"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Cost Summary
Bull Music Combination
Sale 341-04-49

District: Astoria **Date:** 4/12/04

	Conifer	Hardwood	Total
Gross Timber Sale Value	$1,726,918.26	$593,030.85	$2,319,949.11
		Project Work	($343,304.00)
		Advertised Value	$1,976,645.11

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Timber Description
Bull Music Combination
Sale 341-04-49

District: Astoria

Location: Portions of Sections 10, 11, 12, & 15, T6N, R7W, W.M. Clatsop County, Oregon

Date: 4/12/04 **Stand Stocking:** 80%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	19	0	97
Western Hemlock / Fir	16	0	97
Noble Fir	26	0	97
Sitka Spruce	25	0	97
Alder (Red)	13	0	95

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Noble Fir	Sitka Spruce	Alder (Red)	Total
2S	1,776	1,660	24	0	0	3,460
3S	672	2,056	0	1	1,021	3,750
4S	103	293	1	0	614	1,011
Total	2,551	4,009	25	1	1,635	8,221

Comments: Pond Values Used: 1st Quarter 2004.

Log Markets: Mist, Clatskanie, Tillamook

Additional Costs with P&R:
100% branding and painting: $1/MBF x 8221MBF = $8221
Additional cutting costs for thinning (bucking tops, topping/girdling tail trees, etc.): $5/MBF x 1747MBF = $8735
Additional costs for cable corridor layout: $3/MBF x 1747MBF = $5241
Total Cost with P&R = $22,197

Costs without P&R:
Slash piling at Areas 1, 4, 5, & 6 cable landings: $65/hr x 3 hr/ldg x 10 ldg. = $1950
Site-prep slash piling in Areas 1, 4, 5, & 6: 58 hrs. x $95/hr + $500 move-in cost = $6010
Vacating dirt portions of Roads 4C to 4D and 6A to 6B after slash piling $45/sta. x 19.5 sta. = $877.50
Total Non-P&R Costs: $8838

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Logging Conditions
Bull Music Combination
Sale 341-04-49

Combination#: 1	Douglas - Fir	4.00%	
	Western Hemlock / Fir	4.00%	
	Noble Fir	4.00%	
	Sitka Spruce	4.00%	
	Alder (Red)	4.00%	
Yarding Distance:	Short (400 ft)		**Downhill Yarding:** Yes
Logging System:	Track Skidder		**Process:** Feller Buncher
Tree Size:	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF		
Loads/Day:	10		**Bd. Ft./Load:** 4,000
Cost/MBF:	$87.97		

Machines:

Feller Buncher w/ Delimber
Log Loader (B)
Stroke Delimber (B)
Track Skidder

Combination#: 2	Douglas - Fir	36.00%	
	Western Hemlock / Fir	36.00%	
	Noble Fir	36.00%	
	Sitka Spruce	36.00%	
	Alder (Red)	36.00%	
Yarding Distance:	Medium (800 ft)		**Downhill Yarding:** No
Logging System:	Cable: Medium Tower >40 - <70		**Process:** Manual Delimbing
Tree Size:	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF		
Loads/Day:	5		**Bd. Ft./Load:** 4,000
Cost/MBF:	$165.83		

Machines:

Log Loader (A)
Tower Yarder (Medium)

Combination#: 3	Douglas - Fir	9.00%	
	Western Hemlock / Fir	9.00%	
	Noble Fir	9.00%	
	Sitka Spruce	9.00%	
	Alder (Red)	9.00%	
Yarding Distance:	Short (400 ft)		**Downhill Yarding:** Yes
Logging System:	Track Skidder		**Process:** Feller Buncher
Tree Size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
Loads/Day:	8		**Bd. Ft./Load:** 4,000
Cost/MBF:	$109.96		

Machines:

Feller Buncher w/ Delimber
Log Loader (B)
Stroke Delimber (B)
Track Skidder

Combination#: 4	Douglas - Fir	51.00%
	Western Hemlock / Fir	51.00%
	Noble Fir	51.00%
	Sitka Spruce	51.00%
	Alder (Red)	51.00%

Yarding Distance: Medium (800 ft) **Downhill Yarding**: No
Logging System: Cable: Large Tower >=70 **Process:** Manual Delimbing
Tree Size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
Loads/Day: 8 **Bd. Ft./Load:** 4,000
Cost/MBF: $110.94

Machines:

Log Loader (A)
Tower Yarder (Large)

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Logging Costs
Bull Music Combination
Sale 341-04-49

Date: 4/12/04

Operating Seasons: 2.0 **Profit & Risk:** 13%

Project Costs: $343,304 **Other Costs (P/R):** $22,197

Slash Disposal: $0 **Other Costs:** $8,838

Road Maintenance: $3.73

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	4.0
Western Hemlock / Fir	$0.00	3.0	4.0
Noble Fir	$0.00	3.0	4.0
Sitka Spruce	$0.00	3.0	4.0
Alder (Red)	$0.00	2.0	3.5

Local Pond Values

Date	Species	Grade	Value
4/12/04	Noble Fir	2S	$381.58
4/12/04	Noble Fir	3S	$381.58
4/12/04	Noble Fir	4S	$381.58

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Logging Costs Breakdown
Bull Music Combination
Sale 341-04-49

Costs	Douglas - Fir	Western Hemlock / Fir	Noble Fir	Sitka Spruce	Alder (Red)
Logging	129.69	129.69	129.69	129.69	129.69
Road Maintenance	3.85	3.85	3.85	3.85	3.93
Fire Protection	0.66	0.66	0.66	0.66	0.66
Hauling	39.54	39.54	39.54	39.54	69.16
Other (P/R appl.)	2.70	2.70	2.70	2.70	2.70
Profit & Risk	22.94	22.94	22.94	22.94	26.80
Slash Disposal	0.00	0.00	0.00	0.00	0.00
Scaling	2.00	2.00	2.00	2.00	2.00
Other	1.08	1.08	1.08	1.08	1.08
Total	202.46	202.46	202.46	202.46	236.02

Amortization	0.00	0.00	0.00	0.00	0.00
Pond Value	596.10	381.58	381.58	375.00	598.73
Stumpage	393.64	179.12	179.12	172.54	362.71
Amortized	0.00	0.00	0.00	0.00	0.00

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Summary
Bull Music Combination Sale 341-04-49

Amortized

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

Unamortized

	Douglas - Fir	Western Hemlock / Fir	Noble Fir	Sitka Spruce	Alder (Red)
MBF	2,551.00	4,009.00	25.00	1.00	1,635.00
Value	393.64	179.12	179.12	172.54	362.71
Total	1,004,175.64	718,092.08	4,478.00	172.54	593,030.85

Gross Timber Sale Value

Recovery $2,319,949.11

Prepared by: Alan Kelso Date: 4/12/04

District: Astoria Phone: (503) 325-5451

Road Maintenance Cost Summary

Sale: Bull Music Combination
Date: 15-Mar-04
By: L. Freeman

MBF: 8,221
$$/MBF: $3.73

Area 6 to Trailover Quarry Rd. (2.9 miles) Trailover Quarry Rd. to Music Rd. (.9 miles)
3 mile marker on Beneke Rd. to Pt. I1 (2.4 miles) Pt. I1-I2 and all sale area spurs (5.2 miles)
Total: 11.4 miles

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	
Progressive Operations Entries (1)	Grader 14G	$540	1	40	$80	$3,740	
	Dump Truck 12CY x 2	$114	2	40	$57	$2,508	
	FE Loader C966	$540	1	20	$75	$2,040	
Final Haul Road Maintenance Haul Route	Grader 14G	$540	1	80	$80	$6,940	
	Dump Truck 12CY x 3	$114	3	60	$57	$3,762	
	FE Loader C966	$540	1	20	$75	$2,040	
	Vibratory Roller	$540	1	80	$75	$6,540	
	Water Truck 2,500 gallon	$132	1	40	$67	$2,812	
	Labor			10	$25	$250	
Total							$30,632

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	11.4	7.6
Vibratory Roller*	1.5	11.4	7.6

*Final Road Maintenance Only

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SUMMARY OF ALL PROJECT COSTS

SALE NAME: BULL MUSIC COMBINATION

NEW CONSTRUCTION:

	Road segment	Length/Sta	Cost	
Project No. 1	1A-1B, 2A-2B,	93.9	$104,696	
	2C-2D, 2E-2F,			
	3A-3B,4A-4B,			
	4C-4D, 6A-6B			
	TOTALS	93.90		$104,696

ROAD IMPROVEMENT:

	Road segment	Length/Sta	Cost	
Project No. 1	I1-I2, I2-I3, I4-I5,	205.10	$88,901	
	I6-I7, I8-I9, I10-I11			
	I12-I13 & I14-I15			
	TOTALS	205.1		$88,901

SPECIAL PROJECTS:

	Description	Cost	
Project No. 2	Road Vacating (81.5 sta.)	$70,000	
Project No. 3	Roadside Brushing (786 sta.)	$8,630	
Project No. 4	Open Bottom Concrete Slab Culvert	$48,964	
Road Maint.	(project work)	$9,515	
	TOTALS		$137,109

MOVE IN:

Equipment	Cost	
Dozer (D8)	$980	
Dump Trucks (12 cy x 8)	$1,026	
Dump Trucks (20 cy x 4)	$536	
F E Loader (C966) (x 2)	$1,080	
Grader (14G) (x 2)	$1,160	
Vibratory Roller (x 2)	$1,155	
Water Truck (2,500 gallon) (x 2)	$331	
Excavator (C325) (x 2)	$1,915	
Excavator (C330) (x 3)	$3,070	
Dozer (D7) (x2)	$1,120	
Road Brusher	$225	
TOTAL		$12,598

GRAND TOTAL **$343,304**

Compiled by: L. Freeman Date: 3/16/2004

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SUMMARY OF CONSTRUCTION COSTS

DESIGNED ROADS

SALE NAME: Bull Music Combination (Designed Roads)

ROAD: 2A-2B (14.5 sta.), 3A-3B (37.6 sta.), 4A-4B (9 sta.)

NEW CONSTRUCTION: 61.10 **STATIONS** 1.16 **MILES**

IMPROVEMENT: **STATIONS** 0.00 **MILES**

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
Scatter Outside of R/W	6.30	x	$840.00	=	$5,292.00
Ens-Haul Debris ($/Acre)	1.89	x	$1,840.00	=	$3,477.60
		x		=	
				subtotal	$8,769.60

SUB TOTAL FOR CLEARING & GRUBBING **$8,770**

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
Cut Slope Rounding $$/sta.	46.00	x	$27.00	=	$1,242.00
Undesigned Landing Construction $$/landing	4.00	x	$270.00	=	$1,080.00
Drift Common Excavation $$/bank cubic yard	8,444.00	x	$1.35	=	$11,399.40
End Haul Excavation $$/bank cubic yard	8,038.00	x	$2.75	=	$22,104.50
Embankment Compaciton (w/compaction equipment)	12,770.00	x	$0.40	=	$5,108.00
Rock Ripping/End Haul (Road Prism) ($/BCY)	1,515.00	x	$3.25	=	$4,923.75
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR EXCAVATION **$45,858**

CULVERT MATERIALS AND INSTALLATION

	Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
3A to 3B	4+05	18"CPP	34	$11.00	$374.00			$374.00
3A to 3B	8+65	18"CPP	34	$11.00	$374.00			$374.00
3A to 3B	12+75	18"CPP	34	$11.00	$374.00			$374.00
4A to 4B	6+90	18" CPP	40	$11.00	$440.00			$440.00

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers: (Includes Installation)	6' FIBERGLASS MARKERS	4	$14.10	$56.40

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION **$1,618**

$56,246

SUMMARY OF CONSTRUCTION COSTS

Undesigned Roads

SALE NAME: Bull Music Combination Project No. 1 — **NEW CONSTRUCTION:** 32.80 **STATIONS** 0.62 **MILES**

ROAD: 1A-1B (3.5 sta.), 2C-2D (2.0 sta.), 2E-2F (3.8 sta.), 4C-4D (13.0 sta.),6A-6B (10.5 sta.) — **IMPROVEMENT:** **STATIONS** **MILES**

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
Scatter Outside of R/W	3.60	x	$840.00	=	$3,024.00
		x		=	
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING $3,024

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
Common (Reg Standard Design) $$/sta.	32.80	x	$117.00	=	$3,837.60
Cut Slope Rounding $$/sta.	8.00	x	$27.00	=	$216.00
Undesigned Landing Construction $$/landing	6.00	x	$270.00	=	$1,620.00
1B, 2D, 2F,4D, 6B, & sta. 2+00 6A-6B		x		=	
6A Junction Construction. End-haul excess	390.00	x	$2.75	=	$1,072.50
excavation to construct 60' radius curve.		x		=	
6A Junction Enbankment Compaction	390.00	x	$0.40	=	$156.00

SUB TOTAL FOR EXCAVATION $6,902

CULVERT MATERIALS AND INSTALLATION

	Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
1A-1B	1+50	18"CPP	30	$11.00	$330.00			

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers: (includes installation)	6' FIBERGLASS MARKERS	1	$14.10	$14.10

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $344

Subtotal **$10,270**

SURFACING													
Subgrade prep: Description										Stations/ amount		x	Rate/ sta/amt	Cost
rade, shape and dithch 1A-1B, 2A-2B, 2C-2D, 2E-2F, 3A-3B, 4A-4B, 4C-4D (0+00-1+00), 6A-6B (0+00-2+0										73.40		x	$15.20	$1,115.68
Add to final total: Subgrade compaction 1A-1B,2A-2B,2C-2D,2E-2F,3A-3B,4A-4B,4C(1sta.),6A(2sta.)										73.40		x	$12.50	$917.50
Grade, Shape 14' Outslope 4C -4D 12 sta., 6A-6B 8.5 sta.										20.50		x	$11.20	$229.60
												x		

ROAD SEGMENT	1A to 1B			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (Inches)	1A to 1B Volume (CY) per		0+00 to 3+50 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0" crushed		8	station	50	stations	3.50	175	$2.96	$518	
Landing	6"-0" pit-run	3+50	N/A	landing	80	landings	1.00	80	$3.81	$305	
Total Rock for Road Segment:			1A to 1B					255			$823
ROAD SEGMENT	2A to 2B			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (Inches)	2A to 2B Volume (CY) per		0+00 to 14+50 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0" crushed		8	station	50	stations	14.50	725	$2.96	$2,146	
Traction Rock	3/4"-0"crushed	6+50 to 13+50	2	station	13	stations	7.00	91	$2.96	$269	
Curve Widening	4"-0" crushed	various	8	N/A		curves	N/A	60	$2.96	$178	
Turnouts	4"-0" crushed		8	turnouts	22	turnouts	3.00	66	$2.96	$195	
Turnout Traction Rock	3/4"-0" crushed		2	turnout	8	turnouts	2.00	16	$2.96	$47	
Junctions	4"-0" crushed		8	junction	20	junctions	3.00	60	$2.96	$178	
Junction Traction Rock	3/4"-0" crushed	0+00	N/A	junction	10	junctions	1.00	10	$2.96	$30	
Landing Rock	6"-0" pit-run	14+50	N/A	landing	80	landings	1.00	80	$3.81	$305	
Total Rock for Road Segment:			2A to 2B					1,108			$3,348
ROAD SEGMENT	2C to 2D			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (Inches)	2C to 2D Volume (CY) per		0+00 to 2+00 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	6"-0" Pit-run	2C to 2D	8	station	50	stations	2.00	100	$3.81	$381	
Landing	6"-0" Pit-run	2+00	N/A	landing	80	landing	1.00	80	$3.81	$305	
Total Rock for Road Segment:			2C to 2D					180			$686
ROAD SEGMENT	2E-2F			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (Inches)	2E-2F Volume (CY) per		0+00 to 3+80 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0" crushed		8	station	50	stations	3.80	190	$2.96	$562	
Landings	6"-0" pit-run		N/A	landing	80	landings	1.00	80	$3.81	$305	
Total Rock for Road Segment:			2E-2F					270			$867
ROAD SEGMENT	3A-3B			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (Inches)	3A-3B Volume (CY) per		0+00 to 37.6 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0" crushed	3A to 3B	10	station	63	stations	37.60	2,369	$2.96	$7,012	
Traction Rock	3/4"-0" crushed	2+00-18+00	3	station	19	stations	16.00	304	$2.96	$900	
Traction Rock	3/4"-0" crushed	27+00-31+00	3	station	19	stations	4.00	76	$2.96	$225	
Traction Rock	3/4"-0" crushed	34+00-36+50	3	station	19	stations	2.50	48	$2.96	$141	
Turn Outs	4"-0" crushed		10	turnout	28	turnouts	8.00	224	$2.96	$663	
Turn Outs	3/4"-0" crushed		3	turnout	8	turnouts	7.00	56	$2.96	$166	
Junctions	4"-0" crushed			junction	30	junctions	1.00	30	$2.96	$89	
Junctions Traction Rock	3/4"-0" crushed			junction	12	junctions	1.00	12	$2.96	$36	
Turn-Arounds	4"-0" crushed			TA	24	TAs	2.00	48	$2.96	$142	
Curve Widdening	4"-0" crushed			N/A		curves	N/A	60	$2.96	$178	
Curve Widdening Trac.	3/4"-0" crushed			N/A		curves	N/A	20	$2.96	$59	
Fill Widdening	4"-0" crushed					N/A	1.00	80	$2.96	$237	
Fill Widdening Traction	3/4"-0" crushed					N/A		30	$2.96	$89	
Dissipater Rock	24"-6" riprap			dissipator	10	dissipators	3.00	30	$2.93	$88	
Landings	6"-0" pit-run			landing	80	landings	1.00	80	$3.81	$305	
Total Rock for Road Segment:			3A-3B					3,466			$10,327

ROAD SEGMENT	4A to 4B			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (Inches)	4A to 4B Volume (CY) per		0+00 to 9+00 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0" crushed		8	station	50	stations	9.00	450	$2.96	$1,332	
Traction Rock	3/4"-0" crushed	0+00 to 3+00	2	station	13	stations	3.00	39	$2.96	$115	
Curve Widening	4"-0" crushed	N/A		N/A		curves	N/A	24	$2.96	$71	
Landings	4"-0" crushed	6+00		landing	120	landings	1.00	120	$2.96	$355	
Landings	6"-0" pit-run	9+00	N/A	landing	80	landings	1.00	80	$3.81	$305	
Total Rock for Road Segment:			4A to 4B					713			$2,178
ROAD SEGMENT	Pt. 4C to 4D			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (Inches)	Pt. 4C to 4D Volume (CY) per		0+00 to 1+00 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0" Crushed	0+00 to 1+00	8	station	50	stations	1.00	50	$2.96	$148	
Total Rock for Road Segment:			Pt. 4C to 4D					50			$148
ROAD SEGMENT	6A to 6B			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (Inches)	6A to 6B Volume (CY) per		0+00 to 2+00 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0" Crushed		8	station	50	stations	2.00	100	$2.96	$296	
Landings	6"-0" Pit-run	2+00	N/A	landing	80	landing	1.00	80	$3.81	$305	
Total Rock for Road Segment:			6A to 6B					180			$601

Processing:

Description	No.sta	Rate/sta	Cost
Water, Process & Compact Crushed Rock: (8" Roads in 1 Lift)	73.40	$37.00	$2,716
Water, Process & Compact Crushed Rock: (3A-3B, 2nd Lift)	37.60	$37.00	$1,391
Water, Process & Compact Crushed Rock: (Surfacing Lift)	32.5	$37.00	$1,203

	24"-6" rr	6"-0" pr	4"-0"	1 1/2"-0"	3/4"-0"	Total		
SUB TOTAL FOR SURFACING	30	660	4,831	0	702	6,222		**$26,550**

SPECIAL PROJECTS

Description	Cost
Develop Pit-run Rock $1.85 cy x 660 cy.	$1,221.00
Develop Rip-rap Rock $2.60 cy x 30 cy.	$78.00
Placement 24"-6" Dissipator Rock 30 cy. @ $2.00 cy	$60.00

SUB TOTAL FOR SPECIAL PROJECTS $1,359

GRAND TOTAL OF SURFACING & CONSTRUCTION **$38,180**

Compiled By: L. Freeman Date: 3/16/2004

ROAD IMPROVEMENT

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Bull Music Combination I1-I2(86.6),I2-I3(90.0)
ROAD: I4-I5(2.0), I6-I7(20.0), I8-I9(2.0), I10-I11(2.0), I12-I13(2.5)

NEW CONSTRUCTION: _____ STATIONS _____ MILES
IMPROVEMENT: 205.10 STATIONS 3.88 MILES

SUBGRADE PREP

Description	Stations/amount	x	Rate/sta./amt.	=	Cost
		x		=	
		x		=	
		x		=	

SUB TOTAL SUBGRADE PREP

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
Remove Bank Ravel: I1-I2 sta. 78+00, Excavator 5 hrs.	5.00	x	$115.00	=	$575.00
Truck waste to w/a @ sta. 86+60 I1-I2, 1 Dump Truck 5 h	5.00	x	$57.00	=	$285.00
		x		=	
		x		=	

SUB TOTAL FOR EXCAVATION $860

CULVERT MATERIALS AND INSTALLATION

	Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
I1-I2	0+50	18"CPP	30	$11.00	$330.00			
I1-I2	19+30	18"CPP	36	$11.00	$396.00			
I1-I2	72+25	18"CPP	40	$11.00	$440.00			
I12-I13	7+50	24"CPP	30	$16.30	$489.00			
	Culvert costs include installation.				$1,655.00			$1,655.00

Other/miscellaneous: Description	Quantity	Rate	Cost
Road Fabric associated w/ culvert installation on I1-I2 - 100' @$1.25 foot	100	$1.25	$125.00
6' fiberglass culvert markers (includes installation)	20	$14.10	$282.00

$407.00

SUB TOTAL FOR SUBGRADE PREP CULVERT MATERIALS & INSTALLATION

Subtotal **$2,922**

SURFACING

Subgrade prep:

Description	Stations/ amount	x	Rate/ sta/amt	Cost
Grade, Shape and Ditch 16' I1-I2, I2-I3, I4-I5, I6-I7, & I12-I13	201.10	x	$15.20	$3,056.72
Subgrade Compaction I1-I2, I2-I3, I4-I5, & I6-I7	198.60	x	$12.50	$2,482.50

ROAD SEGMENT	I1 to I2			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2 Volume (CY) per		0+00 to 86+60 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surface Rock	1 1/2"-0" Crushed	I1-I2	2	station	13	stations	86.60	1,126	$2.96	$3,332	
Subgrade Leveling	1 1/2"-0" Crushed	I1-I2	N/A	level rock				225	$2.96	$666	
Turnouts	1 1/2"-0" Crushed	turnouts	2	turnout	8	turnouts	14.00	112	$2.96	$332	
Junctions	1 1/2"-0" Crushed	junctions	2	junction	10	junctions	4.00	40	$2.96	$118	
Culvert Bedding	1 1/2"-0" Crushed	0+50	N/A	bedding	backfill		1.00	30	$2.96	$89	
Culvert Bedding	1 1/2"-0" Crushed	19+30	N/A	bedding	backfill		1.00	30	$2.96	$89	
Culvert Bedding	1 1/2"-0" Crushed	72+25	N/A	bedding	backfill		1.00	40	$2.96	$118	
Energy Dissipater	24"-6" Riprap	72+25	N/A	dissipator.	10	dissipators	1.00	10	$2.93	$29	
Energy Dissipater	24"-6" Riprap	76+60	N/A	dissipator	10	dissipators	1	10	$2.93	$29	
Fill Armor	24"-6" Riprap	85+00	N/A	fillslope	50	fillslopes	1	50	$2.93	$147	
Total Rock for Road Segment:			I1 to I2					1,673			$4,949

ROAD SEGMENT	I2 to I3			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I2 to I3 Volume (CY) per		0+00 to 90+00 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surface Rock	3/4"-0" Crushed		2	station	13	stations	90.00	1,170	$2.96	$3,463	
Subgrade Leveling	3/4"-0" Crushed		N/A	level rock				234	$2.96	$693	
Turnouts	3/4"-0" Crushed		2	turnout	10	turnouts	10	100	$2.96	$296	
Junctions	3/4"-0" Crushed	junctions	2	junction	10	junctions	5	50	$2.96	$148	
Total Rock for Road Segment:			I2 to I3					1,554			$4,600

ROAD SEGMENT	I4 to I5			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I4 to I5 Volume (CY) per		0+00 to 2+00 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surface Rock	1 1/2"-0" Crushed		2	station	13	stations	2.00	26	$2.96	$77	
Total Rock for Road Segment:			I4 to I5					26			$77

ROAD SEGMENT	I6 to I7			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I6 to I7 Volume (CY) per		0+00 to 20+00 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Surface Rock	1 1/2"-0" Crushed		2	station	13	stations	20	260	$2.96	$770	
Subgrade Leveling	1 1/2"-0" Crushed		N/A					50	$2.96	$148	
Turnouts	1 1/2"-0" Crushed		2	turnout	8	turnouts	3	24	$2.96	$71	
Junctions	1 1/2"-0" Crushed		2	junction	10	junctions	2	20	$2.96	$59	
Total Rock for Road Segment:			I6 to I7					354			$770

ROAD SEGMENT	I8-I9			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I8-I9 Volume (CY) per		0+00 to 2+00 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Landing Rock	6"-0"	2+00	N/A	landing	20	landings	1	20	$3.81	$76	$76
Total Rock for Road Segment:			I8-I9					20			

ROAD SEGMENT	I10-I11			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I10-I11 Volume (CY) per		0+00 to 2+00 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Landing Rock	6"-0"	2+00	N/A	landing	20	landings	1	20	$3.81	$76	$76
Total Rock for Road Segment:			I10-I11					20			

