



Timber Sale Appraisal  
Filched  
Sale WO-341-2016-71-

District: West Oregon

Date: May 02, 2016

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**Cost Summary**

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$861,537.88	\$58,564.08	\$920,101.96
		Project Work:	(\$69,574.00)
		Advertised Value:	\$850,527.96



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**Timber Description**

**Location:** Portions of Sections 15 and 22, T10S, R7W, W.M., Benton County, Oregon.

**Stand Stocking:** 80%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	21	0	95
Western Hemlock / Fir	35	0	95
Alder (Red)	16	0	90

Volume by Grade	2S	3S	3S 12"+	4S	Camprun	Total
Douglas - Fir	1,597	502	44	44	0	2,187
Western Hemlock / Fir	40	0	0	0	0	40
Alder (Red)	0	0	0	0	171	171
<b>Total</b>	1,637	502	44	44	171	2,398

**Comments:** Pond Values Used: 1st Quarter Calendar Year 2016.

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:  
 $\$944.88/\text{MBF} = \$1,185.00/\text{MBF} - \$240.12/\text{MBF}$

SCALING COST ALLOWANCE =  $\$5.00/\text{MBF}$

FUEL COST ALLOWANCE =  $\$3.00/\text{Gallon}$

Log Haul:

Conifer costed to Eugene.

Hardwood costed to Eugene.

HAULING COST ALLOWANCE

Hauling costs equivalent to  $\$780$  daily truck cost.

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

Log Branding & Painting:  $2,398 \text{ MBF} @ \$1/\text{MBF} = \$2,398$

Intermediate Supports/Tail Trees:  $8 \text{ trees} @ \$100/\text{tree} = \$800$

TOTAL Other Costs (with Profit & Risk to be added) =  $\$3,198$

Other Costs (No Profit & Risk added):

Invasive Species Equipment Cleaning:  $\$2,500$

Firewood Sorting:  $7 \text{ Landings} @ \$100/\text{Landing} = \$700$

Logger's Choice Road/Landing =  $\$500$

TOTAL Other Costs (No Profit & Risk added) =  $\$3,700$

SLASH DISPOSAL

Move-in:  $\$750$

Project Work :  $38 \text{ hours} @ \$150/\text{hour} = \$5,700$

TOTAL Slash Disposal =  $\$6,450$



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**Logging Conditions**

<b>Combination#: 1</b>	Douglas - Fir	33.00%
	Western Hemlock / Fir	33.00%
	Alder (Red)	33.00%
<b>Logging System:</b>	Shovel	<b>Process:</b> Manual Delimbing
<b>yarding distance:</b>	Short (400 ft)	<b>downhill yarding:</b> No
<b>tree size:</b>	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF	
<b>loads / day:</b>	16	<b>bd. ft / load:</b> 4600
<b>cost / mbf:</b>	\$45.21	
<b>machines:</b>	Shovel Logger	
<hr/>		
<b>Combination#: 2</b>	Douglas - Fir	38.00%
	Western Hemlock / Fir	38.00%
	Alder (Red)	38.00%
<b>Logging System:</b>	Cable: Medium Tower >40 - <70	<b>Process:</b> Manual Delimbing
<b>yarding distance:</b>	Short (400 ft)	<b>downhill yarding:</b> No
<b>tree size:</b>	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF	
<b>loads / day:</b>	12	<b>bd. ft / load:</b> 4600
<b>cost / mbf:</b>	\$110.51	
<b>machines:</b>	Log Loader (A) Tower Yarder (Medium)	
<hr/>		
<b>Combination#: 3</b>	Douglas - Fir	13.00%
	Western Hemlock / Fir	13.00%
	Alder (Red)	13.00%
<b>Logging System:</b>	Cable: Medium Tower >40 - <70	<b>Process:</b> Manual Delimbing
<b>yarding distance:</b>	Medium (800 ft)	<b>downhill yarding:</b> No
<b>tree size:</b>	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF	
<b>loads / day:</b>	10	<b>bd. ft / load:</b> 4600
<b>cost / mbf:</b>	\$132.61	
<b>machines:</b>	Log Loader (A) Tower Yarder (Medium)	
<hr/>		
<b>Combination#: 4</b>	Douglas - Fir	16.00%
	Western Hemlock / Fir	16.00%
	Alder (Red)	16.00%
<b>Logging System:</b>	Cable: Medium Tower >40 - <70	<b>Process:</b> Manual Delimbing
<b>yarding distance:</b>	Long (1,500 ft)	<b>downhill yarding:</b> No
<b>tree size:</b>	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF	
<b>loads / day:</b>	8	<b>bd. ft / load:</b> 4600
<b>cost / mbf:</b>	\$165.76	
<b>machines:</b>	Log Loader (A) Tower Yarder (Medium)	



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**Logging Costs**

<b>Operating Seasons:</b> 1.00	<b>Profit Risk:</b> 10%
<b>Project Costs:</b> \$69,574.00	<b>Other Costs (P/R):</b> \$3,198.00
<b>Slash Disposal:</b> \$6,450.00	<b>Other Costs:</b> \$3,700.00

**Miles of Road**

**Road Maintenance:** \$3.51

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	5.0
Western Hemlock / Fir	\$0.00	2.0	4.0
Alder (Red)	\$0.00	2.0	3.5



