"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Cost Summary
Nettle Meyer Combination
Sale 341-03-06

District: Astoria

Date: 5/20/02

	Conifer	Hardwood	Total
Gross Timber Sale Value	$7,101,769.98	$107,607.10	$7,209,377.08
		Project Work	($704,865.00)
		Advertised Value	$6,504,512.08

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Timber Description
Nettle Meyer Combination
Sale 341-03-06

District: Astoria

Location: Portions of Sections 4 & 5, T4N, R6W; Sections 19, 20, 21, 28, 29, 31, 32, 33, & 34, T5N, R6W; & Sections 24, 25, & 26, T5N, R7W, W.M., Clatsop County, OR

Date: 5/20/02 **Stand Stocking:** 80%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	19	0	98
Western Hemlock / Fir	14	0	97
Sitka Spruce	36	0	97
Red Cedar	30	0	98
Alder (Red)	14	0	95

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Red Cedar	Alder (Red)	Total
2S	12,228	2,725	0	0	0	14,953
3S	5,188	2,949	1	4	382	8,524
4S	577	624	0	1	76	1,278
Total	17,993	6,298	1	5	458	24,755

Comments: Pond Values Used: 1st Quarter 2002

Log Markets: Mist, Clatskanine, Tillamook

Additional Costs with P&R:
100% branding and painting: $1/MBF x 24,752MBF = $24,752
Additional felling & bucking costs: $5/MBF x 15,899MBF = $79,495
Intermediate Support Costs: $50/Support x 50 Supports = $2,500
Tail Tree Rigging: $50/tail tree x 75 tail trees = $3,750
Total Cost w/P&R = $110,497

Costs without P&R:
Road Easement Payment to Simson Lumber Company = $452
Slash Piling Areas 6,7& 9 cable landings: $130/landing x 9 landings = $1,170
Slash piling in Areas 6, 7 & 9: 175hrs x $95/hr + $500(move-in) = $17,125
Total Non-P&R Costs = $18,747

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Logging Conditions
Nettle Meyer Combination
Sale 341-03-06

Combination#: 1

	Douglas - Fir	35.25%
	Western Hemlock / Fir	58.35%

Yarding Distance: Medium (800 ft) **Downhill Yarding** No
Logging System: Cable: Medium Tower >40 - <70 **Process:** Manual Delimbing
Tree Size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
Loads/Day: 6 **Bd. Ft./Load:** 3,700
Cost/MBF: $149.40
Machines:
Log Loader (A)
Tower Yarder (Medium)

Combination#: 2

	Douglas - Fir	20.70%
	Western Hemlock / Fir	34.27%

Yarding Distance: Short (400 ft) **Downhill Yarding** Yes
Logging System: Track Skidder **Process:** Manual Falling/Delimbing
Tree Size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
Loads/Day: 7 **Bd. Ft./Load:** 3,700
Cost/MBF: $126.08
Machines:
Log Loader (B)
Track Skidder

Combination#: 3

	Douglas - Fir	23.72%
	Western Hemlock / Fir	2.23%
	Alder (Red)	56.45%

Yarding Distance: Medium (800 ft) **Downhill Yarding** No
Logging System: Cable: Medium Tower >40 - <70 **Process:** Manual Delimbing
Tree Size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF
Loads/Day: 8 **Bd. Ft./Load:** 4,000
Cost/MBF: $103.64
Machines:
Log Loader (A)
Tower Yarder (Medium)

Combination#: 4

	Douglas - Fir	20.33%
	Western Hemlock / Fir	5.16%
	Sitka Spruce	100.00%
	Red Cedar	100.00%
	Alder (Red)	43.55%

Yarding Distance: Medium (800 ft) **Downhill Yarding** Yes
Logging System: Track Skidder **Process:** Manual Falling/Delimbing
Tree Size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
Loads/Day: 9 **Bd. Ft./Load:** 4,000
Cost/MBF: $90.71
Machines:

Log Loader (B)
Track Skidder

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Logging Costs
Nettle Meyer Combination
Sale 341-03-06

Date: 5/20/02

Operating Seasons: 3.5

Profit & Risk: 16%

Project Costs: $704,865

Other Costs (P/R): $110,497

Slash Disposal: $0

Other Costs: $18,747

Road Maintenance: $2.26

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

Hauling Costs

Species	$/MBF	Trips/Day	MBF/Load
Douglas - Fir	$0.00	5.0	4.0
Western Hemlock / Fir	$0.00	3.0	4.0
Sitka Spruce	$0.00	2.0	4.0
Red Cedar	$0.00	3.0	4.0
Alder (Red)	$0.00	2.0	3.5

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Logging Costs Breakdown
Nettle Meyer Combination
Sale 341-03-06

Costs	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Red Cedar	Alder (Red)
Logging	121.79	137.36	90.71	90.71	98.01
Road Maintenance	2.31	2.33	2.33	2.31	2.38
Fire Protection	0.38	0.38	0.38	0.38	0.38
Hauling	23.47	39.54	59.28	39.13	69.16
Other (P/R appl.)	4.46	4.46	4.46	4.46	4.46
Profit & Risk	24.39	29.45	25.15	21.92	27.90
Slash Disposal	0.00	0.00	0.00	0.00	0.00
Scaling	2.00	2.00	2.00	2.00	2.00
Other	0.76	0.76	0.76	0.76	0.76
Total	179.56	216.28	185.07	161.67	205.05

Amortization	0.00	0.00	0.00	0.00	0.00
Pond Value	528.34	346.85	335.00	900.00	440.00
Stumpage	348.78	130.57	149.93	738.33	234.95
Amortized	0.00	0.00	0.00	0.00	0.00

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Summary
Nettle Meyer Combination Sale 341-03-06

Amortized

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

Unamortized

	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Red Cedar	Alder (Red)
MBF	17,993.00	6,298.00	1.00	5.00	458.00
Value	348.78	130.57	149.93	738.33	234.95
Total	6,275,598.54	822,329.86	149.93	3,691.65	107,607.10

Gross Timber Sale Value

Recovery $7,209,377.08

Prepared by: Ty Williams Date: 5/20/02

District: Astoria Phone: (503) 325-5451

Road Maintenance Cost Summary

Sale: Nettle Meyer Combination
Date: 21-Mar-02
By: Ty Williams

MBF: 24,752
$$/MBF: $2.26

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	
Progressive	Grader 14G	$540	3	144	$80	$13,140	
Operations	Dump Truck 12CY	$114	3	120	$57	$7,182	
Entries (3)	FE Loader C966	$540	3	30	$75	$3,870	
Final Haul	Grader 14G	$540	1	136	$80	$11,420	
Road	Dump Truck 12CY	$114	1	120	$57	$6,954	
Maintenance	FE Loader C966	$540	1	30	$75	$2,790	
Haul Route	Vibratory Roller	$540	1	120	$75	$9,540	
	Water Truck 2,500 Gallon capacity	$132	1	60	$67	$802	
	Labor			60	$25	$250	
Total							$55,948

		Miles/day	Distance(miles)	Days	
Interim Maintenance	Production Rates Grader	1.5	9.0	6.0	x 3 entires

		Miles/day	Distance(miles)	Days	
Final Maintenance	Production Rates Grader	1.5	25.7	17.1	x 1 entry

x:\timbermgmt\jewell\timbersales\2002\nettlemeyercombination\saleprep\salereports\projects\roadmaintenance-harvesting.xls

SUMMARY OF ALL PROJECT COSTS

SALE NAME: NETTLE MEYER COMBINATION

NEW CONSTRUCTION:

	Road segment	Length/Sta	Cost	
Project No. 1	1A-1B, 1C-1D, 1E-1F, 1G-1H, 1I-1J,	79.81	$61,981	
	2A-2B, 2C-2D, 2E-2F, 2G-2J, 2I-2H, 2K-2L, 2M-2N,2O-2P, 2Q-2R, 2S-2T, 2U-2V, 2W-2X,	104.55	$77,956	
	4A-4B, 8A-8B, 9A-9B	54.15	$35,349	
	5A-5B, 5C-5D, 5E-5F,6A-6B, 6C-6D, 6E-6F, 6G-6H, 6K-6L,7A-7B	143.75	$102,668	
	TOTALS	382.26		$277,954

ROAD IMPROVEMENT:

	Road segment	Length/Sta	Cost	
Project No. 1	I1-I2, I2-I3	394.8	$76,717	
Project No. 2	-I5, I7-I8, I9-I10	66.2	$14,385	
	I6A-I6B, I7-I8, I9-I10	291.7	$63,052	
	TOTALS	752.7		$154,154

SPECIAL PROJECTS:

	Description	Cost	
	Road Maintenance (project work)	$3,480	
PROJECT NO. 3	Green Mtn. No. 2 Rock Crushing	$247,419	
PROJECT NO. 4	Road Vacating	$16,348	
	TOTALS		$267,247

MOVE IN:

Equipment	Cost	
D-7 Dozer	$560	
Dump Trucks (7)	$858	
F E Loader	$560	
Grader	$540	
Skidder	$520	
Vibratory Roller	$540	
Water Truck	$132	
Excavator X 2	$1,800	
Secondary Mob. (Gr Mt. To Buster Ck)	$824	
TOTAL		$5,510

GRAND TOTAL **$704,865**

Compiled By: T. Williams Date: 4/12/01

x:\timbermgmt\jewell\timbersales\2002\nettlemeyercombination\saleprep\salereports\projects\nettlemeyerprojectsummaries.xls

SUMMARY OF CONSTRUCTION COSTS

SALE NAM Nettle Meyer Combination (Area 1) **NEW CONSTRUCTION:** 79.81 **STATIONS** 1.51 **MILES**
ROAD: 1A-1B(31.96),1C-1D(11.03),1E-1F(13.37), 1G-1H(11),1I-1J(12.45) **IMPROVEMENT:** **STATIONS** **MILES**

CLEARING & GRUBBING

	Method	Acres/amount	x	Rate	=	Cost
Areas 1&4	Scatter Debris Outside of R/W	7.73	x	$840.00	=	$6,493.20
	Windrowing/piling debris within R/W	0.65	x	$560.00	=	$364.00
	Endhaul Debris($/STA)	5.25	x	$60.00	=	$315.00

SUB TOTAL FOR CLEARING & GRUBBING $7,172

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
COMMON (DESIGN) ($/BCY)	5,060.00	x	$1.35	=	$6,831.00
COMMON (REG STD) ($/STA)	23.45	x	$117.00	=	$2,743.65
LANDINGS (REG STD) ($/EA)	3.00	x	$270.00	=	$810.00
END HAUL EX. (1a-1b, 1e-1f) ($/BCY)	3,011.00	x	$2.75	=	$8,280.25
FILL COMPACTION (DESIGN) ($/BCY)	6,232.00	x	$0.40	=	$2,492.80
CUT SLOPE ROUNDING ($/STA)	15.00	x	$27.00	=	$405.00
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR EXCAVATION $21,563

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
1a-1b, 4+94	18" CMP	30	$15.90	$477.00			
1a-1b, 10+64	18" CMP	32	$15.90	$508.80			
1a-1b, 15+65	18" CMP	32	$15.90	$508.80			
1a-1b, 17+53	18" CMP	32	$15.90	$508.80			
1a-1b, 22+52	18" CMP	34	$15.90	$540.60			
1a-1b, 27+05	18" CMP	34	$15.90	$540.60			
1c-1d, 4+85	18" CMP	34	$15.90	$540.60			
1c-1d, 8+24	18" CMP	32	$15.90	$508.80			
1e-1f, 3+30	18" CMP	32	$15.90	$508.80			
1e-1f, 6+70	18" CMP	32	$15.90	$508.80			
1g-1h, 2+93	18" CMP	32	$15.90	$508.80			

Other/miscellaneous:	Description	Quantity	Rate	Cost
Culvert stakes & markers:				
	6 foot long carsonite markers (includes installation cost)	11	$14.10	$155.10

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $5,816

SURFACING

Subgrade prep:

Description	Stations/amou	x	Rate/sta/amt	Cost
GRADING $/sta(INCLUDES 1.5 STA ON 1	68.86	x	$15.20	$1,046.67
COMPACTION w/VIB $/sta(INCLUDES1I-	68.86	x	$12.50	$860.75
Outslope $/sta.	10.95	x	$11.20	$122.64

Surfacing rock:		Size/type	Vol/sta	Stations	Tot. cy	Rate/cy	Cost
1A-1B	10" depth	4"-0"	63	31.96	2,013	$3.82	$7,691.49
1A-1B (1+18 - 1+83)	3" depth	3/4"-0"	19	0.65	12	$3.82	$47.18
1A-1B (18+39 - 31+8	3" depth	3/4"-0"	19	13.47	256	$3.82	$977.65
1C-1D	8" depth	4"-0"	50	11.03	552	$3.82	$2,106.73
1E-1F	10" depth	4"-0"	63	13.35	841	$3.82	$3,212.81
1E-1F (0+55 - 6+69)	3" depth	3/4"-0"	19	6.14	117	$3.82	$445.64
1G-1H	8"depth	4"-0"	50	11.00	550	$3.82	$2,101.00
1I-1J (4+05 - 5+55)	8" depth	4"-0"	50	1.50	75	$3.82	$286.50

Turnouts:		Size/type	Vol/to	No. to	Tot. cy	Rate/cy	Cost
1A-1B	10" depth	4"-0"	28	6	168	$3.82	$641.76
1A-1B	3" depth	3/4"-0"	8	3	24	$3.82	$91.68
1C-1D	8" depth	4"-0"	22	1	22	$3.82	$84.04
1E-1F	10" depth	4"-0"	28	2	56	$3.82	$213.92
1G-1H	8"depth	4"-0"	22	1	22	$3.82	$84.04

Junctions:	Size/type	Vol/jct.	No. jct.	Tot. cy	Rate/cy	Cost
1A,1C,1E,1G	4"-0"	30	4	120	$3.82	$458.40
1A, 1C,1I	3/4"-0"	12	3	36	$3.82	$137.52

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
1D,1H	Landing Rock 80cy/landing X 2	6"-0"	160	$3.97	$635.20
	Turn Around 24cy/TA X 4	4"-0"	96	$3.82	$366.72
	Curve widening	4"-0"	75	$3.82	$286.50
	Curve widening	3/4"-0"	10	$3.82	$38.20
	Fill widening	4"-0"	40	$3.82	$152.80
	Fill widening	3/4"-0"	10	$3.82	$38.20

Processing:	Description	No.sta	Rate/sta	Cost
	Water, Process & Compact Crushed Rock 3/4"-0"	20.26	$37.00	$749.62
	Water, Process & Compact Crushed Rock 4"-0"	137.72	$37.00	$5,095.64

	24"-6"n	6"-0"n	4"-0"	1 1/2"-0"	3/4"-0"	Total
SUB TOTAL FOR SURFACING		160	4,630		465	5,255

$27,431

SPECIAL PROJECTS

Description	Cost

SUB TOTAL FOR SPECIAL PROJECTS

GRAND TOTAL	IMPROVEMENT		CONSTRUCTION	$61,981	**$61,981**

Compiled By:

Compiled By: Cullen Bangs Date: 3/29/02

x:\timbermgmt\jewell\timbersales\2002\nettlemeyercombination\saleprep\salereports\projects\nettlemeyerprojectsummaries.xls

SUMMARY OF CONSTRUCTION COSTS

SALE: Nettle Meyer Combination (Area 2)
ROAD: 2A-2B(1.1),2C-2D(13.7),2E-2F(11.8),2G-2H(12.5), 2I-2J(6.85),2K-2L(4.6),2M-2N(1.5),2O-2P(12.3), 2Q-2R(4.0),2S-2T(14.3),2U-2V(19.5),2W-2X(2.4)

NEW CONSTRUCTION: 104.55 STATIONS 1.98 MILES
IMPROVEMENT: STATIONS MILES

CLEARING & GRUBBING

	Method	Acres/amount	x	Rate	=	Cost
Area 2	Scatter Debris Outside of R/W	9.77	x	$840.00	=	$8,206.80
			x		=	

SUB TOTAL FOR CLEARING & GRUBBING $8,207

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
COMMON (DESIGN) ($/BCY)	4,910.00	x	$1.35	=	$6,628.50
COMMON (REG STD) ($/STA)	77.95	x	$117.00	=	$9,120.15
LANDINGS (REG STD) ($/EA)	11.00	x	$270.00	=	$2,970.00
FILL COMPACTION (DESIGN) ($/BCY)	2,530.00	x	$0.40	=	$1,012.00
CUT SLOPE ROUNDING ($/STA)	22.00	x	$27.00	=	$594.00
		x		=	
		x		=	

