



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Cost Summary Lotta Thin Sale 341-05-25

District: Astoria

Date: 1/11/05

	Conifer	Hardwood	Total
<b>Gross Timber Sale Value</b>	\$2,709,507.98	\$233,584.56	\$2,943,092.54
		<b>Project Work</b>	(\$566,386.00)
		<b>Advertised Value</b>	\$2,376,706.54



# Timber Sale Appraisal Timber Description Lotta Thin Sale 341-05-25

"STEWARDSHIP IN FORESTRY"

**District:** Astoria

**Location:** Portions of Sections 27, 28, 29, 32, 33, & 34 of T7N, R6W, and Sections 1, 2, 3, & 11 of T4N, R9W, W.M., Clatsop County, Oregon.

**Date:** 1/11/05

**Stand Stocking:** 80%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	16	0	97
Western Hemlock / Fir	18	0	97
Sitka Spruce	12	0	97
Red Cedar	32	0	97
Alder (Red)	17	0	95

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Red Cedar	Alder (Red)	Total
2S	3,358	130	0	4	0	3,492
3S	3,089	475	2	1	593	4,160
4S	622	71	2	0	103	798
<b>Total</b>	<b>7,069</b>	<b>676</b>	<b>4</b>	<b>5</b>	<b>696</b>	<b>8,450</b>

**Comments:** Pond Values Used: 4th Quarter 2004.

Log Markets: Mist, Clatskanie, Tillamook, Forest Grove

Additional Costs for Areas 1-6

Costs with P & R

100% branding and painting:  $\$1/\text{MBF} \times 8,450 = \$8,450$

Additional cutting costs (bucking tops, topping/girdling tail lift trees, etc.)  $\$5/\text{MBF} \times 7,451 = \$37,255$

Additional costs for cable corridor and skid trail layout:  $\$3/\text{MBF} \times 7,451 = \$22,353$

Total Cost w/P&R =  $\$68,058$

Cost without P&R:

Vacating Dirt Spurs 1C-1D (12.35 Sta.), 1G-1H (3.2 Sta.), and 3C-3D (16.8 Sta.) = 32.35 Sta. x  $\$45/\text{Sta.} = \$1,456$

Snag Creation - Create 550 snags in Areas 1, 3, & 4;  $550 \times \$45/\text{snag} = \$24,750$

Total Non-P&R Costs =  $\$26,206$



# Timber Sale Appraisal

## Logging Conditions

### Lotta Thin

### Sale 341-05-25

"STEWARDSHIP IN FORESTRY"

**Combination#: 1**

Douglas - Fir	70.00%	
Western Hemlock / Fir	70.00%	
Sitka Spruce	70.00%	
Red Cedar	70.00%	
Alder (Red)	70.00%	

**Yarding Distance:** Medium (800 ft)      **Downhill Yarding:** No  
**Logging System:** Cable: Medium Tower >40 - <70      **Process:** Manual Delimiting  
**Tree Size:** Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF  
**Loads/Day:** 5      **Bd. Ft./Load:** 4,000  
**Cost/MBF:** \$165.83

**Machines:**

Log Loader (A)

Tower Yarder (Medium)

**Combination#: 2**

Douglas - Fir	19.00%	
Western Hemlock / Fir	19.00%	
Sitka Spruce	19.00%	
Red Cedar	19.00%	
Alder (Red)	19.00%	

**Yarding Distance:** Short (400 ft)      **Downhill Yarding:** Yes  
**Logging System:** Track Skidder      **Process:** Manual Falling/Delimiting  
**Tree Size:** Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF  
**Loads/Day:** 8      **Bd. Ft./Load:** 4,000  
**Cost/MBF:** \$102.05

**Machines:**

Log Loader (B)

Track Skidder

**Combination#: 3**

Douglas - Fir	10.00%	
Western Hemlock / Fir	10.00%	
Sitka Spruce	10.00%	
Red Cedar	10.00%	
Alder (Red)	10.00%	

**Yarding Distance:** Short (400 ft)      **Downhill Yarding:** Yes  
**Logging System:** Shovel      **Process:** Manual Delimiting  
**Tree Size:** Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF  
**Loads/Day:** 10      **Bd. Ft./Load:** 4,000  
**Cost/MBF:** \$58.04

**Machines:**

Shovel Logger

<b>Combination#: 4</b>	Douglas - Fir	1.00%
	Western Hemlock / Fir	1.00%
	Sitka Spruce	1.00%
	Red Cedar	1.00%
	Alder (Red)	1.00%
<b>Yarding Distance:</b>	Short (400 ft)	<b>Downhill Yarding:</b> Yes
<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>	6	<b>Bd. Ft./Load:</b> 4,000
<b>Cost/MBF:</b>	\$96.74	
<b>Machines:</b>	Shovel Logger	



# Timber Sale Appraisal

## Logging Costs

### Lotta Thin

### Sale 341-05-25

"STEWARDSHIP IN FORESTRY"

Date: 1/11/05

Operating Seasons: 3.0

Profit & Risk: 13%

Project Costs: \$566,386

Other Costs (P/R): \$68,058

Slash Disposal: \$0

Other Costs: \$26,206

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

Road Maintenance: \$3.27

#### Hauling Costs

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



# Timber Sale Appraisal Logging Costs Breakdown Lotta Thin Sale 341-05-25

"STEWARDSHIP IN FORESTRY"

<b>Costs</b>	<b>Douglas - Fir</b>	<b>Western Hemlock / Fir</b>	<b>Sitka Spruce</b>	<b>Red Cedar</b>	<b>Alder (Red)</b>
<b>Logging</b>	142.24	142.24	142.24	142.24	142.24
<b>Road Maintenance</b>	3.37	3.37	3.37	3.37	3.44
<b>Fire Protection</b>	1.05	1.05	1.05	1.05	0.00
<b>Hauling</b>	39.54	67.73	59.28	67.73	69.16
<b>Other (P/R appl.)</b>	8.78	8.78	8.78	8.78	0.00
<b>Profit &amp; Risk</b>	25.35	29.01	27.91	29.01	27.93
<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>	3.38	3.38	3.38	3.38	0.00
<b>Total</b>	225.71	257.56	248.01	257.56	244.77

<b>Amortization</b>	0.00	0.00	0.00	0.00	0.00
<b>Pond Value</b>	595.29	395.61	382.50	875.00	580.38
<b>Stumpage</b>	369.58	138.05	134.49	617.44	335.61
<b>Amortized</b>	0.00	0.00	0.00	0.00	0.00



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Summary Lotta Thin Sale 341-05-25

**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>	7,069.00	676.00	4.00	5.00	696.00
<b>Value</b>	369.58	138.05	134.49	617.44	335.61
<b>Total</b>	2,612,561.02	93,321.80	537.96	3,087.20	233,584.56

**Gross Timber Sale Value**

**Recovery \$2,943,092.54**

Prepared by: Ty Williams

Date: 1/11/05

District: Astoria

Phone: (503) 325-5451



**Road Maintenance Cost Summary**

**Sale:** Lotta Thin  
**Date:** 8-Dec-04  
**By:** Williams

**MBF:** 8,450  
**\$\$/MBF:** \$3.27

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	Production Rates			
							Production Rates	Miles/day	Distance(miles)	Days
Progressive Operations Two Entries (6 mi. x 2 entries)	Grader 14G	\$540	2	80	\$80	\$7,480	Production Rates	Miles/day	Distance(miles)	Days
	Dump Truck 12CY x 2	\$114	2	40	\$57	\$2,508	Grader	1.5	12.0	8
	FE Loader C966	\$540	2	20	\$48	\$2,040				
Final Road Maintenance ODF (7.6 mi.)	Grader 14G	\$540	1	50	\$80	\$4,540	Production Rates	Miles/day	Distance(miles)	Days
	Dump Truck 12CY x 3	\$114	3	25	\$57	\$1,767	Grader	1.5	7.6	5
	FE Loader C966	\$540	1	10	\$48	\$1,020	Vibratory Roller*	1.5	7.6	5
	Vibratory Roller	\$540	1	50	\$75	\$4,290				
	Water Truck 2,500 gallon Labor	\$132	1	50 20	\$67 \$25	\$3,482 \$500				
<b>Total</b>							<b>\$27,627</b>			

\*Final Road Maintenance Only

**SUMMARY OF ALL PROJECT COSTS**

**SALE NAME:** Lotta Thin

**NEW CONSTRUCTION:**

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 1	1C-1D, 1E-1F, 1G-1H,	143.05	\$95,669
	1I-1J, 1K-1L, 1M-1N, 1O-1P,		
	1R-1S, 2C-2D, 2F-2G,		
	2H-2I, 2J-2K, 2L-2M, 3A-3B,		
	3C-3D, 3E-3F, 3G-3H, 3I-3J,		
	4A-4B, 4C-4D, 4E-4F, 4G-4H, & 4I-4J		
	1A-1B & 2A-2B	39.62	\$51,660
	<b>TOTALS</b>	182.67	<b>\$147,330</b>

**ROAD IMPROVEMENT:**

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
	I25-I26	7.50	\$886
	<b>TOTALS</b>	7.50	<b>\$886</b>

**SPECIAL PROJECTS:**

	<u>Description</u>	<u>Cost</u>
Project No. 2	Knob Point Quarry Development & Rock Crushing	\$82,826
Project No. 3	West Tidewater Quarry Access and Road Imp.	\$47,146
Project No. 4	West Tidewater Quarry Development & Crushing	\$101,897
Project No. 5	East Summit Road Construction & Improvement	\$109,368
Project No. 6	Road Vacating	\$51,644
	Project Work Road Maintenance	\$13,670
	<b>TOTALS</b>	<b>\$406,551</b>

**MOVE IN:**

	<u>Equipment</u>	<u>Cost</u>
	Dozer (D8) X 2	\$1,960
	Dozer (D7)	\$560
	Dump Trucks (12 cy) X 10	\$1,140
	Dump Trucks (20 cy) X 4	\$536
	F E Loader (C966) X 2	\$1,080
	Grader (14G) X 2	\$1,080
	Vibratory Roller X 2	\$1,080
	Water Truck (2,500 gallon) X 2	\$264
	Excavator (C330) X 4	\$3,920
	<b>TOTAL</b>	<b>\$11,620</b>

**GRAND TOTAL** **\$566,386**

Compiled By: Freeman/Williams 

Date: 12/28/2004

**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Lotta Thin Timber Sale NEW CONSTRUCTION: 39.62 STATIONS 0.75 MILES  
 ROAD: 1A-1B, 2A-2B IMPROVEMENT:            STATIONS            MILES  
 POINTS: 1A-1B (18+11 sta), 2A-2B (21+51 sta)

<b>CLEARING &amp; GRUBBING</b>					
Method	Amount	x	Rate	=	Cost
1A-1B Scattering	1.49	x	\$840.00	=	\$1,251.60
2A-2B Scattering	2.87	x	\$840.00	=	\$2,410.80
		x		=	
<b>SUB TOTAL FOR CLEARING &amp; GRUBBING</b>					<b>\$3,662</b>

<b>EXCAVATION</b>					
Material	Quantity	x	Rate	=	Cost
1A-1B Drifted to fills	1,231	x	\$1.35	=	\$1,661.85
Hauled to 1A-1B fills	1,909	x	\$2.10	=	\$4,008.90
Hauled to waste area	2,466	x	\$1.91	=	\$4,710.06
Cut Slope Rounding	10.39	x	\$27.00	=	\$280.53
Ditchout construction	1	x	\$25.00	=	\$25.00
Embankment Compaction	1,909	x	\$0.40	=	\$763.60
2A-2B Drifted to fills	1,814	x	\$1.35	=	\$2,448.90
Hauled to 1A-1B fill	800	x	\$2.10	=	\$1,680.00
Hauled to 2A-2B fills	1,862	x	\$1.71	=	\$3,184.02
Hauled to waste area	1,740	x	\$2.15	=	\$3,741.00
Embankment Compaction	1,862	x	\$0.40	=	\$744.80
Ditchout construction	2	x	\$25.00	=	\$50.00
Cut Slope Rounding	15.51	x	\$27.00	=	\$418.77
<b>SUB TOTAL FOR EXCAVATION</b>					<b>\$23,717</b>

<b>CULVERT MATERIALS AND INSTALLATION</b>									
Location/Station	Dia/type	Lineal ft.	Rate	Cost	Index/Location	Dia/type	Lineal ft.	Rate	Cost
1A-1B (10+66)	18" CPP	42	\$11.00	\$462.00	1A-1B (1+32)	18" CPP	50	\$11.00	\$550.00
1A-1B (12+87)	18" CPP	34	\$11.00	\$374.00	1A-1B (3+40)	18" CPP	42	\$11.00	\$462.00
2A-2B (2+47)	18" CPP	46	\$11.00	\$506.00					
2A-2B (7+75)	24" CPP	38	\$16.30	\$619.40					
2A-2B (13+00)	18" CPP	32	\$11.00	\$352.00					
<b>Description</b>							<b>Quantity</b>	<b>Rate</b>	<b>Cost</b>
Carsonite Culvert markers							6	\$14.10	\$85
<b>SUB TOTAL FOR CULVERT MATERIALS &amp; INSTALLATION</b>									<b>\$3,410</b>

**SURFACING**

Subgrade prep:	Description	Sta/amount	x	Rate/sta/amt	Cost
	Grade, Shape, Ditch (all roads)	39.62	x	\$15.20	\$602.22
	Roll and Compact (all roads)	39.62	x	\$12.50	\$495.25

ROAD SEGMENT: 1A to 1B				POINT TO POINT		STA. TO STA.		TOTAL VOLUME (cy)	Rate/ Sta Amt	COST
Application	Rock Size and Type	Location	Depth of Rock (Inches)	1A to 1B	0+00 to 18+11					
				Volume (CY) per	Number of					
Surfacing	4"-0" Crushed		8	Station	50	Stations	18.11	906	\$3.99	\$3,613
Turnouts	4"-0" Crushed		8	Turnout	22	Turnouts	2	44	\$3.99	\$176
Junctions	4"-0" Crushed		8	Junction	50	Junctions	2	100	\$3.99	\$399
Turn Arouds	4"-0" Crushed		8	T.Around	24	T.Arouds	1	24	\$3.99	\$96
Fill Widening	4"-0" Crushed		8	Fill		Fills	3	39	\$3.99	\$156
Curve Widening	4"-0" Crushed		8	Curve		Curves	12	68	\$3.99	\$271
Energy Dissipator	24"-6" Rip Rap			Dissipator	10	Dissipators	1	10	\$4.02	\$40
Junctions	3/4"-0" Crushed		3	Junction	19	Junctions	1	19	\$3.99	\$76
Surfacing (Traction lift)	3/4"-0" Crushed		3	Station	19	Stations	6.67	127	\$3.99	\$506
Total Rock for Road Segment:								1,336		\$5,332

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)	2A to 2B	0+00 to 21+51					
				Volume (CY) per	Number of					
Surfacing	4"-0" Crushed		8	Station	50	Stations	21.51	1076	\$3.99	\$4,291
Turnouts	4"-0" Crushed		8	Turnout	22	Turnouts	2	44	\$3.99	\$176
Junctions	4"-0" Crushed		8	Junction	50	Junctions	1	50	\$3.99	\$200
Turn Arouds	4"-0" Crushed		8	T.Around	24	T.Arouds	2	48	\$3.99	\$192
Landings	6"-0" Pit-run		8	Landing	80	Landings	3	240	\$4.02	\$965
Fill Widening	4"-0" Crushed		8	Fill		Fills	2	7	\$3.99	\$28
Curve Widening	4"-0" Crushed		8	Curve		Curves	19	96	\$3.99	\$383
Surfacing (Traction lift)	3/4"-0" Crushed		3	Station	19	Stations	9.82	190	\$3.99	\$758
Junctions	3/4"-0" Crushed		3	Junction	19	Junctions	1	19	\$3.99	\$76
Turnouts	3/4"-0" Crushed		3	Turnout	8	Turnouts	1	8	\$3.99	\$32
Energy Dissipator	24"-6" Rip Rap			Dissipator	10	Dissipators	1	10	\$4.02	\$40
Fill Material (sta 1+70 - sta 2+60)	12"-6" Rip Rap							628	\$4.02	\$2,525
Total Rock for Road Segment:								2,416		\$9,664

Processing:	Description	Stations	\$/Sta	Cost
	Water, Process and Compact (3/4"-0" crushed)	16.49	\$37.00	\$610.13
	Water, Process and Compact (4"-0" crushed) (one lift)	19.81	\$74.00	\$1,465.94

TOTAL ROCK QUANTITY	24"-6"	12"-6"	4"-0"	6"-0"	3/4"-0"	Total
	20	628	2,501	240	363	3,752

**SUBTOTAL SURFACING**

**\$18,170**

SPECIAL PROJECTS

Description	Cost
Remove puncheon fill and develop stream channel @ Sta. 9+71 of 2A-2B (\$130x4)	\$520
Placement 24"-6" Dissipator Rock 20 cy. @ \$2.00 cy	\$40
Spread 12"-6"(\$115/hr x 0.16hrs/10cy x 628cy)	\$1,156
Seed and Mulch waste areas (.13 acres @ \$1195/acre	\$155
Seed and Mulch 1A-1B (sta 1+52-sta 5 +00, sta11+87 - sta18+10) = 0.6 ac @ \$1195/acre	\$717
Seed and Mulch 2A-2B (sta 2+34 - sta 9+80) = 0.53 acres @ \$1195/acre	\$633

SUB TOTAL SPECIAL PROJECTS

\$2,701

GRAND TOTAL

Cost per Mile \$68,846

GRAND TOTAL

\$51,660

Compiled By: d.mellison

Date: 12/6/04

SALE NAME: Lotta Thin  
 PROJECT: 1A-1B  
 QUARRY: \_\_\_\_\_

ROCK TYPE: Waste Haul

DATE: 8/12/04  
 BY: d.mellison

		Cubic Yards								
Segment	Stations	Base	Running	Turnout	Waste	Stockpile	Curves	F.Widen	Total	
1A-1B	18+09				2,770				2,770	0
					2,220				2,220	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
Grand Total	0.00	0	0	0	4,990	0	0	0	4,990	

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-1B	18+09	2,770						0.04	0.05	0.05	0.14
0	0.00	2,220							0.05	0.05	0.10
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	4,990									
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.	0.00	0.00	0.00	0.00	0.02	0.05	0.05	AVERAGE HAUL
										0.12	

Average Round Trip Distance (miles) 0.24

ROCK HAUL:

Truck type: D20 No. trucks: 1  
 Delay min.: 15 Efficiency: 85%

Ave haul: \$0.97 /cy  
 Load: \$0.70 /cy  
 \*Spread: \$0.24 /cy

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

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

Production: cy/day = 554

CRUSHED ROCK HAUL COSTS 4,990 cy @ \$1.91 /cy

\*Spread cost for waste area: 5 trips @ 2 hrs/trip = 10 hrs of D8 @ \$120/hr = \$1,200  
 \$1,200 / 4,990 cy = \$0.24

SALE NAME: Lotta Thin  
 PROJECT: 2A-2B  
 QUARRY: \_\_\_\_\_

ROCK TYPE: Exc to waste

DATE: 8/13/04  
 BY: d.mellison

		Cubic Yards								
Segment	Stations	Base	Running	Turnout	Waste	Stockpile	Curves	F.Widen	Total	
2A-2B	21+51				1,076				1,076	0
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
Grand Total	0.00	0	0	0	1,076	0	0	0	1,076	

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		
2A-2B	21+51	1,076						0.08	0.05	0.05	0.18
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	1,076									AVERAGE HAUL
CUBIC YARD WEIGHTED HAUL			0.00	0.00	0.00	0.00	0.08	0.05	0.05		0.18

Average Round Trip Distance (miles) 0.36

ROCK HAUL:

Truck type: <u>D20</u>	No. trucks: <u>1</u>		
Delay min.: <u>15</u>	Efficiency: <u>85%</u>	Ave haul: <u>\$1.00 /cy</u>	
		Load: <u>\$0.70 /cy</u>	
Truck type: <u>D12</u>	No. trucks: _____	*Spread: <u>\$0.45 /cy</u>	
Delay min.: <u>6</u>	Efficiency: <u>85%</u>		
Truck type: <u>D10</u>	No. trucks: _____	Production: cy/day = <u>537</u>	
Delay min.: <u>10</u>	Efficiency: <u>85%</u>		

CRUSHED ROCK HAUL COSTS      1,076 cy @      **\$2.15 /cy**

\* Spread costs for waste area: 2 trips @ 2 hrs/trip = 4 hrs of D8 @ \$120/hr = \$480  
 \$480/1076 = \$0.45

SALE NAME: Lotta Thin  
 PROJECT: 2A-2B  
 QUARRY: \_\_\_\_\_

ROCK TYPE: Fill to 1A-1B

DATE: 8\12\04  
 BY: d.mellison

Segment	Stations	Cubic Yards							Total
		Base	Running	Turnout	Waste	Stockpile	Curves	F.Widen	
2A-2B	21+51				800				800
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
Grand Total	0.00	0	0	0	800	0	0	0	800

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	
2A-2B	21+51	800				0.23	0.30	0.05	0.05	0.63
0	0.00	0						0.05	0.05	0.10
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	800								
CUBIC YARD WEIGHTED HAUL			0.00	0.00	0.00	0.23	0.30	0.05	0.05	AVERAGE HAUL 0.63

Average Round Trip Distance (miles) 1.26

ROCK HAUL:

Truck type: D20 No. trucks: 1  
 Delay min.: 15 Efficiency: 85%

Ave haul: \$1.20 /cy  
 Load: \$0.90 /cy  
 \*Spread: /cy

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

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

Production: cy/day = 445

CRUSHED ROCK HAUL COSTS 800 cy @ \$2.10 /cy

\* Spread costs accounted in building the fill.