ROAD SEGMENT	I12 to I13			POINT TO POINT		Sta. to Sta.					
Application	Rock Size and Type	Location	Depth of Rock (inches)	I12 to I13 Volume (CY) per		20+00 to 22+50 Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Culvert Bedding	1 1/2"-0" Crushed	7+50	N/A	culvert	30	culvert	1.00	30	$2.96	$89	
Base Rock	6"-0" Pitrun	20+00-22+50	12	station	100	stations	2.50	250	$2.93	$733	
Energy Dissipater	24"-6" Energy Diss.	7+50	N/A	dissipator.	10	dissipators	1.00	10	$2.93	$29	
Total Rock for Road Segment:			I12 to I13					290			$1,593

Processing:

Description	No.sta	Rate/sta	Cost
Water, Process & Compact Crushed Rock:	198.60	$37.00	$7,348

	24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total	
SUB TOTAL FOR SURFACING	80	290	0	2,013	1,554	3,937	**$25,029**

SPECIAL PROJECTS

Description	Cost
Develop Pitrun Rock $1.85 per. Cy. x 290 cy.	$537.00
Develop Rip rap Rock $2.60 cy. X 80 cy.	$208.00
80 cy of 24"-6" Dissipator & Fill Armor Placement@$2 cy.	$160.00

SUB TOTAL FOR SPECIAL PROJECTS **$905**

GRAND TOTAL FOR SUBGRADE PREP AND SURFACING **$28,856**

Compiled By: L. Freeman Date: 3/16/2004

CRUSHED ROCK COST

SALE NAME: Bull Music Combination
PROJECT: Project No. 1
QUARRY: Trailover Stockpile Sites
ROCK TYPE: 4"-0",11/2"-0",3/4
DATE: 2/5/2004
BY: L. Freeman

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1A-1B	3.50	175			2	0.50	1.00	0.20	0.10	3.80
2A-2B	14.50	920			2	1.00	1.00	0.20	0.10	4.30
2A-2B	7.00	117			2	1.00	1.00	0.20	0.10	4.30
2E-2F	3.80	190			2	1.00	1.00	0.20	0.10	4.30
3A-3B	37.60	2,811			2	0.70	1.00	0.20	0.10	4.00
3A-3B	22.50	546			2	0.70	1.00	0.20	0.10	4.00
4A-4B	9.00	594			2	1.00	1.00	0.20	0.20	4.40
4A-4B	3.00	39			2	1.00	1.00	0.20	0.20	4.40
4C-4D	1.00	50			2	1.00	1.00	0.20	0.20	4.40
6A-6B	2.00	100			1	0.50	1.00	0.50	0.30	3.30
I1-I2	86.60	1,603				1.00	0.40	0.20	0.10	1.70
I2-I3	90.00	1,554			2	0.50	0.70	0.20	0.10	3.50
I4-I5	2.00	26			2	0.70	0.70	0.20	0.10	3.70
I6-I7	20.00	354			2	0.70	1.00	0.20	0.10	4.00
I12-I13		30							0.30	0.30
TOTAL	302.50	9,109								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					1.63	0.77	0.84	0.20	0.11	3.56
								Average Round Trip Distance (miles)		7.11

ROCK HAUL:

Truck type: D20 No. trucks: 4
Delay min.: 8 Efficiency: 85%

Truck type: D12 No. trucks: 4
Delay min.: 6 Efficiency: 85%

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

Ave haul: $2.31 /cy
Load: $0.25 /cy
Spread: $0.40 /cy

Production: cy/day = 1,717

CRUSHED ROCK HAUL COSTS 9,109 cy @ **$2.96 /cy**

PIT RUN ROCK COST

SALE NAME: Bull Music Combination
PROJECT: Project No. 1
QUARRY: Trailover Stockpile Sites

ROCK TYPE: Pit Run

DATE: 2/5/2004
BY: L. Freeman

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1A-1B		80			2	0.50	1.00	0.20	0.15	3.85
2A-2B		80			2	1.00	1.00	0.30	0.15	4.45
2C-2D	2.00	180			2	1.00	1.00	0.20	0.10	4.30
2E-2F		80			2	1.00	1.00	0.20	0.15	4.35
3A-3B		80			2	0.70	1.00	0.40	0.25	4.35
4A-4B		80			2	1.00	1.00	0.25	0.25	4.50
6A-6B	sta. 2+00	80			1	0.50	1.00	0.50	0.30	3.30
I8-I9		20			2	0.70	1.00	0.20	0.10	4.00
I10-I11		20			2	0.70	1.00	0.20	0.10	4.00
I12-I13	2.50	250							0.10	0.10
TOTAL	4.50	950								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					1.39	0.61	0.74	0.20	0.15	3.10
						Average Round Trip Distance (miles)			6.20	

ROCK HAUL:

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

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

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

Ave haul: $2.56 /cy
Load: $0.45 /cy
Spread: $0.80 /cy

Production: cy/day = 890

PIT RUN ROCK HAUL COSTS 950 cy @ **$3.81 /cy**

RIP RAP ROCK COST

SALE NAME: Bull Music Combination
PROJECT: Project No. 1
QUARRY: Trailover Stockpile Sites
ROCK TYPE: Rip Rap
DATE: 2/5/2004
BY: L. 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	
3A-3B		30			2	0.70	1.00	0.40	0.25	4.35
I1-I2		70				1.00	0.40	0.20	0.10	1.70
I12-I13		10						0.10	0.20	0.30
TOTAL		110								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					0.55	0.83	0.53	0.25	0.15	2.30
							Average Round Trip Distance (miles)		4.59	

ROCK HAUL:

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

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

Ave haul: $2.18 /cy
Load: $0.75 /cy
Develop: /cy

Production: cy/day = 626

RIP RAP ROCK HAUL COSTS 110 cy @ **$2.93 /cy**

Project No. 2 - Road Vacating

Vacating Cost Summary		
	Total Appraised Cost	
Squaw Creek Vacating: V1 to V2, V3	$	27,122.00
Music Road Vacating: V4 to V5	$	26,028.50
Grand Total of Vacating	$	53,150.50

Bull Music Combination

Squaw Creek Vacating. Project No. 2 Vacating. V1 to V2, V3

Location/Description	330#1	330#2	D-7 CAT	10 CY Truck #1	10 CY Truck #2	Front End Loader	Grader	Laborer	Straw	Seed	Lowboy Transport
0+00 to 41+00 Waterbar/Block Road	2										
0+00 Remove Culvert/Fill Remove all fill and restore natural contours	40			40	40			8	25	50	
0+90 Remove culvert on old spur to left. Move debris for positive drainage.	3							2	8	10	
8+70 Remove Culvert/Fill Develop 6' Stream Channel	12	12	4	12	12			4	12	20	
14+60 Remove Culvert/Fill Develop 6' Stream Channel	16	16	6	16	16			4	15	30	
16+20 Remove Culvert/Fill Develop 4' Stream Channel	3							2	6	10	
20+10 Remove Culvert Construct waterbar.	0.5							0.5	1		
24+40 Remove Culvert/Fill Restore to natural contours	2							2	6	10	
29+60 Remove Culvert/Fill Develop 4' Stream Channel	2							2	5	10	
32+00 Remove Culvert. Construct waterbar.	0.5							0.5	1		
Development of waste areas Sloping, compacting, mulching	14		4					6	20	40	
Point V3 Remove Culvert/Fill Restore to natural contours	3							2	6	10	
	98	28	14	68	68	0	0	33	105	190	0
	$12,740.00	$3,640.00	$1,260.00	$ 3,876.00	$ 3,876.00	$ -	$ -	$ 825.00	$ 525.00	$ 380.00	

Total Estimated Cost	$27,122.00

Bull Music Combination

Music Road Vacating. Project No. 2 Vacating. V4 to V5

Location/Description	330#1	330#2	D-7 CAT	10 CY Truck #1	10 CY Truck #2	10CY Truck #3	10 CY Truck #4	Front End Loader	Grader	Laborer	Straw	Seed	Lowboy Transport
0+00 to 40+50 Waterbar/Block Road/Shape Waste Areas	3		4							4	10	10	
0+00 to 40+50 Salvage Rock	30		8	30	30	30							
0+00 to 40+50 Rip and Till/Outslope	14									16	20	50	
3+30 to 17+10 Sidecast Pullback	20									16	20	50	
4+15 Remove Culvert/Fill Restore to natural contours	0.5									0.5	1		
7+00 Remove Culvert/Fill Restore to natural contours	0.5									0.5	1		
9+80 Remove Culvert/Fill Restore to natural contours	6		3	6	6					4	8	15	
15+20 Remove Culvert/Fill Develop 6' Stream Channel	10		4	10	10					6	15	30	
19+50 to 22+40 Sidecast Pullback	4									4	12	30	
27+55 Remove Culvert. Establish drainage	0.5									0.5	1		
28+70 Remove Culvert. Establish drainage	0.5									0.5	1		
30+90 to 32+90 Sidecast Pullback	3									4	8	20	

Location/Description	330#1	330#2	D-7 CAT	10 CY Truck #1	10 CY Truck #2	10CY Truck #3	10 CY Truck #4	Front End Loader	Grader	Laborer	Straw	Seed	Lowboy Transport
33+20 Remove culvert. Establish drainage.	1									0.5	1		
34+15 to 36+90 Sidecast Pullback	4									4	11	20	
37+30 Establish drainage in wet area by restoring to natural contours	1									1	3	5	
37+55 Remove Culvert/Fill Develop 5' Stream Channel	6		4	6						2	6	10	
38+10 to 40+50 Sidecast Pullback	3									2	5	10	
	107	0	23	52	46	30	0	0	0	65.5	123	250	0
	$ 13,910.00	$ -	$ 2,070.00	$ 2,964.00	$ 2,622.00	$ 1,710.00	$ -	$ -	$ -	$1,637.50	$615.00	$ 500.00	

Total Estimated Cost	$ 26,028.50

Project No. 3 Roadside Brushing

Segment	Length (Miles)	Brush Type	Cost/Mile	Cost
B1-B2	0.08	M	$1,100	$88.00
B3-B4	0.26	M	$1,100	$286.00
B5-B6	4.93	M	$1,100	$5,423.00
B7-B8	0.04	M	$1,100	$44.00
B9-B10	0.26	M	$1,100	$286.00
B11-B12	0.06	L	$980	$58.80
B13-B14	0.03	L	$980	$29.40
I2-I3	1.70	M	$1,100	$1,870.00
I4-I5	0.04	L	$980	$39.20
I6-I7	0.38	M	$1,100	$418.00
I8-I9	0.04	M	$1,100	$44.00
I10-I11	0.04	M	$1,100	$44.00
Total Miles	**7.86**		**Total Project Cost**	**$8,630**

L = Light Brush $980
M = Medium Brush $1,100
H = Heavy Brush $1,300

X/timbermgt/jewell/timber sales/2004/Bull Music Combination/brushing2

Sale Name: Bull Music Combination **Prepared by:** F. Lertora
Project: Project No. 4, Point F1 to Point F2, Sta. 0+50
Project Type: Type F Stream Crossing **Date:** 12/17/03

Phase I: Fill and Culvert Removal

Qty.	Equipment	Time (hr)	Rate ($/hr)	Cost ($)
1	Excavator w/ 1-1/2 cy bucket	8	$115.00	$920.00
2	12-yard Dump Truck	8	$57.00	$912.00
				$1,832.00

Phase II: Development of Foundation & De-watering

Qty.	Equipment	Time (hr)	Rate ($)	Cost ($)
1	Excavator w/ 1-1/2 cy bucket	12	$115.00	$1,380.00
2	12-yard Dump Truck	12	$57.00	$1,368.00
50	24"-12" Rip Rap Footing Foundation Rock ($/cy)		$5.67	$283.50
20	10cy 4"-0" & 10cy 3/4"-0" Foundation Rock ($/cy)		$5.12	$102.40
1	Water Pump	16	$25.00	$400.00
1	Hand Held Tamper	8	$6.00	$48.00
2	Laborer	8	$25.00	$400.00
				$3,981.90

Phase III: Installation and Fill Reconstruction

Qty.	Equipment	Time (hr)	Rate ($/hr)	Cost ($)
1	Excavator w/ 1-1/2 cy bucket	16	$115.00	$1,840.00
2	12-yard Dump Truck	16	$57.00	$1,824.00
1	Vibratory Roller	8	$75.00	$600.00
1	Loader (w/o operator)	36	$45.00	$1,620.00
1	Tamper	16	$6.00	$96.00
1	Laborer	16	$25.00	$400.00
100	4"-0" Crushed Backfill Rock ($/cy)		$5.12	$512.00
150	Rip-Rap Fill Armor Rock ($/cy)		$5.67	$850.50
1	Concrete Open Bottom Slab Culvert,		$28,670.00	$28,670.00
	10' span x 5' rise x 28' long (inc. eng. Fees)			$36,412.50

Phase IV: Surfacing and Mulching

Qty.	Equipment	Time (hr)	Rate ($)	Cost ($)
64	4"-0" Rock *(8" lift, 17.5' finished surface width)* ($/cy)		$5.12	$327.68
49	3/4"-0" Rock *(6" lift, 16' finished surface width)* ($/cy)		$5.12	$250.88
0.2	Straw Mulch w/Seed Application EC mix ($/ac.)		$1,195.00	$239.00
				$817.56

Miscellaneous Costs

Qty.	Equipment	Time (hr)	Rate ($)	Cost ($)
200	Geotextile Fabric, stabilization, separation, reinforcement ~ 12' widt		$1.25	$250.00
1	Structure Delivery		$5,670.00	$5,670.00
24	Slab Culvert Joint Sealant		$4.75	$114.00
				$5,920.00

Total Project Cost = $48,963.96

Road Maintenance after completion of Projects

Sale: Bull Music Combination
Date: 26-Jan-04
By: L. Freeman

3 Mile Marker on Beneke Creek County Road to Pt. 6A = 5.3 miles)

Type	Equipment/Rationale			Hours	Rate	Cost	
	Grader 14G			35	$80	$2,800	
Final Haul	Dump Truck 12CY x 2			20	$57	$1,140	
Road	FE Loader C966			10	$48	$480	
Maintenance	Vibratory Roller			35	$75	$2,625	
Haul Route	Water Truck 2,500 gallon			35	$67	$2,345	
	Labor			5	$25	$125	
Total							$9,515

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	5.3	3.5
Vibratory Roller	1.5	5.3	3.5

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Timber Sale Name: Bull Music Combination
Project: Trailover Type F Upgrade
Date: January 5, 2004

PROJECT NO. 1 I14 to I15 Station 3+00

Haul Distances:

Code	From	To	Distance mi	Distance ft	Distance STA
A	Trailover Fish Pipe	Trailover Pit	0.5	2640.0	26.4

Excavation & Fill Quantities:

Description	Solid (byd^3)	Expansion Factor	Expanded (yd^3)	Truck Loads (12 yd^3/load)	Haul Distance Code	Haul Distance (mi)
Fill Removal & Channel Development*	3380	1.3	4394	366	A	0.5
Select Fill	2118	1.3	2753	229	A	0.5
Bedding Rock (1-1/2"-0")	157	1.3	204	17	A	0.5
Base Rock (4"-0")	148	1.3	192	16	A	0.5
Surfacing Rock (3/4"-0")	60	0	60	5	A	0.5
Fill Armoring (24"-6")	218	1.4	305	25	A	0.5
Drain Rock (24"-6")	0	1.4	0	0	--	--
Dissipator (36"-24")	8	1.4	11	1	A	0.5

* Channel Development (368 byd^3) + Fill Removal (3012 byd^3) = Total Excavation (3380 byd^3)

Equipment:

Description	Comment	Hourly Rate ($/hr)	Rate w/Operator ($/hr)	Secondary Mobilization ($)
Excavator-Large Size: C330 Bucket: 2 yd^3	Fill removal & fill reconstruction	--	$130.00	--
Excavator-Medium Size: C325 Bucket: 1-1/2 yd^3	Fill removal & rock development at Trailover Pit		$115.00	
Dump Trucks 10-12 yd^3	Dump trucks for hauling waste material(Trailover Pit), borrow material(Trailover Pit), and rock haul(Trailover Pit)	--	$57.00	
Front End Loader-Medium Size: C966 Bucket : 3-1/2 yd^3	1 Loader at Trailover Pit for loading fill and rock w/o operater	--	$45.00	
Vibratory Roller	Fill Compaction	--	$75.00	
Hand Held Tamper	Compaction of culvert bedding rock	$6.00	--	
Water Truck Size: 1,500 gal	Base rock processing	--	$57.00	
Mulch Chopper/Blower	Apply Straw Mulch to exposed areas	--	$65.00	
Laborer	Culvert assembly/culvert bedding/fabric	$28.00	--	

Cost Analysis:

Average work day (hr) = 10

Average Truck Load (yd^3) = 12

Fill Removal and Stream Channel Development			Excavation Rate	Time	Cost	Cost Rate
Equipment	Job Description	Qty.	(yd^3/day/machine)	(day)	($)	($/yd^3)
Excavator-Large	Remove fill, existing structure, & develop stream channel for 145 feet upstream	1	800	4.2	$5,492.50	$1.63
Excavator-Medium	Remove fill, existing structure, & develop stream channel for 145 feet upstream	1	800	4.2	$4,858.75	$1.44

Truck Waste Material to Trailover Pit			Avg. Speed	Ld/dmp Time	Haul Dist.	Rnd Trip	Haul Rate*	Time	Cost**	Cost Rate
Equipment	Job Description	Qty.	(mi/hr)	(min)	(mi)	(min)	(yd^3/day)	(day)	($)	($/yd^3)
Dump Trucks (12 yd^3)	Haul Fill Material to Trailover Pit	2	20	8	0.5	4.8	1516	2.9	$4,816.50	$1.10

*Haul Rate is what the trucks are capable of doing given speed, load size, and number of yours in a work day
This Haul Rate should be compared to the excavation rate to determine the number of trucks needed.

**Cost is based on calculated Excavator time.

Dewatering, Culvert Bedding, and Culvert Assembly			Time	Cost
Equipment	Job Description	Qty.	(day)	($)
Excavator-Large	Preparing Culvert Bed & Dewatering	1	0.5	$650.00
Hand Tamper	Compaction of Culvert Bedding	1	0.2	$12.00
Laborer	Raking & Dewatering	2	1	$560.00

Rock Haul from Trailover Pit to Fish Pipe			Avg. Speed	Ld/dmp Time	Haul Dist.	Rnd Trip	Haul Rate	Time	Cost	Cost Rate
Equipment	Job Description	Qty.	(mi/hr)	(min)	(mi)	(min)	(yd^3/day)	(day)	($)	($/yd^3)
Dump Trucks (12 yd^3)	Bedding Rock (1-1/2"-0")	2	20	8	0.5	4.8	1516	0.1	$153.50	$0.75
Dump Trucks (12 yd^3)	Base Rock (4"-0")	2	20	8	0.5	4.8	1516	0.1	$144.70	$0.75
Dump Trucks (12 yd^3)	Surfacing Rock (3/4"-0")	2	20	8	0.5	4.8	1516	0.0	$45.13	$0.75
Dump Trucks (12 yd^3)	Fill Armoring (24"-6")	2	20	8	0.5	4.8	1516	0.2	$229.54	$0.75
Dump Trucks (12 yd^3)	Drain Rock (24"-6")	1	20	8	--	0.0	0	0.0	$0.00	$0.00
Dump Trucks (12 yd^3)	Dissipator (36"-24")	1	20	8	0.5	9.5	758	0.0	$8.42	$0.75

Fill Reconstruction			Excavation Rate	Time	Cost	Cost Rate
Equipment	Job Description	Qty.	(yd^3/day/machine)	(day)	($)	($/yd^3)
Excavator-Large	Reconstruct Fill	1	800	2.6	$3,441.75	$1.63

Rock Development at Trailover Pit			Development rate	Volume	Cost	Excavation Rate	Time
Equipment	Job Description	Qty.	($/yd^3)	(yd^3)	($)	(yd^3/day/machine)	(day)
Excavator-Medium	Develop Fill Armoring (24"-6")	1	$2.60	305.2	$793.52	800	0.4
Excavator-Medium	Develop Drain Rock (24"-6")	1	$2.60	0.0	$0.00	800	0.0
Excavator-Medium	Develop Dissipator Rock (36"-24")	1	$2.60	11.2	$29.12	800	0.0

Rock & Fill Loading			Time	Cost	Cost rate
Equipment	Job Description	Qty.	(day)	($)	($/yd^3)
Front End Loader - Medium	Load Rock at Trailover Pit	1	0.5	$232.78	$0.39

Front End Loader - Medium	Load Fill Material at Tarilover Pit	1	2.6	$1,191.38	$0.56

Truck Fill Material from Trailover Pit to Fish Pipe			Avg. Speed	Ld/dmp Time	Haul Dist.	Rnd Trip	Haul Rate*	Time	Cost**	Cost Rate
Equipment	Job Description	Qty.	(mi/hr)	(min)	(mi)	(min)	(yd^3/day)	(day)	($)	($/yd^3)
Dump Trucks (12 yd^3)	Haul Fill Material to Trailover Pit	2	20	8	0.5	4.8	1516	1.8	$3,018.15	$1.10

*Haul Rate is what the trucks are capable of doing given speed, load size, and number of yours in a work day
This Haul Rate should be compared to the excavation rate to determine the number of trucks needed.
**Cost is based on calculated Excavator time.

Fill Compaction			Time	Cost
Equipment	Job Description	Qty.	(day)	($)
Vibratory Roller	Compaction of Fill	1	1	$750.00
Water Truck	Watering of Rock for Processing	1	1	$570.00

Erosion Control			Time	Cost
Equipment	Job Description	Qty.	(day)	($)
Mulch Chopper/Blower	Application of Straw Mulch	1	0.5	$325.00
Laborer	Application of Straw Mulch	1	0.5	$140.00

Materials:

Culvert		Unit Price	Total
Quantity	Size-Description	($/unit)	($)
2	78"x30' 12 Gage (Aluminized) CSP (3"x1" Corrugation)	1924.50	$3,849.00
1	78"x20' 12 Gage (Aluminized) CSP (3"x1" Corrugation)	1283.00	$1,283.00
2	78" 16 Gage Aluminized Band	45.00	$90.00
0	78" Gasket	0.00	$0.00
1	1:1 Step Bevel	80.00	$80.00
		Total =	$5,302.00

Fabric			
Quantity (yd^2)	Size-Description	Unit Price ($/yd^2)	Total ($)
0	4-1/2 oz. Non-woven filtration cloth	0.75	$0.00
0	10 oz. Non-woven filtration cloth (free draining fill)	2.00	$0.00
		Total =	$0.00

Erosion Control			
Quantity (bale)	Size-Description	Unit Price ($/bale)	Total ($)
20	Straw (1 bale/625 ft^2)	4.50	$90.00
		Total =	$90.00

Cost Summary:

Job Description	Time (day)	Cost ($)	Cost Rate ($/yd^3)
Secondary Mobilization	--	$0.00	--
Fill Removal and Stream Channel Development	4.2	$5,492.50	$1.63
Truck Waste Material to Trailover Pit	4.2	$4,816.50	$1.10
Dewatering, Culvert Bedding, and Culvert Assembly	1	$1,222.00	--
Rock Haul from Trailover Pit to Fish Pipe	0.5	$581.29	$3.76
Fill Reconstruction	2.6	$3,441.75	$1.63
Rock Development at Trailover Pit	0.4	$822.64	$7.80
Rock & Fill Loading	3.2	$1,424.15	$0.96
Truck Fill Material from Trailover Pit to Fish Pipe	2.6	$3,018.15	$1.10
Fill Compaction	1	$1,320.00	--
Erosion Control	1	$465.00	--
Materials:			
Culvert	--	$5,302.00	--
Fabric	--	$0.00	--
Erosion Control	--	$90.00	--
	Total =	$27,995.98	$17.96

Timber Sale Name: Bull Music Combination
Project: Trailover Fill Reconstruction
Date: January 5,2004

PROJECT NO. 1 I14 to I15 Station 10+50

Haul Distances:

Code	From	To	Distance mi	Distance ft	Distance STA
A	Trailover Fill	Trailover Pit	0.6	3168.0	31.7

Excavation & Fill Quantities:

Description	Solid (byd^3)	Expansion Factor	Expanded (yd^3)	Truck Loads (12 yd^3/load)	Haul Distance Code	Haul Distance (mi)
Fill Removal & Channel Development	3300	1.3	4290	358	A	0.6
Select Fill	2600	1.3	3380	282	A	0.6
Bedding Rock (1-1/2"-0")	108	1.3	140	12	A	0.6
Base Rock (4"-0")	121	1.3	157	13	A	0.6
Surfacing Course (3/4"-0")	50	1	50	4	A	0.6
Fill Armoring (24"-6")	222	1.4	311	26	A	0.6
Drain Rock (24"-6")	575	1.4	805	67	A	0.6
Dissipator (36"-24")	40	1.4	56	5	A	0.6

Equipment:

Description	Comment	Hourly Rate ($/hr)	Rate w/Operator ($/hr)	Secondary Mobilization ($)
Excavator-Large Size: C330 Bucket: 2 yd^3	Fill removal & fill reconstruction	--	$130.00	--
Excavator-Medium Size: C325 Bucket: 1-1/2 yd^3	Fill removal & rock development at Trailover Pit		$115.00	--
Dump Trucks 10-12 yd^3	Dump trucks for hauling waste material(Trailover Pit), borrow material(Trailover Pit), and rock haul(Trailover Pit)	--	$57.00	--
Front End Loader-Medium Size: C966 Bucket : 3-1/2 yd^3	1 Loader at Trailover Pit for loading fill and rock w/o operater	--	$45.00	--
Vibratory Roller	Fill Compaction	--	$75.00	--
Hand Held Tamper	Compaction of culvert bedding rock	$6.00	--	--
Water Truck Size: 1,500 gal	Base rock processing	--	$57.00	--
Mulch Chopper/Blower	Apply Straw Mulch to exposed areas	--	$65.00	--
Laborer	Culvert assembly/culvert bedding/fabric	$28.00	--	--

Cost Analysis:

Average work day (hr) = 10

Average Truck Load (yd^3) = 12

Fill Removal and Channel Development			Excavation Rate	Time	Cost	Cost Rate
Equipment	Job Description	Qty.	(yd^3/day/machine)	(day)	($)	($/yd^3)
Excavator-Large	Remove fill, existing structure, & develop channel for 20 feet upstream & downstream	1	800	4.1	$5,362.50	$1.63
Excavator-Medium	Remove fill, existing structure, & develop channel for 20 feet upstream & downstream	1	800	4.1	$4,743.75	$1.44

Truck Waste Material to Trailover Pit			Avg. Speed	Ld/dmp Time	Haul Dist.	Rnd Trip	Haul Rate*	Time	Cost**	Cost Rate
Equipment	Job Description	Qty.	(mi/hr)	(min)	(mi)	(min)	(yd^3/day)	(day)	($)	($/yd^3)
Dump Trucks (12 yd^3)	Haul Fill Material to Trailover Pit	2	20	8	0.6	4.9	1469	2.9	$4,702.50	$1.10

*Haul Rate is what the trucks are capable of doing given speed, load size, and number of yours in a work d
This Haul Rate should be compared to the excavation rate to determine the number of trucks needed.

