



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Cost Summary Gnat Creek Combination Sale 341-02-55

District: Astoria

Date: 2/12/02

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$3,122,533.81	\$15,721.86	\$3,138,255.67
		Project Work	(\$582,889.00)
		Advertised Value	\$2,555,366.67



Timber Sale Appraisal Timber Description Gnat Creek Combination Sale 341-02-55

"STEWARDSHIP IN FORESTRY"

District: Astoria

Location: S 17, 18, 19, T8N, R6W, S 11, 12, 13, 14, T8N, R7W, S 27, 28, 34, T4N, R8W, W.M., Clatsop County., Section 3, 4, T3N, R8W, W.M., Tillamook County, OR

Date: 2/12/02

Stand Stocking: 60%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	20	0	97
Western Hemlock / Fir	19	0	97
Red Cedar	15	0	97
Alder (Red)	14	0	95

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Red Cedar	Alder (Red)	Total
3P	114	0	0	0	114
SM	183	58	0	0	241
2S	5,009	2,099	11	0	7,119
3S	1,452	783	21	0	2,256
4S	219	109	3	0	331
Utility	0	0	0	45	45
CR 8" - 14"	0	0	0	121	121
Total	6,977	3,049	35	166	10,227

Comments: Pond Values Used: 4th Quarter 2001

Log Markets: Mist, Longview, Tillamook, Clatskanie, Kalama, Forest Grove

Additional costs

Additional Costs with P&R

100% Brand and Paint Logs: $\$1/\text{MBF} \times 10,227 = \$10,227$

Tree Selection (Partial Cut Areas) $\$5/\text{MBF} \times 1,993 = \$9,965$

Skid Trail Layout (Partial Cut Areas) $\$5/\text{MBF} \times 793 \text{ MBF} = \$3,965$

Mark Cable Corridors/Intermediate Supports (Partial Cut Areas) $\$5/\text{MBF} \times 1,400 = \$7,000$

Total Cost w/P&R = $\$31,157$

Additional Costs Without P&R

Slash Piling (Regeneration Cut Areas) at Landings 8 Landings @ $\$130/\text{Landing} = \$1,040$

Slash Piling (Regeneration Cut Areas) in the Units 144 Hrs @ $\$95/\text{Hr} = \$13,680$

Move in (3 Moves) @ $\$500/\text{move} = \$1,500$

Total Non-P&R Costs = $\$16,220$



Timber Sale Appraisal Logging Conditions Gnat Creek Combination Sale 341-02-55

"STEWARDSHIP IN FORESTRY"

Combination#: 1	Douglas - Fir	33.61%	
	Western Hemlock / Fir	43.73%	
	Red Cedar	48.00%	
	Alder (Red)	45.11%	
Yarding Distance:	Medium (800 ft)		Downhill Yarding Yes
Logging System:	Shovel		Process: Manual Delimiting
Tree Size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
Loads/Day:	9		Bd. Ft./Load: 4,200
Cost/MBF:	\$61.42		
Machines:	Shovel Logger		
Combination#: 2	Douglas - Fir	36.42%	
	Western Hemlock / Fir	47.38%	
	Red Cedar	52.00%	
	Alder (Red)	48.87%	
Yarding Distance:	Medium (800 ft)		Downhill Yarding No
Logging System:	Cable: Large Tower >=70		Process: Stroke Delimber
Tree Size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
Loads/Day:	9		Bd. Ft./Load: 4,000
Cost/MBF:	\$104.02		
Machines:	Log Loader (A) Stroke Delimber (A) Tower Yarder (Large)		
Combination#: 3	Douglas - Fir	5.99%	
	Western Hemlock / Fir	1.78%	
	Alder (Red)	1.20%	
Yarding Distance:	Medium (800 ft)		Downhill Yarding Yes
Logging System:	Track Skidder		Process: Manual Falling/Delimiting
Tree Size:	Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF		
Loads/Day:	7		Bd. Ft./Load: 4,200
Cost/MBF:	\$111.07		
Machines:	Log Loader (B) Track Skidder		
Combination#: 4	Douglas - Fir	23.98%	
	Western Hemlock / Fir	7.11%	
	Alder (Red)	4.82%	

Yarding Distance: Medium (800 ft) **Downhill Yarding** No
Logging System: Cable: Large Tower ≥ 70 **Process:** Stroke Delimber
Tree Size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
Loads/Day: 7 **Bd. Ft./Load:** 4,200
Cost/MBF: \$127.37

Machines:

Log Loader (A)
Stroke Delimber (A)
Tower Yarder (Large)



Timber Sale Appraisal Logging Costs Gnat Creek Combination Sale 341-02-55

"STEWARDSHIP IN FORESTRY"

Date: 2/12/02

Operating Seasons: 2.0

Profit & Risk: 16%

Project Costs: \$582,889

Other Costs (P/R): \$31,157

Slash Disposal: \$0

Other Costs: \$16,220

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

Road Maintenance: \$3.56

Hauling Costs

Species	\$/MBF	Trips/Day	MBF/Load
Douglas - Fir	\$0.00	3.0	4.2
Western Hemlock / Fir	\$0.00	3.0	4.0
Red Cedar	\$0.00	3.0	3.5
Alder (Red)	\$0.00	3.0	3.3



Timber Sale Appraisal Logging Costs Breakdown Gnat Creek Combination Sale 341-02-55

"STEWARDSHIP IN FORESTRY"

Costs	Douglas - Fir	Western Hemlock / Fir	Red Cedar	Alder (Red)
Logging	95.72	87.18	83.57	86.01
Road Maintenance	3.67	3.67	3.67	3.75
Fire Protection	0.53	0.53	0.53	0.53
Hauling	35.15	39.54	45.15	46.11
Other (P/R appl.)	3.05	3.05	3.05	3.05
Profit & Risk	22.10	21.44	21.76	22.31
Slash Disposal	0.00	0.00	0.00	0.00
Scaling	2.00	2.00	2.00	2.00
Other	1.59	1.59	1.59	1.59
Total	163.81	159.00	161.32	165.35

Amortization	0.00	0.00	0.00	0.00
Pond Value	524.32	350.26	850.00	260.06
Stumpage	360.51	191.26	688.68	94.71
Amortized	0.00	0.00	0.00	0.00



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Summary Gnat Creek Combination Sale 341-02-55

Amortized

	Douglas - Fir	Western Hem lock / Fir	Red Cedar	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 Hem lock / Fir	Red Cedar	Alder (Red)
MBF	6,977.00	3,049.00	35.00	166.00
Value	360.51	191.26	688.68	94.71
Total	2,515,278.27	583,151.74	24,103.80	15,721.86

Gross Timber Sale Value

Recovery \$3,138,255.67

Prepared by: John Tillotson

Date: 2/12/02

District: Astoria

Phone: (503) 325-5451

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Gnat Creek Combo

Project No. 1 (Associated with Hunt Creek)

Improvement	Length/Sta	Cost
Road segment		
<u>I1-I2, I3-I4, I5-I6, I7-I8, I9-I10, I11-I12 and I13-I14</u>	<u>218.70</u>	
New Construction		
Road segment		<u>\$110,166</u>
<u>1A-1B, 1C-1D, 2A-2B, 3A-3B, 3C-3D, 4A-4B, 4C-4D, 5A-5B, 5C-5D, 5E-5F, 5G</u>	<u>57.50</u>	
TOTAL	276.20	\$110,166

Project No. 2 (Associated with Fall Creek)

Improvement	Length/Sta	Cost
Road segment		
<u>I19-I20</u>	<u>50.20</u>	
New Construction		<u>\$73,549</u>
Road segment		
<u>P1-P2</u>	<u>54.60</u>	
TOTAL	104.80	\$73,549

Project No. 3 (Associated with Rector Ridge)

Improvement	Length/Sta	Cost
Road segment		
<u>I15-I16 and I17-I18</u>	<u>21.00</u>	
New Construction		<u>\$126,910</u>
Road segment		
<u>P3-P4, P5-P6, P7-P8 and P9-P10</u>	<u>91.35</u>	
TOTAL	112.35	\$126,910

Improvement	289.90	5.5 miles
New Construction	203.45	3.9 miles
Total Stations/Miles	493.35	9.3 miles

SPECIAL PROJECTS:

Description	Sta.	Cost
Project No. 4 - Road Vacating	116.06 = 2.2 miles	<u>\$51,942</u>
Project No. 5 - Quarry & Stockpile Development and Crushing		<u>\$194,959</u>
Crush 11,595 CY's @ Hunt Creek		
Crush 5,920 CY's @ Fall Creek and Stockpile 3,000 CY's of 4"-0"		
Crush 8,008 CY's @ Rector Ridge.		
Road Maintenance Associated with Project Work		<u>\$9,272</u>
Hydro Mulch - Sweethome New Construction Projects 2 & 3		
Erosion Control Mix 1,400 lbs Fiber, 100 lbs Seed, 50 lbs Tackifier, 100 lbs Fertilizer per/Ac.		
10.5 Acres @ \$950 acre = \$9,975		<u>\$9,975</u>
TOTAL		\$266,148

MOVE IN:

Equipment	Cost
D8 Cat (X 2 at \$533 ea.)	<u>\$1,066</u>
Dump Trucks (X 8 at \$158 ea.)	<u>\$1,264</u>
FE Loader (X 2 at \$387 ea.)	<u>\$778</u>
Grader (X 2 at \$241 ea.)	<u>\$482</u>
Vibratory Roller (X 2 at \$241 ea.)	<u>\$482</u>
Water Trucks (X 2 at \$158 ea.)	<u>\$316</u>
Excavator (X 2 at \$533 ea.)	<u>\$1,066</u>
Hydro-seeder (1 time @ \$180.00)	<u>\$180</u>
Skidder (X 2 at \$241 ea.)	<u>\$482</u>
TOTAL	\$6,116

GRAND TOTAL

\$582,889

Compiled By: J.C. Day

Date: 2/5/02

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 5

Timber Sale Name: **Gnat Creek Combination**

Quarry: Hunt Creek
 Location: Sec. 29, T8N, R6W, WM
 County: Clatsop
 By: Lertora
 Date: 2/5/02

Swell: _____
 Shrink: 16%

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR		6,937	6,937
1-1/2"-0"		CR		214	214
4"-0"		CR		3,384	3,384
6"-0"		PR		900	900
24"-6"		RR		160	160
36"		RR			
TOTAL CUBIC YARDS OF ROCK:				11,595	11,595

1) MOBILIZATION & SET UP:

EQUIPMENT MOBILIZATION	DISTANCE IN MILES	DIST. FACTOR	BASE RATE	COST
3 Stage Crusher	75	1.40	\$2,220	\$3,108
Screening Plants	75	1.40	\$450	\$630
D8 Cat & D6 Cat	75	1.40	\$1,540	\$2,156
Loader	75	1.40	\$560	\$784
Drill & Compressor	75	1.40	\$1,080	\$1,512
Powder	75	1.40	\$270	\$378
1 Off-Road Dump Truck	75	1.40	\$134	\$188
Excavator	75	1.40	\$500	\$700
SUB TOTAL FOR MOBILIZATION				\$9,456

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$2,530	\$2,530
Screening Plant	1	\$215	\$215
Change Gradation	2	\$400	\$800
SUB TOTAL FOR SET UP COSTS			\$3,545

TOTAL MOBILIZATION & SET UP COSTS **\$13,001**

2) CLEARING & GRUBBING

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

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

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST

TOTAL EXCAVATION COSTS

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping				
crushed	10,535	91%	Drill & shoot	65%	7,537	\$1.90	\$14,320
pit run	900	8%	Oversize red	3%	343	\$5.04	\$1,729
rip rap	160	1%	Other				
Total	11,595						
reject							
TOTAL ROCK DEVELOPMENT COSTS							\$16,049

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$400	\$800
Calibrate			
Test	4	\$50	\$200
Test			
TOTAL CALIBRATION & TESTING COSTS			\$1,000

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	10,535	\$0.65	\$6,848
TOTAL FEEDING & LOADING COSTS			\$6,848

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTIO	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed	6,937	3 stage	110	\$2.50	\$17,343
1-1/2"-0"	crushed	214				
4"-0"	crushed	3,384	2 stage	140	\$1.71	\$5,801
TOTAL ROCK CRUSHING COSTS						\$23,144

8) STOCKPILING

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

SUB TOTAL

HAUL & STOCKPILE STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1.					
2.					
3.					
4.					
5.					
6.					

SUB TOTAL

TOTAL STOCKPILING COSTS

9) MISCELLANEOUS COSTS

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

TOTAL MISCELLANEOUS COSTS

\$2,240

10) GRAND TOTAL:

\$63,777

\$/Cubic Yard

\$6.05

Footnotes:

Construct/Reconstruct Stockpile Floor

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

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

Total Construct Stockpile Floor

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 5

Timber Sale Name: **Gnat Creek Combination**

Quarry: Fall Creek
 Location: Sec. 20, T4N, R8W, WM
 County: Clatsop
 By: Lertora
 Date: 2/5/02

Swell: _____
 Shrink: 16%

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	5%	CR		2,550	2,550
4"-0"		CR	3,000	3,298	6,778
6"-0"		PR			
24"-6"		RR		72	72
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			3,000	5,920	9,400

1) MOBILIZATION & SET UP:

EQUIPMENT MOBILIZATION	DISTANCE IN MILES	DIST. FACTOR	BASE RATE	COST
3 Stage Crusher	75	1.40	\$2,220	\$3,108
Screening Plants (2)	75	1.40	\$900	\$1,260
D8 Cat & D6 Cat	75	1.40	\$1,540	\$2,156
Loader	75	1.40	\$560	\$784
Drill & Compressor	75	1.40	\$1,080	\$1,512
Powder	75	1.40	\$270	\$378
1 Off-Road Dump Truck	75	1.40	\$134	\$188
Excavator	75	1.40	\$500	\$700
SUB TOTAL FOR MOBILIZATION				\$10,086

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

TOTAL MOBILIZATION & SET UP COSTS **\$13,441**

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear, Load, Haul to Waste Area	8.0	hr	\$187	\$1,496
Slash and Stumps (1 truck, 1 exc.)				
Pile & Burn Slash and Stumps(1 exc)	10.0	hr	\$130	\$1,300
Move-in Fire Truck for the burning of the Clearing Debris	1.0	ea	\$132	\$132

TOTAL CLEARING & GRUBBING COSTS **\$2,928**

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, spread)	2,600	bcy	\$2.25	\$5,850
TOTAL EXCAVATION COSTS				\$5,850

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping			\$1.85	
crushed	9,328	99%	Drill & shoot	100%	9,528	\$1.90	\$18,102
pit run	0	0	Oversize red	3%	280	\$5.04	\$1,410
rip rap	72	1%	Other				
Total	9,400						
reject	128	1.4%					
TOTAL ROCK DEVELOPMENT COSTS							\$19,513

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$400	\$800
Calibrate			
Test	4	\$50	\$200
Test			
TOTAL CALIBRATION & TESTING COSTS			\$1,000

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	9,456	\$0.65	\$6,146
TOTAL FEEDING & LOADING COSTS			\$6,146

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTIO	RATE CU. YD.	TOTAL COST
1-1/2"-0"	crushed	2,550	3 stage w/s	120	\$2.71	\$6,906
4"-0"	crushed	6,778	2 stage	140	\$1.71	\$11,619
TOTAL ROCK CRUSHING COSTS						\$18,526

8) STOCKPILING

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

HAUL & STOCKPILE STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1. _____					
2. _____					
3. Fall Creek	4"-0"	1	3,480	\$0.52	\$1,804
4. _____					
5. _____					
6. _____					
SUB TOTAL					\$1,804

TOTAL STOCKPILING COSTS **\$2,284**

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	\$376
\$3.30/CY 128 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	\$2,240
TOTAL MISCELLANEOUS COSTS	\$2,616

10) GRAND TOTAL: **\$72,304**

\$/Cubic Yard \$7.75

Footnotes:

Construct/Reconstruct Stockpile Floor

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

\$480.00

Total Construct Stockpile Floor \$480.00

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

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 5

Timber Sale Name: **Quartz Creek Combination**

Quarry: Rector Ridge
 Location: Sec. 4, T3N, R8W, WM
 County: Tillamook
 By: Lertora
 Date: 2/5/02

Swell: _____
 Shrink: 16%

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	5%	CR		2,069	2,069
4"-0"		CR		5,495	5,495
6"-0"		PR		120	120
24"-6"		RR		324	324
36"		RR			
TOTAL CUBIC YARDS OF ROCK:				8,008	8,008

1) MOBILIZATION & SET UP:

EQUIPMENT MOBILIZATION	DISTANCE IN MILES	DIST. FACTOR	BASE RATE	COST
3 Stage Crusher	6	0.58	\$2,220	\$1,288
Screening Plants (2)	6	0.58	\$900	\$522
D8 Cat & D6 Cat	6	0.58	\$1,540	\$893
Loader	6	0.58	\$560	\$325
Drill & Compressor	6	0.58	\$1,080	\$626
Powder	6	0.58	\$270	\$157
3 Dump Trucks	6	0.58	\$402	\$233
Excavator	6	0.58	\$500	\$700
SUB TOTAL FOR MOBILIZATION				\$4,744

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$2,530	\$2,530
Screening Plants (2)	1	\$425	\$425
Change Gradation	2	\$400	\$800
SUB TOTAL FOR SET UP COSTS			\$3,755

TOTAL MOBILIZATION & SET UP COSTS **\$8,499**

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear, Load, Haul to Waste Area	8.0	hr	\$187	\$1,496
Slash and Stumps (1 truck, 1 exc.)				
Pile & Burn Slash and Stumps(1 exc)	10.0	hr	\$130	\$1,300
Move-in Fire Truck for the burning of the Clearing Debris	1.0	ea	\$132	\$132

TOTAL CLEARING & GRUBBING COSTS **\$2,928**

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, spread)	3,300	bcy	\$2.25	\$7,425

TOTAL EXCAVATION COSTS \$7,425

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping			\$1.85	
crushed	7,564	94%	Drill & shoot	100%	8,111	\$1.90	\$15,412
pit run	120	1%	Oversize red	3%	231	\$5.04	\$1,162
rip rap	324	4%	Other				
Total	8,008						
reject	103	1.3%					

TOTAL ROCK DEVELOPMENT COSTS \$16,574

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$400	\$800
Calibrate			
Test	2	\$50	\$100
Test			

TOTAL CALIBRATION & TESTING COSTS \$900

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	7,667	\$0.65	\$4,984

TOTAL FEEDING & LOADING COSTS \$4,984

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTIC	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed					
1-1/2"-0"	crushed	2,069	3 stage w/s	120	\$2.71	\$5,604
4"-0"	crushed	5,495	2 stage	140	\$1.71	\$9,420

TOTAL ROCK CRUSHING COSTS \$15,024

8) STOCKPILING

STOCKPILE PREPARATION OR CONST	COST

SUB TOTAL

HAUL & STOCKPILE STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					

SUB TOTAL

TOTAL STOCKPILING COSTS

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area. \$3.30/CY 103 CY	\$305
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	\$2,240

TOTAL MISCELLANEOUS COSTS

\$2,545

10) GRAND TOTAL:

\$58,878

\$/Cubic Yard

\$7.78

Footnotes:

