"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Cost Summary
Rock Creek Stand Improvement
Sale 341-03-07

District: Astoria **Date:** 8/8/02

	Conifer	Hardwood	Total
Gross Timber Sale Value	$1,812,289.32	$86.85	$1,812,376.17
		Project Work	($137,040.00)
		Advertised Value	$1,675,336.17

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Timber Description
Rock Creek Stand Improvement
Sale 341-03-07

District: Astoria

Location: Portions of Sections 23 and 26, T8 N, R 7 W, W. M. , Clatsop County, Oregon.

Date: 8/8/02 **Stand Stocking:** 40%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	22	0	99
Western Hemlock / Fir	19	0	98
Sitka Spruce	19	0	100
Alder (Red)	9	0	100

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)	Total
2S	2,554	2,698	23	0	5,275
3S	459	757	4	0	1,220
4S	63	166	0	0	229
Utility	0	0	0	3	3
Total	3,076	3,621	27	3	6,727

Comments: Pond Values Used: 2nd Quarter 2002 + Local Pond Values

Additional Logging costs plus P &R:

Line pulling Area 6: approx. 5 acres.
3 man days @ $150./day = $450.00

Intermediate Supports:
Extra rigging time
3 man days @ $150./day = $450.00

Optional dirt spurs:
Contruct, use and close 3 temp. dirt spurs.
Area A 1,100 feet
Area B 900 feet
Area E 600 feet
Estimated 2 days with cat, ($90./hr.)
20 hours @ $90./hr = $1,800.00

Auto-mark tree selection (additional time due to the reprod.)
$2/MBF x 4,381 MBF = $ 8,762.00

Skid Trail layout
$2/MBF x 6,277 MBF = $12,554.00

Directional Felling to protect understory, buffers and sale boundaries.
$3/MBF x 6,277 MBF = $18,831.00

TOTAL OTHER COSTS PLUS P & R $42,847.00

Other Costs, No P & R:
Slash Piling : 82 hours @ $95/hr. = $7,790.00
Move In: = 500.00

TOTAL OTHER COSTS, NO P &R $8,290.00

LOG MARKETS:
Tillamook = 2 trips per day
Willamina = 2 trips per day
Garibaldi = 2 trips per day
Creswell = 1 trip per day
Mist = 3 trips per day

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Logging Conditions
Rock Creek Stand Improvement
~~Sale 341-03-07~~

Combination#: 1 Douglas - Fir 7.54%
Western Hemlock / Fir 5.69%

Yarding Distance: Short (400 ft) **Downhill Yarding:** No
Logging System: Cable: Medium Tower >40 - <70 **Process:** Stroke Delimber
Tree Size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF
Loads/Day: 5 **Bd. Ft./Load:** 4,250
Cost/MBF: $154.48
Machines:
Log Loader (A)
Stroke Delimber (A)
Tower Yarder (Medium)

Combination#: 2 Douglas - Fir 67.85%
Western Hemlock / Fir 51.25%

Yarding Distance: Short (400 ft) **Downhill Yarding:** Yes
Logging System: Shovel **Process:** Manual Delimbing
Tree Size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
Loads/Day: 6 **Bd. Ft./Load:** 4,250
Cost/MBF: $91.04
Machines:
Shovel Logger

Combination#: 3 Douglas - Fir 24.61%
Western Hemlock / Fir 43.05%
Sitka Spruce 100.00%
Alder (Red) 100.00%

Yarding Distance: Short (400 ft) **Downhill Yarding:** Yes
Logging System: Shovel **Process:** Manual Delimbing
Tree Size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
Loads/Day: 8 **Bd. Ft./Load:** 4,250
Cost/MBF: $68.28
Machines:
Shovel Logger

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Logging Costs
Rock Creek Stand Improvement
Sale 341-03-07

Date: 8/8/02

Operating Seasons: 2.0 **Profit & Risk:** 15%

Project Costs: $137,040 **Other Costs (P/R):** $42,847

Slash Disposal: $0 **Other Costs:** $8,290

Road Maintenance: $2.37

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

Hauling Costs

Species	$/MBF	Trips/Day	MBF/Load
Douglas - Fir	$0.00	3.0	4.5
Western Hemlock / Fir	$0.00	2.0	4.0
Sitka Spruce	$0.00	1.0	3.5
Alder (Red)	$0.00	2.0	3.0

Local Pond Values

Date	Species	Grade	Value
4/12/02	Alder (Red)	Utility	$210.00

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Logging Costs Breakdown
Rock Creek Stand Improvement
Sale 341-03-07

Costs	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)
Logging	90.22	84.85	68.28	68.28
Road Maintenance	2.39	2.42	2.37	2.37
Fire Protection	0.81	0.81	0.81	0.81
Hauling	34.44	58.67	131.45	76.80
Other (P/R appl.)	6.37	6.37	6.37	6.37
Profit & Risk	20.13	22.97	31.39	23.19
Slash Disposal	0.00	0.00	0.00	0.00
Scaling	2.00	2.00	2.00	2.00
Other	1.23	1.23	1.23	1.23
Total	157.59	179.32	243.90	181.05

Amortization	0.00	0.00	0.00	0.00
Pond Value	524.97	366.79	369.81	210.00
Stumpage	367.38	187.47	125.91	28.95
Amortized	0.00	0.00	0.00	0.00

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Summary
Rock Creek Stand Improvement Sale 341-03-07

Amortized

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

Unamortized

	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)
MBF	3,076.00	3,621.00	27.00	3.00
Value	367.38	187.47	125.91	28.95
Total	1,130,060.88	678,828.87	3,399.57	86.85

Gross Timber Sale Value

Recovery $1,812,376.17

Prepared by: Edward Holloran Date: 8/8/02

District: Astoria Phone: (503) 325-5451

Road Maintenance Cost Summary

Sale: **Rock Creek SI**
Date: 22-Mar-02
By: JCD PG

MBF: **6,727**
$$/MBF: **$2.37**

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	
Progressive	Grader	$540	2	32	$80	$3,640	
Operations	Dump Truck	$114	4	24	$57	$1,824	
Entries	FE Loader	$540	2	16	$60	$2,040	
(2)							
(All Areas)							
Final Haul	Grader	$540	1	24	$80	$2,460	
Road	Dump Truck	$114	2	12	$57	$912	
Maintenance	FE Loader	$540	1	12	$60	$1,260	
	Vibratory Roller	$540	1	30	$75	$2,790	
	Water Truck	$114	1	12	$67	$918	
Haul Route	Labor (Culvert Cleaning Etc.)		1	4	$25	$100	
Total							**$15,944**

Production Rates	Miles/day	Distance(miles)	Days	Hours
Grader	1.5	4.5	3.0	24.0
Vibratory Roller*	1.2	4.5	3.8	30.0

SUMMARY OF ALL PROJECT COSTS

SALE NAME: ROCK CREEK S.I.

NEW CONSTRUCTION:

	Road segment		Length/Sta	Cost	
Project No. 1	3A-3B, 4A-4B and 5A-5B		22.7	$38,169	
	TOTALS	(0.43 miles)	22.70		$37,885

ROAD IMPROVEMENT:

	Road segment		Length/Sta	Cost	
Project No. 1	I1-I3, I3-I4, I5-I6, I3 to I7 I7-I8, I7-I9, I9-I10, I9-I12, I11-I12, I12-I13, I14-I15, I16-I17, and I18-I19		413.7	$81,196	
	TOTALS	(7.84 miles)	413.7		$81,196

SPECIAL PROJECTS:

	Description	Cost	
	Road Maintenance (project work)	$5,306	
Project No. 1	Road Brushing (7.84 miles)	$8,618	
	TOTALS		$13,924

MOVE IN:

Equipment	Cost	
D-7 Dozer	$560	
12cy Dump Trucks (3)	$342	
20cy Dump Trucks (3)	$402	
FE Loader	$540	
Grader (14G)	$540	
Vibratory Roller	$540	
Water Truck	$132	
Excavator	$980	
Skidder	$520	
TOTAL		$4,036

GRAND TOTAL **$137,040**

Compiled By: J.C. Day Date: 4/18/02

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SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Rock Creek SI

ROAD: 3A-3B, 4A-4B, 5A-5B, I1-I3, I3-I4, I3-I7, I5-I6, I7-I8, I7-I9, I9-I10, I9-I12, I11-I12, I12-I13, I14-I15, I16-I17, & I18-I19

NEW CONSTRUCTION: 22.70 STATIONS 0.43 MILES

IMPROVEMENT: 413.70 STATIONS 7.84 MILES

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
3A-3B, 4A-4B, & 5A-5B	2.50	x	$840.00	=	$2,100.00
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING **$2,100**

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
3A-3B, 4A-4B, & 5A-5B	22.70	x	$117.00	=	$2,655.90
Landings 3B, 4B, 5B, 15+40 I12-I14, 18+00 I16-I17	5.00	x	$270.00	=	$1,350.00
**Ditch-Out and Drainage Ditch Constructions	25.00	x	$78.54		$1,963.50

** See Cost Sheet

SUB TOTAL FOR EXCAVATION **$5,969**

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
4A-4B 0+00	18	40	$11.00	$440.00	I3-I7 0+60*	24	50	$11.45	$572.50
4A-4B 9+00	18	30	$11.00	$330.00	I7-I8 7+05	18	30	$11.00	$330.00
I1-I3 17+00	18	40	$11.00	$440.00	I7-I9 9+40	See Type "F" Culvert Replacement Cost Sheet			
I1-I3 19+35	18	30	$11.00	$330.00	I7-I9 23+45*	36	60	$24.70	$1,482.00
I1-I3 22+90	18	30	$11.00	$330.00	I9-I10 6+75	18	30	$11.00	$330.00
I1-I3 27+60	18	30	$11.00	$330.00	I9-I12 14+65	18	30	$11.00	$330.00
I1-I3 41+05	18	40	$11.00	$440.00	I12-I13 5+85	18	30	$11.00	$330.00
I1-I3 51+65	18	40	$11.00	$440.00	I12-I13 11+15	18	30	$11.00	$330.00
I1-I3 54+40	18	40	$11.00	$440.00	I12-I13 34+60	18	30	$11.00	$330.00
I3-I4 12+30	18	30	$11.00	$330.00	I12-I13 45+75	18	30	$11.00	$330.00
I3-I4 20+55	18	30	$11.00	$330.00	I14-I15 2+95	18	30	$11.00	$330.00
I3-I4 35+80	18	30	$11.00	$330.00	I14-I15 11+75	18	30	$11.00	$330.00
I3-I4 58+65	18	30	$11.00	$330.00	I14-I15 25+25	18	30	$11.00	$330.00
I3-I4 63+35	18	30	$11.00	$330.00	I16-I17 0+10	18	30	$11.00	$330.00
I3-I4 77+45	18	30	$11.00	$330.00	I16-I17 8+20	18	30	$11.00	$330.00

	Description	Quantity	Rate	Cost
Other/miscellaneous:	**Repair Culvert Inlets & outlets	10	$28.40	$284.00
	Bevel inlet on I3-I7 0+60 and I7-I9 23+45	2	$25.00	$50.00
Culvert stakes & markers:		27	$14.10	$380.70
	For existing culverts	4	$14.10	$56.40
	Remove and Replace Fills on Road Segments I3 to I7 and I7 to I 9			$5,786.00

* Indicates price is for pipe materials only, including delivery

** See Cost Sheet

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION **$18,072**

SURFACING

Subgrade prep:

	Description	Stations/amount	x	Rate/sta/amt	Cost
Construction	Grade, Ditch - Subgrade	22.70	x	$12.50	$283.75
	Subgrade Compaction	14.80	x	$15.20	$224.96
Improvement	Grade, Ditch - Subgrade	413.70	x	$12.50	$5,171.25
	Subgrade Compaction	413.70	x	$15.20	$6,288.24

Surfacing rock:

	Size/type	Vol/sta	Stations	Tot. cy	Rate/cy	Cost
4A-4B	4"-0"	52	13.80	718	$3.55	$2,547.48
5A-5B	4"-0"	52	1.00	52	$3.57	$185.64
I1-I3	3/4"-0"	19	63.95	1,215	$3.55	$4,313.43
I3-I4	3/4"-0"	19	82.15	1,561	$3.55	$5,541.02
I3-I7	3/4"-0"	19	4.70	89	$3.55	$317.02
I5-I6	4"-0"	25	7.65	191	$3.55	$678.94
I7-I9	3/4"-0"	19	26.40	502	$3.55	$1,780.68
I9-I10	4"-0"	25	15.85	396	$3.55	$1,406.69
I9-I12	3/4"-0"	19	41.65	791	$3.55	$2,809.29
I11-I12	3/4"-0"	19	17.60	334	$3.55	$1,187.12
I12-I18	1 1/2"-0"	19	48.10	914	$3.55	$3,244.35
I18-I13	4"-0"	25	5.90	148	$3.55	$523.63
I14-I15	4"-0"	25	29.35	734	$3.55	$2,604.81
I18-I19	4"-0"	25	23.45	586	$3.55	$2,081.19

Turnouts:

	Size/type	Vol/to	No. to	Tot. cy	Rate/cy	Cost
4A-4B	4"-0"	24	2	48	$3.55	$170.40
I1-I3	3/4"-0"	12	15	180	$3.55	$639.00
I3-I4	3/4"-0"	12	14	168	$3.55	$596.40
I3-I7	3/4"-0"	12	1	12	$3.55	$42.60
I5-I6	4"-0"	24	2	48	$3.55	$170.40
I7-I9	3/4"-0"	12	6	72	$3.55	$255.60
I9-I10	4"-0"	24	2	48	$3.55	$170.40
I9-I12	3/4"-0"	12	7	84	$3.55	$298.20
I11-I12	3/4"-0"	12	3	36	$3.55	$127.80
I12-I18	1 1/2"-0"	12	8	96	$3.55	$340.80
I14-I15	4"-0"	24	2	48	$3.55	$170.40
I18-I19	4"-0"	24	3	72	$3.55	$255.60

Junctions:

	Size/type	Vol/jct.	No. jct.	Tot. cy	Rate/cy	Cost
4A-4B	4"-0"	24	1	24	$3.55	$85.20
I1-I3	3/4"-0"	12	5	60	$3.55	$213.00
I3-I4	3/4"-0"	12	6	72	$3.55	$255.60
I3-I7	3/4"-0"	12	2	24	$3.55	$85.20
I7-I9	3/4"-0"	12	1	12	$3.55	$42.60
I9-I12	3/4"-0"	12	2	24	$3.55	$85.20
I12-I18	1 1/2"-0"	24	3	72	$3.55	$255.60
I12-I14 25+20	4"-0"	24	1	24	$3.55	$85.20
I14-I15	4"-0"	24	1	24	$3.55	$85.20
I18-I13	4"-0"	24	1	24	$3.55	$85.20
I18-I19 10+00	4"-0"	24	1	24	$3.55	$85.20

Turnarounds:

	Size/type	Vol/to	No. to	Tot. cy	Rate/cy	Cost
4A-4B	4"-0"	24	1	24	$3.55	$85.20
I5-I6	4"-0"	24	1	24	$3.55	$85.20
I9-I10	4"-0"	24	1	24	$3.55	$85.20
I18-I13	4"-0"	24	1	24	$3.55	$85.20
I14-I15	4"-0"	24	1	24	$3.55	$85.20
I16-I17	4"-0"	24	1	24	$3.55	$85.20
I18-I19	4"-0"	24	1	24	$3.55	$85.20

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
I1-I3	Curve Widening	3/4"-0"	60	$3.55	$213.00
I1-I3	Culvert Bedding and Backfill	1 1/2"-0"	168	$2.90	$487.20
I1-I3	Energy Dissipator	24"-6"	12	$3.54	$42.48
I3-I4	Curve Widening	3/4"-0"	84	$3.55	$298.20
I3-I4	Culvert Bedding and Backfill	1 1/2"-0"	120	$2.90	$348.00
I3-I4	Energy Dissipator	24"-6"	12	$3.54	$42.48
I3-I7	Culvert Bedding and Backfill	1 1/2"-0"	36	$2.90	$104.40
I3-I7	Base Rock	4"-0"	24	$3.55	$85.20
I3-I7	Bedding	6"-0"	24	$2.75	$66.00
I7-I8	Leveling Rock	1 1/2"-0"	120	$3.55	$426.00
I7-I8	Culvert Bedding and Backfill	1 1/2"-0"	24	$2.90	$69.60
I7-I9	Surface Restoration Rock	3/4"-0"	49	$3.55	$173.95
I7-I9	Culvert Bedding and Backfill	1 1/2"-0"	108	$2.90	$313.20
I7-I9	Base Rock	4"-0"	88	$3.55	$312.40
I7-I9	Bedding	6"-0"	60	$2.75	$165.00
I7-I9	Energy Dissipator	24"-6"	24	$3.54	$84.96
I7-I9	Fill Armor	24"-6"	160	$3.54	$566.40
I9-I10	Culvert Bedding and Backfill	1 1/2"-0"	24	$2.90	$69.60
I9-I10	Base Restoration Rock 8+80 to 15+85	4"-0"	120	$3.55	$426.00
I9-I12	Culvert Bedding and Backfill	1 1/2"-0"	24	$2.90	$69.60
I11-I12	Energy Dissipator	24"-6"	50	$3.54	$177.00
I12-I13	Culvert Bedding and Backfill	1 1/2"-0"	48	$2.90	$139.20
I12-I13	Energy Dissipator	24"-6"	36	$3.54	$127.44
I14-I15	Traction Rock	3/4"-0"	56	$3.55	$198.80
I14-I15	Culvert Bedding and Backfill	1 1/2"-0"	36	$2.90	$104.40
I16-I17	Leveling Rock	1 1/2"-0"	50	$3.55	$177.50
I16-I17	Culvert Bedding and Backfill	1 1/2"-0"	24	$2.90	$69.60
I16-I17	Energy Dissipator	24"-6"	12	$3.54	$42.48
I18-I19	Base Restoration Rock 5+85 to 8+80	4"-0"	108	$3.55	$383.40
I18-I19	Energy Dissipator	24"-6"	12	$3.54	$42.48
4B, 5B, I6, I10, 15+40 I12-I13, 18+00 I16-I17 & I19	Landings	6"-0"	560	$3.56	$1,993.60

Processing:	Description	No. Cy/sta	Rate/cy/sta	Cost
	Improvement: V-Compaction, 14Grader and Water	413.7	$37.00	$15,306.90
	New Roads: V-Compaction, 14Grader and Water	29.6	$37.00	$1,095.20

Total	3/4"-0"	1 1/2"-0"	4"-0"	6"-0"	24"-6"
12,028	5,486	1,864	3,717	644	318

SUB TOTAL FOR SURFACING **$70,608**

SPECIAL PROJECTS

Description	Cost
Type "F" Stream Culvert Replacement	$20,165.00
Develop pit-run: $1.85/cy X 724cy	$1,339.40
Develop riprap: $2.60/cy X 318cy	$826.80