**Cost is based on calculated Excavator time.

Culvert Bedding and Culvert Assembly			Time	Cost
Equipment	Job Description	Qty.	(day)	($)
Excavator-Large	Preparing Culvert Bed	1	0.5	$650.00
Hand Tamper	Compaction of Culvert Bedding	1	0.5	$30.00
Laborer	Raking & Fabric	2	0.5	$280.00

Rock Haul from Trailover Pit to Fill Reconstruction			Avg. Speed	Ld/dmp Time	Haul Dist.	Rnd Trip	Haul Rate	Time	Cost	Cost Rate
Equipment	Job Description	Qty.	(mi/hr)	(min)	(mi)	(min)	(yd^3/day)	(day)	($)	($/yd^3)
Dump Trucks (12 yd^3)	Bedding Rock (1-1/2"-0")	2	20	8	0.6	4.9	1469	0.1	$108.93	$0.78
Dump Trucks (12 yd^3)	Base Rock (4"-0")	2	20	8	0.6	4.9	1469	0.1	$122.04	$0.78
Dump Trucks (12 yd^3)	Surfacing Rock (3/4"-0")	2	20	8	0.6	4.9	1469	0.0	$38.79	$0.78
Dump Trucks (12 yd^3)	Fill Armoring (24"-6")	2	20	8	0.6	4.9	1469	0.2	$241.13	$0.78
Dump Trucks (12 yd^3)	Drain Rock (24"-6")	2	20	8	0.6	4.9	1469	0.5	$624.55	$0.78
Dump Trucks (12 yd^3)	Dissipator (36"-24")	2	20	8	0.6	4.9	1469	0.0	$43.45	$0.78

Fill Reconstruction			Excavation Rate	Time	Cost	Cost Rate
Equipment	Job Description	Qty.	(yd^3/day/machine)	(day)	($)	($/yd^3)
Excavator-Large	Reconstruct Fill	1	800	3.3	$4,225.00	$1.63

Rock Development at Trailover Pit			Development rate	Volume	Cost	Excavation Rate	Time
Equipment	Job Description	Qty.	($/yd^3)	(yd^3)	($)	(yd^3/day/machine)	(day)
Excavator-Medium	Develop Fill Armoring (24"-6")	1	$2.60	310.8	$808.08	800	0.4
Excavator-Medium	Develop Drain Rock (24"-6")	1	$2.60	805.0	$2,093.00	800	1.0
Excavator-Medium	Develop Dissipator Rock (36"-24")	1	$2.60	56.0	$145.60	800	0.1

Rock & Fill Loading			Time	Cost	Cost rate
Equipment	Job Description	Qty.	(day)	($)	($/yd^3)
Front End Loader - Medium	Load Rock at Trailover Pit	1	1.0	$465.35	$0.42
Front End Loader - Medium	Load Fill Material at Tarilover Pit	1	3.3	$1,462.50	$0.56

Truck Fill Material from Trailover Pit to Fill Reconstruction			Avg. Speed	Ld/dmp Time	Haul Dist.	Rnd Trip	Haul Rate*	Time	Cost**	Cost Rate
Equipment	Job Description	Qty.	(mi/hr)	(min)	(mi)	(min)	(yd^3/day)	(day)	($)	($/yd^3)
Dump Trucks (12 yd^3)	Haul Fill Material to Fill	2	20	8	0.6	4.9	1469	2.3	$3,705.00	$1.10

*Haul Rate is what the trucks are capable of doing given speed, load size, and number of yours in a work d
This Haul Rate should be compared to the excavation rate to determine the number of trucks needed.

**Cost is based on calculated Excavator time.

Fill Compaction			Time	Cost
Equipment	Job Description	Qty.	(day)	($)
Vibratory Roller	Compaction of Fill	1	0.5	$375.00
Water Truck	Watering of Rock for Processing	1	0.5	$285.00

Erosion Control			Time	Cost
Equipment	Job Description	Qty.	(day)	($)
Mulch Chopper/Blower	Application of Straw Mulch	1	0.5	$325.00
Laborer	Application of Straw Mulch	1	0.5	$140.00

Materials:

Culvert		Unit Price	Total
Quantity	Size-Description	($/unit)	($)
3	36"x30' 14 Gage (Aluminized) CSP (2-2/3"x1/2" Corrugation)	570.00	$1,710.00
1	36"x14' 14 Gage (Aluminized) CSP (2-2/3"x1/2" Corrugation)	266.00	$266.00
3	36" 16 Gage Aluminized Band	20.00	$60.00
0	36" Gasket	0.00	$0.00
1	1:1 Step Bevel	30.00	$30.00
		Total =	$2,066.00

Fabric			
Quantity (yd^2)	Size-Description	Unit Price ($/yd^2)	Total ($)
0	4-1/2 oz. Non-woven filtration cloth	0.75	$0.00
405	10 oz. Non-woven filtration cloth (free draining fill)	2.00	$810.00
		Total =	$810.00

Erosion Control			
Quantity (bale)	Size-Description	Unit Price ($/bale)	Total ($)
4	Straw (1 bale/625 ft^2)	4.50	$18.00
		Total =	$18.00

Cost Summary:

Job Description	Time (day)	Cost ($)	Cost Rate ($/yd^3)
Secondary Mobilization	--	$0.00	--
Fill Removal and Channel Development	4.1	$5,362.50	$1.63
Truck Waste Material to Trailover Pit	4.1	$4,702.50	$1.10
Culvert Bedding and Culvert Assembly	0.5	$960.00	--
Rock Haul from Trailover Pit to Fill Reconstruction	1.0	$1,178.88	$4.66
Fill Reconstruction	3.3	$4,225.00	$1.63
Rock Development at Trailover Pit	1.5	$3,046.68	$7.80
Rock & Fill Loading	4.3	$1,927.85	$0.98
Truck Fill Material from Trailover Pit to Fill Reconstruc	3.3	$3,705.00	$1.10
Fill Compaction	1	$660.00	--
Erosion Control	1	$465.00	--
Materials:			
Culvert	--	$2,066.00	--
Fabric	--	$810.00	--
Erosion Control	--	$18.00	--
	Total =	$29,127.41	$18.88

TIMBER CRUISE REPORT
Bull Music Combination
FY 2004

1. **Sale Area Location:** Areas 1 though 7 are located in portions of Sections 10, 11, 12 and 15, of T6N, R7W, W.M., Clatsop County, Oregon.

2. **Fund Distribution:** BOF 100%
Tax Code = 8-01 - 375 acres (100%)

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	New R/W	Stream Buffer	Non-Thinnable	Net Acres	Survey Method
1	Clearcut	71	2	0	2	NA	67	GIS
2	SDI 25 Thinning	53	0	2	2	0	49	GIS
3	SDI 35 Thinning	119	3	5	5	5	101	GIS
4	Clearcut	54	0	2	0	NA	52	GIS
5	Clearcut	25	0	0	1	NA	24	GIS
6	Clearcut	75	1	1	1	NA	72	GIS
7 In-sale R/W	Sale Access	10	0	10	0	NA	10	L X W
TOTALS		**407**	**6**	**10**	**11**	**5**	**375**	

4. **Cruisers and Cruise Dates:** Areas 1 – 6 were cruised by Lanny Freeman, Dave Wolfgram, Diana Ison, Tara Carlson, Alan Kelso, Jon Long, and Ty Williams in December, 2003.

5. **Cruise Method and Computation:**

Areas 1,4, 5, and 6 are clearcut areas and were variable plot cruised using a 40 BAF. These plots are located on a 6 by 6 chain grid. Every third plot was measured and graded. A total of 65 plots were sampled, with 21 measured and graded plots, 43 count plots, and 1 blank plot.

Area 2 is an "automark" thinning (SDI 25) and was variable plot cruised using a 33.61 BAF. The plots are located on a 2 chain by 4.5 chain grid. Every other plot was measured and graded. A total of 52 plots were sampled, with 25 plots measured and graded, 27 count plots, and no blank plots. All take and leave trees were measured and graded with the biggest and best trees left to meet the target residual basal area of 120 ft^2/acre.

Area 3 is an automark thinning (SDI 35) and was variable plot cruised using a 40 BAF. The plots are located on a 2 chain by 7.5 chain grid. Every third plot was measured and graded. A total of 68 plots were sampled, with 23 plots measured and graded, 45 count plots, and no blank plots. All take and leave trees were measured and graded with the biggest and best trees left to meet the target residual basal area of 150 ft^2/acre.

Area 7 R/W, Sale Access volume, was calculated separately for each cruise type. Acres of right-of-way per cruise type was multiplied by the total cruise-type volume.

All cruises used Corvallis MicroTechnology (CMT) or Juniper System data collectors, and were downloaded to the Atterbury Super A.C.E. program for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

AREA	CRUISE	CRUISE TYPE
1, 4, 5, and 6	Clearcut	Type 1 (cc) Take
2	Auto-mark Thinning to SDI 25	Type 2 (Take)
3	Auto-mark Thinning to SDI 25	Type 3 (Take)
7 R/W	Sale Access	Type 1, 2, or 3 (Combined take and leave)

6. Timber Description:

Areas 1, 4, 5, and 6 are clearcuts consisting of 50 to 70 year old red alder, Douglas-fir, and western hemlock. There are minor amounts of western redcedar, Sitka spruce, true firs, and bigleaf maple. The average volume per acre to be harvested (net) is 24.2 MBF. The Douglas-fir averages 19.8" DBH, with an average height of 64 feet to a merchantable top (6" d.i.b.). The western hemlock averages 15.6" DBH and 52 feet to a merchantable top (6" d.i.b.). The average red alder tree size is 13.1" DBH and 39 feet to a merchantable top (8" d.i.b.).

Area 2 is an automark thinning ranging from 50 to 70 years old, consisting primarily of Douglas-fir, western hemlock, and red alder. These three species are included in the thinning. There are minor amounts of western redcedar, Sitka spruce, true firs, and bigleaf maple. This Area will be harvested to an SDI of 25, by removing approximately 112 trees and 14.5 net MBF per acre. Of the trees to be cut, the Douglas-fir averages 16.7" DBH, with an average height of 52 feet to a merchantable top (6" d.i.b.). The western hemlock averages 15.2" DBH and 47 feet to a merchantable top (6" d.i.b.). The red alder tree size averages 15.0" DBH and 34 feet to a merchantable top (8" d.i.b.).

Area 3 is an automark thinning, ranging from 50 to 70 years old, consisting primarily of Douglas-fir /western hemlock stands with small isolated clumps of hardwoods, as shown on Exhibit A as "unthinnable type.". This Area will be harvested to an SDI of 35, by removing approximately 93 trees and 19.2 net MBF per acre. Of the trees to be cut, the Douglas-fir averages 16.7" DBH, with an average height of 47 feet to a merchantable top (6" d.i.b.). The western hemlock averages 15.9" DBH and 66 feet to a merchantable top (6" d.i.b.). Other species are reserved.

Area 7, Right of way timber in Areas 1-6, are the same as the types described above. It is all in-sale right-of-way.

7. Statistical Summary: (See "Statistics" - Type Reports, attached)

Statistics for Board Feet Volumes by Cruise Type

Area	Target CV	Target SE%	Actual CV	Actual SE%
1, 4, 5, and 6	50%	8%	60%	7.5%
2	46%	7%	51%	7.0%
3	50%	7%	46%	5.5%

8. Volumes by Species and Log Grade: (See "Species, Sort, Grade, Length" - 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	19	2551	1776	672	103	20	31
Western Hemlock	16	4009	1660	2056	293	14	49
Red Alder	13	1635	NA	1021	614	3	20
Sitka spruce	25	1	0	1	0	0	0
Noble fir	26	25	24	0	1	0	0
TOTALS		**8221**	**3460**	**3750**	**1011**	**37**	**100**

9. Approvals:

Prepared by: Alan Kelso **Date:** January 14, 2004

Reviewed by: Jon Long **Date:** 1-14-04

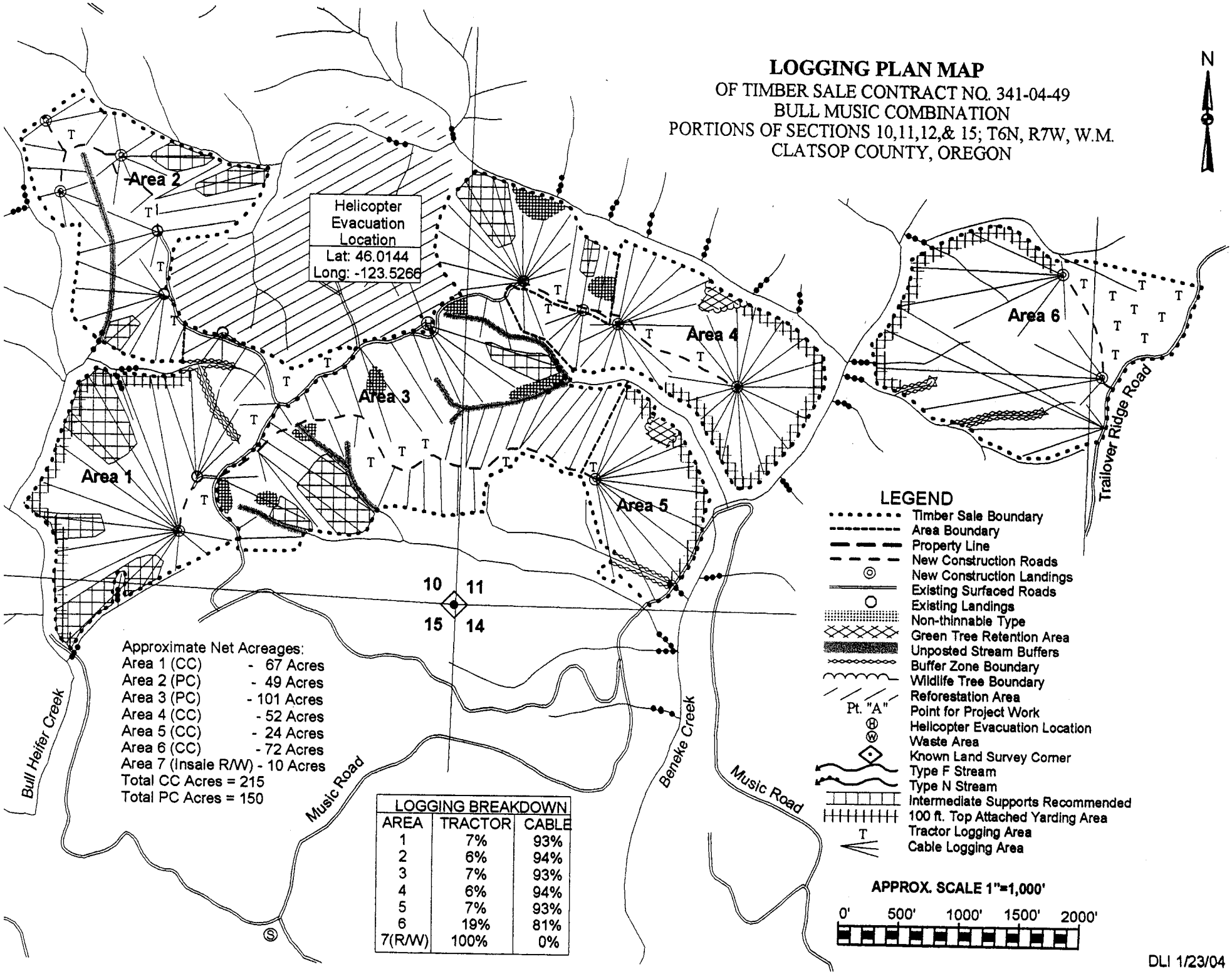
10. Attachments:

Cruise Designs (3)
Cruise Maps (3)
Volume Reports - 7 pages
Statistics Reports - 8 pages
Stand Tables - 3 pages
Log Stock Tables – 5 pages

X:\Jewell Unit\Timber Sales\2004\Bull Music Combination\Sale Reports\Cruise Report-Bull Music.doc

LOGGING PLAN MAP

OF TIMBER SALE CONTRACT NO. 341-04-49
BULL MUSIC COMBINATION
PORTIONS OF SECTIONS 10,11,12,& 15; T6N, R7W, W.M.
CLATSOP COUNTY, OREGON



Approximate Net Acreages:

Area 1 (CC)	- 67 Acres
Area 2 (PC)	- 49 Acres
Area 3 (PC)	- 101 Acres
Area 4 (CC)	- 52 Acres
Area 5 (CC)	- 24 Acres
Area 6 (CC)	- 72 Acres
Area 7 (Insale R/W)	- 10 Acres

Total CC Acres = 215
Total PC Acres = 150

LOGGING BREAKDOWN		
AREA	TRACTOR	CABLE
1	7%	93%
2	6%	94%
3	7%	93%
4	6%	94%
5	7%	93%
6	19%	81%
7(R/W)	100%	0%

DLI 1/23/04

CRUISE DESIGN

Sale Name Bull Music Combination **Area(s)** 1, 4, 5, & 6 Type area

1. Cruise Method:
   - A. X Variable Plot: BAF 40 Full or Half Point _____
     Sighting point (BH or 16') 4½'
   - B. ___ Fixed Radius Plot: Plot Size (Acres) ____ Plot Radius _____ feet
   - C. ___ Strip Cruise: Strip Width _____ feet Strip Spacing _____ feet
     Strip factor _____ Strip (plot) length _____ feet
   - D. ___ ITS Cruise: Measure/grade to Count ratio by Species:
     D-fir ___; Hemlock ___; Spruce ___; Cedar ___; Hdwd ___; Other ___
   - E. ___ 100% Cruise: Grade all trees ___ ; Grade 1 in __ trees by Species:
     D-fir ___; Hemlock ___; Spruce ___; Cedar ___; Hdwd ___; Other ___
   - F. X Clearcut; or ___ Partial Cut: Indicate Take (T) and Leave (L) trees.

2. Plot Spacing: Lines are 6 feet, (chains) apart (circle correct one)
   Plots are 6 feet, (chains) apart
   Cruise line direction is as mapped.

3. Detailed Cruising Directions: (Include cruise objectives, such as estimated stand CV, target SE% for board foot volume, target number of conifer grade trees, estimated volume per acre, grade/measure/count ratios, etc.)
Clearcut. Count to grade ratio 3:1. Grade plots are circled on map. Use 40 BAF. Record cedar, snags, and marked WL trees as leave trees (CL, DL, HL, SNL etc.). Do not take plots in posted stream buffers. The target number of grade trees is 100. Estimated take volume per acre for Areas 1, 4, 5, & 6 is 35mbf/acre. Estimated CV 50%, Target SE 8%.

4. Form Factors (FF): Measure or estimate a 16' form factor for every conifer tree graded. For "old growth" D-fir (>48" dbh), measure form factors at 32'.

5. Top Cruise Diameter (D): Minimum top outside bark is 7 ", and/or 40 % of d.o.b. at 16'. (Generally, for large timber, use 6" and 0.4 (40%); for thinning size timber, use 4 or 5" TCD. For "old growth", use 0.5 (50%) of d.o.b. at 16'.)

6. Diameter Recording: Minimum dbh to cruise is 8 " for conifers and 9 " for hardwooods. Record dbh (measured) to nearest 0.5" for trees <12" dbh, to nearest 1" for trees 12 to 20" dbh, and to nearest 2" for trees >20" dbh. If tree diameters are estimated, then record to closest estimate.

7. Bole Length (Merch. tree height): Record bole length to TCD to nearest foot. Do not record total tree height, except in certain special cases (such as inventory plots).

Sale Name Bull Music Combination Area(s) 1, 4, 5, & 6

8. Tree Segments: Record log segments to maximize grade within scaling standards and within practicality. Minimum segment length is 12 feet (except cull segments). Maximum segment length is 40 feet. One foot of trim is assumed for each merch. segment. Do not use the "double dash" (--) feature on the data recorder except for the top segment of the tree.

9. Species, Sort, and Grade Codes:

A. Species: D-fir = D; Hemlock = H; Sitka Spruce = S; Red Cedar = C; Silver fir = SF; Grand fir = GF; Noble fir = NF; Red Alder = A; Bigleaf Maple = M; D-fir leave = DL; hemlock leave = HL; etc.

B. Sorts: Domestic = 1;

C. Grades: #1 Peeler = A; #2 Peeler = B; #3 Peeler = C; Special Mill = D; #2 Sawmill = 2; #3 Sawmill = 3; #4 Sawmill = 4; Pulp = P; Camp Run = R; Cull =0

10. Standard Field Procedures: Cruise line ends are to be marked with blue and yellow ribbon, with cruise line number, cruising direction, cruiser's initials, and cruise date. At plot, sink a sturdy stake into the ground, marked with a yellow ribbon, labeled with cruise plot number. Hang another labeled yellow ribbon above eye height near the plot center. Label plot ribbons with cruiser's initials and plot number (eg. "TS01") and mark the location of the plot on the cruise map. Between plots, hang blue ribbons at visible intervals along the cruise line. Mark the first tree on each plot with yellow paint. A tree number or tree dbh may be used as a marking. The first tree should be the first "in" tree to the right (clockwise) of the cruise line direction. If half plots are used, mark "wing points" carefully about 20 feet either side of the plot center, using yellow ribbon. (These procedures apply to "plot" type cruises.) On "strip" cruises, the strip center should be plainly marked with yellow ribbon, and line ends should be marked with blue and yellow ribbon.

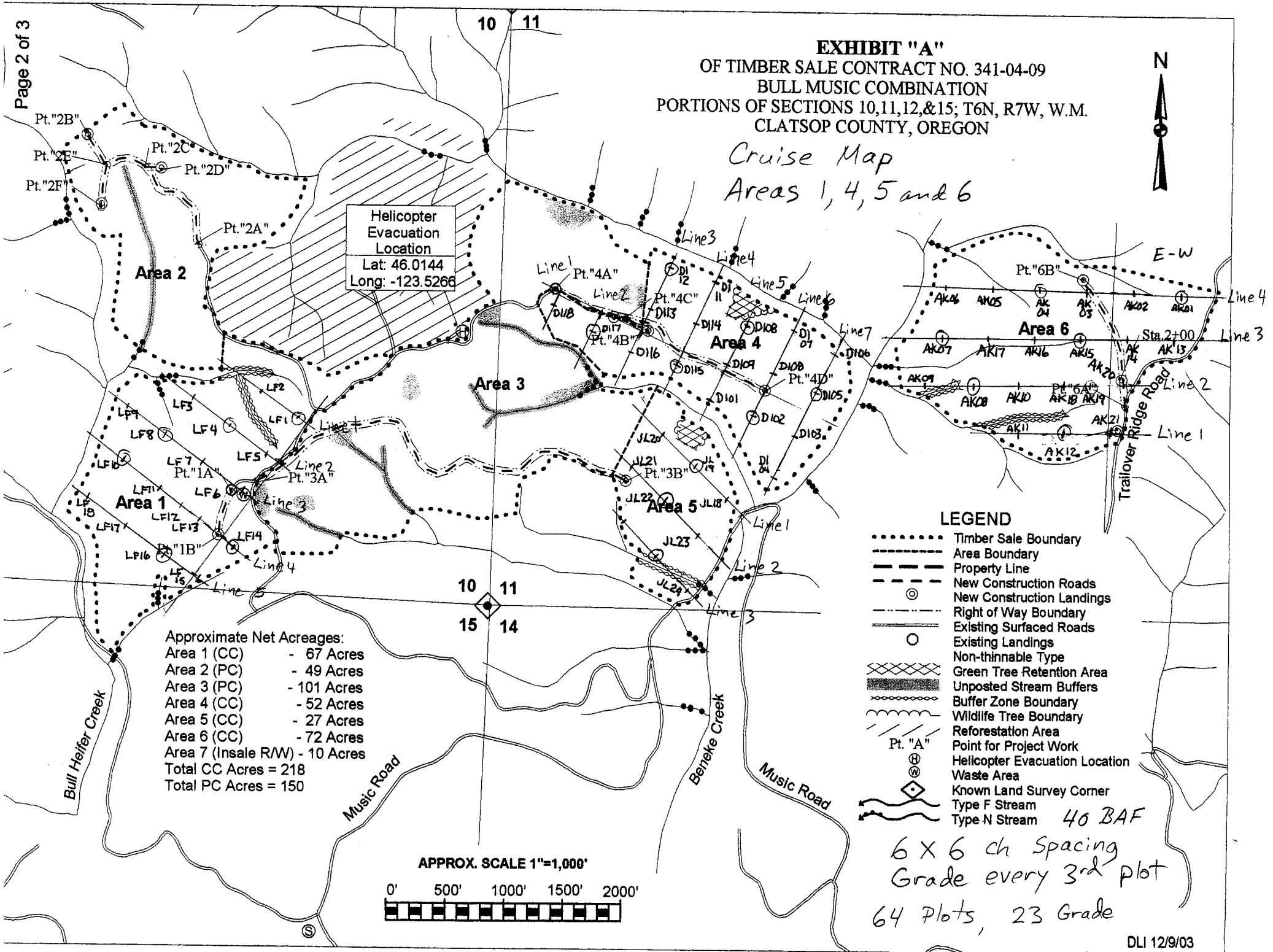
11. Cruising Equipment: Relaskop, rangefinder, diameter tape or rewind tape, biltmore stick, compass, increment borer, tatum and cruise cards or CMT data recorder, yellow and blue ribbon, permanent marker, Scaling and Grading Rules book, and Cruise Design and Map.

