



Timber Sale Appraisal
Vesper View
Sale AT-341-2018-26-

District: Astoria

Date: July 17, 2017

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$1,487,238.13	\$22,237.60	\$1,509,475.73
		Project Work:	(\$497,251.00)
		Advertised Value:	\$1,012,224.73



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Timber Description

Location: Portions of Sections 11, 12, 13, and 24, T6N, R6W,
W.M., Clatsop County, Oregon.

Stand Stocking: 60%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	28	0	97
Western Hemlock / Fir	10	0	97
Noble Fir	42	0	97
Alder (Red)	17	0	95

Volume by Grade	2S	3S	4S	Camprun	Total
Douglas - Fir	2,382	618	242	0	3,242
Western Hemlock / Fir	0	0	7	0	7
Noble Fir	16	1	0	0	17
Alder (Red)	0	0	0	55	55
Total	2,398	619	249	55	3,321

Comments: Pond Values Used: Local Pond Values, March 2017.

Expected Log Markets: Mist, Clatskanie, Tillamook, Forest Grove, Longview (WA), Chehalis (WA), Elma (WA), Warrenton and Garibaldi.

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
 $\$1,188.13/\text{MBF} = \$1,423.88/\text{MBF} - \$235.75/\text{MBF}$

Sitka Spruce Stumpage Price = Pond Value minus Logging Cost:
 $\$228.38/\text{MBF} = \$464.13/\text{MBF} - \$235.75/\text{MBF}$

SCALING COST ALLOWANCE = \$5.00/MBF

BRANDING AND PAINTING COST ALLOWANCE = \$2.00/MBF

FUEL COST ALLOWANCE = \$3.00/Gallon

HAULING COST ALLOWANCE
Hauling costs equivalent to \$780 daily truck cost.

Other Costs (with Profit & Risk to be added):
Log Loader Slash & Landing Piling (includes Move-in and Pile Materials) = \$14,226.00 (see attached appraisal)

Machine Washing for Invasive Weed Compliance = \$2,000
TOTAL Other Costs (with Profit & Risk to be added) = \$16,226

Other Costs (No Profit & Risk added):
None.



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Logging Conditions

Combination#: 1

Douglas - Fir	10.00%
Western Hemlock / Fir	10.00%
Noble Fir	10.00%
Alder (Red)	10.00%

Logging System: Cable: Medium Tower >40 - <70 **Process:** Manual Delimbing
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:** 4100
cost / mbf: \$123.98
machines: Log Loader (A)
Tower Yarder (Medium)

Combination#: 2

Douglas - Fir	28.00%
Western Hemlock / Fir	28.00%
Noble Fir	28.00%
Alder (Red)	28.00%

Logging System: Shovel **Process:** Manual Delimbing
yarding distance: Medium (800 ft) **downhill yarding:** No
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 14 **bd. ft / load:** 4400
cost / mbf: \$54.02
machines: Shovel Logger

Combination#: 3

Douglas - Fir	62.00%
Western Hemlock / Fir	62.00%
Noble Fir	62.00%
Alder (Red)	62.00%

Logging System: Shovel **Process:** Feller Buncher
yarding distance: Medium (800 ft) **downhill yarding:** No
tree size: Small / Thinning 10in (90 Bft/tree), 18-20 logs/MBF
loads / day: 8 **bd. ft / load:** 3700
cost / mbf: \$119.53
machines: Feller Buncher w/ Delimber



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Logging Costs

Operating Seasons: 2.00	Profit Risk: 12%
Project Costs: \$497,251.00	Other Costs (P/R): \$16,226.00
Slash Disposal: \$0.00	Other Costs: \$0.00

Miles of Road

Road Maintenance: \$5.72

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	3.0	4.5
Western Hemlock / Fir	\$0.00	3.0	4.5
Noble Fir	\$0.00	3.0	4.5
Alder (Red)	\$0.00	2.0	3.5



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Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
Douglas - Fir									
\$101.63	\$5.89	\$2.64	\$59.51	\$4.89	\$20.95	\$0.00	\$7.00	\$0.00	\$202.51
Western Hemlock / Fir									
\$101.63	\$5.89	\$2.64	\$59.51	\$4.89	\$20.95	\$0.00	\$7.00	\$0.00	\$202.51
Noble Fir									
\$101.63	\$5.89	\$2.64	\$59.51	\$4.89	\$20.95	\$0.00	\$7.00	\$0.00	\$202.51
Alder (Red)									
\$101.63	\$6.01	\$2.64	\$117.00	\$4.89	\$27.86	\$0.00	\$7.00	\$0.00	\$267.03

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$658.80	\$456.29	\$0.00
Western Hemlock / Fir	\$0.00	\$527.62	\$325.11	\$0.00
Noble Fir	\$0.00	\$536.05	\$333.54	\$0.00
Alder (Red)	\$0.00	\$671.35	\$404.32	\$0.00



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Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	3,242	\$456.29	\$1,479,292.18
Western Hemlock / Fir	7	\$325.11	\$2,275.77
Noble Fir	17	\$333.54	\$5,670.18
Alder (Red)	55	\$404.32	\$22,237.60

Gross Timber Sale Value

Recovery: \$1,509,475.73

Prepared By: Dave Rygell

Phone: 503-325-5451

Final Road Maintenance Cost Summary

Sale: Vesper View
 Date: 01-May-17
 By: Rygeil *RL*

MBF: 3,321
 \$\$/MBF: \$5.72

Type	Equipment/Rationale	Move In	Times	Hours	Rate	Cost
Progressive Operations 1st Entry	Grader 14G	\$778	1	8	\$100	\$1,578
Progressive Operations 2nd Entry	Grader 14G	\$778	1	8	\$100	\$1,578
	Dump Truck 12CY	\$163	1	8	\$79	\$795
	FE Loader C966	\$778	1	4	\$83	\$1,110
	Vibratory Roller	\$778	1	8	\$77	\$1,394
Final Haul Maintenance Haul Route	Grader 14G	\$778	1	20	\$100	\$2,778
	Dump Truck 12CY	\$163	2	10	\$79	\$1,906
	Vibratory Roller	\$778	1	20	\$77	\$2,318
	Water Truck 2,500 gallon	\$190	1	20	\$89	\$1,970
	FE Loader C966	\$778	1	10	\$83	\$1,608
	Labor			10	\$40	\$400
	Rubber Tire Backhoe	\$321	1	16	\$77.	\$1,553
Total						\$18,988

Progressive Ops. 1st Entry	Production Rates	Miles/day	Distance(miles)	Days
	Grader	2.5	2.0	0.8
Progressive Ops. 2nd Entry	Production Rates	Miles/day	Distance(miles)	Days
	Grader	2.5	2.0	0.8
	Vibratory Roller	2.5	2.0	0.8
Final Road Maintenance	Production Rates	Miles/day	Distance(miles)	Days
	Grader	1.5	3.4	2.3
	Vibratory Roller	1.5	3.4	2.3

Site Prep Appraisal

Sale Number: 341-18-26
Sale Name: Vesper View
Date: 05/01/2017

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre
Doug-fir	A	1.0	3.0
Hemlock/Fir	B	1.5	4.5
Hemlock/Spruce	C	2.0	6.0
Hemlock	D	2.0	6.0
Conifer/Hardwood	E	1.5	4.5
Whole Tree Yarding	F	0.5	0.5

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area	
1	MC	A	28.0	28	\$129.00	\$3,612.00	
2	MC	A	26.0	26	\$129.00	\$3,354.00	
In-unit Piling						Sub Total =	\$6,966.00
Sale Area	Number of Landings to be Piled	Cost/Landing Pile	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area	
1	5	\$516.00	\$2,580.00	84	\$5.00	\$420.00	
2	5	\$516.00	\$2,580.00	78	\$5.00	\$390.00	
*Cost includes separating firewood					Materials	Sub Total =	\$810.00
					Landing Piling	Sub Total =	\$5,160.00
Move-In Allowance	Number of Move-In's	Total Move-In Allowance					
\$1,290.00	1	\$1,290.00		Move-In	Sub Total =		\$1,290.00
						Grand Total =	\$14,226.00

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Vesper View

ROAD CONSTRUCTION:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
1A to 1B, 3A to 3B, 3C to 3D	153.55	\$202,164
3E to 3F, 3G to 3H		
3I to 3J, 4A to 4B		
TOTALS	153.55	\$202,164

ROAD IMPROVEMENT:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
I1 to I2, I3 to I4, I5 to I6	84.45	\$31,962
I7 to I8, I9 to I10, I11 to I12		
TOTALS		\$31,962

SPECIAL PROJECTS:

	<u>Description</u>	<u>Cost</u>
Project No. 3	View Point Quarry Development and Rock Crushing	\$225,087
	Vesper Stockpile Site Construction	\$14,419
Project No. 4	Road Vacating	\$11,092
	Project Road Maintenance	\$3,615.00
TOTAL		\$254,213

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
Large Grader (14G)	\$778.00
Vibratory Roller	\$778.00
Excavator (C315)	\$805.00
Excavator (C330)	\$1,406.00
Dozer (D8)	\$1,406.00
Small backhoe (C580)	\$321.00
Water truck (2,500 gallons)	\$190.00
10-12 cy highway dump truck X 8	\$1,304.00
20 cy highway dump truck X 6	\$1,146.00
Skidder	\$778.00
TOTAL	\$8,912.00

GRAND TOTAL **\$497,251.00**

Compiled By: Kraig Kirkpatrick FL

Date: 03/21/2017

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Vesper View
 ROAD: New Road Construction

NEW CONSTRUCTION: 153.55 STATIONS 2.91 MILES
 IMPROVEMENT: STATIONS MILES
1A-1B (5.0), 3A-3B(57.45), 3C-3D(18.0), 3E-3F(8.05), 3G-3H(24.7), 3I-3J(21.6), 4A-4B(18.75)

POINTS:

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
Scatter outside of R/W	10	x	\$1,337.00	=	\$13,370.00
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING

\$13,370

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
1A to 1B (existing dirt spur)					
Establish drainage w/315, \$/hr	2	x	\$101.00		\$202.00
Landing construction w/C330, \$/hr	1		\$155.00		\$155.00
3A to 3B					
Common Drift \$/CY	1860	x	\$1.80		\$3,348.00
Balanced Construction \$/sta	43	x	\$122.00		\$5,246.00
Embankment compaction \$/CY	1860	x	\$0.70		\$1,302.00
Cutslope Rounding \$/sta	7	x	\$43.00		\$301.00
Fill Armor placement w/330, \$/hr	8	x	\$155.00		\$1,240.00
3C to 3D					
Balanced Construction \$/sta	18.0	x	\$122.00		\$2,196.00
Landing construction \$/ldg	1	x	\$389.00		\$389.00
3E to 3F (existing rock spur)					
Establish drainage w/315, \$/hr	2	x	\$101.00		\$202.00
3G to 3H (existing rock spur)					
Establish drainage w/D8, \$/hr	4	x	\$158.00		\$632.00
Establish drainage w/315, \$/hr	4	x	\$101.00		\$404.00
Landing construction w/C330, \$/hr	1		\$155.00		\$155.00
3I to 3J					
Balanced Construction \$/sta	21.6	x	\$122.00		\$2,635.20
Landing construction \$/ldg	1	x	\$389.00		\$389.00
4A to 4B					
Balanced Construction \$/sta	18.75	x	\$122.00		\$2,287.50
		x			

SUB TOTAL FOR EXCAVATION

\$21,084

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
1A to 1B									
0+00	18"CPP	40	\$19.53	\$781.20					
3A to 3B					3I to 3J				
0+00	18"CPP	40	\$19.53	\$781.20	1+05	18"CPP	30	\$19.53	\$585.90
20+00	18"CPP	30	\$19.53	\$585.90	6+00	18"CPP	30	\$19.53	\$585.90
24+00	18"CPP	30	\$19.53	\$585.90	17+60	18"CPP	40	\$19.53	\$781.20
27+20	18"CPP	30	\$19.53	\$585.90					
32+55	18"CPP	30	\$19.53	\$585.90					
38+35	18"CPP	30	\$19.53	\$585.90					
48+50	18"CPP	40	\$19.53	\$781.20					
3C to 3D									
1+55	24"CPP	40	\$27.04	\$1,081.60					
13+00	18"CPP	30	\$19.53	\$585.90					
18+00	18"CPP	40	\$19.53	\$781.20					
3E to 3F									
1+25	18"CPP	30	\$19.53	\$585.90					
6+15	18"CPP	30	\$19.53	\$585.90					
3G to 3H									
1+60	18"CPP	40	\$19.53	\$781.20					
9+00	18"CPP	30	\$19.53	\$585.90					
13+45	18"CPP	30	\$19.53	\$585.90					
18+45	18"CPP	30	\$19.53	\$585.90					

Other/miscellaneous:

Culvert stakes & markers:

Description	Quantity	Rate	Cost
Install 6" carsonite culvert markers	20	\$20.00	\$400.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$13,786

Subtotal of Clearing, Exc., Culv.

\$48,239

SURFACING		Stations/		Rate/	Cost
Subgrade prep:		amount	x	sta/amt	
Description					
Grade, Shape and Ditch 16'		153.55	x	\$24.83	\$3,812.65
Subgrade Compaction		153.55	x	\$20.19	\$3,100.17

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 Volume (CY) per		0+00 to 5+00 Number of				
Base Rock	4"-0" crushed	0+00 - 5+00	10	station	63	stations	5.00	315	\$9.97	\$3,141
Junction	4"-0" crushed	0+00	10	junction	22	junctions	1	22	\$9.97	\$219
Turnarounds	4"-0" crushed	3+50	10	TA	22	TA's	1	22	\$9.97	\$219
Landings	6"-0" pit-run	5+00	N/A	Landing	55	Landings	1	55	\$12.32	\$678

Total Rock for Road Segment: 1A to 1B 414

\$4,257

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 Volume (CY) per		0+00 to 57+45 Number of				
Subgrade Reinforcement	6"-0" pit-run		N/A	station	n/a	stations	n/a	200	\$12.32	\$2,464
Base Rock	4"-0" crushed	0+00 to 57+45	10	station	63	stations	57.45	3,619	\$9.97	\$36,085
Turnouts	4"-0" crushed	1+80, 5+35, 7+20, 14+80, 18+25, 23+15, 29+15, 33+80, 40+30, 43+50, 48+50, 52+50,	10	TO	33	TO's	12	396	\$9.97	\$3,948
Turnarounds	4"-0" crushed	57+45	10	TA	22	TA's	1	22	\$9.97	\$219
Junction	4"-0" crushed	0+00	10	junction	33	junctions	1	33	\$9.97	\$329
Traction Rock	3/4"-0" crushed	41+00 - 42+00, 48+50 - 51+60	2	station	13	stations	4.1	120	\$9.97	\$1,196
Junction Rock	3/4"-0" crushed	0+00	2	junction	22	junctions	1.0	22	\$9.97	\$219
Fill Armor	24"-6" rip-rap	53+70	N/A	station	n/a	stations	n/a	200	\$13.59	\$2,718

Total Rock for Road Segment: 3A to 3B 4,612

\$47,179

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 Volume (CY) per		0+00 to 18+00 Number of				
Subgrade Reinforcement	6"-0" pit-run		N/A	station	n/a	stations	n/a	100	\$12.32	\$1,232
Ditch filter Rock	6"-4" pit-run	1+55	N/A	filter	11	filter	1	11	\$12.32	\$136
Base Rock	4"-0" crushed	0+00 to 18+00 3+70, 9+40,	10	station	63	stations	18.00	1,134	\$9.97	\$11,306
Turnouts	4"-0" crushed	11+75,	10	TO	33	TO's	3	99	\$9.97	\$987
Turnarounds	4"-0" crushed	15+10	10	TA	22	TA's	1	22	\$9.97	\$219
Junction	4"-0" crushed	0+00	10	junction	22	junctions	1	22	\$9.97	\$219
Traction Rock	3/4"-0" crushed	3+70 - 6+20	2	station	13	stations	2.5	33	\$9.97	\$324
Bedding and Backfill Rock	3/4"-0" crushed	1+55, 1+95	N/A	culvert	Spec.	culverts	2	66	\$9.97	\$658
Landings	6"-0" pit-run	18+00	N/A	Landing	55	Landings	1	55	\$12.32	\$678

Total Rock for Road Segment: 3C to 3D 1,542

\$15,759

ROAD SEGMENT		3E to 3F		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3E to 3F Volume (CY) per		0+00 to 8+05 Number of				
Base Rock	4"-0" crushed	0+00 to 8+05	10	station	63	stations	8.05	507	\$9.97	\$5,058
Turnouts	4"-0" crushed	3+15	10	TO	33	TO's	1	33	\$9.97	\$329
Turnarounds	4"-0" crushed	3+15	10	TA	11	TA's	1	11	\$9.97	\$110
Junction	4"-0" crushed	0+00	10	junction	22	junctions	1	22	\$9.97	\$219
Traction Rock	3/4"-0" crushed	3+15 - 5+65	2	station	13	stations	2.5	33	\$9.97	\$324
Bedding and Backfill Rock	3/4"-0" crushed	1+25, 6+15	N/A	culvert	33	culverts	2	66	\$9.97	\$658

Total Rock for Road Segment: 3E to 3F 672

\$6,696

ROAD SEGMENT		3G to 3H		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3G to 3H Volume (CY) per		0+00 to 24+70 Number of				
Subgrade Reinforcement	6"-0" pit-run		N/A	station	n/a	stations	n/a	100	\$12.32	\$1,232
Base Rock	4"-0" crushed	0+00 to 24+70	10	station	63	stations	24.70	1,556	\$9.97	\$15,514
Turnouts	4"-0" crushed	13+60, 20+80	10	TO	33	TO's	2	66	\$9.97	\$658
Turnarounds	4"-0" crushed	20+80	10	TA	11	TA's	1	11	\$9.97	\$110
Junction	4"-0" crushed	0+00	10	junction	22	junctions	1	22	\$9.97	\$219
Junction 2nd Leg	4"-0" crushed	2+05	10	junction	100	junctions	1	100	\$9.97	\$997
Bedding and Backfill Rock	3/4"-0" crushed	1+60, 9+00, 13+45, 18+45	N/A	culvert	Spec.	culverts	4	143	\$9.97	\$1,426
Landings	6"-0" pit-run	24+70	N/A	Landing	55	Landings	1	55	\$12.32	\$678

Total Rock for Road Segment: 3G to 3H 2,053

\$20,834

ROAD SEGMENT		3I to 3J		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3I to 3J Volume (CY) per		0+00 to 21+60 Number of				
Subgrade Reinforcement	6"-0" pit-run		N/A	station	n/a	stations	n/a	100	\$12.32	\$1,232
Base Rock	4"-0" crushed	0+00 to 21+60 3+30, 9+30,	10	station	63	stations	21.60	1,361	\$9.97	\$13,667
Turnouts	4"-0" crushed	15+00	10	TO	33	TO's	3	99	\$9.97	\$987
Turnarounds	4"-0" crushed	19+00	10	TA	22	TA's	1	22	\$9.97	\$219
Junction	4"-0" crushed	0+00	10	junction	22	junctions	1	22	\$9.97	\$219
Traction Rock	3/4"-0" crushed	0+00 - 12+00	2	station	13	stations	12.0	156	\$9.97	\$1,556
Junction	3/4"-0" crushed	0+00	10	junction	11	junctions	1	11	\$9.97	\$110
Landings	6"-0" pit-run	21+60	N/A	Landing	55	Landings	1	55	\$12.32	\$678

Total Rock for Road Segment: 3I to 3J 1,826

\$17,012

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 Volume (CY) per station	0+00 to 18+75 Number of stations	0+00 to 18+75 n/a	18+75 to 22+00 Number of stations			
Subgrade Reinforcement	6'-0" pit-run		N/A	station	n/a	stations	n/a	100	\$12.32	\$1,232
Base Rock	4'-0" crushed	0+00 - 18+75	10	station	63	stations	18.75	1,181	\$9.97	\$11,777
Turnouts	4'-0" crushed	6+95, 9+15, 13+25	10	TO	33	TO's	3	99	\$9.97	\$987
Junction	4'-0" crushed	0+00, 18+75	10	junction	22	junctions	2	44	\$9.97	\$439
Traction Rock	3/4'-0" crushed	13+85 - 17+25	2	station	13	stations	3.4	44	\$9.97	\$441
Total Rock for Road Segment:			4A to 4B					1,468		\$14,875
Processing:				Description				No.sta	Rete/sta	Cost
				Water, Process & Compact: Base Rock (2 lifts)				307.10	\$56.48	\$17,345
				Water, Process & Compact: Traction Rock				24.50	\$56.48	\$1,384
				24"-6" rr	6"-0" pr	4'-0" ss	3/4"-0" ss	Total		
SUB TOTAL FOR SURFACING				200	831	10,863	693	12,587	12,587	\$162,254
SPECIAL PROJECTS				Description				Cost		
SUB TOTAL FOR SPECIAL PROJECTS										
										\$0
										Subtotal of Surfacing & Spec. Proj. \$162,254
										Subtotal of Clearing, Exc., Culv. \$48,239
GRAND TOTAL										\$200,493