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**Logging Costs Breakdown**

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
<b>Douglas - Fir</b>									
\$100.67	\$3.69	\$1.83	\$81.90	\$1.33	\$18.94	\$2.69	\$5.00	\$1.54	\$217.59
<b>Western Hemlock / Fir</b>									
\$100.67	\$3.69	\$1.83	\$102.38	\$1.33	\$20.99	\$2.69	\$5.00	\$1.54	\$240.12
<b>Alder (Red)</b>									
\$100.67	\$3.86	\$1.83	\$122.57	\$1.33	\$23.03	\$2.69	\$5.00	\$1.54	\$262.52

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$607.23	\$389.64	\$0.00
Western Hemlock / Fir	\$0.00	\$475.00	\$234.88	\$0.00
Alder (Red)	\$0.00	\$605.00	\$342.48	\$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	2,187	\$389.64	\$852,142.68
Western Hemlock / Fir	40	\$234.88	\$9,395.20
Alder (Red)	171	\$342.48	\$58,564.08

**Gross Timber Sale Value**

**Recovery:** \$920,101.96

**Prepared By:** Evelyn Hukari

**Phone:** 541-929-3266

## SUMMARY OF ALL PROJECT COSTS

Sale Name: Filched

Date: April 2016

Time: 9:47

### Project #1 - New Construction

<u>Road Segment</u>	<u>Length</u>	<u>Cost</u>
A3 to A4	13.0 sta	\$5,458
A5 to A6	2.1 sta	\$538
A7 to A8	5.2 sta	\$7,566

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**TOTALS**

20.3 sta

\$13,562

### Project #2 - Improvements

<u>Road Segment</u>	<u>Length</u>	<u>Cost</u>
A to A1	197.2 sta	\$15,954
A2 to A3	3.2 sta	\$32
A9 to A10	1.8 sta	\$318
A11 to A12	7.0 sta	\$7,687
A1 to B	138.0 sta	\$6,214

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**TOTALS**

347.2 sta

\$30,205

### Project #3 - Rock Stockpile

\$20,365

### Project #4 - Post Harvest Activities

Landing patch rock and turnaround rock

\$1,863

### Move in

	<u>Cost</u>	<u>On-site move</u>
Excavator	\$753	\$110
Crawler tractor, D-7 or equiv.	\$547	\$125
Grader, Cat 14-G or equiv.	\$340	
Water Truck	\$223	
Backhoe	\$681	\$40
Vibratory roller	\$340	\$40
Front end loader	\$340	\$40

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**TOTAL**

\$3,579

**GRAND TOTAL**

**\$69,574**

Compiled by J. Goldsby

Date

04/18/2016



## SUMMARY OF CONSTRUCTION COST

SALE ROAD	Filched A to A1	Project # 2	LENGTH improve surfaced, crowned	197.2 sta
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### CLEARING AND GRUBBING

0.10 acres	@	\$1,010.24 /acre	=	\$101 landing
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TOTAL CLEARING AND GRUBBING = \$101

### IMPROVEMENT

Shape surface (with road grader)	197.2 sta	@	\$13.75 /sta	=	\$2,712
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Remove stumps, bank slough, & re-establish ditches	5 hrs	@	\$ 127.68 /hr	=	\$638
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Enhance stumps/ bank slough	3 hrs	@	\$ 68.88 /hr	=	\$207
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TOTAL IMPROVEMENT = \$3,557

### EXCAVATION

With D7 dozer or equivalent

Construct landing (Sta. 139+50)	2 hr	@	\$135.80 /hr	=	\$272
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TOTAL EXCAVATION = \$272

### SURFACING

Spot Rock (75 CY/mi)	279 cy of	Size 1½-0"	Cost/yd \$20.01	=	\$5,583
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Spot Rock (25 CY/mi)	99 cy of	3-0"	\$19.67	=	\$1,947
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Turnout rock (4)	54 cy of	3-0"	\$21.17	=	\$1,143
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Landing rock (Sta. 139+50)	36 cy of	jaw-run	\$18.32	=	\$660
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Patch rock (x-drain @ Sta. 14+20 & 21+70)	18 cy of	1 1/2-0"	\$20.01	=	\$360
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TOTAL ROCK COST = \$9,693

### SPECIAL PROJECTS

Install x-drain (18" x 30' x 2 ea.) (Sta. 14+20 & 21+70)	60 ft	@	\$22.00 /ft	=	\$1,320
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Backhoe	8 hr	@	\$77.00 /hr	=	\$616
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Vibratory hand compactor	1 day	@	\$90.00 /day	=	\$90
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Culvert disposal				=	\$100
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Clean out culverts (inlets and outlets)	8 culverts	@	\$25.67 ea	=	\$205
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TOTAL SPECIAL PROJECTS COST = \$2,331

Compiled by:	J. Goldsby
Date:	Apr 18, 2016

**GRAND TOTAL =====> \$15,954**

## SUMMARY OF CONSTRUCTION COST

SALE ROAD	Filched A2 to A3	Project # 2	LENGTH improve surfaced, outsloped	3.2 sta
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### IMPROVEMENT

Shape surface (with road grader)	3.2 sta	@	\$9.90 /sta	=	\$32
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TOTAL IMPROVEMENT =	\$32
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Compiled by:	J. Goldsby
Date:	Apr 18, 2016

GRAND TOTAL =====>	\$32
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## SUMMARY OF CONSTRUCTION COST

SALE ROAD	Filched A3 to A4	Project # 1	LENGTH const unsurfaced, outsloped	13.0 sta
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### CLEARING AND GRUBBING

