



Timber Sale Appraisal
Powerline Thin
Sale WO-341-2018-109-

District: West Oregon

Date: March 01, 2018

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$610,651.24	\$0.00	\$610,651.24
		Project Work:	(\$48,656.00)
		Advertised Value:	\$561,995.24



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Date: March 01, 2018

Timber Description

Location: Portions of Sections 16 & 21, T11S, R9W, W.M., Lincoln County, Oregon.

Stand Stocking: 40%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	12	0	97

Volume by Grade	2S	3S & 4S 6"-11"	Total
Douglas - Fir	277	1,455	1,732
Total	277	1,455	1,732

Comments: Pond Values Used: Local Pond Values, January, 2018.

Western Hemlock and Other Conifers Stumpage Price = Pond Value minus Logging Cost:
\$138.29/MBF = \$670.00/MBF - \$531.71/MBF

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
\$788.29/MBF = \$1,420.00/MBF - \$631.71/MBF

Red Alder Stumpage Price = Pond Value minus Logging Cost:
\$212.29/MBF = \$744.00/MBF - \$531.71/MBF

Pulp Logs (Conifer & Hardwoods) = \$40/MBF

SCALING COST ALLOWANCE = \$5.00/MBF

BRANDING AND PAINTING COST ALLOWANCE = \$2.00/MBF

FUEL COST ALLOWANCE = \$3.00/Gallon

LOG HAUL:
Costed to Eugene, Willamina, or Toledo.

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

Other Costs (with Profit & Risk to be added):
Intermediate Support/Tail Trees: 15 supports @ \$100/support = \$1,500.
TOTAL Other Costs (with Profit & Risk to be added) = \$1,500.

Other Costs (No Profit & Risk added):
Non-Project Roads and Landings: \$750
Invasive Species Equipment Cleaning: \$2,000
Water Bar and Block Dirt Roads: 38 stations @ \$15.96/station = \$606
Firewood Sorting & Landing Piling: 14 landings @ \$180/landing = \$2,520
Landing Piling: 4 landings @ \$100/landing = \$400
ATV Trail Clean-up: 6hrs. @ \$40/hr. = \$240
TOTAL Other Costs (No Profit & Risk added) = \$6,516



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Logging Conditions

Combination#:	1	Douglas - Fir	15.00%
Logging System:	Cable: Medium Tower >40 - <70	Process:	Manual Falling/Delimbing
yarding distance:	Long (1,500 ft)	downhill yarding:	No
tree size:	Small / Thinning 10in (90 Bft/tree), 18-20 logs/MBF		
loads / day:	4	bd. ft / load:	3700
cost / mbf:	\$445.95		
machines:	Log Loader (A) Tower Yarder (Medium)		
Combination#:	2	Douglas - Fir	38.00%
Logging System:	Cable: Medium Tower >40 - <70	Process:	Manual Falling/Delimbing
yarding distance:	Medium (800 ft)	downhill yarding:	No
tree size:	Small / Thinning 10in (90 Bft/tree), 18-20 logs/MBF		
loads / day:	4.5	bd. ft / load:	3700
cost / mbf:	\$396.40		
machines:	Log Loader (A) Tower Yarder (Medium)		
Combination#:	3	Douglas - Fir	20.00%
Logging System:	Cable: Small Tower <=40	Process:	Manual Falling/Delimbing
yarding distance:	Short (400 ft)	downhill yarding:	No
tree size:	Small / Thinning 10in (90 Bft/tree), 18-20 logs/MBF		
loads / day:	5	bd. ft / load:	3700
cost / mbf:	\$335.14		
machines:	Log Loader (A) Tower Yarder (Small)		
Combination#:	4	Douglas - Fir	27.00%
Logging System:	Cut To Length	Process:	Harvester Head Delimbing
yarding distance:	Medium (800 ft)	downhill yarding:	No
tree size:	Small / Thinning 10in (90 Bft/tree), 18-20 logs/MBF		
loads / day:	8	bd. ft / load:	3700
cost / mbf:	\$189.04		
machines:	Harvester Forwarder		



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Logging Costs

Operating Seasons: 2.00	Profit Risk: 14%
Project Costs: \$48,656.00	Other Costs (P/R): \$1,500.00
Slash Disposal: \$0.00	Other Costs: \$6,516.00

