



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Cost Summary Cole Mountain Combo Sale 341-06-38

District: Astoria

Date: 1/9/06

	Conifer	Hardwood	Total
<b>Gross Timber Sale Value</b>	\$4,268,902.92	\$376,638.60	\$4,645,541.52
		<b>Project Work</b>	(\$835,441.00)
		<b>Advertised Value</b>	\$3,810,100.52



# Timber Sale Appraisal Timber Description Cole Mountain Combo Sale 341-06-38

"STEWARDSHIP IN FORESTRY"

District: Astoria

Location: Portions of Sections 13, 14, 23, 24, and 26, T4N, R9W, W.M., Clatsop County, Oregon

Date: 1/9/06

Stand Stocking: 60%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	18	0	96
Western Hemlock / Fir	18	0	95
Sitka Spruce	16	0	98
Red Cedar	14	0	87
Alder (Red)	14	0	96

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Red Cedar	Alder (Red)	Total
2S	6,857	25	52	0	0	6,934
2S 12"+	0	0	0	0	273	273
3S	3,399	21	56	1	0	3,477
3S 10" - 11"	0	0	0	0	505	505
4S	660	0	28	1	0	689
4S 8" - 9"	0	0	0	0	312	312
Total	10,916	46	136	2	1,090	12,190

**Comments:** Pond Values Used: 4th Quarter Calendar Year 2005.

Log Markets: Mist, Tillamook, Clatskanine, Garabladi

Hauling Costs Used: System currently uses hauling costs of \$460 daily truck cost. Additional hauling costs added in Other Costs (No P&R) to make equivalent to \$700 daily truck cost.

Other Costs (Profit & Risk to be added):

Additional Logging Costs:

Line pulling in Area 1 - 40 hours of work @ \$25/hr. = \$1,000

Line pulling in Area 2 - 16 hours of work @ \$25/hr. = \$ 400

100% branding and painting = \$1.00/MBF X 12,190 MBF = \$12,190

"Loggers Choice" stub spurs approximately 5 stations total @ \$89/station = \$445

"Loggers Choice" landings 1 in Area 1, 1 in Area 2, 2 in Area 4, and 1 in Area 6  
for a total of 5 "Logger Choice" Landings @ \$285/landing = \$1,425

Snag Creation: Select and create 80 snags in Areas 3 & 4.

80 trees @ \$45/tree = \$3,600

TOTAL Other Costs (P&R to be added) = \$19,060

Other Costs (No Profit & Risk added):

Additional Hauling Costs = \$20/MBF x 12,190MBF = \$243,800

Slash Piling in Areas 3 and 4: 41.3 hours X \$120/hr = \$4,956.00

Move in of Excavator for Slash Piling = \$945.00

Additional cable landing Piling in Areas 3 & 4 (6 landings) 2 hours/ landing  
\$87.5/hr. X 2 Hrs/ landing X 6 landings = \$1,050.00.

Close Dirt Spurs in Areas 3 and 4

15 hours with C330 excavator@ \$138/hr X 15 hrs = \$2,070

TOTAL Other Costs (No Pr&R added) = \$252,821



# Timber Sale Appraisal

## Logging Conditions

### Cole Mountain Combo

#### Sale 341-06-38

"STEWARDSHIP IN FORESTRY"

<b>Combination#: 1</b>	Douglas - Fir	34.20%	
	Western Hemlock / Fir	12.00%	
	Sitka Spruce	42.28%	
	Alder (Red)	23.04%	
<b>Yarding Distance:</b>	Medium (800 ft)		<b>Downhill Yarding:</b> No
<b>Logging System:</b>	Track Skidder		<b>Process:</b> Manual Falling/Delimiting
<b>Tree Size:</b>	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF		
<b>Loads/Day:</b>	6		<b>Bd. Ft./Load:</b> 4,000
<b>Cost/MBF:</b>	\$136.06		
<b>Machines:</b>	Log Loader (B) Track Skidder		
<b>Combination#: 2</b>	Douglas - Fir	40.14%	
	Western Hemlock / Fir	14.09%	
	Sitka Spruce	49.63%	
	Alder (Red)	27.05%	
<b>Yarding Distance:</b>	Medium (800 ft)		<b>Downhill Yarding:</b> No
<b>Logging System:</b>	Cable: Medium Tower >40 - <70		<b>Process:</b> Stroke Delimber
<b>Tree Size:</b>	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF		
<b>Loads/Day:</b>	5		<b>Bd. Ft./Load:</b> 3,700
<b>Cost/MBF:</b>	\$177.44		
<b>Machines:</b>	Log Loader (A) Stroke Delimber (A) Tower Yarder (Medium)		
<b>Combination#: 3</b>	Douglas - Fir	8.98%	
	Western Hemlock / Fir	25.87%	
	Sitka Spruce	2.83%	
	Red Cedar	35.00%	
	Alder (Red)	17.47%	
<b>Yarding Distance:</b>	Medium (800 ft)		<b>Downhill Yarding:</b> No
<b>Logging System:</b>	Shovel		<b>Process:</b> Manual Delimiting
<b>Tree Size:</b>	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
<b>Loads/Day:</b>	9		<b>Bd. Ft./Load:</b> 4,000
<b>Cost/MBF:</b>	\$64.49		
<b>Machines:</b>	Shovel Logger		

**Combination#: 4** Douglas - Fir 16.68%  
Western Hemlock / Fir 48.04%  
Sitka Spruce 5.26%  
Red Cedar 65.00%  
Alder (Red) 32.44%

**Yarding Distance:** Medium (800 ft)

**Downhill Yarding:** No

**Logging System:** Cable: Large Tower >=70

**Process:** Stroke Delimber

**Tree Size:** Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF

**Loads/Day:** 8

**Bd. Ft./Load:** 4,000

**Cost/MBF:** \$117.02

**Machines:**

Log Loader (A)

Stroke Delimber (A)

Tower Yarder (Large)



# Timber Sale Appraisal Logging Costs Cole Mountain Combo Sale 341-06-38

"STEWARDSHIP IN FORESTRY"

Date: 1/9/06

Operating Seasons: 3.0

Profit & Risk: 15%

Project Costs: \$835,441

Other Costs (P/R): \$19,060

Slash Disposal: \$0

Other Costs: \$252,821

Miles of Road			
Dirt	Rock (Contractor)	Rock (State)	Paved
0.0	0.0	0.0	0.0

Road Maintenance: \$3.18

### Hauling Costs

Species	\$/MBF	Trips/Day	MBF/Load
Douglas - Fir	\$0.00	2.0	4.5
Western Hemlock / Fir	\$0.00	2.0	4.0
Sitka Spruce	\$0.00	2.0	4.0
Red Cedar	\$0.00	2.0	3.5
Alder (Red)	\$0.00	3.0	3.5



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Logging Costs Breakdown Cole Mountain Combo Sale 341-06-38

Costs	Douglas - Fir	Westem Hemlock / Fir	Sitka Spruce	Red Cedar	Alder (Red)
<b>Logging</b>	143.07	114.23	153.57	98.63	128.57
<b>Road Maintenance</b>	3.31	3.35	3.24	3.66	3.31
<b>Fire Protection</b>	0.67	0.67	0.67	0.67	0.67
<b>Hauling</b>	53.23	60.53	58.67	75.52	45.63
<b>Other (P/R appl.)</b>	1.56	1.56	1.56	1.56	1.56
<b>Profit &amp; Risk</b>	30.28	27.05	32.66	27.01	26.96
<b>Slash Disposal</b>	0.00	0.00	0.00	0.00	0.00
<b>Scaling</b>	2.00	2.00	2.00	2.00	2.00
<b>Other</b>	20.74	20.74	20.74	20.74	20.74
<b>Total</b>	254.86	230.13	273.11	229.79	229.44

<b>Amortization</b>	0.00	0.00	0.00	0.00	0.00
<b>Pond Value</b>	643.71	419.46	378.38	825.00	574.98
<b>Stumpage</b>	388.85	189.33	105.27	595.21	345.54
<b>Amortized</b>	0.00	0.00	0.00	0.00	0.00



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Summary Cole Mountain Combo Sale 341-06-38

**Amortized**

	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Red Cedar	Alder (Red)
<b>MBF</b>	0.00	0.00	0.00	0.00	0.00
<b>Value</b>	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	0.00	0.00	0.00	0.00	0.00

**Unamortized**

	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Red Cedar	Alder (Red)
<b>MBF</b>	10,916.00	46.00	136.00	2.00	1,090.00
<b>Value</b>	388.85	189.33	105.27	595.21	345.54
<b>Total</b>	4,244,686.60	8,709.18	14,316.72	1,190.42	376,638.60

**Gross Timber Sale Value**

**Recovery \$4,645,541.52**

Prepared by: Edward Holloran

Date: 1/9/06

District: Astoria

Phone: (503) 325-5451



**Road Maintenance Cost Summary (Interim and Post Harvest)**

**Sale:** Cole Mountain Combo  
**Date:** 7/29/05 revised 11/16/05  
**By:** Ed Holloran

**MBF:** 12,190  
**\$/MBF:** \$3.18

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Interim Operations Entries (2) Shingle Mill	Grader 14G	\$570	2	80	\$84	\$7,860
	Dump Truck 12CY	\$119	4	32	\$59	\$2,364
	FE Loader C966	\$570	2	16	\$79	\$2,404
Final Road Maintenance Haul Route	Grader 14G	\$570	1	80	\$84	\$7,290
	Dump Truck 12CY (2 @ \$119)	\$238	1	40	\$59	\$2,598
	FE Loader C966	\$570	1	40	\$79	\$3,730
	Vibratory Roller	\$570	1	80	\$79	\$6,890
	Water Truck 2,500 gallon Labor	\$139	1	72	\$70	\$5,179
				16	\$25	\$400
<b>Total</b>						<b>\$38,715</b>

**Interim Operations Road Maintenance**

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	2.5	20.0	8.0	80.0

**Final Road Maintenance**

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	1.5	11.7	7.8	78.0
Vibratory Roller	1.5	11.7	7.8	78.0

Cole Mt. Co. Rd. to Hwy 53 (3.98 mi.) plus Cole Mt. Rdg. Rd. to Pt. 15 (0.98 mi.), Plus New Road Construction (less dirt spurs 4.01 mi.) & Improvement Roads (2.34 mi.) and McCracken's Rd (0.38 Mi.)  
**For a total of 11.7 miles**

**SUMMARY OF ALL PROJECT COSTS**

SALE NAME: Cole Mountain Combo

**NEW CONSTRUCTION:**

Project No. 1	Road segment	Length/Sta	Cost
	1A-1B, 1C-1D, 1E-1F, 1I-1J, 1K-1L, 2A-2B, 3A-3B, 3C-3D, 4A-4B, 4C-4D, 5A-5B, 5D-5E, 5F-5G, 6A-6B, 6C-6D, 6E-6F, 6G-6H, 6I-6J, 6K-6L, 6M-6N, 6O-6P	227.25	\$229,593
<b>TOTALS</b>	4.30 miles	227.25 Stations	\$229,593

**ROAD IMPROVEMENT:**

Project No. 2	Road segment	Length/Sta	Cost
	I1-I2, I3-I4, I5-I6, I7-I8, I9-I10 I11-I12	86.60 5.90	\$23,651 \$37,332
<b>TOTALS</b>	1.75 miles	92.50 Stations	\$60,983

**VACATING:**

Project No. 3	Road segment	Length/Sta	Cost
	V1, V2-V3	11.35	\$4,467
<b>TOTALS</b>	0.21 miles	11.35 Stations	\$4,467

**SPECIAL PROJECTS:**

Project No. 4	Description	Cost
Project No. 4	Rock Crushing -- Fall Creek Quarry (26,581 cubic yards)	\$253,372
Project No. 5	Rock Crushing -- Munce Quarry ( 23,200 cubic yards)	\$263,433
	Project Road Maintenance	\$18,214
<b>TOTALS</b>		\$535,019

**MOVE IN:**

Equipment	Cost
518 Rubber Tired Skidder	\$525
D-8 Dozer	\$1,030
20 cy Dump Truck w/trailer (2 @ \$140 each)	\$280
12cy Dump Trucks (4 @ \$119 each)	\$476
Front End Loader - Medium (966)	\$570
Grader (14G)	\$570
Vibratory Roller	\$570
Water Truck (2,500 gal.)	\$139
Excavator - Large - 2cy (C330)	\$1,030
Hydro-seeder	\$189
<b>TOTAL</b>	\$5,379

**GRAND TOTAL** **\$835,441**

Compiled By: FL  
Ed Holloran

Date: 11/28/2005

**SUMMARY OF NEW CONSTRUCTION COSTS**

**SALE NAME:** Cole Mountain Combo  
**ROAD:** 1A-1B(28+15), 1C-1D(44+75), 1E-1F(8+65), 1I-1J(2+10), 1K-1L(6+20),  
 2A-2B(3+65), 4A-4B(7+30), 5A-5B(5+85), 5C(D+00), 5D-5E(1+10)  
 5F-5G(5+70), 6A-6B(16+40), 6C-6D(36+15), 6E-6F(5+65), 6G-6H(2+60),  
 6I-6J(9+00), 6K-6L(14+80), 6M-6N(1+85), & 6O-6P(3+80).  
 Dirt=3A-3B(1+50), 3C-3D(7+60), 4A-4B(12+45\*), 4C-4D(2+00),

**NEW CONSTRUCTION:** 227.25 STATIONS 4.30 MILES  
**IMPROVEMENT:** STATIONS MILES

=203+70  
 =23+55

**CLEARING & GRUBBING**

Method	Acres/amount	x	Rate/Acre	=	Cost
Scatter Outside of R/W	19.60	x	\$980.00	=	\$19,208.00
		x		=	
		x		=	

**SUB TOTAL FOR CLEARING & GRUBBING**

\$19,208

**EXCAVATION**

Material	Cy/amount	x	Rate	=	Cost
1A-1B, 1C-1D, 1E-1F, 1K-1L Common Excavation (<=50% slopes)	8,891	x	\$1.28	=	\$11,380.48
3C-3D, 5A-5B, 5F-5G Common Excavation (<=50% slopes)	2,354	x	\$1.28	=	\$3,013.12
6A-6B, 6C-6D, 6K-6L Common Excavation (<=50% slopes)	9,553	x	\$1.28	=	\$12,227.84
1A-1B, 1C-1D, 1E-1F, 1K-1L Embankment Compaction \$\$/bcy	14,175	x	\$0.45	=	\$6,378.75
3C-3D, 5A-5B, 5F-5G Embankment Compaction \$\$/bcy	4,007	x	\$0.45	=	\$1,803.15
6A-6B, 6C-6D, 6K-6L Embankment Compaction \$\$/bcy	11,886	x	\$0.45	=	\$5,348.70
1C-1D Common Excavation (>50% slopes)	1,486	x	\$1.52	=	\$2,258.72
3C-3D Common Excavation (>50% slopes)	600	x	\$1.52	=	\$912.00
1C-1D End Haul (loading and Hauling \$\$/cy)	8,240	x	\$2.90	=	\$23,896.00
2A-2B End Haul (loading and Hauling \$\$/cy)	270	x	\$2.90	=	\$783.00
5A-5B, 5F-5G End Haul (loading and Hauling \$\$/cy)	1,800	x	\$2.90	=	\$5,220.00
6C-6D, 6K-6L End Haul (loading and Hauling \$\$/cy)	3,200	x	\$2.90	=	\$9,280.00
1C-1D Waste Material Compaction \$\$/cy	5,535	x	\$0.25	=	\$1,383.75
5A-5B Waste Material Compaction \$\$/cy	800	x	\$0.25	=	\$200.00
6C-6D Waste Material Compaction \$\$/cy	800	x	\$0.25	=	\$200.00
1C-1D(15+15), 1I-1J(2+10) Common (Standard Design) \$\$/sta.	17.25	x	\$139.00	=	\$2,397.75
3A-3B(1+50), 4A-4B(7+30) Common (Standard Design) \$\$/sta.	24.35	x	\$139.00	=	\$3,384.65
4C-4D(2+00), 6D-6E(1+10) Common (Standard Design) \$\$/sta.	27.90	x	\$139.00	=	\$3,878.10
6E-6F(5+65), 6G-6H(2+60) 6I-6J(9+00), 6M-6N(1+85), 6O-6P(3+80) Undesigned Landing Construction \$\$/landing	25	x	\$285.00	=	\$7,125.00
2A-2B End Haul Rejected Material from Cole Mt. Quarry (load, haul, spread @ 2A-2B)	355	x	\$2.45	=	\$869.75
1A-1B(15.55), 1C-1D (12.45), 1E-1F(2.65) Cut Slope Rounding -\$/sta.	30.65	x	\$31.00	=	\$950.15
3C-3D(2.0), 5A-5B(1.5) Cut Slope Rounding -\$/sta.	3.50	x	\$31.00	=	\$108.50
6C-6D(10.0), 6K-6L(3.0) Cut Slope Rounding -\$/sta.	13.00	x	\$31.00	=	\$403.00

**SUB TOTAL FOR EXCAVATION**

\$102,999

**CULVERT MATERIALS AND INSTALLATION**

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
1A-1B 0+00 **	18"/CPP	40	\$12.25	\$490.00	5A-5B 1+00 **	18"/CPP	30	\$12.25	\$367.50
1A-1B 7+70 **	18"/CPP	30	\$12.25	\$367.50	5C 0+00 **	18"/CPP	35	\$12.25	\$428.75
1A-1B 10+55 **	18"/CPP	40	\$12.25	\$490.00	5F-5G 1+15	18"/CPP	35	\$12.25	\$428.75
1A-1B 21+55 **	18"/CPP	40	\$12.25	\$490.00	6A-6B 8+60	18"/CPP	40	\$12.25	\$490.00
1A-1B 24+80 **	18"/CPP	30	\$12.25	\$367.50	6A-6B 12+55 **	18"/CPP	40	\$12.25	\$490.00
1C-1D 0+97	18"/CPP	35	\$12.25	\$428.75	6C-6D 14+30 **	18"/CPP	40	\$12.25	\$490.00
1C-1D 15+05 **	18"/CPP	30	\$12.25	\$367.50	6C-6D 20+30 **	18"/CPP	40	\$12.25	\$490.00
1C-1D 20+65 **	18"/CPP	30	\$12.25	\$367.50	6C-6D 30+47 **	18"/CPP	35	\$12.25	\$428.75
1C-1D 23+50 **	18"/CPP	30	\$12.25	\$367.50	6E-6F 3+80	18"/CPP	30	\$12.25	\$367.50
1C-1D 27+95	18"/CPP	30	\$12.25	\$367.50	6I-6J 6+30	18"/CPP	30	\$12.25	\$367.50
1C-1D 33+85	18"/CPP	30	\$12.25	\$367.50	6K-6L 3+90 **	18"/CPP	30	\$12.25	\$367.50
1K-1L 3+90 **	18"/CPP	30	\$12.25	\$367.50	6K-6L 10+00	18"/CPP	30	\$12.25	\$367.50
4A-4B 4+85	18"/CPP	30	\$12.25	\$367.50	6O-6P 2+75	18"/CPP	30	\$12.25	\$367.50

\*\* Requires Dissipator Rock.

**Other/miscellaneous:**

Description	Quantity/Hrs.	Rate	Cost
Gate installation on 6A - 6B (near 12+80) (C330 @ \$138/hr)	5.8	\$138.00	\$800.00
Labor (\$25/hr)	6	\$25.00	\$150.00
Mulch & Seed			
Waste Areas (4) -100 bales	100	\$4.50	\$450.00
Seed (forage mix) 50lbs.	50	\$1.65	\$82.50
Cut Slopes and Fills 6 feet and greater.			
Hydroseed with Forage Mix 3.75 acres (100 lbs./ac. seed + 50 lbs./ac. tackifier + 100 lbs./ac. fertilizer + 1400 lbs./ac. cell. fiber)	3.75	\$1,100.00	\$4,125.00
Culvert stakes & markers:			
6' x 2 1/2" White Fiberglass (Carsonite) "I"-Beam post	26	\$14.10	\$366.60

**SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION**

\$16,632

**Subtotal**

**\$138,839**

Compiled by:

Ed Holloran

Date:

11/28/2005

**SUMMARY OF NEW CONSTRUCTION COSTS**

SALE NAME: Cole Mountain Combo

SURFACING:		Description	Stations/amount	x	Rate/sta/amt	Cost
Subgrade prep:		Grade, Shape 14' outside (3A-3B, 3C-3D, 4A (7+30)-4B, 4C-4D)	23.55	x	\$13.45	\$316.75
		Grade, Shape and Ditch 16' (1A-1B, 1C-1D, 1E-1F, 1I-1J, 1K-1L, 2A-2B, 4A-(7+30)4B)				
		(5A-5B, 5D-5E, 5F-5G, 6A-6B, 6C-6D, 6E-6F, 6G-6H, 6I-6J, 8K-8L, 8M-8N, 6O-6P)	203.75	x	\$18.20	\$3,708.25
		Subgrade Compaction (non-dirt outloped spurs)	203.75	x	\$14.80	\$3,015.50
						\$7,040.50

ROAD SEGMENT	1A to 1B		POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B Volume (CY) per station	0+00 to 28+15 Number of stations	TOTAL VOLUME (CY)	Sta./amt.		
Base Rock	4"-0" Crushed	0+00 to 28+15	10	63	28.15	1773	\$2.49	\$4,415	
Turnouts	4"-0" Crushed	5+20, 12+50, 21+90	10	28	3	84	\$2.49	\$209	
Curve Widening (3ft-R)	4"-0" Crushed	3+45 to 6+85	10	51	1	51	\$2.49	\$127	
Curve Widening (3ft-L)	4"-0" Crushed	15+00 to 18+85	10	57	1	57	\$2.49	\$142	
Curve Widening (2ft-R)	4"-0" Crushed	22+75 to 24+90	10	22	1	22	\$2.49	\$55	
Curve Widening (2ft-L)	4"-0" Crushed	24+70 to 26+75	10	20	1	20	\$2.49	\$50	
Junction	4"-0" Crushed	17+20 (1C)	10	20	1	20	\$2.49	\$50	
Surface Rock	1 1/2"-0" Crushed	0+00 to 28+15	4	25	28.15	704	\$5.15	\$3,626	
Turnouts	1 1/2"-0" Crushed	5+20, 12+50, 21+90	4	11	3	33	\$5.15	\$170	
Curve Widening (3ft-R)	1 1/2"-0" Crushed	3+45 to 6+85	4	20	1	20	\$5.15	\$103	
Curve Widening (3ft-L)	1 1/2"-0" Crushed	15+00 to 18+85	4	23	1	23	\$5.15	\$118	
Curve Widening (2ft-R)	1 1/2"-0" Crushed	22+75 to 24+90	4	9	1	9	\$5.15	\$46	
Curve Widening (2ft-L)	1 1/2"-0" Crushed	24+70 to 26+75	4	9	1	9	\$5.15	\$46	
Junction	1 1/2"-0" Crushed	17+20 (1C)	4	10	1	10	\$5.15	\$52	
Dissipator Rock	24"-6"	0+00, 7+70, 10+55, 21+55, 24+80		20	5	100	\$5.15	\$515	
Total Rock for Road Segment:							2935		\$9,723

ROAD SEGMENT	1C to 1D		POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1C to 1D Volume (CY) per station	0+00 to 44+75 Number of stations	TOTAL VOLUME (CY)	Sta./amt.		
Base Rock	4"-0" Crushed	0+00 to 44+75	8	50	44.75	2238	\$2.49	\$5,573	
Turnouts	4"-0" Crushed	3+25, 5+80, 15+55, 31+20, 35+50, 40+85	8	22	6	132	\$2.49	\$329	
Curve Widening (2ft-R)	4"-0" Crushed	1+15 to 2+30	8	10	1	10	\$2.49	\$25	
Curve Widening (3ft-R)	4"-0" Crushed	4+35 to 6+05	8	22	1	22	\$2.49	\$55	
Curve Widening (6ft-L)	4"-0" Crushed	12+60 to 14+40	8	46	1	46	\$2.49	\$115	
Curve Widening (4ft-R)	4"-0" Crushed	15+35 to 15+95	8	10	1	10	\$2.49	\$25	
Curve Widening (6ft-R)	4"-0" Crushed	21+20 to 22+50	8	33	1	33	\$2.49	\$82	
Junctions	4"-0" Crushed	21+60, 29+60, 36+50	8	25	3	75	\$2.49	\$187	
Surface Rock	1 1/2"-0" Crushed	0+00 to 29+60	3	19	29.60	562	\$5.15	\$2,894	
Turnouts	1 1/2"-0" Crushed	5+20, 12+50, 21+90	3	11	3	33	\$5.15	\$170	
Curve Widening (2ft-R)	1 1/2"-0" Crushed	1+15 to 2+30	3	5	1	5	\$5.15	\$26	
Curve Widening (3ft-R)	1 1/2"-0" Crushed	4+35 to 6+05	3	8	1	8	\$5.15	\$41	
Curve Widening (6ft-L)	1 1/2"-0" Crushed	12+60 to 14+40	3	18	1	18	\$5.15	\$93	
Curve Widening (4ft-R)	1 1/2"-0" Crushed	15+35 to 15+95	3	5	1	5	\$5.15	\$26	
Curve Widening (6ft-R)	1 1/2"-0" Crushed	21+20 to 22+50	3	13	1	13	\$5.15	\$67	
Junctions	1 1/2"-0" Crushed	21+60, 29+60, 3	3	11	2	22	\$5.15	\$113	
Dissipator Rock	24"-6"	15+05, 20+65, 23+50		20	3	60	\$5.15	\$309	
Landings	6"-0"	44+75		50	1	50	\$2.74	\$137	
Total Rock for Road Segment:							3342		\$10,265

