



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Ice Box
Sale 341-11-09

District: Astoria

Date: February 09, 2011

cost summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$1,146,068.64	\$28,146.48	\$1,174,215.12
		Project Work:	\$(270,391.00)
		Advertised Value:	\$903,824.12



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timber description

Location: Portions of Sections 7, 8, 17, and 18, T7N, R6W, W.M., Clatsop County, Oregon.

Stand Stocking: 60%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	13	0	95
Western Hemlock / Fir	14	0	95
Sitka Spruce	13	0	95
Alder (Red)	13	0	93

Volume by Grade	2S	3S	4S	Camprur	Total
Douglas - Fir	164	176	62	0	402
Western Hemlock / Fir	679	621	305	0	1,605
Sitka Spruce	1,022	2,755	861	0	4,638
Alder (Red)	0	0	0	92	92
Total	1,865	3,552	1,228	92	6,737



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comments: Pond Values Used: 4th Quarter Calendar Year 2010.

Expected Log Markets: Warrenton, Tillamook, Garibaldi, Forest Grove, Clatskanie, and Mist, OR; Morton and Longview, WA.

Western redcedar Stumpage Price = Pond Value minus Logging Cost
 $\$742.65/\text{MBF} = \$960/\text{MBF} - \$217.35/\text{MBF}$

SCALING COST ALLOWANCE = \$5.00/MBF

FUEL COST ALLOWANCE = \$3.00/Gallon

HAULING COST ALLOWANCE

Hauling costs equivalent to \$700 daily truck cost.

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

Additional Logging Costs:

Branding and Painting: $\$1\text{MBF} \times 6,737 \text{ MBF} = \$6,737$

Log Loader Slash & Landing Piling (includes Move-In and Pile Materials) = \$5,985 (see attached appraisal)

Close Dirt Spur(s): 20 hrs @ \$120/hr = \$2,400

Machine washing for noxious weed compliance = \$1,000

TOTAL Other Costs (with Profit & Risk to be added) = \$16,122

Other Costs (No Profit & Risk added):

Recreation Trail Rehab.: 20hrs. @ \$120/hr = \$2,400

TOTAL Other Costs (No Profit & Risk added) = \$2,400



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logging conditions

combination#: 1
Douglas - Fir 29.00%
Western Hemlock / Fir 29.00%
Sitka Spruce 29.00%
Alder (Red) 29.00%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Cable: Medium Tower >40 - <70 **Process:** Manual Felling/Delimiting
tree size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
loads / day: 8.0 **bd. ft / load:** 3,800
cost / mbf: \$113.82

machines: Log Loader (A)
Tower Yarder (Medium)

combination#: 2
Douglas - Fir 55.00%
Western Hemlock / Fir 55.00%
Sitka Spruce 55.00%
Alder (Red) 55.00%

yarding distance: Medium (800 ft) **downhill yarding:** No
logging system: Track Skidder **Process:** Harvester Head Delimiting
tree size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
loads / day: 12.0 **bd. ft / load:** 3,800
cost / mbf: \$91.11

machines: Forwarder
Harvester

combination#: 3
Douglas - Fir 11.00%
Western Hemlock / Fir 11.00%
Sitka Spruce 11.00%
Alder (Red) 11.00%

yarding distance: Long (1,500 ft) **downhill yarding:** No
logging system: Cable: Medium Tower >40 - <70 **Process:** Stroke Delimber
tree size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF
loads / day: 11.0 **bd. ft / load:** 4,000
cost / mbf: \$76.00

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

combination#: 4
Douglas - Fir 5.00%
Western Hemlock / Fir 5.00%
Sitka Spruce 5.00%
Alder (Red) 5.00%



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yarding distance:	Medium (800 ft)	downhill yarding:	No
logging system:	Shovel	Process:	Stroke Delimber
tree size:	Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF		
loads / day:	10.0	bd. ft / load:	3,800
cost / mbf:	\$37.85		
machines:	Stroke Delimber (B)		



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logging costs

Operating Seasons:	3.00	Profit Risk:	18.00%
Project Costs:	\$270,391.00	Other Costs (P/R):	\$16,122.00
Slash Disposal:	\$0.00	Other Costs:	\$2,400.00

Miles of Road

Road Maintenance: \$7.42

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	4.0
Western Hemlock / Fir	\$0.00	2.0	4.0
Sitka Spruce	\$0.00	2.0	4.2
Alder (Red)	\$0.00	2.0	3.6



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logging costs breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
\$93.37	\$7.79	\$1.95	\$51.91	\$2.39	\$28.33	\$0.00	\$5.00	\$0.36	\$191.10
Western Hemlock / Fir									
\$93.37	\$7.79	\$1.95	\$77.86	\$2.39	\$33.00	\$0.00	\$5.00	\$0.36	\$221.72
Sitka Spruce									
\$93.37	\$7.79	\$1.95	\$74.15	\$2.39	\$32.34	\$0.00	\$5.00	\$0.36	\$217.35
Alder (Red)									
\$93.37	\$7.94	\$1.95	\$88.16	\$2.39	\$34.89	\$0.00	\$5.00	\$0.36	\$234.06

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$460.27	\$269.17	\$0.00
Western Hemlock / Fir	\$0.00	\$401.24	\$179.52	\$0.00
Sitka Spruce	\$0.00	\$379.00	\$161.65	\$0.00
Alder (Red)	\$0.00	\$540.00	\$305.94	\$0.00



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Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	402	\$269.17	\$108,206.34
Western Hemlock / Fir	1,605	\$179.52	\$288,129.60
Sitka Spruce	4,638	\$161.65	\$749,732.70
Alder (Red)	92	\$305.94	\$28,146.48

Gross Timber Sale Value

Recovery: \$1,174,215.12

Prepared by: John Tillotson

Phone: 503-325-5451

Site Prep Appraisal

Sale Number: 341-11-09
Sale Name: Ice Box
Date: 12/10/2010

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

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area
6	MC	C	14	28	\$110.00	\$3,080.00
				FALSE	\$110.00	\$0.00
In-unit Piling						Sub Total = \$3,080.00
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
6	7	\$220.00	\$1,540.00	84	\$5.00	\$420.00
			\$0.00	FALSE	\$5.00	\$0.00
					\$5.00	\$0.00
*Cost includes separating firewood					Materials	Sub Total = \$420.00
					Landing Piling	Sub Total = \$1,540.00
Move-In Allowance	Number of Move-In's	Total Move-In Allowance			Move-In	Sub Total = \$945.00
\$945.00	1	\$945.00				
Grand Total =						\$5,985.00

Road Maintenance Cost Summary (Interim and Post Harvest)

Sale: Ice Box FL
 Date: December 9, 2010
 By: Ice Box

MBF: 6,737
 \$\$/MBF: \$7.42

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Progressive Operations Entries (3)	Grader 14G	\$675	3	85	\$93	\$9,930
	Dump Truck 12CY	\$141	2	20	\$73	\$1,742
	FE Loader C966	\$675	2	16	\$77	\$2,582
Final Haul Road Maintenance Haul Route	Grader 14G	\$675	1	135	\$93	\$13,230
	Dump Truck 12CY	\$141	2	40	\$73	\$3,202
	FE Loader C966	\$675	1	20	\$77	\$2,215
	Vibratory Roller	\$675	1	140	\$72	\$10,755
	Water Truck 2,500 gallon Labor	\$165	1	70	\$83	\$5,975
				10	\$38	\$380
Total						\$50,011

Interim Maintenance (2)

Production Rates
 Grader

Miles/day	Distance(miles)	Days	Hours
2.0	18.0	9	90

Final Road Maintenance

Production Rates
 Grader
 Vibratory Roller

Miles/day	Distance(miles)	Days	Hours
1.5	21.0	14.0	140.00
1.5	21.0	14.0	140.00

*Maintenance calculations were determined as follows:

Haul Route is determined from sale areas north to Highway 30
 Shingle Mill Road, Simonson Road, Nicolai Lookout Road, Knob Point Road, and New sale roads.

Total Miles: 21 Miles

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Ice Box

NEW CONSTRUCTION:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 1	1A-1B, 1C-1D, 2A-2B, 2C-2D, 4A-4B, 5A-5B, 6A-6B, 6C-6D, and 6E	127.90	\$166,417.00
	TOTALS	127.90	\$166,417.00

ROAD IMPROVEMENT:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 2	I1-I2, I2-I3, I3-I4, I5-I6, I3-I7, and I8-I9	709.90	\$55,792.00
	TOTALS	709.90	\$55,792.00

SPECIAL PROJECTS:

	<u>Description</u>	<u>Cost</u>
Project No. 3	Roadside Brushing	\$21,990.00
Project No. 4	Waterhole Construction and Improvement	\$5,504.00
	Project Road Maintenance	\$13,142.00
	TOTAL	\$40,636.00

MOVE IN:

	<u>Equipment</u>	<u>Cost</u>
	Excavator (C330)	\$ 1,220
	Excavator (C312 @ \$699)	\$ 1,398
	Dozer (D8)	\$ 1,220
	Rubber Tired Skidder	\$ 622
	Vibratory Roller	\$ 675
	Front End Loader (C966 @ \$675)	\$ 675
	10-12 yd dump truck (X 4 @ \$141 each)	\$ 564
	Large Grader (14G)	\$ 675
	Water Truck (2,500 gal)	\$ 165
	20yd dump truck w/pup trailer (X 2 @ \$166 each)	\$ 332
	TOTAL	\$7,546.00

GRAND TOTAL **\$270,391.00**

Compiled By: Kraig Kirkpatrick

Date: 11/19/2010

SURFACING

Subgrade prep:	Description	Stations/amount	x	Rate/ sta/amt	Cost
6A-6B	Grade, Shape 14' outside, 0+00-5+25, 7+00-15+30, 39+30-45+75	20	x	15.93	\$318.60
5A-5B	Grade, Shape 14' outside, 3+50 to 16+00	12.50	x	\$15.93	\$199.13
All other segments:	Grade, Shape and Ditch 16'	96.40	x	\$21.55	\$2,077.42
	Subgrade Compaction	116.40	x	\$17.52	\$2,039.33

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)	Volume (CY) per	Number of	0+00 - 19+90			
Base Rock	Pit-run	0+00-19+90	8	station 50	stations	19.90	995	\$5.74	\$5,711
Junctions	Pit-run	0+00	8	junction 33	junctions	1	33	\$5.74	\$189
Junctions	3/4"-0"	0+00	2	junction 11	junctions	1	11	\$5.34	\$59
Turnouts	Pit-run	5+25, 9+00, 14+40	8	TO 22	TO's	3	66	\$5.93	\$391
Turnarounds	Pit-run	18+05	8	TA 13	TA's	1	13	\$5.74	\$75
Landings	Pit-run	19+90	N/A	Landing 60	Landings	1	60	\$5.74	\$344
Total Rock for Road Segment:							1,178		

\$6,770

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)	Volume (CY) per	Number of	0+00 - 13+40			
Base Rock	Pit-run	0+00 - 13+40	8	station 50	stations	13.40	670	\$5.74	\$3,846
Traction Rock	3/4"-0"	0+00-4+15	2	station 13	stations	4.15	54	\$5.34	\$288
Junctions	Pit-run	0+00	8	junction 33	junctions	1	33	\$5.74	\$189
Junctions	3/4"-0"	0+00	2	junction 11	junctions	1.00	11	\$5.34	\$59
Turnouts	Pit-run	4+60, 10+25	8	TO 22	TO's	2	44	\$5.74	\$253
Turnarounds	Pit-run	12+60	8	TA 13	TA's	1	13	\$5.74	\$75
Landings	Pit-run	13+40	N/A	Landing 60	Landings	1	60	\$5.74	\$344
Total Rock for Road Segment:							885		

\$5,054

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)	Volume (CY) per	Number of	0+00 - 8+00			
Base Rock	Pit-run	0+00-8+00	8	station 50	stations	8.00	400	\$5.74	\$2,296
Junctions	Pit-run	0+00	8	junction 33	junctions	1	33	\$5.74	\$189
Turnouts	Pit-run	0+00, 4+50	8	TO 22	TO's	2	44	\$5.74	\$253
Turnarounds	Pit-run	7+20	8	TA 13	TA's	1	13	\$5.74	\$75
Landings	Pit-run	8+00	N/A	Landing 60	Landings	1	60	\$5.74	\$344
Total Rock for Road Segment:							550		

\$3,157

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)	Volume (CY) per	Number of	0+00 - 1+00			
Base Rock	Pit-run	0+00-1+00	8	station 50	stations	1.00	50	\$5.74	\$287
Junctions	Pit-run	0+00	8	junction 33	junctions	1	33	\$5.74	\$189
Landings	Pit-run	8+00	N/A	Landing 60	Landings	1	60	\$5.74	\$344
Total Rock for Road Segment:							143		

\$821

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)	Volume (CY) per	Number of	0+00 - 6+45			
Base Rock	Pit-run	0+00-6+45	8	station 50	stations	6.45	323	\$5.74	\$1,851
Traction Rock	3/4"-0"	0+00-4+70	2	station 13	stations	4.70	61	\$5.34	\$326
Junctions	Pit-run	0+00	8	junction 33	junctions	1	33	\$5.74	\$189
Turnouts	Pit-run	5+20	8	TO 22	TO's	1	22	\$5.74	\$126
Turnarounds	Pit-run	5+20	8	TA 13	TA's	1	13	\$5.74	\$75
Landings	Pit-run	5+20	N/A	Landing 60	Landings	1	60	\$5.74	\$344
Total Rock for Road Segment:							512		

\$2,912

ROAD SEGMENT 5A to 5B			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	Number of	0+00 - 16+00			
Base Rock	Pit-run	0+00 - 3.50	8	station 50	stations	3.50	175	\$5.74	\$1,005
Junctions	Pit-run	0+00	8	junction 33	junctions	1	33	\$5.74	\$189
									\$0
									\$0
Total Rock for Road Segment:							208		

\$1,194

ROAD SEGMENT 6A to 6B			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	Number of	0+00 - 59+00			
Base Rock	Pit-run	0+00 - 59+00	8	station 50	stations	59.00	2,950	\$5.74	\$16,933
Traction Rock	3/4"-0"	16+20-17+40, 21+40-24+00, 29+00-33+00, 53+00-58+50	2	station 13	stations	13.30	173	\$5.34	\$923
Junctions	Pit-run	0+00	8	junction 33	junctions	1	33	\$5.74	\$189
Junctions	3/4"-0"	0+00	2	junction 11	junctions	1.00	11	\$5.34	\$59
Turnouts	Pit-run	6+40, 10+80, 18+70, 27+40, 31+50, 38+80, 43+70, 48+50, 56+75	8	TO 22	TO's	9	198	\$5.74	\$1,137
Turnarounds	Pit-run	57+90	8	TA 13	TA's	1	13	\$5.74	\$75
Landings	Pit-run	10+80, 18+70, 13+40	N/A	Landing 60	Landings	3	180	\$5.74	\$1,033
Total Rock for Road Segment:							3,558		