Miles of Road

Road Maintenance: \$6.68

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	3.7



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Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
Douglas - Fir									
\$335.59	\$6.88	\$5.06	\$108.57	\$0.87	\$63.98	\$0.00	\$7.00	\$3.76	\$531.71

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$884.28	\$352.57	\$0.00



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Summary

Amortized

Specie	MBF	Value	Total
Douglas - Fir	0	\$0.00	\$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	1,732	\$352.57	\$610,651.24

Gross Timber Sale Value

Recovery: \$610,651.24

Prepared By: Jon Long

Phone: 541-929-9169

SUMMARY OF ALL PROJECT COSTS

Sale Name: Powerline Thin

Date: March 2018

Time: 15:52

Project #1 - New Construction

<u>Road Segment</u>	<u>Length</u>	<u>Cost</u>	
A to B (dirt)	7.8 sta	\$5,937	
C to D (dirt)	5.7 sta	\$4,644	
TOTALS	13.5 sta	0.3 mi	\$10,581

Project #2 - Road Improvement

<u>Road Segment</u>	<u>Length</u>	<u>Cost</u>	
1 to 2	270.0 sta	\$10,305	
3 to 4	2.2 sta	\$2,541	
5 to 6	7.4 sta	\$3,870	
7 to 8	24.6 sta	\$4,713	
9 to 10	12.4 sta	\$3,124	
11 to 12	19.7 sta	\$361	
13 to 14	4.1 sta	\$75	
15 to 16	23.7 sta	\$223	
17 to 18	47.0 sta	\$4,632	
19 to 20	9.8 sta	\$4,580	
TOTALS	420.9 sta	8.0 mi	\$34,424

Move in

	<u>Cost</u>	
Excavator, C325 or equiv.	\$1,290	
Dozer, D-7 or equiv.	\$805	
Grader, G14 or equiv.	\$778	
Vibratory roller	\$778	
TOTAL		\$3,651

GRAND TOTAL **\$48,656**

Compiled by J. Long

Date 03/02/2018

SUMMARY OF CONSTRUCTION COST

SALE	Frc Powerline Thin	Project # 1	LENGTH const	7.8 sta
ROAD	A to B (dirt)	Unsurfaced, outsloped		

CLEARING AND GRUBBING

0.6 acres	@	\$1,337.00 /acre	=	\$802
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TOTAL CLEARING AND GRUBBING = \$802

EXCAVATION

With D7 dozer or equivalent

Construct road	7.8 sta	@	\$190.00 /sta	=	\$1,482
Landing Construction	2 Ldg	@	\$389.00 /Ldg	=	\$778
Shape/outslope subgrade (with road grader)	7.8 sta	@	\$18.35 /sta	=	\$143
Compact subgrade (with vibratory roller)	7.8 sta	@	\$20.19 /sta	=	\$157
Waterbar and block road	7.8 sta	@	\$15.96 /sta	=	\$124

TOTAL EXCAVATION = \$2,684

SURFACING

		Size	Cost/yd		
Junction rock	20 cy of	jaw-run	\$22.95	=	\$459
Base rock (0+00 - 1+00)	44 cy of	jaw-run	\$22.29	=	\$981
Landing rock	40 cy of	jaw-run	\$22.29	=	\$892
Spread/compact rock (with vibratory roller)	0.8 hr.	@	\$149.00 /hr.	=	\$119

TOTAL ROCK COST = \$2,451

Compiled by:	J.Long
Date:	Mar 2, 2018

GRAND TOTAL =====> \$5,937

SUMMARY OF CONSTRUCTION COST

SALE	Powerline Thin	Project # 1	LENGTH const	5.7 sta
ROAD	C to D (dirt)	Unsurfaced, outsloped		

CLEARING AND GRUBBING

0.5 acres	@	\$1,337.00 /acre	=	\$669
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TOTAL CLEARING AND GRUBBING = \$669

