



"SUSTAINABLE FORESTRY"

Timber Sale Appraisal Clear Head

Sale FG-341-2016-43-

District: Forest Grove

Date: September 01, 2015

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$1,866,047.04	\$5,764.64	\$1,871,811.68
		Project Work:	(\$444,010.00)
		Advertised Value:	\$1,427,801.68



"STAND FOR AN INDUSTRY"

Timber Sale Appraisal Clear Head

Sale FG-341-2016-43-

District: Forest Grove

Date: September 01, 2015

Timber Description

Location: Portions of Section 13, T4N, R6W, W.M., Clatsop County, Oregon and portions of Section 18, T4N, R5W, W.M., Columbia County, Oregon.

Stand Stocking: 20%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	18	0	98
Alder (Red)	25	0	95

Volume by Grade	2S	3S	4S	Camprun	Total
Douglas - Fir	3,362	1,640	380	0	5,382
Alder (Red)	0	0	0	16	16
Total	3,362	1,640	380	16	5,398

Comments: Pond Values Used: 2nd Quarter Calendar Year 2015.

Western Hemlock and Other Conifers

Stumpage Price = Pond Value minus Logging Cost:

\$216.08/MBF = \$435/MBF - \$218.92/MBF

Western redcedar and Other Cedars

Stumpage Price = Pond Value minus Logging Cost:

\$1,056.08/MBF = \$1,275/MBF - \$218.92/MBF

SCALING COST ALLOWANCE = \$5.00/MBF

FUEL COST ALLOWANCE = \$3.00/Gallon

HAULING COST ALLOWANCE

Hauling costs equivalent to \$780 daily truck cost.

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

Brand and Paint: 5,398 MBF x \$2/MBF = \$10,796

Intermediate supports: 10 @ \$200 each = \$2,000

TOTAL Other Costs (with Profit & Risk to be added) = \$12,796

Other Costs (No Profit & Risk added):

Block/Waterbar Roads/Skid Trails: 20 hrs x \$150/hour = \$3,000

Pile Landing Slash/Sort Firewood: 15 hrs x \$150/hour = \$2,250

Equipment Cleaning: 4 x \$1,000/Piece = \$4,000

TOTAL Other Costs (No Profit & Risk added) = \$9,250

ROAD MAINTENANCE

Move-in: \$4,000

General Road Maintenance: 12.8 miles x \$1,200/mile = \$15,360

TOTAL Road Maintenance: \$19,360/5,398 MBF = \$3.59/MBF



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Clear Head

Sale FG-341-2016-43-

District: Forest Grove

Date: September 01, 2015

Logging Conditions

Combination#: 1 Douglas - Fir 82.25%
 Alder (Red) 79.00%

Logging System: Cable: Medium Tower >40 - <70 **Process:** Stroke Delimber

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

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

loads / day: 12 **bd. ft / load:** 4600

cost / mbf: \$108.70

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

Combination#: 2 Douglas - Fir 17.75%
 Alder (Red) 21.00%

Logging System: Shovel **Process:** Stroke Delimber

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

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

loads / day: 12 **bd. ft / load:** 4600

cost / mbf: \$57.46

machines: Stroke Delimber (B)



"SUSTAINABLE FORESTRY"

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District: Forest Grove

Date: September 01, 2015

Logging Costs

Operating Seasons: 1.00	Profit Risk: 10%
Project Costs: \$444,010.00	Other Costs (P/R): \$12,796.00
Slash Disposal: \$0.00	Other Costs: \$9,250.00

Miles of Road

Road Maintenance: \$3.59

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

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$0.00	2.0	4.6
Alder (Red)	\$0.00	2.0	4.0



"STAND FOR AN OREGON"

Timber Sale Appraisal Clear Head

Sale FG-341-2016-43-

District: Forest Grove

Date: September 01, 2015

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
\$99.60	\$3.66	\$0.81	\$86.48	\$2.37	\$19.29	\$0.00	\$5.00	\$1.71	\$218.92
Alder (Red)									
\$97.94	\$3.77	\$0.81	\$102.38	\$2.37	\$20.73	\$0.00	\$5.00	\$1.71	\$234.71

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$565.64	\$346.72	\$0.00
Alder (Red)	\$0.00	\$595.00	\$360.29	\$0.00



Timber Sale Appraisal
Clear Head

Sale FG-341-2016-43-

District: Forest Grove

Date: September 01, 2015

Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	5,382	\$346.72	\$1,866,047.04
Alder (Red)	16	\$360.29	\$5,764.64

Gross Timber Sale Value

Recovery: \$1,871,811.68

Prepared By: Eric Foucht

Phone: 503-359-7473

TIMBER SALE SUMMARY
Clear Head
Contract No. 341-16-43

1. **Location:** Portion of Section 13, T4N, R6W, W.M., Clatsop County, Oregon and portion of Section 18, T4N, R5W, W.M., Columbia County, Oregon
2. **Type of Sale:** This timber sale is a 167 acre modified clearcut in 2 sale areas. The timber will be sold on a recovery basis at a sealed bid auction.
3. **Revenue Distribution:** 100% BOF, Columbia County 80%, Clatsop County 20%, (Tax Code 8-01).
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 March and April of 2015. For more information see Cruise Report.
6. **Timber Description:** The Timber Sale Area consists of medium to well stocked 56 to 76 year old Douglas-fir stands with minor amounts of western hemlock and red alder. A portion of Area 1 was thinned in 2006.

7.

Sale Area	Net Acres	Average Diameter	Net MBF Per Acre (D-fir)
Area 1	55	20"	27
Area 2	112	18"	34

8. **Topography and Logging Method:**

Slopes within the sale areas range from 10% to 70% and are variable in aspect. The following table summarizes the estimated maximum and average horizontal cable corridor length, the estimated maximum and average tractor skid trail length, and the percent harvest method for each Sale Area.

Method	Area 1 (MC)			Area 2 (MC)		
	Ave	Max	%	Ave	Max	%
Tractor	250	420	9	350	780	21
Cable	675	1200	91	700	1350	79

9. **Access:** Access to the Timber Sale Area is on surfaced all-weather roads. From Forest Grove, travel north on Highway 47 through Banks then merge onto Highway 26 and continue west to the North Fork Wolf Creek Road, near milepost 35. Turn right on North Fork Wolf Creek Road and continue for 4.5 miles to junction of McGregor Road and turn right. Continue on McGregor Road for 2.4 miles to the spur just north of the Cherry Lane junction. Continue on the spur for 0.6 miles to the western boundary of Area 1. Continue on McGregor Road for 1.4 miles to the Pit Road junction. Continue right on Pit Road for 1.3 miles to the southwestern boundary of Area 2.

10. Projects:

Project No. 1: Road Improvement	\$15,026.16
Project No. 2: Crush Rock and Surface Roads	\$107,670.07
Project No. 3: Road Construction and Improvement	\$66,472.71
Project No. 4: Surfacing	\$100,269.69
Project No. 5: Crush and Stockpile 10,000cy 1 1/2"- 0 rock	\$112,984.00
Project No. 6: Pit Rehab	\$25,200.00
Project No. 7: Grass Seed, Fertilize, & Mulch	\$1,074.39
Project No. 8: Road Brushing	\$7,152.00
Move in and equipment cleaning:	\$8,156.39

Total (rounded) \$444,010

PROJECT COST SUMMARY SHEET

Timber Sale: Clear Head

Sale Number: 341-16-43

PROJECT NO. 1: ROAD IMPROVEMENT

<u>Road Segment</u>	<u>Length</u>	<u>Cost</u>
E to F	248+80	\$14,241.36
N to O	7+55	\$784.80
	256+35 stations	
	4.86 miles	

TOTAL PROJECT NO. 1 COST = \$15,026.16

PROJECT NO. 2: SURFACING

<u>Road Segment</u>	<u>Amount</u>	<u>Type</u>	<u>Cost</u>
E to F	7,770 cy	1 1/2" - 0	\$104,296.57
	36 cy	24" - 6	\$271.44
N to O	246 cy	1 1/2" - 0	\$3,102.06
Total	8,016 cy	1 1/2" - 0	
	36 cy	24" - 6	

TOTAL PROJECT NO. 2 COST = \$107,670.07

PROJECT NO. 3: ROAD CONSTRUCTION AND IMPROVEMENT

CONSTRUCTION

<u>Road Segment</u>	<u>Length</u>	<u>Cost</u>
A to B	9+75	\$2,851.15
C to D	5+50	\$4,388.05
	15+25 stations	
	0.29 miles	

