



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Cost Summary Hambone Sale 341-06-02

District: Astoria

Date: 9/14/05

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$1,121,705.79	\$242,224.44	\$1,363,930.23
		Project Work	(\$230,850.00)
		Advertised Value	\$1,133,080.23



Timber Sale Appraisal Timber Description Hambone Sale 341-06-02

"STEWARDSHIP IN FORESTRY"

District: Astoria

Location: Portions of Section 30, T6N, R7W, & Section 25, T6N, R8W, W.M.
Clatsop County, Oregon

Date: 9/14/05

Stand Stocking: 80%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	17	0	97
Western Hemlock / Fir	16	0	96
Sitka Spruce	15	0	97
Alder (Red)	15	0	95

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)	Total
2S	863	985	45	99	1,992
3S	447	1,018	38	296	1,799
4S	147	182	15	231	575
Total	1,457	2,185	98	626	4,366

Comments: Pond Values Used: 2nd Quarter 2005.

Log Markets: Mist, Clatskanie, Tillamook, Warrenton, Garibaldi, Banks

Additional Costs with P&R:

100% branding and painting: $\$1/\text{MBF} \times 4,366 = \$4,366$

Top or girdle 45 marked wildlife or Type-N buffer trees scattered though Areas 1-3 @ $\$45/\text{tree} = \$2,025$

Traffic control for portion of Area 3 harvesting, $\$24.50 \times 50 \text{ hours} \times 2 \text{ flaggers} = \2450

Total Cost With P&R: $\$8,841$

Costs without P&R:

Slash piling Areas 1 and 3 cable landings: $\$87.50/\text{hour} \times 2 \text{ hours/landing} \times 6 \text{ landings} = \1050

Site Preparation Slash Piling in Areas 1-3 $143.7 \text{ hours} \times \$120/\text{hour} + \$1,890 \text{ (Mobilization} \times 2) = \$19,134$

Ripping/Tilling Dirt Roads (2A to 2B, 3A to 3B, 3C to 3D) (20+25 Sta.) at $\$18.0/\text{Sta.} = \365

Flush-cut stumps and cleanup within 25' of State Highway 202 in Area 3, 40 hours, @ $\$30/\text{hour} = \1200

Increased Fuel Costs - $\$9/\text{MBF} \times 4,366 = \$39,294$

Total Cost Without P&R = $\$61,043$

Western Red Cedar

Average Pond Value - Logging Costs = Price

$\$925 - \$215 = \$710$



Timber Sale Appraisal

Logging Conditions

Hambone

Sale 341-06-02

"STEWARDSHIP IN FORESTRY"

Combination#: 1	Douglas - Fir	55.00%		
	Western Hemlock / Fir	55.00%		
	Sitka Spruce	55.00%		
	Alder (Red)	55.00%		
Yarding Distance:	Medium (800 ft)		Downhill Yarding:	No
Logging System:	Cable: Medium Tower >40 - <70		Process:	Stroke Delimber
Tree Size:	Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF			
Loads/Day:	6		Bd. Ft./Load:	3,500
Cost/MBF:	\$156.32			
Machines:				
	Log Loader (A)			
	Stroke Delimber (A)			
	Tower Yarder (Medium)			
Combination#: 2	Douglas - Fir	41.00%		
	Western Hemlock / Fir	41.00%		
	Sitka Spruce	41.00%		
	Alder (Red)	41.00%		
Yarding Distance:	Short (400 ft)		Downhill Yarding:	Yes
Logging System:	Track Skidder		Process:	Manual Falling/Delimiting
Tree Size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF			
Loads/Day:	8		Bd. Ft./Load:	3,500
Cost/MBF:	\$116.62			
Machines:				
	Log Loader (B)			
	Track Skidder			
Combination#: 3	Douglas - Fir	4.00%		
	Western Hemlock / Fir	4.00%		
	Sitka Spruce	4.00%		
	Alder (Red)	4.00%		
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:	8		Bd. Ft./Load:	3,500
Cost/MBF:	\$82.92			
Machines:				
	Shovel Logger			



Timber Sale Appraisal Logging Costs Hambone Sale 341-06-02

"STEWARDSHIP IN FORESTRY"

Date: 9/14/05

Operating Seasons: 2.0

Profit & Risk: 13%

Project Costs: \$230,850

Other Costs (P/R): \$8,841

Slash Disposal: \$0

Other Costs: \$61,043

Road Maintenance: \$2.91

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

Hauling Costs

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



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Logging Costs Breakdown Hambone Sale 341-06-02

Costs	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)
Logging	137.11	137.11	137.11	137.11
Road Maintenance	3.00	3.03	3.00	3.06
Fire Protection	1.24	1.24	1.24	1.24
Hauling	35.15	39.95	39.54	69.16
Other (P/R appl.)	2.02	2.02	2.02	2.02
Profit & Risk	23.21	23.84	23.78	27.64
Slash Disposal	0.00	0.00	0.00	0.00
Scaling	2.00	2.00	2.00	2.00
Other	13.98	13.98	13.98	13.98
Total	217.71	223.17	222.67	256.21

Amortization	0.00	0.00	0.00	0.00
Pond Value	642.39	444.76	414.23	643.15
Stumpage	424.68	221.59	191.56	386.94
Amortized	0.00	0.00	0.00	0.00



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Summary Hambone Sale 341-06-02

Amortized

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

Unamortized

	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)
MBF	1,457.00	2,185.00	98.00	626.00
Value	424.68	221.59	191.56	386.94
Total	618,758.76	484,174.15	18,772.88	242,224.44

Gross Timber Sale Value

Recovery \$1,363,930.23

Prepared by: Derek Bangs

Date: 9/14/05

District: Astoria

Phone: (503) 325-5451

Road Maintenance Cost Summary

Sale: Hambone
Date: 16-May-05
By: L. Freeman

MBF: 4,366
\$\$/MBF: \$2.91

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	Production Rates			
							Production Rates	Miles/day	Distance(miles)	Days
Progressive Operations 1st Entry(1.6 mi.)	Grader 14G	\$570	1	11	\$84	\$1,494				
	Dump Truck 12CY	\$119	2	8	\$59	\$710	Grader	1.5	1.6	1.1
	FE Loader C966	\$570	1	5	\$79	\$965				
Final Road Maintenance (3.5 mi.)	Grader 14G	\$570	1	23	\$84	\$2,502	Production Rates	Miles/day	Distance(miles)	Days
	Dump Truck 12CY x 2	\$119	2	20	\$59	\$1,418	Grader	1.5	3.5	2.3
	FE Loader C966	\$570	1	10	\$79	\$1,360	Vibratory Roller*	1.5	3.5	2.3
	Vibratory Roller	\$570	1	23	\$79	\$2,387				
	Water Truck 2,500 gallon Labor	\$139	1	23	\$70	\$1,749				
				4	\$25	\$100				
Total										\$12,685

*Final Road Maintenance Only

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Hambone

NEW CONSTRUCTION:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 1	1A-1B, 1C-1D, 2A-2B, 3A-3B, & 3C-3D	44.4	\$24,349
TOTALS		44.40	\$24,349

ROAD IMPROVEMENT:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
	I1-12 & I3-14	122.15	\$106,545
	Paved Approach	1.0	\$3,701
TOTALS		123.15	\$110,246

SPECIAL PROJECTS:

	<u>Description</u>	<u>Cost</u>
Project No. 2	Bridge Construction and Pipe Arch Installation	\$88,252
	Project Work Road Maintenance	\$2,448
TOTALS		\$90,700

MOVE IN:

	<u>Equipment</u>	<u>Cost</u>
	Dozer (D8)	\$1,030
	Dump Trucks (12 cy) X 4	\$476
	Dump Trucks (20 cy) X 1	\$140
	F E Loader (C966)	\$570
	Grader (14G)	\$570
	Vibratory Roller	\$570
	Water Truck (2,500 gallon)	\$139
	Excavator (C330) \$1,030 X 2	\$2,060
TOTAL		\$5,555

GRAND TOTAL **\$230,850**

Compiled By: Freeman *ker*

Date: 5/16/2005

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Hambone (Designed Roads)
 ROADS: 1A-1B (21.4 sta.)