SUB TOTAL FOR SPECIAL PROJECTS **$22,331**

GRAND TOTAL	Improve	$81,196.03	New Roads	$37,884.51	**$119,081**

Compiled By: jcday Date: 4/18/02

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Ditch-Out Construction and Improvement / Gate Removal / Existing Culvert Inlet & Outlet Repair Costs

Location	Station	Instructions Right/Left/Both Sides	Trackhoe and Operator C315	Hrs	Mobilization	Hrs	Labor	Hrs	Metal saw	Hrs	Misc.
I2 to I22	12+30	Both	1	Hrs	0.1	Hrs		Hrs		Hrs	
I2 to I22	15+25	Right	0.5	Hrs	0.1	Hrs		Hrs		Hrs	
I2 to I22	22+90	Right	0.5	Hrs	0.3	Hrs		Hrs		Hrs	
I3 to I4	12+30	Both	1	Hrs	0.1	Hrs		Hrs		Hrs	
I3 to I4	32+85	Left	0.5	Hrs	0.1	Hrs		Hrs		Hrs	
I3 to I4	49+85	Right	0.5	Hrs	0.2	Hrs		Hrs		Hrs	
I3 to I4	58+65	Right 40 feet	1	Hrs	0.2	Hrs		Hrs		Hrs	
I7 to I8	2+35	Left	0.5	Hrs	0.1	Hrs		Hrs		Hrs	
I7 to I8	11+75	Right	0.5	Hrs	0.3	Hrs		Hrs		Hrs	
I7 to I8	14+65	Both	1	Hrs	0.1	Hrs		Hrs		Hrs	
I7 to I8	20+55	Right	0.5	Hrs	0.3	Hrs		Hrs		Hrs	
I7 to I8	23+45	Left	0.5	Hrs	0.1	Hrs		Hrs		Hrs	
I9 to I10	6+75	Right	0.5	Hrs	0.2	Hrs		Hrs		Hrs	
I9 to I10	15+85	Right	0.5	Hrs	0.2	Hrs		Hrs		Hrs	
I9 to I12	5+85	Left	0.5	Hrs	0.1	Hrs		Hrs		Hrs	
I12 to I13	29+90	Right	0.5	Hrs	0.3	Hrs		Hrs		Hrs	
I12 to I13	45+75	Right	0.5	Hrs	0.3	Hrs		Hrs		Hrs	
I14 to I15	2+95	Left	0.5	Hrs	0.1	Hrs		Hrs		Hrs	
I18 to I19	8+80	Road side 300' of ditch reconstruction both sides	6	Hrs	0.2	Hrs		Hrs		Hrs	
I18 to I19	19+35	Both	1	Hrs	0.2	Hrs		Hrs		Hrs	
I20 to I21	26+40	Right 30 feet	1	Hrs	0.5	Hrs		Hrs		Hrs	
			19	Hrs	4.1	Hrs	0	Hrs	0	Hrs	0
			$ 85.00	Hr	$ 85.00	Hr	$25.00	Hr	$ 36.00	Hr	
		Totals	**$ 1,615.00**		**$ 348.50**		**$ -**		**$ -**		
		$ 1,963.50									
I1 to I3	1+75	Remove Old RR Iron Gate	0.25	Hrs	0.5	Hrs	1	Hrs	0.5	Hrs	
I1 to I3	34+60	Repair outlet of culvert		Hrs		Hrs	0.5	Hrs	0.2	Hrs	
I3 to I4	31+10	Repair inlet of culvert		Hrs		Hrs	0.5	Hrs	0.2	Hrs	
I7 to I9	20+55	Repair inlet of culvert		Hrs		Hrs	0.5	Hrs	0.2	Hrs	
I18 to I19	5+30	Repair inlet of culvert		Hrs		Hrs	0.5	Hrs	0.2	Hrs	
I18 to I19	12+90	Repair inlet of culvert		Hrs		Hrs	0.5	Hrs	0.2	Hrs	
I20 to I21	18+20	Repair inlet of culvert		Hrs		Hrs	0.5	Hrs	0.2	Hrs	
I20 to I21	32+25	Repair inlet of culvert		Hrs		Hrs	0.5	Hrs	0.2	Hrs	
I20 to I21	41+65	Repair inlet of culvert		Hrs		Hrs	0.5	Hrs	0.2	Hrs	
I20 to I21	45+75	Repair inlet of culvert		Hrs		Hrs	0.5	Hrs	0.2	Hrs	
			0.25	Hrs	0.5	Hrs	5.5	Hrs	2.3	Hrs	0
			$ 85.00	Hr	$ 85.00	Hr	$25.00	Hr	$ 36.00	Hr	
		Totals	**$ 21.25**		**$ 42.50**		**$ 137.50**		**$ 82.80**		
jcd 3/13/02		**$ 284.05**									

x:\document\FY2002 Sales\Rock Creek S.I.\Sale Prep\Projects-Roads\Ditchouts.xls

Sale Name: Rock Creek Stand Improvement
Project: Point I7 to Point I9, Sta. 9+40
Project Type: Type F "Fish Culvert Replacement"

Prepared by: F. Lertora

Date: 03/11/2002

Phase I: Fill and Culvert Removal

Qty.	Equipment	Time (hr)	Rate ($/hr)	Cost ($)
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
				$2,748.00

Phase II: Development of Culvert Bed & De-watering

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	$912.00
30*	1 1/2"-0" Crushed Bedding Rock ($/cy)			
1	Hydraulic Rock Hammer	24	$85.00	$2,040.00
1	Sand Bags (40 bags, $25; sand 10cy $110)		$135.00	$135.00
1	Hand Held Tamper	8	$6.00	$48.00
1	6 mil. Plastic (10' x 50' roll) ($/roll)		$13.50	$13.50
4	Bands for De-Watering Culvert, 24"x100' Poly ($/band)		$17.18	$68.72
2	Laborer	8	$25.00	$400.00
				$4,537.22

Phase III: Pipe Installation and Fill Reconstruction

Qty.	Equipment	Time (hr)	Rate ($/hr)	Cost ($)
1	Excavator w/ 1-1/2 cy bucket	20	$115.00	$2,300.00
2	12-yard Dump Truck	20	$57.00	$2,280.00
1	Vibratory Roller	8	$75.00	$600.00
1	Loader (w/o operator)	20	$45.00	$900.00
1	Tamper	20	$6.00	$120.00
1	Laborer	20	$28.00	$560.00
60*	1 1/2"-0" Crushed Backfill Rock ($/cy)			
100*	Rip-Rap Rock ($/cy)			
65	Pipe Arch, 112"x75", 12ga., w/bevel ($/ft)		$90.47	$5,880.50
				$12,640.50

Phase IV: Surfacing and Mulching

Qty.	Equipment	Time (hr)	Rate ($/hr)	Cost ($)
64**	4"-0" Rock			
49**	3/4"-0" Rock			
0.2	Straw Mulch w/Seed Application EC mix ($/ac.)		$1,195.00	$239.00
				$239.00

** Rock haul is included with the Summary of Construction for the road segment I7 to I9.*

*** Surfacing is included with the Summary of Construction for the road segment I7 to I9.*

Total Project Cost = $20,164.72

Rock Creek SI — I3-I7 and I7-I9 fills

Sta.	Description	C235	D-7, and skidder W/operator	Dump Truck	Mechanical Tamper w/operator	Total
I3-I7 0+60	Culvert replacement/ fill reconstruction* 9' fill ht. In Stream Channel	8 hr	4 hr	6 hr	3 hr	
I7-I9 23+45	Culvert replacement/ fill reconstruction 12' fill ht. In Stream Channel	16 hr	8 hr	12 hr	6 hr	
I7-I9 23+45	Energy dissipator construction	2 hr				
	Haul away old culverts to refuse site			5 hr		
Total		26 hr	12 hr	23 hr	9 hr	
Rate		$115 /hr	$90 /hr	$57 /hr	$45 /hr	
Cost		$2,990	$ 1080	$1,311	$405	$5,786

Note: C235 excavator hours for fill reconstructions includes the placement of riprap rock at outfall.

C:\mydoc\RockCreekSI\Fillcosts.xls

C.Day 2/11/02

DG

CRUSHED ROCK COST

SALE NAME: Rock Creek SI
PROJECT: Road Improvement
QUARRY: Big Noise
ROCK TYPE: Crushed
DATE: 3/19/02
BY: JCD

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
4A-4B	13.80	814			1	0.55	0.50	0.25	0.15	2.65
5A-5B	1.00	52			1	0.65	0.50	0.20	0.10	2.55
I1 to I3	63.95	1,659			3	0.75	0.65	0.20	0.10	4.20
I3 to I4	82.15	2,005			1	0.65	0.50	0.20	0.10	2.30
I3 to I7	4.70	161			2	0.75	0.65	0.10	0.05	3.45
I5 to I6	7.65	263			2	0.50	0.30	0.10	0.10	2.50
I7 to I8	27.60	168			2	0.75	0.60	0.25	0.15	3.65
I7 to I9	26.40	837			2	0.65	0.45	0.10	0.10	3.20
I9 to I10	15.85	611			2	0.70	0.55	0.10	0.05	3.20
I9 to I12	41.65	899			1	0.50	0.50	0.10	0.05	2.30
I11 tol 12	17.60	370			1	0.55	0.35	0.10	0.05	1.80
I12 to I18	48.10	1,034			1	0.55	0.75	0.10	0.10	2.30
I18 to I13	5.90	196			1	0.60	0.70	0.10	0.05	2.25
I14 to I15	29.35	886			1	0.60	0.70	0.10	0.05	2.25
I16 to I17	19.35	74			1	0.60	0.70	0.10	0.05	2.35
I18 to I19	23.45	814			1	0.65	0.60	0.15	0.10	2.40
TOTAL	428.50	10,843								AVERAGE
	STA./NO.	CU. YD.								HAUL
CUBIC YARD WEIGHTED HAUL					1.33	0.63	0.57	0.15	0.09	2.77
							Average Round Trip Distance (miles)		5.53	

ROCK HAUL:

Truck type: D20 No. trucks: 3
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks: 3
Delay min.: 12 Efficiency: 75%

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

Ave haul: $2.50 /cy
Load: $0.40 /cy
Spread: $0.65 /cy

Production: cy/day = 1,190

CRUSHED ROCK HAUL COSTS 10,843 cy @ **$3.55 /cy**

PIT RUN ROCK COST

SALE NAME: Rock Creek SI
PROJECT: Road Improvement
QUARRY: Big Noise
ROCK TYPE: Pit Run
DATE: 3/19/02
BY: jcd

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
3B		80			2	0.55	0.25	0.10	0.05	2.65
4B		80			1	0.50	0.20	0.15	0.05	2.10
5B		80			2	0.60	0.35	0.15	0.10	2.75
I6		80			2	0.50	0.30	0.10	0.10	2.50
I10		80			2	0.65	0.25	0.10	0.05	2.85
15+40 I12-I14		80			2	0.50	0.20	0.10	0.05	2.45
18+00 I16-I17		80			2	0.60	0.20	0.10	0.05	2.75
I19		80			2	0.80	0.25	0.15	0.05	3.25
I3-I7		24			2	0.60	0.20	0.10	0.05	2.65
I7-I9		84			2	0.65	0.25	0.10	0.05	2.85
TOTAL		748								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**1.66**	**0.59**	**0.25**	**0.12**	**0.06**	**2.68**
								Average Round Trip Distance (miles)	5.37	

ROCK HAUL:

Truck type: D20 No. trucks: 2
Delay min.: 15 Efficiency: 75%

Truck type: D12 No. trucks: 2
Delay min.: 12 Efficiency: 75%

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

Ave haul: $2.30 /cy
Load: $0.45 /cy
Spread: $0.80 /cy

Production: cy/day = 861

PIT RUN ROCK HAUL COSTS 748 cy @ **$3.55 /cy**

RIP RAP ROCK COST

SALE NAME: Rock Creek SI
PROJECT: Road Improvement
QUARRY: Big Noise
ROCK TYPE: Rip Rap
DATE: 3/19/02
BY: jcd

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
I1-I3		12			2	0.85	0.60	0.20	0.10	3.75
I3-I4		12			1	0.65	0.50	0.20	0.10	2.30
I7-I9		184			1	0.60	0.50	0.20	0.05	2.35
I11-I12		50			1	0.55	0.35	0.10	0.05	1.80
I12-I13		36			1	0.65	0.60	0.15	0.10	2.40
I16-I17		12			1	0.60	0.70	0.10	0.05	2.35
I18-I19		12			1	0.65	0.60	0.15	0.10	2.40
TOTAL		318								AVERAGE HAUL
STA./NO.		CU. YD.								
CUBIC YARD WEIGHTED HAUL					**0.97**	**0.61**	**0.50**	**0.17**	**0.06**	**2.32**
								Average Round Trip Distance (miles)	4.64	

ROCK HAUL:

Truck type: D12 No. trucks: 2
Delay min.: 12 Efficiency: 75%

Truck type: D10 No. trucks: 2
Delay min.: 10 Efficiency: 75%

Ave haul: $2.79 /cy
Load: $0.75 /cy
Develop: _____ /cy

Production: cy/day = 654

RIP RAP ROCK HAUL COSTS 318 cy @ **$3.54 /cy**

Rock Creek SI
ROADSIDE BRUSHING

MODERATE BRUSHING

Point to Point	Station to Station	No. Sta.	Mileage
I1 to I3	0+00 to 63+95	63.95	1.21
I3 to I4	0+00 to 82+15	82.15	1.56
I3 to I7	0+00 to 4+70	4.70	0.09
I5 toI6	0+00 to 7+65	7.65	0.14
I7 to I8	0+00 to 27+60	27.60	0.52
I7 to I9	0+00 to 26+40	26.40	0.50
I9 to I10	0+00 to 15+80	15.80	0.30
I9 to I12	0+00 to 41+65	41.65	0.79
I11 to I12	0+00 to 17+60	17.60	0.33
I12 to I13	0+00 to 54+00	54.00	1.02
I14 to I15	0+00 to 29+35	29.35	0.56
I16 to I17	0+00 to 19+35	19.35	0.37
I18 to I19	0+00 to 23+45	23.45	0.44
TOTALS		413.65	7.83

Rate per mile = $1,100.00 at 7.83 miles = $8,617.71

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Chuck Day 3/21/02

Project Work Road Maintenance Cost Summary

Sale: **Rock Creek SI**
Date: 18-Apr-20
By: Dan Goody

Type	Equipment/Rationale	Hours	Rate	Cost	
Final Haul Project Road Maintenance Haul Route	Grader (14G)	16	$80	$1,280	
	Dump Truck	16	$57	$912	
	FE Loader	16	$60	$960	
	Vibratory Roller	16	$75	$1,200	
	Water Truck	12	$67	$804	
	Labor (Culvert cleaning, etc.)	6	$25	$150	
					Total **$5,306**

Nicolai Mainline/Porter Ridge Road
Production Rates
Grader

Miles/day	Distance(miles)	Days	Hours
1.50	2.5	1.7	13

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TIMBER CRUISE REPORT

ROCK CREEK STAND IMPROVEMENT
FY 2002

1. **Sale Area Location:**
Areas 1 - 6 and Areas A – E are located in portions of Sections 23 and 26, Township 8 N., Range 7 W., Willamette Meridian, all located in Clatsop County, Oregon.

2. **Fund Distribution:**
BOF = 100%
BOF Lands: Tax Code = 1-02 88%
Tax Code = 4-01 12%

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

Area	Treatments	Gross Acres	Existing R/W	Stream Buffers	Patch Cut Acres	Net Acres **	Survey Method
1	Partial Cut	66	0.3	0.9	0	65	GIS
2	Partial Cut	41	1.4	0	0	40	GIS
3	Regen. Harvest	14	0	0	0	14	GIS
4	Regen. Harvest	28	0	3.3	0	25	GIS
5	Partial Cut	46	0	0.8	3 (A)*	42	GIS
6	Partial Cut	143	5	13.7	9 (B-E)*	115	GIS
A	Patch Cut-Regen.	(3)	0	0		3	GIS
B	Patch Cut–Regen.	(3.5)	0	0		3.5	GIS
C	Patch Cut-Regen.	(2)	0	0		2	GIS
D	Patch Cut-Regen.	(1)	0	0		1	GIS
E	Patch Cut-Regen.	(2.5)	0	0		2.5	GIS
TOTAL		**338**	**6.7**	**18.7**	**(12)**	**313**	

* Patch Cuts acres removed from Areas 5 and 6.
** Rounded to nearest acre.

4. **Cruisers and Cruise Dates:**
Areas 3 and 4 were cruised by Tom Scoggins on 12/31/01 and 1/25/02. Areas 2, 5, part of 6, and the Patch Cuts (A, B, C, D, & E) were cruised on 2/4/02, by Jon Long, Kraig Kirkpatrick, Tom Scoggins, Becky Mittner and Ed Holloran. Area 1 and the remaining portion of Area 6 were cruised on 2/12/02 by Jon Long, Chuck Day and Ed Holloran.

5. **Cruise Method and Computations:**
Areas 3 and 4 are regeneration harvest areas and the cruise was designed for one variable plot per acre. The target SE was 8% with 100 trees planned and 100 trees actually measured on 34 plots. Areas 1,2,5, and 6 are auto-mark partial cuts. The target SE was 8% with 150 trees planned and 134 trees actually measured. One variable plot was planned for every 5 acres for a total of 54 plots. The patch cut regeneration areas (A through E) were cruised with one variable plot per acre for a total of 12 plots. The target SE was 8% with 25 trees planned and 30 trees actually measured.
All cruises used Corvallis Micro Technology (CMT) data collectors and were downloaded to the Atterbury SUPER A.C.E. program in the Astoria District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

6. **Timber Description:**

Areas 1 and 6 are mixed conifer, 75 to 79 years old, with some hardwood present and a carpet of hemlock understory. The proposed Stand Density Index (SDI) is 25% for the residual stand with an average DBH of 26" on the Douglas-fir and 22" DBH on the Western Hemlock. The harvest will remove approximately 42 trees per acre with an average DBH of 22" on the Douglas-fir, and 18" on the Western Hemlock. With a height of 82 feet, and a net volume of 15 MBF per acre.

Areas 2 and 5 area also mixed conifer, 77 to 79 years old, with some hardwood present and a carpet of hemlock understory. The proposed SDI is 21% for the residual stand with an average DBH of 28.5" on the Douglas-fir, and 24" on the Western Hemlock. The harvest will remove approximately 54 trees per acre with an average DBH of 21.5" on the Douglas-fir and 16.5" on the Western Hemlock, with an average height of 77 feet and a net volume of 20 MBF per acre.