Comped By: Kraig Kirkpatrick

Date: 03/15/2017

SALE NAME: Vesper View
ROAD: I1-I2, I3-I4, I5-I6, I7-I8, I9-I10, and I11-I12.
POINTS: _____

NEW CONSTRUCTION:	STATIONS	MILES
IMPROVEMENT:	84.45 STATIONS	1.60 MILES

Method	Acres/amount	x	Rate	=	Cost
		x		=	
		x		=	
		x		=	
		x		=	

[illegible][illegible]

	Description	Quantity	Rate	Cost
Other/miscellaneous:	Install 6" carsonite culvert markers	4	\$20.00	\$80.00
Culvert stakes & markers:				

Subtotal of Clearing, Exc., Cult.	\$666
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SURFACING				Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade prep: Description				84.45	x	\$24.83	\$2,096.89
Grade, Shape and Ditch 16'				3.00	x	\$100.00	\$300.00
Sod Removal/Extra ditching (Grader Hrs.)				1.00	x	\$101.00	\$101.00
Scatter sod and ditch waste materials (Excavator Hrs.)				84.45	x	\$20.19	\$1,705.05
Subgrade Compaction							

ROAD SEGMENT I1 to I2				POINT TO POINT I1 to I2		Sta. to Sta. 0+00 to 11+65		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per		Number of				
Subgrade Leveling	4"-0" crushed	N/A	N/A	load	11	loads	2	22	\$9.97	\$219
Surface Rock	4"-0" crushed	0+00-11+65	4	station	25	stations	11.65	291	\$9.97	\$2,904
Traction Rock	3/4"-0" crushed	0+00-6+00	2	station	13	stations	6.00	78	\$9.97	\$778
Junctions	4"-0" crushed	0+00	N/A	junction	11	junctions	1	11	\$9.97	\$110
Turnouts	4"-0" crushed	5+40, 7+60	N/A	TO	11	TO's	1	11	\$9.97	\$110
Turnarounds	4"-0" crushed	8+85	N/A	TA	11	TA's	1	11	\$9.97	\$110
Total Rock for Road Segment:				I1 to I2				424		\$4,230

ROAD SEGMENT I3 to I4				POINT TO POINT I3 to I4		Sta. to Sta. 0+00 to 40+15		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per		Number of				
Subgrade Leveling	4"-0" crushed	N/A	N/A	load	11	loads	8	88	\$9.97	\$877
Surface Rock	4"-0" crushed	0+00-40+15	5	station	31	stations	40.15	1,245	\$9.97	\$12,409
Traction Rock	3/4"-0" crushed	33+00-36+40	2	station	13	stations	3.40	44	\$9.97	\$441
Junctions	4"-0" crushed	0+00, 21+30	N/A	junction	11	junctions	2	22	\$9.97	\$219
Turnouts	4"-0" crushed	12+30, 17+25, 28+55, 31+80, 35+00, 37+90	N/A	TO	11	TO's	6	66	\$9.97	\$658
Turnarounds	4"-0" crushed	11+00, 31+85, 37+90	N/A	TA	11	TA's	3	33	\$9.97	\$329
Total Rock for Road Segment:				I3 to I4				1,498		\$14,934

ROAD SEGMENT I5 to I6				POINT TO POINT I5 to I6		Sta. to Sta. 0+00 to 2+95		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per		Number of				
Subgrade Leveling	4"-0" crushed	N/A	N/A	load	11	loads	1	11	\$9.97	\$110
Surface Rock	4"-0" crushed	0+00-2+95	4	station	25	stations	2.95	74	\$9.97	\$735
Junctions	4"-0" crushed	0+00	N/A	junction	11	junctions	1	11	\$9.97	\$110
Turnouts	4"-0" crushed	0+75	N/A	TO	11	TO's	1	11	\$9.97	\$110
Turnarounds	4"-0" crushed	0+75	N/A	TA	11	TA's	1	11	\$9.97	\$110
Total Rock for Road Segment:				I5 to I6				118		\$1,174

ROAD SEGMENT I7 to I8				POINT TO POINT I7 to I8		Sta. to Sta. 0+00 to 3+20		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per		Number of				
Surface Rock	4"-0" crushed	0+00-3+20	4	station	25	stations	3.20	80	\$9.97	\$798
Junctions	4"-0" crushed	0+00	N/A	junction	11	junctions	1	11	\$9.97	\$110
Total Rock for Road Segment:				I7 to I8				91		\$907

ROAD SEGMENT I9 to I10				POINT TO POINT I9 to I10		Sta. to Sta. 0+00 to 5+15		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per		Number of				
Surface Rock	4"-0" crushed	0+00-5+15	4	station	25	stations	5.15	129	\$9.97	\$1,284
Junctions	4"-0" crushed	0+00	N/A	junction	11	junctions	1	11	\$9.97	\$110
Turnout/Turnaround	4"-0" crushed	3+50	N/A	TO	22	TO's	1	22	\$9.97	\$219
Total Rock for Road Segment:				per				162		\$219

ROAD SEGMENT I11 to I12				POINT TO POINT I11 to I12		Sta. to Sta. 0+00 to 21+35		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per		Number of				
Surface Leveling	3/4"-0" crushed	N/A	N/A	load	11	loads	8	88	\$9.97	\$877
Culvert Bedding and Backfill	3/4"-0" crushed	5+50	N/A	culvert	33	culverts	1	33	\$9.97	\$329
Total Rock for Road Segment:				per				121		\$329

Processing: Description				No. sta	Rate/sta	Cost
Water, Process & Compact: 4"-0"				63.10	\$56.48	\$3,584
Water, Process & Compact: 3/4"-0"				30.75	\$56.48	\$1,737

SUB TOTAL FOR SURFACING				6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total		
					2,170		243	2,414	2,414	\$31,297

SPECIAL PROJECTS									
Description								Cost	
SUB TOTAL FOR SPECIAL PROJECTS								\$0	

Subtotal of Surfacing & Spec. Proj.										\$31,297
Subtotal of Clearing, Exc., Culv.										\$666
GRAND TOTAL										\$31,962

Compiled By: Andrew Arvin	Date: 03/23/2017
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SALE NAME: Vesper View
ROAD: Vesper Stockpile Site
POINTS: _____

NEW CONSTRUCTION: _____ STATIONS _____ MILES
IMPROVEMENT: _____ STATIONS _____ MILES

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
Pile and Burn	0.6	x	\$ 2,702	=	\$1,621.20
		x		=	
		x		=	
		x		=	

\$1,621

[illegible]

\$1,830

[illegible]

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:				

Subtotal of Clearing, Exc., Culv.	\$3,451
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SURFACING		Subgrade prep:		Description	Stations/ amount	x	Rate/ sta/amt	Cost
				Grade and shape	15.00	x	\$18.35	\$275.25
				330 excavator time for establishing drainage	6.00	x	\$155.00	\$930.00
				Compaction	15.00	x	\$20.19	\$302.85

ROAD SEGMENT		Vesper Stockpile Site		POINT TO POINT	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per station	Sta. to Sta. Number of stations			
Base Rock	4"-0"crushed		8	station	stations	822	\$9.97	\$8,195
Total Rock for Road Segment:						Vesper Stockpile Site	822	\$8,195

Processing:		Description	No.sta	Rate/sta	Cost
		Spread and Compact D8 \$/hr:	8.00	\$158.00	\$1,264
SUB TOTAL FOR SURFACING		4"-0"	822	Total	822
					822
					\$10,967

SPECIAL PROJECTS		Description	Cost
SUB TOTAL FOR SPECIAL PROJECTS			\$0

		Subtotal of Surfacing & Spec. Proj.	\$10,967
		Subtotal of Clearing, Exc., Culv.	\$3,451
GRAND TOTAL			\$14,419

Compzed By:	Kraig Kirkpatrick	Date:	03/21/2017
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CRUSHED ROCK COST

SALE NAME:	Vesper View
PROJECT:	Nos. 1, 2, and 3
QUARRY:	Viewpoint

MATERIAL: Crushed

DATE: 02/07/2017
BY: A. Arvin

[illegible]

ROCK HAUL:

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

Ave haul:	\$8.91	/cy
Load:	\$0.10	/cy
Spread:	\$0.96	/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 = 822

CRUSHED ROCK HAUL COSTS 14,792 cy @ \$9.97 /cy

PIT RUN ROCK COST

SALE NAME:	Vesper View
PROJECT:	Nos. 1
QUARRY:	Viewpoint

MATERIAL: Pit Run

DATE: 03/20/2017
BY: Kraig Kirkpatrick

[illegible]

ROCK HAUL:

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

Ave haul:	\$9.92	/cy
Load:	\$0.84	/cy
Spread:	\$1.56	/cy

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

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

Production: cy/day = 509

PIT RUN ROCK HAUL COSTS

831 cy @ \$12.32 /cy

RIP RAP ROCK COST

SALE NAME:	Vesper View
PROJECT:	Nos. 1
QUARRY:	Viewpoint

MATERIAL: Rip Rap

DATE: 03/20/2017
BY: Kraig Kirkpatrick

[illegible]

ROCK HAUL:

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

Ave haul: \$10.88 /cy
Load: \$2.70 /cy
Develop: _____ /cy

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

Production: cy/day = 232

RIP RAP ROCK HAUL COSTS 200 cy @ \$13.59 /cy

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3 Timber Sale Name: Vesper View
 Quarry: View Point Swell: _____
 Location: SE1/4, SE1/4, Sec 4, T7N, R6W, W.M Shrink: 16%
 County: Clatsop
 By: Kraig Kirkpatrick Loading Hopper: Yes
 Date: 03/21/2017

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	2%	CR	2,000		2,320
4"-0"	2%	CR	3,000	13,855	17,335
6"-0"		PR		831	831
24"-6"		RR		200	200
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			5,000	14,886	20,686

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
3 Stage Crusher	1	\$2,891	\$2,891	Off Highway Dump Truck	1	\$553	\$553
Screening Plants	1	\$553	\$553	Excavator	1	\$1,406	\$1,406
Loading Hopper	1	\$553	\$553	Loader	1	\$805	\$805
Drill & Compressor	1	\$1,406	\$1,406	D5 Dozer	1	\$778	\$778
Powder	1	\$351	\$351				

SUB TOTAL FOR MOBILIZATION

\$9,295

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$3,439	\$3,439
Screening Plants	2	\$293	\$586
Loading Hopper	1	\$293	\$293
Original Calibration	1	\$544	\$544

