



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Walker Forest Ranger
Sale 341-13-26

District: Astoria

Date: March 15, 2013

cost summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$3,814,935.78	\$872.85	\$3,815,808.63
Project Work:			\$(610,871.00)
Advertised Value:			\$3,204,937.63



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timber description

Location: Portions of Sections 9, 10, 15, and 16, T5N, R6W, W.M., Clatsop County, Oregon.

Stand Stocking: 80%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	19	0	97
Western Hemlock / Fir	16	0	97
Maple	14	0	95

Volume by Grade	2S	3S	4S	Camprun	Total
Douglas - Fir	7,872	2,153	253	0	10,278
Western Hemlock / Fir	127	71	3	0	201
Maple	0	0	0	5	5
Total	7,999	2,224	256	5	10,484



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comments: Pond Values Used: 4th Quarter Calendar Year 2012.

Expected Log Markets: Mist, OR; Clatskanie, OR; Tillamook, OR;
Forest Grove, OR.

Western redcedar and Other Cedars Stumpage Price = Pond Value
minus Logging Cost
 $\$783.32 = \$985.00 - \$201.68$

Red Alder and Other Hardwoods Stumpage Price = Pond Value minus
Logging Cost
 $\$334.57 = \$560.00 - \$225.43$

SCALING COST ALLOWANCE = \$5.00/MBF

FUEL COST ALLOWANCE = \$4.00/Gallon

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

Other Costs (with Profit & Risk to be added):
100% Branding and Painting: $\$1/\text{MBF} \times 10,484 \text{ MBF} = \$10,484$
Log Loader Slash & Landing Piling (includes Move-In and Pile
Materials) = \$23,420
Machine Washing for Noxious Weed Compliance = \$2,000
TOTAL Other Costs (with Profit & Risk to be added) = \$35,904

Other Costs (No Profit & Risk added):
Waterbar and Block Dirt Road Segments after Harvest:
 $\$15.96/\text{station} \times 16.2 \text{ stations} = \258.55
Snag Creation: Create 28 snags $\times \$25/\text{snag} = \700
TOTAL Other Costs (No Profit & Risk added) = \$958.55

ROAD MAINTENANCE
 $\$34,610 / 10,484 \text{ MBF} = \$3.30/\text{MBF}$



"STEWARDSHIP IN FORESTRY"

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logging conditions

combination#:	1	Douglas - Fir	35.00%
		Western Hemlock / Fir	35.00%
		Maple	35.00%
yarding distance:	Medium (800 ft)	downhill yarding:	No
logging system:	Shovel	Process:	Manual Delimbing
tree size:	Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF		
loads / day:	10.0	bd. ft / load:	4,800
cost / mbf:	\$52.18		
machines:	Shovel Logger		
combination#:	2	Douglas - Fir	39.00%
		Western Hemlock / Fir	39.00%
		Maple	39.00%
yarding distance:	Medium (800 ft)	downhill yarding:	No
logging system:	Cable: Large Tower >=70	Process:	Stroke Delimber
tree size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
loads / day:	8.0	bd. ft / load:	4,800
cost / mbf:	\$99.65		
machines:	Log Loader (A) Stroke Delimber (A) Tower Yarder (Large)		
combination#:	3	Douglas - Fir	20.00%
		Western Hemlock / Fir	20.00%
		Maple	20.00%
yarding distance:	Short (400 ft)	downhill yarding:	No
logging system:	Shovel	Process:	Manual Falling/Delimbing
tree size:	Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF		
loads / day:	9.0	bd. ft / load:	4,000
cost / mbf:	\$69.57		
machines:	Shovel Logger		
combination#:	4	Douglas - Fir	6.00%
		Western Hemlock / Fir	6.00%
		Maple	6.00%
yarding distance:	Medium (800 ft)	downhill yarding:	No
logging system:	Cable: Medium Tower >40 - <70	Process:	Stroke Delimber
tree size:	Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF		
loads / day:	7.0	bd. ft / load:	4,000
cost / mbf:	\$119.43		



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Walker Forest Ranger
Sale 341-13-26

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



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Walker Forest Ranger Sale 341-13-26

District: Astoria

Date: March 15, 2013

logging costs

Operating Seasons:	2.00	Profit Risk:	12.00%
Project Costs:	\$610,871.00	Other Costs (P/R):	\$35,904.00
Slash Disposal:	\$0.00	Other Costs:	\$958.55

Miles of Road

Road Maintenance: \$3.30

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	4.0
Maple	\$0.00	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	Other	Total
Douglas - Fir									
\$78.21	\$3.40	\$0.84	\$74.72	\$3.42	\$19.27	\$0.00	\$5.00	\$0.09	\$184.95
Western Hemlock / Fir									
\$78.21	\$3.40	\$0.84	\$89.66	\$3.42	\$21.06	\$0.00	\$5.00	\$0.09	\$201.68
Maple									
\$78.21	\$3.46	\$0.84	\$110.80	\$3.42	\$23.61	\$0.00	\$5.00	\$0.09	\$225.43

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$551.44	\$366.49	\$0.00
Western Hemlock / Fir	\$0.00	\$441.24	\$239.56	\$0.00
Maple	\$0.00	\$400.00	\$174.57	\$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
Maple	0	\$0.00	\$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	10,278	\$366.49	\$3,766,784.22
Western Hemlock / Fir	201	\$239.56	\$48,151.56
Maple	5	\$174.57	\$872.85

Gross Timber Sale Value

Recovery: \$3,815,808.63

Prepared by: Ty Williams

Phone: 503-325-5451

Road Maintenance Cost Summary

Sale: Walker Forest Ranger
 Date: 18-Jan-13
 By: D. Bangs

MBF: 10,484
 \$/MBF: \$3.30

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	Production Rates			
Progressive Operations 1st Entry	Grader 14G	\$778	1	20	\$100	\$2,778	Production Rates	Miles/day	Distance(miles)	Days
	Dump Truck 12CY x 2	\$163	2	8	\$79	\$1,590	Grader	2.5	5.0	2.0
	FE Loader C966	\$778	1	8	\$83	\$1,442				
Progressive Operations 2nd Entry	Grader 14G	\$778	1	16	\$100	\$2,378	Production Rates	Miles/day	Distance(miles)	Days
	Dump Truck 12CY x 2	\$163	2	8	\$79	\$1,590	Grader	2.5	4.0	1.6
	FE Loader C966	\$778	1	8	\$83	\$1,442				
Final Road Maintenance	Grader 14G	\$778	1	70	\$100	\$7,778	Production Rates	Miles/day	Distance(miles)	Days
	Dump Truck 12CY x 2	\$163	2	10	\$79	\$1,906	Grader	1.5	9.4	6.3
	FE Loader C966	\$778	1	10	\$83	\$1,608	Vibratory Roller	1.5	9.4	6.3
	Vibratory Roller	\$778	1	70	\$77	\$6,168				
Total	Water Truck 2,500 gallon	\$190	1	60	\$89	\$5,530				
	Labor			10	\$40	\$400				
							\$34,610			

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Walker Forest Ranger

ROAD CONSTRUCTION:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 1	A-B, 1A-1B, 1C-1D, 1E-1F, 1G-1H, 1L, 3A-3B, 3C-3D	88.45	\$61,729
	TOTALS	88.45	\$61,729

ROAD IMPROVEMENT:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 2	I1-I2, I3-I4, I5-I6, I7-I8 I9-I10, I11-I12	316.75	\$152,704
	TOTALS		\$152,704

SPECIAL PROJECTS:

	<u>Description</u>	<u>Cost</u>
Project No. 3	Rock Crushing Green Mtn. # 1	\$115,920
Project No. 4	Rock Crushing Green Mtn. #2	\$200,601
Project No. 5	Vacating	\$16,048
Project No. 6	Brushing	\$40,109
	Project Road Maintenance	\$15,178
	TOTAL	\$387,856

MOVE IN:

	<u>Equipment</u>	<u>Cost</u>
	Excavator (C330)	\$1,406
	Excavator (C315)	\$805
	Dozer (D8)	\$1,406
	Rubber Tired Skidder	\$717
	Vibratory Roller	\$815
	10-12 yd dump truck (X 5 @ \$163 each)	\$705
	20 yd dump truck (X 5 @ \$191 each)	\$955
	Large Grader (14G)	\$778
	Water Truck (2,500 gal)	\$190
	Brusher	\$805
	*Mobilization costs for Quarry work added to Project No. 3 and 4 costs	
	*Mobilization costs for Vacating work added to Project No. 5 costs	
	TOTAL	\$8,582

GRAND TOTAL **\$610,871**

Compiled By: D. Bangs CB Date: 02/05/2013

SUMMARY OF CONSTRUCTION COSTS

SALE NAME:	Walker Forest Ranger	NEW CONSTRUCTION:	88.85 STATIONS	1.68 MILES
ROAD:	A-B (22+25) 1A-1B (8+80), 1C-1D (4+20), 1E-1F (3+20),	IMPROVEMENT:	STATIONS	MILES
POINTS:	1G-1H (19+40), 3A-3B (28+60), and 3C-3D (2+40)			

CLEARING & GRUBBING

CLEARING & GRUBBING				
Method	Acres/amount	X	Rate	Cost
Scatter Outside of R/W	9	X	\$1,337	\$12,033.00
		X		
SUB TOTAL FOR CLEARING & GRUBBING				\$12,033

EXCAVATION

EXCAVATION		Material	Cy/amount	X	Rate	=	Cost
A-B	Common drift excavation	\$\$/cy	2,020	X	\$1.80	=	\$3,636.00
	Embankment compaction	\$\$/cy	1,591	X	\$0.70	=	\$1,113.70
1A-1B	Balanced Construction Field Design	\$/sta.	9	X	\$122.00	=	\$1,073.60
	Landing Construction		1.00	X	\$389.00	=	\$389.00
1C-1D	Balanced Construction Field Design	\$/sta.	4.20	X	\$122.00	=	\$512.40
	Landing Construction		1.00	X	\$389.00	=	\$389.00
1E-1F	Balanced Construction Field Design	\$/sta.	3.20	X	\$122.00	=	\$390.40
	Landing Construction		1.00	X	\$389.00	=	\$389.00
1G-1H	Balanced Construction Field Design	\$/sta.	13.40	X	\$122.00	=	\$1,634.80
	Common drift excavation	\$/sta	6.00		\$190.00		\$1,140.00
	Landing Construction		3.00	X	\$389.00	=	\$1,167.00
	Landing Construction		5.00	X	\$389.00	=	\$1,945.00
3A-3B	Common drift excavation	\$\$/cy	1,096	X	\$1.80	=	\$1,972.80
	Embankment compaction	\$\$/cy	1,224	X	\$0.70	=	\$856.80
	Landing Construction		1.00	X	\$389.00	=	\$389.00
3C-3D	Balanced Construction Field Design	\$/sta.	2.40	X	\$122.00	=	\$292.80
	Landing Construction		2.00	X	\$389.00	=	\$778.00
SUB TOTAL FOR EXCAVATION							\$18,069

