



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal  
Hawkeye  
Sale AT-341-2018-45-

District: Astoria

Date: March 13, 2018

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**Cost Summary**

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$2,509,267.81	\$6,586.44	\$2,515,854.25
		Project Work:	(\$12,447.00)
		Advertised Value:	\$2,503,407.25



# Timber Sale Appraisal Hawkeye Sale AT-341-2018-45-

**District: Astoria**

**Date: March 13, 2018**

## Timber Description

**Location:** Portions of Section 20, and 29, T6N, R7W ,W.M., Clatsop County, Oregon

**Stand Stocking:** 80%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	25	0	98
Western Hemlock / Fir	19	0	98
Sitka Spruce	22	0	97
Alder (Red)	16	0	99

Volume by Grade	2S	3S & 4S 6"-11"	6" - 7"	Total
Douglas - Fir	3,552	625	0	4,177
Western Hemlock / Fir	467	263	0	730
Sitka Spruce	34	9	0	43
Alder (Red)	0	0	21	21
<b>Total</b>	4,053	897	21	4,971

**Comments:** Pond Values Used: 1st Quarter Calendar Year 2018 + Local Pond Values, January, 2018.

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

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:  
 $\$1,182.18/\text{MBF} = \$1,500/\text{MBF} - \$317.82/\text{MBF}$

SCALING COST ALLOWANCE = \$5.00/MBF

BRANDING AND PAINTING COST ALLOWANCE = \$2.00/MBF

FUEL COST ALLOWANCE = \$3.00/Gallon

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

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

Slash and Landing Piling (Includes move-in and pile materials)= \$4,953  
TOTAL Other Costs (with Profit & Risk to be added) = \$6,953

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



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**Logging Conditions**

**Combination#: 1**                      Douglas - Fir                      96.00%  
   Western Hemlock / Fir                      96.00%  
   Sitka Spruce                      96.00%  
   Alder (Red)                      96.00%

**Logging System:** Cable: Large Tower >=70                      **Process:** Manual Felling/Delimbing  
**yarding distance:** Long (1,500 ft)                      **downhill yarding:** No  
**tree size:** Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF  
**loads / day:** 7.8                      **bd. ft / load:** 4500  
**cost / mbf:** \$193.73  
**machines:** Log Loader (A)  
                         Tower Yarder (Large)

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**Combination#: 2**                      Douglas - Fir                      4.00%  
   Western Hemlock / Fir                      4.00%  
   Sitka Spruce                      4.00%  
   Alder (Red)                      4.00%

**Logging System:** Shovel                      **Process:** Stroke Delimber  
**yarding distance:** Medium (800 ft)                      **downhill yarding:** No  
**tree size:** Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF  
**loads / day:** 12                      **bd. ft / load:** 4500  
**cost / mbf:** \$58.74  
**machines:** Stroke Delimber (B)

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# Timber Sale Appraisal Hawkeye Sale AT-341-2018-45-

**District: Astoria**

**Date: March 13, 2018**

## Logging Costs

<b>Operating Seasons:</b> 3.00	<b>Profit Risk:</b> 10%
<b>Project Costs:</b> \$12,447.00	<b>Other Costs (P/R):</b> \$6,953.00
<b>Slash Disposal:</b> \$0.00	<b>Other Costs:</b> \$0.00

**Miles of Road**

**Road Maintenance:** \$1.75

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	4.5
Western Hemlock / Fir	\$0.00	3.0	4.0
Sitka Spruce	\$0.00	2.0	5.0
Alder (Red)	\$0.00	2.0	3.5



# Timber Sale Appraisal Hawkeye Sale AT-341-2018-45-

District: Astoria

Date: March 13, 2018

## Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
<b>Douglas - Fir</b>									
\$188.33	\$1.78	\$2.65	\$88.40	\$1.40	\$28.26	\$0.00	\$7.00	\$0.00	\$317.82
<b>Western Hemlock / Fir</b>									
\$188.33	\$1.78	\$2.65	\$66.30	\$1.40	\$26.05	\$0.00	\$7.00	\$0.00	\$293.51
<b>Sitka Spruce</b>									
\$188.33	\$1.80	\$2.65	\$80.34	\$1.40	\$27.45	\$0.00	\$7.00	\$0.00	\$308.97
<b>Alder (Red)</b>									
\$188.33	\$1.77	\$2.65	\$112.54	\$1.40	\$30.67	\$0.00	\$7.00	\$0.00	\$344.36

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$842.20	\$524.38	\$0.00
Western Hemlock / Fir	\$0.00	\$718.52	\$425.01	\$0.00
Sitka Spruce	\$0.00	\$510.72	\$201.75	\$0.00
Alder (Red)	\$0.00	\$658.00	\$313.64	\$0.00



Timber Sale Appraisal  
Hawkeye  
Sale AT-341-2018-45-

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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
Sitka Spruce	0	\$0.00	\$0.00
Alder (Red)	0	\$0.00	\$0.00

**Unamortized**

Specie	MBF	Value	Total
Douglas - Fir	4,177	\$524.38	\$2,190,335.26
Western Hemlock / Fir	730	\$425.01	\$310,257.30
Sitka Spruce	43	\$201.75	\$8,675.25
Alder (Red)	21	\$313.64	\$6,586.44