Construct/Reconstruct Stockpile Floor

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

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

Total Construct Stockpile Floor

Project Work Road Maintenance Cost Summary

Sale: Gnat Creek Combo
Date: _____
By: _____

Type	Equipment/Rationale	Hours	Rate	Cost
Post-Projects Road	Grader	8	\$80	\$640
	Dump Truck	2	\$57	\$114
	FE Loader	2	\$60	\$120
Maintenance: Nicolai ML	Vibratory Roller	8	\$75	\$600
	Water Truck	2	\$67	\$134
Post-Projects Road	Grader	32	\$80	\$2,560
	Dump Truck	16	\$57	\$912
	FE Loader	12	\$60	\$720
Maintenance: Sweethome and Hopinhome Roads.	Vibratory Roller	32	\$75	\$2,400
	Water Truck	16	\$67	\$1,072
Total				\$9,272

Hunt Creek Quarry
 Production Rates
 Grader
 Vibratory Roller

Miles/day	Distance(miles)	Days	Hours
1.50	1.5	1.0	8
1.50	1.5	1.0	8

Rector Ridge Quarry
 Production Rates
 Grader
 Vibratory Roller

Miles/day	Distance(miles)	Days	Hours
1.50	6	4.0	32
1.50	6	4.0	32

Gnat Creek

Vacate Rector Gnat Creek Combo

Sta./Pt.	Description	C235 #1	C235 Travel Time & Waterbarring	D-7 Cat	Labor	Dump Truck	Seed & Straw Mulch	Totals
V1 Sweethome Road Remove Culvert 0+00 to 1+00	Remove Culvert and fill Block @ Pt.0+00 & 1+00	16 hr	hr	12 hr	8 hr	0 hr	20 bales	
V2 Rector L.O. Spur Remove Culvert 0+00 to 1+05	Remove Culvert and fill Block @ Pt.0+00	20 hr	hr	20 hr	8 hr	hr	20 bales	
V3 to V4 Vacating fills 0+00 to 23+70	Remove Culvert fill at 0+00, Remove Fills @ 6+90 & 23+70 Waterbar and block road	20 hr	2 hr	6 hr	6 hr	hr	24 bales	
V5 to V6 Vacating Fills at the end of Spur 27 0+00 to 23+35	Remove Fills @ 18+35, 19+85 and 23+35 Waterbar and block road	68 hr	2 hr	46 hr	32 hr	hr	40 bales	
V7 to V8 Vacating Fills East of Woodpecker 0+00 to 25+00	Remove Fills @ 18+60, 21+00 and 25+00 Waterbar and block road	13 hr	2 hr	hr	4 hr	hr	10 bales	
V9 to V10 Vacating fills 0+00 to 16+70	Remove Fills @ 2+80, 11+10, 11+60, and 16+70 Waterbar and block road	80 hr	2 hr	76 hr	48 hr	hr	50 bales	
V11 to V12 Vacating Fills 0+00 to 13+50	Remove Fills @ 7+00, 11+00, and 13+50 Waterbar and block road	48 hr	1 hr	38 hr	24 hr	hr	30 bales	
V13 to V14 Vacating Fill Headwaters Road 0+00 to 11+75	Remove Fill @ 9+35 Waterbar and block road @ 0+00 and 11+75	20 hr	1 hr	14 hr	10 hr	hr	20 bales	
Total Road Vacating Distance 116+05 = 2.2 miles	Disposal of Old Culverts	Load 1 hr	hr	hr	4 hr	4 hr		
Total		270 hr	10 hr	200 hr	132 hr	4 hr	194 bales	
Rate		\$105.00 /hr	\$115.00 /hr	\$90.00 /hr	\$25.00 /hr	\$55.00 /hr	\$4.75 /bales	
Cost		\$28,350.00	\$1,150.00	\$18,000.00	\$3,300.00	\$220.00	\$921.50	\$51,941.50

**GNAT CREEK COMBINATION
FY 2002
TIMBER CRUISE REPORT**

1. **Sale Area Location:** Areas 1 & 2 – Are located in the following portions of T8N, R6W, Clatsop County, OR: Area 1 – Located in the SW¼ of Section 17 and the SE¼ of Section 18, Area 2 – Located in the W½ of Section 17, and the E½ of Section 18; Areas 3-6 are located in the following portions of T8N, R7W, Clatsop County, OR: Areas 3 & 3A – Located in the center of Section 13, Areas 4 & 4A - Located in the NW¼ of Section 13 and the NE¼ of Section 14, Area 5 – Located in the NE¼ of Section 14, and in portions of Sections 11, 12, and 13, Area 6 R/W – Sale access Rights-of-Way. Area 7 R/W – Future access roads in portions of Sections 27, 28, and 34, T4N, R8W, W.M., Clatsop County, OR and Portions of Sections 3 and 4, T3N, R8W, W.M., Tillamook County, Oregon. Timber sale areas 1-5 are posted with ODF "Timber Sale Boundary" signs, pink ribbon, and blue paint along property lines and stream buffers. Area boundaries are posted with "Area Boundary" signs and pink flagging. Areas 6 & 7 R/W are posted with ODF "Right-of-Way Boundary" signs, and with blue paint outside of sale area boundaries.

2. **Fund Distribution:** Fund: BOF (100%)
Tax Code: 4-01 (90%), 4-03 (3%), 8-01 (3%), Tillamook County 56-1 (4%)

3. **Sale Acreage by Area:**

Area	Gross Acreage	New R/W Acreage	Existing R/W Acreage	Stream Buffer Acreage	GTRA Acreage	Net Acreage*
1	38	0	0	4.3	0.8	33
2	55.1	0	1.5	3	5.2	45
3	31.7	1.2	1.8		N/A	29
3A	22.8	0	0		16.8	6
4	18.6	0.7	0	1.5	N/A	16
4A	51.1	0.2	0.7	3.2	N/A	47
5	61.6	0	1.6	2	0.6	57
6 R/W	N/A	Total 2.1	N/A	N/A	N/A	2
7 R/W	N/A	17.92	N/A	N/A	N/A	18
TOTALS	278.9	20.02**	5.6			253

*Rounded to nearest acre

**Total R/W Acreage (Area 6 + Area 7)

4. **Cruisers and Cruise Dates:** Area 1 – Tom Scoggins, July, 2001; Area 2 –, Jon Long, and John Tillotson, August, 2001; Area 3 – Kraig Kirkpatrick, August, 2001; Area 3A – Kraig Kirkpatrick, August, 2001; Area 4 – Ed Holloran, August, 2001; Area 4A – Ed Holloran, August, 2001; Area 5 – Tom Scoggins, Ed Holloran and Chuck Day, August, 2001. Cruises for Area 6 R/W were calculated using all applicable sale area cruises and applying road R/W acreage. Area 7 R/W – Tom Scoggins, Chuck Day, Kraig Kirkpatrick and Jon Long, October, 2001. Three plots were cruised by Jon Long in February, 2002 to replace 3 previous plots, after a segment of road to be constructed was relocated.

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

<u>AREAS</u>	<u>PROJECT</u>	<u>CRUISE TYPE</u>
1, 2 & 5	GNATCOMB	8N6WSEC17TYPE: CC
3 & 4	GNATCOMB	8N7WSEC13TYPE: 3&4T
3A	GNATCOMB	8N7WSEC13TYPE: 3ATK
4A	GNATCOMB	8N7WSEC13TYPE: 4ATK
6 R/W	GNATCOMB	8N7WSEC13TYPE: 06RW
7 R/W	GNATCOMB	4N8WSEC28TYPE: 07RW

6. Timber Description: Areas 1, 2 & 5(clearcut) are 70 to 75 year old Douglas-fir and western hemlock stands with a small component of hardwoods. Portions of Area 2 have had some areas of windthrow salvage resulting in some variability in stocking on the tractor ground. These stands average 20" DBH, 88 feet of merchantable height, 114 trees per acre, 254 ft² of basal area, and 52.7 MBF per Acre.

Area 3 and 4 (partial cuts) are Douglas-fir and western hemlock stands, averaging 70 years old. Average diameter is 23" DBH, 99 trees per acre with a basal area of 282 ft² per acre. Volumes to remove in these thinning areas average 24.6 MBF per acre, while retaining about 43 trees per acre and a residual basal area of 154 ft² per acre. Trees to be removed average 21" DBH and 87 feet in merchantable height.

Area 3A(patch cuts) are Douglas-fir stands averaging 70 years old. The average diameter of trees to harvest is 22" DBH, 99 feet in merchantable height, and the total volume is 52.5 MBF per acre.

Area 4A(partial cut) is a Douglas-fir stand with an average age of 70 years. The average diameter is 20" DBH, 118 trees per acre and a basal area of 244 ft² per acre. Volume to remove averages 20 MBF per acre, while retaining about 44 trees per acre and a residual basal area of 111 ft² per acre. Trees to be removed in this partial cut average 18" DBH and 73 feet in merchantable height.

Area 6(R/W) is comprised of a combination of the stand types within the sale areas. Therefore, this area includes varying sizes and stocking levels of Douglas-fir, western hemlock, red alder, western red cedar and big leaf maple.

Area 7(R/W) is comprised of numerous stands as the right-of-way passes through different stand types. This area is comprised of western hemlock, red alder, Douglas-fir, and western red cedar. The average volume of all species is about 36.5 MBF per acre.

7. Statistical Analysis: (See also "Statistics Reports," attached.)

Area	Target CV	Target SE%	Actual CV	Actual SE%
1, 2, & 5 Clearcut	30%	8%	45.1%	5.2%
3 & 4	30%	8%	40.9%	8.9%
3A	30%	8%	17.2%	7%
4A	30%	8%	19.1%	4.5%
6 R/W	N/A	N/A	42.7%	4.5%
7 R/W	N/A	N/A	69.5%	15.9%

8. Volumes by Species and Log Grades for All Sale Areas by MBF: (See "Species, Sort, Grade, Length % Type Reports" attached, of the thinning and regeneration harvest areas combined.) Volumes do not include "ingrowth." The majority of defect and breakage was culled out during the cruise.

Species	DBH	Net Vol.	3P	SM	2 Saw	3Saw	4 Saw	D & B	% Sale
Douglas-fir	20"	6,977	114	183	5,009	1,452	219	93	68%
Hemlock	19"	3,049		58	2,099	783	109	59	30%
Hardwoods	14"	166				121	45	1	2%
Cedar	15"	35			11	21	3	0	<1%
TOTALS		10,227	114	241	7,119	2,377	376		

9. Approvals:

Prepared by: John Tillotson

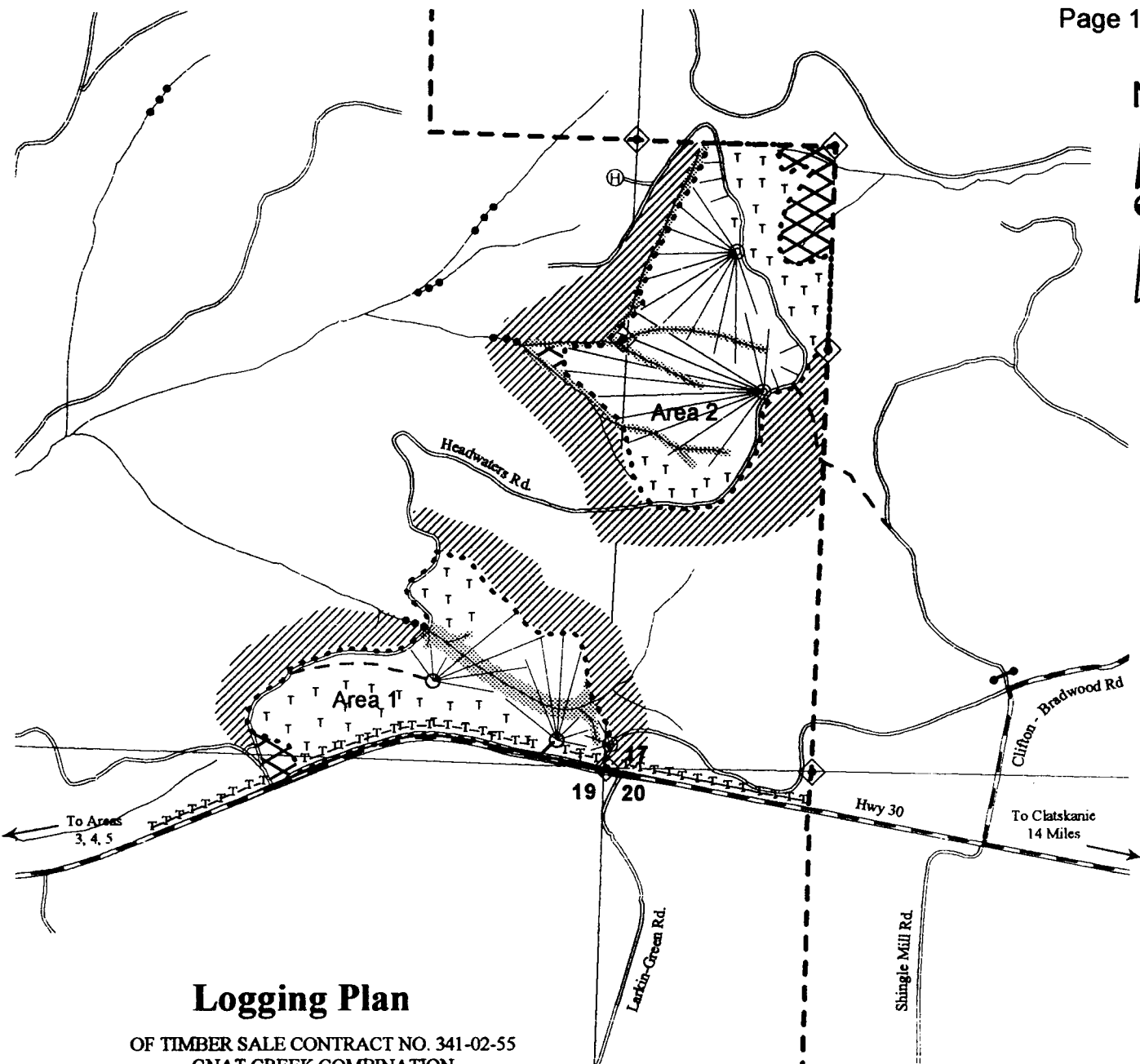
Date: February 5, 2002

Approved by: Tom Scoggins
Unit Forester

Date: Feb. 5, 2002

- 10. Attachments:**
- Species, Sort, Grade Reports (7 pages)
 - Statistics Reports (11 pages)
 - Stand Table Reports (2 pages)
 - Cruise Plans & Maps (17 pages)

X:\DOCUMENT\2002 FY Sales\Gnat Creek Combination\Sale Prep\Cruise Report-Gnat Creek Combo.doc



Logging Plan

OF TIMBER SALE CONTRACT NO. 341-02-55
 GNAT CREEK COMBINATION
 PORTIONS OF SECTIONS 17, 18 & 19, T8N, R6W,
 SECTIONS 11, 12, 13 & 14 T8N, R7W, W.M.
 CLATSOP COUNTY, OREGON

APPROX. SCALE 1"=1,000'



APPROXIMATE ACREAGE:

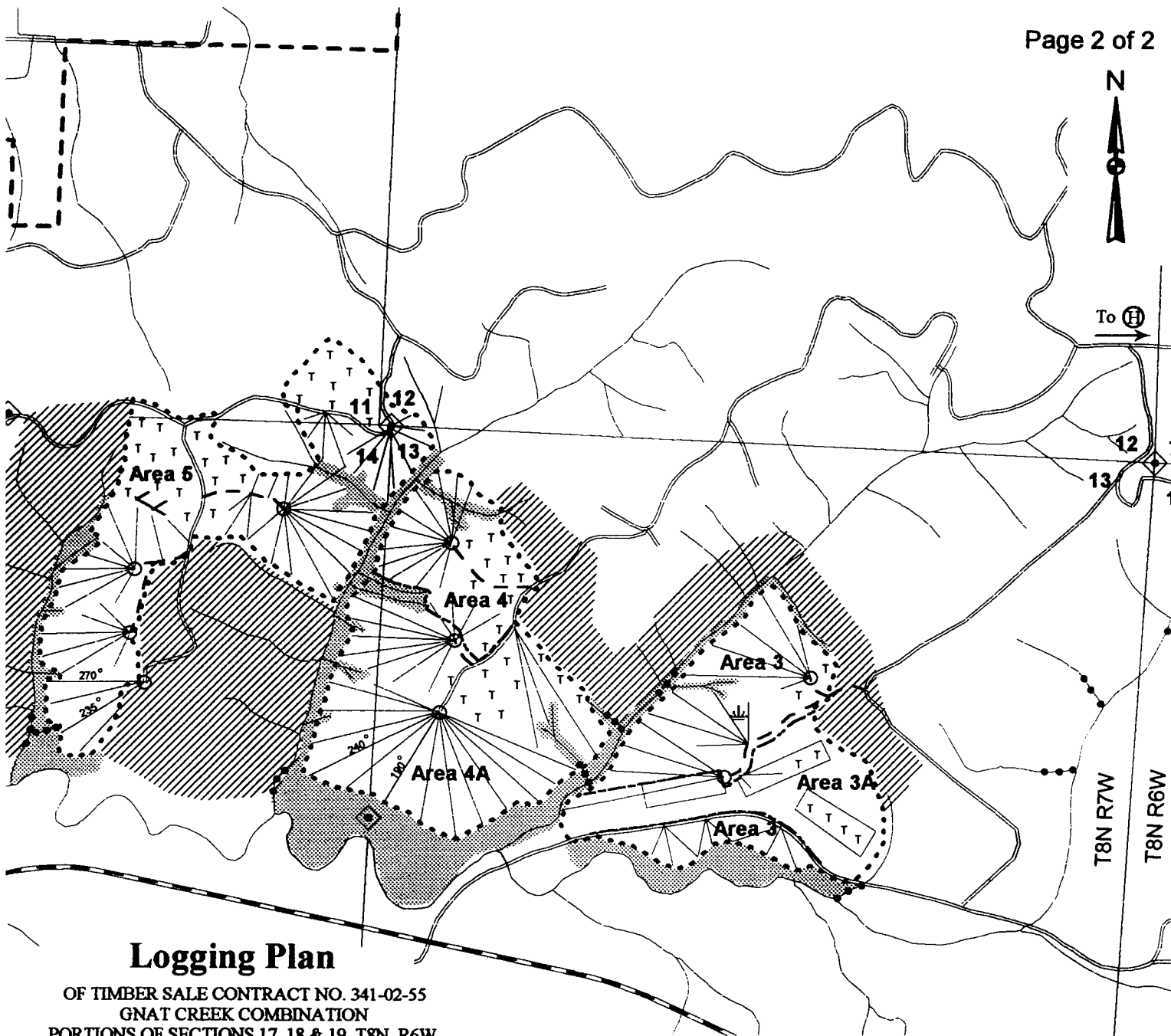
	TYPE	NET ACRES	
AREA 1	CC	33 ACRES	(33% Cable Ground)
AREA 2	CC	45 ACRES	(66% Cable Ground)
AREA 3	PC	29 ACRES	(90% Cable Ground)
AREA 3A	PC [CC]	23 ACRES	(50% Cable Ground)
AREA 4	PC	16 ACRES	(50% Cable Ground)
AREA 4A	PC	47 ACRES	(87% Cable Ground)
AREA 5	CC	57 ACRES	(70% Cable Ground)
AREA 6	R/W	2 ACRES	(0% Cable Ground)
AREA 7	R/W	18 ACRES	(0% Cable Ground)
TOTAL		270 ACRES	

LEGEND

- TIMBER SALE BOUNDARY
- T Tractor Yarding
- ☼ Cable Yarding
- ☼ Temp. Stream Crossing
- Yarding Profile
- Ownership Boundary
- Area Boundary
- ▨ Stream Buffer
- ▨ Reforestation Area
- ▨ Green Tree Retention Area

- ◊ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- ⊙ Stock Pile Site
- ⊗ Rock Quarry
- ⊙ Landing (To be Constructed)
- ⊙ Landing (Loggers Choice)
- ⊙ Helicopter Evacuation Point

- ==== Surfaced Road
- ==== Unsurfaced Road
- New Construction
- ==== Paved Road
- Gate



Logging Plan

OF TIMBER SALE CONTRACT NO. 341-02-55
 GNAT CREEK COMBINATION
 PORTIONS OF SECTIONS 17, 18 & 19, T8N, R6W,
 SECTIONS 11, 12, 13 & 14 T8N, R7W, W.M.
 CLATSOP COUNTY, OREGON

APPROX. SCALE 1"=1,000'



APPROXIMATE ACREAGE:

AREA	TYPE	NET ACRES	PERCENTAGE CABLE GROUND
AREA 1	CC	33	33% Cable Ground
AREA 2	CC	45	66% Cable Ground
AREA 3	PC	29	90% Cable Ground
AREA 3A	PC [CC 6]	23	50% Cable Ground
AREA 4	PC	16	50% Cable Ground
AREA 4A	PC	47	87% Cable Ground
AREA 5	CC	57	70% Cable Ground
AREA 6	R/W	2	0% Cable Ground
AREA 7	R/W	18	0% Cable Ground
TOTAL		270	ACRES

- TIMBER SALE BOUNDARY
- T Tractor Yarding
- ☼ Cable Yarding
- * Temp. Stream Crossing
- Yarding Profile
- - - Ownership Boundary
- - - Area Boundary
- ▨ Stream Buffer
- ▨ Reforestation Area
- ▨ Green Tree Retention Area

LEGEND

- ◊ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- ⊙ Stock Pile Site
- ⊗ Rock Quarry
- Landing (To be Constructed)
- ⊙ Landing (Loggers Choice)
- ⊙ Helicopter Evacuation Point
- ==== Surfaced Road
- Unsurfaced Road
- - - New Construction
- ==== Paved Road
- Gate
- ⊥ Wet Area

CRUISE DESIGN

Sale Name Gnat Creek Comb. Area(s) 1, 2, & 5 (CC units)

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: Lines are 5 feet, (chains) apart (circle correct one)

Plots are 4 feet, (chains) apart

Cruise line direction is (See Cruise Maps)

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.)