SUB TOTAL FOR EXCAVATION $20,325

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
2A-2B 0+00	18" CMP	40	$15.90	$636.00			
2C-2D 4+20	18" CMP	32	$15.90	$508.80			
2C-2D 6+25	18" CMP	34	$15.90	$540.60			
2C-2D 10+20	18" CMP	34	$15.90	$540.60			
2E-2F 0+00	18" CMP	40	$15.90	$636.00			
2E-2F 2+30	18" CMP	32	$15.90	$508.80			
2E-2F 11+80	18" CMP	40	$15.90	$636.00			
2G-2H 0+00	18" CMP	40	$15.90	$636.00			
2G-2H 9+15	18" CMP	32	$15.90	$508.80			
2O-2P 0+00	18" CMP	40	$15.90	$636.00			
2O-2P 8+20	18" CMP	30	$15.90	$477.00			
2S-2T 0+00	18" CMP	40	$15.90	$636.00			
2S-2T 5+20	18" CMP	32	$15.90	$508.80			
2S-2T 10+50	18" CMP	30	$15.90	$477.00			
2U-2V 0+00	18" CMP	40	$15.90	$636.00			
2U-2V 5+10	18" CMP	32	$15.90	$508.80			
2U-2V 13+25	18" CMP	30	$15.90	$477.00			
2U-2V 17+25	18" CMP	30	$15.90	$477.00			

Other/miscellaneous:	Description	Quantity	Rate	Cost
Culvert stakes & markers:				
	6 foot long carsonite markers (includes	18	$14.10	$253.80
	installation cost)			

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $10,239

SURFACING

Subgrade prep:

Description	Stations/amour	x	Rate/sta/amt	Cost
GRADING $/sta	104.55	x	$15.20	$1,589.16
COMPACTION w/VIB $/sta	104.55	x	$12.50	$1,306.88
		x		

Surfacing rock:		Size/type	Vol/sta	Stations	Tot. cy	Rate/cy	Cost
2A-2B	8" depth	4"-0"	50	1.10	55	$3.82	$210.10
2C-2D	8" depth	4"-0"	50	13.70	685	$3.82	$2,616.70
2E-2F	8" depth	4"-0"	50	11.80	590	$3.82	$2,253.80
2E-2F	3" depth	3/4"-0"	19	3.00	57	$3.82	$217.74
2G-2H	8" depth	4"-0"	50	12.50	625	$3.82	$2,387.50
2I-2J	8" depth	4"-0"	50	6.85	343	$3.82	$1,308.35
2I-2J	3" depth	3/4"-0"	19	3.00	57	$3.82	$217.74
2K-2L	8" depth	4"-0"	50	4.60	230	$3.82	$878.60
2M-2N	8" depth	4"-0"	50	1.50	75	$3.82	$286.50
2O-2P	8" depth	4"-0"	50	12.30	615	$3.82	$2,349.30
2Q-2R	8" depth	4"-0"	50	4.00	200	$3.82	$764.00
2S-2T	8" depth	4"-0"	50	14.30	715	$3.82	$2,731.30
2S-2T	3" depth	3/4"-0"	19	7.00	133	$3.82	$508.06
2U-2V	8" depth	4"-0"	50	19.50	975	$3.82	$3,724.50
2W-2X*	8" depth	4"-0"	50	2.40	120	$3.35	$402.00

Turnouts:		Size/type	Vol/to	No. to	Tot. cy	Rate/cy	Cost
2C-2D	8" depth	4"-0"	22	2	44	$3.82	$168.08
2E-2F	8" depth	4"-0"	22	1	22	$3.82	$84.04
2O-2P	8" depth	4"-0"	22	2	44	$3.82	$168.08
2S-2T	8" depth	4"-0"	22	2	44	$3.82	$168.08
2S-2T	3" depth	3/4"-0"	8	1	8	$3.82	$30.56
2U-2V	8" depth	4"-0"	22	4	88	$3.82	$336.16

Junctions:	Size/type	Vol/jct.	No. jct.	Tot. cy	Rate/cy	Cost
2A,2C,2E,2F, 2G,2I,2K,2M 2O,2Q,2S,2U,2W	4"-0"	30	13	390	$3.82	$1,489.80
2A,2C,2E,2G,2I 2K,2O,2Q,2S,2U	3/4"-0"	12	10	120	$3.82	$458.40

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
2B,2D,2H,2J	Landing Rock 80cy/landing X 11	6"-0"	880	$3.97	$3,493.60
2L,2N,2P,2R 2T,2V,2X					
2D,2H,2P,2T	Turn Around 24cy/TA X 5	4"-0"	120	$3.82	$458.40
2V					
2S	Additional Jct. Rock	4"-0"	40	$3.82	$152.80

*Rock to be hauled from Buster Creek stockpiles.

Processing: Description	No.sta	Rate/sta	Cost
Water, Process & Compact Crushed Rock 4"-0"	209.10	$37.00	$7,736.70
Water, Process & Compact Crushed Rock 3/4"-0"	13.00	$37.00	$481.00

	24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total
SUB TOTAL FOR SURFACING		880	6,020		375	7,275

$38,978

SPECIAL PROJECTS

Description	Cost
Devlop Pit Run (Buster Creek Quarry) for Pt. 2X @ $2.60/cy x 80 cy	$208.00

SUB TOTAL FOR SPECIAL PROJECTS $208

GRAND TOTAL IMPROVEMENT [ ] CONSTRUCTION [$77,956] **$77,956**

Compiled By: Ty Williams Date: 4/8/02

x:\timbermgmt\jewell\timbersales\2002\nettlemeyercombination\saleprep\salereports\projects\nettlemeyerprojectsummaries.xls

SUMMARY OF CONSTRUCTION COSTS

SALE: Nettle Meyer Combination (Areas 4,8,&9) **NEW CONSTRUCTION:** 54.15 **STATIONS** 1.03 **MILES**
ROAD: 4A-4B(11.9),8A-8B(32.5),9A-9B(9.75) **IMPROVEMENT:** **STATIONS** **MILES**

CLEARING & GRUBBING

	Method	Acres/amount	x	Rate	=	Cost
Areas 4, 8 &9	Scatter Debris Outside of R/W	5.00	x	$840.00	=	$4,200.00
			x		=	
			x		=	

SUB TOTAL FOR CLEARING & GRUBBING $4,200

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
COMMON (REG STD) ($/STA)	54.15	x	$117.00	=	$6,335.55
LANDINGS (REG STD) ($/EA)	2.00	x	$270.00	=	$540.00
IMPORT FILL. (4A) ($/BCY)	355.00	x	$2.00	=	$710.00
FILL COMPACTION (DESIGN) ($/BCY)	355.00	x	$0.40	=	$142.00
CUT SLOPE ROUNDING ($/STA)	12.00	x	$27.00	=	$324.00
		x		=	

SUB TOTAL FOR EXCAVATION $8,052

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
*4A-4B 1+10	18" CMP	50	$15.90	$795.00			
8A-8B 1+75	18" CMP	32	$15.90	$508.80			
8A-8B 6+00	18" CMP	32	$15.90	$508.80			
8A-8B 9+10	18" CMP	30	$15.90	$477.00			
8A-8B 13+70	18" CMP	32	$15.90	$508.80			
8A-8B 32+50	18" CMP	40	$15.90	$636.00			

*Culvert marker not required

Other/miscellaneous:	Description	Quantity	Rate	Cost
Culvert stakes & markers:				
	6 foot long carsonite markers (includes installation cost)	5	$14.10	$70.50

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $3,505

SURFACING

Subgrade prep:

	Description	Stations/amou	x	Rate/sta/amt	Cost
4A-4B, 8A-8B	GRADING $/sta	44.40	x	$15.20	$674.88
4A-4B, 8A-8B	COMPACTION w/VIB $/sta	44.40	x	$12.50	$555.00
9A-9B	GRADING $/sta - Outsloped Road	9.75	x	$11.20	$109.20

Surfacing rock:

		Size/type	Vol/sta	Stations	Tot. cy	Rate/cy	Cost
4A-4B	8" depth	4"-0"	50	11.90	595	$3.82	$2,272.90
8A-8B	8" depth	4"-0"	50	32.50	1,625	$3.82	$6,207.50
4A-4B(3+00-9+00)	3" depth	3/4"-0"	19	6.00	114	$3.82	$435.48
8A-8B(0+00-32.50)	3" depth	3/4"-0"	19	32.50	618	$3.82	$2,358.85

Turnouts:

		Size/type	Vol/to	No. to	Tot. cy	Rate/cy	Cost
4A-4B	8" depth	4"-0"	22	2	44	$3.82	$168.08
8A-8B	8" depth	4"-0"	22	7	154	$3.82	$588.28
4A-4B	3" depth	3/4"-0"	8	2	16	$3.82	$61.12
8A-8B	3" depth	3/4"-0"	8	7	56	$3.82	$213.92

Junctions:

	Size/type	Vol/jct.	No. jct.	Tot. cy	Rate/cy	Cost
4A,8A(2)	4"-0"	30	3	90	$3.82	$343.80
8A(2)	3/4"-0"	12	2	24	$3.82	$91.68

Other/misc:

	Description	Size/type	Cy	Rate/cy	Cost
4B	Landing Rock 80cy/landing X 1	6"-0"	80	$3.97	$317.60
4B,8B	Turn Around 24cy/TA X2	4"-0"	48	$3.82	$183.36
4A-4B	Energy Dissipater@Sta. 1+10	24"-6"	12	$7.61	$91.32

Processing:

Description	No.sta	Rate/sta	Cost
Water, Process & Compact Crushed Rock 4"-0"	88.80	$37.00	$3,285.60
Water, Process & Compact Crushed Rock 3/4"-0"	43.50	$37.00	$1,609.50

	24"-6" cy	6"-0" cy	4"-0"	1 1/2"-0"	3/4"-0"	Total
SUB TOTAL FOR SURFACING	12	80	2,556		828	3,476

$19,568

SPECIAL PROJECTS

Description	Cost
Energy Dissipator Placement @ $2.00cy x 12cy	$24.00

SUB TOTAL FOR SPECIAL PROJECTS $24

GRAND TOTAL IMPROVEMENT [ ] CONSTRUCTION $35,349 **$35,349**

Compiled By:

Compiled By: Ty Williams Date: 4/4/02

x:\timbermgmt\jewell\timbersales\2002\nettlemeyercombination\saleprep\salereports\projects\nettlemeyerprojectsummaries.xls

SUMMARY OF CONSTRUCTION COSTS

SALE: Nettle Meyer Combination (Areas 5,6,&7) **NEW CONSTRUCTION:** 143.75 **STATIONS** 2.72 **MILES**
ROAD: 5A-5B(30.75),5C-5D(3.65),5E-5F(2.65),6A-6B(57.0), **IMPROVEMENT:** **STATIONS** **MILES**
6C-6D(2.85),6E-6F(25.2),6G-6H(8.6),6K-6L(10.3),7A-7B(2.75)

CLEARING & GRUBBING

	Method	Acres/amount	x	Rate	=	Cost
Areas 5, 6, &7	Scatter Debris Outside of R/W	14.94	x	$840.00	=	$12,549.60
	Windrowing/piling debris within R/W	0.38	x	$560.00	=	$212.80
	Endhaul Debris($/STA)	3.70	x	$60.00	=	$222.00

SUB TOTAL FOR CLEARING & GRUBBING $12,984

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
COMMON (DESIGN) ($/BCY)	10,365.00	x	$1.35	=	$13,992.75
COMMON (REG STD) ($/STA)	27.95	x	$117.00	=	$3,270.15
LANDINGS (REG STD) ($/EA)	10.00	x	$270.00	=	$2,700.00
END HAUL EX. (5A-5B) ($/BCY)	1,448.00	x	$2.00	=	$2,896.00
END HAUL (5A-5B to 6A-6B) ($/BCY)	1,100.00	x	$2.75	=	$3,025.00
END HAUL (4A-4B to 6C-6D) ($/BCY)	280.00	x	$2.75	=	$770.00
FILL COMPACTION (DESIGN) ($/BCY)	13,117.00	x	$0.40	=	$5,246.80
CUT SLOPE ROUNDING ($/STA)	27.00	x	$27.00	=	$729.00
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR EXCAVATION $32,630

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
5A-5B 3+10	18" CMP	32	$15.90	$508.80			
5A-5B 7+55	18" CMP	36	$15.90	$572.40			
5A-5B 11+90	18" CMP	32	$15.90	$508.80			
5A-5B 15+60	18" CMP	44	$15.90	$699.60			
6A-6B 3+05	18" CMP	30	$15.90	$477.00			
6A-6B 8+90	18" CMP	30	$15.90	$477.00			
6A-6B 15+30	18" CMP	36	$15.90	$572.40			
6A-6B 19+75	18" CMP	38	$15.90	$604.20			
6A-6B 26+15	18" CMP	36	$15.90	$572.40			
6A-6B 46+00	18" CMP	30	$15.90	$477.00			
6A-6B 54+90	18" CMP	36	$15.90	$572.40			
6E-6F 1+25	18" CMP	38	$15.90	$604.20			
6E-6F 4+30	18" CMP	38	$15.90	$604.20			
6E-6F 10+45	18" CMP	32	$15.90	$508.80			

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:	6 foot long carsonite markers (includes installation cost)	14	$14.10	$197.40

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $7,957

SURFACING

Subgrade prep:

Description	Stations/amou	x	Rate/sta/amt	Cost
GRADING $/sta	122.10	x	$15.20	$1,855.92
COMPACTION w/VIB $/sta	122.10	x	$12.50	$1,526.25
GRADING $/sta -Outsloped roads	21.65	x	$11.20	$242.48

Surfacing rock:		Size/type	Vol/sta	Stations	Tot. cy	Rate/cy	Cost
5A-5B	8" depth	4"-0"	50	30.75	1,538	$3.82	$5,873.25
5A-5B(2+00-16+00)	3" depth	3/4"-0"	19	14.00	266	$3.82	$1,016.12
5C-5D	8" depth	4"-0"	50	3.65	183	$3.82	$697.15
5E-5F	8" depth	4"-0"	50	2.65	133	$3.82	$506.15
6A-6B	8"depth	4"-0"	50	57.00	2,850	$3.82	$10,887.00
6A-6B(0+00-3+00)	3" depth	3/4"-0"	19	3.00	57	$3.82	$217.74
6A-6B(16+00-42+00)	3" depth	3/4"-0"	19	26.00	494	$3.82	$1,887.08
6C-6D	8" depth	4"-0"	50	2.85	143	$3.82	$544.35
6C-6D(0+00-2+85)	3" depth	3/4"-0"	19	2.85	54	$3.82	$206.85
6E-6F	8" depth	4"-0"	50	25.20	1,260	$3.82	$4,813.20
6E-6F(0+00-20+50)	3" depth	3/4"-0"	19	20.50	390	$3.82	$1,487.89

Turnouts:		Size/type	Vol/to	No. to	Tot. cy	Rate/cy	Cost
5A-5B	8" depth	4"-0"	22	2	44	$3.82	$168.08
5A-5B	3" depth	3/4"-0"	8	1	8	$3.82	$30.56
6A-6B	8" depth	4"-0"	22	5	110	$3.82	$420.20
6A-6B	3" depth	3/4"-0"	8	3	24	$3.82	$91.68
6E-6F	8" depth	4"-0"	22	3	66	$3.82	$252.12
6E-6F	3" depth	3/4"-0"	8	3	24	$3.82	$91.68

Junctions:	Size/type	Vol/jct.	No. jct.	Tot. cy	Rate/cy	Cost
5A,5C,5E, 6A,6C,6D,6E	4"-0"	30	7	210	$3.82	$802.20
5A,6A,6C,6D,6E	3/4"-0"	12	5	60	$3.82	$229.20

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
5A-5B 11+90	Energy Dissipator	24"-6"rr	12	$7.61	$91.32
5B,5D,5F,6B,Sta. Sta. 18+00 of 6A-6B Sta.11+30 of 6E-6F,6F	Landing Rock 80cy/landing X 7	6"-0"	560	$3.97	$2,223.20
5B,5D,5F, 6B,6F	Turn Around 24cy/TA X 5	4"-0"	120	$3.82	$458.40
5A-5B	Curve & fill widening	4"-0"	111	$3.82	$424.02
5A-5B	Curve & fill widening	3/4"-0"	42	$3.82	$160.44
6A-6B	Curve & fill widening	4"-0"	72	$3.82	$275.04
6A-6B	Curve & fill widening	3/4"-0"	27	$3.82	$103.14