**Gross Timber Sale Value**

**Recovery:** \$2,515,854.25

**Prepared By:** Matt Dimick

**Phone:** 503-325-5451

### Road Maintenance Cost Summary

**Sale:** Hawkeye  
**Date:** 23-Feb-18  
**By:** M. Dimick

**MBF:** 4,971  
**\$\$/MBF:** \$1.75

Type	Equipment/Rationale	Move In	Times	Hours	Rate	Cost
Progressive Operations 1st Entry	Grader 14G	\$778	1	8	\$100	\$1,578
Final Haul Maintenance Haul Route	Grader 14G	\$778	1	16	\$100	\$2,378
	Dump Truck 12CY x 1	\$326	1	8	\$79	\$958
	Vibratory Roller	\$778	1	16	\$77	\$2,010
	FE Loader C966	\$778	1	8	\$83	\$1,442
	Laborer	\$0	1	8	\$40	\$320
<b>Total</b>						<b>\$8,686</b>

Progressive Ops. 1st Entry	Production Rates	Miles/day	Distance(miles)	Days
	Grader	1.5	4.3	2.9
	Vibratory Roller	1.5	4.3	2.9

Final Road Maintenance	Production Rates	Miles/day	Distance(miles)	Days
	Grader	1.5	4.3	2.9
	Vibratory Roller	1.5	4.3	2.9

It is anticipated that portions of the haul route will not require process and compaction.

## Site Prep Appraisal

**Sale Number:** 341-18-45  
**Sale Name:** Hawkeye  
**Date:** 03/19/2018

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre
Doug-fir	A	1.0	0.5
Hemlock/Fir	B	1.5	0.8
Hemlock/Spruce	C	2.0	1.0
Hemlock	D	2.0	1.0
Conifer/Hardwood	E	1.0	0.5

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area
1	PC	A	5	5	\$145.00	\$725.00
Sub Total =						\$725.00

Sale Area	Number of cable Landings	Number of acres to landing	\$ per 20 acres yarded	Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Material Cost/Area	Total Cost/Area
1	3	71	\$1,160.00	\$4,118.00	2.5	\$20.00	\$110.00	\$4,228.00
*Cost includes separating firewood								Sub Total = \$4,228.00

**Grand Total = \$4,953.00**

## SUMMARY OF ALL PROJECT COSTS

SALE NAME: Hawkeye

**ROAD CONSTRUCTION:**

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 1	1A-1B, 1C-1D, 1E-1F	11.40	\$ 4,309
	TOTALS	11.40	\$ 4,309

**ROAD IMPROVEMENT:**

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 2	I1 to I2	200+60	\$ 1,120
	I2 to I3	24+80	\$ 987
Project No. 3	Stream Enhancement		\$ 1,500
	<b>TOTALS</b>	225.40	\$ 3,607

**MOVE IN:**

<u>Equipment</u>	<u>Cost</u>
Dozer D8	\$ 1,406
Grader 14G	\$ 778
Dump Trucks 12cy x 1	\$ 163
Front End Loader C966	\$ 778
Excavator C330	\$ 1,406
<b>TOTAL</b>	<b>\$ 4,531</b>

GRAND TOTAL	\$	12,447
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Compiled By: Matt Dimick Date: 02/23/2018

Subtotal of Clearing, Exc., Culv. (new construction)

SURFACING		Stations/	sta/amt	Rate/
Subgrade prep:		x		Cost
Description				
Grader time to grade pot holes- \$/hr for I1 to I2		x	\$100.00	\$800.00
Labor time for debris removal in ditchline- \$/hr for I1 to I2		x	\$40.00	\$320.00
D8 time for Pit Run compaction- \$/hr for I2 to I3		x	\$158.00	\$316.00
Total				\$1,436.00

ROAD SEGMENT I2 to I3				POINT TO POINT	Sta. to Sta.	TOTAL	Rate/	Cost
				I2 to I3	0+00 to 24+80	VOLUME	Sta./	
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of	(CY)	amt.	
Subgrade Leveling	6"-0" pit-run	N/A	N/A	load	11	loads	5	\$671
Total Rock for Road Segment:				I2 to I3		55		\$671

Processing:	Description	No. sta	Rate/sta	Cost
				\$0

24"-6" rr	6"-0" pr	6"-0" r	1 1/2"-0" r	3/4"-0" r	Total	
	55				55	\$2,107
SUB TOTAL FOR SURFACING						

SPECIAL PROJECTS						\$0
SUB TOTAL FOR SPECIAL PROJECTS						\$0
GRAND TOTAL						\$2,107
						Subtotal of Surfacing & Spec. Proj. \$2,107
						Subtotal of Clearing, Exc., Culv. \$0

Compiled By: Matt Dimick

Date: 03/16/2018

## PIT RUN ROCK COST

SALE NAME:	Hawkeye
PROJECT:	2
QUARRY:	West Tidewater Quarry

MATERIAL: 6"-0

DATE: 03/16/2018  
BY: M. Dimick

[illegible]

ROCK HAUL:

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

Ave haul:	\$5.95	/cy
Load:	\$4.33	/cy
Spread:	\$1.92	/cy

Truck type: D12 No. trucks: 1  
 Delay min.: 6 Efficiency: 85%

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

Production: cy/day = 106

### PIT RUN ROCK HAUL COSTS

55 cy @ \$12.20 /cy

**Hawkeye  
Stream Enhancement  
Project No. 3**

Location	Site	No. Tops	Number of Logs	\$/Tree*	Cost per Site
SE1-SE2	1	4	4	\$125.00	\$500.00
SE1-SE2	2	4	4	\$125.00	\$500.00
SE1-SE2	3	4	4	\$125.00	\$500.00
<b>Subtotal</b>					<b>\$1,500.00</b>
<b>Project Total</b>					<b>\$1,500.00</b>