0.78 acres	@	\$1,010.24 /acre	=	\$788 road
0.10 acres	@	\$1,010.24 /acre	=	\$101 landing

TOTAL CLEARING AND GRUBBING = \$889

### EXCAVATION

With D7 dozer or equivalent

Construct road (with dozer)	13.0 sta	@	\$74.28 /sta	=	\$966
Construct road (with excavator)	850 cy	@	\$1.48 /cy	=	\$1,258
Endhaul (A to A1 Sta. 139+50)	850 cy	@	\$1.85 /cy	=	\$1,573
Process waste area	850 cy	@	\$0.36 /cy	=	\$306
Construct landing	1 hr	@	\$135.80 /hr	=	\$136
Shape subgrade (with road grader)	13.0 sta	@	\$11.55 /sta	=	\$150

TOTAL EXCAVATION = \$4,389

### SURFACING

Junction patch rock	9 cy of	Size 1½-0"	Cost/yd \$20.01	=	\$180
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TOTAL ROCK COST = \$180

Compiled by: J. Goldsby  
Date: Apr 18, 2016

**GRAND TOTAL =====> \$5,458**

## SUMMARY OF CONSTRUCTION COST

SALE ROAD	Filched A5 to A6	Project # 1	LENGTH const unsurfaced, outsloped	2.1 sta
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### CLEARING AND GRUBBING

0.12 acres	@	\$1,010.24 /acre	=	\$121 road
0.10 acres	@	\$1,010.24 /acre	=	\$101 landing

TOTAL CLEARING AND GRUBBING = \$222

### EXCAVATION

With D7 dozer or equivalent

Construct road (with dozer)	2.1 sta	@	\$74.28 /sta	=	\$156
Construct landing	1 hr	@	\$135.80 /hr	=	\$136
Shape subgrade (with road grader)	2.1 sta	@	\$11.55 /sta	=	\$24

TOTAL EXCAVATION = \$316

Compiled by: J. Goldsby  
Date: Apr 18, 2016

**GRAND TOTAL =====> \$538**

## SUMMARY OF CONSTRUCTION COST

SALE ROAD	Filched A7 to A8	Project # 1	LENGTH const surfaced, outsloped	5.2 sta
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### CLEARING AND GRUBBING

0.31 acres	@	\$1,010.24 /acre	=	\$313 road
0.10 acres	@	\$1,010.24 /acre	=	\$101 landing

TOTAL CLEARING AND GRUBBING = \$414

### EXCAVATION

With D7 dozer or equivalent

Construct road (with dozer)	5.2 sta	@	\$74.28 /sta	=	\$386
Construct landing	2 hr	@	\$135.80 /hr	=	\$272
Extra drift	3 hr	@	\$135.80 /hr	=	\$407
Shape subgrade (with road grader)	5.2 sta	@	\$11.55 /sta	=	\$60
Compact subgrade (with vibratory roller)	5.2 sta	@	\$8.31 /sta	=	\$43

TOTAL EXCAVATION = \$1,168

### SURFACING

		Size	Cost/yd		
Surface rock (8" lift)	207 cy of	3-0"	\$21.17	=	\$4,382
Curve widening rock	36 cy of	3-0"	\$21.17	=	\$762
Landing rock	36 cy of	jaw-run	\$18.32	=	\$660
Junction patch rock	9 cy of	1½-0"	\$20.01	=	\$180

TOTAL ROCK COST = \$5,984

Compiled by: J. Goldsby  
 Date: Apr 18, 2016

**GRAND TOTAL =====> \$7,566**

## SUMMARY OF CONSTRUCTION COST

SALE ROAD	Filched A9 to A10	Project # 2	LENGTH improve unsurfaced, outsloped	1.8 sta
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### CLEARING AND GRUBBING

0.10 acres	@	\$1,010.24 /acre	=	\$101 landing
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TOTAL CLEARING AND GRUBBING =	\$101
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### IMPROVEMENT

Re-open road	1.8 sta	@	\$45.27 /sta	=	\$81
Construct landing	1 hrs	@	\$ 135.80 /hr	=	\$136

TOTAL IMPROVEMENT =	\$217
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Compiled by:	J. Goldsby
Date:	Apr 18, 2016

GRAND TOTAL =====>	\$318
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## SUMMARY OF CONSTRUCTION COST

SALE ROAD	Filched A11 to A12	Project # 2	LENGTH improve surfaced, outsloped	7.0 sta
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### IMPROVEMENT

Re-open road (with dozer)	7.0 sta	@	\$67.90 /sta	=	\$475
Re-open landing	1 hrs	@	\$ 135.80 /hr	=	\$136
Shape surface (with road grader)	7.0 sta	@	\$11.55 /sta	=	\$81
Compact subgrade (with vibratory roller)	7.0 sta	@	\$8.31 /sta	=	\$58

TOTAL IMPROVEMENT = \$750

### SURFACING

		Size	Cost/yd		
Surface rock (8" lift)	288 cy of	3-0"	\$21.17	=	\$6,097
Landing rock	36 cy of	jaw-run	\$18.32	=	\$660
Junction patch rock	9 cy of	1½-0"	\$20.01	=	\$180

TOTAL ROCK COST = \$6,937

Compiled by: J. Goldsby  
Date: Apr 18, 2016

**GRAND TOTAL =====> \$7,687**

## SUMMARY OF CONSTRUCTION COST

SALE ROAD	Filched A1 to B	Project # 2	LENGTH improve surfaced, ditched	138.0 sta
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### IMPROVEMENT