NEW CONSTRUCTION: 21.40 STATIONS 0.41 MILES
 IMPROVEMENT: 0.00 STATIONS 0.00 MILES

CLEARING & GRUBBING					
Method	Acres/amount	x	Rate	=	Cost
Scatter Outside of R/W	2.70	x	\$980.00	=	\$2,646.00
		x		=	
SUB TOTAL FOR CLEARING & GRUBBING					\$2,646

EXCAVATION					
Material	Cy/amount/station	x	Rate	=	Cost
Common Excavation	2,504	x	\$1.48	=	\$3,705.92
Embankment Compaction	2,261	x	\$0.45	=	\$1,017.45
Cut Slope Rounding	12	x	\$31.00	=	\$372.00
Landing Construction \$\$/landing	5	x	\$270.00	=	\$1,350.00
1A-1B stations 5+00, 10+00, 16+70, 18+40, 1B sta. 21+80					
SUB TOTAL FOR EXCAVATION					\$6,445

CULVERT MATERIALS AND INSTALLATION							
Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
13+70	18"CPP	40	\$12.25	\$490.00			\$490.00
Other/miscellaneous: _____							
Culvert stakes & markers: <u>6' FIBERGLASS MARKER INCLUDES INSTALLATION</u>					1	\$14.10	\$14.10
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION							

Subtotal **504.10**
\$9,595

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Hambone
ROAD: 1C-1D(2.75), 16' subgrade rocked, (1/2 sta. each 2A-2B&3A-3B rocked) outslped
 2A-2B (5.65), 3A-3B (8.10), 3C-3D (6.50), all dirt 14 foot outslped=(20.25 sta.)

NEW CONSTRUCTION: 23.00 **STATIONS** 0.44 **MILES**
IMPROVEMENT: 0.00 **STATIONS** 0.00 **MILES**

CLEARING & GRUBBING						
Method	Acres/amount	x	Rate	=	Cost	
Scatter Outside of R/W	1.90	x	\$980.00	=	\$1,862.00	
SUB TOTAL FOR CLEARING & GRUBBING						\$1,862

EXCAVATION						
Material	Sta/amount	x	Rate	=	Cost	
Common (Reg Standard Design) \$\$/sta.	23.00	x	\$139.00	=	\$3,197.00	
Landing Construction \$\$/landing	4	x	\$287.00	=	\$1,148.00	
1D, 2B, 3B, & 3D						
		x		=		
SUB TOTAL FOR EXCAVATION						\$4,345

CULVERT MATERIALS AND INSTALLATION							
Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
Other/miscellaneous:	Description			Quantity	Rate	Cost	
Culvert stakes & markers:	6' FIBERGLASS MARKERS						
	INCLUDES INSTSALLATION						
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION						Subtotal	\$6,207

SURFACING		Subgrade prep:						Stations/amount	x	Rate/sta/amt	Cost
		Description									
		Grade, Shape and Ditch 16' (All rocked roads)						24.15	x	\$18.20	\$439.53
		Subgrade Compaction (Includes the 1st 1/2 Sta. on 2A-2B & 3A-3B)						25.15	x	\$14.80	\$372.22
		(dirt) Grade/Shape/waterbar 14' outslope 2A-2B, 3A-3B, 3C-3D						20.25	x	\$13.45	\$272.36
ROAD SEGMENT		1A to 1B		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	1A to 1B	0+00 to 21+40	Volume (CY) per	Number of				
Base Rock	4"-0" Crushed	0+00-21+40	8	station	50	Stations	21.40	1,070	\$2.93	\$3,135	
Curve Widening	4"-0" Crushed		8			Curves		110	\$2.93	\$322	
Turnouts	4"-0" Crushed	5+00	8	Turnout	22	Turnouts		22	\$2.93	\$64	
Turnouts	4"-0" Crushed	10+00	8	Turnout	22	Turnouts		22	\$2.93	\$64	
Turnouts	4"-0" Crushed	16+70	8	Turnout	22	Turnouts		22	\$2.93	\$64	
Turnouts	4"-0" Crushed	18+40	8	Turnout	22	Turnouts		22	\$2.93	\$64	
T.O./Landing Combo.	6"-0" Pit Run	5+00	N/A	Landing	50	Landing/T.O.		50	\$5.96	\$298	
T.O./Landing Combo.	6"-0" Pit Run	10+00	N/A	Landing	50	Landing/T.O.		50	\$5.96	\$298	
T.O./Landing Combo.	6"-0" Pit Run	16+70	N/A	Landing	50	Landing/T.O.		50	\$5.96	\$298	
T.O./Landing Combo.	6"-0" Pit Run	18+40	N/A	Landing	50	Landing/T.O.		50	\$5.96	\$298	
Junctions Pt. 1A	4"-0" Crushed	0+00	8	Junction	20	Junctions	1.00	20	\$2.93	\$59	
Landing Rock	6"-0" Pit Run	21+40	N/A	Landing	80	Landings	1.00	80	\$5.96	\$477	
Total Rock for Road Segment:								1,568		\$5,443	
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	0+00 to 2+75	Volume (CY) per	Number of				
Landings	6"-0" Pit-run	2+75	N/A	Landing	50	Landings	1	50	\$5.96	\$298	
Base Rock	4"-0" Crushed	0+00-2+75	8	Station	50	Stations	2.75	138	\$2.93	\$403	
Junction Rock	4"-0" Crushed	0+00	8	Junction	20	Junctions	1.00	20	\$2.93	\$59	
Total Rock for Road Segment:								208		\$759	
ROAD SEGMENT		2A to 2B		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B	0+00 to 5+65	Volume (CY) per	Number of				
Base Rock Surfacing	4"-0" Crushed	0+00-0+50	6	1/2 Station	20	Stations	0.50	20	\$2.93	\$59	
Junction Rock	4"-0" Crushed	0+00	6	Junction	10	Junctions	1.00	10	\$2.93	\$29	
Total Rock for Road Segment:								30		\$88	
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	0+00 to 8+10	Volume (CY) per	Number of				
Base Rock	4"-0" Crushed	0+00-0+50	6	1/2 Station	20	Stations	0.50	20	\$2.93	\$59	
Junctions	4"-0" Crushed	0+00	6	Junction	10	Junctions	1	10	\$2.93	\$29	
Total Rock for Road Segment:								30		\$88	

Processing:

Description	No.sta/Jct	Rate/sta	Cost
Water, Process & Compact Crushed Rock:(8" roads in one lift)	24.15	\$41.40	\$1,000

SUB TOTAL FOR SURFACING

6"-0"pr	4"-0"	Total
330	1,506	1,836

\$8,462

SPECIAL PROJECTS

Description	Cost

SUB TOTAL FOR SPECIAL PROJECTS

GRAND TOTAL

Cost per Mile \$28,886

\$24,264.31

Compiled By: L.Freeman

Date: 5/24/2005

SALE NAME: Hambone
 PROJECT: No. 1 - New Roads/Improvement ROCK TYPE: Crushed 4"
 QUARRY: Fishhawk Road Stockpiles DATE: 5/9/2005
 BY: Freeman

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	20.40	1,506			1	0.50	0.53	0.25	0.10	2.38
1C-1D	2.75	158			1	0.50	0.53	0.33	0.10	2.46
2A-2B	0.50	30					0.10	0.10	0.05	0.25
3A-3B	0.50	30			1	0.46	0.30	0.30	0.10	2.16
TOTAL	24.15	1,724								
	STA./NO.	CU. YD.								AVERAGE HAUL
			0.00	0.00	0.97	0.48	0.51	0.25	0.10	2.30
Average Round Trip Distance (miles) 4.61										

ROCK HAUL:

Truck type: D20 No. trucks: 1
 Delay min.: 8 Efficiency: 85%

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

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

Ave haul: \$1.88 /cy
 Load: \$0.40 /cy
 Spread: \$0.65 /cy

 Production: cy/day = 1,010

Haul min:	27.91	Yd/hr:	43.00
Haul \$/cy	\$1.56	Truck wt:	34%
Haul min:	25.91	Yd/hr:	83.37
Haul \$/cy	\$2.05	Truck wt:	66%
Haul min:	24.91	Yd/hr:	0.00
Haul \$/cy	\$2.37	Truck wt:	0%

CRUSHED ROCK HAUL COSTS 1,724 cy @ \$2.93 /cy

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Hambone
 ROAD: Fishhawk Creek Road
 POINTS: I1 to I2

NEW CONSTRUCTION: _____ STATIONS _____ MILES
 IMPROVEMENT: 70.60 STATIONS 1.34 MILES

CULVERT MATERIALS AND INSTALLATION																					
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost												
0+05	18/CPP	65	\$12.25	\$796.25	21+50	18/CPP	44	\$12.25	\$539.00												
2+45	24/AC	55	Fill Sheet	\$6,901.38	34+55	18/CPP	45	\$12.25	\$551.25												
9+60	18/CPP	55	\$12.25	\$673.75	39+80	24/AC	46	Fill Sheet	\$4,825.35												
12+00	18/CPP	38	\$12.25	\$465.50	43+00	18/CPP	38	\$12.25	\$465.50												
16+00	18/CPP	38	\$12.25	\$465.50	45+80	18/CPP	38	\$12.25	\$465.50												
19+60	36/AC	52	Fill Sheet	\$7,499.03	50+40	24/AC	80	Fill Sheet	\$9,429.88												
					<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 & markers: 6' x 2-1/2" white fibreglass (Carsonite) I-beam posts</td> <td>13</td> <td>\$14.10</td> <td>\$183.30</td> </tr> </tbody> </table>					Description	Quantity	Rate	Cost	Other/miscellaneous:				Culvert stakes & markers: 6' x 2-1/2" white fibreglass (Carsonite) I-beam posts	13	\$14.10	\$183.30
Description	Quantity	Rate	Cost																		
Other/miscellaneous:																					
Culvert stakes & markers: 6' x 2-1/2" white fibreglass (Carsonite) I-beam posts	13	\$14.10	\$183.30																		
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION									\$33,261												