Processing:	Description	No.sta	Rate/sta	Cost
	Water, Process & Compact Crushed Rock 3/4"-0"	66.35	$37.00	$2,454.95
	Water, Process & Compact Crushed Rock 4"-0"	244.20	$37.00	$9,035.40

	24"-6" rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total
SUB TOTAL FOR SURFACING	12	560	6,838		1,446	8,856

$49,073

SPECIAL PROJECTS

Description	Cost
Energy Dissipator Placement @ $2.00cy x 12cy	$24.00

SUB TOTAL FOR SPECIAL PROJECTS $24

GRAND TOTAL IMPROVEMENT [ ] CONSTRUCTION $102,668 **$102,668**

Compiled By:

Compiled By: Ty Williams Date: 4/4/02

x:\timbermgmt\jewell\timbersales\2002\nettlemeyercombination\saleprep\salereports\projects\nettlemeyerprojectsummaries.xls

CRUSHED ROCK COST

SALE NAME: Nettle Meyer Combination
PROJECT: New Construction
QUARRY: Green Mt. No. 2
ROCK TYPE: Crushed
DATE: 2/26/02
BY: T. Williams

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 40 MPH	35 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1A-1B	32.30	2,624			2	1.50	0.89	0.10	0.10	4.59
1C-1D	12.15	675			2	1.50	0.63	0.10	0.10	4.33
1E-1F	13.35	1,083			2	1.50	0.92	0.10	0.10	4.62
1G-1H	11.00	626			2	1.50	0.96	0.10	0.10	4.66
1I-1J	13.10	87			2	1.50	0.83	0.10	0.10	4.53
2A-2B	1.10	97			3	1.36	1.36	0.34	0.34	6.80
2C-2D	13.70	795			3	1.36	1.36	0.34	0.34	6.80
2E-2F	11.80	741			3	1.28	1.28	0.32	0.32	6.40
2G-2H	12.50	691			3	1.25	1.25	0.32	0.31	6.26
2I-2J	6.85	442			3	1.25	1.25	0.31	0.31	6.23
2K-2L	4.60	272			3	1.18	1.18	0.29	0.28	5.93
2M-2N	1.50	105			3	1.18	1.18	0.28	0.27	5.91
2O-2P	12.30	725			3	1.17	1.17	0.30	0.29	5.87
2Q-2R	4.00	242			3	1.08	1.08	0.28	0.27	5.42
2S-2T	14.30	1,006			2	0.98	0.98	0.26	0.25	4.94
2U-2V	19.50	1,129			3	1.00	1.00	0.26	0.25	5.01
4A-4B	11.90	807			2	0.70	0.70	0.16	0.16	3.45
5A-5B	30.75	2,075			2	0.73	0.73	0.18	0.17	3.63
5C-5D	3.65	237			2	0.74	0.74	0.18	0.18	3.69
5E-5F	2.65	187			2	0.77	0.77	0.22	0.21	3.87
6A-6B	57.00	3,688			2	0.72	0.72	0.19	0.19	3.62
6C-6D	2.85	281			2	0.62	0.31	0.15	0.12	3.10
6E-6F	25.20	1,807			2	0.75	0.75	0.19	0.18	3.77
8A-8B	32.50	2,561			2	0.50	0.36	0.13	0.13	2.62
TOTAL	350.55	22,983								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**2.12**	**0.99**	**0.83**	**0.19**	**0.19**	**4.32**
								Average Round Trip Distance (miles)	8.64	

ROCK HAUL:

Truck type D20 No. trucks: 3
Delay min. 12 Efficiency: 90%

Truck type D12 No. trucks: 4
Delay min. 6 Efficiency: 90%

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

Ave haul: $2.77 /cy
Load: $0.40 /cy
Spread: $0.65 /cy

Production: cy/day = 1,236

CRUSHED ROCK HAUL COSTS 22,983 cy @ **$3.82 /cy**

PIT RUN ROCK COST

SALE NAME: Nettle Meyer Combination
PROJECT: New Construction
QUARRY: Green Mt. No. 2

ROCK TYPE: Pit Run

DATE: 2/26/02
BY: T. Williams

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 40 MPH	35 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1A-1B	32.30				2	1.50	0.89	0.10	0.10	4.59
1C-1D	12.15	80			2	1.50	0.63	0.10	0.10	4.33
1E-1F	13.35				2	1.50	0.92	0.10	0.10	4.62
1G-1H	11.00	80			2	1.50	0.96	0.10	0.10	4.66
1I-1J	13.10				2	1.50	0.83	0.10	0.10	4.53
2A-2B	1.10	80			3	1.36	1.36	0.34	0.34	6.80
2C-2D	13.70	80			3	1.36	1.36	0.34	0.34	6.80
2E-2F	11.80				3	1.28	1.28	0.32	0.32	6.40
2G-2H	12.50	80			3	1.25	1.25	0.32	0.31	6.26
2I-2J	6.85	80			3	1.25	1.25	0.31	0.31	6.23
2K-2L	4.60	80			3	1.18	1.18	0.29	0.28	5.93
2M-2N	1.50	80			3	1.18	1.18	0.28	0.27	5.91
2O-2P	12.30	80			3	1.17	1.17	0.30	0.29	5.87
2Q-2R	4.00	80			3	1.08	1.08	0.28	0.27	5.42
2S-2T	14.30	80			2	0.98	0.98	0.26	0.25	4.94
2U-2V	19.50	80			3	1.00	1.00	0.26	0.25	5.01
4A-4B	11.90	80			2	0.70	0.70	0.16	0.16	3.45
5A-5B	30.75	80			2	0.73	0.73	0.18	0.17	3.63
5C-5D	3.65	80			2	0.74	0.74	0.18	0.18	3.69
5E-5F	2.65	80			2	0.77	0.77	0.22	0.21	3.87
6A-6B	57.00	160			2	0.72	0.72	0.19	0.19	3.62
6E-6F	25.20	160			2	0.75	0.75	0.19	0.18	3.77
TOTAL		1,600								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**2.25**	**0.97**	**0.90**	**0.22**	**0.21**	**4.54**
								Average Round Trip Distance (miles)	9.08	

ROCK HAUL:

Truck type D20 No. trucks: 3
Delay min. 12 Efficiency: 90%

Truck type D12 No. trucks: 4
Delay min. 6 Efficiency: 90%

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

Ave haul: $2.92 /cy
Load: $0.40 /cy
Spread: $0.65 /cy

Production: cy/day = 1,176

PIT RUN ROCK HAUL COSTS 1,600 cy @ **$3.97 /cy**

RIP RAP ROCK COST

SALE NAME: Nettle Meyer Combination
PROJECT: New Construction
QUARRY: Green Mt. No. 2

ROCK TYPE: Rip Rap

DATE: 2/26/02
BY: T. Williams

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 40 MPH	35 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1A-1B	32.30				2	1.50	0.89	0.10	0.10	4.59
1C-1D	12.15				2	1.50	0.63	0.10	0.10	4.33
1E-1F	13.35				2	1.50	0.92	0.10	0.10	4.62
1G-1H	11.00				2	1.50	0.96	0.10	0.10	4.66
1I-1J	13.10				2	1.50	0.83	0.10	0.10	4.53
2A-2B	1.10				3	1.36	1.36	0.34	0.34	6.80
2C-2D	13.70				3	1.36	1.36	0.34	0.34	6.80
2E-2F	11.80				3	1.28	1.28	0.32	0.32	6.40
2G-2H	12.50				3	1.25	1.25	0.32	0.31	6.26
2I-2J	6.85				3	1.25	1.25	0.31	0.31	6.23
2K-2L	4.60				3	1.18	1.18	0.29	0.28	5.93
2M-2N	1.50				3	1.18	1.18	0.28	0.27	5.91
2O-2P	12.30				3	1.17	1.17	0.30	0.29	5.87
2Q-2R	4.00				3	1.08	1.08	0.28	0.27	5.42
2S-2T	14.30				2	0.98	0.98	0.26	0.25	4.94
2U-2V	19.50				3	1.00	1.00	0.26	0.25	5.01
4A-4B	11.90	12			2	0.70	0.70	0.16	0.16	3.45
5A-5B	30.75	12			2	0.73	0.73	0.18	0.17	3.63
5C-5D	3.65				2	0.74	0.74	0.18	0.18	3.69
5E-5F	2.65				2	0.77	0.77	0.22	0.21	3.87
6A-6B	57.00				2	0.72	0.72	0.19	0.19	3.62
6C-6D	2.85				2	0.62	0.31	0.15	0.12	3.10
6E-6F	25.20				2	0.75	0.75	0.19	0.18	3.77
8A-8B	32.50				2	0.50	0.36	0.13	0.13	2.62
TOTAL	57.70	24								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**1.78**	**0.72**	**0.72**	**0.17**	**0.17**	**3.54**
								Average Round Trip Distance (miles)	7.08	

ROCK HAUL:

Truck type D12 No. trucks: 1
Delay min. 12 Efficiency: 90%

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

Ave haul: $3.11 /cy
Load: $4.50 /cy
Develop: _____ /cy

Production: cy/day = 146

RIP RAP ROCK HAUL COSTS 24 cy @ **$7.61 /cy**

SUMMARY OF CONSTRUCTION COSTS

Project No. 1

SALE NAME: Nettle Meyer Combination
ROAD: Military Road
POINTS: I1 to I2, I2 to I3

NEW CONSTRUCTION: _____ STATIONS _____ MILES
IMPROVEMENT: 394.81 STATIONS 7.48 MILES

CLEARING & GRUBBING

Method	Amount	x	Rate	=	Cost
		x		=	
	-	x		=	
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
		x		=	
		x		=	
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR EXCAVATION

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
I1-I2 14+41	18" CSP	40	$15.90	$636.00					
I1-I2 24+64	18" CSP	40	$15.90	$636.00					
I1-I2 39+43	18" CSP	32	$15.90	$508.80					
I1-I2 134+99	18" CSP	44	$15.90	$699.60					
I1-I2 185+33	18" CSP	42	$15.90	$667.80					
I1-I2 221+65	18" CSP	32	$15.90	$572.40					
I2-I3 31+68	18" CSP	36	$15.90	$572.40					
I2-I3 38+95*	24" CSP	50	See special project cost						
I2-I3 46+72	18" CSP	32	$15.90	$508.80					
I2-I3 61+75	18" CSP	34	$15.90	$540.60					
I2-I3 72+54	18" CSP	32	$15.90	$508.80					
I2-I3 82+39	18" CSP	32	$15.90	$508.80					
I2-I3 133+13	18" CSP	32	$15.90	$508.80					
I2-I3 154+51	18" CSP	32	$15.90	$508.80					
I2-I3 161+20	18" CSP	32	$15.90	$508.80					

* Indicates no culvert marker needed.

	Description	Quantity	Rate	Cost
Other/miscellaneous:	1:1 Beveled culvert inlet @ 38+95 of I2-I3	1	$25.00	$25.00
Culvert stakes & markers:	6 foot long carsonite markers for existing and replaced cross drain culverts (includes installation cost).	37	$14.10	$521.70

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $8,433

ROCKING

Subgrade prep:

Description	Stations/amount	x	Rate/sta/amt	Cost
Grade existing rocked road	394.81	x	$15.20	$6,001.11
Roll and compact existing road	394.81	x	$12.50	$4,935.13
		x		
		x		

Surfacing rock:

	Size/type	Vol/sta	Stations	Tot. cy	Rate/cy	Cost
I1-I2	1 1/2"-0"	19	223.16	4,240	$3.00	$12,720.12
I2-I3	4"-0"	29	92.24	2,675	$3.88	$10,378.84
I2-I3	1 1/2"-0"	19	171.65	3,261	$3.00	$9,784.05

Turnouts:

	Size/type	Vol/to	No. to	Tot. cy	Rate/cy	Cost
I1-I2	1 1/2"-0"	8	28	224	$3.00	$672.00
I2-I3	4"-0"	12	10	120	$3.88	$465.60
I2-I3	1 1/2"-0"	8	19	152	$3.00	$456.00

Junctions:

	Size/type	Vol/jct.	No. jct.	Tot. cy	Rate/cy	Cost
I1-I2	1 1/2"-0"	19	7	133	$3.00	$399.00
I2-I3	4"-0"	29	4	116	$3.88	$450.08
I2-I3	1 1/2"-0"	19	6	114	$3.00	$342.00

	Description	Size/type	Cy	Rate/cy	Cost
I1-I2	Subgrade leveling	1 1/2"-0"	600	$3.00	$1,800.00
I2-I3	Subgrade leveling	1 1/2"-0"	500	$3.00	$1,500.00
I2-I3	Subgrade leveling	4"-0"	300	$3.88	$1,164.00
I1-I2	Culvert bedding/backfill	1 1/2"-0"	150	$3.00	$450.00
I2-I3	Culvert bedding/backfill	1 1/2"-0"	280	$3.00	$840.00
I2-I3	Base course restoration	4"-0"	30	$3.88	$116.40
I2-I3	Surface course restoration	1 1/2"-0"	24	$3.00	$72.00
I1-I2	Energy Dissipator/Fill Armor	24"-6"	30	$3.96	$118.80
I2-I3	Energy Dissipator/Fill Armor	24"-6"	42	$3.96	$166.32

Processing:

Description	Sta	Rate/Sta	Cost
Grade, Water, Compaction	487.05	$37.00	$18,020.85

	24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total	
SUB TOTAL FOR SURFACING	72		3,241	9,678		12,991	$64,910

SPECIAL PROJECTS

Description	Cost
Disposal of (8) culverts replaced and hauled to Astoria	$627.00
Dig ditch in segment I2-I3 at Sta. 72+54	$260.00
Repair culvert and catch basin in seg I2-I3 at sta. 145+75	$76.00
Culvert installation @ 38+95 of I2 to I3 (includes culvert cost)	$2,267.00
Energy Dissipator Placement @ $2.00cy x 72cy	$144.00

SUB TOTAL FOR SPECIAL PROJECTS $3,374

GRAND TOTAL **$76,717**

Compiled By: Mellison Date: 4/4/02

Nettie Meyer Combination

Project No. 1
Segment I2-I3

Location/Description	Excavator	Tamper	Grader	D12	Labor	Material	Total
Culvert Installation Sta. 38+95	8 hr	4 hr	0.5 hr	4 hr	8 hr	50 ft	
			hr				
	hr	hr	hr		hr		
	hr	hr	hr		hr		
	hr		hr		hr		
	hr		hr		hr		
	hr	hr	hr		hr		
	hr		hr		hr		
				hr			
Total	8 hr	4 hr	0.5 hr	4 hr	8 hr	50 ft	
Rate	$130 /hr	$6 /hr	$80 /hr	$57 /hr	$25 /hr	$14.70 /ft	
Cost	$1,040	$24	$40	$228	$200	$735	$2,267

D.M 4/4/02

CRUSHED ROCK COST

SALE NAME: Nettle Meyer Combination
PROJECT: Military Road improvement
QUARRY: Green Mt. No. 2

ROCK TYPE: 1 1/2"-0"

DATE: 3/19/02
BY: Mellison

		Cubic Yards							
Segment	Stations	Base	Running	Turnout	Turnaroun	Junction	Culv. Bed.	Misc	Total
I1-I2-I3	394.81		7,501	376		247	430	1,124	9,678
Grand Total	394.81		7,501	376		247	430	1,124	9,678

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I1-I2-I3	394.81	9,678			3	1.09		0.10	0.05	4.24
TOTAL	394.81	9,678								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**3.00**	**1.09**		**0.10**	**0.05**	**4.24**
							Average Round Trip Distance (miles)		8.48	

ROCK HAUL:

Truck type D20 No. trucks: 4
Delay min. 9 Efficiency: 90%

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

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

Ave haul: $1.95 /cy
Load: $0.40 /cy
Spread: $0.65 /cy

Production: cy/day = 1,099

CRUSHED ROCK HAUL COSTS 9,678 cy @ **$3.00 /cy**

CRUSHED ROCK COST

SALE NAME: Nettle Meyer Combination
PROJECT: Military Road improvement
QUARRY: Green Mt. No. 2
ROCK TYPE: 4"-0"
DATE: 1/24/02
BY: Mellison

		Cubic Yards							
Segment	Stations	Base	Running	Turnout	Turnaroun	Junction		Misc	Total
I2 to I3	92.24		2,675	120		116		330	3,241
Grand Total	92.24		2,675	120		116		330	3,241

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I2 to I3	92.24	3,241			4	2.95		0.10	0.05	7.10
TOTAL	92.24	3,241								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					4.00	2.95		0.10	0.05	7.10
							Average Round Trip Distance (miles)			14.20