12. Attachment:
Cruise Map showing unit boundaries, major roads and streams, north arrow, legal description, approximate acreage, numbered cruise lines and approximate number of plots on each line, plot spacing, cruise line directions, BAF, measure/grade/count ratio, if applicable.

EXHIBIT "A"

OF TIMBER SALE CONTRACT NO. 341-04-09
BULL MUSIC COMBINATION
PORTIONS OF SECTIONS 10,11,12,&15; T6N, R7W, W.M.
CLATSOP COUNTY, OREGON

Cruise Map
Areas 1, 4, 5 and 6



Approximate Net Acreages:

Area 1 (CC)	- 67 Acres
Area 2 (PC)	- 49 Acres
Area 3 (PC)	- 101 Acres
Area 4 (CC)	- 52 Acres
Area 5 (CC)	- 27 Acres
Area 6 (CC)	- 72 Acres
Area 7 (Insale R/W)	- 10 Acres
Total CC Acres = 218	
Total PC Acres = 150	

LEGEND

- Timber Sale Boundary
- Area Boundary
- Property Line
- New Construction Roads
- New Construction Landings
- Right of Way Boundary
- Existing Surfaced Roads
- Existing Landings
- Non-thinnable Type
- Green Tree Retention Area
- Unposted Stream Buffers
- Buffer Zone Boundary
- Wildlife Tree Boundary
- Reforestation Area
- Pt. "A" Point for Project Work
- Helicopter Evacuation Location
- Waste Area
- Known Land Survey Corner
- Type F Stream
- Type N Stream

40 BAF
6 X 6 ch Spacing
Grade every 3rd plot
64 Plots, 23 Grade

DLI 12/9/03

CRUISE DESIGN

Sale Name Bull Music Combination **Area** 2 Type 0002

1. Cruise Method:
   - A. X Variable Plot: BAF ~~33.4~~ 34 Full or Half Point _____
     Sighting point (BH or 16') 4½'
   - B. ___ Fixed Radius Plot: Plot Size (Acres) ____ Plot Radius _____ feet
   - C. ___ Strip Cruise: Strip Width _____ feet Strip Spacing _____ feet
     Strip factor _____ Strip (plot) length _____ feet
   - D. ___ ITS Cruise: Measure/grade to Count ratio by Species:
     D-fir ___; Hemlock ___; Spruce ___; Cedar ___; Hdwd ___; Other ___
   - E. ___ 100% Cruise: Grade all trees ___ ; Grade 1 in __ trees by Species:
     D-fir ___; Hemlock ___; Spruce ___; Cedar ___; Hdwd ___; Other ___
   - F. ___ Clearcut; or X Partial Cut: Indicate Take (T) and Leave (L) trees.

2. Plot Spacing: Lines are 4½ feet, (chains) apart (circle correct one)
   Plots are 2 feet, (chains) apart
   Cruise line direction is ~~as mapped~~.

3. Detailed Cruising Directions: (Include cruise objectives, such as estimated stand CV, target SE% for board foot volume, target number of conifer grade trees, estimated volume per acre, expected defect and breakage factors, grade/measure/count ratios, etc.)
Partial cut – RD 25. Grade/count every other plot as shown on cruise map. Grade plots are circled on map. 34 BAF (11 bars). The leave tree basal area target for Area 2 is 120 sq. ft. Select 3 or 4 conifer leave trees per plot. All trees over 30" DBH are leave trees. Mark all leave trees with a "L" on all grade plots. Record cedar as leave trees. Hardwoods do not count in basal area, unless existing conifer basal area is below minimum. Do not take plots within 25 ft. of streams. The target number of graded take trees is 50. Estimated take volume per acre for Area 2 is 15mbf/acre. Estimated CV 46%, Target SE 7% for current stand (take and leave trees). Cruise alder to 8" top – sawlogs only, 10" minimum dbh. Non-merch alder and pulp will be left in woods.

4. Form Factors (FF): Measure or estimate a 16' form factor for every conifer tree graded. For "old growth" D-fir (>48" dbh), measure form factors at 32'.

5. Top Cruise Diameter (D): Minimum top outside bark is 7" (8" for hardwoods)", and/or 40 % of d.o.b. at 16'. (Generally, for large timber, use 6" and 0.4 (40%); for thinning size timber, use 4 or 5" TCD. For "old growth", use 0.5 (50%) of d.o.b. at 16'.)

6. Diameter Recording: Minimum dbh to cruise is 8" for conifers and 10" for hardwooods. Record dbh (measured) to nearest 0.5" for trees <12" dbh, to nearest 1" for trees 12 to 20" dbh, and to nearest 2" for trees >20" dbh. If tree diameters are estimated, then record to closest estimate.

7. Bole Length (Merch. tree height): Record bole length to TCD to nearest foot. Do not record total tree height, except in certain special cases (such as inventory plots).

Sale Name Bull Music Combination Area 2

8. Tree Segments: Record log segments to maximize grade within scaling standards and within practicality. Minimum segment length is 12 feet (except cull segments). Maximum segment length is 40 feet. One foot of trim is assumed for each merch. segment. Do not use the "double dash" (--) feature on the data recorder except for the top segment of the tree.

9. Species, Sort, and Grade Codes:

A. Species: D-fir = D; Hemlock = H; Sitka Spruce = S; Red Cedar = C; Silver fir = SF; Grand fir = GF; Noble fir = NF; Red Alder = A; Bigleaf Maple = M; D-fir leave = DL; hemlock leave = HL; etc.

B. Sorts: Domestic = 1;

C. Grades: #1 Peeler = A; #2 Peeler = B; #3 Peeler = C; Special Mill = D; #2 Sawmill = 2; #3 Sawmill = 3; #4 Sawmill = 4; Pulp = P; Camp Run = R; Cull =0

10. Standard Field Procedures: Cruise line ends are to be marked with blue and yellow ribbon, with cruise line number, cruising direction, cruiser's initials, and cruise date. At plot, sink a sturdy stake into the ground, marked with a yellow ribbon, labeled with cruise plot number. Hang another labeled yellow ribbon above eye height near the plot center. Label plot ribbons with cruiser's initials and plot number (eg. "TS01") and mark the location of the plot on the cruise map. Between plots, hang blue ribbons at visible intervals along the cruise line. Mark the first tree on each plot with yellow paint. A tree number or tree dbh may be used as a marking. The first tree should be the first "in" tree to the right (clockwise) of the cruise line direction. If half plots are used, mark "wing points" carefully about 20 feet either side of the plot center, using yellow ribbon. (These procedures apply to "plot" type cruises.) On "strip" cruises, the strip center should be plainly marked with yellow ribbon, and line ends should be marked with blue and yellow ribbon.

11. Cruising Equipment: Relaskop, rangefinder, diameter tape or rewind tape, biltmore stick, compass, increment borer, tatum and cruise cards or CMT data recorder, yellow and blue ribbon, permanent marker, Scaling and Grading Rules book, and Cruise Design and Map.

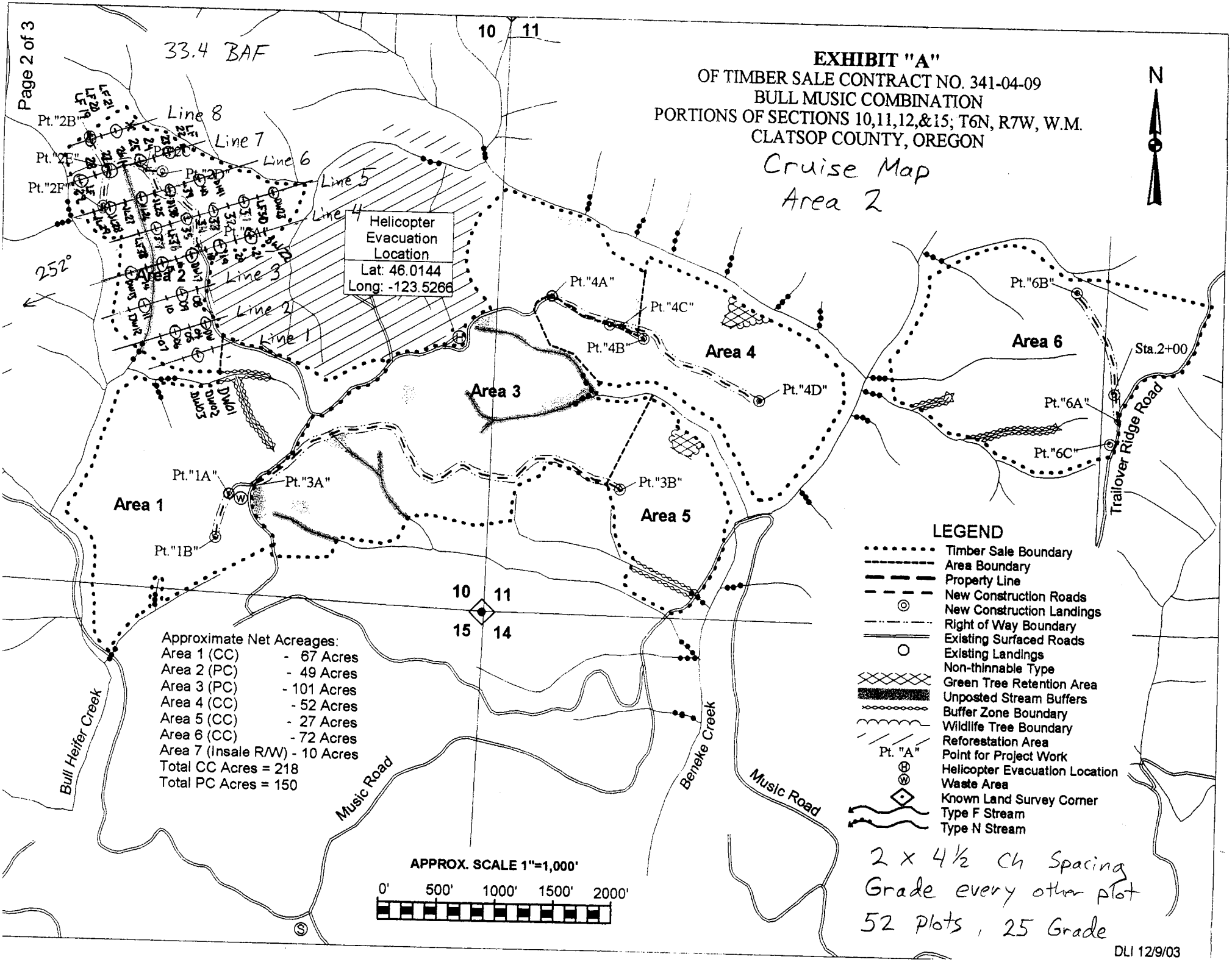
12. Attachment:
Cruise Map showing unit boundaries, major roads and streams, north arrow, legal description, approximate acreage, numbered cruise lines and approximate number of plots on each line, plot spacing, cruise line directions, BAF, measure/grade/count ratio, if applicable.

33.4 BAF

EXHIBIT "A"

OF TIMBER SALE CONTRACT NO. 341-04-09
BULL MUSIC COMBINATION
PORTIONS OF SECTIONS 10,11,12,&15; T6N, R7W, W.M.
CLATSOP COUNTY, OREGON

Cruise Map
Area 2



2 x 4½ Ch Spacing
Grade every other plot
52 Plots, 25 Grade

DLI 12/9/03

CRUISE DESIGN

Sale Name Bull Music Combination **Area** 3 Type 0003

1. Cruise Method:
   - A. X Variable Plot: BAF 40 Full or Half Point ____
     Sighting point (BH or 16') 4½'
   - B. ___ Fixed Radius Plot: Plot Size (Acres) ____ Plot Radius ____ feet
   - C. ___ Strip Cruise: Strip Width ____ feet Strip Spacing ____ feet
     Strip factor ____ Strip (plot) length ____ feet
   - D. ___ ITS Cruise: Measure/grade to Count ratio by Species:
     D-fir ___; Hemlock ___; Spruce ___; Cedar ___; Hdwd ___; Other ___
   - E. ___ 100% Cruise: Grade all trees ___ ; Grade 1 in __ trees by Species:
     D-fir ___; Hemlock ___; Spruce ___; Cedar ___; Hdwd ___; Other ___
   - F. ___ Clearcut; or X Partial Cut: Indicate Take (T) and Leave (L) trees.

2. Plot Spacing: Lines are 7½ feet, (chains) apart (circle correct one)
   Plots are 2 feet, (chains) apart
   Cruise line direction is as mapped.

3. Detailed Cruising Directions: (Include cruise objectives, such as estimated stand CV, target SE% for board foot volume, target number of conifer grade trees, estimated volume per acre, expected defect and breakage factors, grade/measure/count ratios, etc.)
Standard thinning - RD 35. Grade every 3rd plot as shown on cruise map. Grade plots are circled on map. 40 BAF (12 bars). The leave tree basal area target for Area 3 is 150 sq. ft. Select 3 or 4 (usually 4) conifer leave trees per plot. Mark all leave trees with a "L" on all grade plots. Record hardwoods and cedar as leave trees. Hardwoods do not count for leave tree target basal area. Do not take plots in large hardwood types mapped as unthinable types on cruise map, or within 25 ft. of streams. The target number of grade take trees is 50. Estimated take volume per acre for Area 3 is 18mbf/acre. Estimated CV 50%, Target SE 7% for current stand (take and leave trees).

4. Form Factors (FF): Measure or estimate a 16' form factor for every conifer tree graded. For "old growth" D-fir (>48" dbh), measure form factors at 32'.

5. Top Cruise Diameter (D): Minimum top outside bark is 7" (8" for hardwoods), and/or 40 % of d.o.b. at 16'. (Generally, for large timber, use 6" and 0.4 (40%); for thinning size timber, use 4 or 5" TCD. For "old growth", use 0.5 (50%) of d.o.b. at 16'.)

6. Diameter Recording: Minimum dbh to cruise is 8 " for conifers and 10 " for hardwooods. Record dbh (measured) to nearest 0.5" for trees <12" dbh, to nearest 1" for trees 12 to 20" dbh, and to nearest 2" for trees >20" dbh. If tree diameters are estimated, then record to closest estimate.

7. Bole Length (Merch. tree height): Record bole length to TCD to nearest foot. Do not record total tree height, except in certain special cases (such as inventory plots).

Sale Name Bull Music Combination Area 3

8. Tree Segments: Record log segments to maximize grade within scaling standards and within practicality. Minimum segment length is 12 feet (except cull segments). Maximum segment length is 40 feet. One foot of trim is assumed for each merch. segment. Do not use the "double dash" (--) feature on the data recorder except for the top segment of the tree.

9. Species, Sort, and Grade Codes:

A. Species: D-fir = D; Hemlock = H; Sitka Spruce = S; Red Cedar = C; Silver fir = SF; Grand fir = GF; Noble fir = NF; Red Alder = A; Bigleaf Maple = M; D-fir leave = DL; hemlock leave = HL; etc.

B. Sorts: Domestic = 1;

C. Grades: #1 Peeler = A; #2 Peeler = B; #3 Peeler = C; Special Mill = D; #2 Sawmill = 2; #3 Sawmill = 3; #4 Sawmill = 4; Pulp = P; Camp Run = R; Cull =0

10. Standard Field Procedures: Cruise line ends are to be marked with blue and yellow ribbon, with cruise line number, cruising direction, cruiser's initials, and cruise date. At plot, sink a sturdy stake into the ground, marked with a yellow ribbon, labeled with cruise plot number. Hang another labeled yellow ribbon above eye height near the plot center. Label plot ribbons with cruiser's initials and plot number (eg. "TS01") and mark the location of the plot on the cruise map. Between plots, hang blue ribbons at visible intervals along the cruise line. Mark the first tree on each plot with yellow paint. A tree number or tree dbh may be used as a marking. The first tree should be the first "in" tree to the right (clockwise) of the cruise line direction. If half plots are used, mark "wing points" carefully about 20 feet either side of the plot center, using yellow ribbon. (These procedures apply to "plot" type cruises.) On "strip" cruises, the strip center should be plainly marked with yellow ribbon, and line ends should be marked with blue and yellow ribbon.

11. Cruising Equipment: Relaskop, rangefinder, diameter tape or rewind tape, biltmore stick, compass, increment borer, tatum and cruise cards or CMT data recorder, yellow and blue ribbon, permanent marker, Scaling and Grading Rules book, and Cruise Design and Map.

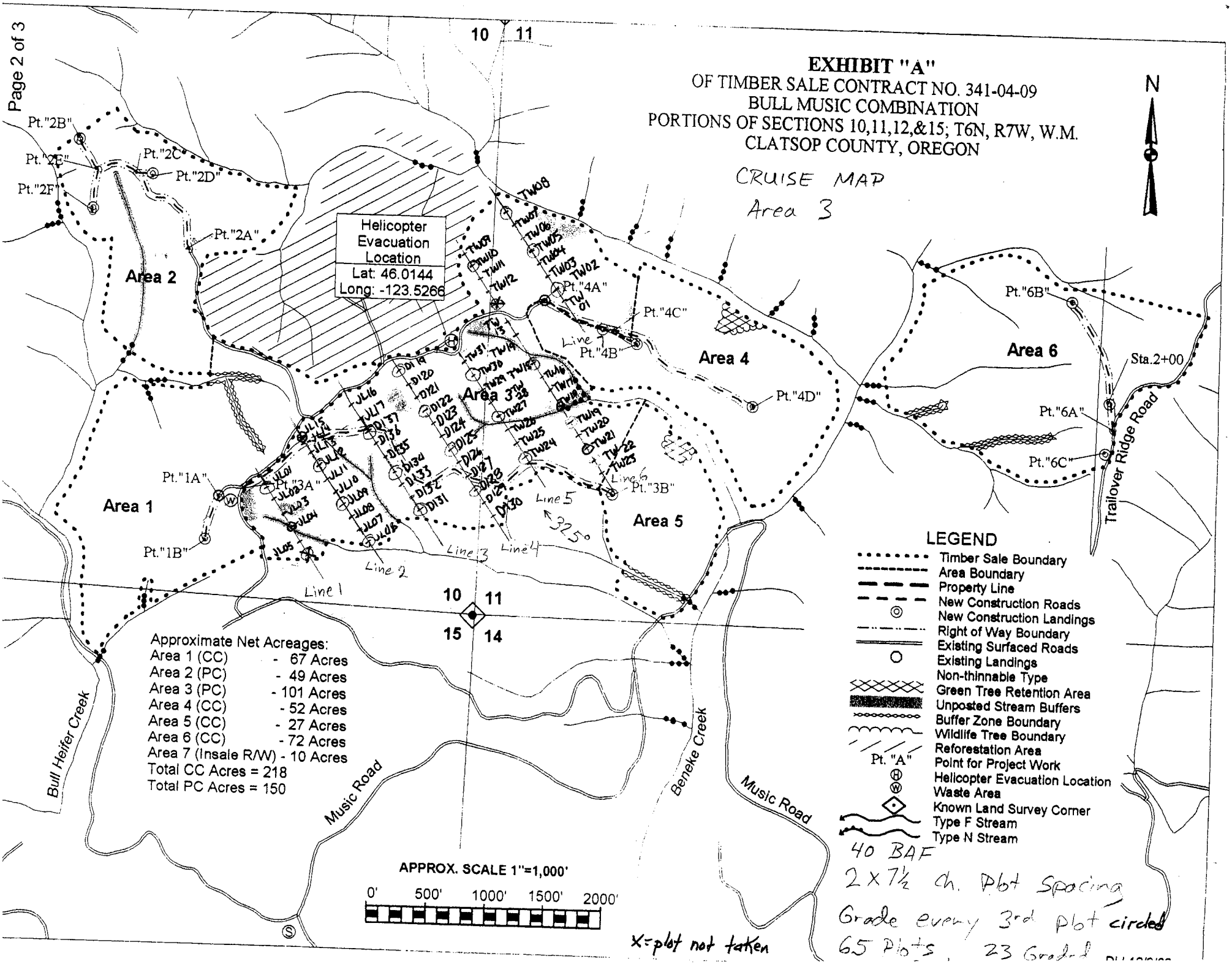
12. Attachment:

Cruise Map showing unit boundaries, major roads and streams, north arrow, legal description, approximate acreage, numbered cruise lines and approximate number of plots on each line, plot spacing, cruise line directions, BAF, measure/grade/count ratio, if applicable.

EXHIBIT "A"

OF TIMBER SALE CONTRACT NO. 341-04-09
BULL MUSIC COMBINATION
PORTIONS OF SECTIONS 10,11,12,&15; T6N, R7W, W.M.
CLATSOP COUNTY, OREGON

CRUISE MAP
Area 3



40 BAF
2 x 7½ ch. Plot Spacing
Grade every 3rd plot circled
65 Plots, 23 Graded

x=plot not taken

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T06N R07W S11 TyR/W
THRU
T06N R07W S11 TyTAKE

Project: BULLMUSI
Acres 375.00

Date 1/13/2004
Time 9:00:10AM

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
H	?	?															6		0.00	8.0
H	?	2S		20	.3	4,440	4,426	1,660		1	64	36	2	5	45	48	33	276	1.91	16.0
H	?	3S		25	.4	5,504	5,481	2,056		82	16	1	0	2	53	45	35	100	0.78	54.8
H	?	4S		4	.2	783	782	293	1	99			51	45	3	1	20	27	0.47	29.5
H Totals				49	.4	10,727	10,689	4,008	0	50	35	15	5	6	46	43	28	99	0.91	108.3
A	?	?															11		0.00	17.7
A	?	3S		12	.3	2,729	2,722	1,021		85	14	1	22	28	39	12	27	103	1.01	26.4
A	?	4S		7	.2	1,641	1,637	614		100	0		31	43	24	3	23	34	0.52	48.7
A Totals				20	.2	4,369	4,358	1,634		91	9	0	25	33	33	8	22	47	0.64	92.8
D	?	?															13		0.00	5.4
D	?	2S		22	.9	4,779	4,735	1,776		0	56	44	2	4	62	32	33	304	2.04	15.6
D	?	3S		8	.2	1,797	1,793	672		88	6	7	8	17	47	28	32	83	0.78	21.5
D	?	4S		1	1.4	279	274	103	2	98			77	23			18	23	0.43	11.9
D Totals				31	.8	6,855	6,802	2,551	0	27	40	32	7	8	55	30	27	125	1.13	54.4
S	?	?															7		0.00	.0
S	?0	3S		0		3	3	1		6	8	86		94	6		27	304	2.46	.0
S Totals				0		3	3	1		6	8	86		94	6		24	252	2.33	.0
NF	?	?															2		0.00	.1
NF	?	2S		0		65	65	24			28	72			100		32	335	2.19	.2
NF	?	4S		0		2	2	1		100			100				11	20	0.82	.1
NF Totals				0		67	67	25		3	28	70	3		97		19	173	1.94	.4
Totals					0.5	22,021	21,919	8,220	0	51	31	18	9	12	46	32	26	86	0.88	255.9

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: BULLMUSI

Page 1
Date 1/12/2004
Time 1:45:42PM

T06N R07W S11 TTAKE

Twp	Rge	Sec	Tract	Typ	Acres	Plots	Sample Trees
06N	07W	11	CC Areas 1,4,5,6	TAKE	215.00	65	114

T06N R07W S11 TTAKE

Spp	S T	So rt Grade	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
A		?	?														11		0.00	29.8
A		?	3S	62	.2	4,308	4,300	924		87	13		20	26	42	12	27	104	1.00	41.4
A		?	4S	38		2,581	2,581	555		00			31	42	24	3	23	33	0.51	77.7
A	**Totals**			28	.1	6,889	6,881	1,479		92	8		24	32	35	9	22	46	0.63	149.0
H		?	?														5		0.00	2.9
H		?	2S	42		3,806	3,806	818			50	50			33	67	36	367	2.29	10.4
H		?	3S	52		4,714	4,714	1,013		85	15			3	57	41	34	97	0.78	48.8
H		?	4S	6		556	556	120		00			56	44			19	26	0.49	21.1
H	**Totals**			38		9,077	9,077	1,951		50	29	21	3	4	43	49	30	109	0.95	83.2
D		?	?														14		0.00	7.8
D		?	2S	71	1.1	5,817	5,755	1,237			63	37	3		68	29	33	292	2.00	19.7
D		?	3S	25		2,044	2,044	439		90		10	10	8	57	25	33	88	0.81	23.1
D		?	4S	4	2.2	307	300	65		00			79	21			18	23	0.44	13.2
D	**Totals**			34	.8	8,168	8,100	1,741		26	45	29	8	3	63	27	27	127	1.15	63.8
NF		DO	CU														2		0.00	.2
NF		DO	2S	97		112	112	24			28	72			100		32	335	2.19	.3
NF		DO	4S	3		3	3	1		00			100				11	20	0.82	.2
NF	**Totals**			0		115	115	25		3	28	70	3		97		19	173	1.94	.7
Type Totals					.3	24,249	24,172	5,197		54	28	18	11	12	48	30	25	81	0.86	296.7

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: BULLMUSI

Page 1
Date 1/12/2004
Time 1:26:22PM

T06N R07W S11 TTAKE

Twp	Rge	Sec	Tract	Typ	Acres	Plots	Sample Trees
06N	07W	11	AREA2	TAKE	49.00	52	102