EXCAVATION

With D7 dozer or equivalent

Construct road	5.7 sta	@	\$190.00 /sta	=	\$1,083
Full Containment Endhaul (Sta. 1+20 to 3+75)	150 cy.	@	\$3.00 /cy.	=	\$450
Compact waste area	150 cy.	@	\$0.40 /cy.	=	\$60
Landing Construction	1 Ldgs	@	\$389.00 /Ldg	=	\$389
Shape subgrade (with road grader)	5.7 sta	@	\$18.35 /sta	=	\$105
Compact subgrade (with vibratory roller)	5.7 sta	@	\$20.19 /sta	=	\$115
Waterbar and block road	5.7 sta	@	\$15.96 /sta	=	\$91

TOTAL EXCAVATION = \$2,293

SURFACING

			Size	Cost/yd		
Junction rock	30 cy of		jaw-run	\$22.95	=	\$689
Landing rock (sta. 0+00)	40 cy of		jaw-run	\$22.95	=	\$918
Spread/compact rock (with vibratory roller)	0.5 hr.	@	\$149.00 /hr	=	\$75	

TOTAL ROCK COST = \$1,682

Compiled by:
Date:

J. Long
Mar 2, 2018

GRAND TOTAL =====> \$4,644

SUMMARY OF CONSTRUCTION COST

SALE	Powerline Thin	Project # 2	LENGTH improve	270 sta
ROAD	1 to 2		Surfaced, outsloped	

IMPROVEMENT

Spot grading	140.0 sta	@	\$15.40 /sta	=	\$2,156
surface rock					
Clear Landings (4)	4.0 hr	@	\$140.00 /hr	=	\$560
(with excavator)					

TOTAL IMPROVEMENT = \$2,716

SURFACING

		Size	Cost/yd		
Turnout rock (3)	30 cy of	1½-0"	\$20.14	=	\$604
Spot rock	200 cy of	1½-0"	\$20.14	=	\$4,028
Landings (4)	160 cy of	3-0"	\$18.48	=	\$2,957

TOTAL ROCK COST = \$7,589

Compiled by: J. Long
Date: Mar 2, 2018

GRAND TOTAL =====> \$10,305

SUMMARY OF CONSTRUCTION COST

SALE ROAD	Powerline Thin 3 to 4	Project # 2	LENGTH improve Surfaced, outsloped	2.2 sta
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IMPROVEMENT

Remove sod (with road grader)	2.2 sta	@	\$18.35 /sta	=	\$40
Clear Landing (with excavator)	1.0 hr	@	\$140.00 /hr	=	\$140
Grade/process surface rock (with vibratory roller)	2.2 sta	@	\$24.28 /sta	=	\$53

TOTAL IMPROVEMENT = \$233

SURFACING

		Size	Cost/yd		
Surfacing rock (4" lift)	48 cy of	3-0"	\$23.95	=	\$1,150
Landing rock	40 cy of	jaw-run	\$22.95	=	\$918
Junction rock	10 cy of	3-0"	\$23.95	=	\$240

TOTAL ROCK COST = \$2,308

Compiled by: J. Long
Date: Mar 2, 2018

GRAND TOTAL =====> \$2,541

SUMMARY OF CONSTRUCTION COST

SALE ROAD	Powerline Thin 5 to 6	Project # 2	LENGTH improve Surfaced, outsloped	7.4 sta
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Remove sod (with road grader)	7.4 sta	@	\$18.35 /sta	=	\$136
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Grade/process surface rock	7.4 sta	@	\$24.28 /sta	=	\$180
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TOTAL IMPROVEMENT =	\$316
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SURFACING

		Size	Cost/yd		
Spot rock	90 cy of	3-0"	\$23.95	=	\$2,156
Turnout rock	10 cy of	3-0"	\$23.95	=	\$240
Junction rock	10 cy of	3-0"	\$23.95	=	\$240
Landing rock	40 cy of	jaw-run	\$22.95	=	\$918

TOTAL ROCK COST =	\$3,554
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Compiled by:	J. Long
Date:	Mar 2, 2018

GRAND TOTAL =====>	\$3,870
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SUMMARY OF CONSTRUCTION COST

SALE ROAD	Powerline Thin 7 to 8	Project # 2	LENGTH improve Surfaced, outsloped	24.6 sta
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Remove sod (with road grader)	24.6 sta	@	\$18.35 /sta	=	\$451
Slough removal (scatter below road)	2.0 hr	@	\$140.00 /hr	=	\$280
Clear Landings (2) (with excavator C325)	2.0 hr	@	\$140.00 /hr	=	\$280
Construct turnaround	0.5 hr	@	\$140.00 /hr	=	\$70
Grade surface rock	6.4 sta	@	\$15.40 /sta	=	\$99