ROCK HAUL:

Truck type D20 No. trucks: 6
Delay min. 7 Efficiency: 90%

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

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

Ave haul: $2.83 /cy
Load: $0.40 /cy
Spread: $0.65 /cy

Production: cy/day = 1,136

CRUSHED ROCK HAUL COSTS 3,241 cy @ **$3.88 /cy**

RIP RAP ROCK COST

SALE NAME: Nettle Meyer Combination
PROJECT: Military Road Improvement
QUARRY: Green Mountain No. 2

ROCK TYPE: Rip Rap

DATE: 3/19.02
BY: Mellison

		Cubic Yards							
Segment	Stations	Dissapator	Armor					Misc	Total
I1-I2-I3	394.81								
	14.41		10						10
	24.64		10						10
	134.99		10						10
	31.68		10						10
	38.95		32						32
Grand Total	639.48		72						72

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I1-I2-I3	394.81									
	14.41	10				0.45	0.05	0.05	0.05	0.60
	24.64	10				0.58	0.05	0.05	0.05	0.73
	134.99	10			1	1.00	0.05	0.05	0.05	1.78
	31.68	10			1	1.38	0.05	0.05	0.05	2.91
	38.95	32			1	1.40	0.05	0.05	0.05	2.98
TOTAL	639.48	72								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					0.91	1.10	0.05	0.05	0.05	2.16
									Average Round Trip Distance (miles)	4.32

ROCK HAUL:

Truck type D12 No. trucks: 1
Delay min. 7 Efficiency: 90%

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

Ave haul: $1.71 /cy
Load: $2.25 /cy
Develop: /cy

Production: cy/day = 266

RIP RAP ROCK HAUL COSTS 72 cy @ **$3.96 /cy**

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Nettle Meyer Combination
ROAD: I4-I5(13.4),I7-I8(37.5),I9-I10(15.3)

NEW CONSTRUCTION: _____ STATIONS _____ MILES
IMPROVEMENT: 66.20 STATIONS 1.25 MILES

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING

EXCAVATION

	Material	Cy/amount	x	Rate	=	Cost
I9-I10 Sta. 15+00	Construct Turnaround (REG STD) ($/STA)	0.50	x	$117.00	=	$58.50
	Waste Ditch Material($/STA)	66.20		$7.50		$496.50
Pt. I5	Clear Existing Landing($/HR)	1.50	x	$130.00	=	$195.00
			x		=	

SUB TOTAL FOR EXCAVATION $750

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
I9 - I10 7+40	18" CMP	40	$15.90	$636.00			

Other/miscellaneous:	Description	Quantity	Rate	Cost
Culvert stakes & markers:	6 foot long carsonite markers for existing and replaced cross drain culverts (includes installation cost).	5	$14.10	$70.50

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $707

SURFACING

Subgrade prep:

Description	Stations/amount	x	Rate/sta/amt	Cost
Grade, add leveling rock, Shape, and	66.20	x	$27.70	$1,833.74
Compact - I4-I5, I7-I8, I9-I10		x		
		x		

Surfacing rock:

	Size/type	Vol/sta	Stations	Tot. cy	Rate/cy	Cost
I4-I5(6")	1 1/2"-0"	38	13.40	509	$3.35	$1,705.82
I7-I8(4")	1 1/2"-0"	25	37.50	938	$3.35	$3,140.63
I9-I10(4")	1 1/2"-0"	25	15.30	383	$3.35	$1,281.38

Turnouts:

	Size/type	Vol/to	No. to	Tot. cy	Rate/cy	Cost
I4-I5	1 1/2"-0"	17	1	17	$3.35	$56.95
I7-I8	1 1/2"-0"	11	5	55	$3.35	$184.25
I9-I10	1 1/2"-0"	11	3	33	$3.35	$110.55

Junctions:

	Size/type	Vol/jct.	No. jct.	Tot. cy	Rate/cy	Cost
I4-I5	1 1/2"-0"	30	1	30	$3.35	$100.50
I7-I8	1 1/2"-0"	30	1	30	$3.35	$100.50
I9-I10	1 1/2"-0"	30	1	30	$3.35	$100.50

Other/misc:

	Description	Size/type	Cy	Rate/cy	Cost
I4-I5	Subgrade Leveling	1 1/2"-0"	70	$3.35	$234.50
I7-I8	Subgrade Leveling	1 1/2"-0"	150	$3.35	$502.50
I9-I10	Subgrade Leveling -	1 1/2"-0"	70	$3.35	$234.50
I9-I10	Culvert Backfill /Bedding	1 1/2"-0"	20	$3.35	$67.00
I9-I10	Culvert Base Restoration	4"-0"	10	$3.35	$33.50
I4-I5	Turn Around	4"-0"	24	$3.35	$80.40
I7-I8	Turn Around	4"-0"	24	$3.35	$80.40
I9-I10	Turn Around	4"-0"	24	$3.35	$80.40
I5	Landing Rock 1x80cy	6"-0"	80	$6.89	$551.20

Processing:

Description	No.sta	Rate/sta	Cost
Water, Process & Compact Crushed Rock	66.20	$37.00	$2,449.40

	24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total
SUB TOTAL FOR SURFACING		80	82	2,334		2,496

$12,929

SPECIAL PROJECTS

Description	Cost

SUB TOTAL FOR SPECIAL PROJECTS

GRAND TOTAL	IMPROVEMENT	$14,385	CONSTRUCTION		$14,385

Compiled By: Ty Williams

Date: 4/3/02

x:\timbermgmt\jewell\timbersales\2002\nettlemeyercombination\saleprep\salereports\projects\nettlemeyerprojectsummaries.xls

CRUSHED ROCK COST

SALE NAME: Nettle Meyer Combination
PROJECT: No. 1
QUARRY: Buster Quarry/Stockpile Site

ROCK TYPE: Crushed

DATE: 3/6/02
BY: T. Williams

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
I4 to I5	13.40	650			2	1.00	0.46	0.22	0.22	3.90
I7 to I8	37.50	1,197			2	1.00	0.39	0.18	0.18	3.75
I9 to I10	15.30	560			2	1.00	0.27	0.13	0.13	3.53
2W to 2X	2.40	150			2	1.50	0.35	0.17	0.17	4.19
TOTAL	68.60 STA./NO.	2,557 CU. YD.								
CUBIC YARD WEIGHTED HAUL					2.00	1.03	0.38	0.18	0.18	AVERAGE HAUL 3.77

Average Round Trip Distance (miles) 7.53

ROCK HAUL:

Truck type	D20	No. trucks:	3
Delay min.	10	Efficiency:	90%
Truck type	D12	No. trucks:	2
Delay min.	6	Efficiency:	90%
Truck type	D10	No. trucks:	
Delay min.	10	Efficiency:	75%

Ave haul: $2.30 /cy
Load: $0.40 /cy
Spread: $0.65 /cy

Production: cy/day = 1,095

CRUSHED ROCK HAUL COSTS 2,557 cy @ **$3.35 /cy**

SUMMARY OF CONSTRUCTION COSTS

PROJECT NO. 2

SALE NAME: Nettle Meyer Combination
ROAD: Buster Creek Road
POINTS: I6 to I6A, I6A to I6B

NEW CONSTRUCTION: _____ STATIONS _____ MILES
IMPROVEMENT: 291.65 STATIONS 5.52 MILES

CLEARING & GRUBBING (sta 86+91 to 88+33)

Method	Amount	x	Rate	=	Cost
Clear/Grub & haul to waste area	0.03	x	$18,700.00	=	$561.00
		x		=	
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING $561

EXCAVATION (Sta 86+91 to 88+33)

Material	Cy/amount	x	Rate	=	Cost
D&S, Exc, Load & Haul to WA	603.00	x	$6.25	=	$3,768.75
Dress up & Seed/Mulch WA		x		=	$617.00
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR EXCAVATION $4,386

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
I6A-I6B 0+50	18" CSP	32	$15.90	$508.80					
I6A-I6B 46+79*	48" CSP	42	See special project cost						
I6A-I6B 62+63	18" CSP	36	$15.90	$572.40					
I6A-I6B 75+09	18" CSP	32	$15.90	$508.80					
I6A-I6B 92+80	18" CSP	60	$15.90	$954.00					
I6A-I6B 97+97	18" CSP	40	$15.90	$636.00					
I6A-I6B 135+90	18" CSP	34	$15.90	$540.60					
I6A-I6B 142+85	18" CSP	40	$15.90	$636.00					
I6A-I6B 174+84	18" CSP	36	$15.90	$572.40					
I6A-I6B 200+19*	30" CSP	54	See special project cost						
I6A-I6B 205+03*	24" CSP	40	See special project cost						
I6A-I6B 213+79*	18" CSP	42	See special project cost						
I6A-I6B 217+22*	81"x59"	82	See Type Fspecial project cost						
I6A-I6B 232+79	18" CSP	32	$15.90	$508.80					
I6A-I6B 236+08	18" CSP	32	$15.90	$508.80					
I6A-I6B 246+16	18" CSP	32	$15.90	$508.80					
I6A-I6B 262+63	24" CSP	40	$25.10	$1,004.00					

* Indicates no culvert marker needed.

	Description	Quantity	Rate	Cost
Other/miscellaneous:	1:1 Beveled culvert inlet @ 38+95 of I2-I3	4	$25.00	$100.00
Culvert stakes & markers:	6 foot long carsonite markers for existing and replaced cross drain culverts (includes installation cost).	42	$14.10	$592.20

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $8,152

ROCKING

Subgrade prep:

Description	Stations/amount	x	Rate/sta/amt	Cost
Grade existing rocked road	291.65	x	$15.20	$4,433.08
Roll and compact existing road	291.65	x	$12.50	$3,645.63
		x		
		x		

Surfacing rock:

	Size/type	Vol/sta	Stations	Tot. cy	Rate/cy	Cost
I6A-I6B	3/4"-0"	25	59.81	1,495	$1.68	$2,512.02

Turnouts:

	Size/type	Vol/to	No. to	Tot. cy	Rate/cy	Cost
I6A-I6B	3/4"-0"	8	10	80	$1.68	$134.40

Junctions:

	Size/type	Vol/jct.	No. jct.	Tot. cy	Rate/cy	Cost
I6A-I6B	1 1/2"-0"	19	3	57	$4.07	$231.99

	Description	Size/type	Cy	Rate/cy	Cost
I6A-I6B	Subgrade leveling	3/4"-0"	1,000	$1.68	$1,680.00
I6A-I6B	Culvert bedding/backfill	1 1/2"-0"	430	$4.07	$1,750.10
I6A-I6B	Culvert bedding/backfill	6"-0"	30	$6.95	$208.50
I6A-I6B	Base course restoration	4"-0"	352	$2.10	$739.20
I6A-I6B	Surface course restoration	3/4"-0"	123	$1.68	$206.64
I6A-I6B	Surface course restoration	1 1/2"-0"	72	$4.07	$293.04
I6A-I6B	Energy Dissipator/Fill Armor	24"-6"	342	$6.88	$2,352.96
I6A-I6B	Settling Ponds/Ditch Armor	4"-0"	36	$2.10	$75.60

Processing:

Description	Sta	Rate/Sta	Cost
Grade, Water, Compaction	59.81	$37.00	$2,212.97

	24"-6"m	6"-0"pr	4"-0"	1 1/2"-0"	3/4"-0"	Total	
SUB TOTAL FOR SURFACING	342	30	388	559	2,698	4,017	$16,243

SPECIAL PROJECTS

Description	Cost
Disposal of (16) culverts, haul to Astoria	$1,019.50
Repair hole in road @ Sta. 140+80	$317.00
Fill reconstruction costs for Sta. 46+79, 200+19, 205+03, 213+79 (includes culvert cost)	$8,599.00
Sta. 217+22 Type F culvert installation	$22,787.46
Releave cut slope stress at Sta. 166+69	$303.50
Energy Dissipator & Fill Armor Placement @ $2.00cy x 342cy	$684.00

SUB TOTAL FOR SPECIAL PROJECTS $33,710

GRAND TOTAL **$63,052**

Compiled By: Mellison Date: 4/4/02

Nettle Meyer Combination

Project No. 2
Segment I6A to I6B

Location/Description	Excavator	Tamper	Grader	D12	Labor	Material	Total
Culvert Installation Sta. 46+79 48" Culvert	8 hr	4 hr	0.5 hr	4 hr	8 hr	42 ft $37.50 /ft	$3,107
Culvert Installation Sta. 200+19 30" Culvert	9 hr	5 hr	0.5 hr	2 hr	9 hr	54 ft $23.50 /ft	$2,848
Culvert Installation Sta. 205+03 24" Culvert	6 hr	3 hr	0.5 hr	1.5 hr	6 hr	40 ft $14.70 /ft	$1,662
Culvert Installation Sta. 213+79 18" Culvert	3 hr	2 hr	0.25 hr	1 hr	3 hr	42 ft $10.20 /ft	$982
	hr		hr		hr		
	hr		hr		hr		
	hr		hr		hr		
	hr	hr	hr		hr		
	hr		hr		hr		
	hr						
Total	26 hr	14 hr	1.75 hr	8.5 hr	26 hr	ft	
Rate 48" Culvert 30" Culvert 24" Culvert 18" Culvert	$130 /h	$6 /hr	$80 /hr	$57 /h	$25 /hr	 $37.50 /ft $23.50 /ft $14.70 /ft $10.20 /ft	
Cost	$3,380	$84	$140	$485	$650		$8,599

D.M 4/4/02

CRUSHED ROCK COST

SALE NAME: Nettle Meyer Combination
PROJECT: Buster Ck. Road improvement
QUARRY: Buster Creek
ROCK TYPE: 3/4"-0"
DATE: 4/4/02
BY: Mellison

		Cubic Yards							
Segment	Stations	Base	Running	Turnout	Turnaroun	Junction		Misc	Total
I6A to I6B	33.85		846	32					878
I6A to I6B	1.42								
I6A to I6B	0.25		12						12
I6A to I6B	25.96		649	48					697
I6A to I6B	1.00		61						61
I6A to I6B	217.22		50						50
I6A to I6B	60.00							296	296
I6A to I6B	77.00							379	379
I6A to I6B	22.00							108	108
I6A to I6B	23.00							113	113
I6A to I6B	21.00							104	104
Grand Total	482.70		1,618	80				1,000	2,698

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I6A to I6B	33.85	878			1	0.65		0.10	0.05	1.45
I6A to I6B	1.42								0.03	0.03
I6A to I6B	0.25	12			0	0.37		0.10	0.05	0.89
I6A to I6B	25.96	697			1	0.73		0.10	0.05	1.61
I6A to I6B	1.00	61			1	1.09		0.10	0.05	2.33
I6A to I6B	217.22	50			1	1.00		0.10	0.05	2.24
I6A to I6B	60.00	296			0	0.21		0.10	0.05	0.57
I6A to I6B	77.00	379			0	0.26		0.10	0.05	0.68
I6A to I6B	22.00	108			1	0.91		0.10	0.05	2.06
I6A to I6B	23.00	113			1	1.23		0.10	0.05	2.61
I6A to I6B	21.00	104			2	1.55		0.10	0.05	3.26
TOTAL	482.70	2,698								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**0.66**	**0.65**		**0.10**	**0.05**	**1.46**
							Average Round Trip Distance (miles)			2.92

ROCK HAUL:

Truck type D20 No. trucks: 3
Delay min. 8 Efficiency: 90%

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

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

Ave haul: $1.03 /cy
Load: $0.25 /cy
Spread: $0.40 /cy

Production: cy/day = 1,554

CRUSHED ROCK HAUL COSTS 2,698 cy @ **$1.68 /cy**

CRUSHED ROCK COST

SALE NAME: Nettle Meyer Combination
PROJECT: Buster Ck. Road improvement
QUARRY: Buster Creek
ROCK TYPE: 1 1/2"-0"
DATE: 3/19/02
BY: Mellison

		Cubic Yards							
Segment	Stations	Base	Running	Turnout	Turnaroun	Junction		Misc	Total
I6A to I6B	274.28		72			57		430	559
I6A to I6B									
I6A to I6B									
I6A to I6B									
I6A to I6B									
I6A to I6B									
I6A to I6B									
I6A to I6B									
I6A to I6B									
I6A to I6B									
I6A to I6B									
Grand Total	274.28		72			57		430	559

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
I6A to I6B	274.28	559			1	0.70		0.10	0.05	1.55
I6A to I6B										
I6A to I6B										
I6A to I6B										
I6A to I6B										
I6A to I6B										
I6A to I6B										
I6A to I6B										
I6A to I6B										
I6A to I6B										
I6A to I6B										
TOTAL	274.28	559								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**0.70**	**0.70**		**0.10**	**0.05**	**1.55**
							Average Round Trip Distance (miles)		3.10	