SUBTOTAL CONSTRUCTION \$7,239.20

IMPROVEMENTS

<u>Road Segment</u>	<u>Length</u>	<u>Cost</u>
F to G	196+95	\$20,927.13
G to H	8+75	\$2,075.00
G to I	119+20	\$26,545.32
J to K	80+60	\$8,553.57
L to M	16+50	\$1,132.50
	422+00 stations	
	7.99 miles	

SUBTOTAL IMPROVEMENTS \$59,233.52

TOTAL PROJECT NO. 3 COST = \$66,472.71

PROJECT NO. 4: SURFACING

<u>Road Segment</u>	<u>Amount</u>	<u>Type</u>	<u>Cost</u>
A to B	24 cy	1 1/2" - 0	\$309.60
	868 cy	3" - 0	\$11,197.20
C to D	24 cy	1 1/2" - 0	\$308.88
	570 cy	3" - 0	\$7,335.90
F to G	524 cy	1 1/2" - 0	\$6,034.92
G to H	48 cy	1 1/2" - 0	\$454.56
	269 cy	3" - 0	\$2,736.79
G to I	360 cy	1 1/2" - 0	\$3,549.60
	4,004 cy	3" - 0	\$42,321.24
	72 cy	24" - 6	\$259.20
J to K	24 cy	1 1/2" - 0	\$246.72
	2,306 cy	3" - 0	\$25,296.88
L to M	20 cy	3" - 0	\$218.20
Total	1,004 cy	1 1/2" - 0	
	8,037 cy	3" - 0	
	72 cy	24" - 6	

TOTAL PROJECT NO. 4 COST = \$100,269.69

PROJECT NO. 5: CRUSH AND CONSTRUCT 10,000CY STOCKPILE

10,000 CY 1½"-0 Stockpile Measurement

TOTAL PROJECT NO. 5 COST = \$112,984.00

PROJECT NO. 6: PIT REHAB

TOTAL PROJECT NO. 6 COST = \$25,200.00

PROJECT NO. 7: GRASS SEED, FERTILIZE, & MULCH

TOTAL PROJECT NO. 7 COST = \$1,074.39

PROJECT NO. 8: ROAD BRUSHING

TOTAL PROJECT NO. 8 COST = \$7,152.00

MOVE IN & EQUIPMENT CLEANING

Brush Cutter	\$598.78
Grader	\$929.12
Roller (smooth/grid) & Compactor	\$598.78
Excavator (Large) + Equipment Cleaning	\$1,929.12
Tractor (D8) + Equipment Cleaning	\$1,971.29
Dump Trucks (10 yd & Off Highway)	\$1,979.31
Water Truck (1500 Gal)	\$149.99

TOTAL MOVE IN & EQUIPMENT CLEANING COST = \$8,156.39

TOTAL ALL PROJECTS \$444,005.42**TOTAL CREDITS \$444,010.00**

SUMMARY OF CONSTRUCTION COST

Timber Sale: Clear Head
 Road Segment: A to B

Timber Sale No. : 341-16-43
 Construction: 9+75 stations
0.18 miles

PROJECT NO. 3

EXCAVATION

Clearing and Grubbing (Scatter)	0.90 acres @	\$1,078.00 per acre =	\$965.15
Balanced Road Construction	9.75 sta @	\$110.00 per sta =	\$1,072.50
Construct Turnouts (1)	1 ea. @	\$66.00 per ea. =	\$66.00
Construct Turnaround (1)	1 ea. @	\$82.50 per ea. =	\$82.50
Landing	1 ea. @	\$314.00 per ea. =	\$314.00
Grade, Ditch, and Roll	9.75 sta @	\$36.00 per sta =	\$351.00

PROJECT NO. 3 TOTAL COST = \$2,851.15

PROJECT NO. 4:

SURFACING

	12	" deep = 65 cy/sta			
A to B	634	cy of 3" - 0 @	\$12.90 per cy =	\$8,178.60	
Turnouts (1)	22	cy of 3" - 0 @	\$12.90 per cy =	\$283.80	
Turnaround	20	cy of 3" - 0 @	\$12.90 per cy =	\$258.00	
Junction	12	cy of 3" - 0 @	\$12.90 per cy =	\$154.80	
Landing	180	cy of 3" - 0 @	\$12.90 per cy =	\$2,322.00	
Traction Rock	24	cy of 1 1/2" - 0 @	\$12.90 per cy =	\$309.60	
Total =	892				
	24	cy of 1 1/2" - 0	\$12.90 per cy =	\$309.60	
	868	cy of 3" - 0	\$12.90 per cy =	\$11,197.20	

PROJECT NO. 4 TOTAL COST = \$11,506.80

PROJECT NO. 7:

Grass seed and fertilize areas of disturbed soil.	0.45 acres @	\$425.00 per acre =	\$190.25
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PROJECT NO. 7 TOTAL COST = \$190.25

TOTAL COST = \$14,548.21

SUMMARY OF CONSTRUCTION COST

Timber Sale: Clear Head
 Road Segment: C to D

Timber Sale No. : 341-16-43
 Construction: 5+50 stations
0.10 miles

PROJECT NO. 3

EXCAVATION

Clearing and Grubbing (Scatter)	0.32 acres @	\$1,078.00 per acre =	\$346.46
Clearing and Grubbing (Endhaul)	0.18 acres @	\$1,631.22 per acre =	\$299.58
Balanced Road Construction	3.50 sta @	\$110.00 per sta =	\$385.00
Full Bench Endhaul Construction			
Excavate & Load	650 cy @	\$1.44 per cy =	\$936.00
Haul	650 cy @	\$2.51 per cy =	\$1,631.50
Compact Waste Area	650 cy @	\$0.30 per cy =	\$195.00
Construct Turnaround (1)	1 ea. @	\$82.50 per ea. =	\$82.50
Landing	1 ea. @	\$314.00 per ea. =	\$314.00
Grade, Ditch, and Roll	5.50 sta @	\$36.00 per sta =	\$198.00

PROJECT NO. 3 TOTAL COST = \$4,388.05

PROJECT NO. 4:

SURFACING

	12	" deep = 65 cy/sta		
C to D	358	cy of 3" - 0 @	\$12.87 per cy =	\$4,607.46
Turnaround	20	cy of 3" - 0 @	\$12.87 per cy =	\$257.40
Junction	12	cy of 3" - 0 @	\$12.87 per cy =	\$154.44
Landing	180	cy of 3" - 0 @	\$12.87 per cy =	\$2,316.60
Traction Rock	24	cy of 1 1/2" - 0 @	\$12.87 per cy =	\$308.88
Total =	594			
	24	cy of 1 1/2" - 0	\$12.87 per cy =	\$308.88
	570	cy of 3" - 0	\$12.87 per cy =	\$7,335.90

PROJECT NO. 4 TOTAL COST = \$7,644.78

PROJECT NO. 7:

Grass seed and fertilize areas of disturbed soil.	0.16 acres @	\$425.00 per acre =	\$68.30
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PROJECT NO. 7 TOTAL COST = \$68.30

TOTAL COST = \$12,101.12

SUMMARY OF CONSTRUCTION COST

Timber Sale: Clear Head
 Road Segment: E to F (No. Fk. Wolf Creek Rd)

Timber Sale No. : 341-16-43
 Improvement: 248+80 stations
4.71 miles

PROJECT NO. 1

EXCAVATION

Clean ditch & endhaul waste material	21.18	sta @	\$60.00	per sta =	\$1,270.80
Clean Existing Culverts	12	ea @	\$25.00	per ea =	\$300.00
Waste Area Clearing	2	hrs @	\$175.00	per hr =	\$350.00
Cutslope Excavation					
Clearing and Grubbing (Scatter)	0.07	acres @	\$1,078.00	per acre =	\$73.25
Excavate & Load	206	cy @	\$1.44	per cy =	\$296.00
Haul	206	cy @	\$1.79	per cy =	\$367.94
Compact Waste Area	206	cy @	\$0.30	per cy =	\$61.67
Grade, Ditch, and Roll 18' wide	152.20	sta @	\$40.50	per sta =	\$6,164.10
Grade Ditch and Roll 16' wide	96.60	sta @	\$36.00	per sta =	\$3,477.60
				TOTAL EXCAVATION COSTS=	\$12,361.36

CULVERTS - MATERIALS & INSTALLATION

Culverts

90 LF of 18" \$1,800.00

Culvert Markers

8 markers \$80.00

TOTAL CULVERT COSTS = \$1,880.00

PROJECT NO. 1 TOTAL COST = \$14,241.36

PROJECT NO. 2:

SURFACING

	4	" deep =	23 cy/sta		
	6	" deep =	36 cy/sta		
	6	" deep =	31 cy/sta		
4" lift 0+00 - 79+20	1,822	cy of	1 1/2" - 0 @	\$13.43 per cy =	\$24,464.09
6" lift 79+20 - 152+20	2,628	cy of	1 1/2" - 0 @	\$13.43 per cy =	\$35,294.04
6" lift 152+20 - 248+80	2,995	cy of	1 1/2" - 0 @	\$13.43 per cy =	\$40,217.48
Turnouts 6" depth (12)	132	cy of	1 1/2" - 0 @	\$13.43 per cy =	\$1,772.76
Junction 6" depth	24	cy of	1 1/2" - 0 @	\$13.43 per cy =	\$322.32
Culvert Bedding & Backfill	72	cy of	1 1/2" - 0 @	\$12.71 per cy =	\$915.12
Curve Widening 6" depth	98	cy of	1 1/2" - 0 @	\$13.43 per cy =	\$1,310.77
Energy Dissipator	36	cy of	24" - 6" @	\$7.54 per cy =	\$271.44
Total =	7,806				
	7,698	cy of	1 1/2" - 0	\$13.43 per cy =	\$103,381.45
	72	cy of	1 1/2" - 0	\$12.71 per cy =	\$915.12
	36	cy of	24" - 6"	\$7.54 per cy =	\$271.44

PROJECT NO. 2 TOTAL COST = \$104,568.01

PROJECT NO. 7:

Grass seed and fertilize areas of disturbed soil.	0.00	acres @	\$425.00	per acre =	\$0.00
Mulch	4	bales @	\$8.00	per bale =	\$32.00
Bio-bag	4	each @	\$5.00	per each =	\$20.00

PROJECT NO. 7 TOTAL COST = \$52.00

TOTAL COST = \$118,861.38

SUMMARY OF CONSTRUCTION COST

Timber Sale: Clear Head
 Road Segment: F to G (McGregor Rd.)

Timber Sale No. : 341-16-43
 Improvement: 196+95 stations
3.73 miles

PROJECT NO. 3

EXCAVATION

Clean ditch & endhaul waste material	78.35	sta @	\$60.00	per sta =	\$4,701.00
Clean Existing Culverts	17	ea @	\$25.00	per ea =	\$425.00
Waste Area Clearing	6	hrs @	\$175.00	per hr =	\$1,050.00
Cutslope Excavation					
Clearing and Grubbing (Scatter)	0.51	acres @	\$1,078.00	per acre =	\$553.35
Excavate & Load	1,553	cy @	\$1.44	per cy =	\$2,236.00
Haul	1,553	cy @	\$1.79	per cy =	\$2,779.47
Compact Waste Area	1,553	cy @	\$0.30	per cy =	\$465.83
Grade, Ditch, and Roll 18' wide	196.95	sta @	\$40.50	per sta =	\$7,976.48
				TOTAL EXCAVATION COSTS=	\$20,187.13

CULVERTS - MATERIALS & INSTALLATION

Culverts

30 LF of 18" \$600.00

Culvert Markers

14 markers \$140.00

TOTAL CULVERT COSTS = \$740.00

PROJECT NO. 3 TOTAL COST = \$20,927.13

PROJECT NO. 4:

SURFACING	6	" deep =	31 cy/sta		
Spot Rock	500	cy of	1 1/2" - 0 @	\$11.55 per cy =	\$5,775.00
Culvert Bedding & Backfill	24	cy of	1 1/2" - 0 @	\$10.83 per cy =	\$259.92
Total =	<u>524</u>				
	500	cy of	1 1/2" - 0	\$11.55 per cy =	\$5,775.00
	24	cy of	1 1/2" - 0	\$10.83 per cy =	\$259.92
				PROJECT NO. 4 TOTAL COST =	\$6,034.92

PROJECT NO. 7:

Grass seed and fertilize areas of disturbed soil.	0.00	acres @	\$425.00	per acre =	\$0.00
Mulch	6	bales @	\$8.00	per bale =	\$48.00
Bio-bag	6	each @	\$5.00	per each =	\$30.00
				PROJECT NO. 7 TOTAL COST =	\$78.00

TOTAL COST = \$27,040.05

SUMMARY OF CONSTRUCTION COST

Timber Sale: Clear Head
 Road Segment: G to H (Lower Rock Ck Rd)

Timber Sale No. : 341-16-43
 Improvement: 8+75 stations
0.17 miles

PROJECT NO. 3

EXCAVATION

Grade Ditch and Roll 16' wide 8.75 sta @ \$36.00 per sta = \$315.00
 TOTAL EXCAVATION COSTS= **\$315.00**

CULVERTS - MATERIALS & INSTALLATION

Culverts

60 LF of 24" \$1,740.00

Culvert Markers

2 markers \$20.00

TOTAL CULVERT COSTS = **\$1,760.00**

PROJECT NO. 3 TOTAL COST = \$2,075.00

PROJECT NO. 4:

SURFACING

6 " deep = 31 cy/sta		
G to H 269 cy of 3" - 0 @	\$10.19 per cy =	\$2,736.79
Culvert Bedding & Backfill 48 cy of 1 1/2" - 0 @	\$9.47 per cy =	<u>\$454.56</u>
Total = 317		
48 cy of 1 1/2" - 0	\$9.47 per cy =	\$454.56
269 cy of 3" - 0	\$10.19 per cy =	\$2,736.79

PROJECT NO. 4 TOTAL COST = \$3,191.35

PROJECT NO. 7:

Grass seed and fertilize areas of disturbed soil.	0.02 acres @	\$425.00 per acre =	\$8.50
Mulch	8 bales @	\$8.00 per bale =	\$64.00
Bio-bag	4 each @	\$5.00 per each =	\$20.00

PROJECT NO. 7 TOTAL COST = \$92.50

TOTAL COST = \$5,358.85

SUMMARY OF CONSTRUCTION COST

Timber Sale: Clear Head
 Road Segment: G to I (Pit Rd)

Timber Sale No. : 341-16-43
 Improvement: 119+20 stations
2.26 miles

PROJECT NO. 3

EXCAVATION

Clean ditch & endhaul waste material	32.55	sta @	\$60.00	per sta =	\$1,953.00
Clean Existing Culverts	22	ea @	\$25.00	per ea =	\$550.00
Construct Settling Ponds	12	ea. @	\$25.00	per ea. =	\$300.00
Removal of Large Stumps					
Excavate & Load	14	ea. @	\$82.50	per ea. =	\$1,155.00
Haul	14	ea. @	\$11.82	per ea. =	\$165.43
Outslope Excavation					
Clearing and Grubbing (Scatter)	0.54	acres @	\$1,078.00	per acre =	\$581.07
Excavate & Load	1,631	cy @	\$1.44	per cy =	\$2,348.00
Haul	1,631	cy @	\$2.51	per cy =	\$4,092.69
Compact Waste Area	1,631	cy @	\$0.30	per cy =	\$489.17
Construct Turnaround (1)	1	ea. @	\$82.50	per ea. =	\$82.50
Remove Existing Culverts	6	ea. @	\$150.00	per ea. =	\$900.00
Grade Ditch and Roll 16' wide	106.90	sta @	\$36.00	per sta =	\$3,848.40
Grade and Roll (Outslope) 14' wide	12.30	sta @	\$32.20	per sta =	\$396.06
				TOTAL EXCAVATION COSTS=	\$16,861.32

CULVERTS - MATERIALS & INSTALLATION

Culverts

210 LF of 18"	\$4,200.00
30 LF of 24"	\$870.00
50 LF of 54"	\$4,350.00

Bands

1 ea. of 54"	74.00
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Culvert Markers

19 markers	\$190.00
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TOTAL CULVERT COSTS = \$9,684.00

PROJECT NO. 3 TOTAL COST = \$26,545.32

PROJECT NO. 4:

SURFACING	6	" deep =	31 cy/sta		
G to I (Pit Rd)	3,695	cy of	3" - 0 @	\$10.58	per cy = \$39,095.22
Turnouts (15)	165	cy of	3" - 0 @	\$10.58	per cy = \$1,745.70
Turnaround	16	cy of	3" - 0 @	\$10.58	per cy = \$169.28
Junction	12	cy of	3" - 0 @	\$10.58	per cy = \$126.96
Culvert Bedding & Backfill	360	cy of	1 1/2" - 0 @	\$9.86	per cy = \$3,549.60
Curve Widening	56	cy of	3" - 0 @	\$10.58	per cy = \$592.48
Stump Backfill	60	cy of	3" - 0 @	\$9.86	per cy = \$591.60
Energy Dissipator	72	cy of	24" - 6" @	\$3.60	per cy = \$259.20
Total =	4,436				
	360	cy of	1 1/2" - 0	\$9.86	per cy = \$3,549.60
	60	cy of	3" - 0	\$9.86	per cy = \$591.60
	3,944	cy of	3" - 0	\$10.58	per cy = \$41,729.64
	72	cy of	24" - 6"	\$3.60	per cy = \$259.20
				PROJECT NO. 4 TOTAL COST =	\$46,130.04

PROJECT NO. 7:

Grass seed and fertilize areas of disturbed soil.	0.54 acres @	\$425.00	per acre =	\$229.09
Mulch	28 bales @	\$8.00	per bale =	\$224.00
Bio-bag	22 each @	\$5.00	per each =	\$110.00
			PROJECT NO. 7 TOTAL COST =	\$563.09

TOTAL COST = \$73,238.44

SUMMARY OF CONSTRUCTION COST

Timber Sale: Clear Head
 Road Segment: J to K (Eastside Grade)

Timber Sale No. : 341-16-43
 Improvement: 80+60 stations
1.53 miles

PROJECT NO. 3

IMPROVEMENT

Removal of Large Stumps	12	ea. @	\$82.50	per ea. =	\$990.00
Clean ditch & endhaul waste material	20.65	sta @	\$60.00	per sta =	\$1,239.00
Cutslope Excavation					
Clearing and Grubbing (Scatter)	0.14	acres @	\$1,078.00	per acre =	\$147.25
Excavate & Load	661	cy @	\$1.44	per cy =	\$952.00
Haul	661	cy @	\$1.79	per cy =	\$1,183.39
Compact Waste Area	661	cy @	\$0.30	per cy =	\$198.33
Clean Existing Culverts	5	ea. @	\$25.00	per ea. =	\$125.00
Improve Landing	1	ea. @	\$157.00	per ea. =	\$157.00
Grade, Ditch, and Roll	<u>80.60</u>	sta @	\$36.00	per sta =	<u>\$2,901.60</u>
				TOTAL EXCAVATION COSTS=	\$7,893.57

CULVERTS - MATERIALS & INSTALLATION

Culverts

30 LF of 18" \$600.00

Culvert Markers

6 markers \$60.00

TOTAL CULVERT COSTS = \$660.00

PROJECT NO. 3 TOTAL COST = \$8,553.57

PROJECT NO. 4:

SURFACING	6	" deep =	31 cy/sta		
0+00 - 65+70	2,037	cy of	3" - 0	@	\$11.00 per cy = \$22,407.00
Turnouts (9)	99	cy of	3" - 0	@	\$11.00 per cy = \$1,089.00
Junction	24	cy of	3" - 0	@	\$11.00 per cy = \$264.00
Landing	50	cy of	3" - 0	@	\$11.00 per cy = \$550.00
Culvert Bedding & Backfill	24	cy of	1 1/2" - 0	@	\$10.28 per cy = \$246.72
Stump Removal Backfill	96	cy of	3" - 0	@	\$10.28 per cy = \$986.88
Total =	<u>2,330</u>				
	24	cy of	1 1/2" - 0		\$10.28 per cy = \$246.72
	96	cy of	3" - 0		\$10.28 per cy = \$986.88
	<u>2,210</u>	cy of	3" - 0		\$11.00 per cy = \$24,310.00
					PROJECT NO. 4 TOTAL COST = \$25,543.60

PROJECT NO. 7:

Grass seed and fertilize areas of disturbed soil.	0.01	acres @	\$425.00	per acre =	\$4.25
Mulch	2	bales @	\$8.00	per bale =	\$16.00
Bio-bag	2	each @	\$5.00	per each =	\$10.00
					PROJECT NO. 7 TOTAL COST = \$30.25

TOTAL COST = \$34,127.42

SUMMARY OF CONSTRUCTION COST

Timber Sale: Clear Head
 Road Segment: L to M

Timber Sale No. : 341-16-43
 Improvement: 16+50 stations
0.31 miles

PROJECT NO. 3

EXCAVATION

Clean ditch & endhaul waste material	16.50	sta @	\$60.00 per sta =	\$990.00
Construct Turnaround (1)	1	ea. @	\$82.50 per ea. =	\$82.50
Clean Existing Culverts	2	ea. @	\$25.00 per ea. =	\$50.00
TOTAL EXCAVATION COSTS=				\$1,122.50

CULVERTS - MATERIALS & INSTALLATION

Culvert Markers

1 markers \$10.00

TOTAL CULVERT COSTS = **\$10.00**

PROJECT NO. 3 TOTAL COST = \$1,132.50

PROJECT NO. 4:

SURFACING 12 " deep = 65 cy/sta

Turnaround	20	cy of 3" - 0 @	\$10.91 per cy =	\$218.20
Total =	20			
	20	cy of 3" - 0	\$10.91 per cy =	\$218.20

PROJECT NO. 4 TOTAL COST = \$218.20

TOTAL COST = \$1,350.70

SUMMARY OF CONSTRUCTION COST

Timber Sale: Clear Head
 Road Segment: N to O

Timber Sale No. : 341-16-43
 Improvement: 7+55 stations
0.14 miles

PROJECT NO. 1

EXCAVATION

Clean ditch & endhaul waste material	7.55	sta @	\$60.00 per sta =	\$453.00	
Clean Existing Culverts	2	ea. @	\$25.00 per ea. =	\$50.00	
Grade, Ditch, and Roll	7.55	sta @	\$36.00 per sta =	\$271.80	
			TOTAL EXCAVATION COSTS=		\$774.80

CULVERTS - MATERIALS & INSTALLATION

Culvert Markers

1 markers \$10.00

TOTAL CULVERT COSTS = \$10.00

PROJECT NO. 1 TOTAL COST = \$784.80

PROJECT NO. 2:

SURFACING

	6	" deep =	31 cy/sta		
N to O	234	cy of	1 1/2" - 0 @	\$12.61 per cy =	\$2,950.74
Junction	12	cy of	1 1/2" - 0 @	\$12.61 per cy =	\$151.32
Total =	<u>246</u>				
	246	cy of	1 1/2" - 0	\$12.61 per cy =	\$3,102.06
				PROJECT NO. 2 TOTAL COST =	\$3,102.06

TOTAL COST = \$3,886.86

SUMMARY OF CONSTRUCTION COST

Timber Sale: Clear Head Timber Sale No. : 341-16-43

PROJECT NO. 5

Crush 10,000 cy	11,600 cy of 1 1/2" - 0 @	\$8.64 per cy =	\$100,224.00
Build and Shape Stockpile	11,600 cy of 1 1/2" - 0 @	\$1.10 per cy =	\$12,760.00

TOTAL COST = \$112,984.00

SUMMARY OF CONSTRUCTION COST

Timber Sale: Clear Head Timber Sale No. : 341-16-43

PROJECT NO. 6

Drift fill material	14,000	cy @	\$1.50	per cy =	\$21,000.00
Compact fill	14,000	cy @	\$0.30	per cy =	\$4,200.00

TOTAL COST = \$25,200.00

SUMMARY OF CONSTRUCTION COST

Timber Sale: Clear Head Timber Sale No. : 341-16-43

PROJECT NO. 8:

Road Brushing

<u>Station</u>	<u>Brush Density miles @ \$ per mile =</u>			
E to F	Light	1.83	\$700.00	\$1,281.00
F to G	Light	3.73	\$700.00	\$2,611.00
G to H	Light	0.17	\$700.00	\$119.00
G to I	Light	2.26	\$700.00	\$1,582.00
J to K	Light	1.25	\$700.00	\$875.00
J to K	Heavy	0.28	\$1,300.00	\$364.00
L to M	Moderate	0.32	\$1,000.00	\$320.00

Total Miles= 9.84

TOTAL COST = \$7,152.00

ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

Timber Sale: Clear Head

Sale Number: 341-16-43

Pit Name: Lower Rock Creek Pit

Swell:	<u>130%</u>	1-1/2"-0 (trk measure)	<u>9,020 cy</u>
Shrinkage:	<u>116%</u>	3"-0 (trk measure)	<u>8,037 cy</u>
Drill Pct.:	<u>100%</u>	Stockpile (stockpile measurement)	<u>10,000 cy</u>
		Total Truck Yardage:	<u>28,657 cy</u>
		Total In Place Yardage:	<u>22,044 cy</u>