ROAD SEGMENT	1E to 1F		POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1E to 1F Volume (CY) per station	0+00 to 8+65 Number of stations	TOTAL VOLUME (CY)	Sta./amt.		
Base Rock	4"-0" Crushed	0+00 to 8+65	8	50	8.65	433	\$2.49	\$1,078	
Turnouts	4"-0" Crushed	3+80	8	22	1	22	\$2.49	\$55	
Curve Widening (3ft-L)	4"-0" Crushed	3+05 to 4+90	8	23	1	23	\$2.49	\$57	
Turnaround	4"-0" Crushed	6+10	8	20	1	20	\$2.49	\$50	
Landings	6"-0"	8+65		50	1	50	\$2.74	\$137	
Total Rock for Road Segment:							548		\$1,377

ROAD SEGMENT	1I to 1J		POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1I to 1J Volume (CY) per station	0+00 to 2+10 Number of stations	TOTAL VOLUME (CY)	Sta./amt.		
Base Rock	4"-0" Crushed	0+00 to 2+10	8	50	2.10	105	\$2.49	\$261	
Landings	6"-0"	2+10		50	1	50	\$2.74	\$137	
Total Rock for Road Segment:							155		\$396

ROAD SEGMENT	1K to 1L		POINT TO POINT		Sta. to Sta.		TOTAL	Rate/	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1K to 1L Volume (CY) per station	0+00 to 6+20 Number of stations	TOTAL VOLUME (CY)	Sta./amt.		
Base Rock	4"-0" Crushed	0+00 to 8+65	8	50	6.20	310	\$2.49	\$772	
Curve Widening (3ft-R)	4"-0" Crushed	0+00 to 1+80	8	22	1	22	\$2.49	\$55	
Dissipator Rock	24"-6"	3+90		20	1	20	\$5.15	\$103	
Landings	6"-0"	4+20, 6+20		50	2	100	\$2.74	\$274	
Total Rock for Road Segment:							452		\$1,204

ROAD SEGMENT	2A to 2B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	0+00 to 3+65				
Base Rock	4"-0" Crushed	0+00 to 3+65	10	station	63	stations	3.65	230	\$2.49	\$573
Curve Widening (3ft-R)	4"-0" Crushed	0+00 to 1+80	10	curve	42	curve	1	42	\$2.49	\$105
Curve Widening (3ft-R)	4"-0" Crushed	2+10 to 3+35	10	curve	39	curve	1	39	\$2.49	\$97
Junction	4"-0" Crushed	1+30	10	junction	250	junctions	1	250	\$2.49	\$623
Surface Rock	1 1/2"-0" Crushed	0+00 to 3+65	4	station	25	stations	3.65	91	\$5.15	\$469
Curve Widening (3ft-R)	1 1/2"-0" Crushed	0+00 to 1+80	4	curve	17	curve	1	17	\$5.15	\$88
Curve Widening (3ft-R)	1 1/2"-0" Crushed	2+10 to 3+35	4	curve	12	curve	1	12	\$5.15	\$62
Junction	1 1/2"-0" Crushed	1+30	4	junction	100	junctions	1	100	\$5.15	\$515
Total Rock for Road Segment:								781		\$2,530
ROAD SEGMENT	3A to 3B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	0+00 to 1+50				
Junction	4"-0" Crushed	0+00	8	junction	30	junctions	1	30	\$2.49	\$75
Junction	1 1/2"-0" Crushed	0+00	3	junction	11	junctions	1	11	\$5.15	\$57
Total Rock for Road Segment:								41		\$131
ROAD SEGMENT	3C to 3D			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	0+00 to 7+60				
Junction	4"-0" Crushed	0+00	8	junction	30	junctions	1	30	\$2.49	\$75
Junction	1 1/2"-0" Crushed	0+00	3	junction	11	junctions	1	11	\$5.15	\$57
Base Rock - Draw	6"-0"	2+75 to 4+50	9	station	57	stations	1.75	100	\$3.85	\$385
Total Rock for Road Segment:								141		\$516
ROAD SEGMENT	4A to 4B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	0+00 to 7+30				
Base Rock	4"-0" Crushed	0+00 to 7+30	8	station	50	stations	7.30	365	\$2.49	\$909
Junction	4"-0" Crushed	0+00	8	junction	25	junctions	1	25	\$2.49	\$62
Junction	1 1/2"-0" Crushed	0+00	3	junction	11	junctions	1	11	\$5.15	\$57
Landings	6"-0"	7+30		landing	50	landings	1	50	\$2.74	\$137
Total Rock for Road Segment:								451		\$1,165
ROAD SEGMENT	5A to 5B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	0+00 to 5+85				
Base Rock	4"-0" Crushed	0+00 to 5+85	8	station	50	stations	5.85	293	\$2.49	\$730
Curve Widening (6ft-L)	4"-0" Crushed	2+75 to 3+50	8	curve	20	curve	1	20	\$2.49	\$50
Junction	4"-0" Crushed	0+00	8	junction	25	junctions	1	25	\$2.49	\$62
Junction	1 1/2"-0" Crushed	0+00	3	junction	11	junctions	1	11	\$5.15	\$57
Dissipator Rock	24"-6"	1+00		dissipator	20	dissipator	1	20	\$5.15	\$103
Landings	6"-0"	3+00, 5+85		landing	50	landings	2	100	\$2.74	\$274
Total Rock for Road Segment:								469		\$1,275
ROAD SEGMENT	5C			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	0+00				
Culvert Bedding/Surface	1 1/2"-0" Crushed	0+00	4	culvert	30	culvert	1	30	\$5.15	\$155
Dissipator Rock	24"-6"	0+00		dissipator	20	dissipator	1	20	\$5.15	\$103
Landings	6"-0"	0+00		landing	50	landings	1	50	\$2.74	\$137
Total Rock for Road Segment:								100		\$395
ROAD SEGMENT	5D to 5E			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	0+00 to 1+10				
Base Rock	4"-0" Crushed	0+00 to 1+10	8	station	50	stations	1.10	55	\$2.49	\$137
Landings	6"-0"	1+10		landing	50	landings	1	50	\$2.74	\$137
Total Rock for Road Segment:								105		\$274
ROAD SEGMENT	5F to 5G			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	0+00 to 5+70				
Base Rock	4"-0" Crushed	0+00 to 5+70	8	station	50	stations	5.70	285	\$2.49	\$710
Junction	4"-0" Crushed	0+30, 0+85	8	junction	25	junctions	2	50	\$2.49	\$125
Landings	6"-0"	3+10, 5+70		landing	50	landings	2	100	\$2.74	\$274
Total Rock for Road Segment:								435		\$1,108
ROAD SEGMENT	6A to 6B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Number of	0+00 to 16+40				
Base Rock	4"-0" Crushed	0+00 to 16+40	8	station	50	stations	16.40	820	\$2.49	\$2,042
Turnouts	4"-0" Crushed	10+15, 15+40	8	turnout	22	turnouts	2	44	\$2.49	\$110
Curve Widening (3ft-R)	4"-0" Crushed	0+65 to 2+45	8	curve	22	curve	1	22	\$2.49	\$55
Curve Widening (3ft-L)	4"-0" Crushed	9+05 to 11+05	8	curve	25	curve	1	25	\$2.49	\$62
Curve Widening (3ft-R)	4"-0" Crushed	12+85 to 14+25	8	curve	18	curve	1	18	\$2.49	\$45
Surface Rock	1 1/2"-0" Crushed	0+00 to 16+40	4	station	25	stations	16.40	410	\$5.15	\$2,112
Turnouts	1 1/2"-0" Crushed	10+15, 15+40	4	turnout	11	turnouts	2	22	\$5.15	\$113
Curve Widening (3ft-R)	1 1/2"-0" Crushed	0+65 to 2+45	4	curve	11	curve	1	11	\$5.15	\$57
Curve Widening (3ft-L)	1 1/2"-0" Crushed	9+05 to 11+05	4	curve	12	curve	1	12	\$5.15	\$62
Curve Widening (3ft-R)	1 1/2"-0" Crushed	12+85 to 14+25	4	curve	9	curve	1	9	\$5.15	\$46
Dissipator Rock	24"-6"	12+55		dissipator	20	dissipator	1	20	\$5.15	\$103
Total Rock for Road Segment:								1413		\$4,806

ROAD SEGMENT	6C to 6D			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
	Rock Size and Type	Location	Depth of Rock (inches)	6C to 6D Volume (CY) per	Sta. to Sta. Number of	0+00 to 36+15				
Base Rock	4"-0" Crushed	0+00 to 36+15	8	station	50	stations	36.15	1808	\$2.49	\$4,501
Turnouts	4"-0" Crushed	17+80, 22+80,	8	turnout	22	turnouts	2	44	\$2.49	\$110
Junction	4"-0" Crushed	25+50	8	junction	25	junctions	1	25	\$2.49	\$62
Surface Rock	1 1/2"-0" Crushed	0+00 to 25+50	3	station	19	stations	25.50	484	\$5.15	\$2,493
Turnouts	1 1/2"-0" Crushed	17+80, 22+80,	3	turnout	11	turnouts	2	22	\$5.15	\$113
Junction	1 1/2"-0" Crushed	25+50	3	junction	11	junctions	1	11	\$5.15	\$57
Dissipator Rock	24"-6"	14+30, 20+30, 30+47		dissipator	20	dissipator	3	60	\$5.15	\$309
Landings	6"-0"	9+00, 36+15		landing	50	landings	2	100	\$2.74	\$274
Total Rock for Road Segment:								2554		\$7,918

ROAD SEGMENT	6E to 6F			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
	Rock Size and Type	Location	Depth of Rock (inches)	6E to 6F Volume (CY) per	Sta. to Sta. Number of	0+00 to 5+65				
Base Rock	4"-0" Crushed	0+00 to 5+65	8	station	50	stations	5.65	283	\$2.49	\$703
Junction	4"-0" Crushed	4+00	8	junction	25	junctions	1	25	\$2.49	\$62
Landings	6"-0"	5+65		landing	50	landings	1	50	\$2.74	\$137
Total Rock for Road Segment:								358		\$903

ROAD SEGMENT	6G to 6H			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
	Rock Size and Type	Location	Depth of Rock (inches)	6G to 6H Volume (CY) per	Sta. to Sta. Number of	0+00 to 2+60				
Base Rock	4"-0" Crushed	0+00 to 2+60	8	station	50	stations	2.60	130	\$2.49	\$324
Landings	6"-0"	2+60		landing	50	landings	1	50	\$2.74	\$137
Total Rock for Road Segment:								180		\$461

ROAD SEGMENT	6I to 6J			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
	Rock Size and Type	Location	Depth of Rock (inches)	6I to 6J Volume (CY) per	Sta. to Sta. Number of	0+00 to 9+00				
Base Rock	4"-0" Crushed	0+00 to 5+65	8	station	50	stations	9.00	450	\$2.49	\$1,121
Junction	4"-0" Crushed	0+00	8	junction	25	junctions	1	25	\$2.49	\$62
Turnaround	4"-0" Crushed	6+60	8	turnaround	20	turnarounds	1	20	\$2.49	\$50
Junction	1 1/2"-0" Crushed	0+00	4	junction	11	junctions	1	11	\$5.14	\$57
Landings	6"-0"	7+50, 9+00		landing	50	landings	2	100	\$2.74	\$274
Total Rock for Road Segment:								606		\$1,563

ROAD SEGMENT	6K to 6L			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
	Rock Size and Type	Location	Depth of Rock (inches)	6K to 6L Volume (CY) per	Sta. to Sta. Number of	0+00 to 14+80				
Base Rock	4"-0" Crushed	0+00 to 14+80	8	station	50	stations	9.44	472	\$5.14	\$2,426
Base Rock	4"-0" Crushed	0+00 to 14+80	8	station	50	stations	5.36	268	\$2.49	\$667
Turnout	4"-0" Crushed	7+65	8	turnout	22	turnout	1	22	\$2.49	\$55
Curve Widening (4ft-R)	4"-0" Crushed	6+15 to 7+30	8	curve	20	curve	1	20	\$2.49	\$50
Curve Widening (5ft-L)	4"-0" Crushed	8+10 to 9+55	8	curve	30	curve	1	30	\$2.49	\$75
Junction	4"-0" Crushed	10+40	8	junction	30	junctions	1	30	\$2.49	\$75
Surface Rock	1 1/2"-0" Crushed	0+00 to 10+40	3	station	19	stations	10.40	198	\$5.15	\$1,020
Turnout	1 1/2"-0" Crushed	7+65	3	turnout	10	turnout	1	10	\$5.15	\$52
Curve Widening (4ft-R)	1 1/2"-0" Crushed	6+15 to 7+30	3	curve	10	curve	1	10	\$5.15	\$52
Curve Widening (5ft-L)	1 1/2"-0" Crushed	8+10 to 9+55	3	curve	15	curve	1	15	\$5.15	\$77
Junction	1 1/2"-0" Crushed	10+40	3	junction	22	junctions	1	22	\$5.15	\$113
Dissipator Rock	24"-6"	3+90		dissipator	20	dissipator	1	20	\$5.15	\$103
Landings	6"-0"	14+80		landing	50	landings	1	50	\$2.74	\$137
Total Rock for Road Segment:								1167		\$4,901

ROAD SEGMENT	6M to 6N			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
	Rock Size and Type	Location	Depth of Rock (inches)	6M to 6N Volume (CY) per	Sta. to Sta. Number of	0+00 to 1+85				
Base Rock	4"-0" Crushed	0+00 to 1+85	8	station	50	stations	1.85	92	\$2.49	\$229
Landings	6"-0"	1+85		landing	50	landings	1	50	\$2.74	\$137
Total Rock for Road Segment:								142		\$366

ROAD SEGMENT	6O to 6P			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
	Rock Size and Type	Location	Depth of Rock (inches)	6O to 6P Volume (CY) per	Sta. to Sta. Number of	0+00 to 3+80				
Base Rock	4"-0" Crushed	0+00 to 3+80	8	station	50	stations	3.80	190	\$5.15	\$979
Junction	4"-0" Crushed	0+00	8	junction	25	junctions	1	25	\$5.15	\$129
Landings	6"-0"	3+80		landing	50	landings	1	50	\$2.74	\$137
Total Rock for Road Segment:								265		\$1,244

16639

SUB TOTAL FOR SURFACING					
24"-6"r	6"-0"pr	4"-0"	1-1/2"-0"	3/4"-0"	Total
320	1,150	12,154	3,015	0	16,639

PROCESSING:				
Description	No.sta	Rate/sta	Cost	
Water, Process & Compact Crushed Rock (1 lift < 8")	62	\$41.40	\$2,559	
Vibratory Roller, Grader (14G), Water Truck (2 lifts)-1C-1D, 6A-6B, 6C-6D, 6K-6L	194	\$41.40	\$8,032	
Vibratory Roller, Grader (14G), Water Truck (3 lifts)-1A-1B, 2A-2B	95	\$41.40	\$3,950	

\$14,540

\$74,103

SPECIAL PROJECTS:			
	No. sta./ft./cy.	Rate per sta./ft./cy.	Cost
Placement of Dissipater Rock (320cyds. X \$2.00/cyd):	320	\$2.00	\$640
Develop Pit-Run (pr) rock 6"-0" (1,150 cy)	1,150	\$1.90	\$2,185
Install 6 1/2 oz. woven x 12.5 ft wide X Fabric: 1C-1D (37+00), 4A-4B (7+30), 5A -5B (5+85), 5F-5G (5+70), 6A-6B (16+50), 6C to 6D (36+15), 6I-6J (9+00), & 6K-6L (14+80)			
=13,230 X 1.10% = 14,553	14,553	\$0.95	\$13,825
<b>SUB TOTAL FOR SPECIAL PROJECTS</b>			<b>\$16,650</b>
			<b>\$16,650</b>

**GRAND TOTAL** Cost per Mile \$53,344 **\$229,593** ✓

Compiled By: Ed Holloran Date: 11/28/2005

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**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Cole Mountain Combo

SURFACING		Stations/amount	x	Rate/sta/amt	Cost
Subgrade prep: Description					
11-12, 13-14, 15-16, 17-18, 19-110:	Grade, Shape and Ditch 16"	86.60	x	\$18.20	\$1,576.12
	Subgrade Compaction	86.60	x	\$14.80	\$1,281.68
			x		

\$2,857.80

ROAD SEGMENT		11 to 12		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of	0+00 to 30+50	0+00 to 10+00			
Leveling Rock	1 1/2"-0" Crushed			11	5	55	55	\$5.15	\$283	
Surface Rock	1 1/2"-0" Crushed	0+00 to 30+50	4	station 25	stations 30.50	763	763	\$5.15	\$3,927	
Turnouts	1 1/2"-0" Crushed	7+20, 13+80, 15+80, 18+40, 23+50, 27+40	4	turnout 11	turnouts 6	66	66	\$5.15	\$340	
Junctions	1 1/2"-0" Crushed	0+00, 3+50, 3+80, 20+40, 24+60	4	junction 11	junctions 5	55	55	\$5.15	\$283	
Total Rock for Road Segment:		11 to 12				939				\$4,833

\$4,833

ROAD SEGMENT		13 to 14		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of	0+00 to 10+00	0+00 to 10+00			
Leveling Rock	4"-0" Crushed			11	5	55	55	\$2.49	\$137	
Base Rock	4"-0" Crushed	0+00 to 10+00	6	station 38	stations 10.00	380	380	\$2.49	\$946	
Turnouts	4"-0" Crushed	3+90	6	turnout 22	turnouts 1	22	22	\$2.49	\$55	
Junctions	1 1/2"-0" Crushed	0+00	4	junction 11	junctions 1	11	11	\$5.15	\$57	
Total Rock for Road Segment:		13 to 14				468				\$1,195

\$1,195

ROAD SEGMENT		15 to 16		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of	0+00 to 4+50	0+00 to 4+50			
Leveling Rock	4"-0" Crushed			11	2	22	22	\$2.49	\$55	
Base Rock	4"-0" Crushed	0+00 to 4+50	6	station 38	stations 4.50	171	171	\$2.49	\$426	
Turnouts	4"-0" Crushed	1+75	6	turnout 22	turnouts 1	22	22	\$2.49	\$55	
Culvert Backfill	1 1/2"-0" Crushed	3+50		culvert 30	culverts 1	30	30	\$5.15	\$155	
Junctions	1 1/2"-0" Crushed	0+00	4	junction 11	junctions 1	11	11	\$5.15	\$57	
Total Rock for Road Segment:		15 to 16				256				\$747

\$747

ROAD SEGMENT		17 to 18		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of	0+00 to 9+10	0+00 to 9+10			
Leveling Rock	4"-0" Crushed			11	2	22	22	\$2.49	\$55	
Base Rock	4"-0" Crushed	0+00 to 9+10	6	station 38	stations 9.10	346	346	\$2.49	\$862	
Turnaround	4"-0" Crushed	0+50	6	turnout 11	turnouts 1	11	11	\$2.49	\$27	
Surface Rock	1 1/2"-0" Crushed	0+00 to 9+10	4	station 25	stations 9.10	227	227	\$5.15	\$1,169	
Turnaround	1 1/2"-0" Crushed	0+50	4	turnout 11	turnouts 1	11	11	\$5.15	\$57	
Junctions	1 1/2"-0" Crushed	0+00	4	junction 11	junctions 1	11	11	\$5.15	\$57	
Total Rock for Road Segment:		17 to 18				628				\$1,282

\$1,282

ROAD SEGMENT		19 to 110		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per	Number of	0+00 to 32+50	0+00 to 32+50			
Leveling Rock	4"-0" Crushed			11	6	66	66	\$5.15	\$340	
Base Rock	4"-0" Crushed	0+00 to 32+50	6	station 38	stations 32.50	1235	1235	\$5.15	\$6,360	
Turnouts	4"-0" Crushed	3+70, 8+00, 15+60, 18+80, 21+30, 23+50	6	turnout 22	turnouts 6	132	132	\$5.15	\$680	
"Y" Junction	4"-0" Crushed	0+00 to 1+50	6	station 38	stations 1.50	57	57	\$5.15	\$294	
Junctions	1 1/2"-0" Crushed	0+00 & 0+00	4	junction 11	junctions 2	22	22	\$5.15	\$113	
Culvert Backfill	1 1/2"-0" Crushed	5+15		culvert 30	culverts 1	30	30	\$5.15	\$155	
Total Rock for Road Segment:		19 to 110				1542				\$7,941

\$7,941

Processing:		Description	No. sta	Rate/sta	Cost
		Water, Process & Compact Crushed Rock (1 lift < 8"):	78	\$41.40	\$3,209
		Vibratory Roller, Grader (14G), Water Truck (2 Lifts) - 17-18	18	\$41.40	\$753
					\$3,961.98

SUB TOTAL FOR SURFACING	2 1/2"-6" pr	6"-0" pr	4"-0"	1 1/2"-0"	3/4"-0"	Total
	0	0	2,541	1,292	0	3,833

\$22,818

SPECIAL PROJECTS:		Description	No. cy	Rate/cy	Cost	
SUB TOTAL FOR SPECIAL PROJECTS						\$0

**GRAND TOTAL** Cost per Mile \$14,420 **\$23,651**

Compiled By: Ed Holloran Date: 11/4/2005



CRUSHED ROCK COST

SALE NAME:       Cole Mtn. Combo.        
 PROJECT:       Nos. 1 and 2        
 QUARRY:       Cole Mtn. 4" Stockpile      

ROCK TYPE:       4"-0" Crushed      

DATE:       6/1/2005 & 8/3/05 & 11/4/05        
 BY:       Frank Lertora & Ed Holloran      

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
1A to 1B	28.15	2,027				0.90		0.10	0.30	1.30
1C to 1D	44.75	2,566				0.90	0.20	0.30	0.36	1.76
1E to 1F	8.65	498				0.90	0.20	0.30	0.43	1.83
1I to 1J	2.10	105				0.90	0.20	0.40	0.42	1.92
1K to 1L	6.20	332				0.90	0.20	0.50	0.49	2.09
2A to 2B	3.65	561				0.40		0.10	0.10	0.60
3A to 3B	0.10	30			0.20	0.30	0.20	0.40	0.28	1.38
3C to 3D	0.10	30			0.20	0.30	0.20	0.40	0.32	1.42
4A to 4B	7.30	390			0.20	0.20	0.10	0.30	0.21	1.01
5A to 5B	5.85	338			0.20	0.30	0.40	0.40	0.27	1.57
5D to 5E	1.10	55			0.40	0.30	0.30	0.50	0.23	1.73
5F to 5G	5.70	335			0.40	0.30	0.30	0.50	0.26	1.76
6A to 6B	16.40	929					0.30	0.20	0.27	0.77
6C to 6D	44.40	2,331			0.10	0.50	0.40	0.50	0.22	1.72
6E to 6F	5.65	308			0.10	0.50	0.50	0.50	0.23	1.83
6G to 6H	2.60	130			0.10	0.50	0.50	0.50	0.28	1.88
6I to 6J	9.00	495					0.30	0.20	0.17	0.67
6K to 6L	14.80	370					0.30	0.30	0.20	1.02
6M to 6N	1.85	92					0.30	0.30	0.20	1.10
13 to 14	10.00	457			0.20	0.20	0.30	0.30	0.24	1.24
15 to 16	4.50	215			0.40	0.30	0.30	0.40	0.27	1.67
17 to 18	9.10	379					0.20	0.20	0.13	0.53
<b>TOTAL</b>	<b>231.95</b>	<b>12,973</b>								
	<b>STA./NO.</b>	<b>CU. YD.</b>								<b>AVERAGE HAUL</b>
<b>CUBIC YARD WEIGHTED HAUL</b>					<b>0.06</b>	<b>0.55</b>	<b>0.23</b>	<b>0.30</b>	<b>0.28</b>	<b>1.42</b>
Average Round Trip Distance (miles)									<b>2.85</b>	

ROCK HAUL:

Truck type: <u>  D20  </u>	No. trucks: <u>  2  </u>	
Delay min.: <u>  8  </u>	Efficiency: <u>  85%  </u>	
		Ave haul: <u>  \$1.80  </u> /cy
		Load: <u>  \$0.27  </u> /cy
Truck type: <u>  D12  </u>	No. trucks: <u>  4  </u>	
Delay min.: <u>  6  </u>	Efficiency: <u>  85%  </u>	
		Spread: <u>  \$0.42  </u> /cy
Truck type: <u>  D10  </u>	No. trucks: <u>        </u>	
Delay min.: <u>  5  </u>	Efficiency: <u>  85%  </u>	
		Production: cy/day = <u>  1,666  </u>

CRUSHED ROCK HAUL COSTS      12,973 cy @      \$2.49 /cy





**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Cole Mountain Combo  
 ROAD: Segment I11 to I12

NEW CONSTRUCTION: \_\_\_\_\_ STATIONS \_\_\_\_\_ MILES \_\_\_\_\_  
 IMPROVEMENT: 5.89 STATIONS 0.11 MILES \_\_\_\_\_

CLEARING & GRUBBING						
Method	Acres/amount	x	Rate	=	Cost	
Haul to waste area & pile	0.27	x	\$677.00	=	\$182.79	
		x		=		
		x		=		
<b>SUB TOTAL FOR CLEARING &amp; GRUBBING</b>						<b>\$183</b>

EXCAVATION						
Material	Cy/amount	x	Rate	=	Cost	
Top 15" graded to the fill *	393	x		=		
Haul to Waste Area	1,495	x	\$2.27	=	\$3,393.65	
		x		=		
		x		=		
<b>SUB TOTAL FOR EXCAVATION</b>						<b>\$3,394</b>

\* This quantity is costed with the Culvert replacement matrix.