\$20,349

ROAD SEGMENT 6C to 6D			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	Number of	0+00 - 4+15			
Base Rock	Pit-run	0+00-4+15	8	station 50	stations	4.15	208	\$5.74	\$1,191
Traction Rock	3/4"-0"	1+00-3+00	2	station 13	stations	2.00	26	\$5.34	\$139
Junctions	Pit-run	0+00	8	junction 33	junctions	1	33	\$5.74	\$189
Landings	Pit-run	5+20	N/A	Landing 60	Landings	1	60	\$5.74	\$459
Total Rock for Road Segment:							347		

\$1,979

ROAD SEGMENT 6E			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	Number of	0+00			

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Ice Box
 ROAD: 11-12(221.5), 12-13(139.0), 13-14(87.0), 15-16(89.0), 13-17(147.0), 18-19(46.4)

NEW CONSTRUCTION: _____ STATIONS _____ MILES _____
 IMPROVEMENT: 709.90 STATIONS _____ 13.45 MILES

CLEARING & GRUBBING						
Method	Acres/amount	x	Rate	=	Cost	
Clear road prism/ditches/culverts (15-16) (C330 - hrs.)	4.00	x	\$144.00	=	\$576.00	
		x		=		
		x		=		
		x		=		
SUB TOTAL FOR CLEARING & GRUBBING					\$576	

EXCAVATION						
Material	Cy/amount	x	Rate	=	Cost	
Scatter Ditch Waste Materials (sta.)	152	x	10.78	=	\$1,638.56	
Excavate, Load, and Haul Ditch Waste Materials (sta.)	35	x	19.89	=	\$696.15	
Cutslope Rounding (13-17)		x		=		
(C330 - hrs. - clear, grub, excavate, load, cleanup)	16.00	x	\$144.00	=	\$2,304.00	
(OR Truck - hrs. - haul excavation and clearing)	16.00	x	\$125.00	=	\$2,000.00	
Junction Improvement (13-17)		x		=		
(C330 - hrs. - clear, grub, excavate, load, cleanup)	4.00	x	\$144.00	=	\$576.00	
(OR Truck - hrs. - haul excavation)	4.00	x	\$125.00	=	\$500.00	
(Grader)	4.00	x	\$93.00	=	\$372.00	
		x		=		
		x		=		
		x		=		
SUB TOTAL FOR EXCAVATION					\$8,087	

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
11-12									
135+80	18"/CPP	30	\$17.64	\$529.20					
159+30	18"/CPP	40	\$17.64	\$705.60					
161+50	18"/CPP	40	\$17.64	\$705.60					
12-13									
5+00	18"/CPP	30	\$17.64	\$529.20					
75+70	18"/CPP	30	\$17.64	\$529.20					
79+20	18"/CPP	30	\$17.64	\$529.20					
85+80	18"/CPP	30	\$17.64	\$529.20					
93+00	18"/CPP	30	\$17.64	\$529.20					
97+20	18"/CPP	30	\$17.64	\$529.20					
118+20	18"/CPP	30	\$17.64	\$529.20					
120+80	18"/CPP	30	\$17.64	\$529.20					
136+80	18"/CPP	30	\$17.64	\$529.20					
138+90	18"/CPP	70	\$17.64	\$1,234.80					
13-14									
0+50	18"/CPP	40	\$17.64	\$705.60					
28+90	24"/CPP	40	\$24.64	\$985.60					
67+00	18"/CPP	40	\$17.64	\$705.60					
13-17									
72+70	18"/CPP	60	\$17.64	\$1,058.40					
87+20	18"/CPP	30	\$17.64	\$529.20					
97+40	18"/CPP	40	\$17.64	\$705.60					
100+80	18"/CPP	40	\$17.64	\$705.60					
106+60	24"/CPP	50	\$24.64	\$1,232.00					
129+60	18"/CPP	30	\$17.64	\$529.20					
Other/miscellaneous:				Description		Quantity	Rate	Cost	
				Dissipator Construction (14 dissipators w/C315) (hrs.)		10.00	\$94.00	\$940.00	
				Culvert inlet/outlet repair (laborer) (hrs.)		3	\$38.00	\$114.00	
Culvert stakes & markers:				6' Fiberglass Marker		8	\$18.00	\$144.00	
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION					\$16,293				

Subtotal of Clearing, Exc., Culv. **\$24,956**

SURFACING		Description	Stations/ amount	x	Rate/ sta/amt	Cost
Subgrade prep: 12-13, 13-17, 18-19		Grade, Shape and Ditch 16'	332.40	x	\$21.55	\$7,163.22
12-13, 13-14, 13-17		Subgrade Compaction	64.80	x	\$17.52	\$1,135.30

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 Volume (CY) per	0+00 to 221+50 Number of			
Culvert Bedding/Backfill	3/4"-0" Crushed	135+80, 159+30, 161+50	N/A	culvert 22	culverts 3	66	\$5.34	\$352
Dissipator	24"-6" Rip-rap	135+80, 159+30, 161+50	N/A	dissipator 11	dissipators 3	33	\$6.82	\$225
Total Rock for Road Segment:				I1 to I2		99		

\$578

ROAD SEGMENT I2 to I3				POINT TO POINT	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I2 to I3 Volume (CY) per	0+00 to 139+00 Number of			
Turnout	4"-0" Crushed	104+60	N/A	turnout 22	turnouts 1	22	\$5.34	\$117
Turnout	3/4"-0" Crushed	104+60	N/A	turnout 22	turnouts 1	22	\$5.34	\$117
Culvert Bedding/Backfill	3/4"-0" Crushed	5+00, 75+70, 79+20, 85+80, 93+00, 97+20, 118+20, 120+80	N/A	culvert 22	culverts 8	176	\$5.34	\$940
Culvert Bedding/Backfill	3/4"-0" Crushed	136+80, 138+90	N/A	culvert 44	culverts 2	88	\$5.34	\$470
Dissipator	24"-6" Rip-rap	85+80	N/A	dissipator 11	dissipators 1	11	\$6.82	\$75
Dissipator	24"-6" Rip-rap	97+20, 118+20, 120+80	N/A	dissipator 22	dissipators 3	66	\$6.82	\$450
Total Rock for Road Segment:				I2 to I3		385		

\$2,170

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 Volume (CY) per	0+00 to 87+00 Number of			
Turnout	4"-0" Crushed	18+80	N/A	turnout 22	turnouts 1	22	\$5.34	\$117
Turnout	3/4"-0" Crushed	18+80	N/A	turnout 22	turnouts 1	22	\$5.34	\$117
Culvert Bedding/Backfill	3/4"-0" Crushed	0+50, 67+00	N/A	culvert 22	culverts 2.00	44	\$5.34	\$235
Culvert Bedding/Backfill	3/4"-0" Crushed	28+90	N/A	culvert 55	culverts 1	55	\$5.34	\$294
Ditch/Catch Basin Armor	6"-0" Pit-run	28+90	N/A	N/A	N/A	22	\$5.74	\$126
Ditch Armor	6"-0" Pit-run	67+00 to 68+00	N/A	N/A	N/A	33	\$5.74	\$189
Dissipator	24"-6" Rip-rap	17+20, 28+90	N/A	dissipator 11	dissipators 2	22	\$6.82	\$150
Dissipator	24"-6" Rip-rap	8+00, 19+60	N/A	dissipator 22	dissipators 2	44	\$6.82	\$300
Total Rock for Road Segment:				I3 to I4		264		

\$1,529

ROAD SEGMENT I3 to I7				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 I7 Volume (CY) per	0+00 to 147+00 Number of			
Turnout	4"-0" Crushed	40+70	N/A	turnout 33	turnouts 1.00	33	\$5.34	\$176
Junction	4"-0" Crushed	71+60 to 75+00	8	station 50	stations 3.40	170	\$5.34	\$908
Culvert Bedding/Backfill	3/4"-0" Crushed	87+20, 97+40, 100+80, 129+60	N/A	culvert 22	culverts 4.00	88	\$5.34	\$470
Culvert Bedding/Backfill	3/4"-0" Crushed	72+70, 106+60	N/A	culvert 44	culverts 2	88	\$5.34	\$470
Subgrade Leveling	3/4"-0" Crushed	0+00 to 71+60	N/A	load 11	loads 5	55	\$5.34	\$294
Subgrade Leveling	3/4"-0" Crushed	71+60 to 147+00	N/A	load 11	loads 37	407	\$5.34	\$2,173
Turnout	3/4"-0" Crushed	40+70	N/A	turnout 22	turnouts 1	22	\$5.34	\$117
Traction Rock	3/4"-0" Crushed	71+60 to 130+00	3	station 19	stations 58	1,110	\$5.34	\$5,925
Turnout	3/4"-0" Crushed	71+60 to 130+00	3	turnout 11	turnouts 6	66	\$5.34	\$352
Dissipator	24"-6" Rip-rap	100+80, 106+60	N/A	dissipator 11	dissipators 2	22	\$6.82	\$150
Dissipator	24"-6" Rip-rap	97+40	N/A	dissipator 22	dissipators 1	22	\$6.82	\$150
Total Rock for Road Segment:				I3 to I7		2,083		

\$11,186

ROAD SEGMENT I8 to I9				POINT TO POINT	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I8 to I9 Volume (CY) per	0+00 to 46+40 Number of			
Subgrade Leveling	3/4"-0" Crushed	0+00 to 46+40	N/A	load 11	loads 9.00	99	\$5.34	\$529
Total Rock for Road Segment:				I8 to I9		99		

\$529

Processing:	Description	No.sta	Rate/sta	Cost
	Water, Process & Compact:	64.80	\$49.02	\$3,176

SUB TOTAL FOR SURFACING

24"-6" rip	6"-0" pit	4"-0"	3/4"-0"	Total		
220	55	247	2,408	2,930	2,930	\$27,467

SPECIAL PROJECTS

Description	Cost
Rock Development (pit-run and riprap) 275cy x \$2.90/cy	\$ 797.50
Ditch armoring (13-14) (C315 - 2hrs.)	\$ 188.00
Waste area shape, compact, debris placement (C330 - 2hrs.)	\$ 288.00
Seed and mulch waste areas	\$ 600.00
Ditch Improvement/Clean culverts (I1-I2 & I3-I4, 8 hrs. C315)	\$ 752.00
Spot Grading (I1-I2 & I3-I4) (14G Grader 8 hrs.)	\$ 744.00

SUB TOTAL FOR SPECIAL PROJECTS

\$3,370

Subtotal of Surfacing & Spec. Proj. \$30,836
Subtotal of Clearing, Exc., Culv. \$24,956

GRAND TOTAL

\$55,792

Compiled By: C.Bangs

Date: 11/19/2010

Project No. 3 Ice Box

Segment	Name	Length (Miles)	Brush Level	Brush Type	Cost/Mile	Cost
B1	Shingle Mill to ODF Property Line	4.2	Maintenance	Medium	\$900.00	\$3,780.00
B2	Shingle Mill - ODF Property Line to Knob Pt. Quarry Rd.	4.3	Maintenance	Medium	\$900.00	\$3,870.00
B3	Simonisen	1.9	Maintenance	Light	\$600.00	\$1,140.00
B4	Foster - Simonisen to Nicolai	0.4	Maintenance	Very Light	\$400.00	\$160.00
B5	Nicolai Lookout Rd.	1.4	Maintenance	Medium	\$900.00	\$1,260.00
B6	FM31030	0.4	Maintenance	Medium	\$900.00	\$360.00
B7	FM31010	0.4	Maintenance	Medium Heavy	\$1,100.00	\$440.00
B8	FM31020	0.4	Maintenance	Light	\$600.00	\$240.00
B9	FM3102010	0.3	Maintenance	Medium Light	\$800.00	\$240.00
B10	FM310201010	0.2	Maintenance	Medium Light	\$800.00	\$160.00
B11	SH20 - Coke Shack	1.4	Maintenance	Medium Heavy	\$1,100.00	\$1,540.00
B12	Coke Shack Spur 1	0.2	Maintenance	Light	\$600.00	\$120.00
B13	Coke Shack Spur 2	0.2	Maintenance	Light Medium	\$700.00	\$140.00
B14	Coke Shack Spur 3	0.1	Maintenance	Light	\$600.00	\$60.00
B15	Shingle Mill Spur 1	1.1	1st Entry	Medium	\$1,250.00	\$1,375.00
B16	Shingle Mill Spur 1A	0.5	1st Entry	Heavy	\$1,500.00	\$750.00
B17	Shingle Mill Spur 1B	0.2	1st Entry	Heavy	\$1,500.00	\$300.00
B18	Shingle Mill Spur 2	0.7	1st Entry	Heavy	\$1,500.00	\$1,050.00
B19	Shingle Mill Spur 3	1.2	1st Entry	Heavy	\$1,500.00	\$1,800.00
B20	SH10	0.7	1st Entry	Medium	\$1,250.00	\$875.00
B21	SH1010	0.6	1st Entry	Medium	\$1,250.00	\$750.00
B22	SH1020	0.4	1st Entry	Medium Light	\$1,125.00	\$450.00
B23	SH101010	1.5	Maintenance	Light Medium	\$700.00	\$1,050.00
B24	SH101020	0.1	Maintenance	Very Light	\$400.00	\$40.00
B25	FM330	0.1	Maintenance	Very Light	\$400.00	\$40.00
Total Miles		22.90			Total Project Cost	\$21,990

Average cost per mile: \$960.26

SURFACING		Stations/ amount	Rate/ sta/amt	Cost
Subgrade prep:	Description			
	Grade, Shape and Ditch 16'	x		\$0.00
	Subgrade Compaction	x		\$0.00