Pit Development, Waste Area Clearing, & Stockpile Site Prep			\$1,750.00
Drill & Shoot:	<u>\$2.80 /cy</u> x	<u>22,044 cy</u>	= \$61,721.86
Load and Haul to Crushing Site	<u>\$1.30 /cy</u> x	<u>28,657 cy</u>	= \$37,253.55
Load Crusher:	<u>\$0.80 /cy</u> x	<u>28,657 cy</u>	= \$22,925.26
Crushing (1-1/2" - 0):	<u>\$3.30 /cy</u> x	<u>9,020 cy</u>	= \$29,765.34
Crushing (3" - 0):	<u>\$3.30 /cy</u> x	<u>8,037 cy</u>	= \$26,521.36
Crushing (Stockpile):	<u>\$3.30 /cy</u> x	<u>11,600 cy</u>	= \$38,280.00
Load Dump Truck:	<u>\$0.80 /cy</u> x	<u>17,057 cy</u>	= \$13,645.26
		Subtotal	<u>\$231,862.63</u>

Equipment Cleaning		\$1,000.00	
Move in Crusher (3 Stage)		\$3,286.00	
Set up Crusher		\$3,327.00	
Move in and set up Drill and Compressor		\$557.33	
Move in Excavator		\$929.12	
Move in Loader		\$818.53	
Pump Development Area During Crushing		\$2,850.00	
Clean Up and Block Pit		\$1,750.00	
Gradation Tests (\$71.50/2000 cy)	<u>\$71.50 /2000cy</u> x	<u>15 tests</u>	\$1,072.50
Change Gradation		\$275.00	
		Subtotal	<u>\$15,865.48</u>

ROCK DEVELOPMENT COST = \$8.64/cy TOTAL PRODUCTION COST \$247,728.11

CRUISE REPORT
Clear Head
341-16-43

1. LOCATION: Portion of Section 13, T4N, R6W, W.M., Clatsop County, Oregon and portion of Section 18, T4N, R5W, W.M., Columbia County, Oregon.

2. CRUISE DESIGN:

The cruise design assumed a Coefficient of Variation of 60%, an average stand diameter of 19 inches, a desired sampling error of 9% and a minimum sample size of 100 grade trees. Pre-cruise plots indicated that approximately 5-6 trees per plot could be realized with a 40 BAF prism.

3. SAMPLING METHOD:

The Sale Areas were cruised in March and April, 2015 with 29 variable radius grade plots and 29 variable radius count plots using a 40 BAF prism. In Area 1 plots were laid out on a 4 chain x 5 chain grid. In Area 2 plots were laid out on a 5 chain x 5 chain grid. Plots falling on or near existing roads or no-harvest areas were offset 1 chain.

4. CRUISE RESULTS

144 trees were measured and graded producing a cumulative sampling error of 6.1% on the basal area and 7% on the Board Foot Volume.

5. TREE MEASUREMENT AND GRADING:

All grade plot sample 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 or one quarter of the DBH for trees over twenty-four inches in diameter.

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 Statistics:** Volume estimates and sampling statistics, were derived from Super Ace 2008 cruise software.

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

6. Cruisers: The sale was cruised by ODF cruisers Mark C. Savage, Joe P. Koch, Dax M. Strubb and Kevin Gehrig.

Prepared by:

Dax Strubb

Date

Reviewed by:

Eric Foucht

Date

TC PSTATS		PROJECT STATISTICS						PAGE 1		
		PROJECT		CLR FIN		DATE 7/16/2015				
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	06	13	00A1	00MC	167.00	58	294	S	W	
04N	06W	13	00A2	00MC						
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES			
TOTAL			58	294	5.1					
CRUISE			27	144	5.3	18,071	.8			
DBH COUNT										
REFOREST										
COUNT			29	150	5.2					
BLANKS			2							
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		11	.9	38.5	137	1.2	7.6	1,789	1,752	350
DOUG FIR-T		130	106.5	18.2	104	45.0	191.9	33,318	32,891	7,684
R ALDER-T		2	.6	24.9	68	0.4	2.1	94	94	64
WHEMLOCK-L		1	.2	26.0	142	0.1	.7	200	200	37
TOTAL		<i>144</i>	<i>108.2</i>	<i>18.5</i>	<i>104</i>	<i>47.0</i>	<i>202.3</i>	<i>35,401</i>	<i>34,936</i>	<i>8,135</i>
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		26.0	8.2	1,732	1,887	2,042				
DOUG FIR-T		77.2	6.8	540	579	618				
R ALDER-T				150	150	150				
WHEMLOCK-L										
TOTAL		<i>84.0</i>	<i>7.0</i>	<i>630</i>	<i>677</i>	<i>724</i>	<i>282</i>	<i>71</i>	<i>31</i>	
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		17.8	5.6	358	379	400				
DOUG FIR-T		69.1	6.1	123	130	138				
R ALDER-T		8.7	8.2	94	103	111				
WHEMLOCK-L										
TOTAL		<i>73.5</i>	<i>6.1</i>	<i>140</i>	<i>150</i>	<i>159</i>	<i>216</i>	<i>54</i>	<i>24</i>	
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		226.9	29.8	1	1	1				
DOUG FIR-T		60.1	7.9	98	106	115				
R ALDER-T		432.9	56.8	0	1	1				
WHEMLOCK-L		761.6	99.9	0	0	0				
TOTAL		<i>59.4</i>	<i>7.8</i>	<i>100</i>	<i>108</i>	<i>117</i>	<i>141</i>	<i>35</i>	<i>16</i>	
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		229.0	30.0	5	8	10				
DOUG FIR-T		49.1	6.4	180	192	204				
R ALDER-T		431.9	56.7	1	2	3				
WHEMLOCK-L		761.6	99.9	0	1	1				
TOTAL		<i>46.3</i>	<i>6.1</i>	<i>190</i>	<i>202</i>	<i>215</i>	<i>86</i>	<i>21</i>	<i>10</i>	
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		224.8	29.5	1,235	1,752	2,268				
DOUG FIR-T		56.4	7.4	30,458	32,891	35,323				
R ALDER-T		432.9	56.8	40	94	147				
WHEMLOCK-L		761.6	99.9	0	200	400				

PROJECT STATISTICS
PROJECT CLR FIN

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	06	13	00A1	00MC	167.00	58	294	S	W
04N	06W	13	00A2	00MC					
CL	68.1	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
TOTAL		51.6	6.8	32,570	34,936	37,303	106	27	12
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		228.1	29.9	245	350	455			
DOUG FIR-T		52.8	6.9	7,151	7,684	8,216			
R ALDER-T		432.0	56.7	28	64	100			
WHEMLOCK-L		761.6	99.9	0	37	74			
TOTAL		48.7	6.4	7,615	8,135	8,655	95	24	11

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	CLR FIN		DATE	7/15/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	06W	13	00A1	00MC	55.00	20	82	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		20	82	4.1						
CRUISE		9	40	4.4	3,881		1.0			
DBH COUNT										
REFOREST										
COUNT		10	42	4.2						
BLANKS		1								
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR-L	4	.9	39.8	134	1.3	8.0	1,914	1,802	376	376
DOUG FIR-T	35	69.1	20.2	117	34.3	154.0	27,306	27,024	6,452	6,452
WHEMLOCK-L	1	.5	26.0	142	0.4	2.0	608	608	112	112
TOTAL	40	70.6	20.6	117	36.1	164.0	29,828	29,434	6,940	6,940
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		40.6	23.2	1,507	1,963	2,418				
DOUG FIR-T		64.4	10.9	537	602	668				
WHEMLOCK-L										
TOTAL		79.2	12.5	657	751	845	250	63	28	
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		20.2	11.5	363	411	458				
DOUG FIR-T		57.3	9.7	126	140	153				
WHEMLOCK-L										
TOTAL		67.3	10.6	151	169	187	181	45	20	
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		257.5	59.0	0	1	1				
DOUG FIR-T		68.6	15.7	58	69	80				
WHEMLOCK-L		447.2	102.5		1	1				
TOTAL		66.3	15.2	60	71	81	185	46	21	
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		261.6	60.0	3	8	13				
DOUG FIR-T		53.5	12.3	135	154	173				
WHEMLOCK-L		447.2	102.5		2	4				
TOTAL		47.4	10.9	146	164	182	95	24	11	
CL:	68.1 %	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR-L		248.8	57.0	774	1,802	2,830				
DOUG FIR-T		53.2	12.2	23,730	27,024	30,319				
WHEMLOCK-L		447.2	102.5		608	1,230				
TOTAL		44.6	10.2	26,426	29,434	32,441	84	21	9	
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		255.7	58.6	156	376	596				
DOUG FIR-T		53.3	12.2	5,664	6,452	7,240				
WHEMLOCK-L		447.2	102.5		112	227				