CULVERT MATERIALS AND INSTALLATION								
Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost	
4+15	96" cmp	98	**	\$30,214				
					Description	Quantity	Rate	Cost
Other/miscellaneous:								
Culvert stakes & markers:								
** See Type F Cost Sheet.								
<b>SUB TOTAL FOR CULVERT MATERIALS &amp; INSTALLATION</b>							<b>\$30,214</b>	

Subtotal **\$33,790**

Compiled by: Don Mellison

Date: 6/22/2005

SURFACING		Stations/amount	x	Rate/sta/amt	Cost
Subgrade prep:	Description				
	Grade, Shape and Ditch 16'	5.89	x	\$18.20	\$107.20
	Subgrade Compaction	5.89	x	\$14.80	\$87.17

ROAD SEGMENT		I11 to I12		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	I11 to I12 Volume (CY) per	0+00 to 5+89 Number of					
Base Rock	4"-0" Crushed		10	station	63	stations	5.89	371	\$3.29	\$1,220.82
Fill Widening	4"-0" Crushed		10	fill	12	fills	1	12	\$3.29	\$39.48
Curve Widening	4"-0" Crushed		10	curve	58	curves	1	58	\$3.29	\$190.82
Ditch Armor	4"-0" Crushed		n/a	n/a		n/a		6	\$3.29	\$19.74
Settling Pond	4"-0" Crushed		n/a	n/a		n/a		6	\$3.29	\$19.74
Surface Rock	1 1/2"-0" Crushed		4	station	25	stations	5.89	147	\$3.84	\$565.44
Fill Widening	1 1/2"-0" Crushed		4	fill	5	fills	1	5	\$3.84	\$19.20
Curve Widening	1 1/2"-0" Crushed		4	curve	24	curves	1	24	\$3.84	\$92.16
Bedding & Backfill	1 1/2"-0" Crushed		n/a	culvert	360	culverts	1	360	*	
Fill Armor	24"-6" Riprap		n/a	fill	204	fills	1	204	*	
Embedded Dissipator	24"-12" Riprap		n/a	culvert	24	culverts	1	24	*	
Total Rock for Road Segment: I11 to I12								1,217		\$2,167

Processing:		Description	No. sta	Rate/sta	Cost
		Water, Process & Compact: (4"-0" Base Course - 1st lift)	5.89	\$41.40	243.85
		(4"-0" Base Course - 2nd lift)	5.89	\$41.40	243.85
		Water, Process & Compact: 1 1/2"-0" Surface Course	5.89	\$41.40	243.85

\* See Type F installation cost.

SUB TOTAL FOR SURFACING	24"-6"	24"-12"	4"-0"	1 1/2"-0"	Total	\$3,093
	204	24	453	536	1,217	

SPECIAL PROJECTS		Description	Cost
		Construct Settling ponds and arm ditchline (3 hrs C325 @ \$120/hr) + (1.5 hrs Dump Truck @ \$59/hr)	\$448.50
SUB TOTAL FOR SPECIAL PROJECTS			\$449

**GRAND TOTAL** **\$37,332**

Compiled By: d.mellison

Date: 6/22/05

Point I11 to Point I12  
Hakura Ck Type F Replacement & Road Improvement  
COLE MOUNTAIN ROAD

Sale Name: Cole Mountain Combo

Date: 5/19/05

Construction Phase	QTY BCY	Equipment Hours										Labor	Culvert		Erosion Control		Total \$	
		C325	D-7	Dmp Tr	Gdr 14G	Cat 966	Roller	Buggy	Pump	Tamper	Ft		\$/ft.	Acres	\$/Acre			
Unload and move cmp to site	4											2						
Fill and Culvert removal/disposal	1,908	20		30														
De-watering (w/pump) (24hrs/day)											14							
Build culvert bed (crushed rock) **	50	3		3		1						6						
Place culvert \ tamp flanks (c.rock) **	76	4		4		1						8						
Backfill culvert w / crushed rock **	234	6		12		3						12						
Remaining Backfill *	1,346	10		2		4						10						
Fill Compaction	1,600						9											
Remove Waste Material	954	7	2	15														
Seed culvert w/onsite cobble	73	3								8		8						
Embedded Riprap (Dissipator)	24	1		1						2		4						
Develop and Place Riprap/Fill Armor	204	7		9		3												
Total Hours		65	2	76	2	12	9	10	14	20	66							
Equipment Rates:		\$120	\$94	\$59	\$84	\$79	\$79	\$10	\$7	\$7	\$20							
Sub total Hourly rates:		\$7,800	\$188	\$4,484	\$168	\$948	\$711	\$100	\$98	\$140	\$1,320							
96" Aluminized Steel Culvert (12 ga)												98	\$127					\$15,957
96" x 24" dimple band												4	\$222					\$12,446
Step Beveling (both ends)												2	\$120					\$888
Freight to Astoria Area																		\$240
Sub total Culvert Material Cost:																		\$525
Sub total Seeding and Mulching:																		\$14,099
Project site & Waste area																0.120	\$1,315	\$158

**\$30,214**

Total Installation Cost:

- Notes:
- 1) Cost to improve road segment I11 to I12 is on a Summary of Construction Costs sheet.
  - 2) \* Remaining backfill material approximate sources: 861 cy useable old fill, Useable road excavation 393 cy, Cole mt. quarry reject 92 cy
  - 3) Old culvert is to be disposed of off of State Lands.
  - 4) Mobilization costs are in the Move-In portion of the SUMMARY OF ALL PROJECT COSTS.
  - 5) \*\* Crushed rock source is Fall Creek Crushing.
  - 6) Riprap comes from the Fall Creek Quarry.



SALE NAME: Cole Mountain Combo  
 PROJECT: Hakura Type F  
 QUARRY: Fall Creek

ROCK TYPE: 1 1/2"-0"

DATE: 6/22/05  
 BY: d.mellison

		Cubic Yards								
Segment	Stations	Base	Running	Bedding	Backfill	Stockpile	Curves	F.Widen	Total	
I11 - I12	5+89		147	50	310		24	5	536	0
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
Grand Total	0.00	0	147	50	310	0	24	5	536	

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul	
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH		
I11 - I12	5+89	536			0.50	2.10	0.15	0.15	0.15	3.05	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
TOTAL	0.00	536									
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.	0.00	0.00	0.50	2.10	0.15	0.15	0.15	AVERAGE HAUL 3.05

Average Round Trip Distance (miles) 6.10

ROCK HAUL:

Truck type: D20 No. trucks: \_\_\_\_\_  
 Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks: 5  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 10 Efficiency: 85%

Ave haul: \$2.49 /cy  
 Load: \$0.40 /cy  
 Spread: \$0.95 /cy

Production: cy/day = 916

CRUSHED ROCK HAUL COSTS 536 cy @ \$3.84 /cy

SALE NAME: Cole Mountain Combination  
 PROJECT: Hakura Type F  
 QUARRY: Cole Mountain Stockpile

ROCK TYPE: 4"-0"

DATE: 6/22/05  
 BY: d.mellison

		Cubic Yards								
Segment	Stations	Base	Running	Bedding	S.Pond	D.Armor	Curves	F.Widen	Total	
I11 - I12	5+89	371			6	6	58	12	453	0
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
Grand Total	0.00	371	0	0	6	6	58	12	453	

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul	
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH		
I11 - I12	5+89	453			0.50	1.12	0.15	0.15	0.15	2.07	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
TOTAL	0.00	453									
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.	0.00	0.00	0.50	1.12	0.15	0.15	0.15	AVERAGE HAUL 2.07
Average Round Trip Distance (miles)										4.14	

ROCK HAUL:

Truck type: D20 No. trucks: \_\_\_\_\_  
 Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks: 5  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 10 Efficiency: 85%

Ave haul: \$1.94 /cy  
 Load: \$0.40 /cy  
 Spread: \$0.95 /cy

Production: cy/day = 1,175

CRUSHED ROCK HAUL COSTS 453 cy @ \$3.29 /cy



SALE NAME: Cole Mountain Combo  
 PROJECT: Hakura Type F Installation  
 QUARRY: \_\_\_\_\_

ROCK TYPE: Reject

DATE: 5/20/05  
 BY: d.mellison

		Cubic Yards								
Segment	Stations	Base	Running	Turnout	Reject	Stockpile	Curves	F.Widen	Total	
I11 - I12					92				92	0
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
Grand Total	0.00	0	0	0	92	0	0	0	92	

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I11 - I12	0.00	92				1.92	0.05	0.05	0.05	2.07
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
TOTAL	0.00	92				1.92	0.05	0.05	0.05	AVERAGE HAUL 2.07
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.	0.00	0.00	0.00	1.92	0.05	0.05	0.05
Average Round Trip Distance (miles) 4.14										

ROCK HAUL:

Truck type: D20 No. trucks: \_\_\_\_\_  
 Delay min.: 15 Efficiency: 75%

Ave haul: \$1.75 /cy  
 Load: \$0.70 /cy  
 Spread: \_\_\_\_\_ /cy

Truck type: D12 No. trucks: 2  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 10 Efficiency: 85%

Production: cy/day = 520

CRUSHED ROCK HAUL COSTS 92 cy @ \$2.45 /cy

SALE NAME: Cole Mountain Combo  
 PROJECT: Hakura Type F  
 QUARRY: \_\_\_\_\_

ROCK TYPE: Fill to be reused

DATE: 5/19/05  
 BY: d.mellison

		Cubic Yards								
Segment	Stations	Base	Running	Turnout	Re-use	Stockpile	Curves	F.Widen	Total	
Fill Exc					954				954	0
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
Grand Total	0.00	0	0	0	954	0	0	0	954	

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul	
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH		
Fill Exc	0.00	954				0.21	0.05	0.05	0.05	0.36	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
0	0.00	0								0.00	
TOTAL	0.00	954									
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.	0.00	0.00	0.00	0.21	0.05	0.05	0.05	AVERAGE HAUL 0.36
Average Round Trip Distance (miles)										0.72	

ROCK HAUL:

Truck type: D20 No. trucks: \_\_\_\_\_  
 Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks: 2  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 10 Efficiency: 85%

Ave haul: \$0.80 /cy  
 Load: /cy  
 Spread: /cy

Production: cy/day = 1,143

CRUSHED ROCK HAUL COSTS      954 cy @      \$0.80 /cy

SALE NAME: Cole Mountain Combo  
 PROJECT: Hakura Type F  
 QUARRY: \_\_\_\_\_

ROCK TYPE: Usable fill back to fill

DATE: 5/19/05  
 BY: d.mellison

		Cubic Yards								
Segment	Stations	Base	Running	Turnout	Re-use	Stockpile	Curves	F.Widen	Total	
Re-use					881				881	0
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
Grand Total	0.00	0	0	0	881	0	0	0	881	

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
Re-use	0.00	881				0.21	0.05	0.05	0.05	0.36
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
TOTAL	0.00	881				0.21	0.05	0.05	0.05	AVERAGE HAUL 0.36
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.	0.00	0.00	0.00	0.21	0.05	0.05	0.05
Average Round Trip Distance (miles) 0.72										

ROCK HAUL:

Truck type: D20 No. trucks: \_\_\_\_\_  
 Delay min.: 15 Efficiency: 75%

Ave haul: \$0.80 /cy  
 Load: \$0.40 /cy  
 Spread: /cy

Truck type: D12 No. trucks: 2  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 10 Efficiency: 85%

Production: cy/day = 1,143

CRUSHED ROCK HAUL COSTS 881 cy @ \$1.20 /cy

Load:

SALE NAME: Cole Mountain Combo  
 PROJECT: I11 to I12 Improvement  
 QUARRY: \_\_\_\_\_

ROCK TYPE: Road Waste

DATE: 5/23/05  
 BY: d.mellison

		Cubic Yards								
Segment	Stations	Base	Running	Turnout	Endhaul	Stockpile	Curves	F.Widen	Total	
I11 - I12					1,408				1,408	0
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
Grand Total	0.00	0	0	0	1,408	0	0	0	1,408	

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I11 - I12	0.00	1,408				0.42	0.05	0.05	0.05	0.57
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
TOTAL	0.00	1,408				0.42	0.05	0.05	0.05	AVERAGE HAUL 0.57
CUBIC YARD WEIGHTED HAUL			0.00	0.00	0.00	0.42	0.05	0.05	0.05	
Average Round Trip Distance (miles) 1.14										

ROCK HAUL:

Truck type: D20 No. trucks: \_\_\_\_\_  
 Delay min.: 15 Efficiency: 75% Ave haul: \$0.91 /cy  
 Load:\* \$0.96 /cy  
 Spread: \$0.40 /cy

Truck type: D12 No. trucks: 2  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 10 Efficiency: 85% Production: cy/day = 997

CRUSHED ROCK HAUL COSTS 1,408 cy @ \$2.27 /cy

\* Loading cost: \$120/hr\*8hrs/day / 997 cy/day = \$0.96  
 \*\* Spread cost: (2/60\*\$59/hr\*83loads = \$163) + (2hrs of C325 = \$240) / 997 cy = \$0.4

SALE NAME: Cole Mountain Combo  
 PROJECT: Hakura Type F  
 QUARRY: n/a

ROCK TYPE: Waste haul

DATE: 5/19/05  
 BY: d.mellison

		Cubic Yards								
Segment	Stations	Base	Running	Turnout	Fill Waste	Stockpile	Curves	F.Widen	Total	
Fill Exc					954				954	0
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
Grand Total	0.00	0	0	0	954	0	0	0	954	

		ONE WAY HAUL IN MILES								Total Haul
Road Segment	Stations	Cubic Yards	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
Fill Exc	0.00	954				0.42	0.05	0.05	0.05	0.57
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
TOTAL	0.00	954				0.42	0.05	0.05	0.05	AVERAGE HAUL 0.57
CUBIC YARD WEIGHTED HAUL			0.00	0.00	0.00	0.42	0.05	0.05	0.05	
Average Round Trip Distance (miles) 1.14										

ROCK HAUL:

Truck type: D20 No. trucks: \_\_\_\_\_  
 Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks: 2  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 10 Efficiency: 85%

Ave haul: \$0.91 /cy  
 Load: /cy  
 Spread: /cy

Production: cy/day = 997

CRUSHED ROCK HAUL COSTS 954 cy @ \$0.91 /cy

Load and haul costed elsewhere.



**Cole Mountain Combo**

**Project No. 3 Road Vacating**

**V1 and V2 to V3**

Location/Description	14K Grader	C330 #2 Excavator	D-8 CAT Dozer	Truck	Labor	Pump	Straw Mulch	Total
<b>V1</b> Vacate old fill/Remove fill. (on small side stream) 0.1 acres	hr	2 hr	0 hr	0 hr	1 hr	1 hr	3 bales	
<b>V2 to V3</b> Vacate Road (0+00 to 11+35) Remove X-drains, water bar and block	hr	4 hr	0 hr	0 hr	2 hr	0 hr	50 bales	
Remove fill & culvert (5+30) Refer to written plan.	hr	8 hr	6 hr	0 hr	8 hr	6 hr	10 bales	
Reclaim road rock(app.150cyds (8+50 to 11+35) Stockpile at 11+35 (\$1.60/Yd x 150yds=\$240)	1 hr	1 hr	0 hr	1 hr	1 hr	0 hr	bales	
Remove old Gate (7+50) Reinstall on 6A to 6B	hr	1 hr	0 hr	0 hr	1 hr	0 hr	bales	
Move Large rocks for Gate (place @ new location)	hr	2 hr	hr	2 hr	hr	hr	bales	
Disposal of 3 Culverts (2 cross drains & 1 fish culvert)	hr	hr	hr	2 hr	1 hr	hr	bales	
	hr	hr	hr	hr	hr	hr	bales	
<b>Total</b>	1 hr	18 hr	6 hr	5 hr	14 hr	7 hr	63 Bales	
<b>Rate</b>	\$84 /hr	\$138 /hr	\$126 /hr	\$59 /hr	\$25 /hr	\$7 /hr	\$4.50 /Bale	
<b>Cost</b>	\$84	\$2,484	\$756	\$295	\$350	\$49	\$283.50	<b>\$4,302</b>
Grass seed (100lbs/ac.)	1 ac.		100.0 lbs	X	\$1.65 /lb	=	\$165	\$165
<b>TOTAL</b>								<b>\$4,467</b>

Prepared by:

Ed Holloran

Date:

November 4, 2005

x:\Document\2006 FY Sales\Cole Mountain Combo\Sale Prep\Vacating Costs -Cole Mountain Combo-11-05.xls

**SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS**

PROJECT NO. 4

Timber Sale Name: Cole Mtn. Combo.

Quarry: Fall Creek  
 Location: Sec.20, T4N, R8W, WM  
 County: Clatsop  
 By: Frank Lertora  
 Date: 7/27/2005

Swell: \_\_\_\_\_  
 Shrink: 16%

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	5%	CR	10,000	4,843	16,443
4"-0"		CR	6,000	2,630	9,590
6"-0"		PR			
24"-6"		RR		524	524
24"-12		RR		24	24
<b>TOTAL CUBIC YARDS OF ROCK:</b>			16,000	8,021	26,581

**1) MOBILIZATION & SET UP:**

EQUIPMENT MOBILIZATION	DISTANCE IN MILES	DIST. FACTOR	BASE RATE	COST
3 Stage Crusher	75	1.40	\$2,353	\$3,294
Screening Plants (2)	75	1.40	\$954	\$1,336
D8 Cat & D6 Cat	75	1.40	\$1,600	\$2,240
Loader	75	1.40	\$590	\$826
Drill & Compressor	75	1.40	\$1,030	\$1,442
Powder	75	1.40	\$286	\$400
3 Dump Trucks	75	1.40	\$357	\$500
Excavator	75	1.40	\$500	\$700
<b>SUB TOTAL FOR MOBILIZATION</b>				\$10,738

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$2,682	\$2,682
Screening Plants (2)	1	\$451	\$451
Change Gradation	1	\$424	\$424
<b>SUB TOTAL FOR SET UP COSTS</b>			\$3,557

**TOTAL MOBILIZATION & SET UP COSTS** \$14,295

**2) CLEARING & GRUBBING**

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear, Load, Haul to Quarry Floor	16.0	hr	\$187	\$2,992
Slash and Stumps (1 truck, 1 exc.)				
Pile & Burn Slash and Stumps(1 exc)	1.0	ac	\$1,980	\$1,980
Move-in Fire Truck for the burning of the Clearing Debris	1.0	ea	\$132	\$132

**TOTAL CLEARING & GRUBBING COSTS** \$5,104

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, spread)	7,800	bcy	\$2.90	\$22,620

**TOTAL EXCAVATION COSTS** \$22,620

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping			\$1.85	
crushed	26,033	98%	Drill & shoot	100%	27,403	\$1.90	\$52,066
pit-run	0	0	Oversize red	3%	781	\$5.04	\$3,936
riprap	548	2%	Other				
Total	26,581						
reject	822	3.1%					

**TOTAL ROCK DEVELOPMENT COSTS** \$56,002

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$400	\$800
Calibrate			
Test	11	\$50	\$551
Test			

**TOTAL CALIBRATION & TESTING COSTS** \$1,351

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	26,855	\$0.71	\$18,976

**TOTAL FEEDING & LOADING COSTS** \$18,976

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTIC	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed					
1-1/2"-0"	crushed	16,443	3 stage w/s	120	\$2.71	\$44,533
4"-0"	crushed	9,590	2 stage	140	\$1.71	\$16,440

**TOTAL ROCK CRUSHING COSTS** \$60,973

**8) STOCKPILING**

STOCKPILE PREPARATION OR CONST	COST
Construct Stockpile Site	\$320
(See Footnote)	

SUB TOTAL \$320

HAUL & STOCKPILE	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
STOCKPILE LOCATION					
1. _____					
2. Sweethome	1-1/2"-0"	4	11,600	\$3.85	\$44,681
3. Sweethome	4"-0"	4	6,960	\$3.85	\$26,809
4. _____					
5. _____					
6. _____					

SUB TOTAL \$71,490

**TOTAL STOCKPILING COSTS** **\$71,810**

**9) MISCELLANEOUS COSTS**

DESCRIPTION	COST
_____	_____
_____	_____
_____	_____
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	\$2,240
_____	_____
_____	_____
_____	_____

**TOTAL MISCELLANEOUS COSTS** **\$2,240**

**10) GRAND TOTAL:** **\$253,372**

\$/Cubic Yard \$9.73

**Footnotes:**

Construct/Reconstruct Stockpile Floor

Equipment	Hours	Rate	Total
Dozer		\$120.00	
Compactor		\$75.00	
Grader	4	\$80.00	\$320.00
Excavator		\$130.00	
			\$320.00

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

Total Construct Stockpile Floor \$320.00

Stockpile: Sweethome  
 Rock Size: 1-1/2"-0"  
 Contract: Cole Mtn. Combo.

Date: 8/12/2005  
 By: Frank Lertora

**Stockpile Volume Calculation**

**Known SP Dimensions:**

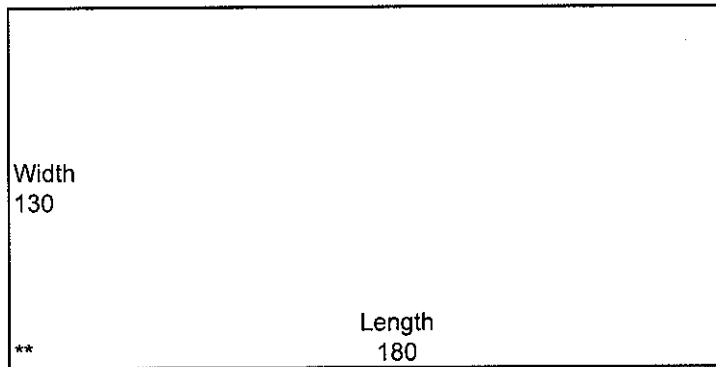
Base Dimensions in ft	
Length	Width
<b>180.00</b>	<b>130.00</b>
Height in ft	Shrink %
<b>15.500</b>	
Slope in deg	
37.00	

**Calculated Dimensions:**

Top Dimensions in ft	
Length	Width
138.86	88.86

Volume (cy)
<b>10,097</b>

Base Dimensions	
Diagonal(ft)	** Angle **
<b>222.04</b>	<b>35.8</b>
Mid dimensions	
159.43	109.43



\*\* Angle \*\* is calculated so that the origin is at \*\*, and 0 deg is along the 'Length'. The 'Angle' needs to be adjusted to true north.

Stockpile: Sweethome  
 Rock Size: 4"-0"  
 Contract: Cole Mtn. Combo.