ROCKING					
Subgrade prep:	Description	Stations	x	Rate/sta	Cost
	Grading	70.60	x	\$18.20	\$1,284.92
	Vibratory Roller	70.60	x	\$14.80	\$1,044.88
Processing:	Description	sta	Rate/sta	Cost	
	Grade, Compaction	72.40	\$17.80	\$1,288.72	
ROCKING					\$3,619

SUB TOTAL **\$36,880**

Compiled By: Frank Lertora Date: 5/16/2005

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Hambone
 ROAD: Cedar Flats Road
 POINTS: I3 to I4

NEW CONSTRUCTION: _____ STATIONS _____ MILES
 IMPROVEMENT: 51.55 STATIONS 0.98 MILES

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
7+35	18/CPP	35	\$12.25	\$428.75	29+05	24/AC	85	Fill Sheet	\$15,352.43
9+80	24/AC	50	Fill Sheet	\$6,862.23	32+60	18/CPP	38	\$12.25	\$465.50
13+10	24/AC	70	Fill Sheet	\$9,403.48	34+68	36/AC	68	Fill Sheet	\$10,146.48
19+50	18/CPP	45	\$12.25	\$551.25	40+20	18/CPP	38	\$12.25	\$465.50
23+10	24/AC	72	Fill Sheet	\$9,374.08	42+00	18/CPP	38	\$12.25	\$465.50
26+55	24/AC	55	Fill Sheet	\$7,051.58	50+55	18/CPP	38	\$12.25	\$465.50
					Description		Quantity	Rate	Cost
Other/miscellaneous:					_____		_____	_____	_____
Culvert stakes & markers:					6' x 2-1/2" white fibreglass (Carsonite)		11	\$14.10	\$155.10
					I-beam posts		_____	_____	_____
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION									\$61,187

ROCKING						
Subgrade prep:		Description	Stations	x	Rate/sta	Cost
		Grading	51.55	x	\$18.20	\$938.21
		Vibratory Roller	51.55	x	\$14.80	\$762.94
		_____	_____	_____	_____	_____
Processing:		Description	No. Cy/sta	Rate/cy/sta	Cost	
		Grade, Compaction	65.66	\$17.80	\$1,168.75	
		_____	_____	_____	_____	
		_____	_____	_____	_____	
SUB TOTAL						\$2,870
SUB TOTAL						\$64,057

Compiled By: Frank Lertora Date: 5/31/2005

SURFACING		Description: Rock Volumes for I1 to I2 (70.6 sta.) I3 to I4 (51.55 sta.) Road Improvement and Project No. 2 Rock Volumes						Stations/ amount	x	Rate/ sta/amt	Cost													
									x															
									x															
									x															
ROAD SEGMENT	I1 to I2			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost														
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2 Volume (CY) per	0+00 to 70+60 Number of																			
Leveling Rock	1"-0" Crushed	0+00-60+40						200	\$2.32	\$464														
Base Rock Fills	4"-0" Crushed		10	Fill	63	Fills	4.00	252																
Surface Rock Fills	1"-0" Crushed		5	Fill	31	Fills	4.00	124																
Surfacing	1"-0" Crushed	0+00-60+40	2	Station	13	Stations	60.40	785	\$2.32	\$1,822														
Turnouts	1"-0" Crushed		2	Turnout	10	Turnouts	11.00	110	\$2.32	\$255														
Landing	4"-0" Crushed	46+95		Landing	40	Landings	1.00	40	\$2.32	\$93														
Junctions	1"-0" Crushed		2	Junction	10	Junctions	3.00	30	\$2.32	\$70														
Culvert Bed./Backrill	1 1/2"-0" Crushed	X-drains						180	\$2.32	\$418														
Culvert Bed./Backrill	1 1/2"-0" Crushed	Fills						310																
Fill Armor/Dissipator	24"-6" Rip Rap	Fills						320																
Bridge & Approach Surfacing	1"-0" Crushed	9+10						89																
Approach Surfacing	4"-0" Crushed	9+10						82																
Bridge Footing	1"-0" Crushed	9+10						4																
Bridge Footing	*24"-6" Rip Rap	9+10						52																
Bridge Armor	*36"-24" Rip Rap	9+10						200																
Total Rock for Road Segment: I1 to I2								2,778																
										\$3,121														
ROAD SEGMENT	I3 to I4			POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Cy/ amt.	Cost														
Application	Rock Size and Type	Location	Depth of Rock (inches)	I3 to I4 Volume (CY) per	0+00 to 51+55 Number of																			
Leveling Rock	1"-0" Crushed	0+00-47+66		Leveling				200	\$2.32	\$464														
Base Rock Fills	4"-0" Crushed	Base Rock	10	Fill	63	Fills	7.00	441																
Surface Rock Fills	1"-0" Crushed	Surfacing	5	Fill	31	Fills	7.00	217																
Surfacing	1"-0" Crushed	0+00-47+66	2	Station	13	Stations	47.66	620	\$2.32	\$1,437														
Turnouts	1"-0" Crushed		2	Turnout	10	Turnouts	6.00	60	\$2.32	\$139														
Junctions	1"-0" Crushed		2	Junction	10	Junctions	4.00	40	\$2.32	\$93														
Culvert Bed./Backrill	1 1/2"-0" Crushed	X-drains						120	\$2.32	\$278														
Culvert Bed./Backrill	1 1/2"-0" Crushed	Fills						710																
Fill Armor/Dissipator	24"-6" Rip Rap	Sta. 40+20		Dissipator				10	\$7.51	\$75														
Fill Armor/Dissipator	24"-6" Rip Rap	Pipe Arch						800																
Fill Armor/Dissipator	*36"-24" Rip Rap	Pipe Arch						200																
Total Rock for Road Segment: I3 - I4								3,418																
										\$2,487														
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>36"-24"</th> <th>24"-6"</th> <th>4"-0"</th> <th>1 1/2"-0"</th> <th>1"-0"</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td></td> <td>400</td> <td>1,182</td> <td>815</td> <td>1,320</td> <td>2,479</td> <td>6,196</td> </tr> </tbody> </table>												36"-24"	24"-6"	4"-0"	1 1/2"-0"	1"-0"	Total		400	1,182	815	1,320	2,479	6,196
	36"-24"	24"-6"	4"-0"	1 1/2"-0"	1"-0"	Total																		
	400	1,182	815	1,320	2,479	6,196																		
*Rock Volumes Costed for on Bridge/Fill sheets																								
SUB TOTAL FOR Improvement										\$5,608														
Compiled By: L.Freeman																								
Date: 5/31/2005																								

Fill Reconstruction Cost Estimate

Frank Lertora
4/7/2005

Segment: 11 to 12 Station: 2+45
Fill: 2 Height: 13

Materials	Quantity		\$	Total
24"x55', 16ga, AC	55		\$22.85	\$1,256.75
Beveled both Ends	2		\$24.00	\$48.00
24"-6" Riprap Armor	80	cy	\$7.51	\$600.80
1 1/2"-0" Crushed Rock for Bedding/Backfill	70	cy	\$2.32	\$162.40
1"-0" Crushed Rock for Road	31	cy	\$2.32	\$71.92
4"-0" Crushed Rock for Road	63	cy	\$2.32	\$146.16
Erosion Control	0.05	ac	\$1,315.00	\$65.75
Mulch, seed and fert.				

5"
10"

\$2,351.78

Equipment/Labor Costs	Quantity		\$/Hr.	Hours	Total
Excavator, Large					
Operating	1		\$136.00	10	\$1,360.00
Stand-By	1		\$81.60	2	\$163.20
Dump Truck					
Operating	2		\$59.00	10	\$1,180.00
Stand-By	2		\$35.40	2	\$141.60
Vibratory Roller					
Operating	1		\$79.00	4	\$316.00
Stand-By	1		\$47.40	2	\$94.80
Front-End Loader, Medium					
Operating	1		\$79.00	5	\$395.00
Stand-By	1		\$47.40	3	\$142.20
Hand Held Tamper					
Operating	1		\$7.00	4	\$28.00
Stand-By	1		\$4.20	4	\$16.80
Water Pump					
Operating	2		\$7.00	8	\$112.00
Laborer	2		\$25.00	12	\$600.00

\$4,549.60

* Rock Cost shown on the Road Improvement cost sheet.