ROAD SEGMENT		Project No. 4		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost			
Application	Rock Size and Type	Location	Depth of Rock (inches)	Project No. 4 Volume (CY) per	N/A Number of								
Junctions	3/4"-0"	0+00	2	junction 11	junctions 1			11	\$5.34	\$59			
Turnaround	Pit-run	Turnaround	8	TA 55	TA's 1			55	\$5.74	\$316			
Safety Barrier	24"-6"	Waterhole	NA					22	\$6.82	\$150			
Total Rock for Road Segment: Project No. 4								88		\$524			
Processing:		Description		No. sta		Rate/sta		Cost					
		Water, Process & Compact:						\$0					
SUB TOTAL FOR SURFACING				24"-6"	6"-0" pr	3/4"-0"	Total	22	55	11	88	88	\$524

SPECIAL PROJECTS		Description	Cost
		Mulch Waste Area - Labor & Materials	\$190
		Rock Development (pit-run & rip rap) 77CY x \$2.90/CY	\$223.30
SUB TOTAL FOR SPECIAL PROJECTS			\$413

Subtotal of Surfacing & Spec. Proj. \$938
Subtotal of Cleaning, Exc., Culv. \$4,566

GRAND TOTAL **\$5,504**

Compiled By: Kraig Kirkpatrick

Date: 11/19/2010

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. _____ **Timber Sale Name: Icebox**
 Quarry: Knob Point Swell: _____
 Location: NW 1/4, NW 1/4, Section 18, T7N, R6W Shrink: _____
 County: Clatsop
 By: C.Bangs Loading Hopper: _____
 Date: 11/19/2010

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR	_____	_____	_____
1-1/2"-0"		CR	_____	_____	_____
4"-0"		CR	_____	_____	_____
6"-0"		PR	_____	7,243	7,243
24"-6"		RR	_____	242	242
36"		RR	_____	_____	_____
TOTAL CUBIC YARDS OF ROCK:				7,485	7,485

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Dump Trucks		\$141		Off Highway Dump Truck		\$515	
Screening Plants		\$515		Screening Plant		\$515	
D8 Cat		\$1,220		Loading Hopper		\$515	
D6 Cat		\$675		Loader		\$699	
Drill & Compressor	1	\$1,180	\$1,180				
Powder	1	\$327	\$327	3 Stage Crusher		\$2,694	
Dump Trucks		\$141					
Excavator	1	\$1,220	\$1,220	Excavator		\$1,220	
SUB TOTAL FOR MOBILIZATION							\$2,727

EQUIPMENT SET UP	TIMES	RATE	COST
_____	_____		
_____	_____		
_____	_____		
_____	_____		
_____	_____		
_____	_____		
_____	_____		

SUB TOTAL FOR SET UP COSTS
TOTAL MOBILIZATION & SET UP COSTS \$2,727

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
_____	_____			
_____	_____			
_____	_____			
_____	_____			
_____	_____			
_____	_____			

TOTAL CLEARING & GRUBBING COSTS

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST

TOTAL EXCAVATION COSTS

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	15%	1,119	\$2.30	\$2,575
crushed			Drill & shoot	85%	6,344	\$2.40	\$15,225
pit run	7,243	97%	Oversize red			\$5.80	
rip rap	220	3%	Other				
Total	7,463						
reject							

TOTAL ROCK DEVELOPMENT COSTS

\$17,799

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

TOTAL FEEDING & LOADING COSTS

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed					
1-1/2"-0"	crushed					
4"-0"	crushed					

TOTAL ROCK CRUSHING COSTS

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer			
Compactor			
Grader			
Excavator			

Rock for Floor (CY)	\$/CY Haul	Total

SUB TOTAL

HAUL & STOCKPILE

STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
--------------------	------	-------------	----------	------	------

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

SUB TOTAL

TOTAL STOCKPILING COSTS

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Separate riprap and stage on-site (4hrs. Excavator)	\$576
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access (4hrs. Excavator)	\$576

TOTAL MISCELLANEOUS COSTS

\$1,152

10) GRAND TOTAL:

\$21,679

\$/Cubic Yard

\$2.90

Footnotes:

Projects Road Maintenance Cost Summary

Sale: Ice Box
Date: November 23, 2010
By: Kraig Kirkpatrick

Type	Equipment/Rationale	Hours	Rate	Cost
Post-Projects Road	Grader 14G	41	\$93	\$3,813
	Dump Truck 12CY (2 trucks)	10	\$73	\$730
	FE Loader C966	41	\$77	\$3,157
	Vibratory Roller	41	\$72	\$2,952
	Water Truck 2500 gallon	30	\$83	\$2,490
Total				\$13,142

Interim Maintenance

Production Rates	Miles/day	Distance(miles)	Days	Hours
Grader				
Vibratory Roller				

Final Road Maintenance

Production Rates	Miles/day	Distance(miles)	Days	Hours
Grader	1.5	6.20	4.1	41.33
Vibratory Roller	1.5	6.20	4.1	41.33

*Maintenance calculations were determined as follows:

Knob Point Road, Shingle Mill Road, Simonson Road, Nicolai Lookout Road

Total Miles: 6.2 miles.

**ICE BOX
FY 2011
TIMBER CRUISE REPORT**

1. **Sale Area Location:** Areas 1, 2, 3, 4, 5, 6, and 7 R/W are located in portions of Sections 7, 8, 17 and 18 T7N, R6W, W.M., Clatsop County, Oregon.

All timber sale areas are posted with ODF "Timber Sale Boundary", "Area Boundary" signs and pink ribbon. Area 7 R/W is posted with ODF "Right-of-Way Boundary" signs.

2. **Fund Distribution:** **Fund:** BOF (100%)
 Tax Code: 1-02 (40%)
 30-05 (60%)

3. **Sale Acreage by Area:**

Area	Harvest Type	Gross Acres	New R/W Acres	Stream Buffer Acres	Existing R/W Acres	Net Acreage
1	PC	131	3	7	0	121
2	PC	101	1	0	0	100
3	PC	42	0	0	0	42
4	PC	127	4	2	0	121
5	PC	41	1	0	0	40
6	MC	110	3	37	0	70
7	R/W		12		0	12
TOTALS		552	12	46	0	506

4. **Cruisers and Cruise Dates:** Areas 1, 2, and 4 were cruised by Bryce Rodgers Kraig Kirkpatrick, Ed Holloran, Jon Long, Kevin Berry and Jay Morey. Areas 3 and 5 were cruised by Bryce Rodgers, Jon Long and Jay Morey. Area 6 was cruised by Bryce Rodgers, Jay Morey, John Tillotson, and Kevin Berry. All areas were cruised in November and December 2010.

5. **Cruise Method and Computation:** Cruises used Corvallis MicroTechnology (CMT) and Juniper Allegro data collectors, and were downloaded to the Atterbury Super A.C.E. program in District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

Areas 1, 2, and 4 (Partial Cut), were variable plot cruised with a 33.6 BAF. 70 plots were sampled on a cruise grid of 5 chains by 10 chains, with a count/cruise ratio of 3:1.

Areas 3 and 5 (Partial Cut), were variable plot cruised with a 33.6 BAF. 33 plots were sampled on a cruise grid of 3 chains by 8 chains, with a count/cruise ratio of 2:1.

Area 6 (Modified Clear Cut), was variable plot cruised with a 40 BAF. 36 plots were sampled on a cruise grid of 3 chains by 6 chains, with a count/cruise ratio of 1:1.

Area 7 R/W, was calculated applying road R/W acreage using cruise per acre volumes for all areas combined.

<u>AREAS</u>	<u>PROJECT</u>	<u>TRACT</u>	<u>CRUISE TYPE</u>
1, 2, 4	ICEBOX	A124	0001, TAKE, LEAV
3, 5	ICEBOX	A35	0002, TAKE, LEAV
6	ICEBOX	A6	0003, TAKE, LEAV
7R/W	ICEBOX	AREA7	RW

6. Timber Description:

Areas 1, 2 and 4 (Partial Cut) – These stands are approximately 42 to 59 years old. They are Sitka spruce and hemlock dominant mixed conifer stands with small patches and stringers of hardwoods. These stands will be harvested to an SDI of approximately 30, with a basal area target of 160 ft², while removing approximately 132 trees per acre and 10MBF/acre. The average “take” tree size is 12” DBH and 36 feet to a merchantable top (6”d.i.b).

Areas 3 and 5 (Partial Cut) – These stand are approximately 42 to 44 years old, consisting of Sitka spruce dominant conifer stands. These stands will be harvested to an SDI of approximately 30, with a basal area target of 160 ft², while removing approximately 181 trees per acre and 10MBF/acre. The average “take” tree size is 12” DBH and 34 feet to a merchantable top (6”d.i.b).

Area 6 (Modified Clear Cut) – This stand is approximately 46 years old, consisting of Sitka spruce dominant conifer stand. This stand averages 16 inches DBH, with an average merchantable height of 50 feet to a merchantable top (6” d.i.b.). The average volume (net) to be harvested is 31 MBF/acre.

Area 7 R/W – The average volume (net) is approximately 33 MBF/acre with similar timber types as in Areas 1-6.

7. Statistical Analysis: (See also “Statistics Reports,” attached.)

Area	Target CV	Target SE%	Actual CV	Actual SE%
1, 2, and 4	60	13	28.6	3.4
3 and 5	60	13	33.4	5.8
6	60	11	48.2	8.0

The statistics for all areas are “Take” and “Leave” stands combined.

8. Take Volumes by Species and Log Grades for All Sale Areas by MBF: (See “Species, Sort Grade-Board Feet Volumes (Project)” and the “Stand Table Summary” attached, of the thinning and regeneration harvest areas combined.) Volumes do not include “ingrowth.” The majority of defect and breakage was culled out during the cruise.

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	Camp Run	% D & B	% Sale
Spruce	13.0	4,638	1,022	2,755	861		5%	68%
Hemlock	13.4	1,423	555	578	290		6%	21%
Douglas-fir	13.1	402	164	176	62		15%	6%
True fir	17.2	182	124	43	15		4%	3%
Hardwoods	12.6	92				92	7%	2%
TOTAL		6,737						

9. Prepared by: Kraig Kirkpatrick

Date: 12-8-10

10. Approved by: 

Date: 12/21/10

11. Attachments:
- Cruise Plans & Maps (9 pages)
 - Species, Sort, Grade Reports (5 pages)
 - Statistics Reports (13 pages)
 - Stand Table Summary Reports (5 pages)
 - Take - Log Stock Table Reports (4 pages)

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Ice Box **Areas** 1, 2, & 4

Harvest Type: (PC) Partial Cut

Approx. Cruise Acres: 346 **Estimated CV%** 60 **Net BF/Acre** **SE% Objective** 13

Planned Sale Volume : 1,794 MBF **Estimated Sale Area Value/Acre:** \$5,200/Ac
(23 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum 100 conifer and 10 hardwood trees:
(b) Sample 66 cruise plots (1 grade/3 count); (c) Other goals (X Determine volume and quality; Determine pole density for sale value)

B. Cruise Design:

- 1. Plot Cruises:** BAF 33.6 (Full point; Half point) (circle one)
Cruise Line Direction(s) Area 1 = 0°, Area 2 = 90°, Area 4 = 140°
Cruise Line Spacing 10 (chains)
Cruise Plot Spacing 5 (chains)
Grade/Count Ratio 3:1

Basal Area target of 140ft², leave 4-5 trees per plot. If a plot ends up in a buffer adjust by pacing on through or offsetting one chain. Take plots as marked on map. All cedar are leave trees. Record all snags as SN. Grade all hardwoods as CampRun.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest $\frac{1}{2}$ " for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24".
- 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 < 18" dbh and 40% of dob @ FP for trees > 18" 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 are a Standard 87.
- 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 merchantable segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

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). For "leave trees" in partial cuts, or for marked "wildlife 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: R = CampRun

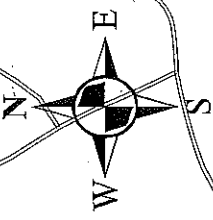
7. **Deductions**: Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce. Be sure to look at **both sides of the tree**, especially if a peeler/special mill quality tree. Note any **Brown Trunk Rot** conks, typically in larger conifers. If any conks are present, the tree is almost certainly cull.

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) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

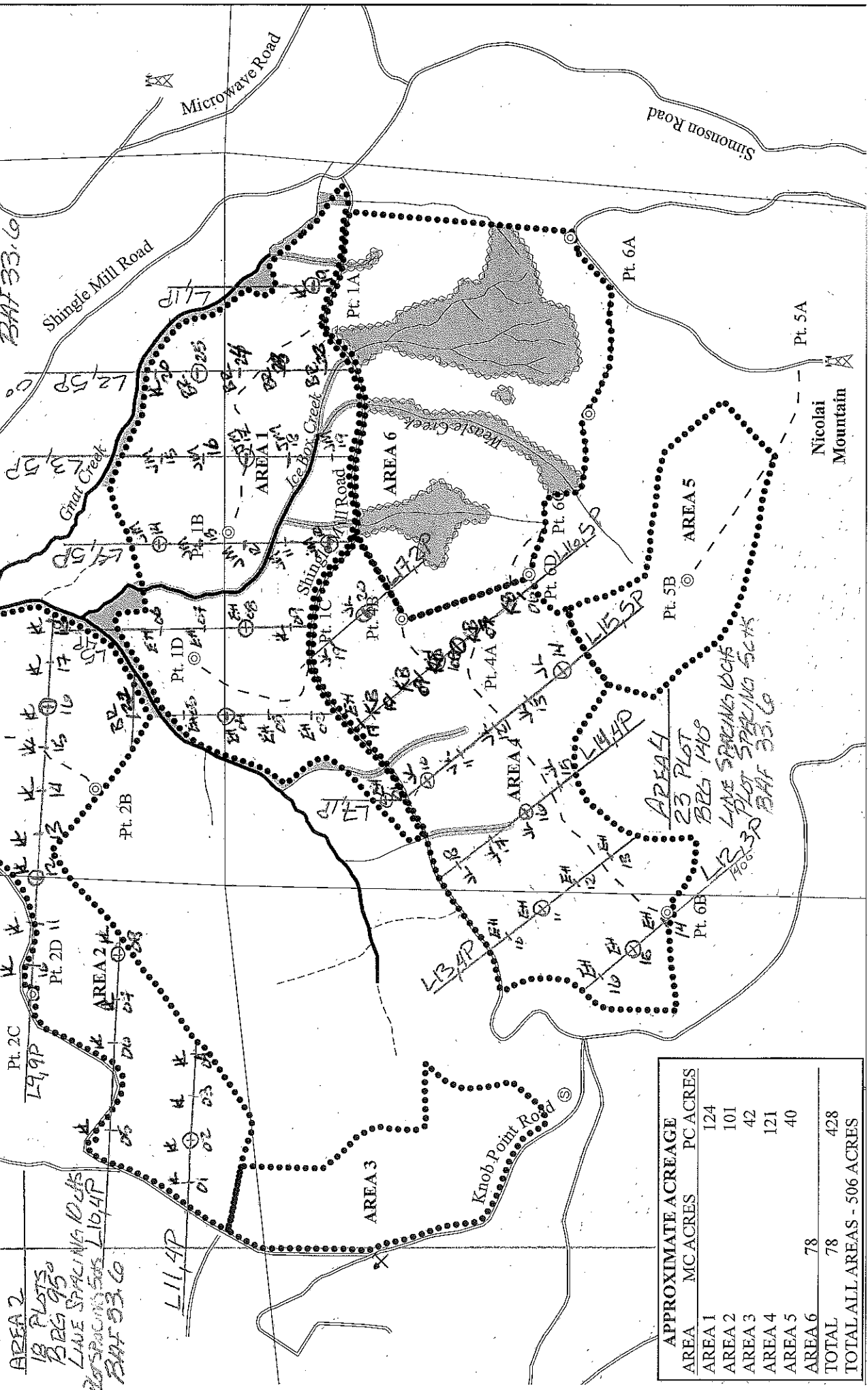
10. **Attachments**: A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Kraig Kirkpatrick Approved by: Jon Long Date: 11/8/10