ROCK HAUL:

Truck type D20 No. trucks:
Delay min. 2 Efficiency: 95%

Truck type D12 No. trucks: 1
Delay min. 5 Efficiency: 90%

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

Ave haul: $1.27 /cy
Load: $1.20 /cy
Spread: $1.60 /cy

Production: cy/day = 358

CRUSHED ROCK HAUL COSTS 559 cy @ **$4.07 /cy**

CRUSHED ROCK COST

SALE NAME: Nettle Meyer Combination
PROJECT: Buster Ck. Road improvement
QUARRY: Buster Creek
ROCK TYPE: 4"-0"
DATE: 3/19/02
BY: Mellison

		Cubic Yards							
Segment	Stations	Base	Running	Turnout	Turnaroun	Junction		Misc	Total
I6A to I6B	1.42	138							138
I6A to I6B	46+79							60	60
I6A to I6B	200+19							60	60
I6A to I6B	205+03							30	30
I6A to I6B	217+12							100	100
I6A to I6B									
I6A to I6B									
I6A to I6B									
I6A to I6B									
I6A to I6B									
I6A to I6B									
Grand Total	1.42	138						250	388

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
I6A to I6B	1.42	138							0.05	0.05
I6A to I6B	46+79	60			0	0.33	0.05	0.05	0.05	0.81
I6A to I6B	200+19	60			1	0.93	0.05	0.05	0.05	2.02
I6A to I6B	205+03	30			1	0.93	0.05	0.05	0.05	2.02
I6A to I6B	217+12	100			1	1.00		0.10	0.05	2.24
I6A to I6B										
I6A to I6B										
I6A to I6B										
I6A to I6B										
I6A to I6B										
TOTAL	1.42	388								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**0.55**	**0.52**	**0.02**	**0.05**	**0.05**	**1.19**
								Average Round Trip Distance (miles)		2.38

ROCK HAUL:

Truck type D20 No. trucks: 1
Delay min. 4 Efficiency: 90%

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

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

Ave haul: $0.70 /cy
Load: $0.50 /cy
Spread: $0.90 /cy

Production: cy/day = 765

CRUSHED ROCK HAUL COSTS 388 cy @ **$2.10 /cy**

PIT RUN ROCK COST

SALE NAME: Nettle Meyer Combination
PROJECT: No. 3
QUARRY: Buster Creek
ROCK TYPE: Pit Run
DATE: 3/19/02
BY: Mellison

		Cubic Yards							
Segment	Stations	Base	Landing	Turnout	Turnaroun	Junction		Misc	Total
I4 to I5	13.40		80						80
2W to 2X	2.40		80						80
I6A to I6B	217+12							30	30
Grand Total	15.80		160					30	190

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES 50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
I4 to I5	13.40	80			2	1.00	0.46	0.22	0.22	3.90
2W to 2X	2.40	80			2	1.50	0.35	0.17	0.17	4.19
I6A to I6B	217+12	30			1	1.00		0.10	0.05	2.24
TOTAL	15.80	190								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**1.86**	**1.21**	**0.34**	**0.18**	**0.17**	**3.76**
						Average Round Trip Distance (miles)			7.52	

ROCK HAUL:

Truck type D20 No. trucks: 1
Delay min. 12 Efficiency: 75%

Truck type D12 No. trucks:
Delay min. 10 Efficiency: 75%

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

Ave haul: $2.55 /cy
Load: $1.80 /cy
Spread: $2.60 /cy

Production: cy/day = 210

PIT RUN ROCK HAUL COSTS 190 cy @ **$6.95 /cy**

RIP RAP ROCK COST

SALE NAME: Nettle Meyer Combination
PROJECT: No. 3
QUARRY: Buster Creek
ROCK TYPE: Rip Rap
DATE: 3/19/02
BY: Mellison

		Cubic Yards							
Segment	Stations	Dissapator	Armor					Misc	Total
I6A-I6B	46.79		24						24
	62.63		24						24
	68.43		24						24
	75.09		24						24
	97.97		10						10
	142.85		10						10
	174.84		10						10
sta 200.19 &	205.03		54						54
	217+22		100						100
	225.44		10						10
	246.16		10						10
	262.63		10						10
Grand Total			310						310

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I6A-I6B	46.79	24			0	0.33	0.05	0.05	0.05	0.81
	62.63	24			0	0.22	0.05	0.05	0.05	0.59
	68.43	24			0	0.15	0.05	0.05	0.05	0.46
	75.09	24			0	0.10	0.05	0.05	0.05	0.35
	97.97	10							0.08	0.08
	142.85	10			0	0.40	0.05	0.05	0.05	0.95
	174.84	10			1	0.70	0.05	0.05	0.05	1.54
sta 200.19 &	205.03	54			1	0.93	0.05	0.05	0.05	2.02
	217+22	100			1	1.05	0.05	0.05	0.05	2.34
	225.44	10			1	1.18	0.05	0.05	0.05	2.52
	246.16	10			1	1.38	0.05	0.05	0.05	2.91
	262.63	10			2	1.50	0.05	0.05	0.05	3.22
TOTAL		310								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL					**0.76**	**0.73**	**0.05**	**0.05**	**0.05**	**1.64**
									Average Round Trip Distance (miles)	3.28

ROCK HAUL:

Truck type D12 No. trucks: 1
Delay min. 12 Efficiency: 75%

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

Ave haul: $2.03 /cy
Load: $2.25 /cy
Develop: $2.60 /cy

Production: cy/day = 224

RIP RAP ROCK HAUL COSTS 310 cy @ **$6.88 /cy**

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3 **Timber Sale Name: Nettle Meyer Combination**

Quarry: Green Mt #2 Swell:

Location: Sec 34 T5N R6W Shrink: 16%

County: Clatsop

By: Mellison

Date: 3/18/02

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	5%	CR	4,000	9,678	14,318
4"-0"		CR	5,300	23,135	29,283
6"-0"		PR		1,600	1,600
24"-6"		RR		96	96
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			9,300	34,509	**45,297**

1) MOBILIZATION & SET UP:

EQUIPMENT MOBILIZATION	DISTANCE IN MILES	DIST. FACTOR	BASE RATE	COST
3 Stage Crusher	75	1.40	$2,220	$3,108
Screening Plants (2)	75	1.40	$900	$1,260
D8 Cat	75	1.40	$560	$784
Loader (2)	75	1.40	$1,120	$1,568
Drill & Compressor	75	1.40	$1,080	$1,512
Powder	75	1.40	$270	$378
3 Dump Trucks	75	1.40	$402	$563
Rock Hammer	75	1.40	$225	$315
SUB TOTAL FOR MOBILIZATION				$9,488

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

TOTAL MOBILIZATION & SET UP COSTS **$12,843**

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear, Load, Haul to Waste Area				
Slash and Stumps (1 truck, 1 exc.)				
Pile & Burn Slash and Stumps(1 exc)				
Move-in Fire Truck for the burning of				
the Clearing Debris				

TOTAL CLEARING & GRUBBING COSTS

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load				
haul, spread)				

TOTAL EXCAVATION COSTS

4) DEVELOP ROCK

ROCK SUMMARY

Type	Cu. yd. Vol.	Weight
crushed	43,601	96%
pit run	1,600	4%
rip rap	96	0%
Total	45,297	
reject	716	1.6%

METHOD	%	QUANTITY	RATE	COST
Ripping	25%	11,324	$1.85	$20,950
Drill & shoot	75%	34,510	$1.90	$65,568
Oversize red	2%	904	$5.04	$4,556
Other				

TOTAL ROCK DEVELOPMENT COSTS **$91,075**

5) CALIBRATION & TESTING

DESCRIPTION	NO.	$/TEST	COST
Calibrate	2	$400	$800
Calibrate			
Test	19	$50	$950
Test			

TOTAL CALIBRATION & TESTING COSTS **$1,750**

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	44,317	$0.68	$30,135

TOTAL FEEDING & LOADING COSTS **$30,135**

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed		3 stage w/s			
1-1/2"-0"	crushed	14,318	3 stage w/s	120	$2.71	$38,778
4"-0"	crushed	29,283	2 stage	140	$1.71	$50,199
			2 stage			
			1 stage			
			2 stage			

TOTAL ROCK CRUSHING COSTS **$88,977**

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. Military Stockpile site	1-1/2"-0"	3	4,640	$2.39	$11,068
3. Green Mt. No. 1	4"-0"	1	6,148	$1.41	$8,646
4.					
5.					
6.					

SUB TOTAL $19,713

TOTAL STOCKPILING COSTS **$20,193**

9) MISCELLANEOUS COSTS

DESCRIPTION		COST
Load, Haul, and Spread the reject material at the waste area.		$1,045
$1.46	716 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage,		$1,400
Block Quarry Access		
TOTAL MISCELLANEOUS COSTS		**$2,445**

10) GRAND TOTAL: **$247,419**

$/Cubic Yard **$5.67**

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

Rock for Floor (CY)	$/CY Haul	Total

Total Construct Stockpile Floor $480.00

Nettle Meyer Combination **Project No. 4 Road Vacating**

Location/Description	C325 #1	C325 #2	D-7 CAT	Truck	Labor	Straw Mulch & Seed	Total
V1 to V2 Sta. 0+00 to 10+50 Waterbar/Block Road			1.5 hr				
V3 to V4 Sta. 0+00 to 41+30 Waterbar/Block Road			4 hr				
V3 to V4 STA. 11+40 to 12+00 Fill Removal [21' fill ht.] develop 4' stream channel.	32 hr	32 hr	8 hr		6.5 hr	49 bales/ Seed	
V3 to V4 STA. 15+50 to 16+10 Fill removal [16' fill ht.] develop 4' stream channel.	8 hr	8 hr	3 hr		2 hr	15 bales/ Seed	
V3 to V4 STA. 27+10 to 27+50 Fill removal [9' fill ht.] develop 4' stream channel.	4 hr		1 hr		1 hr	8 bales/ Seed	
V3 to V4 STA. 36+75 to 37+25 Sidelsope stabilization develop 4' stream channel.	4 hr		1 hr		1.5 hr	10 bales/ Seed	
V3 to V4 STA. 39+20 to 39+60 Fill removal [9.5' fill ht.] develop 4' stream channel.	4 hr		1 hr		1.5 hr	10 bales/ Seed	
V5 to V6 Sta. 2+10 Culvert / fill removal [15' fill ht.] develop 5' stream channel.	8 hr	8 hr	3 hr		2 hr	12 bales/ Seed	
V5 to V6 Sta. 3+20 Culvert / fill removal [7' fill ht.] develop 4' stream channel.	4 hr		1 hr		1 hr	6 bales/ Seed	
V5 to V6 0+00 to 5+80 Water bar/block road surface	1 hr						
V5 to V6 Haul old culverts to dump				6 hr			
Total	65 hr	48 hr	23.5 hr	6 hr	15.5 hr	110 bales/ Seed	
Rate	$115 /h	$115 /hr	$90 /hr	$50 /h	$25 /h	$5.00	
Cost	$7,475	$5,520	$2,115	$300	$388	$550	$16,348

***Cost for bales/seed includes bales of straw and grass seed @ 100 lbs/ac.** T. Williams 3/11/02
x:\timbermgmt\jewell\timbersales\2002\nettlemeyercombination\saleprep\salereports\projects\nettlemeyerprojectsummaries.xls

Road Maintenance Cost Summary
at Completion of Project Work

Sale: Nettle Meyer Combination
Date: 21-Mar-02
By: T. Williams

Nettle Creek (3.5 miles of road)

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost	
	Grader			20	$80	$1,600	
	Dump Truck			20	$67	$1,340	
	FE Loader			6	$90	$540	
Total							$3,480

x:\timbermgmt\jewell\timbersales\2002\nettlemeyercombination\saleprep\salereports\projects\roadmaintenanceafterprojectwork.xls

TIMBER CRUISE REPORT

NETTLE MEYER COMBINATION
FY 2002

1. **Sale Area Location:** Areas 1 - 10 R/W are located in portions of Sections 20, 21, 28, 29, 32, 33 and 34, T5N, R6W, and portions of Sections 4 and 5, T4N, R6W, W.M., Clatsop County, Oregon.

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

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	New R/W	Stream Buffer	Net Acres	Survey Method	Closure
1	RD30 Thinning	170	4	9	7	150	GIS	N/A
2	RD30 Thinning	566	18	10	28	510	GIS	N/A
3	RD35 Thinning	46	0	0	1	45	GIS	N/A
4	RD35 Thinning	122	2	1	8	111	GIS	N/A
5	RD35 Thinning	43	0	4	0	39	GIS	N/A
6	Clearcut	85	0	11	11	63	GIS	N/A
7	Clearcut	77	0	0	0	77	GIS	N/A
8	RD35 Thinning	114	0	3	9	102	GIS	N/A
9	Clearcut	71	0	1	0	70	GIS	N/A
10 R/W	New Roads					39	L X W	N/A
TOTALS		**1,294**	**24**	**39**	**64**	**1,206**		

4. **Cruisers and Cruise Dates:** Areas 1 – 10 R/W were cruised by Ty Williams, Diana Ison, Alan Kelso, Lanny Freeman, Dan Goody, David Wolfgram, and Jenny Laughman in February, 2002.

5. **Cruise Method and Computation:** AREAS 1 and 2 are "auto-mark" thinning units (RD 30), and were variable plot cruised using a 33.61 BAF. Cruise lines were located for efficiency, minimizing walking and "deadheading" between plots (*See Cruise Plan Map for detailed cruise plot locations*). A total of 65 plots were sampled, with 33 plots measured and graded, and 32 count plots. These plots were sampled 3½ chains apart. All "take" and "leave" trees were measured and graded.
AREAS 3, 4, 5, and 8 are "auto-mark" thinning units (RD 35), and were variable plot cruised using a 33.61 BAF. These plots are located on a 10 chain by 7½ chain grid. A total of 45 plots were sampled, with 23 plots measured and graded, and 22 count plots. All "take" and "leave" trees were measured and graded.
AREAS 6, 7, and 9 are clearcut units and were variable plot cruised using a 40 BAF for conifer and a 33.61 BAF for hardwoods. These plots are located on a 7 chain by 5 chain grid. A total of 67 plots were sampled, with 34 plots measured and graded, and 33 count plots.
AREA 10 R/W, in-sale Right-of Way, volume was calculated by multiplying R/W acreage and the total volume per acre from the plots in Areas 1 – 9.

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.

AREA	CRUISE	CRUISE TYPE
1 & 2	RD 30 Auto-mark Thinning	5N6W29SEC29TYPE:TK30
3, 4, 5 & 8	RD 35 Auto-mark Thinning	4N6WSEC5TYPE:TK35
6, 7 & 9	Clearcuts	4N6WSEC4TYPE:CCUT
10 R/W	In-Sale Right-of-way	4N6WSEC4TYPE:CCR, 4N6WSEC5TYPE:35RW, 5N6W29SEC29TYPE:30RW

6. **Timber Description:** Areas 1 and 2 are "auto-mark" thinning units, about 55 to 65 years old, consisting of mixed Douglas-fir and hemlock mixed conifer stands with small isolated clumps of hardwoods. These stands will be harvested to an RD of 30, with a target basal area of 140 ft², while removing approximately 96 trees per acre and 17.8 MBF/acre. The average "take" tree size is 15" DBH and 56 feet to a merchantable top (6" d.i.b.). Areas 3, 4, 5 and 8 are "auto-mark" thinning units, about 55 to 65 years old, consisting of Douglas-fir dominated stands with small isolated clumps of hardwoods and occasional true fir. These stands will be harvested to an RD of 35, with a target basal area of 160 ft², while removing approximately 57 trees per acre and 9.1 MBF/acre. The average "take" tree size is 16" DBH and 53 feet to a merchantable top (6" d.i.b.).
Areas 6, 7, and 9 are clearcut units, ranging from 50 to 65 years old, consisting of a Douglas-fir dominated stands with significant inclusions of hardwoods and some true fir. This stand averages 20 inches in DBH, with an average merchantable height of 65 feet to a merchantable top. The average volume (net) is 34.7 MBF/acre.
Area 10 R/W (In-sale R/W) is a Douglas-fir dominated mixed conifer stand. This stand averages 19 inches in DBH, with an average merchantable height of 63 feet to a merchantable top. The average volume (net) is 40.0 MBF/acre.

