



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Haggis Hunt
Sale 341-11-11

District: Astoria

Date: May 16, 2011

cost summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$457,164.60	\$0.00	\$457,164.60
		Project Work:	\$(49,419.00)
		Advertised Value:	\$407,745.60



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timber description

Location: Portions of Sections 3 and 4, T7N, R6W, W.M., Clatsop County, Oregon.

Stand Stocking: 60%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	25	0	97
Western Hemlock / Fir	21	0	96

Volume by Grade	2S	3S	4S	Total
Douglas - Fir	991	79	25	1,095
Western Hemlock / Fir	290	30	10	330
Total	1,281	109	35	1,425



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comments: Pond Values Used: 1st Quarter Calendar Year 2011.

Expected Log Markets: Clatskanie, Tillamook, Longview, Mist, Warrenton

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost
 $\$753.15/\text{MBF} = \$950.00/\text{MBF} - \$196.85/\text{MBF}$

Red Alder and Other Hardwoods Stumpage Price = Pond Value minus Logging Cost
 $\$348.15/\text{MBF} = \$545.00/\text{MBF} - \$196.85/\text{MBF}$

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):
100% Brand and Paint: $\$1/\text{MBF} \times 1,425 \text{ MBF} = \$1,425$
Log Loader Slash & Landing Piling (includes Move-In and Pile Materials): = \$7,950 (see attached appraisal)
Machine washing for invasive weed compliance = \$2,000
TOTAL Other Costs (with Profit & Risk to be added) = \$11,375

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



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logging conditions

combination#: 1 Douglas - Fir 100.00%
 Western Hemlock / Fir 100.00%

yarding distance: Medium (800 ft) downhill yarding: No
logging system: Shovel Process: Manual Falling/Delimiting

tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF

loads / day: 6.0 bd. ft / load: 4,800

cost / mbf: \$86.97

machines: Shovel Logger



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District: Astoria

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logging costs

Operating Seasons:	1.00	Profit Risk:	10.00%
Project Costs:	\$49,419.00	Other Costs (P/R):	\$11,375.00
Slash Disposal:	\$0.00	Other Costs:	\$0.00

Miles of Road

			Road Maintenance:	\$7.86
Dirt	Rock (Contractor)	Rock (State)	Paved	
0.0	0.0	0.0	0.0	

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$0.00	2.0	4.8
Western Hemlock / Fir	\$0.00	2.0	4.2



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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									
\$86.97	\$8.10	\$3.08	\$68.28	\$7.98	\$17.44	\$0.00	\$5.00	\$0.00	\$196.85
Western Hemlock / Fir									
\$86.97	\$8.17	\$3.08	\$78.79	\$7.98	\$18.50	\$0.00	\$5.00	\$0.00	\$208.49

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$541.11	\$344.26	\$0.00
Western Hemlock / Fir	\$0.00	\$451.52	\$243.03	\$0.00



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District: Astoria

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summary

Amortized

Specie	MBF	Value	Total
Douglas - Fir	0	\$0.00	\$0.00
Western Hemlock / Fir	0	\$0.00	\$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	1,095	\$344.26	\$376,964.70
Western Hemlock / Fir	330	\$243.03	\$80,199.90

Gross Timber Sale Value

Recovery: \$457,164.60

Prepared by: Jon Long

Phone: 503-325-5451

Site Prep Appraisal

Sale Number: 341-11-13
Sale Name: Haggis Hunt
Date: 04/14/2011

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
1	MC	A	22	22	\$110.00	\$2,420.00
2	MC	A	27	27	\$110.00	\$2,970.00

Sub Total = \$5,390.00

Sale Area	Number of Landings to be Piled	Cost/Landing Pile*	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area
1	2	\$220.00	\$440.00	66	\$5.00	\$330.00
2	2	\$220.00	\$440.00	81	\$5.00	\$405.00

*Cost includes separating firewood

Sub Total = \$1,615.00

Move-In Allowance	Number of Move-In's	Total Move-In Allowance
\$945.00	1	\$945.00

Sub Total = \$945.00

Grand Total = \$7,950.00

Road Maintenance Cost Summary (Interim and Post Harvest)

Sale: Haggis Hunt
Date: April 14, 2011
By: J. Long

MBF: 1,425
\$/MBF: \$7.86

FL

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Progressive Operations Entries (1)	Grader 14G	\$675	1	8	\$93	\$1,419
Final Haul Road Maintenance Haul Route	Grader 14G	\$675	1	37	\$93	\$4,116
	Dump Truck 12CY	\$141	1	4	\$73	\$433
	FE Loader C966	\$675	1	4	\$77	\$983
	Vibratory Roller	\$675	1	30	\$72	\$2,835
	Water Truck 2,500 gallon	\$165	1	15	\$83	\$1,410
Total						\$11,196

Interim Maintenance (1)

Production Rates
Grader

Miles/day	Distance(miles)	Days	Hours
5.0	5.0	1	8

Final Road Maintenance

Production Rates
Grader
Vibratory Roller

Miles/day	Distance(miles)	Days	Hours
1.5	5.5	3.7	37
1.5	5.5	3.7	37

***Maintenance calculations were determined as follows:**

Haul Route is determined from sale areas north to Highway 30 Nicolai Mainline and working spurs.