Date: 8/12/2005  
 By: Frank Lertora

**Stockpile Volume Calculation**

**Known SP Dimensions:**

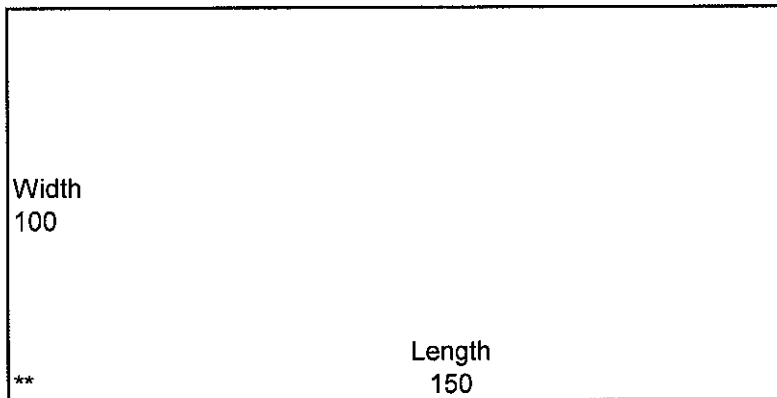
Base Dimensions in ft	
Length	Width
<b>150.00</b>	<b>100.00</b>
Height in ft	Shrink %
<b>15.600</b>	
Slope in deg	
37.00	

**Calculated Dimensions:**

Top Dimensions in ft	
Length	Width
108.60	58.60

Volume (cy)
<b>6,007</b>

Base Dimensions	
Diagonal(ft)	** Angle **
<b>180.28</b>	<b>33.7</b>
Mid dimensions	
129.30	79.30



\*\* Angle \*\* is calculated so that the origin is at \*\*, and 0 deg is along the 'Length'. The 'Angle' needs to be adjusted to true north.

**SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS**

PROJECT NO. 5

Timber Sale Name: Cole Mtn. Combo.

Quarry: Munce  
 Location: Sec. 31, T5N, R8W  
 County: Clatsop  
 By: Frank Lertora  
 Date: 7/14/2005

Swell: \_\_\_\_\_  
 Shrink: 16%

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
1"-0"		CR	10,000		11,600
1-1/2"-0"		CR	10,000		11,600
4"-0"		CR			
6"-0"		PR			
24"-6"		RR			
36"		RR			
<b>TOTAL CUBIC YARDS OF ROCK:</b>			20,000		<b>23,200</b>

**1) MOBILIZATION & SET UP:**

EQUIPMENT MOBILIZATION	DISTANCE IN MILES	DIST. FACTOR	BASE RATE	COST
3 Stage Crusher	75	1.40	\$2,353	\$3,294
Screening Plants (2)	75	1.40	\$954	\$1,336
D8 Cat	75	1.40	\$590	\$826
Loader	75	1.40	\$590	\$826
Drill & Compressor	75	1.40	\$1,030	\$1,442
Powder	75	1.40	\$286	\$400
3 Dump Trucks	75	1.40	\$357	\$500
Excavator	75	1.40	\$500	\$700
<b>SUB TOTAL FOR MOBILIZATION</b>				<b>\$9,324</b>

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$2,682	\$2,682
Screening Plants (2)	1	\$451	\$451
Change Gradation	1	\$424	\$424
<b>SUB TOTAL FOR SET UP COSTS</b>			<b>\$3,557</b>

**TOTAL MOBILIZATION & SET UP COSTS** **\$12,881**

**2) CLEARING & GRUBBING**

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear, Load, Haul to Waste Area	8.0	hr	\$187	\$1,496
Slash and Stumps (1 truck, 1 exc.)				

**TOTAL CLEARING & GRUBBING COSTS** **\$1,496**

**3) EXCAVATION**

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, spread)	3,800	bcy	\$2.90	\$11,020

**TOTAL EXCAVATION COSTS** \$11,020

**4) DEVELOP ROCK**

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	5%	1,160	\$1.85	\$2,146
crushed	23,200	100%	Drill & shoot	95%	22,040	\$1.90	\$41,876
pit run	0	0	Oversize red	2%	464	\$5.04	\$2,339
rip rap	0	0	Other				
Total	23,200						
reject							

**TOTAL ROCK DEVELOPMENT COSTS** \$46,361

**5) CALIBRATION & TESTING**

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$400	\$800
Calibrate			
Test	12	\$50	\$580
Test			

**TOTAL CALIBRATION & TESTING COSTS** \$1,380

**6) FEEDING & LOADING**

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	23,200	\$0.78	\$18,157

**TOTAL FEEDING & LOADING COSTS** \$18,157

**7) ROCK CRUSHING**

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTIO	RATE CU. YD.	TOTAL COST
1"-0"	crushed	11,600	3 stage w/s	110	\$2.95	\$34,273
1-1/2"-0"	crushed	11,600	3 stage w/s	120	\$2.71	\$31,417
4"-0"	crushed					

**TOTAL ROCK CRUSHING COSTS** \$65,689



**8) STOCKPILING**

STOCKPILE PREPARATION OR CONST	COST
Construct Stockpile Site	\$480
(See Footnote)	

SUB TOTAL \$480

HAUL & STOCKPILE STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1. Hamlet	1"-0"	6	11,600	\$4.47	\$51,865
2. Hamlet	1-1/2"-0"	6	11,600	\$4.47	\$51,865
3.					
4.					
5.					
6.					

SUB TOTAL \$103,729

**TOTAL STOCKPILING COSTS** \$104,209

**9) MISCELLANEOUS COSTS**

DESCRIPTION	COST
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	\$2,240

**TOTAL MISCELLANEOUS COSTS** \$2,240

**10) GRAND TOTAL:** \$263,433

\$/Cubic Yard \$11.35

**Footnotes:**

Construct/Reconstruct Stockpile Floor

Equipment	Hours	Rate	Total
Dozer		\$120.00	
Compactor		\$75.00	
Grader	6	\$80.00	\$480.00
Excavator		\$130.00	

\$480.00

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

Total Construct Stockpile Floor \$480.00

Stockpile: Hamlet  
 Rock Size: 1"-0"  
 Contract: Cole Mtn. Combo.

Date: 8/12/2005  
 By: Frank Lertora

**Stockpile Volume Calculation**

**Known SP Dimensions:**

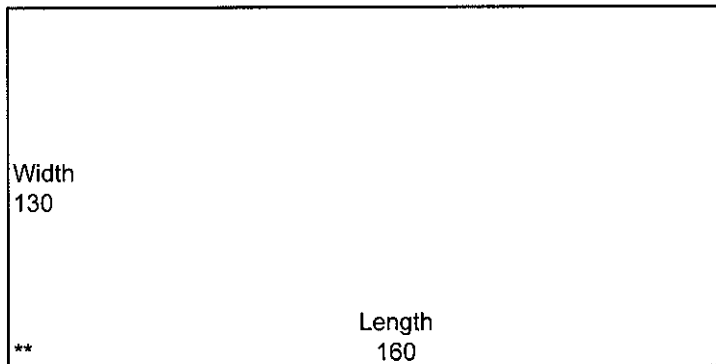
Base Dimensions in ft	
Length	Width
<b>160.00</b>	<b>130.00</b>
Height in ft	Shrink %
<b>19.000</b>	
Slope in deg	
37.00	

**Calculated Dimensions:**

Top Dimensions in ft	
Length	Width
109.57	79.57

Volume (cy)
<b>10,088</b>

Base Dimensions	
Diagonal(ft)	** Angle **
<b>206.16</b>	<b>39.1</b>
Mid dimensions	
134.79	104.79



\*\* Angle \*\* is calculated so that the origin is at \*\*, and 0 deg is along the 'Length'. The 'Angle' needs to be adjusted to true north.

## Project Work Road Maintenance Cost Summary

**Sale:** Cole Mountain Combo  
**Date:** August 16, 2005  
**By:** Ed Holloran

Type	Equipment/Rationale	Hours	Rate	Cost
Post-Projects Road	Grader 14G	84	\$84	\$7,056
	Dump Truck 12CY (2 trucks)	20	\$59	\$1,180
	FE Loader C966	10	\$79	\$790
	Vibratory Roller	72	\$79	\$5,688
	Water Truck 2500 gallon	50	\$70	\$3,500
<b>Total</b>				<b>\$18,214</b>

Production Rates  
 Prep. roads by Grader  
 Grader - Processing  
 Vibratory Roller

Miles/day	Distance(miles)	Days	Hours
9	10.8	1.2	12.0
1.50	10.8	7.2	72.0
1.50	10.8	7.2	72.0

Sweethome stock pile to Cole Mt. Rd. (3.6 mi.), Cole Mt. Rd. to Sale Bd.-Pt. 4A (2.22mi.),  
Then along Cole Mt. Rd. to Cole Mt. Rdg. Jct.(1.37 mi.) then up Cole Mt Rdg. to Pt.15 (0.98 mi.), also  
Cole Mt. Co. Rd. from Cole Mt. Rdg. Jct. to Pt. 1A (0.61 mi.), and Munce Road to Hamlet Stockpile (2.0 mi.)  
TOTAL MILES for MAINTENANCE = 10.8 miles

# TIMBER CRUISE REPORT

## COLE MOUNTAIN COMBO FY 2006

### 1. Sale Area Location:

Area 1 is located in portions of Sections 23 and 26; Area 2 is located in portions of Sections 14 and 23; Area 3 is located in portions of Section 14; Area 4 is located in portions of Sections 14 and 23; Area 5 is located in portions of Sections 13 and 14; and Area 6 is located in portions of Sections 13, 14, 23 and 24, all in T4N, R9W, Willamette Meridian, Clatsop County, Oregon.

### 2. Fund Distribution:

BOF = 100%

Tax Code = 10-04          100 %

### 3. Sale Acreage and Treatments by Area:

Area	Harvest Type	Gross Acres	New R/W	Existing R/W	Stream Buffers	Net Acres	Survey Method
1	PC	163.2	7.4	2.8	8.3	144.7	GIS
2	PC	58.8	0.0	0.9	6.9	51.0	GIS
3	MC	37.3	0.0	0.0	6.8	30.5	GIS
4	MC	35.3	0.0	0.0	0.7	34.6	GIS
5	PC	65.7	1.4	1.5	11.8	51.0	GIS
6	PC	246.1	9.2	2.2	19.6	215.1	GIS
7 R/W	R/W					19.6*	GIS
<b>TOTAL</b>		<b>588.4</b>	<b>18.0*</b>	<b>7.4</b>	<b>54.1</b>	<b>546.5</b>	

\* An additional 1.6 acres of R/W is located outside of the sale area, but immediately adjacent to Areas 1 & 6.

### 4. Cruisers and Cruise Dates:

Area 1 was cruised by Bryce Rodgers, Kevin Berry and Dave Horning. Area 2 was cruised by Kraig Kirkpatrick and Dave Horning. Area 5 was cruised by Bryce Rodgers, Kevin Berry and Dave Horning. Areas 3 and 4 were cruised by Bryce Rodgers and Kevin Berry. Area 6 was cruised by Ed Holloran, Kraig Kirkpatrick, Bryce Rodgers and Kevin Berry. The cruises were made between June 21 and June 30, 2005.

### 5. Cruise Method and Computations:

Area 1 (2<sup>nd</sup> entry partial cut) was designed for a variable plot cruise using a 40 Basal Area Factor (BAF) for the conifer and a 33.61 BAF for the hardwoods. 83 plots were sampled with 34 cruise plots (3:1 ratio) on a 6 x 3 chain grid. All "take" and "leave" trees were measured and graded on the cruise plots.

Areas 2 & 5 (1st entry partial cut) was designed for a variable plot cruise using a 40 BAF for the conifer and a 33.61 BAF for the hardwoods. 84 plots were sampled with 32 cruise plots (3:1 ratio) on a 4 x 3 chain grid. These two areas were split after the field cruise to accurately reflect hardwood harvesting prescriptions. Area 2 has 45 plots with 20 cruise plots. Area 5 has 39 plots with 12 cruise plots. All "take" and "leave" trees were measured and graded on the cruise plots.

Areas 3 & 4 (modified clearcut) was designed for a variable plot cruise using a 40 BAF for the conifer and a 33.61 BAF for the hardwoods. 39 plots were sampled with 20 cruise plots (planned 2:1 ratio) on a 5 x 3 chain grid. All "take" and "leave" trees were measured and graded on the cruise plots.

Area 6 (2<sup>nd</sup> entry partial cut) was designed for a variable plot cruise using a 40 BAF for the conifer and a 33.61 BAF for the hardwoods. 95 plots were sampled with 40 cruise plots (planned 3:1 ratio) on a 7 x 3 chain grid. All "take" and "leave" trees were measured and graded on the cruise plots.

Cruises used Corvallis Micro Technology (CMT) data collectors or the Allegro data collectors and were downloaded to the Atterbury SUPER A.C.E. program in the Astoria District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

**6. Timber Description:**

Area 1 (PC)– This is an "auto-mark" partial cut, of a 63 to 71 year old Douglas-fir stand. There are a few other minor conifers scattered through the stand. Hardwoods are present along the existing roads, old skid trails, and draws. The stand will be harvested to a Stand Density Index (SDI) around 30% with a target basal area of 140 square feet. The 'biggest and best" trees will be retained regardless of species (including hardwoods). The harvest will remove approximately 71 trees per acre and 21.2 MBF per acre. The average "take" tree size is about 18 inches DBH and 74 feet to a merchantable top.

Area 2 (PC) – This is also an "auto-mark" partial cut, about 60 to 65 years old, consisting of a Douglas-fir dominated stand with hardwoods present along draws and in scattered patches. The stand will be harvested to an SDI of around 35% with a target basal area of 160 square feet, while removing approximately 37 trees per acre and 8.6 MBF per acre. All alder and cedar are reserved from harvest. The average "take" tree size is about 16 inches DBH and 68 feet to a merchantable top.

Areas 3 & 4 (MC)– These stands are modified clearcut units of mixed conifer and alder. The age of this stand is about 60 and 65 years old. The harvest will remove approximately 141 trees per acre for about 37.3 MBF per acre, with an average DBH of around 17 inches and an average height of 63 feet. All conifer over 40" are reserved.

Area 5 (PC) –This is an "auto-mark" partial cut of a 60 to 65 years old Douglas-fir stand. There are a few other minor conifers scattered through the stand. Hardwoods are present along the existing roads, old skid trails, and draws. The stand will be harvested to a Stand Density Index (SDI) around 35% with a target basal area of 160 square feet. The 'biggest and best" trees will be retained regardless of species (including hardwoods). All alder 12 inches and less will be reserved, and will not count toward the basal area requirements. The harvest will remove approximately 92 trees per acre and 19 MBF per acre. The average "take" tree size is about 16 inches DBH and 66 feet to a merchantable top.

Area 6 (PC)– This stand is an "auto-mark" partial cut, about 55 to 65 years old, consisting of a moderate sized, Douglas-fir dominated, mixed conifer. Hardwoods are present along the existing roads, old skid trails, and draws. The stand will be harvested to a Stand Density Index (SDI) around 30% with a target basal area of 150 square feet. The 'biggest and best" conifer trees will be retained. All alder over 12inches DBH will be harvested except in buffers. All alder 12 inches and less will be reserved, and will not count toward the basal area requirements. The harvest will remove approximately 93 trees per acre and 20 MBF per acre. The average "take" tree size is about 17 inches DBH and 66 feet to a merchantable top.

**7. Statistical Analysis and Stand Summary:** (See also "Statistical Summary-Type Reports", attached.) Evaluated on Net BF/Acre.


Area	Target CV %	Target SE %	Actual CV %	Actual SE %
1	40	8	33.9	3.7
2	40	8	36.3	5.4
3 & 4	60	10	54.4	8.4
5	40	8	31.9	5.1
6	40	8	27.6	2.8

The statistics for Areas 1, 2, 5 and 6 are "Take" and "Leave" stands combined. The statistics for Areas 3 and 4 are for "Take" trees only.

8. **Volumes by Species and Sale Areas:** (See the Species, Sort, Grade, and the Log Stock Table attached.) Volumes do not include "in-growth". The majority of defect and breakage was culled during the cruise. The total net MBF volumes by species and grade are as follows:

Species	DBH	Net. Vol.	2 Saw	3 Saw	4 Saw	% D & B	Sale%
Douglas-fir	18.0	10,916	6,857	3,399	660	3.5	89.6
W. Hemlock/fir	18.4	46	25	21	0	0	0.4
Spruce *	16.1	136	52	56	28	1.3	1.1
Cedar *	14.5	2	0	1	1	13.7	<0.01
Red Alder	14.5	1,090	273	505	312	3.4	8.9
<b>Totals</b>	<b>17.3</b>	<b>12,190</b>	<b>7,207</b>	<b>3,982</b>	<b>1001</b>	<b>3.5</b>	<b>100</b>

\* There are very small amounts of exotic species of spruce and cedar, including Norway Spruce and Port Orford Cedar, which were combined into the in general categories, i.e. spruce or cedar.

9. **Approvals:**  
 Prepared by : Ed Holloran Date: July 16, 2005  
 Approved by:  Date: 7/22/05

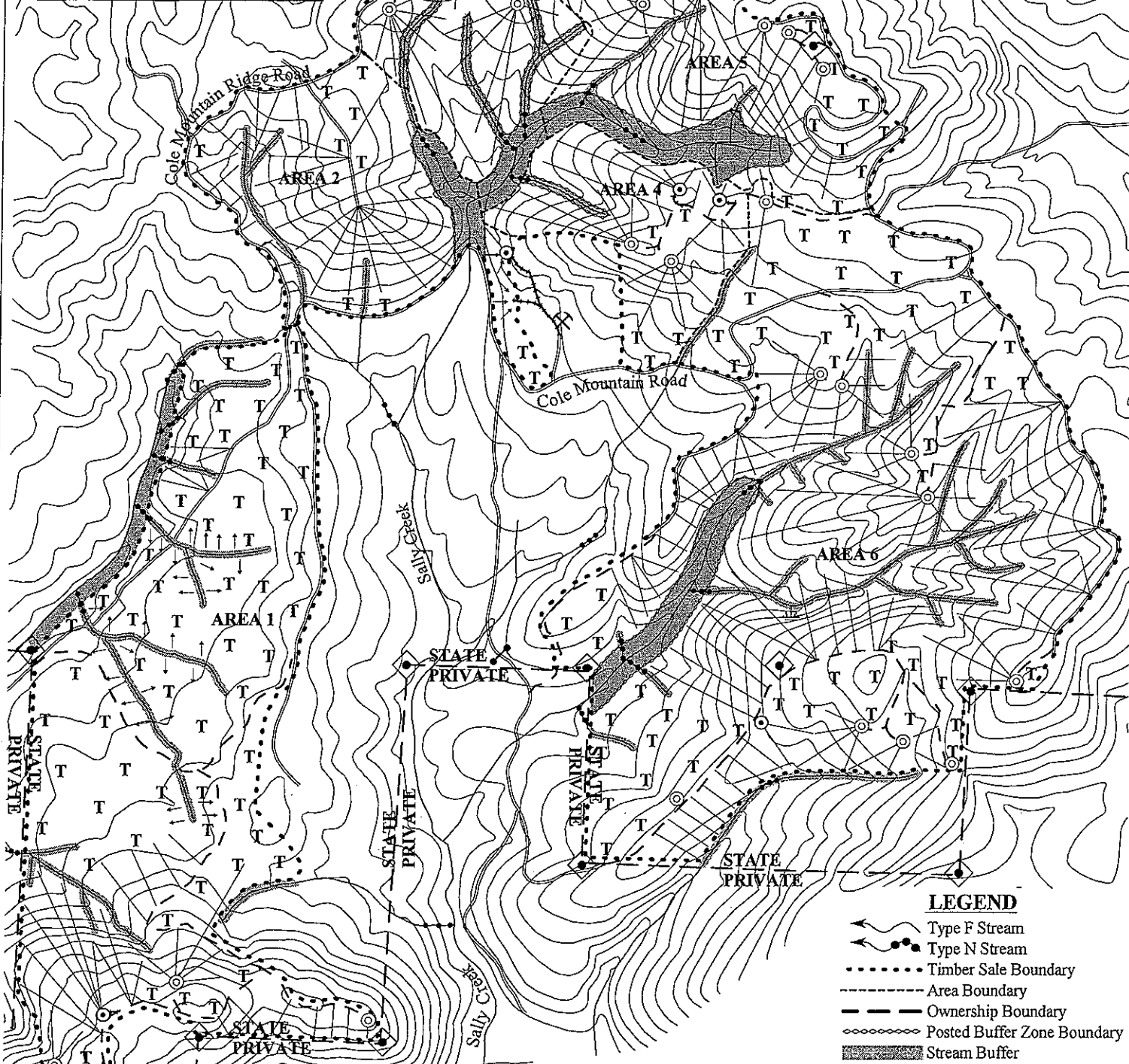
10. **Attachments:**  
 Species, Sort & Grade (Volume) Reports. - 7 pages.  
 Statistical Reports. - 17 pages.  
 Stand Tables. - 7 pages.  
 Log Stock Table-MBF (take) - 5 pages.  
 Cruise Designs and Maps: Areas 1; 2 & 5; 3 & 4; 6. -13 pages

# LOGGING PLAN MAP

OF TIMBER SALE CONTRACT NO. 341-06-38  
 COLE MOUNTAIN COMBO  
 PORTIONS OF SECTIONS  
 13, 14, 23, 24, & 26, T4N, R9W,  
 W.M., CLATSOP COUNTY, OREGON.  
 APPROX. SCALE 1"=1,000'



1000 0 1000 Feet



## LEGEND

- Type F Stream
- Type N Stream
- Timber Sale Boundary
- Area Boundary
- Ownership Boundary
- Posted Buffer Zone Boundary
- Stream Buffer
- Surfaced Road
- New Road Construction
- Logger's Choice Road
- Landing to Construct
- Logger's Choice Landing
- Cable Yarding
- Tractor Yarding
- Line Pulling Areas
- Known Land Survey Corner
- Gate (Locked)
- Wetland

## APPROXIMATE ACREAGE

AREA	MC ACRES	PC ACRES
AREA 1		145
AREA 2		51
AREA 3	30	
AREA 4	35	
AREA 5		51
AREA 6		215
TOTAL	65	462
AREA 7 R/W	20	
TOTAL ALL AREAS		547

LOGGING BREAKDOWN	TRACTOR	CABLE
AREA 1	76%	24%
AREA 2	22%	78%
AREA 3	10%	90%
AREA 4	21%	79%
AREA 5	22%	78%
AREA 6	38%	62%
TOTAL	45%	55%

STATE PRIVATE

**Species, Sort Grade - Board Foot Volumes (Project)**

T04N R09W S14 TyTAKE  
THRU  
T04N R09W S24 TyTAKE

**Project: COLEMTCO**  
**Acres 546.50**

**Page 1**  
**Date 7/16/2005**  
**Time 7:51:57AM**

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent of Net Board Foot Volume								Average Log			Logs Per /Acre	
									Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D	?	?			100.0		570										7		0.00	14.2	
D	?	2S		56	.8	12,650	12,547	6,857		3	67	30		3	8	21	67	35	271	1.84	46.2
D	?	3S		28	.7	6,265	6,220	3,399		96	4	0		1	8	43	48	35	92	0.74	67.4
D	?	4S		5	.7	1,216	1,208	660		6	94	0		36	42	11	10	23	31	0.43	38.7
<b>D Totals</b>				<b>90</b>		<b>3.5</b>	<b>20,700</b>	<b>19,974</b>	<b>10,916</b>	<b>0</b>	<b>37</b>	<b>44</b>	<b>19</b>	<b>5</b>	<b>10</b>	<b>28</b>	<b>58</b>	<b>30</b>	<b>120</b>	<b>1.02</b>	<b>166.6</b>
S	?	?			100.0		3											2		0.00	.3
S	?	2S		0		96	96	52			59	41		19	16	65		26	290	2.58	.3
S	?	3S		0	.0	103	103	56		70	27	3		13	10	73	4	30	100	1.00	1.0
S	?	4S		0		52	52	28		2	97	1		30	44	1	25	23	33	0.64	1.6
<b>S Totals</b>				<b>1</b>		<b>1.3</b>	<b>254</b>	<b>251</b>	<b>137</b>	<b>0</b>	<b>49</b>	<b>33</b>	<b>17</b>	<b>19</b>	<b>19</b>	<b>55</b>	<b>7</b>	<b>24</b>	<b>79</b>	<b>1.00</b>	<b>3.2</b>
A	?	?			100.0		69											5		0.00	1.7
A	?	2S		2		500	500	273		5	87	8		22	25	42	11	27	169	1.54	3.0
A	?	3S		4		923	923	505		92	8			13	31	32	23	31	88	0.81	10.5
A	?	4S		3		570	570	312		0	100			24	29	0	47	28	49	0.60	11.7
<b>A Totals</b>				<b>9</b>		<b>3.4</b>	<b>2,063</b>	<b>1,994</b>	<b>1,090</b>	<b>0</b>	<b>72</b>	<b>26</b>	<b>2</b>	<b>19</b>	<b>29</b>	<b>26</b>	<b>27</b>	<b>27</b>	<b>74</b>	<b>0.79</b>	<b>26.8</b>
H	?	2S		0		46	46	25			7	93				97	3	33	474	2.84	.1
H	?	3S		0		39	39	21		98		2		12	65	23		33	86	0.87	.4
<b>H Totals</b>				<b>0</b>		<b>85</b>	<b>85</b>	<b>47</b>		<b>44</b>	<b>4</b>	<b>52</b>		<b>5</b>	<b>82</b>	<b>12</b>		<b>33</b>	<b>156</b>	<b>1.22</b>	<b>.5</b>
SN	?	?			100.0		9											27		0.00	.1
<b>SN Totals</b>						<b>100.0</b>	<b>9</b>											<b>27</b>		<b>0.00</b>	<b>.1</b>
C	?	?			100.0		0											4		0.00	.0
C	?	3S		0		2	2	1		100						100		40	90	0.92	.0
C	?	4S		0		1	1	1		100			100					16	25	0.51	.0
<b>C Totals</b>				<b>0</b>		<b>13.7</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>100</b>			<b>38</b>			<b>62</b>		<b>18</b>	<b>34</b>	<b>0.69</b>	<b>.1</b>
<b>Totals</b>						<b>3.5</b>	<b>23,115</b>	<b>22,307</b>	<b>12,191</b>	<b>0</b>	<b>41</b>	<b>42</b>	<b>17</b>	<b>6</b>	<b>12</b>	<b>28</b>	<b>54</b>	<b>29</b>	<b>113</b>	<b>0.99</b>	<b>197.4</b>



