



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
West Sager
Sale AT-341-2019-30-

District: Astoria

Date: June 29, 2018

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$2,345,651.82	\$13,168.49	\$2,358,820.31
		Project Work:	(\$51,653.00)
		Advertised Value:	\$2,307,167.31



Timber Sale Appraisal West Sager Sale AT-341-2019-30-

District: Astoria

Date: June 29, 2018

Timber Description

Location: Portions of Sections 10 & 11 T5N, R6W, and Portions of Sections 22, 26, & 27 T6N, R6W; W.M., Clatsop County Oregon

Stand Stocking: 80%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	23	0	99
Western Hemlock / Fir	21	0	98
Alder (Red)	13	0	99

Volume by Grade	2S	3S & 4S 6"-11"	10" - 11"	6" - 7"	Total
Douglas - Fir	3,231	719	0	0	3,950
Western Hemlock / Fir	155	37	0	0	192
Alder (Red)	0	0	13	18	31
Total	3,386	756	13	18	4,173

Comments: Pond Values Used: 1st Quarter Calendar Year 2018 + Local Pond Values, April, 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:
\$1,228.33 /MBF = \$1,500/MBF - \$271.67/MBF

BRANDING AND PAINTING COST ALLOWANCE = \$2.00/MBF

FUEL COST ALLOWANCE = \$3.00/Gallon

HAULING COST ALLOWANCE
Hauling costs equivalent to \$950 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)= \$14,055
TOTAL Other Costs (with Profit & Risk to be added) = \$16,055

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



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Logging Conditions

Combination#: 1 Douglas - Fir 27.00%
 Western Hemlock / Fir 27.00%
 Alder (Red) 27.00%

Logging System: Cable: Medium Tower >40 - <70 **Process:** Manual Falling/Delimbing

yarding distance: Medium (800 ft) **downhill yarding:** No

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

loads / day: 8 **bd. ft / load:** 4500

cost / mbf: \$183.33

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

Combination#: 2 Douglas - Fir 73.00%
 Western Hemlock / Fir 73.00%
 Alder (Red) 73.00%

Logging System: Shovel **Process:** Manual Falling/Delimbing

yarding distance: Medium (800 ft) **downhill yarding:** No

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

loads / day: 10 **bd. ft / load:** 4000

cost / mbf: \$98.44

machines: Shovel Logger



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Logging Costs

Operating Seasons: 3.00	Profit Risk: 12%
Project Costs: \$51,653.00	Other Costs (P/R): \$16,055.00
Slash Disposal: \$0.00	Other Costs: \$0.00

Miles of Road

Road Maintenance: \$4.65

Dirt	Rock (Contractor)	Rock (State)	Paved
0.0	0.0	0.0	0.0

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$105.56	2.0	4.5
Western Hemlock / Fir	\$105.56	2.0	4.5
Alder (Red)	\$143.94	2.0	3.3



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Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
Douglas - Fir									
\$121.36	\$4.70	\$3.16	\$106.62	\$3.85	\$28.76	\$0.00	\$2.00	\$0.00	\$270.45
Western Hemlock / Fir									
\$121.36	\$4.74	\$3.16	\$107.67	\$3.85	\$28.89	\$0.00	\$2.00	\$0.00	\$271.67
Alder (Red)									
\$121.36	\$4.70	\$3.16	\$145.38	\$3.85	\$33.41	\$0.00	\$2.00	\$0.00	\$313.86

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$843.18	\$572.73	\$0.00
Western Hemlock / Fir	\$0.00	\$705.88	\$434.21	\$0.00
Alder (Red)	\$0.00	\$738.65	\$424.79	\$0.00



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Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	3,950	\$572.73	\$2,262,283.50
Western Hemlock / Fir	192	\$434.21	\$83,368.32
Alder (Red)	31	\$424.79	\$13,168.49

Gross Timber Sale Value

Recovery: \$2,358,820.31

Prepared By: Matt Dimick

Phone: 503-325-5451

SUMMARY OF ALL PROJECT COSTS

SALE NAME: West Sager

ROAD CONSTRUCTION:

Project No. 1	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
	<u>1A, 2A to 2B, 2C, 2D, 3A</u>	<u>9.80</u>	<u>\$11,488</u>
	TOTALS	9.80	\$11,488

ROAD IMPROVEMENT:

Project No. 2	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
	<u>11 to 12, 13 to 14, 15 to 16</u>		
	<u>17 to 18, 19 to 110</u>	<u>183.95</u>	<u>\$30,512</u>
	TOTALS	183.95	\$30,512

SPECIAL PROJECTS:

Project No. 3	<u>Description</u>	<u>Cost</u>
	<u>Vacating</u>	<u>\$1,246</u>
	TOTAL	\$1,246

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
<u>Dozer (D8)</u>	<u>\$1,406.00</u>
<u>Excavator (C330)</u>	<u>\$1,406.00</u>
<u>Excavator (C315)</u>	<u>\$805.00</u>
<u>Dump Trucks (10-12cy x 6)</u>	<u>\$978.00</u>
<u>Dump Trucks w/ pup (20cy x 2)</u>	<u>\$382.00</u>
<u>Front End Loader (C966)</u>	<u>\$778.00</u>
<u>Front End Loader (C966)(Cow Creek S.P. to Deep Creek S.P.)</u>	<u>\$584.00</u>
<u>Backhoe (C 580)</u>	<u>\$321.00</u>
<u>Grader (14G)</u>	<u>\$778.00</u>
<u>Vibratory Roller</u>	<u>\$778.00</u>
<u>Water Truck (2,500 gallon)</u>	<u>\$190.00</u>
TOTAL	\$8,406.00

GRAND TOTAL / **\$51,653**

Compiled By: W. Lawrence FL Date: 06/04/2018

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: West Sager

NEW CONSTRUCTION: 9.80 STATIONS

0.19 MILES

ROAD: 1A, 2A-2B (9.80 sta.), 2C, 2D, 3A

IMPROVEMENT: STATIONS

0.00 MILES

POINTS:

CLEARING & GRUBBING

	Method	Acres/amount	x	Rate	=	Cost
1A	Landing construction, scatter outside r/w	0.20	x	\$ 1,337	=	\$267.40
2A-2B	Reconstruction spur, scatter outside r/w	1.10	x	\$ 690	=	\$759.00
2B	Reconstruction landing, scatter outside r/w	0.20	x	\$ 690	=	\$138.00
2C	Reconstruction landing, scatter outside r/w	0.20	x	\$ 690	=	\$138.00
2D	Reconstruction landing, scatter outside r/w	0.20	x	\$ 690	=	\$138.00
3A	Reconstruction landing, scatter outside r/w	0.20	x	\$ 690	=	\$138.00
SUB TOTAL FOR CLEARING & GRUBBING						\$1,578