Shape surface (with road grader)	138.0 sta	@	\$13.75 /sta	=	\$1,898
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TOTAL IMPROVEMENT =	\$1,898
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### SURFACING

		Size	Cost/yd		
SpotRock (75 CY/Mi)	198 cy of	1½-0"	\$20.01	=	\$3,962
Turnaround Rock	18 cy of	3-0"	\$19.67	=	\$354

TOTAL ROCK COST =	\$4,316
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Compiled by:	D. Wiger
Date:	Apr 18, 2016

GRAND TOTAL =====>	\$6,214
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## SUMMARY OF CONSTRUCTION COST

SALE      Filched

Project # 3 - Rock Stockpile

### STOCKPILE

		Size	Cost/yd		
Base rock (S1)	500 cy of	3-0"	\$17.99	=	\$8,995
Base rock (S2)	500 cy of	1½-0"	\$19.68	=	\$9,840

TOTAL ROCK COST = \$18,835

### EQUIPEMENT

Front-end loader	17 hr.	@	\$90.00 /hr.	=	\$1,530
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Compiled by:

D. Wiger

Date:

Apr 18, 2016

**GRAND TOTAL =====>**

**\$20,365**

## SUMMARY OF CONSTRUCTION COST

SALE      Filched                      - Project #4 Post Harvest

### SURFACING

		Size	Cost/CY		
Landing patch rock (5) (A to A1)	45 cy of	1½-0"	\$20.01	=	\$ 900
Turnaround rock Pt. A8	27 cy of	3-0"	\$19.67	=	\$ 531
Turnaround rock Pt. A12	18 cy of	3-0"	\$19.67	=	\$ 354

TOTAL SURFACING COST = \$1,785

### MISCELLANEOUS PROJECTS

Tank trap Pt. A3	0.5 hr	@	\$77.00 /hr =	\$39
Tank trap Pt. A9	0.5 hr	@	\$77.00 /hr =	\$39

TOTAL MISCELLANEOUS PROJECTS = \$78

Compiled by: J. Goldsby  
Date: Apr 18, 2016

**GRAND TOTAL =====> \$1,863**

## SUMMARY OF MAINTENANCE COST

SALE

Filched

- Final Maintenance Cost Estimate  
(Costed in appraisal, not in project costs)

## Grading

## Move-in

\$ 340

Road Segment	Length	Cost/Sta	Cost	Mileage
A to A1	197.2	\$13.75	\$2,711.50	3.73
A2 to A3	3.2	\$9.90	\$31.68	0.06
A7 to A8	5.2	\$9.90	\$51.48	0.10
A11 to A12	7.0	\$9.90	\$69.30	0.13
A1 to B	138.0	\$13.75	\$1,897.50	2.61
<b>Total</b>	<b>350.6</b>		<b>\$4,761.46</b>	<b>6.64</b>

### Maintenance Rock:

	Volume	Cost/CY	Cost
1½-0"	225	\$20.01	\$4,502.25
3-0"	36	\$19.67	\$708.12

Grand Total	\$ 10,311.83
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TS Volume 2,398 MBF

Cost / MBF = \$4.30

**NOTES:**

# Rock Haul Cost Computation

SALE NAME: Filched DATE: Apr 18, 2016  
ROAD NAME: Filched Gate Rd CLASS: Medium  
ROCK SOURCE: Wild Rose Quarry 9 CY truck  
Route: Hwy 223, Hoskins Rd, Upper Luckiamute Rd,  
Bonner Ridge Rd, Filched Gate Rd

## TIME Computation:

### Road speed time factors:

1.	55 MPH		MRT	0.0 minutes
2.	50 MPH	9.2	MRT	11.0 minutes
3.	45 MPH		MRT	0.0 minutes
4.	40 MPH	10.6	MRT	15.9 minutes
5.	35 MPH		MRT	0.0 minutes
6.	30 MPH		MRT	0.0 minutes
7.	25 MPH		MRT	0.0 minutes
8.	20 MPH		MRT	0.0 minutes
9.	15 MPH	6.5	MRT	26.0 minutes
10.	10 MPH		MRT	0.0 minutes
11.	05 MPH		MRT	0.0 minutes

Dump or spread time per RT 0.50 minutes

Total hauling cycle time for this setting  
(100% efficiency) 53.40 minutes

Operator efficiency correction 0.85 62.82 minutes

Job efficiency correction 0.90 69.80 minutes

Truck capacity (CY) 9.00 7.76 min/CY

Loading time, delay time per CY 0.25 min/CY

TIME (minutes) per cubic yard 8.01 min/CY

## COST per CY computation

Cost of truck and operator per hour \$68.88 /hr.

