6. **Species, Sort, and Grade Codes:**

A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple); SN (Snag). For “leave trees”, add an “L” to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code “1” (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: Alder Grades: 12” + = 1 Sawmill; 10”-12” = 2 Sawmill; 10”-8” = 3 Sawmill; and 8”-6” 4 Sawmill, or R = Camp Run; 0 = Cull.
All Maple Camp Run = R

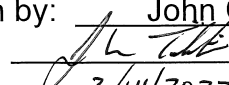
Grade oversized 3-SAW (DIB $\geq$ 12”, knots $> 2\frac{1}{2}$ ” inside scaling cylinder affecting $> 50\%$ of log)

7. **Deductions:** Estimate visible defect or damage as a “length deduction” (most often), or as a “diameter deduction,” as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a “per tree” basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100’ apart. On “measure/grade” plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger’s Tape (with dbh on back), Compass, Allegro II Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint, Permanent Marker.

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

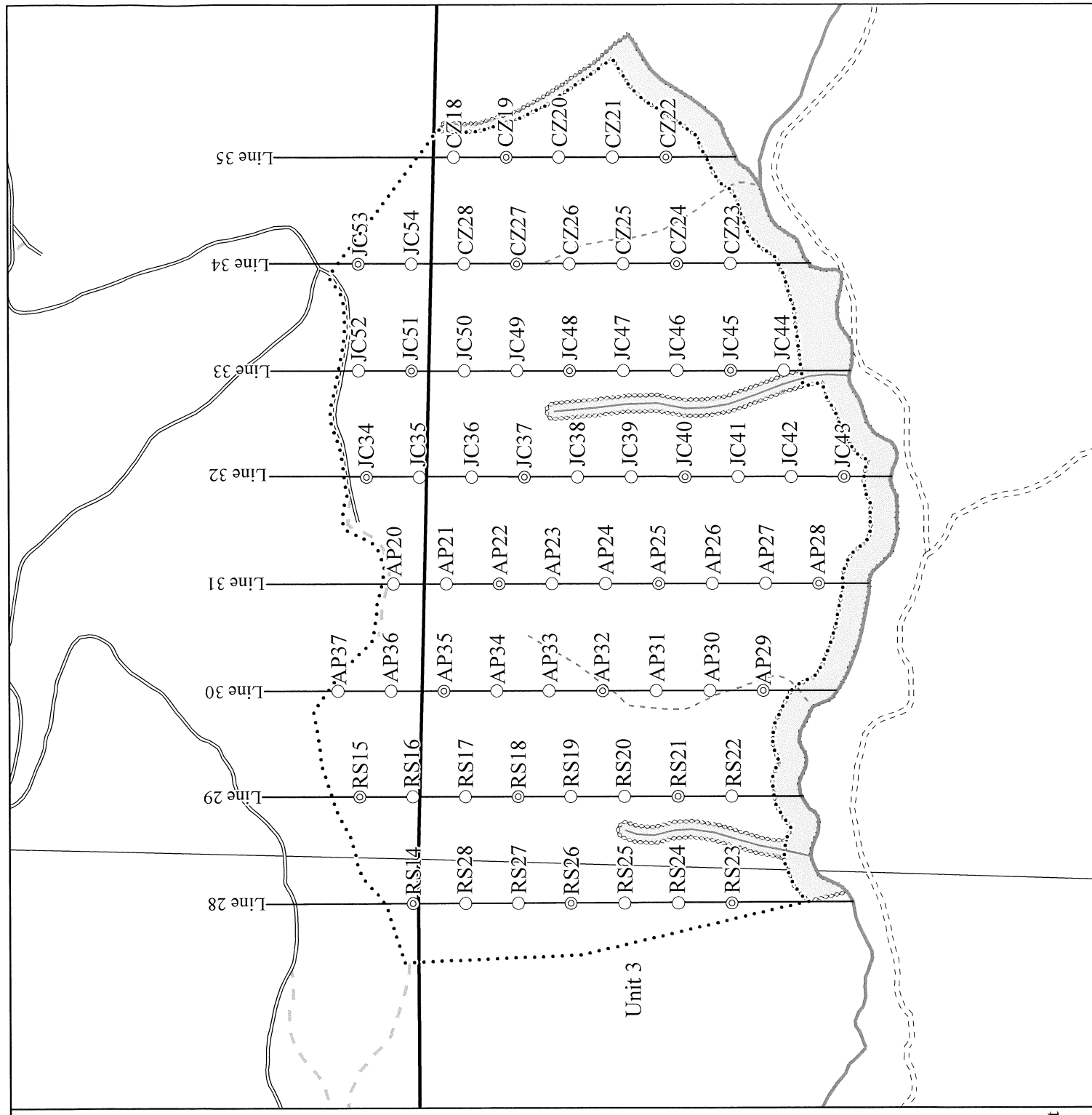
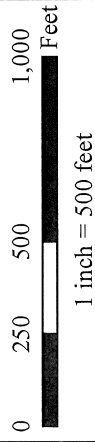
Cruise Design by: John Choate
Approved by: 
Date: 3/14/2022

OF TIMBER SALE CONTRACT
FOUR DB CRONIN
PORTIONS OF SECTIONS 5 & 6
OF T3N, R7W, W.M.,
CLATSOP COUNTY, OREGON AND
PORTIONS OF SECTION 1
OF T3N, R8W, W.M., AND
PORTIONS OF SECTIONS 29, 31 & 32
OF T4N, R7W, W.M.,
TILLAMOOK COUNTY, OREGON

Unit 3 AZ = 0°/180°
Line Spacing = 6 ch. (396 ft.)
Plot Spacing = 3 ch. (198 ft.)

 Ownership Boundary
 Timber Sale Boundary
 Timber Cruise Boundary

- Count Plot
◎ Grade Plot



TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																	
T03N R07W S05 TyRWT THRU T03N R07W S05 TyTAKE						Project: 4DBC						Page 1									
						Acres 385.00						Date 4/14/2022									
												Time 10:01:47AM									
S Spp	So Gr T rt ad	%	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre		
		Net BdFt	Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf			
							4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99							
A	DOCU															9	11		0.00	4.8	
A	DO1S	28	11.5	2,516	2,228	858			98	2	14	37	18	31	29	13	152	1.53	14.7		
A	DO2S	29	10.8	2,584	2,305	887		93	7		12	24	23	42	31	10	109	1.10	21.1		
A	DO3S	13	10.7	1,069	955	368		100			9	21	9	62	32	9	73	0.81	13.1		
A	DO4S	30	10.9	2,619	2,332	898	0	100			27	25	15	33	26	6	33	0.53	70.8		
A Totals		32	11.0	8,788	7,819	3,011 3,010	0	69	30	1	16	28	17	39	27	8	63	0.80	124.6		
D	DOCU														20	17		0.00	.9		
D	DO2S	54	1.1	8,259	8,170	3,146		1	54	45		1	5	94	39	15	369	2.28	22.1		
D	DO3S	35	.7	5,298	5,260	2,025		97	2	1	3	6	26	66	35	9	103	0.87	51.2		
D	DO4S	11	1.2	1,625	1,606	618	3	97			42	39	10	9	23	6	30	0.46	53.3		
D Totals		61	1.0	15,182	15,036	5,789	0	44	30	25	5	7	13	75	31	9	118	1.05	127.5		
H	DOCU														20	6		0.00	1.9		
H	DO2S	54	1.8	1,070	1,050	404			62	38		10		90	37	15	330	2.15	3.2		
H	DO3S	35	1.1	685	678	261		91	9		1		27	72	37	7	84	0.75	8.0		
H	DO4S	11		204	204	78	1	99			51	34		15	23	6	31	0.52	6.6		
H Totals		8	1.4	1,959	1,932	743 744	0	42	37	21	6	9	9	76	31	8	98	0.92	19.7		
M	DO1S	78		24	24	9		100				100			24	13	150	1.50	.2		
M	DO3S	22		7	7	3		100			100				18	9	40	0.78	.2		
M	DO4S														31	2		0.48	.2		
M Totals		0		31	31	12		21	79		21	79			25	7	56	0.83	.6		
Totals			4.4	25,959	24,818	9,555	0	52	31	17	9	14	14	63	29	8	91	0.93	272.4		