CRUISE MAP

OF TIMBER SALE CONTRACT NO. 341-11-09
ICE BOX
PORTIONS OF SECTIONS 7, 8, 17, AND 18 OF
17N, R6W, W.M., CLATSOP COUNTY, OREGON.
APPROXIMATE SCALE 1"= 1000'
1,000 500 0 1,000 Feet



AREA	MC ACRES	PC ACRES
AREA 1		124
AREA 2		101
AREA 3		42
AREA 4		121
AREA 5		40
AREA 6	78	
TOTAL	78	428
TOTAL ALL AREAS - 506 ACRES		

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Ice Box **Areas** 3 & 5

Harvest Type: (PC) Partial Cut

Approx. Cruise Acres: 82 **Estimated CV%** 60 Net BF/Acre **SE% Objective** 13

Planned Sale Volume : 1,794 MBF **Estimated Sale Area Value/Acre:** \$5,200/Ac
(23 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum 100 conifer and 10 hardwood trees:
(b) Sample 33 cruise plots (1 grade/ 2 count); (c) Other goals (Determine volume and quality; Determine pole density for sale value

B. Cruise Design:

- 1. Plot Cruises:** BAF 33.6 (Full point; Half point) (circle one)
Cruise Line Direction(s) Area 3 = 90^0 , Area 5 = 240^0
Cruise Line Spacing 8 (chains)
Cruise Plot Spacing 3 (chains)
Grade/Count Ratio 2:1

Basal Area target of 140ft², leave 4-5 trees per plot. If a plot ends up in a buffer adjust by pacing on through or offsetting one chain. Take plots as marked on map. All cedar are leave trees. Record all snags as SN. Grade all hardwoods as CampRun.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods.
Record dbh to nearest $\frac{1}{2}$ " for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24".
- 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 < 18" dbh and 40% of dob @ FP for trees > 18" 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 are a Standard 87.
- 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 merchantable segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

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). For "leave trees" in partial cuts, or for marked "wildlife 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: R = CampRun

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. Be sure to look at **both sides of the tree**, especially if a peeler/special mill quality tree. Note any **Brown Trunk Rot** conks, typically in larger conifers. If any conks are present, the tree is almost certainly cull.

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) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

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: Kraig Kirkpatrick Approved by: for Long Date: 11/3/10

Revised August, 2002

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Ice Box **Area** 6

Harvest Type: (CC) Clearcut

Approx. Cruise Acres: 78 **Estimated CV%** 60 Net BF/Acre **SE% Objective** 11

Planned Sale Volume : 1,794 MBF **Estimated Sale Area Value/Acre:** \$5,200/Ac
(23 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum 100 conifer and 30 hardwood trees:
(b) Sample 39 cruise plots (1 grade/1 count); (c) Other goals (X Determine volume and quality; Determine pole density for sale value)

B. Cruise Design:

1. Plot Cruises: BAF 40.0 (Full point; Half point) (circle one)
Cruise Line Direction(s) 190^o
Cruise Line Spacing 6 (chains)
Cruise Plot Spacing 3 (chains)
Grade/Count Ratio 1:1

If a plot ends up in a buffer adjust by pacing on through or offsetting one chain. Take plots as marked on map. All cedar are leave trees. Record all snags as SN. Grade all hardwoods as CampRun.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest $\frac{1}{2}$ " for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24".
- 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 < 18" dbh and 40% of dob @ FP for trees > 18" 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 are a Standard 87.
- 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 merchantable segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

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). For "leave trees" in partial cuts, or for marked "wildlife 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: R = CampRun

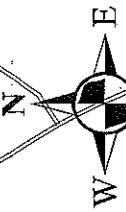
7. Deductions: Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce. Be sure to look at **both sides of the tree**, especially if a peeler/special mill quality tree. Note any **Brown Trunk Rot** conks, typically in larger conifers. If any conks are present, the tree is almost certainly cull.

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.

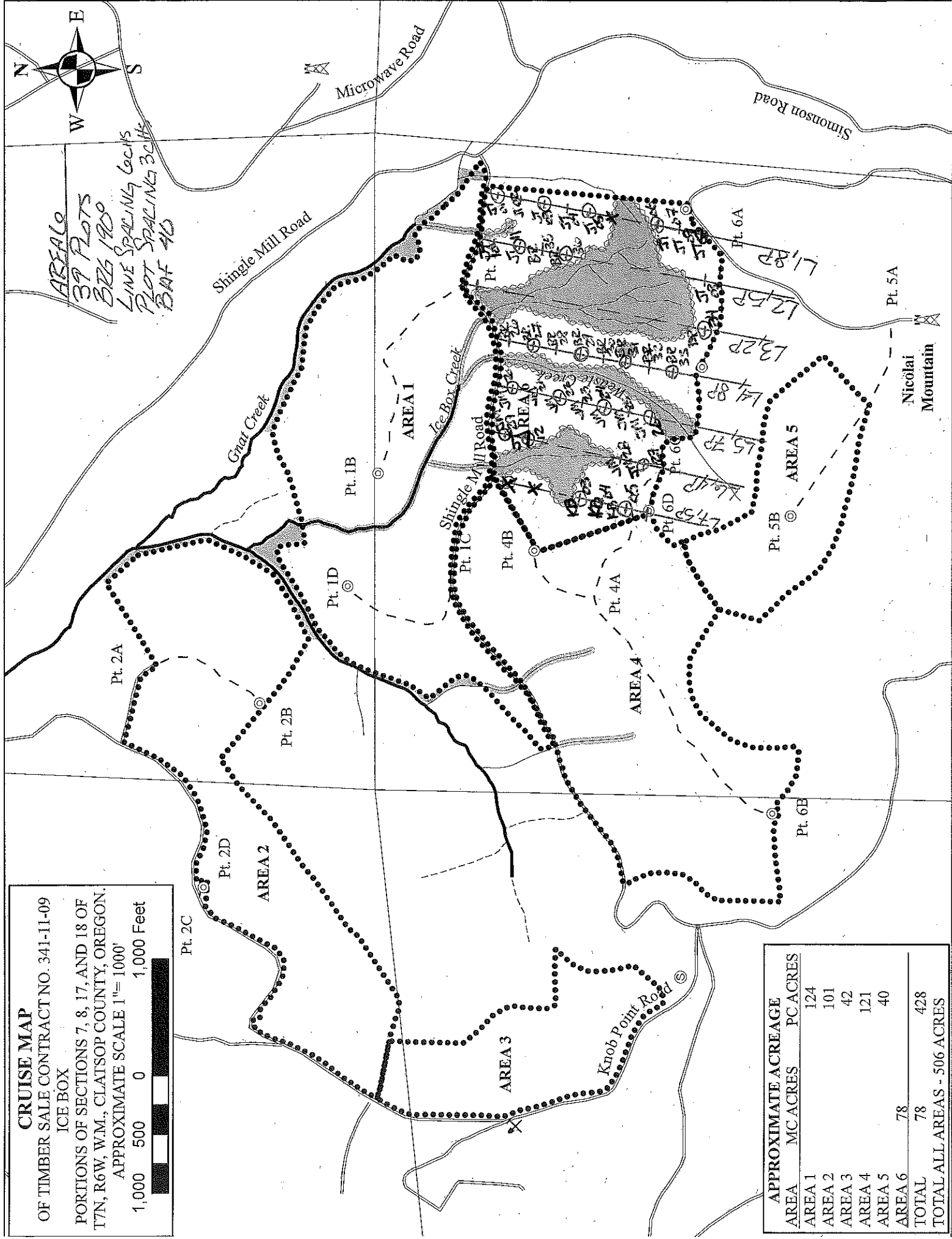
9. Cruising Equipment: Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

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: Kraig Kirkpatrick Approved by: Joe Long Date: 11/3/10



AREALO
39 PLOTS
BZG 1900
LINE SPALING LOCYS
PLOT SPALING 30M
BAF 410



CRUISE MAP
OF TIMBER SALE CONTRACT NO. 341-11-09
ICE BOX
PORTIONS OF SECTIONS 7, 8, 17, AND 18 OF
T7N, R6W, W.M., CLATSOP COUNTY, OREGON.
APPROXIMATE SCALE 1"= 1000'
1,000 500 0 1,000 Feet



AREA	MC ACRES	PC ACRES
AREA 1		124
AREA 2		101
AREA 3		42
AREA 4		121
AREA 5		40
AREA 6	78	
TOTAL	78	428
TOTAL ALL AREAS - 506 ACRES		

Species, Sort Grade - Board Foot Volumes (Project)

T007 R006 S17 TyTAKE THRU T007 R006 S17 TyRW	Project: ICEBOX Acres 506.00	Page 1 Date 12/17/2010 Time 8:40:26AM
----------------------------------------------------	-----------------------------------------------	------------------------------------------------------------------

S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log			Logs Per /Acre	
								Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf		
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
H		DOCU		100.0	100										11		0.00	1.9		
H		DO2S	39	1.3	1,112	1,098	555		8	72	21		1	38	61	36	245	1.69	4.5	
H		DO3S	40	2.1	1,167	1,143	578		78	22		7	4	56	33	33	84	0.79	13.6	
H		DO4S	21	2.8	589	573	290	1	99			49	45	7		20	27	0.41	21.1	
H	Totals		21	5.2	2,968	2,813	1,423	0	55	37	8	13	11	39	37	26	68	0.76	41.1	
S		CU																0.00	.0	
S		DOCU		100.0	252											11		0.00	6.1	
S		DO2S	22	1.1	2,041	2,019	1,022		5	83	12	10	4	44	42	32	213	1.71	9.5	
S		DO3S	59	2.9	5,606	5,445	2,755		84	14	2	0	6	50	44	34	82	0.75	66.1	
S		DO4S	19	8.2	1,853	1,702	861	1	99		0	52	30	17		21	26	0.46	64.5	
S	Totals		69	6.0	9,753	9,166	4,638	0	69	27	4	12	10	43	35	27	63	0.72	146.3	
D		DOCU		100.0	128											6		0.00	3.1	
D		DO2S	40	1.4	329	324	164			98	2	29		67	4	25	161	1.56	2.0	
D		DO3S	44	1.9	356	349	176		100	0		0	0	54	46	36	65	0.63	5.3	
D		DO4S	16		121	121	62		100			99	1			18	20	0.35	6.0	
D	Totals		6	15.0	933	794	402		59	40	1	27	0	51	22	22	48	0.65	16.5	
A		DOCR	100	7.4	197	183	92		100			40	32	28		25	46	0.56	3.9	
A	Totals		1	7.4	197	183	92		100			40	32	28		25	46	0.56	3.9	
NF		DOCU		100.0	3											5		0.00	.0	
NF		DO2S	68	5.2	258	244	124			22	78	0		54	46	34	391	2.44	.6	
NF		DO3S	23		84	84	43		98	1	1	0	1	75	24	33	92	0.86	.9	
NF		DO4S	9	.1	29	29	15		100			37	63			22	25	0.46	1.1	
NF	Totals		3	4.3	374	358	182		31	15	54	3	5	54	37	29	132	1.17	2.7	
C		DO3S	52		0	0	0		100				100			24	100	1.17	.0	
C		DO4S	48		0	0	0		100			56	44			18	26	0.48	.0	
C	Totals		0		1	1	0		100			27	73			20	42	0.66	.0	
Totals				6.4	14,226	13,314	6,737		0	65	29	6	13	10	43	34	26	63	0.72	210.5

T007 R006 S17 TTAKE T007 R006 S17 TTAKE
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 007 006 17 A124 TAKE 342.00 70 84 1 W

Spp	S T	So rt	Gr 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 Ft	Bd Ft	CF/ Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
S		DO	CU		00.0	195										11		0.00	2.0	
S		DO	2S	19	.7	1,193	1,185	405		100			20	65	15	29	202	1.76	5.9	
S		DO	3S	59	1.7	3,754	3,689	1,262		89	11			2	61	37	35	76	0.69	48.3
S		DO	4S	22	8.6	1,422	1,300	445		100			59	23	18	20	25	0.44	51.0	
S	Totals			62	5.9	6,564	6,174	2,112		74	26		16	6	53	25	27	58	0.66	107.2
H		DO	CU		00.0	39										6		0.00	.5	
H		DO	2S	25	.8	583	578	198		21	79				34	66	36	203	1.42	2.9
H		DO	3S	46	2.8	1,091	1,060	363		70	30			2	66	32	34	82	0.74	12.9
H		DO	4S	29	2.0	679	665	227		100			52	40	8	20	26	0.38	25.3	
H	Totals			23	3.7	2,392	2,303	788		67	33		15	13	41	31	25	55	0.63	41.5
D		DO	CU		00.0	78										4		0.00	4.0	
D		DO	2S	33		305	305	104			100		45		55	23	144	1.55	2.1	
D		DO	3S	48	1.7	437	430	147		100					56	44	35	66	0.62	6.5
D		DO	4S	19		171	171	58		100		100				18	20	0.35	8.5	
D	Totals			9	8.6	991	906	310		66	34		34		45	21	21	43	0.61	21.2
A		DO	CR	100	10.0	208	187	64		100			56	44		23	45	0.59	4.2	
A	Totals			2	10.0	208	187	64		100			56	44		23	45	0.59	4.2	
NF		DO	2S	86	5.5	336	318	109			22	78			58	42	34	381	2.40	.8
NF		DO	3S	14		48	48	17		100					44	56	35	91	1.01	.5
NF	Totals			4	4.8	385	366	125		13	19	68			56	44	35	268	1.85	1.4
Type Totals					5.7	10,540	9,937	3,398		70	28	2	18	7	49	26	26	57	0.66	175.4