SALE NAME: Lotta Thin  
 PROJECT: 2A-2B  
 QUARRY: \_\_\_\_\_

ROCK TYPE: Exc to fills 2A-2B

DATE: 8/13/04  
 BY: d.mellison

Segment	Stations	Cubic Yards							Total
		Base	Running	Turnout	Waste	Stockpile	Curves	F.Widen	
2A-2B	21+51				3,680				3,680
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
Grand Total	0.00	0	0	0	3,680	0	0	0	3,680

0

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		
2A-2B	21+51	3,680					0.10	0.05	0.05	0.20	
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	3,680									
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.	0.00	0.00	0.00	0.00	0.10	0.05	0.05	AVERAGE HAUL
Average Round Trip Distance (miles)										0.40	

ROCK HAUL:

Truck type: D20 No. trucks: 1  
 Delay min.: 15 Efficiency: 85%

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

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

Ave haul: \$1.01 /cy  
 Load: \$0.70 /cy  
 \*Spread: /cy

Production: cy/day = 531

CRUSHED ROCK HAUL COSTS 3,680 cy @ \$1.71 /cy

\* Spread costs accounted in building the fill.

**SUMMARY OF CONSTRUCTION COSTS**

**SALE NAME:** Lotta Thin  
**ROAD:** 1C-1D(12.35), 1G-1H (3.2), 1I-1J(0.5), 1O-1P(2.0), 1R-1S(2.25),  
 2C-2D(1.5), 2F-2G(1.2), 2H-2I(1.0), 2J-2K(2.4), 2L-2M(8.0),  
 3G-3H(1.0), 4C-4D(1.0), 4E-4F(1.65), & 4I-4J(1.0)

**NEW CONSTRUCTION:** 39.05 **STATIONS** 0.74 **MILES**  
**IMPROVEMENT:** 0.00 **STATIONS** 0.00 **MILES**

<b>CLEARING &amp; GRUBBING</b>						
Method	Acres/amount	x	Rate	=	Cost	
Scatter Outside of R/W	3.80	x	\$840.00	=	\$3,192.00	
<b>SUB TOTAL FOR CLEARING &amp; GRUBBING</b>					<b>\$3,192</b>	

<b>EXCAVATION</b>						
Material	Sta/amount	x	Rate	=	Cost	
Common (Reg Standard Design) \$\$/sta.	39.05	x	\$117.00	=	\$4,568.85	
Landing Construction \$\$/landing	19.00	x	\$270.00	=	\$5,130.00	
1D, 1H, 1J, 1P, 1Q, 1S, 1T, 2D, 2E, 2G, 2I, 2K, 2M, 3H, 4D, 4F, 4J, 4K, 4L						
<b>SUB TOTAL FOR EXCAVATION</b>					<b>\$9,699</b>	

<b>CULVERT MATERIALS AND INSTALLATION</b>								
Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost	
1O-1P(on mainline)	0+00	18"CPP	40	\$11.00	\$440.00			
2J-2K	0+05	18"CPP	50	\$11.00	\$550.00			
2L-2M	0+80	18"CPP	40	\$11.00	\$440.00			
2L-2M	6+00	18"CPP	34	\$11.00	\$374.00			
3G-3H	0+00	18"CPP	40	\$11.00	\$440.00			
4I-4J	0+00	18"CPP	40	\$11.00	\$440.00			
Other/miscellaneous:					Description	Quantity	Rate	Cost
								\$0.00
Culvert stakes & markers:					6' FIBERGLASS MARKERS	6	\$14.10	\$84.60
								\$0.00

**SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION** \$2,769  
Subtotal **\$15,659**



SURFACING		Subgrade prep: Description						Stations/amount	x	Rate/sta/amt	Cost
		Grade, Shape and Ditch 16' (All rocked roads)						108.20	x	\$15.20	\$1,644.64
		Subgrade Compaction (Includes the 1st Sta.on 1C-1D & 3C-3D)						110.20	x	\$12.50	\$1,377.50
		(dirt) Grade and Shape 14' outslope 1C-1D, 1G-1H, 3C-3D						32.35	x	\$11.20	\$362.32
ROAD SEGMENT	1C to 1D			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	1C to 1D Volume (CY) per		0+00 to 12+35 Number of					
Base Rock	4"-0" Crushed	0+00-1+00	8	station	50	stations	1.00	50	\$3.99	\$199	
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1	24	\$3.99	\$96	
Total Rock for Road Segment: 1C to 1D								74		\$295	
ROAD SEGMENT	1E to 1F			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	1E to 1F Volume (CY) per		0+00 to 11+70 Number of					
Base Rock	4"-0" Crushed	0+00-11+70	8	station	50	stations	11.70	585	\$3.99	\$2,331	
Traction Rock	3/4"-0" Crushed	4+00-10+00	2	station	13	stations	6.00	78	\$3.99	\$311	
Turn Outs	4"-0" Crushed	5+35 & 7+35	8	turnout	22	turnouts	2	44	\$3.99	\$175	
Turn Outs	3/4"-0" Crushed	5+35 & 7+35	2	turnout	10	turnouts	2	20	\$3.99	\$80	
Curve Widening	4"-0" Crushed	N/A	8	curve	20	curves	2	40	\$3.99	\$159	
Curve Wid. Traction	3/4"-0" Crushed	N/A	2	curve	10	curves	2	20	\$3.99	\$80	
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1	24	\$3.99	\$96	
Turn-Around	4"-0" Crushed	10+05	N/A	TA	24	TA	1	24	\$3.99	\$96	
Landings	6"-0" Pit-run	11+70	N/A	Landing	150	Landings	1	150	\$4.02	\$603	
Total Rock for Road Segment: 1E to 1F								985		\$3,931	
ROAD SEGMENT	1I to 1J			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	1I to 1J Volume (CY) per		0+00 to 0+50 Number of					
Base Rock	4"-0" Crushed	0+00 - 0+50	8	station	50	stations	0.50	25	\$3.99	\$100	
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1.00	24	\$3.99	\$96	
Junctions	3/4"-0" Crushed	0+00	2	junction	10	junctions	1	10	\$3.99	\$40	
Landings	6"-0" Pit-run	0+50	N/A	Landing	80	Landings	1	80	\$4.02	\$322	
Total Rock for Road Segment: 1I to 1J								139		\$557	
ROAD SEGMENT	1O to 1P			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	1O to 1P Volume (CY) per		0+00 to 2+00 Number of					
Base Rock	4"-0" Crushed	0+00-2+00	8	station	50	stations	2.00	100	\$3.99	\$399	
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1	24	\$3.99	\$96	
Junctions	3/4"-0" Crushed	0+00	2	junction	10	junctions	1	10	\$3.99	\$40	
Culvert Bedding	3/4"-0" Crushed	0+00	2	culvert	20	culverts	1	20	\$3.99	\$80	
Landings	6"-0" Pit-run	2+00	N/A	landing	80	landings	1	80	\$4.02	\$322	
Total Rock for Road Segment: 3A to 3B								234		\$935	
ROAD SEGMENT	1Q Landing			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	1Q Landing Volume (CY) per		1Q Number of					
Junctions	3/4"-0" Crushed	0+00	2	junction	10	junctions	1	10	\$3.99	\$40	
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1	24	\$3.99	\$96	
Landings	4"-0" Crushed	1Q	N/A	landing	40	landings	1	40	\$3.99	\$159	
Total Rock for Road Segment: 1Q Landing								74		\$295	

ROAD SEGMENT	1R to 1S			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1R to 1S		0+00 to 2+25				
				Volume (CY) per	Number of					
Base Rock	4"-0" Crushed	0+00-2+25	8	station	50	stations	2.25	113	\$3.99	\$448
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1	24	\$3.99	\$96
Junctions	3/4"-0" Crushed	0+00	2	junction	10	junctions	1	10	\$3.99	\$40
Landings	6"-0" Pit-run	2+25	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment:				1R to 1S				227		
ROAD SEGMENT	1T Landing			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1T Landing		1T Landing				
				Volume (CY) per	Number of					
Junctions	3/4"-0" Crushed	0+00	2	junction	10	junctions	1	10	\$3.99	\$40
Landings	6"-0" Pit-run	1T	N/A	landing	40	landings	1	40	\$4.02	\$161
Total Rock for Road Segment:				1T Landing				50		
ROAD SEGMENT	2C to 2D			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C to 2D		0+00 to 1+50				
				Volume (CY) per	Number of					
Base Rock	4"-0" Crushed	0+00-1+50	8	station	50	stations	1.50	75	\$3.99	\$299
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1	24	\$3.99	\$96
Landings	6"-0" Pit-run	1+50	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment:				2C to 2D				179		
ROAD SEGMENT	2E Landing			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2E Landing		2E Landing				
				Volume (CY) per	Number of					
Landings	6"-0" Pit-run	2E	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment:				2E Landing				80		
ROAD SEGMENT	2F to 2G			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2F to 2G		0+00 to 1+20				
				Volume (CY) per	Number of					
Base Rock	4"-0" Crushed	0+00-1+20	8	station	50	stations	1.20	60	\$3.99	\$239
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1	24	\$3.99	\$96
Junctions	3/4"-0" Crushed	0+00	2	junction	10	junctions	1	10	\$3.99	\$40
Landings	6"-0" Pit-run	1+20	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment:				2F to 2G				174		
ROAD SEGMENT	2H to 2I			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2H to 2I		0+00 to 1+00				
				Volume (CY) per	Number of					
Base Rock	4"-0" Crushed	0+00-1+00	8	station	50	stations	1.00	50	\$3.99	\$199
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1	24	\$3.99	\$96
Junctions	3/4"-0" Crushed	0+00	2	junction	10	junctions	1	10	\$3.99	\$40
Landings	6"-0" Pit-run	1+20	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment:				2H to 2I				164		
ROAD SEGMENT	2J to 2K			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2J to 2K		0+00 to 2+40				
				Volume (CY) per	Number of					
Base Rock	4"-0" Crushed	0+00-2+40	8	station	50	stations	2.40	120	\$3.99	\$478
Junctions	4"-0" Crushed	0+00	8	junction	40	junctions	1	40	\$3.99	\$159
Junctions	3/4"-0" Crushed	0+00	2	junction	20	junctions	1	20	\$3.99	\$80
Landings	6"-0" Pit-run	2+40	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment:				2J to 2K				260		

\$905

\$201

\$716

\$322

\$696

\$656

\$1,039

ROAD SEGMENT	2L to 2M			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2L to 2M Volume (CY) per		0+00 to 8+00 Number of				
Base Rock	4"-0" Crushed	0+00-8+00	8	station	50	stations	8.00	400	\$3.99	\$1,594
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1	24	\$3.99	\$96
Turn Outs	4"-0" Crushed	2+50, 5+50	8	turnout	22	turnouts	2	44	\$3.99	\$175
Turn-Around	4"-0" Crushed	6+25	N/A	TA	24	TA	1	24	\$3.99	\$96
Landings	6"-0" Pit-run	8+00	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment: 2L to 2M								572		
ROAD SEGMENT	3A to 3B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A to 3B Volume (CY) per		0+00 to 40+20 Number of				
Base Rock	4"-0" Crushed	0+00-40+20	8	station	50	stations	40.20	2,010	\$3.99	\$8,010
Traction Rock	3/4"-0" Crushed	30+00-36+00	2	station	13	stations	6.00	78	\$3.99	\$311
Turn Outs	4"-0" Crushed	5+50, 11+60, 15+15, 23+20, 30+10, 35+50	8	turnout	22	turnouts	6	132	\$3.99	\$526
Turn Outs	3/4"-0" Crushed	30+10, 35+50	2	turnout	10	turnouts	2	20	\$3.99	\$80
Curve Widening	4"-0" Crushed	N/A	8	curves	10	curves	12	120	\$3.99	\$478
Curve Wid. Traction	3/4"-0" Crushed	N/A	2	curves	4	curves	5	20	\$3.99	\$80
Turn-Around	4"-0" Crushed	39+00	N/A	TA	24	TA	1	24	\$3.99	\$96
Junctions	4"-0" Crushed	0+00	8	junction	40	junctions	1	40	\$3.99	\$159
Junctions	3/4"-0" Crushed	0+00	2	junction	20	junctions	1	20	\$3.99	\$80
Landings	6"-0" Pit-run	40+20	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment: 3A to 3B								2,544		
ROAD SEGMENT	3C to 3D			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3C to 3D Volume (CY) per		0+00 to 16+80 Number of				
Base Rock	4"-0" Crushed	0+00-1+00	8	station	50	stations	1.00	50	\$3.99	\$199
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1	24	\$3.99	\$96
Subgrade Reinforcement	4"-0" Crushed	4+25-4+75	N/A	N/A	30	N/A	1.00	30	\$3.99	\$120
Total Rock for Road Segment: 3C to 3D								104		
ROAD SEGMENT	3E to 3F			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3E to 3F Volume (CY) per		0+00 to 4+25 Number of				
Base Rock	4"-0" Crushed	0+00-4+25	8	station	50	stations	4.25	213	\$3.99	\$847
Junctions	4"-0" Crushed	0+00	8	junction	40	junctions	1	40	\$3.99	\$159
Turn Outs	4"-0" Crushed	2+75	8	turnout	22	turnouts	1	22	\$3.99	\$88
Landings	6"-0" Pit-run	4+25	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment: 3E to 3F								355		
ROAD SEGMENT	3G to 3H			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3G to 3H Volume (CY) per		0+00 to 1+00 Number of				
Base Rock	4"-0" Crushed	0+00-1+00	8	station	50	stations	1.00	50	\$3.99	\$199
Junctions	4"-0" Crushed	0+00	8	junction	40	junctions	1	40	\$3.99	\$159
Junctions	3/4"-0" Crushed	0+00	2	junction	20	junctions	1	20	\$3.99	\$80
Landings	6"-0" Pit-run	1+00	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment: 3G to 3H								190		

\$2,282

\$10,141

\$414

\$1,416

\$760

ROAD SEGMENT	3I to 3J			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
	Rock Size and Type	Location	Depth of Rock (inches)	3I to 3J		0+00 to 7+60				
				Volume (CY) per	Number of	Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	0+00-7+60	8	station	50	stations	7.60	380	\$3.99	\$1,514
Traction Rock	3/4"-0" Crushed	0+00-7+00	2	station	13	stations	7.00	91	\$3.99	\$363
Turn Outs	4"-0" Crushed	5+25	8	turnout	22	turnouts	1	22	\$3.99	\$88
Turn Outs	3/4"-0" Crushed	5+25	2	turnout	10	turnouts	1	10	\$3.99	\$40
Curve Widening	4"-0" Crushed	N/A	8	N/A	20	curves	2	40	\$3.99	\$159
Curve Wid. Traction	3/4"-0" Crushed	N/A	2	N/A	10	curves	2	20	\$3.99	\$80
Turn-Around	4"-0" Crushed	6+75	N/A	TA	24	TA	1	24	\$3.99	\$96
Junctions	4"-0" Crushed	0+00	8	junction	40	junctions	1	40	\$3.99	\$159
Junctions	3/4"-0" Crushed	0+00	2	junction	20	junctions	1	20	\$3.99	\$80
Landings	6"-0" Pit-run	7+60	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment:				3I to 3J				727		

\$2,900

ROAD SEGMENT	4A to 4B			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
	Rock Size and Type	Location	Depth of Rock (inches)	4A to 4B		0+00 to 19+65				
				Volume (CY) per	Number of	Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	0+00-19+65	8	station	50	stations	19.65	983	\$3.99	\$3,915
Traction Rock	3/4"-0" Crushed	0+60-5+60	2	station	13	stations	5.00	65	\$3.99	\$259
Traction Rock	3/4"-0" Crushed	12+00-15+50	2	station	13	stations	3.50	46	\$3.99	\$181
Turn Outs	4"-0" Crushed	9F+0, 11F+0, 17+70	8	turnout	22	turnouts	3	66	\$3.99	\$263
Curve Widening	4"-0" Crushed		8	curve	10	curves	5	50	\$3.99	\$199
Curve Wid. Traction	3/4"-0" Crushed		2	curve	4	curves	5	20	\$3.99	\$80
Turn-Around	4"-0" Crushed	18+10	N/A	TA	24	TA	1	24	\$3.99	\$96
Junctions	4"-0" Crushed	0+00	8	junction	40	junctions	1	40	\$3.99	\$159
Junctions	3/4"-0" Crushed	0+00	2	junction	20	junctions	1	20	\$3.99	\$80
Landings	6"-0" Pit-run	19+65	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment:				4A to 4B				1,393		

\$5,554

ROAD SEGMENT	4C to 4D			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
	Rock Size and Type	Location	Depth of Rock (inches)	4C to 4D		0+00 to 1+00				
				Volume (CY) per	Number of	Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	0+00-1+00	8	station	50	stations	1.00	50	\$3.99	\$199
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1	24	\$3.99	\$96
Landings	6"-0" Pit-run	1+00	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment:				4C to 4D				154		

\$617

ROAD SEGMENT	4E to 4F			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
	Rock Size and Type	Location	Depth of Rock (inches)	4E to 4F		0+00 to 1+65				
				Volume (CY) per	Number of	Volume (CY) per	Number of			
Base Rock	4"-0" Crushed	0+00-1+65	8	station	50	stations	1.65	83	\$3.99	\$329
Junctions	4"-0" Crushed	0+00	8	junction	24	junctions	1	24	\$3.99	\$96
Junctions	3/4"-0" Crushed	0+00	2	junction	10	junctions	1	10	\$3.99	\$40
Landings	6"-0" Pit-run	1+65	N/A	landing	80	landings	1	80	\$4.02	\$322
Total Rock for Road Segment:				4E to 4F				197		

\$786

ROAD SEGMENT	4G to 4H		POINT TO POINT				Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4G to 4H		0+00 to 1+30					
				Volume (CY)	Number of						
Base Rock	4"-0" Crushed	0+00-1+30	8	station	50	stations	1.30	65	\$3.99	\$259	
Junctions	4"-0" Crushed	0+00	8	junction	40	junctions	1	40	\$3.99	\$159	
Junctions	3/4"-0" Crushed	0+00	2	junction	20	junctions	1	20	\$3.99	\$80	
Landings	6"-0" Pit-run	1+30	N/A	landing	80	landings	1	80	\$4.02	\$322	
Total Rock for Road Segment:								4G to 4H	205		\$820
ROAD SEGMENT	4I to 4J		POINT TO POINT				Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4I to 4J		0+00 to 1+00					
				Volume (CY)	Number of						
Base Rock	4"-0" Crushed		8	station	50	stations	1.00	50	\$3.99	\$199	
Junctions	4"-0" Crushed		8	junction	24	junctions	1	24	\$3.99	\$96	
Junctions	3/4"-0" Crushed		2	junction	10	junctions	1	10	\$3.99	\$40	
Landings	6"-0" Pit-run	1+65	N/A	landing	80	landings	1	80	\$4.02	\$322	
Total Rock for Road Segment:								4I to 4J	164		\$656
ROAD SEGMENT	4 K Landing		POINT TO POINT				Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4 K Landing		4K Landing					
				Volume (CY)	Number of						
Junctions	3/4"-0" Crushed	0+00	2	junction	10	junctions	1	10	\$3.99	\$40	
Landings	4"-0" Crushed	4K	N/A	landing	50	landings	1	50	\$3.99	\$199	
Total Rock for Road Segment:								4 K Landing	60		\$239
ROAD SEGMENT	4L Landing		POINT TO POINT				Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4L Landing		4L Landing					
				Volume (CY)	Number of						
Junctions	3/4"-0" Crushed	0+00	2	junction	10	junctions	1	10	\$3.99	\$40	
Landings	4"-0" Crushed	4L	N/A	landing	50	landings	1	50	\$3.99	\$199	
Total Rock for Road Segment:								4L Landing	60		\$239

Processing:	Description	No. sta/Jct	Rate/sta	Cost
	Water, Process & Compact Crushed Rock:(8" roads in one lift)	110.20	\$37.00	\$4,077
	3/4"-0" Traction Rock Water Process & Compaction	25.50	\$37.00	\$944
	3/4"-0" Junction Rock Water Process & Compaction	12.0	\$18.50	\$222

	24"-6"rr	12"-6"pr	6"-0"pr	4"-0"	3/4"-0"	Total	
<b>SUB TOTAL FOR SURFACING</b>	0	0	1,630	6,996	738	9,364	<b>\$45,999</b>

**SPECIAL PROJECTS**

Description	Cost

**SUB TOTAL FOR SPECIAL PROJECTS**

<b>GRAND TOTAL</b>	Cost per Mile	\$35,940	<b>\$95,669.11</b>
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Compiled By: L.Freeman

Date: 11/8/2004



SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Lotta Thin NEW CONSTRUCTION: \_\_\_\_\_ STATIONS \_\_\_\_\_ MILES  
 ROAD: Knob Point Access Road IMPROVEMENT: 7.50 STATIONS 0.14 MILES  
 POINTS: I25 to I26

CLEARING & GRUBBING					
Method	Amount	x	Rate	=	Cost
_____	_____	x	_____	=	_____
<b>SUB TOTAL FOR CLEARING &amp; GRUBBING</b>					

EXCAVATION					
Material	Quantity	x	Rate	=	Cost
_____	_____	x	_____	=	_____
<b>SUB TOTAL FOR EXCAVATION</b>					

CULVERT MATERIALS AND INSTALLATION									
Index/Location	Dia/type	Lineal ft.	Rate	Cost	Index/Location	Dia/type	Lineal ft.	Rate	Cost
Description					Quantity		Rate		Cost
<b>SUB TOTAL FOR CULVERT MATERIALS &amp; INSTALLATION</b>									

SURFACING					
Subgrade prep:	Description	Sta/amount	x	Rate/sta/amt	Cost
Grade, Shape, Ditch		7.50	x	\$15.20	\$114.00
Roll and Compact		7.50	x	\$12.50	\$93.75

ROAD SEGMENT:			POINT TO POINT		STA. TO STA.		TOTAL VOLUME (CY)	Rate/ Sta Amt	COST	
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Pt I25 to Pt I26 Volume (CY) per	0+00 - 7+50 Number of	Stations				
Surfacing	3/4"-0" Crushed		3	Station	19	Stations	7.5	143	\$2.81	\$400.43
<b>Total Rock for Road Segment:</b>								<b>143</b>		<b>\$400.43</b>

Processing:	Description	Stations	\$/Sta	Cost
	Water, Process and Compact	7.5	\$37.00	\$277.50