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page		1				
				Project: 4DBC										Date		4/14/2022				
														Time		10:09:51AM				
T03N R07W S05 TTAKE										T03N R07W S05 TTAKE										
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt		
03N		07W		05		12S		TAKE		137.00		65		144		1		W		
S So Gr T rt ad Spp			% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
								Log Scale Dia.				Log Length				Ln Dia Bd CF/ Ft In Ft Lf				
								4-5 6-11 12-16 17+				12-20 21-30 31-35 36-99								
D DO CU								1 48 51				2 5 93				29 18 0.00				1.6
D DO 2S			70	1.5 13,432 13,230			1,813	1 48 51				2 5 93				39 15 378 2.31				35.0
D DO 3S			24	1.3 4,435 4,378			600	98 2				5 10 23 62				34 8 88 0.84				49.9
D DO 4S			6	2.3 1,056 1,032			141	100				63 37				21 7 30 0.52				34.5
D Totals			67	1.5 18,924 18,640			2,554	29 35 36				5 6 9 81				32 10 154 1.30				120.9
A DO CU																18 9 0.00				2.2
A DO 1S			15	10.0 808 728			100	100				11 37 52				32 12 150 1.46				4.8
A DO 2S			41	10.0 2,103 1,893			259	80 20				5 20 75				38 11 143 1.20				13.2
A DO 3S			16	11.7 820 724			99	100				23 13 64				35 9 89 0.84				8.1
A DO 4S			28	10.0 1,427 1,284			176	100				25 21 11 44				26 6 34 0.55				37.8
A Totals			17	10.3 5,158 4,629			634	76 24				9 17 13 61				30 8 70 0.81				66.2
H DO CU																20 6 0.00				5.2
H DO 2S			51	2.3 2,299 2,245			308	51 49				100				40 16 398 2.34				5.6
H DO 3S			37	1.3 1,604 1,582			217	90 10				1 31 67				36 8 91 0.78				17.4
H DO 4S			12	493 493			68	1 99				53 30 17				23 6 31 0.51				16.0
H Totals			16	1.7 4,395 4,321			592	0 44 30 26				7 3 11 79				30 8 98 0.91				44.3
M DO 1S			78	66 66			9	100				100				24 13 150 1.50				.4
M DO 3S			22	18 18			2	100				100				18 9 40 0.78				.4
M DO 4S																31 2 0.48				.6
M Totals			0	83 83			11	21 79				21 79				25 7 55 0.83				1.5
Type Totals				3.1 28,561 27,672			3,791	0 39 32 28				6 7 10 77				31 9 119 1.09				232.9

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)													Page 1					
		Project: 4DBC													Date 4/14/2022					
															Time 10:09:51AM					
T03N R07W S05 TTAKE															T03N R07W S05 TTAKE					
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
03N	07W	05	2N4	TAKE	134.00	66	165	1	W											
S So Gr T rt ad Spp			% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
			Def%	Gross	Net	Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/ Lf			
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft		
A	DO	CU														8	11		0.00	11.0
A	DO	1S	36	11.7	5,864	5,178	694		98	2		12	40	19	28	29	13	155	1.54	33.3
A	DO	2S	25	11.4	3,946	3,498	469		100			12	33	26	30	30	10	101	1.06	34.6
A	DO	3S	11	10.4	1,745	1,564	210		100			15	15	9	61	30	9	67	0.80	23.3
A	DO	4S	28	11.5	4,414	3,908	524	1	99			26	26	18	30	26	6	33	0.54	118.2
A Totals			67	11.4	15,969	14,148	1,896	0	63	36	1	16	32	19	33	26	8	64	0.82	220.4
D	DO	2S	48	.9	2,886	2,861	383		66	34					100	40	15	347	2.15	8.2
D	DO	3S	30		1,711	1,711	229		93	7		1	2	51	45	34	10	121	1.00	14.2
D	DO	4S	22		1,269	1,269	170		100			33	22	17	27	24	6	33	0.45	38.9
D Totals			28	.4	5,866	5,841	783		49	34	17	8	6	19	68	29	8	95	0.92	61.4
H	DO	2S	64		672	672	90		100				47		53	30	13	207	1.69	3.2
H	DO	3S	29		294	294	39		100						100	39	6	60	0.66	4.9
H	DO	4S	7		71	71	9		100			38	62			22	7	30	0.58	2.4
H Totals			5		1,036	1,036	139		35	65		3	35		63	33	8	99	0.94	10.5
Type Totals				8.1	22,871	21,024	2,817	0	58	37	5	13	25	18	44	27	8	72	0.85	292.2

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page 1							
		Project: 4DBC												Date 4/14/2022							
														Time 10:09:51AM							
T03N R07W S05 TTAKE														T03N R07W S05 TTAKE							
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
03N	07W	05	3	TAKE	109.00	65	146	1	W												
S So Gr T rt ad Spp		% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log		Logs Per /Acre				
		Def%	Gross	Net	Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf					
					4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99									
D	DO	CU								4	15			0.00	1.2						
D	DO	2S	37	.3	8,219	8,197	894			61	39		1	6	92	38	15	361	2.27	22.7	
D	DO	3S	50	.6	10,716	10,657	1,162		97	1	2		2	4	22	72	36	9	109	0.87	97.5
D	DO	4S	13	1.3	2,772	2,737	298	7	93				37	50	11	3	23	6	29	0.45	94.3
D Totals		84	.5	21,707	21,591		2,353	1	60	24	16		6	9	15	71	31	8	100	0.92	215.7
A	DO	CU															8	14		0.00	.7
A	DO	1S	13	11.2	628	558	61			100			32		39	28	27	12	124	1.52	4.5
A	DO	2S	33	10.5	1,546	1,384	151		95	5			33	30	17	20	26	11	93	1.04	14.9
A	DO	3S	12	10.0	567	510	56		100				2	37		62	34	8	71	0.80	7.2
A	DO	4S	42	10.4	1,955	1,751	191		100				30	26	11	34	26	6	32	0.51	55.2
A Totals		16	10.5	4,696	4,203		458		85	15			28	25	15	32	26	8	51	0.69	82.5
Type Totals				2.3	26,404	25,795	2,812	1	64	22	13		9	12	15	64	29	8	86	0.86	298.2