Est. CV \approx 30%. Target SE% = 8%. Well stocked 70 yr. old DF/WH stands, about 300 ft²/acre + 50-60 MBF/Ac. About 80-85% DF. Understory brush - VM + solol.

Do not pace through posted stream buffers.

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 12" for conifers and 10" for hardwoods. 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 Gnat Creek Comb. Area(s) 1, 2, & 5

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.

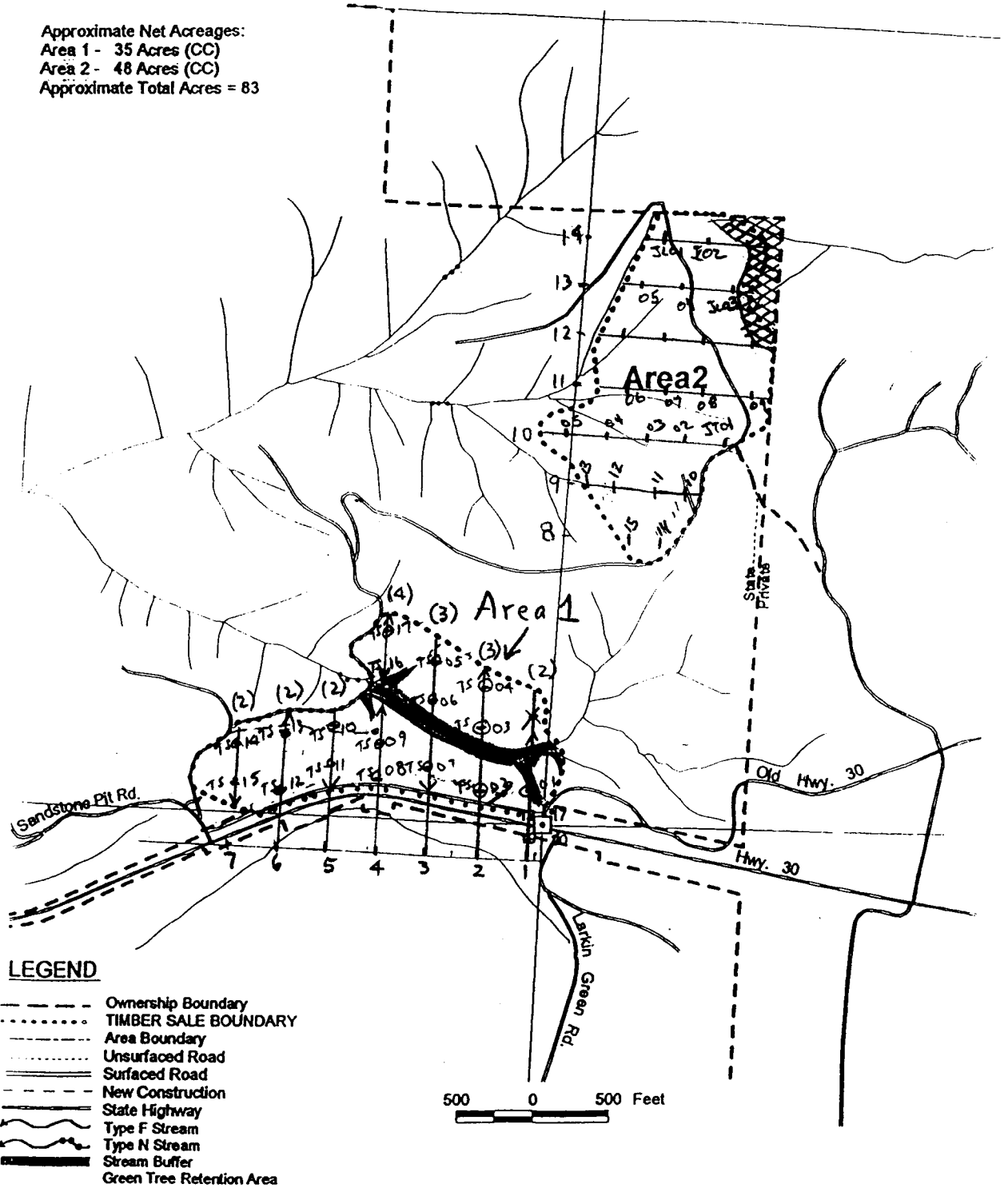
11. Cruising Equipment: Relaskop, rangefinder, diameter tape or rewind tape, biltmore stick, compass, increment borer, tatum and cruise cards or CMT data recorder, yellow and blue ribbon, permanent marker, Scaling and Grading Rules book, and Cruise Design and Map.

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) _____

Gnat Creek Combination
 Areas 1 & 2 Pre-Sale Map
 Portions of Section 18,
 T.8N., R.6W., W.M.

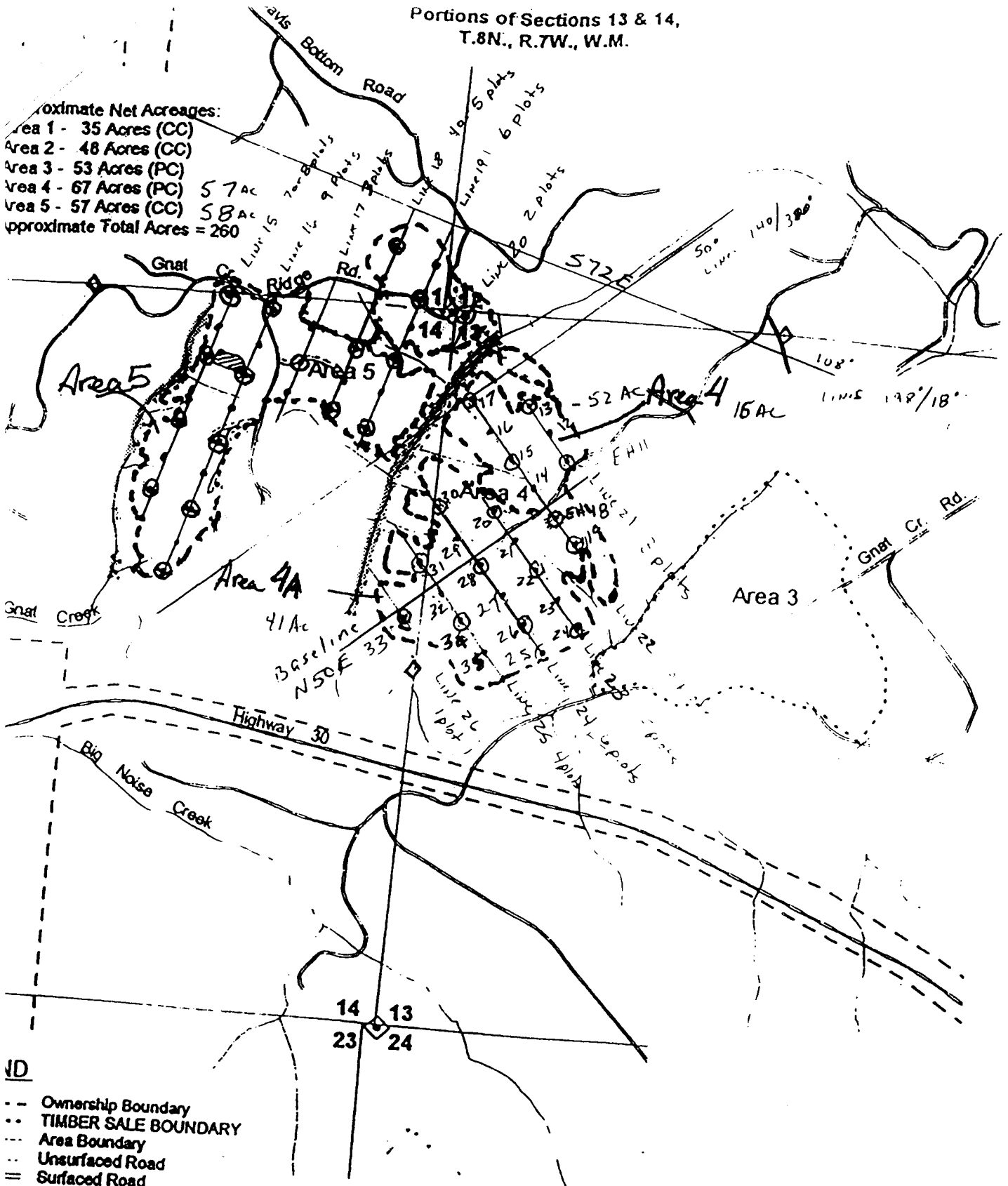
Approximate Net Acreages:
 Area 1 - 35 Acres (CC)
 Area 2 - 48 Acres (CC)
 Approximate Total Acres = 83



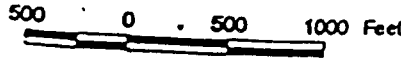
Area 1. Cruise Map
 Lines 5 ch. apart, Plots 4ch. apart
 40 BAF full plots, Grade 1 in 2 plots
 Approx. 10 plots; Grade 9 plots
 Base line along Old Hwy. - S. side

Portions of Sections 13 & 14,
T.8N., R.7W., W.M.

Approximate Net Acreages:
 Area 1 - 35 Acres (CC)
 Area 2 - 48 Acres (CC)
 Area 3 - 53 Acres (PC)
 Area 4 - 67 Acres (PC)
 Area 5 - 57 Acres (CC)
 Approximate Total Acres = 260



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



- Count
 Grade
 de lin 2 plots

CRUISE DESIGN

Sale Name Gnat Cr. Comb. Area(s) 3A (cc)

1. Cruise Method:

- A. Variable Plot: BAF 40 Full or Half Point F
Sighting point 8H or 16') 8H
- 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 _____ feet, chains apart (circle correct one) ** See Attachment for plot spacing**
Plots are _____ feet, chains apart
Cruise line direction is _____.

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.)

Six Measure/Grade plots. All D-fir and Alder are take trees. All Western Hemlock and Western Red Cedar are Leave trees.

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

5. Top Cruise Diameter (D): Minimum top outside bark is 7" , 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 12" for conifers and 10" for hardwoods. 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 Gnat Cr. Comb. Area(s) 3A

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 Gnat Cr. Comb. Area(s) 3

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: Lines are 5 feet, chains apart (circle correct one)
Plots are 4 feet, chains apart
Cruise line direction is S 20° E (North side of Spur 3A-3B)
S 10° E (South side of N. Fork Gnat Cr. Rd.)

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.)

Est. CVs 30% Target SE ≈ 8% 30-40 graded "take" trees.
15 total plots, 10 are graded plots. Leave trees are w. Rod
Cedar, Boxleaf Maple and Alder. Desired residual BA = 1600 ft.²
Record all down wood (1/4 ac. plots) @ each plot, decay class
1 & 2.

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 12 " for conifers and 10 " for hardwoods. 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 Great Cr. Comb. Area(s) 3

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

9. Species, Sort, and Grade Codes:

- A. Species: D-fir = D; Hemlock = H; Sitka Spruce = S; Red Cedar = C; Silver fir = SF; Grand fir = GF; Noble fir = NF; Red Alder = A; 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) _____

Plot Spacing Directions

Patch Cut 1

- Cruise line direction: 255° or 75°.
- Plots every 2.75chains at center width (1ch), 1 count : 1 grade.

Patch Cut 2

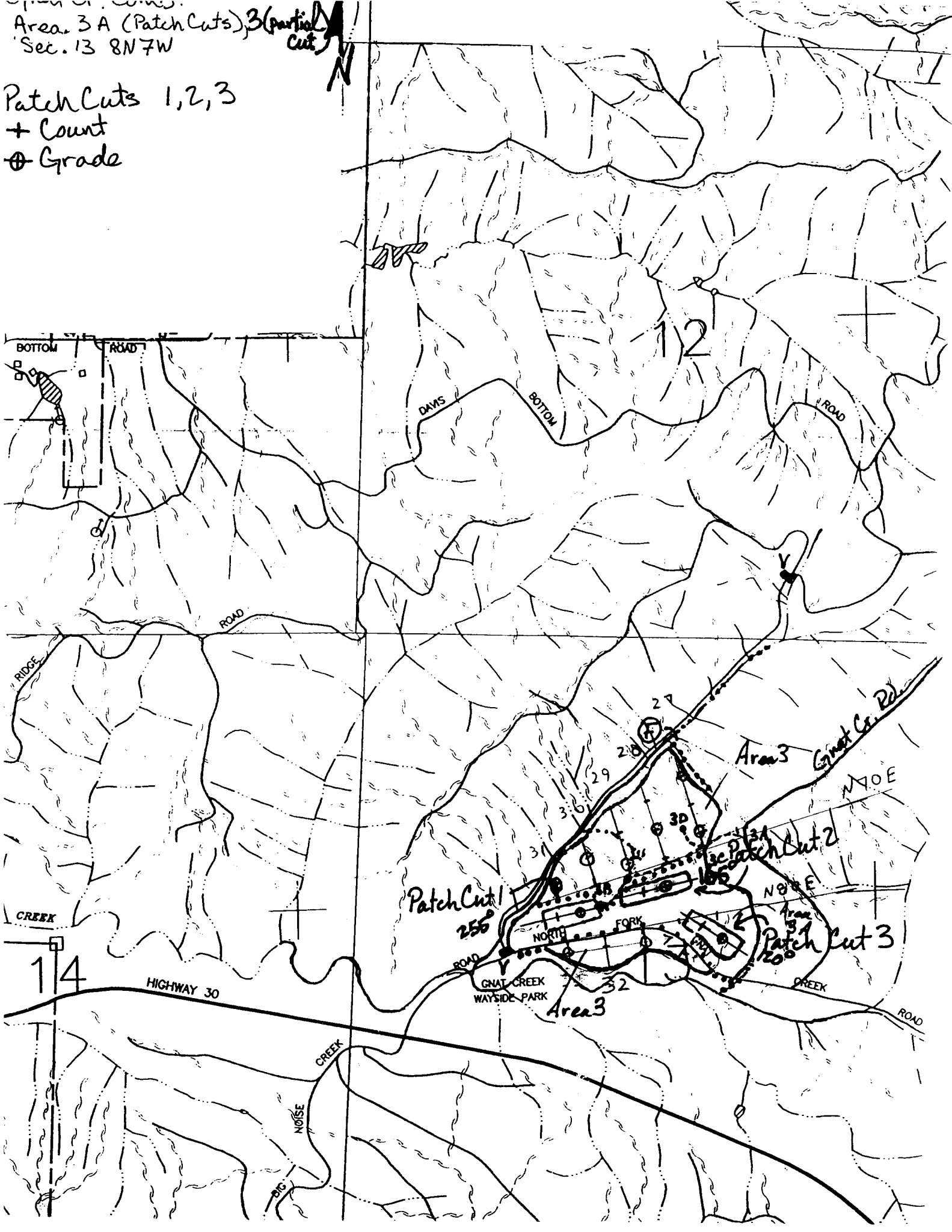
- Cruise line direction: 345° or 165°.
- Plots every 3chains at center width (1ch), 1 count : 1 grade.

Patch Cut 3

- Cruise line direction: 300° or 120°.
- Plot every 2.75chains at center width(1ch), 1count : 1 grade.

Area 3 A (Patch Cuts), 3 (partial cut)
Sec. 13 8N 7W

Patch Cuts 1, 2, 3
+ Count
⊕ Grade



CRUISE DESIGN

Sale Name Gynat Cr. Comb. Area(s) 4 (pc)

ACRES 4 = $\frac{16}{4}$

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: Lines are 5 feet, chains apart (circle correct one)
Plots are 4 feet, chains apart
Cruise line direction is S40E.

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.)

Est. CV = 30%, Target SE = 8%, 16-18 graded "take" trees.
7 total plots, 4 are graded plots. Leave all cedar & maple.
Leave Alder under 14" DBH. Leave all trees over 30" DBH.
Leave all W. Hemlock under 14" DBH. Only Conifer over
14" DBH count towards BA. Desired residual BA = 160 4/7.
Record down wood @ each plot (1/2 ac. plots), class 1 & 2.

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 12" for conifers and 10" for hardwoods. 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 Gnat Cr. Comb. Area(s) 4 (pc)

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 Gnat & Comb. Area(s) 4A (PC)

Acres 4.16

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: Lines are 5 feet chains apart (circle correct one)
Plots are 4 feet, chains apart
Cruise line direction is S40E.

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.)

Est. CV = 30%, Target SE = 8%, 36-40 graded "take" trees. 1B
Total plots, grade graded plots. Leave all W. Hemlock, Cedar,
& Hardwoods. Leave all trees over 30" DBH. Desired residual
BA = 100 ft². Record all down wood @ each plot (1/5 ac plots),
class 1 & 2. Trees under 14" and all Hardwoods to Not Count
Toward leave BA

Under 14"
2 DBH

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 12" for conifers and 10" for hardwoods. 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 Gnat Cr. Comb. Area(s) 4A (pc)

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.