TOTAL ROCK QUANTITY	2 1/2"-5"	5"-9"	4'-0"	1 1/2"-4"	3/4"-0"	Total
				143		143

**SUBTOTAL SURFACING** **\$886.68**

SPECIAL PROJECTS	
Description	Cost
_____	_____
<b>SUB TOTAL SPECIAL PROJECTS</b>	

**GRAND TOTAL** **\$886**

Compiled By: \_\_\_\_\_ Date: \_\_\_\_\_

SALE NAME: Lotta Thin  
 PROJECT: No. 1 - New Roads  
 QUARRY: Knob Point Quarry

ROCK TYPE: Crushed 4"and 3/4"

DATE: 12/3/2004  
 BY: Freeman/Williams

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-1B	18.11	1,308			1	3.11	0.70	0.20	0.20	5.21
1C-1D	12.35	74			1	3.11	0.70	0.20	0.18	5.19
1E-1F	11.70	835			1	3.11	0.70	0.20	0.18	5.19
1I-1J	0.50	59			1	3.11	0.70	0.20	0.10	5.11
										0.00
										0.00
1O-1P	2.00	154			1	3.11	0.70	0.12	0.20	5.13
1Q	0.00	74			1	3.11	0.70	0.23	0.20	5.24
1R-1S	2.25	147			1	3.11	0.70	0.46	0.20	5.47
1T	0.00	10			1	3.11	1.10	0.20	0.10	5.51
2A-2B	21.51	1,511			1	2.45	0.70	0.20	0.20	4.55
2C-2D	1.50	99			1	2.45	0.70	0.20	0.21	4.56
2F-2G	1.20	94			1	2.45	0.45	0.10	0.05	4.05
2H-2I	1.00	84			1	2.98	0.70	0.12	0.10	4.90
2J-2K	2.40	180			1	3.11	0.70	0.46	0.16	5.43
2L-2M	8.00	492			1	3.11	0.70	0.46	0.23	5.50
3A-3B	40.20	2,464			1	3.11	1.27	0.84	0.20	6.42
3C-3D	1.00	104			1	3.11	1.27	0.84	0.25	6.47
3E-3F	4.25	275			1	3.11	1.27	0.45	0.20	6.03
3G-3H	1.00	110			1	3.11	0.89	0.46	0.20	5.66
3I-3J	7.60	647			1	3.11	0.89	0.46	0.10	5.56
4A-4B	19.65	1,272			1	3.87	0.70	0.56	0.28	6.41
4C-4D	1.00	74			1	3.87	0.70	0.35	0.28	6.20
4E-4F	1.65	117			1	3.87	0.70	0.56	0.28	6.41
4G-4H	1.30	125			1	3.77	0.70	0.46	0.20	6.13
4I-4J	1.00	84			1	3.77	0.70	0.56	0.30	6.33
4K	0.00	60			1	3.77	0.70	0.56	0.41	6.44
4L	0.00	60			1	3.77	0.70	0.67	0.41	6.55
										0.00
										0.00
										0.00
										0.00
TOTAL	161.17	10,513								AVERAGE HAUL
	STA./NO.	CU. YD.								HAUL
CUBIC YARD WEIGHTED HAUL			0.00	0.00	0.71	2.31	0.67	0.38	0.15	4.22
Average Round Trip Distance (miles) 8.44										

ROCK HAUL:

Truck type: D20 No. trucks: \_\_\_\_\_  
 Delay min.: 8 Efficiency: 85% Ave haul: \$3.34 /cy  
 Load: \$0.00 /cy  
 Spread: \$0.65 /cy

Truck type: D12 No. trucks: 8  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 5 Efficiency: 85% Production: cy/day = 1,093

Haul min:	44.13	Yd/hr:	0.00
Haul \$/cy	\$2.46	Truck wt:	0%
Haul min:	42.13	Yd/hr:	136.73
Haul \$/cy	\$3.34	Truck wt:	100%
Haul min:	41.13	Yd/hr:	0.00
Haul \$/cy	\$3.91	Truck wt:	0%

CRUSHED ROCK HAUL COSTS 10,513 cy @ \$3.99 /cy



**SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS**

PROJECT NO. 2

Timber Sale Name: Lotta Thin

Quarry: Knob Point  
 Location: \_\_\_\_\_  
 County: \_\_\_\_\_  
 By: d.mellison  
 Date: 11\5\04

Swell: \_\_\_\_\_  
 Shrink: 16%  
 Reject: 2%

ROCK SIZE	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
<u>3/4"-0"</u>	<u>CR</u>	_____	<u>1,244</u>	<u>1,244</u>
<u>4"-0"</u>	<u>CR</u>	_____	<u>9,497</u>	<u>9,497</u>
<u>6"-0"</u>	<u>PR</u>	_____	<u>1,870</u>	<u>1,870</u>
<u>12"-6"\"24"-6"</u>	<u>RR</u>	_____	<u>648</u>	<u>648</u>
<b>TOTAL CUBIC YARDS OF ROCK:</b>			<b>13,259</b>	<b>13,259</b>

**1) MOBILIZATION & SET UP:**

EQUIPMENT MOBILIZATION	DISTANCE IN MILES	DIST. FACTOR	BASE RATE	COST
<u>3 Stage Crusher</u>	<u>75</u>	<u>1.40</u>	<u>\$2,220</u>	<u>\$3,108</u>
<u>Screening Plants (2)</u>	<u>75</u>	<u>1.40</u>	<u>\$900</u>	<u>\$1,260</u>
<u>D8 Cat</u>	<u>75</u>	<u>1.40</u>	<u>\$980</u>	<u>\$1,372</u>
<u>Loader</u>	<u>75</u>	<u>1.40</u>	<u>\$560</u>	<u>\$784</u>
<u>Drill &amp; Compressor</u>	<u>75</u>	<u>1.40</u>	<u>\$1,080</u>	<u>\$1,512</u>
<u>Powder</u>	<u>75</u>	<u>1.40</u>	<u>\$270</u>	<u>\$378</u>
<u>Excavator</u>	<u>75</u>	<u>1.40</u>	<u>\$500</u>	<u>\$700</u>
<b>SUB TOTAL FOR MOBILIZATION</b>				<b>\$9,114</b>

EQUIPMENT SET UP	TIMES	RATE	COST
<u>3 Stage Crusher</u>	<u>1</u>	<u>\$2,530</u>	<u>\$2,530</u>
<u>Screening Plants (2)</u>	<u>1</u>	<u>\$425</u>	<u>\$425</u>
<u>Change Gradation</u>	<u>1</u>	<u>\$400</u>	<u>\$400</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
<b>SUB TOTAL FOR SET UP COSTS</b>			<b>\$3,355</b>

**TOTAL MOBILIZATION & SET UP COSTS** **\$12,469**

**2) CLEARING & GRUBBING**

DESCRIPTION	QUANTITY	UNIT	RATE	COST
<u>Pile and Burn</u>	<u>0.2</u>	<u>acres</u>	<u>\$1,720</u>	<u>\$310</u>
<u>Deck logs at opposite end of quarry</u>	<u>1.0</u>	<u>hr</u>	<u>\$90</u>	<u>\$90</u>
<u>Fell trees</u>	<u>4.0</u>	<u>hr</u>	<u>\$30</u>	<u>\$120</u>
<u>Mobilize fire truck</u>	_____	_____	<u>\$114</u>	<u>\$114</u>
<u>Mulching the overburden site</u>	<u>0.7</u>	<u>acres</u>	<u>\$945</u>	<u>\$662</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

**TOTAL CLEARING & GRUBBING COSTS** **\$1,295**

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Existing piled Overburden removal	4,546	C.Y.	\$1.66	\$7,546
New Overburden removal	1,778	C.Y.	\$1.66	\$2,951

**TOTAL EXCAVATION COSTS** \$10,498

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping			\$1.85	
crushed	10,738	80%	Drill & shoot	100%	13,711	\$1.90	\$26,050
pit run	2,110	16%	Oversize red	1%	128	\$6.50	\$835
rip rap	648	5%	Other				
Total	13,496						
reject	25						

**TOTAL ROCK DEVELOPMENT COSTS** \$26,886

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$400	\$800
Calibrate			
Test	5	\$50	\$250
Test			

**TOTAL CALIBRATION & TESTING COSTS** \$1,050

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	10,763	\$0.66	\$7,104

**TOTAL FEEDING & LOADING COSTS** \$7,104

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTIO	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed	1,065	3 stage w/s	110	\$2.95	\$3,147
			3 stage w/s	120		
4"-0"	crushed	9,673	2 stage w/s	140	\$2.07	\$20,037

**TOTAL ROCK CRUSHING COSTS** \$23,184

**8) STOCKPILING**

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

SUB TOTAL

HAUL & STOCKPILE STOCKPILE LOCATION	SIZE	# of 10CY TRUCKS	CU. YDS.	RATE	COST

SUB TOTAL

**TOTAL STOCKPILING COSTS**

**9) MISCELLANEOUS COSTS**

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	
1.66                      25 CY	\$41
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	\$300

**TOTAL MISCELLANEOUS COSTS**

\$341

**10) GRAND TOTAL:**

**\$82,826**

\$/Cubic Yard

\$6.25

**Footnotes:**

Construct/Reconstruct Stockpile Floor

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

Rock for Floor (CY)	\$/CY Haul	Total
	RATE	#VALUE!

Total Construct Stockpile Floor #VALUE!

SALE NAME: Lotta Thin  
 PROJECT: Moving Overburden  
 QUARRY: Knob Point

ROCK TYPE: Overburden

DATE: 11/05/04  
 BY: d.mellison

		Cubic Yards								
Segment	Stations	Base	Running	Turnout	Overbden	Stockpile	Curves	F.Widen	Total	
1					4,546				4,546	0
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
									0	
Grand Total	0.00	0	0	0	4,546	0	0	0	4,546	

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	
1	0.00	4,546							0.10	0.10
0	0.00	0						0.05	0.05	0.10
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	4,546								
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.							AVERAGE HAUL
				0.00	0.00	0.00	0.00	0.00	0.10	0.10

Average Round Trip Distance (miles) 0.20

ROCK HAUL:

Truck type: <u>D20</u>	No. trucks: <u>2</u>	
Delay min.: <u>15</u>	Efficiency: <u>85%</u>	Ave haul: \$1.00 /cy
		Load: \$0.40 /cy
Truck type: <u>D12</u>	No. trucks: _____	*Spread: \$0.26 /cy
Delay min.: <u>6</u>	Efficiency: <u>85%</u>	
Truck type: <u>D10</u>	No. trucks: _____	Production: cy/day = 1,077
Delay min.: <u>10</u>	Efficiency: <u>85%</u>	

CRUSHED ROCK HAUL COSTS      4,546 cy @      \$1.66 /cy

\*Spread cost for waste area: 2 hrs/day \* 5 days = 10hrs @ \$120/hr = \$1200 = \$0.26/cy

SUMMARY OF CONSTRUCTION COSTS - PROJECT NO. 3

SALE NAME: Lotta Thin NEW CONSTRUCTION: 32.95 STATIONS 0.62 MILES  
 ROAD: TW Ridge Tie Road, WeyCo TW road IMPROVEMENT: 103.93 STATIONS 1.97 MILES  
 POINTS: I20-I21 (3+76 sta), I21 - Pt A (30+34 sta), Pt A-PtB (32+95 sta), I22 - I23 (3+72 sta), I23-I24 (66+11 sta)

Method	Amount	x	Rate	=	Cost
(I20-I21) 10' each side of road (acres)	0.14	x	\$1,980	=	\$277.20
(I21-PtA) 10' each side of road (acres)	1.39	x	\$1,980	=	\$2,752.20
(PtA-PtB)	3.66	x	\$840	=	\$3,074.40
(I22-I23) & (I23-I24) None		x		=	
<b>SUB TOTAL FOR CLEARING &amp; GRUBBING</b>					<b>\$6,104</b>

Material	Quantity	x	Rate	=	Cost
(I21-Pt A) TO (6ea), DO (8ea), CW (2ea) C325	12	x	\$115	=	\$1,380.00
(Pt A-Pt B) New Constr Common Exc.	2,539	x	1.35	=	\$3,427.65
(Pt A-Pt B) New Constr Endhaul	1,204	x	\$2.75	=	\$3,311.00
(Pt A-Pt B) New Construction Embankment	2,618	x	\$0.40	=	\$1,047.20
(Pt A-Pt B) New Constr Cut slope rounding (sta)	4.14	x	\$27	=	\$111.78
(Pt A-Pt B) Seed & Mulch (acres)	0.17	x	\$945	=	\$160.65
(Pt A-Pt B) Ditchout Construction (4ea) c325	2	x	\$115	=	\$230
(Pt A-Pt B) Re-define ditch line @ sta. 66+32	0.5	x	\$115	=	\$57.50
(I22-I23 and I23-I24) None		x		=	
<b>SUB TOTAL FOR EXCAVATION</b>					<b>\$9,726</b>

L-line location	Dia/type	Lineal ft.	Rate	Cost	L-line location	Dia/type	Lineal ft.	Rate	Cost
(A-B) 36+10	18"	36	\$11.00	\$396.00	(A-B) 40+63	18"	36	\$11.00	\$396.00
(A-B) 48+01	18"	30	\$11.00	\$330.00	(A-B) 58+59	18"	30	\$11.00	\$330.00
(A-B) 54+66	18"	36	\$11.00	\$396.00	(I22-I23) 0+76	18"	40	\$11.00	\$440.00
Description		Quantity	Rate	Cost					
Carsonite Culvert markers		6	\$14.10	\$85					
<b>SUB TOTAL FOR CULVERT MATERIALS &amp; INSTALLATION</b>					<b>\$2,373</b>				

Subgrade prep:	Description	Sta/amount	x	Rate/sta/am	Cost
	Grade, Shape, & Ditch (All roads)	136.88	x	\$15.20	\$2,080.58
	Roll & Compact (All roads)	136.88	x	\$12.50	\$1,711.00

ROAD SEGMENT: I20 to I21				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					
Surfacing	1"-0" Crushed		4	station 25	stations 3.76		94	\$1.66	\$156.04	
Total Rock for Road Segment:				I22 to I23				94		\$156.04
ROAD SEGMENT: I21 to PtA				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					
Leveling Rock	4"-0" Crushed						250	\$1.45	\$362.50	
Surfacing	1"-0" Crushed		4	station 25	stations 30.34		759	\$1.45	\$1,099.83	
Turnouts	1"-0" Crushed		4	turnout 11	turnouts 6		66	\$1.45	\$95.70	
Curve Widening	1"-0" Crushed		4	curve 8	curves 2		16	\$1.45	\$23.20	
Total Rock for Road Segment:				I21 - PtA				1091		\$1,581.23
ROAD SEGMENT: PtA to PtB				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					
Surfacing	4"-0" Crushed		10	station 63	stations 32.95		2076	\$2.15	\$4,463.08	
Turnouts	4"-0" Crushed		10	turnout 28	turnouts 5		140	\$2.15	\$301.00	
Curve Widening	4"-0" Crushed		10	curve n/a	curves 19		152	\$2.15	\$326.80	
Subgrade Reinforcement	4"-0" Crushed		12	station 75	stations 7.2		540	\$2.15	\$1,161.00	
Surfacing	1"-0" Crushed		4	station 25	stations 32.95		824	\$2.15	\$1,771.06	
Turnouts	1"-0" Crushed		4	turnout 11	turnouts 5		55	\$2.15	\$118.25	
Curve Widening	1"-0" Crushed		4	curve n/a	curves 19		49	\$2.15	\$105.35	
Ditch/Road Edge Armor	12"-6" Riprap						10	\$2.15	\$21.50	
Total Rock for Road Segment:				Pt A to Pt B				3846		\$8,268.04
ROAD SEGMENT: I22 to I23				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					
Surfacing	1"-0" Crushed		8	station 50	stations 3.72		186	\$2.45	\$455.70	
Culvert Bedding	1"-0" Crushed			culvert 10	culverts 1		10	\$2.45	\$24.50	
Total Rock for Road Segment:				I22 to I23				196		\$480.20
ROAD SEGMENT: I23 to I24				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					
Leveling	1"-0" Crushed		n/a	n/a	n/a		350	\$2.81	\$983.50	
Total Rock for Road Segment:				I23 to I24				350		\$983.50

TOTAL ROCK QUANTITY	24"-6"	12"-6"	4"-0"	1 1/2"-0"	1"-0"	Total
		10	3158		2418	5586

Processing:	Stations	\$/sta	Cost
Water, Process, and Compact (4"-0" Crushed) (first lift)	37.95	\$37.00	\$1,404.15
Water, Process, and Compact (4"-0" Crushed) (second lift)	37.95	\$37.00	\$1,404.15
Water, Process, and Compact 1"-0" Crushed) (one lift)	136.88	\$37.00	\$5,064.56

SUBTOTAL SURFACING

\$23,133



**SPECIAL PROJECTS Extraneous Mobilization**

	Description	Costs
Mobilization:	(2) Graders - \$1080, Roller - \$540, D.Trucks (6) - \$684	\$2,304
Mobilization:	Water trk - \$114, C325 - \$900, Cat D-8 \$980, Chipper - \$540	\$2,534
	Seed & mulch 0.1 acres @ \$1195/acre	\$120
	Fabric (34+60-36+10, 49+35-52+05, 56+85-61+50, 65+77-66+35) = 1310 sq. yds. @ \$0.65/sq. yd.	\$852

**SUB TOTAL SPECIAL PROJECTS**

**\$5,810**

Compiled By: d.mellison

Date: 10/27/04

**GRAND TOTAL**

**\$47,146**

SALE NAME: Lotta-Thin  
 PROJECT: I21 - Point A  
 QUARRY: West Tidewater

ROCK TYPE: 1"-0" & 4"-0" crushed

DATE: 10/27/04  
 BY: d.mellison

Segment	Stations	Cubic Yards							Total
		Base	Running	Turnout	Leveling	Junction	Curves	F.Widen	
I21 - Pt A	30+34		728	66	250		16		1,060
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
Grand Total	0.00	0	728	66	250	0	16	0	1,060

0

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		
I21 - Pt A	30+34	1,060				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	
TOTAL	0.00	1,060									
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%

Ave haul: \$0.80 /cy  
 Load: \$0.25 /cy  
 Spread: \$0.40 /cy

Truck type: D12 No. trucks: 3  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 10 Efficiency: 75%

Production: cy/day = 1,715

CRUSHED ROCK HAUL COSTS 1,060 cy @ \$1.45 /cy



CRUSHED ROCK COST

SALE NAME: Lotta-Thin  
 PROJECT: I22 - I23  
 QUARRY: W. Tidewater

ROCK TYPE: 1"-0" Crushed

DATE: 10/27/04  
 BY: d.mellison

Segment	Stations	Cubic Yards							Total
		Base	Running	Turnout	Bedding	Leveling	Curves	Leveling	
I24 - I25	3+72		186						186
Grand Total			186						186

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	
I24 - I25	3+72	186				1.01	0.10	0.10	0.10	1.31
TOTAL		186				1.01	0.10	0.10	0.10	AVERAGE HAUL 1.31
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.							
Average Round Trip Distance (miles) 2.62										

ROCK HAUL:

Truck type: <u>D20</u>	No. trucks: <u>          </u>	
Delay min.: <u>15</u>	Efficiency: <u>75%</u>	Ave haul: \$1.45 /cy
		Load: \$0.40 /cy
Truck type: <u>D12</u>	No. trucks: <u>3</u>	Spread: \$0.60 /cy
Delay min.: <u>6</u>	Efficiency: <u>85%</u>	
Truck type: <u>D10</u>	No. trucks: <u>          </u>	Production: cy/day = 943
Delay min.: <u>10</u>	Efficiency: <u>75%</u>	

CRUSHED ROCK HAUL COSTS      186 cy @      \$2.45 /cy

**CRUSHED ROCK COST**

SALE NAME: Lotta-Thin  
 PROJECT: I23 - I24  
 QUARRY: W. Tidewater

ROCK TYPE: 1"-0" Crushed

DATE: 10/27/04  
 BY: d.mellison

Segment	Stations	Cubic Yards							Total
		Base	Running	Turnout	Bedding	Leveling	Curves	Leveling	
I25 - I26	66+11					350			350
<b>Grand Total</b>						350			350

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	
I25 - I26	66+11	350			0.71	1.00	0.10	0.10	0.10	2.01
<b>TOTAL</b>		350								
<b>CUBIC YARD WEIGHTED HAUL</b>					0.60	1.00	0.10	0.10	0.10	<b>AVERAGE HAUL</b>
									1.90	
Average Round Trip Distance (miles)									3.80	

**ROCK HAUL:**

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

Truck type: D12 No. trucks: 3  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 10 Efficiency: 75%

Ave haul: \$1.71 /cy  
 Load: \$0.45 /cy  
 Spread: \$0.65 /cy

Production: cy/day = 799

**CRUSHED ROCK HAUL COSTS      350 cy @      \$2.81 /cy**

SALE NAME: Lotta-Thin  
 PROJECT: Pt A to Pt B  
 QUARRY: West Tidewater

ROCK TYPE: 1"-0", 4"-0" crushed

DATE: 10/27/04  
 BY: d.mellison

Segment	Stations	Cubic Yards							Total
		Base	Running	Turnout	Subg Reinf	Junction	Curves	F.Widen	
P tA-Pt B	32+95	2,076	791	195	187		201		3,450
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
<b>Grand Total</b>	<b>0.00</b>	<b>2,076</b>	<b>791</b>	<b>195</b>	<b>187</b>	<b>0</b>	<b>201</b>	<b>0</b>	<b>3,450</b>

0

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	
P tA-Pt B	32+95	3,450			0.31	0.50	0.05	0.05	0.05	0.96
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
<b>TOTAL</b>	<b>0.00</b>	<b>3,450</b>								<b>AVERAGE HAUL</b>
	<b>STA./NO.</b>	<b>CU. YD.</b>								<b>0.96</b>
<b>CUBIC YARD WEIGHTED HAUL</b>			<b>0.00</b>	<b>0.00</b>	<b>0.31</b>	<b>0.50</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	
Average Round Trip Distance (miles)									<b>1.92</b>	

ROCK HAUL:

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

Ave haul: \$1.10 /cy  
 Load: \$0.40 /cy  
 Spread: \$0.65 /cy

Truck type: D12 No. trucks: 3  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 10 Efficiency: 75%