Project Total	\$6,901
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Fill Reconstruction Cost Estimate

Frank Lertora
4/5/2005

Segment: I1 to I2 Station: 19+60
 Fill: 6 Height: 12

Materials	Quantity		\$	Total
36"x52', 16ga, AC	52		\$35.20	\$1,830.40
Beveled both Ends	2		\$36.00	\$72.00
24"-6" Riprap Armor	80	cy	\$7.51	\$600.80
1 1/2"-0" Crushed Rock for Bedding/Backfill	70	cy	\$2.32	\$162.40
1"-0" Crushed Rock for Road	31	cy	\$2.32	\$71.92
4"-0" Crushed Rock for Road	63	cy	\$2.32	\$146.16
Erosion Control Mulch, seed and fert.	0.05	ac	\$1,315.00	\$65.75

5"
10"

\$2,949.43

Equipment/Labor Costs	Quantity		\$/Hr.	Hours	Total
Excavator, Large					
Operating	1		\$136.00	10	\$1,360.00
Stand-By	1		\$81.60	2	\$163.20
Dump Truck					
Operating	2		\$59.00	10	\$1,180.00
Stand-By	2		\$35.40	2	\$141.60
Vibratory Roller					
Operating	1		\$79.00	4	\$316.00
Stand-By	1		\$47.40	2	\$94.80
Front-End Loader, Medium					
Operating	1		\$79.00	5	\$395.00
Stand-By	1		\$47.40	3	\$142.20
Hand Held Tamper					
Operating	1		\$7.00	4	\$28.00
Stand-By	1		\$4.20	4	\$16.80
Water Pump					
Operating	2		\$7.00	8	\$112.00
Laborer	2		\$25.00	12	\$600.00

\$4,549.60

* Rock Cost shown on the Road Improvement cost sheet.

Project Total	\$7,499
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Fill Reconstruction Cost Estimate

Frank Lertora
4/5/2005

Segment: I1 to I2 Station: 39+80
 Fill: 11 Height: 8

Materials	Quantity		\$	Total
24"x46', 16ga, AC	46		\$22.85	\$1,051.10
Beveled both Ends	2		\$24.00	\$48.00
24"-6" Riprap Armor	30	cy	\$7.51	\$225.30
1 1/2"-0" Crushed Rock for Bedding/Backfill	70	cy	\$2.32	\$162.40
1"-0" Crushed Rock for Road	31	cy	\$2.32	\$71.92
4"-0" Crushed Rock for Road	63	cy	\$2.32	\$146.16
Erosion Control Mulch, seed and fert.	0.05	ac	\$1,315.00	\$65.75

5"
10"

\$1,390.15

Equipment/Labor Costs	Quantity		\$/Hr.	Hours	Total
Excavator, Large					
Operating	1		\$136.00	7	\$952.00
Stand-By	1		\$81.60	1	\$81.60
Dump Truck					
Operating	2		\$59.00	7	\$826.00
Stand-By	2		\$35.40	1	\$70.80
Vibratory Roller					
Operating	1		\$79.00	4	\$316.00
Stand-By	1		\$47.40	2	\$94.80
Front-End Loader, Medium					
Operating	1		\$79.00	5	\$395.00
Stand-By	1		\$47.40	3	\$142.20
Hand Held Tamper					
Operating	1		\$7.00	4	\$28.00
Stand-By	1		\$4.20	4	\$16.80
Water Pump					
Operating	2		\$7.00	8	\$112.00
Laborer	2		\$25.00	8	\$400.00

\$3,435.20

* Rock Cost shown on the Road Improvement cost sheet.

Project Total	\$4,825
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Fill Reconstruction Cost Estimate

Frank Lertora
4/5/2005

Segment: 11 to 12 Station: 50+40
Fill: 14 Height: 17

Materials	Quantity		\$	Total
24"x80", 16ga, AC	80		\$22.85	\$1,828.00
Beveled both Ends	2		\$24.00	\$48.00
24"-6" Riprap Armor	130	cy	\$7.51	\$976.30
1 1/2"-0" Crushed Rock for Bedding/Backfill	100	cy	\$2.32	\$232.00
1"-0" Crushed Rock for Road	31	cy	\$2.32	\$71.92
4"-0" Crushed Rock for Road	63	cy	\$2.32	\$146.16
Erosion Control	0.1	ac	\$1,315.00	\$131.50
Mulch, seed and fert.				

5"
10"

\$3,433.88

Equipment/Labor Costs	Quantity		\$/Hr.	Hours	Total
Excavator, Large					
Operating	1		\$136.00	12	\$1,632.00
Stand-By	1		\$81.60	4	\$326.40
Dump Truck					
Operating	2		\$59.00	12	\$1,416.00
Stand-By	2		\$35.40	4	\$283.20
Vibratory Roller					
Operating	1		\$79.00	6	\$474.00
Stand-By	1		\$47.40	2	\$94.80
Front-End Loader, Medium					
Operating	1		\$79.00	5	\$395.00
Stand-By	1		\$47.40	3	\$142.20
Hand Held Tamper					
Operating	1		\$7.00	8	\$56.00
Stand-By	1		\$4.20	2	\$8.40
Water Pump					
Operating	2		\$7.00	12	\$168.00
Laborer	2		\$25.00	20	\$1,000.00

\$5,996.00

* Rock Cost shown on the Road Improvement cost sheet.

Project Total	\$9,430
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Fill Reconstruction Cost Estimate

Frank Lertora
5/10/2005

Segment: I3 to I4 Station: 9+80
 Fill: 4 Height: 12

Materials	Quantity		\$	Total
24"x50', 16ga, AC	50		\$22.85	\$1,142.50
Beveled both Ends	2		\$24.00	\$48.00
24"-6" Rip Rap Armor	90	cy	\$7.51	\$675.90
1 1/2"-0" Crushed Rock for Bedding/Backfill	70	cy	\$2.32	\$162.40
1"-0" Crushed Rock for Road	31	cy	\$2.32	\$71.92
4"-0" Crushed Rock for Road	63	cy	\$2.32	\$146.16
Erosion Control Mulch, seed and fert.	0.05	ac	\$1,315.00	\$65.75

5"
10"

\$2,312.63

Equipment/Labor Costs	Quantity		\$/Hr.	Hours	Total
Excavator, Large					
Operating	1		\$136.00	10	\$1,360.00
Stand-By	1		\$81.60	2	\$163.20
Dump Truck					
Operating	2		\$59.00	10	\$1,180.00
Stand-By	2		\$35.40	2	\$141.60
Vibratory Roller					
Operating	1		\$79.00	4	\$316.00
Stand-By	1		\$47.40	2	\$94.80
Front-End Loader, Medium					
Operating	1		\$79.00	5	\$395.00
Stand-By	1		\$47.40	3	\$142.20
Hand Held Tamper					
Operating	1		\$7.00	4	\$28.00
Stand-By	1		\$4.20	4	\$16.80
Water Pump					
Operating	2		\$7.00	8	\$112.00
Laborer	2		\$25.00	12	\$600.00

\$4,549.60

* Rock Cost shown on the Road Improvement cost sheet.

Project Total	\$6,862
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Fill Reconstruction Cost Estimate

Frank Lertora
4/7/2005

Segment: 13 to 14 Station: 13+10
 Fill: 5 Height: 17

Materials	Quantity		\$	Total
24"x70', 16ga, AC	70		\$22.85	\$1,599.50
Beveled both Ends	2		\$24.00	\$48.00
24"-6" Rip Rap Armor	160	cy	\$7.51	\$1,201.60
1 1/2"-0" Crushed Rock for Bedding/Backfill	90	cy	\$2.32	\$208.80
1"-0" Crushed Rock for Road	31	cy	\$2.32	\$71.92
4"-0" Crushed Rock for Road	63	cy	\$2.32	\$146.16
Erosion Control Mulch, seed and fert.	0.1	ac	\$1,315.00	\$131.50

5"
10"

\$3,407.48

Equipment/Labor Costs	Quantity		\$/Hr.	Hours	Total
Excavator, Large					
Operating	1		\$136.00	12	\$1,632.00
Stand-By	1		\$81.60	4	\$326.40
Dump Truck					
Operating	2		\$59.00	12	\$1,416.00
Stand-By	2		\$35.40	4	\$283.20
Vibratory Roller					
Operating	1		\$79.00	6	\$474.00
Stand-By	1		\$47.40	2	\$94.80
Front-End Loader, Medium					
Operating	1		\$79.00	5	\$395.00
Stand-By	1		\$47.40	3	\$142.20
Hand Held Tamper					
Operating	1		\$7.00	8	\$56.00
Stand-By	1		\$4.20	2	\$8.40
Water Pump					
Operating	2		\$7.00	12	\$168.00
Laborer	2		\$25.00	20	\$1,000.00

\$5,996.00

* Rock Cost shown on the Road Improvement cost sheet.