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

Area	Target CV	Target SE%	Actual CV	Actual SE%
1 and 2	40%	10%	29.3%	3.6%
3, 4, 5, and 8	40%	10%	34.2%	5.1%
6, 7, and 9	45%	8%	44.5%	5.4%

The statistics for Areas 1 & 2 and Areas 3, 4, 5 & 8 are "Take" and the "leave" stands combined.

8. Volumes by Species and Log Grade: (See "Species, Sort, Grade, Length%" - Type and Project Reports, attached, of individual sale areas and combined areas and three cruise types)
Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth." Volumes for "auto-mark" thinning units adjusted as an increase by 10% to address additional trees removed for cable corridors, skid trials, landings, guyline trees, etc.

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	D & B	% Sale
Douglas-fir	19"	17,993	12,228	5,188	577	685	73
Alder	14"	458		382	76	7	2
Hemlock	14"	6,172	2,610	2,938	624	161	25
Noble fir	28"	126	115	11		0	1
Spruce	36"	1		1		0	<1
Cedar	30"	5		4	1	0	<1
TOTALS		**24,755**					

9. Approvals:

Prepared by: Dan Goody **Date:** March 12, 2002

Reviewed by: Tom Scoggins **Date:** March 14, 2002

10. Attachments:

Cruise Designs (3)
Cruise Maps (3)
Volume Reports - 9 pages
Statistics Reports - 9 pages
Stand Tables - 3 pages

X:\Timber Mgt\Jewell\Timber Sales\2002\Nettle Meyer Combination\Sale Prep\Sale reports\Cruise Report-Nettle.doc

CRUISE DESIGN

Sale Name NETTLE MEYER COMB. **Area(s)** 1 & 2

1. Cruise Method:

   A. ✓ Variable Plot: BAF 33.61 (Full) or Half Point FULL
      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.
      Use Species to determine T & L, not sort. DL, HL, CL, etc

2. Plot Spacing: Lines are _____ feet, chains apart (circle correct one)
   Plots are 3½ ~~feet~~, (chains) apart
   Cruise line direction ~~is~~ are as indicated on cruise map.

3. Detailed Cruising Directions: (Include cruise objectives, such as estimated stand CV, target SE% for board foot volume, target number of conifer grade trees, target basal area, target SDI, estimated volume per acre, expected defect and breakage factors, grade/measure/count ratios, etc.)
   Estimated CV = 40%. Target SE = 10%. 1:2 Cruise/Count Plot. Measure and grade every other plot as indicated on cruise map. Target RD is 30. See attachment for leave tree count. Cruise all snags. Measure Large Downed Wood. All cedar are to be "Leave" trees.

4. Form Factors (FF): Measure or estimate a 16' form factor for every conifer tree graded.

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 7" and 0.4 (40%); for thinning size timber, use 5"or 6" TCD.)

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

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

CRUISE DESIGN

Sale Name Nettle Meyer Comb. **Area(s)** 1 & 2

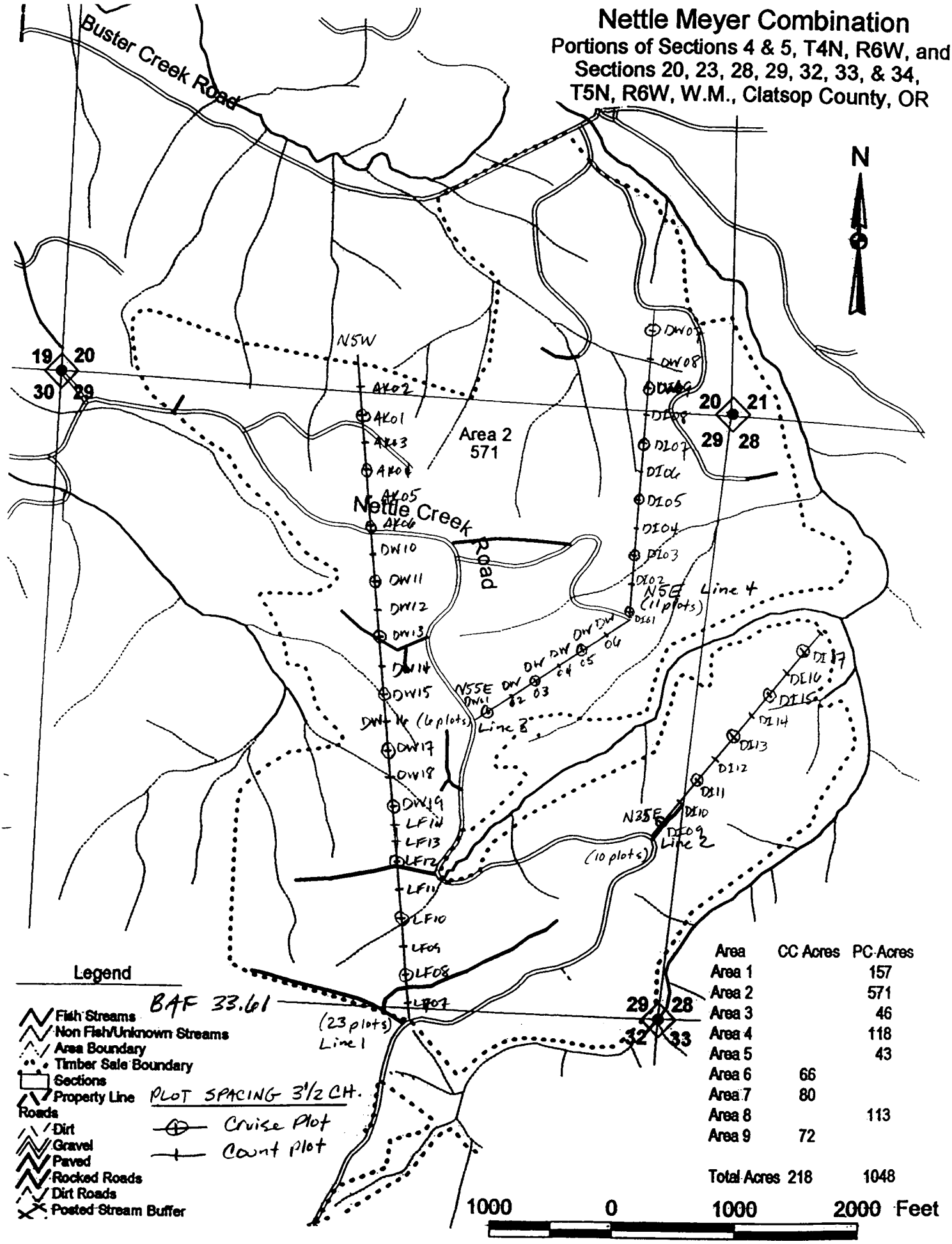
8. Tree Segments: Record log segments to maximize grade within scaling standards and within practicality. Minimum segment length is 12 feet (except cull segments). Maximum segment length is 40 feet. One foot of trim is assumed for each merch. segment. Do not use the "double dash" (--) feature on the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

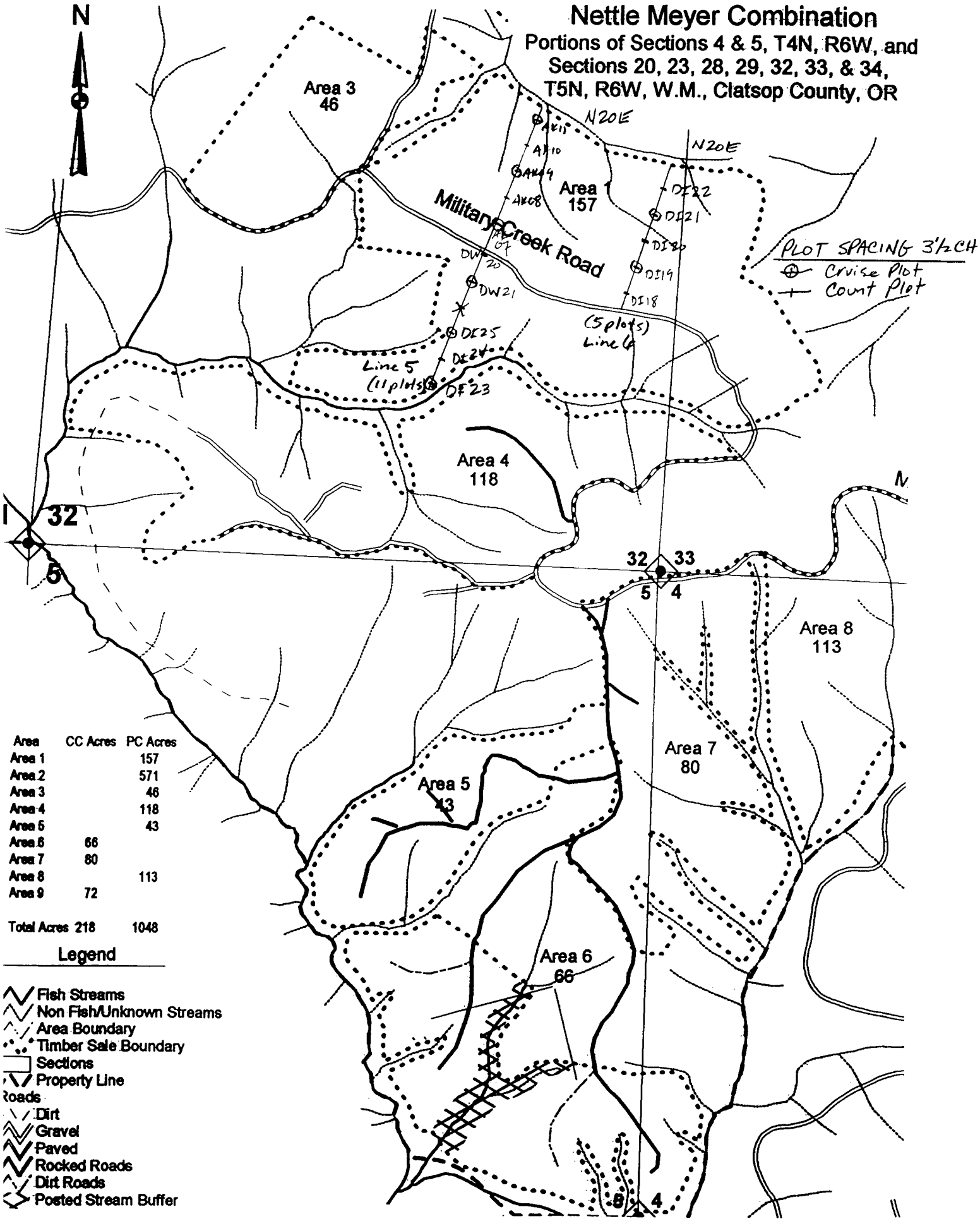
9. Species, Sort, and Grade Codes:
   A. Species:
      1) TAKE SPECIES: D-fir = D; Hemlock = H; Sitka Spruce = S; Red Cedar = C; Silver fir = SF; Grand fir = GF; Noble fir = NF; Red Alder = A; Bigleaf Maple = M; CH = Cherry.
      2) LEAVE SPECIES: D-fir = DL; Hemlock = HL; Sitka Spruce = SL; Red Cedar = CL; Silver fir = SFL; Grand fir = GFL; Noble fir = NFL; Red Alder = AL; Bigleaf Maple = BML; SN = Snag.
   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.~~

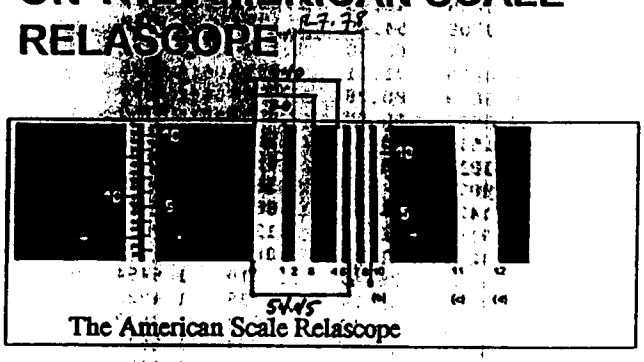
11. Cruising Equipment: Relaskop, rangefinder, diameter tape or rewind tape, biltmore stick, compass, increment borer, tatum and cruise cards or CMT data recorder, yellow and blue ribbon, permanent marker, Scaling and Grading Rules book, and Cruise Design and Map.

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) RD TABLE


Nettle Meyer Combination
Portions of Sections 4 & 5, T4N, R6W, and
Sections 20, 23, 28, 29, 32, 33, & 34,
T5N, R6W, W.M., Clatsop County, OR
Buster Creek Road
N
N5W
Area 2
571
Nettle Creek Road
N5E Line 4
(11 plots)
N55E Line 3
(6 plots)
N35E Line 2
(10 plots)
BAF 33.61
(23 plots)
Line 1
PLOT SPACING 3½ CH.
Cruise Plot
Count Plot
19
20
30
29
20
21
29
28
29
28
32
33
Legend
Fish Streams
Non Fish/Unknown Streams
Area Boundary
Timber Sale Boundary
Sections
Property Line
Roads
Dirt
Gravel
Paved
Rocked Roads
Dirt Roads
Posted Stream Buffer
Area | CC Acres | PC Acres
Area 1 | | 157
Area 2 | | 571
Area 3 | | 46
Area 4 | | 118
Area 5 | | 43
Area 6 | 66 |
Area 7 | 80 |
Area 8 | | 113
Area 9 | 72 |
Total Acres | 218 | 1048
1000 0 1000 2000 Feet


N
Nettle Meyer Combination
Portions of Sections 4 & 5, T4N, R6W, and
Sections 20, 23, 28, 29, 32, 33, & 34,
T5N, R6W, W.M., Clatsop County, OR
Area 3
46
Area 1
157
Area 4
118
Area 8
113
Area 7
80
Area 5
43
Area 6
66
Military Creek Road
N20E
N20E
PLOT SPACING 3½CH.
Cruise Plot
Count Plot
Line 5
(11 plots)
(5 plots)
Line 6
DW20
DW21
DI25
DI24
DF23
DI22
DI21
DI20
DI19
DI18
32
5
32
33
5
4
8
4
Area CC Acres PC Acres
Area 1 157
Area 2 571
Area 3 46
Area 4 118
Area 5 43
Area 6 66
Area 7 80
Area 8 113
Area 9 72
Total Acres 218 1048
Legend
Fish Streams
Non Fish/Unknown Streams
Area Boundary
Timber Sale Boundary
Sections
Property Line
Roads
Dirt
Gravel
Paved
Rocked Roads
Dirt Roads
Posted Stream Buffer

A COMPLETE LIST OF BAF ON THE AMERICAN SCALE RELASCOPE



The American Scale Relascope

Recently we have had several articles and inquiries about various scales on the American Scale Relascope. Most often when we use this scale we use the common basal area factors of 5, 10, 20 or 40 (0-a). But, there are many combinations of BAF's available. In issue 36 we discussed using large BAF's from this scale to select measure trees. Given this interest, we thought it would be fun (and hopefully helpful) to do a complete list of the BAF's available on the American Scale Relascope. Below is a table with the 74 possible BAF's that we found. Obviously some of these are not very useful and using some may be difficult in the field.

Note that the scales have been numbered consecutively from the left '0' which differs from the designations on the relascope. Therefore, the normal relascope designations of 5, 10, 20, a, b, c, and d correspond to the numbers 1, 2, 3, 4, 10, 11, and 12 respectively in the figure above.

The table below was developed from the known percentages (p) of width to horizontal distance for the 12 scales (see notes below). PRF_c and PRF_f are the plot radius factors to the tree center and face respectively.