Production: cy/day = 1,246

CRUSHED ROCK HAUL COSTS 3,450 cy @ \$2.15 /cy

**SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS**

PROJECT NO. 4

Timber Sale Name: Lotta - Thin

Quarry: West Tidewater  
 Location: \_\_\_\_\_  
 Road: TW Ridge Tie Road  
 By: d.mellison  
 Date: 10/27/04

Swell: \_\_\_\_\_  
 Shrink: 16%  
 Reject: 5%

ROCK SIZE	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
1"-0"	CR	5,500	2,418	8,798
1 1/2"-0"	CR			
4"-0"	CR		3,158	3,158
6"-0"	PR			
12"-6"	RR		10	10
<b>TOTAL CUBIC YARDS OF ROCK:</b>		5,500	5,586	<b>11,966</b>

**1) MOBILIZATION & SET UP:**

EQUIPMENT MOBILIZATION	DISTANCE IN MILES	DIST. FACTOR	BASE RATE	COST
3 Stage Crusher	75	1.40	\$2,220	\$3,108
Screening Plants (2)	75	1.40	\$900	\$1,260
D8 Cat	75	1.40	\$980	\$1,372
Loader	75	1.40	\$560	\$784
Drill & Compressor	75	1.40	\$1,080	\$1,512
Powder	75	1.40	\$270	\$378
Excavator	75	1.40	\$500	\$700
SUB TOTAL FOR MOBILIZATION				\$9,114

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$2,530	\$2,530
Screening Plants (2)	1	\$425	\$425
Change Gradation	1	\$400	\$400

SUB TOTAL FOR SET UP COSTS \$3,355

**TOTAL MOBILIZATION & SET UP COSTS \$12,469**

Proration of mobilization with Hambone crushing volume 0.3514 \$4,382

**2) CLEARING & GRUBBING**

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Chip and scatter	0.5	acre	\$1,980	\$990

**TOTAL CLEARING & GRUBBING COSTS \$990**

**3) EXCAVATION**

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden removal	750	bcy	\$1.66	\$1,245

**TOTAL EXCAVATION COSTS**

\$1,245

**4) DEVELOP ROCK**

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	30%	3,586	\$1.85	\$6,635
crushed	11,376	100%	Drill & shoot	70%	8,368	\$1.90	\$15,900
pit run	0	0	Oversize red			\$5.04	
rip rap	10	0%	Other				
Total	11,386						
reject	569						

**TOTAL ROCK DEVELOPMENT COSTS**

\$22,535

**5) CALIBRATION & TESTING**

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$400	\$800
Calibrate			
Test	4	\$50	\$200
Test			

**TOTAL CALIBRATION & TESTING COSTS**

\$1,000

**6) FEEDING & LOADING**

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	11,945	\$0.76	\$9,078

**TOTAL FEEDING & LOADING COSTS**

\$9,078

**7) ROCK CRUSHING**

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTIO	RATE CU. YD.	TOTAL COST
1"-0"	crushed	8,218	3 stage w/s	110	\$2.95	\$24,280
4"-0"	crushed	3,158	2 stage w/s	140	\$2.07	\$6,542

**TOTAL ROCK CRUSHING COSTS**

\$30,822



**8) STOCKPILING**

STOCKPILE PREPARATION OR CONST	COST
W. Tidewater quarry - leave in quarry	
Swede road stockpile site:	
Rock waste removal: 100cy @ \$5.37/cy	\$537
Woody debris removal 4 loads @ \$53.70/load	\$215
Level 250 cy of 4"-0" -4 hrs of 980C @ \$90/hr	\$360
Mobilize 980 loader and trucks	\$674
<b>SUB TOTAL</b>	<b>\$1,786</b>

HAUL & STOCKPILE	SIZE	# of 10CY TRUCKS	CU. YDS.	RATE	COST
STOCKPILE LOCATION					
W. Tidewater & Swede Road	1"-0"	5	6,380	\$4.41	\$28,136
<b>SUB TOTAL</b>					<b>\$28,136</b>

**TOTAL STOCKPILING COSTS** **\$29,922**

**9) MISCELLANEOUS COSTS**

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	\$1,564
Final Quarry Dev., Waterbarring, Slope to drain (3 hrs D-8 cat @120/hr	\$360

**TOTAL MISCELLANEOUS COSTS** **\$1,924**

**10) GRAND TOTAL:** **\$101,897**  
\$/Cubic Yard **\$8.52**

**Footnotes:**

Construct/Reconstruct Stockpile Floor

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

Rock for Floor (CY)	\$/CY Haul	Total
1200	RATE	#VALUE!

Total Construct Stockpile Floor#VALUE!

SALE NAME: Lotta Thin  
 PROJECT: Stockpiling at Swede Road  
 QUARRY: W. Tidewater

ROCK TYPE: 3/4"-0"

DATE: 7/9/04  
 BY: d.mellison

Segment	Stations	Cubic Yards							Total
		Base	Running	Turnout	Subg Reinf	Stockpile	Curves	F.Widen	
Stockpile Site						6,750			6,750
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
									0
Grand Total	0.00	0	0	0	0	6,750	0	0	6,750

0

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	
Stockpile Site	0.00	6,750	1.80	0.15	0.80	0.80	0.20	0.20	0.20	4.15
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	6,750								
	STA./NO.	CU. YD.								AVERAGE HAUL
CUBIC YARD WEIGHTED HAUL			1.80	0.15	0.80	0.80	0.20	0.20	0.20	4.15
Average Round Trip Distance (miles)									8.30	

ROCK HAUL:

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

Ave haul: \$3.45 /cy  
 Load: \$0.60 /cy  
 Spread: \$1.05 /cy

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

Truck type: D10 No. trucks: 5  
 Delay min.: 10 Efficiency: 85%

Production: cy/day = 661

CRUSHED ROCK HAUL COSTS 6,750 cy @ \$5.10 /cy

SALE NAME: Lotta-Thin  
 PROJECT: Stockpile-Quarry road improvemen  
 QUARRY: W.Tidewater

ROCK TYPE: Waste

DATE: 6/23/04  
 BY: d.mellison

Segment	Stations	Cubic Yards								Total	
		Base	Running	Turnout	Subg Reinf	Junction	Curves	Waste			
I20-I21									416	416	0
										0	
										0	
										0	
										0	
										0	
										0	
										0	
										0	
										0	
										0	
										0	
										0	
										0	
										0	
Grand Total	0.00	0	0	0	0	0	0	0	416	416	

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	
I20-I21	0.00	416				0.08	0.05	0.05	0.05	0.23
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	416				0.08	0.05	0.05	0.05	0.23
CUBIC YARD WEIGHTED HAUL			0.00	0.00	0.00	0.08	0.05	0.05	0.05	AVERAGE HAUL 0.23

Average Round Trip Distance (miles) 0.46

ROCK HAUL:

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

Ave haul: \$0.72 /cy  
 Load: \$0.60 /cy  
 End Dump: \$0.24 /cy

Truck type: D12 No. trucks: 1  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: \_\_\_\_\_  
 Delay min.: 10 Efficiency: 75%

Production: cy/day = 629

CRUSHED ROCK HAUL COSTS 416 cy @ \$1.56 /cy

**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Lotta Thin NEW CONSTRUCTION: 44.44 STATION 0.84 MILES  
 ROAD: \_\_\_\_\_ IMPROVEMENT: \_\_\_\_\_ STATION \_\_\_\_\_ MILES  
 POINTS: E1 to E2

CLEARING & GRUBBING					
Method	Amount	x	Rate	=	Cost
Scatter outside of R/W (0+00 - 23+30)	2.84	x	\$840.00	=	\$2,386.88
(w/excavator or cat)		x		=	
Chipping/Scattering (23+30 - 44+44)	2.60	x	\$1,980.00	=	\$5,142.18
		x		=	
	5.44	x		=	
<b>SUB TOTAL FOR CLEARING &amp; GRUBBING</b>					<b>\$7,529</b>

EXCAVATION					
Material	Cy/amount	x	Rate	=	Cost
Common excavation, drift up to 200'	11,727.00	x	\$1.35	=	\$15,831.45
Embankment compaction	8,725.00	x	\$0.40	=	\$3,490.00
(w/compaction equipment)		x		=	
Cut slope rounding \$/sta.	15.80	x	\$27.00	=	\$426.60
		x		=	
<b>SUB TOTAL FOR EXCAVATION</b>					<b>\$19,748</b>

CULVERT MATERIALS AND INSTALLATION																					
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost												
4+00	18"/CPP	35	\$11.00	\$385.00	23+30	18"/CPP	30	\$11.00	\$330.00												
11+55	18"/CPP	30	\$11.00	\$330.00	25+68	18"/CPP	45	\$11.00	\$495.00												
13+50	18"/CPP	30	\$11.00	\$330.00	35+09	18"/CPP	60	\$11.00	\$660.00												
18+56	18"/CPP	40	\$11.00	\$440.00	41+82	18"/CPP	30	\$11.00	\$330.00												
					<table border="1"> <thead> <tr> <th>Description</th> <th>Quantity</th> <th>Rate</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>Other/miscellaneous:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Culvert stakes &amp; markers: 6' x 2-1/2" white fibreglass (Carsonite) I beam posts</td> <td>8</td> <td>\$14.10</td> <td>\$112.80</td> </tr> </tbody> </table>					Description	Quantity	Rate	Cost	Other/miscellaneous:				Culvert stakes & markers: 6' x 2-1/2" white fibreglass (Carsonite) I beam posts	8	\$14.10	\$112.80
Description	Quantity	Rate	Cost																		
Other/miscellaneous:																					
Culvert stakes & markers: 6' x 2-1/2" white fibreglass (Carsonite) I beam posts	8	\$14.10	\$112.80																		
<b>SUB TOTAL FOR CULVERT MATERIALS &amp; INSTALLATION</b>					<b>\$3,413</b>																

SURFACING		Stations/	Rate/
Subgrade prep:	Description	x	Cost
	Grade, Shape and Ditch 16'	x	\$15.20
	Subgrade Compaction	x	\$12.50
	amount		\$675.49
			\$555.50

ROAD SEGMENT	E1 to E2	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	E1 to E2			
				Volume (CY) per	Number of		
Base Rock	4"-0" Crushed	0+00 - 44+44	8	station	50	stations	44.44
Turnouts	4"-0" Crushed		8	turnout	22	turnouts	7
Curwidening	4"-0" Crushed		8				
Trunaround	4"-0" Crushed	42+90	8	turnaround	13	turnarounds	1
Surface Rock	3/4"-0" Crushed	0+00 - 44+44	4	station	25	stations	44.44
Turnouts	3/4"-0" Crushed		4	turnout	11	turnouts	7
Curwidening	3/4"-0" Crushed		4				
Trunaround	3/4"-0" Crushed	42+90	4	turnaround	7	turnarounds	1
Total Rock for Road Segment:		E1 to E2			3,940		

\$17,452

Processing:		Description	No. sta	Rate/sta	Cost		
		Water, Process & Compact (4"-0" Crushed Rock) (first lift)	44.44	\$37.00	\$1,644		
		Water, Process & Compact (3/4"-0" Crushed Rock) (first lift)	44.44	\$37.00	\$1,644		
<b>SUB TOTAL FOR SURFACING</b>							
		24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total
				2,626		1,314	3,940

\$21,972

SPECIAL PROJECTS	
Description	Cost
<b>SUB TOTAL FOR SPECIAL PROJECTS</b>	

**GRAND TOTAL** **\$52,661**

Compiled By: \_\_\_\_\_ Date: \_\_\_\_\_

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Lotta Thin  
 ROAD: \_\_\_\_\_  
 POINTS: E3 to E4

NEW CONSTRUCTION: 4.64 STATIONS 0.09 MILES  
 IMPROVEMENT: \_\_\_\_\_ STATIONS \_\_\_\_\_ MILES

CLEARING & GRUBBING						
Method	Amount	x	Rate	=	Cost	
Scatter outside of R/W (w/excavator or cat)	0.45	x	\$840.00	=	\$377.63	
_____	_____	x	_____	=	_____	
_____	_____	x	_____	=	_____	
_____	_____	x	_____	=	_____	
_____	_____	x	_____	=	_____	
SUB TOTAL FOR CLEARING & GRUBBING					\$378	

EXCAVATION						
Material	Cy/amount	x	Rate	=	Cost	
Common excavation, drift up to 200'	41.00	x	\$1.35	=	\$55.35	
Embankment compaction (w/compaction equipment)	800.00	x	\$0.40	=	\$320.00	
End Haul up to 5000' (excavation, load, haul up to 5,000')	759.00	x	\$2.75	=	\$2,087.25	
_____	_____	x	_____	=	_____	
SUB TOTAL FOR EXCAVATION					\$2,463	

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
1+78	18"/CPP	35	\$11.00	\$385.00					
Other/miscellaneous:					Description				
					Quantity				
					Rate				
					Cost				
Culvert stakes & markers:					6' x 2-1/2" white fibreglass				
					1				
					\$14.10				
					\$14.10				
					(Carsonite) I beam posts				
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION									\$399

<b>SURFACING</b>				
Subgrade prep:		Description	amount	Rate/ Cost
		Grade, Shape and Ditch 16'	4.64	\$70.53
		Subgrade Compaction	4.64	\$58.00

ROAD SEGMENT	E3 to E4			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (Inches)	E3 to E4		0+00 to 4+64				
				Volume (CY) per		Number of				
Base Rock	4"-0" Crushed	0+00 - 4+64	8	station	50	stations	4.64	232	\$4.43	\$1,028
Surface Rock	3/4"-0" Crushed	0+00 - 4+64	4	station	25	stations	4.64	116	\$4.43	\$514
Total Rock for Road Segment:			E3 to E4					348		\$1,542

Processing:		Description	No.sta	Rate/sta	Cost					
		Water, Process & Compact (4"-0" Crushed Rock) (first lift)	4.64	\$37.00	\$172					
		Water, Process & Compact (3/4"-0" Crushed Rock) (first lift)	4.64	\$37.00	\$172					
<b>SUB TOTAL FOR SURFACING</b>					<b>\$2,014</b>					
		24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total			
				232		116	348			

<b>SPECIAL PROJECTS</b>	
Description	Cost
<b>SUB TOTAL FOR SPECIAL PROJECTS</b>	

**GRAND TOTAL** **\$5,253**

Compiled By: \_\_\_\_\_

Date: \_\_\_\_\_

**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Lotta Thin HW CONSTRUCTION: 16.63 STATIONS 0.31 MILES  
 ROAD: \_\_\_\_\_ IMPROVEMENT: \_\_\_\_\_ STATIONS \_\_\_\_\_ MILES  
 POINTS: E5 to E6

CLEARING & GRUBBING						
Method	Amount	x	Rate	=	Cost	
Scatter outside of R/W (0+00 - 7+61)	1.07	x	\$840.00	=	\$902.54	
(w/excavator or cat)		x		=		
Chipping/Scattering (7+61-16+63)	1.24	x	\$1,980.00	=	\$2,448.64	
		x		=		
		x		=		
<b>SUB TOTAL FOR CLEARING &amp; GRUBBING</b>					<b>\$3,351</b>	

EXCAVATION						
Material	Cy/amount	x	Rate	=	Cost	
Common excavation, drift up to 200'	5,222.00	x	\$1.35	=	\$7,049.70	
Embankment compaction	4,302.00	x	\$0.40	=	\$1,720.80	
(w/compaction equipment)		x		=		
Cut slope rounding \$/sta.	8.07	x	\$27.00	=	\$217.89	
		x		=		
<b>SUB TOTAL FOR EXCAVATION</b>					<b>\$8,988</b>	

CULVERT MATERIALS AND INSTALLATION																													
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost																				
4+03	18"/CPP	30	\$11.00	\$330.00	16+16	18"/CPP	30	\$11.00	\$330.00																				
7+62	18"/CPP	30	\$11.00	\$330.00																									
					<table border="1"> <thead> <tr> <th colspan="2">Description</th> <th>Quantity</th> <th>Rate</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td colspan="2">Other/miscellaneous:</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">Culvert stakes &amp; markers: 6' x 2-1/2" white fibreglass</td> <td>3</td> <td>\$14.10</td> <td>\$42.30</td> </tr> <tr> <td colspan="2">(Carsonite) I beam posts</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					Description		Quantity	Rate	Cost	Other/miscellaneous:					Culvert stakes & markers: 6' x 2-1/2" white fibreglass		3	\$14.10	\$42.30	(Carsonite) I beam posts				
Description		Quantity	Rate	Cost																									
Other/miscellaneous:																													
Culvert stakes & markers: 6' x 2-1/2" white fibreglass		3	\$14.10	\$42.30																									
(Carsonite) I beam posts																													
<b>SUB TOTAL FOR CULVERT MATERIALS &amp; INSTALLATION</b>									<b>\$1,032</b>																				





**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Lotta Thin NEW CONSTRUCTION: 20.18 STATION 0.38 MILES  
 ROAD: \_\_\_\_\_ IMPROVEMENT: \_\_\_\_\_ STATION \_\_\_\_\_ MILES  
 POINTS: E7 to E8

CLEARING & GRUBBING					
Method	Amount	x	Rate	=	Cost
Scatter outside of R/W (w/excavator or cat)	2.36	x	\$840.00	=	\$1,979.38
		x		=	
		x		=	
		x		=	
		x		=	
<b>SUB TOTAL FOR CLEARING &amp; GRUBBING</b>					<b>\$1,979</b>

EXCAVATION					
Material	Cy/amount	x	Rate	=	Cost
Common excavation, drift up to 200'	2,538.00	x	\$1.35	=	\$3,426.30
Embankment compaction (w/compaction equipment)	3,352.00	x	\$0.40	=	\$1,340.80
End Haul up to 5000' (excavation, load, haul up to 5,000')	1,300.00	x	\$2.75	=	\$3,575.00
Cut slope rounding \$/sta.	7.60	x	\$27.00	=	\$205.20
<b>SUB TOTAL FOR EXCAVATION</b>					<b>\$8,342</b>

CULVERT MATERIALS AND INSTALLATION																					
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost												
1+12	18"/CPP	30	\$11.00	\$330.00	12+13	18"/CPP	30	\$11.00	\$330.00												
4+66	18"/CPP	30	\$11.00	\$330.00	18+37	18"/CPP	30	\$11.00	\$330.00												
7+80	18"/CPP	50	\$11.00	\$550.00																	
					<table border="1"> <thead> <tr> <th>Description</th> <th>Quantity</th> <th>Rate</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>Other/miscellaneous:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Culvert stakes &amp; markers: 6' x 2-1/2" white fibreglass (Carsonite) I beam posts</td> <td>5</td> <td>\$14.10</td> <td>\$70.50</td> </tr> </tbody> </table>					Description	Quantity	Rate	Cost	Other/miscellaneous:				Culvert stakes & markers: 6' x 2-1/2" white fibreglass (Carsonite) I beam posts	5	\$14.10	\$70.50
Description	Quantity	Rate	Cost																		
Other/miscellaneous:																					
Culvert stakes & markers: 6' x 2-1/2" white fibreglass (Carsonite) I beam posts	5	\$14.10	\$70.50																		
<b>SUB TOTAL FOR CULVERT MATERIALS &amp; INSTALLATION</b>									<b>\$1,941</b>												

SURFACING											
Subgrade prep:		Description	amount	x	sta/amt	Rate/ Cost					
		Grade, Shape and Ditch 16'	20.18	x	\$15.20	\$306.74					
		Subgrade Compaction	20.18	x	\$12.50	\$252.25					
ROAD SEGMENT	E7 to E8			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (Inches)	E7 to E8		0+00 to 20+18					
				Volume (CY) per		Number of					
Base Rock	4"-0" Crushed	0+00 - 20+18	8	station	50	stations	20.18	1,009	\$4.43	\$4,470	
Turnouts	4"-0" Crushed		8	turnout	22	turnouts	3	66	\$4.43	\$292	
Curwidening	4"-0" Crushed		8					120	\$4.43	\$532	
Surface Rock	3/4"-0" Crushed	0+00 - 20+18	4	station	25	stations	20.18	505	\$4.43	\$2,237	
Turnouts	3/4"-0" Crushed		4	turnout	11	turnouts	3	33	\$4.43	\$146	
Curwidening	3/4"-0" Crushed		4					58	\$4.43	\$257	
Total Rock for Road Segment:			E7 to E8					1,791		\$7,934	
Processing:		Description				No.sta	Rate/sta	Cost			
		Water, Process & Compact (4"-0" Crushed Rock) (first lift)				20.18	\$37.00	\$747			
		Water, Process & Compact (3/4"-0" Crushed Rock) (first lift)				20.18	\$37.00	\$747			
				24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total		
<b>SUB TOTAL FOR SURFACING</b>						1,195		596	1,791	<b>\$9,986</b>	

SPECIAL PROJECTS	
Description	Cost
<b>SUB TOTAL FOR SPECIAL PROJECTS</b>	

**GRAND TOTAL** **\$22,248**

Compiled By: \_\_\_\_\_

Date: \_\_\_\_\_

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Lotta Thin NEW CONSTRUCTION: \_\_\_\_\_ STATION \_\_\_\_\_ MILES  
 ROAD: \_\_\_\_\_ IMPROVEMENT: 1.75 STATION \_\_\_\_\_ 0.03 MILES  
 POINTS: I27 to I28 (E1)

SURFACING				Stations/	Rate/
Subgrade prep:	Description	amount	x	sta/amt	Cost
	Grade, Shape and Ditch 16'	1.75	x	\$15.20	\$26.60
			x		

ROAD SEGMENT	I27 to I28 (E1)	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	I27 to I28 (E1)			
				Volume (CY) per station	Number of stations		
Surface Rock	3/4"-0" Crushed	0+00 - 1+75	4	25	1.75	44	\$195
Junction Rock	3/4"-0" Crushed					40	\$177
Leveling Rock	3/4"-0" Crushed					30	\$133
Total Rock for Road Segment: I27 to I28 (E1)						114	\$505

Processing:	Description	No. sta	Rate/sta	Cost				
	Water, Process & Compact (3/4"-0" Crushed Rock) (first lift)	1.75	\$37.00	\$65				
<b>SUB TOTAL FOR SURFACING</b>								
		24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total	
						114	114	\$596