Project Total	\$9,403
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Fill Reconstruction Cost Estimate

Frank Lertora
4/7/2005

Segment: 13 to 14 Station: 23+10
 Fill: 8 Height: 16

Materials	Quantity		\$	Total
24"x72", 16ga, AC	72		\$22.85	\$1,645.20
Beveled both Ends	2		\$24.00	\$48.00
24"-6" Rip Rap Armor	150	cy	\$7.51	\$1,126.50
1 1/2"-0" Crushed Rock for Bedding/Backfill	90	cy	\$2.32	\$208.80
1"-0" Crushed Rock for Road	31	cy	\$2.32	\$71.92
4"-0" Crushed Rock for Road	63	cy	\$2.32	\$146.16
Erosion Control Mulch, seed and fert.	0.1	ac	\$1,315.00	\$131.50

5"
10"

\$3,378.08

Equipment/Labor Costs	Quantity		\$/Hr.	Hours	Total
Excavator, Large					
Operating	1		\$136.00	12	\$1,632.00
Stand-By	1		\$81.60	4	\$326.40
Dump Truck					
Operating	2		\$59.00	12	\$1,416.00
Stand-By	2		\$35.40	4	\$283.20
Vibratory Roller					
Operating	1		\$79.00	6	\$474.00
Stand-By	1		\$47.40	2	\$94.80
Front-End Loader, Medium					
Operating	1		\$79.00	5	\$395.00
Stand-By	1		\$47.40	3	\$142.20
Hand Held Tamper					
Operating	1		\$7.00	8	\$56.00
Stand-By	1		\$4.20	2	\$8.40
Water Pump					
Operating	2		\$7.00	12	\$168.00
Laborer	2		\$25.00	20	\$1,000.00

\$5,996.00

* Rock Cost shown on the Road Improvement cost sheet.

Project Total	\$9,374
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Fill Reconstruction Cost Estimate

Frank Lertora
4/7/2005

Segment: 13 to 14 Station: 26+55
 Fill: 9 Height: 13

Materials	Quantity		\$	Total
24"x55', 16ga, AC	55		\$22.85	\$1,256.75
Beveled both Ends	2		\$24.00	\$48.00
24"-6" Rip Rap Armor	100	cy	\$7.51	\$751.00
1 1/2"-0" Crushed Rock for Bedding/Backfill	70	cy	\$2.32	\$162.40
1"-0" Crushed Rock for Road	31	cy	\$2.32	\$71.92
4"-0" Crushed Rock for Road	63	cy	\$2.32	\$146.16
Erosion Control	0.05	ac	\$1,315.00	\$65.75
Mulch, seed and fert.				

5"
10"

\$2,501.98

Equipment/Labor Costs	Quantity		\$/Hr.	Hours	Total
Excavator, Large					
Operating	1		\$136.00	10	\$1,360.00
Stand-By	1		\$81.60	2	\$163.20
Dump Truck					
Operating	2		\$59.00	10	\$1,180.00
Stand-By	2		\$35.40	2	\$141.60
Vibratory Roller					
Operating	1		\$79.00	4	\$316.00
Stand-By	1		\$47.40	2	\$94.80
Front-End Loader, Medium					
Operating	1		\$79.00	5	\$395.00
Stand-By	1		\$47.40	3	\$142.20
Hand Held Tamper					
Operating	1		\$7.00	4	\$28.00
Stand-By	1		\$4.20	4	\$16.80
Water Pump					
Operating	2		\$7.00	8	\$112.00
Laborer	2		\$25.00	12	\$600.00

\$4,549.60

* Rock Cost shown on the Road Improvement cost sheet.

Project Total	\$7,052
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Fill Reconstruction Cost Estimate

Frank Lertora
4/7/2005

Segment: 13 to 14 Station: 29+05
 Fill: 10 Height: 22

Materials	Quantity		\$	Total
24"x85', 16ga, AC	85		\$22.85	\$1,942.25
Beveled both Ends	2		\$24.00	\$48.00
24"-6" Rip Rap Armor	260	cy	\$7.51	\$1,952.60
1 1/2"-0" Crushed Rock for Bedding/Backfill	100	cy	\$2.32	\$232.00
1"-0" Crushed Rock for Road	31	cy	\$2.32	\$71.92
4"-0" Crushed Rock for Road	63	cy	\$2.32	\$146.16
Erosion Control	0.1	ac	\$1,315.00	\$131.50
Mulch, seed and fert.				

5"
10"

\$4,524.43

Equipment/Labor Costs	Quantity		\$/Hr.	Hours	Total
Excavator, Large					
Operating	1		\$136.00	28	\$3,808.00
Stand-By	1		\$81.60	4	\$326.40
Dump Truck					
Operating	2		\$59.00	28	\$3,304.00
Stand-By	2		\$35.40	4	\$283.20
Vibratory Roller					
Operating	1		\$79.00	6	\$474.00
Stand-By	1		\$47.40	2	\$94.80
Front-End Loader, Medium					
Operating	1		\$79.00	5	\$395.00
Stand-By	1		\$47.40	3	\$142.20
Hand Held Tamper					
Operating	1		\$7.00	8	\$56.00
Stand-By	1		\$4.20	2	\$8.40
Water Pump					
Operating	2		\$7.00	24	\$336.00
Laborer	2		\$25.00	32	\$1,600.00

\$10,828.00

* Rock Cost shown on the Road Improvement cost sheet.

Project Total	\$15,352
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Fill Reconstruction Cost Estimate

Frank Lertora
4/7/2005

Segment: 13 to 14 Station: 34+68
 Fill: 12 Height: 16

Materials	Quantity		\$	Total
36"x68', 16ga, AC	68		\$35.20	\$2,393.60
Beveled both Ends	2		\$36.00	\$72.00
24"-6" Rip Rap Armor	150	cy	\$7.51	\$1,126.50
1 1/2"-0" Crushed Rock for Bedding/Backfill	90	cy	\$2.32	\$208.80
1"-0" Crushed Rock for Road	31	cy	\$2.32	\$71.92
4"-0" Crushed Rock for Road	63	cy	\$2.32	\$146.16
Erosion Control Mulch, seed and fert.	0.1	ac	\$1,315.00	\$131.50

5"
10"

\$4,150.48

Equipment/Labor Costs	Quantity		\$/Hr.	Hours	Total
Excavator, Large					
Operating	1		\$136.00	12	\$1,632.00
Stand-By	1		\$81.60	4	\$326.40
Dump Truck					
Operating	2		\$59.00	12	\$1,416.00
Stand-By	2		\$35.40	4	\$283.20
Vibratory Roller					
Operating	1		\$79.00	6	\$474.00
Stand-By	1		\$47.40	2	\$94.80
Front-End Loader, Medium					
Operating	1		\$79.00	5	\$395.00
Stand-By	1		\$47.40	3	\$142.20
Hand Held Tamper					
Operating	1		\$7.00	8	\$56.00
Stand-By	1		\$4.20	2	\$8.40
Water Pump					
Operating	2		\$7.00	12	\$168.00
Laborer	2		\$25.00	20	\$1,000.00

\$5,996.00

* Rock Cost shown on the Road Improvement cost sheet.

Project Total	\$10,146
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CRUSHED ROCK COST

SALE NAME: Hambone
 PROJECT: No. 1 Road Improvement
 QUARRY: Swede Rd/Fishhawk Rd. Stockpile

ROCK TYPE: 1", 1 1/2" and 4" Crushed

DATE: 4/7/2005
 BY: L. Freeman

Segment	Stations	Cubic Yards							Total
		Base	Running	Turnout	Misc.	Junction	1 1/2"-0"	4"-0"	
I1-I2	60.40	200	785	110	217	30			1,342
I3-I4	47.66	200	620	60	217	40			1,137
I1-I2							510	374	884
I3-I4							830	441	1,271
Grand Total	108.06	400	1,405	170	434	70	1,340	815	4,634

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		
I1-I2	60.40	1,342			0.30		0.57		0.05	0.92	
I3-I4	47.66	1,137			0.30		0.60		0.05	0.95	
I1-I2		884					0.60		0.05	0.65	
I3-I4		1,271					1.64		0.05	1.69	
TOTAL	108.06	4,634									
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.			0.16		0.88		0.05	AVERAGE HAUL
Average Round Trip Distance (miles)										2.17	

ROCK HAUL:

Truck type: D20 No. trucks: 1
 Delay min. 8 Efficiency: 85%

Ave haul: \$1.32 /cy
 Load: \$0.40 /cy
 Spread: \$0.60 /cy

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

Truck type: D10 No. trucks: 3
 Delay min. 5 Efficiency: 85%

Production: cy/day = 1,441

CRUSHED ROCK HAUL COSTS 4,634 cy @ **\$2.32 /cy**

* No cost for loading off the belt.