TC TSTATS				STATISTICS				PAGE 2	
				PROJECT	CLR FIN	DATE 7/15/2015			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	06W	13	00A1	00MC	55.00	20	82	S	W
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	
TOTAL		45.7	10.5	6,212	6,940	7,668	88	22	10

T04N R06W S13 T00MC T04N R06W S13 T00MC
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt
 04N 06W 13 00A1 00MC 55.00 20 40 S W

Spp	S T	So rt	Gr 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	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	
DF	T		CU													2	16		0.00	3.1
DF	T		2M	65	1.6	18,001	17,718	975		56	44	3	2		95	39	16	391	2.25	45.3
DF	T		3M	30		8,099	8,099	445	93	7			0	1	99	40	8	109	0.73	74.5
DF	T		4M	5		1,206	1,206	66	100			6	46	48		27	6	38	0.38	32.1
DF	T	Totals		92	1.0	27,306	27,024	1,486	32	39	29	2	4	2	92	36	10	174	1.15	155.0
DF	L		2M	93	6.2	1,803	1,691	93		1	99			1	99	39	23	911	4.66	1.9
DF	L		3M	7		111	111	6	100				21		79	36	11	159	1.45	.7
DF	L	Totals		6	5.9	1,914	1,802	99	6	1	93		1	1	98	38	20	705	3.84	2.6
WH	L		2M	94		575	575	32		34	66			100		40	18	530	2.25	1.1
WH	L		3M	6		33	33	2	100					100		36	7	60	0.75	.5
WH	L	Totals		2		608	608	33	5	32	63			100		39	14	373	1.78	1.6
Type Totals					1.3	29,828	29,434	1,619	30	36	33	2	3	2	93	36	10	185	1.21	159.2

Log Stock Table - MBF
Project: CLR_FIN

T04N R06W S13 T00MC

T04N R06W S13 T00M

Twp Rge Sec Tract Type Acres Plots Sample Trees Page
04N 06W 13 00A1 00MC 55.00 20 40 1
 Date **7/15/2015**
 Time **1:33:18PM**

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	40+	
DF	L	2M	34	2	58.8	1	.1					1								
DF	L	2M	40	97	5.1	92	5.8								9	18	46	19		
DF	L	3M	26	1		1	.1				1									
DF	L	3M	40	5		5	.3				5									
DF	T	CU	2																	
DF	T	CU	4																	
DF	T	2M	20	26		26	1.7						9		17					
DF	T	2M	30	20		20	1.2							20						
DF	T	2M	38	11	26.3	8	.5					8								
DF	T	2M	40	933	1.4	921	58.1					95	254	357	179	36				
DF	T	3M	28	2		2	.1				2									
DF	T	3M	32	3		3	.2				3									
DF	T	3M	36	4		4	.2			4										
DF	T	3M	38	8		8	.5			8										
DF	T	3M	40	429		429	27.0			79	136	182	32							
DF	T	4M	14	1		1	.1			1										
DF	T	4M	16	2		2	.2			2										
DF	T	4M	22	7		7	.4			7										
DF	T	4M	24	13		13	.8			11	2									
DF	T	4M	28	7		7	.4			7										
DF	T	4M	30	3		3	.2			3										
DF	T	4M	32	4		4	.2			4										
DF	T	4M	34	28		28	1.8			28										
DF	Totals			1,607	1.4	1,585	97.9			155	143	188	136	263	386	213	82	19		
WH	L	2M	40	32		32	94.6						11		21					
WH	L	3M	36	2		2	5.4			2										
WH	Totals			33		33	2.1			2				11		21				
Total All Species				1,641	1.3	1,619	100.0			156	143	188	136	274	386	234	82	19		

Stand Table Summary

Project **CLR FIN**

T04N R06W S13 T00MC

T04N R06W S13 T00MC

Twp Rge Sec Tract
04N 06W 13 00A1

Type Acres Plots Sample Trees
00MC 55.00 20 40

Page: **1**
 Date: **07/15/20**
 Time: **1:33:18PM**

Spc	S T	Sample			Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
		DBH	Trees	FF 16'	Ht Tot				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DF	T	11	2	77	83	13.334	8.80	13.33	15.8	55.0	6.02	211	733	331	116	40
DF	T	14	1	79	110	4.116	4.40	8.23	18.0	60.0	4.22	148	494	232	81	27
DF	T	15	2	84	114	7.171	8.80	14.34	22.8	95.0	9.33	328	1,362	513	180	75
DF	T	16	1	81	120	3.151	4.40	6.30	26.8	105.0	4.82	169	662	265	93	36
DF	T	17	2	84	121	5.583	8.80	11.17	30.7	125.0	9.78	343	1,396	538	189	77
DF	T	18	1	87	65	2.490	4.40	2.49	40.4	120.0	2.86	100	299	158	55	16
DF	T	19	2	87	132	4.469	8.80	13.41	28.5	116.7	10.88	382	1,564	598	210	86
DF	T	20	1	86	123	2.017	4.40	4.03	43.7	165.0	5.03	176	666	277	97	37
DF	T	22	2	84	125	3.334	8.80	8.33	44.8	184.0	10.65	374	1,533	586	206	84
DF	T	23	3	86	139	4.575	13.20	13.73	44.9	202.2	17.58	617	2,776	967	339	153
DF	T	24	3	82	133	4.202	13.20	12.61	46.4	192.2	16.66	585	2,423	916	322	133
DF	T	25	2	79	125	2.582	8.80	7.74	46.7	180.0	10.30	361	1,394	566	199	77
DF	T	26	1	74	126	1.193	4.40	3.58	44.5	170.0	4.54	159	609	250	88	33
DF	T	27	2	84	147	2.213	8.80	6.64	64.6	286.7	12.22	429	1,903	672	236	105
DF	T	28	1	81	124	1.029	4.40	3.09	62.4	180.0	5.49	193	556	302	106	31
DF	T	29	3	84	149	2.878	13.20	8.63	76.2	360.0	18.74	658	3,108	1,031	362	171
DF	T	30	1	74	159	.896	4.40	2.69	77.4	303.3	5.93	208	816	326	114	45
DF	T	31	1	86	151	.839	4.40	2.52	91.1	443.3	6.54	229	1,116	360	126	61
DF	T	32	2	81	138	1.576	8.80	4.73	87.7	393.3	11.82	415	1,859	650	228	102
DF	T	33	1	74	152	.741	4.40	2.22	72.5	353.3	4.59	161	785	253	89	43
DF	T	34	1	89	129	.698	4.40	2.09	98.1	463.3	5.86	205	970	322	113	53
DF	Totals	35	82	117		69.087	154.00	151.91	42.5	177.9	183.88	6,452	27,024	10,113	3,549	1,486
DF	L	36	1	86	156	.283	2.00	.85	124.4	676.7	3.01	106	574	165	58	32
DF	L	40	1	85	97	.229	2.00	.46	157.0	415.0	2.05	72	190	113	40	10
DF	L	42	2	87	140	.416	4.00	1.25	159.2	831.7	5.66	199	1,037	311	109	57
DF	Totals	4	86	134		.928	8.00	2.55	147.2	705.4	10.72	376	1,802	589	207	99
WH	L	26	1	92	142	.542	2.00	1.63	69.0	373.3	3.59	112	608	198	62	33
WH	Totals	1	92	142		.542	2.00	1.63	69.0	373.3	3.59	112	608	198	62	33
Totals		40	82	117		70.557	164.00	156.09	44.5	188.6	198.19	6940	29,434	10,900	3,817	1,619