CULVERT MATERIALS AND INSTALLATION

CULVERT MATERIALS AND INSTALLATION									
Location	Dialtype	Lineal ft.	Rate	Cost	Location	Dialtype	Lineal ft.	Rate	Cost
A-B									
7+30	18"CPP	30	\$19.53	\$585.90					
17+90	18"CPP	40	\$19.53	\$781.20					
1G-1H									
0+00	18"CPP	40	\$19.53	\$781.20					
9+00	18"CPP	40	\$19.53	\$781.20					
3A-3B									
6+10	18"CPP	50	\$19.53	\$976.50					
19+80	18"CPP	40	\$19.53	\$781.20					
Other/miscellaneous:									
					Quantity	Rate	Cost		
					5	\$20.00	\$100.00		
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION									
\$4,787									
Subtotal of Clearing, Exc., Culv.									
\$34,890									

SURFACING	Subgrade prep:	Description	Stations/ amount	x	Rate/ sta/amt	Cost
		Grade, Shape and Ditch 16' (A-B, 1G-1H, 3A-3B, 3C-3D)	72.65	x	\$24.83	\$1,803.90
		Subgrade Compaction (A-B, 1G-1H, 3A-3B, 3C-3D)	72.65	x	\$20.19	\$1,466.80
		Outslope 14' (1A-1B, 1C-1D, 1E-1F)	16.20	x	\$18.35	\$297.27

ROAD SEGMENT A to B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per station	0+00 to 22+25 Number of stations	22.25			
Base Rock	4"-0" crushed	A to B	8	50	stations	22.25	1,113	\$8.25	\$9,178
Turnout		2+00, 5+50, 8+25, 10+50, 14+75, 20+00							
Base Rock	4"-0" crushed	A to B	8	22	turnouts	6	132	\$8.25	\$1,089
Surface Rock	1 1/2"-0" crushed	A to B	3	19	stations	22.25	423	\$7.76	\$3,281
Turnout		2+00, 5+50, 8+25, 10+50, 14+75, 20+00							
Surface Rock	1 1/2"-0" crushed	A to B	3	22	turnouts	6	132	\$7.76	\$1,024
Total Rock for Road Segment:			A to B				1,800		\$14,572

ROAD SEGMENT 1A to 1B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per station	0+00 to 8+80 Number of stations	0.5			
Base Rock	4"-0" crushed	0+00 to 1+00	8	50	stations	0.5	22	\$8.25	\$182
Total Rock for Road Segment:			1A to 1B				22		\$182

ROAD SEGMENT		1G to 1H		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	1G to 1H	0+00 to 19+40						
				Volume (CY) per	Number of						
Base Rock	4"-0" crushed	1G to 1H	8	station	19.40	stations	19.40	970	\$8.25	\$8,003	
Turnouts	4"-0" crushed		8	turnout	4	turnouts	4	88	\$8.25	\$726	
Traction Rock	1 1/2"-0" crushed	12+50 to 18+00	3	station	19	stations	5.5	105	\$7.76	\$811	
Turn Arounds	4"-0" crushed	19+40	8	turn around	11	turn around	1	11	\$8.25	\$91	
Landings	6"-0" Pit Run	1G, 2+00, 5+00	N/A	Landing	50	Landings	3	150	\$8.25	\$1,238	
Total Rock for Road Segment:									1,324		

ROAD SEGMENT 1L, 2A, 2B, 2C, 2D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY)		Number of				
				1L, 2A, 2B, 2C, 2D	per Landing					
Landings	6"-0" Pit Run	1L, 2A, 2B, 2C, 2D	N/A	Landing	50	Landings	5	250	\$8.25	\$2,063
Total Rock for Road Segment:				1L, 2A, 2B, 2C, 2D				250		

ROAD SEGMENT		3A to 3B		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per station	3A to 3B	0+00 to 28+60 Number of stations				
Base Rock	4"-0" crushed	3A to 3B	8	50		28.60		1,430	\$8.25	\$11,798
		3+15, 6+80, 10+50, 16+00, 25+00, 27+15								
Turnouts	4"-0" crushed	25+00	8	5	turnout	22		110	\$8.25	\$908
Landings	6"-0" Pit Run	25+00	N/A	50	Landing	1		50	\$8.25	\$413
Landings	6"-0" Pit Run	3B	N/A	70	Landing	1		70	\$8.25	\$578
Total Rock for Road Segment:		3A to 3B				1,660				
ROAD SEGMENT		3C to 3D		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per station	3C to 3D	0+00 to 2+40 Number of stations				
Base Rock	4"-0" crushed	3C to 3D	8	50	station	2.40		120	\$8.25	\$990
Landings	6"-0" Pit Run	3D	N/A	50	Landing	1		50	\$8.25	\$413
Total Rock for Road Segment:		3C to 3D				170				
Processing:										
				Description		No.sta	Rate/sta	Cost		
				Water, Process & Compact Base Rock:		72.65	\$56.48	\$4,103		
				Water, Process & Compact Surface/Traction Rock:		41.65	\$56.48	\$2,352		
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SUMMARY OF CONSTRUCTION COSTS

SALE NAME:	Walker Forest Ranger	NEW CONSTRUCTION:	STATIONS	MILES
ROAD:	11-12 (155.0), 13-14(24.4), 15-16(16.85), 17-18(5.	IMPROVEMENT:	316.75	6.00
POINTS:	19-110 (17.2), 111-112 (97.5)			

CLEARING & GRUBBING

Method	Acres/amount	X	Rate	=	Cost
Junction (66+00)	0.1	X	\$ 1,337.00	=	\$133.70
Scatter outside of R/W (Daylighting)	0.2	X	\$ 1,337.00	=	\$267.40
Scatter outside of R/W (Trees Encroaching Turnouts)	0.1	X	\$ 1,337.00	=	\$133.70

ITEM	QTY	UNIT	PRICE	TOTAL
SUB TOTAL FOR CLEARING & GRUBBING				
				\$535

EXCAVATION

[illegible]

ITEM NO.	DESCRIPTION	QTY	UNIT	PRICE	TOTAL
1	EXCAVATION	100	CU YD	4.68	468.00
2	BACKFILL	100	CU YD	4.68	468.00
3	CONCRETE	100	CU YD	4.68	468.00
4	STEEL	100	CU YD	4.68	468.00
5	PAINT	100	CU YD	4.68	468.00
6	LABOR	100	CU YD	4.68	468.00
7	EQUIPMENT	100	CU YD	4.68	468.00
8	TRANSPORT	100	CU YD	4.68	468.00
9	PERMITS	100	CU YD	4.68	468.00
10	INSURANCE	100	CU YD	4.68	468.00
11	TOTAL	100	CU YD	4.68	468.00
SUB TOTAL FOR EXCAVATION					\$468

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
11-12									
136+75	18" CPP	30	\$19.53	\$585.90					
149+65	18" CPP	30	\$19.53	\$585.90					
111-112									
43+80	18" CPP	30	\$19.53	\$585.90					

Other/miscellaneous:

Culvert stakes & markers:

Description	Quantity	Rate	Cost
Labor: Repair and Trimming of Culvert Inlets/ Outlets \$/hr.	4.00	\$40.00	\$160.00
Dissipator Placement on Existing Culverts w/ C315 \$/hr.	4	\$101.00	\$404.00
Culvert Markers	14	\$20.00	\$280.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

Subtotal of Clearing, Exc., Culv.	\$3,605
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SURFACING

Subgrade prep:

Description

Stations/ amount	Rate/ sta./amt	Cost
x	x	
316.75	\$24.83	\$7,864.90
316.75	\$24.28	\$7,690.69
239.25	\$22.92	\$5,483.61
77.50	\$12.41	\$961.78

11 to 12		Description	
Grade, Shape and Ditch 16' (11-12, 13-14, 15-16, 17-18, 19-110, 111-112)			
Subgrade Compaction (11-12, 13-14, 15-16, 17-18, 19-110, 111-112)			
Load & haul ditch material (11-12: 50% = 77.5 sta., 13-14, 15-16, 17-18, 19-110, 111-112)			
Scatter ditch waste materials (11-12: 50% = 77.5 sta.)			

ROAD SEGMENT		11 to 12		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per station	TO	Number of stations	0+00 to 155+00			
Junction Base Rock	4'-0" crushed	66+00	8	N/A	station	N/A	N/A	99	\$8.25	\$817
Turnout Reinforcement	4'-0" crushed	56+50, 75+20, 113+95	N/A	TO	22	TO's	3	66	\$8.25	\$545
Subgrade Leveling	11/2'-0" crushed	0+00-66+00	N/A	N/A	N/A	N/A	N/A	198	\$7.76	\$1,536
Subgrade Leveling	11/2'-0" crushed	66+00-121+35	N/A	N/A	N/A	N/A	N/A	495	\$7.76	\$3,841
Subgrade Leveling	11/2'-0" crushed	127+30-155+00	N/A	N/A	N/A	N/A	N/A	198	\$7.76	\$1,536
Surface Rock	11/2'-0" crushed	11-12	3	station	19	stations	155.0	2,945	\$7.76	\$22,853
Curve Widening	11/2'-0" crushed	0+00-66+00	3	curve	11	curves	5	55	\$7.76	\$427
Curve Widening	11/2'-0" crushed	66+00-121+35	3	curve	11	curves	5	55	\$7.76	\$427
Curve Widening	11/2'-0" crushed	127+30-155+00	3	curve	11	curves	12	132	\$7.76	\$1,024
Turnouts	11/2'-0" crushed	1+85, 5+55, 10+85, 13+35, 19+40, 29+35, 38+50, 41+65, 51+70, 56+50, 70+60, 75+20, 80+20, 83+65, 88+80, 90+35, 97+50, 100+90, 113+35, 120+80, 128+05, 135+30, 143+95, 150+65	3	TO	22	TO's	24	528	\$7.76	\$4,097
Junctions	11/2'-0" crushed	28+70, 29+35, 43+70, 79+05, 96+80, 97+00, 121+35, 127+30, 155+00	3	junction	22	junctions	9	198	\$7.76	\$1,536
Culvert Bedding/Backfill	Reject Rock	136+75, 149+65	N/A	culvert	22	culverts	2	44	\$8.25	\$363
Dissipator	24"-6"	136+75, 149+65	N/A	dissipator	11	dissipators	2	22	\$8.25	\$182
Total Rock for Road Segment:		11 to 12						5,035		\$39,185
ROAD SEGMENT		13 to 14		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per station	TO	Number of stations	0+00 to 24+40			
Base Rock	4'-0" crushed	13-14	6	station	38	stations	24.4	927	\$8.25	\$7,649
Turnout Base Rock	4'-0" crushed	8+20, 10+30, 15+15, 17+00	N/A	TO	22	TO's	4	88	\$8.25	\$726
Surface Rock	11/2'-0" crushed	13-14	3	station	19	stations	24.4	464	\$7.76	\$3,598
Surface Turnout Rock	11/2'-0" crushed	8+20, 10+30, 15+15, 17+00	N/A	TO	22	TO's	4	88	\$7.76	\$683
Junctions	11/2'-0" crushed	18+20	N/A	junction	22	junctions	1	22	\$7.76	\$171
Total Rock for Road Segment:		13 to 14						1,589		\$12,827

