



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Top Step

Sale FG-341-2015-23-

District: Forest Grove

Date: April 17, 2015

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$1,339,011.75	\$27,359.20	\$1,366,370.95
		Project Work:	(\$498,290.00)
		Advertised Value:	\$868,080.95



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Sale FG-341-2015-23-

District: Forest Grove

Date: April 17, 2015

Timber Description

Location: Portions of Sections 4 and 5, T2N, R5W, W.M., Washington County, Oregon.

Stand Stocking: 20%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	17	0	98
Western Hemlock / Fir	20	0	98
Alder (Red)	18	0	98

Volume by Grade	2S	3S	4S	Camprun	Total
Douglas - Fir	2,255	1,382	188	0	3,825
Western Hemlock / Fir	48	25	2	0	75
Alder (Red)	0	0	0	88	88
Total	2,303	1,407	190	88	3,988

Comments: Pond Values Used: 1st Quarter Calendar Year 2015.

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
 $\$954.96/\text{MBF} = \$1,185/\text{MBF} - \$230.04/\text{MBF}$

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

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

HAULING COST ALLOWANCE

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

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

Brand and Paint: $3,988 \text{ MBF} \times \$2/\text{MBF} = \$7,976$

TOTAL Other Costs (with Profit & Risk to be added)= $\$7,976$

Other Costs (No Profit & Risk added):

Block/Waterbar Roads, & Skid Trails: $20 \text{ hrs} \times \$150/\text{hour} = \$3,000$

Pile Landing Slash and Sort Firewood: $15 \text{ hrs} \times \$150/\text{hour} = \$2,250$

Equipment Cleaning: $3 \times \$1,000/\text{Piece} = \$3,000$

TOTAL Other Costs (No Profit & Risk added) = $\$8,250$

ROAD MAINTENANCE

Move-in: $\$4,000$

General Road Maintenance: $5.1 \text{ miles} \times \$1,200/\text{mile} = \$6,100$

TOTAL Road Maintenance: $\$10,100/3,988 \text{ MBF} = \$2.53/\text{MBF}$



Timber Sale Appraisal Top Step

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Date: April 17, 2015

Logging Conditions

Combination#: 1

Douglas - Fir	65.94%
Western Hemlock / Fir	78.53%
Alder (Red)	93.92%

Logging System: Cable: Large Tower >=70
Process: Stroke Delimber

yarding distance: Long (1,500 ft)
downhill yarding: No

tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF

loads / day: 9
bd. ft / load: 4600

cost / mbf: \$149.76

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

Combination#: 2

Douglas - Fir	5.61%
Western Hemlock / Fir	21.47%
Alder (Red)	6.08%

Logging System: Shovel
Process: Stroke Delimber

yarding distance: Short (400 ft)
downhill yarding: No

tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF

loads / day: 11
bd. ft / load: 4100

cost / mbf: \$70.33

machines: Stroke Delimber (B)

Combination#: 3

Douglas - Fir	16.78%
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Logging System: Cable: Small Tower <=40
Process: Stroke Delimber

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

tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF

loads / day: 10
bd. ft / load: 4100

cost / mbf: \$136.59

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

Combination#: 4

Douglas - Fir	11.66%
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Logging System: Shovel
Process: Stroke Delimber

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

tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF

loads / day: 9
bd. ft / load: 4100

cost / mbf: \$85.96

machines: Stroke Delimber (B)



"STEWARDSHIP IN FORESTRY"

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Sale FG-341-2015-23-

District: Forest Grove

Date: April 17, 2015

Logging Costs

Operating Seasons: 2.00	Profit Risk: 10%
Project Costs: \$498,290.00	Other Costs (P/R): \$7,976.00
Slash Disposal: \$0.00	Other Costs: \$8,250.00

Miles of Road

Road Maintenance: \$2.53

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	3.0	4.4
Western Hemlock / Fir	\$0.00	3.0	4.0
Alder (Red)	\$0.00	2.0	3.8



"STEWARDSHIP IN FORESTRY"

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District: Forest Grove

Date: April 17, 2015

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
\$135.65	\$2.58	\$2.20	\$60.27	\$2.00	\$20.27	\$0.00	\$5.00	\$2.07	\$230.04
Western Hemlock / Fir									
\$132.71	\$2.58	\$2.20	\$66.30	\$2.00	\$20.58	\$0.00	\$5.00	\$2.07	\$233.44
Alder (Red)									
\$144.93	\$2.58	\$2.20	\$104.68	\$2.00	\$25.64	\$0.00	\$5.00	\$2.07	\$289.10

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$575.30	\$345.26	\$0.00
Western Hemlock / Fir	\$0.00	\$478.67	\$245.23	\$0.00
Alder (Red)	\$0.00	\$600.00	\$310.90	\$0.00



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District: Forest Grove

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Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	3,825	\$345.26	\$1,320,619.50
Western Hemlock / Fir	75	\$245.23	\$18,392.25
Alder (Red)	88	\$310.90	\$27,359.20

Gross Timber Sale Value

Recovery: \$1,366,370.95

Prepared By: Eric Foucht

Phone: 503-357-2191

TIMBER SALE SUMMARY

Top Step

Contract No. 341-15-23

1. **Location:** Portions of Sections 4 & 5, T2N, R5W, W.M., Washington County, Oregon.
2. **Type of Sale:** This timber sale is 44 acres of Modified Clearcut, 80 acres of Partial Cut, and 2 acres of right-of-way. The timber will be sold on a recovery basis at a sealed bid auction.
3. **Revenue Distribution:** 98% BOF, 2% CSL, 100% Washington County.
4. **Sale Acreage:** Acres are net of stream buffers and road prisms. Acreage was determined using ESRI ArcMap GIS software.
5. **Cruise:** The Timber Sale was cruised by ODF Cruisers in February, 2015. For more information see Cruise Report.
6. **Timber Description:** The Timber Sale Area consists of a well stocked 78 year old stand of Douglas-fir, and a 63 year old stand of Douglas-fir with a small component of western hemlock.

Sale Area	Net Acres	Average Diameter	Net MBF Per Acre (D-fir)
Area 1	44	19"	61,576
Area 2	80	15"	13,893
Area 3 R/W	2	20"	42,316

7. **Topography and Logging Method:** Slopes within the sale areas range from 5% to 65% and are variable in aspect. The following table summarizes average and maximum cable corridor or estimated tractor skid trail length, and harvest method by percent for each sale area.

	Area 1 (MC)			Area 2 (PCM)			Area 3 (R/W)		
	Ave	Max	%	Ave	Max	%	Ave	Max	%
Tractor	200	350	5	450	680	41	718	1252	100
Cable	800	950	95	800	1000	59			0

8. **Access:** From Forest Grove, travel north on Highway 8 to its junction with Highway 6. Turn left and travel west approximately 3.5 miles to Timber Road. Turn right, proceed north on Timber Road approximately 6.5 miles and turn onto Cochran Road. Continue west on Cochran Road for 3.5 miles to Round Top Road. Turn onto Round Top Road and continue for approximately 1.5 miles. Turn left onto Rice Road and continue for approximately 2 miles to Sale Area 2.

9. Projects:

Project No. 1: Road Construction and Improvement	\$46,861.90
Project No. 2: Surfacing	\$402,951.65
Project No. 3: Grass Seed, Fertilize, and Mulch	\$1,596.51
Project No. 4: Road Vacating	\$332.50
Project No. 5: Crush 2,500 CY 1-1/2" Stockpile	\$40,803.00
Move in and equipment cleaning:	\$5,741.00

Total Credit for all Projects (rounded) \$498,290

PROJECT COST SUMMARY SHEET

Timber Sale: Top Step

Sale Number: 341-15-23

PROJECT NO. 1: ROAD CONSTRUCTION AND IMPROVEMENT

CONSTRUCTION

Road Segment	Length	Cost
F to G	17+10	\$5,957.33
H to I	11+25	\$828.48
L to M	2+10	\$4,438.64
N to O	4+00	\$1,376.46
	34+45	stations
	0.65	miles

SUBTOTAL CONSTRUCTION \$12,600.90

IMPROVEMENTS

Road Segment	Length	Cost
A to B	9+50	\$427.50
B to C	182+65	\$19,676.60
D to E	151+65	\$11,709.40
E to F	8+25	\$322.00
J to K	15+50	\$2,125.50
	367+55	stations
	6.96	miles