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT CLR FIN		DATE		7/16/2015		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	06W	13	00A2	00MC	112.00	38	212	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		38	212	5.6						
CRUISE		18	104	5.8	14,190		.7			
DBH COUNT										
REFOREST										
COUNT		19	108	5.7						
BLANKS		1								
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR-L	7	.9	37.8	138	1.2	7.4	1,727	1,727	338	338
DOUG FIR-T	95	124.8	17.6	101	50.2	210.5	36,270	35,772	8,289	8,289
R ALDER-T	2	.9	24.9	68	0.6	3.2	140	140	95	95
TOTAL	104	126.7	17.9	101	52.3	221.1	38,137	37,638	8,721	8,721
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	15.1	6.1	1,731	1,844	1,957					
DOUG FIR-T	82.1	8.4	523	571	619					
R ALDER-T			150	150	150					
TOTAL	86.2	8.4	594	648	703	297	74	33		
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	15.5	6.3	338	361	384					
DOUG FIR-T	73.9	7.6	117	127	137					
R ALDER-T	8.7	8.2	94	103	111					
TOTAL	76.1	7.5	132	142	153	231	58	26		
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	214.9	34.8	1	1	1					
DOUG FIR-T	48.9	7.9	115	125	135					
R ALDER-T	346.9	56.2	0	1	1					
TOTAL	48.6	7.9	117	127	137	94	24	10		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR-L	213.3	34.6	5	7	10					
DOUG FIR-T	43.7	7.1	196	211	225					
R ALDER-T	346.1	56.1	1	3	5					
TOTAL	41.8	6.8	206	221	236	70	17	8		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR-L	215.2	34.9	1,125	1,727	2,330					
DOUG FIR-T	54.0	8.8	32,638	35,772	38,905					
R ALDER-T	346.9	56.2	61	140	218					
TOTAL	50.7	8.2	34,543	37,638	40,734	103	26	11		
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	214.7	34.8	220	338	455					
DOUG FIR-T	49.9	8.1	7,618	8,289	8,959					
R ALDER-T	346.2	56.1	42	95	149					

STATISTICS
PROJECT CLR FIN

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	06W	13	00A2	00MC	112.00	38	212	S	W
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
TOTAL		47.0	7.6	8,057	8,721	9,386	88	22	10

T04N R06W S13 T00MC									T04N R06W S13 T00MC		
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt		
04N	06W	13	00A2	00MC	112.00	38	104	S	W		

Spp	S	So	Gr	%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log				Logs Per /Acre						
									Net BdFt	Def%	Gross	Net	Net MBF	Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/Lf		
														4-5	6-11	12-16	17+	12-20	21-30	31-35						36-99	
DF	T		CU																								
DF	T		2M	61	1.5	22,266	21,932	2,456					35	65	1	1		98	7	18				0.00		3.5	
DF	T		3M	31	1.2	11,108	10,978	1,229				90	10			0	4	96	39	8			98	0.67		111.7	
DF	T		4M	8	1.2	2,897	2,862	321				100			12	46	11	32	28	6			39	0.38		72.8	
DF	T		Totals	95	1.4	36,270	35,772	4,006				36	25	40	2	4	2	92	35	9			151	0.99		237.1	
DF	L		CU																10	29					0.00		.3
DF	L		2M	92		1,592	1,592	178						100				100	40	22			906	4.20		1.8	
DF	L		3M	7		127	127	14				58	42			24	20	56	32	10			134	1.39		.9	
DF	L		4M	1		8	8	1				100			100				18	10			60	0.97		.1	
DF	L		Totals	5		1,727	1,727	193				5	3	92	0	2	1	96	34	19			558	3.20		3.1	
RA	T		4M	100		140	140	16				100						100	40	10			150	2.56		.9	
RA	T		Totals	0		140	140	16				100						100	40	10			150	2.56		.9	
Type	Totals				1.3	38,137	37,638	4,216				34	24	42	1	4	2	92	35	9			156	1.02		241.2	

TC TLOGSTVB

Log Stock Table - MBF

Project: **CLR_FIN**

T04N R06W S13 T00MC

T04N R06W S13 T00M

Twp **04N** Rge **06W** Sec **13** Tract **00A2** Type **00MC** Acres **112.00** Plots **38** Sample Trees **104** Page **1**
 Date **7/16/2015** Time **9:49:50AM**

S Spp	So rt	Gr de	Log Len	Gross MBF	% Def	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches									
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29
DF	L		CU 4														
DF	L		CU 16														
DF	L		2M 36	16		16	.4										16
DF	L		2M 40	162		162	3.9							32	20	111	
DF	L		3M 26	3		3	.1				3						
DF	L		3M 28	1		1	.0				1						
DF	L		3M 32	3		3	.1				3						
DF	L		3M 40	8		8	.2				2			6			
DF	L		4M 18	1		1	.0				1						
DF	T		CU 4														
DF	T		CU 7														
DF	T		CU 8														
DF	T		CU 12														
DF	T		2M 20	24		24	.6										24
DF	T		2M 28	20		20	.5										20
DF	T		2M 40	2,450	1.5	2,412	57.4					229	500	886	671	127	
DF	T		3M 26	2		2	.0				2						
DF	T		3M 28	3		3	.1				3						
DF	T		3M 32	22		22	.5			18	3						
DF	T		3M 34	27		27	.6			27							
DF	T		3M 36	7		7	.2			3	4						
DF	T		3M 38	62	2.0	61	1.4			61							
DF	T		3M 40	1,122	1.2	1,108	26.4			234	376	371	127				
DF	T		4M 14	3		3	.1			3	1						
DF	T		4M 16	8		8	.2			8							
DF	T		4M 18	8		8	.2			6	1						
DF	T		4M 20	19		19	.5			19							
DF	T		4M 22	7		7	.2			7							
DF	T		4M 24	24		24	.6			24							
DF	T		4M 26	15		15	.4			15							
DF	T		4M 28	26		26	.6			26							
DF	T		4M 30	75	2.7	73	1.7			73							
DF	T		4M 32	12		12	.3			12							
DF	T		4M 34	23		23	.5			23							
DF	T		4M 38	12	15.7	10	.2			10							
DF	T		4M 40	92		92	2.2			65		27					
DF			Totals	4,256	1.3	4,200	99.6			635	396	401	356	500	924	735	254
RA	T		4M 40	16		16	100.0					16					
RA			Totals	16		16	.4					16					
Total All Species				4,271	1.3	4,216	100.0			635	396	417	356	500	924	735	254

Stand Table Summary

Project **CLR FIN**

T04N R06W S13 T00MC

T04N R06W S13 T00MC

Twp **04N** Rge **06W** Sec **13** Tract **00A2**

Type **00MC** Acres **112.00** Plots **38** Sample Trees **104**

Page: **1**
Date: **07/16/20**
Time: **9:49:50AM**

Spc	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	T	10	5	85	75	20.315	11.08	20.32	12.0	54.0	6.95	244	1,097	779	273	123
DF	T	11	3	88	76	10.074	6.65	10.07	14.8	60.0	4.26	149	604	477	167	68
DF	T	12	5	82	81	14.108	11.08	16.93	16.0	55.0	7.70	270	931	863	303	104
DF	T	13	6	85	105	14.425	13.30	28.85	15.5	59.2	12.73	447	1,707	1,426	500	191
DF	T	14	4	85	97	8.292	8.86	16.58	17.1	66.3	8.11	284	1,099	908	319	123
DF	T	15	4	84	99	7.223	8.86	14.45	20.2	73.7	8.32	292	1,065	932	327	119
DF	T	16	5	86	107	7.936	11.08	15.87	24.5	101.0	11.09	389	1,603	1,242	436	180
DF	T	17	3	87	97	4.218	6.65	8.44	27.4	105.0	6.58	231	886	737	259	99
DF	T	18	3	88	99	3.762	6.65	7.52	30.6	118.3	6.56	230	890	734	258	100
DF	T	19	5	85	100	5.628	11.08	11.26	34.7	124.0	11.14	391	1,396	1,247	438	156
DF	T	20	1	89	115	1.016	2.22	2.03	44.6	185.0	2.58	91	376	289	101	42
DF	T	21	2	89	143	1.843	4.43	5.53	39.4	190.0	6.20	218	1,050	695	244	118
DF	T	22	3	88	127	2.518	6.65	6.72	44.3	200.0	8.48	297	1,343	950	333	150
DF	T	23	1	87	119	.768	2.22	2.30	38.6	166.7	2.54	89	384	284	100	43
DF	T	24	2	87	142	1.411	4.43	4.23	50.9	226.7	6.14	215	959	687	241	107
DF	T	25	3	85	132	1.950	6.65	5.85	52.0	226.7	8.67	304	1,326	971	341	149
DF	T	26	5	86	139	3.005	11.08	8.41	62.8	285.7	15.07	529	2,404	1,688	592	269
DF	T	27	6	86	126	3.344	13.30	9.47	61.5	270.6	16.60	582	2,564	1,859	652	287
DF	T	28	6	85	138	3.110	13.30	8.81	67.6	311.8	16.98	596	2,747	1,902	667	308
DF	T	29	9	85	138	4.348	19.94	13.04	72.7	322.6	27.02	948	4,208	3,027	1,062	471
DF	T	30	4	84	140	1.806	8.86	5.42	74.2	324.2	11.45	402	1,756	1,282	450	197
DF	T	31	1	88	138	.423	2.22	1.27	84.5	423.3	3.05	107	537	342	120	60
DF	T	32	3	84	144	1.190	6.65	3.57	91.6	432.2	9.32	327	1,543	1,044	366	173
DF	T	33	1	88	155	.373	2.22	1.49	78.0	430.0	3.32	116	642	372	130	72
DF	T	34	4	85	146	1.406	8.86	4.22	105.7	529.2	12.70	446	2,232	1,423	499	250
DF	T	35	1	84	122	.332	2.22	1.00	94.7	423.3	2.68	94	421	301	106	47
DF		Totals	95	85	101	124.823	210.53	233.65	35.5	153.1	236.23	8,289	35,772	26,457	9,283	4,006
DF	L	36	3	87	140	.447	3.16	1.34	115.9	595.6	4.43	155	798	496	174	89
DF	L	38	2	86	140	.267	2.11	.80	110.4	580.0	2.52	89	465	283	99	52
DF	L	39	1	83	135	.127	1.05	.38	118.3	580.0	1.28	45	221	144	50	25
DF	L	43	1	83	132	.104	1.05	.31	155.2	776.7	1.39	49	243	155	54	27
DF		Totals	7	86	138	.945	7.37	2.84	119.0	609.1	9.62	338	1,727	1,077	378	193
RA	T	24	1	64	71	.503	1.58	.50	96.4	150.0	1.33	48	75	149	54	8
RA	T	26	1	65	65	.428	1.58	.43	109.1	150.0	1.28	47	64	144	52	7
RA		Totals	2	64	68	.931	3.16	.93	102.3	150.0	2.62	95	140	293	107	16
Totals			104	85	101	126.699	221.05	237.42	36.7	158.5	248.46	8721	37,638	27,828	9,768	4,216