# Hawkeye TIMBER CRUISE REPORT FY 2018

1. Sale Area Location: Area 1 is located in portions of Sections 20 and 29, T6N, R7W, W.M., Clatsop County, OR.

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

3. Sale Acreage by Area:

Area	Treatment	Gross Acres	Stream Buffer	Existing Surface Roads	New Road Construction	Net Acres	Survey Method
1	Modified Clearcut	94	17	-	1	76	GIS
2	R/W	1	-	-	-	1	GIS
<b>TOTALS</b>		<b>95</b>	<b>17</b>	<b>-</b>	<b>1</b>	<b>77</b>	

4. Cruisers and Cruise Dates:

The area was cruised by Ella Salkeld, John Choate, Bryce Rodgers, Cody Valencia, Kevin Berry, and Matt Dimick during February 2018.

5. Cruise Method and Computation:

**Area 1** is a modified clearcut unit and was variable plot cruised using a 40 BAF. These plots are located on a 3 chain by 5 chain grid, with 2 to 1 grade and measure plots to count plots. A total of 47 plots were sampled, with 31 graded plots, and 16 count plots.

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

AREA	CRUISE	TRACT	TYPE	ACRES
1	Hawkeye	A1	MC	76
2 (R/W)	Hawkeye	A1	R/W	1

6. Timber Description:

**Area 1** is a modified clearcut unit, approximately 79 to 81 years-old, consisting of Douglas-fir, western hemlock, red alder, and spruce. The average Douglas-fir tree size is 25.7 inches DBH, with an average bole height of 97 feet. The average western hemlock is 18.9 inches DBH with an average height of 69 feet to a merchantable top ( 7 inch d.o.b). The average red alder tree size 15.8 inches DBH with an average height of 41 feet to a merchantable top ( 7 inch d.o.b). The average spruce tree size 21.7 inches DBH with an average bole height of 54 feet. The net volume per acre to be harvested is 64.5 MBF/acre.

**Area 2 R/W** is similar to the timber description mentioned above in Area 1. The average volume per acre to be harvested is 64.5 MBF/acre.

7. Statistical Analysis and Stand Summary

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1	45.0	8%	44.3	6.5%

**8. Volumes by Species and Log Grade:**

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

**Conifer**

Species	DBH	Net Vol. MBF	2 Saw	3 Saw	4 Saw	% D & B	% Sale
Douglas-fir	25.7"	4,177	3,552	575	50	2%	84%
Hemlock / True Fir	18.9"	730	467	232	31	2%	15%
Spruce	21.7"	43	34	4	5	3%	1%

**Hardwoods**

Species	DBH	Net Vol. MBF	12"+	10-12"	8-10"	6-8"	% D & B	% Sale
Red Alder	15.8"	21	-	-	-	21	<1%	<1%

Species	Net Vol. MBF
Douglas-fir	4,177
Western hemlock	730
Red alder	21
Sitka spruce	43
Total	4,971

**9. Approvals:**

Prepared by: Matt Dimick

Date: 2/23/2018

Unit Forester Approval: 

Date: 2/23/18

**10. Attachments:**

Cruise Designs and Maps – 2 pages  
 Volume Reports - 3 pages  
 Statistics Report -1 page  
 Stand Table Summary – 2 page  
 Log Stock Tables – 2 pages

**CRUISE DESIGN  
ASTORIA DISTRICT**

**Sale Name:** Hawkeye **Area(s)** 1

**Harvest Type:** Modified Clearcut

**Approx. Cruise Acres:** 80 **Estimated CV%** 45 Net BF or  
BA/Acre **SE% Objective** 8

**Planned Sale Volume:** 4,050 MBF **Estimated Sale Area Value/Acre:** \$ 22,680

**A. Cruise Goals:** (a) Grade minimum 80 trees:

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

**B. Cruise Design:**

- 1. Plot Cruises:** BAF 40 Full point  
Cruise Line Direction(s) E, W  
Cruise Line Spacing 5 chains (330 Feet)  
Cruise Plot Spacing 3 chains (198 Feet)  
Grade/Count Ratio 2:1

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

**C. Tree Measurements:**

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods.  
Record dbh to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" or 40% of dob at 16' form point. Generally, use 7" outside bark for trees less than 18" dbh and 40% of dob @ FP for trees greater than 18" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; Hardwood form factors are a Standard 87.
- 5. Tree Segments:** Record log segments in "standard" 32" and 40' log lengths whenever possible. Do not record odd segments just to maximize grade. The maximum segment length is 40'. The minimum segment length is 12' for conifer and 8' for hardwoods. Minimum merchantable diameter for conifer is 8" dbh and 10" dbh for hardwoods. One foot of trim is assumed for each merchantable segment.

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

Record as D (Douglas-fir);

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

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

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; 0 = Cull

Hardwoods: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill; 0 = Cull.

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

**8. Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at intervisible points. On "measure/grade" plots paint the tree diameter on each tree starting with the first tree right of the cruise line direction and continuing clockwise.