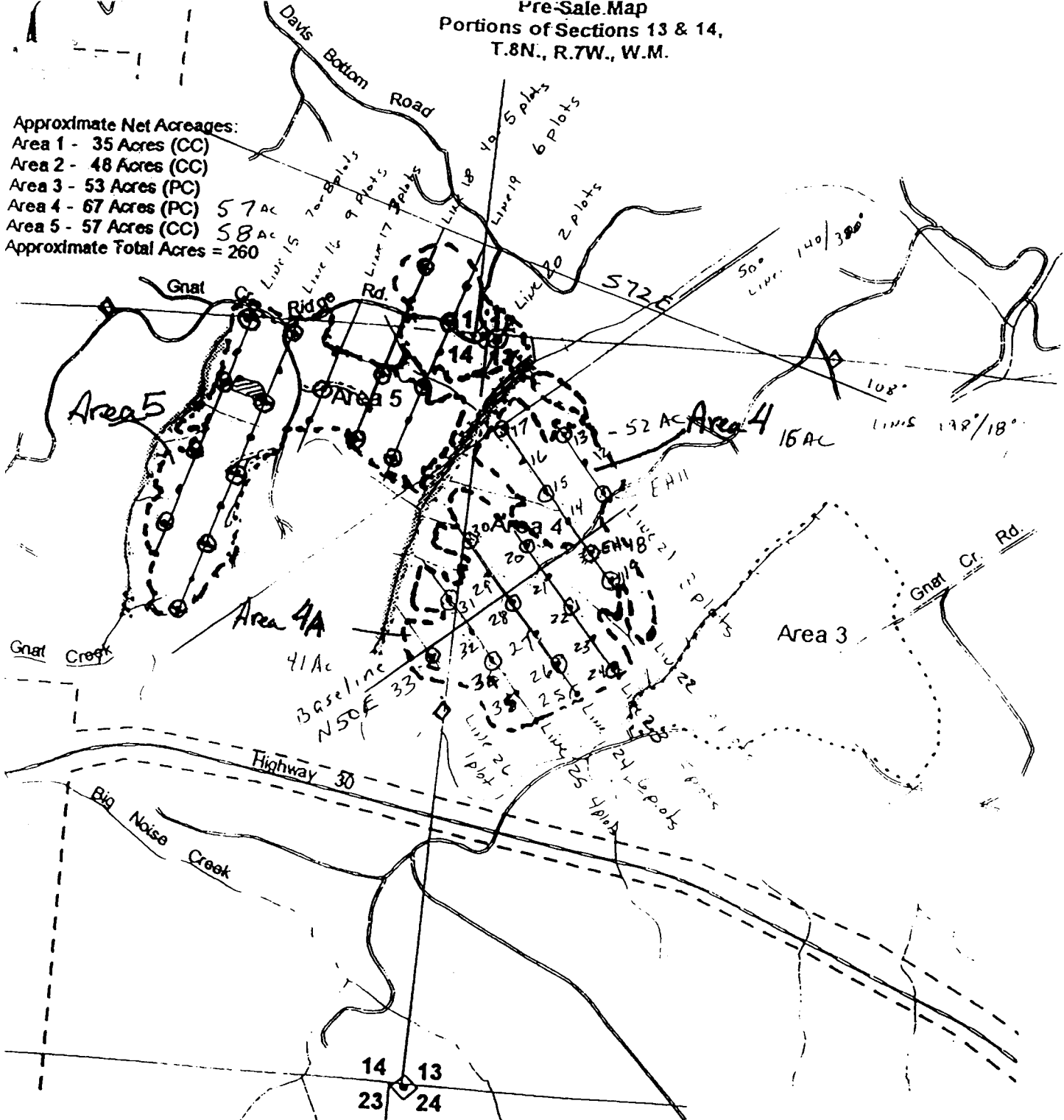
11. Cruising Equipment: Relaskop, rangefinder, diameter tape or rewind tape, biltmore stick, compass, increment borer, tatum and cruise cards or CMT data recorder, yellow and blue ribbon, permanent marker, Scaling and Grading Rules book, and Cruise Design and Map.

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) _____

Pre-Sale Map
 Portions of Sections 13 & 14,
 T.8N., R.7W., W.M.

Approximate Net Acreages:
 Area 1 - 35 Acres (CC)
 Area 2 - 48 Acres (CC)
 Area 3 - 53 Acres (PC)
 Area 4 - 67 Acres (PC) 57 AC
 Area 5 - 57 Acres (CC) 58 AC
 Approximate Total Acres = 260



- ND
- Ownership Boundary
 - TIMBER SALE BOUNDARY
 - ... Area Boundary
 - Unsurfaced Road
 - == Surfaced Road
 - - - New Construction
 - == State Highway
 - - - Type F Stream
 - - - Type N Stream
 - ▨ Stream Buffer

- Count
 - Grade
 side 1 in 2 plots

**CRUISE DESIGN MAP
GNAT CREEK COMBINATION**

Sweethome Roads Portion - R/W Area 7

Portions Sections 27, 28, and 34, T4N, R8W

Clatsop County

And Portions Sections 3 and 4, T3N, R8W

Tillamook County

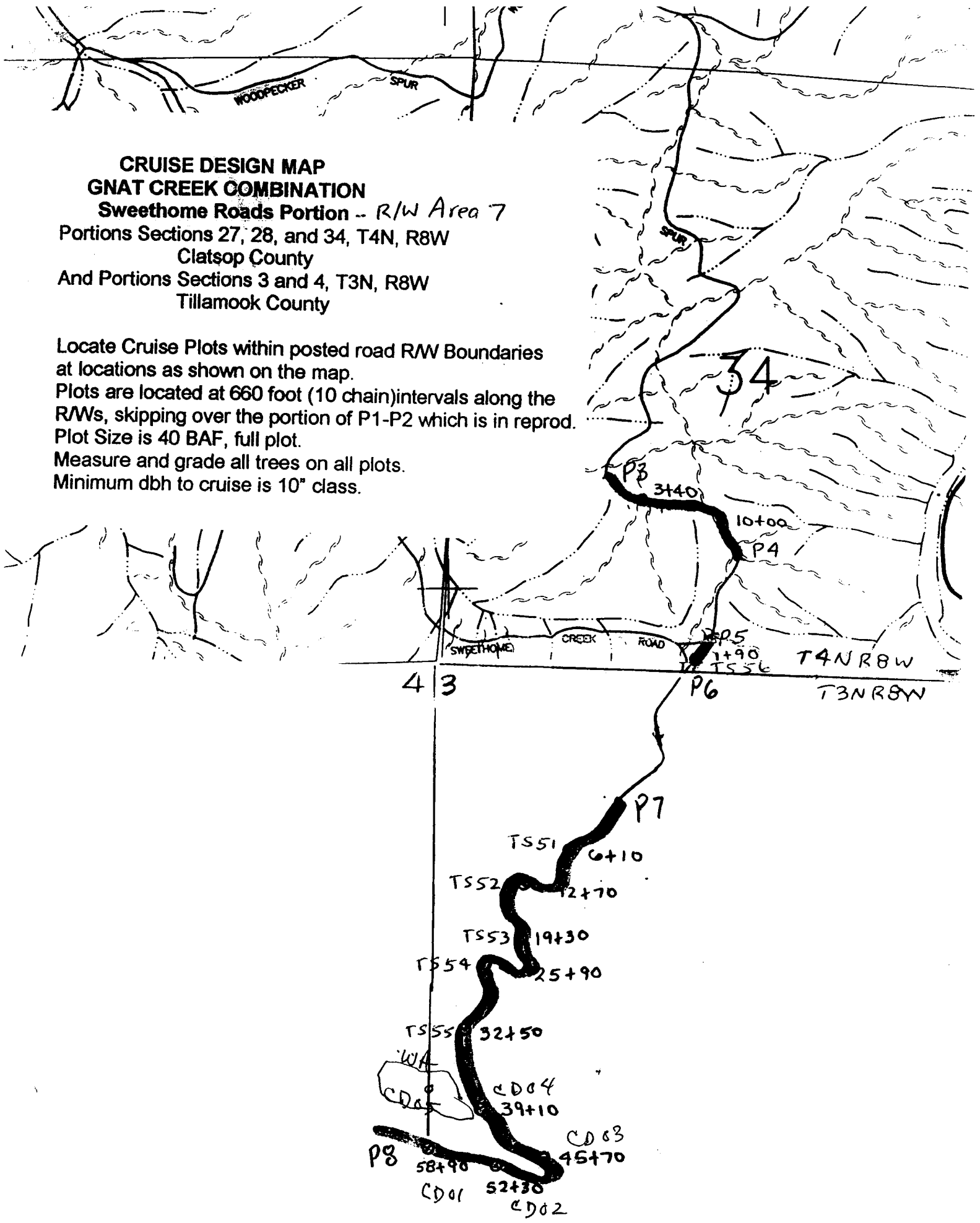
Locate Cruise Plots within posted road RW Boundaries
at locations as shown on the map.

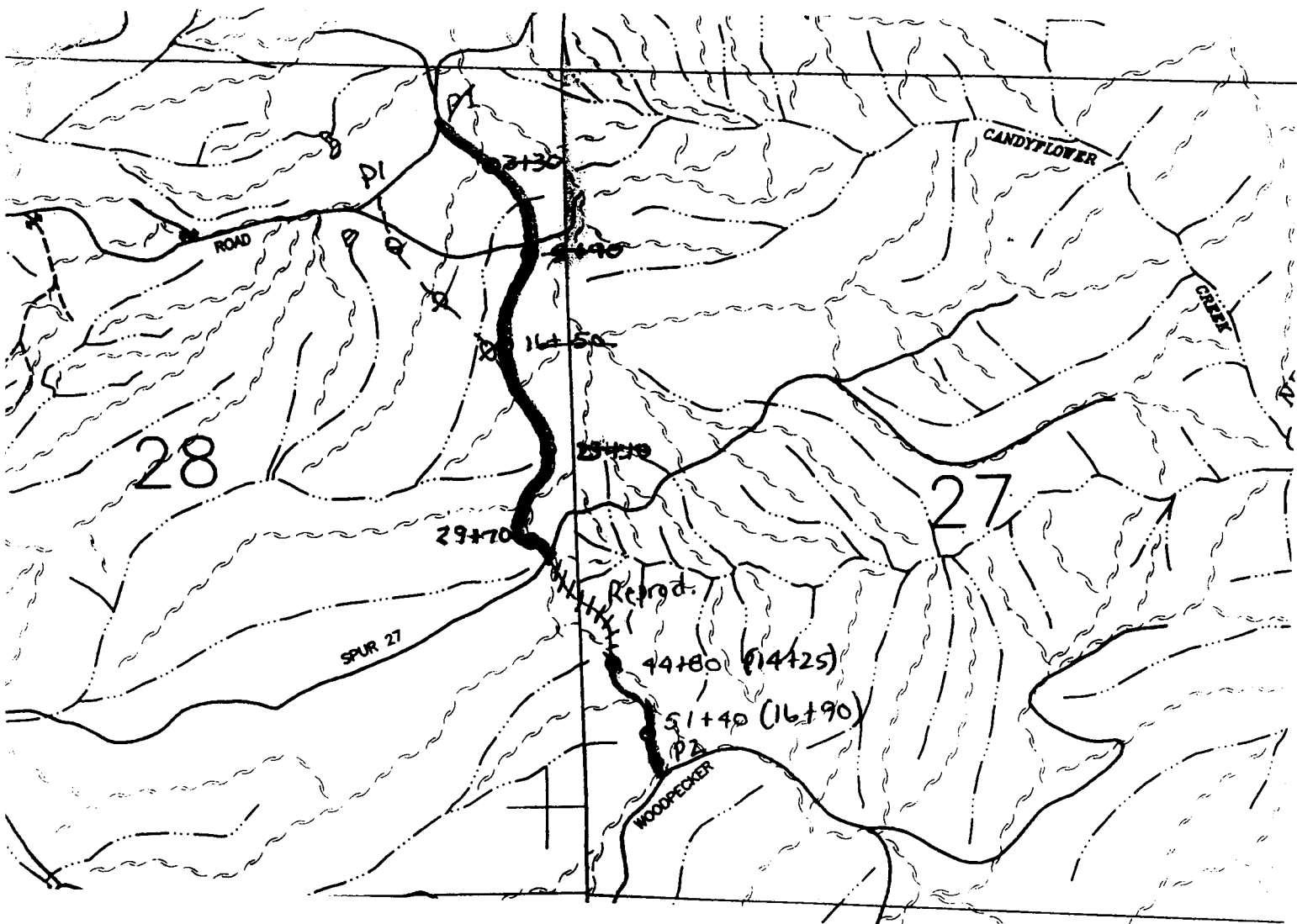
Plots are located at 660 foot (10 chain) intervals along the
R/Ws, skipping over the portion of P1-P2 which is in reprod.

Plot Size is 40 BAF, full plot.

Measure and grade all trees on all plots.

Minimum dbh to cruise is 10" class.

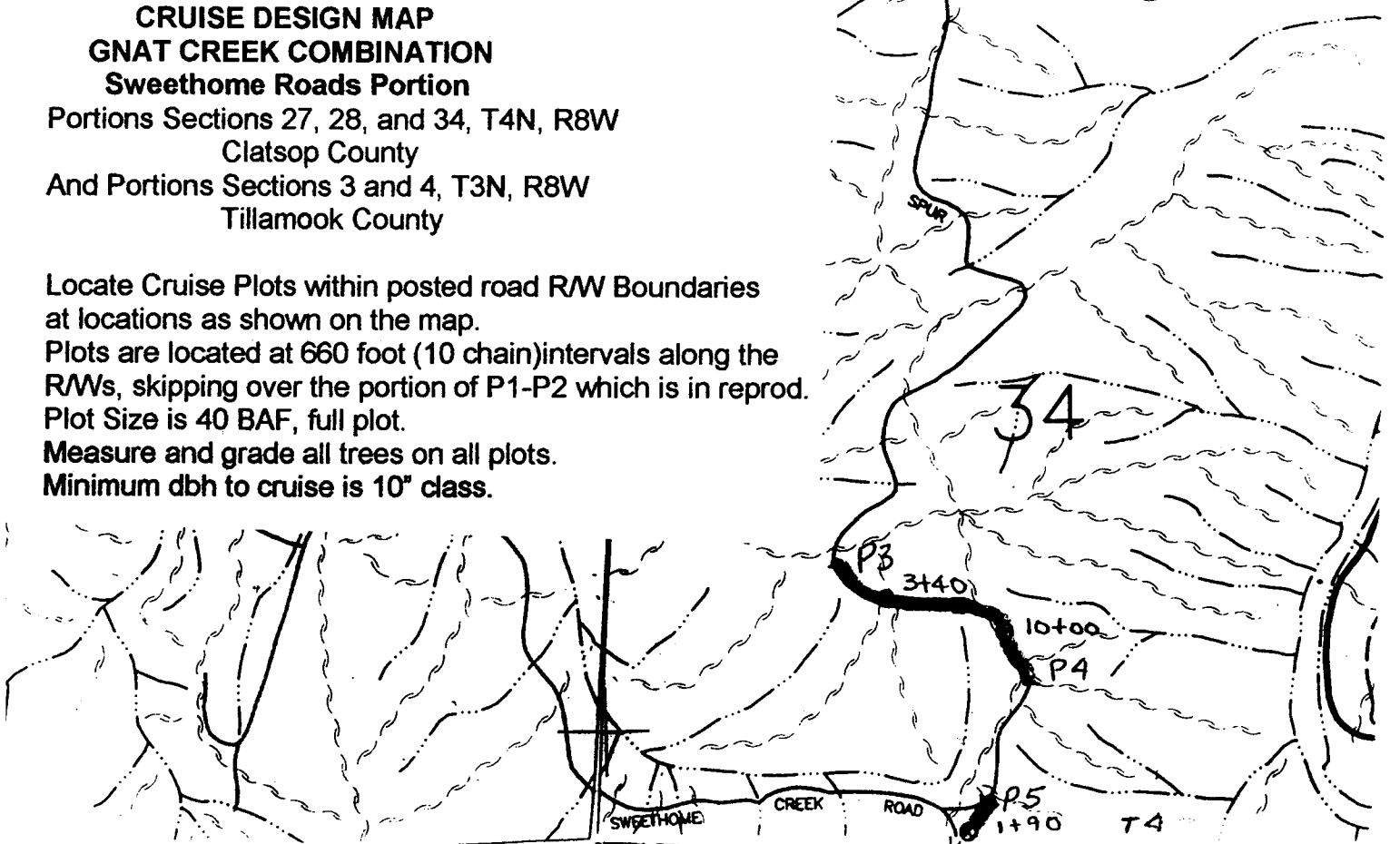




**CRUISE DESIGN MAP
GNAT CREEK COMBINATION
Sweethome Roads Portion**

Portions Sections 27, 28, and 34, T4N, R8W
Clatsop County
And Portions Sections 3 and 4, T3N, R8W
Tillamook County

Locate Cruise Plots within posted road R/W Boundaries
at locations as shown on the map.
Plots are located at 660 foot (10 chain) intervals along the
RWs, skipping over the portion of P1-P2 which is in reprod.
Plot Size is 40 BAF, full plot.
Measure and grade all trees on all plots.
Minimum dbh to cruise is 10" class.