VOLUME SUMMARY
 (Shown in MBF)
Clear Head
Sale No. 341-16-43
Date: 07/16/2014

AREA 1: MC (55 ACRES)

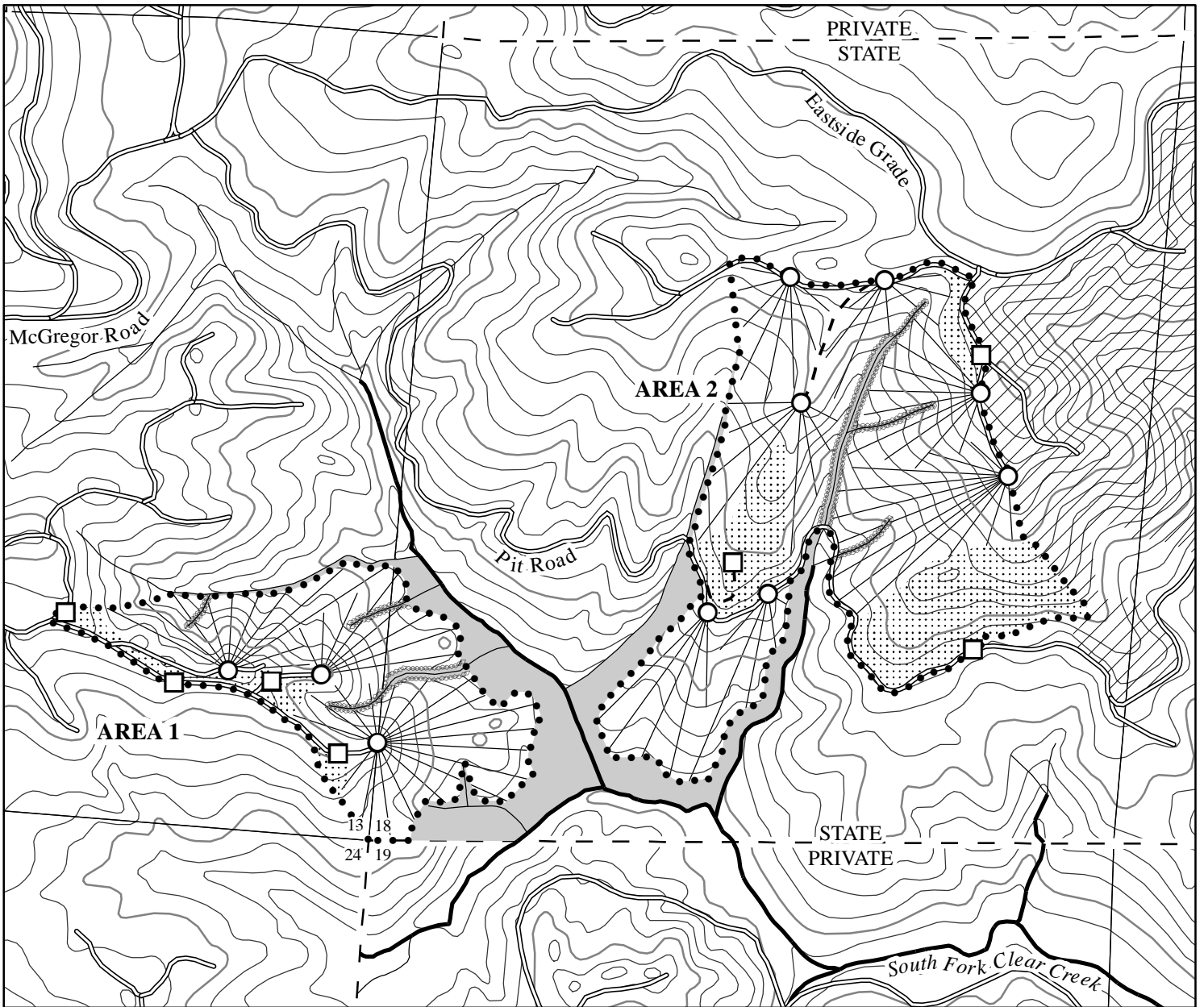
SPECIES		2 SAW	3 SAW	4 SAW	Camp Run	TOTAL
Douglas-fir	Cruise Volume	975	445	66	0	1,486
	Hidden D&B (2%)	(20)	(9)	(1)	()	(30)
	NET TOTAL	955	436	65	0	1,456
	% of Total	66	30	4	0	

AREA 2: MC (112 ACRES)

SPECIES		2 SAW	3 SAW	4 SAW	Camp Run	TOTAL
Douglas-fir	Cruise Volume	2,456	1,229	321	0	4,006
	Hidden D&B (2%)	(49)	(25)	(6)	()	(80)
	NET TOTAL	2,407	1,204	315	0	3,926
	% of Total	61	31	8	0	
Red Alder	Cruise Volume	0	0	0	16	16
	Hidden D&B (2%)	()	()	()	()	()
	NET TOTAL	0	0	0	16	16
	% of Total	0	0	0	100	

SALE TOTAL

SPECIES		2 SAW	3 SAW	4 SAW	Camp Run	TOTAL
Douglas-fir		3,362	1,640	380	0	5,382
Red Alder		0	0	0	16	16
Total		3,362	1,640	380	16	5,398



LEGEND

- Timber Sale Boundary
- Roads
- - New Construction
- Type F Stream
- Type N Stream
- Stream Buffer
- ▨ Posted Stream Buffer Boundary
- Cable Landing
- Tractor Landing
- ◁ Cable Yarding Area
- ▨ Tractor Yarding Area
- /// Reforested Area
- ODF Ownership Boundary
- Sections
- 400 Foot Contour Band
- 80 Foot Contour Band

LOGGING PLAN

FOR TIMBER SALE CONTRACT # 341-16-43
 CLEAR HEAD
 PORTIONS OF SECTION 18, T4N, R5W, W.M.
 COLUMBIA COUNTY, OREGON &
 PORTIONS OF SECTION 13, T4N, R6W, W.M.
 CLATSOP COUNTY, OREGON.

Forest Grove District GIS
 July, 2015

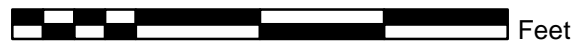
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1:12,000

1 inch = 1,000 feet

0 250 500 1,000 1,500 2,000



APPROXIMATE NET ACRES

	TRACTOR	CABLE
AREA 1	5	55
AREA 2	29	112
TOTAL	34	167