SUBTOTAL IMPROVEMENTS \$34,261.00

TOTAL PROJECT NO. 1 COST = \$46,861.90

PROJECT NO. 2: SURFACING

Road Segment	Amount	Type	Cost
A to B	402 cy	1 1/2"-0"	\$13,290.12
B to C	3,262 cy	1 1/2"-0"	\$114,568.34
	60 cy	Pit-Run	\$352.80
	100 cy	36"-24" Rip-Rap	\$2,269.00
D to E	96 cy	1 1/2"-0"	\$3,476.16
	5,489 cy	3"-0"	\$198,771.17
E to F	576 cy	Pit-Run	\$7,418.88
F to G	1,451 cy	Pit-Run	\$19,109.67
H to I	130 cy	3"-0"	\$4,876.30
	953 cy	Pit-Run	\$12,379.47
J to K	1,208 cy	Pit-Run	\$15,764.40
L to M	337 cy	Pit-Run	\$4,411.33
N to O	480 cy	Pit-Run	\$6,264.00
Total	14,544 cy		
	3,760 cy	1 1/2"-0"	
	5,619 cy	3"-0"	
	5,065 cy	Pit-Run	
	100 cy	36"-24" Rip-Rap	

TOTAL PROJECT NO. 2 COST = \$402,951.65

PROJECT NO. 3: GRASS SEED, FERTILIZE, & MULCH

TOTAL PROJECT NO. 3 COST = \$1,596.51

PROJECT NO. 4: ROAD VACATING

TOTAL PROJECT NO. 4 COST = \$332.50

PROJECT NO. 5: CRUSH 2,500CY 1-1/2" STOCKPILE

TOTAL PROJECT NO. 5 COST = \$40,803.00

MOVE IN & EQUIPMENT CLEANING

Grader	\$709.55
Roller (smooth/grid) & Compactor	\$465.95
Excavator (Large) - Equipment Cleaning	\$1,709.55
Tractor (D8) - Equipment Cleaning	\$1,819.72
Dump Trucks (10 cy +)	\$905.44
Water Truck (1500 Gal)	\$130.79

TOTAL MOVE IN & EQUIPMENT CLEANING COST = \$5,741.00

TOTAL ALL PROJECTS \$498,286.56
TOTAL CREDITS \$498,290.00

SUMMARY OF CONSTRUCTION COST

Timber Sale:	<u>Top Step</u>	Timber Sale No.:	<u>341-15-23</u>
Road Segment:	<u>A to B</u>	Improvement:	<u>9+50 stations</u> <u>0.18 miles</u>

PROJECT NO. 1

EXCAVATION

Grade and Ditch	9.50	sta @	\$24.00 per sta =	\$228.00
Roll Subgrade	9.50	sta @	\$21.00 per sta =	\$199.50

PROJECT NO. 1 TOTAL COST = \$427.50

PROJECT NO. 2:

SURFACING

	6	" deep =	36 cy/sta		
A to B	342	cy of	1 1/2" -0"	@	\$33.06 per cy = \$11,306.52
Junction	60	cy of	1 1/2" -0"	@	\$33.06 per cy = \$1,983.60
Total =	402				
	402	cy of	1 1/2" -0"		\$33.06 per cy = \$13,290.12

PROJECT NO. 2 TOTAL COST = \$13,290.12

PROJECT NO. 3:

Grass seed and fertilize areas of disturbed soil.	0.01	acres @	\$425.00 per acre =	\$4.25
Mulch by Bale	10	bales @	\$8.00 per bale =	\$80.00

PROJECT NO. 3 TOTAL COST = \$84.25

TOTAL COST = \$13,801.87

SUMMARY OF CONSTRUCTION COST

Timber Sale: Top Step
 Road Segment: B to C

Timber Sale No. : 341-15-23
 Improvement: 182+65 stations
3.46 miles

PROJECT NO. 1

EXCAVATION

Clean Ditch and Endhaul Waste Material	47.75	sta @	\$100.00	per sta =	\$4,775.00	
Grade and Ditch	75.60	sta @	\$19.20	per sta =	\$1,451.52	
Roll Subgrade	75.60	sta @	\$16.80	per sta =	\$1,270.08	
						TOTAL EXCAVATION COSTS= \$7,496.60

CULVERTS - MATERIALS & INSTALLATION

Culverts						
494 LF of 18"	\$9,880.00					
70 LF of 24"			\$2,030.00			
Culvert Markers						
27 markers	\$270.00					
						TOTAL CULVERT COSTS = \$12,180.00

PROJECT NO. 1 TOTAL COST = \$19,676.60

PROJECT NO. 2:

SURFACING

	6	" deep =	36 cy/sta			
B to C (0+00 to 75+60)	2,722	cy of	1 1/2" -0"	@	\$35.19	per cy = \$95,773.10
Junction (Pt. D)	30	cy of	1 1/2" -0"	@	\$35.19	per cy = \$1,055.70
Culvert Bedding & Fill	288	cy of	1 1/2" -0"	@	\$34.47	per cy = \$9,927.36
Spot rock over Culverts No. 7 - 18						
	192	cy of	1 1/2" -0"	@	\$35.19	per cy = \$6,756.48
Curve Widening	30	cy of	1 1/2" -0"	@	\$35.19	per cy = \$1,055.70
Energy Dissipator	70	cy of	36"-24" Riprap	@	\$22.69	per cy = \$1,589.30
Fill Armor	60	cy of	Pit-Run	@	\$5.88	per cy = \$352.80
Fill Armor	30	cy of	36"-24" Riprap	@	\$22.69	per cy = \$680.70
Total =	3,422					
	2,974	cy of	1 1/2" -0"		\$35.19	per cy = \$104,640.98
	288	cy of	1 1/2" -0"		\$34.47	per cy = \$9,927.36
	60	cy of	Pit-Run		\$5.88	per cy = \$352.80
	100	cy of	36"-24" Riprap		\$22.69	per cy = \$2,269.00

PROJECT NO. 2 TOTAL COST = \$117,190.14

PROJECT NO. 3:

Grass seed and fertilize areas of disturbed soil.	0.01	acres @	\$425.00	per acre =	\$2.43
Bio-Bags	40	ea. @	\$5.00	per each =	\$200.00
Mulch by Bale	30	bales @	\$8.00	per bale =	\$240.00

PROJECT NO. 3 TOTAL COST = \$442.43

TOTAL COST = \$137,309.18

SUMMARY OF CONSTRUCTION COST

Timber Sale: Top Step Timber Sale No.: 341-15-23
 Road Segment: D to E Improvement: 151+65 stations
2.87 miles

PROJECT NO. 1

EXCAVATION

Grade and Ditch	151.65	sta @	\$19.20	per sta =	\$2,911.68	
Roll Subgrade	151.65	sta @	\$16.80	per sta =	\$2,547.72	
				TOTAL EXCAVATION COSTS =		\$5,459.40

CULVERTS - MATERIALS & INSTALLATION

Culverts						
120 LF of 18"	\$2,400.00					
130 LF of 24"			\$3,770.00			
Culvert Markers						
8 markers	\$80.00					
				TOTAL CULVERT COSTS =		\$6,250.00

PROJECT NO. 1 TOTAL COST = \$11,709.40

PROJECT NO. 2:

SURFACING

	6	" deep =	36 cy/sta			
Surface	5,459	cy of	3" - 0"	@	\$36.21 per cy =	\$197,684.87
Junction	30	cy of	3" - 0"	@	\$36.21 per cy =	\$1,086.30
Culvert Bedding	96	cy of	1 1/2" - 0"	@	\$36.21 per cy =	\$3,476.16
Total =	5,585					
	96	cy of	1 1/2" - 0"		\$36.21 per cy =	\$3,476.16
	5,489	cy of	3" - 0"		\$36.21 per cy =	\$198,771.17

PROJECT NO. 2 TOTAL COST = \$202,247.33

PROJECT NO. 3:

Grass seed and fertilize areas of disturbed soil.	0.01	acres @	\$220.00	per acre =	\$2.53
Bio-Bags	40	ea. @	\$5.00	per each =	\$200.00
Mulch by Bale	8.00	bales @	\$4.50	per bale =	\$36.00

PROJECT NO. 3 TOTAL COST = \$238.53

TOTAL COST = \$214,195.26

SUMMARY OF CONSTRUCTION COST

Timber Sale:	Top Step	Timber Sale No.:	341-15-23
Road Segment:	E to F	Improvement:	8+25 stations
			0.16 miles

PROJECT NO. 1

EXCAVATION

Clean Culvert Inlet and Outlet	1	ea. @	\$25.00 per ea. =	\$25.00
Grade and Ditch	8.25	sta @	\$19.20 per sta =	\$158.40
Roll Subgrade	8.25	sta @	\$16.60 per sta =	\$138.60

PROJECT NO. 1 TOTAL COST = \$322.00

PROJECT NO. 2:

SURFACING

	12	" deep =	65 cy/sta		
E to F	536	cy of	Pit-Run	@	\$12.88 per cy = \$6,903.68
Junction	40	cy of	Pit-Run	@	\$12.88 per cy = \$515.20
Total =	576				
	576	cy of	Pit-Run		\$12.88 per cy = \$7,418.88

PROJECT NO. 2 TOTAL COST = \$7,418.88

TOTAL COST = \$7,740.88

SUMMARY OF CONSTRUCTION COST

Timber Sale: Top Step
 Road Segment: F to G

Timber Sale No. : 341-15-23
 Construction: 17+10 stations
0.32 miles

PROJECT NO. 1

EXCAVATION

Clearing and Grubbing (Scatter)	1.57	acres @	\$1,078.00	per acre =	\$1,692.73
Balanced Road Construction	7.40	sta @	\$110.00	per sta =	\$814.00
Drift	9.70	sta @	\$180.00	per sta =	\$1,746.00
Roadside Landing	1	ea. @	\$165.00	per ea. =	\$165.00
Landing	1	ea. @	\$314.00	per ea. =	\$314.00
Grade and Ditch	17.10	sta @	\$19.20	per sta =	\$328.32
Roll Subgrade	17.10	sta @	\$16.80	per sta =	\$287.28
TOTAL EXCAVATION COSTS=					\$5,347.33

CULVERTS - MATERIALS & INSTALLATION

Culverts	30	LF of 18"	\$600.00
Culvert Markers	1	markers	\$10.00

TOTAL CULVERT COSTS = \$610.00

PROJECT NO. 1 TOTAL COST = \$5,957.33

PROJECT NO. 2:

SURFACING

	12	" deep =	65 cy/sta		
F to G	1,112	cy of	Pit-Run	@	\$13.17 per cy = \$14,645.04
Turnout	44	cy of	Pit-Run	@	\$13.17 per cy = \$579.48
Turnaround	20	cy of	Pit-Run	@	\$13.17 per cy = \$263.40
Landing	180	cy of	Pit-Run	@	\$13.17 per cy = \$2,370.60
Roadside Landing	95	cy of	Pit-Run	@	\$13.17 per cy = \$1,251.15
Total =	1,451				
	1,451	cy of	Pit-Run		\$13.17 per cy = \$19,109.67

PROJECT NO. 2 TOTAL COST = \$19,109.67

PROJECT NO. 3:

Grass seed and fertilize areas of disturbed soil.	0.79	acres @	\$425.00	per acre =	\$333.68
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PROJECT NO. 3 TOTAL COST = \$333.68

TOTAL COST = \$25,400.67

SUMMARY OF CONSTRUCTION COST

Timber Sale: Top Step Timber Sale No.: 341-15-23
 Road Segment: H to I Construction: 11+25 stations
0.21 miles

PROJECT NO. 1

EXCAVATION

Clearing and Grubbing (Scatter)	1.03	acres @	\$1,078.00	per acre =	\$1,113.64
Balanced Road Construction	11.25	sta @	\$110.00	per sta =	\$1,237.50
Construct Turnout	1	ea. @	\$66.00	per ea. =	\$66.00
Construct Turnaround	1	ea. @	\$82.50	per ea. =	\$82.50
Landing	1	ea. @	\$314.00	per ea. =	\$314.00
Grade and Ditch	11.25	sta @	\$19.20	per sta =	\$216.00
Roll Subgrade	11.25	sta @	\$16.80	per sta =	\$189.00
TOTAL EXCAVATION COSTS=					\$3,218.64

CULVERTS - MATERIALS & INSTALLATION

Culverts	60	LF of 18"	\$1,200.00		
Culvert Markers	2	markers	\$20.00		
TOTAL CULVERT COSTS =					\$1,220.00

PROJECT NO. 1 TOTAL COST = \$4,438.64

PROJECT NO. 2:

SURFACING

	12	" deep =	65 cy/sta		
0+00 to 1+85 & 3+85 to 11	731	cy of	Pit-Run @	\$12.99 per cy =	\$9,495.69
1+85 to 3+85	130	cy of	3"-0" @	\$37.51 per cy =	\$4,876.30
Turnout	22	cy of	Pit-Run @	\$12.99 per cy =	\$285.78
Turnaround	20	cy of	Pit-Run @	\$12.99 per cy =	\$259.80
Landing	180	cy of	Pit-Run @	\$12.99 per cy =	\$2,338.20
Total =	1,083				
	130	cy of	3"-0	\$37.51 per cy =	\$4,876.30
	953	cy of	Pit-Run	\$12.99 per cy =	\$12,379.47

PROJECT NO. 2 TOTAL COST = \$17,255.77

PROJECT NO. 3:

Grass seed and fertilize areas of disturbed soil.	0.52	acres @	\$425.00	per acre =	\$219.52
Mulch	4.00	bales @	\$8.00	per bale =	\$32.00

PROJECT NO. 3 TOTAL COST = \$251.52

TOTAL COST = \$21,945.93

SUMMARY OF CONSTRUCTION COST

Timber Sale: Top Step
 Road Segment: J to K

Timber Sale No.: 341-15-23
 Improvement: 15+50 stations
0.29 miles

PROJECT NO. 1

EXCAVATION

Road Brushing						\$875.00
Grade and Ditch	15.50	sta @	\$19.20	per sta =		\$297.60
Roll Subgrade	15.50	sta @	\$16.80	per sta =		\$260.40
						<u>TOTAL EXCAVATION COSTS=</u> \$1,515.50

CULVERTS - MATERIALS & INSTALLATION

Culverts						
30 LF of 18"						\$600.00
Culvert Markers						
1 markers						<u>\$10.00</u>
						<u>TOTAL CULVERT COSTS =</u> \$610.00

PROJECT NO. 1 TOTAL COST = \$2,125.50

PROJECT NO. 2:

SURFACING

	12	" deep =	65 cy/sta			
J to K	1,008	cy of	Pit-Run	@	\$13.05 per cy =	\$13,154.40
Junction	20	cy of	Pit-Run	@	\$13.05 per cy =	\$261.00
Landing	180	cy of	Pit-Run	@	\$13.05 per cy =	<u>\$2,349.00</u>
Total =	1,208					
	1,208	cy of	Pit-Run		\$13.05 per cy =	\$15,764.40

PROJECT NO. 2 TOTAL COST = \$15,764.40

TOTAL COST = \$17,889.90

SUMMARY OF CONSTRUCTION COST

Timber Sale:	<u>Top Step</u>	Timber Sale No.:	<u>341-15-23</u>
Road Segment:	<u>L to M</u>	Construction:	<u>2+10 stations</u> <u>0.04 miles</u>

PROJECT NO. 1

EXCAVATION

Clearing and Grubbing (Scatter)	0.19	acres @	\$1,078.00	per acre =	\$207.88
Balanced Road Construction	2.10	sta @	\$110.00	per sta =	\$231.00
Landing	1	ea. @	\$314.00	per ea. =	\$314.00
Grade and Ditch	2.10	sta @	\$19.20	per sta =	\$40.32
Roll Subgrade	2.10	sta @	\$16.80	per sta =	\$35.28

PROJECT NO. 1 TOTAL COST = \$828.48

PROJECT NO. 2:

SURFACING

	12	. "	deep =	85	cy/sta		
L to M	137	cy of	Pit-Run	@	\$13.09	per cy =	\$1,793.33
Turnaround	20	cy of	Pit-Run	@	\$13.09	per cy =	\$261.80
Landing	180	cy of	Pit-Run	@	\$13.09	per cy =	\$2,356.20
Total =	337						
	337	cy of	Pit-Run		\$13.09	per cy =	\$4,411.33

PROJECT NO. 2 TOTAL COST = \$4,411.33

PROJECT NO. 3:

Grass seed and fertilize areas of disturbed soil.	0.10	acres @	\$425.00	per acre =	<u>\$40.98</u>
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PROJECT NO. 3 TOTAL COST = \$40.98

TOTAL COST = \$5,280.79

SUMMARY OF CONSTRUCTION COST

Timber Sale: Top Step Timber Sale No. : 341-15-23
 Road Segment: N to O Construction: 4+00 stations
0.08 miles

PROJECT NO. 1

EXCAVATION

Clearing and Grubbing (Scatter)	0.37	acres @	\$1,078.00	per acre =	\$395.86
Balanced Road Construction	4.00	sta @	\$110.00	per sta =	\$440.00
Construct Turnaround	1	ea. @	\$82.50	per ea. =	\$82.50
Landing	1	ea. @	\$314.00	per ea. =	\$314.00
Grade and Ditch	4.00	sta @	\$19.20	per sta =	\$76.80
Roll Subgrade	4.00	sta @	\$16.80	per sta =	\$67.20