Areas 3 and 4 are regeneration harvest units of mixed conifer with patches of heavy hemlock understory. The age is around 75 years old for the stand. The harvest will remove approximately 48.6 MBF (net) per acre, 73 trees per acre, with an average DBH of 23" with and average height of 92 feet. The timber to be cut is limited to trees over 12' DBH.

The patch cuts in Areas 5 and 6 (labeled Areas A, B, C, D, and E) are regeneration cuts to re-establish Douglas-fir seedlings into the stands. The harvest will remove approximately 37 MBF (net), per acre, 81 trees per acre with an average DBH of 21" and an average height of 79 feet.

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

Area	Target CV	Target SE %	Actual CV	Actual SE %
1,2, 5 and 6	55	8	38.8	5.3
3 and 4		8	30.3	5.2
Patch Cuts (A,B,C,D, & E)	55	8	46.0	13.3

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

8. **Volumes by Species and Sale Areas:** (See Species, Sort, Grade, Length %Type Reports", attached.)

Volumes do not include "in-growth". The majority of defect and breakage was culled during the cruise. The total net MBF volumes by species and grade are as follows:

Species	DBH	Net. Vol.	#2 Saw	#3 Saw	#4 Saw	% D & B	%/Sp.
Douglas-fir	22.3	3,076	2,554	459	63	1.0	46
W. Hemlock	18.8	3,621	2,698	757	166	1.9	54
Sitka Spruce	18.6	27	23	4	0	0	<1
Red Alder	9.3	3	0	0	3	0	Neg.
Totals		**6,727**	**5,275**	**1,220**	**232**		**100**

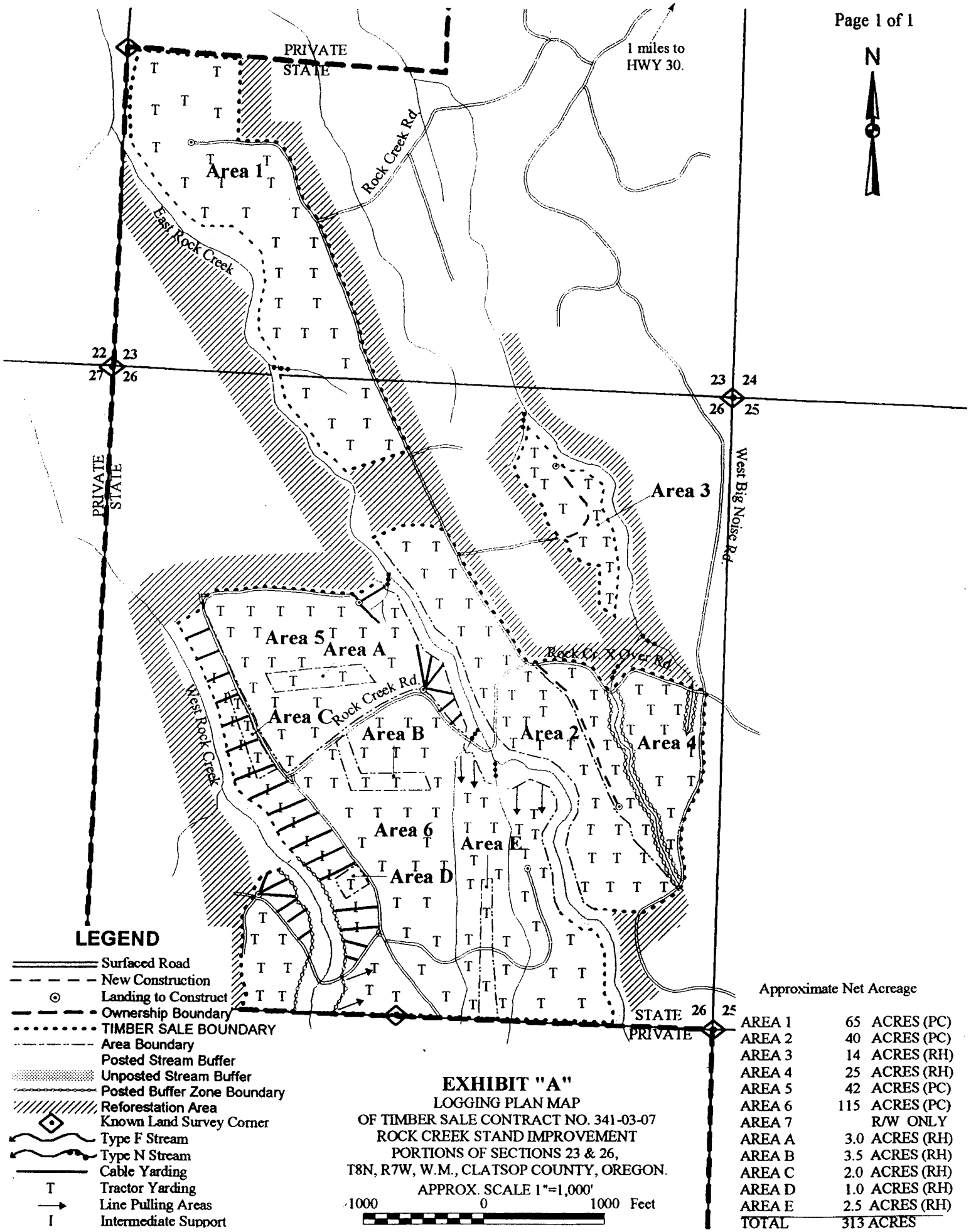
9. **Approvals:**

Prepared by : Ed Holloran Date: April 1, 2002

Approved by: Tom Soggin Date: April 1, 2002

10. **Attachments:**

a) Cruise Designs: Areas 1,2,5 & 6; 3 &4; and Patch Cuts (A, B, C, D, & E).
b) Cruise Maps – 3 pages.
c) Species, Sort &Grade (Volume) Reports. - 5 pages.
d) Statistical Reports. - 18 pages.
e) Stand Tables. - 3 pages.



LEGEND

- Surfaced Road
- New Construction
- Landing to Construct
- Ownership Boundary
- TIMBER SALE BOUNDARY
- Area Boundary
- Posted Stream Buffer
- Unposted Stream Buffer
- Posted Buffer Zone Boundary
- Reforestation Area
- Known Land Survey Corner
- Type F Stream
- Type N Stream
- Cable Yarding
- T — Tractor Yarding
- Line Pulling Areas
- I — Intermediate Support

EXHIBIT "A"

LOGGING PLAN MAP
OF TIMBER SALE CONTRACT NO. 341-03-07
ROCK CREEK STAND IMPROVEMENT
PORTIONS OF SECTIONS 23 & 26,
T8N, R7W, W.M., CLATSOP COUNTY, OREGON.
APPROX. SCALE 1"=1,000'

1000 0 1000 Feet

Approximate Net Acreage

AREA 1	65	ACRES (PC)
AREA 2	40	ACRES (PC)
AREA 3	14	ACRES (RH)
AREA 4	25	ACRES (RH)
AREA 5	42	ACRES (PC)
AREA 6	115	ACRES (PC)
AREA 7		R/W ONLY
AREA A	3.0	ACRES (RH)
AREA B	3.5	ACRES (RH)
AREA C	2.0	ACRES (RH)
AREA D	1.0	ACRES (RH)
AREA E	2.5	ACRES (RH)
TOTAL	313	ACRES

ATTACHMENT A
Page 1

CRUISE DESIGN

1 & 2

Sale Name Rock Creek SI Area(s) 5 & 6

1. Cruise Method:
   - A. X Variable Plot: BAF 40 (Full or Half Point Full
     Sighting point (BH or 16') 4½' BH
   - 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 ___ Partial Cut: Indicate Take (T) and Leave (L) trees.

2. Plot Spacing: Lines are 10 feet, (chains apart) (circle correct one)
   Plots are 5 feet, (chains apart)
   Cruise line direction is ___ Due East & West

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.)
   Estimated CV is 55% target SE is 8% for board foot Volume Target is 150 conifer Grade Trees measure 1 of 2 (count plot every other one) Planned is 56 plots - 28 measured plots. Average 6 Trees per plot will give 168 conifer grade Trees Need good sample of Grade's Heavy Reprod. in Places Brushout To trees being Careful Not to Miss Trees Leave Trees: BA 120 Areas 2+5 BA 140 Areas 1+6
   Western Red Cedar Reserved

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 9 " 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 Rock Creek SI Area(s) 1, 2, 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; Bifleaf Maple = M.

B. Sorts: Domestic = 1; Leave tree = L; Take tree = T.

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

Leave trees: DL, HL, etc.

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. Attachments:

A. 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.

B. Miscellaneous Tatum Aids: (1) CMT data entry guides; (2) _____

CRUISE DESIGN

Sale Name Rock Creek SI Area(s) Patch Cuts A, B, C, D, & E

1. Cruise Method:
   - A. ___ Variable Plot: BAF 40 (Full) or Half Point F
     Sighting point (BH or 16') BH
   - 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 ___ Partial Cut: Indicate Take (T) and Leave (L) trees.

2. Plot Spacing: 1 Line per Patch Cut
   Plots are 5 feet, (chains apart) except in "A" where they are 4 chains
   Cruise line direction is A = 84° B = 160° then Due East
   C = 339°/152° D = 47° E = Due North & South

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.)
   Estimated CV is 55%. Target SE is 8% Plan 1 Plot per Acre
   Target is 25 conifer Grade Trees Planned 12 Plots and
   Measure every other Plot Count only every other Plot Heavy Reprod.
   Be very careful Not to Miss Trees — Brush out to check

   Western Red Cedar Reserved

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 8 " 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 Rock Creek SI Area(s) Patch Cuts A, B, C, D, & E

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; Bifleaf Maple = M.

B. Sorts: Domestic = 1; Leave tree = L; Take tree = T.

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. Attachments:

A. 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.

B. Miscellaneous Tatum Aids: (1) CMT data entry guides; (2) _____

CRUISE DESIGN

Sale Name Rock Creek S.I. **Area(s)** 3, & 4 (clearcuts)

1. Cruise Method:
   - A. ✓ Variable Plot: BAF 40 (Full) or Half Point F
     Sighting point (BH or 16') ____
   - 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 ___ Partial Cut: Indicate Take (T) and Leave (L) trees.

2. Plot Spacing: Lines are 3 feet, (chains) apart (circle correct one)
   Plots are 3 feet, (chains) apart
   Cruise line direction is N60E - S60W

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.)
   Target SE = 8% Target "grade" trees = 100. Est. vol/acre = 45 MBF. Grade/measure trees on every other plot (plots 1, 3, 5, 7, 9, etc.)
   Estimate down wood at each plot (1/25 acre fixed plot).

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 11.0" for conifers and 11.0" 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 Rock Creek S.I. Area(s) 3 & 4

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; Bifleaf Maple = M.

B. Sorts: Domestic = 1; Leave tree = L; Take tree = T.

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

DL, HL, SL, CL, etc. for wildlife trees; SN for snags.

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.

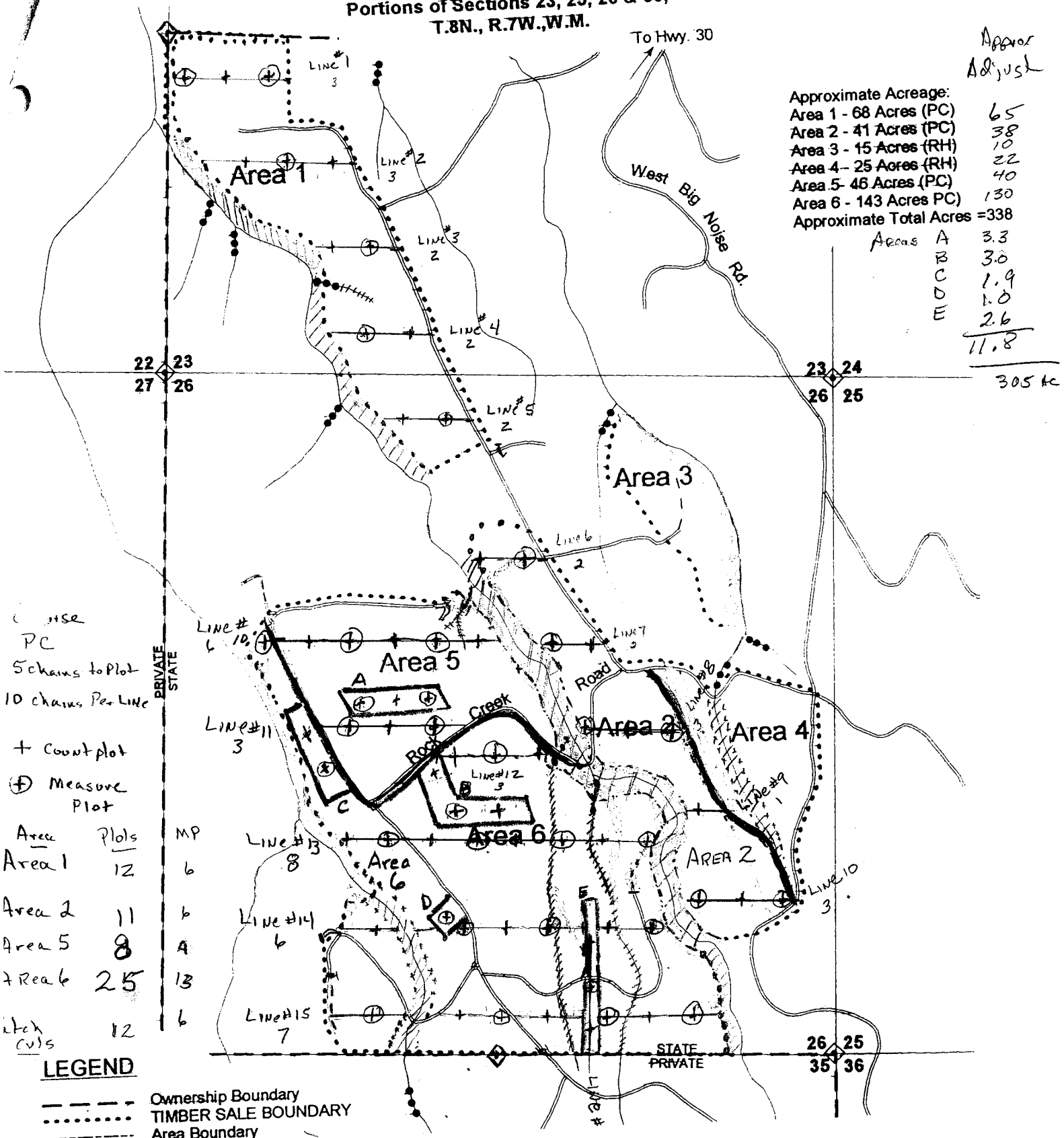
11. Cruising Equipment: Relaskop, rangefinder, diameter tape or rewind tape, biltmore stick, compass, increment borer, tatum and cruise cards or CMT data recorder, yellow and blue ribbon, permanent marker, Scaling and Grading Rules book, and Cruise Design and Map.

12. Attachments:

A. 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.

B. Miscellaneous Tatum Aids: (1) CMT data entry guides; (2) _____

FY2002
Rock Creek Stand Improvement
Pre-Sale Map
Portions of Sections 23, 25, 26 & 36, T.8N., R.7W.,W.M.



Approx Adjust

Approximate Acreage:

Area 1 - 68 Acres (PC)	65
Area 2 - 41 Acres (PC)	38
Area 3 - 15 Acres (RH)	10
Area 4 - 25 Acres (RH)	22
Area 5 - 46 Acres (PC)	40
Area 6 - 143 Acres PC)	130
Approximate Total Acres =	338

Areas

A	3.3
B	3.0
C	1.9
D	1.0
E	2.6
	11.8

305 ac

PC
5 chains to Plot
10 chains Per Line

+ Count plot
⊕ Measure Plot

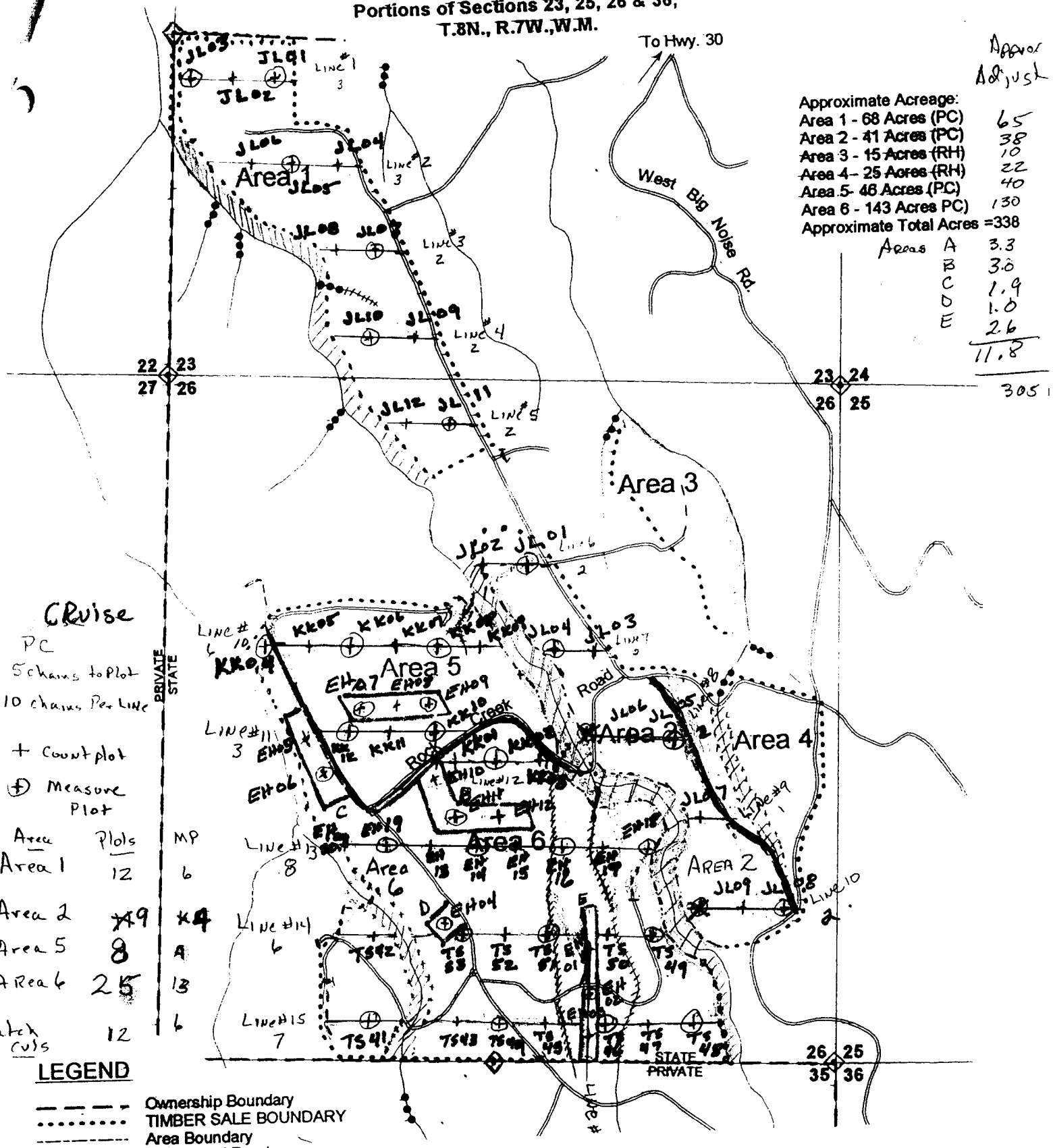
Area	Plots	MP
Area 1	12	6
Area 2	11	6
Area 5	8	4
Area 6	25	13
Hitch cuts	12	6

LEGEND

- Ownership Boundary
- TIMBER SALE BOUNDARY
- Area Boundary
- Unsurfaced Road
- Surfaced Road
- ~~State Highway~~
- New Construction
- Type F Stream
- Type N Stream
- Buffer

FY2002
Rock Creek Stand Improvement
Pre-Sale Map
Portions of Sections 23, 25, 26 & 36, T.8N., R.7W.,W.M.