SUB TOTAL FOR SET UP COSTS

\$4,862

TOTAL MOBILIZATION & SET UP COSTS**\$14,157****2) CLEARING & GRUBBING**

DESCRIPTION	QUANTITY	UNIT	RATE	COST
		hr		
		hr		
		ea		

TOTAL CLEARING & GRUBBING COSTS

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
		bcy	\$2.60	

TOTAL EXCAVATION COSTS

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	50%	10,343	\$2.20	\$22,755
crushed	19,655	95%	Drill & shoot	50%	10,540	\$2.30	\$24,241
pit run	831	4%	Oversize red	10%	2,049	\$5.80	\$11,882
rip rap	200	1%	Other				
Total	20,686						
reject	393	1.9%					

TOTAL ROCK DEVELOPMENT COSTS

\$58,877

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	1	\$507.00	\$507
Calibrate			
Test	7	\$57.30	\$401
Test			

TOTAL CALIBRATION & TESTING COSTS

\$908

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	20,048	\$0.79	\$15,877
Shot Rock handling (Exc)	100	\$155.00	\$15,500

TOTAL FEEDING & LOADING COSTS

\$31,377

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed		3 stage w/s			
1-1/2"-0"	crushed	2,320	3 stage w/s	120	\$3.24	\$7,521
4"-0"	crushed	17,335	2 stage w/s	140	\$2.48	\$42,966

TOTAL ROCK CRUSHING COSTS

\$50,487

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

SUB TOTAL

HAUL & STOCKPILE		# of TRUCKS	CU. YDS.	RATE	COST
STOCKPILE LOCATION	SIZE				
1. _____					
2. Vesper Stockpile	1-1/2"-0"	10	2,320	\$11.25	\$26,092
3. Vesper Stockpile	4"-0"	10	3,480	\$11.25	\$39,138
4. _____					
5. _____					
6. _____					

SUB TOTAL \$65,230

TOTAL STOCKPILING COSTS \$65,230

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	\$1,486
\$3.78 /CY 393 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	\$2,565

TOTAL MISCELLANEOUS COSTS \$4,051

10) GRAND TOTAL: \$225,087

\$/Cubic Yard \$11.45

Footnotes:

Timber Sale Vacating Costs (Total)										
Work Description	Stations	Pump	C330	C315	D24 trk	D10/12 trk	D-8	Labor	Straw-bales	Seed-lbs
V1 to V2	14.3		6.00					2.00	10	25
V3 to V4	35.8		13.00					4.00	40	50
V5 to V6	21.15		17.00				4.00	8.00	50	100
V7 to V8	1.65		1.00							
V9 to V10	5.4		2.00							
V11 to V12	11.05		5.00					2.00	20	50
V13-V14	15		4.00					2.00	10	50
V15-V16	12.8		2.00							
V17	1		1.00							
Total Quantity (Hours)		0.00	51.00	0.00	0.00	0.00	4.00	18.00	130	275
Rates		\$10.00	\$155.00	\$101.00	\$127.00	\$99.00	\$158.00	\$40.00	\$10.73	\$1.60
Total Dollars		\$0	\$7,905	\$0	\$0	\$0	\$632	\$720	\$1,395	\$440

Total Cost

\$11,092

Total Stations

118.15

Total Miles

2.2

Projects Road Maintenance Cost Summary

Sale: Vesper View
Date: 12-Apr-17
By: Kraig Kirkpatrick

Type	Equipment/Rationale		Hours	Rate	Cost
Final Haul Road Maintenance Haul Route	Grader 14G		20	\$100	\$2,000
	Dump Truck 12CY		4	\$79	\$316
	FE Loader C966		1	\$83	\$83
	Vibratory Roller		10	\$77	\$770
	Water Truck 2,500 gallon		5	\$89	\$445
Total					\$3,614

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	2.40	1.6
Vibratory Roller	1.5	2.40	1.6

Spot Grade Nicolai ML (Viewpoint Quarry to Jct of Silver Spoon Road) = 6 Miles
 Spot rock, process, and compact (From Jct Silver Spoon; Greasy Spoon & Vesper Tie-Through to Pt. 112) = 2.4 Miles

**Vesper View
TIMBER CRUISE REPORT
FY 2018**

1. Sale Area Location: Areas 1 through 3 are located in portions of Sections 11, 12, 13, and 24 of T6N, R6W, W.M., Clatsop County, Oregon

2. Fund Distribution: BOF 100%
Tax Code 8-01 (100%)

3. Sale Acreage by Area:

Area	Treatment	Gross Acres	Stream Buffer	Existing Surface Roads	New Road Construction	GTRA	Net Acres	Survey Method
1	Modified Clearcut	60.9	7.3	3	0	2.6	48	GIS
2	Modified Clearcut	31.4	0	4.4	0	1	26	GIS
3	Partial Cut	132.2	3.5	10.7	5	0	113	GIS
4 (in-sale)	Right-of-Way	5	-	-	-	-	5	GIS
4 (out-of-sale)	Right-of-Way	5	-	-	-	-	5	GIS
TOTALS		234.5	10.8	18.1	5	3.6	197	

4. Cruisers and Cruise Dates:

Areas 1, 2, and 3 were cruised by Ed Holloran, John Choate, Cody Valencia, Bryce Rogers, Kevin Berry, Matt Dimick, and Dave Rygell during the months of February, March, and April of 2017.

5. Cruise Method and Computation:

Areas 1 and 2 are modified clearcut units and were variable plot cruised using a 40 BAF. These plots are located on a 3 chain by 5 chain grid, with every third plot measured and graded. A total of 49 plots were sampled, with 18 measured plots and 31 count plots.

Area 3 is a partial cut unit and was variable plot cruised using a 27.78 BAF. These plots are located on a 4 chain by 8 chain grid, with every third plot measured and graded. A total of 36 plots were sampled, with 21 graded plots and 15 count plots.

Area 4 (In-sale R/W) was calculated applying in-sale road R/W acreage and using the volume per acre from Area 3.

Area 4 (Out-of-sale R/W) the trees within the out of sale right-of-way are not currently merchantable and were not cruised.

Data was collected on Allegro 2 data collectors, and downloaded to the Atterbury Super A.C.E. program for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria district office.

AREA	CRUISE	TRACT	TYPE	ACRES
1 and 2	Vesperv	A12	00MC	74
3	Vesperv	A3	00PC	113
4 R/W (in sale)	Vesperv	A4ROW	00PC	5

6. Timber Description:

Areas 1 and 2 are modified clearcut units, approximately 75 to 80 years-old, consisting of Douglas-fir with minor amounts of noble fir, western hemlock, and red alder. The average Douglas-fir tree size is 27.9 inches DBH, with an average height of 96 feet to a merchantable top. The average noble fir is 42 inches DBH with an average height of 118 feet to a merchantable top. The average western hemlock is 10 inches DBH with an average height of 28 feet to a merchantable top. The average red alder tree size is 18 inches DBH with an average height of 46 feet to a merchantable top. The net volume per acre to be harvested is 35.4 MBF/acre.

Area 3 is an "auto-mark" thinning units, approximately 37 years-old, consisting of Douglas-fir and a minor component of red alder. The average Douglas-fir tree size is 11.4 inches DBH, with an average height of 36 feet to a merchantable top. The net volume per acre to be harvested is 5.4 MBF/acre.

Area 4 R/W in sale R/W is similar to the timber description above in Area 3. The average Douglas-fir tree size is 13.1 inches DBH, with an average height of 46 feet to a merchantable top. The average red alder tree size is 11.5 inches DBH with an average height of 38 feet to a merchantable top. The average volume per acre to be harvested 19.5 MBF/acre.

7. Statistical Analysis and Stand Summary

Statistics for Stand B.F. volumes

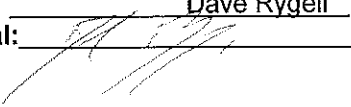
Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1 and 2	45%	8%	37.8 %	5.4%
3	40%	8%	36.5 %	6.1%

8. Volumes by Species and Log Grade:

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

Species	DBH	Net Vol.	2 Saw	3 Saw	4 Saw	Camp Run	% D & B	% Sale
Douglas-fir	28.0	3,242	2,382	618	242		3.5%	98
Noble-fir	42.0	17	16	1			-	<1
Western Hemlock and other Conifers	10.0	7			7		-	<1
Red Alder and other Hardwoods	17.0	55				55	1.4%	2
TOTALS		3,321	2,398	619	249	55		

9. Approvals:

Prepared by: Dave Rygell
Unit Forester Approval: 

Date: 4-26-2017
Date: 4-26-17

10. Attachments:

Cruise Designs and Maps – 6 pages
Volume Reports - 4 pages
Statistics Reports -7 pages
Stand Table Summary – 2 page
Log Stock Tables – 2 pages

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Vesper View **Area(s)** 1 and 2

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 74 **Estimated CV%** 45 Net BF or
BA/Acre **SE% Objective** 8

Planned Sale Volume: 2.4 MMBF **Estimated Sale Area Value/Acre:** \$ 9,900.00

A. Cruise Goals: (a) Grade minimum 70 trees:

Determine log grades for sale value; Determine snag and leave tree species and sizes;
Determine "diameter limit" harvest parameters;

B. Cruise Design:

1. Plot Cruises: BAF 40 Full point
Cruise Line Direction(s) East, West
Cruise Line Spacing 5 chains
Cruise Plot Spacing 3 chains
Grade/Count Ratio 1:2

Record all hardwood as camp run. Record all cedar under 12 inches as leave. Record all
snags as SN and record diameter & total height. If plot lands in buffer then offset at least
1/2 chain outside the buffer.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" 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" or 40% of dob at 16'
form point. Generally, use 7" outside bark for trees less than 18" dbh and 40% of dob
@ FP for trees greater than 18" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree
measured/graded; Hardwood form factors are a Standard 87.
- 5. Tree Segments:** Record log segments in "standard" 32" and 40' log lengths
whenever possible. Do not record odd segments just to maximize grade. The
maximum segment length is 40'. The minimum segment length is 12' for conifer and 8'
for hardwoods. Minimum merchantable diameter for conifer is 8" dbh and 10" dbh for
hardwoods. One foot of trim is assumed for each merchantable segment.

- 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);

\\Wpodfmpsr702\public\STATE_FORESTS\UNIT_JEWELL\Timber

Sales\2017\Vesper_View\Sale Prep\Cruise\VesperView Cruise Design Area 1&2.docx

SF (Silver fir); A (Red alder); M (Bigleaf maple); DL (Douglas-fir over 30"dbh); HL (Western hemlock over 30" dbh); SL (Sitka spruce over 30" dbh); CL (Western red cedar over 30" dbh); NFL (Noble fir over 30" dbh); SFL (Silver fir over 30" dbh)

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

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 intervisible points. On "measure/grade" plots paint the tree diameter on each tree starting with the first tree right of the cruise line direction and continuing clockwise.
9. **Cruising Equipment:** Relaskop, Rangefinder, Biltmore Stick, Compass, Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging.
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, cruise lines and plot locations, BAF or plot size, measure/count plot ratio, north arrow, and scale bar.