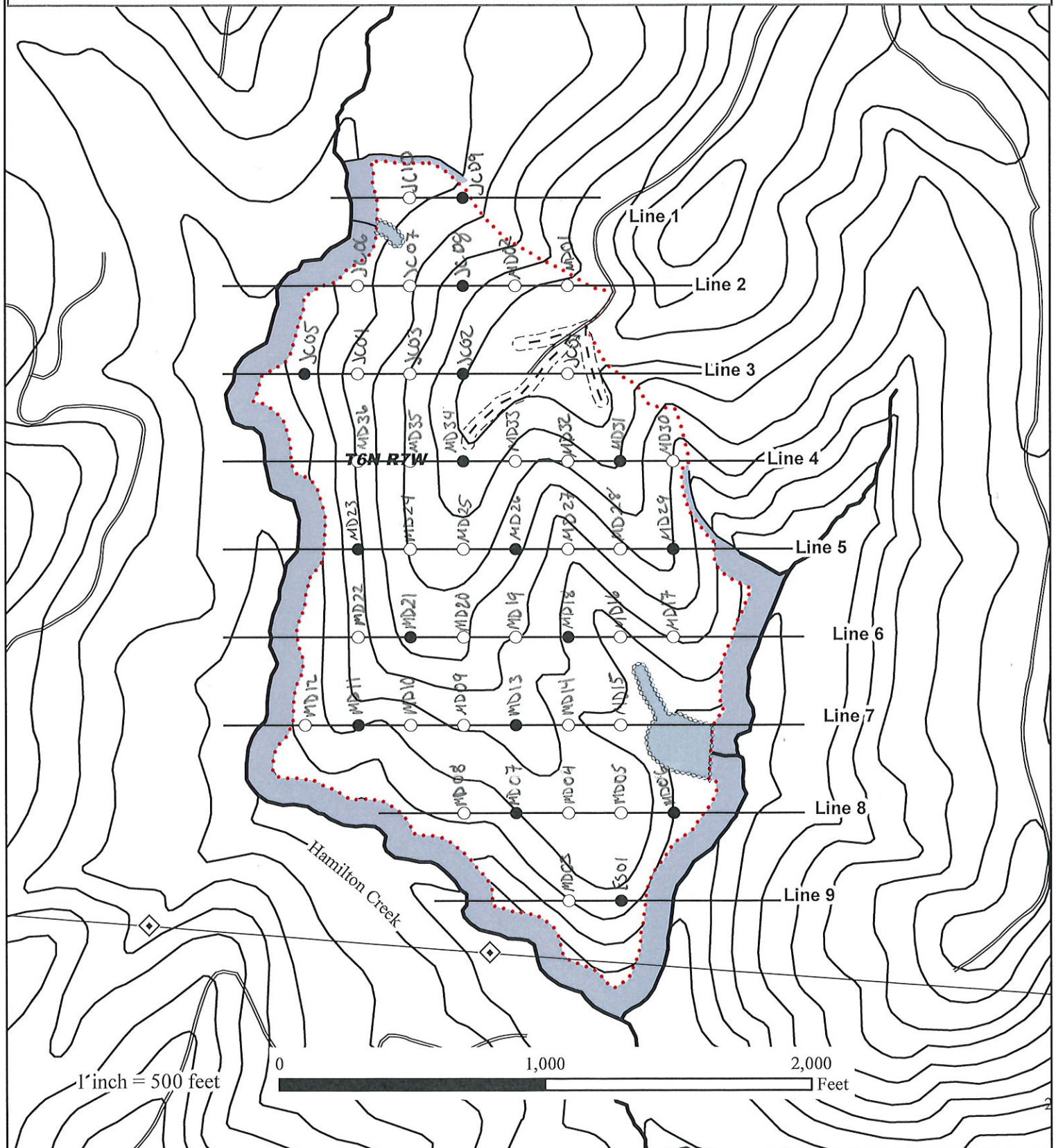
**9. Cruising Equipment:** Relaskop, Rangefinder, Biltmore Stick, Compass, Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging.

**10. Attachments:** A. Cruise Map (showing cruise unit boundaries, cruise lines and plot locations, BAF or plot size, measure/count plot ratio, north arrow, and scale bar.

Cruise Design by: Matt Dimick

Approved by: 

Date: 1-12-18





## Species, Sort Grade - Board Foot Volumes (Project)

T06N R07W S20 TyR/W 1.00  
T06N R07W S20 TyTAKE 76.00

Project: **HAWKEYE**Page **1**Acres **77.00**Date **2/23/2018**Time **7:13:15AM**