TOTAL IMPROVEMENT = \$1,180

SURFACING

		Size	Cost/yd		
Junction rock	10 cy of	3-0"	\$23.95	=	\$240
Spot rock	80 cy of	3-0"	\$23.95	=	\$1,916
Turnaround	20 cy of	jaw-run	\$22.95	=	\$459
Landing rock (2)	40 cy of	jaw-run	\$22.95	=	\$918

TOTAL ROCK COST = \$3,533

Compiled by: J. Long
Date: Mar 2, 2018

GRAND TOTAL =====> \$4,713

SUMMARY OF CONSTRUCTION COST

SALE ROAD	Powerline Thin 9 to 10	Project # 2	LENGTH improve Surfaced, outsloped	12.4 sta
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Remove sod (with road grader)	12.4 sta	@	\$18.35 /sta	=	\$228
Grade surface rock	12.4 sta	@	\$15.40 /sta	=	\$191
Construct turnaround	0.5 hr	@	\$140.00 /hr	=	\$70

TOTAL IMPROVEMENT = \$489

SURFACING

		Size	Cost/yd		
Turnaround	20 cy of	3-0"	\$23.95	=	\$479
Spot rock	70 cy of	3-0"	\$23.95	=	\$1,677
Landing rock	20 cy of	3-0"	\$23.95	=	\$479

TOTAL ROCK COST = \$2,635

Compiled by: J. Long
Date: Mar 2, 2018

GRAND TOTAL =====> \$3,124

SUMMARY OF CONSTRUCTION COST

SALE ROAD	Powerline Thin 11 to 12	Project # 2	LENGTH improve Unsurfaced, outsloped	19.7 sta
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Reopen road (with Dozer)	19.7 sta	@	\$18.35 /sta	=	\$361
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TOTAL IMPROVEMENT =	\$361
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Compiled by:	J. Long
Date:	Mar 2, 2018

GRAND TOTAL =====>	\$361
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SUMMARY OF CONSTRUCTION COST

SALE ROAD	Powerline Thin 13 to 14	Project #	2	LENGTH improve Unsurfaced, outsloped	4.1 sta
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Reopen road (with Dozer)	4.1 sta	@	\$18.35 /sta	=	\$75
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TOTAL IMPROVEMENT =	\$75
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Compiled by:	J. Long
Date:	Mar 2, 2018

GRAND TOTAL =====>	\$75
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SUMMARY OF CONSTRUCTION COST

SALE ROAD	Powerline Thin 15 to 16	Project # 2	LENGTH improve Unsurfaced, outsloped	23.7 sta
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Slough removal (20 cy) (with excavator)	1.0 hr	@	\$140.00	hr	=	\$140
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(haul to nearby waste area)	1.0 hr	@	\$82.50	hr	=	\$83
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TOTAL IMPROVEMENT =	\$223
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Compiled by:
Date:

J. Long
Mar 2, 2018

GRAND TOTAL =====>	\$223
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SUMMARY OF CONSTRUCTION COST

SALE ROAD	Powerline Thin 17 to 18	Project # 2	LENGTH improve Surfaced, outsloped	47.0 sta
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Remove stumps on top of cutslope. (with excavator)	4.0 hrs	@	\$140.00 hr	=	\$560
Cutslope rounding & Slough removal	4.0 hrs	@	\$140.00 hr	=	\$560
(haul to waste area)	4.0 hrs	@	\$82.50 hr	=	\$330
Spot grading	20.0 sta	@	\$15.40 sta	=	\$308

TOTAL IMPROVEMENT = \$1,758

SURFACING

		Size	Cost/yd		
Landing rock	40 cy of	3-0"	\$23.95	=	\$958
Turnaround	20 cy of	3-0"	\$23.95	=	\$479
Spot rock	60 cy of	3-0"	\$23.95	=	\$1,437