Species, Sort Grade - Board Foot Volumes (Project)

T4N R8W S28 Ty07RW
 THRU
 T8N R7W S13 Ty06RW

Project: **GNATCOMB**
 Acres **253.27**

Page **1**
 Date **2/5/2002**
 Time **11:37:46AM**

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent of Net Board Foot Volume								Average Log			Logs Per /Acre				
									Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf					
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99								
H		4S																					.0	
H	?	?																6					0.00	3.6
H	?	2S		21	1.5	8,418	8,289	2,099		0	55	45	1	5	29	65		35	310			1.92	26.8	
H	?	3S		8	2.9	3,184	3,091	783		84	7	8	2	8	35	55		35	94			0.76	33.0	
H	?	4S		1	2.7	440	428	108		2	98		61	37	2			19	25			0.45	16.8	
H	?	SM		1		230	230	58				100	20	0	80			28	671			3.88	.3	
H Totals				30	1.9	12,271	12,038	3,049	0	25	40	35	4	7	30	59	30	149	1.18				80.6	
A	?	?																5				0.00	1.3	
A	?	3S		1	.6	470	467	118		57	43		12	31	25	32		30	113			1.04	4.1	
A	?	4S		0		174	174	44		100			28	17	17	38		25	36			0.46	4.8	
A Totals				2	.5	644	641	162	68	32	17	27	22	33	24	63	0.73						10.2	
D		?																				0.00	.2	
D	-	-																4				0.00	.1	
D	?	?																				0.00	7.5	
D	?	2S		49	.7	19,920	19,780	5,010			58	42	2	4	27	67		35	305			1.95	64.8	
D	?	3S		14	3.1	5,919	5,734	1,452		0	95	4	1	1	10	21	68	36	89			0.72	64.7	
D	?	4S		2	4.5	905	864	219		0	97	2		53	41	3	3	20	26			0.45	33.3	
D	?	3P		1		451	451	114				100	21	43	36			25	834			5.85	.5	
D	?	SM		2	.2	725	724	183			13	87	6	5	50	39		31	487			2.84	1.5	
D Totals				68	1.3	27,919	27,552	6,978	0	23	43	35	4	7	26	63	31	160	1.24				172.7	
C	?	?																11				0.00	.4	
C	?	2S		0	.4	43	43	11				100	0	67	1	32		31	578			4.98	.1	
C	?	3S		0	.0	81	81	21		99	1		0	0	24	76		38	76			0.78	1.1	
C	?	4S		0		13	13	3		100			99		1			16	20			0.47	.7	
C Totals				0	.1	138	137	35	68	0	31	10	21	14	55	26	61	0.83					2.3	
M	?	?																10				0.00	.2	
M	?	3S		0		8	8	2		97	3		97		3			10	41			0.92	.2	
M	?	4S		0		4	4	1		100			100					20	20			0.50	.2	
M Totals				0		12	12	3	98	2	98	2	98	2	13	20	0.48						.6	
SN	?	?																28				0.00	.0	
SN Totals																		28				0.00	.0	
Totals					1.5	40,984	40,381	10,227	0	24	41	34	4	7	27	61	30	152	1.20				266.4	

Species, Sort Grade - Board Foot Volumes (Type)

Project: GNATCOMB

T8N R6W S17 TCC

T8N R6W S17 TCC

Twp		Rge	Sec	Tract		Type	Acres	Plots	Sample Trees												
8N	6W	17	A 1-2-5		CC	135.00	74	260													
Spp	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre		
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/Lf			
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99						
D		?																		.4	
D		?															5			0.00	8.8
D		2S	73	.8	25,763	25,559	3,450			54	46	2	4	31	63	35	314		1.97	81.4	
D		3S	18	3.1	6,633	6,428	868		99	1		2	12	22	64	35	83		0.68	77.6	
D		4S	2	7.9	806	743	100		95	5		65	35			19	25		0.44	29.7	
D		3P	2		835	835	113				100	21	43	36		25	834		5.85	1.0	
D		SM	4	.2	1,340	1,337	181			13	87	6	5	50	39	31	487		2.84	2.7	
D	Totals		66	1.3	35,378	34,902	4,712		20	40	40	4	7	30	59	31	173		1.28	201.6	
H		?															8			0.00	5.0
H		2S	73	1.7	12,606	12,396	1,673		0	50	49	1	6	28	65	35	329		2.02	37.6	
H		3S	22	3.0	3,786	3,671	496		90	7	3	2	11	33	53	35	89		0.75	41.5	
H		4S	3	3.3	544	526	71	3	97			61	36	3		19	25		0.46	20.8	
H		SM	2		424	424	57				100	20		80		28	671		3.88	.6	
H	Totals		32	2.0	17,360	17,017	2,297	0	23	38	39	4	8	30	59	30	161		1.24	105.5	
C		?															11			0.00	.8
C		2S	24		54	54	7				100			100		30	520		4.23	.1	
C		3S	65		143	143	19		100					24	76	38	74		0.76	1.9	
C		4S	11		24	24	3		100			100				16	20		0.47	1.2	
C	Totals		0		221	221	30		76		24	11	24	16	49	26	54		0.75	4.1	
A		?															6			0.00	.6
A		3S	99		403	403	54		23	77		4	27	24	45	32	158		1.27	2.5	
A		4S	1		5	5	1		100			100				13	20		0.62	.3	
A	Totals		1		408	408	55		24	76		5	26	24	44	26	120		1.19	3.4	
M		?															10			0.00	.4
M		3S	67		14	14	2		100			100				10	40		0.90	.4	
M		4S	33		7	7	1		100			100				20	20		0.50	.4	
M	Totals		0		22	22	3		100			100				13	20		0.48	1.1	
Type Totals				1.5	53,389	52,570	7,097	0	21	40	39	4	7	29	59	31	167		1.26	315.6	

Species, Sort Grade - Board Foot Volumes (Type)

Project: GNATCOMB

T8N R7W S13 T3&4T

T8N R7W S13 T3&4T

Twp Rge Sec Tract Type Acres Plots Sample Trees
 8N 7W 13 AREA 3&4TK 3&4T 45.00 18 33

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre		Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
					Def%	Gross		Net	Log Scale Dia.				Log Length				Ln Ft	Bd Ft		CF/ Lf
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D	?	?														8		0.00	1.2	
D	?	2S		75	.4	14,866	14,801	666		59	41		1	7	24	68	36	305	2.07	48.6
D	?	3S		20		4,024	4,024	181		89	11			13	18	69	36	99	0.81	40.5
D	?	4S		5		977	977	44		100			41	47		13	21	27	0.48	35.7
D	Totals			81	.3	19,867	19,802	891		23	46	31	3	10	22	66	31	157	1.31	125.9
H	?	?														5		0.00	.7	
H	?	2S		43	.7	1,976	1,962	88		84	16				100	40	247	1.60	7.9	
H	?	3S		50	3.6	2,393	2,308	104		40	18	42		2	33	65	35	160	1.18	14.4
H	?	4S		7		304	304	14		100			64	36			17	29	0.48	10.4
H	Totals			19	2.1	4,674	4,574	206		27	45	28	4	3	17	76	30	137	1.18	33.5
A	?	3S		90		194	194	9		100				100			32	190	1.69	1.0
A	?	4S		10		20	20	1		100			100				16	20	0.63	1.0
A	Totals			1		214	214	10		10	90		10		90		24	105	1.33	2.0
Type Totals					.7	24,754	24,590	1,107		24	46	30	3	9	21	67	31	152	1.28	161.4

Species, Sort Grade - Board Foot Volumes (Type)

Project: GNATCOMB

T8N R7W S13 T3ATK

T8N R7W S13 T3ATK

Twp Rge Sec Tract Type Acres Plots Sample Trees
 8N 7W 13 AREA 3A 3ATK 6.25 6 21

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D	-	-	-															0.00		3.4
D	?-	?-																0.00		18.5
D	?-	2S		77	.4	40,333	40,172	251		48	52		3		8	89	38	352	2.18	114.1
D	?-	3S		19		9,918	9,918	62		97	3			24	4	72	35	97	0.77	101.9
D	?-	4S		5		2,370	2,370	15		100			40	60			20	28	0.48	84.6
D	Totals			100	.3	52,621	52,461	328		23	37	40	4	7	7	82	30	163	1.35	322.4
Type	Totals				.3	52,621	52,461	328		23	37	40	4	7	7	82	30	163	1.35	322.4

Species, Sort Grade - Board Foot Volumes (Type)

Project: GNATCOMB

T8N R7W S13 T4ATK

T8N R7W S13 T4ATK

Twp Rge Sec Tract Type Acres Plots Sample Trees
 8N 7W 13 AREA 4A TAKE 4ATK 47.00 18 33

Spp	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/Lf	
	T	rt						4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99				
D	?-	?-														3		0.00	8.6
D	?-	2S	61	.7	11,360	11,281	530		84	16		2	4	11	84	37	253	1.66	44.6
D	?-	3S	34	5.9	6,650	6,260	294		85	8	7			24	76	38	101	0.83	62.1
D	?-	4S	6	3.3	1,060	1,025	48		100			49	37	14		20	26	0.45	39.4
D	Totals		93	2.6	19,071	18,566	873		34	53	12	4	4	15	77	31	120	1.05	154.7
H	?-	2S	61	1.3	855	843	40		100					100		40	222	1.35	3.8
H	?-	3S	31	4.3	451	431	20		100					100		40	94	0.68	4.6
H	?-	4S	7		103	103	5		100				100			24	34	0.54	3.1
H	Totals		7	2.2	1,409	1,378	65		39	61			7	93		36	120	0.90	11.5
Type Totals				2.6	20,479	19,944	937		35	54	11	3	4	14	78	32	120	1.04	166.2

T8N R7W S13 T06RW	T8N R7W S13 T06RW
Twp Rge Sec Tract Type Acres Plots Sample Trees	
8N 7W 13 AREA 6 R-W 06RW 2.10 89 332	

S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
								Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99				
D		?-																0.00	.2
D		?													5			0.00	9.7
D		? 2S	75	.7	26,116	25,946	54			46	54	1	2	30	68	36	358	2.19	72.6
D		? 3S	17	3.8	5,997	5,769	12	0	86	8	5	2	6	23	69	36	98	0.80	58.8
D		? 4S	3	5.9	943	887	2		99	1		46	48	3	3	20	28	0.49	31.8
D		? 3P	2		711	711	1				100	21	43	36		25	834	5.85	.9
D		? SM	4	.2	1,295	1,293	3			12	88	5	5	44	46	32	509	2.90	2.5
D	Totals		69	1.3	35,062	34,605	73	0	17	36	47	3	5	29	64	31	196	1.47	176.5
H		?														8		0.00	7.5
H		? 2S	69	1.5	10,121	9,969	21		0	50	50	2	3	23	72	36	337	2.05	29.6
H		? 3S	25	2.6	3,721	3,625	8		79	9	13	3	1	34	62	35	101	0.83	35.7
H		? 4S	3	1.8	511	501	1	1	99			62	38			18	26	0.49	19.3
H		? SM	3		424	424	1				100	16	21	63		27	698	4.09	.6
H	Totals		29	1.7	14,777	14,520	30	0	23	37	40	4	5	26	65	30	157	1.26	92.7
SN		?														28		0.00	3.4
SN	Totals															28		0.00	3.4
C		? 2-														12		0.00	.8
C		? 2S	46	8.3	234	215	0				100	5	21	14	61	29	660	6.38	.3
C		? 3S	47	.8	220	219	0		65	35		2	2	40	57	37	91	0.99	2.4
C		? 4S	7		31	31	0		100			74		26		18	23	0.50	1.4
C	Totals		1	4.3	486	465	1		37	16	46	8	10	27	55	27	94	1.21	4.9
A		?-														6		0.00	.5
A		? 3S	98		369	369	1		20	80		4	23	34	39	32	162	1.31	2.3
A		? 4S	2		9	9	0		100			100				15	20	0.62	.5
A	Totals		1		378	378	1		22	78		6	23	33	38	25	118	1.21	3.2
M		? 2-														11		0.00	.5
M		? 3S	87		39	39	0		30	70		30		70		15	102	1.83	.4
M		? 4S	13		6	6	0		100			100				20	20	0.50	.3
M	Totals		0		45	45	0		40	60		40		60		15	39	0.79	1.2
Type Totals				1.4	50,748	50,014	105	0	19	37	44	3	5	28	64	31	177	1.38	281.8

Species, Sort Grade - Board Foot Volumes (Type)
Project: GNATCOMB

T4N R8W S28 T07RW

T4N R8W S28 T07RW

Twp Rge Sec Tract Type Acre Plots Sample Trees
 4N 8W 28 AREA 7 R-W 07RW 17.92 19 115

Spp	So	Gr	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/Lf	
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99				
H		4S																0.00	.5
H	?	?														2		0.00	11.5
H	?	2S	61	1.0	15,619	15,459	277			67	33	3	5	45	46	33	251	1.69	61.5
H	?	3S	35	1.8	8,847	8,686	156		94	2	5	1	1	49	49	35	85	0.68	102.3
H	?	4S	4	2.8	1,021	993	18	1	99			71	29			18	22	0.40	44.1
H	Totals		69	1.4	25,487	25,138	450	0	36	42	22	5	5	45	45	29	114	0.96	219.9
A	?	?														4		0.00	13.9
A	?	3S	56	1.4	3,077	3,035	54		100			23	41	13	23	28	83	0.85	36.5
A	?	4S	44		2,364	2,364	42		100			26	18	17	39	26	38	0.46	62.8
A	Totals		15	.8	5,442	5,399	97		100			24	31	15	30	24	48	0.59	113.3
D	?	CU														4		0.00	6.6
D	?	2S	56	.0	3,201	3,201	57			91	9	8	6	30	56	31	200	1.55	16.0
D	?	3S	34	.4	1,969	1,960	35		90	10			12	17	71	37	82	0.67	23.8
D	?	4S	9		539	539	10	5	95			33	67			20	26	0.37	20.5
D	Totals		16	.2	5,709	5,700	102	0	40	55	5	8	14	23	56	27	85	0.84	66.9
C	?	2S	81		181	181	3			100				100		36	750	6.81	.2
C	?	3S	19		43	43	1		100					100		40	180	1.70	.2
C	Totals		1		224	224	4		19	81				100		38	465	4.12	.5
Type	Totals			1.1	36,862	36,462	653	0	46	37	16	8	10	36	45	28	91	0.86	400.5

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT GNATCOMB		DATE 12/18/200				
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES			
8N	6W	17	A 1-2-5	CC	135.00	74	260			
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		74	468	6.3						
CRUISE REFOREST COUNT		38	260	6.8	15,437	1.7				
BLANKS		1	208	5.9						
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	158	68.8	20.8	95		162.2	35,378	34,902	8,084	8,084
WHEMLOCK	90	40.7	19.4	82		83.8	17,360	17,017	3,999	3,994
WR CEDAR	7	3.2	14.6	35		3.8	221	221	79	79
R ALDER	4	1.3	19.7	71		2.7	408	408	104	104
BL MAPLE	1	.4	16.6	42		.5	22	22	7	7
TOTAL	260	114.4	20.1	88		253.0	53,389	52,570	12,273	12,267
		COEFF VAR.	S.E.%	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.	
SD:	1			LOW	AVG	HIGH	5	10	15	
DOUG FIR		130.3	8.1	444	483	522				
WHEMLOCK		193.8	12.0	200	227	254				
WR CEDAR		1099.8	68.2	1	4	7				
R ALDER		849.6	52.7	3	5	8				
BL MAPLE		1612.5	100.0		0	0				
TOTAL		83.4	5.2	682	720	757	278	70	31	
		COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1			LOW	AVG	HIGH	5	10	15	
DOUG FIR		88.2	10.3	62	69	76				
WHEMLOCK		94.0	10.9	36	41	45				
WR CEDAR		472.3	54.9	1	3	5				
R ALDER		445.6	51.8	1	1	2				
BL MAPLE		860.2	100.0	0	0	1				
TOTAL		49.4	5.7	108	114	121	98	24	11	
		COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1			LOW	AVG	HIGH	5	10	15	
DOUG FIR		75.8	8.8	148	162	176				
WHEMLOCK		95.5	11.1	74	84	93				
WR CEDAR		468.5	54.5	2	4	6				
R ALDER		447.1	52.0	1	3	4				
BL MAPLE		860.2	100.0	0	1	1				
TOTAL		41.6	4.8	241	253	265	69	17	8	
		COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1			LOW	AVG	HIGH	5	10	15	
DOUG FIR		75.8	8.8	31,827	34,902	37,978				
WHEMLOCK		99.7	11.6	15,044	17,017	18,990				
WR CEDAR		529.3	61.5	85	221	356				
R ALDER		450.7	52.4	194	408	622				
BL MAPLE		860.2	100.0		22	43				
TOTAL		45.1	5.2	49,811	52,570	55,329	82	20	9	

TC TSTATS		STATISTICS						PAGE	1	
		PROJECT GNATCOMB						DATE	12/18/200	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES			
8N	7W	13	AREA 3&4	0034	45.00	21	83			
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		21	148	7.0						
CRUISE		13	83	6.4	4,463	1.9				
REFOREST										
COUNT		8	59	7.4						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	24	39.2	21.1	88		95.2	17,029	16,973	4,388	4,388
DOUGLEAV	25	19.0	29.1	114		87.6	20,534	20,421	4,610	4,610
HEMLEAV	21	22.7	22.9	83		64.8	11,512	11,336	2,756	2,756
WHEMLOCK	8	10.7	19.8	83		22.9	4,006	3,921	1,021	1,021
SNAG	3	5.7	15.6	47		7.6				
R ALDER	1	.9	20.0	49		1.9	183	183	56	56
CEDLEAV	1	1.0	19.0	41		1.9	58	58	41	41
TOTAL	83	99.2	22.8	88		281.9	53,322	52,892	12,873	12,873
	COEFF VAR.	S.E.%	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	179.5	19.7	132	164	196					
DOUGLEAV	169.8	18.6	302	372	441					
HEMLEAV	229.1	25.1	131	175	219					
WHEMLOCK	345.9	38.0	26	42	59					
SNAG										
R ALDER	911.0	100.0	0	3	5					
CEDLEAV	911.0	100.0	0	1	1					
TOTAL	71.1	7.8	697	756	815	202	50	22		
	COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	129.3	28.2	28	39	50					
DOUGLEAV	59.8	13.0	17	19	21					
HEMLEAV	78.3	17.1	19	23	27					
WHEMLOCK	156.8	34.2	7	11	14					
SNAG	216.8	47.3	3	6	8					
R ALDER	458.3	100.0	0	1	2					
CEDLEAV	458.3	100.0		1	2					
TOTAL	46.1	10.1	89	99	109	85	21	9		
	COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	119.1	26.0	70	95	120					
DOUGLEAV	57.1	12.5	77	88	99					
HEMLEAV	71.7	15.6	55	65	75					
WHEMLOCK	162.0	35.4	15	23	31					
SNAG	211.2	46.1	4	8	11					
R ALDER	458.3	100.0		2	4					
CEDLEAV	458.3	100.0		2	4					
TOTAL	38.2	8.3	258	282	305	58	15	6		
	COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	115.0	25.1	12,713	16,973	21,233					
DOUGLEAV	58.0	12.6	17,838	20,421	23,004					
HEMLEAV	84.5	18.4	9,246	11,336	13,425					
WHEMLOCK	173.1	37.8	2,440	3,921	5,401					

TC TSTATS		STATISTICS					PAGE	2	
		PROJECT GNATCOMB					DATE	12/18/200	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES		
8N	7W	13	AREA 3&4	0034	45.00	21	83		
SD:	1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
		VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
SNAG									
	R ALDER	458.3	100.0		183	367			
	CEDLEAV	458.3	100.0	0	58	116			
	TOTAL	40.9	8.9	48,172	52,892	57,612	67	17	7

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	GNATCOMB			DATE	12/18/200	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES			
8N	7W	13	AREA 3&4LV	3&4L	45.00	21	50			
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		21	85	4.0						
CRUISE		13	50	3.8	2,177	2.3				
REFOREST COUNT		8	32	4.0						
BLANKS	100 %									
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV	25	19.0	29.1	114		87.6	20,534	20,421	4,610	4,610
HEMLEAV	21	22.7	22.9	83		64.8	11,512	11,336	2,756	2,756
SNAG	3	5.7	15.6	47		7.6				
CEDLEAV	1	1.0	19.0	41		1.9	58	58	41	41
TOTAL	50	48.4	24.8	90		161.9	32,103	31,815	7,407	7,407
SD:	1	COEFF VAR.	S.E.%	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
DOUGLEAV		116.0	16.4	516	617	718				
HEMLEAV		166.8	23.6	222	290	359				
SNAG										
CEDLEAV		707.1	100.0		1	2				
TOTAL		67.7	9.6	822	909	996	184	46	20	
SD:	1	COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
DOUGLEAV		59.8	13.0	17	19	21				
HEMLEAV		78.3	17.1	19	23	27				
SNAG		216.8	47.3	3	6	8				
CEDLEAV		458.3	100.0		1	2				
TOTAL		35.2	7.7	45	48	52	50	12	6	
SD:	1	COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
DOUGLEAV		57.1	12.5	77	88	99				
HEMLEAV		71.7	15.6	55	65	75				
SNAG		211.2	46.1	4	8	11				
CEDLEAV		458.3	100.0		2	4				
TOTAL		19.9	4.3	155	162	169	16	4	2	
SD:	1	COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
				LOW	AVG	HIGH	5	10	15	
DOUGLEAV		58.0	12.6	17,838	20,421	23,004				
HEMLEAV		84.5	18.4	9,246	11,336	13,425				
SNAG										
CEDLEAV		458.3	100.0	0	58	116				
TOTAL		27.5	6.0	29,903	31,815	33,727	30	8	3	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT GNATCOMB				DATE	12/18/200	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES			
8N	7W	13	AREA 3&4TK	3&4T	45.00	18	33			
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		18	63	3.5						
CRUISE		10	33	3.3	2,667	1.2				
REFOREST COUNT		8	30	3.8						
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
DOUG FIR	24	45.7	21.1	88		111.1	19,867	19,802	5,120	5,120
WHEMLOCK	8	12.5	19.8	83		26.7	4,674	4,574	1,191	1,191
R ALDER	1	1.0	20.0	49		2.2	214	214	65	65
TOTAL	33	59.3	20.8	87		140.0	24,754	24,590	6,376	6,376
	COEFF VAR.	S.E.%	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	82.7	14.4	353	412	471					
WHEMLOCK	205.6	35.8	68	107	145					
R ALDER	574.5	100.0		6	13					
TOTAL	49.7	8.7	480	525	571	99	25	11		
	COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	113.7	26.8	33	46	58					
WHEMLOCK	140.5	33.1	8	13	17					
R ALDER	424.3	100.0	0	1	2					
TOTAL	74.1	17.5	49	59	70	220	55	24		
	COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	103.7	24.4	84	111	138					
WHEMLOCK	145.5	34.3	18	27	36					
R ALDER	424.3	100.0		2	4					
TOTAL	68.8	16.2	117	140	163	189	47	21		
	COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	99.6	23.5	15,152	19,802	24,451					
WHEMLOCK	156.1	36.8	2,891	4,574	6,258					
R ALDER	424.3	100.0		214	428					
TOTAL	67.2	15.8	20,693	24,590	28,486	181	45	20		