PROJECT NO. 1 TOTAL COST = \$1,376.46

PROJECT NO. 2:

SURFACING	12	" deep =	85 cy/sta.		
N to O	260	cy of	Pit-Run @	\$13.05 per cy =	\$3,393.00
Turnaround	20	cy of	Pit-Run @	\$13.05 per cy =	\$261.00
Junction	20	cy of	Pit-Run @	\$13.05 per cy =	\$261.00
Landing	180	cy of	Pit-Run @	\$13.05 per cy =	\$2,349.00
Total =	480				
	480	cy of	Pit-Run	\$13.05 per cy =	\$6,264.00

PROJECT NO. 2 TOTAL COST = \$6,264.00

PROJECT NO. 3:

Grass seed and fertilize areas of disturbed soil. 0.18 acres @ \$425.00 per acre = \$78.05

PROJECT NO. 3 TOTAL COST = \$78.05

TOTAL COST = \$7,718.51

SUMMARY OF CONSTRUCTION COST

Timber Sale: Top Step Timber Sale No.: 341-15-23
Road Segment: V1 to V2 Vacate: 4+50 stations
0.09 miles

PROJECT NO. 4

EXCAVATION

Rip Road Surface	4.50	sta @	\$25.00	per sta =	\$112.50	
Construct Waterbars	2	ea. @	\$27.50	per ea. =	\$55.00	
Construct Tank Trap	3	ea. @	\$55.00	per ea. =	\$165.00	
Remove berm	4.50	sta @	\$25.00	per sta =	\$112.50	
				TOTAL EXCAVATION COSTS=		\$332.50

PROJECT NO. 3:

Grass seed and fertilize areas of disturbed soil.	0.12	acres @	\$425.00	per acre =	\$52.69	
Mulch	0.12	acres @	\$600.00	per acre =	\$74.38	

PROJECT NO. 3 TOTAL COST = \$127.07

TOTAL COST = \$459.57

SUMMARY OF CONSTRUCTION COST

Timber Sale: Top Step
1 1/2"-0 Stockpile

Timber Sale No. : 341-15-23

PROJECT NO. 5: 2,500 1-1/2" Stockpile (Stockpile Measure)

SURFACING

2,500 cy Stockpile 2,900 cy of 1 1/2" - 0 @ \$14.07 per cy = \$40,803.00
Total = 2,900

PROJECT NO. 5 TOTAL COST = \$40,803.00

TOTAL COST = \$40,803.00

ROCK DEVELOPMENT COST SUMMARY

Timber Sale: Top Step
 Sale Number: 341-15-23
 Pit Name: Round Top Pit

Swell:	<u>130%</u>	Pit Run (trk measure)	<u>5,065 cy</u>
Shrinkage:	<u>116%</u>	Total Truck Yardage:	<u>5,065 cy</u>
Drill Pct.:	<u>85%</u>	Total In Place Yardage:	<u>3,896 cy</u>

Scalp & Clear Overburden:			\$4,499.04
Rip Rock:	<u>\$2.10 /cy x</u>	<u>4,584 cy</u>	= \$9,625.79
Screen Rock	<u>\$2.90 /cy x</u>	<u>5,065 cy</u>	= \$14,688.50
Load Dump Truck:	<u>\$0.80 /cy x</u>	<u>5,065 cy</u>	= \$4,052.00
		Subtotal	<u>\$32,865.33</u>

Move in Excavator (in-sale move)	\$461.68
Move in D-8 (in-sale move)	\$444.56
Clean Up Pit	\$875.00
	Subtotal <u>\$2,781.24</u>

ROCK DEVELOPMENT COST = \$7.04/cy TOTAL PRODUCTION COST \$35,646.57

ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

Timber Sale: Top Step
 Sale Number: 341-15-23
 Pit Name: Wildcat

Swell:	<u>130%</u>	1-1/2"-0 (trk measure)	<u>3,760 cy</u>
Shrinkage:	<u>116%</u>	3"-0 (trk measure)	<u>5,619 cy</u>
Screening Loss:	<u>15%</u>	Stockpile (stockpile measurement)	<u>2,500 cy</u>
		Total Truck Yardage:	<u>12,279 cy</u>
		Total In Place Yardage:	<u>9,445 cy</u>
		Existing Shot rock:	<u>1,700 cy</u>

Pit Development & Cleanup including Clearing and grubbing of
 Waste Area @ adjacent to pit, place overburden
 in Waste Area, spread and compact.

			\$7,280.00
Drill & Shoot:	<u>\$2.80 /cy x</u>	<u>9,805 cy</u>	= \$27,452.67
Push Rock:	<u>\$0.80 /cy x</u>	<u>12,746 cy</u>	= \$10,196.71
Screen Rock	<u>\$2.90 /cy x</u>	<u>14,446 cy</u>	= \$41,893.06
Waste Reject:	<u>\$0.80 /cy x</u>	<u>2,167 cy</u>	= \$1,733.51
Load Crusher:	<u>\$0.80 /cy x</u>	<u>12,279 cy</u>	= \$9,823.20
Crushing (1-1/2" - 0):	<u>\$3.30 /cy x</u>	<u>6,660 cy</u>	= \$21,976.68
Crushing (3" - 0):	<u>\$3.30 /cy x</u>	<u>5,619 cy</u>	= \$18,544.02
Build and Shape Stockpile:	<u>\$1.10 /cy x</u>	<u>2,900 cy</u>	= \$3,190.00
Load Dump Truck:	<u>\$0.80 /cy x</u>	<u>9,379 cy</u>	= \$7,503.20
		Subtotal	<u>\$149,593.04</u>

Move in Crusher	\$3,286.00
Set up Crusher	\$3,327.00
Move in and set up Drill and Compressor	\$420.71
Move in Screening Plant	\$465.00
Move in Excavator + Equipment Cleaning	\$1,750.21
Move in D-8 + Equipment Cleaning	\$1,745.63
Move in Loader	\$671.34
Pit Clean Up - clean off benches, screen excess shot material, block access roads, stockpile boulders, etc.	\$5,600.00
Grass seed, fertilize and mulch waste area fill slopes	\$307.50
Gradation Tests (\$65/2000 cy) <u>\$71.50</u> cy/2000cy x <u>7</u> tests	\$500.50
Change Gradation	\$275.00
	Subtotal <u>\$18,348.89</u>

ROCK DEVELOPMENT COST = \$13.68/cy TOTAL PRODUCTION COST \$167,941.93

**CRUISE REPORT
TOP STEP
341-15-23**

1. LOCATION: Portions of Sections 4 & 5, T2N, R5W, W.M., Washington County.

2. CRUISE DESIGN:

The cruise design assumed a Coefficient of Variation (CV%) of 40%, an average stand diameter of 18 inches, a desired sampling error (SE%) of 9% and a minimum sample size of 100 grade trees. Pre-cruise plots indicated that approximately 6 leave trees per plot could be realized with a 40 BAF prism.

3. SAMPLING METHOD:

The Sale Areas were all cruised in February 2015 with variable radius plots using a 40 BAF prism. Plots falling on or near existing roads or no-harvest areas were offset 1 chain. Sale Area 1 was sampled with 12 count plots and 12 grade plots laid out on a 4 chain x 4 chain grid. Area 2 was sampled with 13 count plots and 13 grade plots laid out on a 4 chain x 5 chain grid. In Area 2 cruisers 'thinned' plots from below to 140 ft² of basal area by assigning a 'Take' or 'Leave' status to each tree in every plot.

4. CRUISE RESULTS

A total of 161 trees were measured and graded producing a cumulative sampling error of 9.3% on the Douglas-fir 'take tree' Basal Area and 8.9% on the Douglas-fir 'take tree' Board Foot Volume.

5. TREE MEASUREMENT AND GRADING:

All grade plot 'Take' trees were measured and graded following Columbia River Log Scale grade rules and favoring 40 foot segments.

a) **Height Standards:**

Total tree heights were measured to the nearest foot. Bole heights were calculated to a six inch top.

b) **Diameter Standards:** Diameters were measured outside bark at breast height to the nearest inch.

c) **Form Factors** were measured for each grade tree using a form point of 16 feet.

5. DATA PROCESSING

a) Volumes and sampling statistics, were derived from Super Ace 2008 cruise software.

b) Two percent of the volume was subtracted from the computed volumes to account for hidden defect and breakage.

c) The volumes for Area 3 were extrapolated from the total volumes per acre of Area 2.