TOTAL ROCK COST = \$2,874

Compiled by: J. Long
Date: Mar 2, 2018

GRAND TOTAL =====> \$4,632

SUMMARY OF CONSTRUCTION COST

SALE ROAD	Powerline Thin 19 to 20	Project # 2	LENGTH improve Surfaced, outsloped	9.8 sta
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Remove sod (with road grader)	9.8 sta	@	\$18.35 /sta	=	\$180
Remove stumps on top of cutslope. (with excavator)	3.0 hrs	@	\$140.00 hr	=	\$420
Cutslope rounding & Sluff removal	3.0 hrs	@	\$140.00 hr	=	\$420
(haul to waste area)	3.0 hrs	@	\$82.50 hr	=	\$248
Grade/process surface rock	9.8 sta	@	\$24.28 /sta	=	\$238

TOTAL IMPROVEMENT = \$1,506

SURFACING

		Size	Cost/yd		
Junction rock	10 cy of	3-0"	\$23.95	=	\$240
Landing rock (Point 16)	40 cy of	jaw-run	\$22.95	=	\$918
Turnaround	20 cy of	3-0"	\$23.95	=	\$479
Spot rock	60 cy of	3-0"	\$23.95	=	\$1,437

TOTAL ROCK COST = \$3,074

Compiled by:	J. Long
Date:	Mar 2, 2018

GRAND TOTAL =====> \$4,580

SUMMARY OF MAINTENANCE COST

SALE

Powerline Thin

- Final Maintenance Cost Estimate

(Costed in appraisal, not in project costs)

Grading/Compaction

Move-in

Grader

\$

778

Road Segment	Length	Cost/Sta	Cost	Mileage
1 to 2	270	\$15.40	\$4,158.00	5.11
3 to 4	2.2	\$15.40	\$33.88	0.04
5 to 6	7.4	\$15.40	\$113.96	0.14
7 to 8	24.6	\$15.40	\$378.84	0.47
9 to 10	12.4	\$15.40	\$190.96	0.23
17 to 18	47	\$15.40	\$723.80	0.89
19 to 20	9.8	\$15.40	\$150.92	0.19
Total	373.4		\$5,750.36	7.07

Maintenance Rock:

1½'-0"	Volume	Cost/CY	Cost
	250	\$20.14	\$5,035.00

Grand Total

\$ 11,563.36

TS Volume

1,732 MBF

$$\text{Cost} / \text{MBF} =$$

\$6.68

NOTES:

Rock Haul Cost Computation

SALE NAME: Powerline Thin
ROAD NAME: Baber Ridge Road
ROCK SOURCE: Rickard Rock Quarry
Route: Hwy. 20, Deer Creek Road

DATE: Mar 2, 2018
CLASS: Medium
10 CY truck

3-4, 5-6, 7-8, 9-10,
13-14, & 15-16

TIME Computation:

Road speed time factors:

1.	55 MPH	35.0	MRT	38.2 minutes
2.	50 MPH	10.0	MRT	12.0 minutes
3.	45 MPH	5.5	MRT	7.3 minutes
4.	40 MPH		MRT	0.0 minutes
5.	35 MPH		MRT	0.0 minutes
6.	30 MPH	2.0	MRT	4.0 minutes
7.	25 MPH	3.0	MRT	7.2 minutes
8.	20 MPH	2.5	MRT	7.5 minutes
9.	15 MPH	2.0	MRT	8.0 minutes
10.	10 MPH	1.0	MRT	6.0 minutes
11.	05 MPH	0.4	MRT	4.8 minutes

61.40

Dump or spread time per RT

0.50 minutes

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

95.50 minutes

Operator efficiency correction	0.85
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112.35 minutes

Job efficiency correction 0.90

124.83 minutes

Truck capacity (CY)	10.00
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12.48 min/CY

Loading time, delay time per CY

0.25 min/CY

TIME (minutes) J. Long

12.73 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

\$14.64 /CY

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

Size	Cost/Yd (Pit)	Cost Delivered w/o processing	Cost Delivered with processing
1½ - 0"	\$ 10.97	\$25.61	\$27.11
3 - 0"	\$ 9.31	\$23.95	\$25.45
Jaw Run	\$ 8.31	\$22.95	\$24.45
Pit-Run	7.65	\$22.29	\$23.79

Rock Haul Cost Computation

SALE NAME: Powerline Thin
ROAD NAME: Baber Ridge Road
ROCK SOURCE: Rickard Rock Quarry
Route: Hwy. 20, Shroyer Ridge Road
Points: 1 to 2 (Deer Creek, Baber Ridge Road)