Spp	So Gr	T rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume												Average Log				Logs Per /Acre
				Def%	Gross	Net		Log Scale Dia.				Log Length								Ln Ft	Dia In	Bd Ft	CF/ Lf	
D	DOCU																			7	22		0.00	1.8
D	DO2S		85	2.1	47,119	46,129	3,552			30	70		0	0	4	96			39	17		490	2.68	94.2
D	DO3S		13	1.0	7,534	7,462	575			93	4	2	6	10	27	58			33	9		106	0.95	70.4
D	DO4S		2		659	659	5051			97	3		73	27					20	7		34	0.57	19.3
<b>D Totals</b>			<b>84</b>	<b>1.9</b>	<b>55,312</b>	<b>54,250</b>	<b>4,177</b>		<b>14</b>	<b>26</b>	<b>60</b>		<b>2</b>	<b>2</b>	<b>7</b>	<b>90</b>			<b>35</b>	<b>13</b>		<b>292</b>	<b>1.92</b>	<b>185.7</b>
S	DO2S		79	3.8	458	441	34			27	73		3		36	60			33	20		598	3.83	.7
S	DO3S		11		57	57	4			100						100			40	7		79	1.05	.7
S	DO4S		10		55	55	54			100						100			39	6		64	0.89	.9
<b>S Totals</b>			<b>1</b>	<b>3.1</b>	<b>570</b>	<b>552</b>	<b>43</b>		<b>20</b>	<b>21</b>	<b>58</b>		<b>3</b>		<b>29</b>	<b>68</b>			<b>37</b>	<b>11</b>		<b>239</b>	<b>1.78</b>	<b>2.3</b>
H	DOCU																		10	15			0.00	2.4
H	DO2S		63	2.4	6,215	6,063	467			59	41			2	9	89			38	15		332	2.08	18.2
H	DO3S		32	.9	3,037	3,011	232			98	2		5	2	21	72			36	8		95	0.83	31.7
H	DO4S		5		408	408	31			100			29	53	18				23	7		40	0.62	10.1
<b>H Totals</b>			<b>15</b>	<b>1.8</b>	<b>9,660</b>	<b>9,481</b>	<b>730</b>		<b>35</b>	<b>38</b>	<b>26</b>		<b>3</b>	<b>4</b>	<b>14</b>	<b>80</b>			<b>33</b>	<b>10</b>		<b>152</b>	<b>1.22</b>	<b>62.4</b>
A	DO4S		100		269	269	21			100						100			40	6		61	0.80	4.4
<b>A Totals</b>			<b>0</b>		<b>269</b>	<b>269</b>	<b>21</b>		<b>100</b>							<b>100</b>			<b>40</b>	<b>6</b>		<b>61</b>	<b>0.80</b>	<b>4.4</b>
<b>Totals</b>				<b>1.9</b>	<b>65,810</b>	<b>64,553</b>	<b>4,971</b>		<b>18</b>	<b>28</b>	<b>55</b>		<b>2</b>	<b>2</b>	<b>8</b>	<b>88</b>			<b>34</b>	<b>12</b>		<b>253</b>	<b>1.73</b>	<b>254.7</b>

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1				
				Project: HAWKEYE												Date		2/23/2018				
																Time		7:13:55AM				
T06N R07W S20 TTAKE																T06N R07W S20 TTAKE						
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt				
06N		07W		20		A1		TAKE		76.00		47		272		1		W				
				%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log				Logs	
									Log Scale Dia.				Log Length				Ln Dia Bd CF/					
S	So	Gr	T	Net	Def%	Gross	Net	Net MBF	4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	Per	
Spp	T	rt	ad	BdFt																	/Acre	
D		DO	CU															7	22		0.00	1.8
D		DO	2S	85	2.1	47,119	46,129	3,506			30	70	0	0	4	96	39	17	490	2.68	94.2	
D		DO	3S	13	1.0	7,534	7,462	567		93	4	2	6	10	27	58	33	9	106	0.95	70.4	
D		DO	4S	2		659	659	50		97	3		73	27			20	7	34	0.57	19.3	
D	Totals			84	1.9	55,312	54,250	4,123		14	26	60	2	2	7	90	35	13	292	1.92	185.7	
H		DO	CU														10	15		0.00	2.4	
H		DO	2S	63	2.4	6,215	6,063	461			59	41		2	9	89	38	15	332	2.08	18.2	
H		DO	3S	32	.9	3,037	3,011	229		98	2		5	2	21	72	36	8	95	0.83	31.7	
H		DO	4S	5		408	408	31		100			29	53	18		23	7	40	0.62	10.1	
H	Totals			15	1.8	9,660	9,481	721		35	38	26	3	4	14	80	33	10	152	1.22	62.4	
A		DO	4S	100		269	269	20		100						100	40	6	61	0.80	4.4	
A	Totals			0		269	269	20		100						100	40	6	61	0.80	4.4	
S		DO	2S	79	3.8	458	441	33			27	73	3		36	60	33	20	598	3.83	.7	
S		DO	3S	11		57	57	4		100						100	40	7	79	1.05	.7	
S		DO	4S	10		55	55	4		100						100	39	6	64	0.89	.9	
S	Totals			1	3.1	570	552	42		20	21	58	3		29	68	37	11	239	1.78	2.3	
Type Totals					1.9	65,810	64,553	4,906		18	28	55	2	2	8	88	34	12	253	1.73	254.7	