Cruise Summary
Plot Map



Approx Adjust

Approximate Acreage:

Area 1 - 68 Acres (PC)	65
Area 2 - 41 Acres (PC)	38
~~Area 3 - 15 Acres (RH)~~	10
~~Area 4 - 25 Acres (RH)~~	22
Area 5- 46 Acres (PC)	40
Area 6 - 143 Acres PC)	130
Approximate Total Acres	=338

Areas	
A	3.3
B	3.0
C	1.9
D	1.0
E	2.6
	11.8

305 1

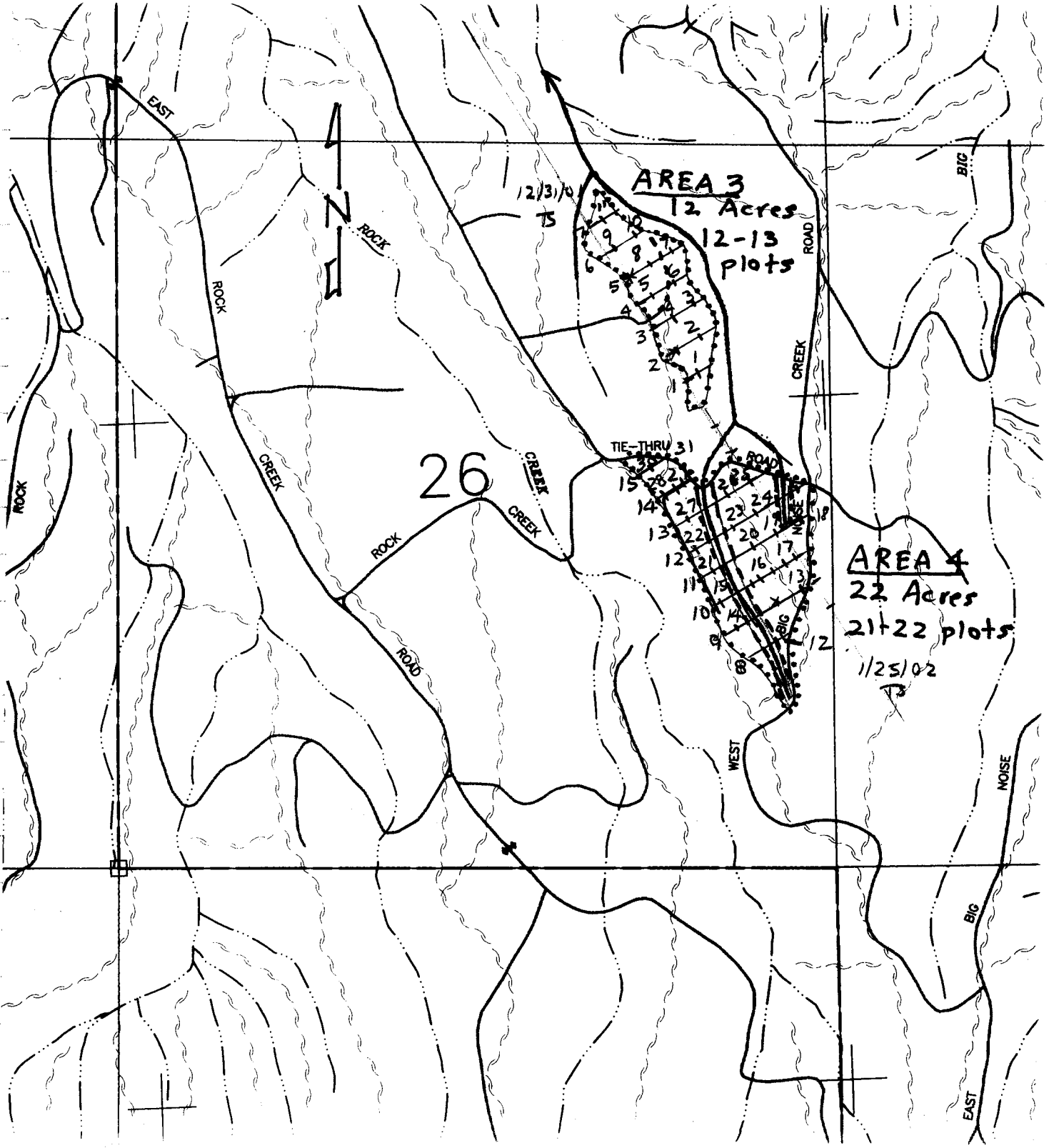
Cruise
PC
5 chains to Plot
10 chains Per Line

+ Count plot
⊕ Measure Plot

Area	Plots	MP
Area 1	12	6
Area 2	~~19~~	~~4~~
Area 5	8	4
Area 6	25	13
Patch cuts	12	6

LEGEND

- Ownership Boundary
- TIMBER SALE BOUNDARY
- Area Boundary
- Unsurfaced Road
- Surfaced Road
- ~~State Highway~~
- New Construction
- Type F Stream
- Type N Stream
- Buffer



ROCK CREEK STAND IMPROVEMENT

CRUISE MAP - Areas 3 & 4

Section 26, T8N, R7W, W.M.

Clatsop County

Approx. 34 Acres

Lines N60E
S60W
3.3 chains

Plots 3 ch.

Grade 1 in 2

12/01

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T08N R07W S23 TyTK25
THRU
T8N R7W S26 TyTK03

Project: **ROCKCRSI**

Acres **313.00**

Date 4/1/2002
Time 12:46:48PM

Spp	S T	So Gr rt 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		DOCU														5		0.00	7.9
H		DO2S	40	1.6	8,765	8,622	2,699		0	54	46	0	3	40	56	36	322	2.01	26.8
H		DO3S	11	2.6	2,481	2,417	756		96	4		0	5	36	59	36	94	0.79	25.7
H		DO4S	2	2.7	546	531	166	15	85			50	50			20	25	0.46	21.1
H	**Totals**		54	1.9	11,791	11,569	3,621	1	24	41	34	3	6	37	54	29	142	1.22	81.5
D		DOCU														4		0.00	3.8
D		DO2S	38	.7	8,220	8,162	2,555		2	52	45	0	7	22	71	35	319	2.02	25.6
D		DO3S	7	1.9	1,495	1,466	459		100			5	5	46	44	34	82	0.74	17.9
D		DO4S	1	4.8	211	201	63		100			24	62	14		21	29	0.46	6.9
D	**Totals**		46	1.0	9,926	9,829	3,076		19	43	38	1	8	26	65	31	182	1.40	54.1
S		DOCU														16		0.00	.3
S		DO2S	0		73	73	23				100				100	40	700	4.55	.1
S		DO3S	0		13	13	4		100						100	40	120	1.35	.1
S	**Totals**		0		86	86	27		15		85				100	25	161	1.82	.5
A		DO4S	0		9	9	3	100						100		32	30	0.34	.3
A	**Totals**		0		9	9	3	100						100		32	30	0.34	.3
Totals				1.5	21,813	21,494	6,727	0	22	42	36	2	7	32	59	30	157	1.30	136.5

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: ROCKCRSI

Page 1
Date 4/1/2002
Time 12:43:00PM

T08N R07W S23 TTK25

Twp	Rge	Sec	Tract	Typ	Acre	Plots	Sample Trees
08N	07W	23	AREAS 1& 6	TK25	180.00	37	35

T08N R07W S23 TTK25

Spp	ST	Sort	Grad	% 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	7.1
H		DO	2S	66	2.1	5,317	5,207	937			76	24		5	41	53	35	263	1.72	19.8
H		DO	3S	28	3.5	2,309	2,227	401		92	8			2	39	59	36	92	0.78	24.2
H		DO	4S	6	1.8	506	497	89		00			68	32			19	25	0.46	19.7
H	**Totals**			52	2.5	8,131	7,931	1,428		32	52	16	4	6	38	52	28	112	1.04	70.8
D		DO	CU														4		0.00	5.6
D		DO	2S	80	.7	5,841	5,800	1,044			66	34		13	25	62	34	291	1.95	19.9
D		DO	3S	18	1.3	1,344	1,327	239		00			7	3	36	54	34	83	0.79	15.9
D		DO	4S	2		149	149	27		00			21	79			20	26	0.48	5.7
D	**Totals**			48	.8	7,334	7,277	1,310		20	53	27	2	12	27	60	29	154	1.33	47.2
Type Totals					1.7	15,466	15,208	2,737		26	52	21	3	9	33	55	28	129	1.16	118.0

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: ROCKCRSI

Date 3/18/2002

Time 1:35:18PM

T08N R07W S23 TTK20

Twp	Rge	Sec	Tract	Typ	Acre	Plots	Sample Trees
08N	07W	23	AREAS 2& 5	TK20	S82.00	17	19

T08N R07W S23 TTK20

Spp	ST	Sort	Grad	% 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
D		DO	2S	82	.8	10,151	10,066	825		7	54	39		4	26	70	36	293	1.86	34.3
D		DO	3S	16	2.1	1,968	1,927	158		00				7	65	27	34	79	0.66	24.4
D		DO	4S	3	7.7	344	317	26		00			9	57	34		24	34	0.40	9.4
D	**Totals**			61	1.2	12,463	12,310	1,009		24	44	32	0	6	32	62	34	181	1.28	68.2
H		DO	CU														7		0.00	4.7
H		DO	2S	66		5,098	5,098	418			62	38			59	41	36	339	2.29	15.0
H		DO	3S	28		2,146	2,146	176		00				5	34	61	36	108	0.80	20.0
H		DO	4S	6		492	492	40	62	38			21	79			20	22	0.40	22.5
H	**Totals**			39		7,735	7,735	634	4	30	41	25	1	6	48	44	28	125	1.14	62.1
Type Totals					.8	20,199	20,045	1,644	2	26	43	29	1	6	38	55	31	154	1.22	130.3

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: ROCKCRSI

Date 3/19/2002

Time 3:40:29PM

T8N R7W S26 TTK03

Twp	Rge	Sec	Tract	Typ	Acre	Plots	Sample Trees
8N	7W	26	CC-AREAS 3 4	TK03	S39.00	34	87

T8N R7W S26 TTK03

Spp	S T	So rt	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														4		0.00	19.9
H		DO	2S	87	1.6	31,085	30,572	1,192			34	66	1	3	35	61	36	384	2.25	79.6
H		DO	3S	11	3.7	3,827	3,686	144		00			2	17	17	64	35	88	0.81	41.8
H		DO	4S	2	9.0	861	784	31		00			32	68			22	31	0.57	25.5
H	**Totals**			72	2.0	35,773	35,043	1,367		13	30	57	2	6	33	60	29	210	1.60	166.8
D		DO	CU														6		0.00	4.2
D		DO	2S	93	.6	11,997	11,925	465			25	75		2	13	85	38	462	2.55	25.8
D		DO	3S	6	7.9	835	769	30		00			13	12	39	35	32	80	0.86	9.7
D		DO	4S	1	16.4	155	130	5		00			66	34			20	26	0.50	5.0
D	**Totals**			26	1.3	12,987	12,823	500		7	23	70	1	3	14	81	31	287	1.99	44.7
S		DO	2S	85		590	590	23				100				00	40	700	4.55	.8
S		DO	3S	15		101	101	4		00						00	40	120	1.35	.8
S	**Totals**			1		691	691	27		15		85				100	40	410	2.95	1.7
A		DO	4S	00		75	75	3	100						100		32	30	0.34	2.5
A	**Totals**			0		75	75	3	100						100		32	30	0.34	2.5
Type Totals					1.8	49,525	48,631	1,897	0	11	28	61	2	5	27	66	30	226	1.69	215.6

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: ROCKCRSI

Page 1
Date 3/18/2002
Time 3:56:32PM

T8N R7W S23 T004

Twp	Rge	Sec	Tract	Typ	Acre	Plots	Sample Trees
8N	7W	23	PATCH-CUTS	004	S12.00	12	30

T8N R7W S23 T004

Spp	ST	So rt	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
D		DO	2S	86	.4	18,448	18,366	220			38	62	4		17	79	35	365	2.28	50.3
D		DO	3S	12		2,653	2,653	32		00			4	9	35	52	34	89	0.74	29.7
D		DO	4S	2		407	407	5		00			76	24			18	31	0.59	13.1
D	**Totals**			57	.4	21,507	21,425	257		14	33	53	5	2	19	74	32	230	1.63	93.1
H		DO	CU														6		0.00	2.8
H		DO	2S	78	3.2	13,000	12,584	151		6	53	41			19	81	38	316	1.88	39.9
H		DO	3S	19		2,983	2,983	36		00					82	18	34	82	0.71	36.3
H		DO	4S	3		485	485	6		00			71	29			17	27	0.58	17.9
H	**Totals**			43	2.5	16,468	16,052	193		26	42	32	2	1	30	67	32	166	1.27	96.9
S		DO	CU														16		0.00	8.5
S	**Totals**																16		0.00	8.5
Type Totals					1.3	37,975	37,477	450		19	37	44	4	1	24	71	31	189	1.42	198.4

PROJECT STATISTICS

PROJECT ROCKCRSI

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES
08N	07	23	AREAS 1& 6	RD25	262.00	54	136
08N	07W	23	AREAS 2& 5	RD20			

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	54	296	5.5		
CRUISE	27	136	5.0	22,052	.6
REFOREST					
COUNT	27	160	5.9		
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
DOUGLEAV	53	20.7	26.6	111		80.0	18,913	18,759	4,236	4,236
DOUG FIR	27	17.7	21.6	96		45.2	8,940	8,852	2,169	2,169
WHEMLOCK	27	28.4	17.5	70		47.4	8,007	7,870	2,043	2,043
HEMLEAV	27	15.9	22.5	97		43.7	9,638	9,541	2,191	2,191
SNAG	2	1.5	18.8	85		3.0				
TOTAL	*136*	*84.2*	*21.9*	*91*		*219.3*	*45,499*	*45,022*	*10,639*	*10,639*

SAMPLE TREES - BF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	143.9	12.3	360	411	462			
DOUG FIR	245.4	21.0	100	126	153			
WHEMLOCK	242.8	20.8	63	79	95			
HEMLEAV	222.4	19.1	111	137	163			
SNAG								
TOTAL	*61.6*	*5.3*	*713*	*753*	*793*	*152*	*38*	*17*

SAMPLE TREES - CF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	138.6	11.9	80	91	102			
DOUG FIR	233.9	20.1	24	30	36			
WHEMLOCK	230.5	19.8	16	20	24			
HEMLEAV	218.6	18.7	25	31	37			
SNAG								
TOTAL	*53.2*	*4.6*	*164*	*171*	*179*	*113*	*28*	*13*

TREES/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	61.8	8.4	19	21	22			
DOUG FIR	128.9	17.5	15	18	21			
WHEMLOCK	118.2	16.1	24	28	33			
HEMLEAV	98.4	13.4	14	16	18			
SNAG	361.5	49.2	1	2	2			
TOTAL	*48.4*	*6.6*	*79*	*84*	*90*	*94*	*23*	*10*

BASAL AREA/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	60.7	8.3	73	80	87			
DOUG FIR	124.1	16.9	38	45	53			
WHEMLOCK	106.3	14.5	41	47	54			
HEMLEAV	94.5	12.9	38	44	49			
SNAG	356.9	48.6	2	3	4			
TOTAL	*38.9*	*5.3*	*208*	*219*	*231*	*61*	*15*	*7*

NET BF/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	62.6	8.5	17,160	18,759	20,358			
DOUG FIR	128.7	17.5	7,300	8,852	10,404			
WHEMLOCK	104.7	14.2	6,749	7,870	8,991			

PROJECT STATISTICS

PROJECT ROCKCRSI

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES
08N	07	23	AREAS 1& 6	RD25	262.00	54	136
08N	07W	23	AREAS 2& 5	RD20			

NET BF/ACRE

SD 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
HEMLEAV	94.7	12.9	8,311	9,541	10,770			
SNAG								
TOTAL	*38.8*	*5.3*	*42,641*	*45,022*	*47,402*	*60*	*15*	*7*

NET CUFT FT/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	61.5	8.4	3,881	4,236	4,591			
DOUG FIR	127.1	17.3	1,794	2,169	2,545			
WHEMLOCK	105.3	14.3	1,750	2,043	2,336			
HEMLEAV	94.8	12.9	1,908	2,191	2,473			
SNAG								
TOTAL	*39.2*	*5.3*	*10,072*	*10,639*	*11,206*	*61*	*15*	*7*

TC TSTATS

STATISTICS

PROJECT ROCKCRSI

DATE 4/1/2002

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
08N	07W	23	AREAS 1& 6	RD25	180.00	37	93

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	37	203	5.5		
CRUISE	19	93	4.9	15,140	.6
REFOREST					
COUNT	18	110	6.1		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV	37	22.6	26.0	109		83.2	19,194	18,970	4,338	4,338
WHEMLOCK	20	26.8	18.0	77		47.6	8,131	7,931	2,067	2,067
HEMLEAV	20	17.4	21.9	95		45.4	10,215	10,110	2,276	2,276
DOUG FIR	15	15.5	21.7	91		40.0	7,334	7,277	1,822	1,822
SNAG	1	1.8	18.0	80		3.2				
TOTAL	*93*	*84.1*	*21.9*	*92*		*219.5*	*44,875*	*44,288*	*10,503*	*10,503*

SAMPLE TREES - BF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	140.0	14.5	324	379	434			
WHEMLOCK	226.5	23.5	62	82	101			
HEMLEAV	213.4	22.1	115	148	180			
DOUG FIR	277.7	28.8	67	94	121			
SNAG								
TOTAL	*58.3*	*6.0*	*660*	*702*	*744*	*136*	*34*	*15*