T06N R07W S11 TTAKE

Spp	ST	Sort	Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
H		?	?														7		0.00	12.0
H		?	2S	55	.6	4,743	4,713	231			74	26	4	9	49	38	32	233	1.72	20.2
H		?	3S	37		3,229	3,229	158		86	11	2	3	6	56	35	33	73	0.70	44.5
H		?0	4S	8	1.4	693	683	33	11	89			68	32			19	25	0.45	27.2
H	**Totals**			60	.4	8,664	8,626	423	1	39	45	15	9	10	48	34	26	83	0.87	104.0
A		?	?														10		0.00	2.3
A		?0	3S	61	1.0	1,561	1,545	76		59	32	9	48	43	6	3	24	95	1.13	16.2
A		?0	4S	39	2.6	996	970	48		00			28	43	24	4	23	38	0.63	25.2
A	**Totals**			17	1.6	2,557	2,515	123		75	20	6	40	43	13	4	23	58	0.81	43.7
D		DO	CU														17		0.00	1.7
D		?0	2S	56	1.7	1,883	1,852	91		7	59	34			66	34	35	280	1.92	6.6
D		?0	3S	36		1,216	1,216	60		00				22	68	11	32	77	0.72	15.8
D		?0	4S	8		268	268	13	12	88			67	33			17	25	0.44	10.8
D	**Totals**			23	.9	3,367	3,335	163	1	48	33	19	5	11	61	23	27	96	0.93	34.9
Type Totals					.8	14,588	14,476	709	1	47	38	14	13	16	45	26	26	79	0.87	182.5

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: BULLMUSI

Date 1/9/2004

Time 1:40:00PM

T06N R07W S11 TTAKE

Twp	Rge	Sec	Tract	Typ	Acres	Plots	Sample Trees
06N	07W	11	AREA3	TAKE	101.00	68	66

T06N R07W S11 TTAKE

Spp	S T	So rt Grade	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
H		?0	CU														6		0.00	16.3
H		?0	2S	35	.7	5,005	4,971	502		1	82	16	5	9	60	27	32	209	1.57	23.8
H		?0	3S	56	1.0	8,067	7,988	807		79	19	3	0	1	48	51	36	113	0.81	70.6
H		?0	4S	9		1,273	1,273	129		00			43	48	6	2	20	27	0.46	47.0
H	**Totals**			74	.8	14,345	14,232	1,437		54	39	7	6	8	48	38	28	90	0.85	157.8
D		?0	CU														5		0.00	2.2
D		?0	2S	67	.4	3,363	3,351	338			36	64		16	42	42	34	344	2.18	9.7
D		?0	3S	28	1.0	1,430	1,416	143		76	24		7	41	10	43	31	72	0.75	19.7
D		?0	4S	4		215	215	22		00			80	20			18	23	0.41	9.5
D	**Totals**			26	.5	5,009	4,982	503		26	31	43	5	24	31	40	27	121	1.11	41.0
Type Totals					.7	19,353	19,214	1,941		46	37	16	6	12	44	39	27	97	0.90	198.8

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: BULLMUSI

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Date 1/13/2004
Time 8:57:29AM

T06N R07W S11 TR/W

Twp	Rge	Sec	Tract	Typ	Acres	Plots	Sample Trees
06N	07W	11	CC Areas 1,4,5,6	R/W	3.00	65	114

T06N R07W S11 TR/W

Spp	S T	So rt Grade	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
A		?	?														11		0.00	29.8
A		?	3S	62	.2	4,308	4,300	13		87	13		20	26	42	12	27	104	1.00	41.4
A		?	4S	38		2,581	2,581	8		00			31	42	24	3	23	33	0.51	77.7
A	**Totals**			27	.1	6,889	6,881	21		92	8		24	32	35	9	22	46	0.63	149.0
H		?	?														5		0.00	3.0
H		?	2S	42		3,945	3,945	12			50	50			33	67	36	367	2.29	10.8
H		?	3S	52		4,885	4,885	15		85	15			3	57	41	34	97	0.78	50.6
H		?	4S	6		577	577	2		00			56	44			19	26	0.49	21.9
H	**Totals**			38		9,407	9,407	28		50	29	21	3	4	43	49	30	109	0.95	86.3
D		?	?														14		0.00	8.4
D		?	2S	71	1.1	6,232	6,166	18			63	37	3		68	29	33	292	2.00	21.1
D		?	3S	25		2,190	2,190	7		90		10	10	8	57	25	33	88	0.81	24.8
D		?	4S	4	2.2	329	322	1		00			79	21			18	23	0.44	14.1
D	**Totals**			35	.8	8,751	8,678	26		26	45	29	8	3	63	27	27	127	1.15	68.4
NF		DO	CU														2		0.00	.2
NF		DO	2S	97		112	112	0			28	72			100		32	335	2.19	.3
NF		DO	4S	3		3	3	0		00			100				11	20	0.82	.2
NF	**Totals**			0		115	115	0		3	28	70	3		97		19	173	1.94	.7
Type Totals					.3	25,162	25,080	75		53	29	18	10	11	48	30	25	82	0.86	304.3

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: BULLMUSI

Date 1/13/2004

Time 8:46:19AM

T06N R07W S11 TR/W

Twp	Rge	Sec	Tract	Typ	Acres	Plots	Sample Trees
06N	07W	11	AREA2	R/W	2.00	52	175

T06N R07W S11 TR/W

Spp	ST	Sort Grade		% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
H		?0	?														8		0.00	15.0
H		?0	2S	70	.9	11,487	11,382	23			54	46	4	8	49	39	32	297	2.05	38.3
H		?0	3S	25	.1	4,118	4,113	8		89	9	2	3	7	54	36	33	74	0.75	55.8
H		?0	4S	5	2.7	834	812	2	9	91			67	33			19	26	0.49	31.8
H	**Totals**			52	.8	16,439	16,308	33	0	27	40	32	7	9	48	36	27	116	1.11	140.9
D		DO	CU														16		0.00	2.2
D		?0	2S	75	1.4	8,325	8,206	16		2	32	67	0	10	55	35	33	376	2.50	21.8
D		?0	3S	21	.8	2,287	2,268	5		94	2	4	2	14	67	16	32	81	0.84	27.8
D		?0	4S	4		400	400	1	8	92			66	34			18	26	0.47	15.6
D	**Totals**			35	1.2	11,012	10,874	22	0	24	24	51	3	11	55	30	29	161	1.39	67.4
A		?	?														10		0.00	2.2
A		?0	3S	65	1.5	2,422	2,387	5		52	33	15	42	41	11	7	24	100	1.21	23.8
A		?0	4S	35	4.9	1,360	1,294	3		88	12		26	47	21	6	22	42	0.72	30.6
A	**Totals**			12	2.7	3,782	3,681	7		65	25	10	36	43	14	6	23	65	0.93	56.6
S		?	?														7		0.00	.4
S		?	3S	00		542	542	1			9	91		100			24	467	3.65	1.2
S	**Totals**			2		542	542	1			9	91		100			20	350	3.33	1.5
Type Totals					1.2	31,775	31,404	63	0	30	32	37	9	16	46	30	26	118	1.16	266.5

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: BULLMUSI

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Date 1/13/2004
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T06N R07W S11 TR/W

Twp	Rge	Sec	Tract	Typ	Acres	Plots	Sample Trees
06N	07W	11	AREA3	R/W	5.00	68	160

T06N R07W S11 TR/W

Spp	S T	So rt Grade	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
H		DO	CU														5		0.00	19.6
H		DO	2S	54	.5	14,796	14,716	74	1	60	39		2	9	69	20	32	269	1.86	54.8
H		DO	3S	40	.7	10,908	10,828	54	78	19	3		0	4	50	46	35	110	0.85	98.0
H		DO	4S	6		1,625	1,625	8	00				45	50	4	2	20	27	0.48	59.7
H	**Totals**			58	.6	27,329	27,168	136	38	40	22		4	10	57	29	28	117	1.04	232.0
D		DO	CU														6		0.00	5.7
D		DO	2S	78	.3	14,888	14,851	74	1	33	66		1	11	41	47	34	389	2.43	38.2
D		DO	3S	20	.3	3,828	3,815	19	75	25			4	23	32	41	32	87	0.84	43.7
D		DO	4S	2		344	344	2	00				46	54			20	27	0.47	12.6
D	**Totals**			40	.3	19,061	19,010	95	18	31	51		2	14	38	45	30	190	1.49	100.1
A		DO	3S	71		548	548	3	43	57				11	44	46	35	137	1.23	4.0
A		DO	4S	29		219	219	1	00				48	10	42		22	37	0.56	5.9
A	**Totals**			2		768	768	4	59	41			14	11	43	33	27	78	0.90	9.9
S		DO	3S	00		15	15	0	00						100		32	50	1.06	.3
S	**Totals**			0		15	15	0	00						100		32	50	1.06	.3
Type Totals					.4	47,173	46,961	235	30	36	34		3	12	49	35	29	137	1.17	342.4

TC TSTATS

STATISTICS

PROJECT BULLMUSI

DATE 1/9/2004

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
06N	07W	11	CC (Areas 1,4,5+6)	TAKE	215.00	65	114

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	65	348	5.4		
CRUISE	21	114	5.4	36,048	.3
REFOREST					
COUNT	43	234	5.4		
BLANKS	1				
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
R ALDER	47	88.3	13.1	39		82.5	6,889	6,881	2,054	2,054
WHEMLOCK	25	51.0	15.6	52		67.7	9,077	9,077	2,369	2,369
DOUG FIR	41	28.2	19.8	64		60.3	8,168	8,100	2,002	2,002
NOB FIR	1	.2	26.0	80	0	.6	115	115	25	25
TOTAL	*114*	*167.7*	*15.2*	*47*		*211.1*	*24,249*	*24,172*	*6,451*	*6,451*

SAMPLE TREES - BF

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
R ALDER	157.5	14.7	33	39	45			
WHEMLOCK	258.8	24.2	50	66	83			
DOUG FIR	176.4	16.5	128	153	179			
NOB FIR	1067.7	100.0		6	12			
TOTAL	*99.7*	*9.3*	*240*	*265*	*290*	*397*	*99*	*44*

TREES/ACRE

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
R ALDER	119.2	14.8	75	88	101			
WHEMLOCK	159.6	19.8	41	51	61			
DOUG FIR	148.5	18.4	23	28	33			
NOB FIR	806.2	100.0		0	0			
TOTAL	*61.3*	*7.6*	*155*	*168*	*180*	*150*	*38*	*17*

BASAL AREA/ACRE

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
R ALDER	112.4	13.9	71	82	94			
WHEMLOCK	149.9	18.6	55	68	80			
DOUG FIR	137.3	17.0	50	60	71			
NOB FIR	806.2	100.0		1	1			
TOTAL	*49.5*	*6.1*	*198*	*211*	*224*	*98*	*25*	*11*

NET BF/ACRE

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
R ALDER	116.9	14.5	5,881	6,878	7,874			
WHEMLOCK	152.2	18.9	7,362	9,075	10,788			
DOUG FIR	138.2	17.1	6,712	8,100	9,488			
NOB FIR	806.2	100.0	0	115	230			
TOTAL	*60.4*	*7.5*	*22,357*	*24,168*	*25,979*	*146*	*37*	*16*

TC TSTATS

STATISTICS

PROJECT BULLMUSI

DATE 1/12/2004

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
06N	07W	11	AREA2	TAKE	49.00	52	102

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	52	205	3.9		
CRUISE	24	102	4.3	5,468	1.9
REFOREST					
COUNT	21	102	4.9		
BLANKS	7				
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	53	60.9	15.2	47		76.7	8,664	8,626	2,374	2,374
R ALDER	31	31.2	15.0	34		38.1	2,557	2,515	799	799
DOUG FIR	18	19.5	16.7	52		29.5	3,367	3,335	888	888
TOTAL	*102*	*111.6*	*15.4*	*44*		*144.4*	*14,588*	*14,476*	*4,061*	*4,061*

SAMPLE TREES - BF

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	158.9	15.7	104	124	143			
R ALDER	208.9	20.7	23	29	35			
DOUG FIR	318.0	31.5	33	48	63			
TOTAL	*103.9*	*10.3*	*180*	*201*	*222*	*432*	*108*	*48*

TREES/ACRE

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	156.5	21.7	48	61	74			
R ALDER	168.9	23.4	24	31	38			
DOUG FIR	160.4	22.2	15	19	24			
TOTAL	*87.0*	*12.1*	*98*	*112*	*125*	*302*	*76*	*34*

BASAL AREA/ACRE

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	142.8	19.8	62	77	92			
R ALDER	160.5	22.3	30	38	47			
DOUG FIR	147.7	20.5	23	30	36			
TOTAL	*78.2*	*10.8*	*129*	*144*	*160*	*244*	*61*	*27*

NET BF/ACRE

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	144.0	20.0	6,903	8,626	10,348			
R ALDER	164.4	22.8	1,942	2,515	3,088			
DOUG FIR	157.2	21.8	2,608	3,335	4,062			
TOTAL	*88.9*	*12.3*	*12,690*	*14,476*	*16,262*	*316*	*79*	*35*

TC TSTATS

STATISTICS

PROJECT BULLMUSI

DATE 1/9/2004

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
06N	07W	11	AREA3	TAKE	101.00	68	66

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	68	226	3.3		
CRUISE	15	66	4.4	9,403	.7
REFOREST					
COUNT	38	160	4.2		
BLANKS	15				
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	51	68.4	15.9	66		94.7	14,345	14,232	3,687	3,687
DOUG FIR	15	24.7	16.7	47		37.6	5,009	4,982	1,240	1,240
TOTAL	*66*	*93.1*	*16.1*	*61*		*132.4*	*19,353*	*19,214*	*4,928*	*4,928*

	COEFF		**SAMPLE TREES - BF**			# OF TREES REQ.		INF. POP.
SD: 1	*VAR.%*	S.E.%	LOW	*AVG*	HIGH	5	10	15
WHEMLOCK	103.9	12.8	190	218	245			
DOUG FIR	257.2	31.7	60	88	116			
TOTAL	*82.5*	*10.2*	*275*	*306*	*337*	*272*	*68*	*30*

	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1	*VAR.%*	S.E.%	LOW	*AVG*	HIGH	5	10	15
WHEMLOCK	109.0	13.2	59	68	77			
DOUG FIR	151.9	18.4	20	25	29			
TOTAL	*88.5*	*10.7*	*83*	*93*	*103*	*313*	*78*	*35*

	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1	*VAR.%*	S.E.%	LOW	*AVG*	HIGH	5	10	15
WHEMLOCK	105.2	12.8	83	95	107			
DOUG FIR	150.1	18.2	31	38	45			
TOTAL	*88.3*	*10.7*	*118*	*132*	*147*	*312*	*78*	*35*

	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1	*VAR.%*	S.E.%	LOW	*AVG*	HIGH	5	10	15
WHEMLOCK	107.8	13.1	12,371	14,232	16,093			
DOUG FIR	165.5	20.1	3,982	4,982	5,982			
TOTAL	*94.9*	*11.5*	*17,003*	*19,214*	*21,425*	*360*	*90*	*40*

STATISTICS

PROJECT BULLMUSI

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
06N	07W	11	AREA2	0002	49.00	52	177

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	52	370	7.1		
CRUISE	25	177	7.1	7,397	2.4
REFOREST					
COUNT	27	187	6.9		
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	53	60.9	15.2	47		76.7	8,664	8,626	2,374	2,374
HEMLEAV	32	15.4	23.7	72		47.3	7,693	7,602	1,807	1,807
DOUGLEAV	26	14.2	24.6	69		46.9	7,706	7,599	1,805	1,805
R ALDER	31	31.2	15.0	34		38.1	2,557	2,515	799	799
DOUG FIR	18	19.5	16.7	52		29.5	3,367	3,335	888	888
ALDRLEAV	14	8.7	19.0	38		17.1	1,219	1,161	397	397
SPRUCELV	1	.3	35.0	82		1.9	406	406	76	76
SNAG	2	.8	21.0	22		1.9				
TOTAL	*177*	*150.9*	*17.8*	*49*		*259.6*	*31,613*	*31,244*	*8,146*	*8,146*

SAMPLE TREES - BF

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	225.9	17.0	59	71	84			
HEMLEAV	257.1	19.3	90	111	133			
DOUGLEAV	313.2	23.5	94	122	151			
R ALDER	287.8	21.6	13	17	20			
DOUG FIR	426.8	32.1	19	28	37			
ALDRLEAV	416.2	31.3	9	13	17			
SPRUCELV	1330.4	100.0		8	16			
SNAG								
TOTAL	*114.8*	*8.6*	*338*	*370*	*402*	*527*	*132*	*59*

TREES/ACRE

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	156.5	21.7	48	61	74			
HEMLEAV	96.1	13.3	13	15	17			
DOUGLEAV	112.0	15.5	12	14	16			
R ALDER	168.9	23.4	24	31	38			
DOUG FIR	160.4	22.2	15	19	24			
ALDRLEAV	228.4	31.7	6	9	11			
SPRUCELV	408.1	56.6	0	0	0			
SNAG	477.8	66.3	0	1	1			
TOTAL	*63.4*	*8.8*	*138*	*151*	*164*	*161*	*40*	*18*

BASAL AREA/ACRE

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	142.8	19.8	62	77	92			
HEMLEAV	97.0	13.5	41	47	54			
DOUGLEAV	93.0	12.9	41	47	53			
R ALDER	160.5	22.3	30	38	47			
DOUG FIR	147.7	20.5	23	30	36			
ALDRLEAV	225.1	31.2	12	17	22			
SPRUCELV	408.1	56.6	1	2	3			
SNAG	408.1	56.6	1	2	3			
TOTAL	*44.2*	*6.1*	*244*	*260*	*275*	*78*	*20*	*9*

NET BF/ACRE

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
06N	07W	11	AREA2	0002	49.00	52	177

SD	1	COEFF VAR.	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK		144.0	20.0	6,903	8,626	10,348			
HEMLEAV		102.9	14.3	6,518	7,602	8,686			
DOUGLEAV		95.2	13.2	6,595	7,599	8,603			
R ALDER		164.4	22.8	1,942	2,515	3,088			
DOUG FIR		157.2	21.8	2,608	3,335	4,062			
ALDRLEAV		232.9	32.3	786	1,161	1,536			
SPRUCELV		408.1	56.6	176	406	636			
SNAG									
TOTAL		*50.7*	*7.0*	*29,047*	*31,244*	*33,442*	*103*	*26*	*11*

STATISTICS

PROJECT BULLMUSI

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
06N	07W	11	AREA3	0003	101.00	68	160

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	68	490	7.2		
CRUISE	23	160	7.0	15,761	1.0
REFOREST					
COUNT	45	330	7.3		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	*BASAL* AREA	*GROSS* BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	51	68.8	15.9	66		95.3	14,434	14,321	3,710	3,710
DOUGLEAV	32	22.7	24.4	85		73.5	14,017	13,992	3,176	3,176
HEMLEAV	53	32.9	19.8	73		70.6	12,532	12,478	3,011	3,011
DOUG FIR	16	23.6	17.1	48		37.6	5,010	4,985	1,250	1,250
ALDRLEAV	7	7.7	15.4	37		10.0	768	768	245	245
SPRUCELV	1	.3	19.0	32		.6	15	15	10	10
TOTAL	*160*	*156.1*	*18.4*	*66*		*287.6*	*46,775*	*46,558*	*11,403*	*11,403*

	COEFF		**SAMPLE TREES - BF**			# OF TREES REQ.		INF. POP.
SD: 1	*VAR.%*	S.E.%	LOW	*AVG*	HIGH	5	10	15
WHEMLOCK	200.7	15.9	76	90	104			
DOUGLEAV	245.1	19.4	136	169	201			
HEMLEAV	169.8	13.4	139	160	182			
DOUG FIR	393.1	31.1	28	41	53			
ALDRLEAV	572.9	45.3	3	6	9			
SPRUCELV	1264.9	100.0		0	1			
TOTAL	*83.2*	*6.6*	*435*	*466*	*496*	*277*	*69*	*31*

	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1	*VAR.%*	S.E.%	LOW	*AVG*	HIGH	5	10	15
WHEMLOCK	107.8	13.1	60	69	78			
DOUGLEAV	80.0	9.7	21	23	25			
HEMLEAV	87.8	10.6	29	33	36			
DOUG FIR	154.5	18.7	19	24	28			
ALDRLEAV	303.3	36.8	.5	8	11			
SPRUCELV	824.6	100.0		0	1			
TOTAL	*51.4*	*6.2*	*146*	*156*	*166*	*106*	*26*	*12*

	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1	*VAR.%*	S.E.%	LOW	*AVG*	HIGH	5	10	15
WHEMLOCK	104.1	12.6	83	95	107			
DOUGLEAV	70.7	8.6	67	74	80			
HEMLEAV	78.4	9.5	64	71	77			
DOUG FIR	150.1	18.2	31	38	45			
ALDRLEAV	262.0	31.8	7	10	13			
SPRUCELV	824.6	100.0		1	1			
TOTAL	*42.3*	*5.1*	*273*	*288*	*302*	*72*	*18*	*8*

	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1	*VAR.%*	S.E.%	LOW	*AVG*	HIGH	5	10	15
WHEMLOCK	106.7	12.9	12,468	14,321	16,173			
DOUGLEAV	70.5	8.6	12,795	13,992	15,188			
HEMLEAV	82.1	10.0	11,236	12,478	13,720			
DOUG FIR	165.5	20.1	3,984	4,985	5,985			
ALDRLEAV	255.7	31.0	530	768	1,006			
SPRUCELV	824.6	100.0		15	30			
TOTAL	*45.7*	*5.5*	*43,980*	*46,558*	*49,136*	*83*	*21*	*9*

TC PSTATS

PROJECT STATISTICS

PROJECT BULLMUSI

DATE 1/12/2004

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES
06N	07	11	AREA2	0002	150.00	120	337
06N	07W	11	AREA3	0003			

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	120	860	7.2		
CRUISE	48	337	7.0	23,158	1.5
REFOREST					
COUNT	72	517	7.2		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE *LEN*	REL DEN	*BASAL* AREA	*GROSS* BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	104	66.2	15.7	60		89.2	12,549	12,460	3,274	3,274
DOUGLEAV	58	19.9	24.4	82		64.8	11,956	11,903	2,728	2,728
HEMLEAV	85	27.2	20.6	73		63.0	10,951	10,885	2,618	2,618
DOUG FIR	34	22.3	17.0	49		35.0	4,473	4,446	1,132	1,132
R ALDER	31	10.2	15.0	34		12.5	835	822	261	261
ALDRLEAV	21	8.0	16.8	37		12.3	915	896	294	294
SPRUCELV	2	.3	25.3	48		1.0	143	143	32	32
SNAG	2	.3	21.0	22		.6				
TOTAL	*337*	*154.4*	*18.2*	*61*		*278.5*	*41,822*	*41,555*	*10,339*	*10,339*

SAMPLE TREES - BF

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	212.8	11.6	71	80	89			
DOUGLEAV	275.7	15.0	123	144	166			
HEMLEAV	208.3	11.3	119	134	150			
DOUG FIR	412.1	22.4	26	34	42			
R ALDER	407.9	22.2	7	9	11			
ALDRLEAV	473.9	25.8	7	10	12			
SPRUCELV	1773.4	96.6	0	4	8			
SNAG								
TOTAL	*98.6*	*5.4*	*393*	*416*	*438*	*389*	*97*	*43*

TREES/ACRE

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	128.1	11.7	59	66	74			
DOUGLEAV	92.9	8.5	18	20	22			
HEMLEAV	99.8	9.1	25	27	29			
DOUG FIR	156.9	14.3	19	22	25			
R ALDER	279.8	25.5	7	10	14			
ALDRLEAV	268.6	24.5	6	8	10			
SPRUCELV	679.4	62.0	0	0	0			
SNAG	730.9	66.7	0	0	0			
TOTAL	*56.5*	*5.2*	*146*	*154*	*162*	*128*	*32*	*14*

BASAL AREA/ACRE

SD: 1	COEFF *VAR.%*	S.E.%	LOW	*AVG*	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	119.0	10.9	80	89	99			
DOUGLEAV	80.9	7.4	60	65	69			
HEMLEAV	86.9	7.9	58	63	68			
DOUG FIR	150.3	13.7	30	35	40			
R ALDER	268.3	24.5	8	12	17			
ALDRLEAV	245.9	22.4	9	12	15			
SPRUCELV	542.5	49.5	0	1	2			
SNAG	627.1	57.2	0	1	1			
TOTAL	*43.2*	*3.9*	*268*	*278*	*289*	*75*	*19*	*8*

PROJECT STATISTICS

PROJECT BULLMUSI

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES
06N	07	11	AREA2	0002	150.00	120	337
06N	07W	11	AREA3	0003			

		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD	1	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15

SD:	1	COEFF *VAR.%*	S.E.%	NET BF/ACRE LOW	*AVG*	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK		121.0	11.0	11,151	12,460	13,769			
DOUGLEAV		83.3	7.6	11,050	11,903	12,757			
HEMLEAV		92.1	8.4	10,014	10,885	11,757			
DOUG FIR		166.9	15.2	3,795	4,446	5,096			
R ALDER		273.6	25.0	549	822	1,094			
ALDRLEAV		246.4	22.5	685	896	1,107			
SPRUCELV		599.7	54.7	42	143	244			
SNAG									
TOTAL		*51.3*	*4.7*	*39,684*	*41,555*	*43,427*	*105*	*26*	*12*

TC TSTNDSUM

Stand Table Summary

Project BULLMUSI

T06N R07W S11 TLEAV

T06N R07W S11 TLEA

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
06N	07W	11	AREA2	LEAV	49.00	52	75