DATE: Mar 2, 2018
CLASS: Medium
18 CY truck

TIME Computation:

Road speed time factors:

1.	55 MPH	35.0	MRT	38.2 minutes
2.	50 MPH	10.0	MRT	12.0 minutes
3.	45 MPH	5.5	MRT	7.3 minutes
4.	40 MPH		MRT	0.0 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	3.0	MRT	9.0 minutes
9.	15 MPH		MRT	0.0 minutes
10.	10 MPH	2.0	MRT	12.0 minutes
11.	05 MPH	0.1	MRT	1.2 minutes

Total MRT	55.60
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Dump or spread time per RT

1.00 minutes

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

80.70 minutes

Operator efficiency correction 0.85

94.94 minutes

Job efficiency correction	0.90
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105.49 minutes

Truck capacity (CY)	18.00
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5.86 min/CY

Loading time, delay time per CY

0.25 min/CY

TIME (minutes) J. Long

6.11 min/CY

COST per CY computation

Cost of truck and operator per hour

\$90.22 /hr.

Cost of truck and operator per minute

\$1.50 /min

Cost per CY

\$9.17 /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"	\$ 10.97	\$20.14	\$21.64
3 - 0"	\$ 9.31	\$18.48	\$19.98
Jaw Run	\$ 8.31	\$17.48	\$18.98
Pit-Run	7.65	\$16.82	\$18.32

Powerline Thin (341-18-109)
FY 2018

TIMBER CRUISE REPORT

1. **Sale Area Location:** Portions of Sections 16 and 21, T11S, R9W, W.M., Lincoln County, Oregon.
2. **Fund Distribution:**
 - a. **Fund** BOF 70%, CSL 30%
 - b. **Tax Code**
3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Stream Buffers	Existing Roads	Net Sale Acres	Acreage Comp. Method
1	Thinning	81	4	4	73	Ortho photo, GIS, GPS
2	Thinning	192	12	7	173	Ortho photo, GIS, GPS
Total		273	16	11	246	

4. **Cruisers and Cruise Dates:** The sale area was cruised by Evelyn Hukari and Chris Humcke in September of 2013.
5. **Cruise Method and Computation:** The sale consists of two first entry thinning areas that were cruised using variable radius plot sampling. The sale area was cruised using a 20 BAF with plots taken on transects through the units. In Area 1, 12 cruise plots were taken. 37 cruise plots were taken in Area 2. Cruise plots were measured for DBH and height. Cruise plot data was entered into a variable plot excel spreadsheet to determine average DBH, TPA and volume per acre. A 3% per year in-growth was added to the gross volume. A hidden defect and breakage of 5% was applied to the resulting volume. The take volume (net) in Area 1 was estimated at 8.9 MBF per acre. The take volume in Area 2 was estimated at 6.2 MBF per acre. Grade breakdown was determined by applying the average grade breakdown from several similar sales previously cruised in the area.

Digital ortho photos, 1986 aerial photos, LiDar, and ArcMap 10.4.1 were used to map the boundaries for the sale, and ArcMap 10.4.1 was used to determine gross and net acreage.
6. **Measurement Standards:** Tree heights were measured to the nearest foot to a total height. Diameters were measured to the nearest inch, and a standard form factor of 86 was used. Most trees were graded in 40 foot log segments unless breakage, defect, or length to top of grade cruise diameter warranted otherwise.
7. **Timber Description:** Timber in the sale area consists of 32 year-old planted Douglas-fir, and minor amounts of red alder and big-leaf maple. The average volume per acre to be harvested (net) is approximately 8.9 MBF/acre in Area 1, and 6.2 MBF/acre in Area 2. The right-of-way volume for the project work (approximately 1 acre) is included in the total volume in Area 1.