T	Species, Sort Grade - Board Foot Volumes (Type)															Page 1						
Project: 4DBC																	Date	4/14/2022				
																	Time	10:09:51AM				
T03N R07W S05 TRWTK										T03N R07W S05 TRWTK												
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt													
03N	07W	05	12S	RWTK	3.00	65	145	1	W													
S So Gr T rt ad Spp			% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre		
			Def%	Gross	Net	Log Scale Dia.				Log Length				Ln	Dia	Bd	CF/ Lf					
										4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft		
D	DO	CU																29	18		0.00	1.6
D	DO	2S	70	1.5	13,432	13,230	40			1	48	51		2	5	93		39	15	378	2.31	35.0
D	DO	3S	24	1.3	4,435	4,378	13			98	2			5	10	23	62	34	8	88	0.84	49.9
D	DO	4S	6	2.3	1,056	1,032	3			100				63	37			21	7	30	0.52	34.5
D Totals			67	1.5	18,924	18,640	56			29	35	36		5	6	9	81	32	10	154	1.30	120.9
A	DO	CU																18	9		0.00	2.2
A	DO	1S	15	10.0	808	728	2				100			11	37		52	32	12	150	1.46	4.8
A	DO	2S	41	10.0	2,103	1,893	6			80	20				5	20	75	38	11	143	1.20	13.2
A	DO	3S	16	11.7	820	724	2			100					23	13	64	35	9	89	0.84	8.1
A	DO	4S	28	10.0	1,427	1,284	4			100				25	21	11	44	26	6	34	0.55	37.8
A Totals			17	10.3	5,158	4,629	14			76	24			9	17	13	61	30	8	70	0.81	66.2
H	DO	CU																20	6		0.00	5.2
H	DO	2S	51	2.3	2,299	2,245	7				51	49					100	40	16	398	2.34	5.6
H	DO	3S	37	1.3	1,604	1,582	5			90	10			1		31	67	36	8	91	0.78	17.4
H	DO	4S	12		493	493	1	1	99					53	30		17	23	6	31	0.51	16.0
H Totals			16	1.7	4,395	4,321	13	0	44	30	26		7	3	11	79		30	8	98	0.91	44.3
M	DO	1S	78		132	132	0				100				100			24	13	150	1.50	.9
M	DO	3S	22		35	35	0			100				100				18	9	40	0.78	.9
M Totals			1		167	167	1			21	79			21	79			21	11	95	1.19	1.8
Type Totals				3.1	28,644	27,756	83	0	39	33	28		6	8	10	77		31	9	119	1.09	233.1

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page		1					
				Project: 4DBC										Date		4/14/2022					
														Time		10:09:51AM					
T03N R07W S05 TRWTK										T03N R07W S05 TRWTK											
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt			
03N		07W		05		3		RWTK		2.00		65		149		1		W			
S So Gr T rt ad Spp				% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log				Logs Per /Acre
									Log Scale Dia.				Log Length				Ln Dia Bd CF/ Ft In Ft Lf				
D DO CU									4-5 6-11 12-16 17+				12-20 21-30 31-35 36-99				4 15 0.00				1.2
D DO 2S				37	.3 8,219 8,197			16	61 39				1 6 92				38 15 361 2.27				22.7
D DO 3S				50	.6 10,716 10,657			21	97 1 2				2 4 22 72				36 9 109 0.87				97.5
D DO 4S				13	1.3 2,772 2,737			5	7 93				37 50 11 3				23 6 29 0.45				94.3
D Totals				84	.5 21,707 21,591			43	1 60 24 16				6 9 15 71				31 8 100 0.92				215.7
A DO CU																	8 14 0.00				.7
A DO 1S				13	11.2 628 558			1	100				32 39 28				27 12 124 1.52				4.5
A DO 2S				33	10.5 1,546 1,384			3	95 5				33 30 17 20				26 11 93 1.04				14.9
A DO 3S				12	10.0 567 510			1	100				2 37 62				34 8 71 0.80				7.2
A DO 4S				42	10.4 1,955 1,751			4	100				30 26 11 34				26 6 32 0.51				55.2
A Totals				16	10.5 4,696 4,203			8	85 15				28 25 15 32				26 8 51 0.69				82.5
Type Totals					2.3 26,404 25,795			52	1 64 22 13				9 12 15 64				29 8 86 0.86				298.2

TC PSTATS			PROJECT STATISTICS							PAGE 1		
			PROJECT		4DBC		DATE 4/14/2022					
TWP	RGE	SC	TRACT	TYPE		ACRES		PLOTS	TREES	CuFt	BdFt	
03N 03N	07 07W	05 05	12S 3	RWT TAKE	THR	385.00		326	2,014	1	W	
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES		PERCENT SAMPLE TREES				
TOTAL			326	2014	6.2							
CRUISE			124	748	6.0		62,998		1.2			
DBH COUNT												
REFOREST												
COUNT			202	1264	6.3							
BLANKS												
100 %												
STAND SUMMARY												
			SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR			362	72.4	17.2	56	28.2	117.1	15,182	15,036	4,102	4,102
R ALDER			331	76.7	14.7	46	23.6	90.6	8,788	7,819	2,677	2,677
WHEMLOCK			48	14.1	14.9	44	4.4	17.0	1,959	1,932	553	553
SNAG			4	.0	16.1	38	0.0	.0				
BL MAPLE			3	.4	16.3	38	0.1	.6	31	31	12	12
TOTAL			748	163.6	15.9	50	56.5	225.3	25,959	24,818	7,343	7,343
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL	68.1	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR			101.5	5.3	368	389	409					
R ALDER			57.3	3.1	116	119	123					
WHEMLOCK			122.3	17.6	266	323	380					
SNAG												
BL MAPLE			86.6	59.9	51	127	203					
TOTAL			123.3	4.5	250	262	274	607	152	67		
CL	68.1	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR			154.8	8.6	66	72	79					
R ALDER			155.2	8.6	70	77	83					
WHEMLOCK			355.0	19.6	11	14	17					
SNAG			631.8	35.0	0	0	0					
BL MAPLE			1032.0	57.1	0	0	1					
TOTAL			96.4	5.3	155	164	172	371	93	41		
CL	68.1	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR			147.5	8.2	108	117	127					
R ALDER			154.3	8.5	83	91	98					
WHEMLOCK			357.3	19.8	14	17	20					
SNAG			583.5	32.3	0	0	0					
BL MAPLE			1017.0	56.3	0	1	1					
TOTAL			93.7	5.2	214	225	237	351	88	39		
CL	68.1	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR			149.6	8.3	13,792	15,036	16,281					
R ALDER			159.3	8.8	7,130	7,819	8,508					
WHEMLOCK			394.0	21.8	1,510	1,932	2,353					
SNAG												
BL MAPLE			1288.1	71.3	9	31	53					
TOTAL			99.5	5.5	23,452	24,818	26,184	395	99	44		