Page: 1
Date: 1/12/04
Time: 2:17:11PM

Spc	S T	DBH	Sample Trees	FF 16	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
HL		14	1	77	19	1.228	1.31	1.23	13.0	20.0		16	25		8	1
HL		18	2	84	62	1.747	3.09	2.75	29.1	90.2		80	248		39	12
HL		19	1	88	95	.667	1.31	1.33	42.5	150.0		57	200		28	10
HL		20	2	90	89	1.328	2.90	3.38	34.1	141.8		115	480		57	24
HL		21	1		90	.546	1.31	1.09	47.0	170.0		51	186		25	9
HL		22	5	87	100	2.883	7.61	7.56	44.1	179.5		334	1,358		164	67
HL		23	1	89	92	.455	1.31	.91	61.5	230.0		56	209		27	10
HL		24	5	89	93	2.090	6.56	4.18	60.1	240.0		251	1,003		123	49
HL		25	1	89	99	.385	1.31	.77	73.0	275.0		56	212		28	10
HL		26	1	85	114	.481	1.78	1.44	60.3	273.3		87	395		43	19
HL		27	1	91	103	.330	1.31	.99	62.0	310.0		61	307		30	15
HL		28	1	86	99	.307	1.31	.61	91.0	360.0		56	221		27	11
HL		29	1	86	99	.286	1.31	.57	99.0	410.0		57	235		28	12
HL		30	3	83	92	1.063	5.22	3.19	53.2	255.5		170	815		83	40
HL		31	1	85	93	.250	1.31	.75	44.0	193.3		33	145		16	7
HL		32	3	86	92	.873	4.88	2.04	86.8	380.8		177	778		87	38
HL		36	2	87	113	.486	3.43	1.46	102.4	539.7		149	786		73	39
HL		Totals	32	86	86	15.406	47.28	34.27	52.7	221.8		1,807	7,602		886	372
DL		14	1	89	43	1.850	1.98	1.85	19.0	50.0		35	92		17	5
DL		18	3	88	67	3.416	6.04	6.86	23.5	80.1		161	550		79	27
DL		20	2	90	97	1.566	3.42	3.98	33.2	130.8		132	521		65	26
DL		23	2	85	82	1.350	3.90	3.24	41.4	147.7		134	479		66	23
DL		25	1	88	108	.459	1.57	1.38	49.0	220.0		68	303		33	15
DL		26	2	81	92	.850	3.13	1.70	64.2	200.0		109	340		53	17
DL		27	1	91	108	.394	1.57	1.18	56.7	280.0		67	331		33	16
DL		28	1	84	103	.366	1.57	.73	87.0	325.0		64	238		31	12
DL		29	2	84	99	.683	3.13	1.37	90.3	337.5		123	461		60	23
DL		30	2	81	115	.722	3.54	1.85	79.3	334.3		146	617		72	30
DL		32	2	81	114	.708	3.95	1.84	89.1	344.3		164	635		80	31
DL		33	1	90	117	.264	1.57	.79	93.0	503.3		74	398		36	20
DL		34	2	84	130	.627	3.95	2.01	81.8	384.1		165	773		81	38
DL		36	1	88	125	.280	1.98	.84	115.3	623.3		97	523		47	26
DL		38	1	86	125	.269	2.12	.81	125.0	596.7		101	481		49	24
DL		40	1	86	136	.179	1.57	.54	150.3	756.7		81	407		40	20
DL		42	1	88	125	.206	1.98	.62	137.7	730.0		85	450		42	22
DL		Totals	26	87	87	14.188	46.94	31.58	57.2	240.6		1,805	7,599		885	372
AL		14	1	85	26	1.285	1.37	1.28	15.0	40.0		19	51		9	3
AL		16	2	83	46	2.092	2.92	3.20	18.4	53.1		59	170		29	8
AL		18	2	82	49	1.451	2.56	2.90	20.2	67.9		59	197		29	10
AL		19	1	85	49	.516	1.02	.52	44.0	70.0		23	36		11	2
AL		20	1	86	53	.466	1.02	.93	30.0	95.0		28	88		14	4
AL		22	3	86	49	1.425	3.76	1.81	47.5	114.3		86	207		42	10
AL		23	1	86	71	.352	1.02	.70	49.5	185.0		35	130		17	6
AL		24	3	86	55	1.084	3.40	1.84	48.0	152.5		88	281		43	14
AL		Totals	14	84	47	8.670	17.07	13.19	30.1	88.0		397	1,161		194	57
SL		35	1	86	99	.290	1.94	.87	87.7	466.7		76	406		37	20
SL		Totals	1	86	99	.290	1.94	.87	87.7	466.7		76	406		37	20
SN		16	1	85	24	.694	.97									
SN		40	1	89	20	.111	.97									

TC TSTNDSUM

Stand Table Summary

Project BULLMUSI

T06N R07W S11 TLEAV — **T06N R07W S11 TLEA**

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
06N	07W	11	AREA2	LEAV	49.00	52	75

Date: 1/12/04
Time: 2:17:11PM

Spc	S T	DBH	Sample Trees	FF 16	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
SN		Totals	2	86	23	.805	1.94									
Totals			75	86	77	39.360	115.17	79.92	51.1	209.8		4085	16,768		2,002	822

TC TSTNDSUM

Stand Table Summary

Project BULLMUSI

T06N R07W S11 TLEAV

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
06N	07W	11	AREA3	LEAV	101.00	68	93

Date: 1/9/04
Time: 1:57:15PM

Spc	S T	DBH	Sample Trees	FF 16	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
DL		16	1	92	84	1.646	2.30	3.29	24.5	90.0		81	296		81	30
DL		17	1	84	117	1.547	2.30	3.09	27.5	105.0		85	325		86	33
DL		18	2	87	84	2.601	4.60	5.20	29.0	102.5		151	533		152	54
DL		19	2	92	83	2.334	4.60	4.67	32.5	125.0		152	584		153	59
DL		20	1	88	126	1.053	2.30	3.16	35.7	156.7		113	495		114	50
DL		21	1	86	111	.955	2.30	2.87	33.7	140.0		96	401		97	41
DL		22	1	86	93	.870	2.30	1.74	47.5	170.0		83	296		84	30
DL		24	2	86	106	1.463	4.60	3.66	50.2	202.0		184	739		185	75
DL		25	1	86	100	.674	2.30	1.35	66.0	240.0		89	324		90	33
DL		26	5	86	123	3.116	11.49	9.35	56.6	246.7		529	2,306		534	233
DL		27	1	83	124	.578	2.30	1.73	53.0	240.0		92	416		93	42
DL		28	5	88	123	2.687	11.49	7.52	71.1	330.7		535	2,488		540	251
DL		30	1	83	120	.468	2.30	1.40	74.7	326.7		105	459		106	46
DL		31	1	89	133	.438	2.30	1.32	88.7	426.7		117	561		118	57
DL		32	1	89	138	.411	2.30	1.23	97.3	490.0		120	605		121	61
DL		34	2	85	137	.729	4.60	2.19	105.2	488.3		230	1,068		232	108
DL		37	1	80	133	.308	2.30	.92	118.7	520.0		110	480		111	48
DL		38	2	86	136	.584	4.60	1.75	129.5	663.3		227	1,161		229	117
DL		40	1	91	87	.263	2.30	.79	101.0	576.7		80	456		81	46
DL		Totals	32	87	109	22.726	73.53	57.24	55.5	244.5		3,176	13,992		3,208	1,413
HL		11	1	85	26	2.018	1.33	2.02	9.0	20.0		18	40		18	4
HL		14	2	86	61	2.492	2.66	3.74	19.7	56.7		74	212		74	21
HL		15	3	89	83	3.256	4.00	7.60	19.6	72.9		149	553		150	56
HL		16	2	90	91	1.908	2.66	3.82	27.0	105.0		103	401		104	40
HL		17	4	87	80	3.380	5.33	5.07	35.0	125.0		177	634		179	64
HL		18	2	88	86	1.507	2.66	3.01	34.0	120.0		102	362		104	37
HL		19	2	89	114	1.353	2.66	4.06	32.8	141.7		133	575		135	58
HL		20	7	88	99	4.273	9.32	11.60	35.0	144.2		406	1,673		410	169
HL		21	4	89	107	2.215	5.33	6.64	36.3	158.3		241	1,052		243	106
HL		22	5	89	105	2.523	6.66	6.56	47.6	200.0		312	1,312		315	132
HL		23	2	88	112	.923	2.66	2.77	44.0	201.7		122	559		123	56
HL		24	6	88	114	2.544	7.99	7.21	54.4	238.8		392	1,721		396	174
HL		25	4	86	93	1.563	5.33	3.91	54.2	218.0		212	852		214	86
HL		26	4	87	117	1.445	5.33	4.33	62.2	288.3		269	1,250		272	126
HL		27	1	89	99	.335	1.33	.67	88.5	360.0		59	241		60	24
HL		28	2	86	121	.623	2.66	1.87	71.3	340.0		133	635		135	64
HL		30	2	83	98	.543	2.66	1.09	99.5	375.0		108	407		109	41
HL		Totals	53	88	91	32.899	70.59	75.96	39.6	164.3		3,011	12,478		3,041	1,260
AL		11	1	86	31	2.165	1.43	2.16	10.0	30.0		22	65		22	7
AL		13	1	86	49	1.550	1.43	1.55	19.0	60.0		29	93		30	9
AL		14	1	86	62	1.336	1.43	1.34	29.0	70.0		39	94		39	9
AL		15	1	87	78	1.164	1.43	2.33	21.0	75.0		49	175		49	18
AL		22	1	86	78	.541	1.43	1.08	47.5	165.0		51	179		52	18
AL		23	1	87	50	.495	1.43	.99	34.5	105.0		34	104		35	11
AL		24	1	86	28	.455	1.43	.45	45.0	130.0		20	59		21	6
AL		Totals	7	86	51	7.706	10.00	9.91	24.7	77.5		245	768		247	78
SL		19	1	86	36	.299	.59	.30	34.0	50.0		10	15		10	2
SL		Totals	1	86	36	.299	.59	.30	34.0	50.0		10	15		10	2
Totals			93	87	92	63.630	154.71	143.40	44.9	190.0		6442	27,252		6,506	2,752

TC PLOGSTVB

Log Stock Table - MBF

T06N R07W S11 TyR/W
THRU
T06N R07W S11 TyTAKE

Project: BULLMUSI
Acres 375 ~~269.00~~

Date 1/13/2004
Time 9:30:02AM

Spp	S T	Sort	Grade	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		?0	2S	12	12		12	.3								11	0			
H		?0	2S	13	0		0	.0										0		
H		?0	2S	16	14		14	.3								14				
H		?	2S	18	9		9	.2						9						
H		?	2S	20	0		0	.0						0						
H		?0	2S	22	24	3.1	23	.6						7	0	16				
H		?0	2S	24	3		3	.1								3	0			
H		?0	2S	26	34	8.3	31	.8						21		10				
H		?0	2S	28	18		18	.5						17		1				
H		?0	2S	30	1		1	.0							1					
H		?	2S	32	739		737	18.4					1	342	208	74	112	1		
H		?	2S	34	7		7	.2						7						
H		?	2S	36	8		8	.2							8					
H		?	2S	40	796		796	19.9			8			60	250	354	123			
H		?	3S	12	4		4	.1								4				
H		?	3S	16	1		1	.0			1									
H		?0	3S	17	2		2	.1					2							
H		?	3S	20	0		0	.0				0		0						
H		?	3S	21	7		7	.2				7								
H		?	3S	22	0		0	.0				0								
H		?0	3S	24	5		5	.1			4		1							
H		?	3S	25	1		1	.0				1								
H		?	3S	26	1		1	.0			1		0							
H		?	3S	27	10		10	.2				10								
H		?0	3S	28	7		7	.2			3	3	0	0						
H		?	3S	30	16		16	.4			1	10	5							
H		?0	3S	31	0		0	.0			0	0								
H		?	3S	32	1,056		1,052	26.2			187	114	575	153		1	21			
H		?	3S	33	1		1	.0			1									
H		?	3S	34	35	4.0	33	.8			3	14	17							
H		?	3S	35	0		0	.0			0									
H		?	3S	36	35		35	.9			35									
H		?	3S	37	4		4	.1			2	2								
H		?0	3S	38	57		57	1.4			57									
H		?	3S	39	40		40	1.0			40									
H		?	3S	40	768		765	19.1			169	115	302	161	19					
H		?0	3S	41	13		13	.3			13									

TC PLOGSTVB

Log Stock Table - MBF

T06N R07W S11 TyR/W
THRU
T06N R07W S11 TyTAKE

Project: BULLMUSI
Acres ~~269.00~~ 375

Date 1/13/2004
Time 9:30:02AM

Spp	S T	Sort	Grade	Length	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		?0	4S	12	0		0	.0				0								
H		?0	4S	13	6		6	.1			6	0								
H		?	4S	14	13		13	.3			13									
H		?0	4S	15	10		10	.2			10									
H		?	4S	16	43		43	1.1		4	38	1								
H		?0	4S	17	3		3	.1			3									
H		?0	4S	18	16		16	.4			15	0								
H		?0	4S	19	5		5	.1			5									
H		?	4S	20	56		56	1.4			56	0								
H		?0	4S	21	4		4	.1			4	0								
H		?	4S	22	78		78	1.9			69	8								
H		?0	4S	23	11		11	.3			11	0								
H		?	4S	24	5		5	.1			5									
H		?0	4S	25	3		3	.1			3									
H		?0	4S	26	15		15	.4			5	10								
H		?0	4S	27	2		2	.1			2									
H		?0	4S	28	8		8	.2			8									
H		?0	4S	29	2	25.0	1	.0			1									
H		?	4S	30	4		4	.1			4									
H		?0	4S	31	8		8	.2			8									
H		?0	4S	36	3		3	.1			3									
H		Totals			4,023		4,008	48.8		4	795	296	902	780	487	486	257	2		
A		?	3S	12	1		1	.0			1									
A		?	3S	14	23		23	1.4						23						
A		?	3S	16	54		54	3.3			1	20	5	23		5				
A		?	3S	18	52		52	3.2					52							
A		?	3S	20	95		94	5.7				0	35	6	41	12				
A		?0	3S	22	0		0	.0						0						
A		?	3S	24	120		120	7.3				31	89			0				
A		?	3S	26	29		29	1.8				0	29	0						
A		?	3S	30	132		132	8.1			3		124	5		0				
A		?	3S	32	393		393	24.1			0	34	323	36		0				
A		?0	3S	33	0		0	.0						0						
A		?	3S	34	4		4	.3			3	1								
A		?	3S	36	3		3	.2			3									
A		?	3S	38	43		43	2.6					43							
A		?	3S	40	73	2.5	72	4.4			1	39	31		1					

TC PLOGSTVB

Log Stock Table - MBF

T06N R07W S11 TyR/W
THRU
T06N R07W S11 TyTAKE

Project: BULLMUSI
Acres ~~269.00~~ 375

Date 1/13/2004
Time 9:30:02AM

Spp	S T	Sort	Grade	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		?	4S	10	12		12	.7			5	7								
A		?	4S	13	6		6	.4			6									
A		?	4S	14	1		1	.0			1									
A		?	4S	15	7		7	.4			7									
A		?	4S	16	54		54	3.3			53	1								
A		?	4S	18	19		19	1.2			7	12								
A		?	4S	19	24		24	1.5			24									
A		?	4S	20	65		65	4.0			65	0								
A		?0	4S	22	0	12.9	0	.0			0				0					
A		?	4S	23	2	25.0	2	.1			2									
A		?	4S	24	79		78	4.8			77	1				0				
A		?	4S	25	9		9	.6			9									
A		?	4S	26	38		38	2.3			38	0								
A		?	4S	27	2		2	.1			2									
A		?	4S	28	51		51	3.1			51									
A		?	4S	29	22		22	1.3			22									
A		?	4S	30	59		58	3.6			28	30								
A		?	4S	32	146		146	8.9			74	71								
A		?	4S	36	17		17	1.1			17									
A		?0	4S	39	2		2	.1			2									
A		Totals			1,638		1,634	19.9			501	248	732	94	42	18				
D		?	2S	12	15		15	.6								15				
D		?0	2S	16	1		1	.0									1			
D		?	2S	18	8		8	.3						8						
D		?	2S	20	16		16	.6							16					
D		?0	2S	24	4		4	.2						0	0	1	1			1
D		?0	2S	26	60		60	2.4						1		23	36			
D		DO	2S	28	1		1	.0												1
D		?0	2S	30	1		1	.0						1						
D		?	2S	32	1,067		1,057	41.4					1	307	223	425	55	47		
D		?	2S	34	41		41	1.6									41			
D		?0	2S	36	1		1	.0								1				
D		?	2S	38	19		19	.7								19				
D		?	2S	40	559	1.2	553	21.7					7	37	203	156	101	50		
D		?	3S	12	22		22	.8										22		
D		?	3S	15	22		22	.9									22			
D		?	3S	16	0		0	.0						0						

TC PLOGSTVB

Log Stock Table - MBF

T06N R07W S11 TyR/W
THRU
T06N R07W S11 TyTAKE

Project: BULLMUSI
Acres 269.00 375

Date 1/13/2004
Time 9:30:02AM

Spp	ST	Sort	Grade	Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches									
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D		?0	3S	17	0		0	.0						0						
D		?0	3S	18	10		10	.4			10									
D		DO	3S	19	0		0	.0				0								
D		?0	3S	20	0		0	.0				0								
D		?0	3S	22	0		0	.0					0							
D		?	3S	24	9		9	.4			1		8	0						
D		?	3S	25	4		4	.2				4								
D		?	3S	26	14		14	.5				14	0							
D		?	3S	27	12		12	.5			2	10	0							
D		?	3S	28	43		43	1.7			13	8	22							
D		?0	3S	29	3		3	.1				3								
D		?0	3S	30	29	5.1	28	1.1					7	21						
D		?	3S	32	297		297	11.7			50	44	203			0				
D		?	3S	33	17		17	.6			8	9								
D		?0	3S	34	1		1	.1				0		1						
D		?0	3S	35	0		0	.0				0	0							
D		?	3S	36	22		22	.9			14	8	0							
D		?0	3S	37	0		0	.0			0		0							
D		?	3S	38	26		26	1.0			17	0	9							
D		?	3S	39	8		8	.3			8									
D		?	3S	40	133		133	5.2			92	23	1	15	2					
D		?0	4S	12	5		5	.2			1		3							
D		?	4S	13	10		10	.4			6	1	2							
D		?	4S	14	3		3	.1					3							
D		?	4S	15	5		5	.2			5									
D		?	4S	16	31		31	1.2			31									
D		?0	4S	17	3		3	.1			1	2								
D		?	4S	18	8		8	.3			5	3								
D		?0	4S	19	2		2	.1			2	0								
D		?	4S	20	12		12	.5			12									
D		?	4S	21	9	17.2	7	.3			7									
D		?0	4S	22	2		2	.1		2		0								
D		?	4S	23	7		7	.3			3	4								
D		?0	4S	24	2		2	.1			2									
D		?0	4S	25	4		4	.2			4									
D		?	4S	26	1		1	.1			1									
D		DO	4S	27	0		0	.0			0									
D		?0	4S	30	0		0	.0			0									

TC PLOGSTVB

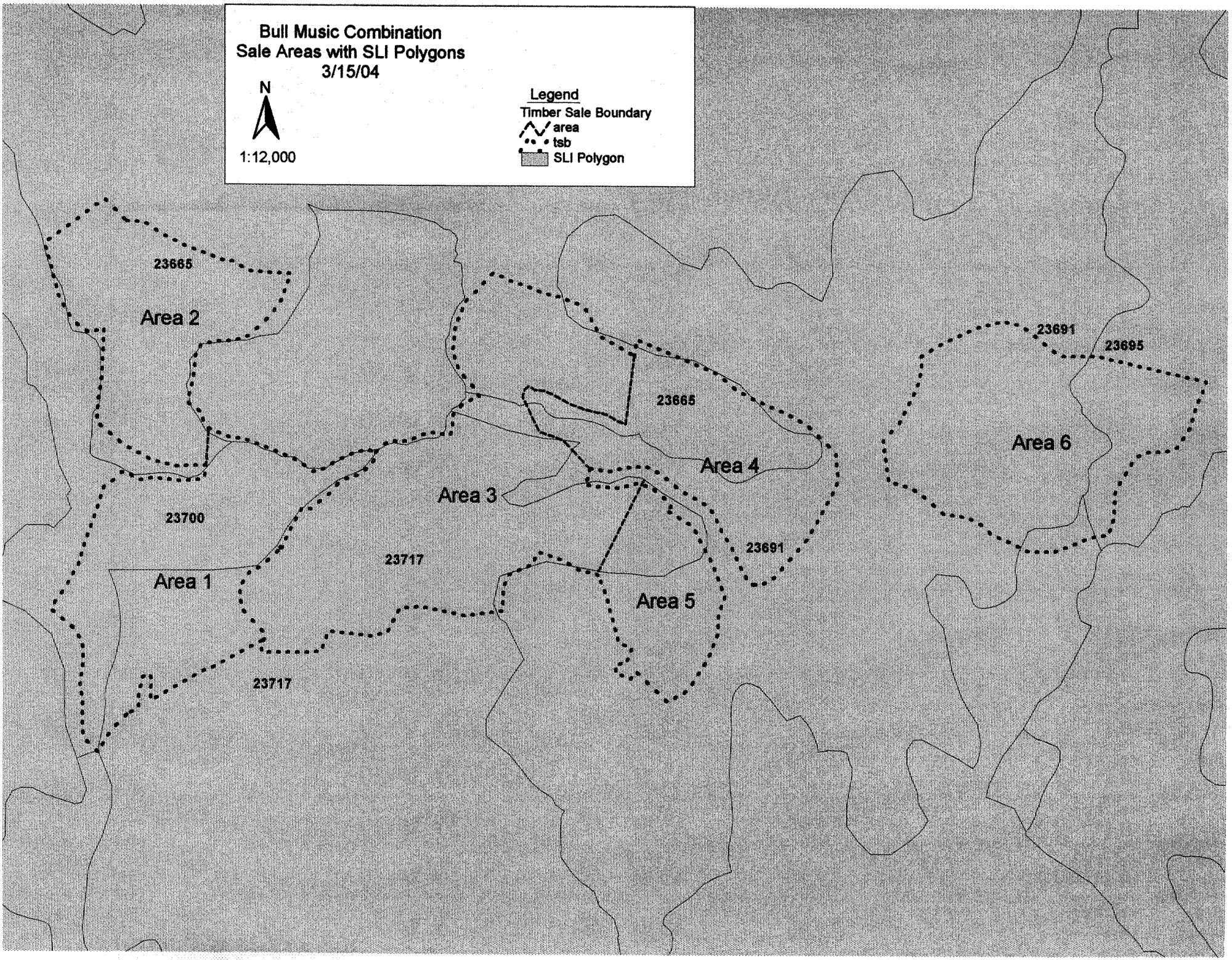
Log Stock Table - MBF

T06N R07W S11 TyR/W
THRU
T06N R07W S11 TyTAKE

Project: BULLMUSI
Acres 269.00 375

Date 1/13/2004
Time 9:30:02AM

Spp	ST	Sort	Grade	Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D		Totals			2,570		2,551	31.0		2	297	134	266	391	444	640	257	118	2	
S		?	3S	24	1		1	93.6						0			0	1		
S		?0	3S	32	0		0	6.4			0									
S		Totals			1		1	.0			0			0			0	1		
NF		?	2S	32	24		24	97.1						7		17				
NF		?	4S	11	1		1	2.9				1								
NF		Totals			25		25	.3				1		7		17				
Total		All Species			8,258		8,220	100.0		6	1594	679	1900	1271	973	1161	514	121	2	


Bull Music Combination
Sale Areas with SLI Polygons
3/15/04
N
1:12,000
Legend
Timber Sale Boundary
area
tsb
SLI Polygon
23665
Area 2
23665
Area 4
Area 3
23700
23691
23717
Area 1
Area 5
23717
23691
23695
Area 6

Stand Structure Data

Stand ID: 23665

Measurement Year: 2002

Areas 2, 3, & 4

		OFS	LYR	UDS	CSC	REG
Calculated Stand Structure:	UDS	*Stand Structure Classification Criteria*				
Diameter Diversity Index (DDI):	5.06	>= 6.5	>= 6.5			
Multi-Layered?:	No	Yes	Yes			
Trees Per Acre 32"+ DBH:	1.66	>= 8				
Trees Per Acre 18"+ DBH and 100'+ Tall:	30.26	>= 30	>= 30			
Average DBH (5.6"+)	15.98	OR >= 18	OR >= 18			
Average DBH (2"+)	14.81			>= 8		
Average DBH (all trees)	12.24					<= 8"
Relative Density (RD) (2"+ trees):	56.80	>= 25	>= 25	>= 15	>= 25	<= 35
Snags Per Acre 24"+ DBH:	870.25	>= 2				
Snags Per Acre 12"+ DBH:	1675.39	>= 6				
Down Wood Cubic Feet Per Acre, Decay Classes 0, 1, and 2:	98.56	>= 600				
Down Wood Cubic Feet Per Acre, Total:	3618.59	OR >=3000				
Trees Per Acre 40'+ Tall:	162.23			>= 30		
Trees Per Acre Total (all trees):	267.90					>= 50
Percent Coverage of Shrubs, Herbs, Grasses & <= 15' Trees:	100.00			>= 40		
Number of Species of Shrubs, Herbs, Grasses:	10			>= 2		
Number of Tree Species	5					
Stand Density Index (SDI) (2"+ trees):	57.09					
Basal Area Per Acre (all trees):	218.95					
DW Logs Per Acre, > 24" Large End, Decay Classes 0 - 2:	0.00					
Snags Per Acre , >= 15"+ DBH, Decay Classes 0 - 2:	0.98					

= *Stand does not meet criteria for the structure type.*

Stand Structure Data

Stand ID: 23691 Areas 4, 5, & 6

Measurement Year: 2002

		OFS	LYR	UDS	CSC	REG
Calculated Stand Structure:	UDS	Stand Structure Classification Criteria				
Diameter Diversity Index (DDI):	4.72	>= 6.5	>= 6.5			
Multi-Layered?:	No	Yes	Yes			
Trees Per Acre 32"+ DBH:	0.79	>= 8				
Trees Per Acre 18"+ DBH and 100'+ Tall:	25.03	>= 30	>= 30			
Average DBH (5.6"+)	14.49	OR >= 18	OR >= 18			
Average DBH (2"+)	14.49			>= 8		
Average DBH (all trees)	14.49					<= 8"
Relative Density (RD) (2"+ trees):	56.48	>= 25	>= 25	>= 15	>= 25	<= 35
Snags Per Acre 24"+ DBH:	396.08	>= 2				
Snags Per Acre 12"+ DBH:	867.57	>= 6				
Down Wood Cubic Feet Per Acre, Decay Classes 0, 1, and 2:	203.16	>= 600				
Down Wood Cubic Feet Per Acre, Total:	1556.77	OR >=3000				
Trees Per Acre 40'+ Tall:	179.28			>= 30		
Trees Per Acre Total (all trees):	187.77					>= 50
Percent Coverage of Shrubs, Herbs, Grasses & <= 15' Trees:	100.00			>= 40		
Number of Species of Shrubs, Herbs, Grasses:	10			>= 2		
Number of Tree Species	4					
Stand Density Index (SDI) (2"+ trees):	56.64					
Basal Area Per Acre (all trees):	215.00					
DW Logs Per Acre, > 24" Large End, Decay Classes 0 - 2:	0.00					
Snags Per Acre , >= 15"+ DBH, Decay Classes 0 - 2:	0.03					

= Stand does not meet criteria for the structure type.