SAMPLE TREES - CF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	135.0	14.0	73	85	97			
WHEMLOCK	216.8	22.5	16	21	25			
HEMLEAV	209.6	21.7	26	33	40			
DOUG FIR	262.9	27.3	16	23	29			
SNAG								
TOTAL	*50.3*	*5.2*	*153*	*161*	*169*	*101*	*25*	*11*

TREES/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	59.3	9.8	20	23	25			
WHEMLOCK	110.3	18.1	22	27	32			
HEMLEAV	91.6	15.1	15	17	20			
DOUG FIR	133.1	21.9	12	16	19			
SNAG	341.3	56.1	1	2	3			
TOTAL	*44.3*	*7.3*	*78*	*84*	*90*	*79*	*20*	*9*

BASAL AREA/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	59.3	9.7	75	83	91			
WHEMLOCK	102.7	16.9	40	48	56			
HEMLEAV	86.0	14.1	39	45	52			
DOUG FIR	131.2	21.6	31	40	49			
SNAG	341.3	56.1	1	3	5			
TOTAL	*38.6*	*6.3*	*206*	*219*	*233*	*60*	*15*	*7*

NET BF/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	61.4	10.1	17,057	18,970	20,884			
WHEMLOCK	102.6	16.9	6,594	7,931	9,268			
HEMLEAV	87.3	14.3	8,660	10,110	11,561			

STATISTICS

PROJECT ROCKCRSI

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
08N	07W	23	AREAS 1& 6	RD25	180.00	37	93

NET BF/ACRE

SD 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	136.8	22.5	5,640	7,277	8,913			
SNAG								
TOTAL	*36.8*	*6.1*	*41,607*	*44,288*	*46,969*	*54*	*14*	*6*

NET CUFT FT/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	60.4	9.9	3,907	4,338	4,768			
WHEMLOCK	102.9	16.9	1,718	2,067	2,417			
HEMLEAV	86.6	14.2	1,952	2,276	2,600			
DOUG FIR	134.4	22.1	1,419	1,822	2,224			
SNAG								
TOTAL	*37.7*	*6.2*	*9,852*	*10,503*	*11,153*	*57*	*14*	*6*

TC TSTATS

STATISTICS

PROJECT ROCKCRSI

DATE 3/18/2002

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
08N	07W	23	AREAS 2& 5	RD20	82.00	17	43

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	17	93	5.5		
CRUISE	8	43	5.4	6,912	.6
REFOREST					
COUNT	9	50	5.6		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV	16	16.4	28.5	118		72.9	18,295	18,295	4,013	4,013
DOUG FIR	12	22.5	21.5	105		56.5	12,463	12,310	2,931	2,931
WHEMLOCK	7	31.8	16.5	57		47.1	7,735	7,735	1,989	1,989
HEMLEAV	7	12.6	24.1	103		40.0	8,373	8,291	2,003	2,003
SNAG	1	.9	22.0	108		2.4				
TOTAL	*43*	*84.3*	*21.8*	*89*		*218.8*	*46,867*	*46,631*	*10,937*	*10,937*

SAMPLE TREES - BF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	147.4	22.5	372	480	587			
DOUG FIR	198.9	30.3	137	197	256			
WHEMLOCK	283.8	43.3	42	73	105			
HEMLEAV	248.6	37.9	71	114	157			
SNAG								
TOTAL	*64.1*	*9.8*	*779*	*864*	*948*	*165*	*41*	*18*

SAMPLE TREES - CF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	143.2	21.8	80	103	125			
DOUG FIR	191.1	29.1	32	45	59			
WHEMLOCK	265.9	40.5	11	18	26			
HEMLEAV	244.2	37.2	17	27	37			
SNAG								
TOTAL	*55.6*	*8.5*	*178*	*194*	*210*	*124*	*31*	*14*

TREES/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	62.9	15.3	14	16	19			
DOUG FIR	120.4	29.2	16	22	29			
WHEMLOCK	131.2	31.8	22	32	42			
HEMLEAV	118.1	28.6	9	13	16			
SNAG	412.3	100.0	0	1	2			
TOTAL	*57.8*	*14.0*	*72*	*84*	*96*	*134*	*33*	*15*

BASAL AREA/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	65.0	15.8	61	73	84			
DOUG FIR	112.2	27.2	41	56	72			
WHEMLOCK	117.3	28.4	34	47	60			
HEMLEAV	117.3	28.4	29	40	51			
SNAG	412.3	100.0		2	5			
TOTAL	*40.9*	*9.9*	*197*	*219*	*241*	*67*	*17*	*7*

NET BF/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	67.4	16.4	15,304	18,295	21,287			
DOUG FIR	111.7	27.1	8,974	12,310	15,646			
WHEMLOCK	112.6	27.3	5,624	7,735	9,847			

STATISTICS
PROJECT ROCKCRSI

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
08N	07W	23	AREAS 2& 5	RD20	82.00	17	43

NET BF/ACRE

SD 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
HEMLEAV	116.2	28.2	5,955	8,291	10,627			
SNAG								
TOTAL	*43.5*	*10.5*	*41,714*	*46,631*	*51,549*	*76*	*19*	*8*

NET CUFT FT/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	66.0	16.0	3,371	4,013	4,655			
DOUG FIR	112.3	27.2	2,133	2,931	3,730			
WHEMLOCK	114.1	27.7	1,439	1,989	2,540			
HEMLEAV	116.8	28.3	1,435	2,003	2,570			
SNAG								
TOTAL	*43.0*	*10.4*	*9,795*	*10,937*	*12,078*	*74*	*19*	*8*

TC TSTATS

STATISTICS

PROJECT ROCKCRSI

DATE 3/19/2002

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
8N	7W	26	CC-AREAS 3 4	0003	39.00	34	100

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	34	205	6.0		
CRUISE	17	100	5.9	3,156	3.2
REFOREST					
COUNT	17	105	6.2		
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	62	56.4	22.6	90		156.5	35,773	35,043	7,873	7,873
DOUG FIR	23	13.3	27.0	108		52.9	12,987	12,823	2,793	2,793
SNAG	8	3.0	27.0	37		11.8				
HEMLEAV	3	2.1	28.4	98		9.4	2,195	2,151	465	465
S SPRUCE	1	.8	32.0	82		4.7	691	691	199	199
SPRUCELV	1	.6	32.0	105		3.5	866	840	184	184
R ALDER	1	2.5	9.3	33		1.2	75	75	27	27
CEDLEAV	1	2.2	10.0	37		1.2	129	129	39	39
TOTAL	*100*	*80.9*	*23.4*	*88*		*241.2*	*52,716*	*51,752*	*11,580*	*11,580*

SAMPLE TREES - BF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	98.6	9.9	449	498	547			
DOUG FIR	213.5	21.3	219	279	338			
SNAG								
HEMLEAV	592.2	59.2	13	33	52			
S SPRUCE	1000.0	100.0		8	16			
SPRUCELV	1000.0	100.0		13	27			
R ALDER	1000.0	100.0	0	0	1			
CEDLEAV	1000.0	100.0	0	1	1			
TOTAL	*64.6*	*6.5*	*778*	*832*	*886*	*167*	*42*	*19*

SAMPLE TREES - CF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	95.3	9.5	100	110	121			
DOUG FIR	205.7	20.6	47	59	71			
SNAG								
HEMLEAV	588.1	58.8	3	7	11			
S SPRUCE	1000.0	100.0		2	5			
SPRUCELV	1000.0	100.0		3	6			
R ALDER	1000.0	100.0		0	0			
CEDLEAV	1000.0	100.0		0	0			
TOTAL	*58.6*	*5.9*	*171*	*182*	*193*	*137*	*34*	*15*

TREES/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	47.6	8.2	52	56	61			
DOUG FIR	109.2	18.7	11	13	16			
SNAG	222.2	38.1	2	3	4			
HEMLEAV	244.3	41.9	1	2	3			
S SPRUCE	347.9	59.7	0	1	1			
SPRUCELV	326.3	56.0	0	1	1			
R ALDER	583.1	100.0	0	2	5			
CEDLEAV	583.1	100.0	0	2	4			
TOTAL	*37.7*	*6.5*	*76*	*81*	*86*	*57*	*14*	*6*

BASAL AREA/ACRE

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

STATISTICS

PROJECT ROCKCRSI

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
8N	7W	26	CC-AREAS 3 4	0003	39.00	34	100

BASAL AREA/ACRE

SD 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	40.5	6.9	146	156	167			
DOUG FIR	94.3	16.2	44	53	62			
SNAG	196.8	33.8	8	12	16			
HEMLEAV	235.3	40.4	6	9	13			
S SPRUCE	347.9	59.7	2	5	8			
SPRUCELV	326.3	56.0	2	4	6			
R ALDER	583.1	100.0		1	2			
CEDLEAV	583.1	100.0		1	2			
TOTAL	*31.5*	*5.4*	*228*	*241*	*254*	*40*	*10*	*4*

NET BF/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	40.8	7.0	32,588	35,043	37,497			
DOUG FIR	95.1	16.3	10,731	12,823	14,915			
SNAG								
HEMLEAV	235.7	40.4	1,281	2,151	3,020			
S SPRUCE	347.9	59.7	279	691	1,103			
SPRUCELV	326.3	56.0	370	840	1,311			
R ALDER	583.1	100.0		75	150			
CEDLEAV	583.1	100.0		129	259			
TOTAL	*30.3*	*5.2*	*49,066*	*51,752*	*54,438*	*37*	*9*	*4*

NET CUFT FT/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	40.9	7.0	7,320	7,873	8,426			
DOUG FIR	95.2	16.3	2,337	2,793	3,249			
SNAG								
HEMLEAV	237.2	40.7	276	465	654			
S SPRUCE	347.9	59.7	80	199	318			
SPRUCELV	326.3	56.0	81	184	287			
R ALDER	583.1	100.0		27	55			
CEDLEAV	583.1	100.0	0	39	78			
TOTAL	*30.8*	*5.3*	*10,968*	*11,580*	*12,192*	*38*	*9*	*4*

STATISTICS

PROJECT ROCKCRSI

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
8N	7W	23	PATCH-CUTS	004	12.00	12	30

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	12	59	4.9		
CRUISE	7	30	4.3	975	3.1
REFOREST					
COUNT	5	28	5.6		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	14	34.0	24.0	91		106.7	21,507	21,425	4,924	4,924
WHEMLOCK	15	38.8	19.9	81		83.3	16,468	16,052	3,890	3,890
S SPRUCE	1	8.5	12.0	18		6.7				
TOTAL	*30*	*81.2*	*21.1*	*79*		*196.7*	*37,975*	*37,477*	*8,814*	*8,814*

SAMPLE TREES - BF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	151.9	27.7	293	406	519			
WHEMLOCK	127.3	23.2	198	258	318			
S SPRUCE								
TOTAL	*78.4*	*14.3*	*569*	*664*	*759*	*246*	*62*	*27*

SAMPLE TREES - CF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	139.1	25.4	66	88	111			
WHEMLOCK	121.5	22.2	48	62	75			
S SPRUCE								
TOTAL	*64.9*	*11.8*	*132*	*150*	*168*	*168*	*42*	*19*

TREES/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	105.5	30.5	24	34	44			
WHEMLOCK	84.2	24.3	29	39	48			
S SPRUCE	233.5	67.4	3	8	14			
TOTAL	*34.8*	*10.1*	*73*	*81*	*89*	*49*	*12*	*5*

BASAL AREA/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	106.5	30.7	74	107	139			
WHEMLOCK	72.2	20.9	66	83	101			
S SPRUCE	233.5	67.4	2	7	11			
TOTAL	*40.2*	*11.6*	*174*	*197*	*219*	*65*	*16*	*7*

NET BF/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	105.8	30.5	14,884	21,425	27,967			
WHEMLOCK	74.7	21.6	12,589	16,052	19,515			
S SPRUCE								
TOTAL	*46.0*	*13.3*	*32,503*	*37,477*	*42,451*	*85*	*21*	*9*

NET CUFT FT/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	105.6	30.5	3,423	4,924	6,425			
WHEMLOCK	72.4	20.9	3,077	3,890	4,702			
S SPRUCE								
TOTAL	*45.1*	*13.0*	*7,667*	*8,814*	*9,960*	*81*	*20*	*9*

TC TSTATS

STATISTICS

PROJECT ROCKCRSI

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
8N	7W	23	PATCH-CUTS	004	12.00	12	30

TC TSTATS

STATISTICS

PROJECT ROCKCRSI

DATE 4/1/2002

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
08N	07W	23	AREAS 1& 6	TK25	180.00	37	35

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	37	81	2.2		
CRUISE	15	35	2.3	7,618	.5
REFOREST					
COUNT	17	46	2.7		
BLANKS	5				
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	20	26.8	18.0	77		47.6	8,131	7,931	2,067	2,067
DOUG FIR	15	15.5	21.7	91		40.0	7,334	7,277	1,822	1,822
TOTAL	*35*	*42.3*	*19.5*	*82*		*87.6*	*15,466*	*15,208*	*3,889*	*3,889*

SAMPLE TREES - BF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	115.0	19.4	174	217	259			
DOUG FIR	152.1	25.7	185	249	314			
TOTAL	*66.0*	*11.2*	*414*	*466*	*518*	*174*	*44*	*19*

SAMPLE TREES - CF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	107.7	18.2	45	55	65			
DOUG FIR	141.7	23.9	46	60	75			
TOTAL	*54.9*	*9.3*	*104*	*115*	*125*	*120*	*30*	*13*

TREES/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	110.3	18.1	22	27	32			
DOUG FIR	133.1	21.9	12	16	19			
TOTAL	*73.0*	*12.0*	*37*	*42*	*47*	*213*	*53*	*24*

BASAL AREA/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	102.7	16.9	40	48	56			
DOUG FIR	131.2	21.6	31	40	49			
TOTAL	*69.6*	*11.4*	*78*	*88*	*98*	*194*	*48*	*22*

NET BF/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	102.6	16.9	6,594	7,931	9,268			
DOUG FIR	136.8	22.5	5,640	7,277	8,913			
TOTAL	*71.1*	*11.7*	*13,430*	*15,208*	*16,986*	*202*	*51*	*22*

NET CUFT FT/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	102.9	16.9	1,718	2,067	2,417			
DOUG FIR	134.4	22.1	1,419	1,822	2,224			
TOTAL	*69.8*	*11.5*	*3,443*	*3,889*	*4,335*	*195*	*49*	*22*

STATISTICS

PROJECT ROCKCRSI

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
08N	07W	23	AREAS 2& 5	TK20	82.00	17	19

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	17	44	2.6		
CRUISE	6	19	3.2	4,454	.4
REFOREST					
COUNT	8	25	3.1		
BLANKS	3				
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	12	22.5	21.5	105		56.5	12,463	12,310	2,931	2,931
WHEMLOCK	7	31.8	16.5	57		47.1	7,735	7,735	1,989	1,989
TOTAL	*19*	*54.3*	*18.7*	*77*		*103.5*	*20,199*	*20,045*	*4,921*	*4,921*

SAMPLE TREES - BF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	110.1	25.3	333	445	558			
WHEMLOCK	175.5	40.3	99	166	233			
TOTAL	*67.3*	*15.4*	*517*	*612*	*706*	*181*	*45*	*20*

SAMPLE TREES - CF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	103.7	23.8	78	103	127			
WHEMLOCK	162.2	37.2	26	41	57			
TOTAL	*57.5*	*13.2*	*125*	*144*	*163*	*132*	*33*	*15*

TREES/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	120.4	29.2	16	22	29			
WHEMLOCK	131.2	31.8	22	32	42			
TOTAL	*87.3*	*21.2*	*43*	*54*	*66*	*305*	*76*	*34*

BASAL AREA/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	112.2	27.2	41	56	72			
WHEMLOCK	117.3	28.4	34	47	60			
TOTAL	*80.9*	*19.6*	*83*	*104*	*124*	*262*	*65*	*29*

NET BF/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	111.7	27.1	8,974	12,310	15,646			
WHEMLOCK	112.6	27.3	5,624	7,735	9,847			
TOTAL	*84.1*	*20.4*	*15,958*	*20,045*	*24,132*	*283*	*71*	*31*

NET CUFT FT/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	112.3	27.2	2,133	2,931	3,730			
WHEMLOCK	114.1	27.7	1,439	1,989	2,540			
TOTAL	*82.9*	*20.1*	*3,931*	*4,921*	*5,910*	*275*	*69*	*31*

STATISTICS

PROJECT ROCKCRSI

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
8N	7W	26	CC-AREAS 3 4	TK03	39.00	34	87

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	34	183	5.4		
CRUISE	17	87	5.1	2,848	3.1
REFOREST					
COUNT	17	96	5.6		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	62	56.4	22.6	90		156.5	35,773	35,043	7,873	7,873
DOUG FIR	23	13.3	27.0	108		52.9	12,987	12,823	2,793	2,793
S SPRUCE	1	.8	32.0	82		4.7	691	691	199	199
R ALDER	1	2.5	9.3	33		1.2	75	75	27	27
TOTAL	*87*	*73.0*	*23.2*	*92*		*215.3*	*49,525*	*48,631*	*10,892*	*10,892*

SAMPLE TREES - BF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	84.6	9.1	521	573	625			
DOUG FIR	196.0	21.0	253	320	388			
S SPRUCE	932.7	100.0	0	9	19			
R ALDER	932.7	100.0	0	0	1			
TOTAL	*55.1*	*5.9*	*849*	*903*	*956*	*122*	*30*	*14*

SAMPLE TREES - CF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	81.3	8.7	116	127	138			
DOUG FIR	188.6	20.2	54	68	82			
S SPRUCE	932.7	100.0		3	5			
R ALDER	932.7	100.0	0	0	0			
TOTAL	*48.3*	*5.2*	*187*	*198*	*208*	*93*	*23*	*10*

TREES/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	47.6	8.2	52	56	61			
DOUG FIR	109.2	18.7	11	13	16			
S SPRUCE	347.9	59.7	0	1	1			
R ALDER	583.1	100.0	0	2	5			
TOTAL	*42.5*	*7.3*	*68*	*73*	*78*	*72*	*18*	*8*

BASAL AREA/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	40.5	6.9	146	156	167			
DOUG FIR	94.3	16.2	44	53	62			
S SPRUCE	347.9	59.7	2	5	8			
R ALDER	583.1	100.0		1	2			
TOTAL	*36.0*	*6.2*	*202*	*215*	*229*	*52*	*13*	*6*

NET BF/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	40.8	7.0	32,588	35,043	37,497			
DOUG FIR	95.1	16.3	10,731	12,823	14,915			
S SPRUCE	347.9	59.7	279	691	1,103			
R ALDER	583.1	100.0		75	150			
TOTAL	*35.4*	*6.1*	*45,675*	*48,631*	*51,588*	*50*	*13*	*6*

NET CUFT FT/ACRE

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

STATISTICS

PROJECT ROCKCRSI

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
8N	7W	26	CC-AREAS 3 4	TK03	39.00	34	87