PAVED HIGHWAY APPROACH

Sale: Hambone
 Road: Fishhawk Creek Road
 Points: I1 to I2
 Stations: 0+00 to 1+00

Date: 5/12/2005
 By: Frank Lertora

		Hrs.		
Grader	Remove Rock	2	\$84.00	\$168.00
	Road Base Prep.	2	\$84.00	\$168.00
Roller	Road Base Prep.	1	\$79.00	\$79.00
Water/Fire Truck				
	Wash Pavement	2	\$70.00	\$140.00
Pavement Saw and Asphalt Application			\$3,110.00	\$3,110.00
Laborer		2	\$18.00	\$36.00
TOTAL			\$3,701.00	

Bridge Cost Estimate

Project No. 2

Location: Fishhawk Creek Road/Fishhawk Creek

Frank Lertora

4/7/2005

Materials	Quantity		\$	Total
2 piece Modular Steel Bridge 16' running surface x55', Weathering Steel Guardrail, Galv. Corr. Deck				\$43,500.00
Precast Concrete Footing 30"x18"x18', 2ea.				\$3,200.00
36"-24" Riprap Armor	200	cy	\$7.51	\$1,502.00
24"-6" Rip Rap for Footing	52	cy	\$7.51	\$390.52
1"-0" Crushed Rock for Footing	4	cy	2.32	\$9.28
1"-0" Crushed Rock for Bridge Deck and Road	89	cy	2.32	\$207.18
4"-0" Crushed Rock for 130' of base restoration	82	cy	2.32	\$190.01
Erosion Control Mulch, seed and fert.	0.25	ac	\$1,315.00	\$328.75

\$49,327.73

Equipment/Labor Costs	Quantity		\$/Hr.	Hours	Total
Excavator, Large					
	Operating	2	\$136.00	54	\$7,344.00
	Stand-By	2	\$81.60	10	\$816.00
Dump Truck					
	Operating	2	\$59.00	54	\$3,186.00
	Stand-By	2	\$35.40	10	\$354.00
Vibratory Roller					
	Operating	1	\$79.00	6	\$474.00
	Stand-By	1	\$47.40	2	\$94.80
Front-End Loader, Medium					
	Operating	1	\$79.00	5	\$395.00
	Stand-By	1	\$47.40	3	\$142.20
Hand Held Tamper					
	Operating	1	\$7.00	4	\$28.00
	Stand-By	1	\$4.20	4	\$16.80
Engineering					\$4,000.00
Laborer		2	\$25.00	16	\$400.00

\$17,250.80

* Rock Cost shown on the Road Improvement cost sheet.

Project Total	\$66,579
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Pipe Arch Cost Estimate

Project No. 2

Location: Cedar Flats Road/Fishhawk Creek

Frank Lertora

5/9/2005

Materials	Quantity		\$	Total
128"x83"x60', AC, 12 gage, 3x1, Step Bevel Both Ends, 24" Bands				\$9,191.80
36"-24" Rip Rap Armor	200	cy	\$7.51	\$1,502.00
1"-1/2" Crushed Rock for Bedding/Backfill	200	cy	2.32	\$464.00
1"-0" Crushed Rock for Road	31	cy	2.32	\$71.92
4"-0" Crushed Rock for Road	63	cy	2.32	\$146.16
Erosion Control	0.25	ac	\$1,315.00	\$328.75
Mulch, seed and fert.				

\$11,704.63

Equipment/Labor Costs		Quantity		\$/Hr.	Hours	Total
Excavator, Large						
	Operating	1		\$136.00	27	\$3,672.00
	Stand-By	1		\$81.60	5	\$408.00
Dump Truck						
	Operating	2		\$59.00	54	\$3,186.00
	Stand-By	2		\$35.40	10	\$354.00
Vibratory Roller						
	Operating	1		\$79.00	6	\$474.00
	Stand-By	1		\$47.40	2	\$94.80
Front-End Loader, Medium						
	Operating	1		\$79.00	5	\$395.00
	Stand-By	1		\$47.40	3	\$142.20
Hand Held Tamper						
	Operating	1		\$7.00	14	\$98.00
	Stand-By	1		\$4.20	2	\$8.40
Water Pump						
	Operating	2		\$7.00	48	\$336.00
Laborer						
		2		\$25.00	32	\$800.00

\$9,968.40

* Rock Cost shown on the Road Improvement cost sheet.

Project Total	\$21,673
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Site: **Fishhawk Creek Road/Fishhawk Creek**

Drainage Area (acres)	640.00
50 Year peak Flow (cubic feet per second per square mile)	300
Drainage Area 50 Year Peak Flow	300.00
Stream Gradient, S (%)	2
Wetted Cross-Sectional Area, A (square feet)	174.00
Wetted Perimeter, WP (feet)	39.10
Flow Capacity Under Bridge (cubic feet per second)	2007.22
Margin of Safety, Not including the 3' of Freeboard	85%

Sale: Hambone
Date: 7-Apr-05
By: Freeman

**Road Maintenance After
Project Work**

Type	Equipment/Rationale	Hours	Rate	Cost	Production Rates			
Proj. No. 1 & 2	Grader 14G	16	\$84	\$1,344	Production Rates	Miles/day	Distance(miles)	Days
	Front End Loader (C966)	8	\$79	\$632	Grader	1.5	2.5	1.7
	Dump Truck 10 cy	8	\$59	\$472				
				Total	\$2,448			

Road Maintenance Cost Summary

Sale: Hambone
 Date: 16-May-05
 By: L. Freeman

MBF: 4,366
 \$\$/MBF: \$2.91

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	Production Rates			
							Production Rates	Miles/day	Distance(miles)	Days
Progressive Operations 1st Entry(1.6 mi.)	Grader 14G	\$570	1	11	\$84	\$1,494				
	Dump Truck 12CY	\$119	2	8	\$59	\$710	Grader	1.5	1.6	1.1
	FE Loader C966	\$570	1	5	\$79	\$965				
Final Road Maintenance (3.5 mi.)	Grader 14G	\$570	1	23	\$84	\$2,502				
	Dump Truck 12CY x 2	\$119	2	20	\$59	\$1,418	Grader	1.5	3.5	2.3
	FE Loader C966	\$570	1	10	\$79	\$1,360	Vibratory Roller*	1.5	3.5	2.3
	Vibratory Roller	\$570	1	23	\$79	\$2,387				
	Water Truck 2,500 gallon	\$139	1	23	\$70	\$1,749				
	Labor				4	\$25	\$100			
Total										\$12,685

*Final Road Maintenance Only

x:\Jewell Unit\Timber Sales\2005\Hambone\Sale Prep\Road Maint.-Harvest

TIMBER CRUISE REPORT
Hambone
FY 2005

1. **Sale Area Location:** Areas 1, 2, 3, and 4 are located in Portions of Section 30, T6N, R7W; and Portions of Section 25, T6N, R8W, W.M., Clatsop County, Oregon.
2. **Fund Distribution:** BOF 100%
 Tax Code 8-01 (55%)
 Rehab (45%)

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	New R/W	Stream Buffer	Net Acres	Survey Method
1	Modified Clearcut	85	3	2	5	75	GIS
2	Modified Clearcut	42	1	1	2	38	GIS
3	Modified Clearcut	41	2	1	2	36	GIS
4	Right-of-Way	-	0	0	0	4	GIS
TOTALS		168	6	4	9	153	

4. **Cruisers and Cruise Dates:** Areas 1 - 3 were cruised by Derek Bangs, Lanny Freeman, Alan Kelso, Erin Wilson, Jon Long, and Jay Morey in March, 2004.

5. **Cruise Method and Computation:**

AREAS 1, 2, and 3 are modified clearcut units and were variable plot cruised using a 40 BAF. These plots are located on a 3 chain by 9 chain grid, with every other plot measured and graded. A total of 55 plots were sampled, with 31 measured and graded plots, and 24 count plots. Cedar is a reserve species.

AREA 4 R/W. The right-of-way volume was calculated by multiplying the R/W acreage and the average volume per acre from the plots in Areas 1-3. In-sale right-of-way from Project No. 1 totals 4 acres.