Total Miles: 5 Miles

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Haggis Hunt

NEW CONSTRUCTION:

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
TOTALS	miles	Stations

ROAD IMPROVEMENT

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 1		
11 to 12, 13 to 14, & 15 to 16	359.00	\$35,917
_____	_____	_____
_____	_____	_____
TOTALS	6.80 miles	359.00 Stations
		\$35,917

SPECIAL PROJECTS

<u>Description</u>	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 2			
Road Vacating	V1 to V2 0.26 mi.	13+75	\$4,943
_____	_____	_____	_____
Project No. 3			
Roadside Bruching	11-12 & 13-14 1.58 mi. x \$900/Mile	83+50	\$1,423
Project Road Maintenance (0.61 miles)			\$1,065
_____	_____	_____	_____
_____	_____	_____	_____
TOTALS		1.84 miles	\$7,431

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
Excavator (C312)	\$699
Excavator (C330)	\$1,220
Vibratory Roller	\$675
Front End Loader (C966)	\$675
10-12 yd dump truck (X 4 @ \$141 each)	\$564
Large Grader (14G @ \$675)	\$675
Water Truck (2,500 gal @ \$ 165)	\$165
D-7 Cat	\$699
Excavator for Brush Cutting (20 ft. vertical reach)	\$699
TOTAL	\$6,071

GRAND TOTAL **\$49,419**

Compiled By: Ed Holloran

Date: 04/07/2011

SUMMARY OF ROAD IMPROVEMENT COSTS

SALE NAME: **Haggis Hunt**

NEW CONSTRUCTION: _____ STATIONS

_____ MILES

ROAD: **I1-I2 (29+00); I3-I4 (54+50); I5-I6 (275+50)**

IMPROVEMENT: **359.00** STATIONS

6.80 MILES

POINTS:

CLEARING & GRUBBING

	Method	Acres/amount	/	x	Rate	=	Cost
I1-I2				x		=	
I3-I4				x		=	
I5-I6				x		=	
				x		=	
				x		=	
				x		=	
				x		=	

SUB TOTAL FOR CLEARING & GRUBBING

EXCAVATION

	Material	Cy/amount	/	x	Rate	=	Cost
I1 to I2	Ditchline clean out (load and haul or scatter)	1.0	sta.	x	\$19.89	=	\$19.89
	Culvert basin and Outlet Excavation C330	1.0	hrs.	x	\$144.00	=	\$144.00
I3 to I4	Ditchline clean out (load and haul or scatter)	2.5	sta.	x	\$19.89	=	\$49.73
	Culvert Repair (manual) 3 culverts	2.0	hrs.	x	\$38.00	=	\$76.00
	Culvert basin and Outlet Excavation C330	3.0	hrs.	x	\$144.00	=	\$432.00
	Close and block end of road C330	1.0	hrs.	x	\$144.00	=	\$144.00
I5 to I6	Ditchline clean out (load and haul or scatter)	66.7	sta.	x	\$19.89	=	\$1,326.66
	Culvert Repair (manual) 11 culverts	6.0	hrs.	x	\$38.00	=	\$228.00
	Culvert basin and Outlet Excavation C330	5.0	hrs.	x	\$144.00	=	\$720.00

SUB TOTAL FOR EXCAVATION

\$3,140

CULVERT MATERIALS AND INSTALLATION

	Location	Dia/type	Lineal ft.	Rate	Cost	Seg.	Location	Dia/type	Lineal ft.	Rate	Cost
I1 to I2	11+00	18" CPP	30	\$17.64	\$529.20						
	22+50	18" CPP	35	\$17.64	\$617.40						
I3 to I4	32+75	18" CPP	30	\$17.64	\$529.20						
	43+35	18" CPP	35	\$17.64	\$617.40						
	52+60	18" CPP	35	\$17.64	\$617.40						
I5 to I6	123+15	18" CPP	35	\$17.64	\$617.40						
	135+50	18" CPP	35	\$17.64	\$617.40						
	142+50	18" CPP	35	\$17.64	\$617.40						
	149+10	18" CPP	35	\$17.64	\$617.40						
	167+60	18" CPP	35	\$17.64	\$617.40						
	172+50	18" CPP	35	\$17.64	\$617.40						
	185+50	18" CPP	35	\$17.64	\$617.40						
253+00	18" CPP	40	\$17.64	\$705.60							

\$7,938.00

	Description	Quantity	Rate	Cost
Other/miscellaneous:	Fiberglass Culvert Marker - Rd Imp. (13 + 31)	44	\$18.00	\$792.00
Culvert stakes & markers:	Culvert Disposal (3) C330	0.5	\$144.00	\$72.00
	Dump truck	0.5	\$73.00	\$36.50

\$900.50

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$6,838.50

Costed by: **Ed Holloran**

Date: **04/07/2011**

Subtotal of Clearing, Exc., Culv.