TC TSTATS		STATISTICS						PAGE	1		
		PROJECT GNATCOMB						DATE	12/18/200		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES				
8N	7W	13	AREA 3A	3ATK	6.25	6	21				
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		6	40	6.7							
CRUISE		3	21	7.0	626	3.4					
REFOREST COUNT		3	19	6.3							
BLANKS		100 %									
STAND SUMMARY											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR		21	100.2	22.1	99		266.7	52,621	52,461	13,028	13,028
TOTAL		<i>21</i>	<i>100.2</i>	<i>22.1</i>	<i>99</i>		<i>266.7</i>	<i>52,621</i>	<i>52,461</i>	<i>13,028</i>	<i>13,028</i>
		COEFF VAR.	S.E.%	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD:	1			LOW	AVG	HIGH	5	10	15		
DOUG FIR		61.7	13.5	611	706	801					
TOTAL		<i>61.7</i>	<i>13.5</i>	<i>611</i>	<i>706</i>	<i>801</i>	<i>152</i>	<i>38</i>	<i>17</i>		
		COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1			LOW	AVG	HIGH	5	10	15		
DOUG FIR		17.6	7.2	93	100	107					
TOTAL		<i>17.6</i>	<i>7.2</i>	<i>93</i>	<i>100</i>	<i>107</i>	<i>12</i>	<i>3</i>	<i>1</i>		
		COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1			LOW	AVG	HIGH	5	10	15		
DOUG FIR		15.5	6.3	250	267	284					
TOTAL		<i>15.5</i>	<i>6.3</i>	<i>250</i>	<i>267</i>	<i>284</i>	<i>10</i>	<i>2</i>	<i>1</i>		
		COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD:	1			LOW	AVG	HIGH	5	10	15		
DOUG FIR		17.2	7.0	48,786	52,461	56,135					
TOTAL		<i>17.2</i>	<i>7.0</i>	<i>48,786</i>	<i>52,461</i>	<i>56,135</i>	<i>12</i>	<i>3</i>	<i>1</i>		

TC TSTATS		STATISTICS					PAGE	1		
		PROJECT		GNATCOMB			DATE	12/18/200		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES			
8N	7W	13	AREA 4A	004A	47.00	18	60			
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		18	110	6.1						
CRUISE		11	60	5.5	5,557	1.1				
REFOREST										
COUNT		7	45	6.4						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	29	68.5	18.3	73		124.4	19,071	18,566	5,057	5,057
DOUGLEAV	17	26.8	24.0	96		84.4	17,167	16,888	4,004	4,004
HEMLEAV	9	16.4	16.5	62		24.4	3,523	3,394	886	886
WHEMLOCK	4	5.7	16.9	73		8.9	1,409	1,378	369	369
CEDLEAV	1	.8	23.0	54		2.2	139	139	62	62
TOTAL	60	118.2	19.5	77		244.4	41,308	40,365	10,377	10,377
	COEFF VAR.	S.E.%	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	130.9	16.9	140	169	198					
DOUGLEAV	183.1	23.6	159	209	258					
HEMLEAV	306.9	39.6	32	53	74					
WHEMLOCK	384.8	49.7	8	17	25					
CEDLEAV	774.6	100.0	0	3	6					
TOTAL	68.9	8.9	410	450	490	190	47	21		
	COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	54.8	12.9	60	68	77					
DOUGLEAV	33.1	7.8	25	27	29					
HEMLEAV	199.3	47.0	9	16	24					
WHEMLOCK	307.8	72.5	2	6	10					
CEDLEAV	424.3	100.0		1	2					
TOTAL	28.5	6.7	110	118	126	32	8	4		
	COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	47.9	11.3	110	124	138					
DOUGLEAV	32.0	7.6	78	84	91					
HEMLEAV	150.0	35.3	16	24	33					
WHEMLOCK	329.4	77.6	2	9	16					
CEDLEAV	424.3	100.0		2	4					
TOTAL	15.8	3.7	235	244	254	10	2	1		
	COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	46.8	11.0	16,518	18,566	20,614					
DOUGLEAV	32.9	7.8	15,577	16,888	18,198					
HEMLEAV	145.4	34.3	2,231	3,394	4,557					
WHEMLOCK	332.7	78.4	298	1,378	2,458					
CEDLEAV	424.3	100.0		139	277					
TOTAL	19.1	4.5	38,552	40,365	42,178	15	4	2		

TC TSTATS		STATISTICS						PAGE	1	
		PROJECT GNATCOMB						DATE	12/18/200	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES			
8N	7W	13	AREA 4A LEAV	4ALV	47.00	18	27			
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		18	50	2.8						
CRUISE		11	27	2.5	2,070	1.3				
REFOREST COUNT		7	21	3.0						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV	17	26.8	24.0	96		84.4	17,167	16,888	4,004	4,004
HEMLEAV	9	16.4	16.5	62		24.4	3,523	3,394	886	886
CEDLEAV	1	.8	23.0	54		2.2	139	139	62	62
TOTAL	27	44.0	21.5	83		111.1	20,829	20,421	4,951	4,951
		COEFF VAR.	S.E.%	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.	
SD:	1			LOW	AVG	HIGH	5	10	15	
DOUGLEAV		98.4	18.9	376	463	551				
HEMLEAV		193.8	37.3	74	117	161				
CEDLEAV		519.6	100.0		7	13				
TOTAL		63.7	12.3	515	587	659	162	41	18	
		COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1			LOW	AVG	HIGH	5	10	15	
DOUGLEAV		33.1	7.8	25	27	29				
HEMLEAV		199.3	47.0	9	16	24				
CEDLEAV		424.3	100.0		1	2				
TOTAL		72.5	17.1	37	44	52	210	52	23	
		COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1			LOW	AVG	HIGH	5	10	15	
DOUGLEAV		32.0	7.6	78	84	91				
HEMLEAV		150.0	35.3	16	24	33				
CEDLEAV		424.3	100.0		2	4				
TOTAL		19.7	4.7	106	111	116	16	4	2	
		COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1			LOW	AVG	HIGH	5	10	15	
DOUGLEAV		32.9	7.8	15,577	16,888	18,198				
HEMLEAV		145.4	34.3	2,231	3,394	4,557				
CEDLEAV		424.3	100.0		139	277				
TOTAL		18.3	4.3	19,538	20,421	21,303	13	3	1	

TC TSTATS		STATISTICS						PAGE	1	
		PROJECT GNATCOMB						DATE	12/18/200	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES			
8N	7W	13	AREA 4A TAKE	4ATK	47.00	18	33			
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		18	60	3.3						
CRUISE		10	33	3.3	3,487	.9				
REFOREST										
COUNT		8	27	3.4						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	29	68.5	18.3	73		124.4	19,071	18,566	5,057	5,057
WHEMLOCK	4	5.7	16.9	73		8.9	1,409	1,378	369	369
TOTAL	33	74.2	18.2	73		133.3	20,479	19,944	5,426	5,426
	COEFF VAR.	S.E.%	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	70.1	12.2	270	307	345					
WHEMLOCK	279.2	48.6	16	30	45					
TOTAL	54.9	9.6	305	338	370	121	30	13		
	COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	54.8	12.9	60	68	77					
WHEMLOCK	307.8	72.5	2	6	10					
TOTAL	45.7	10.8	66	74	82	84	21	9		
	COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	47.9	11.3	110	124	138					
WHEMLOCK	329.4	77.6	2	9	16					
TOTAL	41.2	9.7	120	133	146	68	17	8		
	COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	46.8	11.0	16,518	18,566	20,614					
WHEMLOCK	332.7	78.4	298	1,378	2,458					
TOTAL	40.6	9.6	18,036	19,944	21,852	66	16	7		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT GNATCOMB				DATE	12/18/200	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES			
8N	7W	13	AREA 6 R-W	06RW	2.10	89	332			
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		89	588	6.6						
CRUISE		53	332	6.3	224	148.3				
REFOREST COUNT		35	225	6.4						
BLANKS		1								
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	192	61.4	22.4	93		167.6	35,062	34,605	8,112	8,112
WHEMLOCK	106	36.1	19.9	79		77.8	14,777	14,520	3,488	3,488
SNAG	13	3.9	20.5	50		9.0				
WR CEDAR	14	3.5	18.2	40		6.3	486	465	162	162
R ALDER	5	1.3	19.8	67		2.7	378	378	99	99
BL MAPLE	2	.4	20.7	46		.9	45	45	13	13
TOTAL	332	106.6	21.3	84		264.3	50,748	50,014	11,874	11,874
	COEFF VAR.	S.E.%	SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	128.8	7.1	458	493	528					
WHEMLOCK	205.4	11.3	174	196	218					
SNAG										
WR CEDAR	889.4	48.8	10	20	29					
R ALDER	866.9	47.6	3	5	7					
BL MAPLE	1560.3	85.6	0	1	2					
TOTAL	85.0	4.7	681	714	747	289	72	32		
	COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	79.5	8.4	56	61	67					
WHEMLOCK	102.4	10.9	32	36	40					
SNAG	266.3	28.2	3	4	5					
WR CEDAR	429.6	45.5	2	3	5					
R ALDER	435.1	46.1	1	1	2					
BL MAPLE	760.4	80.6	0	0	1					
TOTAL	43.6	4.6	102	107	112	76	19	8		
	COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	69.6	7.4	155	168	180					
WHEMLOCK	101.5	10.8	69	78	86					
SNAG	198.5	21.0	7	9	11					
WR CEDAR	427.5	45.3	3	6	9					
R ALDER	435.8	46.2	1	3	4					
BL MAPLE	663.3	70.3	0	1	2					
TOTAL	35.0	3.7	254	264	274	49	12	5		
	COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	69.9	7.4	32,041	34,605	37,169					
WHEMLOCK	109.4	11.6	12,836	14,520	16,205					
SNAG										
WR CEDAR	461.4	48.9	237	465	692					
R ALDER	451.9	47.9	197	378	559					
BL MAPLE	678.0	71.9	13	45	78					
TOTAL	42.7	4.5	47,750	50,014	52,277	73	18	8		

TC TSTATS				STATISTICS			PAGE	1		
				PROJECT GNATCOMB			DATE	2/5/2002		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES			
4N	8W	28	AREA 7 R-W	07RW	17.92	19	115			
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES		PERCENT SAMPLE TREES			
TOTAL		19	115	6.1						
CRUISE		19	115	6.1	3,430		3.4			
REFOREST COUNT BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	66	89.5	16.9	75		138.9	25,487	25,138	6,230	6,230
R ALDER	30	74.2	12.5	39		63.2	5,442	5,399	1,626	1,626
DOUG FIR	18	27.5	15.9	68		37.9	5,709	5,700	1,510	1,510
WR CEDAR	1	.2	40.0	78		2.1	224	224	76	76
TOTAL	115	191.4	15.2	60		242.1	36,862	36,462	9,442	9,442
	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD: 1	VAR.	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK	127.3	11.9	219	248	278					
R ALDER	197.2	18.4	17	21	25					
DOUG FIR	287.3	26.8	35	47	60					
WR CEDAR	1072.4	100.0		8	16					
TOTAL	90.3	8.4	298	325	353		326	81	36	
	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1	VAR.	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK	102.5	23.5	68	90	111					
R ALDER	135.7	31.1	51	74	97					
DOUG FIR	284.4	65.2	10	27	45					
WR CEDAR	435.9	100.0	0	0	0					
TOTAL	46.6	10.7	171	191	212		87	22	10	
	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1	VAR.	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK	90.7	20.8	110	139	168					
R ALDER	130.7	30.0	44	63	82					
DOUG FIR	239.9	55.0	17	38	59					
WR CEDAR	435.9	100.0		2	4					
TOTAL	39.1	9.0	220	242	264		61	15	7	
	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1	VAR.	S.E.%	LOW	AVG	HIGH		5	10	15	
WHEMLOCK	111.8	25.6	18,691	25,138	31,584					
R ALDER	142.4	32.7	3,635	5,399	7,163					
DOUG FIR	239.3	54.9	2,571	5,700	8,830					
WR CEDAR	435.9	100.0		224	449					
TOTAL	69.5	15.9	30,650	36,462	42,273		193	48	21	

Stand Table Summary

Project GNATCOMB

T8N R7W S13 T3&4L

T8N R7W S13 T3&4L

Twp Rge Sec Tract
8N 7W 13 AREA 3&4LV

Type
3&4L

Acres
45.00

Plots
21

Sample Trees
50

Page: 1
Date: 12/18/01
Time: 11:30:58AM

S Spec	T	Av			Trees/ Acres	BA/ Acres	Logs Acres	Average Log		Tons/ Acres	Net Cu.Ft. Acres	Net Bd.Ft. Acres	Totals		
		Sample DBH	FF Trees	Ht 16'				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DL	22	1	85	138	1.328	3.50	3.98	46.3	193.3		185	770		83	35
DL	23	2	87	125	2.429	7.01	7.29	46.2	195.0		336	1,421		151	64
DL	24	1	82	141	1.116	3.50	3.35	54.3	210.0		182	703		82	32
DL	25	1	81	130	1.028	3.50	3.08	52.7	203.3		162	627		73	28
DL	26	3	82	142	2.852	10.51	8.56	61.9	243.3		529	2,082		238	94
DL	28	2	83	150	1.639	7.01	4.92	75.3	321.7		370	1,582		167	71
DL	29	1	80	154	.764	3.50	2.29	84.0	346.7		193	795		87	36
DL	30	1	85	157	.714	3.50	2.14	92.7	426.7		198	914		89	41
DL	32	5	82	156	3.138	17.52	11.30	85.0	385.0		960	4,349		432	196
DL	33	2	83	158	1.180	7.01	4.13	95.0	442.9		392	1,829		177	82
DL	35	1	86	146	.525	3.50	1.57	118.0	560.0		186	881		84	40
DL	36	1	86	162	.496	3.50	1.98	102.5	507.5		203	1,007		91	45
DL	37	1	80	154	.469	3.50	1.88	98.3	455.0		184	854		83	38
DL	38	3	84	148	1.335	10.51	4.45	118.7	586.0		528	2,608		238	117
DL	Totals	25	83	145	19.012	87.62	60.92	75.7	335.2		4,610	20,421		2,075	919
HL	15	1	88	91	2.513	3.08	5.03	25.0	90.0		126	452		57	20
HL	16	2	85	57	4.417	6.17	6.63	26.0	66.7		172	442		78	20
HL	17	1	83	108	1.956	3.08	5.87	24.0	86.7		141	509		63	23
HL	21	1	81	113	1.282	3.08	3.85	37.7	130.0		145	500		65	23
HL	22	1	80	116	1.168	3.08	3.50	41.0	143.3		144	502		65	23
HL	23	3	85	114	3.207	9.25	9.62	46.9	187.8		451	1,806		203	81
HL	24	1	91	92	.982	3.08	.98	44.0	90.0		43	88		19	4
HL	25	1	88	101	.905	3.08	2.71	42.7	163.3		116	443		52	20
HL	26	1	83	118	.836	3.08	2.51	62.0	253.3		156	636		70	29
HL	27	2	87	129	1.551	6.17	4.65	72.8	333.3		339	1,551		153	70
HL	28	1	80	121	.721	3.08	2.16	65.7	253.3		142	548		64	25
HL	29	1	89	121	.672	3.08	2.02	79.7	370.0		161	746		72	34
HL	30	1	77	126	.628	3.08	1.88	50.3	240.0		95	452		43	20
HL	31	1	89	131	.588	3.08	1.77	99.0	496.7		175	877		79	39
HL	35	2	89	133	.923	6.17	2.77	116.2	610.0		322	1,689		145	76
HL	42	1	89	152	.321	3.08	.32	94.0	290.0		30	93		14	4
HL	Totals	21	85	102	22.672	64.76	56.27	49.0	201.4		2,756	11,336		1,240	510
CL	19	1	83	52	.967	1.90	.97	42.0	60.0		41	58		18	3
CL	Totals	1	83	52	.967	1.90	.97	42.0	60.0		41	58		18	3
SN	14	1	83	126	2.376	2.54									
SN	15	1	86	20	2.070	2.54									
SN	19	1	80	56	1.290	2.54									
SN	Totals	3	83	72	5.735	7.62									
Totals		50	84	114	48.386	161.90	118.16	62.7	269.3		7407	31,815		3,333	1,432

Stand Table Summary

Project GNATCOMB

T8N R7W S13 T4ALV

T8N R7W S13 T4ALV

Twp Rge Sec Tract
8N 7W 13 AREA 4A LEAV

Type
4ALV

Acres
 47.00

Plots
 18

Sample Trees
 27

Page: 1
Date: 12/18/01
Time: 11:30:58AM

S Spc	T	Sample			Av Ht	Trees/ BA/ Logs			Average Log		Net Cu.Ft.	Net Bd.Ft.	Totals		
		DBH	Trees	16'		Tot	Acres	Acres	Acres	Net			Net	Tons	Cunits
DL	17	1	86	111	3.151	4.97	6.30	32.5	115.0	205	725	96	34		
DL	20	1	89	115	2.277	4.97	6.83	33.3	126.7	228	865	107	41		
DL	21	1	89	120	2.065	4.97	6.20	37.7	163.3	233	1,012	110	48		
DL	22	1	89	120	1.882	4.97	5.65	40.3	166.7	228	941	107	44		
DL	23	3	84	121	5.165	14.90	15.49	44.0	173.3	682	2,686	320	126		
DL	24	3	88	125	4.743	14.90	14.23	50.3	213.3	716	3,036	337	143		
DL	25	1	83	113	1.457	4.97	4.37	47.3	190.0	207	831	97	39		
DL	27	1	85	125	1.249	4.97	3.75	63.0	246.7	236	924	111	43		
DL	29	1	85	146	1.083	4.97	3.25	83.0	370.0	270	1,202	127	56		
DL	30	2	87	136	2.024	9.93	6.07	84.8	393.3	515	2,388	242	112		
DL	32	1	85	125	.889	4.97	2.67	89.0	390.0	237	1,041	112	49		
DL	33	1	93	125	.836	4.97	2.51	98.3	493.3	247	1,238	116	58		
DL	Totals	17	87	122	26.822	84.44	77.32	51.8	218.4	4,004	16,888	1,882	794		
HL	12	2	90	65	6.916	5.43	10.37	13.3	46.7	138	484	65	23		
HL	13	1	82	93	3.187	2.72	6.37	11.0	35.0	70	223	33	10		
HL	16	1	91	107	2.073	2.72	4.15	30.5	120.0	126	497	59	23		
HL	22	2	85	99	2.058	5.43	4.12	49.5	187.5	204	772	96	36		
HL	24	1	89	91	.865	2.72	1.73	64.0	225.0	111	389	52	18		
HL	25	1	94	121	.797	2.72	2.39	57.3	256.7	137	614	64	29		
HL	30	1	82	110	.553	2.72	1.11	90.0	375.0	100	415	47	20		
HL	Totals	9	88	85	16.449	24.44	30.24	29.3	112.2	886	3,394	416	160		
CL	23	1	75	70	.770	2.22	1.54	40.0	90.0	62	139	29	7		
CL	Totals	1	75	70	.770	2.22	1.54	40.0	90.0	62	139	29	7		
Totals		27	87	107	44.041	111.11	109.09	45.4	187.2	4951	20,421	2,327	960		

FPA "Written Plan" for Harvest of State Timber Sale

Gnat Creek Combination

Portions of Sections 17 & 18, T8N, R6W, and Portions of Sections 11, 12, 13 & 14 T8N, R7W, W.M., Clatsop County, Oregon.