Cruise Design by: Matt Dimick
Approved by: [Signature]
Date: 1/30/17

Vesper View - Areas 1 and 2 (MC)

49 Plots Total

Grade Plots: 17

Count Plots: 32

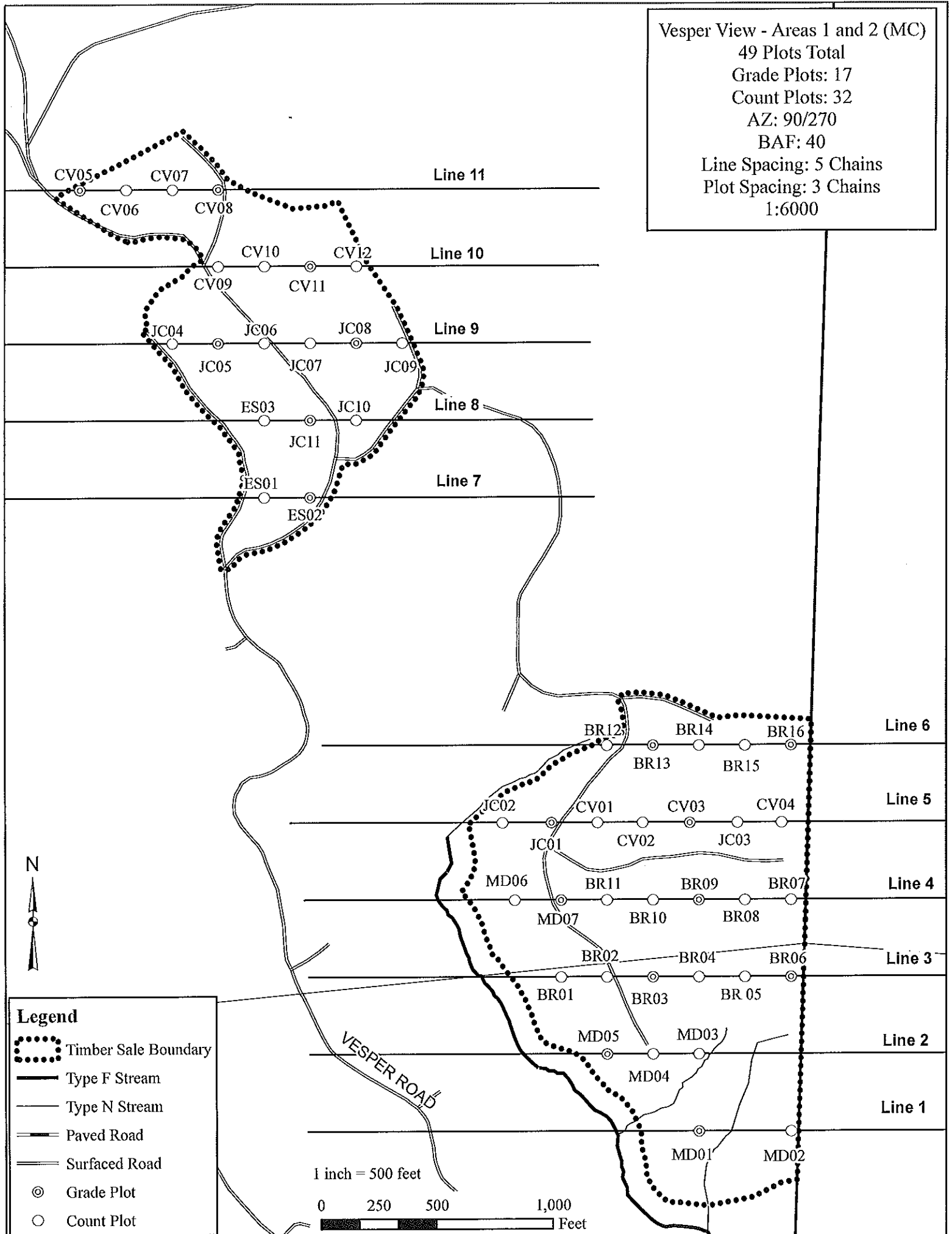
AZ: 90/270

BAF: 40

Line Spacing: 5 Chains

Plot Spacing: 3 Chains

1:6000



**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Vesper View **Area(s)** 3

Harvest Type: Partial Cut

Approx. Cruise Acres: 113 **Estimated CV%** 40 **Net BF SE% Objective** 8 **Net MBF**

Planned Sale Volume: 708 MBF **Estimated Sale Area Value/Acre:** \$ 1,980.00

A. Cruise Goals: (a) Grade minimum 70 trees:

Determine log grades for sale value; Determine snag and leave tree species and sizes;
Determine "diameter limit" harvest parameters;

B. Cruise Design:

1. Plot Cruises: BAF 27.78 Full point

Cruise Line Direction(s) East, West

Cruise Line Spacing 8 chains

Cruise Plot Spacing 4 chains

Grade/Count Ratio 1:1

Record all hardwood as camp run. Record all cedar as leave. Record all snags as SN and record diameter & total height. Leave 5 trees per plot.

C. Tree Measurements:

1. Diameter: Minimum DBH to cruise is 8" for conifers and 10" 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" or 40% of dob at 16' form point. Generally, use 7" outside bark for trees less than 18" dbh and 40% of dob @ FP for trees greater than 18" dbh.

4. Form Factors: (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; Hardwood form factors are a Standard 87.

5. Tree Segments: Record log segments in "standard" 32" and 40' log lengths whenever possible. Do not record odd segments just to maximize grade. The maximum segment length is 40'. The minimum segment length is 12' for conifer and 8' for hardwoods. Minimum merchantable diameter for conifer is 8" dbh and 10" dbh for hardwoods. One foot of trim is assumed for each merchantable segment.

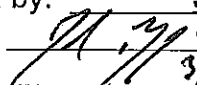
6. Species, Sort, and Grade Codes: A. Species: Record as D (Douglas-fir);
H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir);

SF (Silver fir); A (Red alder); M (Bigleaf maple); DL(Douglas-fir over 30"dbh); HL(Western hemlock over 30" dbh); SL(Sitka spruce over 30" dbh); CL (Western red cedar over 30" dbh); NFL (Noble fir over 30" dbh); SFL (Silver fir over 30" dbh)

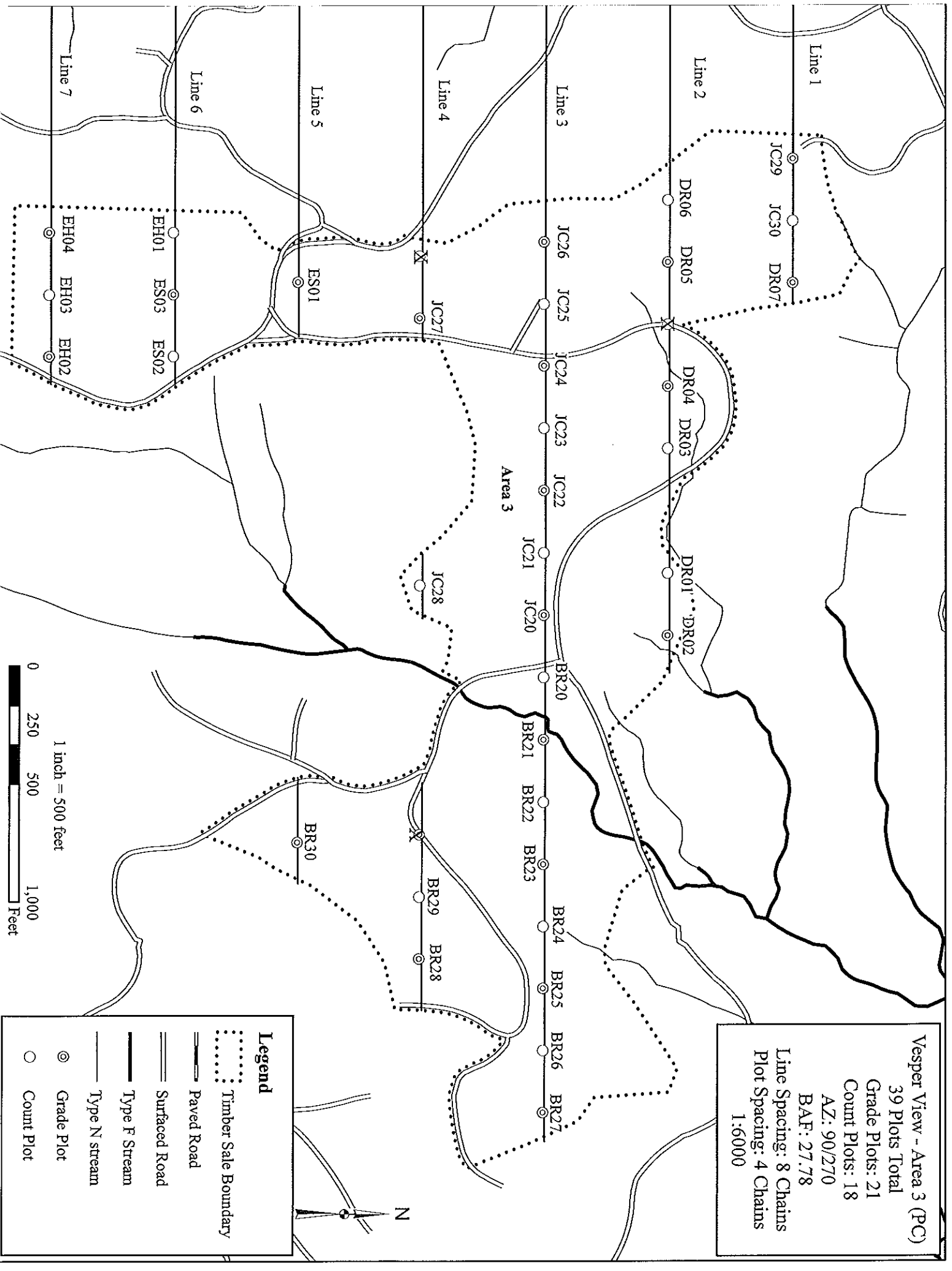
B. Sort: Use code "1" (Domestic).