\$11,979

SURFACING			Stations	Description	Stations/amount	x	Rate/sta/amt	Cost
Subgrade prep:			83+50	Grade, Shape, and Ditch 16'	83.50	x	\$21.55	\$1,799.43
						x		\$0.00
						x	\$17.52	\$1,462.92
						x		\$0.00
						x		\$0.00
								\$3,262

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
H to I2				I1 to I2		0+00 to 29+00				
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of				
Leveling Base Rock (patch)	4"-0" crushed	0+00 - 30+00	n/a	load	11	loads	5	55	\$4.86	\$267
Base Rock over culverts	4"-0" crushed	11+00; 22+50	n/a	load	11	loads	2	22	\$4.86	\$107
Junctions	1 1/2"-0" crushed	0+00	n/a	junction	22	junctions	1	22	\$4.86	\$107
Bedding / Backfill - rock	1 1/2"-0" crushed/reject	11+00; 22+50	n/a	culvert	22	culverts	2	44	\$4.86	\$214
Dissipator Rock	24"-6"	22+50	n/a	culvert	11	culverts	1	11	\$7.53	\$83
Total Rock for Road Segment:				I1 to I2				154		

\$778

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
I3 to I4				I3 to I4		0+00 to 54+50				
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of				
Leveling Base Rock (patch)	4"-0" crushed	25+85; 27+80; 37+65; 43+30; 45+15; 47+00; 52+40	n/a	load	11	loads	7	77	\$4.86	\$374
Base Rock over culverts	4"-0" crushed	32+75; 43+35; 52+60	n/a	load	11	loads	3	33	\$4.86	\$160
Base Rock	4"-0" crushed	32+50 to 34+00	6	station	38	stations	2	57	\$4.86	\$277
Junctions	1 1/2"-0" crushed	0+00 & 4+85	n/a	junction	22	junctions	2	44	\$4.86	\$214
Bedding / Backfill - rock	1 1/2"-0" crushed/reject	32+75; 43+35; 52+60	n/a	culvert	22	culverts	3	66	\$4.86	\$321
Total Rock for Road Segment:				I3 to I4				277		

\$1,346

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
I5 to I6				I5 to I6		0+00 to 275+50				
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of				
Leveling Base Rock (patch)	3/4"-0" crushed	0+00 - 275+50	n/a	load	11	loads	30	330	\$4.86	\$1,604
Surface Rock over culverts	3/4"-0" crushed	123+15; 135+50; 142+50; 149+10; 167+60; 172+50; 185.50; 253+00	n/a	load	11	loads	8	88	\$4.86	\$428
Bedding / Backfill - rock	1 1/2"-0" crushed/reject	123+15; 135+50; 142+50; 149+10; 167+60; 172+50; 185.50; 253+00	n/a	culvert	33	culverts	8	264	\$4.86	\$1,283
Dissipator Rock	24"-6"	149+10; 153+00	n/a	culvert	11	culverts	1	11	\$7.53	\$83
Fill Armor	24"-6"	163+50 to 164+50	n/a	load	11	loads	10	110	\$7.53	\$828
Total Rock for Road Segment:				I5 to I6				803		

\$4,226

Processing:	Description	Gradation	# Lifts	No. sta	Rate/sta	Cost
	I1 to I2 and I3 to I4					\$0
	Crushed Rock process and compact + Water (4"-0" = 38cyds/sta + juctio (5.5 + 1.5 + 2)	4"-0"	1	9.00	\$49.02	\$441
	I5 to I6 (Nicolai) -- Post Rock haul					\$0
	Crushed Rock process and compact + Water (3/4"-0") 271+50	3/4"-0"	1	271.50	\$49.02	\$13,309

Reclaimed	24"-6" r	6"-0" pr	4"-0"	1 1/2"-0"	3/4"-0"	Total
	132		244	440	418	1234

SUB TOTAL FOR SURFACING 1,234 \$23,362

SPECIAL PROJECTS				
Description	cy/amount	Cost	per amount =	Cost
Armor side of road 163+50 to 164+50				
C330 to place rock	4	\$144.00	hours	\$576.00

SUB TOTAL FOR SPECIAL PROJECTS \$576

Subtotal of Surfacing & Spec. Proj. \$23,938
Subtotal of Clearing, Exc., Culv. \$11,979

GRAND TOTAL \$35,917

Compiled By: Ed Holloran Date: 04/19/2011

RIP RAP ROCK COST

SALE NAME: Haggis Hunt
 PROJECT: Nos. 1
 QUARRY: Hunt Creek

MATERIAL: Riprap
24"-6"

DATE: 04/07/2011
 BY: Ed Holloran

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I1 to I2	0.2	11		0.50	1.20	0.50	0.40	0.30	0.13	3.03
I5 to I6	1.40	121		1.50	0.50	0.10	0.10	0.10	0.17	2.47
TOTAL	1.40	132								
	<u>STA./NO.</u>	<u>CU. YD.</u>								
CUBIC YARD WEIGHTED HAUL				1.42	0.56	0.13	0.13	0.12	0.17	AVERAGE HAUL
				Average Round Trip Distance (miles)						5.03

ROCK HAUL:

Truck type: D12 No. trucks: 2
 Delay min.: 6 Efficiency: 85%

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

Ave haul: \$2.46 /cy
 Load: \$1.37 /cy
 Develop: \$3.70 /cy

Production: cy/day = 474

RIP RAP ROCK HAUL COSTS 132 cy @ \$7.53 /cy

Project Work Road Maintenance Cost Summary

Sale: Haggis Hunt
Date: April 4, 2011
By: Ed Holloran

FL

Type	Equipment/Rationale	Hours	Rate	Cost
Post-Projects Road	Grader 14G	4	\$93	\$372
	Vibratory Roller	4	\$72	\$288
	Water Truck	4	\$83	\$332
	Dump Truck	1	\$73	\$73
Total				\$1,065