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT 4DBC				DATE	4/14/2022		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
03N	07W	05	12S	00MC	137.00	65	384	1	W		
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		65	384	5.9							
CRUISE		25	144	5.8	18,843		.8				
DBH COUNT											
REFOREST											
COUNT		40	240	6.0							
BLANKS											
100 %											
STAND SUMMARY											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR		78	62.5	19.8	63	30.0	133.5	18,924	18,640	4,946	4,946
R ALDER		42	39.9	15.3	51	13.1	51.2	5,158	4,629	1,605	1,605
WHEMLOCK		22	31.8	14.6	43	9.7	36.9	4,395	4,321	1,212	1,212
SNAG		1	2.5	15.0	34	0.8	3.1				
BL MAPLE		1	.9	18.0	45	0.4	1.6	167	167	44	44
TOTAL		144	137.5	17.4	55	54.3	226.3	28,644	27,756	7,806	7,806
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR		87.9	9.9	446	496	545					
R ALDER		49.3	7.6	122	132	142					
WHEMLOCK		123.5	26.9	243	333	422					
SNAG											
BL MAPLE											
TOTAL		109.6	9.1	326	359	392	480	120	53		
CL: 68.1 %	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR		87.2	10.8	56	62	69					
R ALDER		131.0	16.2	33	40	46					
WHEMLOCK		167.1	20.7	25	32	38					
SNAG		418.0	51.8	1	3	4					
BL MAPLE		458.1	56.8	0	1	1					
TOTAL		51.3	6.4	129	138	146	105	26	12		
CL: 68.1 %	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR		81.9	10.2	120	134	147					
R ALDER		131.9	16.3	43	51	60					
WHEMLOCK		171.6	21.3	29	37	45					
SNAG		418.0	51.8	1	3	5					
BL MAPLE		458.1	56.8	1	2	2					
TOTAL		44.2	5.5	214	226	239	78	20	9		
CL: 68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR		80.8	10.0	16,773	18,640	20,507					
R ALDER		140.3	17.4	3,824	4,629	5,433					
WHEMLOCK		192.7	23.9	3,289	4,321	5,352					
SNAG											
BL MAPLE		458.1	56.8	72	167	261					
TOTAL		47.1	5.8	26,135	27,756	29,376	89	22	10		

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT 4DBC				DATE	4/14/2022		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
03N	07W	05	12S	TAKE	137.00	65	379	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		65	379	5.8							
CRUISE		26	144	5.5	18,526			.8			
DBH COUNT											
REFOREST											
COUNT		39	233	6.0							
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
DOUG FIR		78	62.5	19.8	63	30.0	133.5	18,924	18,640	4,946	4,946
R ALDER		42	39.9	15.3	51	13.1	51.2	5,158	4,629	1,605	1,605
WHEMLOCK		22	31.8	14.6	43	9.7	36.9	4,395	4,321	1,212	1,212
BL MAPLE		2	1.1	16.3	38	0.4	1.6	83	83	31	31
TOTAL		144	135.2	17.4	55	53.5	223.2	28,561	27,672	7,794	7,794
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		87.9	9.9	446	496	545					
R ALDER		49.3	7.6	122	132	142					
WHEMLOCK		123.5	26.9	243	333	422					
BL MAPLE		141.4	132.4		95	221					
TOTAL		109.6	9.1	326	359	392	480	120	53		
CL:	68.1 %	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		87.2	10.8	56	62	69					
R ALDER		131.0	16.2	33	40	46					
WHEMLOCK		167.1	20.7	25	32	38					
BL MAPLE		463.3	57.4	0	1	2					
TOTAL		51.3	6.4	127	135	144	105	26	12		
CL:	68.1 %	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		81.9	10.2	120	134	147					
R ALDER		131.9	16.3	43	51	60					
WHEMLOCK		171.6	21.3	29	37	45					
BL MAPLE		458.1	56.8	1	2	2					
TOTAL		44.9	5.6	211	223	236	80	20	9		
CL:	68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		80.8	10.0	16,773	18,640	20,507					
R ALDER		140.3	17.4	3,824	4,629	5,433					
WHEMLOCK		192.7	23.9	3,289	4,321	5,352					
BL MAPLE		597.2	74.0	22	83	145					
TOTAL		47.4	5.9	26,046	27,672	29,299	90	22	10		

TC TSTATS				STATISTICS				PAGE 1				
				PROJECT		4DBC		DATE 4/14/2022				
TWP	RGE	SECT	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt		
03N	07W	05	2N4	00MC		134.00	66	460	1	W		
			PLOTS	TREES	TREES	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
					PER PLOT							
TOTAL			66	460	7.0							
CRUISE			27	177	6.6	26,127	.7					
DBH COUNT												
REFOREST												
COUNT			39	272	7.0							
BLANKS												
100 %												
STAND SUMMARY												
			SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
R ALDER			140	136.3	14.9	45	42.8	165.4	16,325	14,465	4,880	4,880
DOUG FIR			22	43.7	15.0	44	13.9	53.9	6,142	6,116	1,689	1,689
WHEMLOCK			4	8.5	16.1	49	3.0	12.1	1,218	1,218	379	379
SNAG			4	2.2	24.2	50	1.4	7.0				
BL MAPLE			6	3.7	17.4	37	1.5	6.1	439	426	127	127
WR CEDAR			1	.6	24.0	65	0.4	1.8	162	162	58	58
TOTAL			177	195.0	15.2	45	63.1	246.3	24,287	22,387	7,133	7,133
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL: 68.1 %			COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER			57.5	4.9	126	132	139					
DOUG FIR			108.8	23.7	224	294	364					
WHEMLOCK			114.3	65.3	74	213	351					
SNAG												
BL MAPLE			75.5	33.6	101	152	203					
WR CEDAR												
TOTAL			96.5	7.2	142	153	164		372	93	41	
CL: 68.1 %			COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER			50.7	6.2	128	136	145					
DOUG FIR			179.2	22.0	34	44	53					
WHEMLOCK			253.5	31.2	6	9	11					
SNAG			279.5	34.4	1	2	3					
BL MAPLE			232.9	28.6	3	4	5					
WR CEDAR			601.8	74.0	0	1	1					
TOTAL			34.2	4.2	187	195	203		47	12	5	
CL: 68.1 %			COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER			47.8	5.9	156	165	175					
DOUG FIR			180.5	22.2	42	54	66					
WHEMLOCK			258.7	31.8	8	12	16					
SNAG			273.2	33.6	5	7	9					
BL MAPLE			234.5	28.8	4	6	8					
WR CEDAR			601.8	74.0	0	2	3					
TOTAL			31.7	3.9	237	246	256		40	10	4	
CL: 68.1 %			COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0			VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
R ALDER			50.4	6.2	13,568	14,465	15,362					
DOUG FIR			183.9	22.6	4,733	6,116	7,499					
WHEMLOCK			264.0	32.5	823	1,218	1,614					
SNAG												
BL MAPLE			255.6	31.4	292	426	560					
WR CEDAR			601.8	74.0	42	162	282					