EXCAVATION

	Material	Cy/amount	x	Rate	=	Cost
1A	Landing construction (\$/Landing)	1	x	\$389.00	=	\$389.00
2A-2B	Subgrade reconstruction (\$/Sta.)	9.80	x	\$95.00	=	\$931.00
2B	Landing reconstruction (\$/Landing)	1	x	\$194.50	=	\$194.50
2C	Landing reconstruction (\$/Landing)	1	x	\$194.50	=	\$194.50
2D	Landing reconstruction (\$/Landing)	1	x	\$194.50	=	\$194.50
3A	Landing reconstruction (\$/Landing)	1	x	\$194.50	=	\$194.50
SUB TOTAL FOR EXCAVATION						\$2,098

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost	
2A to 2B										
0+00	18	30	\$19.53	\$585.90						
Other/miscellaneous:					Description		Quantity	Rate	Cost	
Culvert stakes & markers:										
					Culvert Marker	1	\$20.00	\$20.00		
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION										\$606

SURFACING					Stations/ amount	x	Rate/ sta/amt	Cost		
Subgrade prep:										
Description										
Grade, Shape and Ditch 16' (2A-2B)					9.80	x	\$24.83	\$243.33		
Subgrade Compaction (2A-2B)					9.80	x	\$20.19	\$197.86		
ROAD SEGMENT 1A					POINT TO POINT		Sta. to Sta.			
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A		0+00		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
				Volume (CY) per		Number of				
Junction rock	1 1/2"-0" crushed*	0+00	N/A	load	11	loads	1.00	11	\$5.56	\$61
Landing	6"-0" pit-run	0+00	N/A	landing	50	landings	1.00	50	\$9.70	\$485
Total Rock for Road Segment:					1A			61		\$546
ROAD SEGMENT 2A to 2B					POINT TO POINT		Sta. to Sta.			
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B		0+00 to 9+80		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
				Volume (CY) per		Number of				
Junction rock	5"-0" crushed***	0+00	N/A	load	11	loads	1.00	11	\$3.02	\$33
Base Rock	5"-0" crushed***	0+00 to 9+80	10	station	83	stations	9.80	617	\$3.02	\$1,865
Landing	6"-0" pit-run	9+80	N/A	landing	70	landings	1.00	70	\$9.70	\$679
Culvert Bedding/Backfill	1 1/2"-0" crushed***	0+00	N/A	load	11	loads	2.00	22	\$3.02	\$66
Total Rock for Road Segment:					2A to 2B			720		\$2,643
ROAD SEGMENT 2C					POINT TO POINT		Sta. to Sta.			
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C		0+00		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
				Volume (CY) per		Number of				
Junction rock	5"-0" crushed***	0+00	N/A	load	11	loads	1.00	11	\$3.02	\$33
Landing	6"-0" pit-run	0+00	N/A	landing	70	landings	1.00	70	\$9.70	\$679
Total Rock for Road Segment:					2C			81		\$712
ROAD SEGMENT 2D					POINT TO POINT		Sta. to Sta.			
Application	Rock Size and Type	Location	Depth of Rock (inches)	2D		0+00		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
				Volume (CY) per		Number of				
Junction rock	5"-0" crushed***	0+00	N/A	load	11	loads	1.00	11	\$3.02	\$33
Landing	6"-0" pit-run	0+00	N/A	landing	70	landings	1.00	70	\$9.70	\$679
Total Rock for Road Segment:					2D			81		\$712
ROAD SEGMENT 3A					POINT TO POINT		Sta. to Sta.			
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A		0+00		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
				Volume (CY) per		Number of				
Junction rock	4"-0" crushed**	0+00	N/A	load	11	loads	1.00	11	\$5.49	\$60
Landing	6"-0" pit-run	0+00	N/A	landing	70	landings	1.00	70	\$9.70	\$679
Total Rock for Road Segment:					3A			81		\$739
Processing:					Description			No.sta	Rate/sta	Cost
					Water, Process, and Compact			9.80	\$56.48	\$553.50
					6"-0"pr	5"-0" crushed***	1 1/2"-0" crushed***	4"-0" crushed**	1 1/2"-0" crushed*	Total
					330	650	22	11	11	1,024
SUB TOTAL FOR SURFACING										

\$6,348

* Northrup Creek Stockpile Rock

** Cow Creek Stockpile Rock

*** Deep Creek Stockpile Rock

SPECIAL PROJECTS			
Description			Cost
6"-0" pit-run development			(\$2.50/CY) \$ 858.00
SUB TOTAL FOR SPECIAL PROJECTS			\$858
			Subtotal of Surfacing & Spec. Proj.
			\$7,206
			Subtotal of Clearing, Exc.,Culv.
			\$4,282
GRAND TOTAL			\$11,488

Compiled By: W. Lawrence

Date: 06/04/2018

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: West Sager

NEW CONSTRUCTION:

STATIONS

0.00 MILES

ROAD: 11-12(41.30 sta.), 13 to 14(4.85 sta.)

IMPROVEMENT:

183.95 STATIONS

3.48 MILES

POINTS: 15 to 16(83.60 sta.), 17 to 18(39.50 sta.), 19 to 110(14.70 sta.)

CLEARING & GRUBBING

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

SUB TOTAL FOR CLEARING & GRUBBING

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
11 to 12					
0+00 Improve culvert outlet (Labor Hrs.)	0.5	x	\$40.00	=	\$20.00
8+80 Construct road block on right (C315 Hrs.)	1.0	x	\$101.00	=	\$101.00
15+80 Construct ditchout left (C315 Hrs.)	0.5	x	\$101.00	=	\$50.50
15 to 16					
32+90 Install ditch filter (C315 Hrs.)	1.0	x	\$101.00	=	\$101.00
33+50 Install ditch filter (C315 Hrs.)	1.0	x	\$101.00	=	\$101.00
35+60 Install dissipator (C315 Hrs.)	1.0	x	\$101.00	=	\$101.00
17 to 18					
26+40 Improve culvert outlet (Labor Hrs.)	1.0	x	\$40.00	=	\$40.00

SUB TOTAL FOR EXCAVATION

\$515

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
11 to 12									
4+00	18	30	\$19.53	\$585.90					
15 to 16									
35+60	18	30	\$19.53	\$585.90					
70+65	18	30	\$19.53	\$585.90					

Other/miscellaneous:

Culvert stakes & markers:

Description	Quantity	Rate	Cost
Culvert Markers	12	\$20.00	\$240.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$1,998

Subtotal of Clearing, Exc., Culv.