Production Rates
 Grader - Processing
 Vibratory Roller

Miles/day	Distance(miles)	Days	Hours
1.5	0.6	0.4	3.2
1.5	0.6	0.4	3.2

Hunt Creek Quarry to Nicolai - 0.6 miles.
TOTAL MILES for MAINTENANCE = 0.6 miles

Haggis Hunt
TIMBER CRUISE REPORT
FY 2011

1. **Sale Area Location:** Sale is located in Portions of Sections 3 and 4, T7N, R6W, W.M., Clatsop County, Oregon.
2. **Fund Distribution:** BOF 100%
 Tax Code 1-02 (60%) 6J-01 (40%)

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	New R/W	GTRA	Stream Buffer	Net Acres	Survey Method
1	Modified Clearcut	27	1	0	4	0	22	GIS
2	Modified Clearcut	31	0	0	0	4	27	GIS
TOTALS		58	1	0	4	2	49	

4. **Cruisers and Cruise Dates:** Area 1 was cruised by Jay Morey, Ed Holloran, John Tillotson, and Kraig Kirpatrick on April 8 and 12, 2011. Area 2 was cruised by Derek Bangs, Bryce Rogers, Jon Long, John Tillotson, and Kraig Kirpatrick on April 8 and 12, 2011.

5. **Cruise Method and Computation:**

Areas 1 and 2 are modified clearcut units and were variable plot cruised using a 33.6 BAF. These plots are located on a 2 chain by 5 chain grid, with every third plot measured and graded. A total of 47 plots (31 count/ 16 grade) were sampled. Sighting point was at 16 feet.

All cruisers used Corvallis MicroTechnology (CMT) 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.

AREA	CRUISE	TRACT	TYPE	ACRES
1 and 2	07N06W SEC 3	A 1 AND 2	TAKE	49

6. **Timber Description**

Areas 1 and 2 are modified clearcut units, approximately 80 years-old, consisting mostly of Douglas-fir, and western hemlock. The average volume (net) is approximately 29 MBF/acre. The average Douglas-fir tree size is 25" DBH and 89 feet to a merchantable top (6" D.I.B. or 40% of the diameter at 16 feet). The hemlock averages 21" DBH and 81 feet to a merchantable top (6" D.I.B. or 40% of the diameter at 16 feet). This stand was thinned about 15 years ago, and now there is a dense understory of hemlock reprod.

7. **Statistical Analysis and Stand Summary:** (See "Statistics" - Type Reports, attached)

Statistics for Stand B.F. volumes

Areas	Estimated CV	Target SE%	Actual CV	Actual SE%
1 and 2 (MC)	55%	11%	50.3%	7.3%

8. Volumes by Species and Log Grade: See "Species, Sort, Grade – Board Foot Volumes (Type). Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	% D & B	% Sale
Douglas-fir	24	1,095	991	79	25	2.8	77
Western hemlock	21	330	290	30	10	2.8	23
TOTALS		1,425					100

9. Approvals:

Prepared by: Jon Long Date: April 13, 2011
 Unit Forester Approval:  Date: 4/15/11

- 10. Attachments:**
- Cruise Design - 2 pages
 - Cruise Maps- 1 page
 - Volume Reports(take) - 1 page
 - Statistics Reports – 3 pages
 - Log Stock Tables(take) – 1 page
 - Stand Table(take) – 1 page

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Haggis Hunt Areas 1 & 2

Harvest Type: (MC) Clearcut

Approx. Cruise Acres: 49 Estimated CV% 55 Net BF/Acre SE% Objective 11

Planned Sale Volume : 1,500 MBF Estimated Sale Area Value/Acre: \$7,500/Ac
(30 MBF/Ac.)

A. **Cruise Goals:** (a) Grade minimum 70 conifer and hardwood trees:
(b) Sample 46 cruise plots (1 grade/ 2 count); (c) Other goals (X Determine volume and quality)

B. Cruise Design:

1. **Plot Cruises:** BAF 33.6 (Full point; Half point) (circle one) sighting at 16 feet.

Cruise Line Direction(s) N - S
Cruise Line Spacing 5 (chains)
Cruise Plot Spacing 2 (chains)
Grade/Count Ratio 1:2

If a plot ends up in a buffer adjust by pacing on through or offsetting one chain. Take plots as marked on map. Sight all trees at 16 feet. Bring a machete or chain saw (thick hemlock understory). 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 8" for hardwoods.

Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24".

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:**

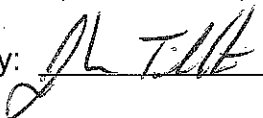
- A. **Species:** Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
- 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.

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.