SD 1	COEFF VAR.	S.E.%	NET CUFT FT/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	40.9	7.0	7,320	7,873	8,426			
DOUG FIR	95.2	16.3	2,337	2,793	3,249			
S SPRUCE	347.9	59.7	80	199	318			
R ALDER	583.1	100.0		27	55			
TOTAL	*35.8*	*6.1*	*10,223*	*10,892*	*11,562*	*51*	*13*	*6*

TC TSTATS

STATISTICS

PROJECT ROCKCRSI

DATE 4/1/2002

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
08N	07W	23	AREAS 1& 6	LV25	180.00	37	58

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	37	122	3.3		
CRUISE	19	58	3.1	7,522	.8
REFOREST					
COUNT	18	64	3.6		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV	37	22.6	26.0	109		83.2	19,194	18,970	4,338	4,338
HEMLEAV	20	17.4	21.9	95		45.4	10,215	10,110	2,276	2,276
SNAG	1	1.8	18.0	80		3.2				
TOTAL	*58*	*41.8*	*24.1*	*102*		*131.9*	*29,410*	*29,080*	*6,614*	*6,614*

SAMPLE TREES - BF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	92.0	12.1	534	608	681			
HEMLEAV	157.3	20.7	188	237	285			
SNAG								
TOTAL	*47.2*	*6.2*	*792*	*844*	*897*	*89*	*22*	*10*

SAMPLE TREES - CF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	87.2	11.5	121	136	152			
HEMLEAV	154.1	20.2	42	53	63			
SNAG								
TOTAL	*41.5*	*5.4*	*179*	*189*	*199*	*69*	*17*	*8*

TREES/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	59.3	9.8	20	23	25			
HEMLEAV	91.6	15.1	15	17	20			
SNAG	341.3	56.1	1	2	3			
TOTAL	*31.4*	*5.2*	*40*	*42*	*44*	*40*	*10*	*4*

BASAL AREA/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	59.3	9.7	75	83	91			
HEMLEAV	86.0	14.1	39	45	52			
SNAG	341.3	56.1	1	3	5			
TOTAL	*25.6*	*4.2*	*126*	*132*	*137*	*26*	*7*	*3*

NET BF/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	61.4	10.1	17,057	18,970	20,884			
HEMLEAV	87.3	14.3	8,660	10,110	11,561			
SNAG								
TOTAL	*24.6*	*4.1*	*27,902*	*29,080*	*30,258*	*24*	*6*	*3*

NET CUFT FT/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	60.4	9.9	3,907	4,338	4,768			
HEMLEAV	86.6	14.2	1,952	2,276	2,600			
SNAG								
TOTAL	*24.4*	*4.0*	*6,348*	*6,614*	*6,880*	*24*	*6*	*3*

STATISTICS

PROJECT ROCKCRSI

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
08N	07W	23	AREAS 1& 6	LV25	180.00	37	58

TC TSTATS

STATISTICS

PROJECT ROCKCRSI

DATE 3/18/2002

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
08N	07W	23	AREAS 2& 5	LV20	82.00	17	24

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	17	49	2.9		
CRUISE	8	24	3.0	2,459	1.0
REFOREST					
COUNT	9	25	2.8		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV	16	16.4	28.5	118		72.9	18,295	18,295	4,013	4,013
HEMLEAV	7	12.6	24.1	103		40.0	8,373	8,291	2,003	2,003
SNAG	1	.9	22.0	108		2.4				
TOTAL	*24*	*30.0*	*26.6*	*111*		*115.3*	*26,668*	*26,586*	*6,016*	*6,016*

SAMPLE TREES - BF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	88.1	18.0	705	859	1,014			
HEMLEAV	174.8	35.7	131	204	277			
SNAG								
TOTAL	*54.3*	*11.1*	*945*	*1,063*	*1,181*	*118*	*30*	*13*

SAMPLE TREES - CF

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	84.0	17.1	153	184	216			
HEMLEAV	171.2	35.0	32	49	66			
SNAG								
TOTAL	*47.3*	*9.7*	*211*	*233*	*256*	*90*	*22*	*10*

TREES/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	62.9	15.3	14	16	19			
HEMLEAV	118.1	28.6	9	13	16			
SNAG	412.3	100.0	0	1	2			
TOTAL	*25.5*	*6.2*	*28*	*30*	*32*	*26*	*7*	*3*

BASAL AREA/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	65.0	15.8	61	73	84			
HEMLEAV	117.3	28.4	29	40	51			
SNAG	412.3	100.0		2	5			
TOTAL	*11.5*	*2.8*	*112*	*115*	*119*	*5*	*1*	*1*

NET BF/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	67.4	16.4	15,304	18,295	21,287			
HEMLEAV	116.2	28.2	5,955	8,291	10,627			
SNAG								
TOTAL	*18.4*	*4.5*	*25,401*	*26,586*	*27,771*	*14*	*3*	*2*

NET CUFT FT/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	66.0	16.0	3,371	4,013	4,655			
HEMLEAV	116.8	28.3	1,435	2,003	2,570			
SNAG								
TOTAL	*15.6*	*3.8*	*5,789*	*6,016*	*6,243*	*10*	*2*	*1*

STATISTICS

PROJECT ROCKCRSI

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
08N	07W	23	AREAS 2& 5	LV20	82.00	17	24

TC TSTNDSUM

Stand Table Summary

Project ROCKCRSI

T08N R07W S23 TLV25

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
08N	07W	23	AREAS 1& 6	LV25	180.00	37	58

T08N R07W S23 TLV25

Page: 1
Date: 04/01/20
Time: 12:38:43PM

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		18	1	85	127	1.273	2.25	3.82	29.0	106.7		111	407		199	73
DL		20	1	86	109	1.031	2.25	2.06	44.5	155.0		92	320		165	58
DL		22	5	88	139	4.261	11.25	12.78	46.7	199.3		597	2,548		1,074	459
DL		23	2	89	136	1.560	4.50	4.68	50.8	218.3		238	1,021		428	184
DL		24	2	86	126	1.432	4.50	4.30	49.0	196.7		211	845		379	152
DL		25	1	82	157	.660	2.25	1.98	59.7	253.3		118	502		213	90
DL		26	8	85	140	4.882	18.00	14.64	64.3	269.2		942	3,942		1,695	710
DL		27	1	89	140	.566	2.25	1.70	70.3	320.0		119	543		215	98
DL		28	2	86	150	1.052	4.50	3.16	78.5	353.3		248	1,115		446	201
DL		29	1	86	120	.490	2.25	1.47	67.0	266.7		99	392		177	71
DL		30	6	84	146	2.750	13.50	8.25	84.7	381.7		698	3,149		1,257	567
DL		32	3	85	150	1.208	6.75	4.03	92.0	438.0		371	1,764		667	318
DL		33	1	88	146	.379	2.25	1.14	111.0	543.3		126	617		227	111
DL		34	2	84	147	.714	4.50	2.50	95.3	467.1		238	1,167		428	210
DL		35	1	82	173	.337	2.25	1.35	97.5	472.5		131	636		236	115
DL		Totals	37	86	139	22.595	83.24	67.85	63.9	279.6		4,338	18,970		7,808	3,415
HL		14	1	92	111	2.124	2.27	4.25	20.5	90.0		87	382		157	69
HL		18	2	88	120	2.569	4.54	7.71	31.3	125.0		242	964		435	173
HL		19	1	85	119	1.153	2.27	3.46	32.3	123.3		112	427		201	77
HL		20	1	88	122	1.041	2.27	3.12	36.7	160.0		114	499		206	90
HL		21	1	92	106	.944	2.27	2.83	38.0	170.0		108	481		194	87
HL		22	2	91	119	1.720	4.54	5.16	47.8	223.3		247	1,152		444	207
HL		23	3	89	115	2.361	6.81	7.08	49.4	211.1		350	1,495		630	269
HL		24	3	88	120	2.168	6.81	5.78	56.0	256.3		324	1,481		583	267
HL		25	2	92	125	1.332	4.54	4.00	58.5	275.0		234	1,099		421	198
HL		26	1	85	125	.616	2.27	1.85	61.7	280.0		114	517		205	93
HL		30	2	84	123	.925	4.54	2.77	82.8	381.7		230	1,059		414	191
HL		32	1	86	122	.406	2.27	1.22	94.7	453.3		115	553		208	100
HL		Totals	20	89	118	17.358	45.41	49.23	46.2	205.4		2,276	10,110		4,097	1,820
SN		18	1	90	129	1.835	3.24									
SN		Totals	1	90	129	1.835	3.24									
Totals			58	87	130	41.789	131.89	117.08	56.5	248.4		6614	29,080		11,905	5,234

TC TSTNDSUM

Stand Table Summary

Project ROCKCRSI

T08N R07W S23 TLV20

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
08N	07W	23	AREAS 2& 5	LV20	82.00	17	24

Date: 03/18/20
Time: **1:11:11PM**

Spc	ST	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		20	1	83	125	2.090	4.56	6.27	33.7	116.7		211	731		173	60
DL		24	1	85	142	1.451	4.56	4.35	56.7	236.7		247	1,030		202	84
DL		25	1	86	148	1.337	4.56	4.01	61.7	256.7		247	1,030		203	84
DL		26	2	87	148	2.473	9.12	7.42	68.0	298.3		504	2,213		414	181
DL		28	3	85	150	3.198	13.68	9.60	77.2	346.7		741	3,326		608	273
DL		29	1	85	163	.994	4.56	3.98	68.0	327.5		270	1,302		222	107
DL		32	2	83	160	1.633	9.12	6.53	77.1	368.8		504	2,408		413	197
DL		34	1	80	170	.723	4.56	2.89	91.2	425.0		264	1,229		216	101
DL		35	1	80	167	.682	4.56	2.73	94.8	442.5		259	1,208		212	99
DL		36	2	84	160	1.290	9.12	4.51	113.3	557.1		511	2,515		419	206
DL		38	1	85	153	.579	4.56	1.74	146.7	750.0		255	1,302		209	107
DL		Totals	16	84	150	16.450	72.94	54.03	74.3	338.6		4,013	18,295		3,291	1,500
HL		22	2	82	118	4.329	11.43	12.99	41.8	160.0		543	2,078		446	170
HL		23	1	80	139	1.981	5.71	5.94	52.0	203.3		309	1,208		253	99
HL		24	1	86	105	1.819	5.71	5.46	47.7	206.7		260	1,128		213	92
HL		25	2	86	123	3.353	11.43	10.06	54.5	235.0		548	2,364		449	194
HL		30	1	78	169	1.164	5.71	4.66	73.5	325.0		342	1,513		281	124
HL		Totals	7	83	126	12.645	40.00	39.10	51.2	212.0		2,003	8,291		1,642	680
SN		22	1	82	137	.891	2.35									
SN		Totals	1	82	137	.891	2.35									
Totals			24	84	139	29.987	115.29	93.13	64.6	285.5		6016	26,586		4,933	2,180

TC TSTNDSUM

Stand Table Summary

Project ROCKCRSI

T8N R7W S26 TLV03

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
8N	7W	26	CC-AREAS 3 4	LV03	39.00	34	13

T8N R7W S26 TLV03

Page: 1
Date: 03/19/20
Time: 3:51:06PM

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		24	1	87	116	.999	3.14	3.00	52.3	236.7		157	709		61	28
HL		30	1	84	129	.639	3.14	1.92	86.0	383.3		165	735		64	29
HL		34	1	86	115	.498	3.14	1.49	96.0	473.3		143	707		56	28
HL		Totals	3	86	120	2.135	9.41	6.41	72.6	335.7		465	2,151		181	84
SL		32	1	82	129	.632	3.53	1.90	97.0	443.3		184	840		72	33
SL		Totals	1	82	129	.632	3.53	1.90	97.0	443.3		184	840		72	33
CL		10	1	74	74	2.157	1.18	2.16	18.0	60.0		39	129		15	5
CL		Totals	1	74	74	2.157	1.18	2.16	18.0	60.0		39	129		15	5
SN		18	1	82	23	.832	1.47									
SN		20	1	89	90	.674	1.47									
SN		21	1	88	79	.611	1.47									
SN		26	1	85	72	.399	1.47									
SN		40	1	84	53	.169	1.47									
SN		42	1	78	17	.153	1.47									
SN		66	1	80	21	.062	1.47									
SN		72	1	74	57	.052	1.47									
SN		Totals	8	85	58	2.952	11.76									
Totals			13	82	85	7.876	25.88	10.46	65.8	298.4		688	3,120		268	122

FPA "Written Plan" for Harvest of State Timber Sale
Rock Creek Stand Improvement
Portions of Sections 23 & 26, T.8N., R.7W., W.M., Clatsop County, Oregon.

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

Protected Resources:
East Rock Creek (Small Type F)
West Rock Creek (Small Type F)
Unnamed Tributary to East Rock Creek (Small Type F)
Unnamed Tributaries to East Rock Creek (7 small perennial Type N)

Specific Site Characteristics:
Areas 1,2,5, & 6 are partial cut areas. Areas 3, 4, and the Patch Cuts Areas A, B, C, D, & E are regeneration harvest areas.

East Rock Creek (small Type F) forms the sale and area boundaries along Areas 1, 2, 5 and 6, and flows in a northerly direction. There is a minimum 100 foot buffer posted along this stream, and on both sides of the stream where the stream travels through the sale area.

The unnamed tributary to East Rock Creek (small Type F) flows in a northerly direction along the eastern boundary of Area 3 for about 1,750 feet. It has a minimum 100 foot posted buffer along the sale area.

West Rock Creek (small Type F) flows in a northerly direction along the west boundary of Area 6 and also travels through a portion of Area 6. This stream has a posted buffer of about 100 feet along the stream and on both sides of the stream where the stream travels through the sale area.

One of the unnamed perennial streams (small Type N) is found in Area 1. This has a designated 25 foot unposted buffer along both sides of the stream.

There is an unnamed Type N stream along the NW boundary of Area 3 with a posted 25 foot buffer.

There are two unnamed perennial streams (small Type N) found in Area 4. The first stream runs northwesterly entirely through the sale area for about 1,700 feet. The lower 500 feet has a posted buffer of 40-50 feet and the remaining reach is posted with a 25 foot buffer, on both sides. The other stream runs northerly through the area for about 400 feet and has a posted 25 foot buffer on both sides.

Another unnamed perennial stream (small Type N) is found in the northwest corner of Area 5. This has a designated 25 foot unposted buffer along both sides of this stream.

There are two unnamed tributaries to East Rock Creek that run northerly through the south eastern portion of Area 6. One is about 2,550 feet long the other is about 2,150 feet long. Both are designated to have a 25 foot unposted buffer along both sides of both streams.

Resource Protection:

Felling: Trees are to be felled away from or parallel to the RMA to prevent them from entering the RMA. Any felled trees that may accidentally enter the RMA will be removed only with the STATE contract administrator's approval. Any felled trees that may accidentally enter the RMA shall be yarded out of the RMA (after approval) before limbing and bucking.

FPA "Written Plan" for Harvest of State Timber Sale
Rock Creek Stand Improvement
Portions of Sections 23 & 26, T.8N., R.7W., W.M., Clatsop County, Oregon.

Resource Protection: (continued)

Yarding: There will be no machine activity permitted with in the RMA and no temporary stream crossings will be permitted across any Type F stream. When cables pass through or over the RMA, precautions will be taken to protect the residual timber. These precautionary measures include, but are not limited to:

A. Cables will be pulled out of the residual timber before rigging the next yarding road.
B. Operator will avoid lowering the skyline into the RMA during the yearling cycle. If this is not feasible, then lowering the skyline will be limited to that which is necessary to release logs at the landing and lines will be eased into and out of the RMA to minimize damage to vegetation.
C. Yarding roads will be located in natural openings and / or where cables will not cause damage to conifer trees within the RMA when possible.
D. Any tree that has to be cut within the RMA to facilitate the cable corridor shall be left in the RMA.
E. If yarding is required over any Type N stream, full suspension will be required.
F. All skid trails on slopes exceeding 10% will be water-barred upon completion of use.
G. All skid trails within 100 feet of a "live" stream will be water-barred upon completion of use

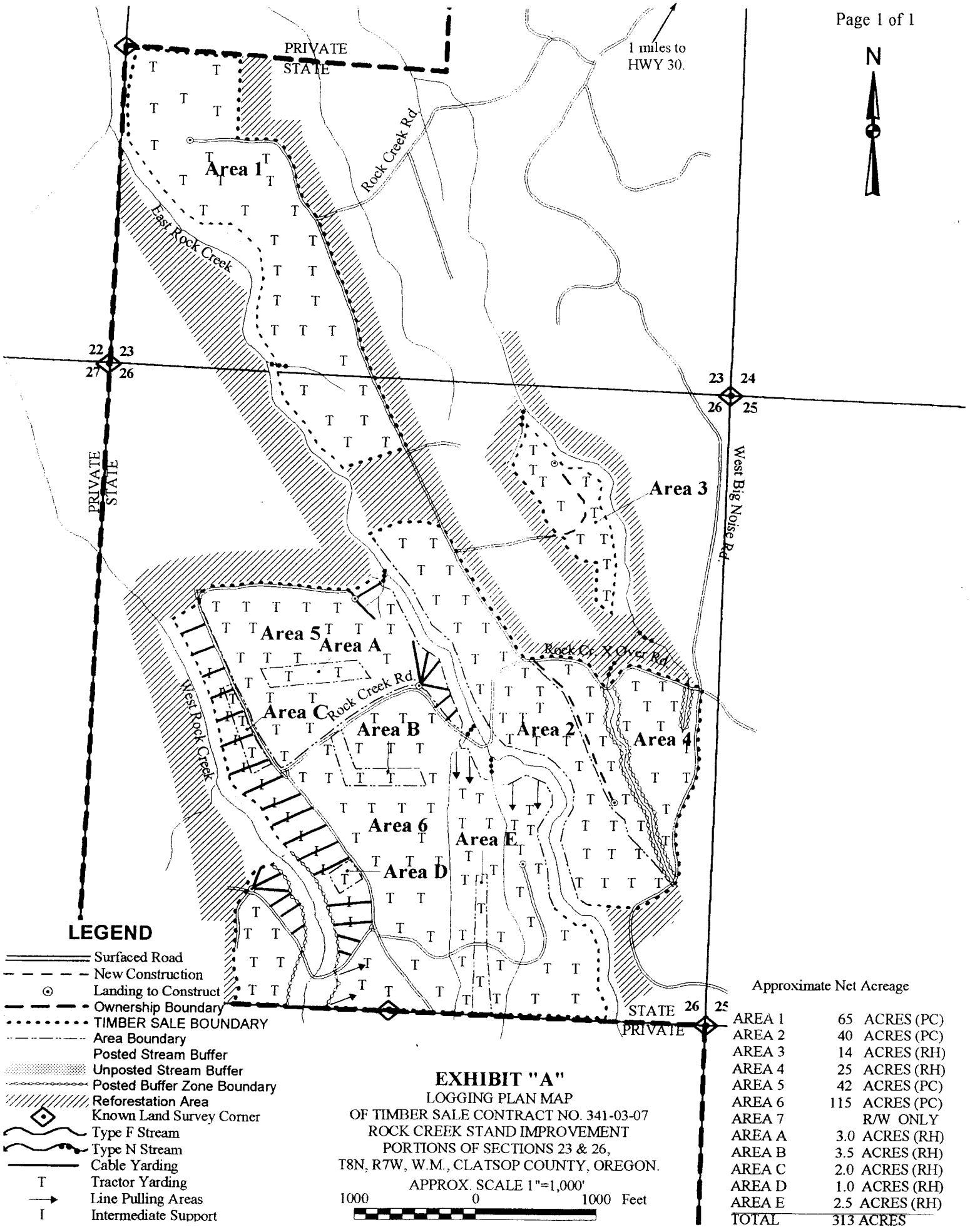
I, the undersigned, submit this written plan in compliance with the requirements in the Oregon Forest Practice Act regarding the operations conducted within 100 feet of streams with the Riparian Management Areas (buffer strips) as shown on the attached Exhibit "A", and the perennial Type N streams addressed in the NW Oregon Forest Management Plan as shown on Exhibit "A".