TC TSTATS				STATISTICS PROJECT 4DBC				PAGE 2	
								DATE 4/14/2022	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
03N	07W	05	2N4	00MC	134.00	66	460	1	W
CL:	68.1%	COEFF		NET BF/ACRE			# OF PLOTS REQ.	INF. POP.	
SD:	1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
TOTAL		38.9	4.8	21,316	22,387	23,457	60	15	7

TC TSTATS				STATISTICS PROJECT 4DBC				PAGE 1 DATE 4/14/2022			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
03N	07W	05	2N4	TAKE	134.00	66	419	1	W		
				TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
		PLOTS	TREES								
TOTAL		66	419	6.3							
CRUISE		25	165	6.6		24,462		.7			
DBH COUNT											
REFOREST											
COUNT		41	254	6.2							
BLANKS											
100 %											
STAND SUMMARY											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
R ALDER		139	133.5	14.9	45	41.9	161.8	15,969	14,148	4,771	4,771
DOUG FIR		22	41.8	15.0	44	13.3	51.5	5,866	5,841	1,613	1,613
WHEMLOCK		4	7.2	16.1	49	2.6	10.3	1,036	1,036	322	322
TOTAL		165	182.6	15.0	45	57.8	223.6	22,871	21,024	6,706	6,706
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5 10		15		
R ALDER		57.8	4.9	126	132	139					
DOUG FIR		108.8	23.7	224	294	364					
WHEMLOCK		114.3	65.3	74	213	351					
TOTAL		95.8	7.4	144	156	167	366		92	41	
CL:	68.1 %	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5 10		15		
R ALDER		53.0	6.5	125	134	142					
DOUG FIR		187.8	23.1	32	42	51					
WHEMLOCK		285.0	35.1	5	7	10					
TOTAL		35.0	4.3	175	183	190	49		12	5	
CL:	68.1 %	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5 10		15		
R ALDER		49.9	6.1	152	162	172					
DOUG FIR		189.1	23.3	40	52	63					
WHEMLOCK		291.4	35.8	7	10	14					
TOTAL		32.3	4.0	215	224	233	42		10	5	
CL:	68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR. %	S.E. %	LOW	AVG	HIGH	5 10		15		
R ALDER		52.8	6.5	13,230	14,148	15,066					
DOUG FIR		192.7	23.7	4,457	5,841	7,225					
WHEMLOCK		297.9	36.6	656	1,036	1,415					
TOTAL		40.1	4.9	19,988	21,024	22,061	64		16	7	

TC TSTATS				STATISTICS				PAGE 1			
				PROJECT	4DBC			DATE	4/14/2022		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
03N	07W	05	3	00MC	109.00	65	420	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
PLOTS		TREES									
TOTAL		65		420		6.5					
CRUISE		24		149		6.2		19,562			
DBH COUNT								.8			
REFOREST											
COUNT		41		271		6.6					
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE		TREES		AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
TREES		/ACRE		DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR		92		121.9	16.2	57	43.5	175.4	21,707	21,591	6,043
R ALDER		54		54.6	13.5	41	14.8	54.3	4,696	4,203	1,500
SNAG		3		3.0	17.4	43	1.2	4.9			
TOTAL		149		179.5	15.5	52	59.6	234.6	26,404	25,795	7,543
CONFIDENCE LIMITS OF THE SAMPLE										68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR	
CL:	68.1 %	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%		S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		111.5		11.6	273		309	345			
R ALDER		56.2		7.6	87		94	101			
SNAG											
TOTAL		130.2		10.7	201		225	249	677	169	75
CL:	68.1 %	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%		S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		68.8		8.5	111		122	132			
R ALDER		145.1		18.0	45		55	64			
SNAG		343.1		42.5	2		3	4			
TOTAL		40.4		5.0	170		179	188	65	16	7
CL:	68.1 %	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%		S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		64.3		8.0	161		175	189			
R ALDER		145.7		18.1	44		54	64			
SNAG		304.9		37.8	3		5	7			
TOTAL		37.2		4.6	224		235	245	55	14	6
CL:	68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%		S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		67.8		8.4	19,776		21,591	23,406			
R ALDER		151.8		18.8	3,413		4,203	4,994			
SNAG											
TOTAL		45.9		5.7	24,328		25,795	27,261	84	21	9

TC TSTATS				STATISTICS PROJECT 4DBC				PAGE 1	DATE 4/14/2022	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	07W	05	3	TAKE	109.00	65	412	1	W	
				TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
		PLOTS	TREES							
TOTAL		65	412	6.3						
CRUISE		24	146	6.1	19,238			.8		
DBH COUNT										
REFOREST										
COUNT		41	266	6.5						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	92	121.9	16.2	57	43.5	175.4	21,707	21,591	6,043	6,043
R ALDER	54	54.6	13.5	41	14.8	54.3	4,696	4,203	1,500	1,500
TOTAL	<i>146</i>	<i>176.5</i>	<i>15.4</i>	<i>52</i>	<i>58.4</i>	<i>229.7</i>	<i>26,404</i>	<i>25,795</i>	<i>7,543</i>	<i>7,543</i>
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR	111.5	11.6	273	309	345					
R ALDER	56.2	7.6	87	94	101					
TOTAL	<i>128.1</i>	<i>10.6</i>	<i>205</i>	<i>229</i>	<i>254</i>		<i>655</i>	<i>164</i>	<i>73</i>	
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR	68.8	8.5	111	122	132					
R ALDER	145.1	18.0	45	55	64					
TOTAL	<i>41.1</i>	<i>5.1</i>	<i>168</i>	<i>176</i>	<i>185</i>		<i>67</i>	<i>17</i>	<i>7</i>	
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR	64.3	8.0	161	175	189					
R ALDER	145.7	18.1	44	54	64					
TOTAL	<i>38.0</i>	<i>4.7</i>	<i>219</i>	<i>230</i>	<i>240</i>		<i>58</i>	<i>14</i>	<i>6</i>	
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR	67.8	8.4	19,776	21,591	23,406					
R ALDER	151.8	18.8	3,413	4,203	4,994					
TOTAL	<i>45.9</i>	<i>5.7</i>	<i>24,328</i>	<i>25,795</i>	<i>27,261</i>		<i>84</i>	<i>21</i>	<i>9</i>	