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page		1						
				Project: HAWKEYE										Date		2/23/2018						
														Time		7:14:13AM						
T06N R07W S20 TR/W										T06N R07W S20 TR/W												
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt				
06N		07W		20		A1		R/W		1.00		47		272		1		W				
S So Gr T rt ad Spp				% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre		
									Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/ Lf	
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft			
D DO CU																	7	22		0.00	1.8	
D DO 2S				85	2.1	47,119	46,129	46				30	70	0	0	4	96	39	17	490	2.68	94.2
D DO 3S				13	1.0	7,534	7,462	7			93	4	2	6	10	27	58	33	9	106	0.95	70.4
D DO 4S				2		659	659	1			97	3		73	27			20	7	34	0.57	19.3
D Totals				84	1.9	55,312	54,250	54			14	26	60	2	2	7	90	35	13	292	1.92	185.7
H DO CU																	10	15		0.00	2.4	
H DO 2S				63	2.4	6,215	6,063	6				59	41		2	9	89	38	15	332	2.08	18.2
H DO 3S				32	.9	3,037	3,011	3			98	2		5	2	21	72	36	8	95	0.83	31.7
H DO 4S				5		408	408	0			100			29	53	18		23	7	40	0.62	10.1
H Totals				15	1.8	9,660	9,481	9			35	38	26	3	4	14	80	33	10	152	1.22	62.4
A DO 4S				100		269	269	0			100					100	40	6	61	0.80	4.4	
A Totals				0		269	269	0			100					100	40	6	61	0.80	4.4	
S DO 2S				79	3.8	458	441	0				27	73	3		36	60	33	20	598	3.83	.7
S DO 3S				11		57	57	0			100					100	40	7	79	1.05	.7	
S DO 4S				10		55	55	0			100					100	39	6	64	0.89	.9	
S Totals				1	3.1	570	552	1			20	21	58	3		29	68	37	11	239	1.78	2.3
Type Totals					1.9	65,810	64,553	65			18	28	55	2	2	8	88	34	12	253	1.73	254.7

TC TSTATS				STATISTICS				PAGE 1			
				PROJECT HAWKEYE				DATE 2/23/2018			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
06N	07W	20	A1	TAKE	76.00	47	404	1	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		47	404	8.6							
CRUISE		31	272	8.8	8,876	3.1					
DBH COUNT											
REFOREST											
COUNT		16	132	8.3							
BLANKS											
100 %											
STAND SUMMARY											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR		191	70.0	25.7	97	49.7	251.9	55,312	54,250	12,341	12,341
WHEMLOCK		55	32.8	18.9	69	14.7	63.8	9,660	9,481	2,541	2,541
SNAG		17	7.9	20.3	68	4.0	17.9				
R ALDER		4	4.4	15.8	41	1.5	6.0	269	269	140	140
S SPRUCE		5	1.7	21.7	54	0.9	4.3	570	552	154	154
TOTAL		272	116.8	23.2	84	71.3	343.8	65,810	64,553	15,175	15,175
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	58.7	4.2	985	1,028	1,072						
WHEMLOCK	82.3	11.1	372	418	465						
SNAG											
R ALDER	8.0	4.6	60	63	65						
S SPRUCE	134.5	66.8	266	802	1,338						
TOTAL	77.9	4.7	784	822	861	242	61	27			
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	50.8	7.4	65	70	75						
WHEMLOCK	144.7	21.1	26	33	40						
SNAG	178.1	26.0	6	8	10						
R ALDER	446.8	65.1	2	4	7						
S SPRUCE	348.3	50.8	1	2	2						
TOTAL	47.1	6.9	109	117	125	89	22	10			
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15			
DOUG FIR	46.9	6.8	235	252	269						
WHEMLOCK	135.6	19.8	51	64	76						
SNAG	167.0	24.3	14	18	22						
R ALDER	419.5	61.1	2	6	10						
S SPRUCE	352.5	51.4	2	4	6						
TOTAL	32.9	4.8	327	344	360	43	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			
DOUG FIR	52.6	7.7	50,089	54,250	58,412						
WHEMLOCK	147.4	21.5	7,444	9,481	11,518						
SNAG											
R ALDER	442.1	64.4	96	269	442						
S SPRUCE	473.3	69.0	171	552	933						
TOTAL	44.3	6.5	60,387	64,553	68,719	78	20	9			