**GRAND TOTAL** **\$596**

Compiled By: \_\_\_\_\_ Date: \_\_\_\_\_

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Lotta Thin  
 ROAD: \_\_\_\_\_  
 POINTS: I29 (E4) to I30

NEW CONSTRUCTION: \_\_\_\_\_ STATIONS \_\_\_\_\_ MILES  
 IMPROVEMENT: 3.74 STATIONS 0.07 MILES

SURFACING		Description		amount	x	sta/amt	Rate/ Cost		
Subgrade prep:		Grade, Shape and Ditch 16'		3.74	x	\$15.20	\$56.85		
ROAD SEGMENT		I29 (E4) to I30		POINT TO POINT		Sta. to Sta.			
Application		Rock Size and Type	Location	Depth of Rock (Inches)	Volume (CY) per station	Number of stations	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Surface Rock		3/4"-0" Crushed	0+00 - 3+74	4	25	3.74	94	\$4.43	\$416
Leveling Rock		3/4"-0" Crushed					30	\$4.43	\$133
Total Rock for Road Segment:		I29 (E4) to I30					124		\$549
Processing:		Description		No. sta	Rate/sta	Cost			
		Water, Process & Compact (3/4"-0" Crushed Rock) (first lift)		3.74	\$37.00	\$138			
SUB TOTAL FOR SURFACING		24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total		
						124	124	\$745	

GRAND TOTAL \$745

Compiled By: \_\_\_\_\_

Date: \_\_\_\_\_

**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Lotta Thin HW CONSTRUCTION: \_\_\_\_\_ STATIONS \_\_\_\_\_ MILES  
 ROAD: \_\_\_\_\_ IMPROVEMENT: 16.20 STATIONS 0.31 MILES  
 POINTS: I31 (E6) to I32

<b>SURFACING</b>									
Subgrade prep:		Description	amount	x	sta/amt	Rate/ Cost			
		Grade, Shape and Ditch 16'	16.20	x	\$15.20	\$246.24			
				x					
ROAD SEGMENT	I31 (E6) to I32	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I31 (E6) to I32	0+00 to 16+63				
				Volume (CY) per	Number of				
Leveling Rock	3/4"-0" Crushed					80	\$4.43	\$354	
Total Rock for Road Segment:		I31 (E6) to I32				80			\$354
		Processing:	Description	No. sta	Rate/sta	Cost			
			Water, Process & Compact (3/4"-0" Crushed Rock) (first lift)	16.20	\$37.00	\$599			
<b>SUB TOTAL FOR SURFACING</b>						80	80		<b>\$1,200</b>

**GRAND TOTAL** **\$1,200**

Compiled By: \_\_\_\_\_

Date: \_\_\_\_\_

**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Lotta Thin NEW CONSTRUCTION: \_\_\_\_\_ STATIONS \_\_\_\_\_ MILES  
 ROAD: \_\_\_\_\_ IMPROVEMENT: 9.50 STATIONS \_\_\_\_\_ 0.18 MILES  
 POINTS: I33 (E8) to I34

Material	Cy/amount	x	Rate	=	Cost
Embankment compaction (w/compaction equipment)	550.00	x	\$0.40	=	\$220.00
End Haul up to 5000' (excavation, load, haul up to 5,000')	550.00	x	\$2.75	=	\$1,512.50
		x		=	
		x		=	
<b>SUB TOTAL FOR EXCAVATION</b>					<b>\$1,733</b>

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
2+90	24"/CPP	60	\$16.30	\$978.00	7+10	18"/CPP	30	\$11.00	\$330.00
		Description	Quantity	Rate	Cost				
Other/miscellaneous:									
Culvert stakes & markers:		6' x 2-1/2" white fibreglass (Carsonite) I beam posts	1	\$14.10	\$14.10				
<b>SUB TOTAL FOR CULVERT MATERIALS &amp; INSTALLATION</b>					<b>\$1,322</b>				

SURFACING					amount	x	sta/amt	Rate/ Cost		
Subgrade prep: Description										
Grade, Shape and Ditch 16'					9.50	x	\$15.20	\$144.40		
Subgrade Compaction (2+90 fill reconst.)					1.00	x	\$12.50	\$12.50		
ROAD SEGMENT	I33 (E8) to I34			POINT TO POINT	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost		
Application	Rock Size and Type	Location	Depth of Rock (inches)	I33 (E8) to I34 Volume (CY) per station	0+00 to 9+50 Number of stations					
Base Rock (Fill)	4"-0" Crushed	2+90	8	station 50	stations 1.00	50	\$4.43	\$222		
Surface Rock	3/4"-0" Crushed	0+00 - 9+50	4	station 25	stations 9.50	238	\$4.43	\$1,054		
Leveling Rock	3/4"-0" Crushed					50	\$4.43	\$222		
Fill Armor	24"-6" Riprap	2+90				50	\$6.48	\$324		
Total Rock for Road Segment: I33 (E8) to I34						388		\$1,821		
Processing: Description					No. sta		Rate/sta	Cost		
Water, Process & Compact (4"-0" Crushed Rock) (first lift) (2+90 fill)					1.00		\$37.00	\$37		
Water, Process & Compact (3/4"-0" Crushed Rock) (first lift)					9.50		\$37.00	\$352		
<b>SUB TOTAL FOR SURFACING</b>								<b>\$2,367</b>		
					24"-6"rr	8"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total
					50		50		288	388

**GRAND TOTAL** **\$5,421**

Compiled By: \_\_\_\_\_ Date: \_\_\_\_\_

**Lotta Thin**

**Project No. 6 Road Vacating**

Sale Area Vacating

Location/Description	C330 #1	C330 #2	D-7 CAT	10 CY Truck	Labor	Straw Mulch & Seed*	Pullback	Total
V1 to V2 Waterbar/Block Road	2							
V1 to V2, 8+30 Remove Fill	3				2	10		
V1 to V2, 12+75 Remove Fill	3				2	10		
V1 to V2, 14+00 Remove Fill Re-establish natural drainage contours	4				3	15		
V3 to V4, 2+50 Remove Fill Re-establish natural drainage contours	4	4			3	15		
<b>Total</b>	16 hr	4 hr	0 hr	0 hr	10 hr	50	0	
<b>Rate</b>	\$130 /hr	\$130 /hr	\$90 /hr	\$57 /hr	\$25 /hr	\$5.00	\$220.00	
<b>Cost</b>	\$2,080	\$520	\$0	\$0	\$250	\$250	\$0.00	\$3,100

\*Cost for bales/seed includes bales of straw and grass seed @ 100 lbs/ac.

L. Freeman

11/23/2004



**Lotta Thin**

**Project No. 6 Road Vacating**

East Summit Vacating

Location/Description	C330 #1	C330 #2	D-7 CAT	10 CY Truck	Labor	Straw Mulch & Seed	Pullback	Total
V5 to V6 Sta. 0+00 to 6+90 Waterbar/Block Road	0.75							
V5 to V6 Sta. 1+24 Remove Fill	8		8		3	15		
V5 to V6 STA. 5+14 to 6+90 Remove Culvert/Fill Re-establish natural drainage contours	24	16	24		3	30		
V7 Remove Culvert/Fill Re-establish natural drainage contour	8		8		3	15		
V8 to V9 STA. 0+00 to 40+15 Waterbar/Block Road	4							
V8 to V9 STA. 0+00 to 3+90 Pull-back							3.9	
V8 to V9 STA. 10+90 Remove Culvert/Fill Re-establish natural drainage contours	8		8		3	15		
V8 to V9 STA. 13+05 Remove Culvert/Fill Re-establish natural drainage contours	8		8		3	15		
V8 to V9 STA. 27+75 to 36+15 Pull-back							8.4	
V8 to V9 STA. 36+60 Remove Culvert/Fill Re-establish natural drainage contours	8		8		3	15		
V8 to V9 STA. 39+45 to 40+15 Pull-back							0.7	
V10 to V11 STA. 0+00 to 1+30 Remove Culvert/Fill Re-establish natural drainage contours	24	16	24		3	30		
V12 to V13 STA. 0+00 to 12+60 Waterbar/Block Road	1.5							
V12 to V13 STA. 4+10 to 4+60 Remove Culvert/Fill Re-establish natural drainage contours	12	8	12		3	30		
V12 to V13 STA. 6+75 to 7+50 Remove Culvert/Fill Re-establish natural drainage contours	20	12	20		3	30		
V12 to V13 STA. 10+50 to 11+10 Remove Culvert/Fill Re-establish natural drainage contours	20	12	20		3	30		
Total	146.25 hr	64 hr	140 hr	0 hr	30 hr	225	13	
Rate	\$130 /hr	\$130 /hr	\$90 /hr	\$57 /hr	\$25 /hr	\$5.00	\$220.00	
Cost	\$19,013	\$8,320	\$12,600	\$0	\$750	\$1,125	\$2,860.00	\$41,808

**Project No. 6 Total Cost \$44,908**  
**Maximum Credit for Project No. 6 \$61,644**  
 11/23/2004

\*Cost for bales/seed includes bales of straw and grass seed @ 100 lbs/ac.

F. Lertora

**Sale:** Lotta Thin  
**Date:** 28-Dec-04  
**By:** Williams

Type	Equipment/Rationale	Hours	Rate	Cost	Production Rates			
Project No. 5	Grader 14G	16	\$80	\$1,280	<b>Production Rates</b>	<b>Miles/day</b>	<b>Distance(miles)</b>	<b>Days</b>
	Dump Truck 12CY x 3	8	\$57	\$456	Grader	1.5	2.0	1.3
	FE Loader C966	4	\$48	\$192	Vibratory Roller	1.5	2.0	1.3
	Vibratory Roller	16	\$75	\$1,200				
	Water Truck 2,500 gallon	16	\$67	\$1,072				
Project No. 1	Grader 14G	40	\$80	\$3,200	<b>Production Rates</b>	<b>Miles/day</b>	<b>Distance(miles)</b>	<b>Days</b>
	Dump Truck 12CY x 3	20	\$57	\$1,140	Grader	1.5	6.4	4.3
	FE Loader C966	10	\$48	\$480	Vibratory Roller	1.5	6.4	4.3
	Vibratory Roller	40	\$75	\$3,000				
	Water Truck 2,500 gallon	40	\$67	\$2,680				
	Labor	10	\$25	\$250				
<b>Total</b>					<b>\$13,670</b>			

# TIMBER CRUISE REPORT

Lotta Thin  
FY 2005

1. **Sale Area Location:** Areas 1 – 5, are located in portions of Sections 27, 28, 29, 32, 33, and 34 of T7N, R6W; Area 6 is located in portions of Sections 1, 2, 3, and 11 of T4N, R9W, W.M., Clatsop County, Oregon.

2. **Fund Distribution:** BOF 100%

Tax Code 10-14 (8%) 10-02 (92%) for Sections 1, 2, 3, and 11 of T4N, R9W.

Tax Code 30-05 (100%) for Sections 27, 28, 29, 32, 33, and 34 of T7N, R6W.

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	New R/W	Stream Buffer	Net Acres	Survey Method	Closure
1	SDI 25 Thinning	140	3	6	10	121	GIS	N/A
2	SDI 30 Thinning	120	5	4	9	102	GIS	N/A
3	SDI 25 Thinning	154	3	6	9	136	GIS	N/A
4	SDI 25 Thinning	121	4	4	11	102	GIS	N/A
5 (R/W)	New Roads	0.0	0.0	0.0	0.0	20	Road Eng	N/A
6 (R/W)	New Roads	0.0	0.0	0.0	0.0	10.5	Road Eng	N/A
<b>TOTALS</b>		<b>535</b>	<b>15</b>	<b>20</b>	<b>39</b>	<b>491.5</b>		

4. **Cruisers and Cruise Dates:** Areas 1 – 5 (R/W) were cruised by Lanny Freeman, Jon Long, Dave Wolfgram, Derek Bangs and Alan Kelso on October 5 and 7, 2004. Area 6 (R/W) was cruised by Lanny Freeman, and Derek Bangs on November 22, 2004.

5. **Cruise Method and Computation:** AREAS 1, 3, and 4 are "auto-mark" thinning units (SDI 25), and were variable plot cruised using a 40.0 BAF. A total of 90 plots were sampled, with 24 measured and graded plots, and 66 count plots. These plots are located on a 12 chain by 4 chain grid with every fourth plot being measured and graded. Plots that fell within 50 feet of any of the seven marked alternative prescription trees were to be cruised as if all trees within that area would be "take" trees. No plots landed within these areas. Western redcedar are "Reserved Timber," and were recorded as leave trees. In hardwood dominated areas one acre and larger, alder trees were cruised to be included in the thinning prescription. Areas 1, 3, and 4 were combined because of similarities in timber types and prescription.

AREA 2 is an "auto-mark" thinning unit (SDI 30), and was variable plot cruised using a 40.0 BAF. These plots are located on a 12 chain by 3 chain grid, with every third plot measured and graded. A total of 25 plots were sampled, with 9 measured and graded, and 16 count. Western redcedar are "Reserved Timber," and were recorded as leave trees. In hardwood dominated areas one acre and larger, alder trees were cruised to be included in the thinning prescription.

AREA 5 R/W, in-sale right-of-way, volume was calculated by multiplying R/W acreage and the average volume per acre from the plots in Areas 1– 4.

AREA 6 R/W, outside sale right-of-way, volume was calculated by taking fixed area plots every seven chains along the right-of-way and multiplying R/W acreage and the average volume per acre throughout R/W.

All cruises used Corvallis MicroTechnology (CMT) data collectors, and were downloaded to the Atterbury Super A.C.E. program in 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.

<u>AREA</u>	<u>CRUISE</u>	<u>CRUISE TYPE</u>
1, 3, & 4	RD 25 Auto-mark Thinning	7N 6W SEC 33 TRACT:1 3 4 TYPE:0134
2	RD 30 Auto-mark Thinning	7N 6W SEC 28 TRACT:2 TYPE:0002
5 R/W	In-Sale Right-of-Way	7N 6W SEC 33 TRACT:RW TYPE:RW
6 R/W	Out of Sale Right-of-Way	4N 9W SEC 03 TRACT:RW TYPE:RW

**6. Timber Description:** Areas 1, 3, & 4 consist of overstocked Douglas-fir and mixed conifer stands with inclusions of red alder. Douglas-fir is the dominant tree species with a mix of western hemlock, and red alder. Western redcedar is a minor component. There are areas with larger components of red alder. The trees range from 59 to 62 years old. The conifer as well as red alder stands (larger than an acre in size) will be thinned to an SDI of 25, with a target basal area of 120 ft<sup>2</sup>. Pockets of alder less than one acre in size and all western redcedar will not be harvested. Approximately 83 trees per acre and 15.5 MBF/acre (net) will be harvested from these stands. The average Douglas-fir "take" tree size is 16.2" DBH and 64 feet to a merchantable top (7" d.i.b.). The average red alder "take" tree size is 17.7" DBH and 46 feet to a merchantable top (8" d.i.b.).

Area 2 is a mix of Douglas-fir, western hemlock and red alder. Douglas-fir is the dominant tree species with a mix of western hemlock and a smaller component of alder near streams and in scattered patches. The trees range from 59 to 61 years old. The conifer as well as red alder stands (larger than an acre in size) will be thinned to an SDI of 30, with a target basal area of 140 ft<sup>2</sup>. Pockets of alder less than one acre in size and all western redcedar will not be harvested. Approximately 114 trees per acre and 18.6 MBF/acre (net) will be harvested from these stands. The average Douglas-fir "take" tree size is 14.9" DBH and 57 feet to a merchantable top (7" d.i.b.). The average red alder "take" tree size is 16" DBH and 50 feet to a merchantable top (8" d.i.b.).

Area 5 R/W (In-sale R/W) is similar to the timber description mentioned above for Areas 1-4. The average volume (net) is 38.5 MBF/acre.

Area 6 R/W (Out-of-Sale R/W) is a variable mixture of mature timber on some portions of the right-of-way to small 9-10 inch dbh conifer stands through young plantations. The average Douglas-fir "take" tree size is 14.1" DBH and 35 feet to a merchantable top (7" d.i.b.). The average western hemlock "take" tree size is 15.6" DBH and 46 feet to a merchantable top (7" d.i.b.). Approximately 22.4 MBF/acre (net) will be harvested from these right-of-ways.

**7. Statistical Analysis and Stand Summary:** (See "Statistics" - Type Reports, attached)

Statistics for total stand (Take and Leave trees combined) B.F. volumes

Area	Estimated CV	Target SE%	Actual CV*	Actual SE%*
1, 3, and 4	35%	7%	42.9	4.5%
2	35%	7%	30.1%	6.0%

\*Based on Net Board Feet Per Acre.

**8. Volumes by Species and Log Grade:** (See "Species, Sort, Grade - Type and Project Reports, attached, of individual sale areas and combined areas and three cruise types). Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	D & B	% Sale
Douglas-fir	16	7,069	3,358	3,089	622	397	84
Hemlock	18	676	130	475	71	145	8
Alder	17	696	0	593	103	76	8
Spruce	12	4	0	2	2	0	<1
Cedar	32	5	4	1	<1	0	<1
<b>TOTALS</b>		<b>8,450</b>	<b>3,492</b>	<b>4,160</b>	<b>798</b>	<b>618</b>	<b>100</b>

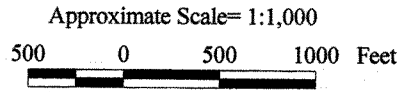
**9. Approvals:**Prepared by: Lanny FreemanDate: November 30, 2004Reviewed by: Date: 12/3/04**10. Attachments:**

Cruise Designs (3)  
Cruise Maps (3)  
Volume Reports - 5 pages  
Statistics Reports - 10 pages  
Stand Tables - 2 pages  
Log Stock Table (MBF) - 4 pages

LOGGING BREAKDOWN		
Area	Tractor	Cable
1	22%	78%
2	15%	85%
3	49%	51%
4	10%	90%

# LOGGING PLAN

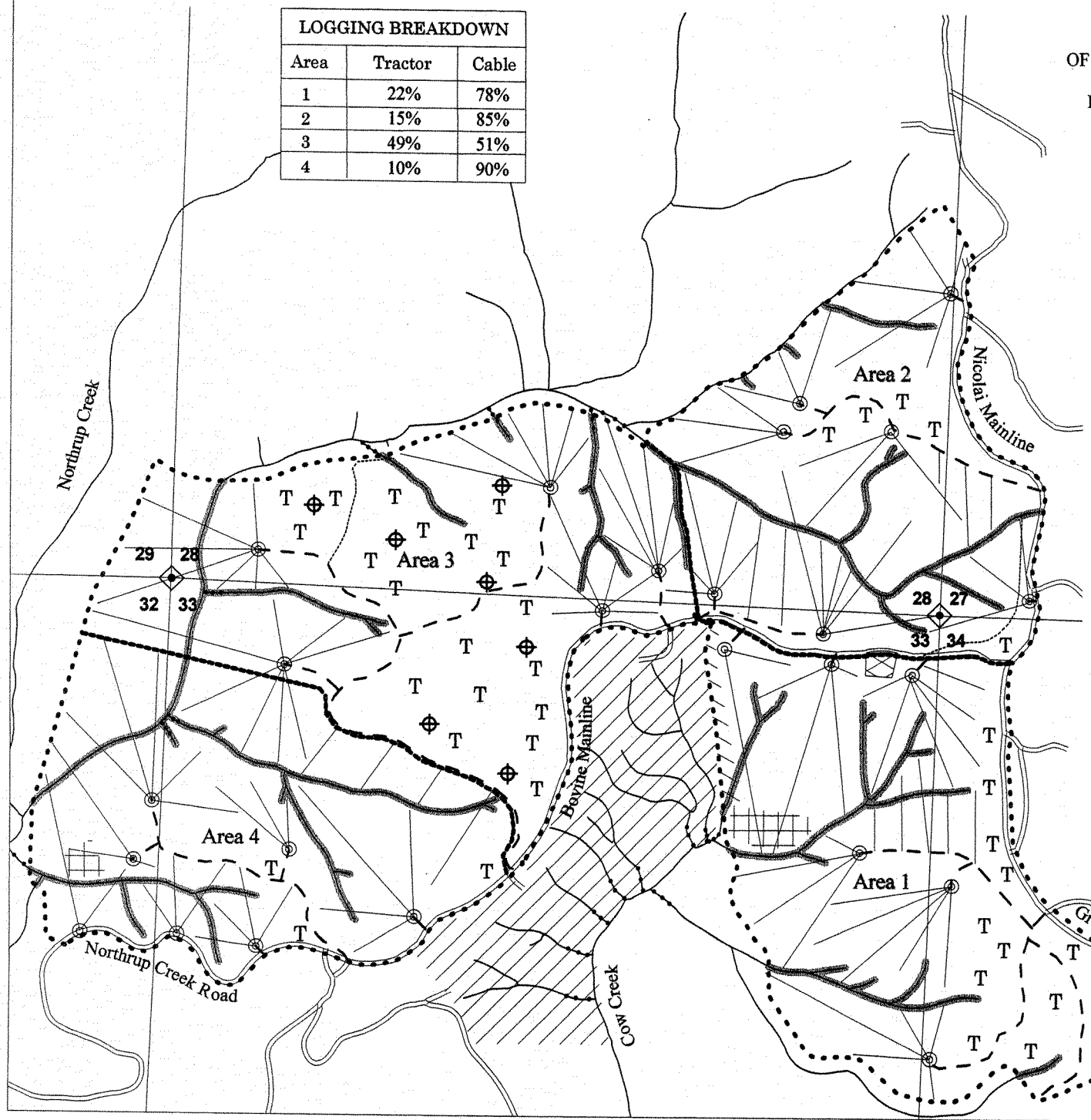
OF TIMBER SALE CONTRACT NO. 341-05-25  
 LOTTA THIN  
 PORTIONS OF SECTIONS 27, 28, 29, 32,  
 33, & 34 of T7N, R6W, W.M.,  
 CLATSOP COUNTY, OREGON



Approximate Net Acreage  
 Area 1 (PC) - 121 Acres  
 Area 2 (PC) - 102 Acres  
 Area 3 (PC) - 136 Acres  
 Area 4 (PC) - 102 Acres  
 Area 5 (R/W) - 20 Acres  
 Total Acres = 481

### LEGEND

- ..... Timber Sale Boundary
- Area Boundary
- ⊙ Landings To Be Constructed
- Surfacd Existing Road
- - - - - New Construction Road
- · - · - Existing Dirt Road
- · - · - Right of Way Boundary
- - - - - Property Line
- ◇ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- ▨ Unposted Stream Buffer
- ▧ Reforestation Area
- ▩ Green Tree Retention Area
- ▤ Intermediate Supports
- ▥ Controlled Felling
- T Tractor Logging Area
- ⊕ Cable Logging Area
- ⊕ Alternate Prescription Site



Revised August, 2002

**CRUISE DESIGN  
ASTORIA DISTRICT**

Sale Name: Lotta Thin Area(s) 1, 3, & 4

Harvest Type: CC PC CT "Automark Thinning" (circle one)

Approx. Cruise Acres: 376 Estimated CV% 40 <sup>Net BF or</sup> BA/Acre SE% Objective 7 <sup>Net BF or</sup> BA/Acre

Planned Sale Volume : 6,768 MMBF Estimated Sale Area Value/Acre: \$6,750  
(Areas 1,3, 4) (18 MBF/Ac.)