**Species, Sort Grade - Board Foot Volumes (Type)**

Project: COLEMT

T04N R09W S23 TTAKE

T04N R09W S23 TTAKE

Twp Rge Sec Tract  
04N 09W 23 A1

Type Acre Plots Sample Trees  
TAKE 144.70 83 99

CuFt BdFt  
1 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 Ft	Bd Ft	CF/ Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D	DO	CU			100.0	558										5		0.00	10.8	
D	DO	2S		68	.5	13,538	13,468	1,949	3	74	23	3	7	28	61	35	263	1.80	51.2	
D	DO	3S		27	.2	5,374	5,362	776	96	4			8	47	45	35	95	0.76	56.4	
D	DO	4S		5		976	976	141	2	98		33	65	2	23	31	0.44	31.4		
<b>D</b>	<b>Totals</b>			93	3.1	20,446	19,805	2,866	0	33	52	16	4	11	32	54	30	132	1.11	149.8
A	DO	CU																0.00	.7	
A	DO	2S		18		155	155	22		100		62	38			20	140	1.64	1.1	
A	DO	3S		27		228	228	33	100			49	24	26		23	56	0.74	4.1	
A	DO	4S		54		457	457	66	100			4	20	76		33	60	0.60	7.6	
<b>A</b>	<b>Totals</b>			4		840	840	122		82	18		27	24	48	27	62	0.69	13.6	
S	DO	CU			100.0	9										2		0.00	.9	
S	DO	2S		61		339	339	49		59	41	18	16	65		26	289	2.57	1.2	
S	DO	3S		9		49	49	7		100		100				16	110	1.87	.4	
S	DO	4S		30		169	169	24	3	97		24	49	28		24	35	0.65	4.9	
<b>S</b>	<b>Totals</b>			3	1.6	565	556	81	1	30	45	25	27	25	40	8	21	75	1.07	7.4
<b>Type Totals</b>					3.0	21,851	21,202	3,068	0	34	50	15	5	11	31	52	30	124	1.08	170.7

Species, Sort Grade - Board Foot Volumes (Type)

Project: COLEMT

T04N R09W S14 TTAKE

T04N R09W S14 TTAKE

Twp Rge Sec Tract  
04N 09W 14 A2

Type Acre Plots Sample Trees  
TAKE 51.00 45 22

CuFt BdFt  
1 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 Ft	Bd Ft	CF/ Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D		DO	2S	58	.7	4,839	4,803	245		75	25		4	24	16	56	34	248	1.70	19.4
D		DO	3S	31		2,560	2,560	131		100				2	21	77	37	97	0.73	26.4
D		DO	4S	12		981	981	50	4	96			11	33	39	17	29	40	0.43	24.8
<b>D</b>	<b>Totals</b>			97	.4	8,380	8,344	426	1	42	43	14	4	18	20	58	33	118	0.91	70.6
S		DO	3S	84		204	204	10		47	53			47	53		30	125	1.36	1.6
S		DO	4S	16		39	39	2		100			100				18	24	0.51	1.6
<b>S</b>	<b>Totals</b>			3		243	243	12		55	45		16	39	45		24	75	1.04	3.3
<b>Type Totals</b>					.4	8,623	8,587	438	1	42	43	14	4	19	21	56	33	116	0.91	73.8

T04N R09W S14 TTAKE	T04N R09W S14 TTAKE
Twp Rge Sec Tract Type Acre Plots Sample Trees CuFt	BdFt
04N 09W 14 A34 TAKE 65.10 39 106 1	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
									Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf	
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99				
D	?	?		00.0	1,183												15	0.00	18.6	
D	?	2S		77	.3	22,423	22,349	1,455	2	50	48	2	7	12	79	37	343	2.06	65.1	
D	?	3S		22	.4	6,369	6,341	413	91	9		4	25	35	36	33	84	0.74	75.2	
D	?	4S		1		417	417	27	100			63	37			17	23	0.46	17.9	
<b>D</b>	<b>Totals</b>			78	4.2	30,392	29,107	1,895	23	40	37	4	11	16	69	31	165	1.27	176.8	
A	?	?		00.0	150												5	0.00	3.9	
A	?	2S		17		1,352	1,352	88	14	86		7	63		30	30	168	1.47	8.0	
A	?	3S		56		4,318	4,318	281	97	3		6	52	14	28	31	92	0.81	46.9	
A	?	4S		27		2,098	2,098	137	100			35	23		42	25	44	0.53	47.3	
<b>A</b>	<b>Totals</b>			21	1.9	7,918	7,768	506	84	16		14	46	8	32	28	73	0.74	106.2	
H	?	2S		77		349	349	23		100				100		32	520	3.09	.7	
H	?	3S		23		103	103	7	100				36		64	35	72	0.92	1.4	
<b>H</b>	<b>Totals</b>			1		452	452	29	23	77		8	77	15		34	214	1.58	2.1	
<b>Type Totals</b>					3.7	38,761	37,327	2,430	36	35	30	6	19	15	60	30	131	1.09	285.2	

Species, Sort Grade - Board Foot Volumes (Type)

Project: COLEMT

T04N R09W S14 TTAKE

T04N R09W S14 TTAKE

Twp Rge Sec Tract  
04N 09W 14 A5

Type Acre Plots Sample Trees  
TAKE 51.00 39 45

CuFt BdFt  
1 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 Ft	Bd Ft	CF/ Lf	
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99				
D	?	?			00.0	699											10	0.00	19.4	
D	?	2S	54	.7	8,098	8,042	410	10	82	8	11	21	41	27	32	211	1.57	38.1		
D	?	3S	39	.3	5,872	5,856	299	98	2			3	61	36	34	88	0.69	66.8		
D	?	4S	7		992	992	51	100			54	40	6		21	26	0.43	38.5		
<b>D</b>	<b>Totals</b>		78	4.9	15,661	14,891	759	50	45	5	10	15	46	29	28	92	0.85	162.7		
A	DO	2S	51		2,161	2,161	110		100				100		32	190	1.50	11.4		
A	DO	3S	41		1,721	1,721	88	100					100		32	77	0.73	22.3		
A	DO	4S	8		327	327	17	100			100				20	30	0.45	10.9		
<b>A</b>	<b>Totals</b>		22		4,209	4,209	215	49	51		8		92		29	94	0.90	44.6		
<b>Type Totals</b>				3.9	19,870	19,100	974	50	47	4	9	12	56	22	28	92	0.86	207.3		

Species, Sort Grade - Board Foot Volumes (Type)

Project: COLEMTCO

T04N R09W S24 TTAKE

T04N R09W S24 TTAKE

Twp Rge Sec Tract Type Acre Plots Sample Trees CuFt  
04N 09W 24 A6 TAKE 215.10 95 117 1

BdFt  
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 Ft	Bd Ft	CF/ Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D	?	?			00.0	453										5	0.00		16.9	
D	?	2S		52	1.5	9,967	9,820	2,112	3	75	22	4	6	20	71	35	244	1.75	40.3	
D	?	3S		39	1.2	7,508	7,420	1,596	97	3		5	42	53	36	93	0.73	79.5		
D	?	4S		9	1.2	1,675	1,655	356	10	90		37	35	12	16	24	32	0.43	51.8	
<b>D</b>	<b>Totals</b>			94	3.6	19,603	18,896	4,064	1	48	40	11	5	8	28	59	29	100	0.91	188.5
A	DO	CU			00.0	125										6	0.00		2.4	
A	?	2S		18		178	178	38		44	56	100				16	142	1.82	1.3	
A	?	3S		45		435	435	93	65	35		35		36	28	32	111	0.94	3.9	
A	?	4S		37	.0	355	355	76	100			5	52	43	31	58	0.78	6.1		
<b>A</b>	<b>Totals</b>			5	11.5	1,094	968	208	66	24	10	36	19	16	28	26	71	0.87	13.6	
S	?	3S		100		154	154	33	100				100			32	85	0.80	1.8	
<b>S</b>	<b>Totals</b>			1		154	154	33	100				100			32	85	0.80	1.8	
H	?	3S		100		57	57	12	100				100			32	95	0.83	.6	
<b>H</b>	<b>Totals</b>			0		57	57	12	100				100			32	95	0.83	.6	
<b>Type Totals</b>					4.0	20,908	20,075	4,318	1	49	39	11	6	9	28	57	29	98	0.91	204.6

T04N R09W S23 TR/W T04N R09W S23 TR/W  
 Twp Rge Sec Tract Type Acre Plots Sample Trees CuFt BdFt  
 04N 09W 23 A1 2 5 & 6 R/W 19.60 262 682 1 W

Spp	So	Gr	% 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 Ft	Bd Ft	CF/ Lf			
								4-5	6-11	12-16	17+	12-20	21-30	31-35				36-99		
D	?	?		00.0	1,051											6	0.00	19.9		
D	70	2S	76	.7	35,242	34,978	686		2	50	48		2	5	18	76	36	341	2.13	102.6
D	70	3S	20	.6	9,511	9,451	185		93	6	1		1	9	42	48	34	95	0.78	99.2
D	?	4S	4	.4	1,795	1,788	35		4	95	1		41	41	11	8	23	32	0.45	55.9
<b>D</b>	<b>Totals</b>		94	2.9	47,599	46,217	906		0	24	39	37	3	7	22	67	31	166	1.31	277.7
A	70	?		00.0	58												4	0.00	1.5	
A	?	2S	36		729	729	14		6	86	8		18	33	31	17	28	181	1.60	4.0
A	?	3S	24		472	472	9		91	9			28	10	31	31	29	77	0.81	6.1
A	?	4S	40		805	805	16		5	95			20	37	7	36	28	44	0.59	18.3
<b>A</b>	<b>Totals</b>		4	2.8	2,064	2,006	39		2	62	33	3	21	29	22	28	27	67	0.78	30.0
SN	?	?		00.0	245												27	0.00	1.6	
<b>SN</b>	<b>Totals</b>			00.0	245												27	0.00	1.6	
S	?	?		00.0	24												7	0.00	.6	
S	?	2S	29		166	166	3			48	52		33	13	53		25	306	2.70	.5
S	?	3S	53		302	302	6		25	44	31		6	9	46	38	30	194	1.77	1.6
S	70	4S	18		105	105	2		2	90	8		37	37	8	18	22	33	0.65	3.2
<b>S</b>	<b>Totals</b>		1	4.0	597	573	11		0	30	37	33	20	15	41	23	23	98	1.23	5.9
H	?	2S	56		135	135	3			62	38				68	32	35	271	1.84	.5
H	?	3S	44		109	109	2		77		23			5	71	24	34	97	0.83	1.1
<b>H</b>	<b>Totals</b>		0		244	244	5		34	35	31		2	69	28		34	151	1.15	1.6
C	70	CU		00.0	13												4	0.00	.6	
C	?	3S	62		50	50	1		100							100	40	90	0.92	.6
C	?	4S	38		30	30	1		100				100				16	25	0.51	1.2
<b>C</b>	<b>Totals</b>		0	13.7	94	81	2		100				38		62		18	34	0.69	2.4
<b>Type Totals</b>				3.4	50,844	49,120	963		0	26	39	35	4	8	23	65	30	154	1.26	319.1

TC TSTATS		STATISTICS PROJECT COLEMT						PAGE 1 DATE 7/13/2005		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	23	A1	0001	144.70	83	617	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		83	617	7.4						
CRUISE		34	216	6.4	15,993	1.4				
DBH COUNT REFOREST COUNT		49	354	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
DOUGLEAV	93	32.4	27.6	110		134.5	30,808	29,948	6,907	6,791
DOUG FIR	77	55.7	19.4	85		114.2	20,446	19,805	5,125	5,019
SNAG	16	2.6	34.7	33		17.3	311		107	
R ALDER	15	10.7	13.2	37		10.1	840	840	257	257
S SPRUCE	7	4.9	15.9	33		6.7	565	556	171	168
ALDRLEAV	5	2.8	18.6	55		5.3	599	599	174	174
SPRUCELV	1	.9	26.0	58		3.4	329	329	106	106
HEMLEAV	2	.5	22.2	81		1.4	262	262	64	64
<b>TOTAL</b>	<b>216</b>	<b>110.5</b>	<b>22.0</b>	<b>83</b>		<b>293.0</b>	<b>54,160</b>	<b>52,340</b>	<b>12,912</b>	<b>12,580</b>
SD:	1	COEFF VAR.%	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
DOUGLEAV		30.8	3.4	31	32	33				
DOUG FIR		84.8	9.3	51	56	61				
SNAG		195.4	21.4	2	3	3				
R ALDER		266.6	29.3	8	11	14				
S SPRUCE		301.8	33.1	3	5	7				
ALDRLEAV		341.8	37.5	2	3	4				
SPRUCELV		561.8	61.7	0	1	1				
HEMLEAV		565.9	62.1	0	1	1				
<b>TOTAL</b>		<b>44.3</b>	<b>4.9</b>	<b>105</b>	<b>111</b>	<b>116</b>	<b>79</b>	<b>20</b>	<b>9</b>	
SD:	1	COEFF VAR.%	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
DOUGLEAV		26.1	2.9	131	134	138				
DOUG FIR		77.0	8.5	105	114	124				
SNAG		165.8	18.2	14	17	21				
R ALDER		230.3	25.3	8	10	13				
S SPRUCE		304.5	33.4	4	7	9				
ALDRLEAV		337.9	37.1	3	5	7				
SPRUCELV		561.8	61.7	1	3	5				
HEMLEAV		519.5	57.0	1	1	2				
<b>TOTAL</b>		<b>28.6</b>	<b>3.1</b>	<b>284</b>	<b>293</b>	<b>302</b>	<b>33</b>	<b>8</b>	<b>4</b>	
SD:	1	COEFF VAR.%	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
DOUGLEAV		27.8	3.1	29,034	29,948	30,863				
DOUG FIR		76.2	8.4	18,150	19,805	21,461				
SNAG										
R ALDER		252.4	27.7	607	840	1,073				
S SPRUCE		325.4	35.7	358	556	755				
ALDRLEAV		339.8	37.3	376	599	823				
SPRUCELV		561.8	61.7	126	329	533				
HEMLEAV		525.8	57.7	111	262	413				
<b>TOTAL</b>		<b>33.9</b>	<b>3.7</b>	<b>50,395</b>	<b>52,340</b>	<b>54,286</b>	<b>46</b>	<b>11</b>	<b>5</b>	

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT COLEMT		DATE 7/12/2005				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	23	A1	TAKE	144.70	83	279	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	83	279	3.4							
CRUISE	27	99	3.7		10,312		1.0			
DBH COUNT										
REFOREST										
COUNT	46	180	3.9							
BLANKS	10									
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	77	55.7	19.4	85		114.2	20,446	19,805	5,125	5,019
R ALDER	15	10.7	13.2	37		10.1	840	840	257	257
S SPRUCE	7	4.9	15.9	33		6.7	565	556	171	168
<b>TOTAL</b>	<b>99</b>	<b>71.3</b>	<b>18.4</b>	<b>74</b>		<b>131.1</b>	<b>21,851</b>	<b>21,202</b>	<b>5,553</b>	<b>5,445</b>
	COEFF	TREES/ACRE			# OF PLOTS REQ.		INF. POP.			
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	84.8	9.3	51	56	61					
R ALDER	266.6	29.3	8	11	14					
S SPRUCE	301.8	33.1	3	5	7					
<b>TOTAL</b>	<b>70.3</b>	<b>7.7</b>	<b>66</b>	<b>71</b>	<b>77</b>	<b>198</b>	<b>49</b>	<b>22</b>		
	COEFF	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.			
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	77.0	8.5	105	114	124					
R ALDER	230.3	25.3	8	10	13					
S SPRUCE	304.5	33.4	4	7	9					
<b>TOTAL</b>	<b>63.9</b>	<b>7.0</b>	<b>122</b>	<b>131</b>	<b>140</b>	<b>163</b>	<b>41</b>	<b>18</b>		
	COEFF	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.			
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	76.2	8.4	18,150	19,805	21,461					
R ALDER	252.4	27.7	607	840	1,073					
S SPRUCE	325.4	35.7	358	556	755					
<b>TOTAL</b>	<b>67.9</b>	<b>7.5</b>	<b>19,621</b>	<b>21,202</b>	<b>22,783</b>	<b>185</b>	<b>46</b>	<b>21</b>		



TC TSTATS				STATISTICS				PAGE 1		
				PROJECT COLEMT		DATE 7/12/2005				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	23	A1	STAY	144.70	83	338	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		83	338	4.1						
CRUISE		34	117	3.4	5,680		2.1			
DBH COUNT										
REFOREST										
COUNT		49	198	4.0						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUGLEAV	93	32.4	27.6	110		134.5	30,808	29,948	6,907	6,791
SNAG	16	2.6	34.7	33		17.3	311		107	
ALDRLEAV	5	2.8	18.6	55		5.3	599	599	174	174
SPRUCELV	1	.9	26.0	58		3.4	329	329	106	106
HEMLEAV	2	.5	22.2	81		1.4	262	262	64	64
<b>TOTAL</b>	<b>117</b>	<b>39.3</b>	<b>27.5</b>	<b>99</b>		<b>161.9</b>	<b>32,309</b>	<b>31,139</b>	<b>7,359</b>	<b>7,135</b>
	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH					
						5 10		15		
DOUGLEAV	30.8	3.4	31	32	33					
SNAG	195.4	21.4	2	3	3					
ALDRLEAV	341.8	37.5	2	3	4					
SPRUCELV	561.8	61.7	0	1	1					
HEMLEAV	565.9	62.1	0	1	1					
<b>TOTAL</b>	<b>17.8</b>	<b>2.0</b>	<b>38</b>	<b>39</b>	<b>40</b>	<b>13 3</b>		<b>1</b>		
	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH					
						5 10		15		
DOUGLEAV	26.1	2.9	131	134	138					
SNAG	165.8	18.2	14	17	21					
ALDRLEAV	337.9	37.1	3	5	7					
SPRUCELV	561.8	61.7	1	3	5					
HEMLEAV	519.5	57.0	1	1	2					
<b>TOTAL</b>	<b>11.7</b>	<b>1.3</b>	<b>160</b>	<b>162</b>	<b>164</b>	<b>5 1</b>		<b>1</b>		
	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH					
						5 10		15		
DOUGLEAV	27.8	3.1	29,034	29,948	30,863					
SNAG										
ALDRLEAV	339.8	37.3	376	599	823					
SPRUCELV	561.8	61.7	126	329	533					
HEMLEAV	525.8	57.7	111	262	413					
<b>TOTAL</b>	<b>19.3</b>	<b>2.1</b>	<b>30,480</b>	<b>31,139</b>	<b>31,797</b>	<b>15 4</b>		<b>2</b>		

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT COLEMT				DATE 7/13/2005		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	14	A2	0002	51.00	45	268	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	45	268	6.0							
CRUISE	20	98	4.9	6,391		1.5				
DBH COUNT										
REFOREST										
COUNT	25	147	5.9							
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUGLEAV	45	40.3	23.2	100		117.8	26,217	25,957	6,015	5,998
DOUG FIR	20	35.1	16.4	69		51.3	8,380	8,344	2,126	2,126
ALDRLEAV	24	41.5	14.1	32		44.8	2,998	2,881	1,011	988
CEDLEAV	1	4.3	15.0	58		5.3	478	478	183	183
SPRUCELV	3	.9	29.9	68		4.3	763	686	179	162
SNAG	3	1.6	17.3	42		2.7				
S SPRUCE	2	1.6	17.3	50		2.7	243	243	81	81
<b>TOTAL</b>	<b>98</b>	<b>125.3</b>	<b>18.3</b>	<b>66</b>		<b>228.8</b>	<b>39,078</b>	<b>38,589</b>	<b>9,594</b>	<b>9,538</b>
	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	57.2	8.5	37	40	44					
DOUG FIR	116.2	17.3	29	35	41					
ALDRLEAV	147.5	22.0	32	41	51					
CEDLEAV	567.6	84.6	1	4	8					
SPRUCELV	329.4	49.1	0	1	1					
SNAG	390.2	58.2	1	2	3					
S SPRUCE	495.4	73.9	0	2	3					
<b>TOTAL</b>	<b>44.1</b>	<b>6.6</b>	<b>117</b>	<b>125</b>	<b>134</b>	<b>78</b>	<b>19</b>	<b>9</b>		
	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	48.0	7.2	109	118	126					
DOUG FIR	109.6	16.3	43	51	60					
ALDRLEAV	150.0	22.4	35	45	55					
CEDLEAV	567.6	84.6	1	5	10					
SPRUCELV	286.7	42.7	2	4	6					
SNAG	378.4	56.4	1	3	4					
S SPRUCE	495.4	73.9	1	3	5					
<b>TOTAL</b>	<b>23.1</b>	<b>3.4</b>	<b>221</b>	<b>229</b>	<b>237</b>	<b>21</b>	<b>5</b>	<b>2</b>		
	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	48.3	7.2	24,090	25,957	27,825					
DOUG FIR	108.4	16.2	6,996	8,344	9,692					
ALDRLEAV	148.1	22.1	2,245	2,881	3,517					
CEDLEAV	567.6	84.6	74	478	883					
SPRUCELV	311.5	46.4	368	686	1,005					
SNAG										
S SPRUCE	495.4	73.9	64	243	423					
<b>TOTAL</b>	<b>36.3</b>	<b>5.4</b>	<b>36,499</b>	<b>38,589</b>	<b>40,680</b>	<b>53</b>	<b>13</b>	<b>6</b>		

TC TSTATS		STATISTICS				PAGE 1				
		PROJECT COLEMT				DATE 7/13/2005				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	14	A2	TAKE	51.00	45	61	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		45	61	1.4						
CRUISE		11	22	2.0	1,872	1.2				
DBH COUNT										
REFOREST										
COUNT		16	39	2.4						
BLANKS		18								
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	20	35.1	16.4	69		51.3	8,380	8,344	2,126	2,126
S SPRUCE	2	1.6	17.3	50		2.7	243	243	81	81
<b>TOTAL</b>	<b>22</b>	<b>36.7</b>	<b>16.4</b>	<b>68</b>		<b>53.9</b>	<b>8,623</b>	<b>8,587</b>	<b>2,207</b>	<b>2,207</b>
	COEFF VAR.%	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	116.2	17.3	29	35	41					
S SPRUCE	495.4	73.9	0	2	3					
<b>TOTAL</b>	<b>112.3</b>	<b>16.7</b>	<b>31</b>	<b>37</b>	<b>43</b>	<b>505</b>	<b>126</b>	<b>56</b>		
	COEFF VAR.%	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	109.6	16.3	43	51	60					
S SPRUCE	495.4	73.9	1	3	5					
<b>TOTAL</b>	<b>106.1</b>	<b>15.8</b>	<b>45</b>	<b>54</b>	<b>62</b>	<b>450</b>	<b>112</b>	<b>50</b>		
	COEFF VAR.%	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	108.4	16.2	6,996	8,344	9,692					
S SPRUCE	495.4	73.9	64	243	423					
<b>TOTAL</b>	<b>105.7</b>	<b>15.8</b>	<b>7,235</b>	<b>8,587</b>	<b>9,940</b>	<b>447</b>	<b>112</b>	<b>50</b>		