ROAD SEGMENT			I5 to I6		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)		Volume (CY) per	Number of						
Base Rock	4"-0" crushed	I5-I6	6		station	38	stations	16.9	640	\$7.76	\$4,969	
Turnout Base Rock	4"-0" crushed	2+60, 5+30, 6+60, 10+95, 13+95	N/A		TO	22	TO's	5	110	\$7.76	\$854	
Surface Rock	11/2"-0" crushed	I5-I6	3		station	19	stations	16.9	320	\$7.76	\$2,484	
Surface Turnout Rock	11/2"-0" crushed	2+60, 5+30, 6+60, 10+95, 13+95	N/A		TO	22	TO's	5	110	\$7.76	\$854	
Total Rock for Road Segment:										1,180		\$4,969
ROAD SEGMENT			I7 to I8		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)		Volume (CY) per	Number of						
Base Rock	4"-0" crushed	I7-I8	6		station	38	stations	5.8	220	\$8.25	\$1,818	
Turnout Base Rock	4"-0" crushed	3+45	N/A		TO	22	TO's	1	22	\$8.25	\$182	
Surface Rock	11/2"-0" crushed	I7-I8	3		station	19	stations	5.8	110	\$7.76	\$855	
Surface Turnout Rock	11/2"-0" crushed	3+45	N/A		TO	22	TO's	1	22	\$7.76	\$171	
Total Rock for Road Segment:										374		\$3,026
ROAD SEGMENT			I9 to I10		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)		Volume (CY) per	Number of						
Base Rock	4"-0" crushed	0+00-3+80	6		station	38	stations	3.8	144	\$8.25	\$1,191	
Surface Rock	11/2"-0" crushed	I9-I10	3		station	19	stations	17.2	327	\$7.76	\$2,536	
Turnouts	11/2"-0" crushed	6+15, 11+20, 15+00	N/A		TO	22	TO's	3	66	\$7.76	\$512	
Junctions	11/2"-0" crushed	3+80	N/A		junction	22	junctions	1	22	\$7.76	\$171	
Total Rock for Road Segment:										559		\$4,239

ROAD SEGMENT		I11 to I12		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	0+00 to 97+50				
Junction Base Rock	4"-0" crushed	0+50	N/A	junction	1	junctions	88	88	\$8.25	\$726
Turnout Reinforcement	4"-0" crushed	21+05	N/A	TO	22	TO's	1	22	\$8.25	\$182
Subgrade Leveling	4"-0" crushed	0+00-31+70	N/A	N/A	N/A	N/A	N/A	385	\$8.25	\$3,176
Subgrade Leveling	4"-0" crushed	31+70-76+10	N/A	N/A	N/A	N/A	N/A	165	\$8.25	\$1,361
Subgrade Leveling	4"-0" crushed	76+10-97+50	N/A	N/A	N/A	N/A	N/A	198	\$8.25	\$1,634
Surface Rock	4"-0" crushed	I11-I12	6	station	38	stations	97.5	3,705	\$8.25	\$30,566
Curve Widening	4"-0" crushed	0+00-31+70	6	curve	22	curves	2	44	\$8.25	\$363
Curve Widening	4"-0" crushed	31+70-76+10	6	curve	22	curves	5	110	\$8.25	\$908
Curve Widening	4"-0" crushed	76+10-97+50	6	curve	22	curves	2	44	\$8.25	\$363
Turnouts	4"-0" crushed	9+95, 16+65, 21+05, 25+65, 32+40, 40+40, 44+40, 48+65, 57+95, 68+65, 81+75	N/A	TO	22	TO's	11	242	\$8.25	\$1,997
	4"-0" crushed	90+60, 96+80	N/A	junction	22	junctions	2	44	\$8.25	\$363
	Reject Rock	43+80	N/A	culvert	22	culverts	1	22	\$8.25	\$182
	Dissipator	24"-6"	20+10, 37+55, 43+80	N/A	dissipator	11	dissipators	3	33	\$8.25
Total Rock for Road Segment:		I11 to I12						5,102		\$42,092
Processing:										
			Description	No sta	Rate/sta	Cost				
			Water, Process & Compact: (I1-I2)	155.00	\$56.48	\$8,754				
			Water, Process & Compact Base Rock: (I3-I4, I5-I6, I7-I8, I9-I10: 0+00-3+80)	50.85	\$56.48	\$2,872				
			Water, Process & Compact Surface Rock: (I3-I4, I5-I6, I7-I8, I9-I10: 0+00-3+80)	50.85	\$56.48	\$2,872				
			Water, Process & Compact Surface Rock: (I9-I10: 3+80-17+20, I11-I12)	110.90	\$56.48	\$6,264				
SUB TOTAL FOR IMPROVEMENT SURFACING										
				24"-6"	6"-0"pr	4"-0"	1 1/2"-0"	Reject Rock	Total	
				55	0	7,363	6,355	66	13,839	\$149,100
SPECIAL PROJECTS										
				Description		Cost				
SUB TOTAL FOR SPECIAL PROJECTS										
Subtotal of Surfacing & Spec. Proj. \$0										
Subtotal of Clearing, Exc., Culv. \$149,100										
GRAND TOTAL \$3,605										
\$152,704										

CRUSHED ROCK COST

SALE NAME:	Walker Forest Ranger
PROJECT:	Nos. 1 & 2
QUARRY:	Green Mountain No. 1

MATERIAL: 1 1/2" - 0"

DATE: 01/11/2013
BY: Morey/Bangs

[illegible]

ROCK HAUL:

Truck type:	<u>D20</u>	No. trucks:	<u>5</u>
Delay min.:	<u>8</u>	Efficiency:	<u>85%</u>

Ave haul:	\$6.98	/cy
Load:		/cy
Spread:	\$0.78	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>5</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

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

Production: cy/day = 1,026

CRUSHED ROCK HAUL COSTS 7,015 cy @ \$7.76 /cy

CRUSHED ROCK COST

SALE NAME: Walker Forest Ranger
PROJECT: Nos. 1 & 2
QUARRY: Green Mountain No. 2

MATERIAL: 4"-0" Crushed
6"-0" Pit Run

DATE: 01/11/2013
BY: Morey/Bangs

24"-6" Rip Rap, Reject Rock

[illegible]

ROCK HAUL:

Truck type:	<u>D20</u>	No. trucks:	<u>5</u>
Delay min.:	<u>8</u>	Efficiency:	<u>85%</u>

Ave haul:	\$7.41	/cy
Load:		/cy
Spread:	\$0.84	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>5</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

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

Production: cy/day = 966

CRUSHED ROCK HAUL COSTS 12,050 cy @ \$8.25 /cy

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTSPROJECT NUMBER: 3Timber Sale Name: Walker Forest RangerQuarry: Green Mountain No. 1Swell: Location: NW 1/4, NE 1/4, Sec. 34, T5N, R6WShrink: 16%County: ClatsopBy: d. mellisonLoading Hopper: YesDate: 12/21/12

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	25%	CR	2,500	7,014	9,514
4"-0"		CR			
6"-0"		PR			
24"-6"		RR			
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			2,500	7,014	9,514

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Dump Trucks		\$163		Off Highway Dump Truck	1	\$774	\$774
Screening Plants	1	\$553	\$553	Screening Plant		\$553	
D8 Cat		\$1,406		Loading Hopper	1	\$553	\$553
D6 Cat	1	\$778	\$778	Loader	1	\$805	\$805
Drill & Compressor	1	\$1,406	\$1,406				
Powder	1	\$351	\$351	3 Stage Crusher	1	\$2,891	\$2,891
Dump Trucks		\$163					
Excavator	1	\$1,406	\$1,406	Excavator		\$1,406	

SUB TOTAL FOR MOBILIZATION

\$9,517

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

SUB TOTAL FOR SET UP COSTS

\$4,569

TOTAL MOBILIZATION & SET UP COSTS**\$14,086****2) CLEARING & GRUBBING**

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear and Grub	0.2	acres		
C330	3	hours	\$155	\$465
Load and haul to waste area				
C330 (Loading)	2	hours	\$155	\$310
Off Highway Dump Truck	2	hours	\$127	\$254

TOTAL CLEARING & GRUBBING COSTS**\$1,029**

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Strip Rock Source and 20' bench/haul to WA	3,400	c.yds.	\$2.29	\$7,786
Compact waste area	3,400	c.yds.	\$0.40	\$1,360
Build Equip Access to upper bench				
Remove existing water-bars (C330)	0.25	hours	\$155	\$39
Build 80' of trail (C330)	1	hours	\$155	\$155

TOTAL EXCAVATION COSTS

\$9,340

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping			\$2.20	
crushed	9,514	100%	Drill & shoot	100%	11,893	\$2.70	\$32,110
pit run	0	0	Oversize red	2%	190	\$5.80	\$1,104
rip rap	0	0	Other				
Total	9,514						
reject	2,379	25.0%					

TOTAL ROCK DEVELOPMENT COSTS

\$33,213

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	1	\$507.00	\$507
Calibrate			
Test	4	\$57.30	\$229
Test			

TOTAL CALIBRATION & TESTING COSTS

\$736

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	11,893	\$0.91	\$10,802

TOTAL FEEDING & LOADING COSTS

\$10,802

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed		3 stage w/s			
1-1/2"-0"	crushed	9,514	3 stage w/s	120	\$3.24	\$30,841
4"-0"	crushed		2 stage w/s			

TOTAL ROCK CRUSHING COSTS

\$30,841

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer	2	\$113.00	\$226
Compactor		\$72.00	
Grader		\$100.00	
Excavator		\$155.00	

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

\$226.00

SUB TOTAL

\$226

HAUL & STOCKPILE

STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1. _____					
2. Military	1-1/2"-0"	3	2,500	\$3.24	\$8,100
3. _____					
4. _____					
5. _____					
6. _____					

SUB TOTAL

\$8,100

TOTAL STOCKPILING COSTS

\$8,326

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	\$5,447
\$2.29 /CY 2,379 CY	
Compact Reject @ WA 2,530 CY \$0.40	\$1,012
Shape WA for reject/OB 6 HR \$113	\$678
Final Quarry maintenance	
14G Grader 1 HR \$100	\$100
C330 Exc 2 HR \$155	\$310

TOTAL MISCELLANEOUS COSTS

\$7,547

10) GRAND TOTAL:

\$115,920

\$/Cubic Yard

\$12.18

Footnotes:

HAUL and STOCKPILE COST

SALE NAME: Walker Forest Ranger

QUARRY: Green Mountain No. 1

ROCK TYPE: Crushed

Location 1. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
							0.10
Truck type: D12 No. trucks: 2 Delay min.: 15 Efficiency: 75% Ave haul: \$2.00 /cy Load: \$0.00 /cy Stockpile: \$1.35 /cy Truck type: D12 No. trucks: Delay min.: 12 Efficiency: 75% Truck type: No. trucks: Delay min.: 10 Efficiency: 75% Production: cy/day = 632							
Location 1. 0		Haul and Stockpile Cost				\$3.34 /cy	