Scale	Percent(p)	BAF	PRFc	PRFf
4- 5	.5050	.28	16.5016	16.4600
5- 6	.5050	.28	16.5017	16.4600
6- 7	.5050	.28	16.5016	16.4600
7- 8	.5051	.28	16.4984	16.4567
8- 9	.5050	.28	16.5016	16.4600
9-10	.5050	.28	16.5016	16.4600
1- 2	.8875	.86	9.3897	9.3480
4- 6	1.0100	1.11	8.2508	8.2092
5- 7	1.0100	1.11	8.2508	8.2092
6- 8	1.0101	1.11	8.2500	8.2083
7- 9	1.0101	1.11	8.2500	8.2083
8-10	1.0100	1.11	8.2508	8.2092
2- 3	1.2553	1.72	6.6385	6.5968
4- 7	1.5150	2.50	5.5005	5.4589
5- 8	1.5151	2.50	5.5002	5.4585
6- 9	1.5151	2.50	5.5002	5.4585
7-10	1.5151	2.50	5.5002	5.4585
3- 4	1.7752	3.43	4.6943	4.6526
4- 8	2.0201	4.44	4.1252	4.0835
5- 9	2.0201	4.44	4.1252	4.0835
6-10	2.0201	4.44	4.1252	4.0835
0- 1	2.1428	5.00	3.8890	3.8473
1- 3	2.1428	5.00	3.8890	3.8473
3- 5	2.2802	5.66	3.6546	3.6130
4- 9	2.5251	6.94	3.3002	3.2585
5-10	2.5251	6.94	3.3002	3.2585
3- 6	2.7852	8.45	2.9920	2.9503
0- 2	3.0203	10.00	2.7500	2.7083
2- 4	3.0205	10.00	2.7498	2.7082
4-10	3.0201	10.00	2.7502	2.7085
11-12	3.0203	10.00	2.7500	2.7083
3- 7	3.2902	11.79	2.5328	2.4911
2- 5	3.5355	13.61	2.3570	2.3154
3- 8	3.7953	15.69	2.1957	2.1540
1- 4	3.9180	16.72	2.1269	2.0853
2- 6	4.0405	17.78	2.0625	2.0208
0- 3	4.2856	20.00	1.9445	1.9028
3- 9	4.3003	20.14	1.9378	1.8962
1- 5	4.4230	21.30	1.8841	1.8424
2- 7	4.5455	22.50	1.8333	1.7916
3-10	4.8053	25.15	1.7342	1.6925
1- 6	4.9280	26.45	1.6910	1.6494
2- 8	5.0506	27.78	1.6500	1.6083
1- 7	5.4330	32.14	1.5338	1.4922
2- 9	5.5556	33.61	1.5000	1.4583
1- 8	5.9381	38.40	1.4034	1.3617
0- 4	6.0608	40.00	1.3750	1.3333
2-10	6.0606	40.00	1.3750	1.3333
10-11	6.0606	40.00	1.3750	1.3333
1- 9	6.4431	45.21	1.2934	1.2517
9-11	6.5656	46.94	1.2692	1.2276
0- 5	6.5658	46.95	1.2692	1.2275
1-10	6.9481	52.57	1.1994	1.1577
8-11	7.0706	54.44	1.1786	1.1369
0- 6	7.0708	54.45	1.1786	1.1369
0- 7	7.5758	62.50	1.1000	1.0583
7-11	7.5757	62.50	1.1000	1.0583
0- 8	8.0809	71.11	1.0312	.9896
6-11	8.0807	71.11	1.0313	.9896
5-11	8.5857	80.27	.9706	.9289
0- 9	8.5859	80.28	.9706	.9289
0-10	9.0909	90.00	.9167	.8750
4-11	9.0907	90.00	.9167	.8750
10-12	9.0909	90.00	.9167	.8750
9-12	9.5959	100.28	.8684	.8268
8-12	10.1009	111.11	.8250	.7833
7-12	10.6060	122.50	.7857	.7441
3-11	10.8659	128.58	.7669	.7253
6-12	11.1110	134.44	.7500	.7083
5-12	11.6160	146.94	.7174	.6757
4-12	12.1210	159.99	.6875	.6458
2-11	12.1212	160.00	.6875	.6458
1-11	13.0087	184.29	.6406	.5989
3-12	13.8962	210.29	.5997	.5580
0-11	15.1515	250.00	.5500	.5083
2-12	15.1515	250.00	.5500	.5083
1-12	16.0390	280.14	.5196	.4779
0-12	18.1818	360.00	.4583	.4167

2 BIG 4 LITTLE

2 BIG 5 LITTLE

$BAF = 1.089*p^2$

$PRF_c = 8.69626/BAF^{0.5}$ $PRF_f = PRF_c - (1/24)$

One of our subscribers, Bob Riley, suggested that there are many basal area factors for relaskops. We decided to share all of them.

CRUISE DESIGN

Sale Name Nettle Meyer Comb. **Area(s)** 3, 4, 5 and 8

1. Cruise Method:

   A. ✓ Variable Plot: BAF 33.61 (Full) or Half Point FULL
      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.
      Use species to determine T or L, not sort. DL, HL, CL, etc.

2. Plot Spacing: Lines are 10 feet, (chains) apart (circle correct one)
   Plots are 7 1/2 feet (chains) apart
   Cruise line direction is Area 3 N60W Area 5 N35W
   Area 4 N-S Area 8 E-W

3. Detailed Cruising Directions: (Include cruise objectives, such as estimated stand CV, target SE% for board foot volume, target number of conifer grade trees, target basal area, target SDI, estimated volume per acre, expected defect and breakage factors, grade/measure/count ratios, etc.)
   Estimated CV = 40% Target SE = 10%. 1:2 Cruise/Count Plots, Measure and grade every other plot as shown on cruise map. Target RD is 35. See Attachment for leave tree count Cruise all snags. Measure Downed Woody Debris. All Cedar are to be "Leave" trees.

4. Form Factors (FF): Measure or estimate a 16' form factor for every conifer tree graded.

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 7" and 0.4 (40%); for thinning size timber, use 5"or 6" TCD.)

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

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

CRUISE DESIGN

Sale Name Nettle Meyer Comb. **Area(s)** 3, 4, 5, and 8

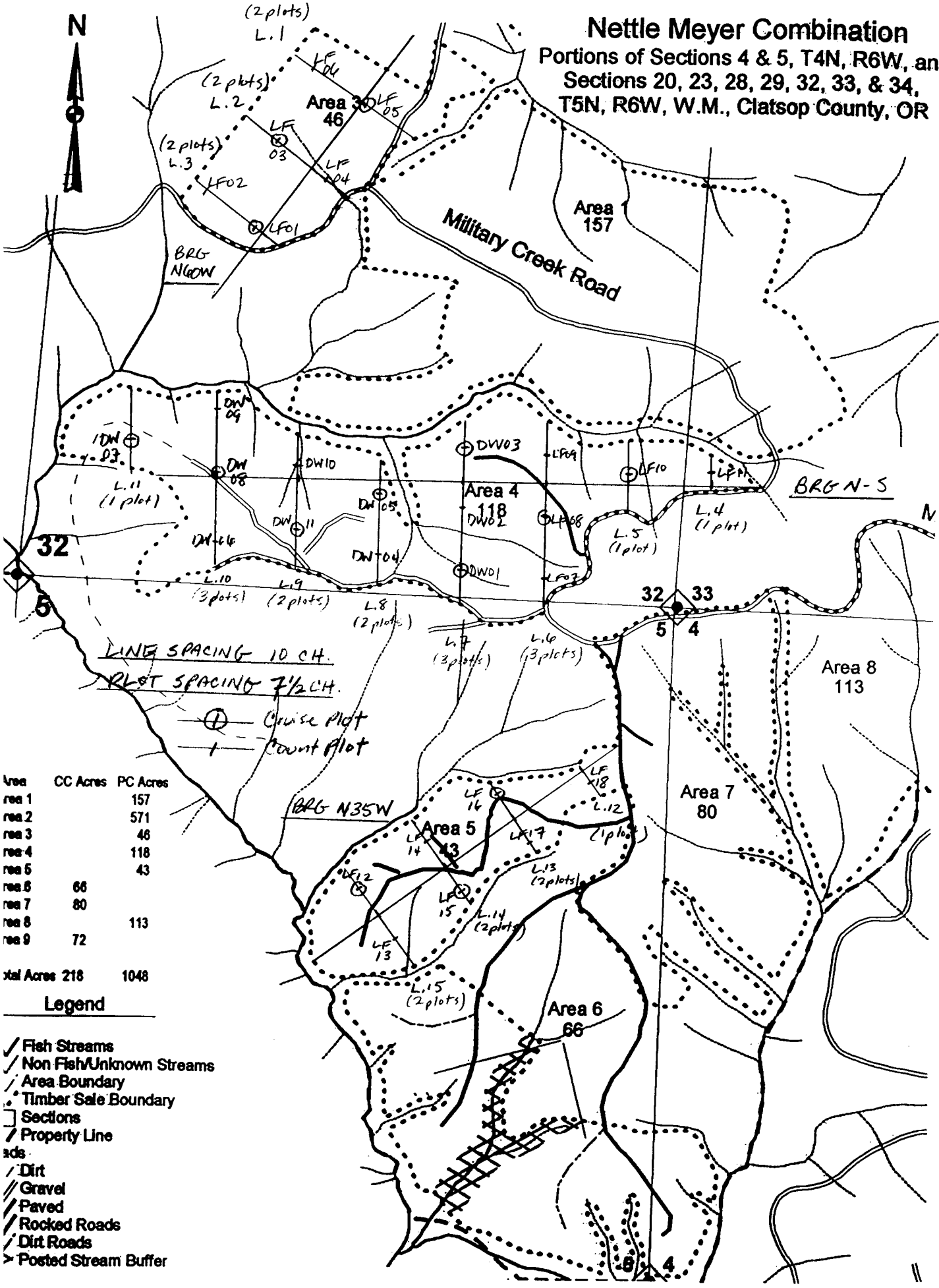
8. Tree Segments: Record log segments to maximize grade within scaling standards and within practicality. Minimum segment length is 12 feet (except cull segments). Maximum segment length is 40 feet. One foot of trim is assumed for each merch. segment. Do not use the "double dash" (--) feature on the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

9. Species, Sort, and Grade Codes:
   A. Species:
      1) TAKE SPECIES: D-fir = D; Hemlock = H; Sitka Spruce = S; Red Cedar = C; Silver fir = SF; Grand fir = GF; Noble fir = NF; Red Alder = A; Bigleaf Maple = M; CH = Cherry.
      2) LEAVE SPECIES: D-fir = DL; Hemlock = HL; Sitka Spruce = SL; Red Cedar = CL; Silver fir = SFL; Grand fir = GFL; Noble fir = NFL; Red Alder = AL; Bigleaf Maple = BML; SN = Snag.
   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) RD Table



Area	CC Acres	PC Acres
Area 1		157
Area 2		571
Area 3		46
Area 4		118
Area 5		43
Area 6	66	
Area 7	80	
Area 8		113
Area 9	72	
Total Acres	218	1048

Legend

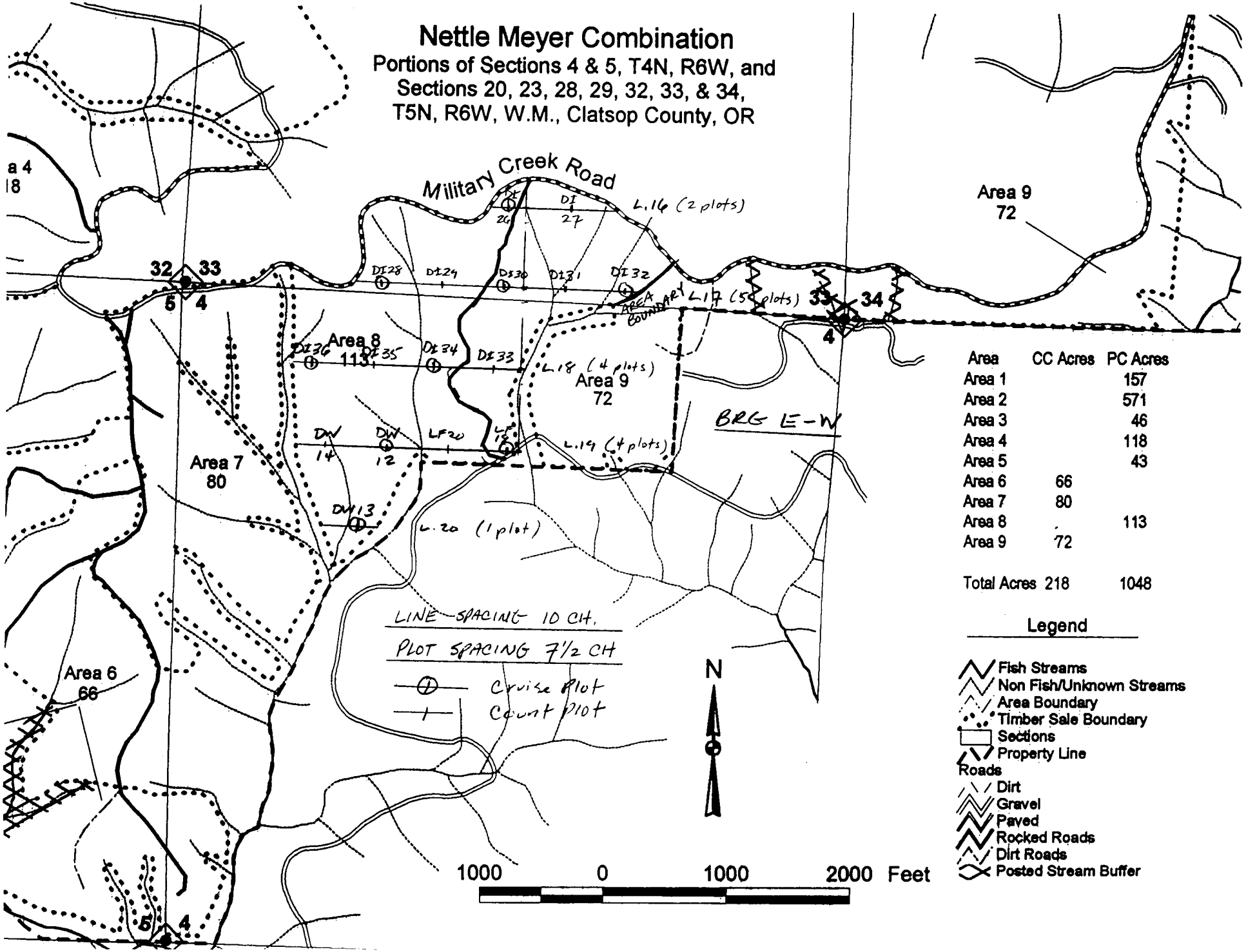
- Fish Streams
- Non Fish/Unknown Streams
- Area Boundary
- Timber Sale Boundary
- Sections
- Property Line

Roads

- Dirt
- Gravel
- Paved
- Rocked Roads
- Dirt Roads
- Posted Stream Buffer

Nettle Meyer Combination

Portions of Sections 4 & 5, T4N, R6W, and
Sections 20, 23, 28, 29, 32, 33, & 34,
T5N, R6W, W.M., Clatsop County, OR



Area	CC Acres	PC Acres
Area 1		157
Area 2		571
Area 3		46
Area 4		118
Area 5		43
Area 6	66	
Area 7	80	
Area 8		113
Area 9	72	
Total Acres	218	1048

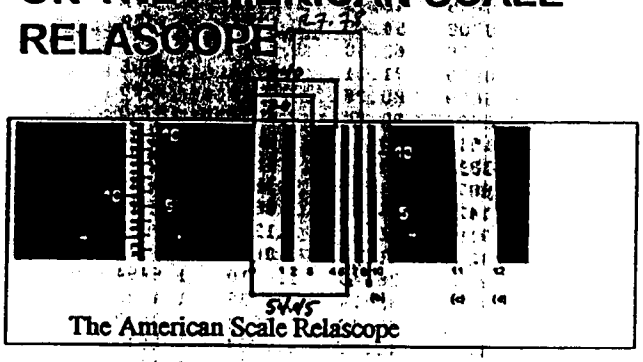
Legend

- Fish Streams
- Non Fish/Unknown Streams
- Area Boundary
- Timber Sale Boundary
- Sections
- Property Line

Roads

- Dirt
- Gravel
- Paved
- Rocked Roads
- Dirt Roads
- Posted Stream Buffer

A COMPLETE LIST OF BAF ON THE AMERICAN SCALE RELASCOPE



The American Scale Relascope

Recently we have had several articles and inquiries about various scales on the American Scale Relascope. Most often when we use this scale we use the common basal area factors of 5, 10, 20 or 40 (0-a). But, there are many combinations of BAF's available. In issue 36 we discussed using large BAF's from this scale to select measure trees. Given this interest, we thought it would be fun (and hopefully helpful) to do a complete list of the BAF's available on the American Scale Relascope. Below is a table with the 74 possible BAF's that we found. Obviously some of these are not very useful and using some may be difficult in the field.

Note that the scales have been numbered consecutively from the left '0' which differs from the designations on the relascope. Therefore, the normal relascope designations of 5, 10, 20, a, b, c, and d correspond to the numbers 1, 2, 3, 4, 10, 11, and 12 respectively in the figure above.

The table below was developed from the known percentages (p) of width to horizontal distance for the 12 scales (see notes below). PRF_c and PRF_f are the plot radius factors to the tree center and face respectively.