TC TSTATS		STATISTICS PROJECT COLEMT						PAGE 1 DATE 7/13/2005		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	14	A2	STAY	51.00	45	207	1	W	
				TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
		PLOTS	TREES							
TOTAL		45	207	4.6						
CRUISE		20	76	3.8	4,519		1.7			
DBH COUNT										
REFOREST										
COUNT		25	111	4.4						
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
DOUGLEAV	45	40.3	23.2	100		117.8	26,217	25,957	6,015	5,998
ALDRLEAV	24	41.5	14.1	32		44.8	2,998	2,881	1,011	988
CEDLEAV	1	4.3	15.0	58		5.3	478	478	183	183
SPRUCELV	3	9	29.9	68		4.3	763	686	179	162
SNAG	3	1.6	17.3	42		2.7				
<b>TOTAL</b>	<b>76</b>	<b>88.6</b>	<b>19.0</b>	<b>65</b>		<b>174.9</b>	<b>30,455</b>	<b>30,002</b>	<b>7,387</b>	<b>7,331</b>
	COEFF VAR.%	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUGLEAV	57.2	8.5	37	40	44					
ALDRLEAV	147.5	22.0	32	41	51					
CEDLEAV	567.6	84.6	1	4	8					
SPRUCELV	329.4	49.1	0	1	1					
SNAG	390.2	58.2	1	2	3					
<b>TOTAL</b>	<b>55.3</b>	<b>8.2</b>	<b>81</b>	<b>89</b>	<b>96</b>	<b>123</b>	<b>31</b>	<b>14</b>		
	COEFF VAR.%	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUGLEAV	48.0	7.2	109	118	126					
ALDRLEAV	150.0	22.4	35	45	55					
CEDLEAV	567.6	84.6	1	5	10					
SPRUCELV	286.7	42.7	2	4	6					
SNAG	378.4	56.4	1	3	4					
<b>TOTAL</b>			<b>175</b>	<b>175</b>	<b>175</b>					
	COEFF VAR.%	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUGLEAV	48.3	7.2	24,090	25,957	27,825					
ALDRLEAV	148.1	22.1	2,245	2,881	3,517					
CEDLEAV	567.6	84.6	74	478	883					
SPRUCELV	311.5	46.4	368	686	1,005					
SNAG										
<b>TOTAL</b>	<b>25.6</b>	<b>3.8</b>	<b>28,858</b>	<b>30,002</b>	<b>31,147</b>	<b>26</b>	<b>7</b>	<b>3</b>		

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT COLEMTCO				DATE 7/16/2005		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	14	A34	0003	65.10	39	272	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES				
TOTAL	39	272	7.0							
CRUISE	20	125	6.3	9,802	1.3					
DBH COUNT										
REFOREST										
COUNT	19	147	7.7							
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR	66	70.4	20.1	81		154.9	30,392	29,107	7,139	6,904
R ALDER	38	69.2	13.9	45		72.4	7,918	7,768	2,222	2,191
DOUGLEAV	11	1.8	33.9	121		11.3	3,414	3,208	638	612
SNAG	4	1.4	37.8	35		11.3	132		55	
CEDLEAV	2	4.1	17.9	33		7.2	307	307	161	161
SPRUCELV	1	2.0	17.0	38		3.1	117	117	66	66
WHEMLOCK	2	1.4	19.8	52		3.1	452	452	112	112
HEMLEAV	1	.3	25.0	90		1.0	193	193	48	48
<b>TOTAL</b>	<b>125</b>	<b>150.6</b>	<b>17.9</b>	<b>62</b>		<b>264.2</b>	<b>42,924</b>	<b>41,152</b>	<b>10,440</b>	<b>10,094</b>
	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	87.2	14.0	61	70	80					
R ALDER	120.4	19.3	56	69	82					
DOUGLEAV	370.4	59.3	1	2	3					
SNAG	216.0	34.6	1	1	2					
CEDLEAV	465.9	74.6	1	4	7					
SPRUCELV	460.5	73.7	1	2	3					
WHEMLOCK	385.3	61.7	1	1	2					
HEMLEAV	624.5	100.0		0	1					
<b>TOTAL</b>	<b>42.9</b>	<b>6.9</b>	<b>140</b>	<b>151</b>	<b>161</b>	<b>73</b>	<b>18</b>	<b>8</b>		
	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	83.6	13.4	134	155	176					
R ALDER	116.9	18.7	59	72	86					
DOUGLEAV	269.1	43.1	6	11	16					
SNAG	198.4	31.8	8	11	15					
CEDLEAV	458.6	73.4	2	7	12					
SPRUCELV	460.5	73.7	1	3	5					
WHEMLOCK	350.9	56.2	1	3	5					
HEMLEAV	624.5	100.0		1	2					
<b>TOTAL</b>	<b>36.4</b>	<b>5.8</b>	<b>249</b>	<b>264</b>	<b>280</b>	<b>53</b>	<b>13</b>	<b>6</b>		
	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	84.5	13.5	25,168	29,107	33,047					
R ALDER	115.8	18.5	6,328	7,768	9,208					
DOUGLEAV	269.5	43.2	1,824	3,208	4,593					
SNAG										
CEDLEAV	458.7	73.5	81	307	532					
SPRUCELV	460.5	73.7	31	117	203					
WHEMLOCK	409.5	65.6	156	452	748					
HEMLEAV	624.5	100.0		193	385					
<b>TOTAL</b>	<b>47.3</b>	<b>7.6</b>	<b>38,032</b>	<b>41,152</b>	<b>44,272</b>	<b>90</b>	<b>22</b>	<b>10</b>		

**STATISTICS**  
**PROJECT COLEMTCO**

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	09W	14	A34	TAKE	65.10	39	239	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	39	239	6.1		
CRUISE	20	106	5.3	9,178	1.2
DBH COUNT REFOREST COUNT	19	133	7.0		
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	66	70.4	20.1	81		154.9	30,392	29,107	7,139	6,904
R ALDER	38	69.2	13.9	45		72.4	7,918	7,768	2,222	2,191
WHEMLOCK	2	1.4	19.8	52		3.1	452	452	112	112
<b>TOTAL</b>	<i>106</i>	<i>141.0</i>	<i>17.3</i>	<i>63</i>		<i>230.3</i>	<i>38,761</i>	<i>37,327</i>	<i>9,473</i>	<i>9,207</i>

SD:	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
	VAR.%	S.E.%	LOW	AVG	HIGH				
1						5	10		15
DOUG FIR	87.2	14.0	61	70	80				
R ALDER	120.4	19.3	56	69	82				
WHEMLOCK	385.3	61.7	1	1	2				
<b>TOTAL</b>	<i>46.9</i>	<i>7.5</i>	<i>130</i>	<i>141</i>	<i>152</i>	<i>88</i>	<i>22</i>		<i>10</i>

SD:	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
	VAR.%	S.E.%	LOW	AVG	HIGH				
1						5	10		15
DOUG FIR	83.6	13.4	134	155	176				
R ALDER	116.9	18.7	59	72	86				
WHEMLOCK	350.9	56.2	1	3	5				
<b>TOTAL</b>	<i>43.4</i>	<i>6.9</i>	<i>214</i>	<i>230</i>	<i>246</i>	<i>75</i>	<i>19</i>		<i>8</i>

SD:	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
	VAR.%	S.E.%	LOW	AVG	HIGH				
1						5	10		15
DOUG FIR	84.5	13.5	25,168	29,107	33,047				
R ALDER	115.8	18.5	6,328	7,768	9,208				
WHEMLOCK	409.5	65.6	156	452	748				
<b>TOTAL</b>	<i>54.4</i>	<i>8.7</i>	<i>34,078</i>	<i>37,327</i>	<i>40,576</i>	<i>118</i>	<i>30</i>		<i>13</i>

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT COLEMTCO				DATE 7/16/2005		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	14	A34	STAY	65.10	39	33	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	39	33	.8							
CRUISE	12	19	1.6		624		3.0			
DBH COUNT										
REFOREST										
COUNT	7	14	2.0							
BLANKS	20									
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
DOUGLEAV	11	1.8	33.9	121		11.3	3,363	3,158	633	607
SNAG	4	1.4	37.8	35		11.3	132		55	
CEDLEAV	2	4.1	17.9	33		7.2	307	307	161	161
SPRUCELV	1	2.0	17.0	38		3.1	117	117	66	66
HEMLEAV	1	.3	25.0	90		1.0	193	193	48	48
<b>TOTAL</b>	<b>19</b>	<b>9.6</b>	<b>25.4</b>	<b>52</b>		<b>33.8</b>	<b>4,112</b>	<b>3,774</b>	<b>962</b>	<b>882</b>
	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	10		15
DOUGLEAV	370.4	59.3	1	2	3					
SNAG	216.0	34.6	1	1	2					
CEDLEAV	465.9	74.6	1	4	7					
SPRUCELV	460.5	73.7	1	2	3					
HEMLEAV	624.5	100.0		0	1					
<b>TOTAL</b>	<b>219.0</b>	<b>35.1</b>	<b>6</b>	<b>10</b>	<b>13</b>		<b>1,919</b>	<b>480</b>		<b>213</b>
	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	10		15
DOUGLEAV	269.1	43.1	6	11	16					
SNAG	198.4	31.8	8	11	15					
CEDLEAV	458.6	73.4	2	7	12					
SPRUCELV	460.5	73.7	1	3	5					
HEMLEAV	624.5	100.0		1	2					
<b>TOTAL</b>	<b>137.0</b>	<b>21.9</b>	<b>26</b>	<b>34</b>	<b>41</b>		<b>751</b>	<b>188</b>		<b>83</b>
	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	10		15
DOUGLEAV	272.0	43.5	1,783	3,158	4,533					
SNAG										
CEDLEAV	458.7	73.5	81	307	532					
SPRUCELV	460.5	73.7	31	117	203					
HEMLEAV	624.5	100.0		193	385					
<b>TOTAL</b>	<b>233.0</b>	<b>37.3</b>	<b>2,366</b>	<b>3,774</b>	<b>5,182</b>		<b>2,171</b>	<b>543</b>		<b>241</b>

TC TSTATS		STATISTICS						PAGE 1		
		PROJECT COLEMT						DATE		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	14	A5	0005	51.00	39	309	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		39	309	7.9						
CRUISE		12	98	8.2	7,921	1.2				
DBH COUNT										
REFOREST										
COUNT		27	211	7.8						
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
DOUGLEAV	44	46.4	24.2	101		148.7	29,478	28,168	7,028	6,818
DOUG FIR	42	69.6	16.4	67		102.6	15,661	14,891	3,985	3,830
R ALDER	3	22.3	15.8	61		30.2	4,209	4,209	1,167	1,167
ALDRLEAV	6	15.0	13.0	35		13.8	1,422	1,422	398	398
SNAG	3	2.0	27.7	42		8.2	212		87	
<b>TOTAL</b>	<b>98</b>	<b>155.3</b>	<b>18.9</b>	<b>73</b>		<b>303.4</b>	<b>50,982</b>	<b>48,690</b>	<b>12,665</b>	<b>12,213</b>
SD: 1	COEFF VAR.%	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
			LOW	AVG	HIGH	5	10	15		
DOUGLEAV	29.2	4.7	44	46	49					
DOUG FIR	92.3	14.8	59	70	80					
R ALDER	134.2	21.5	17	22	27					
ALDRLEAV	236.9	37.9	9	15	21					
SNAG	253.3	40.6	1	2	3					
<b>TOTAL</b>	<b>36.4</b>	<b>5.8</b>	<b>146</b>	<b>155</b>	<b>164</b>		<b>53</b>	<b>13</b>	<b>6</b>	
SD: 1	COEFF VAR.%	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
			LOW	AVG	HIGH	5	10	15		
DOUGLEAV	26.1	4.2	142	149	155					
DOUG FIR	90.3	14.5	88	103	117					
R ALDER	134.8	21.6	24	30	37					
ALDRLEAV	207.1	33.2	9	14	18					
SNAG	228.6	36.6	5	8	11					
<b>TOTAL</b>	<b>30.5</b>	<b>4.9</b>	<b>289</b>	<b>303</b>	<b>318</b>		<b>37</b>	<b>9</b>	<b>4</b>	
SD: 1	COEFF VAR.%	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
			LOW	AVG	HIGH	5	10	15		
DOUGLEAV	28.2	4.5	26,898	28,168	29,437					
DOUG FIR	96.0	15.4	12,602	14,891	17,179					
R ALDER	134.9	21.6	3,300	4,209	5,119					
ALDRLEAV	200.5	32.1	965	1,422	1,878					
SNAG										
<b>TOTAL</b>	<b>31.9</b>	<b>5.1</b>	<b>46,200</b>	<b>48,690</b>	<b>51,180</b>		<b>41</b>	<b>10</b>	<b>5</b>	



TC TSTATS		STATISTICS				PAGE 1				
		PROJECT COLEMT		DATE 7/13/2005						
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	14	A5	TAKE	51.00	39	138	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		39	138	3.5						
CRUISE		11	45	4.1	4,688	1.0				
DBH COUNT										
REFOREST										
COUNT		24	93	3.9						
BLANKS		4								
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	42	69.6	16.4	67		102.6	15,661	14,891	3,985	3,830
R ALDER	3	22.3	15.8	61		30.2	4,209	4,209	1,167	1,167
<b>TOTAL</b>	<b>45</b>	<b>91.9</b>	<b>16.3</b>	<b>66</b>		<b>132.7</b>	<b>19,870</b>	<b>19,100</b>	<b>5,152</b>	<b>4,997</b>
	COEFF VAR.%	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	92.3	14.8	59	70	80					
R ALDER	134.2	21.5	17	22	27					
<b>TOTAL</b>	<b>66.4</b>	<b>10.6</b>	<b>82</b>	<b>92</b>	<b>102</b>	<b>177</b>	<b>44</b>	<b>20</b>		
	COEFF VAR.%	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	90.3	14.5	88	103	117					
R ALDER	134.8	21.6	24	30	37					
<b>TOTAL</b>	<b>65.8</b>	<b>10.5</b>	<b>119</b>	<b>133</b>	<b>147</b>	<b>173</b>	<b>43</b>	<b>19</b>		
	COEFF VAR.%	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	96.0	15.4	12,602	14,891	17,179					
R ALDER	134.9	21.6	3,300	4,209	5,119					
<b>TOTAL</b>	<b>71.5</b>	<b>11.4</b>	<b>16,914</b>	<b>19,100</b>	<b>21,286</b>	<b>204</b>	<b>51</b>	<b>23</b>		

TC TSTATS		STATISTICS						PAGE 1			
		PROJECT COLEMT				DATE					
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
04N	09W	14	A5	STAY	51.00	39	171	1	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		39	171	4.4							
CRUISE		12	53	4.4	3,234	1.6					
DBH COUNT											
REFOREST											
COUNT		27	118	4.4							
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
DOUGLEAV		44	46.4	24.2	101		148.7	29,478	28,168	7,028	6,818
ALDRLEAV		6	15.0	13.0	35		13.8	1,422	1,422	398	398
SNAG		3	2.0	27.7	42		8.2	212		87	
<b>TOTAL</b>		<b>53</b>	<b>63.4</b>	<b>22.2</b>	<b>84</b>		<b>170.7</b>	<b>31,112</b>	<b>29,589</b>	<b>7,513</b>	<b>7,217</b>
		COEFF VAR.%	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1				LOW	AVG	HIGH	5	10	15		
DOUGLEAV		29.2	4.7	44	46	49					
ALDRLEAV		236.9	37.9	9	15	21					
SNAG		253.3	40.6	1	2	3					
<b>TOTAL</b>		<b>46.7</b>	<b>7.5</b>	<b>59</b>	<b>63</b>	<b>68</b>		<b>87</b>	<b>22</b>	<b>10</b>	
		COEFF VAR.%	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1				LOW	AVG	HIGH	5	10	15		
DOUGLEAV		26.1	4.2	142	149	155					
ALDRLEAV		207.1	33.2	9	14	18					
SNAG		228.6	36.6	5	8	11					
<b>TOTAL</b>		<b>18.2</b>	<b>2.9</b>	<b>166</b>	<b>171</b>	<b>176</b>		<b>13</b>	<b>3</b>	<b>1</b>	
		COEFF VAR.%	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1				LOW	AVG	HIGH	5	10	15		
DOUGLEAV		28.2	4.5	26,898	28,168	29,437					
ALDRLEAV		200.5	32.1	965	1,422	1,878					
SNAG											
<b>TOTAL</b>		<b>19.7</b>	<b>3.1</b>	<b>28,658</b>	<b>29,589</b>	<b>30,521</b>		<b>15</b>	<b>4</b>	<b>2</b>	

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT COLEMTCO				DATE 7/16/2005		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	24	A6	0004	215.10	95	757	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
				PLOTS	TREES	TREES	TREES			
TOTAL		95	757	8.0						
CRUISE		40	270	6.8	31,300		.9			
DBH COUNT										
REFOREST										
COUNT		55	432	7.9						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUGLEAV	125	41.3	25.7	106		149.1	32,404	31,596	7,492	7,391
DOUG FIR	105	82.7	16.8	69		127.6	19,603	18,896	5,149	5,049
SNAG	22	3.6	30.3	42		18.1	347		140	
R ALDER	10	9.7	16.2	38		13.9	1,095	972	325	304
ALDRLEAV	3	3.8	10.9	31		2.5	155	155	54	54
S SPRUCE	1	.9	16.0	66		1.3	154	154	46	46
SPRUCELV	1	1.9	11.0	17		1.3	38	38	15	15
CEDLEAV	1	.8	14.0	22		.8	39	24	13	9
HEMLEAV	1	.5	18.0	74		.8	119	119	34	34
WHEMLOCK	1	.3	16.0	66		.4	57	57	16	16
<b>TOTAL</b>	<b>270</b>	<b>145.5</b>	<b>19.9</b>	<b>75</b>		<b>315.7</b>	<b>54,012</b>	<b>52,010</b>	<b>13,284</b>	<b>12,918</b>
	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	23.7	2.4	40	41	42					
DOUG FIR	75.8	7.8	76	83	89					
SNAG	200.6	20.6	3	4	4					
R ALDER	234.8	24.1	7	10	12					
ALDRLEAV	400.3	41.1	2	4	5					
S SPRUCE	723.4	74.2	0	1	2					
SPRUCELV	723.4	74.2	0	2	3					
CEDLEAV	685.5	70.3	0	1	1					
HEMLEAV	685.5	70.3	0	0	1					
WHEMLOCK	974.7	100.0		0	1					
<b>TOTAL</b>	<b>39.7</b>	<b>4.1</b>	<b>140</b>	<b>146</b>	<b>151</b>	<b>63</b>	<b>16</b>	<b>7</b>		
	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	17.7	1.8	146	149	152					
DOUG FIR	70.0	7.2	118	128	137					
SNAG	166.7	17.1	15	18	21					
R ALDER	230.8	23.7	11	14	17					
ALDRLEAV	407.7	41.8	1	2	4					
S SPRUCE	723.4	74.2	0	1	2					
SPRUCELV	723.4	74.2	0	1	2					
CEDLEAV	685.5	70.3	0	1	1					
HEMLEAV	685.5	70.3	0	1	1					
WHEMLOCK	974.7	100.0		0	1					
<b>TOTAL</b>	<b>26.1</b>	<b>2.7</b>	<b>307</b>	<b>316</b>	<b>324</b>	<b>27</b>	<b>7</b>	<b>3</b>		
	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	18.7	1.9	30,989	31,596	32,203					
DOUG FIR	68.5	7.0	17,568	18,896	20,223					
SNAG										
R ALDER	234.8	24.1	738	972	1,206					
ALDRLEAV	400.7	41.1	91	155	218					

**STATISTICS**  
**PROJECT COLEMTCO**

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	09W	24	A6	0004	215.10	95	757	1	W
		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
S SPRUCE		723.4	74.2	40	154	268			
SPRUCELV		723.4	74.2	10	38	67			
CEDLEAV		685.5	70.3	7	24	40			
HEMLEAV		685.5	70.3	35	119	203			
WHEMLOCK		974.7	100.0	0	57	115			
<b>TOTAL</b>		27.6	2.8	50,535	52,010	53,485	31	8	3

TC TSTATS		STATISTICS						PAGE 1		
		PROJECT COLEMTCO						DATE 7/16/2005		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	24	A6	TAKE	215.10	95	346	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	95	346	3.6							
CRUISE	35	117	3.3	20,117			.6			
DBH COUNT										
REFOREST										
COUNT	56	217	3.9							
BLANKS	4									
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	105	82.7	16.8	69		127.6	19,603	18,896	5,149	5,049
R ALDER	10	9.7	16.2	38		13.8	1,094	968	323	301
S SPRUCE	1	.9	16.0	66		1.3	154	154	46	46
WHEMLOCK	1	.3	16.0	66		.4	57	57	16	16
<b>TOTAL</b>	<b>117</b>	<b>93.5</b>	<b>16.7</b>	<b>66</b>		<b>143.1</b>	<b>20,908</b>	<b>20,075</b>	<b>5,534</b>	<b>5,412</b>
	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	75.8	7.8	76	83	89					
R ALDER	235.6	24.2	7	10	12					
S SPRUCE	723.4	74.2	0	1	2					
WHEMLOCK	974.7	100.0		0	1					
<b>TOTAL</b>	<b>60.9</b>	<b>6.2</b>	<b>88</b>	<b>94</b>	<b>99</b>	<b>148</b>	<b>37</b>	<b>16</b>		
	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	70.0	7.2	118	128	137					
R ALDER	231.6	23.8	11	14	17					
S SPRUCE	723.4	74.2	0	1	2					
WHEMLOCK	974.7	100.0		0	1					
<b>TOTAL</b>	<b>55.9</b>	<b>5.7</b>	<b>135</b>	<b>143</b>	<b>151</b>	<b>125</b>	<b>31</b>	<b>14</b>		
	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	68.5	7.0	17,568	18,896	20,223					
R ALDER	235.6	24.2	734	968	1,202					
S SPRUCE	723.4	74.2	40	154	268					
WHEMLOCK	974.7	100.0	0	57	115					
<b>TOTAL</b>	<b>59.9</b>	<b>6.1</b>	<b>18,842</b>	<b>20,075</b>	<b>21,308</b>	<b>143</b>	<b>36</b>	<b>16</b>		

TC TSTATS		STATISTICS				PAGE 1				
		PROJECT COLEMTCO				DATE 7/16/2005				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
04N	09W	24	A6	STAY	215.10	95	411	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	95	411	4.3							
CRUISE	38	153	4.0		11,171		1.4			
DBH COUNT										
REFOREST										
COUNT	56	239	4.3							
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
DOUGLEAV	125	41.3	25.7	106		149.1	32,404	31,596	7,492	7,391
SNAG	22	3.6	30.3	42		18.1	347		140	
ALDRLEAV	3	3.8	10.9	31		2.5	155	155	54	54
SPRUCELV	1	1.9	11.0	17		1.3	38	38	15	15
CEDLEAV	1	.8	14.0	22		.8	39	24	13	9
HEMLEAV	1	.5	18.0	74		.8	119	119	34	34
<b>TOTAL</b>	<i>153</i>	<i>51.9</i>	<i>24.7</i>	<i>91</i>		<i>172.6</i>	<i>33,103</i>	<i>31,932</i>	<i>7,748</i>	<i>7,503</i>
	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	23.7	2.4	40	41	42					
SNAG	200.6	20.6	3	4	4					
ALDRLEAV	400.3	41.1	2	4	5					
SPRUCELV	723.4	74.2	0	2	3					
CEDLEAV	685.5	70.3	0	1	1					
HEMLEAV	685.5	70.3	0	0	1					
<b>TOTAL</b>	<i>42.4</i>	<i>4.4</i>	<i>50</i>	<i>52</i>	<i>54</i>	<i>72</i>	<i>18</i>	<i>8</i>		
	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	17.7	1.8	146	149	152					
SNAG	166.7	17.1	15	18	21					
ALDRLEAV	407.7	41.8	1	2	4					
SPRUCELV	723.4	74.2	0	1	2					
CEDLEAV	685.5	70.3	0	1	1					
HEMLEAV	685.5	70.3	0	1	1					
<b>TOTAL</b>	<i>15.6</i>	<i>1.6</i>	<i>170</i>	<i>173</i>	<i>175</i>	<i>10</i>	<i>2</i>	<i>1</i>		
	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	18.7	1.9	30,989	31,596	32,203					
SNAG										
ALDRLEAV	400.7	41.1	91	155	218					
SPRUCELV	723.4	74.2	10	38	67					
CEDLEAV	685.5	70.3	7	24	40					
HEMLEAV	685.5	70.3	35	119	203					
<b>TOTAL</b>	<i>17.5</i>	<i>1.8</i>	<i>31,358</i>	<i>31,932</i>	<i>32,506</i>	<i>12</i>	<i>3</i>	<i>1</i>		