8. Total Volume (MBF) by Species and Grade:

	Species	Gross Cruise Volume	In-Growth (12%)	Hidden D&B (5%)	Net Sale Volume
Area 1	Douglas-fir	611	73	34	650
Area 2	Douglas-fir	1,017	122	57	1,082
Total		1,628	195	91	1,732

	Species	DBH	Net Vol.	2-Saw	3-Saw	4-Saw
Areas 1 & 2		Grade Percentages		16%	67%	17%
	Douglas-fir	12	1,732	277	1,160	295

Attachments: Cruise Plot Spreadsheets

Prepared by: Jon Long

Date: 2/7/2018

Unit Forester: 
Evelyn Hukari

Date: 2/28/18

Unit: Powerline Thin, A1

Date: 02/05/2018

Cruised 9/2013

Current Stand

DIAM. CLASS	# by CLASS	TPA
3		0
4		0
5		0
6		0
7	0	0
8	1	5
9	0	0
10	7	21
11	9	23
12	20	42
13	28	51
14	36	56
15	20	27
16	15	18
17	0	0
18	0	0
19	0	0
20		0
21		0
22		0
23		0
24		0
25		0
26		0
27		0
28		0

Total 136

SPECIES	D-Fir
BAF	20
# PLOTS	12

TPA	
BA	227
QMD	13.1
RD	63
SDI	374

Post - Thin Stand

DIAM. CLASS	# by CLASS	TPA
3		0
4		0
5		0
6		0
7	0	0
8	0	0
9	0	0
10	5	15
11	5	13
12	11	23
13	14	25
14	20	31
15	16	22
16	13	16
17	0	0
18	0	0
19	0	0
20		0
21		0
22		0
23		0
24		0
25		0
26		0
27		0
28		0

SPECIES	D-Fir
BAF	20
# PLOTS	12

TPA	
BA	140
QMD	13.3
RD	38
SDI	229

Diam.	Tree/ac removed	Volume/ tree	Volume/ Acre
8"	5	20	100
9"	0	30	0
10"	6	50	300
11"	10	60	600
12"	19	70	1330
13"	26	90	2340
14"	25	110	2750
15"	5	130	650
16"	2	150	300
Total/Acre			8370
in-growth			1.12
			9374.4
D & B			0.95
Net Vol. /Acre			8906

Unit: Powerline Thin, A2

Date: 02/05/2018

Cruised 9/2013

Current Stand

DIAM. CLASS	# by CLASS	TPA
3		0
4		0
5		0
6		0
7	0	0
8	4	6
9	12	15
10	20	20
11	38	31
12	71	49
13	70	41
14	60	30
15	41	18
16	25	10
17	4	1
18	4	1
19	0	0
20		0
21		0
22		0
23		0
24		0
25		0
26		0
27		0
28		0