\$2,512

West Sager Timber Sale
Vacating Costs V1 to V2

Work Description	Station	Pump	C315	D24 trk	D10/1 2 trk	D-8	Labor	Straw- bales	Seed-lbs
V1 to V2									
Walk equipment to back end of project			0.50						
V1: Road block / Waterbar	0+00		1.00				0.50	1	1
Waterbar	3+00		0.50						
Waterbar	6+60		0.50						
Remove culvert / Waterbar	8+50		1.00				0.50	1	1
Large Waterbar	14+40		1.00						
V2: Remove culvert / Waterbar	15+50		1.00				0.50	1	1
Haul off old culverts					6.00				
Total Quantity (Hours)		0.00	5.50	0	6	0	1.5	3	3
Rates		\$10.00	\$101.00	\$127.00	\$99.00	\$158.00	\$40.00	\$10.73	\$1.60
Total Dollars		\$0	\$556	\$0	\$594	\$0	\$60	\$32	\$5

Total Cost

\$1,246

CRUSHED ROCK COST

SALE NAME:	West Sager
PROJECT:	Nos. 1 and 2
Stockpile:	Northrup Creek Stockpile

MATERIAL: 1 1/2"-0"

DATE: 06/04/2018
BY: W. Lawrence

[illegible]

ROCK HAUL:

Truck type:	<u>D20</u>	No. trucks:	<u>2</u>
Delay min.:	<u>8</u>	Efficiency:	<u>85%</u>

Ave haul:	\$4.23	/cy
Load:	\$0.48	/cy
Spread:	\$0.84	/cy

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

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

Production: cy/day = 975

CRUSHED ROCK HAUL COSTS 562 cy @ \$5.56 /cy

CRUSHED ROCK COST

SALE NAME:	West Sager
PROJECT:	Nos. 1 & 2
Stockpile:	Cow Creek Stockpile

MATERIAL: 4"-0"

DATE: 05/03/2018
BY: W. Lawrence

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	
3A		11	1.30	1.50	1.30	0.50	0.40	0.10	0.10	5.20
I3 to I4	4.85	154	1.30	1.50	0.50	0.50	0.40	0.30	0.10	4.60
I5 to I6	37.10	1,159	1.30	1.50	0.80	0.80	0.50	0.40	0.20	5.50
TOTAL	41.95	1,324								AVERAGE
	STA./NO.	CU. YD.								HAUL
CUBIC YARD WEIGHTED HAUL			1.30	1.50	0.77	0.76	0.49	0.39	0.19	5.39
Average Round Trip Distance (miles)									10.79	

ROCK HAUL:

Truck type: D20 No. trucks: 2
 Delay min.: 8 Efficiency: 85%

Ave haul:	\$4.17	/cy
Load:	\$0.48	/cy
Spread:	\$0.84	/cy

Truck type:	D12	No. trucks:	4
Delay min.:	6	Efficiency:	85%

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

Production: cy/day = 989

CRUSHED ROCK HAUL COSTS 1,324 cy @ \$5.49 /cy

CRUSHED ROCK COST

SALE NAME:	West Sager
PROJECT:	Nos. 1 & 2
Stockpile:	Deep Creek Stockpile

MATERIAL: 5"-0" & 1 1/2"-0"

DATE: 05/09/2018
BY: W. Lawrence

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	
2A to 2B	9.80	650		1.00	0.50	0.20	0.20	0.20	0.10	2.20
2C		11		1.00	0.30	0.20	0.20	0.20	0.10	2.00
2D		11		1.00	0.40	0.20	0.20	0.20	0.10	2.10
I9 to I10	14.70	423		1.00	0.30	0.20	0.20	0.20	0.10	

ROCK HAUL:

Truck type:	<u>D20</u>	No. trucks:	<u>2</u>
Delay min.:	<u>8</u>	Efficiency:	<u>85%</u>

Ave haul:	\$2.24	/cy
Load:	\$0.30	/cy
Spread:	\$0.48	/cy

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

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

Production: cy/day = 1,845

CRUSHED ROCK HAUL COSTS 1,095 cy @ \$3.02 /cy

PIT RUN ROCK COST

SALE NAME:	West Sager
PROJECT:	No. 1
QUARRY:	Northrup Creek Quarry

MATERIAL: $\frac{6''-0'', 6''-4'' \text{ Pit Run}}{24''-6'' \text{ Riprap}}$

DATE: 05/09/2018
BY: W. Lawrence

[illegible]

ROCK HAUL:

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

Ave haul:	\$7.30	/cy
Load:	\$0.84	/cy
Spread:	\$1.56	/cy

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

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

Production: cy/day = 519

* RUN & RIPRAP ROCK HAUL COS	374 cy @	\$9.70 /cy
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PIT RUN ROCK COST

SALE NAME: West Sager
PROJECT: No. 1
QUARRY: Northrup Creek Quarry

MATERIAL: 6"-0" Pit Run

DATE: 05/09/2018
BY: W. Lawrence

[illegible]

ROCK HAUL:

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

Ave haul:	\$4.79	/cy
Load:	\$0.60	/cy
Spread:	\$1.08	/cy

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

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

Production: cy/day = 792

PIT RUN ROCK HAUL COSTS

120 cy @ \$6.47 /cy

PIT RUN ROCK COST

SALE NAME:	West Sager
PROJECT:	No. 1
QUARRY:	Green Mtn. No. 1 Quarry

MATERIAL: 6"-0" Pit Run

DATE: 05/09/2018
BY: W. Lawrence

[illegible]

ROCK HAUL:

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

Ave haul:	\$6.57	/cy
Load:	\$0.84	/cy
Spread:	\$1.56	/cy

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

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

Production: cy/day = 577

PIT RUN ROCK HAUL COSTS

210 cy @ \$8.97 /cy

Road Maintenance Cost Summary

Sale: West Sager
Date: 09-May-18
By: M. Dimick

MBF: 4,173
\$/MBF: \$4.65

Type	Equipment/Rationale	Move In	Times	Hours	Rate	Cost
Progressive Operations 1st Entry	Grader 14G	\$778	1	8	\$100	\$1,578
	Dump Truck 12CY	\$326	1	8	\$79	\$958
	FE Loader C966	\$778	1	8	\$83	\$1,442
	Vibratory Roller	\$778	1	8	\$77	\$1,394
Final Haul Maintenance Haul Route	Grader 14G	\$778	1	32	\$100	\$3,978
	Dump Truck 12CY	\$326	1	8	\$79	\$958
	Vibratory Roller	\$778	1	32	\$77	\$3,242
	FE Loader C966	\$778	1	8	\$83	\$1,442
	Rubber Tire Backhoe	\$321	1	8	\$77	\$937
	Laborer	\$0	1	8	\$40	\$320
Total	Water Truck 2,500 gallon	\$326	1	32	\$89	\$3,174
						\$19,423