Cost of truck and operator per minute \$1.15 /min

Cost per CY \$9.21 /CY

Spread and compact Water truck, Grader & Roller \$1.50 /CY

Size	Cost/Yd (Pit)	Cost Delivered w/o processing	Cost Delivered with processing
1½ - 0"	\$ 10.80	\$20.01	\$21.51
3 - 0"	\$ 10.46	\$19.67	\$21.17
Jaw Run	\$ 9.11	\$18.32	\$19.82
Pit-Run	8.10	\$17.31	\$18.81

# Rock Haul Cost Computation

SALE NAME: Filched DATE: Apr 18, 2016  
ROAD NAME: Bonner Ridge Stockpile CLASS: Medium  
ROCK SOURCE: Wild Rose Quarry 10 CY truck  
Route: Hwy 223, Hoskins Rd, Upper Luckiamute Rd,  
Bonner Ridge Rd

## TIME Computation:

### Road speed time factors:

1.	55 MPH		MRT	0.0 minutes
2.	50 MPH	9.2	MRT	11.0 minutes
3.	45 MPH		MRT	0.0 minutes
4.	40 MPH	10.6	MRT	15.9 minutes
5.	35 MPH		MRT	0.0 minutes
6.	30 MPH		MRT	0.0 minutes
7.	25 MPH		MRT	0.0 minutes
8.	20 MPH		MRT	0.0 minutes
9.	15 MPH	4.0	MRT	16.0 minutes
10.	10 MPH		MRT	0.0 minutes
11.	05 MPH		MRT	0.0 minutes

Dump or spread time per RT 0.50 minutes

Total hauling cycle time for this setting  
(100% efficiency) 43.40 minutes

Operator efficiency correction 0.85 51.06 minutes

Job efficiency correction 0.90 56.73 minutes

Truck capacity (CY) 9.00 6.30 min/CY

Loading time, delay time per CY 0.25 min/CY

TIME (minutes) per cubic yard 6.55 min/CY

## COST per CY computation

Cost of truck and operator per hour \$68.88 /hr.

Cost of truck and operator per minute \$1.15 /min

Cost per CY \$7.53 /CY

Spread and compact Water truck, Grader & Roller \$1.50 /CY

Size	Cost/Yd (Pit)	Cost Delivered w/o processing	Cost Delivered with processing
1½ - 0"	\$ 10.80	\$18.33	\$19.83
3 - 0"	\$ 10.46	\$17.99	\$19.49
Jaw Run	\$ 9.11	\$16.64	\$18.14
Pit-Run	8.10	\$15.63	\$17.13

# Rock Haul Cost Computation

SALE NAME: Filched DATE: Apr 18, 2016  
ROAD NAME: Bonner Ridge Stockpile CLASS: Medium  
ROCK SOURCE: Wild Rose Quarry 10 CY truck  
Route: Hwy 223, Hoskins Rd, Upper Luckiamute Rd,  
Bonner Ridge Rd

## TIME Computation:

### Road speed time factors:

1.	55 MPH		MRT	0.0 minutes
2.	50 MPH	9.2	MRT	11.0 minutes
3.	45 MPH		MRT	0.0 minutes
4.	40 MPH	10.6	MRT	15.9 minutes
5.	35 MPH		MRT	0.0 minutes
6.	30 MPH		MRT	0.0 minutes
7.	25 MPH		MRT	0.0 minutes
8.	20 MPH		MRT	0.0 minutes
9.	15 MPH	6.0	MRT	24.0 minutes
10.	10 MPH		MRT	0.0 minutes
11.	05 MPH		MRT	0.0 minutes

Dump or spread time per RT 0.50 minutes

Total hauling cycle time for this setting  
(100% efficiency) 51.40 minutes

Operator efficiency correction 0.85 60.47 minutes

Job efficiency correction 0.90 67.19 minutes

Truck capacity (CY) 9.00 7.47 min/CY

Loading time, delay time per CY 0.25 min/CY

TIME (minutes) per cubic yard 7.72 min/CY

## COST per CY computation

Cost of truck and operator per hour \$68.88 /hr.

Cost of truck and operator per minute \$1.15 /min

Cost per CY \$8.88 /CY

Spread and compact Water truck, Grader & Roller \$1.50 /CY

Size	Cost/Yd (Pit)	Cost Delivered w/o processing	Cost Delivered with processing
1½ - 0"	\$ 10.80	\$19.68	\$21.18
3 - 0"	\$ 10.46	\$19.34	\$20.84
Jaw Run	\$ 9.11	\$17.99	\$19.49
Pit-Run	8.10	\$16.98	\$18.48

**TIMBER CRUISE REPORT**

1. **Sale Area Location:** Portions of Sections 15 and 22, T10S, R7W, W.M., Benton County, Oregon.

2. **Fund Distribution:**

- a. **Fund** BOF 100%
- b. **Tax Code**

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Acreage Adjustment	Net Sale Acres	Acreage Comp. Method
1	Modified Clearcut	80	Cruise	76	Ortho photo, GIS, GPS

4. **Cruisers and Cruise Dates:** The sale was cruised by Joe Goldsby and Matt McBride in December of 2014 and December of 2015.

5. **Cruise Method and Computation:** The sale consists of one modified clearcut area that was cruised using variable radius plot sampling. The sale area was cruised using a 40 BAF with plots spaced 150 feet apart on plot lines spaced 300 feet apart. A total of 46 plots were taken with 24 count plots and 22 cruise plots. Cruise plots were measured for DBH, height, form factor, grade, and defect. Data was entered into the Atterbury SuperACE 2008 cruise program to calculate net board feet per acre. Individually marked green trees within the sale area were tallied and removed from the final calculated volume.

Stereo photos, digital ortho photos, Lidar data, and GPS data from a Garmin GPSmap 62s were used to map the boundaries for the sale, and ArcMap 10.2 was used to determine gross and net acreage.

6. **Measurement Standards:** Heights were measured to the nearest foot, to a top diameter of 6 inches inside bark or total height. Diameters were measured to the nearest inch, and a form point of 16 feet was used to calculate form factor. All trees were graded in 40 foot segments unless breakage, defect, or length to top of grade cruise diameter warranted otherwise.