TC		PSTNDSUM		Stand Table Summary										Page		1	
														Date:		2/23/2018	
<div>T06N R07W S20 TyR/W1.00</div> <div>T06N R07W S20 TyTAKE76.00</div>				ProjectHAWKEYE										Time:		7:23:05AM	
				Acres77.00										Grown Year:			
S Spec	T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
		DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF	
D		14	6	86	79	3.701	3.96	4.94	24.0	75.0		118	370		91	29	
D		16	4	86	96	1.889	2.64	3.78	24.5	90.0		93	340		71	26	
D		17	8	85	110	3.347	5.28	7.53	28.9	106.7		218	803		168	62	
D		18	12	87	112	4.478	7.91	11.20	30.7	112.0		343	1,254		264	97	
D		19	6	85	97	2.010	3.96	4.02	37.2	125.0		149	502		115	39	
D		20	6	83	97	1.814	3.96	3.63	40.2	126.7		146	459		112	35	
D		21	18	86	105	4.935	11.87	12.06	40.4	151.4		487	1,826		375	141	
D		22	14	87	127	3.497	9.23	9.99	44.5	183.5		444	1,834		342	141	
D		23	22	86	120	5.028	14.51	13.26	49.7	197.9		658	2,624		507	202	
D		24	22	86	123	4.618	14.51	12.59	52.5	207.0		661	2,607		509	201	
D		25	16	87	132	3.095	10.55	9.29	57.4	239.6		533	2,225		410	171	
D		26	20	86	126	3.577	13.19	9.66	65.2	264.4		630	2,554		485	197	
D		27	20	85	127	3.317	13.19	8.96	70.8	288.1		634	2,581		488	199	
D		28	24	87	137	3.701	15.83	10.80	76.2	342.9		822	3,701		633	285	
D		29	28	88	138	4.026	18.46	11.50	83.8	387.5		964	4,457		742	343	
D		30	22	87	148	2.956	14.51	8.87	90.7	430.9		804	3,821		619	294	
D		31	22	86	139	2.768	14.51	8.05	91.2	422.2		734	3,400		565	262	
D		32	26	86	144	3.070	17.15	9.45	96.4	456.8		911	4,315		701	332	
D		33	10	85	136	1.110	6.59	3.11	108.4	493.6		337	1,534		259	118	
D		34	24	86	146	2.510	15.83	7.53	114.1	546.9		859	4,119		661	317	
D		35	12	88	141	1.184	7.91	3.36	120.7	595.9		405	2,000		312	154	
D		36	8	84	143	.746	5.28	2.24	123.5	580.0		277	1,299		213	100	
D		37	10	86	142	.883	6.59	2.65	127.4	636.7		338	1,687		260	130	
D		38	6	85	151	.502	3.96	1.67	129.7	662.0		217	1,109		167	85	
D		39	8	88	148	.636	5.28	1.91	152.9	792.5		292	1,512		225	116	
D		40	6	83	148	.453	3.96	1.51	136.0	689.0		206	1,041		158	80	
D		44	2	82	133	.125	1.32	.37	167.7	740.0		63	277		48	21	
D		Totals	382	86	123	69.979	251.91	183.91	67.1	295.0		12,341	54,250		9,503	4,177	
H		11	2	85	69	1.759	1.16	1.76	19.0	60.0		33	106		26	8	
H		12	4	87	78	2.955	2.32	2.96	23.5	80.0		69	236		53	18	
H		14	6	85	67	3.257	3.48	4.34	20.2	65.0		88	282		68	22	
H		15	4	87	88	1.891	2.32	3.78	23.5	85.0		89	322		68	25	
H		16	8	86	93	3.325	4.64	5.82	31.7	107.1		185	623		142	48	
H		17	6	84	66	2.209	3.48	2.95	30.0	85.0		88	250		68	19	
H		18	12	86	103	3.940	6.96	8.54	35.2	124.6		300	1,064		231	82	
H		19	14	86	109	4.126	8.12	9.43	39.5	145.6		373	1,373		287	106	
H		20	6	85	78	1.596	3.48	2.66	43.4	150.0		115	399		89	31	
H		21	4	87	82	.965	2.32	1.93	43.8	157.5		84	304		65	23	
H		22	4	85	102	.879	2.32	1.76	58.0	215.0		102	378		79	29	
H		23	4	87	103	.804	2.32	2.01	53.0	216.0		107	434		82	33	
H		24	6	86	103	1.108	3.48	2.22	66.8	250.0		148	554		114	43	
H		25	2	86	120	.340	1.16	1.02	58.3	256.7		60	262		46	20	
H		26	6	82	87	.944	3.48	1.89	64.2	246.7		121	466		93	36	
H		27	6	86	104	.876	3.48	2.04	75.6	292.9		154	598		119	46	
H		28	4	86	122	.543	2.32	1.63	73.5	335.0		120	546		92	42	
H		30	6	85	115	.709	3.48	1.89	86.6	376.2		164	712		126	55	
H		31	2	86	115	.221	1.16	.44	65.5	280.0		29	124		22	10	
H		32	2	78	93	.208	1.16	.42	107.5	320.0		45	133		34	10	
H		35	2	82	144	.174	1.16	.52	128.0	603.3		67	314		51	24	
H		Totals	110	86	90	32.830	63.83	60.00	42.3	158.0		2,541	9,481		1,956	730	
S		17	4	84	49	1.080	1.70	1.08	35.0	60.0		38	65		29	5	
S		22	2	85	91	.322	.85	.64	52.5	195.0		34	126		26	10	

TC		PSTNDSUM		Stand Table Summary										Page Date:		2 2/23/2018	
<div>T06N R07W S20 TyR/W1.00 T06N R07W S20 TyTAKE76.00</div>						ProjectHAWKEYE				Time:7:23:05AM							
						Acres77.00				Grown Year:							
S Spc	T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net		Net		Totals		
		DBH	Trees	FF	Av				Net	Net	Tons/	Cu.Ft.	Bd.Ft.	Tons	Cunits	MBF	
				16'	Ht				Cu.Ft.	Bd.Ft.	Acre	Acre	Acre				
S		30	2	86	97	.173	.85	.35	109.5	430.0		38	149		29	11	
S		44	2	85	116	.081	.85	.24	181.7	880.0		44	213		34	16	
S		Totals	10	84	65	1.656	4.26	2.31	66.4	238.8		154	552		118	43	
A		14	2	87	54	1.393	1.49	1.39	27.0	60.0		38	84		29	6	
A		15	4	87	52	2.427	2.98	2.43	30.0	60.0		73	146		56	11	
A		22	2	86	46	.564	1.49	.56	52.0	70.0		29	39		23	3	
A		Totals	8	87	52	4.385	5.96	4.38	31.9	61.3		140	269		108	21	
SN		13	2	89	86	1.141	1.05										
SN		15	4	88	55	1.713	2.10										
SN		16	2	88	75	.753	1.05										
SN		18	2	86	89	.595	1.05										
SN		21	6	88	35	1.311	3.15										
SN		22	2	89	85	.398	1.05										
SN		23	2	89	86	.364	1.05										
SN		24	4	89	99	.669	2.10										
SN		26	2	86	89	.285	1.05										
SN		28	2	89	70	.246	1.05										
SN		29	2	77	52	.229	1.05										
SN		40	2	88	54	.120	1.05										
SN		42	2	88	40	.109	1.05										
SN		Totals	34	88	69	7.935	17.87										
Totals			544	86	107	116.785	343.83	250.61	60.6	257.6		15,175	64,553		11,685	4,971	