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

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	6.0	4.0
Vibratory Roller	1.5	6.0	4.0

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

Site Prep Appraisal									
Sale Number:		341-19-30		Vegetation Type/Zone		Vegetation Type/Zone Code		Production Rate (hr/ac)	
Sale Name:		West Sager		Doug-fir		A		1.0	
Date:		05/24/2018		Hemlock/Fir		B		1.5	
				Hemlock/Spruce		C		2.0	
				Hemlock		D		2.0	
				Conifer/Hardwood		E		1.0	
								0.5	

**West Sager
TIMBER CRUISE REPORT
FY 2019**

1. Sale Area Location: Areas 1, 2, and 3 are located in portions of Sections 22, 26, and 27, T6N, R6W, and portions of Sections 10 and 11, T5N, R6W, 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	26	1	2	-	23	GIS
2	Modified Clearcut	44	2		1	41	GIS
3	Modified Clearcut	60	13	2		45	GIS
4	R/W	1	-	-	-	1	GIS
TOTALS		131	16	4	1	110	

4. Cruisers and Cruise Dates:

The area was cruised by Ella Salkeld, Cody Valencia, Kevin Berry, Kellen Salsina, and Matt Dimick during May 2018.

5. Cruise Method and Computation:

Areas 1 and 3 are modified clearcut units and were variable plot cruised using a 40 BAF. These plots are located on a 3 chain by 3 chain grid, with 2 to 1 grade and measure plots to count plots. A total of 47 plots were sampled, with 18 graded plots, and 29 count plots. One count plot was graded to grade a cedar.

Area 2 is a modified clearcut unit and was variable plot cruised using a 40 BAF. These plots are located on a 3 chain by 3 chain grid, with 2 to 1 grade and measure plots to count plots. A total of 46 plots were sampled, with 18 graded plots, and 28 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 and 3	WS	A13	MC	68
2	WS	A2	MC	41
4 (R/W)	WS	A2	R/W	1

6. Timber Description:

Areas 1 and 3 are modified clearcut units, approximately 52 to 80 years-old, consisting of Douglas-fir, western hemlock, red alder, grand-fir, and cedar. The average Douglas-fir tree size is 20 inches DBH, with an average bole height of 80 feet. The average western hemlock is 27 inches DBH with an average height of 79 feet. The average red alder tree size 11 inches DBH with an average height of 19 feet to a merchantable top (7 inch d.o.b). The average grand-fir tree size 26 inches DBH with an average bole height of 87 feet. The net volume per acre to be harvested is 28.8 MBF/acre.

Area 2 is a modified clearcut unit, approximately 81 years-old, consisting of Douglas-fir, western hemlock, and red alder. The average Douglas-fir tree size is 26 inches DBH, with an average bole height of 95 feet. The average western hemlock is 14 inches DBH with an average height of 36 feet to a merchantable top (7 inch d.o.b). The average red alder tree size 15 inches DBH with an average height of 43 feet to a merchantable top (7 inch d.o.b). The net volume per acre to be harvested is 52.7 MBF/acre.

Area 2 R/W is similar to the timber description mentioned above in Area 2. The average volume per acre to be harvested is 52.7 MBF/acre.

7. Statistical Analysis and Stand Summary

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1 and 3	45.0%	8%	45.4%	6.6%
2	45.0%	8%	28.2%	4.2%

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	22.5"	3,950	3,231	662	57	1%	94%
Hemlock / True Fir	20.9"	192	155	31	6	2%	5%

Hardwoods

Species	DBH	Net Vol. MBF	12"+	10-12"	8-10"	6-7"	% D & B	% Sale
Red Alder	13.4"	31	-	13	-	18	<1%	1%

Species	Net Vol. MBF
Douglas-fir	3,950
Western hemlock	192
Red alder	31
Total	4,173

9. Approvals:

Prepared by: Matt Dimick

Date: 5/14/2018

Unit Forester Approval: 

Date: 5/14/18

10. Attachments:

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

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: West Sager **Area** 2

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 41 **Estimated CV%** 45 Net BF or
BA/Acre **SE% Objective** 8

Planned Sale Volume: 5,096 MBF **Estimated Sale Area Value/Acre:** \$ 22,648

A. Cruise Goals: (a) Grade minimum 68 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) N and S

Cruise Line Spacing 3 chains (198 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); GF (Grand fir); SF (Silver fir); A (Red alder); M (Bigleaf maple); CL (Western red cedar)
Sort: Use code "1" (Domestic).

B. 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: 5-1-18

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: West Sager **Area(s)** 1 and 3

Harvest Type: Modified Clearcut

Approx. Cruise Acres: 68 **Estimated CV%** 45 Net BF or
BA/Acre **SE% Objective** 8

Planned Sale Volume: 5,096 MBF **Estimated Sale Area Value/Acre:** \$ 22,648

A. Cruise Goals: (a) Grade minimum 68 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 and W

Cruise Line Spacing 3 chains (198 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); GF (Grand fir); SF (Silver fir); A (Red alder); M (Bigleaf maple); CL (Western red cedar)
Sort: Use code "1" (Domestic).

B. 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: 5-1-18



West Sager FY2019

Portions of Sections 22, 26 & 27, T6N, R6W,
and Portion of Sections 10, & 11,
T5N, R6W, W.M.,
Clatsop County, Oregon.