Stand Structure Data

Stand ID: 23700 Area 1

Measurement Year: 2002

		OFS	LYR	UDS	CSC	REG
Calculated Stand Structure:	UDS	*Stand Structure Classification Criteria*				
Diameter Diversity Index (DDI):	4.80	>= 6.5	>= 6.5			
Multi-Layered?:	No	Yes	Yes			
Trees Per Acre 32"+ DBH:	2.07	>= 8				
Trees Per Acre 18"+ DBH and 100'+ Tall:	24.41	>= 30	>= 30			
Average DBH (5.6"+)	15.72	OR >= 18	OR >= 18			
Average DBH (2"+)	15.38			>= 8		
Average DBH (all trees)	14.51					<= 8"
Relative Density (RD) (2"+ trees):	49.41	>= 25	>= 25	>= 15	>= 25	<= 35
Snags Per Acre 24"+ DBH:	343.77	>= 2				
Snags Per Acre 12"+ DBH:	1000.94	>= 6				
Down Wood Cubic Feet Per Acre, Decay Classes 0, 1, and 2:	592.69	>= 600				
Down Wood Cubic Feet Per Acre, Total:	4516.19	OR >=3000				
Trees Per Acre 40'+ Tall:	144.69			>= 30		
Trees Per Acre Total (all trees):	168.74					>= 50
Percent Coverage of Shrubs, Herbs, Grasses & <= 15' Trees:	100.00			>= 40		
Number of Species of Shrubs, Herbs, Grasses:	10			>= 2		
Number of Tree Species	7					
Stand Density Index (SDI) (2"+ trees):	49.84					
Basal Area Per Acre (all trees):	193.77					
DW Logs Per Acre, > 24" Large End, Decay Classes 0 - 2:	99.80					
Snags Per Acre , >= 15"+ DBH, Decay Classes 0 - 2:	2.00					

= *Stand does not meet criteria for the structure type.*

Stand Structure Data

Stand ID: 23717 Area 1 & 3

Measurement Year: 2002

		OFS	LYR	UDS	CSC	REG
Calculated Stand Structure:	UDS	*Stand Structure Classification Criteria*				
Diameter Diversity Index (DDI):	5.43	>= 6.5	>= 6.5			
Multi-Layered?:	No	Yes	Yes			
Trees Per Acre 32"+ DBH:	3.03	>= 8				
Trees Per Acre 18"+ DBH and 100'+ Tall:	76.70	>= 30	>= 30			
Average DBH (5.6"+)	17.22	OR >= 18	OR >= 18			
Average DBH (2"+)	16.95			>= 8		
Average DBH (all trees)	16.35					<= 8"
Relative Density (RD) (2"+ trees):	92.74	>= 25	>= 25	>= 15	>= 25	<= 35
Snags Per Acre 24"+ DBH:	666.66	>= 2				
Snags Per Acre 12"+ DBH:	1268.95	>= 6				
Down Wood Cubic Feet Per Acre, Decay Classes 0, 1, and 2:	461.28	>= 600				
Down Wood Cubic Feet Per Acre, Total:	5623.19	OR >=3000				
Trees Per Acre 40'+ Tall:	237.67			>= 30		
Trees Per Acre Total (all trees):	261.72					>= 50
Percent Coverage of Shrubs, Herbs, Grasses & <= 15' Trees:	100.00			>= 40		
Number of Species of Shrubs, Herbs, Grasses:	10			>= 2		
Number of Tree Species	4					
Stand Density Index (SDI) (2"+ trees):	94.47					
Basal Area Per Acre (all trees):	381.79					
DW Logs Per Acre, > 24" Large End, Decay Classes 0 - 2:	0.00					
Snags Per Acre , >= 15"+ DBH, Decay Classes 0 - 2:	0.51					

= *Stand does not meet criteria for the structure type.*

Stand Structure Data

Stand ID: 23695 Area 6

Measurement Year: 2003

		OFS	LYR	UDS	CSC	REG
Calculated Stand Structure:	UDS	*Stand Structure Classification Criteria*				
Diameter Diversity Index (DDI):	6.13	>= 6.5	>= 6.5			
Multi-Layered?:	No	Yes	Yes			
Trees Per Acre 32"+ DBH:	0.79	>= 8				
Trees Per Acre 18"+ DBH and 100'+ Tall:	49.43	>= 30	>= 30			
Average DBH (5.6"+)	16.31	OR >= 18	OR >= 18			
Average DBH (2"+)	14.86			>= 8		
Average DBH (all trees)	13.40					<= 8"
Relative Density (RD) (2"+ trees):	73.43	>= 25	>= 25	>= 15	>= 25	<= 35
Snags Per Acre 24"+ DBH:	3.09	>= 2				
Snags Per Acre 12"+ DBH:	7.19	>= 6				
Down Wood Cubic Feet Per Acre, Decay Classes 0, 1, and 2:	138.08	>= 600				
Down Wood Cubic Feet Per Acre, Total:	2514.79	OR >=3000				
Trees Per Acre 40'+ Tall:	142.47			>= 30		
Trees Per Acre Total (all trees):	289.18					>= 50
Percent Coverage of Shrubs, Herbs, Grasses & <= 15' Trees:	50.94			>= 40		
Number of Species of Shrubs, Herbs, Grasses:	10			>= 2		
Number of Tree Species	4					
Stand Density Index (SDI) (2"+ trees):	73.82					
Basal Area Per Acre (all trees):	283.20					
DW Logs Per Acre, > 24" Large End, Decay Classes 0 - 2:	0.00					
Snags Per Acre , >= 15"+ DBH, Decay Classes 0 - 2:	3.06					

= *Stand does not meet criteria for the structure type.*

FOREST PRACTICES ACT "WRITTEN PLAN"
For Harvest Activities within 100 Feet of a Type F Stream
Bull Music Combination Timber Sale 341-04-49

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources: The following streams are located in Sections 10, 11, 12, and 15, T6N, R7W, W.M., Clatsop County, Oregon.

Area 1—Bull Heifer Creek, a Medium Type F, runs for 1,300 feet along the southwest boundary. An unnamed tributary medium Type F runs for 1,400 feet along the northwest boundary. An unnamed small Type F runs for 200 feet along the north boundary.

Area 2—An unnamed small Type F tributary of Bull Heifer Creek runs for 1,300 feet along the southwest boundary. An unnamed small Type F runs for 200 feet along the south boundary.

Area 3—An unnamed medium Type F runs for 1,300 feet along the north boundary. An unnamed small Type F runs for 500 feet along the central boundary. Both flow into Beneke Creek.

Area 4—An unnamed medium Type F runs for 2,000 feet along the north boundary. An unnamed small Type F runs for 1,800 feet along the south boundary. Both flow into Beneke Creek, a Large Type F here. Beneke Creek runs for 1,600 feet along the east boundary.

Area 5—An unnamed small Type F runs for 1,300 feet along the north boundary before joining Beneke Creek just above the bridge on the Music Road. Beneke Creek runs for 800 feet along the east boundary.

Area 6—Beneke Creek, here a Medium Type F, runs for 1,200 feet along the west boundary.

A written plan is required for activities within 100 feet of Type F streams.

Specific Site Characteristics: <u>All creeks except Beneke and Bull Heifer Creeks:</u> The streambed is approximately 3 feet wide, with moderate-to-steep stream-bank slopes. Streamside vegetation is dominated by mature red alder and brush, with a component of conifer trees, which are mostly located above the flood plain. Beneke and Bull Heifer Creeks have the same characteristics but are 10 or more feet wide.

Tree and Vegetation Retention: The FPA defines the RMA width of a medium Type F stream at 70 feet. For a large Type F stream, buffer width is 100 feet. In all of the specified harvest areas, all trees and shrubs within the posted buffers will be retained. Rigging of lines through the buffers will likely create minor scarring and broken limbs or tops. Knocked-over trees at intervals of 100 feet or more are possible but unlikely. The timber sale boundary for Area 2 (partial cut) is posted at least 25 feet from the Type F stream. In Area 3, the timber sale boundary is posted between 25 feet to well over 100 feet from the stream. Both these posted boundaries exceed the FPA requirements since tree cover will be retained within the RMA. Within Area 2, a target of 120 square feet of basal-area retention per acre of the largest trees will provide sufficient shade and large down wood potential for the steam. Within Area 3, 150 square feet per acre will be left.

In clearcut Areas 1, 4, 5, and 6, the boundaries are posted a minimum of 100 feet from all Type F streams.

The timber sale boundary for Area 2 (partial cut) is posted at least 25 feet from the Type F stream. This posted boundary meets the requirements of the Northwest Oregon Forest Management Plan for thinnings. Additionally, within Area 2, a target of 120 square feet of basal-area retention per acre of the largest trees will provide sufficient shade and large-down-wood potential.

FOREST PRACTICES ACT "WRITTEN PLAN"
For Harvest Activities within 100 Feet of a Type F Stream
Bull Music Combination Timber Sale 341-04-49

The timber sale boundary for Area 3 (partial cut) is posted at least 25 feet from the Type F stream. This posted boundary meets the requirements of the Northwest Oregon Forest Management Plan for thinnings. Additionally, within Area 3, a target of 150 square feet of basal-area retention per acre of the largest trees will provide sufficient shade and large-down-wood potential.

Practices: Along all of the above mentioned streams, as well as any live streams, the following practices are required, under the timber sale contract, to protect the streams and streamside areas:

- No logs will be yarded through the buffers.
- No trees will be felled within posted stream buffers (RMA's).
- Trees adjacent to the posted stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- No ground-based logging equipment will be permitted within the posted RMA's nor within 50 feet of any live stream.
- When cable logging is conducted nearby the RMA's, logging lines may cross, but will not be lowered into the RMA's during yarding, except during rigging. During rigging the lines must be pulled out of the RMA's when changing corridors.
- A minimum of 100 feet between corridors through buffers is required.
- Trees that fall or slide into Type F streams will not be removed without prior approval from State.

Attachments: Logging Plan Map

Submitted: _____ Date: _____
Purchaser's Representative

Reviewed: _____ Date: _____
State Lands Forester

Original: Salem CC: Operator, Purchaser, District file, Eng. Unit, Jewell Unit

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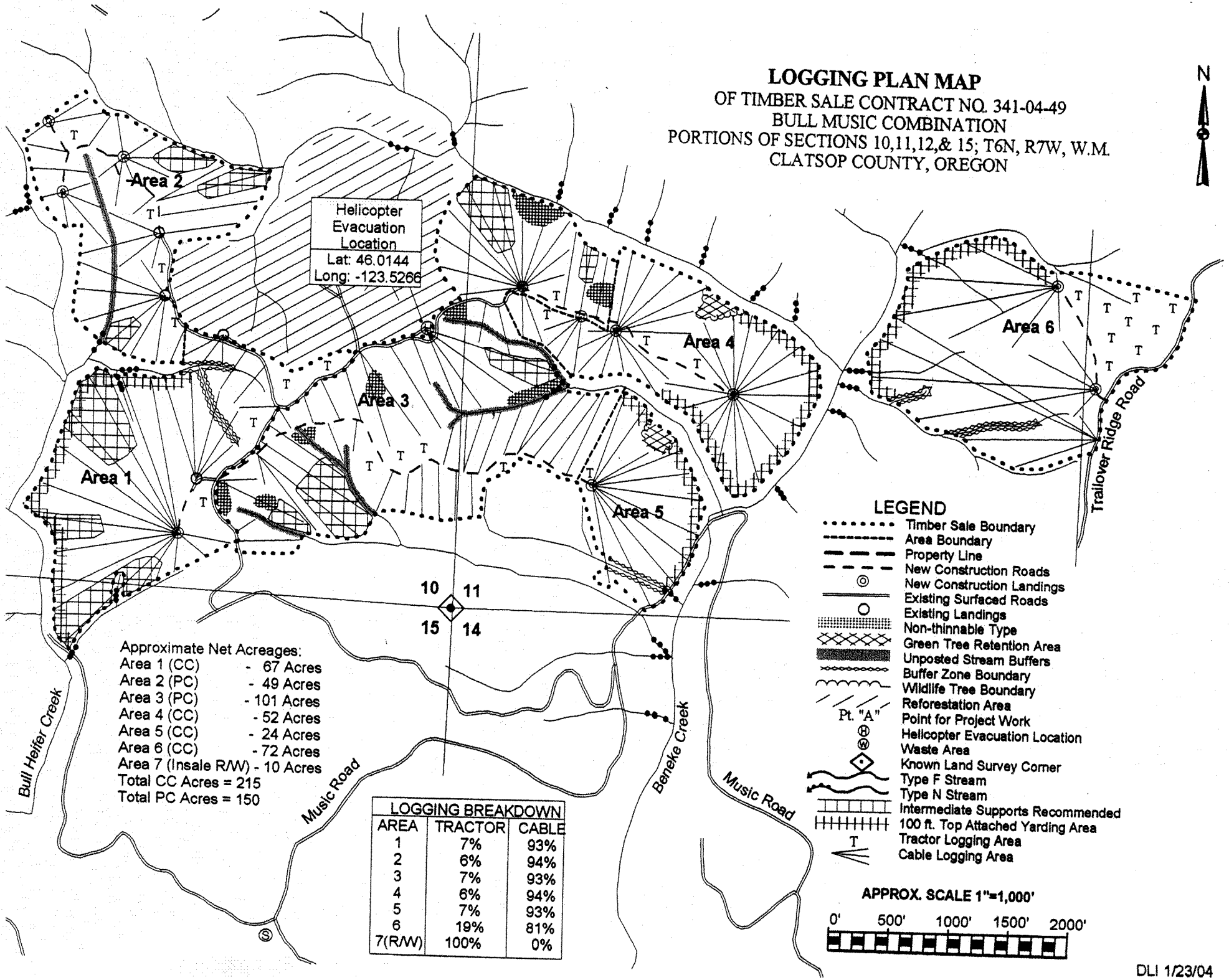
LOGGING PLAN MAP

OF TIMBER SALE CONTRACT NO. 341-04-49
BULL MUSIC COMBINATION
PORTIONS OF SECTIONS 10,11,12,& 15; T6N, R7W, W.M.
CLATSOP COUNTY, OREGON



DLI 1/23/04

FOREST PRACTICES ACT "WRITTEN PLAN"
For Project No. 1, Road Construction and Road Improvement
Bull Music Combination Timber Sale 341-04-49

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources: A tributary of Beneke Creek, which is designated as a Large Type F stream, is located within 100 feet of the road improvement project in a portion of Sections 11 and 14, T6N, R7W, W.M., Clatsop County, Oregon. Three locations along 1,400 feet of the stream length will require protection. A written plan is required for activity within 100 feet of a Type F stream.

Situation: In three locations along Music Road, Station 72+25 (culvert installation and energy dissipater construction), Station 76+60 (energy dissipater construction), and Station 85+00 (fill armor placement), are located in close proximity to Beneke Creek.

Fill removal materials will be hauled to a waste area located in a stable location at Station 86+60. Soil disturbance will be kept to a minimum and all exposed soil and the waste area will be grass seeded.

Further detailed work specifications for this project are included as Project No. 1 of the Bull Music Combination Timber Sale Contract shown/described in Exhibits B, C, and P.

Specific Site Characteristics: Beneke Creek: The streambed is approximately 6-15 feet wide, and has cut down approximately 2 feet from the streambank slopes. A broad flood plain accompanies the stream's active channel. Streamside vegetation is dominated by mature red alder. In some areas, a component of conifer trees located above the flood plain exists.

Practices:
- Work will be performed only during dry weather periods, low water stream flows, and between July 1 and August 31, annually.
- Excavated fill material will be hauled to a stable location and grass seeded.
- Machine activity in stream channels will be minimized. All excavation and removed fill-placement will be performed using a minimum 1 ½ cubic-yard track-mounted excavator.
- De-watering of existing fills and development of the stream channel will be accomplished by use of coffer dams, temporary diversion ditches, or drainage structures and/or damming and pumping.
- Disturbance to existing vegetation will be minimized. Trees removed within the RMA will not be removed as designated timber and will be left in the RMA, in stable locations.
- Bare soils shall be grass seeded and/or mulched with a straw mulch approved by STATE. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.
- Aquatic Protection: Debris entering the RMA or aquatic area will be removed by the end of operations each day or as soon as possible and placed in a stable location, unless an alternate practice is approved by STATE.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan.

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

Reviewed: _____ Date: _____
State Lands Forester

Attachments: Exhibit A
Original: Salem CC: Operator, Purchaser, District file, Eng. Unit, Jewell Unit

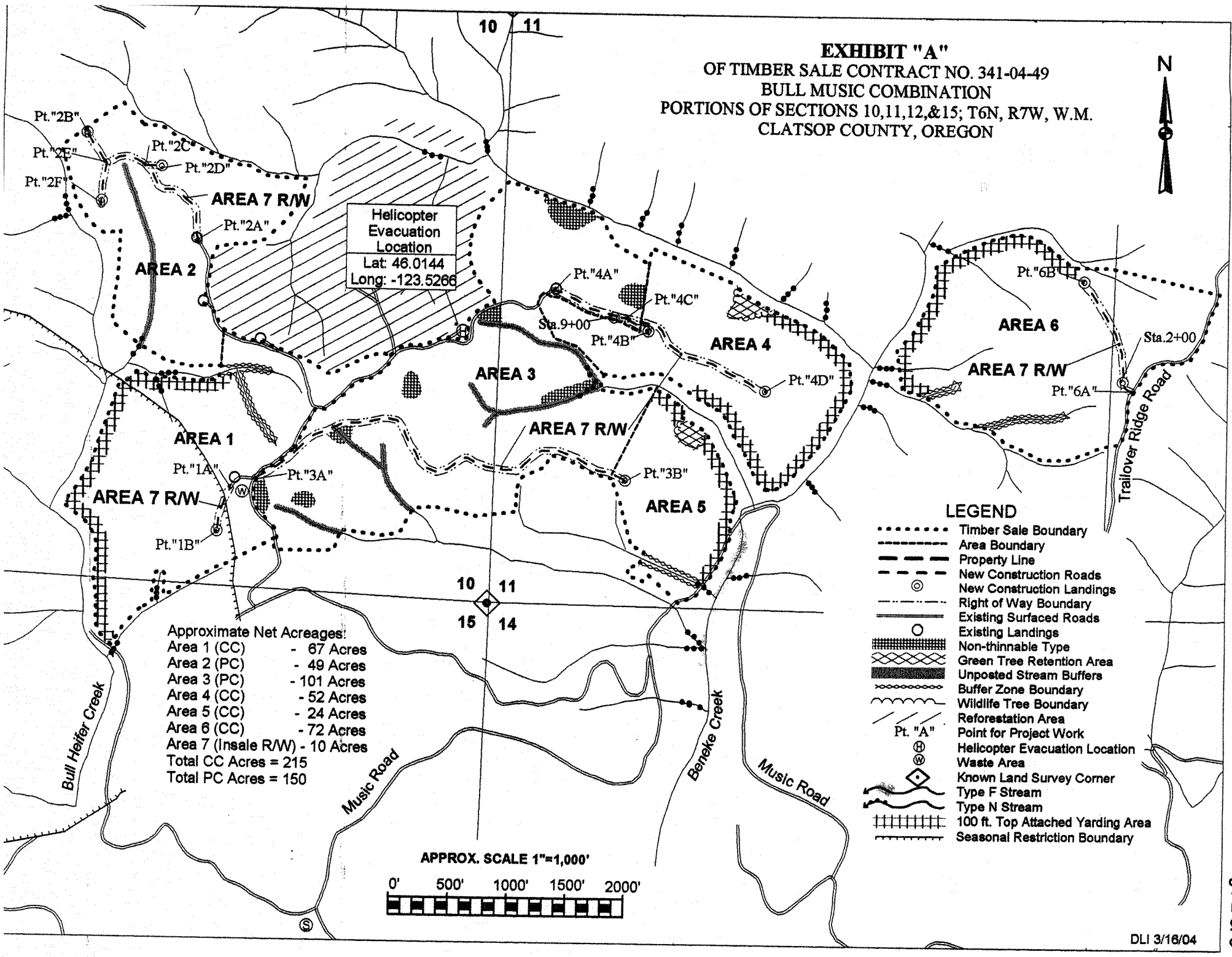
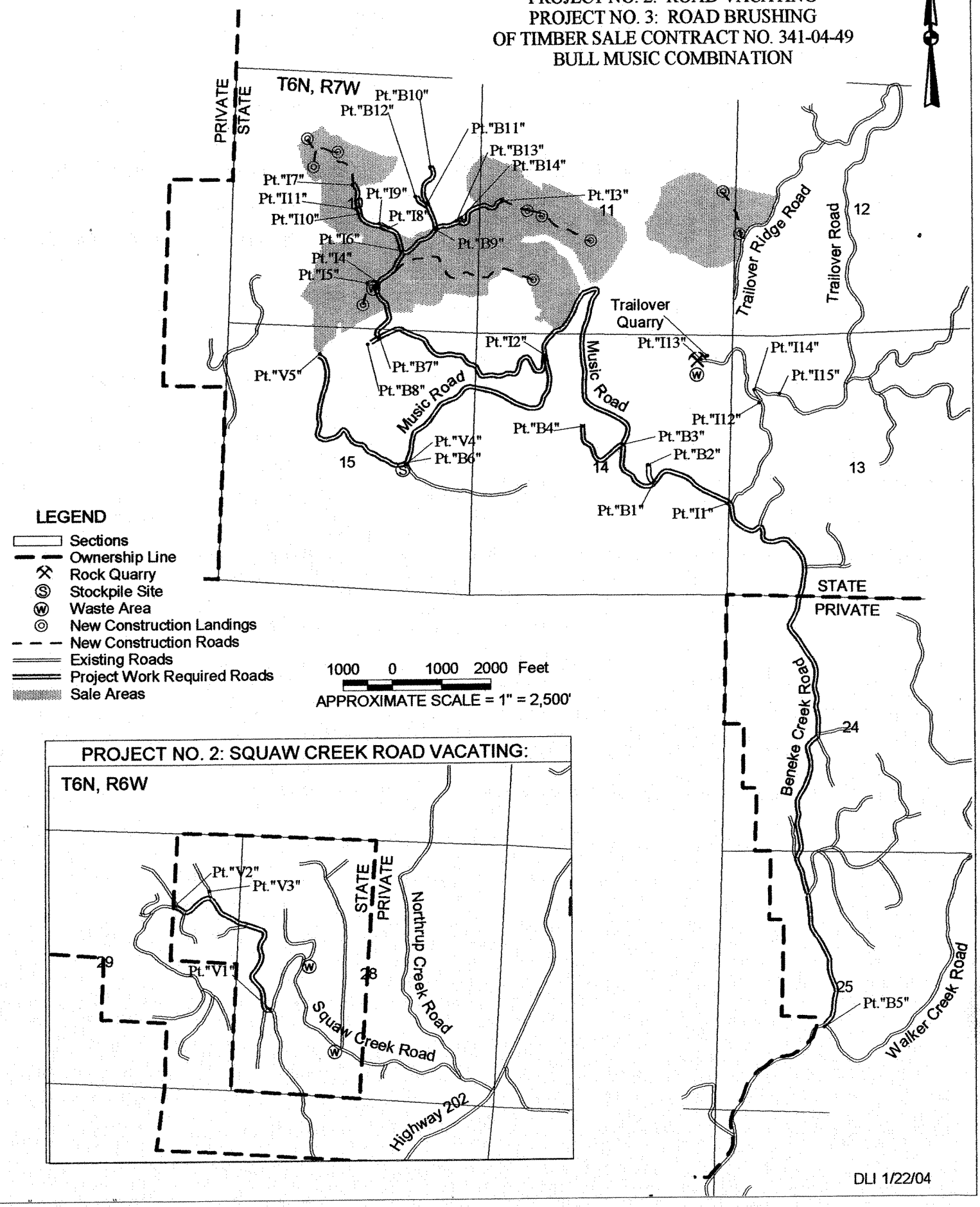


EXHIBIT "A"
OF TIMBER SALE CONTRACT NO. 341-04-49
BULL MUSIC COMBINATION
PORTIONS OF SECTIONS 10,11,12,&15; T6N, R7W, W.M.
CLATSOP COUNTY, OREGON
N
10
11
Pt."2B"
Pt."2C"
Pt."2D"
Pt."2E"
Pt."2F"
AREA 7 R/W
Pt."2A"
AREA 2
Helicopter Evacuation Location
Lat: 46.0144
Long: -123.5266
Pt."4A"
Pt."4C"
Sta.9+00
Pt."4B"
AREA 4
AREA 3
Pt."4D"
AREA 6
Pt."6B"
Sta.2+00
AREA 7 R/W
Pt."6A"
Trailover Ridge Road
AREA 1
Pt."1A"
Pt."3A"
AREA 7 R/W
Pt."3B"
AREA 5
Pt."1B"
10
11
15
14
Approximate Net Acreages:
Area 1 (CC) - 67 Acres
Area 2 (PC) - 49 Acres
Area 3 (PC) - 101 Acres
Area 4 (CC) - 52 Acres
Area 5 (CC) - 24 Acres
Area 6 (CC) - 72 Acres
Area 7 (Insale R/W) - 10 Acres
Total CC Acres = 215
Total PC Acres = 150
Bull Helfer Creek
Music Road
Beneke Creek
Music Road
LEGEND
Timber Sale Boundary
Area Boundary
Property Line
New Construction Roads
New Construction Landings
Right of Way Boundary
Existing Surfaced Roads
Existing Landings
Non-thinnable Type
Green Tree Retention Area
Unposted Stream Buffers
Buffer Zone Boundary
Wildlife Tree Boundary
Reforestation Area
Pt. "A"
Point for Project Work
Helicopter Evacuation Location
Waste Area
Known Land Survey Corner
Type F Stream
Type N Stream
100 ft. Top Attached Yarding Area
Seasonal Restriction Boundary
APPROX. SCALE 1"=1,000'
0'
500'
1000'
1500'
2000'
DLI 3/16/04

EXHIBIT "A"

PROJECT NO. 1: ROAD IMPROVEMENT
PROJECT NO. 2: ROAD VACATING
PROJECT NO. 3: ROAD BRUSHING
OF TIMBER SALE CONTRACT NO. 341-04-49
BULL MUSIC COMBINATION



DLI 1/22/04

FOREST PRACTICES ACT "WRITTEN PLAN"
For Project No. 1, Trailover Road Fill Reconstruction
Bull Music Combination Timber Sale 341-04-49

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources: An unnamed small Type N stream is crossed with a 21-foot high fill in Section 13, T6N, R7W, W.M., Clatsop County, Oregon. A "written plan" is required for construction/reconstruction of any fill over 15 feet high.