7. **Timber Description:** Timber in the sale area consists of 46 to 96 year-old Douglas-fir, western hemlock, and red alder. Western red cedar is reserved from cutting but were only observed in minor amounts along some of the riparian buffers.

8. **Statistical Analysis and Stand Summary:** (See attached "Statistics").

Target CV	Target SE	Actual CV	Actual SE
60%	11%	39.3%	5.8%

Note: Statistics shown are for conifer and hardwood trees combined. Percentages are for net board foot volume.

**9. Total Volume (MBF) by Species and Grade:** (See attached “Stand Table Summary” and “Species, Sort Grade”).

Species	Gross Cruise Volume	Cruised D & B	Cruised D & B (MBF)	Hidden D & B	Hidden D & B (MBF)	GTR (MBF)	Net Sale Volume
Douglas-fir	2473	2%	39	10%	247	--	2187
Western hemlock	48	4%	2	10%	5	1	40
Red alder	197	1%	2	12%	24	--	171
<b>Total</b>	2718	2%	43	10%	276	1	2398

Species	DBH	Net Vol.	2-Saw	3-Saw	3-Saw 12”+	4-Saw	Camp Run	% by Species
	Grade Percentages		73%	23%	2%	2%	--	
Douglas-fir	20.6	2187	1597	502	44	44	--	91%
	Grade Percentages		100%	--	--	--	--	
Western hemlock	35.0	40	40	--	--	--	--	2%
	Grade Percentages		--	--	--	--	100%	
Red alder	15.8	171	--	--	--	--	171	7%
	Grade Percentages		68%	21%	2%	2%	7%	
<b>Total</b>	19.3	2398	1637	502	44	44	171	100%

Attachments: Species, Sort Grade – Board Foot Volumes  
Statistics  
Stand Table Summary  
Log Stock Table - MBF