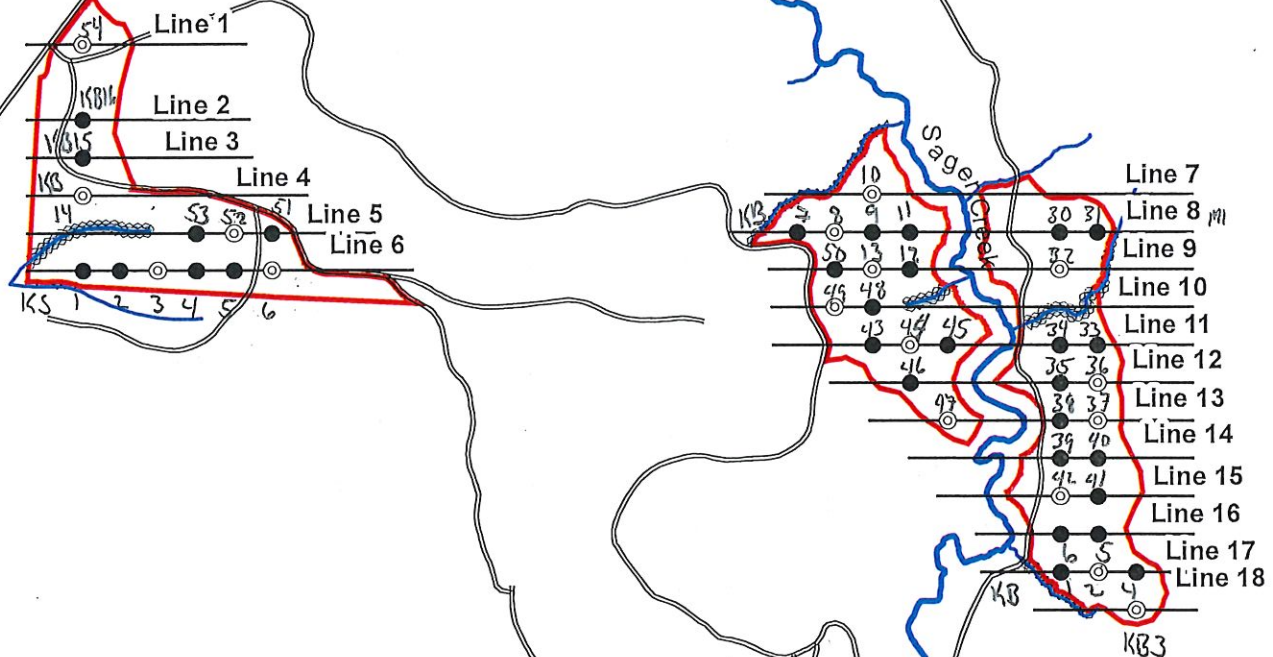
Area 1 (MC) = 23 Acres
Area 2 (MC) = 41 Acres
Area 3 (MC) = 45 Acres
Area 4 (R/W) = 1 Acres

Total MC Acres = 109
Total R/W Acres = 1

Area 1 and 3

Cruise Direction 90 and 270
Line Spacing 3 chains (198 feet)
Plot Spacing 3 Chains (198 feet)

Grade plots 17
Count plots 29



Legend

⊙ Grade_Plot

● Count Plot

— Fish

— Nonfish

▭ Timber_Sale_Boundary

0 500 1,000 2,000
Feet



West Sager FY2019

Portions of Sections 22, 26 & 27, T6N, R6W,
and Portion of Sections 10, & 11,
T5N, R6W, W.M.,
Clatsop County, Oregon.

Area 1 (MC) = 23 Acres
Area 2 (MC) = 41 Acres
Area 3 (MC) = 45 Acres
Area 4 (R/W) = 1 Acres

Total MC Acres = 109
Total R/W Acres = 1

Area 2

Cruise Direction 0 and 180
Line Spacing 3 chains (198 feet)
Plot Spacing 3 Chains (198 feet)

Grade plots 17
Count plots 29

Legend

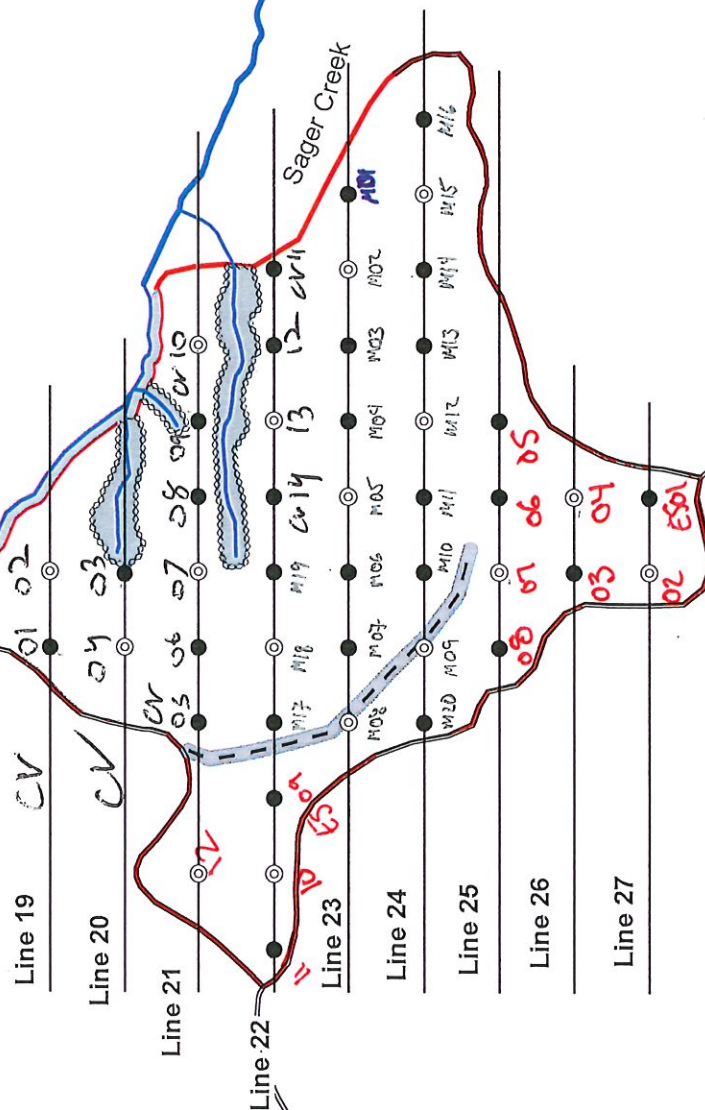
- ⊙ Grade_Plot
- Count Plot

— Fish

— Nonfish

— Timber_Sale_Boundary

0 250 500 1,000
Feet



TC TSTATS				STATISTICS				PAGE	1		
				PROJECT WS				DATE	5/15/2018		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	11	A2	R/W	1.00	46	272	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		46	272	5.9							
CRUISE		18	99	5.5	70	140.8					
DBH COUNT											
REFOREST											
COUNT		28	166	5.9							
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
DOUG FIR		94	58.2	26.5	95	43.3	222.6	51,743	51,182	11,232	
WHEMLOCK		3	6.4	14.2	36	1.8	7.0	949	942	234	
R ALDER		2	5.7	14.9	43	1.8	7.0	621	621	205	
TOTAL		99	70.3	24.8	86	47.5	236.5	53,313	52,746	11,670	
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		65.3	6.7	1,184	1,270	1,356					
WHEMLOCK		162.5	112.4		727	1,544					
R ALDER		90.0	84.3	26	165	304					
TOTAL		68.7	6.9	1,146	1,231	1,316	188	47	21		
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		40.4	5.9	55	58	62					
WHEMLOCK		239.3	35.2	4	6	9					
R ALDER		375.5	55.3	3	6	9					
TOTAL		46.4	6.8	66	70	75	86	21	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		29.3	4.3	213	223	232					
WHEMLOCK		220.4	32.5	5	7	9					
R ALDER		369.8	54.5	3	7	11					
TOTAL		27.1	4.0	227	237	246	29	7	3		
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		30.2	4.5	48,902	51,182	53,462					
WHEMLOCK		253.1	37.3	591	942	1,293					
R ALDER		370.2	54.5	283	621	960					
TOTAL		28.2	4.2	50,556	52,746	54,935	32	8	4		