Current Condition: An existing road fill located at Road Improvement Point I15 was inspected during a Road Maintenance Inventory on the Trailover road system. Upon completion of the inventory, the existing culvert was determined to be in poor condition and in need of replacement due to deteriorating metal and excessive channel scour at the pipe outlet. Further detailed work specifications for this project are included as portions of road improvement project I15 as shown/described in Exhibits A, B, C, M, N, and O.

Basin Analysis: A basin analysis was performed for the road/stream crossing on Trailover Road. Using GIS, a basin area was calculated and found to be approximately 72 acres.

A 50-year peak flow for the basin was calculated using current FPA guidance and a 50-year recurrence interval of 250 cfs/mi^2. The 50-year recurrence interval was interpolated off of a 50-year recurrence interval map. The equated 50-year flow for this small basin was 28 cfs.

The substrate material above the existing structure is mostly composed of fine sedimentary materials. The substrate material below the existing structure is mostly composed of boulders/gravels/cobbles and fines. Strata depths and classifications of materials below the existing structure are unknown.

Structure Design: With a 50-year peak flow of 28 CFS, the minimum pipe diameter that would pass this flow is 36 inches. A round 36" diameter x 104' long, 14 gauge aluminized steel culvert was chosen for this application in order to meet FPA requirements and improve pipe-materials service life. A 1:1 step-beveled pipe inlet will be required to improve hydraulic efficiency and debris passage.

In addition, a free-draining rock blanket will be constructed at the new fill base (to specified dimensions) to allow for water passage through the fill during peak flow conditions in order to provide for a reduction of embankment-material pore-water pressures during periods of saturation.

Practices:

- Work will be performed only during dry weather periods, low-water stream flows and between May 1 and September 30, annually. In addition, in-stream work will be conducted between July 1 and August 31, annually.
- 24"-6" riprap rock will be used to armor both the inlet and outlet fill slopes to minimize erosion.
- Machine activity in stream channels will be minimized. All excavation and riprap rock placement will be performed using a minimum 1½ cubic-yard track-mounted excavator.
- Selected native earth materials free from woody debris will be used for backfilling. Fill material will be thoroughly compacted with specialized compaction equipment.
- Excavated waste materials will be hauled to approved waste areas and left in a stable condition.
- Straw mulch shall be applied to all exposed areas and bare soils. Applied mulch shall be a minimum of 2 inches deep and provide uniform cover.

FOREST PRACTICES ACT "WRITTEN PLAN"
For Project No. 1, Trailover Road Fill Reconstruction
Bull Music Combination Timber Sale 341-04-49

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted when constructing a fill over 15 feet high. I agree to the protection measures listed on this plan.

Submitted by: _____ Date: _____
Purchaser/Operator Contract Representative

Reviewed by: _____ Date: _____
State Lands Forester

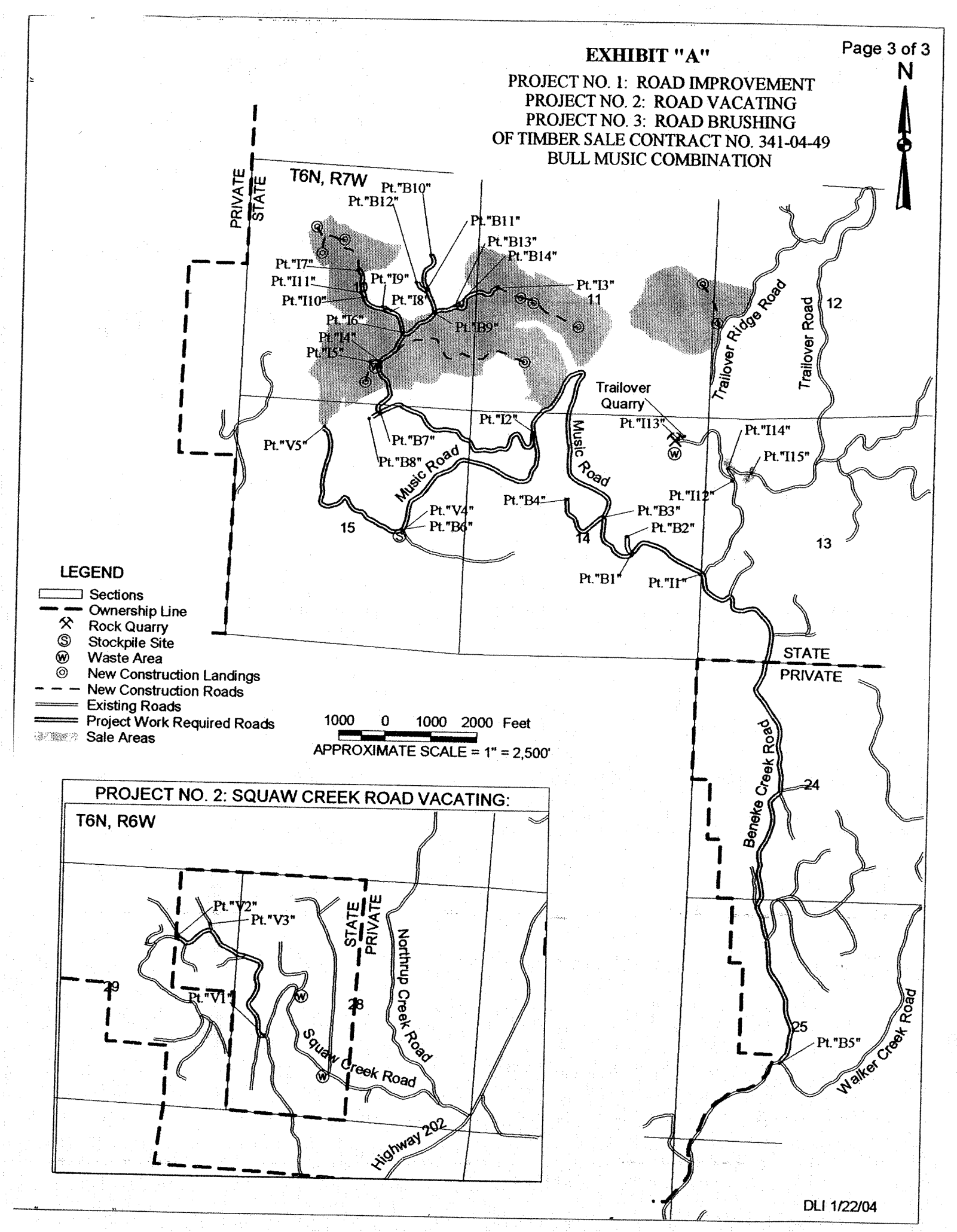
Attachments: Exhibit A

Original: Salem
CC: Astoria District File, Jewell Unit, Operator, Purchaser, Engineering Unit

X:\Jewell Unit\Timber Sales\2004\Bull Music Combination\Projects\Engineering Projects Final\I15 - Large Fill Reconstruction\Fill Written Plan.doc

EXHIBIT "A"

PROJECT NO. 1: ROAD IMPROVEMENT
PROJECT NO. 2: ROAD VACATING
PROJECT NO. 3: ROAD BRUSHING
OF TIMBER SALE CONTRACT NO. 341-04-49
BULL MUSIC COMBINATION



DLI 1/22/04

FOREST PRACTICES ACT "WRITTEN PLAN"
For Project No. 1, Trailover Creek Stream Crossing
Bull Music Combination Timber Sale 341-04-49

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources: The protected resource is Trailover Creek, a small Type F stream located in Section 13, T6N, R7W, W.M., Clatsop County, Oregon. A written plan is required for any activities within 100 feet of a Type F stream.

Current Condition: An existing 36" x 48' steel culvert located at Milepost 2.8 on Trailover Road prevents upstream fish passage. The existing culvert will be removed and replaced with a drainage structure, which meets current FPA Guidance. Further detailed work specifications for this project are included as Point I14 of road improvement as shown/described in Exhibits A, B, and L.

Basin Analysis: A basin analysis was performed for the stream/road crossing on Trailover Creek. Using GIS, a basin area was calculated and found to be approximately 157 acres. Also obtained from the analysis was the length of fish-usable stream above the impediment to fish passage. This length was approximated to be 1,000 feet.

The active stream-channel width was measured and found to be 6.5 feet in width. A width of 6.5 feet was used during the design process. A 50-year peak flow for the basin was calculated using current FPA guidance and a 50-year recurrence interval of 250 cfs/mi^2. The 50-year recurrence interval was interpolated off of a 50-year recurrence interval map. The equated 50-year flow for this small basin was 61 cfs.

The existing substrate material above the existing structure is mostly composed of stored fine sedimentary materials. The substrate material below the existing structure is mostly composed of mixed igneous boulders/gravels/cobbles and sedimentary rock fines. Strata depths and classifications of materials below the existing structure are unknown.

Fish Structure Design: With a 50-year peak flow of 61 cfs, the minimum diameter pipe that would pass this flow is 48 inches. However, a round 78-inch diameter by 80-foot long, 12 gauge aluminized steel culvert was chosen for this application in order to meet FPA requirements, simulate predicted active stream-channel width, promote storage of stream sediments in the pipe barrel, and improve pipe materials service life. A 1:1 step-beveled pipe inlet will be required to improve hydraulic efficiency and debris passage. A protective 12 gauge aluminized metal coating will be required to extend the life of the culvert. The design life for this culvert is a minimum of 50 years.

The 78" x 80' round culvert will be embedded to a depth of 2.6 feet. The projected natural stream gradient was calculated to be 7%. The steel culvert was designed to be placed at a gradient of approximately 7%. With 40% of the diameter embedded, the new culvert will accept a flow of 123 cfs. This exceeds the 50-year peak flow of 61 cfs.

Approximately 35 yd^3 of stream sediment and substrate materials will need to be placed or allowed to settle inside the barrel of the pipe to simulate a natural streambed. The bed for the culvert will be tamped with machinery to provide a pipe bed of uniform density. 1½"—0" crushed rock will be utilized for the culvert bed. Due to scour below the outlet of the existing structure, riprap rock will be placed at the outlet to restore the scoured stream channel (elevation), minimize further erosion, and help maintain sediment and substrate materials inside the pipe barrel. Fill slopes will be armored with riprap rock to minimize surface erosion.

FOREST PRACTICES ACT "WRITTEN PLAN"
For Project No. 1, Trailover Creek Stream Crossing
Bull Music Combination Timber Sale 341-04-49

Practices:

- Any in-stream work will be performed only during dry weather periods, low water stream flows, and between July 1 and August 31, annually.
- Riprap rock will be used to armor both the inlet and outlet fill slopes to minimize erosion and to construct an energy dissipator.
- Machine activity in stream channels will be minimized. All excavation and riprap rock placement will be performed using a track-mounted excavator.
- The de-watering of the installation area during development of the culvert bed and stream channel will be accomplished by use of cofferdams, temporary diversion ditches, or drainage structures and/or damming and pumping.
- Selected native earth materials free from woody debris will be used for backfilling. Fill material will be thoroughly compacted with specialized compaction equipment.
- Waste materials shall be sloped for drainage and stability. Straw mulch shall be applied to all exposed areas and bare soils. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan:

Submitted by: _____ Date: _____
Purchaser/Operator Contract Representative

Reviewed by: _____ Date: _____
State Lands Forester

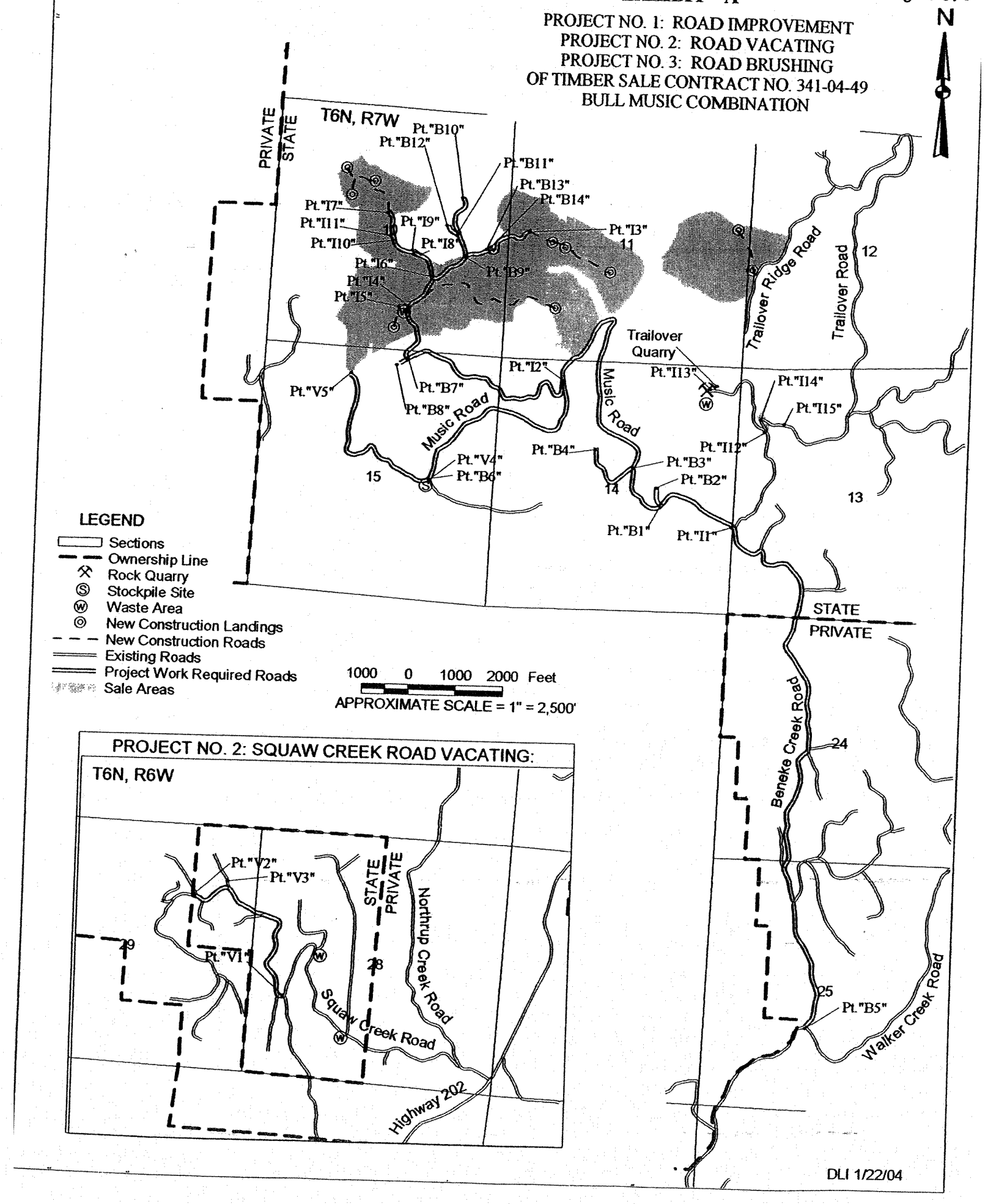
Attachments: Exhibit A

Original: Salem CC: Operator, Purchaser, District file, Jewell Unit, Engineering Unit

X:\Jewell Unit\Timber Sales\2004\Bull Music Combination\Projects\Engineering Projects Final\I14 - Type F Crossing\Fish Pipe Written Plan.doc

EXHIBIT "A"

PROJECT NO. 1: ROAD IMPROVEMENT
PROJECT NO. 2: ROAD VACATING
PROJECT NO. 3: ROAD BRUSHING
OF TIMBER SALE CONTRACT NO. 341-04-49
BULL MUSIC COMBINATION



DLI 1/22/04

FOREST PRACTICES ACT "WRITTEN PLAN"
For Project No. 2, Vacating
Bull Music Combination Timber Sale 341-04-49

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources: Squaw Creek, which is designated as a Medium Type F stream, is located within 100 feet of the road vacating project, Point V1 to V2, in Section 28, T6N, R6W, W.M., Clatsop County, Oregon. Bull Heifer Creek, which is designated as a Medium Type F stream, is located within 100 feet of the road vacating project, Point V4 to V5, in Section 15, T6N, R7W, W.M., Clatsop County, Oregon. A written plan is required for activities within 100 feet of a Type F stream.

Situation: Squaw Creek Vacating, V1 to V2: Field assessment and road inventory has determined that the large fill at Station 0+00 of vacating segment V1 to V2 is in poor condition and is a blockage to fish passage. This fill will be removed and the stream channel restored. Music Road Vacating, V4 to V5: Transportation and harvest-area planning has determined that a portion of this road is no longer needed. The road will be vacated and put to bed. Fills will be removed and stream channels restored. At-risk sidecast material within 20 feet of the outside edge of the road prism will be pulled back and re-sloped as shown in Exhibit J.

Removal of trees and vegetation within the RMA will be minimized in order to protect riparian resources and will be placed in stable locations. Further detailed work specifications for this project are included as Project No. 2 of the Bull Music Combination Timber Sale Contract shown/described in Exhibits A, G, H, I, J, and K.

Practices:

- Work will be performed only during dry weather periods, low water stream flows, and between May 1 and October 31, annually. In addition, in-stream work will be conducted between July 1 and August 31, annually.
- Machine activity in stream channels will be minimized. All excavation and fill removal will be performed using a minimum 1 ½ cubic-yard track-mounted excavator.
- Disturbance to existing vegetation will be minimized. Trees removed within the RMA will not be removed as designated timber and will be left on-site, in stable locations.
- Excavated fill materials will be used for recontouring slopes or placed in approved waste areas and left in a stable condition.
- Bare soils shall be grass seeded and/or mulched with a straw mulch approved by State. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan.

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

Reviewed: _____ Date: _____
State Lands Forester

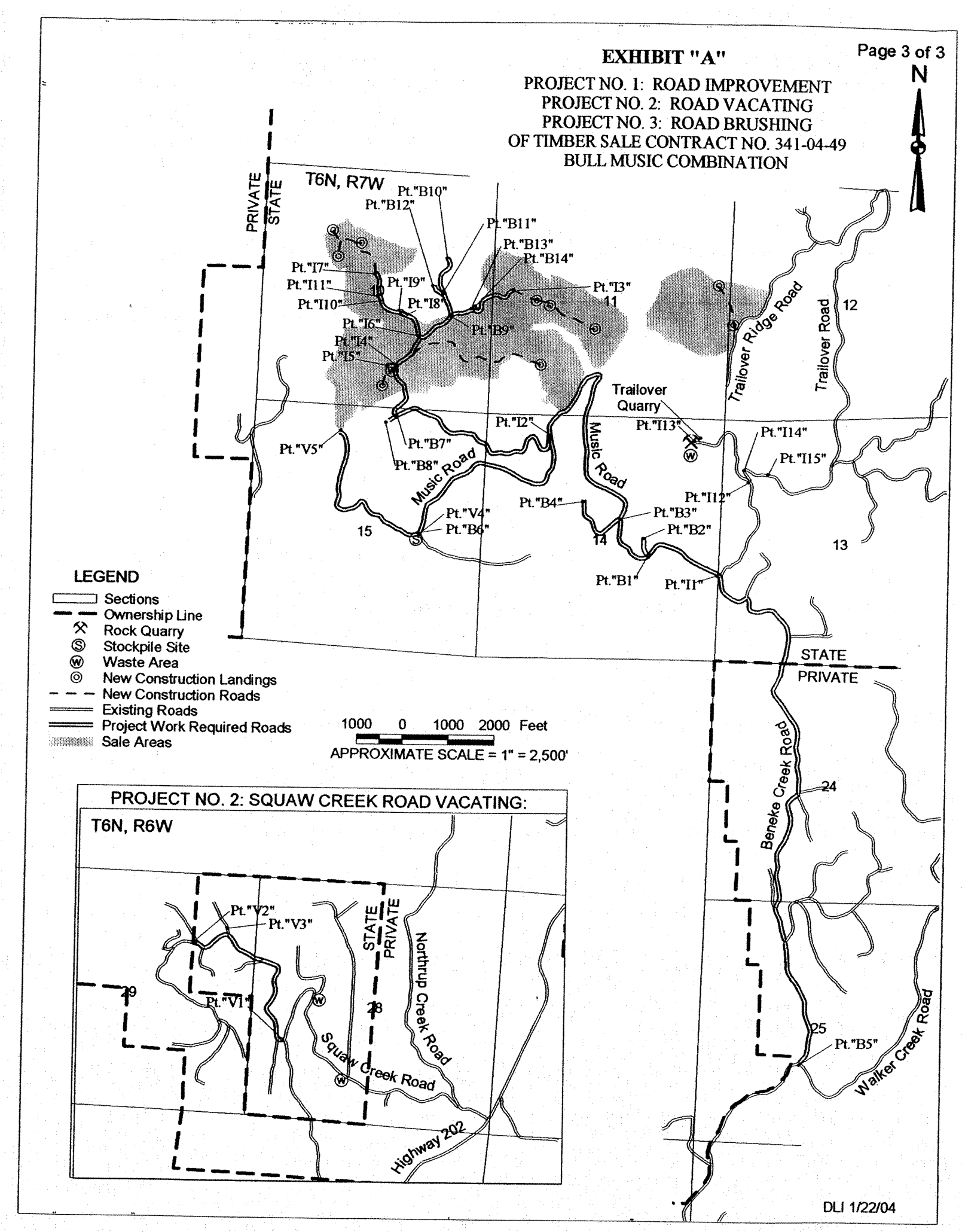
Attachments: Exhibit A

Original: Salem CC: Operator, Purchaser, District file, Eng. Unit, Jewell Unit

X:\Jewell Unit\Timber Sales\2004\Bull Music Combination\Projects\Engineering Projects Final\Vacating\Written Plan-Vacating.doc

EXHIBIT "A"

PROJECT NO. 1: ROAD IMPROVEMENT
PROJECT NO. 2: ROAD VACATING
PROJECT NO. 3: ROAD BRUSHING
OF TIMBER SALE CONTRACT NO. 341-04-49
BULL MUSIC COMBINATION



DLI 1/22/04

FOREST PRACTICES ACT "WRITTEN PLAN"
For Project No. 4, Sterling Ranch Road Stream Crossing
Bull Music Combination Timber Sale 341-04-49

Landowner: Oregon Department of Forestry
92219 Hwy 202
Astoria, OR 97103
(503) 325-5451

Protected Resources: An unnamed tributary of Rock Creek, a small Type F fisheries resource, located in the NW¼ of Section 30, T4N, R6W, W.M., Clatsop County, Oregon. A written plan is required for any activities within 100 feet of any Type F streams.

Situation: A galvanized-steel-culvert stream crossing located on Sterling Ranch Road is deteriorating and is a partial blockage to fish. Resource management objectives for this stream crossing project include providing cost effective long-term access, meeting or exceeding FPA requirements, enhancement of fisheries habitat, and protection of water quality and riparian areas.

Drainage Area and Structure Design: The stream crossing structure will be an open-bottom concrete-slab culvert which will provide a 10-foot wide waterway under the structure.

Existing Stream Gradient:	3%
Size of Watershed:	153 acres
Minimum Stream Width:	10 feet
Stream Bed Material:	Silt, Sand, Gravel
50-Year Peak Flow/Mi.^{2} :	250 cfs
50-Year Peak Flow:	60 cfs
Flow Capacity of Structure:	130 cfs
	20 ft^2 wetted cross sectional area
	14 ft wetted perimeter (w/ 2 ft clearance)

Practices:

- Machine activity in stream channels will be minimized. All existing fill, existing culvert removal, and rip rap rock placement will be performed using a minimum 1½ cubic-yard track-mounted excavator.
- In-stream work, including, excavation, culvert removal, pile driving, riprap rock placement, and construction of a wing wall and back walls will conducted from July 1 to September 15.
- An erosion-control plan will be developed and followed to prevent sediment from entering the stream during construction work.
- Waste materials will be hauled to approved waste areas and left in a stable condition.
- A combination of pre-cast open-bottom concrete-slab culvert components and riprap rock will be used to construct back walls, and stream deflectors to protect the structure, road approaches/embankments, and stream banks from erosion.
- Use of pre-cast concrete components will prevent contamination of water from mixing and pouring concrete on site.

FOREST PRACTICES ACT "WRITTEN PLAN"
For Project No. 4, Sterling Ranch Road Stream Crossing
Bull Music Combination Timber Sale 341-04-49

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan.

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

Reviewed: _____ Date: _____
State Lands Forester

Attachments: Exhibit A

Original: Salem CC: Operator, Contractor, District file, Salem, Eng. Unit, Jewell. Unit

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EXHIBIT "A"

VICINITY MAP
OF TIMBER SALE CONTRACT NO. 341-04-49
BULL MUSIC COMBINATION
CLATSOP COUNTY, OREGON