A. **Cruise Goals:** (a) Grade minimum 100 conifer and 30 hardwood trees:  
(b) Sample 88 cruise plots (25 grade/63count); (c) Other goals (     Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

**B. Cruise Design:**

1. **Plot Cruises:** BAF 40 (Full point; Half point) (circle one)  
Cruise Line Direction(s) Area 1: N/S, Areas 3 & 4: N30E  
Cruise Line Spacing 12 (chains) (feet)  
Cruise Plot Spacing 4 (chains) (feet)  
Grade/Count Ratio 1:3

Basal Area leave target 120 sq. ft. Cruiser needs to select 3 leave trees per plot. Area 3 has 7 trees painted with blue stripes around bole. All trees within 50' of these painted trees are recorded as take trees. Cruise all take and leave trees. Pockets of alder 1 acre and larger will be thinned to 120 sq. ft. Alder patches less than 1 acre will not be thinned. All cedar are leave trees and count towards the leave tree basal area.

**C. Tree Measurements:**

- Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest  $\frac{1}{2}$ " 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.
- 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  
Hardwoods: #2 Sawmill = 12" + scaling diameter; #3 Sawmill = 10 and 11"; #4 Sawmill = 8 and 9"
  
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 intervisible 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: Lanny Freeman  
Approved by: [Signature] 10/4/04  
Date: \_\_\_\_\_



25 grade  
88 total

9/29

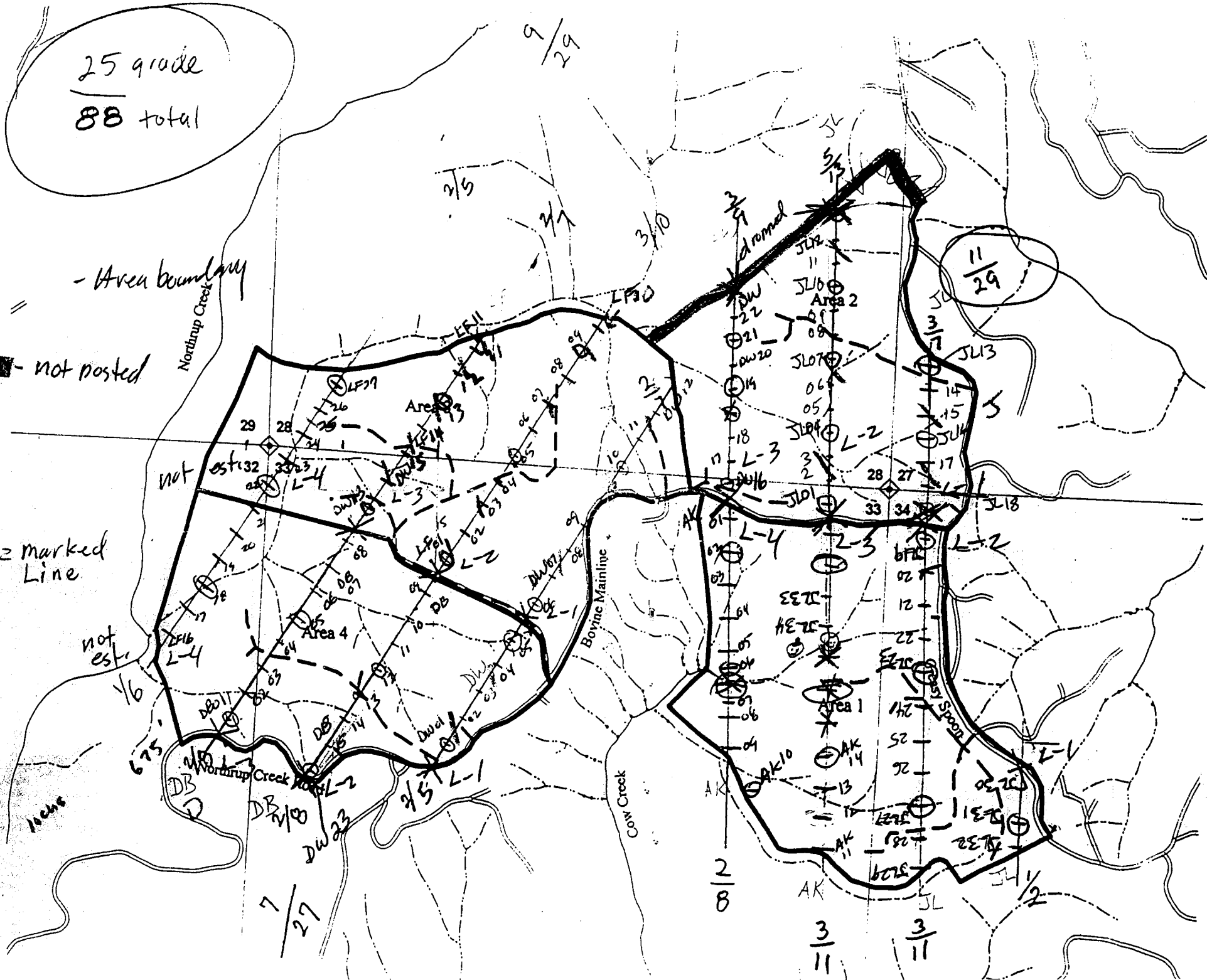
25 grade

88 total

- Area boundary

- not posted

X = marked  
Line



11/29

3/7

14

15

17

27

28

33

34

38

40

2/8

3/11

3/11

1/2

not est.

not

100%

Northrup Creek

Boyine Mainline

Cow Creek

2/5

2/7

3/10

2/9

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

7/27

2/5

DW 23

DW 23

DW 23

DW 23

DW 23

9/29

25 grade

88 total

- Area boundary

- not posted

X = marked  
Line

11/29

3/7

14

15

17

27

28

33

34

38

40

2/8

3/11

3/11

1/2

not est.

not

100%

Northrup Creek

Boyine Mainline

Cow Creek

2/5

2/7

3/10

2/9

5/13

5/13

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5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

7/27

2/5

DW 23

DW 23

DW 23

DW 23

DW 23

9/29

25 grade

88 total

- Area boundary

- not posted

X = marked  
Line

11/29

3/7

14

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28

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34

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40

2/8

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3/11

1/2

not est.

not

100%

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5/13

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5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

7/27

2/5

DW 23

DW 23

DW 23

DW 23

DW 23

9/29

25 grade

88 total

- Area boundary

- not posted

X = marked  
Line

11/29

3/7

14

15

17

27

28

33

34

38

40

2/8

3/11

3/11

1/2

not est.

not

100%

Northrup Creek

Boyine Mainline

Cow Creek

2/5

2/7

3/10

2/9

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

7/27

2/5

DW 23

DW 23

DW 23

DW 23

DW 23

9/29

25 grade

88 total

- Area boundary

- not posted

X = marked  
Line

11/29

3/7

14

15

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27

28

33

34

38

40

2/8

3/11

3/11

1/2

not est.

not

100%

Northrup Creek

Boyine Mainline

Cow Creek

2/5

2/7

3/10

2/9

5/13

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5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

7/27

2/5

DW 23

DW 23

DW 23

DW 23

DW 23

9/29

25 grade

88 total

- Area boundary

- not posted

X = marked  
Line

11/29

3/7

14

15

17

27

28

33

34

38

40

2/8

3/11

3/11

1/2

not est.

not

100%

Northrup Creek

Boyine Mainline

Cow Creek

2/5

2/7

3/10

2/9

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

5/13

**CRUISE DESIGN  
ASTORIA DISTRICT**

Sale Name: Lotta Thin Area(s) 2

Harvest Type: CC PC CT "Automark Thinning" (circle one)

Approx. Cruise Acres: 107 Estimated CV% 40 Net BF or SE% Objective 7 Net BF or BA/Acre BA/Acre

Planned Sale Volume : 1,605 MMBF Estimated Sale Area Value/Acre: \$5,625  
(Area 2 only) (15 MBF/Ac.)

A. **Cruise Goals:** (a) Grade minimum 50 conifer and 20 hardwood trees:  
(b) Sample 29 cruise plots (11grade/18 count); (c) Other goals (     Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

**B. Cruise Design:**

1. **Plot Cruises:** BAF 40 (Full point; Half point) (circle one)  
Cruise Line Direction(s) N/S  
Cruise Line Spacing 12 (chains) (feet)  
Cruise Plot Spacing 3 (chains) (feet)  
Grade/Count Ratio 1:2

Basal Area leave target 140 sq. ft. Cruiser needs to select 3 to 4 leave trees per plot. Cruise all take and leave trees. Pockets of alder 1 acre and larger will be thinned to 140 sq. ft. Alder patches less than 1 acre will not be thinned. All cedar are leave trees and count towards the leave tree basal area.

**C. Tree Measurements:**

- Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest  $\frac{1}{2}$ " 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.
- 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  
Hardwoods: #2 Sawmill = 12" + scaling diameter; #3 Sawmill = 10 and 11"; #4 Sawmill = 8 and 9"
  
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 intervisible 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: Lanny Freeman  
Approved by: [Signature]  
Date: 10/14/04

25 grade  
88 total

9/29

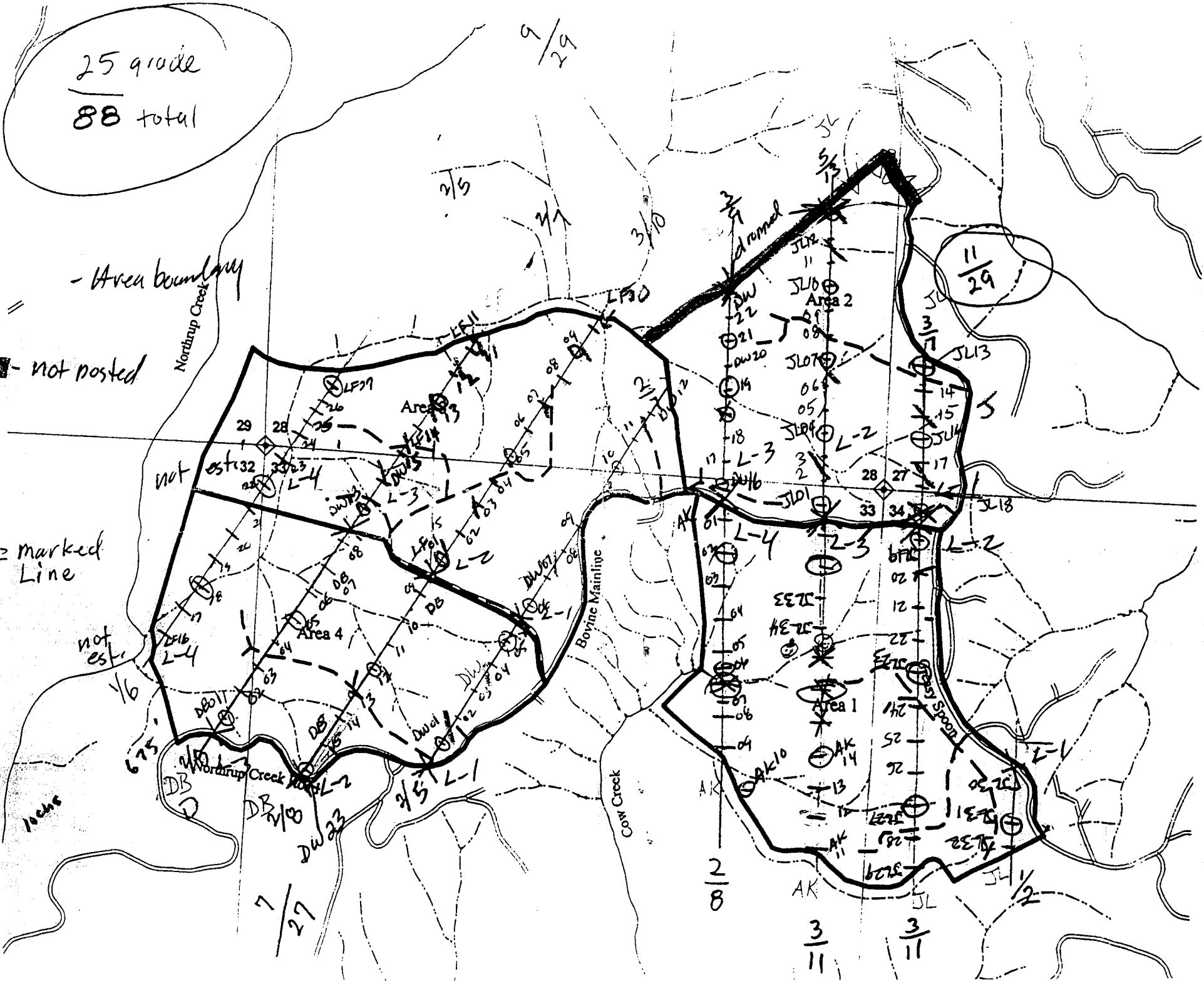
- Area boundary

- not posted

X = marked  
Line

not est.

1046



EAST SUMMIT R/W CRUISE  
11/22/04

Revised August, 2002

CRUISE DESIGN  
ASTORIA DISTRICT

Sale Name: Lotta Thin (East Summit Roads) Area(s) 6 RW

Harvest Type: CC PC CT (circle one)

Approx. Cruise Acres: 10.5 Estimated CV% 45 Net BF or BA/Acre SE% Objective 10 Net BF or BA/Acre

Planned Sale Volume : 300 MBF Estimated Sale Area Value/Acre: \$9,000  
(Area 6 RW only) (30 MBF/Ac.)

A. **Cruise Goals:** (a) Grade minimum 50 conifer and 10 hardwood trees:  
(b) Sample 13 cruise plots; (c) Other goals (      Determine "automark" thinning standards;      Determine log grades for sale value; X .

B. **Cruise Design:**

1. **Plot Cruises:** BAF 40 (Full point; Half point) (circle one)  
Cruise Line Direction(s) N/A  
Cruise Line Spacing N/A (chains) (feet)  
Cruise Plot Spacing 7 (chains) (feet)  
Grade/Count Ratio All Grade

C. **Tree Measurements:**

- Diameter:** Minimum DBH to cruise is 8" 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.
- 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 is 7" for conifer and 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.
- 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  
Hardwoods: #2 Sawmill = 12" + scaling diameter; #3 Sawmill = 10 and 11"; #4 Sawmill = 7, 8 and 9"

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 intervisible 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.

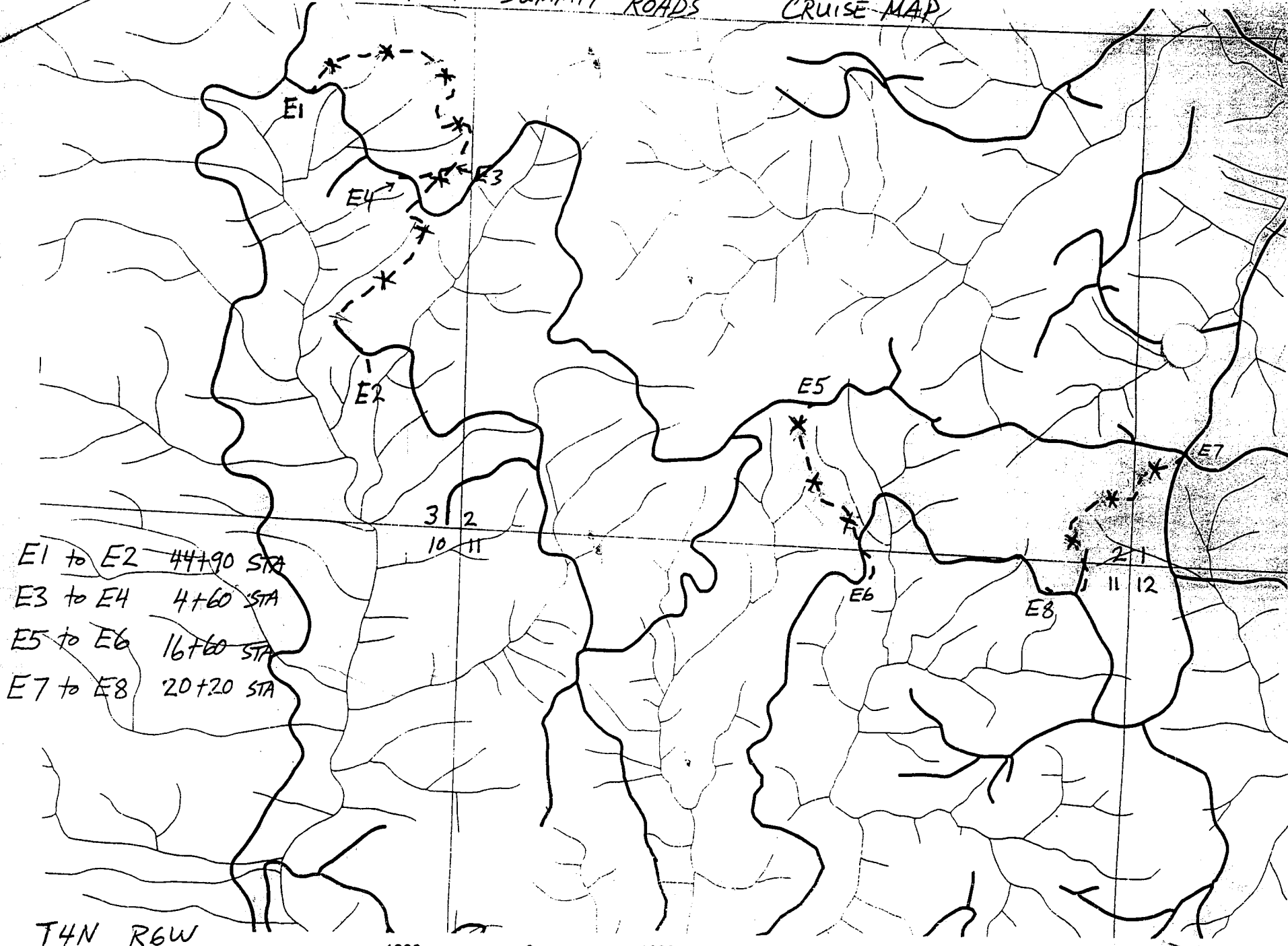
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Jon Long  
Approved by: [Signature]  
Date: 11/17/04

N-PIOT LOCATIONS

# EAST SUMMIT ROADS

# CRUISE MAP



E1 to E2 44+90 STA  
E3 to E4 4+60 STA  
E5 to E6 16+60 STA  
E7 to E8 20+20 STA

3 | 2  
10 | 11

2 | 1  
11 | 12

T4N, R6W  
Sec. 1, 2, 3, 11



TC PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																	
T07N R06W S28 TyTAKE THRU T4N R9W S3 Ty6RW			Project: LOTAHIN Acres 491.50						Page 1 Date 12/1/2004 Time 9:14:40AM										
S Spp	So Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of 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	? ?		100.0	527											5		0.00	15.1	
D	? 2S	40	2.4	7,002	6,832	3,358		2	82	16	12	1	39	48	32	210	1.61	32.5	
D	? 3S	37	1.4	6,377	6,285	3,089		98	2		1	8	45	46	34	87	0.72	72.1	
D	? 4S	7	1.6	1,287	1,267	622		1	99		52	46	2	1	20	25	0.41	49.7	
<b>D Totals</b>		84	5.3	15,192	14,384	7,070		0	52	40	8	11	8	39	43	27	85	0.84	169.4
H	4S																0.00	.1	
H	? ?		100.0	273											9		0.00	1.3	
H	? 2S	2	1.1	268	265	130		5	70	25	20	3	40	38	27	218	1.93	1.2	
H	? 3S	6		967	967	475		66	3	31	1	9	73	17	31	127	1.02	7.6	
H	? 4S	1		145	145	71		100			50	49		1	21	31	0.62	4.7	
<b>H Totals</b>		8	16.7	1,653	1,378	677		58	16	27	10	12	59	19	26	93	0.97	14.8	
A	? ?		100.0	97											12		0.00	.9	
A	? 3S	7	4.3	1,261	1,207	593		37	63		5	32	57	5	31	131	1.25	9.2	
A	? 4S	1	1.0	212	210	103		100			59	37	1	2	19	35	0.61	6.0	
<b>A Totals</b>		8	9.8	1,570	1,416	696		46	54		13	33	49	5	25	88	1.04	16.1	
S	? 3S	0		4	4	2		100						100	40	70	0.72	.1	
S	? 4S	0		4	4	2		100				100			21	30	0.38	.1	
<b>S Totals</b>		0		8	8	4		100				46		54	27	44	0.55	.2	
C	? 2S	0	3.9	9	8	4			100				40	60	36	552	4.42	.0	
C	? 3S	0	2.9	3	3	1			100				100		32	185	1.61	.0	
C	? 4S	0		1	1	0		100			100				17	39	0.77	.0	
<b>C Totals</b>		0	3.5	12	12	6		5	24	71	5		52	43	28	259	2.63	.0	
<b>Totals</b>			6.7	18,436	17,198	8,453		0	52	39	9	11	10	41	38	27	86	0.87	200.6