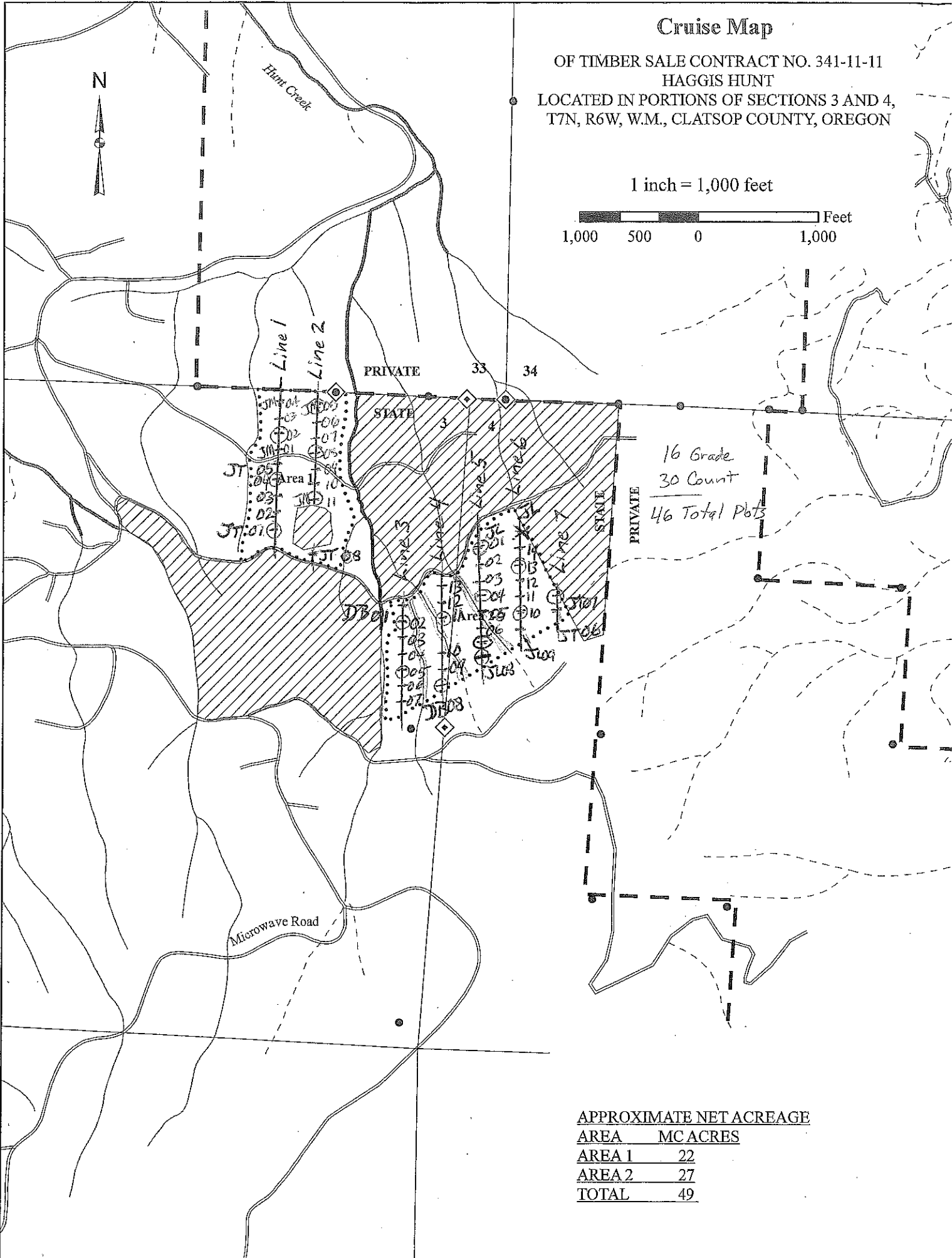
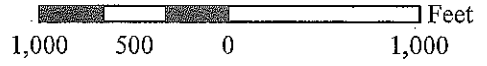
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale:

Cruise Design by: Jon Long Approved by:  Date: 4/10/2011

Cruise Map

OF TIMBER SALE CONTRACT NO. 341-11-11
 HAGGIS HUNT
 LOCATED IN PORTIONS OF SECTIONS 3 AND 4,
 T7N, R6W, W.M., CLATSOP COUNTY, OREGON

1 inch = 1,000 feet



16 Grade
 30 Count
 46 Total Plots

APPROXIMATE NET ACREAGE	
AREA	MC ACRES
AREA 1	22
AREA 2	27
TOTAL	49

T TSPCSTGR	Species, Sort Grade - Board Foot Volumes (Type)										Page 1										
	Project: HAG										Date 4/13/2011										
											Time 10:57:24AM										
T07N R06W S03 TTAKE										T07N R06W S03 TTAKE											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
07N	06W	03	A 1 AND 2	TAKE	49.00	47	58	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					
D	DO	CU		00.0		112											4		0.00		1.1
D	DO	2S	90	2.5	20,756	20,230	991		2	41	57		1	30	69		36	359	2.20		56.4
D	DO	3S	7		1,607	1,607	79		93	7			10	3	13	75	34	80	0.83		20.0
D	DO	4S	3		523	523	26		100				60	40			20	38	0.68		13.9
D	Totals			77	2.8	22,998	22,361	1,096	10	38	52		2	2	28	68	33	244	1.75		91.5
H	DO	CU		00.0		133											10		0.00		.4
H	DO	2S	88	.6	5,962	5,926	290		6	68	26		1	1	27	70	36	278	1.75		21.3
H	DO	3S	9	1.6	615	605	30		100				4	11	9	76	33	61	0.73		9.9
H	DO	4S	3	7.2	210	195	10		100				28	41	31		22	33	0.58		5.8
H	Totals			23	2.8	6,920	6,726	330	17	60	23		2	3	26	69	33	180	1.35		37.4
Type Totals					2.8	29,918	29,087	1,425	12	43	45		2	2	28	68	33	226	1.63		128.9