TC PLOGSTVB			Log Stock Table - MBF																
T06N R07W S20 TyR/W 1.00 T06N R07W S20 TyTAKE 76.00				Project: HAWKEYE Acres 77.00												Page 1 Date 2/23/2018 Time 7:23:26AM			
Spp	S T	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D		DO 2S	12	1		1	.0					1							
D		DO 2S	16	9		9	.2											9	
D		DO 2S	20	1		1	.0						1						
D		DO 2S	30	2		2	.1					2							
D		DO 2S	32	136	6.6	127	3.0					58	33	25			11		
D		DO 2S	38	7		7	.2							7					
D		DO 2S	40	3,472	1.9	3,404	81.5					225	480	1120	1010	569			
D		DO 3S	12	2		2	.0				1			1					
D		DO 3S	16	8		8	.2			1		4	3						
D		DO 3S	18	2		2	.1			2									
D		DO 3S	20	20		20	.5			2	6	12							
D		DO 3S	24	22		22	.5				9	9	3						
D		DO 3S	26	9		9	.2			2	1	7							
D		DO 3S	28	15		15	.4				2	14							
D		DO 3S	30	9		9	.2			3	3	2							
D		DO 3S	32	148		147	3.5			19	46	59	10				14		
D		DO 3S	34	10		10	.2				2	5	2						
D		DO 3S	36	4		4	.1				4								
D		DO 3S	38	15		15	.4			6	2	7							
D		DO 3S	40	315	1.3	311	7.5			33	56	217	5						
D		DO 4S	16	17		17	.4			8	8								
D		DO 4S	18	3		3	.1			2	1								
D		DO 4S	20	18		18	.4			10	6		1						
D		DO 4S	24	10		10	.3			6	4								
D		DO 4S	26	1		1	.0				1								
D		DO 4S	30	2		2	.0			2									
D		Totals		4,259	1.9	4,177	84.0			96	154	336	311	515	1152	1010	594	9	
S		DO 2S	20	1		1	2.6							1					
S		DO 2S	32	13	2.0	12	29.0								8	4			
S		DO 2S	40	22	5.1	20	48.1									10		11	
S		DO 3S	38	2		2	4.4					2							
S		DO 3S	40	2		2	5.9			2									
S		DO 4S	38	2		2	5.9			2									
S		DO 4S	40	2		2	4.1			2									
S		Totals		44	3.1	43	.9			7		2		1	8	14		11	

TC PLOGSTVB		Log Stock Table - MBF																	
T06N R07W S20 TyR/W T06N R07W S20 TyTAKE		1.00 76.00		Project: HAWKEYE Acres 77.00		Page 2 Date 2/23/2018 Time 7:23:26AM													
S T Spp	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
H	DO	2S	30	11	20.6	9	1.2										9		
H	DO	2S	32	44		44	6.1					39	6						
H	DO	2S	40	423	2.2	413	56.6					104	79	160			56	15	
H	DO	3S	16	2		2	.3				1	1							
H	DO	3S	20	9		9	1.2			4	4	1							
H	DO	3S	24	2		2	.2					2							
H	DO	3S	28	3		3	.4					3							
H	DO	3S	32	42		42	5.7			8	4	31							
H	DO	3S	34	7		7	1.0			3		4							
H	DO	3S	36	2		2	.3				2								
H	DO	3S	38	3		3	.4			3									
H	DO	3S	40	164	1.2	162	22.2			39	47	71	5						
H	DO	4S	12	3		3	.4				3								
H	DO	4S	16	1		1	.2			1									
H	DO	4S	20	5		5	.6			3	1								
H	DO	4S	24	11		11	1.5			6	5								
H	DO	4S	28	4		4	.5				4								
H	DO	4S	30	2		2	.3			2									
H	DO	4S	32	6		6	.8			1	4								
H	Totals			744	1.8	730	14.7			70	75	113	147	84	160		65	15	
A	DO	4S	40	21		21	100.0			21									
A	Totals			21		21	.4			21									
Total	All Species			5,067	1.9	4,971	100.0			194	229	451	458	601	1319	1089	610	20	

# Legend

- Ownership Boundary
- Timber Sale Boundary
- Type F Stream
- Type N stream
- Non-Posted Buffer
- Posted Buffer
- Surfaced Roads
- New Road Construction - Unsurfaced
- Landing Construction
- Survey monuments

1 inch = 1,000 feet

0 500 1,000 2,000 Feet

## LOGGING PLAN

OF TIMBER SALE CONTRACT 314-18-45

HAWKEYE

PORTIONS OF SECTION 20 AND 29,

T6N, R7W, W.M.,

CLATSOP COUNTY, OREGON

Area 1 (MC)= 76

Area 2 (R/W) = 1

Total Acres = 77