T007 R006 S17 TTAKE										T007 R006 S17 TTAKE			
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt				
007	006	17	A35	TAKE	82.00	33	49	1	W				

Spp	S T	So rt	Gr 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 Ft	Bd Ft	CF/ Lf		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
S		DO	CU		00.0	484												11		0.00	20.6
S		DO	2S	2		242	242	20			100				100			24	120	1.42	2.0
S		DO	3S	68	6.3	7,496	7,024	576		96	4			10	60	30	34	72	0.73	97.3	
S		DO	4S	30	7.8	3,260	3,006	246	2	98				48	37	15	21	27	0.48	112.4	
S	Totals			98	10.5	11,482	10,272	842	1	94	5			14	20	45	21	26	44	0.61	232.2
H		DO	CU		00.0	14												4		0.00	.5
H		DO	2S	86		191	191	16			100				41	59	31	224	1.84	.9	
H		DO	4S	14		30	30	2		100				38	62		25	35	0.70	.9	
H	Totals			2	5.9	235	221	18		14	86			5	44	51	23	102	1.29	2.2	
Type Totals					10.4	11,718	10,494	860	1	93	7			14	20	44	21	25	45	0.61	234.4

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)								Page 1										
		Project: ICEBOX								Date 12/17/2010										
										Time 7:57:40AM										
T007 R006 S17 TTAK										T007 R006 S17 TTAK										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
007	006	17	A6	TAKE	70.00	36	126	1	W											
Spp	S	So	Gr	%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
					Net BdFt	Def%	Gross		Net	Log Scale Dia.				Log Length				Ln	Bd	
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft	Lf	
S	DO	CU			00.0	235											9		0.00	8.1
S	DO	2S	36	1.4	7,477	7,372	516		9	72	19		2	3	31	64	36	224	1.66	32.9
S	DO	3S	54	2.0	11,244	11,023	772		68	24	8		2	8	26	63	35	104	0.89	105.6
S	DO	4S	10	7.6	2,063	1,905	133		100				40	42	17		21	28	0.48	67.2
S Totals				69	3.4	21,018	20,299	1,421	49	39	11		6	10	27	58	30	95	0.93	213.8
H	DO	CU			00.0	474											13		0.00	10.2
H	DO	2S	54	1.6	4,207	4,138	290			67	33				46	54	36	275	1.88	15.0
H	DO	3S	36	.7	2,699	2,681	188		91	9			20	8	37	35	31	89	0.88	30.3
H	DO	4S	10	6.3	773	724	51		3	97			35	65			21	31	0.54	23.5
H Totals				25	7.5	8,152	7,543	528	0	42	40	18	11	9	38	42	26	96	1.00	79.0
D	DO	CU			00.0	505											21		0.00	2.2
D	DO	2S	71	4.8	655	624	44			100					100		32	198	1.50	3.1
D	DO	3S	29	3.8	258	248	17		100						38	62	36	60	0.71	4.1
D Totals				3	38.5	1,418	872	61	28	72					82	18	31	92	0.87	9.5
NF	DO	3S	61		325	325	23		100						100		32	90	0.72	3.6
NF	DO	4S	39		200	200	14		100				36	64			22	25	0.46	7.9
NF Totals				2		525	525	37	100				14	24	62		25	46	0.56	11.5
A	DO	CR	100		354	354	25		100						100		32	50	0.50	7.1
A Totals				1		354	354	25	100						100		32	50	0.50	7.1
Type Totals					6.0	31,468	29,593	2,072	0	48	39	12	7	9	33	51	29	92	0.93	320.8

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1								
		Project: ICEBOX										Date 12/8/2010								
												Time 11:48:53AM								
T007 R006 S17 TRW											T007 R006 S17 TRW									
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
007	006	17	AREA7	RW	12.00	139	422	1	W											
Spp	S	So	Gr	% 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	Bd Ft	CF/Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
S			CU																	.8
S		DO	CU		00.0	405											8		0.00	13.7
S		DO	2S	30	1.1	6,788	6,714	81		5	67	28	5	4	36	56	34	243	1.87	27.6
S		DO	3S	56	3.3	12,587	12,171	146		78	17	5	1	6	46	47	34	93	0.86	131.4
S		DO	4S	14	7.9	3,307	3,045	37		1	97		3	47	33	21	21	28	0.50	107.7
S	Totals			65	5.0	23,087	21,930	263	0	58	30	12	8	9	39	43	28	78	0.86	281.1
H		DO	CU		00.0	234											11		0.00	4.5
H		DO	2S	58	1.6	4,435	4,363	52		2	65	33		1	25	74	37	303	2.01	14.4
H		DO	3S	31	1.3	2,351	2,321	28		86	14		9	8	44	39	33	85	0.85	27.2
H		DO	4S	11	3.3	791	765	9		1	99		47	49	4		20	28	0.46	27.2
H	Totals			22	4.6	7,810	7,449	89	0	38	43	19	8	8	29	56	28	102	1.03	73.2
D		DO	CU		00.0	232											6		0.00	4.9
D		DO	2S	52	1.3	1,354	1,336	16			75	25	10		52	38	31	228	1.83	5.9
D		DO	3S	39	1.6	1,024	1,008	12		97	3		5	2	42	51	35	71	0.68	14.3
D		DO	4S	9		223	223	3		100			80	20			19	21	0.40	10.4
D	Totals			8	9.4	2,833	2,567	31		47	40	13	14	2	44	40	26	72	0.83	35.4
NF		DO	CU		00.0	109											5		0.00	.8
NF		DO	2S	78	3.3	1,281	1,239	15			21	79	2		24	74	37	484	2.79	2.6
NF		DO	3S	18		280	280	3		77	12	12	4	10	52	35	32	111	1.14	2.5
NF		DO	4S	4	2.7	58	56	1		100			46	54			21	27	0.57	2.1
NF	Totals			5	8.8	1,727	1,575	19		17	18	64	4	4	28	65	28	198	1.71	8.0
A		DO	CR	100	6.3	322	302	4		100			34	27	39		26	47	0.55	6.4
A	Totals			1	6.3	322	302	4		100			34	27	39		26	47	0.55	6.4
C		DO	3S	52		21	21	0		100				100			24	100	1.17	.2
C		DO	4S	48		19	19	0		100			56	44			18	26	0.48	.7
C	Totals			0		39	39	0		100			27	73			20	42	0.66	.9
Type Totals					5.5	35,819	33,861	406	0	51	33	16	9	8	37	46	28	84	0.90	405.2

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	ICEBOX		DATE	12/8/2010		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
007	006	17	A124	0001	342.00	70	580	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
		PLOTS	TREES		TREES	TREES				
TOTAL		70	580	8.3						
CRUISE		26	193	7.4	72,398		.3			
DBH COUNT										
REFOREST										
COUNT		44	351	8.0						
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
SPRUCELV	45	39.2	19.4	61		80.6	10,206	9,911	2,896	2,892
S SPRUCE	47	85.9	12.3	35		71.2	6,564	6,174	1,953	1,914
HEMLEAV	33	21.7	20.0	64		47.5	6,531	6,421	1,793	1,793
DOUGLEAV	11	12.6	18.5	59		23.5	2,834	2,767	801	793
WHEMLOCK	21	29.7	11.8	37		22.6	2,392	2,303	665	658
DOUG FIR	13	14.3	12.4	33		12.0	991	906	287	272
NFIRLEAV	15	3.1	25.6	74	2	11.0	1,845	1,645	424	399
SNAG	3	1.3	19.9	41		2.9	99		34	
R ALDER	1	2.1	13.0	48		1.9	208	187	56	56
NOB FIR	2	.5	25.8	92	0	1.9	385	366	87	87
CEDLEAV	2	1.2	12.0	27		1.0	66	66	20	20
TOTAL	193	211.7	15.5	45		276.2	32,122	30,748	9,017	8,885
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		
SPRUCELV	58.1	8.7	305	334	363					
S SPRUCE	88.5	12.9	97	111	126					
HEMLEAV	63.1	11.0	350	393	436					
DOUGLEAV	85.1	26.9	280	384	487					
WHEMLOCK	82.5	18.4	107	131	156					
DOUG FIR	84.4	24.3	81	108	134					
NFIRLEAV	53.4	14.3	544	634	724					
SNAG										
R ALDER										
NOB FIR	5.1	4.8	662	695	728					
CEDLEAV	106.1	99.3	1	80	159					
TOTAL	93.3	6.7	255	273	292	348	87	39		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
SPRUCELV	79.9	9.5	35	39	43					
S SPRUCE	113.2	13.5	74	86	98					
HEMLEAV	111.7	13.3	19	22	25					
DOUGLEAV	143.6	17.1	10	13	15					
WHEMLOCK	172.5	20.6	24	30	36					
DOUG FIR	308.5	36.8	9	14	20					
NFIRLEAV	220.1	26.3	2	3	4					
SNAG	342.7	40.9	1	1	2					
R ALDER	506.1	60.4	1	2	3					
NOB FIR	411.7	49.2	0	1	1					
CEDLEAV	642.7	76.8	0	1	2					
TOTAL	52.5	6.3	198	212	225	110	28	12		

TC TSTATS				STATISTICS			PAGE 2		
PROJECT ICEBOX							DATE 12/8/2010		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
007	006	17	A124	0001	342.00	70	580	1	W
CL: 68.1%		COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.	S.E.%	LOW	AVG	HIGH	5	10	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	
SPRUCELV	77.5	9.3	73	81	88				
S SPRUCE	110.4	13.2	62	71	81				
HEMLEAV	115.1	13.8	41	48	54				
DOUGLEAV	138.3	16.5	20	24	27				
WHEMLOCK	169.6	20.3	18	23	27				
DOUG FIR	290.1	34.6	8	12	16				
NFIRLEAV	211.9	25.3	8	11	14				
SNAG	329.0	39.3	2	3	4				
R ALDER	506.1	60.4	1	2	3				
NOB FIR	409.1	48.9	1	2	3				
CEDLEAV	587.3	70.1	0	1	2				
TOTAL	<i>29.1</i>	<i>3.5</i>	<i>267</i>	<i>276</i>	<i>286</i>	<i>34</i>	<i>8</i>	<i>4</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	
SPRUCELV	78.9	9.4	8,978	9,911	10,845				
S SPRUCE	116.0	13.9	5,319	6,174	7,030				
HEMLEAV	119.9	14.3	5,502	6,421	7,341				
DOUGLEAV	139.8	16.7	2,305	2,767	3,230				
WHEMLOCK	175.1	20.9	1,822	2,303	2,785				
DOUG FIR	319.0	38.1	561	906	1,251				
NFIRLEAV	210.2	25.1	1,232	1,645	2,058				
SNAG									
R ALDER	506.1	60.4	74	187	301				
NOB FIR	410.6	49.0	187	366	546				
CEDLEAV	649.2	77.5	15	66	117				
TOTAL	<i>28.6</i>	<i>3.4</i>	<i>29,697</i>	<i>30,748</i>	<i>31,799</i>	<i>33</i>	<i>8</i>	<i>4</i>	

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT ICEBOX		DATE 12/8/2010				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
007	006	17	A124	TAKE	342.00	70	229	1	W	
				TREES	ESTIMATED TOTAL	PERCENT SAMPLE				
		PLOTS	TREES	PER PLOT	TREES	TREES				
TOTAL		70	229	3.3						
CRUISE		17	84	4.9	45,324	.2				
DBH COUNT										
REFOREST										
COUNT		44	144	3.3						
BLANKS		9								
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
S SPRUCE	47	85.9	12.3	35		71.2	6,564	6,174	1,953	1,914
WHEMLOCK	21	29.7	11.8	37		22.6	2,392	2,303	665	658
DOUG FIR	13	14.3	12.4	33		12.0	991	906	287	272
R ALDER	1	2.1	13.0	48		1.9	208	187	56	56
NOB FIR	2	.5	25.8	92	0	1.9	385	366	87	87
TOTAL	84	132.5	12.3	36		109.6	10,540	9,937	3,048	2,988
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		
S SPRUCE	88.5	12.9	97	111	126					
WHEMLOCK	82.5	18.4	107	131	156					
DOUG FIR	84.4	24.3	81	108	134					
R ALDER										
NOB FIR	5.1	4.8	662	695	728					
TOTAL	101.9	11.1	115	130	144	415	104	46		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
S SPRUCE	113.2	13.5	74	86	98					
WHEMLOCK	172.5	20.6	24	30	36					
DOUG FIR	308.5	36.8	9	14	20					
R ALDER	506.1	60.4	1	2	3					
NOB FIR	411.7	49.2	0	1	1					
TOTAL	81.5	9.7	120	133	145	265	66	29		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
S SPRUCE	110.4	13.2	62	71	81					
WHEMLOCK	169.6	20.3	18	23	27					
DOUG FIR	290.1	34.6	8	12	16					
R ALDER	506.1	60.4	1	2	3					
NOB FIR	409.1	48.9	1	2	3					
TOTAL	72.0	8.6	100	110	119	207	52	23		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
S SPRUCE	116.0	13.9	5,319	6,174	7,030					
WHEMLOCK	175.1	20.9	1,822	2,303	2,785					
DOUG FIR	319.0	38.1	561	906	1,251					
R ALDER	506.1	60.4	74	187	301					
NOB FIR	410.6	49.0	187	366	546					
TOTAL	73.2	8.7	9,068	9,937	10,805	214	53	24		