T07N R06W S33 TTAKE										T07N R06W S33 TTAKE			
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt				
07N	06W	33	AREAS 1	TAKE	359.00	90	79	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	?	?																					
D	?	2S		47	2.7	6,316	6,148	2,207		2	82	16		12		34	54		5		0.00	15.5	
D	?	3S		46	1.3	6,066	5,990	2,150		98	2			2	9	41	49		33	217	1.61	28.4	
D	?	4S		7	2.8	970	943	339		100				60	40				34	87	0.72	68.5	
<b>D</b>	<b>Totals</b>			85	2.0	13,352	13,081	4,696		53	40	8		11	7	35	48		20	25	0.43	37.5	
<b>D</b>	<b>Totals</b>			85	2.0	13,352	13,081	4,696		53	40	8		11	7	35	48		27	87	0.85	149.9	
A	?	?																					
A	?	3S		89	5.0	1,418	1,347	484		28	72			6	22	66	6		12		0.00	1.1	
A	?	4S		11		159	159	57		100				65	35				31	132	1.27	10.2	
<b>A</b>	<b>Totals</b>			10	4.5	1,577	1,506	541		36	64			12	23	59	6		17	35	0.65	4.6	
<b>A</b>	<b>Totals</b>			10	4.5	1,577	1,506	541		36	64			12	23	59	6		26	95	1.11	15.9	
H	?	?																					
H	?	2S		8		69	69	25			100			100					6		0.00	.6	
H	?	3S		80		710	710	255		100				2	15	59	24		16	110	1.88	.6	
H	?	4S		13		112	112	40		100				60	40				31	99	0.81	7.2	
<b>H</b>	<b>Totals</b>			6		890	890	320		92	8			17	17	47	19		21	30	0.56	3.7	
<b>H</b>	<b>Totals</b>			6		890	890	320		92	8			17	17	47	19		26	73	0.77	12.1	
<b>Type Totals</b>					2.2	15,820	15,478	5,557		53	40	6		11	9	38	42		27	87	0.87	177.9	

TC TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)								Page 1												
		Project: TOTALVOL								Date 11/30/2004												
										Time 3:26:23PM												
T07N R06W S28 TTAKE										T07N R06W S28 TTAKE												
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt													
07N	06W	28	AREA 2	TAKE	102.00	25	27	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			
D		DO	CU																			
D		DO	2S	43	2.4	7,128	6,959	710			93	7	15	4	53	28	29	173	1.49			40.2
D		DO	3S	44	2.1	7,232	7,082	722		100				5	58	37	34	86	0.74			81.9
D		DO	4S	14		2,229	2,229	227		3	97		40	57	3		21	26	0.39			87.3
<b>D</b>	<b>Totals</b>			<b>88</b>	<b>1.9</b>	<b>16,589</b>	<b>16,270</b>	<b>1,659</b>	<b>0</b>	<b>57</b>	<b>40</b>	<b>3</b>	<b>12</b>	<b>12</b>	<b>49</b>	<b>28</b>	<b>26</b>	<b>73</b>	<b>0.77</b>			<b>223.6</b>
H		DO	CU														10		0.00			3.3
H		DO	3S	91		1,435	1,435	146			100				100		32	430	3.06			3.3
H		DO	4S	9		133	133	14		100				100		22	40	1.05				3.3
<b>H</b>	<b>Totals</b>			<b>8</b>		<b>1,568</b>	<b>1,568</b>	<b>160</b>	<b>9</b>	<b>91</b>			<b>9</b>	<b>91</b>		<b>21</b>	<b>157</b>	<b>1.89</b>				<b>10.0</b>
A		DO	3S	81		596	596	61		100				100		30	130	1.13				4.6
A		DO	4S	19		138	138	14		100			100			16	30	0.63				4.6
<b>A</b>	<b>Totals</b>			<b>4</b>		<b>733</b>	<b>733</b>	<b>75</b>	<b>100</b>				<b>19</b>	<b>81</b>		<b>23</b>	<b>80</b>	<b>0.96</b>				<b>9.2</b>
<b>Type Totals</b>					<b>1.7</b>	<b>18,890</b>	<b>18,571</b>	<b>1,894</b>	<b>0</b>	<b>54</b>	<b>35</b>	<b>10</b>	<b>11</b>	<b>14</b>	<b>50</b>	<b>25</b>	<b>26</b>	<b>77</b>	<b>0.81</b>			<b>242.8</b>

T07N R06W S28 TR/W										T07N R06W S28 TR/W			
<b>Twp</b>	<b>Rge</b>	<b>Sec</b>	<b>Tract</b>	<b>Type</b>	<b>Acres</b>	<b>Plots</b>	<b>Sample Trees</b>	<b>CuFt</b>	<b>BdFt</b>				
07N	06W	28	AREA 5 R/W	R/W	20.00	115	214	1	W				

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			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	766											5	0.00	19.0			
D	?	2S		65	1.5	20,323	20,028	401		3	65	32		6	1	45	48	33	257	1.80	77.9	
D	?	3S		29	1.1	9,185	9,088	182		98	2			1	8	44	47	34	88	0.73	103.2	
D	?	4S		6	1.2	1,807	1,786	36		1	99			49	50	1		20	26	0.43	68.2	
<b>D</b>	<b>Totals</b>			<b>81</b>	<b>3.7</b>	<b>32,081</b>	<b>30,903</b>	<b>618</b>		<b>0</b>	<b>36</b>	<b>43</b>	<b>21</b>	<b>7</b>	<b>6</b>	<b>42</b>	<b>45</b>	<b>28</b>	<b>115</b>	<b>1.03</b>	<b>268.2</b>	
A	?	?			00.0	206												12	0.00	2.1		
A	?	3S		64	2.9	2,505	2,431	49		45	55			3	49	45	3	30	123	1.18	19.8	
A	?	4S		36	3.7	1,399	1,347	27		100				37	51	6	6	23	38	0.55	35.6	
<b>A</b>	<b>Totals</b>			<b>10</b>	<b>8.1</b>	<b>4,110</b>	<b>3,778</b>	<b>76</b>		<b>65</b>	<b>35</b>			<b>15</b>	<b>50</b>	<b>31</b>	<b>4</b>	<b>25</b>	<b>66</b>	<b>0.80</b>	<b>57.5</b>	
H	?	?			00.0	282												8	0.00	1.3		
H	?	2S		54	2.7	1,842	1,793	36			55	45		3		39	57	35	352	2.34	5.1	
H	?	3S		41		1,378	1,378	28		77	13	10		2	9	65	24	33	107	0.90	12.8	
H	?	4S		5		176	176	4		100				41	59			21	32	0.59	5.5	
<b>H</b>	<b>Totals</b>			<b>9</b>	<b>9.0</b>	<b>3,679</b>	<b>3,347</b>	<b>67</b>		<b>37</b>	<b>35</b>	<b>28</b>		<b>5</b>	<b>7</b>	<b>48</b>	<b>41</b>	<b>29</b>	<b>135</b>	<b>1.18</b>	<b>24.8</b>	
C	?	2S		71	3.9	217	209	4				100			40	60		36	552	4.42	.4	
C	?	3S		24	2.9	72	70	1			100				100			32	185	1.61	.4	
C	?	4S		5		15	15	0		100			100					17	39	0.77	.4	
<b>C</b>	<b>Totals</b>			<b>1</b>	<b>3.5</b>	<b>304</b>	<b>293</b>	<b>6</b>		<b>5</b>	<b>24</b>	<b>71</b>		<b>5</b>	<b>52</b>	<b>43</b>		<b>28</b>	<b>259</b>	<b>2.63</b>	<b>1.1</b>	
<b>Type Totals</b>					<b>4.6</b>	<b>40,173</b>	<b>38,321</b>	<b>766</b>		<b>0</b>	<b>39</b>	<b>41</b>	<b>20</b>		<b>7</b>	<b>10</b>	<b>41</b>	<b>41</b>	<b>28</b>	<b>109</b>	<b>1.01</b>	<b>351.6</b>

T4N R6W S3 T6RW T4N R6W S3 T6RW  
 Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt  
 4N 6W 3 6RW 6RW 10.50 13 74 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					
H			4S															0.00	3.3	
H	?	?															24	0.00	2.3	
H	?	2S		53	.6	6,681	6,638	70	9	67	23		5	54	41	34	259	1.79	25.7	
H	?	3S		36		4,453	4,453	47	76	24		1	4	65	30	33	83	0.79	53.8	
H	?	4S		11		1,343	1,343	14	100			73	22		5	19	27	0.47	48.9	
<b>H</b>	<b>Totals</b>			55	.3	12,476	12,433	131	43	45	12	8	6	52	33	27	93	0.94	134.1	
D	?	?														13		0.00	2.8	
D	?	2S		42		3,834	3,834	40	3	52	44			24	76	37	311	1.97	12.3	
D	?	3S		36	.6	3,332	3,312	35	79	21		6	7	58	29	33	79	0.83	41.7	
D	?	4S		22		1,985	1,985	21	100			61	10	12	18	19	30	0.45	67.2	
<b>D</b>	<b>Totals</b>			41	.2	9,152	9,132	96	52	30	19	15	4	34	46	25	74	0.83	124.0	
A	?	4S		100		481	481	5	100					100		26	36	0.48	13.2	
<b>A</b>	<b>Totals</b>			2		481	481	5	100					100		26	36	0.48	13.2	
S	?	3S		54		201	201	2	100					100		40	70	0.72	2.9	
S	?	4S		46		169	169	2	100				100			21	30	0.38	5.6	
<b>S</b>	<b>Totals</b>			2		371	371	4	100				46	54		27	44	0.55	8.5	
<b>Type Totals</b>					.3	22,479	22,417	235	49	37	14	11	8	43	38	26	80	0.86	279.8	

TC TSTATS		STATISTICS				PAGE 1				
		PROJECT LOTAHIN				DATE 11/30/2004				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	33	AREAS 1	0134	359.00	90	592	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		90	592	6.6						
CRUISE		25	161	6.4	58,954	.3				
DBH COUNT										
REFOREST										
COUNT		63	425	6.7						
BLANKS		2								
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	65	66.8	16.2	64		95.6	13,871	13,081	3,616	3,499
DOUGLEAV	54	31.6	22.1	90		84.4	16,437	16,185	3,897	3,858
ALDRLEAV	17	43.3	13.1	32		40.4	3,169	2,947	942	915
R ALDER	8	9.1	17.7	46		15.6	1,698	1,506	473	451
HEMLEAV	9	5.3	20.5	75		12.1	2,028	1,808	514	485
WHEMLOCK	6	6.7	14.9	51		8.2	916	890	245	240
CEDLEAV	1	.4	30.0	85		1.8	225	206	67	67
SNAG	1	1.0	13.0	80		.9				
<b>TOTAL</b>	<i>161</i>	<i>164.2</i>	<i>17.0</i>	<i>59</i>		<i>259.1</i>	<i>38,343</i>	<i>36,625</i>	<i>9,754</i>	<i>9,515</i>
SD: 1		COEFF VAR.%	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
DOUG FIR	101.9	10.7		60	67	74				
DOUGLEAV	59.7	6.3		30	32	34				
ALDRLEAV	133.7	14.1		37	43	49				
R ALDER	271.0	28.6		6	9	12				
HEMLEAV	263.5	27.8		4	5	7				
WHEMLOCK	283.5	29.9		5	7	9				
CEDLEAV	575.5	60.7		0	0	1				
SNAG	667.0	70.3		0	1	2				
<b>TOTAL</b>	<i>43.9</i>	<i>4.6</i>		<i>157</i>	<i>164</i>	<i>172</i>	<i>77</i>	<i>19</i>	<i>9</i>	
SD: 1		COEFF VAR.%	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
DOUG FIR	98.6	10.4		86	96	106				
DOUGLEAV	54.7	5.8		80	84	89				
ALDRLEAV	129.7	13.7		35	40	46				
R ALDER	271.7	28.6		11	16	20				
HEMLEAV	249.1	26.3		9	12	15				
WHEMLOCK	284.5	30.0		6	8	11				
CEDLEAV	575.5	60.7		1	2	3				
SNAG	667.0	70.3		0	1	2				
<b>TOTAL</b>	<i>38.6</i>	<i>4.1</i>		<i>249</i>	<i>259</i>	<i>270</i>	<i>60</i>	<i>15</i>	<i>7</i>	
SD: 1		COEFF VAR.%	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
DOUG FIR	99.7	10.5		11,707	13,081	14,456				
DOUGLEAV	55.1	5.8		15,245	16,185	17,124				
ALDRLEAV	132.0	13.9		2,537	2,947	3,357				
R ALDER	271.8	28.7		1,075	1,506	1,938				
HEMLEAV	248.9	26.2		1,334	1,808	2,283				
WHEMLOCK	283.6	29.9		624	890	1,157				
CEDLEAV	575.5	60.7		81	206	332				
SNAG										
<b>TOTAL</b>	<i>42.9</i>	<i>4.5</i>		<i>34,967</i>	<i>36,625</i>	<i>38,282</i>	<i>74</i>	<i>18</i>	<i>8</i>	

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT LOTAHIN				DATE 11/30/2004		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	28	AREA 2	0002	102.00	25	167	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		25	167	6.7						
CRUISE		11	55	5.0	18,029	.3				
DBH COUNT										
REFOREST										
COUNT		14	104	7.4						
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
DOUG FIR	25	106.0	14.9	57		128.1	17,123	16,270	4,567	4,461
DOUGLEAV	23	46.7	21.8	89		121.4	22,610	21,835	5,285	5,207
WHEMLOCK	1	3.3	34.0	66		21.0	2,703	1,568	607	404
HEMLEAV	3	5.9	25.0	87		20.2	4,210	4,154	938	938
ALDRLEAV	1	9.7	11.0	28		6.4	388	388	145	145
R ALDER	1	4.6	16.0	50		6.4	733	733	202	202
CEDLEAV	1	.5	34.0	90		3.2	528	528	137	137
<b>TOTAL</b>	<b>55</b>	<b>176.8</b>	<b>17.8</b>	<b>65</b>		<b>306.8</b>	<b>48,295</b>	<b>45,476</b>	<b>11,880</b>	<b>11,493</b>
SD: 1		COEFF VAR.%	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
DOUG FIR		75.1	15.0	90	106	122				
DOUGLEAV		38.9	7.8	43	47	50				
WHEMLOCK		321.7	64.3	1	3	5				
HEMLEAV		174.8	35.0	4	6	8				
ALDRLEAV		233.9	46.8	5	10	14				
R ALDER		390.3	78.1	1	5	8				
CEDLEAV		346.1	69.2	0	1	1				
<b>TOTAL</b>		<b>41.3</b>	<b>8.3</b>	<b>162</b>	<b>177</b>	<b>191</b>	<b>68</b>	<b>17</b>	<b>8</b>	
SD: 1		COEFF VAR.%	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
DOUG FIR		64.9	13.0	111	128	145				
DOUGLEAV		37.4	7.5	112	121	130				
WHEMLOCK		321.7	64.3	8	21	35				
HEMLEAV		159.2	31.8	14	20	27				
ALDRLEAV		233.9	46.8	3	6	9				
R ALDER		390.3	78.1	1	6	11				
CEDLEAV		346.1	69.2	1	3	5				
<b>TOTAL</b>		<b>30.7</b>	<b>6.1</b>	<b>288</b>	<b>307</b>	<b>326</b>	<b>38</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	
DOUG FIR		64.4	12.9	14,173	16,270	18,366				
DOUGLEAV		39.1	7.8	20,127	21,835	23,543				
WHEMLOCK		321.7	64.3	559	1,568	2,577				
HEMLEAV		158.7	31.7	2,835	4,154	5,472				
ALDRLEAV		233.9	46.8	206	388	569				
R ALDER		390.3	78.1	161	733	1,306				
CEDLEAV		346.1	69.2	162	528	893				
<b>TOTAL</b>		<b>30.1</b>	<b>6.0</b>	<b>42,742</b>	<b>45,476</b>	<b>48,210</b>	<b>36</b>	<b>9</b>	<b>4</b>	

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT LOTAHIN				DATE 11/30/2004		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	33	AREAS 1	LEAV	359.00	90	316	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	90	316	3.5							
CRUISE	25	82	3.3		29,206		3			
DBH COUNT										
REFOREST										
COUNT	63	230	3.7							
BLANKS	2									
100 %										
<b>STAND SUMMARY</b>										
	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	54	31.6	22.1	90		84.4	16,437	16,185	3,897	3,858
ALDRLEAV	17	43.3	13.1	32		40.4	3,169	2,947	942	915
HEMLEAV	9	5.1	20.5	75		11.7	1,954	1,742	495	467
CEDLEAV	1	.4	30.0	85		1.8	225	206	67	67
SNAG	1	1.0	13.0	80		.9				
<b>TOTAL</b>	<b>82</b>	<b>81.4</b>	<b>17.7</b>	<b>58</b>		<b>139.2</b>	<b>21,784</b>	<b>21,080</b>	<b>5,400</b>	<b>5,307</b>
	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	59.7	6.3	30	32	34					
ALDRLEAV	133.7	14.1	37	43	49					
HEMLEAV	272.6	28.7	4	5	7					
CEDLEAV	575.5	60.7	0	0	1					
SNAG	667.0	70.3	0	1	2					
<b>TOTAL</b>	<b>63.5</b>	<b>6.7</b>	<b>76</b>	<b>81</b>	<b>87</b>	<b>161</b>	<b>40</b>	<b>18</b>		
	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	54.7	5.8	80	84	89					
ALDRLEAV	129.7	13.7	35	40	46					
HEMLEAV	257.5	27.1	9	12	15					
CEDLEAV	575.5	60.7	1	2	3					
SNAG	667.0	70.3	0	1	2					
<b>TOTAL</b>	<b>33.7</b>	<b>3.6</b>	<b>134</b>	<b>139</b>	<b>144</b>	<b>45</b>	<b>11</b>	<b>5</b>		
	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	55.1	5.8	15,245	16,185	17,124					
ALDRLEAV	132.0	13.9	2,537	2,947	3,357					
HEMLEAV	257.3	27.1	1,270	1,742	2,215					
CEDLEAV	575.5	60.7	81	206	332					
SNAG										
<b>TOTAL</b>	<b>32.0</b>	<b>3.4</b>	<b>20,370</b>	<b>21,080</b>	<b>21,790</b>	<b>41</b>	<b>10</b>	<b>5</b>		

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT LOTAHIN		DATE 11/30/2004				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	28	AREA 2	LEAV	102.00	25	85	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	25	85	3.4							
CRUISE	11	28	2.5	6,414		4				
DBH COUNT										
REFOREST										
COUNT	14	51	3.6							
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	23	46.7	21.8	89		121.4	22,610	21,835	5,285	5,207
HEMLEAV	3	5.9	25.0	87		20.2	4,210	4,154	938	938
ALDRLEAV	1	9.7	11.0	28		6.4	388	388	145	145
CEDLEAV	1	.5	34.0	90		3.2	528	528	137	137
<b>TOTAL</b>	<b>28</b>	<b>62.9</b>	<b>21.0</b>	<b>79</b>		<b>151.3</b>	<b>27,736</b>	<b>26,905</b>	<b>6,505</b>	<b>6,427</b>
	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	38.9	7.8	43	47	50					
HEMLEAV	174.8	35.0	4	6	8					
ALDRLEAV	233.9	46.8	5	10	14					
CEDLEAV	346.1	69.2	0	1	1					
<b>TOTAL</b>	<b>19.0</b>	<b>3.8</b>	<b>60</b>	<b>63</b>	<b>65</b>	<b>14</b>	<b>4</b>	<b>2</b>		
	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV	37.4	7.5	112	121	130					
HEMLEAV	159.2	31.8	14	20	27					
ALDRLEAV	233.9	46.8	3	6	9					
CEDLEAV	346.1	69.2	1	3	5					
<b>TOTAL</b>	<b>10.7</b>	<b>2.1</b>	<b>148</b>	<b>151</b>	<b>155</b>	<b>5</b>	<b>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	39.1	7.8	20,127	21,835	23,543					
HEMLEAV	158.7	31.7	2,835	4,154	5,472					
ALDRLEAV	233.9	46.8	206	388	569					
CEDLEAV	346.1	69.2	162	528	893					
<b>TOTAL</b>	<b>23.5</b>	<b>4.7</b>	<b>25,641</b>	<b>26,905</b>	<b>28,168</b>	<b>22</b>	<b>6</b>	<b>2</b>		



TC TSTATS		STATISTICS					PAGE 1			
		PROJECT		TOTALVOL			DATE 11/30/2004			
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	33	AREAS 1	TAKE	359.00	90	275	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		90	275	3.1						
CRUISE		21	79	3.8	29,678	3				
DBH COUNT										
REFOREST										
COUNT		50	196	3.9						
BLANKS		19								
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	65	66.8	16.2	64		95.6	13,352	13,081	3,499	3,499
R ALDER	8	9.1	17.7	46		15.6	1,577	1,506	451	451
WHEMLOCK	6	6.7	14.9	51		8.2	890	890	240	240
<b>TOTAL</b>	<b>79</b>	<b>82.7</b>	<b>16.3</b>	<b>61</b>		<b>119.4</b>	<b>15,820</b>	<b>15,478</b>	<b>4,191</b>	<b>4,191</b>
	COEFF		SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
DOUG FIR	88.1	9.9	205	227	250					
R ALDER	317.1	35.7	11	17	23					
WHEMLOCK	379.4	42.7	6	11	16					
<b>TOTAL</b>	<b>69.4</b>	<b>7.8</b>	<b>235</b>	<b>255</b>	<b>275</b>	<b>193</b>	<b>98</b>	<b>33</b>		
	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
DOUG FIR	101.9	10.7	60	67	74					
R ALDER	271.0	28.6	6	9	12					
WHEMLOCK	283.5	29.9	5	7	9					
<b>TOTAL</b>	<b>80.3</b>	<b>8.5</b>	<b>76</b>	<b>83</b>	<b>90</b>	<b>258</b>	<b>132</b>	<b>45</b>		
	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
DOUG FIR	98.6	10.4	86	96	106					
R ALDER	271.7	28.6	11	16	20					
WHEMLOCK	284.5	30.0	6	8	11					
<b>TOTAL</b>	<b>76.0</b>	<b>8.0</b>	<b>110</b>	<b>119</b>	<b>129</b>	<b>231</b>	<b>118</b>	<b>40</b>		
	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
DOUG FIR	99.7	10.5	11,707	13,081	14,456					
R ALDER	271.8	28.7	1,075	1,506	1,938					
WHEMLOCK	283.6	29.9	624	890	1,157					
<b>TOTAL</b>	<b>80.3</b>	<b>8.5</b>	<b>14,168</b>	<b>15,478</b>	<b>16,788</b>	<b>258</b>	<b>131</b>	<b>45</b>		