Location 2. Military 1-1/2"-0"	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			0.49	0.20	0.05	0.15	0.05
Truck type: D20 No. trucks: Delay min.: 15 Efficiency: 75% Ave haul: \$2.21 /cy Load: \$0.00 /cy Stockpile: \$1.03 /cy Truck type: D12 No. trucks: 3 Delay min.: 12 Efficiency: 85% Truck type: D10 No. trucks: Delay min.: 10 Efficiency: 75% Production: cy/day = 856							
Location 2. Military		Haul and Stockpile Cost				\$3.24 /cy	

Location 3. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				1.00	1.00		
Truck type: D20 No. trucks: Delay min.: 15 Efficiency: 75% Ave haul: #DIV/0! /cy Load: \$0.00 /cy Stockpile: #N/A /cy Truck type: D12 No. trucks: Delay min.: 12 Efficiency: 75% Truck type: D10 No. trucks: Delay min.: 10 Efficiency: 75% Production: cy/day = 0							
Location 3. 0		Haul and Stockpile Cost				#DIV/0! /cy	

HAUL and STOCKPILE COST

Location 4. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				1.00	1.00		
Truck type: <u>D20</u> No. trucks: <u> </u> Delay min.: <u>15</u> Efficiency: <u>75%</u> Truck type: <u>D12</u> No. trucks: <u> </u> Delay min.: <u>12</u> Efficiency: <u>75%</u> Truck type: <u>D10</u> No. trucks: <u> </u> Delay min.: <u>10</u> Efficiency: <u>75%</u>							
				Ave haul: #DIV/0! /cy Load: \$0.00 /cy Stockpile: #N/A /cy			
				Production: cy/day = 0			
Location 4. 0		Haul & Stockpile Cost			#DIV/0! /cy		

Location 5. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
							0.10
Truck type: <u>D20</u> No. trucks: <u>2</u> Delay min.: <u>15</u> Efficiency: <u>75%</u> Truck type: <u>D12</u> No. trucks: <u> </u> Delay min.: <u>12</u> Efficiency: <u>75%</u> Truck type: <u>D10</u> No. trucks: <u> </u> Delay min.: <u>10</u> Efficiency: <u>75%</u>							
				Ave haul: \$1.52 /cy Load: \$0.00 /cy Stockpile: \$0.83 /cy			
				Production: cy/day = 1,054			
Location 5. 0		Haul & Stockpile Cost			\$2.35 /cy		

Location 6. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				1.00	1.00		
Truck type: <u>D20</u> No. trucks: <u> </u> Delay min.: <u>15</u> Efficiency: <u>75%</u> Truck type: <u>D12</u> No. trucks: <u> </u> Delay min.: <u>12</u> Efficiency: <u>75%</u> Truck type: <u>D10</u> No. trucks: <u> </u> Delay min.: <u>10</u> Efficiency: <u>75%</u>							
				Ave haul: #DIV/0! /cy Load: \$0.00 /cy Stockpile: #N/A /cy			
				Production: cy/day = 0			
Location 6. 0		Haul & Stockpile Cost			#DIV/0! /cy		

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 4 Timber Sale Name: Walker Forest Ranger
 Quarry: Green Mountain No. 2
 Location: NE1/4, Section 34 T5N R6W Shrink: 16%
 County: Clatsop
 By: d.mellison Loading Hopper: Yes
 Date: 01/08/13

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"		CR			
4"-0"	25%	CR	5,000	11,359	17,159
6"-0"	25%	PR		570	570
24"-6"		RR		55	55
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			5,000	11,984	17,784

1) MOBILIZATION & SET UP:

Lowboy Mobilized				Traveled From Quarry to Quarry			
EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Loading Hopper	0.5	\$553	\$276	Off Highway Dump Truck	0.25	\$127	\$32
Screening Plants	0.5	\$553	\$276	Excavator	0.5	\$155	\$78
3 Stage Crusher	0.5	\$2,891	\$1,445	D6 Cat	0.5	\$113	\$57
Drill & Compressor	1	\$1,406	\$1,406	Loader	0.25	\$109	\$27
Roaded from Town							
Powder	1	\$351	\$351				

Note: The Loading Hopper, Screening Plant and 3 Stage crusher were 1/2 costed due to the close proximity of the two quarries.

SUB TOTAL FOR MOBILIZATION

\$3,949

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

SUB TOTAL FOR SET UP COSTS

\$4,569

TOTAL MOBILIZATION & SET UP COSTS

\$8,517

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear & Grub	0.125	Acres		
C330	6	Hours	\$155	\$930
Off Highway	4	Hours	\$127	\$508
Pile & burn C330	4	Hours	\$155	\$620

TOTAL CLEARING & GRUBBING COSTS

\$2,058

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (20' bench)	2,400	C.Y.	\$1.87	\$4,488
Tractor hours to place material @ WA	4	Hours	\$113.00	\$452
Compact Overburden material	2,400	C.Y.	\$0.40	\$960

TOTAL EXCAVATION COSTS

\$5,900

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping			\$2.20	
crushed	17,159	96%	Drill & shoot	100%	22,216	\$2.70	\$59,984
pit run	570	3%	Oversize red	5%	886	\$5.80	\$5,141
rip rap	55	0%	Other				
Total	17,784						
reject	4,432	24.9%					

TOTAL ROCK DEVELOPMENT COSTS

\$65,125

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate			
Calibrate			
Test	8	\$57.30	\$458
Test			

TOTAL CALIBRATION & TESTING COSTS

\$458

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	21,591	\$0.78	\$16,810

TOTAL FEEDING & LOADING COSTS

\$16,810

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed		3 stage w/s			
1-1/2"-0"	crushed		3 stage w/s			
4"-0"	crushed	17,159	3 stage w/s	140	\$2.78	\$47,678

TOTAL ROCK CRUSHING COSTS

\$47,678

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer		\$113.00	
Compactor		\$77.00	
Grader		\$100.00	
Excavator		\$155.00	

SUB TOTAL

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

HAUL & STOCKPILE STOCKPILE LOCATION		SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1.						
2.						
3.	Deep Creek	4"-0"	10	5,800	\$7.32	\$42,474
4.						
5.						
6.						

SUB TOTAL \$42,474

TOTAL STOCKPILING COSTS \$42,474

9) MISCELLANEOUS COSTS

DESCRIPTION			COST
Load and haul reject material to Waste Area			\$8,288
\$1.87 /CY	4,432 CY		
Tractor hours to work waste area	8 Hours	\$113.00 /Hour	\$904
Compact Reject Material	4,432 CY	\$0.40 /Hour	\$1,773
Final Quarry Maintenance			
C330	3 Hours	\$155.00 /Hour	\$465
Grader	1.5 Hours	\$100.00 /Hour	\$150

TOTAL MISCELLANEOUS COSTS \$11,580

10) GRAND TOTAL: \$200,601

\$/Cubic Yard \$11.69

Footnotes:

HAUL and STOCKPILE COST

SALE NAME: Walker Forest Ranger

QUARRY: Green Mountain No. 2

ROCK TYPE: Crushed

Location 1. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
							0.10
Truck type: D12	No. trucks: 2						
Delay min.: 15	Efficiency: 75%	Ave haul: \$2.00 /cy					
		Load: \$0.00 /cy					
Truck type: D12	No. trucks:	Stockpile: \$1.35 /cy					
Delay min.: 12	Efficiency: 75%						
Truck type:	No. trucks:	Production: cy/day = 632					
Delay min.: 10	Efficiency: 75%						
Location 1. 0	Haul and Stockpile Cost						\$3.34 /cy

Location 2. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			7.50		1.30		
Truck type: D20	No. trucks:						
Delay min.: 15	Efficiency: 75%	Ave haul: #DIV/0! /cy					
		Load: \$0.00 /cy					
Truck type: D12	No. trucks:	Stockpile: #N/A /cy					
Delay min.: 12	Efficiency: 75%						
Truck type: D10	No. trucks:	Production: cy/day = 0					
Delay min.: 10	Efficiency: 75%						
Location 2. 0	Haul and Stockpile Cost						#DIV/0! /cy

Location 3. Deep Creek 4"-0"	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			0.50	5.30	0.30	0.30	0.30
Truck type: D20	No. trucks: 5						
Delay min.: 15	Efficiency: 85%	Ave haul: \$6.49 /cy					
		Load: \$0.00 /cy					
Truck type: D12	No. trucks: 5	Stockpile: \$0.83 /cy					
Delay min.: 12	Efficiency: 85%						
Truck type: D10	No. trucks:	Production: cy/day = 1,103					
Delay min.: 10	Efficiency: 75%						
Location 3. Deep Creek	Haul and Stockpile Cost						\$7.32 /cy

HAUL and STOCKPILE COST

Location 4. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				1.00	1.00		
Truck type: D20	No. trucks:						Ave haul: #DIV/0! /cy
Delay min.: 15	Efficiency: 75%						Load: \$0.00 /cy
Truck type: D12	No. trucks:						Stockpile: #N/A /cy
Delay min.: 12	Efficiency: 75%						
Truck type: D10	No. trucks:						Production: cy/day = 0
Delay min.: 10	Efficiency: 75%						
Location 4. 0	Haul & Stockpile Cost					#DIV/0! /cy	

Location 5. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
							0.10
Truck type: D20	No. trucks: 2						Ave haul: \$1.52 /cy
Delay min.: 15	Efficiency: 75%						Load: \$0.00 /cy
Truck type: D12	No. trucks:						Stockpile: \$0.83 /cy
Delay min.: 12	Efficiency: 75%						
Truck type: D10	No. trucks:						Production: cy/day = 1,054
Delay min.: 10	Efficiency: 75%						
Location 5. 0	Haul & Stockpile Cost					\$2.35 /cy	

Location 6. 0	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				1.00	1.00		
Truck type: D20	No. trucks:						Ave haul: #DIV/0! /cy
Delay min.: 15	Efficiency: 75%						Load: \$0.00 /cy
Truck type: D12	No. trucks:						Stockpile: #N/A /cy
Delay min.: 12	Efficiency: 75%						
Truck type: D10	No. trucks:						Production: cy/day = 0
Delay min.: 10	Efficiency: 75%						
Location 6. 0	Haul & Stockpile Cost					#DIV/0! /cy	

Vacating Cost Summary	
	Total Appraised Cost
Mobilization	\$ 1,569.00
V1 to V2	\$ 11,189.35
V3 to V4	\$ 3,289.45
Grand Total of Vacating	\$ 16,048

MOVE IN:

Road Segment	Description	Equipment	Cost
V1 to V2 & V3 to V4	Full mobilization cost	Excavator (C330)	\$ 1,406.00
	Full mobilization cost	10-12cy DT	\$ 163.00

TOTAL \$ 1,569.00

Walker Forest Ranger

Walker Forest Ranger Vacating. Project No. 5 Vacating. V1 to V2 (0+00 to 18+00)