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT 4DBC				DATE	4/14/2022		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
03N	07W	05	12S	RWT	3.00	65	384	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		65	384	5.9							
CRUISE		25	144	5.8	413		34.9				
DBH COUNT											
REFOREST											
COUNT		40	240	6.0							
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
DOUG FIR		78	62.5	19.8	63	30.0	133.5	18,924	18,640	4,946	4,946
R ALDER		42	39.9	15.3	51	13.1	51.2	5,158	4,629	1,605	1,605
WHEMLOCK		22	31.8	14.6	43	9.7	36.9	4,395	4,321	1,212	1,212
SNAG		1	2.5	15.0	34	0.8	3.1				
BL MAPLE		1	.9	18.0	45	0.4	1.6	167	167	44	44
TOTAL		144	137.5	17.4	55	54.3	226.3	28,644	27,756	7,806	7,806
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL:	68.1 %	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR		87.9	9.9	446	496	545					
R ALDER		49.3	7.6	122	132	142					
WHEMLOCK		123.5	26.9	243	333	422					
SNAG											
BL MAPLE											
TOTAL		109.6	9.1	326	359	392	480	120	53		
CL:	68.1 %	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR		87.2	10.8	56	62	69					
R ALDER		131.0	16.2	33	40	46					
WHEMLOCK		167.1	20.7	25	32	38					
SNAG		418.0	51.8	1	3	4					
BL MAPLE		458.1	56.8	0	1	1					
TOTAL		51.3	6.4	129	138	146	105	26	12		
CL:	68.1 %	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR		81.9	10.2	120	134	147					
R ALDER		131.9	16.3	43	51	60					
WHEMLOCK		171.6	21.3	29	37	45					
SNAG		418.0	51.8	1	3	5					
BL MAPLE		458.1	56.8	1	2	2					
TOTAL		44.2	5.5	214	226	239	78	20	9		
CL:	68.1 %	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR		80.8	10.0	16,773	18,640	20,507					
R ALDER		140.3	17.4	3,824	4,629	5,433					
WHEMLOCK		192.7	23.9	3,289	4,321	5,352					
SNAG											
BL MAPLE		458.1	56.8	72	167	261					
TOTAL		47.1	5.8	26,135	27,756	29,376	89	22	10		

TC TSTATS				STATISTICS PROJECT 4DBC				PAGE 1	DATE 4/14/2022	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
03N	07W	05	3	RWT	2.00	65	420	1	W	
				TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
		PLOTS	TREES							
TOTAL		65	420	6.5						
CRUISE		24	149	6.2	359		41.5			
DBH COUNT										
REFOREST										
COUNT		41	271	6.6						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	92	121.9	16.2	57	43.5	175.4	21,707	21,591	6,043	6,043
R ALDER	54	54.6	13.5	41	14.8	54.3	4,696	4,203	1,500	1,500
SNAG	3	3.0	17.4	43	1.2	4.9				
TOTAL	149	179.5	15.5	52	59.6	234.6	26,404	25,795	7,543	7,543
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR	111.5	11.6	273	309	345					
R ALDER	56.2	7.6	87	94	101					
SNAG										
TOTAL	130.2	10.7	201	225	249		677	169	75	
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR	68.8	8.5	111	122	132					
R ALDER	145.1	18.0	45	55	64					
SNAG	343.1	42.5	2	3	4					
TOTAL	40.4	5.0	170	179	188		65	16	7	
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR	64.3	8.0	161	175	189					
R ALDER	145.7	18.1	44	54	64					
SNAG	304.9	37.8	3	5	7					
TOTAL	37.2	4.6	224	235	245		55	14	6	
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15	
DOUG FIR	67.8	8.4	19,776	21,591	23,406					
R ALDER	151.8	18.8	3,413	4,203	4,994					
SNAG										
TOTAL	45.9	5.7	24,328	25,795	27,261		84	21	9	

TC PLOGSTVB				Log Stock Table - MBF																
T03N R07W S05 TyRWT THRU T03N R07W S05 TyTAKE								Project: 4DBC								Page 1				
								Acres 385.00								Date 4/14/2022				
																Time 10:15:40AM				
Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
A		DO	1S	16	26	13.1	23	.8						23						
A		DO	1S	18	11	23.8	9	.3							9					
A		DO	1S	20	97	11.0	86	2.9						75		12				
A		DO	1S	24	109	10.7	98	3.2						47	37	14				
A		DO	1S	26	13	16.9	11	.4						11						
A		DO	1S	28	100	10.0	90	3.0						60	15	15				
A		DO	1S	30	132	11.2	118	3.9						63	55					
A		DO	1S	32	161	10.0	145	4.8						128		16				
A		DO	1S	34	15	10.0	13	.4						13						
A		DO	1S	40	304	12.5	266	8.8						223	44					
A		DO	2S	16	7	10.0	7	.2						7						
A		DO	2S	18	10	10.0	9	.3						9						
A		DO	2S	20	99	10.0	89	3.0				9		73	7					
A		DO	2S	24	63	10.0	56	1.9						56						
A		DO	2S	26	30	16.0	26	.8						26						
A		DO	2S	28	46	11.9	40	1.3						40						
A		DO	2S	30	100	10.9	89	3.0						89						
A		DO	2S	32	209	10.5	187	6.2				14		134	40					
A		DO	2S	34	15	10.0	13	.4							13					
A		DO	2S	36	27	13.3	23	.8						23						
A		DO	2S	40	389	10.6	347	11.5				15		332						
A		DO	3S	12	2	10.0	1	.0				1								
A		DO	3S	16	4	10.0	4	.1				4								
A		DO	3S	20	31	10.0	28	.9				2	26							
A		DO	3S	24	29	10.0	26	.9					26							
A		DO	3S	26	7	10.0	7	.2					7							
A		DO	3S	28	8	10.0	8	.3					8							
A		DO	3S	30	42	14.6	36	1.2				3	19	14						
A		DO	3S	32	36	12.4	32	1.1					32							
A		DO	3S	36	62	10.0	56	1.9				5	51							
A		DO	3S	40	189	10.0	170	5.7				4	166							
A		DO	4S	12	8	10.0	7	.2				7								
A		DO	4S	14	25	10.0	23	.8				23								
A		DO	4S	16	69	11.4	61	2.0				61								
A		DO	4S	18	62	10.0	55	1.8				55								
A		DO	4S	20	105	10.0	94	3.1				94								

TC PLOGSTVB		Log Stock Table - MBF																	
T03N R07W S05 TyRWT THRU T03N R07W S05 TyTAKE					Project: 4DBC Acres 385.00										Page 3 Date 4/14/2022 Time 10:15:40AM				
S T Spp	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D	DO	4S	36	46		46	.8			46									
D	DO	4S	40	8		8	.1		8										
D	Totals			5,845		5,789	60.6		20	902	488	1184	683	727	868	776	141		
H	DO	2S	26	25		25	3.4					25							
H	DO	2S	28	17		17	2.3					17							
H	DO	2S	40	370	2.0	362	48.7					66	58	134	66	38			
H	DO	3S	20	3		3	.4					3							
H	DO	3S	32	69		69	9.3			14	11	35	9						
H	DO	3S	36	50	6.0	47	6.3			33		14							
H	DO	3S	38	17		17	2.3			17									
H	DO	3S	40	124		124	16.7			62		49	14						
H	DO	4S	16	11		11	1.5			8		3							
H	DO	4S	18	6		6	.8			2	4								
H	DO	4S	20	23		23	3.1		0	20	3								
H	DO	4S	24	6		6	.8			6									
H	DO	4S	26	13		13	1.7			13									
H	DO	4S	28	8		8	1.1			5	3								
H	DO	4S	40	11		11	1.5			11									
H	Totals			754	1.4	744	7.8		0	192	20	104	118	72	134	66	38		
M	DO	1S	24	9		9	78.9					9							
M	DO	3S	18	3		3	21.1			3									
M	Totals			12		12	.1			3		9							
Total	All Species			9,994	4.4	9,555	100.0		24	2003	887	2091	1512	957	1060	842	178		