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT HAG		DATE 4/13/2011				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	03	A 1 AND 2	CC	49.00	47	190	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		47	190	4.0						
CRUISE		22	73	3.3	2,765		2.6			
DBH COUNT										
REFOREST										
COUNT		24	100	4.2						
BLANKS		1								
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
D	39	35.2	24.7	89		117.3	24,386	23,803	5,170	5,170
H	19	15.7	20.8	81		37.2	6,568	6,507	1,493	1,493
DL	8	3.5	25.0	97		12.0	2,726	2,642	563	563
SN	3	.9	24.5	41		2.9	110		23	
CL	1	.3	26.0	60		1.1	112	99	33	33
SL	1	.1	44.0	100		1.0	244	230	47	47
HL	1	.4	20.0	75		1.0	146	146	35	35
NOB FIR	1	.2	28.0	107	0	.9	240	231	45	45
TOTAL	73	56.4	23.7	86		173.4	34,532	33,660	7,409	7,387
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	
D		57.3	9.2	726	799	872				
H		47.8	11.3	417	469	522				
DL		45.5	17.1	744	898	1,051				
SN										
CL										
SL										
HL										
NOB FIR										
TOTAL		68.1	8.0	648	704	760	185	46	21	
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
D		51.2	7.5	33	35	38				
H		124.2	18.1	13	16	19				
DL		298.3	43.5	2	4	5				
SN		475.9	69.4	0	1	1				
CL		685.6	99.9	0	0	1				
SL		685.6	99.9	0	0	0				
HL		685.6	99.9	0	0	1				
NOB FIR		685.6	99.9	0	0	0				
TOTAL		43.3	6.3	53	56	60	75	19	8	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
D		52.4	7.6	108	117	126				
H		119.2	17.4	31	37	44				
DL		255.8	37.3	8	12	16				
SN		390.6	56.9	1	3	5				
CL		685.6	99.9	0	1	2				
SL		685.6	99.9	0	1	2				
HL		685.6	99.9	0	1	2				
NOB FIR		685.6	99.9	0	1	2				

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT HAG		DATE 4/13/2011				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	03	A 1 AND 2	TAKE	49.00	47	170	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	47	170	3.6							
CRUISE	16	58	3.6		2,497		2.3			
DBH COUNT										
REFOREST										
COUNT	30	112	3.7							
BLANKS	1									
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	39	35.2	24.7	89		117.3	22,998	22,361	5,303	5,285
WHEMLOCK	19	15.7	20.8	81		37.2	6,920	6,726	1,686	1,666
TOTAL	58	51.0	23.6	87		154.5	29,918	29,087	6,988	6,951
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	57.7	9.2	681	750	820					
WHEMLOCK	47.2	11.1	430	484	538					
TOTAL	59.9	7.9	611	663	715	143	36	16		
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	51.2	7.5	33	35	38					
WHEMLOCK	124.2	18.1	13	16	19					
TOTAL	47.6	6.9	47	51	54	90	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		
DOUG FIR	52.4	7.6	108	117	126					
WHEMLOCK	119.2	17.4	31	37	44					
TOTAL	46.2	6.7	144	154	165	85	21	9		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	56.3	8.2	20,527	22,361	24,195					
WHEMLOCK	119.0	17.3	5,560	6,726	7,892					
TOTAL	50.3	7.3	26,954	29,087	31,219	101	25	11		

TC TSTATS				STATISTICS			PAGE	2		
				PROJECT	HAG		DATE	4/13/2011		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	03	A 1 AND 2	CC	49.00	47	190	S	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	
TOTAL		34.9	5.1	165	173	182	49	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	
D		55.8	8.1	21,867	23,803	25,740				
H		118.9	17.3	5,379	6,507	7,635				
DL		262.9	38.3	1,630	2,642	3,655				
SN										
CL		685.6	99.9	0	99	199				
SL		685.6	99.9	0	230	461				
HL		685.6	99.9	0	146	292				
NOB FIR		685.6	99.9	0	231	462				
TOTAL		42.1	6.1	31,594	33,660	35,726	71	18	8	