Location/Description	C330	C312	10-12cy DT	Laborer	Timber Faller	Straw	Seed	Volume Pump	Other
0+00 to 2+00 Slope and compact waste from 2+40 and waste in road prism and adjacent waste area	4								
2+40 Remove fill & culvert, pullback fill slopes. Redevelop stream channel	12		6	2				6	
3+20 Restore stream channel to natural contours	1								
3+70 to 6+30 Sidecast pullback Waste material in road prism to natural contours	6								
6+30 Remove culvert Restore stream channel to natural contours	0.5								
6+70 to 7+60 Sidecast pullback Waste material in road prism to natural contours	2								
10+65 Remove fill & culvert, pullback fill slopes. Redevelop stream channel	2								
11+15 to 12+40 Sidecast pullback Waste material in road prism to natural contours	2.5								
13+90 Remove fill & culvert, pullback fill slopes. Redevelop stream channel	8		4	2				4	
17+60 Remove fill & culvert, pullback fill slopes. Redevelop stream channel	4			2				2	
Straw Mulch & Grass Seeding - 3.0 acres Straw Mulch @ 2 tons/acre Grass Seeding & Labor						195	3		
Waterbarring 5 waterbars @ \$35 ea.									5
Haul and dispose of removed culverts	2		2						
	44	0	2	6	0	195	3	12	5
	\$ 6,820.00	\$ -	\$ 158.00	\$ 240.00	\$ -	\$2,092.35	\$ 1,584.00	\$ 120.00	\$ 175.00

Total Estimated Cost

\$11,189.35

Walker Forest Ranger

Walker Forest Ranger Vacating. Project No. 5 Vacating. V3 to V4 (0+00 to 21+00)

Location/Description	C330	C312	10-12cy DT	Laborer	Timber Faller	Straw	Seed	Volume Pump	Other
0+00 to 21+00 Walk-in excavator and clear blow-down logs, non-merch trees and brush	4								
12+60 Remove x-drain culvert	0.5								
21+00 (V4) Remove fill & culvert, pullback fill slopes. Redevelop stream channel	8			4				8	
Straw Mulch & Grass Seeding - 1.0 acres Straw Mulch @ 2 tons/acre Grass Seeding & Labor						65	1		
Waterbarring 10 waterbars @ \$35 ea.									10
Haul and dispose of removed culverts	0.5		1						
	9	0	1	4	0	65	1	8	10
	\$ 1,395.00	\$ -	\$ 79.00	\$ 160.00	\$ -	\$ 697.45	\$ 528.00	\$ 80.00	\$ 350.00

Total Estimated Cost

\$ 3,289.45

**Walker Forest Ranger Timber Sale
No. 341-13-26**

Mechanical Brushing Costs

Date: 01/14/13

Road Segment/ Point	Road Name	Length (Feet)	Miles	Brush Density	Cost / Mile	Segment Cost
B1 - B7	Soak Alley/ Alice's Restaurant & Military Creek Roads	16,554	3.14	Medium Light	\$858.20	\$2,691
B2	Soak Alley Rd.	8,250	1.56	Medium	\$965.47	\$1,509
B3	Soak Alley Rd.	7,931	1.50	Medium	\$965.47	\$1,450
B4	Alice's Restaurant Side Spur	206	0.04	Medium Heavy	\$1,180.02	\$46
B5	Alice's Restaurant Side Spur	291	0.06	Medium Heavy	\$1,180.02	\$65
B6	Military Creek Rd. Side Spur	5,630	1.07	Medium Heavy	\$1,180.02	\$1,258
B8 - B44	Military Creek Rd.	33,964	6.43	Light - Medium	\$750.92	\$4,830
B9	Military Creek Rd. Side Spur	2,751	0.52	Medium Heavy	\$1,180.02	\$615
B10	Military Creek Rd. Side Spur	433	0.08	Medium Heavy	\$1,180.02	\$97
B11	Military Creek Rd. Side Spurs	9,339	1.77	Medium Heavy	\$1,180.02	\$2,087
B12 - B17	Reed Ridge Rd.	12,650	2.40	Light	\$643.65	\$1,542
B13	Reed Ridge Rd. Side Spur	213	0.04	Medium Heavy	\$1,180.02	\$48
B14	Reed Ridge Rd. Side Spurs	7,424	1.41	Medium Heavy	\$1,180.02	\$1,659
B15	Reed Ridge Rd. Side Spur	622	0.12	Light	\$643.65	\$76
B16	Reed Ridge Rd. Side Spur	216	0.04	Light	\$643.65	\$26
B18 - B31	Nettle Creek Rd.	18,771	3.56	Light - Medium	\$750.92	\$2,670
B19	Nettle Creek Rd. Side Spur	2,300	0.44	Medium Heavy	\$1,180.02	\$514
B20	Nettle Creek Rd. Side Spur	682	0.13	Medium Heavy	\$1,180.02	\$152
B21	Nettle Creek Rd. Side Spurs	5,845	1.11	Medium	\$965.47	\$1,069
B22	Nettle Creek Rd. Side Spur	336	0.06	Medium	\$965.47	\$61
B23	Nettle Creek Rd. Side Spur	124	0.02	Medium Heavy	\$1,180.02	\$28
B24	Nettle Creek Rd. Side Spur	1,630	0.31	Medium Heavy	\$1,180.02	\$364
B25	Nettle Creek Rd. Side Spur	2,409	0.46	Medium Heavy	\$1,180.02	\$538

B26	Nettle Creek Rd. Side Spurs	1,768	0.33	Medium Heavy	\$1,180.02	\$395
B27	Nettle Creek Rd. Side Spur	637	0.12	Medium Heavy	\$1,180.02	\$142
B28	Nettle Creek Rd. Side Spur	1,264	0.24	Medium Heavy	\$1,180.02	\$282
B29	Nettle Creek Rd. Side Spur	465	0.09	Medium Heavy	\$1,180.02	\$104
B30	Nettle Creek Rd. Side Spurs	9,415	1.78	Medium Heavy	\$1,180.02	\$2,104
B32	Buster Creek Road Side Spurs	3,275	0.62	Medium	\$965.47	\$599
B33	Buster Creek Road Side Spurs	6,248	1.18	Medium Heavy	\$1,180.02	\$1,396
B34	Military Creek Rd. Side Spur	1,912	0.36	Light	\$643.65	\$233
B35	Military Creek Rd. Side Spur	890	0.17	Medium Heavy	\$1,180.02	\$199
B36	Military Creek Rd. Side Spur	3,732	0.71	Medium	\$965.47	\$682
B37	Military Creek Rd. Side Spur	642	0.12	Medium Heavy	\$1,180.02	\$143
B38	Military Creek Rd. Side Spur	2,404	0.46	Medium	\$965.47	\$440
B39	Military Creek Rd. Side Spurs	14,346	2.72	Medium Light	\$858.20	\$2,332
B40	Military Creek Rd. Side Spur	7,326	1.39	Medium	\$965.47	\$1,340
B41	Military Creek Rd. Side Spur	1,018	0.19	Medium Heavy	\$1,180.02	\$228
B42	Military Creek Rd. Side Spurs	14,507	2.75	Medium	\$965.47	\$2,653
B45 - B46	Buster Creek Road	28,775	5.45	Very Light	\$429.10	\$2,339
B47	Buster Creek Road Side Spurs	4,062	0.77	Medium Heavy	\$1,180.02	\$908
B48	Buster Creek Road Side Spur	314	0.06	Heavy	\$1,609.12	\$96
B49	Buster Creek Road Side Spur	326	0.06	Heavy	\$1,609.12	\$99
Totals			45.81		\$875	\$40,109

Projects Road Maintenance Cost Summary

Sale: Walker Forest Ranger
Date: 17-Jan-13
By: Derek Bangs CB

Type	Equipment/Rationale		Hours	Rate	Cost
Final Haul Road Maintenance Haul Route	Grader 14G		48	\$100	\$4,800
	Dump Truck 12CY		20	\$79	\$1,580
	FE Loader C966		10	\$83	\$830
	Vibratory Roller		48	\$77	\$3,696
	Water Truck 2,500 gallon		48	\$89	\$4,272
Total					\$15,178

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	7.9	5.3
Vibratory Roller	1.5	7.9	5.3
Military Creek Road, Green Mountain Road, Sager Creek Road, Deep Creek Road			

Road Maintenance Cost Summary

Sale: Walker Forest Ranger
 Date: 18-Jan-13
 By: D. Bangs *CB*

MBF: 10,484
 \$\$/MBF: \$3.30

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	Production Rates			
Progressive Operations 1st Entry	Grader 14G Dump Truck 12CY x 2 FE Loader C966	\$778 \$163 \$778	1	20	\$100	\$2,778	Production Rates	Miles/day	Distance(miles)	Days
			2	8	\$79	\$1,590	Grader	2.5	5.0	2.0
			1	8	\$83	\$1,442				
Progressive Operations 2nd Entry	Grader 14G Dump Truck 12CY x 2 FE Loader C966	\$778 \$163 \$778	1	16	\$100	\$2,378	Production Rates	Miles/day	Distance(miles)	Days
			2	8	\$79	\$1,590	Grader	2.5	4.0	1.6
			1	8	\$83	\$1,442				
Final Road Maintenance	Grader 14G Dump Truck 12CY x 2 FE Loader C966 Vibratory Roller Water Truck 2,500 gallon Labor	\$778 \$163 \$778 \$778 \$190	1	70	\$100	\$7,778	Production Rates	Miles/day	Distance(miles)	Days
			2	10	\$79	\$1,906	Grader	1.5	9.4	6.3
			1	10	\$83	\$1,608	Vibratory Roller	1.5	9.4	6.3
			1	70	\$77	\$6,168				
			1	60	\$89	\$5,530				
				10	\$40	\$400				
Total							\$34,610			

Walker Forest Ranger TIMBER CRUISE REPORT FY 2013

1. **Sale Area Location:** Areas 1, 2, and 3 are located in portions of Sections 9, 10, 15, and 16, T5N, R6W, W.M., Clatsop County, Oregon.

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

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	New R/W*	GTRA	Stream Buffer	Net Acres	Survey Method
1	Modified Clearcut	92	3	3	0	13	73	GIS
2	Modified Clearcut	91	6	0	1	10	74	GIS
3	Modified Clearcut	87	0	2	1	18	66	GIS
4	Right-of-Way	4	0	4	0	0	9	GIS
TOTALS		274	9	9	2	41	222	

*This also includes three acres of out-of-sale Right-of-Way.

4. **Cruisers and Cruise Dates:** Areas 1, 2, and 3 were cruised by Derek Bangs, Nick Haile, Ty Williams, David Rygell and Kevin Berry on January 2, 3, and 4, 2013.

5. **Cruise Method and Computation:**

Area 1 is a Modified Clearcut unit and was variable plot cruised using a 40 BAF. The plots are located on a 3 chain by 6 chain grid, with every third plot measured and graded. A total of 38 plots were sampled, with 14 measured and graded plots, and 24 count plots.

Areas 2 and 3 are Modified Clearcut units and were variable plot cruised using a 40 BAF. These plots are located on a 4 chain by 8 chain grid, with every third plot measured and graded. A total of 47 plots were sampled, with 18 measured and graded plots, and 30 count plots.

All cruisers used Corvallis MicroTechnology (CMT) and/or Allegro data collectors, and were downloaded to the Atterbury Super A.C.E. program in District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria district office.