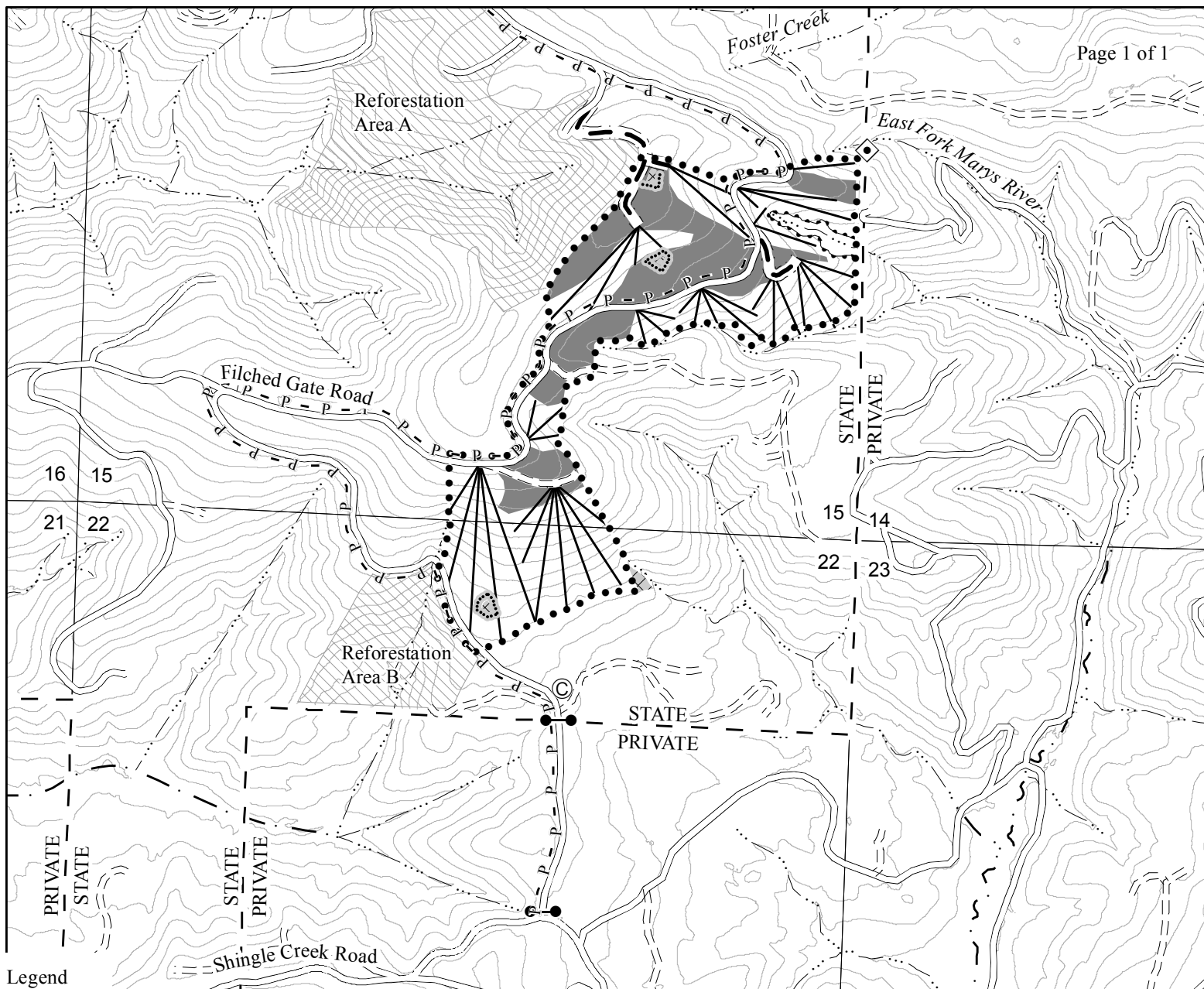


TC PSTATS				PROJECT STATISTICS				PAGE	1		
				PROJECT		FILC2		DATE	3/9/2016		
TWP	RGE	SC	TRACT	TYPE		ACRES		PLOTS	TREES	CuFt	BdFt
10S	07	15	ALL	ALL		76.00		46	229	1	W
				TREES		ESTIMATED		PERCENT			
				PER PLOT		TOTAL		SAMPLE			
				PLOTS	TREES	TREES		TREES			
TOTAL			46	229	5.0						
CRUISE			22	106	4.8		7,389		1.4		
DBH COUNT											
REFOREST											
COUNT			24	123	5.1						
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
DF			87	65.9	20.6	104	33.7	153.0	32,546	32,041	7,705
R ALDER			18	30.8	15.8	43	10.5	41.7	2,588	2,566	1,106
WHEMLOCK			1	.5	35.0	96	0.6	3.5	630	604	149
TOTAL			106	97.2	19.3	85	45.1	198.3	35,763	35,210	8,960
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	
DF		54.9	5.9	627	667	706					
R ALDER		63.7	15.4	87	103	119					
WHEMLOCK											
TOTAL		69.2	6.7	537	576	614		191	48	21	
CL	68.1	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15	
DF		70.9	10.4	59	66	73					
R ALDER		151.9	22.4	24	31	38					
WHEMLOCK		407.6	60.0	0	1	1					
TOTAL		47.8	7.0	90	97	104		91	23	10	
CL	68.1	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5		10	15	
DF		50.3	7.4	142	153	164					
R ALDER		149.8	22.1	33	42	51					
WHEMLOCK		407.6	60.0	1	3	6					
TOTAL		28.2	4.2	190	198	206		32	8	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	
DF		50.0	7.4	29,680	32,041	34,401					
R ALDER		149.5	22.0	2,001	2,566	3,131					
WHEMLOCK		407.6	60.0	241	604	966					
TOTAL		39.3	5.8	33,170	35,210	37,250		62	15	7	

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																
<div>T10S R07W S15 TyALL76.00</div>						Project: FILC			Acres 76.00			Page 1 Date 12/9/2015 Time 3:00:04PM								
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	Dia In	Bd Ft	CF/ Lf		
			Def%	Gross	Net		4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
DF	2M	73	1.9	23,852	23,396	1,778			55	45				100	40	15	365	2.04	64.1	
DF	3M	25	.6	8,214	8,164	620	0	92	8		0	2	5	93	39	8	99	0.72	82.3	
DF	4M	2		480	480	36		100			16	84			24	6	28	0.44	16.9	
DF Totals		91	1.6	32,546	32,041	2,435	0	25	42	33	0	2	1	97	38	11	196	1.25	163.3	
RA	CR	100	.8	2,588	2,566	195		84	16		7	17	19	57	32	8	72	0.99	35.5	
RA Totals		7	.8	2,588	2,566	195		84	16		7	17	19	57	32	8	72	0.99	35.5	
WH	2M	100	4.1	630	604	46			17	83				100	40	18	580	3.59	1.0	
WH Totals		2	4.1	630	604	46			17	83				100	40	18	580	3.59	1.0	
Totals			1.5	35,763	35,210	2,676	0	29	40	31	1	3	2	94	37	10	176	1.22	199.9	

TC		PSTNDSUM		Stand Table Summary										Page		1	
														Date:		12/9/2015	
T10S R07W S15 TyALL					76.00		Project		FILC				Time:		3:01:26PM		
							Acres		76.00				Grown Year:				
S Sp	T	Tot			Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	T o t a l s				
		Sample DBH	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF		
DF		10	1	90	102	3.225	1.76	3.23	15.0	60.0		48	194		37	15	
DF		12	2	89	87	4.480	3.52	6.72	17.0	63.3		114	426		87	32	
DF		14	6	88	122	9.873	10.55	19.75	23.6	95.0		466	1,876		354	143	
DF		16	4	87	114	5.040	7.04	11.34	26.1	102.2		296	1,159		225	88	
DF		18	6	88	118	5.973	10.55	11.95	38.8	135.8		464	1,623		353	123	
DF		20	11	88	134	8.870	19.35	25.80	38.4	152.5		991	3,935		753	299	
DF		21	2	87	131	1.463	3.52	4.39	41.7	180.0		183	790		139	60	
DF		22	7	88	146	4.665	12.31	13.99	49.7	208.1		695	2,912		528	221	
DF		23	7	87	140	4.268	12.31	12.80	50.8	207.1		651	2,652		494	202	
DF		24	7	87	147	3.920	12.31	11.76	57.2	241.4		672	2,839		511	216	
DF		25	5	86	140	2.580	8.80	7.22	63.4	265.0		458	1,915		348	146	
DF		26	9	87	145	4.294	15.83	12.88	66.0	279.6		850	3,602		646	274	
DF		27	4	87	145	1.770	7.04	5.31	71.7	312.5		381	1,659		290	126	
DF		28	5	86	147	2.057	8.80	6.17	77.9	344.0		481	2,123		365	161	
DF		29	1	87	135	.384	1.76	1.15	77.3	346.7		89	399		68	30	
DF		30	3	88	140	1.075	5.28	3.23	88.6	411.1		286	1,326		217	101	
DF		31	2	86	123	.671	3.52	1.68	97.0	426.0		163	715		124	54	
DF		32	1	85	124	.315	1.76	.94	87.0	360.0		82	340		62	26	
DF		35	2	87	130	.527	3.52	1.58	111.7	520.0		176	821		134	62	
DF		36	1	86	105	.249	1.76	.50	138.0	570.0		69	284		52	22	
DF		37	1	87	136	.236	1.76	.94	96.3	480.0		91	452		69	34	
DF		Totals	87	88	128	65.932	153.04	163.33	47.2	196.2		7,705	32,041		5,856	2,435	
RA		12	3	75	72	8.857	6.96	8.86	20.3	56.7		180	502		137	38	
RA		14	3	74	64	6.507	6.96	6.51	27.0	60.0		176	390		134	30	
RA		16	5	74	53	8.304	11.59	9.96	27.7	55.0		276	548		210	42	
RA		18	2	74	66	2.624	4.64	3.94	29.0	73.3		114	289		87	22	
RA		20	2	75	77	2.126	4.64	3.19	46.0	110.0		147	351		111	27	
RA		22	1	75	61	.878	2.32	.88	74.0	150.0		65	132		49	10	
RA		24	2	74	79	1.476	4.64	2.21	67.0	160.0		148	354		113	27	
RA		Totals	18	74	65	30.773	41.74	35.55	31.1	72.2		1,106	2,566		840	195	
WH		35	1	85	104	.521	3.48	1.04	143.5	580.0		149	604		114	46	
WH		Totals	1	85	104	.521	3.48	1.04	143.5	580.0		149	604		114	46	
Totals			106	83	108	97.225	198.26	199.92	44.8	176.1		8,960	35,210		6,810	2,676	