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	WS			DATE	5/15/2018		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	11	A2	TAKE	41.00	46	272	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		46	272	5.9							
CRUISE		18	99	5.5	2,883		3.4				
DBH COUNT											
REFOREST											
COUNT		28	166	5.9							
BLANKS											
100 %											
STAND SUMMARY											
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET	
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC	
DOUG FIR		94	58.2	26.5	95	43.3	222.6	51,743	51,182	11,232	11,218
WHEMLOCK		3	6.4	14.2	36	1.8	7.0	949	942	234	234
R ALDER		2	5.7	14.9	43	1.8	7.0	621	621	205	205
TOTAL		99	70.3	24.8	86	47.5	236.5	53,313	52,746	11,670	11,657
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		65.3	6.7	1,184	1,270	1,356					
WHEMLOCK		162.5	112.4		727	1,544					
R ALDER		90.0	84.3	26	165	304					
TOTAL		68.7	6.9	1,146	1,231	1,316	188	47	21		
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		40.4	5.9	55	58	62					
WHEMLOCK		239.3	35.2	4	6	9					
R ALDER		375.5	55.3	3	6	9					
TOTAL		46.4	6.8	66	70	75	86	21	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		29.3	4.3	213	223	232					
WHEMLOCK		220.4	32.5	5	7	9					
R ALDER		369.8	54.5	3	7	11					
TOTAL		27.1	4.0	227	237	246	29	7	3		
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		30.2	4.5	48,902	51,182	53,462					
WHEMLOCK		253.1	37.3	591	942	1,293					
R ALDER		370.2	54.5	283	621	960					
TOTAL		28.2	4.2	50,556	52,746	54,935	32	8	4		

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT	WS	DATE 5/15/2018				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
05N	06W	11	A13	TAKE	68.00	47	224	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		47	224	4.8						
CRUISE		18	71	3.9	5,537	1.3				
DBH COUNT										
REFOREST										
COUNT		29	153	5.3						
BLANKS										
100 %										
STAND SUMMARY										
SAMPLE		TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
TREES		/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR		64	75.1	20.3	80	37.6	169.4	27,369	26,484	7,028
WHEMLOCK		4	3.2	26.9	79	2.5	12.8	1,996	1,953	529
R ALDER		1	2.6	11.0	19	0.5	1.7	77	77	23
GR FIR		2	.5	25.8	87	0.3	1.7	300	293	76
TOTAL		71	81.4	20.4	78	41.0	185.5	29,743	28,807	7,656
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		106.7	13.3	444	513	581				
WHEMLOCK		46.9	26.8	488	668	847				
R ALDER										
GR FIR		39.2	36.7	412	650	888				
TOTAL		101.9	12.1	456	518	581	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		
DOUG FIR		56.4	8.2	69	75	81				
WHEMLOCK		344.7	50.2	2	3	5				
R ALDER		479.5	69.9	1	3	4				
GR FIR		485.3	70.7	0	0	1				
TOTAL		46.7	6.8	76	81	87	87	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		52.6	7.7	156	169	182				
WHEMLOCK		346.4	50.5	6	13	19				
R ALDER		479.5	69.9	1	2	3				
GR FIR		479.5	69.9	1	2	3				
TOTAL		42.5	6.2	174	186	197	72	18	8	
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		54.3	7.9	24,389	26,484	28,579				
WHEMLOCK		349.5	50.9	958	1,953	2,948				
R ALDER		479.5	69.9	23	77	131				
GR FIR		483.6	70.5	86	293	499				
TOTAL		45.4	6.6	26,903	28,807	30,711	82	21	9	

TC PSTATS				PROJECT STATISTICS				PAGE	1			
				PROJECT	WS			DATE	5/15/2018			
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06	11	A13	TAKE		110.00	139	768	1	W		
05N	06W	11	A2	R/W								
05N	06W	11	A2	TAKE								
				TREES		ESTIMATED	PERCENT					
				PER PLOT		TOTAL	SAMPLE					
				PLOTS	TREES	TREES	TREES					
TOTAL			139	768	5.5							
CRUISE			54	269	5.0	8,490		3.2				
DBH COUNT												
REFOREST												
COUNT			85	485	5.7							
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
DOUG FIR			252	68.7	22.5	85	40.0	189.7	36,675	35,914	8,633	8,567
WHEMLOCK			10	4.4	20.9	56	2.3	10.5	1,596	1,567	416	416
R ALDER			5	3.8	13.4	33	1.0	3.7	285	285	92	92
GR FIR			2	.3	25.8	87	0.2	1.1	186	181	47	47
TOTAL			269	77.2	22.1	80	43.6	205.0	38,742	37,947	9,189	9,123
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		77.3	4.9	1,025	1,078	1,130						
WHEMLOCK		115.0	38.3	434	703	972						
R ALDER		87.8	43.6	78	138	198						
GR FIR		39.2	36.7	412	650	888						
TOTAL		79.9	4.9	992	1,043	1,094		255	64	28		
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		106.4	9.0	62	69	75						
WHEMLOCK		352.5	29.9	3	4	6						
R ALDER		507.9	43.0	2	4	5						
GR FIR		840.4	71.2	0	0	0						
TOTAL		97.7	8.3	71	77	84		381	95	42		
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		88.2	7.5	176	190	204						
WHEMLOCK		461.5	39.1	6	11	15						
R ALDER		510.2	43.2	2	4	5						
GR FIR		830.6	70.4	0	1	2						
TOTAL		83.3	7.1	191	205	219		277	69	31		
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		85.2	7.2	33,320	35,914	38,509						
WHEMLOCK		479.7	40.7	930	1,567	2,204						
R ALDER		547.0	46.4	153	285	417						
GR FIR		837.7	71.0	52	181	309						
TOTAL		81.3	6.9	35,331	37,947	40,563		264	66	29		