AREA	CRUISE	TRACT	TYPE	ACRES
1	T5NR6W09	AREA1	TAKE	73
2 & 3	T5NR6W10	AREA23	TAKE	140
4	T5NR6W10	RIGHT-OF-WAY	ROW	9

6. **Timber Description:** Area 1 is a modified clearcut unit, approximately 70 to 80 year-old, consisting of Douglas-fir, with minor amounts of Western hemlock, red alder, and maple. The average Douglas-fir tree size to be harvested is 16.9 inches DBH, with an average height of 49 feet to a merchantable top (6 inch d.i.b.). The average volume (net) is approximately 36.0 MBF/acre.

Areas 2 and 3 are modified clearcut units, approximately 70 to 80 year-old, consisting of Douglas-fir, with minor amounts of Western hemlock, red alder, and maple. The average Douglas-fir tree size to be harvested is 20.9 inches DBH, with an average height of 86 feet to a merchantable top (6 inch d.i.b.). The average volume (net) is approximately 52.7 MBF/acre.

Area 4 R/W is similar to the timber description mentioned above for Areas 2 and 3. The average volume (net) is approximately 52.7 MBF/acre.

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

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1	55%	11%	56.6%	9.2%
2	45%	8%	32.2%	4.7%

8. Volumes by Species and Log Grade: (See "Species, Sort, Grade" - Project Report, attached).

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

Species	DBH	Net Vol.	2 Saw	3 Saw	4 Saw	Camp Run	% D & B	% Sale
Douglas-fir	19.4"	10,278	7,872	2,153	253	0	4%	98%
Hemlock/True-fir	16.3"	201	127	71	3	0	4%	2%
Big Leaf Maple	14.0"	5	0	0	0	5	<1%	<1
TOTALS		10,484	7,999	2,224	256	5		

9. Approvals:

Prepared by: Derek Bangs Date: 1/08/13

Unit Forester Approval:  Date: 1/29/13

10. Attachments:

Cruise Designs and Maps – 5 pages
Volume Report - 5 pages
Statistics Reports - 4 pages
Log Stock Tables - 2 pages
Stand Table Summary – 1 page

X:\Jewell_Unit\Timber Sales\2013\Walker Forest Ranger\Sale_Prep\Walker_FR_CruiseReport.docx

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Walker Forest Ranger **Area** 1

Harvest Type: (MC) "Modified Clearcut"

Approx. Cruise Acres: 76 **Estimated CV%** 55% Net BF **SE% Objective** 11 Net BF

Planned Sale Volume : 2,508 MBF **Estimated Sale Area Value/Acre:** \$11,220/Ac
(Sale Area 1) (33 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum 50 conifer
(b) Sample 39 cruise plots (13 grade/ 26 count); (c) Other goals (Determine
"automark" thinning standards; X Determine log grades for sale value; X
Determine snag and leave tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF 40 (Full point; Half point) (circle one)
Cruise Line Direction(s): AZ= 360° (North/South)
Cruise Line Spacing 6 (chains)
Cruise Plot Spacing 3 (chains)
Grade/Count Ratio 1/2

Cedar and marked wildlife trees are leave trees and are recorded as such. Record snags as SN and estimate heights and diameters. Grade alder as camprun (30 net BF minimum). If plot lands in buffer or road then offset at least one chain and continue.

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" 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 merch. 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 = Camprun; 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 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: Derek Bangs
Approved by: 
Date: 12/14/12

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Walker Forest Ranger **Area(s)** 2 and 3

Harvest Type: (MC) "Modified Clearcut"

Approx. Cruise Acres: 146 **Estimated CV%** 45% Net BF **SE% Objective** 8 Net BF

Planned Sale Volume : 6,424 MBF **Estimated Sale Area Value/Acre:** \$14,960/Ac
(Sale Areas 2 & 3) (44 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum 85 conifer
(b) Sample 48 cruise plots (17 grade/ 31 count); (c) Other goals (Determine
"automark" thinning standards; X Determine log grades for sale value; X
Determine snag and leave tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF 40 (Full point; Half point) (circle one)
Cruise Line Direction(s) Area 2: AZ= 360° (North/South)
Area 3: AZ= 90° (West/East)
Cruise Line Spacing 8 (chains)
Cruise Plot Spacing 4 (chains)
Grade/Count Ratio 1/2

Cedar and marked wildlife trees are leave trees and are recorded as such. Record snags as SN and estimate heights and diameters. Grade alder as camprun (30 net BF minimum). If plot lands in buffer or road then offset at least one chain and continue.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods.
Record dbh to nearest ½" 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" 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 merch. 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 = Camprun; 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 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: Derek Bangs

Approved by: _____

Date: 12/14/12

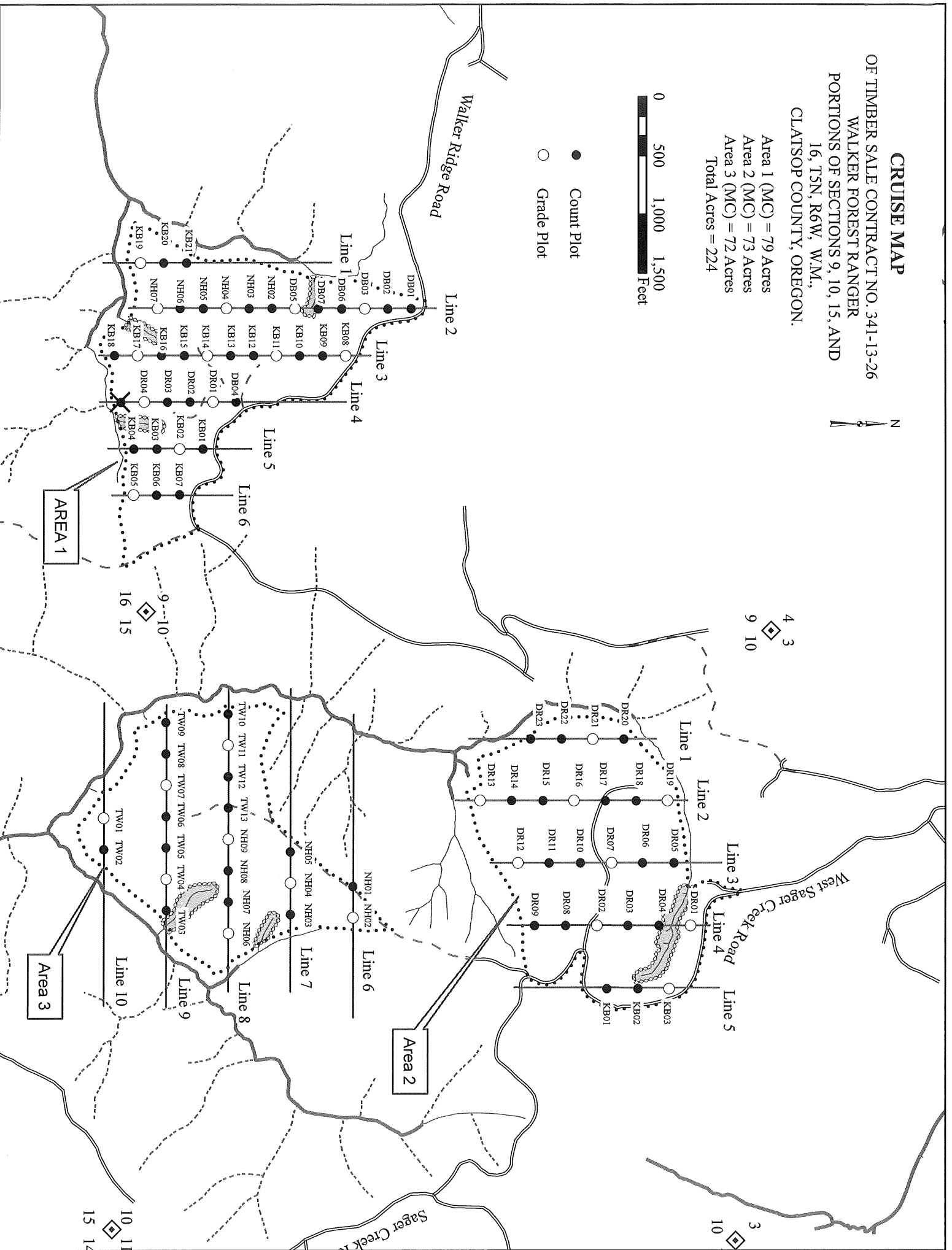
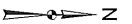
CRUISE MAP

OF TIMBER SALE CONTRACT NO. 341-13-26
WALKER FOREST RANGER
PORTIONS OF SECTIONS 9, 10, 15, AND
16, T5N, R6W, W.M.,
CLATSOP COUNTY, OREGON.

Area 1 (MC) = 79 Acres
Area 2 (MC) = 73 Acres
Area 3 (MC) = 72 Acres
Total Acres = 224



- Count Plot
- Grade Plot



TC PSCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																
T05N R06W S09 TyTAKE73.00 T05N R06W S10 TyTAKE140.00 T05N R06W S10 TyROW9.00										Project: WALK							Page 1	
										Acres 222.00							Date 1/8/2013	
																	Time 2:23:18PM	
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
							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	DOCU		100.0	1,148											12		0.00	17.4
D	DO2S	76	1.2	35,906	35,460	7,872		1	40	59	1	3	6	90	39	428	2.40	82.8
D	DO3S	21	1.0	9,796	9,697	2,153		97	3	0	1	9	29	60	35	86	0.71	112.9
D	DO4S	3	1.2	1,156	1,143	254	3	97			45	50	5		21	29	0.43	40.0
D Totals		98	3.6	48,005	46,300	10,279	0	24	31	46	2	6	11	82	32	183	1.33	253.0
H	DOCU		100.0	39											6		0.00	.3
H	DO2S	63		571	571	127		6	61	33				100	40	275	1.47	2.1
H	DO3S	35		319	319	71		70	30				25	75	38	93	0.68	3.4
H	DO4S	2		14	14	3		100			100				15	20	0.43	.7
H Totals		2	4.2	943	904	201		30	49	21	2		9	90	35	140	0.95	6.5
M	DOCR	100		21	21	5		100				100			30	40	0.60	.5
M Totals		0		21	21	5		100				100			30	40	0.60	.5
Totals			3.6	48,969	47,225	10,484	0	24	31	45	2	6	11	82	32	182	1.31	260.0

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page		1			
				Project: WALK										Date		1/8/2013			
														Time		2:36:54PM			
T05N R06W S09 TTAKE										T05N R06W S09 TTAKE									
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt	
05N		06W		09		AREA1		TAKE		73.00		38		71		1		W	
S So Gr T rt ad Spp			%	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	Bd	CF/ Lf	
			Net BdFt					4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft		
D DO CU				100.0 1,729												14		0.00	38.9
D DO 2S			74	1.4 27,161 26,787			1,955		3	22	75	0	9	13	78	38	509	2.77	52.6
D DO 3S			23	3.2 8,265 8,001			584		91	8	1	4	12	34	50	34	78	0.73	102.7
D DO 4S			3	4.1 1,010 968			71	10	90			49	34	17		21	26	0.40	37.3
D Totals			99	6.3 38,165 35,756			2,610	0	25	18	57	2	10	18	69	29	154	1.24	231.5
H DO 3S			100	272 272			20		100							40	60	0.42	4.5
H Totals			1	272 272			20		100							40	60	0.42	4.5
Type Totals				6.3 38,436 36,028			2,630	0	25	18	56	2	10	18	70	29	153	1.21	236.0