Submitted by: _____ Date: _____
Operator/PURCHASER

Approved by: Tom Scoggins Date: 4/1/02
State Lands Forester

_____ Date: _____
Forest Practice Forester

Attachments:
Timber Sale Exhibit "A" map



LEGEND

- Surfaced Road
- New Construction
- Landing to Construct
- Ownership Boundary
- TIMBER SALE BOUNDARY
- Area Boundary
- Posted Stream Buffer
- Unposted Stream Buffer
- Posted Buffer Zone Boundary
- Reforestation Area
- Known Land Survey Corner
- Type F Stream
- Type N Stream
- Cable Yarding
- T Tractor Yarding
- Line Pulling Areas
- I Intermediate Support

EXHIBIT "A"

LOGGING PLAN MAP
OF TIMBER SALE CONTRACT NO. 341-03-07
ROCK CREEK STAND IMPROVEMENT
PORTIONS OF SECTIONS 23 & 26,
T8N, R7W, W.M., CLATSOP COUNTY, OREGON.
APPROX. SCALE 1"=1,000'

1000 0 1000 Feet

Approximate Net Acreage

AREA 1	65	ACRES (PC)
AREA 2	40	ACRES (PC)
AREA 3	14	ACRES (RH)
AREA 4	25	ACRES (RH)
AREA 5	42	ACRES (PC)
AREA 6	115	ACRES (PC)
AREA 7		R/W ONLY
AREA A	3.0	ACRES (RH)
AREA B	3.5	ACRES (RH)
AREA C	2.0	ACRES (RH)
AREA D	1.0	ACRES (RH)
AREA E	2.5	ACRES (RH)
TOTAL	313	ACRES

FPA "WRITTEN PLAN" For Road Culvert Replacement
Rock Creek Stand Improvement Timber Sale

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

Protected Resources: A small type F tributary of Rock Creek, located in SW ¼ Section 23, T8N, R7W, W. M., Clatsop County, Oregon. A "written plan" is required for any activities within 100 feet of any type F stream.

Situation: An existing culvert stream crossing structure, located on Rock Creek Road is undersized and in a deteriorating condition. The existing structure is a partial blockage to fish passage upstream.

Drainage Area and Stream Crossing Design: The existing culvert will be replaced with a 112"x72" sunken 12 gauge aluminized steel pipe arch. The stream crossing will be a streambed simulation and preserve a natural stream channel (waterway), a minimum of 8 feet wide. The stream crossing meets and exceeds the requirements of the FPA for type F stream crossings.

Existing Stream Gradient:	6%
Size of Watershed:	188 acres
Developed Waterway Width:	8 feet
Stream Bed Materials:	Fines, Gravel, Cobbles, Boulders
50-Year Peak Flow/Mile^2:	200 cfs
50-Year Peak Flow:	59 cfs
Flow Capacity of Structure:	272 cfs

Resource Protection Measures:

1) Machine activity in stream channels will be minimized.

2) In stream work shall be conducted during periods of low water flows and between July 1 and September 15, annually.

3) Minimum 1½ cubic yard track mounted excavator type equipment shall be used for embankment excavation, stream channel development and riprap placement.

4) Excavated embankment materials will be hauled to approved waste areas, sloped for drainage and left in a stable condition.

5) Erosion control measures shall be applied to all exposed excavation areas, bare soils and waste materials.

6) Riprap rock will be used to armor road embankments and stream banks.

7) Native (excavated) stream sediment materials shall be placed in the culvert barrel to a depth of 18 inches. Excavated boulders or riprap rock shall be placed and embedded at the outlet of the new culvert to allow additional stream sediment materials to settle in the barrel of the culvert.

8) 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, and/or drainage structures.

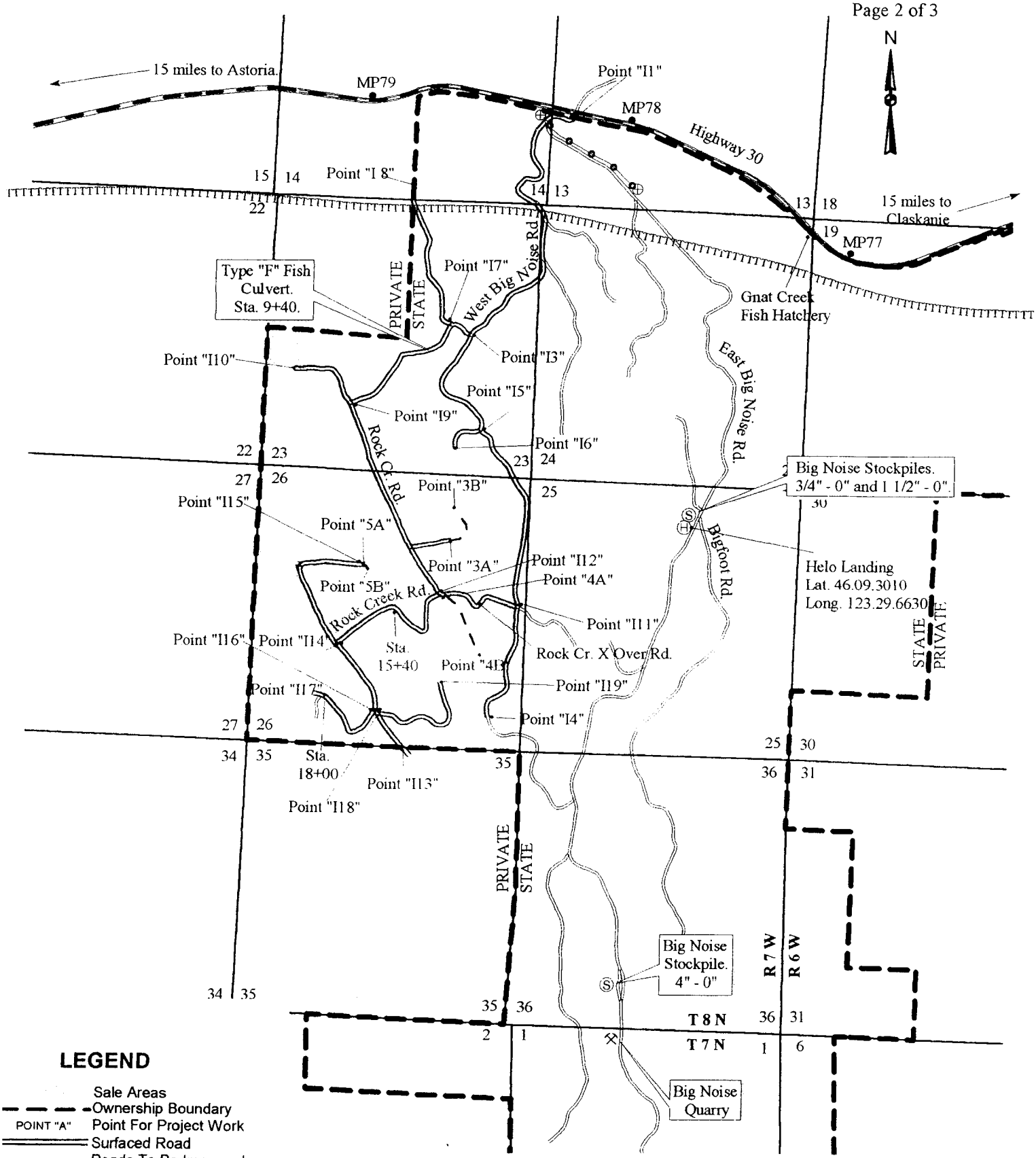
I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan:

Submitted by: _____ Date: _____
Operator/PURCHASER

Approved by: Tom Scoggins Date: 3/29/02
State Lands Forester

_____ Date: _____
Forest Practice Forester

Attachments: Exhibit A
Culvert/Stream Plans



LEGEND

- Sale Areas
- Ownership Boundary
- POINT "A" — Point For Project Work
- Surfaced Road
- Roads To Be Improved
- New Construction
- Ⓢ — Stockpile Site
- Rock Pit
- Survey Station
- Ⓗ — Helocopter Landing Site
- Mile Post
- Existing Wells
- Buried Water Lines
- T — Overhead Transmission Line

EXHIBIT "A"

PROJECT MAP
OF TIMBER SALE CONTRACT NO. 341-03-07
ROCK CREEK STAND IMPROVEMENT
PORTIONS OF SECTIONS 13, 14, 23, 24, & 26,
T8N, R7W, W.M., CLATSOP COUNTY, OREGON.

APPROX. SCALE 1" = 2,500'

2000 0 2000 4000 Feet

EXHIBIT "F"

STREAM CROSSING

(1) Type "F" stream fill reconstruction must allow free passage of fish as provided in the Oregon Forest Practice Rules. Modifications of the existing culvert geometry shall be required to allow free passage of fish.

(2) Work shall be conducted only during periods of low water flows and between July 1 and September 15, annually. STATE shall be notified a minimum of 48 hours prior to beginning work. STATE has prepared a "Written Plan" for this work.

(3) A minimum of 1-½ cubic yard, track mounted excavator shall be used for all excavation, stream development/preparation, and riprap replacement. Use of an on site hydraulic rock hammer may be required for the breaking of rock strata encountered during the development of the culvert bed.

(4) Excavated debris and soil materials unsuitable for fill construction shall end-hauled to "Waste Areas" as directed by STATE. The existing removed culvert shall be hauled to an approved refuse site off of STATE land.

(5) Waste materials shall be sloped for drainage and stability, as directed by STATE. Grass seed and straw mulch shall be applied to all exposed areas, bare soils and waste materials as directed by STATE. Applied mulch shall be a minimum of 3 inches deep and provide a uniform cover.

(6) Remove existing fill, culvert, and any logs or woody debris.

(7) De-watering of the work site shall be accomplished prior to the removal of any additional fill material for the development of the culvert bed and stream channel. The work site shall be de-watered by the use of cofferdams, temporary diversion ditches and/or drainage structures.

(8) Remove additional fill and logs or woody debris for the development of the new culvert bed. The development of the new culvert bed will **NOT** be situated the same as the old culvert bed. The location of the new culvert will be calculated by using control points set in the field. The inlet of the new pipe will be set by referencing to Control Point 1 (HD = 44.98 feet at an Azimuth = 292 degrees and a Vertical Offset of 8.26 feet). The outlet end of the new culvert will be set by referencing to Control Point 3 (HD = 27.28 feet at an Azimuth = 142 degrees and a Vertical Offset of 3.14 feet). Utilize 90 cubic yards of 1½"- 0" crushed rock for the culvert bed and for backfill.

(9) Develop the stream channel for a distance of 25 feet upstream of the inlet of the new culvert and 25 feet downstream of the outlet. The stream channel width will be 8-feet and stream channel banks shall be sloped at 1-½:1.

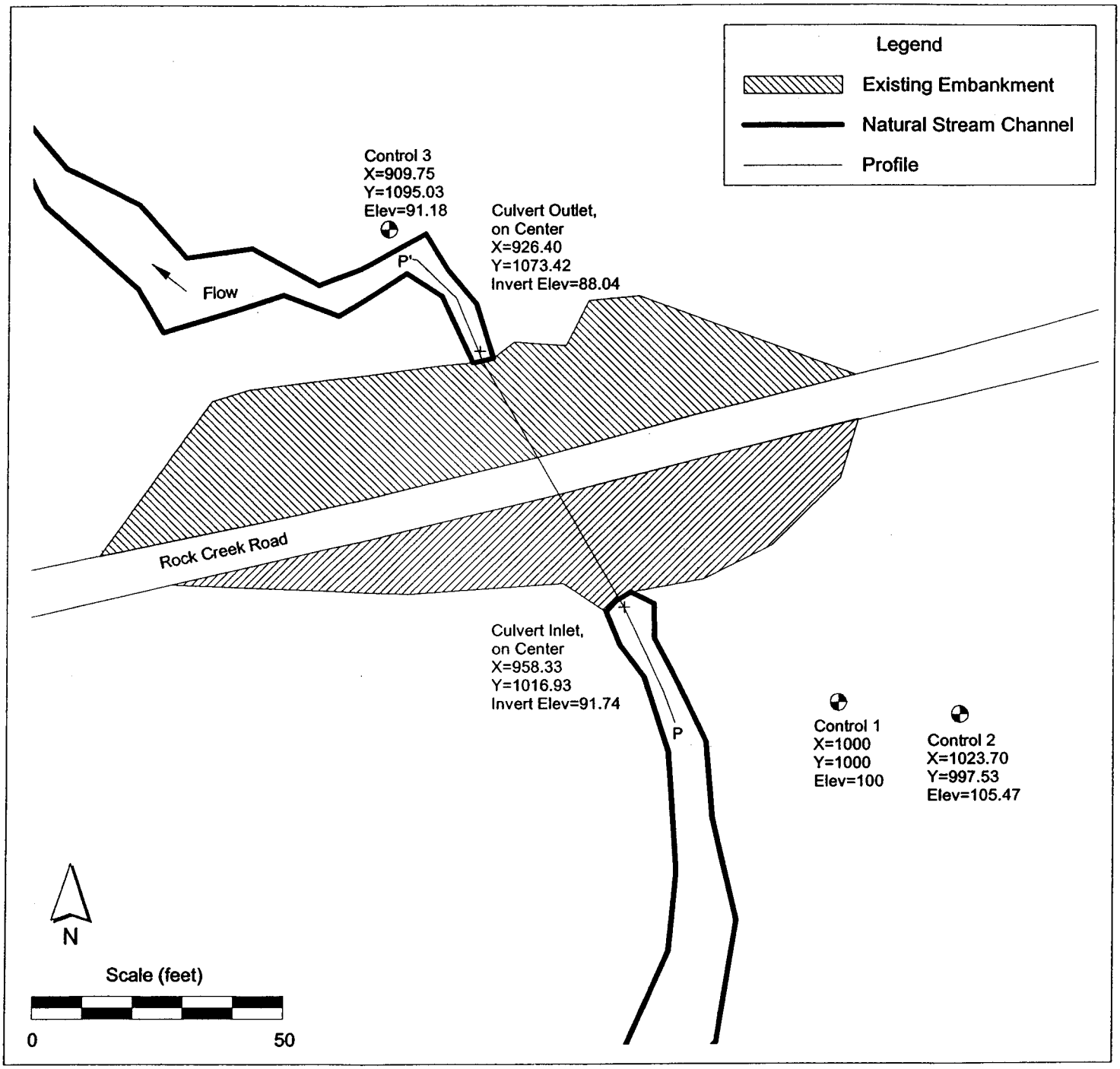
(10) Native (excavated) stream sediment materials shall be placed in the culvert barrel to a depth of 18 inches. Excavated boulders or riprap rock shall be placed and embedded at the outlet of the new culvert to allow additional stream sediment materials to settle in the barrel of the culvert.

EXHIBIT "F"

STREAM CROSSING

(11) Fill Reconstruction backfill shall consist of select materials and be obtained from Big Noise Quarry, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with Exhibit B. Utilize 100 cy of 24"-6" riprap for armoring fill slopes. The riprap rock shall be placed and tamped at a 1-½:1 slope for a minimum thickness of 2 feet beginning at the toes. Finished sub-grade width shall be 20-feet with a 16-foot running surface. A minimum of 64 cubic yards 4"-0" base rock will be utilized to restore the base surfacing coarse for a compacted depth of 8 inches. A minimum of 49 cubic yards of ¾"-0" crushed rock will be utilized to restore the running surface coarse for a compacted depth of 6 inches. Crushed rock will be processed and compacted in accordance with Exhibit B.