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT ICEBOX		DATE 12/8/2010				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
007	006	17	A124	LEAV	342.00	70	351	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
		PLOTS	TREES		TREES	TREES				
TOTAL		70	351	5.0						
CRUISE		26	109	4.2	27,073		.4			
DBH COUNT										
REFOREST										
COUNT		44	220	5.0						
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
SPRUCELV	45	39.2	19.4	61		80.6	10,206	9,911	2,896	2,892
HEMLEAV	33	21.7	20.0	64		47.5	6,531	6,421	1,793	1,793
DOUGLEAV	11	12.6	18.5	59		23.5	2,834	2,767	801	793
NFIRLEAV	15	3.1	25.6	74	2	11.0	1,845	1,645	424	399
SNAG	3	1.3	19.9	41		2.9	99		34	
CEDLEAV	2	1.2	12.0	27		1.0	66	66	20	20
TOTAL	109	79.2	19.6	61		166.6	21,581	20,811	5,969	5,898
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		
SPRUCELV	58.1	8.7	305	334	363					
HEMLEAV	63.1	11.0	350	393	436					
DOUGLEAV	85.1	26.9	280	384	487					
NFIRLEAV	53.4	14.3	544	634	724					
SNAG										
CEDLEAV	106.1	99.3	1	80	159					
TOTAL	70.7	6.8	358	384	410	200	50	22		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
SPRUCELV	79.9	9.5	35	39	43					
HEMLEAV	111.7	13.3	19	22	25					
DOUGLEAV	143.6	17.1	10	13	15					
NFIRLEAV	220.1	26.3	2	3	4					
SNAG	342.7	40.9	1	1	2					
CEDLEAV	642.7	76.8	0	1	2					
TOTAL	8.2	1.0	78	79	80	3	1	0		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
SPRUCELV	77.5	9.3	73	81	88					
HEMLEAV	115.1	13.8	41	48	54					
DOUGLEAV	138.3	16.5	20	24	27					
NFIRLEAV	211.9	25.3	8	11	14					
SNAG	329.0	39.3	2	3	4					
CEDLEAV	587.3	70.1	0	1	2					
TOTAL			167	167	167					
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
SPRUCELV	78.9	9.4	8,978	9,911	10,845					
HEMLEAV	119.9	14.3	5,502	6,421	7,341					
DOUGLEAV	139.8	16.7	2,305	2,767	3,230					
NFIRLEAV	210.2	25.1	1,232	1,645	2,058					

STATISTICS
PROJECT ICEBOX

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
007	006	17	A124	LEAV	342.00	70	351	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	
SNAG									
CEDLEAV	649.2	77.5	15	66	117				
TOTAL	<i>11.0</i>	<i>1.3</i>	<i>20,537</i>	<i>20,811</i>	<i>21,085</i>	<i>5</i>	<i>1</i>	<i>1</i>	

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT ICEBOX		DATE 12/8/2010				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
007	006	17	A35	0002	82.00	33	304	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
		PLOTS	TREES		TREES	TREES				
TOTAL		33	304	9.2						
CRUISE		11	100	9.1	23,525	.4				
DBH COUNT										
REFOREST										
COUNT		22	204	9.3						
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
S SPRUCE	47	180.4	12.3	34		149.7	11,482	10,272	3,740	3,587
SPRUCELV	44	96.2	16.3	51		139.5	13,470	12,727	4,292	4,222
DOUGLEAV	4	7.6	17.2	55		12.2	1,274	1,165	369	369
HEMLEAV	3	1.8	22.5	63		5.1	595	585	171	171
WHEMLOCK	2	.9	20.9	61		2.0	235	221	67	64
TOTAL	100	286.9	14.0	40		308.5	27,057	24,970	8,639	8,414
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		
S SPRUCE	70.7	10.3	63	70	77					
SPRUCELV	69.6	10.5	139	155	172					
DOUGLEAV	50.0	28.6	120	168	215					
HEMLEAV	53.8	37.2	228	363	499					
WHEMLOCK	29.4	27.5	192	265	338					
TOTAL	85.5	8.5	114	124	135	292	73	32		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
S SPRUCE	69.4	12.1	159	180	202					
SPRUCELV	31.9	5.5	91	96	102					
DOUGLEAV	193.2	33.6	5	8	10					
HEMLEAV	373.4	64.9	1	2	3					
WHEMLOCK	574.5	99.9	0	1	2					
TOTAL	45.8	8.0	264	287	310	84	21	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		
S SPRUCE	65.7	11.4	133	150	167					
SPRUCELV	29.6	5.1	132	139	147					
DOUGLEAV	192.2	33.4	8	12	16					
HEMLEAV	373.4	64.9	2	5	8					
WHEMLOCK	574.5	99.9	0	2	4					
TOTAL	33.9	5.9	290	309	327	46	12	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		
S SPRUCE	66.2	11.5	9,090	10,272	11,454					
SPRUCELV	37.0	6.4	11,908	12,727	13,545					
DOUGLEAV	193.1	33.6	774	1,165	1,556					
HEMLEAV	373.4	64.9	205	585	965					
WHEMLOCK	574.5	99.9	0	221	443					
TOTAL	33.4	5.8	23,520	24,970	26,420	45	11	5		

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT ICEBOX		DATE 12/8/2010				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
007	006	17	A35	TAKE	82.00	33	149	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		33	149	4.5						
CRUISE		10	49	4.9	14,866		.3			
DBH COUNT										
REFOREST										
COUNT		20	100	5.0						
BLANKS		3								
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
S SPRUCE	47	180.4	12.3	34		149.7	11,482	10,272	3,740	3,587
WHEMLOCK	2	.9	20.9	61		2.0	235	221	67	64
TOTAL	49	181.3	12.4	34		151.7	11,718	10,494	3,807	3,651
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		
S SPRUCE	70.7	10.3	63	70	77					
WHEMLOCK	29.4	27.5	192	265	338					
TOTAL	81.0	11.6	69	78	87	262	65	29		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
S SPRUCE	69.4	12.1	159	180	202					
WHEMLOCK	574.5	99.9	0	1	2					
TOTAL	68.6	11.9	160	181	203	188	47	21		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
S SPRUCE	65.7	11.4	133	150	167					
WHEMLOCK	574.5	99.9	0	2	4					
TOTAL	63.6	11.1	135	152	169	162	40	18		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
S SPRUCE	66.2	11.5	9,090	10,272	11,454					
WHEMLOCK	574.5	99.9	0	221	443					
TOTAL	63.0	11.0	9,344	10,494	11,644	159	40	18		

TC TSTATS		STATISTICS								PAGE	1
		PROJECT				ICEBOX				DATE	12/8/2010
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
007	006	17	A35	LEAV	82.00	33	155	1	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		33	155	4.7							
CRUISE		11	51	4.6	8,659	.6					
DBH COUNT											
REFOREST											
COUNT		22	104	4.7							
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	
SPRUCELV	44	96.2	16.3	51		139.5	13,470	12,727	4,292	4,222	
DOUGLEAV	4	7.6	17.2	55		12.2	1,274	1,165	369	369	
HEMLEAV	3	1.8	22.5	63		5.1	595	585	171	171	
TOTAL	51	105.6	16.5	51		156.8	15,339	14,476	4,832	4,763	
CONFIDENCE LIMITS OF THE SAMPLE <i>SD = 235 SDI = 29% - 31%</i>											
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			
SPRUCELV	69.6	10.5	139	155	172						
DOUGLEAV	50.0	28.6	120	168	215						
HEMLEAV	53.8	37.2	228	363	499						
TOTAL	71.3	10.0	152	169	185	203	51	23			
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
SPRUCELV	31.9	5.5	91	96	102						
DOUGLEAV	193.2	33.6	5	8	10						
HEMLEAV	373.4	64.9	1	2	3						
TOTAL	19.0	3.3	102	106	109	14	4	2			
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
SPRUCELV	29.6	5.1	132	139	147						
DOUGLEAV	192.2	33.4	8	12	16						
HEMLEAV	373.4	64.9	2	5	8						
TOTAL	10.3	1.8	154	157	160	4	1	0			
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
SPRUCELV	37.0	6.4	11,908	12,727	13,545						
DOUGLEAV	193.1	33.6	774	1,165	1,556						
HEMLEAV	373.4	64.9	205	585	965						
TOTAL	21.4	3.7	13,937	14,476	15,016	18	5	2			

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT ICEBOX		DATE 12/8/2010				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
007	006	17	A6	0003	70.00	36	242	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		36	242	6.7						
CRUISE		21	137	6.5	13,510		1.0			
DBH COUNT										
REFOREST										
COUNT		15	100	6.7						
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
S SPRUCE	80	133.0	15.3	50		170.0	21,448	20,719	6,062	6,005
WHEMLOCK	44	39.9	17.8	55		68.9	8,859	8,196	2,360	2,236
DOUG FIR	3	4.1	21.1	74		10.0	1,418	872	376	257
NOB FIR	4	6.0	16.5	44	2	8.9	1,353	1,314	314	314
R ALDER	1	7.1	12.0	33		5.6	354	354	113	113
SNAG	5	3.0	18.5	54		5.6	107		30	
TOTAL	<i>137</i>	<i>193.0</i>	<i>16.0</i>	<i>51</i>		<i>268.9</i>	<i>33,539</i>	<i>31,455</i>	<i>9,256</i>	<i>8,925</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		
S SPRUCE	95.9	10.7	230	257	285					
WHEMLOCK	79.5	12.0	270	307	344					
DOUG FIR	61.5	42.5	117	203	290					
NOB FIR	108.6	62.1	276	728	1,179					
R ALDER										
SNAG										
TOTAL	<i>101.6</i>	<i>8.7</i>	<i>251</i>	<i>275</i>	<i>299</i>	<i>412</i>	<i>103</i>	<i>46</i>		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
S SPRUCE	81.6	13.6	115	133	151					
WHEMLOCK	113.0	18.8	32	40	47					
DOUG FIR	261.7	43.6	2	4	6					
NOB FIR	255.3	42.5	3	6	8					
R ALDER	491.4	81.8	1	7	13					
SNAG	329.8	54.9	1	3	5					
TOTAL	<i>50.2</i>	<i>8.4</i>	<i>177</i>	<i>193</i>	<i>209</i>	<i>101</i>	<i>25</i>	<i>11</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		
S SPRUCE	74.1	12.3	149	170	191					
WHEMLOCK	111.6	18.6	56	69	82					
DOUG FIR	259.7	43.2	6	10	14					
NOB FIR	243.2	40.5	5	9	12					
R ALDER	491.4	81.8	1	6	10					
SNAG	305.6	50.9	3	6	8					
TOTAL	<i>38.2</i>	<i>6.4</i>	<i>252</i>	<i>269</i>	<i>286</i>	<i>58</i>	<i>15</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		
S SPRUCE	79.1	13.2	17,990	20,719	23,447					
WHEMLOCK	118.6	19.7	6,578	8,196	9,814					
DOUG FIR	266.7	44.4	485	872	1,260					
NOB FIR	261.5	43.5	742	1,314	1,887					

STATISTICS
PROJECT ICEBOX

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
007	006	17	A6	0003	70.00	36	242	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
R ALDER		491.4	81.8	64	354	643			
SNAG									
TOTAL		48.2	8.0	28,932	31,455	33,978	93	23	10

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT ICEBOX		DATE 12/17/2010				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
007	006	17	A6	TAKE	70.00	36	231	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		36	231	6.4						
CRUISE		20	126	6.3	13,469		9			
DBH COUNT										
REFOREST										
COUNT		16	105	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
S SPRUCE	79	133.5	15.2	49		168.9	21,018	20,299	5,984	5,926
WHEMLOCK	41	39.9	17.4	54		65.6	8,152	7,543	2,206	2,089
DOUG FIR	3	4.1	21.1	74		10.0	1,418	872	376	257
NOB FIR	2	7.9	12.5	38	2	6.7	525	525	163	163
R ALDER	1	7.1	12.0	33		5.6	354	354	113	113
TOTAL	<i>126</i>	<i>192.4</i>	<i>15.6</i>	<i>50</i>		<i>256.7</i>	<i>31,468</i>	<i>29,593</i>	<i>8,842</i>	<i>8,548</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		
S SPRUCE	73.7	8.3	218	238	257					
WHEMLOCK	65.0	10.1	233	259	285					
DOUG FIR	61.5	42.5	117	203	290					
NOB FIR	80.8	75.7	17	70	123					
R ALDER										
TOTAL	<i>71.6</i>	<i>6.4</i>	<i>224</i>	<i>240</i>	<i>255</i>	<i>205</i>	<i>51</i>	<i>23</i>		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
S SPRUCE	81.5	13.6	115	133	152					
WHEMLOCK	112.6	18.8	32	40	47					
DOUG FIR	261.7	43.6	2	4	6					
NOB FIR	268.6	44.7	4	8	11					
R ALDER	491.4	81.8	1	7	13					
TOTAL	<i>52.4</i>	<i>8.7</i>	<i>176</i>	<i>192</i>	<i>209</i>	<i>110</i>	<i>27</i>	<i>12</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		
S SPRUCE	73.2	12.2	148	169	189					
WHEMLOCK	109.3	18.2	54	66	77					
DOUG FIR	259.7	43.2	6	10	14					
NOB FIR	268.3	44.7	4	7	10					
R ALDER	491.4	81.8	1	6	10					
TOTAL	<i>40.5</i>	<i>6.7</i>	<i>239</i>	<i>257</i>	<i>274</i>	<i>66</i>	<i>16</i>	<i>7</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		
S SPRUCE	77.3	12.9	17,686	20,299	22,913					
WHEMLOCK	114.6	19.1	6,103	7,543	8,983					
DOUG FIR	266.7	44.4	485	872	1,260					
NOB FIR	278.3	46.3	282	525	768					
R ALDER	491.4	81.8	64	354	643					
TOTAL	<i>47.5</i>	<i>7.9</i>	<i>27,255</i>	<i>29,593</i>	<i>31,932</i>	<i>90</i>	<i>22</i>	<i>10</i>		

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	ICEBOX			DATE	12/17/2010		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
007	006	17	A6	LEAV	70.00	36	8	1	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		36	8	.2							
CRUISE		6	7	1.2	122	5.7					
DBH COUNT											
REFOREST											
COUNT		1	1	1.0							
BLANKS		29									
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	
HEMLEAV	3	.6	31.9	82		3.3	622	575	142	135	
NFIRLEAV	2	.4	33.8	92	0	2.2	483	463	98	98	
SPRUCELV	1	.2	36.0	107		1.1	291	283	60	60	
SNAG	1	.6	18.0	60		1.1					
TOTAL	7	1.7	28.6	78		7.8	1,395	1,321	300	293	
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			
HEMLEAV	12.3	8.5	884	967	1,049						
NFIRLEAV	21.9	20.5	1,054	1,325	1,596						
SPRUCELV											
SNAG											
TOTAL	54.3	22.1	818	1,050	1,282	137	34	15			
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
HEMLEAV	337.9	56.3	0	1	1						
NFIRLEAV	421.2	70.1	0	0	1						
SPRUCELV	600.0	99.9	0	0	0						
SNAG	600.0	99.9	0	1	1						
TOTAL	273.0	45.5	1	2	3	2,976	744	331			
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
HEMLEAV	336.4	56.0	1	3	5						
NFIRLEAV	418.2	69.6	1	2	4						
SPRUCELV	600.0	99.9	0	1	2						
SNAG	600.0	99.9	0	1	2						
TOTAL	240.3	40.0	5	8	11	2,305	576	256			
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.			
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
HEMLEAV	336.4	56.0	253	575	897						
NFIRLEAV	418.5	69.7	140	463	786						
SPRUCELV	600.0	99.9	0	283	566						
SNAG											
TOTAL	265.8	44.3	737	1,321	1,906	2,820	705	313			