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

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 intervisible points. On "measure/grade" plots paint the tree diameter on each tree starting with the first tree right of the cruise line direction and continuing clockwise.
9. **Cruising Equipment:** Relaskop, Rangefinder, Biltmore Stick, Compass, Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging.
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, cruise lines and plot locations, BAF or plot size, measure/count plot ratio, north arrow, and scale bar.

Cruise Design by: John Tillotson
Approved by: 
Date: 3/1/17

Vesper View - Area 3 (PC)
 39 Plots Total
 Grade Plots: 21
 Count Plots: 18
 AZ: 90/270
 BAF: 27.78
 Line Spacing: 8 Chains
 Plot Spacing: 4 Chains
 1:6000



TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																	
T06N R06W S13 Ty00MC74.00 T06N R06W S13 Ty00PC113.00 T06N R06W S13 Ty00PC5.00				Project: VESPERV												Page 1					
				Acres 192.00												Date 4/26/2017					
																Time 1:41:07PM					
Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%GrossNet			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre
									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			DOCU		100.0	458										11	11		0.00	7.3	
D			DO2S	73	.9	12,520	12,407	2,382		1	20	79	1	1	4	94	39	18	530	2.81	23.4
D			DO3S	19	.7	3,238	3,217	618		99	1		2	9	33	55	35	8	81	0.67	39.6
D			DO4S	8	1.3	1,277	1,260	242	4	96			52	22	17	10	21	6	28	0.43	44.7
D Totals				98	3.5	17,493	16,884	3,242	0	27	15	58	5	4	10	80	29	9	147	1.18	115.0
A			DOCU		100.0	2											11	7		0.00	.2
A			DOCR	100	.6	289	287	55		43	57		7	7	32	55	32	8	92	0.99	3.1
A Totals				2	1.2	291	287	55		43	57		7	7	32	55	31	8	88	0.97	3.3
H			DO4S	100		35	35	7		100				100			26	6	30	0.42	1.2
H Totals				0		35	35	7		100				100			26	6	30	0.42	1.2
NF			DO2S	92		84	84	16			100				100		40	27	1290	5.87	.1
NF			DO3S	8		7	7	1			100				100		36	13	220	2.00	.0
NF Totals				1		92	92	17	8	92					100		39	22	933	4.67	.1
Totals					3.4	17,910	17,297	3,321	0	27	16	57	5	5	11	80	29	9	145	1.17	119.6

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1									
		Project: VESPERV										Date 4/26/2017									
												Time 1:41:40PM									
T06N R06W S13 T00MC										T06N R06W S13 T00MC											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
06N	06W	13	A12TK	00MC	74.00	49	66	1	W												
S S o Gr Spp T rt ad		% 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					
D	DO	CU		00.0	805											12	28		0.00	1.9	
D	DO	2S	92	.9	32,065	31,774	2,351			20	80	1	1	4	94	39	18	547	2.89	58.1	
D	DO	3S	6		2,247	2,247	166		98	2		8	33	33	26	29	9	90	0.92	25.0	
D	DO	4S	2		349	349	26		100			60	40			20	8	34	0.61	10.2	
D	Totals		97	3.1	35,466	34,370	2,543		7	19	74	2	4	6	89	34	15	361	2.27	95.2	
A	DO	CR	100		661	661	49		36	64		3	5	33	59	34	8	109	1.10	6.1	
A	Totals		2		661	661	49		36	64		3	5	33	59	34	8	109	1.10	6.1	
H	DO	4S	100		90	90	7		100				100			26	6	30	0.42	3.0	
H	Totals		0		90	90	7		100				100			26	6	30	0.42	3.0	
NF	DO	2S	92		219	219	16			100				100		40	27	1290	5.87	.2	
NF	DO	3S	8		19	19	1			100				100		36	13	220	2.00	.1	
NF	Totals		1		238	238	18		8	92				100		39	22	933	4.67	.3	
Type Totals				3.0	36,455	35,358	2,617		8	20	72	2	4	6	88	34	14	338	2.17	104.5	

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1				
		Project: VESPERV										Date 4/26/2017				
												Time 1:41:40PM				
T06N R06W S13 T00PC										T06N R06W S13 T00PC						
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt							
06N	06W	13	A3TK	00PC	113.00	36	47	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/ Ft In Ft Lf	
D	DO	CU		100.0	230									11 9	0.00	10.1
D	DO	2S	2		160	160	18	100					100	40 10	150 0.98	1.1
D	DO	3S	65	.7	3,487	3,461	391	100					33 67	37 7	77 0.60	44.7
D	DO	4S	33	1.4	1,775	1,751	198	4 96				51 18 19 12	21 6	28 0.41		63.2
D Totals		100		5.0	5,652	5,372	607	1 99				17 6 28 50	26 7	45 0.51		119.1
Type Totals				5.0	5,652	5,372	607	1 99				17 6 28 50	26 7	45 0.51		119.1

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1				
		Project: VESPERV										Date 4/26/2017				
												Time 1:41:40PM				
T06N R06W S13 T00PC										T06N R06W S13 T00PC						
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt							
06N	06W	13	A4ROW	00PC	5.00	36	148	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/ Ft In Ft Lf	
D	DO	CU		100.0	451									7 10	0.00	24.5
D	DO	2S	14	1.2	2,593	2,563	13	25	75	10	9	15	66	33 12	174 1.40	14.7
D	DO	3S	65	2.1	12,295	12,038	60	97	3	1	3	35	61	36 8	87 0.70	138.6
D	DO	4S	21	2.5	3,756	3,663	18	5	95	50	31	13	6	21 6	26 0.41	138.7
D Totals		94	4.3	19,095	18,265	91	1	87	12	12	9	28	51	27 7	58 0.63	316.5
A	DO	CU		100.0	70									11 7	0.00	6.0
A	DO	CR	100	4.9	1,308	1,244	6	100		35	23	25	17	26 7	42 0.53	29.3
A Totals		6	9.7	1,378	1,244	6	100			35	23	25	17	23 7	35 0.48	35.4
Type Totals			4.7	20,473	19,508	98	1	87	12	14	10	27	49	27 7	55 0.61	351.8

TC PSTATS				PROJECT STATISTICS				PAGE	1			
				PROJECT	VESPERV	DATE 4/28/2017						
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt			
06N	06	13	A12TK	00MC	192.00	121	534	1	W			
06N	06W	13	A3TK	00PC								
06N	06W	13	A4ROW	00PC								
				TREES	ESTIMATED	PERCENT						
				PER PLOT	TOTAL	SAMPLE						
					TREES	TREES						
			PLOTS	TREES								
TOTAL			121	534	4.4							
CRUISE			53	260	4.9	14,519	1.8					
DBH COUNT												
REFOREST												
COUNT			55	273	5.0							
BLANKS			13									
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			238	72.1	15.9	48	24.9	99.5	17,493	16,884	3,983	3,889
R ALDER			20	2.4	16.6	44	0.9	3.6	291	287	99	99
WHEMLOCK			1	1.2	10.0	28	0.2	.6	35	35	13	13
NOB FIR			1	.0	42.0	118	0.0	.3	92	92	18	18
TOTAL			260	75.6	15.9	47	26.1	104.0	17,910	17,297	4,112	4,018
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			145.4	9.4	368	406	444					
R ALDER			97.0	22.2	68	88	107					
WHEMLOCK												
NOB FIR												
TOTAL			151.9	9.4	353	389	426	922	230	102		
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			163.1	14.8	61	72	83					
R ALDER			368.9	33.5	2	2	3					
WHEMLOCK			774.6	70.4	0	1	2					
NOB FIR			1100.0	99.9	0	0	0					
TOTAL			154.3	14.0	65	76	86	951	238	106		
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			90.8	8.2	91	100	108					
R ALDER			403.7	36.7	2	4	5					
WHEMLOCK			774.6	70.4	0	1	1					
NOB FIR			1100.0	99.9	0	0	1					
TOTAL			88.3	8.0	96	104	112	312	78	35		
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			98.5	8.9	15,374	16,884	18,394					
R ALDER			391.9	35.6	185	287	389					
WHEMLOCK			774.6	70.4	10	35	59					
NOB FIR			1100.0	99.9	0	92	183					
TOTAL			98.1	8.9	15,755	17,297	18,839	385	96	43		

TC TSTATS				STATISTICS				PAGE 1				
				PROJECT VESPERV		DATE 4/28/2017						
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt			
06N	06W	13	A12	00MC	74.00	49	204	1	W			
				TREES	ESTIMATED TOTAL	PERCENT SAMPLE						
				PER PLOT	TREES	TREES						
PLOTS		TREES										
TOTAL		49		204		4.2						
CRUISE		18		71		3.9						
DBH COUNT						3,282						
REFOREST						2.2						
COUNT		31		133		4.3						
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		60		34.7	27.9	96	27.8	146.9	35,466	34,370	7,467	7,324
R ALDER		4		4.6	18.0	46	1.9	8.2	661	661	229	229
WR CEDAR		4		1.3	28.9	62	1.1	5.7	434	434	185	185
SNAG		1		.7	29.0	59	0.6	3.3				
WHEMLOCK		1		3.0	10.0	28	0.5	1.6	90	90	33	33
NOB FIR		1		.1	42.0	118	0.1	.8	238	238	46	46
TOTAL		71		44.4	26.2	85	32.5	166.5	36,889	35,793	7,960	7,817
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		45.7		5.9	1,206	1,281	1,357					
R ALDER		79.0		45.1	104	190	276					
WR CEDAR		45.6		26.0	301	408	514					
SNAG												
WHEMLOCK												
NOB FIR												
TOTAL		59.0		7.0	1,075	1,156	1,237	139	35	15		
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		55.1		7.9	32	35	37					
R ALDER		298.4		42.6	3	5	7					
WR CEDAR		322.0		46.0	1	1	2					
SNAG		338.9		48.4	0	1	1					
WHEMLOCK		489.8		69.9	1	3	5					
NOB FIR		700.0		99.9	0	0	0					
TOTAL		58.9		8.4	41	44	48	138	35	15		
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		38.7		5.5	139	147	155					
R ALDER		282.5		40.3	5	8	11					
WR CEDAR		350.0		50.0	3	6	9					
SNAG		338.9		48.4	2	3	5					
WHEMLOCK		489.8		69.9	0	2	3					
NOB FIR		700.0		99.9	0	1	2					
TOTAL		38.7		5.5	157	167	176	60	15	7		
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		38.2		5.5	32,494	34,370	36,245					
R ALDER		271.7		38.8	405	661	918					
WR CEDAR		344.6		49.2	221	434	648					
SNAG												