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page		1			
				Project: WS										Date		5/15/2018			
														Time		10:58:28AM			
T05N R06W S11 TTAKE												T05N R06W S11 TTAKE							
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt	
05N		06W		11		A2		TAKE		41.00		46		104		1		W	
S So Gr Spp T rt ad			% 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	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	
D DO CU									3	23	74	0	0	2	97	6	21		0.00
D DO 2S			89	1.0 46,208 45,763			1,876		3	23	74	0	0	2	97	39	17	490	2.69
D DO 3S			10	.6 5,138 5,109			209		74	6	20	7	11	19	62	32	9	109	0.95
D DO 4S			1	3.4 321 310			13		100			100				17	8	34	0.63
D Totals			97	.9 51,666 51,182			2,098		11	21	68	2	1	4	93	35	14	341	2.12
H DO 2S			72	.9 692 686			28			8	92			8	92	37	19	697	3.67
H DO 3S			16	151 151			6		100						100	40	6	60	0.60
H DO 4S			12	105 105			4		100				100			24	6	30	0.46
H Totals			2	.7 949 942			39		27	6	67		11	6	83	32	8	134	1.05
A DO 2S			50	316 316			13		100					100		40	13	240	1.90
A DO 4S			50	305 305			13		100			13			87	32	6	53	0.57
A Totals			1	621 621			25		49	51		6		94		33	7	88	0.87
Type Totals				.9 53,236 52,746			2,163		12	21	67	2	2	4	93	35	13	321	2.03

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1			
				Project: WS												Date		5/15/2018			
																Time		10:58:13AM			
T05N R06W S11 TR/W																T05N R06W S11 TR/W					
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt			
05N		06W		11		A2		R/W		1.00		46		104		1		W			
S So Gr Spp T rt ad				% 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										3	23	74	0	0	2	97	6	21		0.00	.7
D DO 2S				89	1.0 46,208 45,763			46		3	23	74	0	0	2	97	39	17	490	2.69	93.4
D DO 3S				10	.6 5,138 5,109			5		74	6	20	7	11	19	62	32	9	109	0.95	46.9
D DO 4S				1	3.4 321 310			0		100			100				17	8	34	0.63	9.2
D Totals				97	.9 51,666 51,182			51		11	21	68	2	1	4	93	35	14	341	2.12	150.1
H DO 2S				72	.9 692 686			1			8	92			8	92	37	19	697	3.67	1.0
H DO 3S				16	151 151			0		100						100	40	6	60	0.60	2.5
H DO 4S				12	105 105			0		100				100			24	6	30	0.46	3.5
H Totals				2	.7 949 942			1		27	6	67		11	6	83	32	8	134	1.05	7.0
A DO 2S				50	316 316			0		100						100	40	13	240	1.90	1.3
A DO 4S				50	305 305			0		100			13			87	32	6	53	0.57	5.7
A Totals				1	621 621			1		49	51		6			94	33	7	88	0.87	7.1
Type Totals					.9 53,236 52,746			53		12	21	67	2	2	4	93	35	13	321	2.03	164.2

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)											Page 1							
		Project: WS											Date 5/15/2018							
													Time 10:57:56AM							
T05N R06W S11 TTAKE										T05N R06W S11 TTAKE										
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt											
05N	06W	11	A13	TAKE	68.00	47	71	1	W											
S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft		CF/ Lf
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D	DO	CU																		
D	DO	2S	72	1.2	19,486	19,251	1,309		3	68	28			14	86	38	14	289	1.83	66.6
D	DO	3S	25	.6	6,623	6,584	448		84	11	5	1	8	34	57	34	8	83	0.75	79.4
D	DO	4S	3	7.2	699	649	44		100			53	17	31		22	7	33	0.56	19.5
D	Totals		92	1.2	26,808	26,484	1,801		26	52	22	2	2	19	77	34	10	159	1.21	166.3
H	DO	2S	81		1,585	1,585	108			42	58			100		40	17	491	3.05	3.2
H	DO	3S	17	11.0	386	344	23		63	37				72	28	34	9	106	1.15	3.2
H	DO	4S	2		24	24	2		100			100				16	9	40	0.94	.6
H	Totals		7	2.1	1,996	1,953	133		12	41	47	1		13	86	35	13	276	2.14	7.1
GF	DO	2S	90	2.9	274	266	18			55	45			14	86	38	16	397	2.52	.7
GF	DO	3S	7		19	19	1		100					100		40	7	70	0.88	.3
GF	DO	4S	3		8	8	1		100			100				18	9	40	0.89	.2
GF	Totals		1	2.6	300	293	20		9	50	41	3		13	84	35	13	257	1.92	1.1
A	DO	4S	100		77	77	5		100			100				16	8	30	0.56	2.6
A	Totals		0		77	77	5		100			100				16	8	30	0.56	2.6
Type Totals				1.3	29,181	28,807	1,959		25	51	24	2	2	19	77	34	10	163	1.25	177.1

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																
T05N R06W S11 TyTAKE 68.00 T05N R06W S11 TyR/W 1.00 T05N R06W S11 TyTAKE 41.00				Project: WS				Acres 110.00				Page 1 Date 5/15/2018 Time 10:57:35AM								
Spp	S 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		
							4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
D	DOCU														10	24		0.00	.8	
D	DO2S	81	1.1	29,689	29,374	3,231		3	41	55	0	0	7	93	38	15	382	2.23	76.8	
D	DO3S	17	.6	6,056	6,021	662		81	9	10	3	9	29	59	34	8	90	0.80	67.0	
D	DO4S	2	6.3	555	520	57		100			63	13	24		21	7	33	0.57	15.5	
D Totals		95	1.1	36,299	35,914	3,950		18	35	47	2	2	11	86	35	11	224	1.55	160.1	
H	DO2S	79	.2	1,244	1,242	137			35	65			2	98	40	17	523	3.15	2.4	
H	DO3S	17	8.9	296	270	30		71	29				56	44	36	8	91	0.95	3.0	
H	DO4S	4		55	55	6		100			27	73			22	7	32	0.53	1.7	
H Totals		4	1.8	1,596	1,567	173		16	33	52	1	3	11	85	34	11	222	1.75	7.0	
A	DO2S	42		121	121	13			100				100		40	13	240	1.90	.5	
A	DO4S	58		164	164	18		100			38		62		25	7	43	0.57	3.8	
A Totals		1		285	285	31		58	42		22		78		27	8	66	0.80	4.3	
GF	DO2S	90	2.9	169	164	18			55	45			14	86	38	16	397	2.52	.4	
GF	DO3S	7		12	12	1		100					100		40	7	70	0.88	.2	
GF	DO4S	3		5	5	0		100			100				18	9	40	0.89	.1	
GF Totals		0	2.6	186	181	20		9	50	41	3		13	84	35	13	257	1.92	.7	
Totals			1.1	38,366	37,947	4,173		18	35	47	2	2	11	86	34	11	220	1.54	172.1	