6. Cruisers: The sale was cruised by ODF cruisers.

Prepared by: _____ Joe Koch _____ 2/11/2015
ODF Forester Date

Reviewed by: _____
Eric Foucht Date

T03N R05W S32 TMC T03N R05W S32 TMC
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 03N 05W 32 00A1 MC 44.00 24 92 S W

S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/ Lf
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
DF	T	CU														3	12		0.00	7.0
DF	T	2M	62	38,311	38,311	1,686			50	50			0		100	40	15	390	1.88	98.2
DF	T	3M	34	21,387	21,387	941		94	6			1	3	17	79	37	9	105	0.66	203.8
DF	T	4M	4	1,877	1,877	83		100				60	40			18	6	19	0.31	99.0
DF	T	Totals	91	61,576	61,576	2,709		36	33	31		2	2	6	89	32	10	151	0.98	408.0
DF	L	3M	100	2,734	2,734	120		2	9	89				75	25	34	19	647	3.19	4.2
DF	L	Totals	4	2,734	2,734	120		2	9	89				75	25	34	19	647	3.19	4.2
RA	T	CR	100	1,179	1,179	52		20	80				20	80		34	10	125	0.91	9.4
RA	T	Totals	2	1,179	1,179	52		20	80				20	80		34	10	125	0.91	9.4
WH	T	2M	78	1,115	1,115	49			75	25				100		40	14	300	1.48	3.7
WH	T	3M	19	261	261	12		100						100		40	8	99	0.69	2.7
WH	T	4M	3	41	41	2		100				61	39			16	6	18	0.36	2.2
WH	T	Totals	2	1,417	1,417	62		21	59	20		2	1	97		34	10	165	1.05	8.6
BM	T	3M	61	514	514	23		54	46					14	86	37	10	137	0.80	3.7
BM	T	4M	5	41	41	2		100				100				16	7	30	0.41	1.4
BM	T	CR	34	281	281	12		100				17		83		30	9	90	0.62	3.1
BM	T	Totals	1	835	835	37		71	29			10		9	81	31	9	102	0.70	8.2
RC	L	3M	100	170	170	7		38	62					100		27	7	40	0.40	4.2
RC	L	Totals	0	170	170	7		38	62					100		27	7	40	0.40	4.2
Type	Totals			67,912	67,912	2,988		0	34	33	32	2	3	9	87	32	10	153	0.99	442.8

Log Stock Table - MBF
Project: **TOPSTEP**

T03N R05W S32 TMC

T03N R05W S32 TMC

Twp **03N** Rge **05W** Sec **32** Tract **00A†** Type **MC** Acres **44.00** Plots **24** Sample Trees **92** Page **1** Date **3/19/2015** Time **1:24:51PM**

Spp	S	So	Gr	Log	Gross	% Def	Net	% Spc	Net Volume by Scaling Diameter in Inches										
									MBF	MBF	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23
DF	L	3M	32		19		19	.7								8	11		
DF	L	3M	33		3		3	.1							3				
DF	L	3M	34		56		56	2.0			1				4	16	24		12
DF	L	3M	35		12		12	.4											12
DF	L	3M	36		30		30	1.1			2				11				17
DF	T	CU	2																
DF	T	CU	4																
DF	T	2M	24		3		3	.1						3					
DF	T	2M	40		1,683		1,683	59.5						332	304	676	318	54	
DF	T	3M	12		8		8	.3						8					
DF	T	3M	24		22		22	.8				22							
DF	T	3M	30		7		7	.2			7								
DF	T	3M	32		151		151	5.3			72	79							
DF	T	3M	34		11		11	.4			11								
DF	T	3M	36		16		16	.6			7		9						
DF	T	3M	38		20		20	.7			12	8							
DF	T	3M	40		706		706	24.9			87	156	418	46					
DF	T	4M	12		18		18	.6			18								
DF	T	4M	16		13		13	.5			13								
DF	T	4M	18		9		9	.3			9								
DF	T	4M	20		10		10	.4			10								
DF	T	4M	22		3		3	.1			3								
DF	T	4M	24		5		5	.2			5								
DF	T	4M	26		4		4	.1			4								
DF	T	4M	28		15		15	.5			15								
DF	T	4M	30		6		6	.2			6								
DF		Totals			2,830		2,830	94.7			275	249	449	388	304	694	341	106	24
RA	T	CR	28		10		10	20.0			10								
RA	T	CR	40		41		41	80.0					41						
RA		Totals			52		52	1.7			10		41						
WH	T	2M	40		49		49	78.7					25	12	12				
WH	T	3M	40		12		12	18.4			12								
WH	T	4M	12		0		0	.7			0								
WH	T	4M	16		1		1	1.1			1								
WH	T	4M	24		1		1	1.1			1								
WH		Totals			62		62	2.1			2	12	25	12	12				
BM	T	3M	32		3		3	8.6			3								
BM	T	3M	40		19		19	53.0					9	11					
BM	T	4M	16		2		2	4.9			2								
BM	T	CR	20		2		2	5.6			2								
BM	T	CR	40		10		10	28.0					10						
BM		Totals			37		37	1.2			7		19	11					
RC	L	3M	26		5		5	62.5				5							
RC	L	3M	28		3		3	37.5			3								
RC		Totals			7		7	.2			3		5						

TC TLOGSTVB

Log Stock Table - MBF
Project: TOPSTEP

T03N R05W S32 TMC

T03N R05W S32 TMC

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page	2
03N	05W	32	00A1	MC	44.00	24	92	Date	3/19/2015
								Time	1:24:51PM

S Spp	So T	Gr rt	Log de 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
Total All Species				2,988		2,988	100.0		3	294	265	468	465	316	706	341	106	24

Stand Table Summary

Project **TOPSTEP**

T03N R05W S32 TMC

T03N R05W S32 TMC

Twp Rge Sec Tract
03N 05W 32 00A

Type Acres Plots Sample Trees
MC 44.00 24 92

Page: 1
Date: 03/19/20
Time: 1:24:51PM

Spc	S T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
									Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DF	T	11	4	89	100	21.628	14.27	43.26	9.7	41.2	12.02	422	1,784	529	186	79
DF	T	14	6	89	112	20.028	21.41	43.39	18.0	83.8	22.25	781	3,638	979	343	160
DF	T	15	4	89	120	11.631	14.27	29.08	19.4	89.0	16.07	564	2,588	707	248	114
DF	T	16	8	89	113	20.445	28.55	53.67	20.2	91.0	30.90	1,084	4,881	1,360	477	215
DF	T	18	11	90	133	22.212	39.25	66.64	27.3	122.4	51.88	1,820	8,158	2,283	801	359
DF	T	19	2	89	141	3.625	7.14	10.87	33.1	156.7	10.27	360	1,704	452	159	75
DF	T	20	4	90	138	6.542	14.27	19.63	34.4	158.3	19.25	675	3,108	847	297	137
DF	T	21	3	90	141	4.451	10.71	13.35	39.9	196.7	15.17	532	2,626	668	234	116
DF	T	22	6	90	142	8.111	21.41	24.33	44.7	214.4	31.03	1,089	5,218	1,365	479	230
DF	T	23	1	89	145	1.237	3.57	3.71	50.1	240.0	5.29	186	890	233	82	39
DF	T	24	9	90	139	10.223	32.12	31.80	49.3	231.1	44.71	1,569	7,349	1,967	690	323
DF	T	26	6	89	148	5.807	21.41	21.29	52.9	260.9	32.08	1,126	5,555	1,411	495	244
DF	T	27	2	89	150	1.795	7.14	7.18	54.0	290.0	11.05	388	2,082	486	171	92
DF	T	28	3	90	153	2.504	10.71	10.01	57.4	300.0	16.38	575	3,004	721	253	132
DF	T	30	1	89	155	.727	3.57	2.91	68.3	357.5	5.66	198	1,040	249	87	46
DF	T	32	6	89	146	3.833	21.41	15.33	72.7	385.4	31.75	1,114	5,910	1,397	490	260
DF	T	33	1	89	155	.601	3.57	2.40	82.9	442.5	5.68	199	1,063	250	88	47
DF	T	35	1	89	142	.534	3.57	2.14	84.2	457.5	5.13	180	977	226	79	43
DF		Totals	78	89	125	145.933	278.33	401.00	32.1	153.6	366.57	12,862	61,576	16,129	5,659	2,709
DF	L	36	3	89	155	.707	5.00	2.83	97.6	572.5	7.87	276	1,620	346	121	71
DF	L	40	1	89	160	.191	1.67	.76	124.0	727.5	2.70	95	556	119	42	24
DF	L	44	1	90	160	.158	1.67	.63	149.2	885.0	2.68	94	559	118	41	25
DF		Totals	5	89	157	1.056	8.33	4.22	110.1	647.2	13.25	465	2,734	583	205	120
WH	T	18	2	92	117	1.886	3.33	4.72	30.8	134.0	4.65	145	632	205	64	28
WH	T	20	1	92	120	.764	1.67	2.29	34.1	166.7	2.50	78	382	110	34	17
WH	T	24	1	93	124	.531	1.67	1.59	52.0	253.3	2.65	83	403	116	36	18
WH		Totals	4	92	119	3.181	6.67	8.60	35.6	164.8	9.80	306	1,417	431	135	62
RA	T	18	1	93	90	4.716	8.33	9.43	31.0	125.0	8.04	292	1,179	354	129	52
RA		Totals	1	93	90	4.716	8.33	9.43	31.0	125.0	8.04	292	1,179	354	129	52
BM	T	14	1	93	90	1.559	1.67	3.12	18.7	90.0	1.55	58	281	68	26	12
BM	T	15	1	92	80	1.358	1.67	2.72	19.4	90.0	1.40	53	244	61	23	11
BM	T	16	1	94	100	1.194	1.67	2.39	28.5	130.0	1.81	68	310	79	30	14
BM		Totals	3	93	90	4.111	5.00	8.22	21.8	101.6	4.75	179	835	209	79	37
RC	L	12	1	81	80	2.122	1.67	4.24	10.8	40.0	1.07	46	170	47	20	7
RC		Totals	1	81	80	2.122	1.67	4.24	10.8	40.0	1.07	46	170	47	20	7
Totals			92	90	122	161.119	308.33	435.72	32.5	155.9	403.48	14150	67,912	17,753	6,226	2,988