TC TSTATS				STATISTICS				PAGE	2
				PROJECT		VESPERV		DATE	4/28/2017
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
06N	06W	13	A12	00MC	74.00	49	204	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
WHEMLOCK		489.8	69.9	27	90	153			
NOB FIR		700.0	99.9	0	238	475			
TOTAL		37.8	5.4	33,864	35,793	37,722	57	14	6

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	VESPERV			DATE	4/26/2017	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	06W	13	A12TK	00MC	74.00	49	193	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
PLOTS		TREES		TREES		TREES				
TOTAL		49		193		3.9				
CRUISE		18		66		3.7		3,136		2.1
DBH COUNT										
REFOREST										
COUNT		31		127		4.1				
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		60	34.7	27.9	96	27.8	146.9	35,466	34,370	7,467
R ALDER		4	4.6	18.0	46	1.9	8.2	661	661	229
WHEMLOCK		1	3.0	10.0	28	0.5	1.6	90	90	33
NOB FIR		1	.1	42.0	118	0.1	.8	238	238	46
TOTAL		66	42.4	26.1	86	30.8	157.6	36,455	35,358	7,775
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		45.7	5.9	1,206	1,281	1,357				
R ALDER		79.0	45.1	104	190	276				
WHEMLOCK										
NOB FIR										
TOTAL		54.5	6.7	1,137	1,219	1,301	118	30	13	
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		55.1	7.9	32	35	37				
R ALDER		298.4	42.6	3	5	7				
WHEMLOCK		489.8	69.9	1	3	5				
NOB FIR		700.0	99.9	0	0	0				
TOTAL		59.6	8.5	39	42	46	142	36	16	
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		38.7	5.5	139	147	155				
R ALDER		282.5	40.3	5	8	11				
WHEMLOCK		489.8	69.9	0	2	3				
NOB FIR		700.0	99.9	0	1	2				
TOTAL		36.1	5.1	149	158	166	52	13	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		38.2	5.5	32,494	34,370	36,245				
R ALDER		271.7	38.8	405	661	918				
WHEMLOCK		489.8	69.9	27	90	153				
NOB FIR		700.0	99.9	0	238	475				
TOTAL		37.3	5.3	33,475	35,358	37,242	56	14	6	

TC TSTATS				STATISTICS				PAGE 1			
				PROJECT	VESPERV	DATE 4/26/2017					
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
06N	06W	13	A3	00PC	113.00	36	262	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
PLOTS		TREES									
TOTAL		36	262	7.3							
CRUISE		21	151	7.2		25,134	.6				
DBH COUNT											
REFOREST											
COUNT		15	110	7.3							
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	
DOUGLEAV		84	103.6	14.4	55	30.9	117.3	13,457	12,907	3,831	
DOUG FIR		47	91.1	11.4	36	19.2	64.8	5,652	5,372	1,635	
ALDRLEAV		16	22.6	11.5	38	4.8	16.2	1,378	1,244	429	
SNAG		4	5.1	11.8	38	1.1	3.9	117		47	
TOTAL		151	222.4	12.9	45	56.3	202.2	20,604	19,522	5,942	
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		
DOUGLEAV		45.4	4.9	142	150	157					
DOUG FIR		76.1	11.1	68	76	85					
ALDRLEAV		53.8	13.9	53	62	70					
SNAG											
TOTAL		65.3	5.3	108	114	120	170	43	19		
CL: 68.1 %		COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUGLEAV		41.5	6.9	96	104	111					
DOUG FIR		95.4	15.9	77	91	106					
ALDRLEAV		191.9	32.0	15	23	30					
SNAG		327.3	54.5	2	5	8					
TOTAL		46.9	7.8	205	222	240	88	22	10		
CL: 68.1 %		COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUGLEAV		31.6	5.3	111	117	123					
DOUG FIR		91.1	15.2	55	65	75					
ALDRLEAV		198.1	33.0	11	16	22					
SNAG		305.6	50.9	2	4	6					
TOTAL		35.6	5.9	190	202	214	51	13	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		
DOUGLEAV		31.8	5.3	12,223	12,907	13,590					
DOUG FIR		94.6	15.8	4,526	5,372	6,218					
ALDRLEAV		216.2	36.0	796	1,244	1,692					
SNAG											
TOTAL		36.5	6.1	18,335	19,522	20,709	53	13	6		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	VESPERV			DATE	4/26/2017	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	06W	13	A3TK	00PC	113.00	36	84	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		36	84	2.3						
CRUISE		14	47	3.4	10,295			.5		
DBH COUNT										
REFOREST										
COUNT		9	37	4.1						
BLANKS		13								
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		47	91.1	11.4	36	19.2	64.8	5,652	5,372	1,635
TOTAL		47	91.1	11.4	36	19.2	64.8	5,652	5,372	1,635
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		76.1	11.1	68	76	85				
TOTAL		76.1	11.1	68	76	85	231	58	26	
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		95.4	15.9	77	91	106				
TOTAL		95.4	15.9	77	91	106	363	91	40	
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		91.1	15.2	55	65	75				
TOTAL		91.1	15.2	55	65	75	331	83	37	
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		94.6	15.8	4,526	5,372	6,218				
TOTAL		94.6	15.8	4,526	5,372	6,218	357	89	40	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	VESPERV			DATE	4/26/2017	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	06W	13	A4ROW	00PC	5.00	36	257	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		36	257	7.1						
CRUISE		21	147	7.0	1,088	13.5				
DBH COUNT										
REFOREST										
COUNT		15	109	7.3						
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		131	195.0	13.1	46	50.3	182.1	19,095	18,265	5,463
R ALDER		16	22.6	11.5	38	4.8	16.2	1,378	1,244	429
TOTAL		147	217.6	12.9	45	55.2	198.3	20,473	19,508	5,892
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		59.5	5.2	117	123	130				
R ALDER		53.8	13.9	53	62	70				
TOTAL		62.3	5.1	111	117	123	155	39	17	
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		56.2	9.4	177	195	213				
R ALDER		191.9	32.0	15	23	30				
TOTAL		44.2	7.4	202	218	234	78	20	9	
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		46.8	7.8	168	182	196				
R ALDER		198.1	33.0	11	16	22				
TOTAL		36.1	6.0	186	198	210	52	13	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		46.8	7.8	16,841	18,265	19,688				
R ALDER		216.2	36.0	796	1,244	1,692				
TOTAL		38.6	6.4	18,256	19,508	20,761	59	15	7	

TC PSTNDSUM		Stand Table Summary										Page	1		
												Date:	4/28/2017		
T06N R06W S13 Ty00MC		74.00		Project VESPERV						Time:		1:07:32PM			
T06N R06W S13 Ty00PC		113.00		Acres 192.00						Grown Year:					
T06N R06W S13 Ty00PC		5.00													
S Spec T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
	DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
D	8	7	85	41	6.988	2.58	6.99	7.0	30.1		49	210		94	40
D	9	11	86	40	9.562	4.28	9.56	7.8	30.2		75	289		143	55
D	10	16	86	62	10.873	6.01	9.41	12.4	46.2		116	434		224	83
D	11	21	85	58	11.611	7.87	14.06	12.6	41.2		178	579		341	111
D	12	12	85	77	4.505	3.54	5.74	16.5	55.2		94	317		181	61
D	13	21	86	72	5.983	5.41	9.05	16.4	51.8		148	469		285	90
D	14	21	86	78	3.759	3.86	5.80	18.7	60.9		109	353		208	68
D	15	17	83	74	2.400	2.94	4.11	19.7	67.1		81	276		155	53
D	16	17	86	84	2.193	3.07	4.36	22.8	76.4		99	333		191	64
D	17	12	87	89	1.226	1.99	2.45	29.8	102.0		73	250		140	48
D	18	8	89	84	1.054	1.84	2.11	29.5	101.8		62	215		119	41
D	19	5	86	88	.094	.18	.21	30.7	104.4		6	22		12	4
D	20	8	84	90	.914	1.97	1.85	37.8	122.0		70	225		134	43
D	21	2	88	86	.031	.07	.06	41.2	142.6		3	9		5	2
D	22	3	88	117	.385	1.02	1.13	41.1	174.6		46	197		89	38
D	23	1	89	92	.013	.04	.03	49.0	175.0		1	5		2	1
D	24	3	89	138	.901	2.83	2.70	56.7	252.2		153	682		294	131
D	25	4	91	130	1.108	3.78	3.05	62.6	283.6		191	864		366	166
D	26	5	87	127	1.280	4.72	3.58	64.2	272.1		230	975		442	187
D	27	3	88	128	.712	2.83	2.14	65.3	281.1		140	601		268	115
D	28	3	88	133	.662	2.83	1.99	72.2	311.1		143	618		275	119
D	29	5	89	130	1.029	4.72	3.09	77.1	368.7		238	1,138		457	218
D	30	2	87	137	.385	1.89	1.15	84.7	401.7		98	463		188	89
D	31	2	90	137	.360	1.89	1.08	92.3	461.7		100	499		192	96
D	32	5	86	144	.845	4.72	2.54	98.1	449.3		249	1,139		477	219
D	33	4	90	131	.636	3.78	1.91	101.8	513.3		194	979		373	188
D	34	5	88	139	.749	4.72	2.25	107.1	519.3		240	1,166		462	224
D	35	1	86	129	.141	.94	.42	108.3	496.7		46	210		88	40
D	36	3	85	140	.401	2.83	1.20	113.3	556.7		136	669		262	128
D	37	3	90	149	.379	2.83	1.14	138.6	734.4		158	836		303	160
D	38	3	88	139	.360	2.83	1.08	132.2	681.1		143	735		274	141
D	39	1	88	136	.114	.94	.34	145.0	756.7		49	258		95	50
D	40	2	87	149	.216	1.89	.65	160.8	830.0		104	539		200	103
D	41	1	82	163	.103	.94	.21	102.5	480.0		21	99		41	19
D	42	1	88	137	.098	.94	.29	154.0	786.7		45	232		87	44
D	Totals	238	86	72	72.071	99.52	107.71	36.1	156.8		3,889	16,884		7,467	3,242
A	9	1	86	66	.062	.03	.06	12.0	50.0		1	3		1	1
A	10	4	87	60	.186	.11	.23	8.9	25.8		2	6		4	1
A	11	4	86	53	.153	.11	.15	14.8	42.6		2	7		4	1
A	12	1	87	61	.033	.03	.03	22.0	60.0		1	2		1	0
A	13	2	87	78	.061	.05	.12	14.5	45.0		2	6		3	1
A	14	1	87	72	.025	.03	.05	17.5	60.0		1	3		2	1
A	15	4	87	53	.708	.87	.75	28.2	59.4		21	45		41	9
A	16	1	87	51	.563	.79	.56	30.0	60.0		17	34		32	6
A	22	1	87	65	.298	.79	.60	42.5	160.0		25	95		49	18
A	23	1	86	71	.273	.79	.55	49.0	160.0		27	87		51	17
A	Totals	20	87	58	2.363	3.57	3.11	31.7	92.4		99	287		189	55
NF	42	1	85	145	.033	.31	.10	180.7	933.3		18	92		34	18
NF	Totals	1	85	145	.033	.31	.10	180.7	933.3		18	92		34	18
H	10	1	82	54	1.154	.63	1.15	11.0	30.0		13	35		24	7