Stand Table Summary																	
TC TSTNDSUM																	
Project HAG																	
T07N R06W S03 TTAKE											T07N R06W S03 TTAK						
Twp Rge Sec Tract Type Acres Plots Sample Trees											Page: 1						
07N 06W 03 A 1 AND 2 TAKE 49.00 47 58											Date: 04/13/20						
											Time: 10:58:30AM						
Spc	S T	Sample			Av			Average Log		Net			Totals				
		DBH	Trees	16'	FF	Ht	Tot	Trees/	BA/	Logs	Net	Net	Tons/	Cu.Ft.	Net	Bd.Ft.	Tons
D		19	1	88	104	1.493	2.94	2.99	41.5	145.0		124	433			61	21
D		20	2	86	102	2.822	6.16	5.64	43.7	149.9		247	846			121	41
D		21	2	87	111	2.549	6.13	5.10	51.9	193.1		264	985			130	48
D		22	7	88	108	7.890	20.83	18.09	48.2	189.0		871	3,418			427	167
D		23	2	87	108	2.110	6.09	5.24	49.3	192.9		258	1,011			126	50
D		24	6	87	116	5.773	18.14	17.32	47.4	202.2		821	3,502			402	172
D		25	1	83	95	.968	3.30	1.94	63.0	215.0		122	416			60	20
D		26	3	89	114	2.343	8.64	6.28	61.5	272.8		386	1,714			189	84
D		27	1	89	120	.739	2.94	2.22	62.7	273.3		139	606			68	30
D		28	6	88	121	4.198	17.95	11.91	67.8	302.2		807	3,598			396	176
D		30	4	87	144	2.501	12.28	8.09	79.9	356.2		646	2,882			317	141
D		31	1	89	145	.561	2.94	1.68	96.3	446.7		162	752			79	37
D		32	1	88	125	.526	2.94	1.58	88.7	410.0		140	647			69	32
D		36	1	88	130	.416	2.94	1.25	121.3	626.7		151	782			74	38
D		40	1	86	136	.353	3.08	1.06	137.3	726.7		145	769			71	38
D		Totals	39	87	115	35.243	117.29	90.37	58.5	247.4		5,285	22,361			2,589	1,096
H		16	2	91	91	2.853	3.98	5.71	28.1	106.5		160	608			78	30
H		18	1	92	91	1.112	1.97	2.22	37.0	145.0		82	323			40	16
H		19	1	88	102	1.067	2.10	2.13	44.5	150.0		95	320			47	16
H		20	5	88	96	3.974	8.67	8.85	42.2	152.7		373	1,351			183	66
H		21	1	88	99	.873	2.10	1.75	55.5	215.0		97	376			48	18
H		22	3	91	104	2.254	5.95	6.02	45.5	188.5		273	1,134			134	56
H		23	2	88	111	1.473	4.25	4.42	46.8	198.4		207	876			101	43
H		24	1	88	110	.669	2.10	2.01	50.0	220.0		100	441			49	22
H		26	1	97	100	.480	1.77	1.44	59.0	303.3		85	436			42	21
H		27	1	85	120	.566	2.25	1.70	67.3	290.0		114	492			56	24
H		31	1	89	113	.392	2.05	.78	100.5	470.0		79	368			39	18
H		Totals	19	89	100	15.712	37.19	37.02	45.0	181.7		1,666	6,726			816	330
Totals			58	88	110	50.956	154.48	127.40	54.6	228.3		6951	29,087			3,406	1,425

Log Stock Table - MBF
Project: **HAG**

T07N R06W S03 TTAKE

T07N R06W S03 TTAK

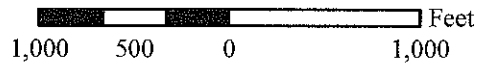
Twp Rge Sec Tract Type Acres Plots Sample Trees Page
 07N 06W 03 A 1 AND 2 TAKE 49.00 47 58 1
 Date 4/13/2011
 Time 11:03:59AM

S Spp	So T	Gr rt	Log de	Len	Gross MBF	% Def	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches										
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39
D	DO	CU	3		3	100.0													
D	DO	CU	6		2	100.0													
D	DO	2S	26		8		8	.7					8						
D	DO	2S	32		307	1.8	302	27.6			16	89	40	123	13	21			
D	DO	2S	40		702	2.9	682	62.2				96	137	276	147	25			
D	DO	3S																	
D	DO	3S	16		4		4	.3			4								
D	DO	3S	20		4		4	.4			2		2						
D	DO	3S	26		2		2	.2			2								
D	DO	3S	31		3		3	.3				3							
D	DO	3S	32		3		3	.3			3								
D	DO	3S	34		4		4	.3					4						
D	DO	3S	36		6		6	.5				6							
D	DO	3S	38		9		9	.9			4		5						
D	DO	3S	40		44		44	4.0			20	16	7						
D	DO	4S	12		1		1	.1			1								
D	DO	4S	14		1		1	.1			1								
D	DO	4S	15		1		1	.1			1								
D	DO	4S	17		4		4	.4			4								
D	DO	4S	18		1		1	.1			1								
D	DO	4S	19		2		2	.1			2								
D	DO	4S	20		5		5	.5			1	4							
D	DO	4S	22		2		2	.2			2								
D	DO	4S	24		6		6	.6			4	2							
D	DO	4S	28		2		2	.2			2								
D	Totals				1,127	2.8	1,096	76.9			36	43	35	190	185	400	160	47	
H	DO	CU	10		7	100.0													
H	DO	2S	20		3		3	.9			3								
H	DO	2S	30		4		4	1.3				4							
H	DO	2S	32		80		80	24.2			15	25		40					
H	DO	2S	40		205	.9	203	61.7				58	55	59	31				
H	DO	3S	10		0		0	.1			0								
H	DO	3S	15		1		1	.3				1							
H	DO	3S	30		3		3	1.0			3								
H	DO	3S	32		3		3	.8			3								
H	DO	3S	36		6	7.7	6	1.7			6								
H	DO	3S	40		17		17	5.1			10	3	3						
H	DO	4S	12		2		2	.5			1	1							
H	DO	4S	17		1		1	.3				1							
H	DO	4S	24		4		4	1.2			3	1							
H	DO	4S	32		4	20.0	3	.9			3								
H	Totals				339	2.8	330	23.1			29	7	21	87	55	99	31		
Total All Species					1,466	2.8	1,425	100.0			65	51	56	278	241	498	191	47	