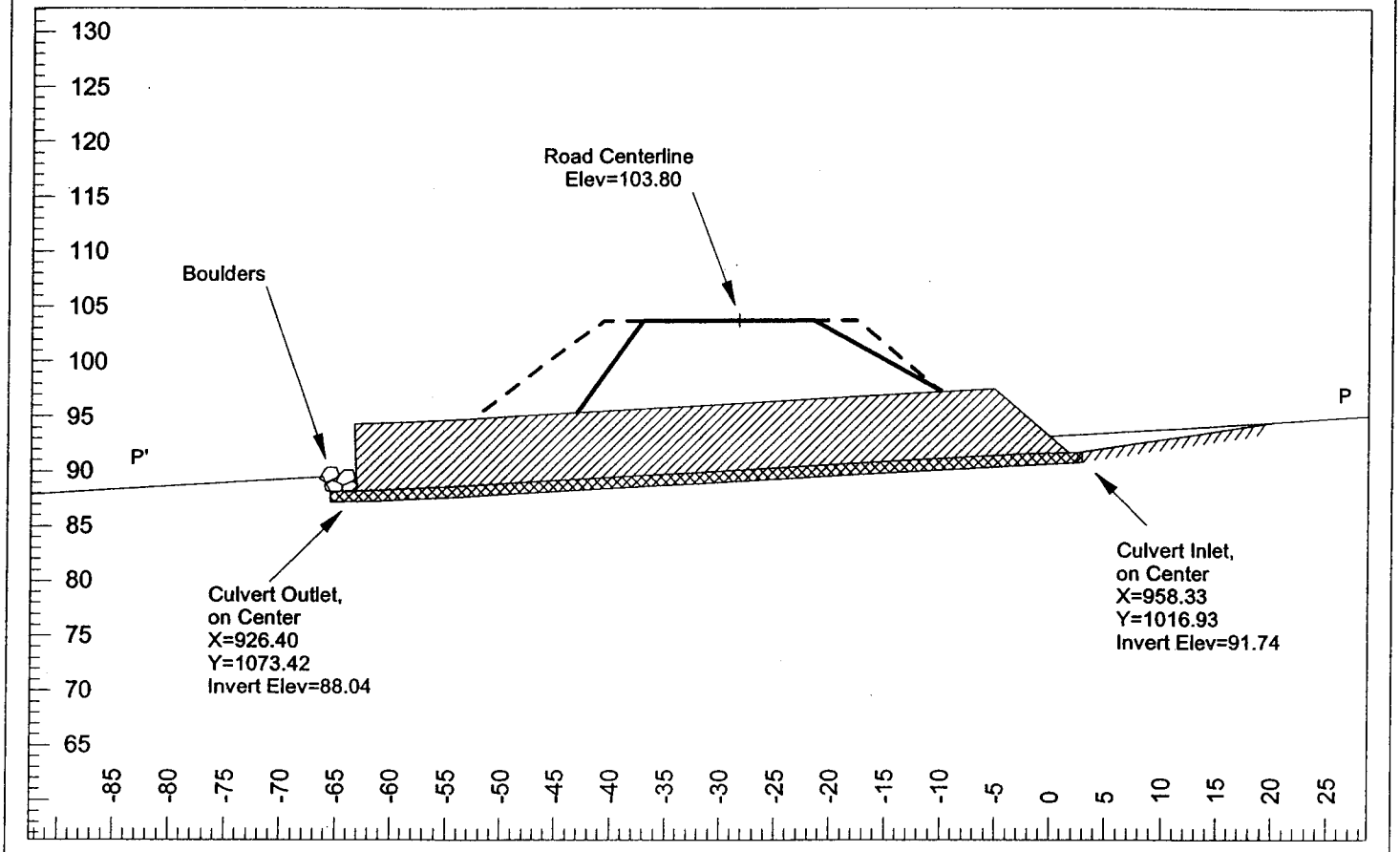
EXHIBIT "D"
STREAM CROSSING



Oregon Department of Forestry
Astoria District
Engineering Unit

Point I7 to Point I9
Station 9+40
Rock Creek Tributary
SW1/4, Section 23, T8N, R7W, W. M.
Clatsop County, Oregon

EXHIBIT "D"
STREAM CROSSING



Legend

- Existing Embankment
- Designed Embankment
- Existing Stream Bottom
- Pipe Arch
- Crushed Bedding Rock (Min. 1 foot of Depth)
- Excavated Stream Bottom

Oregon Department of Forestry
Astoria District
Engineering Unit

Point I7 to Point I9
Station 9+40
Rock Creek Tributary
SW1/4, Section 23, T8N, R7W, W. M.
Clatsop County, Oregon

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Rock Creek Stand Improvement Timber Sale

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Astoria, OR 97103
(503) 325-5451

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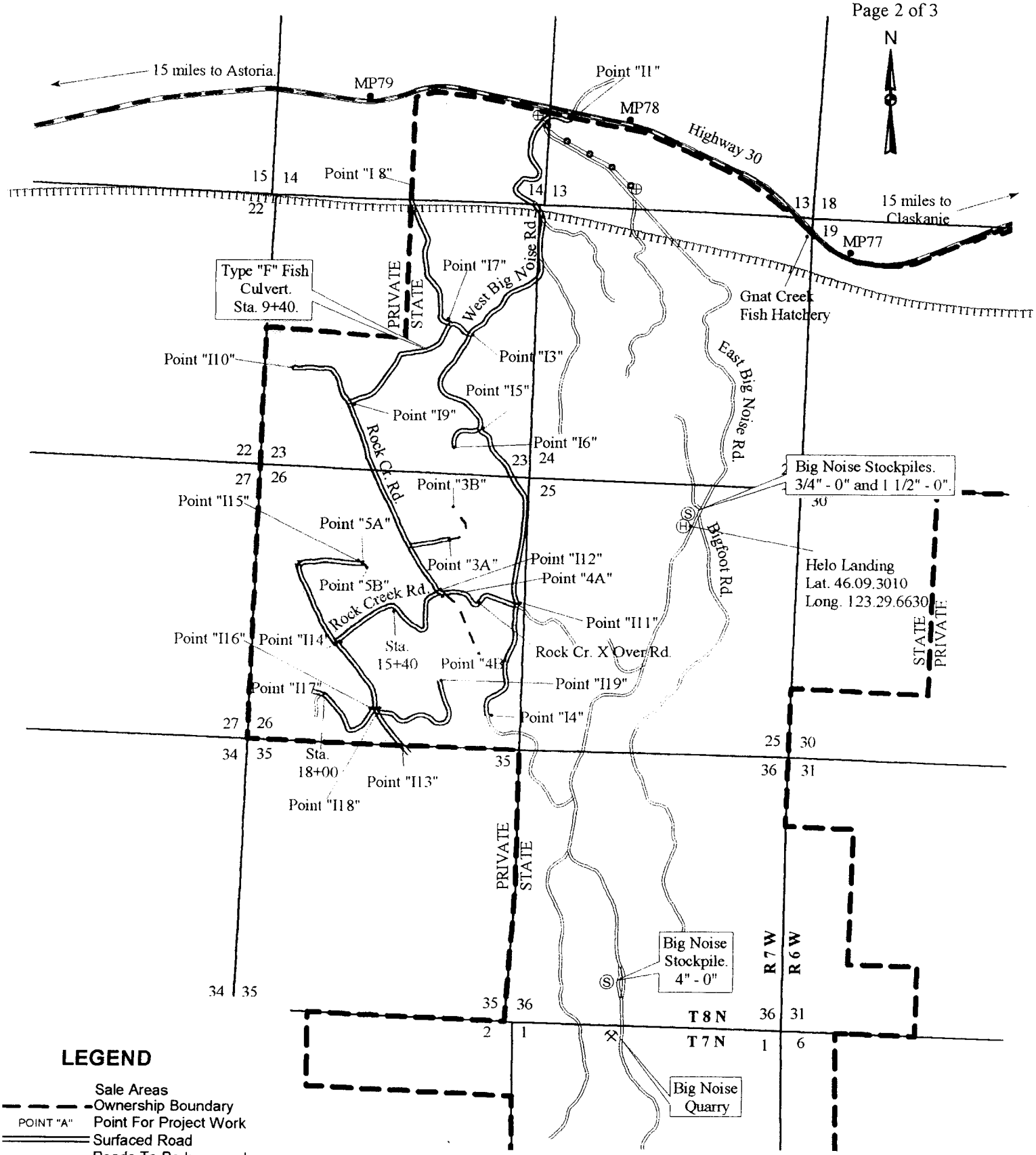
I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan:

Submitted by: _____ Date: _____
Operator/PURCHASER

Approved by: Tom Scoggins Date: 3/29/02
State Lands Forester

_____ Date: _____
Forest Practice Forester

Attachments: Exhibit A
Culvert/Stream Plans



LEGEND

- Sale Areas
- Ownership Boundary
- POINT "A" — Point For Project Work
- Surfaced Road
- Roads To Be Improved
- New Construction
- Stockpile Site
- Rock Pit
- Survey Station
- Helocopter Landing Site
- Mile Post
- Existing Wells
- Buried Water Lines
- T — Overhead Transmission Line

EXHIBIT "A"

PROJECT MAP
OF TIMBER SALE CONTRACT NO. 341-03-07
ROCK CREEK STAND IMPROVEMENT
PORTIONS OF SECTIONS 13, 14, 23, 24, & 26,
T8N, R7W, W.M., CLATSOP COUNTY, OREGON.

APPROX. SCALE 1" = 2,500'

2000 0 2000 4000 Feet

EXHIBIT "F"

STREAM CROSSING

(1) Type "F" stream fill reconstruction must allow free passage of fish as provided in the Oregon Forest Practice Rules. Modifications of the existing culvert geometry shall be required to allow free passage of fish.

(2) Work shall be conducted only during periods of low water flows and between July 1 and September 15, annually. STATE shall be notified a minimum of 48 hours prior to beginning work. STATE has prepared a "Written Plan" for this work.

(3) A minimum of 1-½ cubic yard, track mounted excavator shall be used for all excavation, stream development/preparation, and riprap replacement. Use of an on site hydraulic rock hammer may be required for the breaking of rock strata encountered during the development of the culvert bed.

(4) Excavated debris and soil materials unsuitable for fill construction shall end-hauled to "Waste Areas" as directed by STATE. The existing removed culvert shall be hauled to an approved refuse site off of STATE land.

(5) Waste materials shall be sloped for drainage and stability, as directed by STATE. Grass seed and straw mulch shall be applied to all exposed areas, bare soils and waste materials as directed by STATE. Applied mulch shall be a minimum of 3 inches deep and provide a uniform cover.

(6) Remove existing fill, culvert, and any logs or woody debris.

(7) De-watering of the work site shall be accomplished prior to the removal of any additional fill material for the development of the culvert bed and stream channel. The work site shall be de-watered by the use of cofferdams, temporary diversion ditches and/or drainage structures.

(8) Remove additional fill and logs or woody debris for the development of the new culvert bed. The development of the new culvert bed will **NOT** be situated the same as the old culvert bed. The location of the new culvert will be calculated by using control points set in the field. The inlet of the new pipe will be set by referencing to Control Point 1 (HD = 44.98 feet at an Azimuth = 292 degrees and a Vertical Offset of 8.26 feet). The outlet end of the new culvert will be set by referencing to Control Point 3 (HD = 27.28 feet at an Azimuth = 142 degrees and a Vertical Offset of 3.14 feet). Utilize 90 cubic yards of 1½"- 0" crushed rock for the culvert bed and for backfill.

(9) Develop the stream channel for a distance of 25 feet upstream of the inlet of the new culvert and 25 feet downstream of the outlet. The stream channel width will be 8-feet and stream channel banks shall be sloped at 1-½:1.

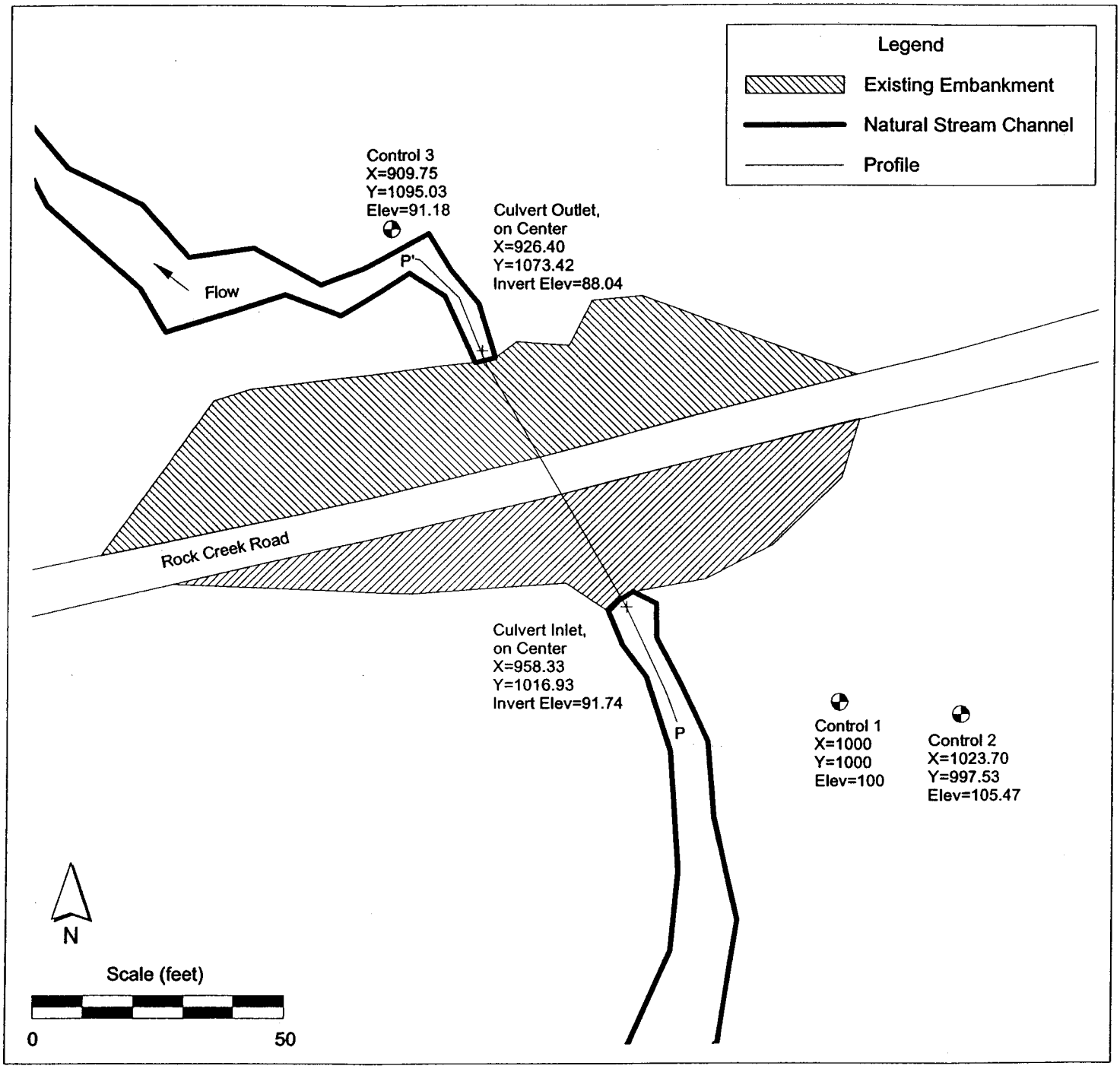
(10) Native (excavated) stream sediment materials shall be placed in the culvert barrel to a depth of 18 inches. Excavated boulders or riprap rock shall be placed and embedded at the outlet of the new culvert to allow additional stream sediment materials to settle in the barrel of the culvert.

EXHIBIT "F"

STREAM CROSSING

(11) Fill Reconstruction backfill shall consist of select materials and be obtained from Big Noise Quarry, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with Exhibit B. Utilize 100 cy of 24"-6" riprap for armoring fill slopes. The riprap rock shall be placed and tamped at a 1-½:1 slope for a minimum thickness of 2 feet beginning at the toes. Finished sub-grade width shall be 20-feet with a 16-foot running surface. A minimum of 64 cubic yards 4"-0" base rock will be utilized to restore the base surfacing coarse for a compacted depth of 8 inches. A minimum of 49 cubic yards of ¾"-0" crushed rock will be utilized to restore the running surface coarse for a compacted depth of 6 inches. Crushed rock will be processed and compacted in accordance with Exhibit B.

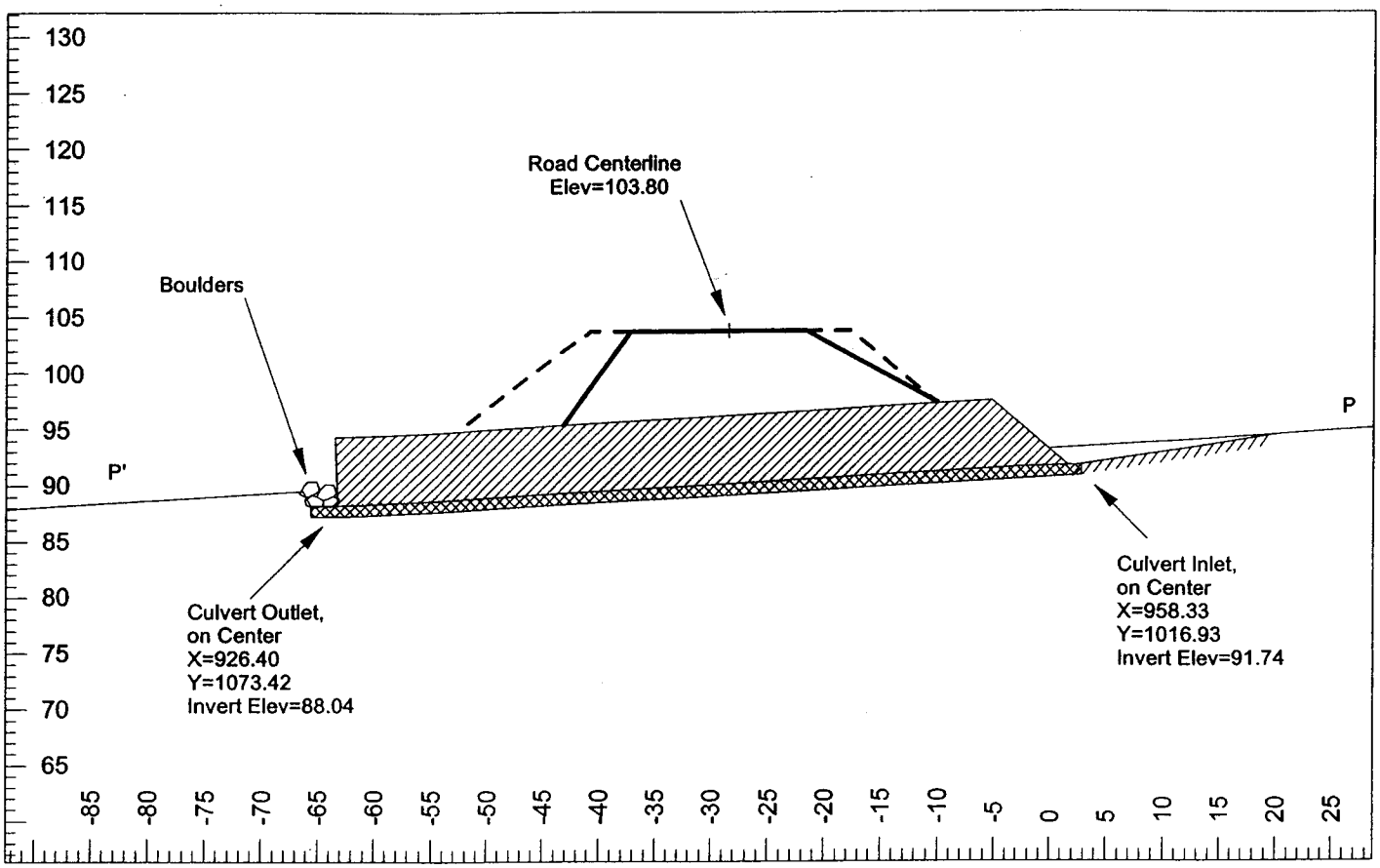
EXHIBIT "D"
STREAM CROSSING



Oregon Department of Forestry
Astoria District
Engineering Unit

Point I7 to Point I9
Station 9+40
Rock Creek Tributary
SW1/4, Section 23, T8N, R7W, W. M.
Clatsop County, Oregon

EXHIBIT "D"
STREAM CROSSING



Legend

- Existing Embankment
- Designed Embankment
- Existing Stream Bottom
- Pipe Arch
- Crushed Bedding Rock (Min. 1 foot of Depth)
- Excavated Stream Bottom

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Clatsop County, Oregon