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	09W	23	A1 2 5 & 6	R/W	19.60	262	1,951	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	262	1951	7.4		
CRUISE	106	682	6.4	2,665	25.6
DBH COUNT					
REFOREST					
COUNT	156	1144	7.3		
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	551	104.3	20.8	85		245.5	47,599	46,217	11,404	11,202
R ALDER	66	23.2	14.1	36		25.1	2,064	2,006	637	627
SNAG	44	2.9	29.3	40		13.7	245		94	
S SPRUCE	15	3.6	17.1	38		5.8	597	573	171	165
WHEMLOCK	4	.8	19.0	74		1.5	244	244	64	64
WR CEDAR	2	1.2	14.5	39		1.4	94	81	34	31
<b>TOTAL</b>	<b>682</b>	<b>136.0</b>	<b>19.9</b>	<b>74</b>		<b>293.1</b>	<b>50,844</b>	<b>49,120</b>	<b>12,403</b>	<b>12,089</b>

SD: 1	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	54.4	3.4	101	104	108				
R ALDER	187.7	11.6	21	23	26				
SNAG	223.5	13.8	3	3	3				
S SPRUCE	363.1	22.4	3	4	4				
WHEMLOCK	593.5	36.7	0	1	1				
WR CEDAR	965.3	59.6	0	1	2				
<b>TOTAL</b>	<b>37.5</b>	<b>2.3</b>	<b>133</b>	<b>136</b>	<b>139</b>	<b>56</b>	<b>14</b>	<b>6</b>	

SD: 1	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	45.1	2.8	239	246	252				
R ALDER	182.6	11.3	22	25	28				
SNAG	191.6	11.8	12	14	15				
S SPRUCE	364.3	22.5	4	6	7				
WHEMLOCK	552.8	34.2	1	2	2				
WR CEDAR	965.2	59.6	1	1	2				
<b>TOTAL</b>	<b>29.6</b>	<b>1.8</b>	<b>288</b>	<b>293</b>	<b>298</b>	<b>35</b>	<b>9</b>	<b>4</b>	

SD: 1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR	43.9	2.7	44,963	46,217	47,470				
R ALDER	190.4	11.8	1,770	2,006	2,242				
SNAG									
S SPRUCE	367.7	22.7	443	573	703				
WHEMLOCK	544.8	33.7	162	244	326				
WR CEDAR	974.3	60.2	32	81	130				
<b>TOTAL</b>	<b>36.1</b>	<b>2.2</b>	<b>48,026</b>	<b>49,120</b>	<b>50,214</b>	<b>52</b>	<b>13</b>	<b>6</b>	

TC TSTNDSUM

**Stand Table Summary**

Project **COLEMT**

**T04N R09W S23 TSTAY**

**T04N R09W S23 TSTAY**

**Twp Rge Sec Tract**  
**04N 09W 23 A1**

**Type Acres Plots Sample Trees**  
**STAY 144.70 83 117**

**Page: 1**  
**Date: 7/12/2004**  
**Time: 10:22:11AM**

S Spc	T	Sample			Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Cu.Ft.	Net Bd.Ft.	Totals		
		DBH	Trees	16'					Tot	Net Cu.Ft.			Net Bd.Ft.	Tons Acre	Cu.Ft. Acre
DL	18	1	84	116	.818	1.45	2.45	27.3	90.0	67	221		97	32	
DL	19	2	82	121	1.469	2.89	4.41	30.8	105.0	136	463		197	67	
DL	20	2	89	123	1.325	2.89	3.98	35.3	153.3	140	610		203	88	
DL	21	2	81	142	1.202	2.89	3.61	41.2	158.3	148	571		215	83	
DL	23	2	85	132	1.002	2.89	3.01	47.5	196.7	143	591		207	86	
DL	24	4	87	137	1.841	5.78	5.52	54.0	235.8	298	1,302		432	188	
DL	25	5	84	147	2.121	7.23	6.36	59.5	248.0	379	1,578		548	228	
DL	26	5	82	145	1.961	7.23	5.88	63.4	254.7	373	1,498		540	217	
DL	27	14	83	140	5.091	20.24	15.64	63.4	272.3	992	4,258		1,435	616	
DL	28	10	84	133	3.381	14.46	10.14	67.4	287.7	683	2,918		989	422	
DL	29	6	84	147	1.891	8.67	5.99	76.2	343.2	456	2,055		660	297	
DL	30	9	84	144	2.651	13.01	7.95	84.0	384.4	668	3,057		967	442	
DL	31	13	83	145	3.586	18.80	11.31	84.1	380.0	952	4,298		1,377	622	
DL	32	4	83	148	1.035	5.78	3.37	85.3	389.2	287	1,310		415	190	
DL	33	5	84	151	1.217	7.23	4.14	92.7	451.2	384	1,867		555	270	
DL	34	3	82	156	.688	4.34	2.52	90.7	438.2	229	1,105		331	160	
DL	35	1	83	136	.216	1.45	.65	104.7	460.0	68	299		98	43	
DL	36	1	83	125	.205	1.45	.61	105.0	513.3	64	315		93	46	
DL	39	2	82	160	.349	2.89	1.22	131.7	658.6	161	803		233	116	
DL	41	1	82	163	.158	1.45	.63	130.5	670.0	82	423		119	61	
DL	42	1	83	158	.150	1.45	.60	134.3	677.5	81	407		117	59	
DL	Totals	93	84	140	32.356	134.46	99.99	67.9	299.5	6,791	29,948		9,827	4,334	
AL	16	1	86	68	.754	1.05	1.51	23.0	85.0	35	128		50	19	
AL	18	1	87	88	.596	1.05	1.19	35.5	120.0	42	143		61	21	
AL	20	3	86	65	1.447	3.16	2.89	33.5	113.3	97	328		140	47	
AL	Totals	5	86	71	2.797	5.26	5.59	31.1	107.1	174	599		252	87	
SL	26	1	77	67	.915	3.37	1.83	58.0	180.0	106	329		154	48	
SL	Totals	1	77	67	.915	3.37	1.83	58.0	180.0	106	329		154	48	
HL	18	1	85	94	.409	.72	.82	38.0	130.0	31	106		45	15	
HL	32	1	83	108	.129	.72	.39	84.7	400.0	33	155		48	22	
HL	Totals	2	85	97	.539	1.45	1.21	53.0	216.9	64	262		93	38	
SN	17	1	83	51	.688	1.08									
SN	20	1	84	30	.497	1.08									
SN	22	1	88	26	.411	1.08									
SN	40	2	86	21	.249	2.17									
SN	42	1	89	37	.113	1.08									
SN	50	5	86	25	.398	5.42									
SN	52	1	89	26	.074	1.08									
SN	54	1	88	93	.068	1.08									
SN	60	2	86	61	.110	2.17									
SN	69	1	88	51	.042	1.08									
SN	Totals	16	85	37	2.648	17.35									
Totals		117	84	126	39.255	161.89	108.62	65.7	286.7	7135	31,139		10,325	4,506	





TC TSTNDSUM

**Stand Table Summary**

Project **COLEMT**

**T04N R09W S14 TSTAY**

**T04N R09W S14 TSTAY**

Twp Rge Sec Tract  
04N 09W 14 A2

Type  
STAY

Acres  
51.00

Plots  
45

Sample Trees  
76

Page: 2  
Date: 7/13/2004  
Time: 11:35:21AM

S Spc	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	
SN	Totals	3	89	42	1.635	2.67											
Totals		76	86	85	88.605	174.90	175.72	41.7	170.7		7331	30,002		3,739	1,530		

**Stand Table Summary**

Project **COLEMTCO**

**T04N R09W S14 TSTAY**

**T04N R09W S14 TSTAY**

**Twp Rge Sec Tract**  
**04N 09W 14 A3 4**

**Type Acres Plots Sample Trees**  
**STAY 65.10 39 19**

**Page: 1**  
**Date: 7/16/2001**  
**Time: 7:45:51AM**

Spc	T	Sample			Av	Trees/ BA/ Logs			Average Log		Net	Net	Totals			
		DBH	Trees	16'	Ht	Trees/	BA/	Logs	Net	Net	Tons/	Cu.Ft.	Bd.Ft.	Tons	Cunits	MBF
DL		23	1	88	142	.355	1.03	1.07	51.0	216.7	54	231		35	15	
DL		24	1	83	148	.326	1.03	1.31	40.0	187.5	52	245		34	16	
DL		28	1	88	163	.240	1.03	.72	82.3	406.7	59	293		39	19	
DL		38	1	86	173	.130	1.03	.52	122.0	672.5	64	350		41	23	
DL		40	3	86	162	.353	3.08	1.18	127.8	703.0	150	826		98	54	
DL		41	1	83	192	.112	1.03	.56	113.8	636.0	64	356		41	23	
DL		44	2	88	152	.194	2.05	.68	174.1	928.6	118	631		77	41	
DL		46	1	83	129	.089	1.03	.18	254.5	1270.0	45	226		29	15	
DL		Totals			11	86	156	1.800	11.28	6.21	97.8	508.9	607	3,158	395	206
CL		14	1	80	49	3.358	3.59	3.36	20.0	50.0	67	168		44	11	
CL		30	1	59	65	.731	3.59	1.46	64.0	95.0	94	139		61	9	
CL		Totals			2	76	52	4.089	7.18	4.82	33.3	63.7	161	307	105	20
HL		25	1	86	110	.301	1.03	.90	52.7	213.3	48	193		31	13	
HL		Totals			1	86	110	.301	1.03	.90	52.7	213.3	48	193	31	13
SL		17	1	87	46	1.952	3.08	1.95	34.0	60.0	66	117		43	8	
SL		Totals			1	87	46	1.952	3.08	1.95	34.0	60.0	66	117	43	8
SN		25	1	89	47	.827	2.82									
SN		50	3	88	37	.621	8.46									
SN		Totals			4	89	43	1.448	11.28							
Totals		19	82	71		9.590	33.85	13.88	63.5	271.9	882	3,774		574	246	

**Stand Table Summary**

Project **COLEMT**

**T04N R09W S14 TSTAY**

**T04N R09W S14 TSTAY**

**Twp Rge Sec Tract**  
**04N 09W 14 A5**

**Type**  
**STAY**

**Acres**  
 51.00

**Plots**  
 39

**Sample Trees**  
 53

**Page:** 1

**Date:** 7/13/2001

**Time:** 2:04:02PM

S Spc	T	Av			Trees/ BA/ Logs Acre Acre Acre	Average Log		Net Cu.Ft.	Net Bd.Ft.	Totals			
		Sample DBH	FF Trees	Ht 16'		Net Cu.Ft.	Net Bd.Ft.			Tons	Cunits	MBF	
DL	20	4	84	127	6.197	13.52	18.59	33.7	125.0	626	2,324	319	119
DL	21	3	86	131	4.216	10.14	12.65	38.6	154.4	488	1,953	249	100
DL	22	9	84	123	11.523	30.42	33.29	41.0	165.0	1,366	5,493	697	280
DL	23	5	85	124	5.857	16.90	15.23	48.3	190.8	736	2,905	375	148
DL	24	4	85	129	4.303	13.52	12.91	49.3	196.7	636	2,539	324	129
DL	25	2	85	138	1.983	6.76	5.95	47.3	206.7	282	1,229	144	63
DL	26	4	84	133	3.667	13.52	11.00	59.6	246.7	655	2,713	334	138
DL	27	2	83	141	1.700	6.76	5.10	66.8	273.3	341	1,394	174	71
DL	28	2	84	133	1.581	6.76	4.74	68.3	303.3	324	1,439	165	73
DL	29	3	85	130	2.211	10.14	6.63	72.6	317.8	481	2,107	245	107
DL	30	2	83	138	1.377	6.76	4.13	80.8	350.0	334	1,446	170	74
DL	32	2	83	110	1.210	6.76	3.63	71.5	316.7	260	1,150	132	59
DL	44	1	88	138	.320	3.38	.96	128.0	660.0	123	634	63	32
DL	46	1	84	142	.293	3.38	.88	190.7	956.7	168	841	85	43
DL	Totals	44	84	128	46.439	148.72	135.69	50.2	207.6	6,818	28,168	3,477	1,437
AL	10	2	87	59	8.425	4.59	8.42	13.0	45.0	110	379	56	19
AL	12	1	87	55	2.925	2.30	2.93	19.0	60.0	56	176	28	9
AL	15	1	86	66	1.872	2.30	1.87	32.0	130.0	60	243	31	12
AL	20	1	87	77	1.053	2.30	2.11	39.5	140.0	83	295	42	15
AL	24	1	87	86	.731	2.30	1.46	61.5	225.0	90	329	46	17
AL	Totals	6	87	62	15.006	13.78	16.79	23.7	84.7	398	1,422	203	73
SN	19	1	86	45	1.389	2.74							
SN	40	1	85	25	.313	2.74							
SN	44	1	86	60	.259	2.74							
SN	Totals	3	86	44	1.962	8.21							
Totals		53	85	110	63.407	170.71	152.48	47.3	194.0	7217	29,589	3,680	1,509



TC TSTNDSUM

**Stand Table Summary**

Project **COLEMTCO**

T04N R09W S24 TSTAY

T04N R09W S24 TSTAY

Twp Rge Sec Tract  
**04N 09W 24 A6**

Type Acres Plots Sample Trees  
**STAY 215.10 95 153**

Page: **2**  
 Date: **7/16/2001**  
 Time: **6:55:06AM**

S Spc 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	
SN	58	2	71	45	.090	1.65										
SN	60	1	70	30	.042	.82										
SN	74	1	79	28	.028	.82										
SN	Totals	22	84	42	3.622	18.11										
Totals		153	84	116	51.936	172.58	131.12	57.2	243.5		7503	31,932		16,139		6,869

**Log Stock Table - MBF**

T04N R09W S14 TyTAKE  
THRU  
T04N R09W S24 TyTAKE

Project: **COLEMTCO**  
Acres **546.50**

Spp	T	So	Gr	Log	Gross	Def	Net	%	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+		
rt	de	Len	MBF	%	MBF	Spc																
D	?	?	2	24	100.0																	
D	?0	?	3	0	100.0																	
D	?	?	4	67	100.0																	
D	?	?	6	77	100.0																	
D	?	?	10	36	100.0																	
D	?	?	12	27	100.0																	
D	?	?	14	7	100.0																	
D	?	?	16	1	100.0																	
D	?	?	19	4	100.0																	
D	?	?	20	31	100.0																	
D	?	?	21	0	100.0																	
D	?	?	22	0	100.0																	
D	?0	?	24	0	100.0																	
D	?	?	31	4	100.0																	
D	?	?	35	17	100.0																	
D	?0	?	36	1	100.0																	
D	?	?	40	14	100.0																	
D	?	2S	12	14	27.3	10	.1							10								
D	?	2S	16	66		66	.6						17	8	40	1	1					
D	?	2S	18	25		25	.2						9		15	1						
D	?	2S	20	139		138	1.3						8	44	57	27	1					
D	?0	2S	22	22		22	.2								20	1	1					
D	?	2S	24	121		121	1.1					15	23	13	70							
D	?0	2S	26	74	1.3	73	.7						22	15	34	2						
D	?	2S	28	106		106	1.0						30	18	43	16						
D	?	2S	30	235	1.2	233	2.1					14	82	65	51	19	1					
D	?	2S	32	1,403	1.1	1,388	12.7					45	723	389	165	39	25		1			
D	?	2S	33	12		12	.1							12								
D	?	2S	34	63		63	.6						29	28	2	3	1					
D	?	2S	36	373		372	3.4					29	99	24	194	28						
D	?	2S	38	45		45	.4					3		1	1	40						
D	?	2S	40	4,215		4,183	38.3					96	1099	1238	1181	421	142		7			
D	?0	3S	12	0		0	.0					0	0	0								
D	?0	3S	13	0		0	.0						0									
D	?0	3S	14	0		0	.0						0									
D	?	3S	15	0		0	.0					0										
D	?	3S	16	2		2	.0					0	2									





Log Stock Table - MBF

T04N R09W S14 TyTAKE  
THRU  
T04N R09W S24 TyTAKE

Project: COLEMTCO  
Acres 546.50

Spp	T	So	Gr	Log	Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches												
										2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+	
D	?	4S	31			20		20	.2		6	14										
D	?	4S	32			34	13.4	29	.3			29										
D	?	4S	34			7		7	.1			7										
D	?	4S	35			17		17	.2			17										
D	?	4S	36			42		42	.4			15	27									
D	?	4S	38			17		17	.2		7	10										
D	?0	4S	40			9		9	.1			9										
D		Totals				11,313	3.5	10,916	89.5		40	1285	1130	1672	2237	1900	1875	599	171		8	
S	?0	?	2			1	100.0															
S	?	?	6			0	100.0															
S	?0	?	18			0	100.0															
S	?0	2S	16			9		9	6.9						9							
S	?	2S	20			1		1	.4										1			
S	?0	2S	30			8		8	6.1							8						
S	?0	2S	32			34		34	24.7						13				21			
S	?0	3S	16			7		7	5.4						7							
S	?0	3S	28			5		5	3.9				5									
S	?	3S	32			41		41	30.1		10		24	7			1					
S	?	3S	40			2		2	1.6						0						1	1
S	?0	4S	16			1		1	.7		1	0										
S	?0	4S	18			8		8	5.6			8										
S	?0	4S	21			1		1	.6			1										
S	?	4S	24			6		6	4.1			6										
S	?0	4S	28			6		6	4.5			6										
S	?0	4S	32			0		0	.1							0						
S	?0	4S	40			7		7	5.2			7										
S		Totals				139	1.3	137	1.1		1	38		29	7	30	9		22		1	1
A	?0	?	4			8	100.0															
A	?0	?	6			24	100.0															
A	DO	CU	8			6	100.0															
A	?	?	9			0	100.0															
A	?	2S	16			54		54	5.0					25	7	22						
A	?0	2S	18			1		1	.1							1						
A	?	2S	20			6		6	.6						6							
A	?	2S	24			20		20	1.8					20								



Log Stock Table - MBF

T04N R09W S14 TyTAKE  
THRU  
T04N R09W S24 TyTAKE

Project: COLEMTCO  
Acres 546.50

Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches													
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+		
SN		?	?	23	0	100.0																
SN		?0	?	26	1	100.0																
SN		?	?	28	1	100.0																
SN		?	?	29	0	100.0																
SN		?0	?	30	0	100.0																
SN		?	?	33	0	100.0																
SN		?	?	34	1	100.0																
SN		?0	?	39	0	100.0																
SN		Totals			5	100.0																
C		?0	?	4	0	100.0																
C		?	3S	40	1		1	62.3			1											
C		?	4S	16	1		1	37.7			1											
C		Totals			2	13.7		2	.0		1	1										
Total		All Species			12,632	3.5	12,191	100.0		41	1646	1349	1968	2441	2012	1917	636	171	9	1		

Revised August, 2002

## CRUISE DESIGN ASTORIA DISTRICT

Sale Name: Cole Mt. Combo Areas 1

Harvest Type: MC PC CT "Automark Thinning" (circle one) Aproximately 150 acres

Approx. Cruise Acres: 130 ~~100~~ Estimated CV% 40% BA/Acre SE% Objective 8% BA/Acre

Planned Sale Volume: 10.5 MMBF Estimated Sale Area Value/Acre: \$4,500

A. **Cruise Goals:** (a) Grade minimum 100 conifer and 50 hardwood trees:  
 (b) Sample 86 cruise plots; Grade 29 plots; (c) Other goals (\_\_\_ Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes; \_\_\_ Determine LWD (down wood) cubic feet and decay classes; \_\_\_ Determine "diameter limit" harvest parameters; )  
 Basal Area leave target 150 sq. ft. Cruiser needs to select 4 or 5 leave trees per plot.

B. **Cruise Design:**  
 1. **Plot Cruises:** BAF 33.6 - Alder 40.0 - Conifer (Full point; Half point) (circle one)  
 Fixed Plot Size \_\_\_ Plot Radius \_\_\_ feet  
 Cruise Line Direction(s) Area 1 - East/West  
 Cruise Line Spacing 6 (chains) (feet)  
 Cruise Plot Spacing 3 (chains) (feet)  
 Grade/Count Ratio Grade 1 out of 3

2. **ITS (Sample Tree) Cruises:** Measure-grade ratios: D-fir \_\_\_ Hemlock \_\_\_  
 Spruce \_\_\_ True Fir \_\_\_ Cedar \_\_\_ Hardwood \_\_\_

### C. Tree Measurements:

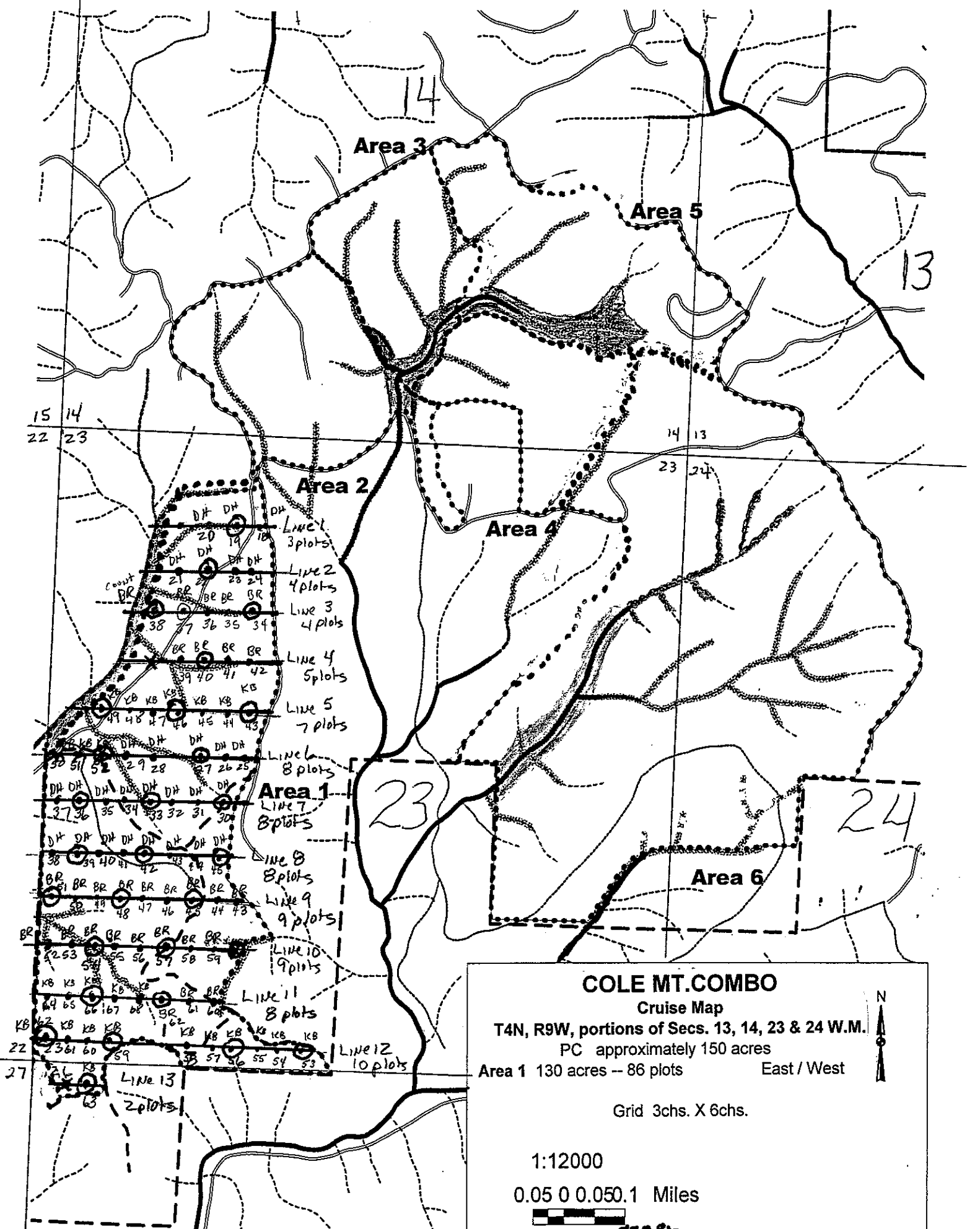
1. **Diameter:** Minimum DBH to cruise is 8" or at least 20 board feet for conifers and 10" for hardwoods.  
 Record DBH to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
2. **Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
3. **Top Cruise Diameter (TCD):** Minimum top outside bark for conifer is 7", DIB  
8" for hardwoods or 40 % of DOB at 16' form point. Generally, use 7" outside bark for trees < 18" DBH and 40% of DOB @ FP for trees > 18" DBH.
4. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.
6. **Species, Sort, and Grade Codes:** A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)  
 B. Sort: Use code "1" (Domestic).  
 C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull ; 9 = Utility  
**Hardwoods: #2 Sawmill = 12" + scaling diameter; #3 Sawmill = 10 and 11"; #4 Sawmill = 8 and 9" Lengths for Alder are 8 and 10 foot multiples.**

**Cruise snags 15 DBH inches and over. Cruise all reserved trees (cedar and Blue Marked trees) as Leave trees by species.** If you see a 50% + crown intermediate tree mark it with a blue band around the tree, and if it is in a cruise plot it would be a leave tree. Leave Alder will count toward the Basal Area leave requirements.