TC		PSTNDSUM		Stand Table Summary						Page Date:		2 4/28/2017		
T06N R06W S13 Ty00MC				74.00		Project		VESPERV		Time:		1:07:32PM		
T06N R06W S13 Ty00PC				113.00		Acres		192.00		Grown Year:				
T06N R06W S13 Ty00PC				5.00										
S Spec T	Sample		FF	Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals	
	DBH	Trees	16'	Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits
H	Totals	1	82	54	1.154	.63	1.15	11.0	30.0		13	35	24	7
Totals		260	86	71	75.621	104.04	112.07	35.9	154.3		4,018	17,297	7,715	3,321

Log Stock Table - MBF

T06N R06W S13 Ty00MC 74.00
T06N R06W S13 Ty00PC 113.00
T06N R06W S13 Ty00PC 5.00

Project: VESPERV
Acres 192.00

Page I
Date 4/28/2017
Time 1:11:17PM

S T	So Gr rt 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 CU	3	0	100.0														
D	DO CU	4	10	100.0														
D	DO CU	6	27	100.0														
D	DO CU	8	6	100.0														
D	DO CU	12	0	100.0														
D	DO CU	32	14	100.0														
D	DO CU	46	31	100.0														
D	DO 2S	16	3		3	.1					0	2						
D	DO 2S	17	2		2	.1							2					
D	DO 2S	20	14		14	.4					0					13		
D	DO 2S	24	4	1.3	4	.1					3		1					
D	DO 2S	26	1	4.3	1	.0							1					
D	DO 2S	27	3		3	.1						3						
D	DO 2S	30	25		25	.8											25	
D	DO 2S	32	93	2.1	91	2.8					1	19	21	23			28	
D	DO 2S	36	9		9	.3						9						
D	DO 2S	40	2,251		2,231	68.8					20	166	151	665	683	514	31	
D	DO 3S	12	0		0	.0					0							
D	DO 3S	15	5		5	.2					5							
D	DO 3S	16	2		2	.1					2							
D	DO 3S	18	2		2	.1					2							
D	DO 3S	19	2		2	.1					2							
D	DO 3S	20	3	2.4	3	.1				0	2							
D	DO 3S	22	5	1.1	5	.2				2	3							
D	DO 3S	24	22		21	.7				5	16	0						
D	DO 3S	26	12		12	.4				5	7							
D	DO 3S	28	9		9	.3				2	6							
D	DO 3S	30	8		8	.3			0		8	1						
D	DO 3S	32	176		176	5.4			37	72	61	5						
D	DO 3S	34	31		31	1.0				27	4							
D	DO 3S	36	42		42	1.3			32	5	5							
D	DO 3S	38	8		8	.3			8									
D	DO 3S	40	294	1.1	291	9.0			134	58	99							
D	DO 4S	10	5		5	.1				5								
D	DO 4S	12	6		6	.2			4	1								
D	DO 4S	14	1		1	.0				1								

Log Stock Table - MBF

T06N R06W S13 Ty00MC 74.00
 T06N R06W S13 Ty00PC 113.00
 T06N R06W S13 Ty00PC 5.00

Project: VESPERV
 Acres 192.00

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 Date 4/28/2017
 Time 1:11:17PM

Spp	S T	So Gr rt 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	16	70	2.0	69	2.1		9	50	9								
D		DO 4S	18	11		11	.3			8	3								
D		DO 4S	20	35	4.4	34	1.0		0	23	11								
D		DO 4S	22	6		6	.2			2	4								
D		DO 4S	24	35		35	1.1			35									
D		DO 4S	26	4		4	.1		0	4									
D		DO 4S	28	1		1	.0			1									
D		DO 4S	30	5	4.3	5	.2			5									
D		DO 4S	31	1		1	.0			1									
D		DO 4S	32	25		25	.8			25									
D		DO 4S	34	15		15	.5			15									
D		DO 4S	36	14		14	.4			14									
D		DO 4S	40	11		11	.3			11									
D		Totals		3,359	3.5	3,242	97.6		10	410	210	245	209	175	689	683	580	31	
A		DO CU	4	0	100.0														
A		DO CU	6	0	100.0														
A		DO CU	10	0	100.0														
A		DO CR	12	0		0	.3				0								
A		DO CR	16	1	15.1	0	.9				0	0							
A		DO CR	18	2		2	2.8				2								
A		DO CR	20	1		1	2.7			1		1							
A		DO CR	22	2		2	4.1			2									
A		DO CR	24	0		0	.8			0									
A		DO CR	30	1		1	1.9			0	1								
A		DO CR	32	18	1.3	18	31.8			2				16					
A		DO CR	40	30		30	54.6			15				15					
A		Totals		56	1.2	55	1.7			20	3	1		31					
H		DO 4S	26	7		7	100.0			7									
H		Totals		7		7	.2			7									
NF		DO 2S	40	16		16	92.1									6		10	
NF		DO 3S	36	1		1	7.9					1							
NF		Totals		18		18	.5					1				6		10	
Total		All Species		3,439	3.4	3,321	100.0		10	437	213	246	210	207	689	688	580	41	

Legend

- ODF Ownership
- Timber Sale Boundary
- Paved Road
- Surfaced Road
- Road Construction-Surfaced
- Existing Landing
- New Landing Construction
- Survey Monument
- Type F Stream
- Type N Stream
- Road to be Vacated
- Posted Stream Buffer
- Buffer Zone
- Green Tree Reserve Area
- Stockpile
- Controlled Felling

LOGGING PLAN

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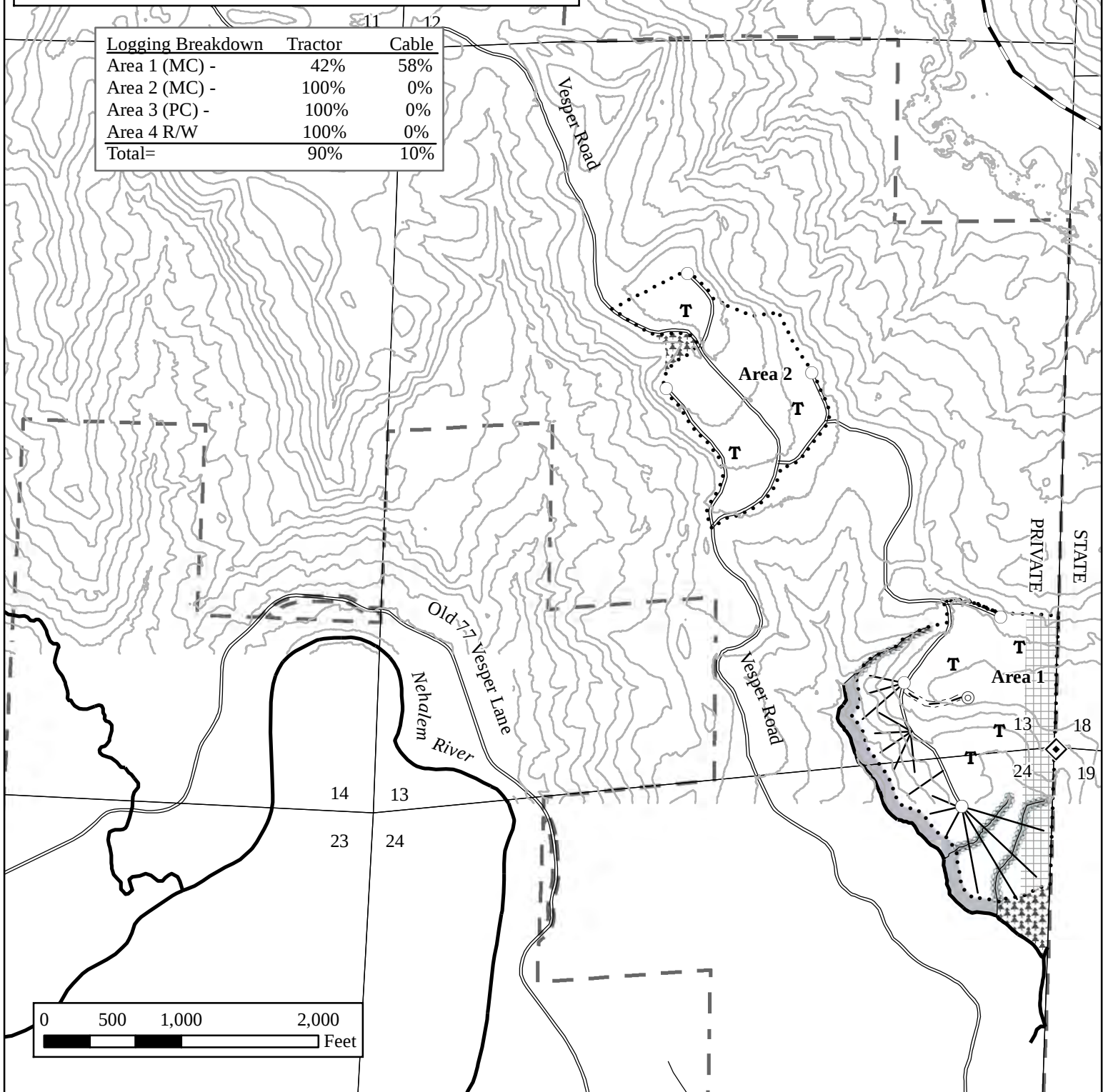
OF TIMBER SALE CONTRACT NO. 341-18-26
VESPER VIEW
PORTIONS OF SECTIONS 11, 12, 13, & 24 T6N, R6W
W.M., CLATSOP COUNTY, OREGON.

Area 1 (MC) - 48 acres
Area 2 (MC) - 26 acres
Area 3 (PC) - 113 acres
Area 4 (R/W) - 10 acres
Total Acres: 197 acres

1 inch = 1,000 feet



Logging Breakdown	Tractor	Cable
Area 1 (MC) -	42%	58%
Area 2 (MC) -	100%	0%
Area 3 (PC) -	100%	0%
Area 4 R/W	100%	0%
Total=	90%	10%



Legend

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-  Timber Sale Boundary
-  Paved Road
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LOGGING PLAN

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