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, 2, & 3	Clearcuts	05N06W SEC33 TYPE:TAKE
4	Right-of-way	05N06W SEC33 TYPE:8RW

6. **Timber Description:**

Areas 1, 2 and 3 are modified clearcut units, approximately 60 years old, consisting of Douglas-fir, western hemlock, spruce, and red alder, with a minor component of western redcedar. The Douglas-fir averages 20" DBH, with an average height of 80 feet to a merchantable top (6" d.i.b.). The average hemlock tree size is 16" DBH and 58 feet to a merchantable top (6" d.i.b.). The average alder tree size is 15" DBH and 41 feet to a merchantable top (7" d.i.b.). The average volume per acre to be harvested (net) is 29 MBF.

Area 4 R/W is similar to the timber description mentioned above for Areas 1-3. The net volume is approximately 116 MBF.

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

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1, 2, and 3	50%	7%	41.1%	5.5%

8. Volumes by Species and Log Grade: (See "Species, Sort, Grade - Type and Project Reports, attached, of individual sale areas and combined areas and five 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	17.0	1,457	863	447	147	2%	34%
Hemlock	15.9	2,185	985	1,018	182	2%	50%
Alder	14.5	626	99	296	231	1%	14%
Spruce	15.4	98	45	38	15	<1%	2%
TOTALS		4,366	1,992	1,799	575		

9. Approvals:

Prepared by: Derek Bangs

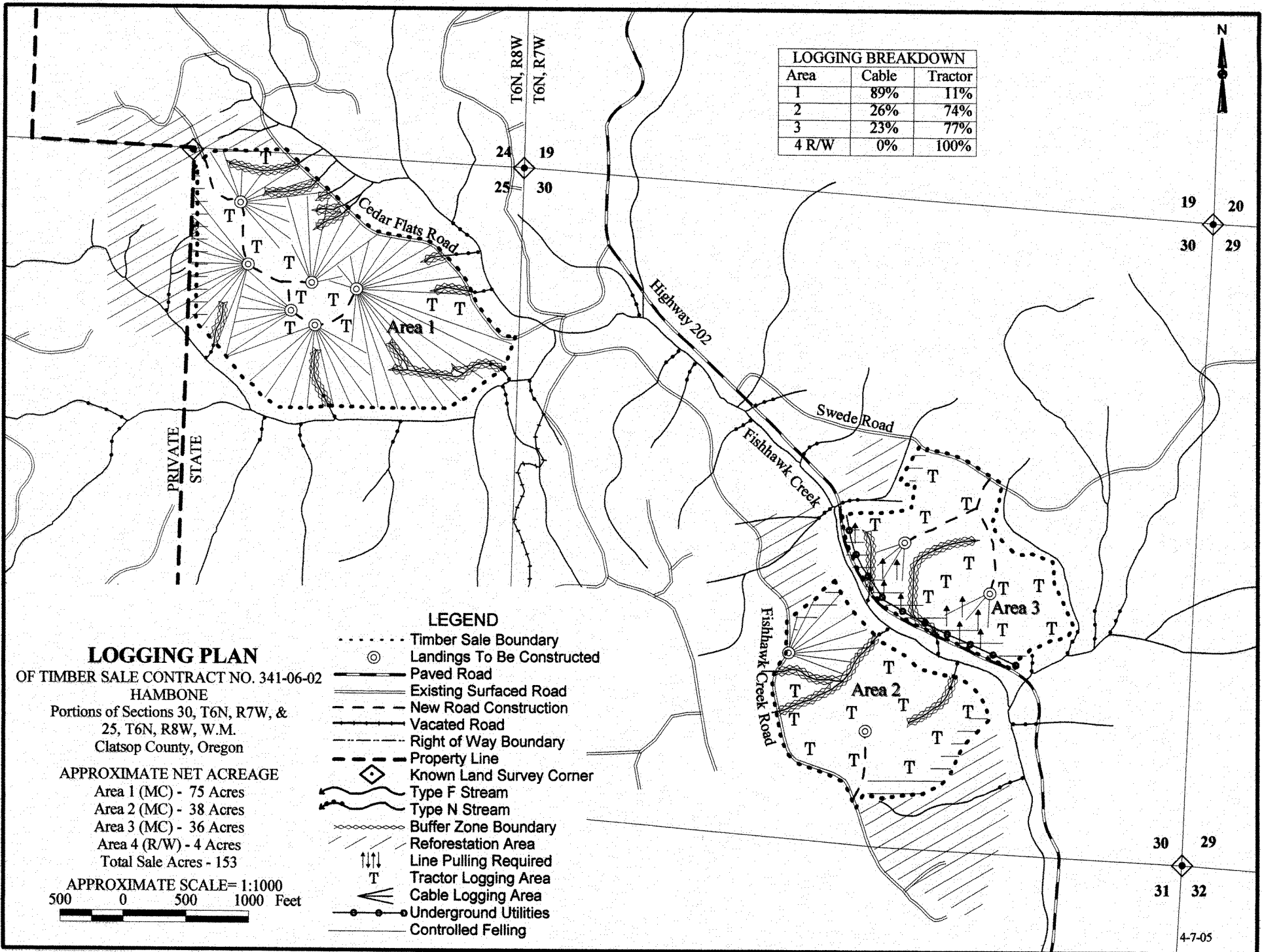
Date: March 18, 2005

Reviewed by: 

Date: 4/12/05

10. Attachments:

- Cruise Designs (1)
- Cruise Maps (1)
- Volume Reports - 1 pages
- Statistics Reports - 1 pages
- Log Stock Tables - 3 pages



LOGGING BREAKDOWN		
Area	Cable	Tractor
1	89%	11%
2	26%	74%
3	23%	77%
4 R/W	0%	100%

LOGGING PLAN
 OF TIMBER SALE CONTRACT NO. 341-06-02
 HAMBONE
 Portions of Sections 30, T6N, R7W, &
 25, T6N, R8W, W.M.
 Clatsop County, Oregon

APPROXIMATE NET ACREAGE
 Area 1 (MC) - 75 Acres
 Area 2 (MC) - 38 Acres
 Area 3 (MC) - 36 Acres
 Area 4 (R/W) - 4 Acres
 Total Sale Acres - 153

APPROXIMATE SCALE= 1:1000
 500 0 500 1000 Feet

- LEGEND**
- Timber Sale Boundary
 - ⊙ Landings To Be Constructed
 - Paved Road
 - Existing Surfaced Road
 - - - New Road Construction
 - Vacated Road
 - Right of Way Boundary
 - - - Property Line
 - ◊ Known Land Survey Corner
 - ~ Type F Stream
 - ~ Type N Stream
 - Buffer Zone Boundary
 - Reforestation Area
 - ↑↑↑ Line Pulling Required
 - T Tractor Logging Area
 - ← Cable Logging Area
 - Underground Utilities
 - Controlled Felling

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Hambone Area(s) 1, 2, & 3

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

Approx. Cruise Acres: 168 Estimated CV% 50 BA/Acre SE% Objective 11 BA/Acre Net BF or

Planned Sale Volume: 7,000 MBF Estimated Sale Area Value/Acre: \$7,400

- A. **Cruise Goals:** (a) Grade minimum 100 trees.
(b) Sample 53 total cruise plots; 28 grade/ 25 count.

B. Cruise Design:

1. **Plot Cruises:** BAF 40 (Full point; Half point) (circle one)
Fixed Plot Size _____ Plot Radius _____ feet
Cruise Line Direction(s) Area 1 & 2: E-W, Area 3: N-S
Cruise Line Spacing 9 (chains)
Cruise Plot Spacing 3 (chains)
Grade/Count Ratio 1:1

2. **Reserve species:** cedar

3. **Leave trees:** Wildlife Trees

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is 8 " for conifers and 9 " 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.
4. **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.
5. **Top Cruise Diameter (TCD):** Minimum top outside bark is 7 " 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.
6. **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.