Protected Resources:

Gnat Creek: Large Type F Stream

Unnamed tributary to North Fork Gnat Creek: Small Type F Stream

Unnamed tributary streams of Gnat Creek: Small Type F streams

Unnamed tributary stream of North Fork Gnat Creek: Small Type F streams

Specific Site Characteristics:

Sale areas 1, 2 & 5 are clearcut units.

Sale areas 3, 4 & 4A are partial cut units.

Sale area 3A has three patch cuts.

Gnat Creek (large Type F) flows in a westerly direction along the southern boundary of Areas 3, 4 & 5 and is posted out of the sale areas with a 100 foot or greater buffer.

Unnamed tributary of Gnat Creek (small Type F) flows in a southwesterly direction between Areas 3 and 4 and is posted out of the sale area with a 50 foot or greater buffer.

Unnamed tributary stream of Gnat Creek (small Type F) flows in a southerly direction adjacent to the southwest corner of Area 4 and is posted out of the sale area 100 feet or greater.

Unnamed tributary stream of Gnat Creek (small Type F) flows in a southerly direction adjacent to southwest corner of Area 5 and is posted out of the sale area with a 100 foot or greater buffer.

Unnamed tributary stream of North Fork Gnat Creek (small Type F) flows in a west northwesterly direction downstream from the northwest portion of Area 1, but is within 100 feet of the harvest boundary.

Tree and Vegetation Retention:

Gnat Creek: The RMA consists mostly of 70 year old mixed conifer and alder, with various brush species.

Unnamed tributary of Gnat Creek: The RMA consists of alder, mixed conifer and 20 year old reprod, with various brush species. Also, the old North fork Gnat Creek road (adjacent to the stream) has been vacated and is vegetated with grass, brush species and small conifers

Unnamed tributary streams of Gnat Creek: The RMA consists of alder, 70 year old conifer, various brush species and 15 year old reprod.

Unnamed tributary stream of North Fork Gnat Creek: the RMA consists of 20 year old reprod, alder, 70 year old mixed conifer and various brush species.

Resource Protection Measures:

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 will be yarded out of the RMA before limbing and bucking.

Yarding: There will be no machine activity permitted within the RMA and no temporary stream crossings will be permitted across Type F streams. When cables pass through or over the RMA, precautions will be taken to

FPA "Written Plan" for Harvest of State Timber Sale
Gnat Creek Combination

Portions of Sections 17 & 18, T8N, R6W, and Portions of Sections 11, 12, 13 & 14 T8N, R7W, W.M., Clatsop County, Oregon.

protect the residual timber. These precaution measures include but are not limited to:

A. Cables will be pulled out of the residual timber before rigging the next yarding road.

Resource Protection Measures: (Continued)

B. Operator will avoid lowering the skyline into RMA during the yarding cycle. If this is not feasible, then lowering of 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.

D. All skid trails on slopes exceeding 10%, or within 100 feet of a stream, will be waterbarred prior to the rainy season.

Aquatic Protection: Debris entering the RMA or aquatic area will be removed by the end of operations each day or as soon as possible and placed in a stable location, unless an alternate practice is approved by STATE.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of streams with the Riparian Management Areas (buffer strips) as shown on the attached map, Exhibit "A".

Submitted by: _____
Operator

Date: _____

Approved by: Tom Scoggins
State Lands Forester

Date: 1/2/02

JW
Forest Practices Forester

Date: _____

Attachments: Timber Sale Exhibit "A" map

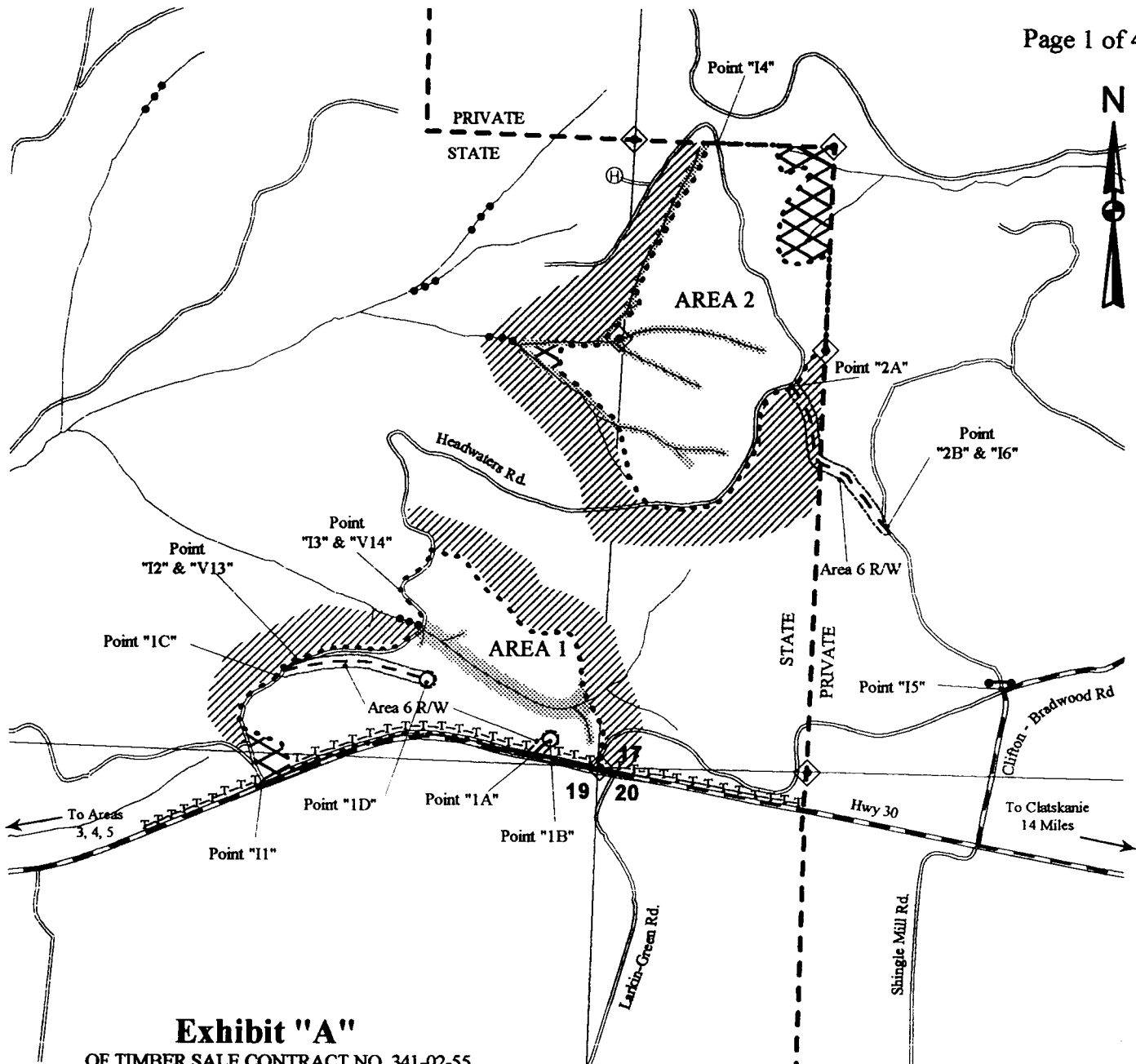


Exhibit "A"

OF TIMBER SALE CONTRACT NO. 341-02-55
 GNAT CREEK COMBINATION
 PORTIONS OF SECTIONS 17, 18 & 19, T8N, R6W,
 SECTIONS 11, 12, 13 & 14 T8N, R7W, W.M.
 CLATSOP COUNTY, OREGON

APPROX. SCALE 1"=1,000'



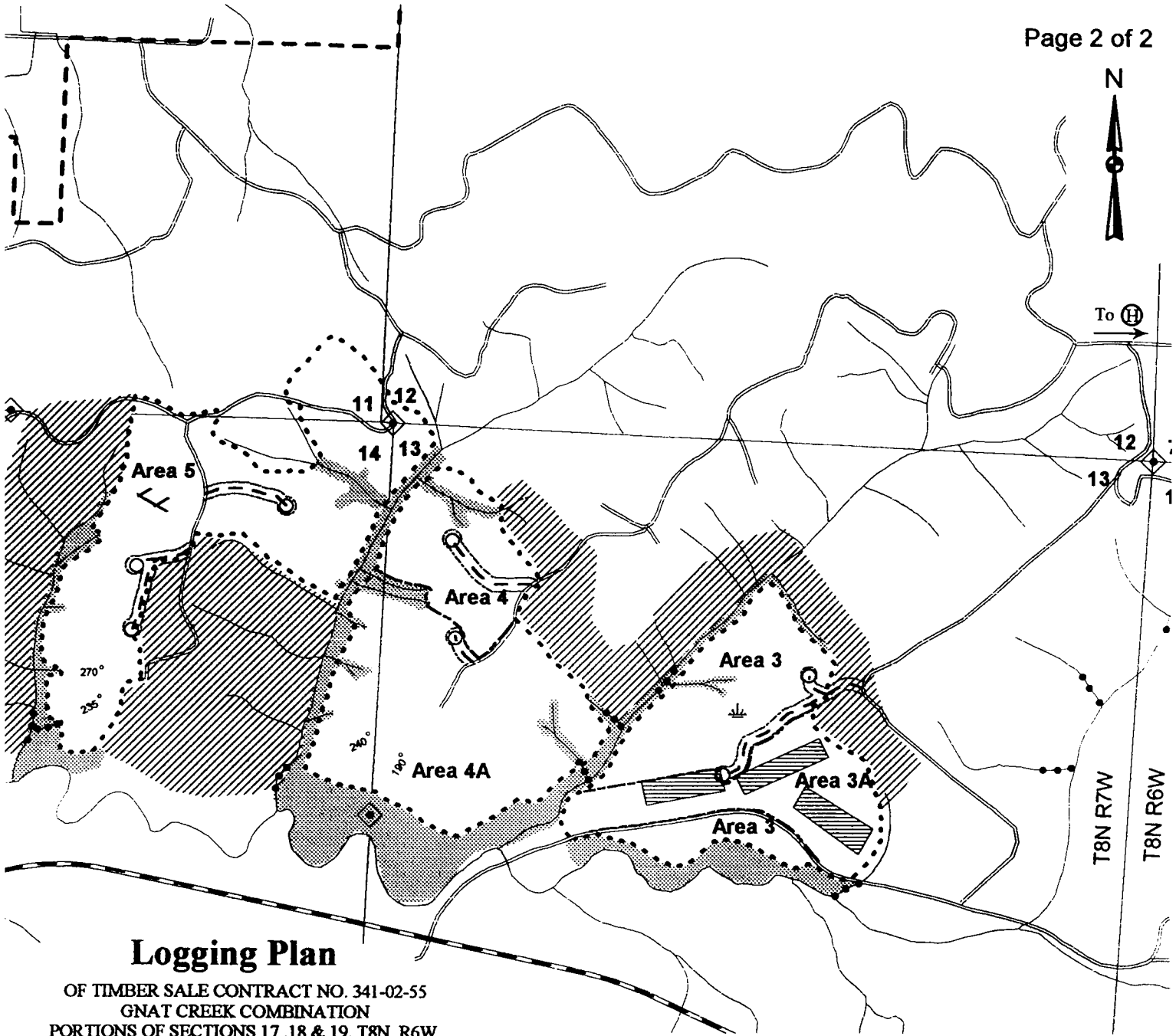
APPROXIMATE ACREAGE:

TYPE	NET ACRES
AREA 1 CC	33 ACRES
AREA 2 CC	45 ACRES
AREA 3 PC	29 ACRES
AREA 3A PC	23 ACRES
AREA 4 PC	16 ACRES
AREA 4A PC	47 ACRES
AREA 5 CC	57 ACRES
AREA 6 R/W(SALE ACCESS)	2 ACRES
AREA 7 R/W(SWEETHOME)	18 ACRES
TOTAL	270 ACRES

LEGEND

- Ownership Boundary
- TIMBER SALE BOUNDARY
- - - Area Boundary
- ==== Right Of Way Boundary
- ▨ Stream Buffer
- ▩ Reforestation Area
- POINT "X" Point For Project Work
- ▤ Green Tree Retention Area
- ▬▬▬ Patch Cut Areas
- STA. 0+00 Survey Station
- ◊ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- ⊙ Stock Pile Site
- ⊗ Rock Quarry
- Landing
- ⊕ Helicopter Evacuation Point
- T—T— Utility (Underground & Overhead)

- ==== Surfaced Road
- Unsurfaced Road
- - - New Construction
- ▬▬▬ Paved Road
- ⊖ Gate
- ⊥ Wet Area



Logging Plan

OF TIMBER SALE CONTRACT NO. 341-02-55
 GNAT CREEK COMBINATION
 PORTIONS OF SECTIONS 17, 18 & 19, T8N, R6W,
 SECTIONS 11, 12, 13 & 14 T8N, R7W, W.M.
 CLATSOP COUNTY, OREGON

APPROX. SCALE 1"=1,000'



APPROXIMATE ACREAGE:

AREA	TYPE	NET ACRES	ACRES (Cable Ground %)
AREA 1	CC	33	33% Cable Ground
AREA 2	CC	45	66% Cable Ground
AREA 3	PC	29	90% Cable Ground
AREA 3A	PC [cc]	23	50% Cable Ground
AREA 4	PC	16	50% Cable Ground
AREA 4A	PC	47	87% Cable Ground
AREA 5	CC	57	70% Cable Ground
AREA 6	R/W	2	0% Cable Ground
AREA 7	R/W	18	0% Cable Ground
TOTAL		270	ACRES

LEGEND

- TIMBER SALE BOUNDARY
- T Tractor Yarding
- ☼ Cable Yarding
- ☼ Temp. Stream Crossing
- Yarding Profile
- Ownership Boundary
- Area Boundary
- ▨ Stream Buffer
- ▨ Reforestation Area
- ▨ Green Tree Retention Area

- ◊ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- ⊙ Stock Pile Site
- ⊗ Rock Quarry
- Landing (To be Constructed)
- ⊙ Landing (Loggers Choice)
- ⊕ Helicopter Evacuation Point

- ==== Surfaced Road
- ==== Unsurfaced Road
- New Construction
- ==== Paved Road
- Gate
- ⬇ Wet Area

**FPA "Written Plan" for Head Waters Road Fill Vacating
Gnat Creek Combination Timber Sale
Portion of Section 18, T8N, R6W, W.M. Clatsop County, Oregon.**

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

Protected Resources:

A written plan is required for any activities within 100 feet of a Type F stream. The protected resource for this written plan is an unnamed tributary of North Fork Gnat Creek, a small Type F stream. This small Type F stream is located within 100 feet of the crossing planned for removal and is in the SE¼ of Section 18, T8N, R6W, W.M., Clatsop County, Oregon.

Current Condition:

An existing 42" steel culvert located 0.3 miles in on Headwaters Road prevents upstream fish passage. The existing fill and culvert shall be removed. The road/stream crossing shall be vacated and left in a stable condition that meets current FPA Guidance. Further detailed work specifications for this project are included as portions of road vacating project V13 to V14 of the Gnat Creek Combination timber sale as shown/described in Exhibits A and G.

Basin Analysis:

A basin analysis was performed for the stream/road crossing on the unnamed tributary to the North Fork of Gnat Creek. Using GIS, a basin area was calculated and found to be approximately 127 acres. Also obtained from the analysis was the length of fish usable (small Type F) stream above the impediment to fish passage. This length was approximated to be 1,300 feet.

The active stream channel width was measured and averaged 12 feet in width. A width of 12 feet was used during the design process. A 50-year peak flow for the basin was calculated using current FPA guidance and a 50-year recurrence interval of 200 cfs/mi². The 50-year recurrence interval was interpolated off of a 50-year recurrence interval map. The equated 50-year flow for this basin was 40 cfs.

The existing substrate material above and below the existing structure is mostly composed of gravels and sedimentary rock fines. Strata depths and classifications of materials below the existing structure are "unknown".

Fill Removal Design:

Remove fills to the natural stream course level(s). Stream channel(s) shall be excavated/developed to specified widths. Developed stream banks shall be sloped at natural contours or no steeper than 1½ :1, as directed by STATE.

Resource Protection Measures:

- 1) Any in-stream work will be performed only during dry weather periods, low water stream flows, and between July 1 and September 15, annually.
- 2) Machine activity in stream channels will be minimized. All excavation will be performed using a track-mounted excavator.
- 3) Waste materials will be placed in stable locations and sloped for drainage. Straw mulch shall be applied to all exposed areas, bare soils, and waste materials. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.
- 4) Disturbance of riparian vegetation will be minimized.