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT ICEBOX		DATE 12/8/2010				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
007	006	17	AREA7	RW	12.00	139	1,114	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		139	1114	8.0						
CRUISE		57	422	7.4	3,130	13.5				
DBH COUNT										
REFOREST										
COUNT		82	657	8.0						
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
S SPRUCE	264	188.0	14.5	43		217.1	23,087	21,930	6,838	6,736
WHEMLOCK	103	42.1	16.4	50		61.9	7,810	7,449	2,125	2,072
DOUG FIR	30	22.0	15.0	43		27.1	2,833	2,567	804	754
NOB FIR	21	3.6	22.8	64	2	10.1	1,727	1,575	397	380
R ALDER	2	4.4	12.5	40		3.7	322	302	93	93
WR CEDAR	2	.7	12.0	27		.6	39	39	12	12
TOTAL	422	260.8	15.0	45		320.4	35,819	33,861	10,269	10,047
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		
S SPRUCE	100.0	6.1	182	193	205					
WHEMLOCK	79.2	7.8	276	300	323					
DOUG FIR	105.9	19.7	182	227	271					
NOB FIR	62.4	13.9	577	671	765					
R ALDER	40.4	37.8	44	70	96					
WR CEDAR	106.1	99.3	1	80	159					
TOTAL	101.1	4.9	232	244	256	408	102	45		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
S SPRUCE	79.3	6.7	175	188	201					
WHEMLOCK	150.7	12.8	37	42	47					
DOUG FIR	225.8	19.1	18	22	26					
NOB FIR	264.2	22.4	3	4	4					
R ALDER	559.6	47.4	2	4	7					
WR CEDAR	908.0	76.9	0	1	1					
TOTAL	48.1	4.1	250	261	271	93	23	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		
S SPRUCE	74.0	6.3	203	217	231					
WHEMLOCK	141.2	12.0	54	62	69					
DOUG FIR	191.9	16.3	23	27	31					
NOB FIR	248.9	21.1	8	10	12					
R ALDER	559.5	47.4	2	4	6					
WR CEDAR	830.6	70.4	0	1	1					
TOTAL	33.8	2.9	311	320	330	46	11	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		
S SPRUCE	76.1	6.5	20,515	21,930	23,345					
WHEMLOCK	145.5	12.3	6,530	7,449	8,367					
DOUG FIR	190.7	16.2	2,152	2,567	2,982					
NOB FIR	254.2	21.5	1,235	1,575	1,914					

STATISTICS
PROJECT ICEBOX

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
007	006	17	AREA7	RW	12.00	139	1,114	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
R ALDER		560.1	47.5	158	302	445			
WR CEDAR		917.0	77.7	9	39	70			
TOTAL		36.9	3.1	32,803	33,861	34,919	54	14	6

TC PSTNDSUM		Stand Table Summary										Page	I			
												Date:	12/8/2010			
T007 R006 S17 TyTAKE THRU T007 R006 S17 TyRW		Project ICEBOX										Time: 1:37:45PM				
		Acres 506.00										Grown Year:				
S Sp	T	Sample DBH	Trees	Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
				FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
S		8	10	89	19	9.389	3.28	9.39	4.8	20.0		45	188		230	95
S		9	16	85	21	13.418	5.93	13.42	6.4	23.6		86	316		436	160
S		10	30	85	50	20.415	11.02	19.43	12.2	38.8		237	753		1,200	381
S		11	16	85	48	7.401	4.88	7.40	14.6	42.6		108	315		546	160
S		12	29	85	55	10.770	8.36	12.85	16.3	46.4		209	596		1,058	302
S		13	42	85	64	13.133	12.11	17.39	19.4	58.0		337	1,008		1,706	510
S		14	51	86	65	11.968	12.79	18.60	20.6	65.6		383	1,221		1,937	618
S		15	34	85	61	5.385	6.61	7.80	22.7	63.0		177	491		895	249
S		16	29	84	82	4.130	5.76	7.47	27.9	94.5		209	706		1,057	357
S		17	27	85	76	2.655	4.19	4.58	30.3	98.8		139	453		703	229
S		18	33	84	75	3.181	5.62	6.17	31.7	103.2		195	637		989	322
S		19	27	85	80	3.677	7.24	7.06	37.0	123.9		261	875		1,322	443
S		20	17	83	70	1.350	2.94	1.97	37.5	103.8		74	204		373	103
S		21	7	85	98	.285	.69	.57	52.3	177.4		30	101		151	51
S		22	10	85	76	.876	2.31	1.75	47.0	158.5		82	278		417	140
S		23	12	84	90	.720	2.08	1.44	56.0	199.0		81	286		407	145
S		24	7	83	88	.455	1.43	.91	63.7	222.6		58	203		293	103
S		25	16	84	89	.414	1.41	.83	68.2	249.6		57	208		288	105
S		26	10	84	76	.202	.74	.40	65.5	229.3		26	93		134	47
S		27	2	84	99	.079	.31	.24	53.0	246.7		13	58		63	30
S		28	9	85	86	.234	1.00	.54	72.6	273.2		39	148		199	75
S		30	1	83	87	.004	.02	.01	94.0	335.0		1	3		4	1
S		32	1	81	84	.004	.02	.01	107.5	390.0		1	3		4	1
S		36	2	82	131	.044	.31	.13	126.7	600.0		17	80		85	40
S		Totals	438	85	53	110.186	101.06	140.37	20.4	65.7		2,865	9,224		14,497	4,667
H		8	6	89	21	4.903	1.71	4.90	4.7	15.7		23	77		117	39
H		9	4	88	49	3.352	1.48	3.35	8.5	30.0		28	101		144	51
H		10	8	82	43	5.430	2.96	6.79	9.0	34.0		61	231		309	117
H		12	7	87	82	2.846	2.24	4.73	15.4	51.9		73	246		368	124
H		13	5	88	85	1.069	.99	2.14	16.4	61.3		35	131		177	66
H		14	5	87	79	.445	.48	.88	18.9	70.0		17	61		84	31
H		15	18	87	71	2.358	2.89	4.15	20.0	72.4		83	300		421	152
H		16	6	88	64	.496	.69	.83	24.0	84.0		20	69		100	35
H		17	9	90	78	.595	.94	1.19	27.7	102.5		33	122		167	62
H		18	15	87	84	1.499	2.65	2.87	34.4	119.7		99	343		500	174
H		19	11	85	77	1.008	1.99	2.02	33.8	106.6		68	215		345	109
H		20	13	88	81	.992	2.16	1.98	37.2	130.1		74	258		373	131
H		21	9	87	90	.602	1.45	1.20	47.9	166.9		58	201		291	102
H		22	11	87	80	.270	.71	.54	48.2	175.8		26	95		132	48
H		23	5	88	82	.025	.07	.05	52.9	192.0		3	9		13	5
H		24	8	87	89	.230	.72	.46	60.1	215.9		28	99		140	50
H		25	6	91	78	.144	.49	.29	61.8	248.3		18	71		90	36
H		26	6	83	84	.133	.49	.20	58.4	208.0		12	42		60	21
H		27	1	83	87	.004	.01	.01	77.0	260.0		1	2		3	1
H		28	6	85	87	.115	.49	.23	80.9	303.5		19	70		94	35
H		29	3	89	90	.053	.25	.11	76.1	317.8		8	34		41	17
H		30	4	92	88	.053	.26	.11	96.6	412.2		10	45		53	23
H		33	4	83	105	.078	.46	.19	97.0	414.0		19	80		95	41
H		Totals	170	87	58	26.698	26.58	39.21	20.8	74.0		814	2,903		4,118	1,469
D		9	6	86	35	4.382	1.94	4.38	5.7	20.0		25	88		126	44
D		10	2	85	35	1.311	.65	1.31	8.0	20.0		10	26		53	13
D		11	2	86	56	.978	.65	.98	14.0	50.0		14	49		69	25

TC		PSTNDSUM		Stand Table Summary							Page		2			
											Date:		12/8/2010			
T007 R006 S17 TyTAKE THRU T007 R006 S17 TyRW				Project				ICEBOX			Time:		1:37:45PM			
				Acres				506.00			Grown Year:					
S Spec	T	DBH	Sample Trees	FF 16'	Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
									Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
D		12	1	85	66	.027	.02	.03	19.0	60.0		1	2		3	1
D		14	3	82	59	.624	.67	.62	23.8	59.0		15	37		75	19
D		15	5	84	78	1.069	1.31	1.61	23.2	86.2		37	139		189	70
D		16	3	81	56	.477	.67	.49	31.3	60.6		15	30		78	15
D		17	2	87	81	.027	.04	.05	25.5	90.0		1	5		7	2
D		18	3	86	86	.285	.50	.57	30.8	101.1		18	58		89	29
D		19	4	84	79	.655	1.29	1.31	30.3	102.5		40	134		201	68
D		20	2	85	82	.296	.65	.59	35.0	120.0		21	71		105	36
D		21	5	86	77	.295	.71	.86	19.9	84.0		17	72		86	36
D		22	2	92	91	.183	.48	.37	42.0	165.0		15	60		78	31
D		25	2	83	104	.142	.48	.14	37.0	80.0		5	11		27	6
D		26	1	77	96	.006	.02	.01	63.0	195.0		1	2		4	1
D		30	1	83	103	.004	.02	.01	97.0	350.0		1	3		4	2
D		31	1	86	103	.004	.02	.01	103.5	425.0		1	3		4	2
D		35	1	83	104	.003	.02	.01	121.0	505.0		1	3		4	2
D		Totals	46	85	52	10.768	10.14	13.35	17.8	59.4		237	794		1,201	402
NF		12	2	89	30	.406	.32	.41	12.0	30.0		5	12		25	6
NF		13	2	93	74	.346	.32	.69	15.5	55.0		11	38		54	19
NF		17	1	85	62	.007	.01	.01	22.5	80.0		0	1		2	1
NF		20	1	96	75	.005	.01	.01	36.5	135.0		0	1		2	1
NF		24	3	87	120	.214	.67	.64	52.0	223.0		33	142		168	72
NF		25	1	88	104	.003	.01	.01	68.0	275.0		0	2		2	1
NF		26	3	87	102	.009	.03	.02	64.6	248.6		1	5		7	3
NF		27	1	89	111	.003	.01	.01	61.7	276.7		1	2		3	1
NF		28	5	88	99	.162	.69	.32	87.7	357.5		28	116		144	59
NF		29	1	89	89	.002	.01	.00	86.0	315.0		0	2		2	1
NF		30	1	89	107	.002	.01	.00	91.5	425.0		0	2		2	1
NF		32	2	88	105	.057	.32	.17	82.3	373.3		14	64		71	32
NF		35	2	87	101	.003	.02	.01	109.0	506.0		1	4		5	2
NF		36	2	88	115	.045	.32	.14	113.7	550.0		15	74		78	38
NF		Totals	27	90	74	1.266	2.77	2.45	45.6	190.8		112	467		564	236
A		12	2	87	47	1.035	.81	1.04	16.0	50.0		17	52		84	26
A		13	2	87	69	1.456	1.34	2.91	13.5	45.0		39	131		199	66
A		Totals	4	87	60	2.491	2.15	3.95	14.2	46.3		56	183		283	92
C		10	1	78	22	.013	.01	.01	7.0	20.0		0	0		0	0
C		16	1	81	77	.005	.01	.01	20.5	70.0		0	1		1	0
C		Totals	2	79	37	.017	.01	.02	12.9	41.9		0	1		1	0
Totals			687	86	54	151.427	142.71	199.35	20.5	68.1		4,084	13,571		20,665	6,867