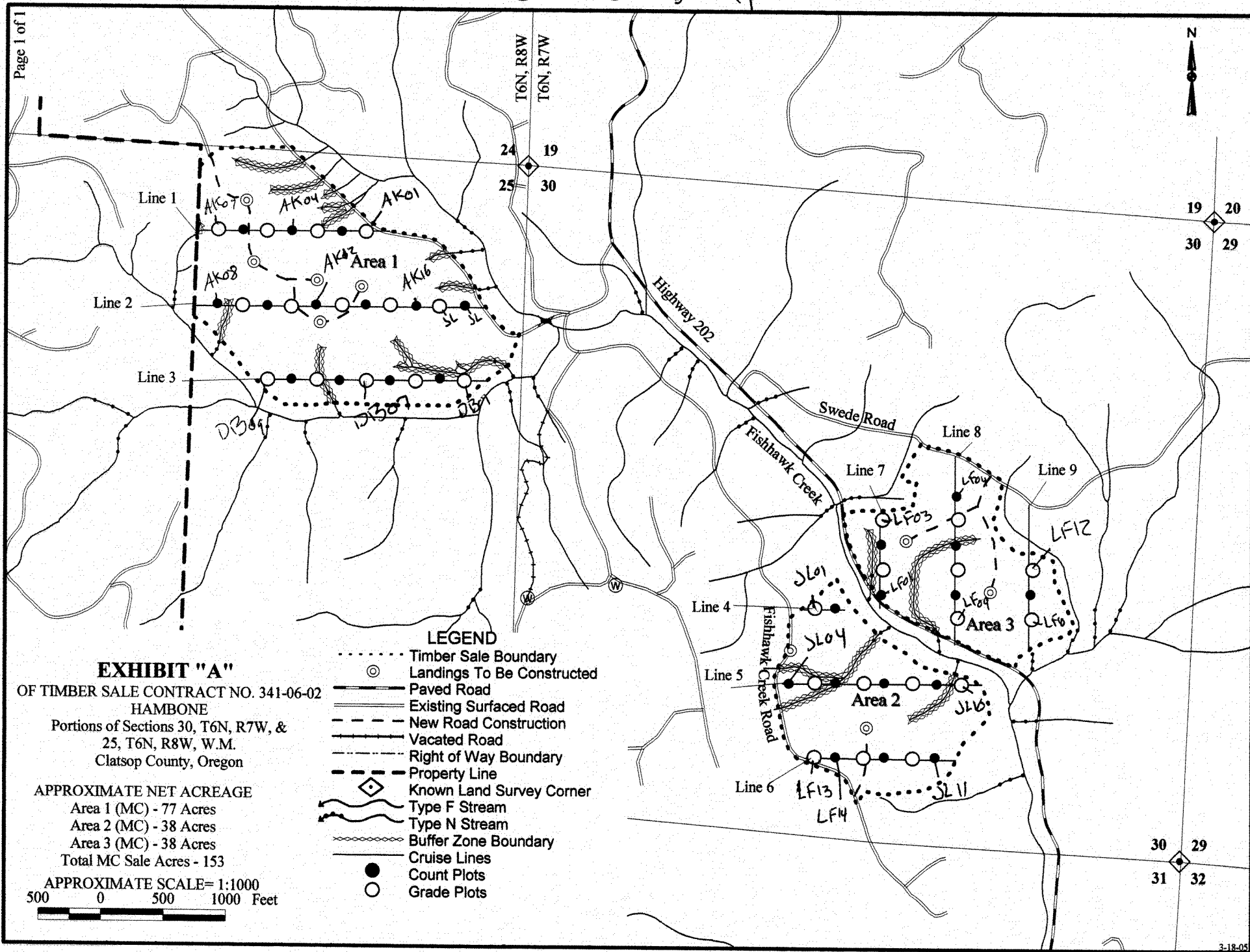
7. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum 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; 9 = Pulp (Alder logs under 8" TCD); 0 = Cull.
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 and Blue Flagging.
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).
 B. New alder grading rules.

Cruise Design by: D. Bangs

Approved by: 

Date: 3/1/2005

Cruise Map



TC TSTATS				STATISTICS				PAGE 1		
				PROJECT HAMBONE				DATE 3/10/2005		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
06N	07W	30	A123	CC	153.00	55	353	S	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	55	353	6.4							
CRUISE	31	187	6.0	28,601			7			
DBH COUNT										
REFOREST										
COUNT	24	156	6.5							
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
H	77	82.3	15.9	57		113.5	14,530	14,283	3,619	3,619
D	66	52.1	17.0	53		82.2	9,681	9,526	2,508	2,508
A	34	45.8	14.5	36		52.4	4,144	4,088	1,105	1,105
S	10	6.7	15.4	35		8.7	639	639	175	175
TOTAL	187	186.9	15.9	50		256.7	28,993	28,536	7,406	7,406
COEFF										
SD:	1	VAR.%	S.E.%	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
H		166.3	12.2	94	107	120				
D		209.0	15.3	95	112	130				
A		276.2	20.2	17	21	25				
S		725.6	53.1	8	16	25				
TOTAL		97.7	7.1	238	257	275	382	95	42	
COEFF										
SD:	1	VAR.%	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
H		97.6	13.2	71	82	93				
D		128.0	17.3	43	52	61				
A		155.7	21.0	36	46	55				
S		235.4	31.7	5	7	9				
TOTAL		45.7	6.2	175	187	198	84	21	9	
COEFF										
SD:	1	VAR.%	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
H		86.8	11.7	100	113	127				
D		105.3	14.2	71	82	94				
A		151.3	20.4	42	52	63				
S		244.6	33.0	6	9	12				
TOTAL		34.9	4.7	245	257	269	49	12	5	
COEFF										
SD:	1	VAR.%	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
H		87.7	11.8	12,594	14,283	15,971				
D		102.1	13.8	8,215	9,526	10,837				
A		153.4	20.7	3,243	4,088	4,934				
S		298.8	40.3	381	639	896				
TOTAL		41.1	5.5	26,956	28,536	30,115	67	17	7	

Log Stock Table - MBF

T06N R07W S30 TyCC 153.00

Project: HAMBONE
Acres 153.00

Page 2
Date 3/10/2005
Time 9:15:12AM

Spp	S T	So Gr rt 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+	
H		OG 3M	30	27		27	1.2			12	15									
H		OG 3M	32	412	5.3	390	17.9			96	87	163	45							
H		OG 3M	33	11		11	.5			11										
H		OG 3M	34	16		16	.7			11	5									
H		OG 3M	36	127	3.4	123	5.6			13	36	52	21							
H		OG 3M	38	14		14	.6			14										
H		OG 3M	40	435	1.2	430	19.7			99	124	207								
H		OG 4M	14	32		32	1.5			32										
H		OG 4M	15	8		8	.4			8										
H		OG 4M	16	39		39	1.8			39										
H		OG 4M	18	17		17	.8			15	2									
H		OG 4M	20	7		7	.3			7										
H		OG 4M	24	3		3	.1			3										
H		OG 4M	26	23		23	1.0			23										
H		OG 4M	28	5		5	.2			5										
H		OG 4M	30	7		7	.3			7										
H		OG 4M	32	6		6	.3			6										
H		OG 4M	40	36		36	1.7			36										
H		Totals		2,223	1.7	2,185	50.1			445	268	485	381	247	300	58				
S		OG 2M	32	45		45	45.7							15	30					
S		OG 3M	24	6		6	6.6								6					
S		OG 3M	28	5		5	4.9			5										
S		OG 3M	32	9		9	9.3					9								
S		OG 3M	35	1		1	1.1			1										
S		OG 3M	40	16		16	16.7					16								
S		OG 4M	18	2		2	2.6			2										
S		OG 4M	20	9		9	9.2			9										
S		OG 4M	26	4		4	4.0			4										
S		Totals		98		98	2.2			21		25		15	36					
A		OG 2M	32	46		46	7.4					24	23							
A		OG 2M	34	27		27	4.3						27							
A		OG 2M	40	26		26	4.1					26								
A		OG 3M	16	31		31	4.9					31								
A		OG 3M	18	15		15	2.5					15								
A		OG 3M	20	64	5.1	60	9.6			18	31		12							

Log Stock Table - MBF

T06N R07W S30 TyCC 153.00

Project: HAMBONE
Acres 153.00

Page 3
Date 3/10/2005
Time 9:15:12AM

Spp	S T	So Gr rt 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		OG 3M	21	21		21	3.4								21						
A		OG 3M	24	14		14	2.3			14											
A		OG 3M	30	55		55	8.8				15	22	18								
A		OG 3M	32	46		46	7.4					46									
A		OG 3M	40	53		53	8.4				33	19									
A		OG 4M	14	4		4	.6			4											
A		OG 4M	16	39		39	6.2			39											
A		OG 4M	18	12		12	1.8			12											
A		OG 4M	20	21		21	3.4			21											
A		OG 4M	22	28		28	4.4			28											
A		OG 4M	24	22		22	3.5			22											
A		OG 4M	26	9		9	1.4			9											
A		OG 4M	27	9		9	1.4			9											
A		OG 4M	29	3	20.0	3	.4			3											
A		OG 4M	30	59		59	9.4			41	18										
A		OG 4M	32	9	16.7	7	1.2			7											
A		OG 4M	38	12	14.3	10	1.6			10											
A		OG 4M	39	9	14.3	8	1.3			8											
A		Totals		634	1.3	626	14.3			226	84	164	68	61	21						
Total		All Species		4,436	1.6	4,366	100.0			963	492	840	703	483	641	244					