TC PLOGSTVB		Log Stock Table - MBF																																			
T10S R07W S15 TyALL				76.00		Project: FILC2		76.00										Page 1		Date 3/14/2016		Time 1:14:51PM															
S T		So Gr rt de		Log Len		Gross MBF		Def %		Net MBF		% Spc		Net Volume by Scaling Diameter in Inches																							
Spp														2-3		4-5		6-7		8-9		10-11		12-13		14-15		16-19		20-23		24-29		30-39		40+	
DF		2M		36		9				9		.4										9															
DF		2M		38		19				19		.8										19															
DF		2M		40		1,784		1.9		1,750		71.9										298		378		767		242		66							
DF		3M		20		2				2		.1										2															
DF		3M		21		0				0		.0		0																							
DF		3M		30		11				11		.4								11																	
DF		3M		32		6				6		.3				6																					
DF		3M		34		22				22		.9				22																					
DF		3M		36		8				8		.3				8																					
DF		3M		38		23				23		1.0				23																					
DF		3M		40		551				547		22.5				128		147		223		39		10													
DF		4M		18		6				6		.2				6																					
DF		4M		22		6				6		.3				6																					
DF		4M		24		9				9		.4				9																					
DF		4M		26		2				2		.1				2																					
DF		4M		28		12				12		.5				12																					
DF		4M		30		2				2		.1				2																					
DF		Totals				2,473		1.6		2,435		91.0		0		225		147		234		367		388		767		242		66							
RA		CR		14		7				7		3.6										7															
RA		CR		16		6				6		3.2				6																					
RA		CR		22		9				9		4.6				9																					
RA		CR		26		9				9		4.5				9																					
RA		CR		28		6				6		3.2				6																					
RA		CR		30		9				9		4.5						9																			
RA		CR		32		23				23		12.0				23																					
RA		CR		34		13				13		6.9				13																					
RA		CR		36		15				15		7.8				15																					
RA		CR		40		98		1.7		97		49.6				16		22		34		25															
RA		Totals				197				195		7.3				98		31		34		32															
WH		2M		40		48		4.1		46		100.0										8								38							
WH		Totals				48		4.1		46		1.7										8								38							
Total		All Species				2,718		1.5		2,676		100.0		0		323		178		268		406		388		767		242		104							



# Legend

## Boundaries

- Timber Sale Boundary
- ▬▬▬▬▬ GTR Area Boundary
- - - State Forest Property Boundary
- - - Right of Way (Posted)

## Roads

- ▬▬▬▬▬ Surfaced Road
- ▬▬▬▬▬ Unsurfaced Road
- ▬▬▬▬▬ New Construction

## Streams

- - · Type F Stream
- · · · · Type N Stream
- ▬▬▬▬▬ Posted Stream Buffer
- ▬▬▬▬▬ Reforestation Area

## Yarding Method

- ▬▬▬▬▬ Tractor Yarding Area
- ▬▬▬▬▬ Cable Corridors
- © Cultural Resource Site
- ◆ Land Survey Monument
- Gates
- P - P - Buried Fiber Optic Cable
- ▬▬▬▬▬ Green Tree Retention Area

# LOGGING PLAN

OF TIMBER SALE CONTRACT NO. 341-16-71  
 FILCHED  
 PORTIONS OF SECTIONS 15 & 22, T10S, R7W, W.M.,  
 BENTON COUNTY, OREGON

NET ACRES CABLE = 50  
 NET ACRES TRACTOR = 26

This product is for informational use and may not have been prepared for or be suitable for legal, engineering or survey purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of this information.

Scale

1:12,000



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 Date: 03/08/2016