Species, Sort Grade - Board Foot Volumes (Type)										Page	1										
T TSPCSTGR										Date	3/19/2015										
Project: TOPSTEP										Time	11:51:15AM										
T03N R05W S32 T00PC										T03N R05W S32 T00PC											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
03N	05W	32	00A2	00PC	80.00	26	72	S	W												
Spp	So	Gr	%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre		
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln	Dia	Bd		CF/Lf	
			Net BdFt				Net MBF	4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft			
DF	L	CU														4	14		0.00		1.7
DF	L	2M	19	5,630	5,630		450			37	63				100	40	16	447	2.11		12.6
DF	L	3M	79	22,446	22,446		1,796	20	27	53		1	7	31	62	35	12	243	1.39		92.5
DF	L	4M	2	347	347		28	100				76	24			18	6	25	0.36		13.7
DF	L	Totals	58	28,423	28,423		2,274	17	29	55		2	5	24	69	33	12	236	1.41		120.5
DF	T	2M	53	7,380	7,380		590			84	16				100	40	14	286	1.52		25.8
DF	T	3M	37	5,191	5,191		415	100						19	81	37	8	101	0.64		51.6
DF	T	4M	10	1,321	1,321		106	100				22	45		34	26	6	30	0.32		43.5
DF	T	Totals	28	13,893	13,893		1,111	47	45	9		2	4	7	86	34	9	115	0.77		120.8
WH	L	3M	100	6,500	6,500		520	8	31	61				13	87	37	12	276	1.49		23.5
WH	L	Totals	13	6,500	6,500		520	8	31	61				13	87	37	12	276	1.49		23.5
BM	L	3M	100	403	403		32	22	78				100			27	10	111	0.92		3.6
BM	L	Totals	1	403	403		32	22	78				100			27	10	111	0.92		3.6
Type Totals					49,218	49,218	3,937	24	34	42		1	5	18	76	34	10	183	1.13		268.5

Log Stock Table - MBF
Project: TOPSTEP

T03N R05W S32 T00PC

T03N R05W S32 T00PC

Twp Rge Sec Tract Type Acres Plots Sample Trees
 03N 05W 32 00A2 00PC 80.00 26 72

Page 1
 Date 3/19/2015
 Time 11:51:16AM

Spp	S	So	Gr	Log	Gross	% Def	Net	% Spc	Net Volume by Scaling Diameter in Inches										
									MBF	MBF	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23
DF	L		CU	4															
DF	L		2M	40	450		450	13.3					60	38	162	146	45		
DF	L		3M	12	15		15	.4						15					
DF	L		3M	22	15		15	.4					15						
DF	L		3M	24	4		4	.1			4								
DF	L		3M	30	98		98	2.9					10		22	66			
DF	L		3M	31	38		38	1.1			2					36			
DF	L		3M	32	256		256	7.6			40	11	7	34		103		62	
DF	L		3M	33	58		58	1.7						15		44			
DF	L		3M	34	160		160	4.7			12			33	16	25	39	35	
DF	L		3M	35	36		36	1.1									36		
DF	L		3M	36	390		390	11.5			23		16		67	164	79	42	
DF	L		3M	37	35		35	1.0			2			33					
DF	L		3M	38	188		188	5.6			17			16	18	55	39		44
DF	L		3M	39	85		85	2.5			3						82		
DF	L		3M	40	417		417	12.3			37	27	155		53	13	60	31	41
DF	L		4M	12	2		2	.0			2								
DF	L		4M	16	16		16	.5			16								
DF	L		4M	20	3		3	.1			3								
DF	L		4M	24	7		7	.2			7								
DF	T		2M	40	590		590	17.4						273	178	140			
DF	T		3M	32	73		73	2.2			47	26							
DF	T		3M	34	7		7	.2			7								
DF	T		3M	40	335		335	9.9			29	128	179						
DF	T		4M	12	3		3	.1			3								
DF	T		4M	16	4		4	.1			4								
DF	T		4M	20	16		16	.5			16								
DF	T		4M	24	9		9	.3			9								
DF	T		4M	28	39		39	1.1			39								
DF	T		4M	40	35		35	1.0			35								
DF			Totals		3,385		3,385	86.0			355	191	357	490	384	727	582	215	85
WH	L		3M	34	68		68	13.1								68			
WH	L		3M	36	234		234	45.0			8			52	35	67		73	
WH	L		3M	37	83		83	16.0			14			35		34			
WH	L		3M	38	129		129	24.8			14					37	77		
WH	L		3M	40	6		6	1.1			6								
WH			Totals		520		520	13.2			42			87	35	206	77	73	
BM	L		3M	26	11		11	35.6						11					
BM	L		3M	27	14		14	42.0							14				
BM	L		3M	28	7		7	22.4			7								
BM			Totals		32		32	.8			7			11	14				
Total All Species					3,937		3,937	100.0			405	191	357	588	432	933	659	288	85