TC TSTATS				STATISTICS				PAGE 1		
PROJECT				TOTALVOL				DATE 11/30/2004		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	28	AREA 2	TAKE	102.00	25	82	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		25	82	3.3						
CRUISE		10	27	2.7	11,616	.2				
DBH COUNT										
REFOREST										
COUNT		15	54	3.6						
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	25	106.0	14.9	57		128.1	16,589	16,270	4,461	4,461
WHEMLOCK	1	3.3	34.0	66		21.0	1,568	1,568	404	404
R ALDER	1	4.6	16.0	50		6.4	733	733	202	202
<b>TOTAL</b>	<b>27</b>	<b>113.9</b>	<b>15.8</b>	<b>57</b>		<b>155.5</b>	<b>18,890</b>	<b>18,571</b>	<b>5,066</b>	<b>5,066</b>
	COEFF		SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
DOUG FIR	73.9	14.2	179	209	238					
WHEMLOCK	519.6	100.0	0	17	35					
R ALDER	519.6	100.0		6	12					
<b>TOTAL</b>	<b>64.8</b>	<b>12.5</b>	<b>203</b>	<b>232</b>	<b>261</b>	<b>168</b>	<b>86</b>	<b>29</b>		
	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
DOUG FIR	75.1	15.0	90	106	122					
WHEMLOCK	321.7	64.3	1	3	5					
R ALDER	390.3	78.1	1	5	8					
<b>TOTAL</b>	<b>63.5</b>	<b>12.7</b>	<b>99</b>	<b>114</b>	<b>128</b>	<b>161</b>	<b>82</b>	<b>28</b>		
	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
DOUG FIR	64.9	13.0	111	128	145					
WHEMLOCK	321.7	64.3	8	21	35					
R ALDER	390.3	78.1	1	6	11					
<b>TOTAL</b>	<b>52.1</b>	<b>10.4</b>	<b>139</b>	<b>156</b>	<b>172</b>	<b>109</b>	<b>55</b>	<b>19</b>		
	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
DOUG FIR	64.4	12.9	14,173	16,270	18,366					
WHEMLOCK	321.7	64.3	559	1,568	2,577					
R ALDER	390.3	78.1	161	733	1,306					
<b>TOTAL</b>	<b>49.6</b>	<b>9.9</b>	<b>16,730</b>	<b>18,571</b>	<b>20,412</b>	<b>98</b>	<b>50</b>	<b>17</b>		

TC TSTATS		STATISTICS						PAGE 1		
		PROJECT LOTAHIN						DATE 12/1/2004		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
07N	06W	28	AREA 5 R/W	R/W	20.00	115	756	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		115	756	6.6						
CRUISE		36	214	5.9	3,367	6.4				
DBH COUNT										
REFOREST										
COUNT		77	528	6.9						
BLANKS		2								
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	166	112.6	17.8	70		195.7	32,081	30,903	7,991	7,828
R ALDER	27	43.4	14.0	35		46.6	4,110	3,778	1,197	1,158
WHEMLOCK	19	12.0	19.1	64		23.8	3,679	3,347	911	862
WR CEDAR	2	.4	31.8	87		2.1	304	293	84	84
<b>TOTAL</b>	<b>214</b>	<b>168.3</b>	<b>17.1</b>	<b>61</b>		<b>268.2</b>	<b>40,173</b>	<b>38,321</b>	<b>10,182</b>	<b>9,931</b>
	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	69.5	6.5	105	113	120					
R ALDER	155.3	14.5	37	43	50					
WHEMLOCK	223.7	20.9	9	12	14					
WR CEDAR	498.7	46.5	0	0	1					
<b>TOTAL</b>	<b>40.8</b>	<b>3.8</b>	<b>162</b>	<b>168</b>	<b>175</b>	<b>67</b>	<b>17</b>	<b>7</b>		
	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	63.9	6.0	184	196	207					
R ALDER	154.2	14.4	40	47	53					
WHEMLOCK	212.3	19.8	19	24	29					
WR CEDAR	497.7	46.4	1	2	3					
<b>TOTAL</b>	<b>36.4</b>	<b>3.4</b>	<b>259</b>	<b>268</b>	<b>277</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	63.7	5.9	29,068	30,903	32,738					
R ALDER	153.9	14.3	3,236	3,778	4,320					
WHEMLOCK	210.8	19.7	2,689	3,347	4,005					
WR CEDAR	499.7	46.6	157	293	430					
<b>TOTAL</b>	<b>43.2</b>	<b>4.0</b>	<b>36,777</b>	<b>38,321</b>	<b>39,866</b>	<b>75</b>	<b>19</b>	<b>8</b>		

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT	TOTALVOL	DATE 11/30/2004				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
4N	6W	3	6RW	6RW	10.50	13	74	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		13	74	5.7						
CRUISE		13	74	5.7	2,068	3.6				
DBH COUNT										
REFOREST										
COUNT										
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
WHEMLOCK	36	81.9	15.6	46		108.7	12,476	12,433	3,410	3,410
DOUG FIR	33	93.3	14.1	35		101.5	9,152	9,132	2,617	2,617
R ALDER	3	13.2	11.3	27		9.2	481	481	167	167
S SPRUCE	2	8.5	11.5	30		6.2	371	371	129	129
<b>TOTAL</b>	<b>74</b>	<b>196.9</b>	<b>14.5</b>	<b>39</b>		<b>225.6</b>	<b>22,479</b>	<b>22,417</b>	<b>6,323</b>	<b>6,323</b>
	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
WHEMLOCK	154.9	18.0	97	118	139					
DOUG FIR	249.6	29.0	70	99	128					
R ALDER	494.0	57.4	1	1	2					
S SPRUCE	651.9	75.8	0	1	2					
<b>TOTAL</b>	<b>120.2</b>	<b>14.0</b>	<b>189</b>	<b>220</b>	<b>251</b>	<b>578</b>	<b>295</b>	<b>100</b>		
	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
WHEMLOCK	110.9	30.8	57	82	107					
DOUG FIR	67.7	18.8	76	93	111					
R ALDER	286.2	79.4	3	13	24					
S SPRUCE	360.6	100.0	0	9	17					
<b>TOTAL</b>	<b>42.8</b>	<b>11.9</b>	<b>174</b>	<b>197</b>	<b>220</b>	<b>73</b>	<b>37</b>	<b>13</b>		
	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
WHEMLOCK	81.6	22.6	84	109	133					
DOUG FIR	63.6	17.6	84	102	119					
R ALDER	259.6	72.0	3	9	16					
S SPRUCE	360.6	100.0		6	12					
<b>TOTAL</b>	<b>46.8</b>	<b>13.0</b>	<b>196</b>	<b>226</b>	<b>255</b>	<b>87</b>	<b>45</b>	<b>15</b>		
	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	7	12		
WHEMLOCK	82.4	22.8	9,592	12,433	15,274					
DOUG FIR	100.7	27.9	6,582	9,132	11,682					
R ALDER	280.5	77.8	107	481	855					
S SPRUCE	360.6	100.0		371	741					
<b>TOTAL</b>	<b>66.9</b>	<b>18.5</b>	<b>18,259</b>	<b>22,417</b>	<b>26,574</b>	<b>179</b>	<b>91</b>	<b>31</b>		

TC PSTATS		PROJECT STATISTICS						PAGE 1			
		PROJECT LOTAHIN						DATE 12/1/2004			
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
07N	06W	28	AREA 2	TAKE	461.00	115	357	1	W		
07N	06W	33	AREAS 1	TAKE							
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL			115	357	3.1						
CRUISE			31	106	3.4	41,294	3				
DBH COUNT											
REFOREST											
COUNT			65	250	3.8						
BLANKS			19								
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		90	75.5	15.8	62		102.8	14,591	13,787	3,827	3,712
WHEMLOCK		7	6.0	18.4	53		11.1	1,311	1,040	325	276
R ALDER		9	8.1	17.5	47		13.5	1,485	1,335	413	396
<b>TOTAL</b>		<b>106</b>	<b>89.6</b>	<b>16.1</b>	<b>60</b>		<b>127.4</b>	<b>17,386</b>	<b>16,162</b>	<b>4,565</b>	<b>4,384</b>
		COEFF VAR.%	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1				LOW	AVG	HIGH	5	10	15		
DOUG FIR		96.1	9.0	69	75	82					
WHEMLOCK		293.7	27.4	4	6	8					
R ALDER		287.7	26.8	6	8	10					
<b>TOTAL</b>		<b>76.9</b>	<b>7.2</b>	<b>83</b>	<b>90</b>	<b>96</b>		<b>236</b>	<b>59</b>	<b>26</b>	
		COEFF VAR.%	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1				LOW	AVG	HIGH	5	10	15		
DOUG FIR		90.1	8.4	94	103	111					
WHEMLOCK		344.6	32.1	8	11	15					
R ALDER		289.2	27.0	10	14	17					
<b>TOTAL</b>		<b>70.5</b>	<b>6.6</b>	<b>119</b>	<b>127</b>	<b>136</b>		<b>199</b>	<b>50</b>	<b>22</b>	
		COEFF VAR.%	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1				LOW	AVG	HIGH	5	10	15		
DOUG FIR		91.0	8.5	12,616	13,787	14,957					
WHEMLOCK		312.5	29.1	737	1,040	1,344					
R ALDER		288.5	26.9	976	1,335	1,694					
<b>TOTAL</b>		<b>73.2</b>	<b>6.8</b>	<b>15,059</b>	<b>16,162</b>	<b>17,265</b>		<b>214</b>	<b>54</b>	<b>24</b>	

TC PSTATS		PROJECT STATISTICS							PAGE 1		
		PROJECT		TOTALVOL			DATE 12/1/2004				
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt	
07N 4N	06W 6W	28 3	AREA 2 6RW	TAKE 6RW	THRI	491.50	243	1,188	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		243	1188	4.9							
CRUISE		80	395	4.9	46,720	8					
DBH COUNT REFOREST COUNT		142	778	5.5							
BLANKS		21									
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		290	77.4	15.9	61		106.6	14,674	14,392	3,857	3,857
WHEMLOCK		62	7.9	17.9	52		13.7	1,381	1,378	367	367
R ALDER		39	9.6	16.8	44		14.8	1,473	1,416	422	422
S SPRUCE		2	.2	11.5	30		.1	8	8	3	3
WR CEDAR		2	.0	31.8	87		.1	12	12	3	3
<b>TOTAL</b>		<b>395</b>	<b>95.1</b>	<b>16.2</b>	<b>59</b>		<b>135.2</b>	<b>17,548</b>	<b>17,206</b>	<b>4,653</b>	<b>4,653</b>
		COEFF VAR.%	S.E.%	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD: 1				LOW	AVG	HIGH	5	7	12		
DOUG FIR		146.9	7.4	248	268	287					
WHEMLOCK		372.5	18.7	38	47	56					
R ALDER		375.0	18.9	10	13	15					
S SPRUCE		1512.2	76.1	0	0	0					
WR CEDAR		1462.4	73.6	1	4	7					
<b>TOTAL</b>		<b>118.8</b>	<b>6.0</b>	<b>312</b>	<b>332</b>	<b>352</b>	<b>565</b>	<b>288</b>	<b>98</b>		
		COEFF VAR.%	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1				LOW	AVG	HIGH	5	7	12		
DOUG FIR		155.8	10.0	70	77	85					
WHEMLOCK		337.6	21.7	6	8	10					
R ALDER		339.1	21.8	8	10	12					
S SPRUCE		1558.8	100.0	0	0	0					
WR CEDAR		731.0	46.9	0	0	0					
<b>TOTAL</b>		<b>129.6</b>	<b>8.3</b>	<b>87</b>	<b>95</b>	<b>103</b>	<b>672</b>	<b>343</b>	<b>117</b>		
		COEFF VAR.%	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1				LOW	AVG	HIGH	5	7	12		
DOUG FIR		146.9	9.4	97	107	117					
WHEMLOCK		394.3	25.3	10	14	17					
R ALDER		369.6	23.7	11	15	18					
S SPRUCE		1558.8	100.0	0	0	0					
WR CEDAR		729.5	46.8	0	0	0					
<b>TOTAL</b>		<b>123.0</b>	<b>7.9</b>	<b>125</b>	<b>135</b>	<b>146</b>	<b>605</b>	<b>309</b>	<b>105</b>		
		COEFF VAR.%	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1				LOW	AVG	HIGH	5	7	12		
DOUG FIR		146.5	9.4	13,039	14,392	15,744					
WHEMLOCK		340.7	21.9	1,077	1,378	1,679					
R ALDER		379.9	24.4	1,071	1,416	1,762					
S SPRUCE		1558.8	100.0	8	8	16					
WR CEDAR		732.3	47.0	6	12	18					
<b>TOTAL</b>		<b>124.9</b>	<b>8.0</b>	<b>15,828</b>	<b>17,206</b>	<b>18,584</b>	<b>624</b>	<b>318</b>	<b>108</b>		

TC TSTNDSUM		Stand Table Summary													
Project LOTAHIN															
T07N R06W S33 TLEAV										T07N R06W S33					
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:							
07N	06W	33	AREAS 1	LEAV	359.00	90	82	1	Date:	12/1/200					
								Time:	10:01:49AM						
S Spc	T	Av			Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
		Sample DBH	FF Trees	Ht 16'				Tot	Net Cu.Ft.				Net Bd.Ft.	Tons	Cunits
DL	11	1	83	36	2.370	1.56	2.37	10.0	30.0	24	71	85	26		
DL	16	2	82	108	2.240	3.13	6.72	18.3	65.0	123	437	442	157		
DL	17	1	89	117	.992	1.56	1.98	36.5	135.0	72	268	260	96		
DL	18	2	86	107	1.770	3.13	4.42	29.0	106.0	128	469	461	168		
DL	19	2	85	123	1.588	3.13	4.77	30.8	111.7	147	532	527	191		
DL	20	7	85	125	5.018	10.95	15.05	34.1	132.4	513	1,993	1,842	715		
DL	21	4	88	120	2.601	6.26	7.15	40.8	168.2	292	1,203	1,048	432		
DL	22	6	88	125	3.554	9.38	11.26	39.3	167.9	442	1,890	1,586	678		
DL	23	1	88	125	.542	1.56	1.63	46.7	206.7	76	336	272	121		
DL	24	6	87	124	2.987	9.38	8.46	50.0	210.0	423	1,777	1,519	638		
DL	25	2	87	130	.917	3.13	2.75	56.2	230.0	155	633	555	227		
DL	26	4	85	127	1.697	6.26	5.09	56.0	235.0	285	1,196	1,023	429		
DL	27	4	88	119	1.573	6.26	4.72	61.3	264.2	289	1,247	1,039	448		
DL	28	6	87	124	2.194	9.38	6.58	66.6	305.0	438	2,008	1,573	721		
DL	29	1	87	127	.341	1.56	1.02	74.0	323.3	76	331	272	119		
DL	30	1	82	125	.319	1.56	.96	75.7	326.7	72	312	260	112		
DL	31	1	78	126	.298	1.56	.90	77.7	293.3	70	263	250	94		
DL	32	2	87	134	.560	3.13	1.68	90.2	460.0	151	773	544	277		
DL	60	1	92	133	.080	1.56	.24	341.7	1873.3	82	448	293	161		
DL	Totals	54	86	115	31.640	84.44	87.75	44.0	184.4	3,858	16,185	13,852	5,810		
AL	10	2	86	39	8.724	4.76	8.72	9.0	30.0	79	262	282	94		
AL	11	2	86	31	7.210	4.76	7.21	9.5	35.0	68	252	246	91		
AL	12	5	87	54	15.415	11.90	18.44	14.2	44.9	262	829	939	297		
AL	13	1	82	53	2.581	2.38	2.58	21.0	40.0	54	103	195	37		
AL	15	1	87	52	1.939	2.38	1.94	27.0	60.0	52	116	188	42		
AL	16	1	86	84	1.704	2.38	3.41	24.5	90.0	83	307	300	110		
AL	17	2	87	61	3.019	4.76	4.53	22.3	70.0	101	317	363	114		
AL	21	1	86	46	.989	2.38	.99	48.0	150.0	47	148	170	53		
AL	22	1	86	84	.901	2.38	1.80	49.0	180.0	88	324	317	116		
AL	23	1	87	74	.825	2.38	1.65	48.0	175.0	79	289	284	104		
AL	Totals	17	86	50	43.306	40.44	51.27	17.8	57.5	915	2,947	3,284	1,058		
HL	15	1	91	85	1.058	1.30	2.12	22.5	90.0	48	190	171	68		
HL	16	1	90	90	.930	1.30	1.86	27.5	110.0	51	205	184	73		
HL	20	2	87	101	1.191	2.60	2.38	49.8	167.5	118	399	425	143		
HL	22	1	80	101	.492	1.30	.98	56.5	180.0	56	177	200	64		
HL	23	2	86	100	.900	2.60	1.80	61.8	225.0	111	405	399	145		
HL	27	1	93	96	.327	1.30	.65	79.0	335.0	52	219	185	79		
HL	36	1	87	101	.184	1.30	.37	85.5	400.0	31	147	113	53		
HL	Totals	9	88	95	5.082	11.69	10.16	46.0	171.4	467	1,742	1,677	625		
CL	30	1	74	115	.362	1.78	1.09	61.3	190.0	67	206	239	74		
CL	Totals	1	74	115	.362	1.78	1.09	61.3	190.0	67	206	239	74		
SNL	13	1	89	127	.964	.89									
SNL	Totals	1	89	127	.964	.89									
Totals		82	86	79	81.354	139.24	150.27	35.3	140.3	5307	21,080	19,051	7,568		

TC TSTNDSUM		Stand Table Summary													
Project LOTAHIN											T07N R06W S28				
T07N R06W S28 TLEAV											Page: 1				
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Date:	Time: 10:01:49AM						
07N	06W	28	AREA 2	LEAV	102.00	25	28								
Spc	T	DBH	Sample Trees	FF	Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
									Net Cu.Ft.	Net Bd.Ft.			Tons	Cunits	MBF
DL		15	2	85	111	7.709	9.46	15.42	25.5	102.5	393	1,580	401	161	
DL		18	1	86	109	3.619	6.40	10.86	23.7	90.0	257	977	262	100	
DL		20	4	87	110	9.652	21.06	26.79	31.8	125.0	852	3,349	869	342	
DL		22	5	84	112	11.031	29.12	31.30	36.1	137.2	1,130	4,295	1,153	438	
DL		23	1	86	113	1.640	4.73	4.92	41.0	173.3	202	853	206	87	
DL		24	3	85	120	4.517	14.19	13.55	46.7	184.4	632	2,500	645	255	
DL		25	1	86	118	1.388	4.73	4.16	50.7	210.0	211	874	215	89	
DL		26	1	85	126	1.283	4.73	3.85	60.7	253.3	234	975	238	99	
DL		27	1	91	120	1.406	5.59	4.22	60.3	283.3	254	1,195	260	122	
DL		28	3	89	126	3.609	15.43	10.83	69.5	341.7	752	3,700	768	377	
DL		35	1	89	126	.894	5.97	2.68	108.0	573.3	290	1,537	295	157	
DL		Totals		23	86	114	46.748	121.41	128.57	40.5	169.8	5,207	21,835	5,311	2,227
HL		18	1	89	105	3.320	5.87	9.96	27.7	110.0	276	1,096	281	112	
HL		24	1	88	110	1.867	5.87	5.60	50.0	210.0	280	1,176	286	120	
HL		46	1	82	110	.738	8.52	2.21	172.7	850.0	382	1,882	390	192	
HL		Totals		3	88	107	5.925	20.25	17.78	52.8	233.7	938	4,154	957	424
CL		34	1	79	122	.508	3.20	1.52	89.7	346.7	137	528	139	54	
CL		Totals		1	79	122	.508	3.20	1.52	89.7	346.7	137	528	139	54
AL		11	1	86	52	9.698	6.40	9.70	15.0	40.0	145	388	148	40	
AL		Totals		1	86	52	9.698	6.40	9.70	15.0	40.0	145	388	148	40
Totals		28	86	104	62.878	151.26	157.57	40.8	170.7	6427	26,905	6,556	2,744		









Log Stock Table - MBF

T07N R06W S28 TyTAKE  
THRU  
T4N R9W S3 Ty6RW

Project: LOTAHIN  
Acres 491.50

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+				
A		?	3S	16	33	12.5	29	4.2					29											
A		?	3S	24	3		3	.4					3											
A		?	3S	28	1		1	.2				1												
A		?	3S	29	50	8.3	46	6.6					46											
A		?	3S	30	150	5.7	142	20.4					70	68			4							
A		?	3S	32	275	3.7	265	38.1					1	66	198									
A		?	3S	34	75		75	10.8					1		70		4							
A		?	3S	40	33		33	4.7					33											
A		?	4S	16	55		55	7.8				40	15											
A		?	4S	17	2		2	.2				2												
A		?	4S	20	5		5	.7				5												
A		?	4S	21	22		22	3.2				1	21											
A		?	4S	23	2		2	.3				2												
A		?	4S	24	2		2	.3				2												
A		?	4S	27	4		4	.6				4												
A		?	4S	29	4		4	.5				4												
A		?	4S	30	5		5	.7				5												
A		?	4S	32	2	33.3	1	.2				1												
A		?	4S	37	2	14.3	2	.2				2												
A		Totals			772	9.8	696	8.2				103	38	181	366		4	4						
S		?	3S	40	2		2	54.3				2												
S		?	4S	21	2		2	45.7				2												
S		Totals			4		4	.0				4												
C		?	2S	32	2	9.3	2	28.3									2							
C		?	2S	40	3		3	42.9													3			
C		?	3S	32	1	2.9	1	23.9						1		1								
C		?	4S	15	0		0	2.8					0											
C		?	4S	18	0		0	2.2					0											
C		Totals			6	3.5	6	.1				0	0	1	1	2	3							
Total		All Species			9,061	6.7	8,453	100.0			8	1496	1226	1693	2283	606	989	79	69		5			