TC		PSTNDSUM		Stand Table Summary										Page Date:		1 4/14/2022	
T03N R07W S05 TyRWT THRU T03N R07W S05 TyTAKE					Project 4DBC					Time: 10:15:40AM							
					Acres 385.00					Grown Year:							
S Spc	T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	T o t a l s			
		DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF	
D		9	5	85	59	4.333	1.91	4.33	10.2	40.1		44	174		169	67	
D		10	9	85	66	5.659	3.09	6.80	10.4	39.2		71	267		273	103	
D		11	9	84	48	6.314	4.17	6.31	12.3	36.7		78	232		300	89	
D		12	13	86	62	5.515	4.33	7.71	12.8	42.2		99	325		381	125	
D		13	14	85	69	4.411	4.07	6.20	17.3	53.0		107	329		413	127	
D		14	16	85	63	5.192	5.55	7.50	18.4	58.4		138	438		530	169	
D		15	23	85	77	5.650	6.93	10.35	20.4	68.0		211	703		811	271	
D		16	31	85	79	6.697	9.35	12.50	23.6	81.2		296	1,016		1,138	391	
D		17	30	84	89	6.101	9.62	12.20	27.6	92.4		336	1,128		1,295	434	
D		18	16	86	89	2.571	4.54	5.14	31.6	107.1		163	551		626	212	
D		19	16	84	92	2.344	4.62	5.28	31.7	103.4		168	546		645	210	
D		20	19	85	92	2.842	6.20	6.51	35.0	116.9		228	761		878	293	
D		21	11	84	92	1.572	3.78	3.66	38.1	126.1		140	462		538	178	
D		22	21	84	98	2.639	6.97	5.49	45.0	159.0		247	872		951	336	
D		23	10	86	87	1.377	3.97	3.01	46.4	168.2		140	507		538	195	
D		24	29	84	100	2.848	8.95	6.72	52.4	189.8		353	1,277		1,357	491	
D		25	11	84	106	1.109	3.78	2.64	58.9	221.8		156	586		599	226	
D		26	8	85	110	.909	3.35	2.21	63.3	238.1		140	526		538	202	
D		27	12	86	120	.903	3.59	2.40	68.3	277.7		164	665		630	256	
D		28	8	83	115	.582	2.49	1.46	66.1	279.0		96	406		371	156	
D		29	8	86	132	.543	2.49	1.63	76.6	340.0		125	554		480	213	
D		30	10	86	126	.619	3.04	1.86	77.3	334.0		144	621		553	239	
D		31	6	86	129	.342	1.79	1.03	84.8	386.3		87	397		335	153	
D		32	2	86	107	.111	.62	.22	96.0	410.0		21	91		82	35	
D		33	10	85	122	.487	2.89	1.26	104.7	462.3		132	585		510	225	
D		34	4	86	147	.197	1.25	.69	98.1	471.4		68	326		261	125	
D		35	5	85	116	.287	1.91	.86	97.3	434.7		84	374		322	144	
D		36	2	85	137	.078	.55	.23	121.7	600.0		28	140		109	54	
D		37	2	85	124	.083	.62	.25	118.0	556.7		30	139		114	54	
D		40	2	75	78	.071	.62	.14	84.0	295.0		12	42		46	16	
D		Totals	362	85	78	72.390	117.05	126.60	32.4	118.8		4,102	15,036		15,793	5,789	
A		8	2	86	17	2.316	.81	1.16	4.0	9.0		5	10		18	4	
A		9	5	86	22	2.227	.98	2.23	5.4	18.0		12	40		46	15	
A		10	10	85	55	3.608	1.97	3.61	12.2	37.6		44	136		170	52	
A		11	18	85	64	5.989	3.95	7.04	15.3	43.6		107	307		413	118	
A		12	20	86	59	8.238	6.47	10.91	15.3	41.8		167	457		643	176	
A		13	30	84	59	8.425	7.77	12.02	16.8	45.0		202	541		777	208	
A		14	39	85	66	8.672	9.27	14.80	19.0	55.8		282	826		1,085	318	
A		15	47	86	69	10.314	12.66	18.60	20.7	60.5		385	1,125		1,483	433	
A		16	44	85	66	7.809	10.90	13.49	24.3	75.0		328	1,012		1,262	390	
A		17	36	85	69	7.610	12.00	13.40	27.8	80.5		372	1,079		1,433	415	
A		18	23	86	69	3.761	6.65	7.36	29.0	85.8		213	631		820	243	
A		19	22	85	65	2.877	5.66	5.53	31.0	87.6		171	484		659	186	
A		20	19	86	76	2.780	6.07	5.38	39.1	115.5		210	621		809	239	
A		21	7	86	65	.961	2.31	1.92	35.7	120.3		69	231		264	89	
A		22	6	86	76	.919	2.43	1.84	46.5	133.5		85	245		329	94	
A		23	2	82	70	.100	.29	.20	48.5	121.5		10	24		38	9	
A		24	1	89	78	.129	.40	.26	56.5	193.5		15	50		56	19	
A		Totals	331	85	63	76.733	90.58	119.74	22.4	65.3		2,677	7,819		10,306	3,010	
H		8	2	83	34	1.748	.61										
H		10	4	82	43	2.238	1.22	2.24	10.0	30.0		22	67		86	26	
H		11	2	81	28	.925	.61	.92	10.0	20.0		9	18		36	7	

TC PSTNDSUM		Stand Table Summary										Page 2		
												Date: 4/14/2022		
T03N R07W S05 TyRWT THRU T03N R07W S05 TyTAKE					Project 4DBC					Time: 10:15:40AM				
					Acres 385.00					Grown Year:				
S Spc	T	DBH	Sample Trees	Tot FF 16' Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	T o t a l s Tons Cunits MBF	
H		12	6	85 59	2.331	1.83	2.33	20.7	56.7		48	132	185	51
H		13	3	82 61	1.635	1.51	1.63	24.0	60.0		39	98	151	38
H		15	3	84 76	1.228	1.51	1.73	28.0	85.9		48	148	186	57
H		16	4	80 60	.874	1.22	1.31	25.3	73.3		33	96	128	37
H		18	3	83 68	.853	1.51	1.71	26.4	82.0		45	140	173	54
H		19	2	86 115	.310	.61	.93	31.7	116.7		29	108	113	42
H		21	4	84 103	.507	1.22	1.27	40.8	146.0		52	185	199	71
H		22	4	87 106	.462	1.22	1.16	50.4	198.0		58	229	224	88
H		23	1	86 110	.311	.90	.93	46.0	190.0		43	177	165	68
H		26	2	85 126	.166	.61	.50	63.3	270.0		31	134	121	52
H		27	2	78 78	.153	.61	.15	26.0	50.0		4	8	15	3
H		30	4	86 111	.249	1.22	.75	76.5	321.7		57	240	220	92
H		34	2	86 126	.097	.61	.29	110.7	516.7		32	150	124	58
H		Totals	48	83 61	14.087	17.01	17.84	31.0	108.3		553	1,932	2,128	744
M		15	1	87 33	.225	.28	.22	15.0			3		13	
M		18	2	83 68	.163	.29	.33	25.0	95.0		8	31	31	12
M		Totals	3	85 48	.388	.56	.55	20.9	56.2		12	31	44	12
SN		11	1	88 45	.013	.01								
SN		15	1	88 34	.020	.02								
SN		32	1	89 33	.002	.01								
SN		40	1	88 30	.001	.01								
SN		Totals	4	88 38	.035	.05								
Totals		748	85 69	163.632	225.26	264.73		27.7	93.7		7,343	24,818	28,271	9,555