Stand Table Summary																
TC TSTNDSUM																
Project TOPSTEP																
T03N R05W S32 T00PC										T03N R05W S32 T00PC						
Twp Rge Sec Tract				Type		Acres		Plots		Sample Trees		Page: 1				
03N 05W 32 00A2				00PC		80.00		26		72		Date: 03/19/20				
Time: 11:51:15AM																
Spec	S T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
									Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DF	L	10	1	80	44	5.504	3.00	5.50	5.7	30.0	.89	31	165	71	25	13
DF	L	14	1	88	101	2.808	3.00	5.62	17.5	75.0	2.80	98	421	224	78	34
DF	L	15	1	88	109	2.446	3.00	4.89	22.1	100.0	3.08	108	489	246	86	39
DF	L	16	1	88	110	2.150	3.00	4.30	27.4	120.0	3.36	118	516	269	94	41
DF	L	17	2	89	113	3.809	6.00	9.52	24.7	104.0	6.69	235	990	535	188	79
DF	L	18	3	87	93	5.096	9.01	11.89	23.1	102.9	7.83	275	1,223	627	220	98
DF	L	21	1	89	137	1.248	3.00	3.74	36.9	180.0	3.94	138	674	315	111	54
DF	L	22	4	90	131	4.549	12.01	13.65	40.3	190.8	15.66	550	2,604	1,253	440	208
DF	L	23	1	89	139	1.040	3.00	3.12	46.7	216.7	4.15	146	676	332	117	54
DF	L	24	2	89	130	1.911	6.00	5.73	48.4	226.7	7.91	277	1,300	632	222	104
DF	L	25	1	89	141	.881	3.00	2.64	55.6	266.7	4.18	147	704	335	117	56
DF	L	26	5	89	133	4.071	15.01	13.03	54.5	270.0	20.22	710	3,517	1,618	568	281
DF	L	27	3	90	147	2.265	9.01	7.55	62.9	326.0	13.54	475	2,461	1,083	380	197
DF	L	28	3	89	136	2.106	9.01	7.02	62.4	324.0	12.48	438	2,275	998	350	182
DF	L	30	6	89	145	3.669	18.01	12.84	73.1	387.1	26.77	939	4,972	2,141	751	398
DF	L	38	3	89	157	1.143	9.01	4.57	109.9	626.7	14.33	503	2,866	1,146	402	229
DF	L	40	1	90	120	.344	3.00	1.03	125.5	660.0	3.69	130	681	295	104	54
DF	L	42	2	89	157	.624	6.00	2.18	155.0	864.3	9.65	339	1,888	772	271	151
DF		Totals	41	88	114	45.664	123.08	118.84	47.6	239.2	161.17	5,655	28,423	12,894	4,524	2,274
DF	T	9	1	87	72	9.120	4.03	9.12	7.6	30.0	1.98	70	274	159	56	22
DF	T	10	2	87	76	14.775	8.06	14.78	11.5	55.0	4.84	170	813	387	136	65
DF	T	12	1	86	76	5.130	4.03	5.13	18.5	70.0	2.71	95	359	217	76	29
DF	T	13	1	88	89	4.371	4.03	4.37	22.7	90.0	2.83	99	393	226	79	31
DF	T	14	1	88	90	3.769	4.03	7.54	16.8	70.0	3.61	127	528	289	101	42
DF	T	15	1	89	96	3.283	4.03	6.57	21.3	90.0	3.99	140	591	319	112	47
DF	T	17	1	89	137	2.556	4.03	7.67	23.9	103.3	5.23	183	792	418	147	63
DF	T	18	4	89	107	9.120	16.12	22.80	26.9	112.0	17.48	613	2,554	1,398	491	204
DF	T	19	1	90	133	2.046	4.03	6.14	29.1	126.7	5.10	179	778	408	143	62
DF	T	20	3	89	132	5.541	12.09	16.62	32.3	142.2	15.28	536	2,364	1,223	429	189
DF	T	21	1	89	144	1.675	4.03	5.03	40.2	196.7	5.75	202	988	460	161	79
DF	T	22	1	89	125	1.526	4.03	4.58	38.5	176.7	5.03	176	809	402	141	65
DF	T	23	1	89	131	1.397	4.03	4.19	44.0	203.3	5.26	185	852	421	148	68
DF	T	26	1	89	134	1.093	4.03	3.28	58.4	273.3	5.46	191	896	437	153	72
DF	T	27	1	89	136	1.013	4.03	3.04	62.9	296.7	5.45	191	902	436	153	72
DF		Totals	21	88	97	66.418	84.62	120.85	26.1	115.0	90.00	3,158	13,893	7,200	2,526	1,111
WH	L	18	1	92	93	2.960	5.23	5.92	32.8	140.0	6.22	194	829	497	155	66
WH	L	22	1	94	135	1.981	5.23	5.94	46.4	233.3	8.82	276	1,387	706	221	111
WH	L	24	1	93	127	1.665	5.23	5.00	53.3	276.7	8.52	266	1,382	682	213	111
WH	L	28	1	94	135	1.223	5.23	3.67	78.1	410.0	9.17	287	1,505	734	229	120
WH	L	31	1	93	127	.998	5.23	2.99	88.6	466.7	8.49	265	1,397	679	212	112
WH		Totals	5	93	119	8.828	26.15	23.52	54.8	276.3	41.22	1,288	6,500	3,298	1,031	520
BM	L	16	1	92	75	1.102	1.54	2.20	20.5	90.0	1.19	45	198	96	36	16
BM	L	20	1	90	70	.705	1.54	1.41	32.0	145.0	1.20	45	205	96	36	16
BM		Totals	2	91	73	1.807	3.08	3.61	25.0	111.5	2.39	90	403	191	72	32
Totals			69	88	105	122.717	236.92	266.82	38.2	184.5	294.79	10192	49,218	23,583	8,153	3,937

TC PSTATS		PROJECT STATISTICS							PAGE	1	
		PROJECT		TOPSTEP			DATE		3/19/2015		
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
03N	05	32	00A!	MC	124.00	50	345	S	W		
03N	05W	32	00A2	00PC							
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		50	345	6.9							
CRUISE		25	161	6.4	16,907		1.0				
DBH COUNT											
REFOREST											
COUNT		25	181	7.2							
BLANKS											
100 %											
STAND SUMMARY											
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC	
DOUG FIR-L	46	29.8	22.5	115	17.4	82.4	19,308	19,308	3,814	3,814	
DOUG FIR-T	99	94.6	17.2	112	36.9	153.4	30,813	30,813	6,601	6,601	
WHEMLOCK-L	5	5.7	23.3	119	3.5	16.9	4,193	4,193	831	831	
WHEMLOCK-T	4	1.1	19.6	119	0.5	2.4	503	503	109	109	
R ALDER-T	1	1.7	18.0	90	0.7	3.0	418	418	104	104	
BL MAPLE-L	2	1.2	17.7	73	0.5	2.0	260	260	58	58	
BL MAPLE-T	3	1.5	14.9	90	0.5	1.8	296	296	64	64	
WR CEDAR-L	1	.8	12.0	80	0.2	.6	60	60	16	16	
TOTAL	161	136.3	18.8	112	60.5	262.3	55,851	55,851	11,596	11,596	
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-L		76.4	11.3	1,067	1,203	1,338					
DOUG FIR-T		75.8	7.6	532	576	620					
WHEMLOCK-L		50.0	24.8	668	888	1,108					
WHEMLOCK-T		41.6	23.8	368	483	597					
R ALDER-T											
BL MAPLE-L		33.1	31.0	162	235	308					
BL MAPLE-T		22.3	15.5	175	207	239					
WR CEDAR-L											
TOTAL		90.2	7.1	693	746	799	325	81	36		
CL	68.1	COEFF	SAMPLE TREES - CF			# OF TREES REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR-L		68.3	10.1	202	224	247					
DOUG FIR-T		68.3	6.9	110	118	126					
WHEMLOCK-L		45.9	22.8	134	173	212					
WHEMLOCK-T		36.1	20.6	82	103	124					
R ALDER-T											
BL MAPLE-L		31.2	29.2	37	52	68					
BL MAPLE-T		24.7	17.1	37	44	52					
WR CEDAR-L											
TOTAL		79.3	6.2	138	147	156	251	63	28		
CL	68.1	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR-L		114.0	16.1	25	30	35					
DOUG FIR-T		64.5	9.1	86	95	103					
WHEMLOCK-L		255.7	36.1	4	6	8					
WHEMLOCK-T		535.9	75.7	0	1	2					
R ALDER-T		364.2	51.5	1	2	3					
BL MAPLE-L		707.1	99.9	0	1	2					
BL MAPLE-T		402.4	56.9	1	1	2					

TC PSTATS		PROJECT STATISTICS							PAGE	2	
		PROJECT			TOPSTEP			DATE	3/19/2015		
TWP	RGE	SC	TRACT	TYPE	ACRES			PLOTS	TREES	CuFt	BdFt
03N	05	32	00A!	MC	124.00			50	345	S	W
03N	05W	32	00A2	00PC							
CL	68.1	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15		
WR CEDAR-L		707.1	99.9	0	1	2					
TOTAL		41.9	5.9	128	136	144	70	18	8		
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-L		102.2	14.4	70	82	94					
DOUG FIR-T		58.7	8.3	141	153	166					
WHEMLOCK-L		256.3	36.2	11	17	23					
WHEMLOCK-T		555.6	78.5	1	2	4					
R ALDER-T		364.2	51.5	1	3	4					
BL MAPLE-L		707.1	99.9	0	2	4					
BL MAPLE-T		399.8	56.5	1	2	3					
WR CEDAR-L		707.1	99.9	0	1	1					
TOTAL		23.6	3.3	254	262	271	22	6	2		
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-L		103.7	14.7	16,477	19,308	22,138					
DOUG FIR-T		64.3	9.1	28,011	30,813	33,614					
WHEMLOCK-L		257.9	36.4	2,665	4,193	5,721					
WHEMLOCK-T		566.9	80.1	100	503	906					
R ALDER-T		364.2	51.5	203	418	634					
BL MAPLE-L		707.1	99.9	0	260	520					
BL MAPLE-T		401.8	56.8	128	296	465					
WR CEDAR-L		707.1	99.9	0	60	120					
TOTAL		22.9	3.2	54,046	55,851	57,656	21	5	2		
CL	68.1	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR-L		103.1	14.6	3,258	3,814	4,369					
DOUG FIR-T		62.6	8.8	6,018	6,601	7,185					
WHEMLOCK-L		257.1	36.3	529	831	1,133					
WHEMLOCK-T		559.2	79.0	23	109	194					
R ALDER-T		364.2	51.5	50	104	157					
BL MAPLE-L		707.1	99.9	0	58	116					
BL MAPLE-T		402.3	56.8	27	64	100					
WR CEDAR-L		707.1	99.9	0	16	32					
TOTAL		22.7	3.2	11,225	11,596	11,968	21	5	2		