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1									
		Project: WALK										Date 1/8/2013									
												Time 2:37:13PM									
T05N R06W S10 TTAKE										T05N R06W S10 TTAKE											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
05N	06W	10	AREA23	TAKE	140.00	47	106	1	W												
S So Gr T rt ad Spp		%	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre			
		Net BdFt	Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf				
D	DO	CU			100.0	862									7		0.00	6.8			
D	DO	2S	77		1.2	40,191	39,709	5,559		0	45	54		1	1	4	94	39	407	2.30	97.6
D	DO	3S	20		.2	10,546	10,528	1,474		100	0			0	8	27	64	36	89	0.70	117.9
D	DO	4S	3			1,228	1,228	172		100				44	56			21	30	0.45	41.3
D Totals			98		2.6	52,826	51,466	7,205		23	35	42		2	4	8	86	34	195	1.36	263.6
H	DO	CU			100.0	58												6		0.00	.4
H	DO	2S	70			850	850	119		6	61	33					100	40	275	1.47	3.1
H	DO	3S	28			343	343	48		58	42					35	65	36	119	0.89	2.9
H	DO	4S	2			20	20	3		100				100				15	20	0.43	1.0
H Totals			2		4.6	1,271	1,213	170		22	54	23		2		10	88	33	164	1.14	7.4
M	DO	CR	100			32	32	4		100						100		30	40	0.60	.8
M Totals			0			32	32	4		100						100		30	40	0.60	.8
Type Totals					2.6	54,130	52,710	7,379		23	35	41		2	4	8	86	34	194	1.35	271.8

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1				
				Project: WALK												Date		1/8/2013				
																Time		2:37:31PM				
T05N R06W S10 TROW										T05N R06W S10 TROW												
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt				
05N		06W		10		RIGHT-OF-WAY		ROW		9.00		47		106		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 Ft	Bd Ft	CF/ Lf				
D			DO	CU		100.0	862										7	0.00	6.8			
D			DO	2S	77	1.2	40,191	39,709	357		0	45	54		1	1	4	94	39	407	2.30	97.6
D			DO	3S	20	.2	10,546	10,528	95		100	0			0	8	27	64	36	89	0.70	117.9
D			DO	4S	3		1,228	1,228	11		100				44	56			21	30	0.45	41.3
D			Totals		98	2.6	52,826	51,466	463		23	35	42		2	4	8	86	34	195	1.36	263.6
H			DO	CU		100.0	58											6	0.00	.4		
H			DO	2S	70		850	850	8		6	61	33				100	40	275	1.47	3.1	
H			DO	3S	28		343	343	3		58	42				35	65	36	119	0.89	2.9	
H			DO	4S	2		20	20	0		100			100				15	20	0.43	1.0	
H			Totals		2	4.6	1,271	1,213	11		22	54	23		2		10	88	33	164	1.14	7.4
M			DO	CR	100		32	32	0		100				100			30	40	0.60	.8	
M			Totals		0		32	32	0		100				100			30	40	0.60	.8	
Type Totals						2.6	54,130	52,710	474		23	35	41		2	4	8	86	34	194	1.35	271.8

TC PSTATS					PROJECT STATISTICS				PAGE	1	
					PROJECT	WALK			DATE	1/8/2013	
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06	09	AREA1	TAKE	222.00	132	837	1	W		
05N	06W	10	AREA23	TAKE							
05N	06W	10	RIGHT-OF-WAY	ROW							
					TREES	ESTIMATED	PERCENT				
					PER PLOT	TOTAL	SAMPLE				
			PLOTS	TREES	PER PLOT	TREES	TREES				
TOTAL			132	837	6.3						
CRUISE			50	283	5.7	27,479	1.0				
DBH COUNT											
REFOREST											
COUNT			82	532	6.5						
BLANKS											
100 %											
STAND SUMMARY											
			SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS
			TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC
DOUG FIR			268	119.8	19.4	71		245.7	48,005	46,300	11,091
WHEMLOCK			13	3.4	16.3	68		5.0	943	904	221
BL MAPLE			2	.5	14.0	31		.6	21	21	10
TOTAL			283	123.8	19.3	71		251.3	48,969	47,225	11,322
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			78.9	4.8	755	793	832				
WHEMLOCK			85.1	24.5	382	506	630				
BL MAPLE					40	40	40				
TOTAL			80.2	4.8	738	775	812	257	64	29	
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			91.0	7.9	110	120	129				
WHEMLOCK			506.1	44.0	2	3	5				
BL MAPLE			1081.2	94.0	0	1	1				
TOTAL			92.1	8.0	114	124	134	339	85	38	
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			84.7	7.4	228	246	264				
WHEMLOCK			500.6	43.5	3	5	7				
BL MAPLE			1081.2	94.0	0	1	1				
TOTAL			84.7	7.4	233	251	270	286	72	32	
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			90.9	7.9	42,641	46,300	49,959				
WHEMLOCK			582.5	50.7	446	904	1,361				
BL MAPLE			1081.2	94.0	1	21	41				
TOTAL			91.2	7.9	43,479	47,225	50,971	332	83	37	

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	WALK			DATE	1/8/2013		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	09	AREA1	TAKE	73.00	38	223	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		38	223	5.9							
CRUISE		14	71	5.1	10,971		.6				
DBH COUNT											
REFOREST											
COUNT		24	152	6.3							
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		70	145.8	16.9	49		227.9	38,165	35,756	8,730	8,366
WHEMLOCK		1	4.5	11.0	40		3.0	272	272	77	77
TOTAL		71	150.3	16.8	49		230.9	38,436	36,028	8,807	8,443
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		96.7	11.5	662	748	834					
WHEMLOCK											
TOTAL		97.9	11.6	653	738	824	383	96	43		
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		58.4	9.5	132	146	160					
WHEMLOCK		449.4	72.8	1	5	8					
TOTAL		62.4	10.1	135	150	166	156	39	17		
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		46.3	7.5	211	228	245					
WHEMLOCK		449.4	72.8	1	3	5					
TOTAL		48.7	7.9	213	231	249	95	24	11		
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		55.6	9.0	32,536	35,756	38,977					
WHEMLOCK		449.4	72.8	74	272	470					
TOTAL		56.6	9.2	32,724	36,028	39,332	128	32	14		

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	WALK			DATE	1/8/2013		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	10	AREA23	TAKE	140.00	47	307	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		47	307	6.5							
CRUISE		18	106	5.9	15,511	.7					
DBH COUNT											
REFOREST											
COUNT		29	190	6.6							
BLANKS											
100 %											
STAND SUMMARY											
		SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
		TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR		99	107.1	20.9	86		254.5	52,826	51,466	12,247	12,103
WHEMLOCK		6	2.9	19.5	89		6.0	1,271	1,213	292	281
BL MAPLE		1	.8	14.0	31		.9	32	32	14	14
TOTAL		106	110.8	20.8	86		261.3	54,130	52,710	12,554	12,398
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		72.9	7.3	750	809	869					
WHEMLOCK		82.5	36.8	344	543	743					
BL MAPLE											
TOTAL		74.5	7.2	730	787	844	221	55	25		
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		45.9	6.7	100	107	114					
WHEMLOCK		393.2	57.3	1	3	5					
BL MAPLE		685.6	99.9	0	1	2					
TOTAL		45.1	6.6	104	111	118	81	20	9		
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		31.8	4.6	243	254	266					
WHEMLOCK		369.8	53.9	3	6	9					
BL MAPLE		685.6	99.9	0	1	2					
TOTAL		30.3	4.4	250	261	273	37	9	4		
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		32.4	4.7	49,034	51,466	53,897					
WHEMLOCK		401.9	58.6	503	1,213	1,923					
BL MAPLE		685.6	99.9	0	32	64					
TOTAL		32.2	4.7	50,237	52,710	55,184	41	10	5		

TC		PLOGSTVB		Log Stock Table - MBF															
T05N R06W S09 TyTAKE				73.00		Project:		WALK		Page		1							
T05N R06W S10 TyTAKE				140.00		Acres		222.00		Date		1/8/2013							
T05N R06W S10 TyROW				9.00						Time		2:23:17PM							
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
D		DO	CU	6	139	100.0													
D		DO	CU	8	26	100.0													
D		DO	CU	10	13	100.0													
D		DO	CU	12	19	100.0													
D		DO	CU	15	9	100.0													
D		DO	CU	16	11	100.0													
D		DO	CU	18	9	100.0													
D		DO	CU	20	22	100.0													
D		DO	CU	26	7	100.0													
D		DO	2S	16	4		4	.0					4						
D		DO	2S	19	3		3	.0					3						
D		DO	2S	20	53		53	.5							18			35	
D		DO	2S	22	49		49	.5					3	22				24	
D		DO	2S	23	6		6	.1					6						
D		DO	2S	24	55	2.0	54	.5									27		27
D		DO	2S	27	7		7	.1					7						
D		DO	2S	28	32		32	.3										32	
D		DO	2S	29	8		8	.1					8						
D		DO	2S	30	113	2.1	110	1.1									32	78	
D		DO	2S	32	469		467	4.5					39	101	157		34	33	104
D		DO	2S	37	18		18	.2					18						
D		DO	2S	40	7,155	1.3	7,061	68.7					80	999	1070	2119	1728	1003	62
D		DO	3S	15	7		7	.1					7						
D		DO	3S	16	8		8	.1				3	5						
D		DO	3S	17	15		15	.1			3	5	5	3					
D		DO	3S	22	36		36	.3				22	14						
D		DO	3S	23	12	7.5	11	.1			7			4					
D		DO	3S	25	5		5	.1						5					
D		DO	3S	27	38		38	.4			5	26	7						
D		DO	3S	28	83	1.5	81	.8			39	11	22	9					
D		DO	3S	29	12		12	.1			4	4		4					
D		DO	3S	30	18		18	.2				18							
D		DO	3S	31	5		5	.0					5						
D		DO	3S	32	539	3.0	523	5.1			60	297	160				6		
D		DO	3S	33	35	1.9	34	.3			16	4	14						
D		DO	3S	34	27		27	.3				27							
D		DO	3S	35	33		33	.3			33								