LOGGING PLAN MAP

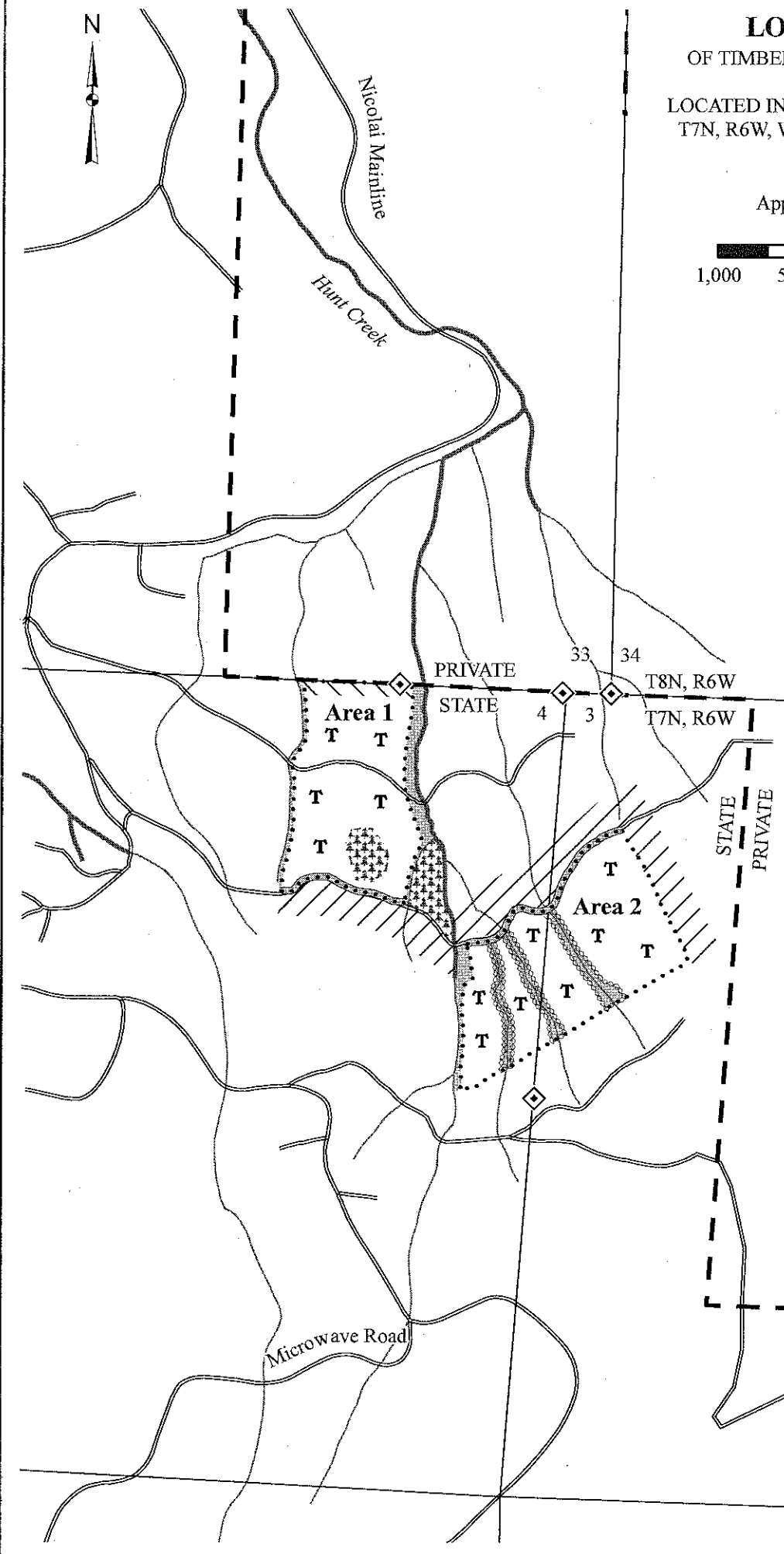
OF TIMBER SALE CONTRACT NO. 341-11-11
HAGGIS HUNT
LOCATED IN PORTIONS OF SECTIONS 3 AND 4,
T7N, R6W, W.M., CLATSOP COUNTY, OREGON

Approximate Scale = 1":1,000'



LEGEND

- Ownership Boundary
- Timber Sale Boundary
- Non Posted Timber Sale Boundary
- Paved Road
- Existing Surfaced Road
- Type N Stream
- Type F Stream
- Posted Stream Buffer
- Buffer Zone
- Green Tree Retention Area
- Controlled Felling Area
- Reforestation Area
- Known Land Survey Corner
- Yarding Area - Ground Logging



APPROXIMATE NET ACREAGE	
AREA	MC ACRES
AREA 1	22
AREA 2	27
TOTAL	49