7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
8. **Standard Field Procedures: Plot Type Cruises:** Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at indivisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
9. **Cruising Equipment:** Relaskop Rangefinder Logger's Tape (with DBH on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Ed Holloran and Dan Goody  
 Approved by: Dan Goody  
 Date: 6/20/05



**COLE MT. COMBO**  
 Cruise Map  
 T4N, R9W, portions of Secs. 13, 14, 23 & 24 W.M.  
 PC approximately 150 acres  
 Area 1 130 acres -- 86 plots      East / West

Grid 3chs. X 6chs.

1:12000  
 0.05 0 0.05 0.1 Miles

528 ft  
 1 inch = 1,000 ft  
 1 chain = 66 ft



**CRUISE DESIGN  
ASTORIA DISTRICT**

Sale Name: Cole Mt. Comb Areas 2 & 5

Harvest Type: MC PC CT "Automark Thinning" (circle one) Aproximately 105 acres  
Net BF or  
 Approx. Cruise Acres: 105 Estimated CV% 40% BA/Acre SE% Objective 8% BA/Acre  
Net BF or

Planned Sale Volume: 10.5 MMBF Estimated Sale Area Value/Acre: \$4,500

A. **Cruise Goals:** (a) Grade minimum 100 conifer and 50 (L) hardwood trees:  
 (b) Sample 80 cruise plots; Grade 27 plots; (c) Other goals (      Determine "automark"  
 thinning standards; X Determine log grades for sale value; X Determine snag and  
 leave tree species and sizes;      Determine LWD (down wood) cubic feet and decay  
 classes;      Determine "diameter limit" harvest parameters; )  
 Basal Area leave target 150 sq. ft. 160 Cruiser needs to select 7 or 8 leave trees per plot.

B. **Cruise Design:**  
 1. **Plot Cruises:** BAF B2 33.6 - Alder B1 40.0 - Conifer (Full point; Half point) (circle one)  
 Fixed Plot Size      Plot Radius      feet  
 Cruise Line Direction(s) Area 2 - East/West Area 5 N45°E/S45°W  
 Cruise Line Spacing 4 (chains) (feet)  
 Cruise Plot Spacing 3 (chains) (feet)  
 Grade/Count Ratio Grade 1 out of 3  
 2. **ITS (Sample Tree) Cruises:** Measure-grade ratios: D-fir      Hemlock       
 Spruce      True Fir      Cedar      Hardwood     

C. **Tree Measurements:**  
 1. **Diameter:** Minimum DBH to cruise is 8" or at least 20 board feet for conifers and  
10" for hardwoods.  
 Record DBH to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2"  
 for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises),  
 then record to closest estimate.  
 2. **Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet  
 in merchantable height, estimating to the nearest 5 feet is acceptable.  
 3. **Top Cruise Diameter (TCD):** Minimum top outside bark for conifer is 7", 8" for  
hardwoods or 40 % of DOB at 16' form point. Generally, use 7" outside bark for trees <  
 18" DBH and 40% of DOB @ FP for trees > 18" DBH.  
 4. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree  
 measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer  
 species on the cruise area, and use these to calculate average FF for the species on the  
 cruise. Hardwood form factors are a Standard 87.

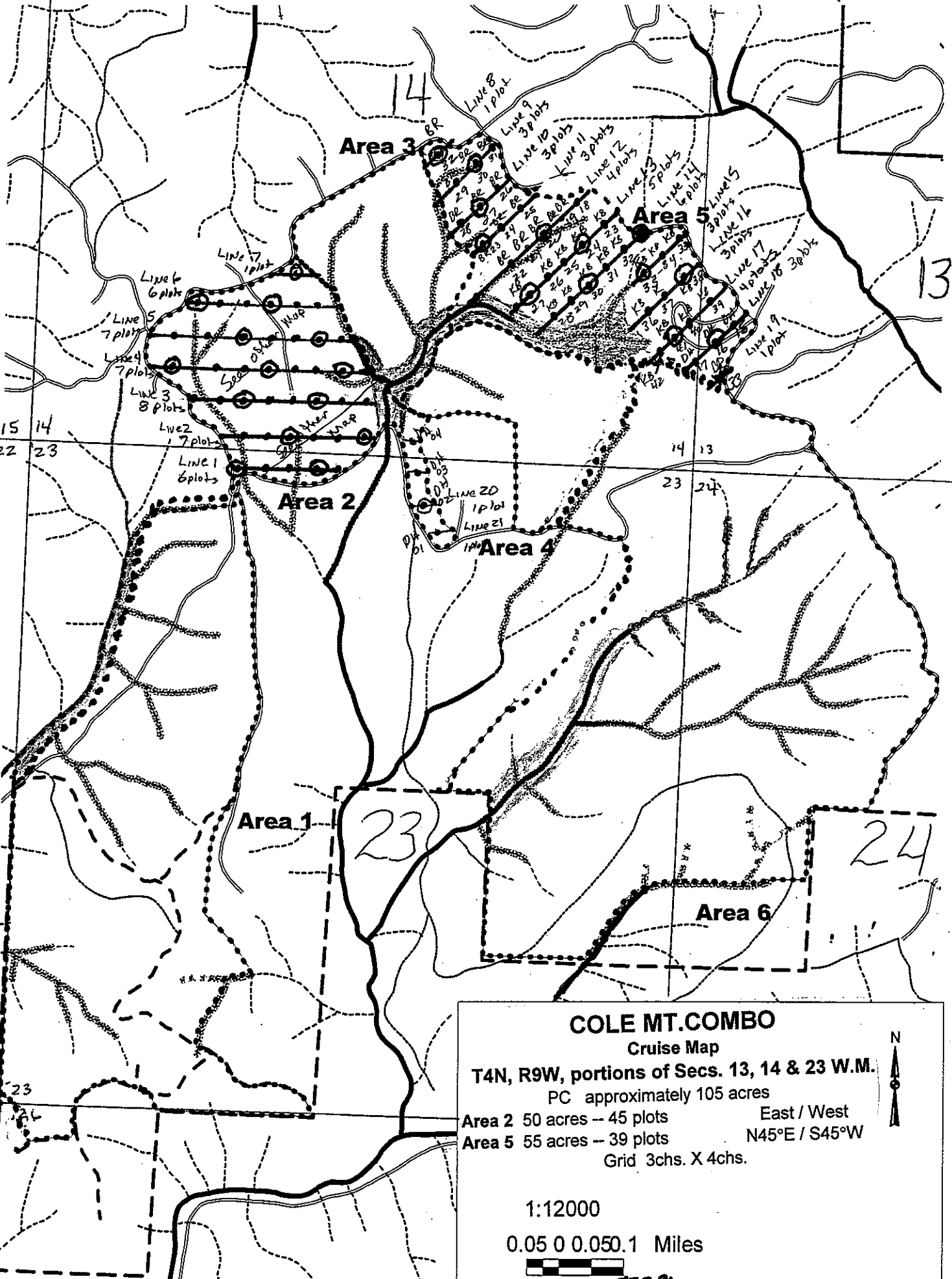
5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.
6. **Species, Sort, and Grade Codes:** A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)  
 B. Sort: Use code "1" (Domestic).  
 C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull ; 9 = Utility  
**Hardwoods: #2 Sawmill = 12" + scaling diameter; #3 Sawmill = 10 and 11"; #4 Sawmill = 8 and 9" Lengths for Alder are 8 and 10 foot multiples.**

**Cruise snags 15 DBH inches and over. Cruise all reserved trees (cedar and Blue Marked trees) as Leave trees by species.** If you see a 50% + crown intermediate tree mark it with a blue band around the tree, and if it is in a cruise plot it would be a leave tree. Alder do not count toward the Basal Area leave requirements. **Count all alder as Leave Trees.**

7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
8. **Standard Field Procedures: Plot Type Cruises:** Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at indivisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
9. **Cruising Equipment:** Relaskop Rangefinder Logger's Tape (with DBH on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Ed Holloran and Dan Goody  
 Approved by: *Dan Goody*  
 Date: 6/20/05





**COLE MT. COMBO**  
Cruise Map

T4N, R9W, portions of Secs. 13, 14 & 23 W.M.  
PC approximately 105 acres

Area 2 50 acres -- 45 plots	East / West
Area 5 55 acres -- 39 plots	N45°E / S45°W
Grid 3chs. X 4chs.	

1:12000

0.05 0 0.05 0.1 Miles

528 ft  
1 inch = 1,000 ft  
1 chain = 66 ft

N

AREA 2

Plots KK 02, 28 @ N45° E Not E-W  
49-50

Area 3

Area 5

13

15 14  
22 23

14 13  
23 24

Area 2

Area 4

Area 1

23

24



Area 6

- Line 1 3 plots
- Line 2 4 plots
- Line 3 4 plots
- Line 4 5 plots
- Line 5 7 plots
- Line 6 8 plots
- Line 7 8 plots
- Line 8 8 plots
- Line 9 9 plots
- Line 10 9 plots
- Line 11 8 plots
- Line 12 10 plots
- Line 13 2 plots

**COLE MT. COMBO**  
Cruise Map  
T4N, R9W, portions of Secs. 13, 14, 23 & 24 W.M.  
PC approximately 150 acres  
Area 1 130 acres - 86 plots East / West  
Grid 3chs. X 6chs.

1:12000  
0.05 0 0.05 0.1 Miles  
1 inch = 1,000 ft  
1 chain = 66 ft

Kraig  
CMT 29

2 23  
7 26

Revised August, 2002

**CRUISE DESIGN  
ASTORIA DISTRICT**

Sale Name: Cole Mt. Combo Area(s) 3 and 4

Harvest Type: (MC) PC CT "Automark Thinning" (circle one)  
 Net BF or Net BF/or

Approx. Cruise Acres: 58 Estimated CV% 60% BA/Acre SE% Objective 10% BA/Acre

Planned Sale Volume: 10.5 MMBF Estimated Sale Area Value/Acre: \$4,500

**A. Cruise Goals:** (a) Grade minimum 100 conifer and 50 hardwood trees;  
 (b) Sample 40 cruise plots; Grade 20 plots; (c) Other goals (\_\_\_ Determine  
 "automark" thinning standards; X Determine log grades for sale value; X  
 Determine snag and leave tree species and sizes; \_\_\_ Determine LWD (down wood)  
 cubic feet and decay classes; \_\_\_ Determine "diameter limit" harvest parameters; )  
 Basal Area leave target \_\_\_\_\_ sq. ft. Cruiser needs to select or leave trees per plot.

B2

**B. Cruise Design:** 33.6 B1  
 1. Plot Cruises: BAF ~~27.8~~ Alder 40.0 -- Conifer (Full point) Half point) (circle one)  
 Fixed Plot Size \_\_\_\_\_ Plot Radius \_\_\_\_\_ feet  
 Cruise Line Direction(s) Area 3 - East/West; Area 4 - North/South  
 Cruise Line Spacing 5 (chains) (feet)  
 Cruise Plot Spacing 3 (chains) (feet)  
 Grade/Count Ratio Grade 1 out of 2

2. ITS (Sample Tree) Cruises: Measure-grade ratios: D-fir \_\_\_\_\_ Hemlock \_\_\_\_\_  
 Spruce \_\_\_\_\_ True Fir \_\_\_\_\_ Cedar \_\_\_\_\_ Hardwood \_\_\_\_\_

**C. Tree Measurements:**

- Diameter:** Minimum DBH to cruise is 8" or at least 20 board feet for conifers and 10" for hardwoods.  
 Record DBH to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate. **Cruise snags 15 DBH inches and over. Cruise all "W" (wildlife) trees and all reserved trees (cedar) as Leave trees by species.**
- Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- Top Cruise Diameter (TCD):** Minimum top outside bark for conifer is 7", 8" for hardwoods or 40 % of DOB at 16' form point. Generally, use 7" outside bark for trees < 18" DBH and 40% of DOB @ FP for trees > 18" DBH.
- Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

6. **Species, Sort, and Grade Codes:** A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code "1" (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull ; 9 = Utility

**Hardwoods: #2 Sawmill = 12" + scaling diameter; #3 Sawmill = 10 and 11"; #4 Sawmill = 8 and 9" Lengths for Alder are 8 and 10 foot multiples.**

7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at indivisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.

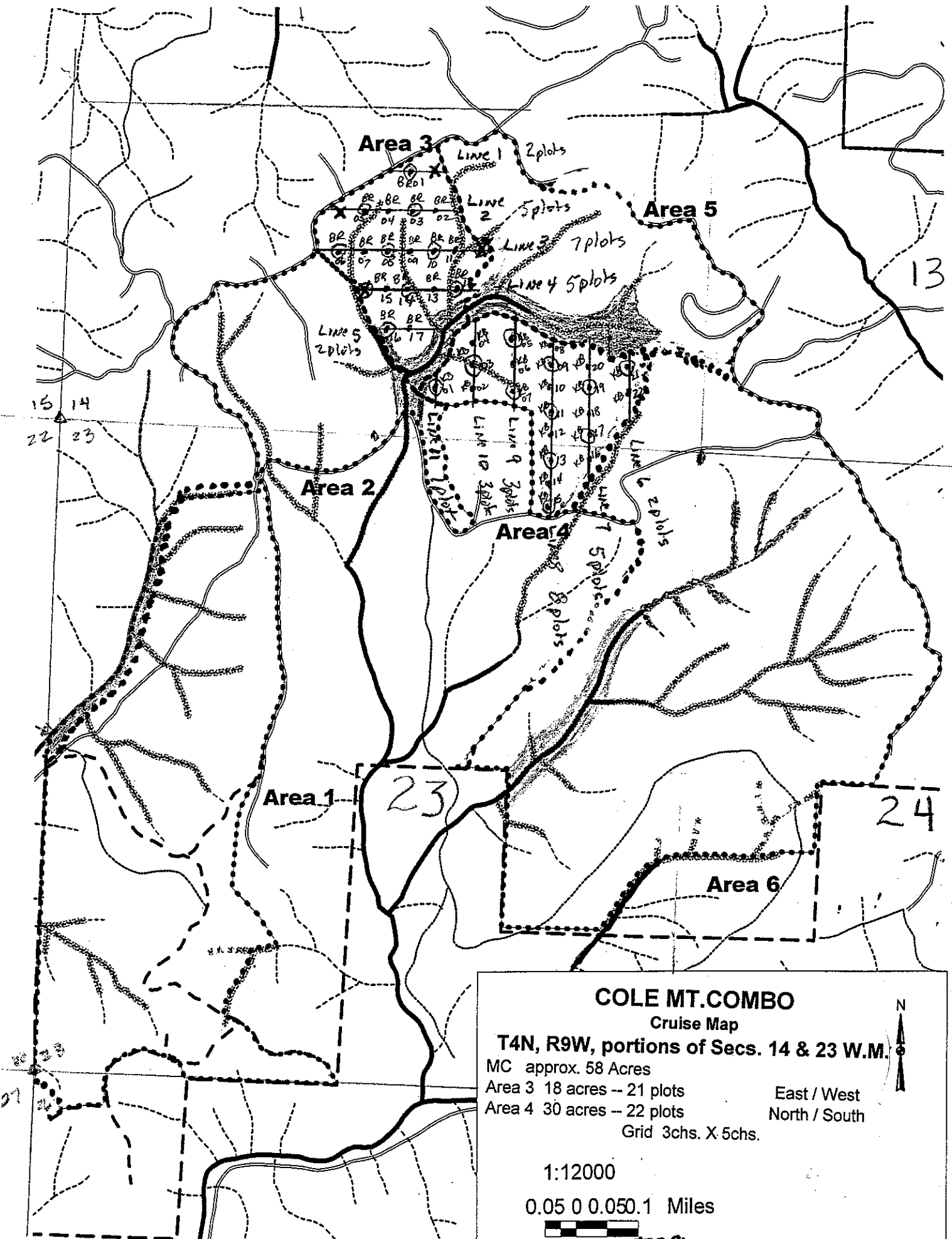
9. **Cruising Equipment:** Relaskop Rangefinder Logger's Tape (with DBH on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Ed Holloran and Dan Goody

Approved by: Dan Goody

Date: 6/20/05



**COLE MT. COMBO**  
Cruise Map

**T4N, R9W, portions of Secs. 14 & 23 W.M.**

MC approx. 58 Acres

Area 3 18 acres -- 21 plots	East / West
Area 4 30 acres -- 22 plots	North / South

Grid 3chs. X 5chs.

1:12000

0.05 0 0.05 0.1 Miles

528ft  
1 inch = 1,000 ft  
1 chain = 66 ft



**CRUISE DESIGN  
ASTORIA DISTRICT**

Sale Name: Cole Mt. Combo Areas 6

Harvest Type: MC PC CT "Automark Thinning" (circle one) Aproximately 210 acres  
Net BF or Net BF or

Approx. Cruise Acres: ~~400~~ <sup>210</sup> Estimated CV% 40% BA/Acre SE% Objective 8% BA/Acre

Planned Sale Volume: 10.5 MMBF Estimated Sale Area Value/Acre: \$4,500

**A. Cruise Goals:** (a) Grade minimum 80 conifer and 40 hardwood trees:  
(b) Sample 105 cruise plots; Grade 35 plots; (c) Other goals (\_\_\_ Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes; \_\_\_ Determine LWD (down wood) cubic feet and decay classes; \_\_\_ Determine "diameter limit" harvest parameters; )  
Basal Area leave target 150 sq. ft. Cruiser needs to select 4 or 5 leave trees per plot.

**B. Cruise Design:** B2 B1  
**1. Plot Cruises:** BAF 33.6 - Alder 40.0 - Conifer (Full point; Half point) (circle one)  
Fixed Plot Size \_\_\_ Plot Radius \_\_\_ feet  
Cruise Line Direction(s) Area 6 - East/West  
Cruise Line Spacing 7 (chains) (feet)  
Cruise Plot Spacing 3 (chains) (feet)  
Grade/Count Ratio Grade 1 out of 3

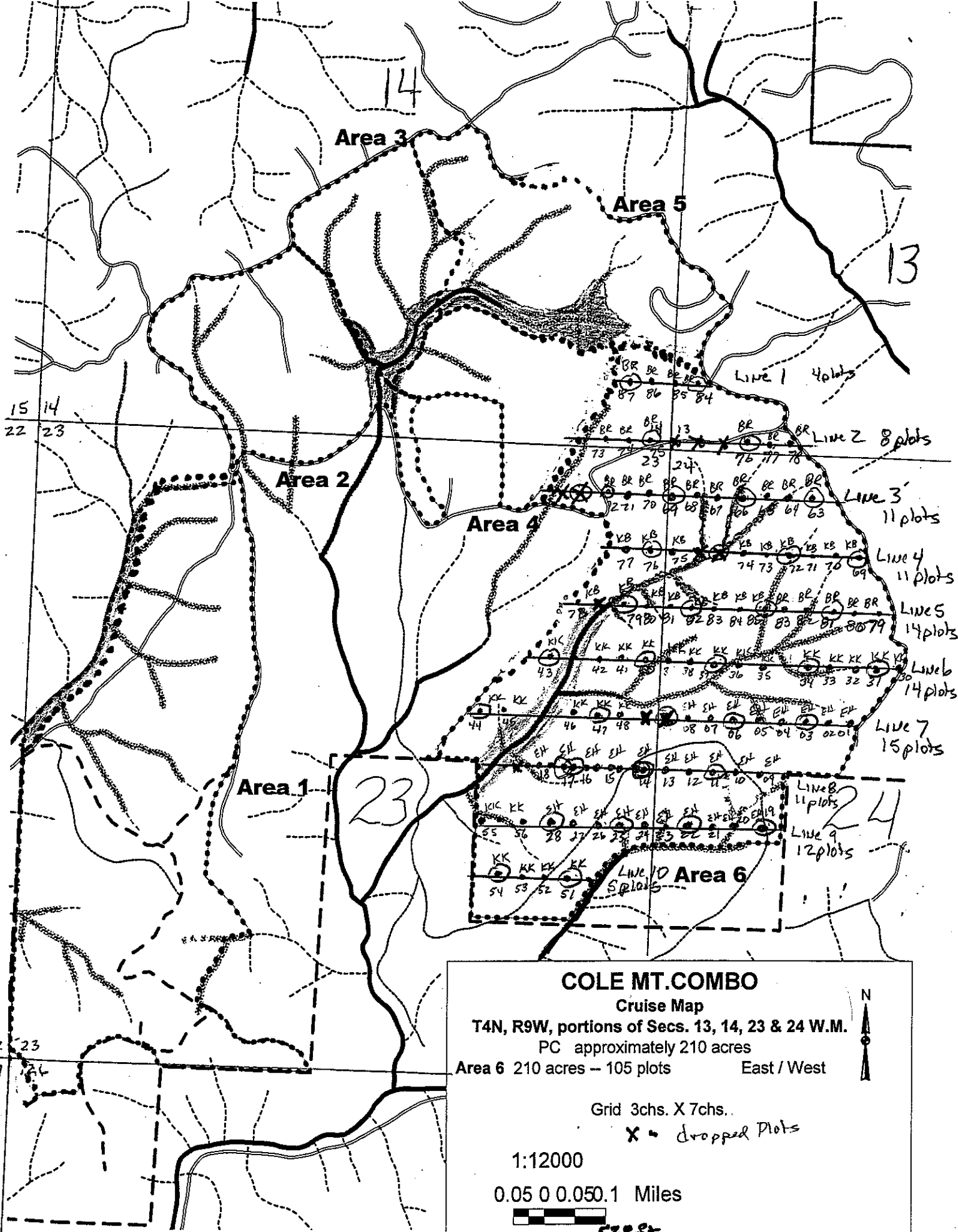
**2. ITS (Sample Tree) Cruises:** Measure-grade ratios: D-fir \_\_\_ Hemlock \_\_\_  
Spruce \_\_\_ True Fir \_\_\_ Cedar \_\_\_ Hardwood \_\_\_

**C. Tree Measurements:**

- 1. Diameter:** Minimum DBH to cruise is 8" or at least 20 board feet for conifers and 10" for hardwoods.  
Record DBH to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark for conifer is 7", 8" for hardwoods or 40 % of DOB at 16' form point. Generally, use 7" outside bark for trees < 18" DBH and 40% of DOB @ FP for trees > 18" DBH.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.
  
6. **Species, Sort, and Grade Codes:**
  - A. **Species:** Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
  - B. **Sort:** Use code "1" (Domestic).
  - C. **Grade:** A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull ; 9 = Utility  
**Hardwoods: #2 Sawmill = 12" + scaling diameter; #3 Sawmill = 10 and 11"; #4 Sawmill = 8 and 9" Lengths for Alder are 8 and 10 foot multiples.**  
**Cruise snags 15 DBH inches and over. Cruise all reserved trees (cedar and Blue Marked trees) as Leave trees by species.** If you see a 50% + crown intermediate tree mark it with a blue band around the tree, and if it is in a cruise plot it would be a leave tree.  
**Alder less than 12" DBH are to be Leave Trees, but will not count toward the Leave Basal Area requirements. If needed Alder 12" DBH and larger can be Leave trees and will count toward the Basal Area leave requirements (Bigest & Best).**
  
7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
  
8. **Standard Field Procedures: Plot Type Cruises:** Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at indivisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
  
9. **Cruising Equipment:** Relaskop Rangefinder Logger's Tape (with DBH on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
  
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Ed Holloran and Dan Goody  
 Approved by: \_\_\_\_\_  
 Date: \_\_\_\_\_



**COLE MT. COMBO**  
 Cruise Map  
 T4N, R9W, portions of Secs. 13, 14, 23 & 24 W.M.  
 PC approximately 210 acres  
 Area 6 210 acres -- 105 plots      East / West

Grid 3chs. X 7chs.  
 X = dropped Plots

1:12000  
 0.05 0 0.050.1 Miles

528 ft  
 1 inch = 1,000 ft  
 1 chain = 66 ft