TC PLOGSTVB		Log Stock Table - MBF																		
T05N R06W S09 TyTAKE 73.00					Project: WALK Acres 222.00										Page 2					
T05N R06W S10 TyTAKE 140.00															Date 1/8/2013					
T05N R06W S10 TyROW 9.00															Time 2:23:17PM					
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+
D		DO	3S	36	48		48	.5			48									
D		DO	3S	37	99		99	1.0			38	30	26	5						
D		DO	3S	38	27		27	.3			22		6							
D		DO	3S	40	1,127		1,125	10.9			354	348	400	8	15					
D		DO	4S	15	13		13	.1			13									
D		DO	4S	16	33		33	.3			29	3								
D		DO	4S	17	28		28	.3			21	3	4							
D		DO	4S	18	11		11	.1			8		3							
D		DO	4S	19	4		4	.0			4									
D		DO	4S	20	26		26	.2		7	18									
D		DO	4S	22	30		30	.3			30									
D		DO	4S	23	3		3	.0			3									
D		DO	4S	24	14		14	.1			14									
D		DO	4S	25	10		10	.1			10									
D		DO	4S	26	12		12	.1			12									
D		DO	4S	27	35		35	.3			16	19								
D		DO	4S	28	8		8	.1			8									
D		DO	4S	29	14		14	.1			14									
D		DO	4S	32	15	20.0	12	.1			12									
D		Totals			10,657	3.6	10,279	98.0		7	842	819	758	1126	1192	2309	1827	1206	193	
H		DO	CU	6	9	100.0														
H		DO	2S	40	127		127	63.1			7		41	36	15	27				
H		DO	3S	32	16		16	7.8				8	8							
H		DO	3S	33	2		2	1.1				2								
H		DO	3S	37	5		5	2.3					5							
H		DO	3S	40	48		48	24.2			27			21						
H		DO	4S	15	3		3	1.5			3									
H		Totals			209	4.2	201	1.9			38	10	13	62	36	15	27			
M		DO	CR	30	5		5	100.0			5									
M		Totals			5		5	.0			5									
Total		All Species			10,871	3.6	10,484	100.0		7	884	829	771	1188	1228	2324	1854	1206	193	

TC		PSTNDSUM		Stand Table Summary										Page 1	
														Date: 1/8/2013	
T05N R06W S09 TyTAKE 73.00 T05N R06W S10 TyTAKE 140.00 T05N R06W S10 TyROW 9.00				Project WALK						Time: 2:23:18PM					
				Acres 222.00						Grown Year:					
S SpC T	DBH	Sample Trees	Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
			FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
D	8	1	88	17	3.067	1.07									
D	9	2	84	21	4.846	2.14	2.42	5.0	20.0		12	48		27	11
D	10	4	87	88	7.088	3.87	8.29	13.2	60.0		110	497		244	110
D	11	7	86	64	10.094	6.66	10.09	15.8	53.6		159	541		353	120
D	12	10	88	65	13.100	10.29	14.46	16.6	54.3		241	786		534	174
D	13	11	88	88	10.519	9.70	19.88	16.6	61.3		329	1,218		730	271
D	14	13	88	89	11.462	12.25	18.92	20.5	74.7		387	1,413		860	314
D	15	3	90	98	2.278	2.80	4.56	23.7	88.5		108	403		239	90
D	16	4	87	125	2.471	3.45	7.41	22.0	85.0		163	630		362	140
D	17	6	88	103	3.811	6.01	8.72	28.1	103.6		245	903		544	200
D	18	10	88	115	5.116	9.04	11.81	33.8	126.2		399	1,491		887	331
D	19	7	86	112	3.172	6.25	8.10	33.0	113.9		267	922		593	205
D	20	6	88	143	2.372	5.18	7.12	39.7	164.4		282	1,170		627	260
D	21	12	87	123	4.303	10.35	11.48	42.3	166.3		485	1,908		1,076	424
D	22	11	87	126	3.988	10.53	10.34	48.8	195.9		505	2,027		1,121	450
D	23	20	87	136	5.979	17.25	16.74	51.5	209.3		862	3,504		1,914	778
D	24	14	85	135	3.976	12.49	11.93	53.0	216.6		633	2,584		1,405	574
D	25	6	86	140	1.518	5.18	4.55	59.6	248.9		271	1,134		602	252
D	26	9	86	144	2.162	7.97	6.49	66.3	280.2		430	1,817		955	403
D	27	10	86	130	2.274	9.04	6.12	72.5	312.5		444	1,912		985	424
D	28	13	87	133	2.768	11.84	7.65	74.3	326.7		568	2,500		1,262	555
D	29	11	86	128	2.114	9.70	5.97	79.1	353.6		472	2,109		1,048	468
D	30	16	85	131	2.896	14.22	8.25	84.3	380.9		696	3,144		1,545	698
D	31	6	87	125	1.146	6.01	3.44	81.1	381.0		279	1,310		619	291
D	32	2	85	115	.383	2.14	.96	99.4	438.0		95	420		211	93
D	33	11	87	126	1.702	10.11	4.64	104.9	488.3		486	2,264		1,080	503
D	34	4	85	120	.613	3.87	1.84	86.6	425.8		159	783		354	174
D	35	3	87	139	.418	2.80	1.26	114.3	540.8		143	679		318	151
D	36	9	86	139	1.245	8.80	3.58	124.1	603.0		445	2,161		987	480
D	37	8	86	136	.924	6.90	2.77	118.4	590.8		328	1,638		729	364
D	38	3	87	153	.355	2.80	1.06	148.5	769.1		158	819		351	182
D	39	1	85	122	.129	1.07	.39	127.0	603.3		49	234		109	52
D	40	9	87	141	.961	8.39	2.88	138.9	702.1		400	2,024		889	449
D	42	4	87	129	.402	3.87	1.03	169.8	845.1		174	867		387	193
D	43	2	85	133	.171	1.73	.51	170.0	853.3		87	438		194	97
D	Totals	268	87	98	119.828	245.72	235.66	46.1	196.5		10,874	46,300		24,140	10,279
H	11	1	92	61	1.490	.98	1.49	17.0	60.0		25	89		56	20
H	16	4	92	109	.955	1.33	1.91	34.5	135.0		66	258		146	57
H	18	2	92	112	.377	.67	1.13	28.7	116.7		32	132		72	29
H	20	2	91	110	.305	.67	.92	36.3	166.7		33	153		74	34
H	29	4	80	127	.291	1.33	.73	78.4	374.0		57	272		126	60
H	Totals	13	91	90	3.417	4.98	6.17	34.6	146.4		214	904		475	201
M	14	2	87	39	.534	.57	.53	18.0	40.0		10	21		21	5
M	Totals	2	87	39	.534	.57	.53	18.0	40.0		10	21		21	5
Totals		283	87	98	123.780	251.28	242.36	45.8	194.9		11,098	47,225		24,637	10,484

LOGGING PLAN

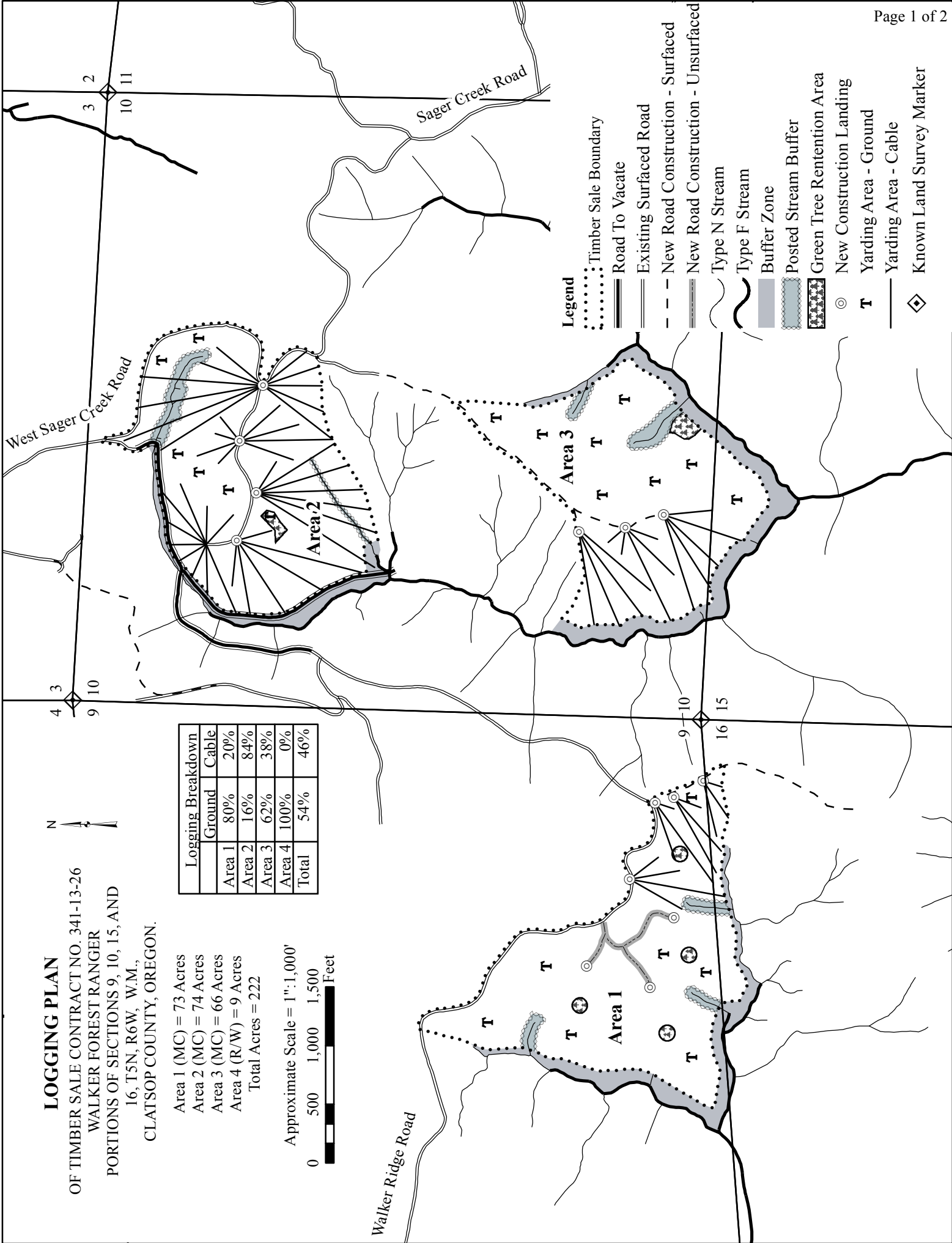
OF TIMBER SALE CONTRACT NO. 341-13-26
WALKER FOREST RANGER
PORTIONS OF SECTIONS 9, 10, 15, AND
16, T5N, R6W, W.M.,
CLATSOP COUNTY, OREGON.

Area 1 (MC) = 73 Acres
Area 2 (MC) = 74 Acres
Area 3 (MC) = 66 Acres
Area 4 (R/W) = 9 Acres
Total Acres = 222

Approximate Scale = 1"=1,000'



Logging Breakdown	
	Cable
Area 1	80%
Area 2	20%
Area 3	84%
Area 4	38%
Total	62%
	54%
	46%



Legend

- Timber Sale Boundary
- Road To Vacate
- Existing Surfaced Road
- - - New Road Construction - Surfaced
- New Road Construction - Unsurfaced
- ~ Type N Stream
- ~ Type F Stream
- Buffer Zone
- Posted Stream Buffer
- Green Tree Retention Area
- New Construction Landing
- T Yarding Area - Ground
- Yarding Area - Cable
- ◇ Known Land Survey Marker

LOGGING PLAN

OF TIMBER SALE CONTRACT NO. 341-13-26
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	Cable
Area 1	80%
Area 2	20%
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Total	62%
	38%
	0%
	46%