LOGGING PLAN MAP

OF TIMBER SALE CONTRACT

NO. TL-341-2023-W00852-01

FOUR DB CRONIN

PORTIONS OF SECTIONS 5 & 6

OF T3N, R7W, W.M., AND

PORTIONS OF SECTION 1

OF T3N, R8W, W.M.,

TILLAMOOK COUNTY, OREGON,

AND PORTIONS OF SECTIONS 29,

31, & 32 OF T4N, R7W, W.M.,

CLATSOP COUNTY, OREGON

Unit	Ground	Cable	Approximate Net Acres
Unit 1 (MC)	17%	83%	105
Unit 2 (MC)	12%	88%	60
Unit 3 (MC)	0%	100%	109
Unit 4 (MC)	1%	99%	106
Unit 5 (R/W)	100%	0%	5
Total	8%	92%	385

0 500 1,000 2,000
Feet

1 inch = 1,000 feet

Contours = 40 feet



Unit 5 (R/W)

Spruce Run Road

Unit 1

PRIVATE
STATE

North Fork
Cronin Creek

Cronin Creek

Unit 2

Unit 5 (R/W)

CLATSOP COUNTY

TILLAMOOK COUNTY

31 32

6 5

T4N, R7W

T3N, R7W

Unit 3

Cronin Creek

Page 1 of 2

Legend

- Ownership Boundary
- Section Line
- Surfaced Road
- New Road Construction - Unsurfaced
- New Road Construction - Surfaced
- Landing To Be Constructed
- Existing Landing
- Early Felling Area
- Type F Stream
- Type N Stream
- Controlled Felling
- Reserve Tree Area
- Reforestation Area
- Cable Yarding
- Ground Based Yarding
- Survey Monument

LOGGING PLAN MAP

OF TIMBER SALE CONTRACT
NO. TL-341-2023-W00852-01

FOUR DB CRONIN

PORTIONS OF SECTIONS 5 & 6

OF T3N, R7W, W.M., AND

PORTIONS OF SECTION 1

OF T3N, R8W, W.M.,

TILLAMOOK COUNTY, OREGON,

AND PORTIONS OF SECTIONS 29,

31, & 32 OF T4N, R7W, W.M.,

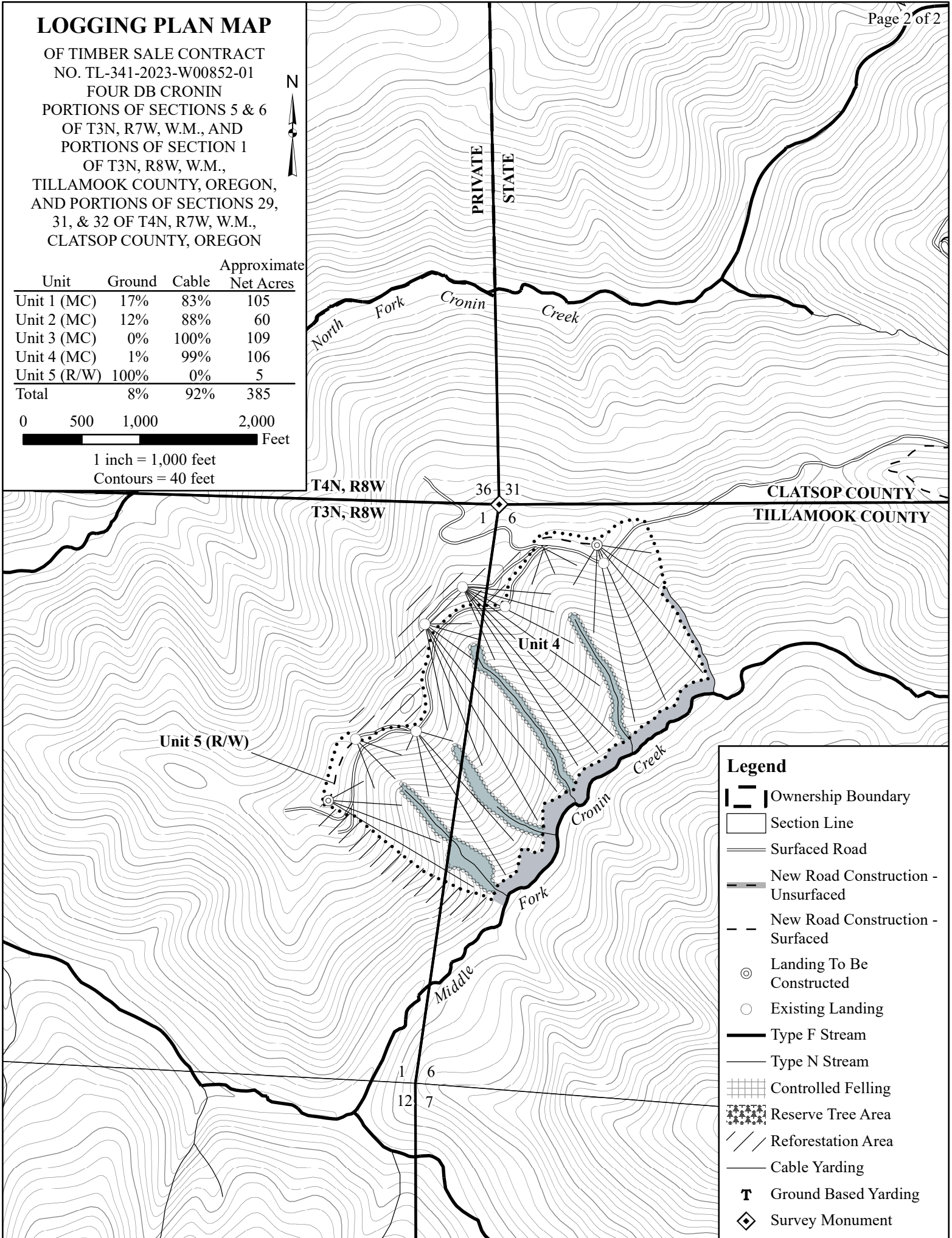
CLATSOP COUNTY, OREGON



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0 500 1,000 2,000
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