TC		Stand Table Summary													
TSTNDSUM		Project ICEBOX													
T007 R006 S17 TLEAV											T007 R006 S17 TLEAV				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:	1						
007	006	17	A124	LEAV	342.00	70	109	Date:	12/08/20						
								Time:	1:38:18PM						
S Spec	T	Av			Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
		Sample DBH	FF Trees	Ht 16'				Tot	Net Cu.Ft.				Net Bd.Ft.	Tons	Cunits
SL	12	1	87	107	2.282	1.79	4.56	17.5	65.0		80	297		273	101
SL	13	1	88	98	1.944	1.79	3.89	18.5	70.0		72	272		246	93
SL	14	4	83	69	6.705	7.17	10.06	22.3	63.3		225	637		768	218
SL	15	1	88	100	1.460	1.79	2.92	26.5	90.0		77	263		265	90
SL	16	2	85	66	2.651	3.58	3.93	26.5	83.5		104	328		357	112
SL	17	3	85	66	3.411	5.38	6.82	24.8	85.0		169	580		579	198
SL	18	4	86	80	4.056	7.17	8.11	32.4	110.0		263	892		898	305
SL	19	1	83	67	.910	1.79	1.82	32.0	95.0		58	173		199	59
SL	20	4	84	65	3.286	7.17	6.57	34.4	111.2		226	731		773	250
SL	21	2	87	72	1.490	3.58	2.98	41.2	137.5		123	410		420	140
SL	23	2	84	92	1.242	3.58	2.48	60.3	202.5		150	503		512	172
SL	24	3	84	76	1.711	5.38	3.42	55.5	180.0		190	616		650	211
SL	25	8	85	83	4.206	14.34	8.94	61.2	227.6		547	2,034		1,870	696
SL	26	4	85	75	1.944	7.17	3.89	65.5	233.7		255	909		871	311
SL	28	3	84	89	1.257	5.38	2.51	86.2	306.7		217	771		741	264
SL	30	1	83	87	.365	1.79	.73	94.0	335.0		69	245		235	84
SL	32	1	80	84	.321	1.79	.64	107.5	390.0		69	250		236	86
SL	Totals	45	85	78	39.241	80.64	74.29	38.9	133.4		2,892	9,911		9,892	3,390
HL	12	1	82	17	1.833	1.44	1.83	9.0	30.0		17	55		56	19
HL	13	1	88	97	1.562	1.44	3.12	18.5	70.0		58	219		198	75
HL	14	1	85	61	1.347	1.44	1.35	29.0	70.0		39	94		134	32
HL	15	2	85	85	2.347	2.88	4.69	22.3	77.5		104	364		357	124
HL	17	1	89	94	.914	1.44	1.83	32.0	105.0		58	192		200	66
HL	18	1	89	60	.815	1.44	1.63	25.5	85.0		42	139		142	47
HL	19	2	84	82	1.463	2.88	2.93	36.2	120.0		106	351		363	120
HL	20	3	86	86	1.980	4.32	3.96	41.2	131.7		163	521		558	178
HL	21	1	84	90	.599	1.44	1.20	46.0	150.0		55	180		188	61
HL	22	5	88	81	2.727	7.20	5.45	48.8	172.0		266	938		910	321
HL	23	4	89	84	1.996	5.76	3.99	54.5	201.3		218	804		744	275
HL	24	2	86	97	.917	2.88	1.83	65.7	237.5		121	435		412	149
HL	25	2	84	91	.845	2.88	1.69	67.5	220.0		114	372		390	127
HL	26	2	86	97	.781	2.88	1.56	79.0	305.0		123	476		422	163
HL	27	1	83	87	.362	1.44	.72	77.0	260.0		56	188		191	64
HL	28	1	85	99	.337	1.44	.67	91.0	350.0		61	236		210	81
HL	29	1	92	99	.314	1.44	.63	102.0	445.0		64	279		219	96
HL	30	2	90	100	.587	2.88	1.47	87.4	394.0		128	578		438	198
HL	Totals	33	86	80	21.726	47.52	40.56	44.2	158.3		1,793	6,421		6,132	2,196
DL	12	1	85	66	2.722	2.14	2.72	19.0	60.0		52	163		177	56
DL	14	1	79	37	2.000	2.14	2.00	17.0	30.0		34	60		116	21
DL	15	1	83	83	1.742	2.14	3.48	18.0	65.0		63	227		215	77
DL	17	1	85	99	1.356	2.14	2.71	30.5	110.0		83	298		283	102
DL	18	1	85	108	1.210	2.14	2.42	37.0	125.0		90	302		306	103
DL	21	2	84	91	1.778	4.28	3.56	43.0	145.0		153	516		523	176
DL	26	1	78	96	.580	2.14	1.16	63.0	195.0		73	226		250	77
DL	30	1	83	103	.436	2.14	.87	97.0	350.0		85	305		289	104
DL	31	1	86	103	.408	2.14	.82	103.5	425.0		84	347		289	119
DL	35	1	82	104	.320	2.14	.64	121.0	505.0		77	323		265	111
DL	Totals	11	83	80	12.553	23.52	20.38	38.9	135.8		793	2,767		2,712	946
NFL	17	1	85	62	.467	.74	.93	20.5	70.0		19	65		65	22
NFL	20	1	96	75	.337	.74	.67	36.5	135.0		25	91		84	31

TC TSTNDSUM				Stand Table Summary											
Project ICEBOX															
T007 R006 S17 TLEAV										T007 R006 S17 TLEAV					
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:							
007	006	17	A124	LEAV	342.00	70	109	2	Date:	12/08/20					
									Time:	1:38:18PM					
S Spec	T	Sample		Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net	Net	Totals		
		DBH	Trees	FF 16'				Ht Tot	Net Cu.Ft.		Net Bd.Ft.	Tons/ Acre	Cu.Ft. Acre	Bd.Ft. Acre	Tons
NFL		24	1	91	78	.234	.74	.47	45.0	155.0	21	73		72	25
NFL		25	1	88	104	.216	.74	.43	62.0	245.0	27	106		92	36
NFL		26	3	87	102	.599	2.21	1.40	62.7	245.7	88	343		300	117
NFL		27	1	88	111	.185	.74	.56	61.7	276.7	34	154		117	53
NFL		28	3	89	90	.516	2.21	1.03	71.2	308.3	73	318		251	109
NFL		29	1	89	89	.160	.74	.32	83.5	315.0	27	101		92	35
NFL		30	1	89	107	.150	.74	.30	91.5	425.0	27	127		94	44
NFL		35	2	87	101	.220	1.47	.55	104.4	484.0	58	267		197	91
NFL		Totals	15	89	89	3.086	11.04	6.67	59.8	246.8	399	1,645		1,364	563
CL		10	1	77	22	.880	.48	.88	7.0	20.0	6	18		21	6
CL		16	1	81	77	.344	.48	.69	20.5	70.0	14	48		48	16
CL		Totals	2	78	37	1.224	.96	1.57	12.9	41.9	20	66		69	22
SN		16	1	82	28	.688	.96								
SN		22	1	89	70	.364	.96								
SN		25	1	78	48	.282	.96								
SN		Totals	3	83	44	1.333	2.88								
Totals			109	85	78	79.162	166.56	143.47	41.1	145.1	5898	20,811		20,170	7,117

TC TSTNDSUM		Stand Table Summary											
Project ICEBOX											T007 R006 S17 TLEAV		
Twp Rge Sec Tract		Type	Acres	Plots	Sample Trees	T007 R006 S17 TLEAV							
007	006	17	A35	LEAV	82.00	33	51	Page: 1	Date: 12/08/20	Time: 1:38:33PM			
Spc	T	Sample			Av	Trees/ BA/ Logs	Average Log		Tons/	Net	Net	Totals	
		DBH	Trees	FF	Ht		Net	Net		Acres	Cu.Ft.	Bd.Ft.	Tons
SL	12	2	84	62	8.073	6.34	12.11	13.7	43.3	165	525	136	43
SL	13	1	83	58	3.439	3.17	3.44	17.0	50.0	58	172	48	14
SL	14	5	84	64	14.828	15.85	23.72	18.7	55.0	445	1,305	365	107
SL	15	7	85	67	18.083	22.19	28.42	21.5	65.5	610	1,860	500	153
SL	16	6	87	69	13.623	19.02	24.98	24.7	80.0	618	1,998	506	164
SL	17	6	84	59	12.068	19.02	16.09	31.3	82.5	503	1,327	412	109
SL	18	9	85	79	16.146	28.53	30.50	33.6	102.9	1,026	3,139	841	257
SL	19	2	79	42	3.220	6.34	3.22	38.5	55.0	124	177	102	15
SL	20	1	86	65	1.453	3.17	2.91	33.5	110.0	97	320	80	26
SL	21	1	84	99	1.318	3.17	2.64	53.0	175.0	140	461	115	38
SL	23	2	81	63	2.198	6.34	4.40	44.5	132.5	196	582	160	48
SL	26	2	87	80	1.720	6.34	3.44	70.0	250.0	241	860	197	71
SL	Totals	44	85	67	96.169	139.49	155.85	27.1	81.7	4,222	12,727	3,462	1,044
DL	16	2	83	71	4.375	6.11	8.75	20.5	60.0	179	525	147	43
DL	17	1	88	62	1.938	3.05	3.88	20.5	70.0	79	271	65	22
DL	21	1	89	91	1.270	3.05	2.54	43.5	145.0	110	368	91	30
DL	Totals	4	85	72	7.583	12.22	15.17	24.4	76.8	369	1,165	303	95
HL	19	1	86	73	.862	1.70	1.72	32.5	100.0	56	172	46	14
HL	23	1	89	73	.588	1.70	1.18	46.5	155.0	55	182	45	15
HL	28	1	88	82	.397	1.70	.79	76.5	290.0	61	230	50	19
HL	Totals	3	87	75	1.847	5.09	3.69	46.4	158.3	171	585	141	48
Totals		51	85	67	105.599	156.80	174.71	27.3	82.9	4763	14,476	3,906	1,187

Log Stock Table - MBF

T007 R006 S17 TyTAKE
THRU
T007 R006 S17 TyRW

Project: ICEBOX
Acres 506.00

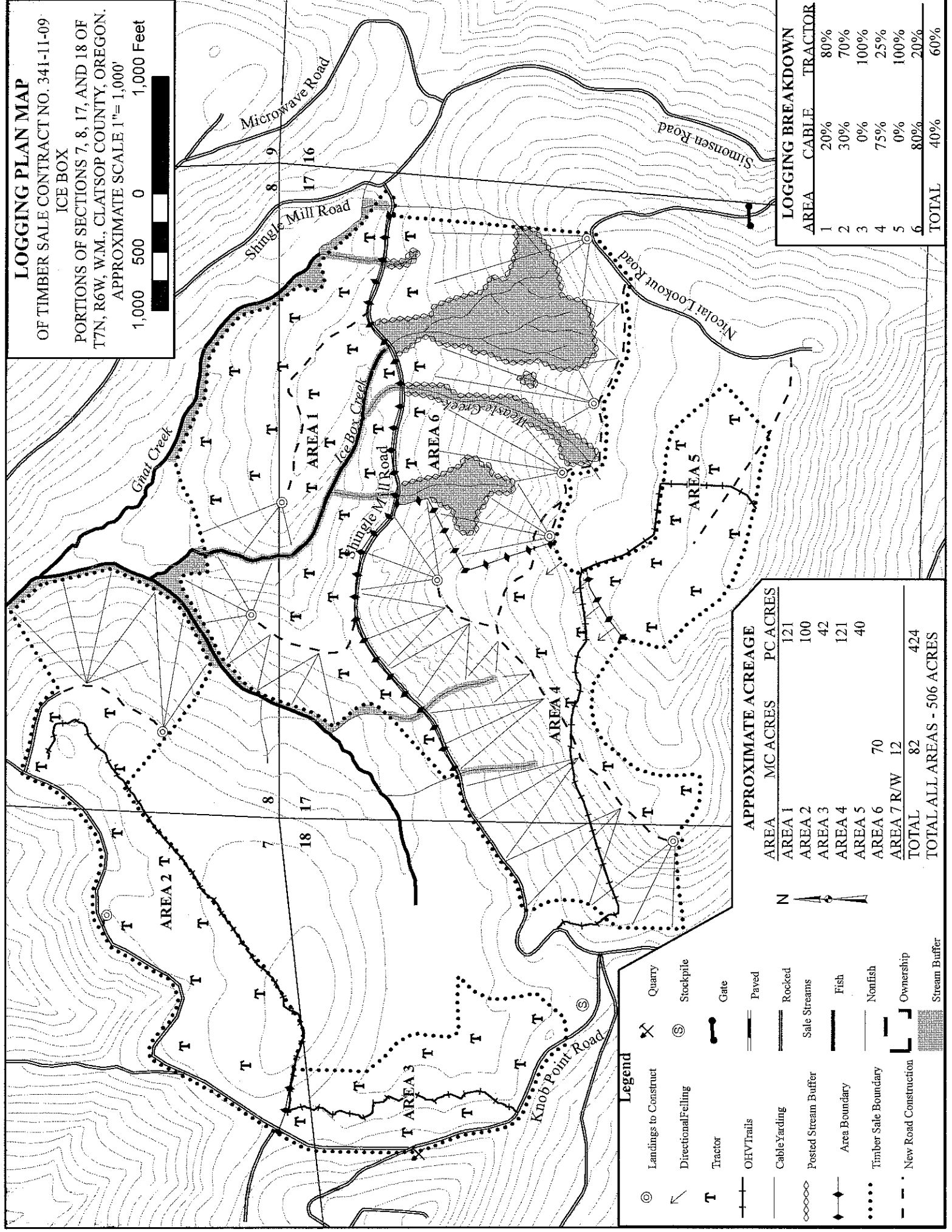
Page 4
Date 12/8/2010
Time 1:34:36PM

Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spe	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+	
NF		DO	CU	6	0	100.0															
NF		DO	CU	8	0	100.0															
NF		DO	2S	20	8		8	3.3						8							
NF		DO	2S	32	73	8.9	66	28.0					25	40					1		
NF		DO	2S	40	117	2.6	114	48.3					1	1	60		25	27			
NF		DO	3S	12	1		1	.6					1								
NF		DO	3S	16	0		0	.0					0								
NF		DO	3S	24	0		0	.0			0										
NF		DO	3S	25	0		0	.0				0									
NF		DO	3S	26	2		2	.7			2										
NF		DO	3S	27	0		0	.0			0										
NF		DO	3S	32	24		24	10.3			23	1	0								
NF		DO	3S	40	10		10	4.4			10	0			0						
NF		DO	4S	16	0		0	.1			0	0									
NF		DO	4S	19	0	25.0	0	.0				0									
NF		DO	4S	20	4		4	1.5			4										
NF		DO	4S	22	0		0	.0			0										
NF		DO	4S	24	6		6	2.6			6	0									
NF		Totals			247	4.4	236	3.4			10	35	1	2	26	109	25	28			
C		DO	3S	24	0		0	52.3				0									
C		DO	4S	16	0		0	26.8			0										
C		DO	4S	24	0		0	20.9			0										
C		Totals			0		0	.0			0	0									
Total		All Species			7,336	6.4	6,867	100.0			7	2655	772	944	1007	793	519	115	55		

LOGGING PLAN MAP

OF TIMBER SALE CONTRACT NO. 341-11-09
 ICE BOX
 PORTIONS OF SECTIONS 7, 8, 17, AND 18 OF
 T7N, R6W, W.M., CLATSOP COUNTY, OREGON.
 APPROXIMATE SCALE 1" = 1,000'

1,000 500 0 1,000 Feet



LOGGING BREAKDOWN		
AREA	CABLE	TRACTOR
1	20%	80%
2	30%	70%
3	0%	100%
4	75%	25%
5	0%	100%
6	80%	20%
TOTAL	40%	60%

APPROXIMATE ACREAGE		
AREA	MC ACRES	PC ACRES
AREA 1		121
AREA 2		100
AREA 3		42
AREA 4		121
AREA 5		40
AREA 6	70	
AREA 7 R/W	12	
TOTAL	82	424
TOTAL ALL AREAS - 506 ACRES		

Legend

- ⊙ Landings to Construct
- ↖ Directional Felling
- T Tractor
- OHV Trails
- Cable Yarding
- ⊖ Posted Stream Buffer
- Area Boundary
- Timber Sale Boundary
- - - New Road Construction
- ⊗ Quarry
- ⊙ Stockpile
- Gate
- Paved
- Rocked
- Sale Streams
- Fish
- Nonfish
- Ownership
- Stream Buffer