TC		PSTNDSUM		Stand Table Summary							Page		2				
											Date:		5/15/2018				
				T05N R06W S11 TyTAKE		68.00		Project		WS		Time:		11:11:11AM			
				T05N R06W S11 TyR/W		1.00											
				T05N R06W S11 TyTAKE		1.00		Acres		70.00		Grown Year:					
S		Tot					Average Log		Net			Net					
Sp		Sample		FF		Av		Trees/		BA/		Logs		Net		Net	
T		DBH		Trees		16'		Ht		Acre		Acre		Cu.Ft.		Bd.Ft.	
Totals		269		86		102		81.109		186.99		175.90		43.6		167.7	

Log Stock Table - MBF

Page 2

Date 5/15/2018

Time 11:11:31AM

T05N R06W S11 TyTAKE	68.00
T05N R06W S11 TyR/W	1.00
T05N R06W S11 TyTAKE	1.00

Project: WS
Acres 70.00

Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
GF		DO	4S	18	1		1	2.7				1								
GF		Totals			20	2.6	20	1.0			1	1		3	15					
A		DO	2S	40	1		1	9.7					1							
A		DO	4S	16	5		5	80.9				5								
A		DO	4S	18	0		0	1.2			0									
A		DO	4S	36	1		1	8.2			1									
A		Totals			7		7	.3			1	5		1						
Total		All Species			2,091	1.3	2,064	100.0			249	78	174	475	444	368	162	70	43	1

Logging Plan

OF TIMBER SALE CONTRACT NO. 341-19-30
WEST SAGER
PORTIONS OF SECTIONS 22, 26 & 27, T6N, R6W,
AND PORTIONS OF SECTIONS 10, & 11,
T5N, R6W, W.M.,
CLATSOP COUNTY, OREGON

Area 1 (MC) = 23 Acres

Area 2 (MC) = 41 Acres

Area 3 (MC) = 45 Acres

Area 4 (R/W) = 1 Acres

Total MC Acres = 109

Total R/W Acres = 1



Legend



Ownership Boundary



Type F Stream



Type N Stream



Seasonally Restricted Roads



Posted Buffer



Buffer Zone

Surfaced Roads

Road Construction- Surfaced



Landing Construction



Survey Monument



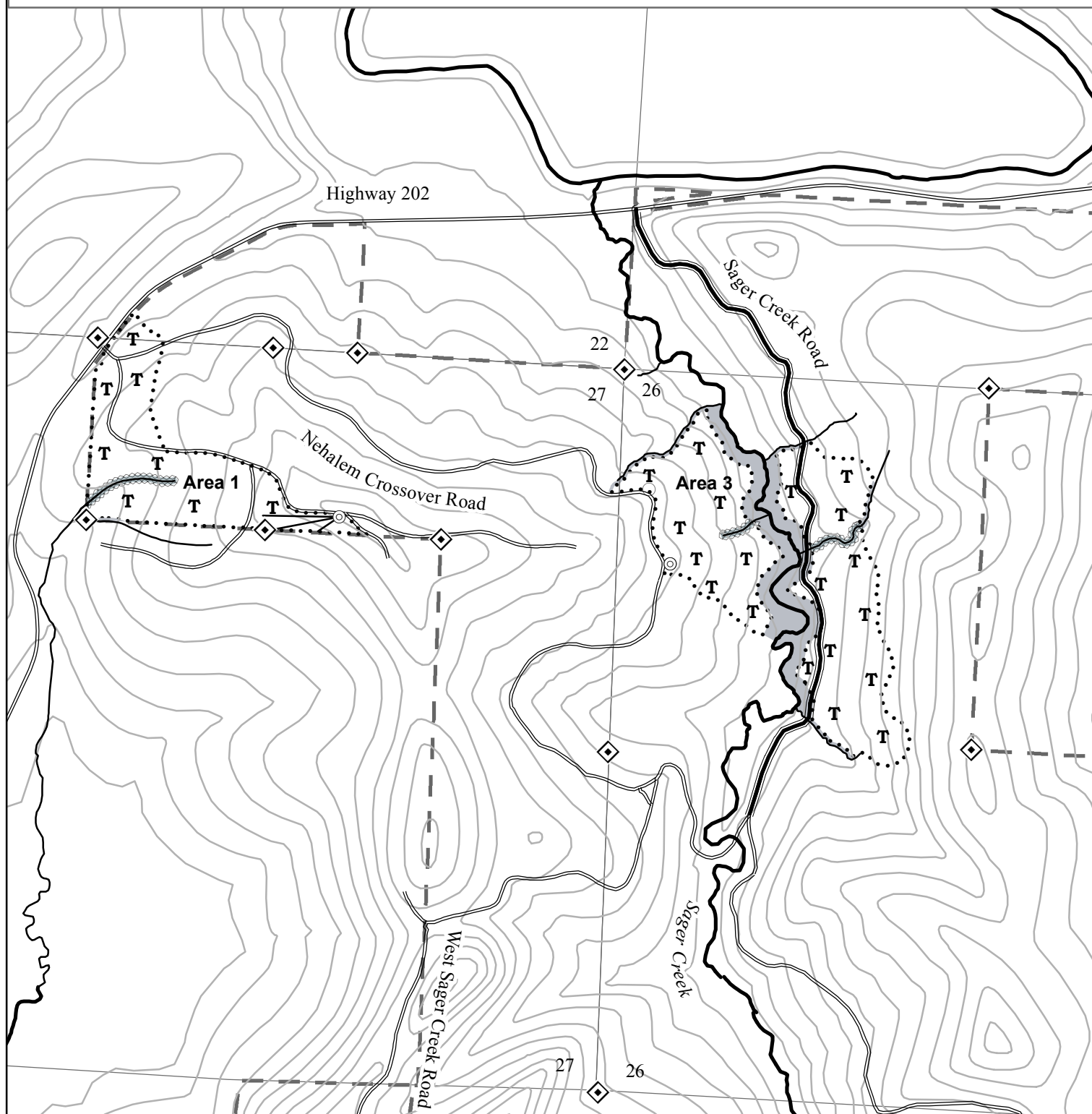
Existing Landings



Timber Sale Boundary

0 500 1,000 2,000
Feet

1 inch = 1,000 feet



Logging Plan

OF TIMBER SALE CONTRACT NO. 341-19-30
WEST SAGER

PORTIONS OF SECTIONS 22, 26 & 27, T6N, R6W,
AND PORTIONS OF SECTIONS 10, & 11,

T5N, R6W, W.M.,

CLATSOP COUNTY, OREGON

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Total R/W Acres = 1

**Legend**

Ownership Boundary



Type F Stream



Type N Stream



Seasonally Restricted Roads



Posted Buffer



Buffer Zone

Surfaced Roads

Road Construction- Surfaced



Landing Construction



Survey Monument



Existing Landings



Timber Sale Boundary

0 500 1,000 2,000
Feet

1 inch = 1,000 feet