RESIDUAL STAND SPECIFICATIONS

TOP STEP
341-15-23

AREA 2

Residual QMD assumption (from leave tree cruise information) =

22.7

Target Relative Density =

32

	Minimum	Target	Maximum
Relative Density	29	31	34
Basal Area	140	150	160
Trees per Acre	50	53	57

$$RD = BA / \sqrt{DBH}$$

$$BA = \sqrt{DBH} (RD)$$

$$TPA = (BA/acre) / (BA/tree)$$

$$BA / tree = (\pi r^2) / (144)$$

VOLUME SUMMARY

SHOWN IN MBF

Top Step

341-15-23

March 2015

AREA 1: MC (44 ACRES)

SPECIES		2 SAW	3 SAW	4 SAW	CR	TOTAL
Douglas-fir	Cruise Volume	1,686	941	83	0	2,710
	Hidden D&B (2%)	(34)	(19)	(2)	()	(54)
	NET TOTAL	1,652	922	81	0	2,656
	% of Total	62	35	3	0	
SPECIES		2 SAW	3 SAW	4 SAW	CR	TOTAL
Western hemlock	Cruise Volume	49	12	2	0	63
	Hidden D&B (2%)	(1)	()	()	()	(1)
	NET TOTAL	48	12	2	0	62
	% of Total	77	19	3	0	
SPECIES		2 SAW	3 SAW	4 SAW	CR	TOTAL
Red alder and other Hardwoods	Cruise Volume	0	0	0	89	89
	Hidden D&B (2%)	()	()	()	(2)	(2)
	NET TOTAL	0	0	0	87	87
	% of Total	0	0	0	100	

AREA 2: PC-M (80 ACRES)

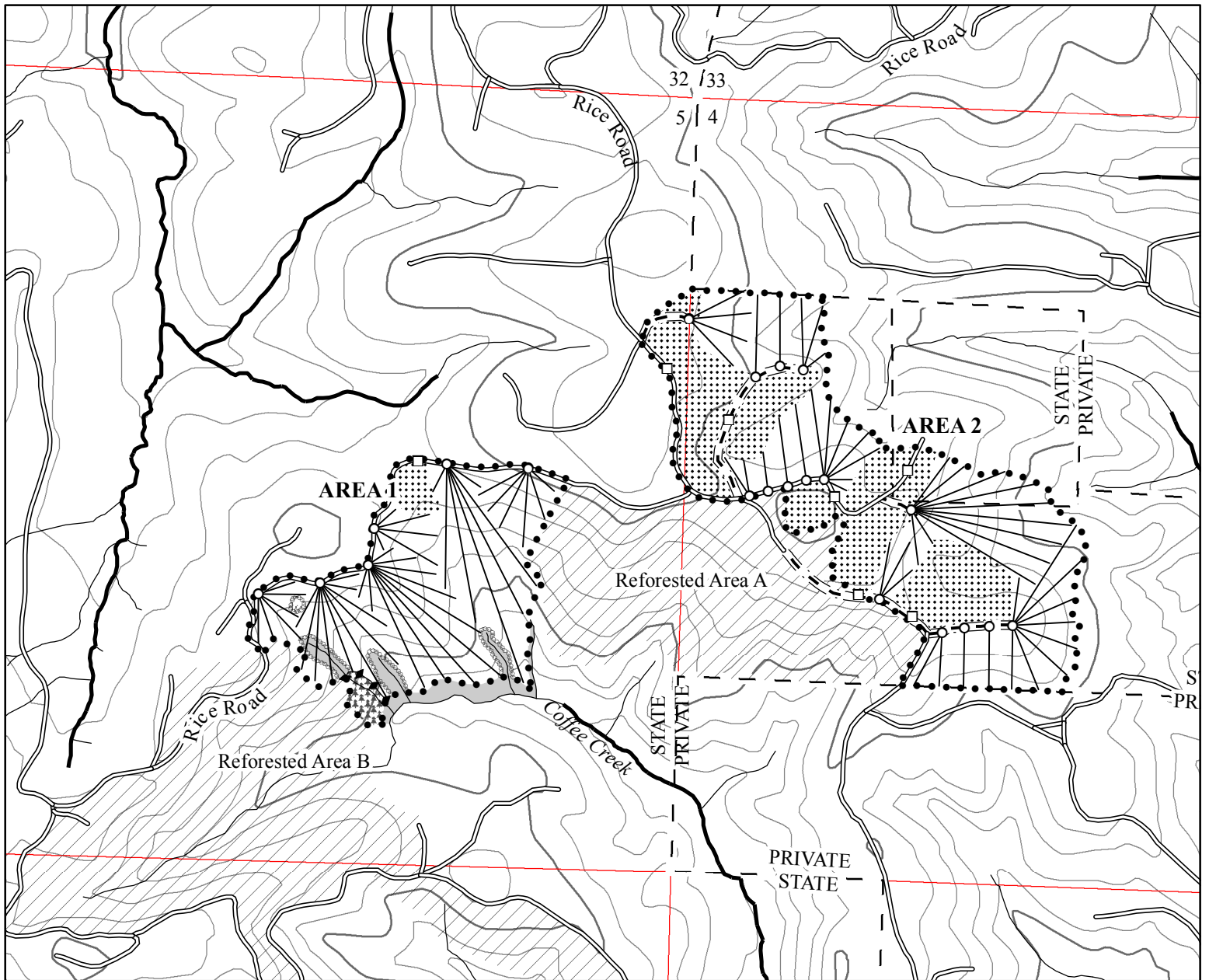
SPECIES		2 SAW	3 SAW	4 SAW	CR	TOTAL
Douglas-fir BOF	Cruise Volume	546	384	98	0	1,028
	Hidden D&B (2%)	(11)	(8)	(2)	()	(21)
	NET TOTAL	535	376	96	0	1,007
	% of Total	53	37	10	0	
SPECIES		2 SAW	3 SAW	4 SAW	CR	TOTAL
Douglas-fir FDF	Cruise Volume	44	31	8	0	83
	Hidden D&B (2%)	(1)	(1)	()	()	(2)
	NET TOTAL	43	30	8	0	81
	% of Total	53	37	10	0	

AREA 3: R/W (2 ACRES)

SPECIES		2 SAW	3 SAW	4 SAW	CR	TOTAL
Douglas-fir	Cruise Volume	26	55	3	0	84
	Hidden D&B (2%)	(1)	(1)	()	()	(2)
	NET TOTAL	25	54	3	0	82
	% of Total	30	66	4	0	
		2 SAW	3 SAW	4 SAW	CR	TOTAL
Western hemlock	Cruise Volume	0	13	0	0	13
	Hidden D&B (2%)	()	()	()	()	()
	NET TOTAL	0	13	0	0	13
	% of Total	0	100	0	0	
		2 SAW	3 SAW	4 SAW	CR	TOTAL
Red alder and other Harwoods	Cruise Volume	0	0	0	1	1
	Hidden D&B (2%)	()	()	()	()	()
	NET TOTAL	0	0	0	1	1
	% of Total	0	0	0	100	

SALE TOTAL

SPECIES	2 SAW	3 SAW	4 SAW	CR	Total
Douglas-fir	2,255	1,382	188	0	3,825
Western hemlock	48	25	2	0	75
Hardwoods				88	88
TOTAL					3,988



Legend

- Timber Sale Boundary
- ▨ Posted Stream Buffer Boundary
- ◆◆◆ Reserve Tree Area Boundary
- Posted R/W Boundary
- Roads
- - - New Road Construction
- + + + Railroad Tracks
- Type F Stream
- Type N Stream
- ▨ Stream Buffer
- ▨ Pond
- Cable Landing
- Tractor Landing
- ↙ Cable Yarding Area
- ▨ Tractor Yarding Area
- ▨ Green Tree Retention Area
- ODF Ownership Boundary
- ▭ Sections
- 400 Foot Contour Band
- 80 Foot Contour Band

LOGGING PLAN

FOR TIMBER SALE CONTRACT # 341-15-23
 TOP STEP
 PORTIONS OF SECTIONS 4 & 5, T2N, R5W, W.M.
 WASHINGTON COUNTY, OREGON

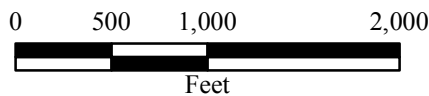


Forest Grove District GIS
 March, 2015

This product is for informational use and may not be suitable for legal, engineering, or surveying purposes.

1:12,000

1 inch = 1,000 feet



APPROXIMATE NET ACRES

	TRACTOR	CABLE
AREA 1	2	42
AREA 2	33	47
AREA 3	2	0
TOTAL	37	89