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: _____

Operator

Date: _____

Approved by: Tom Scoppin _____

State Lands Forester

Date: 2/7/02

Approved by: AW _____

Forest Practices Forester

Date: _____

Attachments: Exhibits A and G

Copies: PURCHASER, Operator, District File, Engineering Unit, Sunset Unit

X:\DOCUMENT\2002 FY Sales\Gnat Creek Combination\Sale Prep\Written Plan-Fill Removal-Headwaters.doc

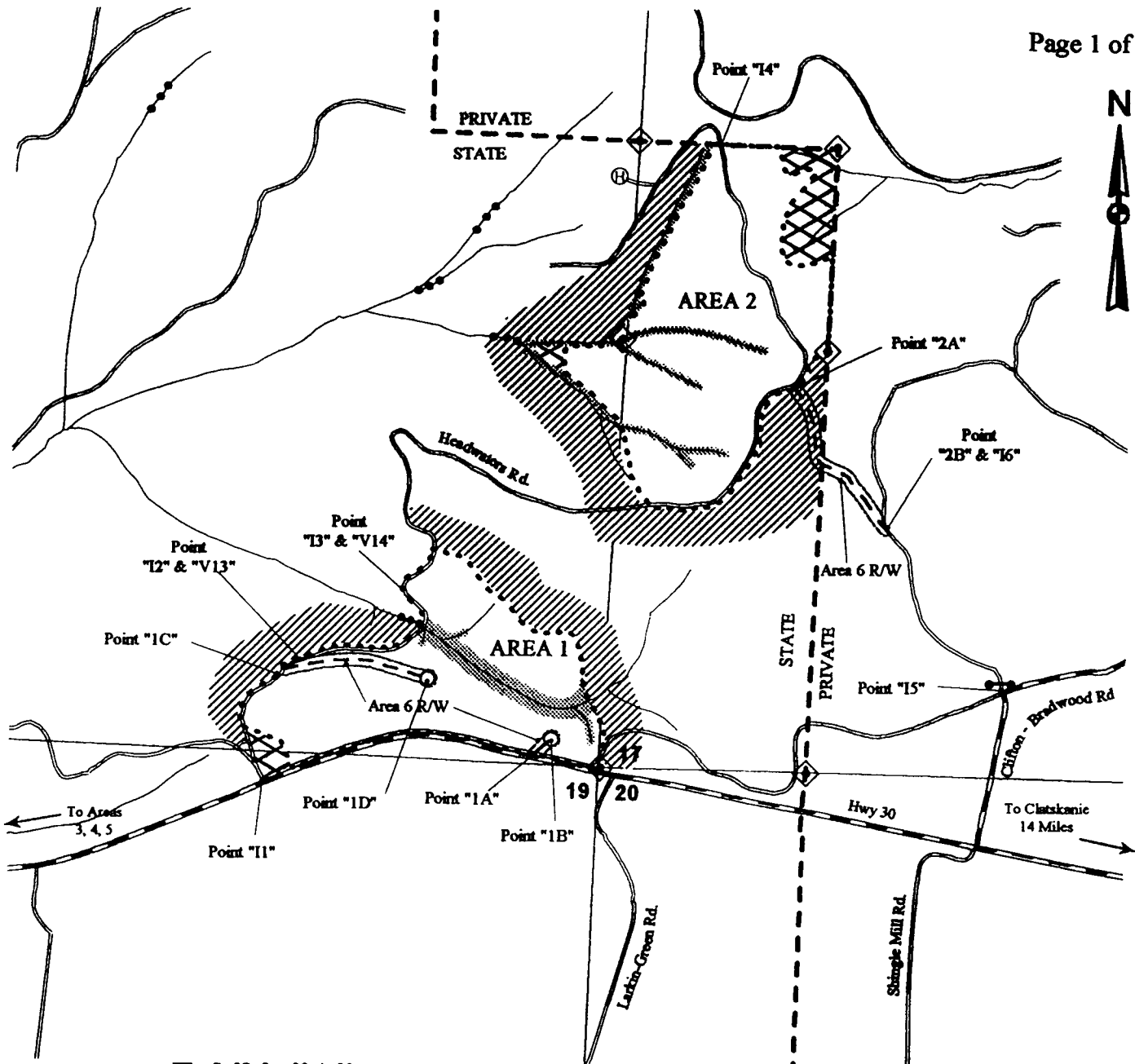


Exhibit "A"

OF TIMBER SALE CONTRACT NO. 341-02-55
 GNAT CREEK COMBINATION
 PORTIONS OF SECTIONS 17, 18 & 19, T8N, R6W,
 SECTIONS 11, 12, 13 & 14 T8N, R7W, W.M.
 CLATSOP COUNTY, OREGON

APPROX. SCALE 1"=1,000'



APPROXIMATE ACREAGE:

	TYPE	NET ACRES
AREA 1	CC	33 ACRES
AREA 2	CC	45 ACRES
AREA 3	PC	29 ACRES
AREA 3A	PC	23 ACRES
AREA 4	PC	16 ACRES
AREA 4A	PC	47 ACRES
AREA 5	CC	57 ACRES
AREA 6	R/W(SALE ACCESS)	2 ACRES
AREA 7	R/W(SWEETHOME)	18 ACRES
TOTAL		270 ACRES

LEGEND

- Ownership Boundary
- TIMBER SALE BOUNDARY
- - - Area Boundary
- ==== Right Of Way Boundary
- ▨ Stream Buffer
- ▨ Reforestation Area
- POINT "XX" Point For Project Work
- ▨ Green Tree Retention Area
- ==== Patch Cut Areas
- STA. 0+00 Survey Station
- ◊ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- ⊙ Stock Pile Site
- ⊗ Rock Quarry
- Landing
- Ⓜ Helicopter Evacuation Point
- ==== Surfaced Road
- ==== Unsurfaced Road
- - - New Construction
- ==== Paved Road
- ⊙ Gate
- Ⓜ Wet Area

EXHIBIT "G"

ROAD VACATING AND FILL REMOVAL SPECIFICATIONS: V1, V2, V3 to V4,
V5 to V6, V7 to V8, V9 to V10, V11 to V12, and V13 to V14

- (1) Culvert Removal. Remove drainage structures and culverts. Removed culverts shall be hauled to an approved refuse site off State Land.
- (2) Fill Removal and Stream Channel Development. Remove fills to the natural stream course level(s) and width(s) unless otherwise indicated. Stream channel(s) shall be excavated/developed to specified widths on all Type F streams. Developed stream banks shall be sloped at natural contours or no steeper than 1½:1, as directed by STATE.
- (3) FPA Written Plan. STATE has prepared the required FPA Written Plan for this work and the Plan is on file at the Astoria District, Oregon Department of Forestry. Fill removal, stream channel development and/or in-stream work shall be conducted between July 15 and September 15 for V1 to V2 through V11 to V12 and between July 1 and September 15 for V13 to V14, annually.
- (4) Use of Excavated Materials.
 - (a) Fill Excavation. Excavated materials shall be placed and compacted on the roadway a minimum of 10 feet from the top of the developed stream bank.
 - (b) Woody Debris may be incorporated in embankment material and/or placed on the surface of compacted embankment material.
- (5) Construct Waterbars at designated locations and as directed by STATE. Construct waterbars according to the specifications in Exhibit H.
- (6) Block Roads. Use excavated material from fill removals or sidecast pullback areas to block roads from vehicle access, as directed by STATE.
- (7) Erosion Control. All exposed excavation areas and waste materials shall be mulched with straw mulch approved by STATE. Applied straw mulch shall be a minimum of 2 inches deep and provide a uniform cover.
- (8) Equipment. A minimum 1½ cubic-yard, track mounted excavator shall be used for all excavation, culvert removal, streambed preparation, road blocking, and waterbarring, unless otherwise approved in writing by STATE. All work shall be performed during dry conditions acceptable to STATE.

SPECIFIC INSTRUCTIONS

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
V1	0+00	Point V1. Block road.
	0+50	Type F Stream. Remove culvert and all fill material. Develop 20 foot wide stream channel.
	1+00	Block road.
V2	0+00	Point V2. Block road.
	0+55	Type F Stream. Remove culvert and all fill material. Develop 10 foot wide stream channel.

EXHIBIT "G"

SPECIFIC INSTRUCTIONS (continued)

<u>Segment</u>	<u>Station</u>	<u>Work Description</u>
V3 to V4	0+00	Point V3. Remove culvert. Block road.
	6+90	Remove fill.
	23+70	Remove fill Point V4.
V5 to V6	0+00	Point V5. Block road.
	18+35	Remove fill.
	18+85	Remove fill.
	23+35	Point V6. Remove fill.
V7 to V8	0+00	Point V7. Block road.
	18+60	Remove fill.
	21+00	Remove fill.
	25+00	Point V8. Remove fill.
V9 to V10	0+00	Point V9. Block road.
	2+80	Remove fill.
	11+10	Remove fill.
	11+60	Remove fill.
	16+70	Point V10. Remove fill.
V11 to V12	7+00	Remove fill.
	11+00	Remove fill.
	13+50	Point V12. Remove fill.
V13 to V14	0+00	Point V13. Block road.
	5+60	Remove culvert.
	9+35	Type F Stream. Remove culvert and all fill material. Develop 12 foot wide stream channel.
	11+75	Point V14. Block road.

**FPA "Written Plan" For Road Vacating Project
Gnat Creek Combination Timber Sale
Portions of Sections 28 & 33, T4N, R8W, W.M., Clatsop County, Oregon**

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

Protected Resources:

- 1) Sweethome Creek, which is designated as a Large Type F stream, located in the central portion of the project area and within 100 feet of the road vacating project, in portions of Section 28 & 33, T4N, R8W, W.M., Clatsop County, Oregon. Length of the affected stream requiring protection is approximately 200 feet.
- 2) Unnamed Tributaries of Sweethome Creek, which are designated as Small and Medium Type F are located within 100 feet of the road vacating project in portions of Sections 28 & 33, T4N, R8W, W.M., Clatsop County, Oregon. Length of the affected streams requiring protection is approximately 450 feet.

Specific Site Characteristics:

- 1) Sweethome Creek: The streambed is approximately 20 feet wide, with moderate to steep stream bank slopes. Streamside vegetation is dominated by mature alder, with a minor component of conifer trees, which are located within the flood plain.
- 2) Unnamed Tributaries of Sweethome Creek, The streambeds range from approximately 8 feet wide to 16 feet wide, with moderate to steep stream bank slopes. Streamside vegetation is dominated by mature alder, with a minor component of conifer trees, which are located within the flood plain.

Situation:

- 1) Point "V1"- An existing 60" x 84" diameter steel culvert located on Sweethome Road prevents upstream fish passage. The existing fill and culvert shall be removed. The road/stream crossing shall be vacated and left in a stable condition that meets current FPA Guidance. Further detailed work specifications for this project are included as portions of Project No. 4 Road Vacating, as shown/described in Exhibits A and G.
- 2) Point "V2" - An existing 42" steel culvert located on a Rector Lookout road spur prevents upstream fish passage. The existing fill and culvert shall be removed. The road/stream crossing shall be vacated and left in a stable condition that meets current FPA Guidance. Further detailed work specifications for this project are included as portions of Project No. 4 Road Vacating, as shown/described in Exhibits A and G.
- 2) Segment "V3" to "V4" begins at Spur 27 and consists of an old Legacy road. An existing 48" steel culvert located @ Point "V3" on Spur 27 impedes upstream fish passage. The existing fill and culvert shall be removed. An existing puncheon @ STA 6+90 on an old legacy road prevents upstream fish passage. The existing fill and puncheon shall be removed. The road/stream crossings shall be vacated and left in a stable condition that meets current FPA Guidance. Further detailed work specifications for this project are included as portions of Project No. 4 Road Vacating, as shown/described in Exhibits A, G, H & K

Fill Removal Design:

Fills shall be removed to the natural stream course level(s). Stream channel(s) shall be excavated/developed to specified widths. Developed stream banks shall be sloped at natural contours or no steeper than 1½ :1, as directed by STATE.

Resource Protection Measures:

- 1) Work will be performed only during dry weather periods, low water stream flows, and between July 15 and September 15, annually. There are no posted stream buffers on this stream; however, no harvesting will be allowed within the stream RMA. The RMA consists mostly of alder, some conifer and various brush species.

**FPA "Written Plan" For Road Vacating Project
Gnat Creek Combination Timber Sale
Portions of Sections 28 & 33, T4N, R8W, W.M., Clatsop County, Oregon**

Resource Protection Measures: (continued)

- 2) Machine activity in stream channels will be minimized. All excavation and removed fill placement will be performed using a minimum 1½ cubic-yard track-mounted excavator.
- 3) De-watering of existing fills and development of the stream channel will be accomplished by use of cofferdams, temporary diversion ditches, or drainage structures and/or damming and pumping.
- 4) Trees needing removal to provide safe operating distances are to be felled away from or parallel to the RMA and left in stable locations within the RMA.
- 5) Excavated waste materials will be placed in approved waste areas and left in a stable condition.
- 6) Bare soils shall be grass seeded fertilized and mulched with a straw mulch approved by STATE. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.

Aquatic Protection: Debris entering the RMA or aquatic area will be removed by the end of operations each day or as soon as possible and placed in a stable location, unless an alternate practice is approved by STATE.

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

Submitted: _____
Purchaser/Operator Contract Representative

Date: _____

Approved: Tom Scoggins
State Lands Forester

Date: 2/7/02

Approved: [Signature]
Forest Practices Forester

Date: _____

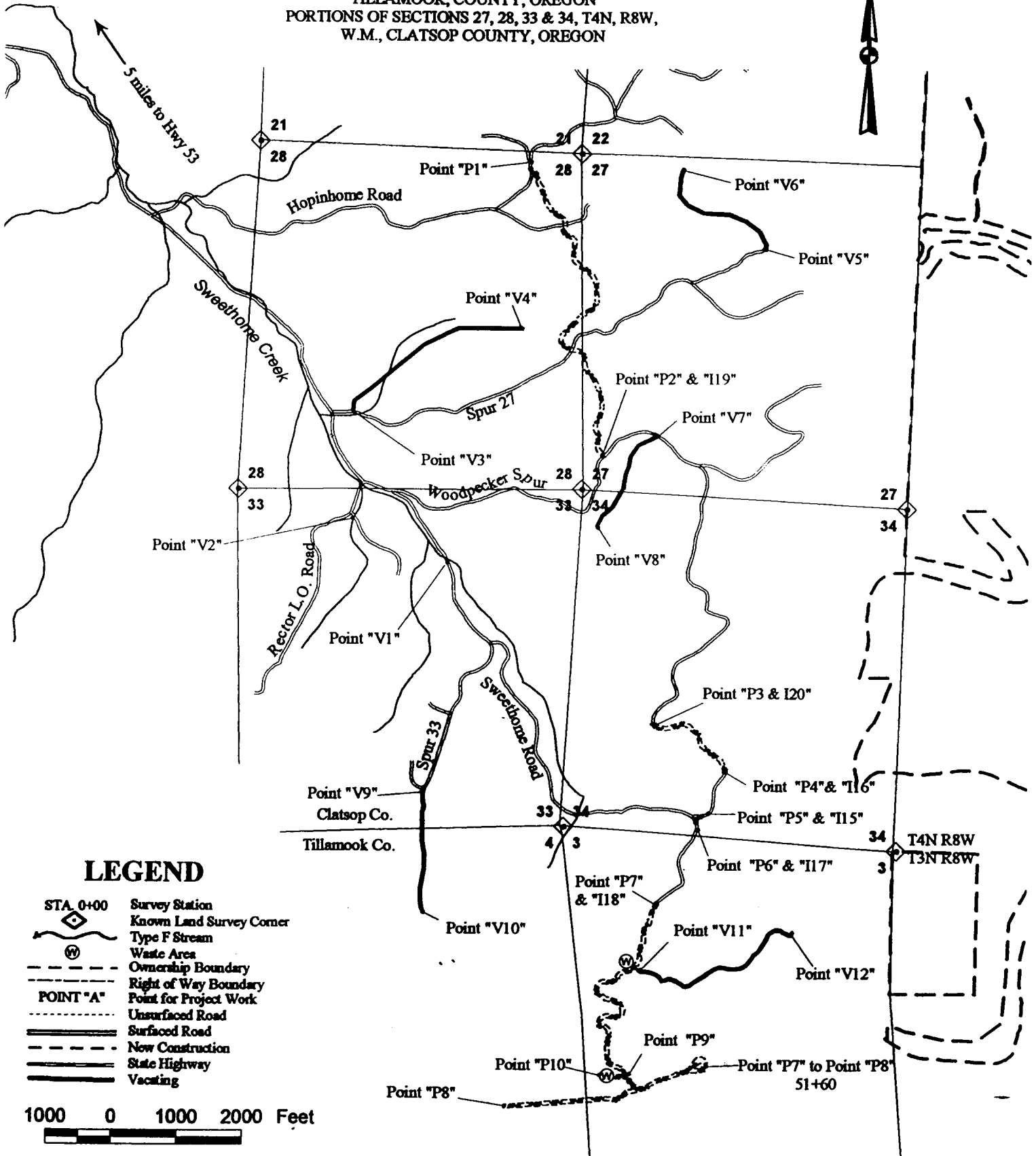
Attachments: Exhibits A, G & H

CC: Operator, Purchaser, District file, Salem, Eng. Unit, Sunset Unit

X:\DOCUMENT\2002 FY Sales\Gnat Creek Combination\Sale Prep\Written Plan-Sweethome Vacating.doc

Exhibit "A"

OF TIMBER SALE CONTRACT NO. 341 - 02 - 55
 GNAT CREEK COMBINATION
 SWEETHOME PROJECTS
 PORTIONS OF SECTIONS 3 & 4, T3N, R8W, W.M.,
 TILLAMOOK COUNTY, OREGON
 PORTIONS OF SECTIONS 27, 28, 33 & 34, T4N, R8W,
 W.M., CLATSOP COUNTY, OREGON



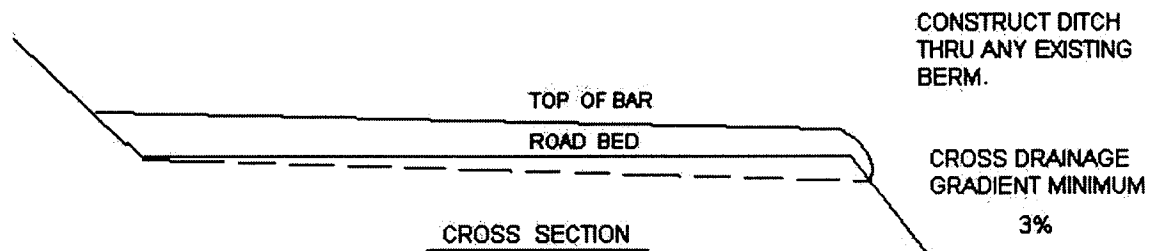
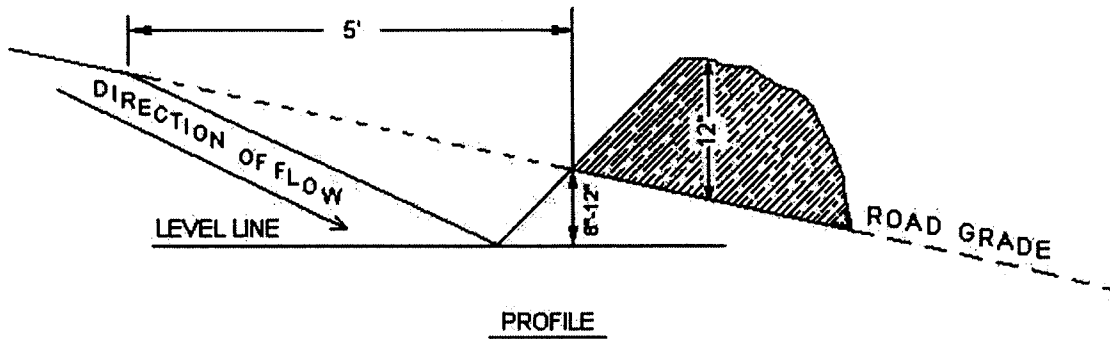
LEGEND

- STA. 0+00 Survey Station
- Known Land Survey Corner
- Type F Stream
- Waste Area
- Ownership Boundary
- Right of Way Boundary
- POINT "A" Point for Project Work
- Unsurfaced Road
- Surfaced Road
- New Construction
- State Highway
- Vacating



EXHIBIT "H"

WATERBAR SPECIFICATIONS



SPACING OF WATERBARS:

ROAD GRADE	DISTANCE
≤ 5%	400'
6-10%	200'
11-15%	150'
16-20% or Greater	100'