Total 349

SPECIES	D-Fir
BAF	20
# PLOTS	37

TPA	222
BA	189
QMD	12.5
RD	53
SDI	317

Post - Thin Stand

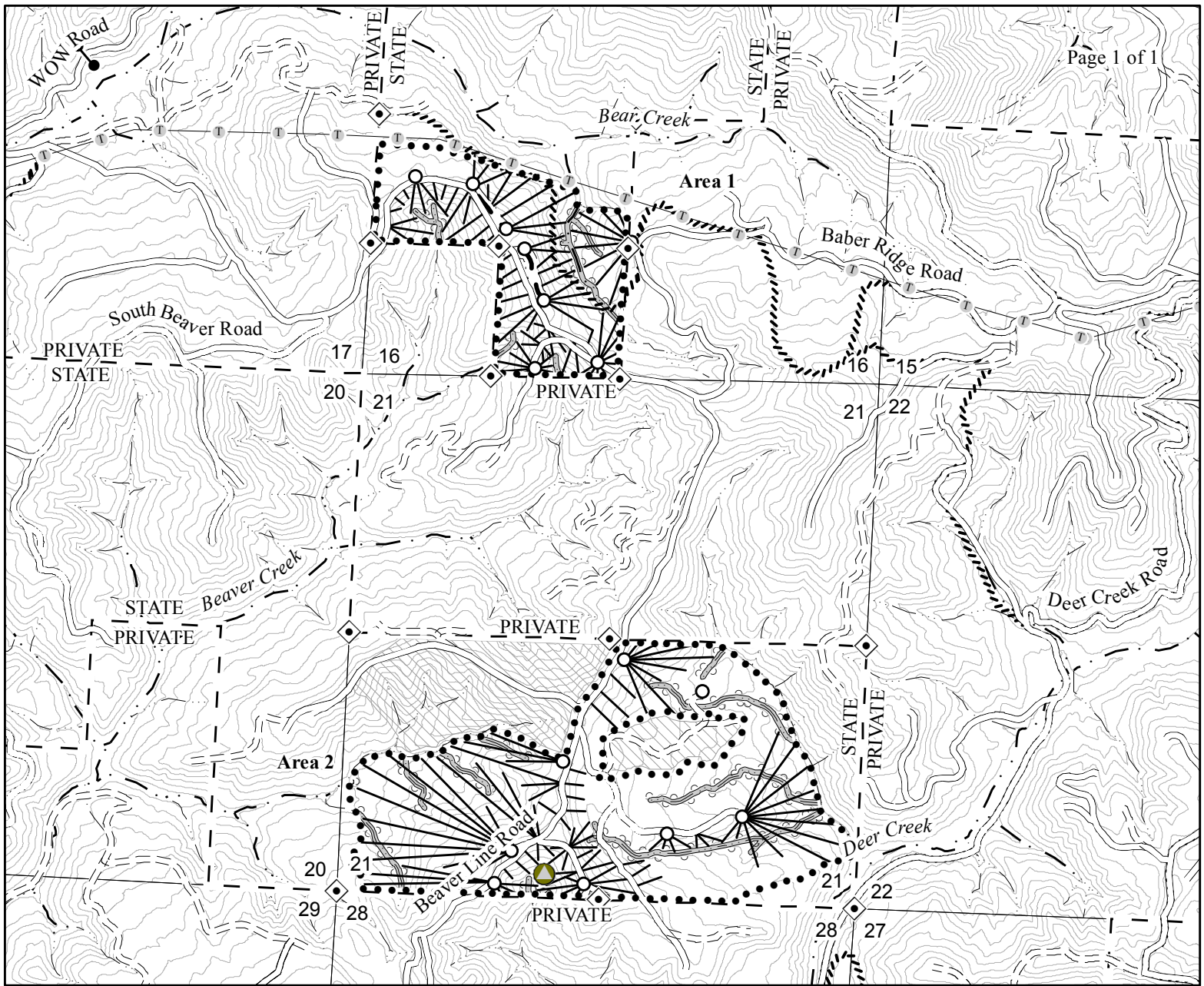
DIAM. CLASS	# by CLASS	TPA
3		0
4		0
5		0
6		0
7	0	0
8	2	3
9	6	7
10	10	10
11	22	18
12	35	24
13	45	26
14	48	24
15	35	15
16	22	9
17	3	1
18	3	1
19	0	0
20		0
21		0
22		0
23		0
24		0
25		0
26		0
27		0
28		0

231

SPECIES	D-Fir
BAF	20
# PLOTS	37

TPA	138
BA	125
QMD	12.9
RD	35
SDI	207

Diam.	Tree/ac removed	Volume/ tree	Volume/ Acre
8"	3	20	60
9"	8	30	240
10"	10	50	500
11"	13	60	780
12"	25	70	1750
13"	15	90	1350
14"	6	110	660
15"	3	130	390
16"	1	150	150
Total/Acre			5880
in-growth			1.12
			6585.6
D & B			0.95
Net Vol. /Acre			6256



Legend

Boundaries

- Timber Sale Boundary
- Right of Way (Posted)

Roads

- ==== Surfaced Road
- == Unsurfaced Road
- New Construction
- //// Motorized Trail

Streams

- Type F Stream
- Type N Stream
- ~~~~ Unposted Stream Buffer
- Stream Buffer
- ▨ Reforestation Area

Cable Corridors

- Landings
- ◆ Land Survey Monument
- Electric Transmission Line
- Gates
- ▲ Permanent Inventory Plot

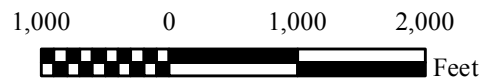
LOGGING PLAN

OF TIMBER SALE CONTRACT NO. 341-18-109
POWERLINE THIN
PORTIONS OF SECTION 16 & 21
T11S, R9W, W.M.,
LINCOLN COUNTY, OREGON

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Scale

1:18,000



	NET ACRES	NET ACRES
AREA	TRACTOR	CABLE
1 (PC)	10	63
2 (PC)	52	121
TOTAL	62	184



Created By: Blake McKinley
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Date: 02/22/2018