Scale	Percent(p)	BAF	PRFc	PRFf
4- 5	.5050	.28	16.5016	16.4600
5- 6	.5050	.28	16.5017	16.4600
6- 7	.5050	.28	16.5016	16.4600
7- 8	.5051	.28	16.4984	16.4567
8- 9	.5050	.28	16.5016	16.4600
9-10	.5050	.28	16.5016	16.4600
1- 2	.8875	.86	9.3897	9.3480
4- 6	1.0100	1.11	8.2508	8.2092
5- 7	1.0100	1.11	8.2508	8.2092
6- 8	1.0101	1.11	8.2500	8.2083
7- 9	1.0101	1.11	8.2500	8.2083
8-10	1.0100	1.11	8.2508	8.2092
2- 3	1.2553	1.72	6.6385	6.5968
4- 7	1.5150	2.50	5.5005	5.4589
5- 8	1.5151	2.50	5.5002	5.4585
6- 9	1.5151	2.50	5.5002	5.4585
7-10	1.5151	2.50	5.5002	5.4585
3- 4	1.7752	3.43	4.6943	4.6526
4- 8	2.0201	4.44	4.1252	4.0835
5- 9	2.0201	4.44	4.1252	4.0835
6-10	2.0201	4.44	4.1252	4.0835
0- 1	2.1428	5.00	3.8890	3.8473
1- 3	2.1428	5.00	3.8890	3.8473
3- 5	2.2802	5.66	3.6546	3.6130
4- 9	2.5251	6.94	3.3002	3.2585
5-10	2.5251	6.94	3.3002	3.2585
3- 6	2.7852	8.45	2.9920	2.9503
0- 2	2.8283	10.00	2.7500	2.7083
2- 4	2.8285	10.00	2.7498	2.7082
4-10	2.8284	10.00	2.7502	2.7085
11-12	2.8283	10.00	2.7500	2.7083
3- 7	3.2002	13.79	2.5328	2.4911
2- 5	3.5355	17.61	2.3570	2.3154
3- 8	3.7953	20.69	2.1957	2.1540
1- 4	3.9180	22.72	2.1269	2.0853
2- 6	4.0405	23.78	2.0625	2.0208
0- 3	4.2856	20.00	1.9445	1.9028
3- 9	4.3003	20.14	1.9378	1.8962
1- 5	4.4230	21.30	1.8841	1.8424
2- 7	4.5455	22.50	1.8333	1.7916
3-10	4.8053	25.15	1.7342	1.6925
1- 6	4.9280	26.45	1.6910	1.6494
2- 8	5.0506	27.78	1.6500	1.6083
1- 7	5.4330	32.14	1.5338	1.4922
2- 9	5.5556	33.61	1.5000	1.4583
1- 8	5.9381	38.40	1.4034	1.3617
0- 4	6.0608	40.00	1.3750	1.3333
2-10	6.0606	40.00	1.3750	1.3333
10-11	6.0606	40.00	1.3750	1.3333
1- 9	6.4431	45.21	1.2934	1.2517
9-11	6.5656	46.94	1.2692	1.2276
0- 5	6.5658	46.95	1.2692	1.2275
1-10	6.9481	52.57	1.1994	1.1577
8-11	7.0706	54.44	1.1786	1.1369
0- 6	7.0708	54.45	1.1786	1.1369
0- 7	7.5758	62.50	1.1000	1.0583
7-11	7.5757	62.50	1.1000	1.0583
0- 8	8.0809	71.11	1.0312	.9896
6-11	8.0807	71.11	1.0313	.9896
5-11	8.5857	80.27	.9706	.9289
0- 9	8.5859	80.28	.9706	.9289
0-10	9.0909	90.00	.9167	.8750
4-11	9.0907	90.00	.9167	.8750
10-12	9.0909	90.00	.9167	.8750
9-12	9.5959	100.28	.8684	.8268
8-12	10.1009	111.11	.8250	.7833
7-12	10.6060	122.50	.7857	.7441
3-11	10.8659	128.58	.7669	.7253
6-12	11.1110	134.44	.7500	.7083
5-12	11.6160	146.94	.7174	.6757
4-12	12.1210	159.99	.6875	.6458
2-11	12.1212	160.00	.6875	.6458
1-11	13.0087	184.29	.6406	.5989
3-12	13.8962	210.29	.5997	.5580
0-11	15.1515	250.00	.5500	.5083
2-12	15.1515	250.00	.5500	.5083
1-12	16.0390	280.14	.5196	.4779
0-12	18.1818	360.00	.4583	.4167

$BAF = 1.089*p^2$

$PRF_c = 8.69626/BAF^{0.5}$ $PRF_f = PRF_c - (1/24)$

One of our subscribers, Bob Riley, suggested that there are many basal area factors for relaskops. We decided to share all of them.

CRUISE DESIGN

Sale Name Nettle Meyer Comb. **Area(s)** 6, 7, 39

1. Cruise Method:

40 Conifer
33.61 Hardwood

A. ✓ Variable Plot: BAF _____ (Full) or Half Point FULL
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 7 feet (chains) apart (circle correct one)
Plots are 5 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, target basal area, target SDI, estimated volume per acre, expected defect and breakage factors, grade/measure/count ratios, etc.)
Estimated CV = 45%. Target SE = 8%. 1:2 Cruise/Count Plots. Measure and grade every other plot as shown on cruise map. Cruise all snags, and measure for Downed Woody Debris. Cruise 'any marked' wildlife trees as "Leave Trees", same with Cedar.
Use 40.00 BAF for conifer, and 33.61 BAF for hardwoods on all plots.

4. Form Factors (FF): Measure or estimate a 16' form factor for every conifer tree graded.

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 7" and 0.4 (40%); for thinning size timber, use 5"or 6" TCD.)

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

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

CRUISE DESIGN

Sale Name Nettle Meyer Comb. **Area(s)** 6, 7, 3, 9

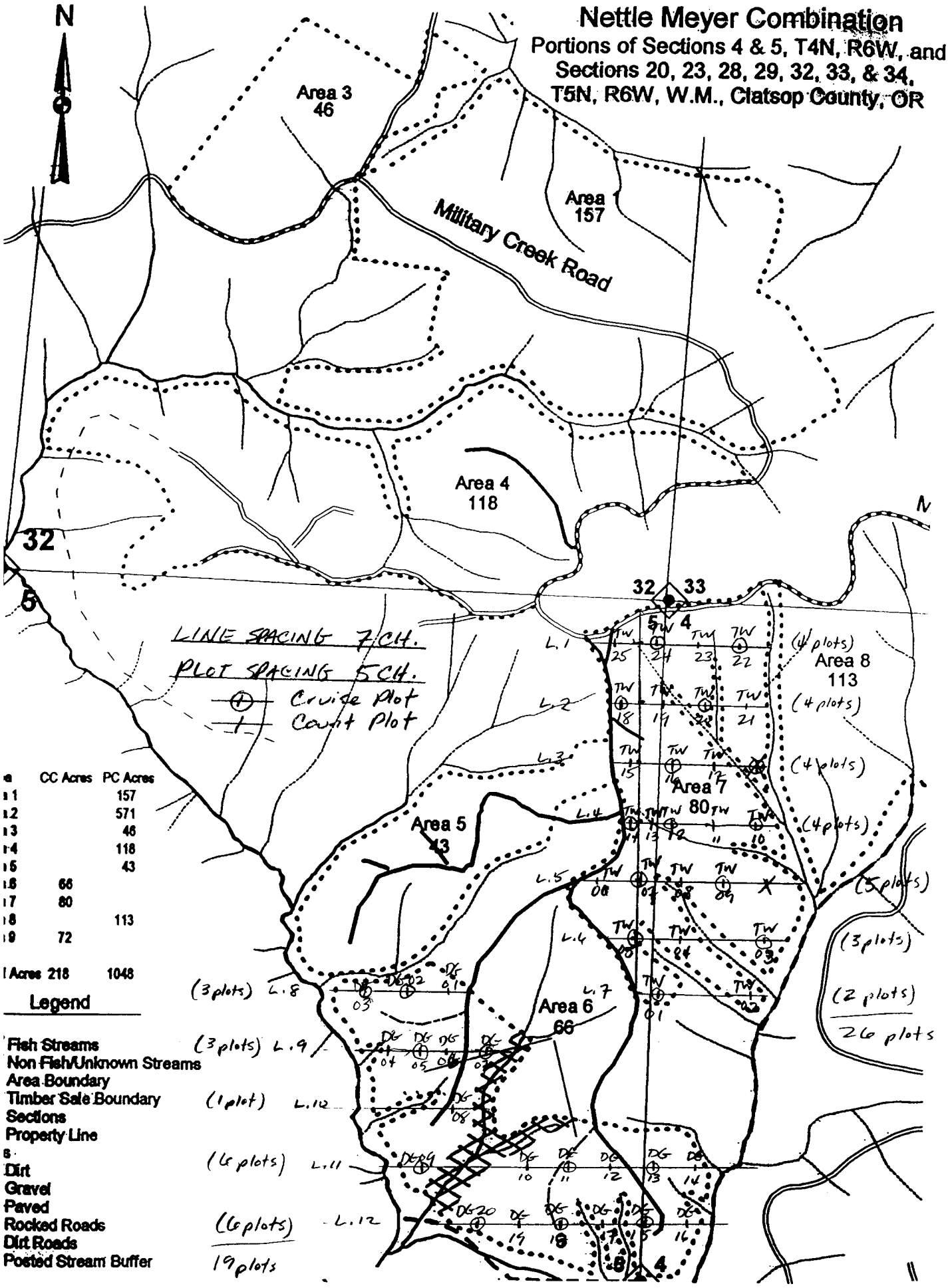
8. Tree Segments: Record log segments to maximize grade within scaling standards and within practicality. Minimum segment length is 12 feet (except cull segments). Maximum segment length is 40 feet. One foot of trim is assumed for each merch. segment. Do not use the "double dash" (--) feature on the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

9. Species, Sort, and Grade Codes:
   A. Species:
      1) TAKE SPECIES: D-fir = D; Hemlock = H; Sitka Spruce = S; Red Cedar = C; Silver fir = SF; Grand fir = GF; Noble fir = NF; Red Alder = A; Bigleaf Maple = M; CH = Cherry.
      2) LEAVE SPECIES: D-fir = DL; Hemlock = HL; Sitka Spruce = SL; Red Cedar = CL; Silver fir = SFL; Grand fir = GFL; Noble fir = NFL; Red Alder = AL; Bigleaf Maple = BML; SN = Snag.
   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.

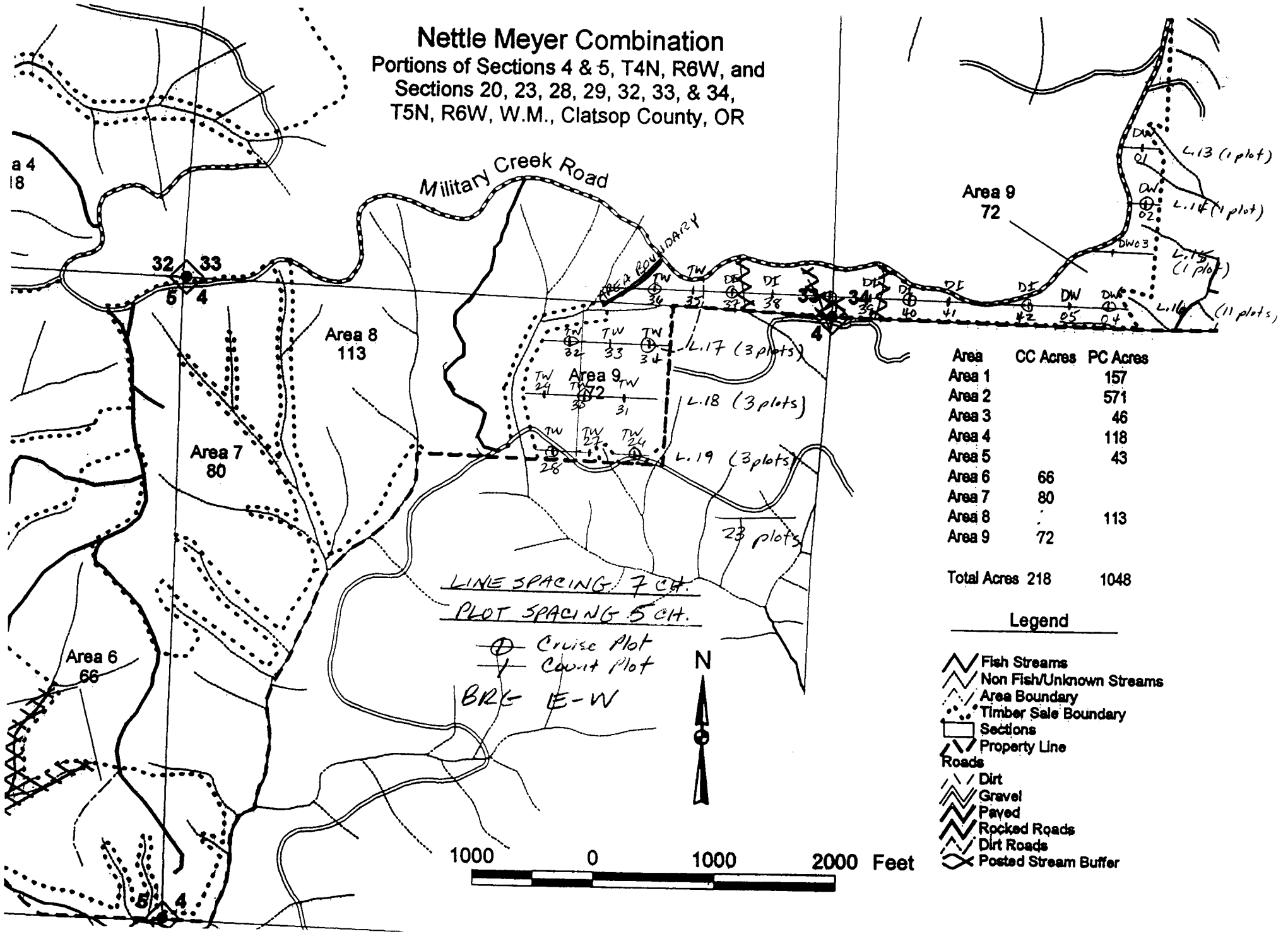
12. Attachments:
   A. Cruise Map showing unit boundaries, major roads and streams, north arrow, legal description, approximate acreage, numbered cruise lines and approximate number of plots on each line, plot spacing, cruise line directions, BAF, measure/grade/count ratio, if applicable.
   B. Miscellaneous Tatum Aids: (1) CMT data entry guides; (2) _____



e	CC Acres	PC Acres
1		157
2		571
3		46
4		118
5		43
6	66	
7	80	
8		113
9	72	
l Acres	218	1048

Legend

- Fish Streams
- Non Fish/Unknown Streams
- Area Boundary
- Timber Sale Boundary
- Sections
- Property Line
- Dirt
- Gravel
- Paved
- Rocked Roads
- Dirt Roads
- Posted Stream Buffer


Nettle Meyer Combination
Portions of Sections 4 & 5, T4N, R6W, and
Sections 20, 23, 28, 29, 32, 33, & 34,
T5N, R6W, W.M., Clatsop County, OR
Military Creek Road
Area 1
157
Area 2
571
Area 3
46
Area 4
118
Area 5
43
Area 6
66
Area 7
80
Area 8
113
Area 9
72
Area 9
72
Area 8
113
Area 7
80
Area 6
66
L.17 (3 plots)
L.18 (3 plots)
L.19 (3 plots)
L.13 (1 plot)
L.14 (1 plot)
L.15 (1 plot)
L.16 (11 plots)
23 plots
LINE SPACING 7 CH.
PLOT SPACING 5 CH.
Cruise Plot
Count Plot
BRG E-W
N
1000 0 1000 2000 Feet
Area CC Acres PC Acres
Area 1 157
Area 2 571
Area 3 46
Area 4 118
Area 5 43
Area 6 66
Area 7 80
Area 8 113
Area 9 72
Total Acres 218 1048
Legend
Fish Streams
Non Fish/Unknown Streams
Area Boundary
Timber Sale Boundary
Sections
Property Line
Roads
Dirt
Gravel
Paved
Rocked Roads
Dirt Roads
Posted Stream Buffer

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T4N R6W S4 TyCCRW
THRU
T5N R6W S29 Ty30RW

Project: **NETTLE**

Acres **1,206.00**

Date 3/1/2002
Time 11:27:43AM

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D	?	?			00.0	526											6		0.00	10.9
D	?	2S		49		9,718	10,139	12,228		0	58	42	8	8	51	34	31	293	2.06	34.6
D	?	3S		21		4,035	4,301	5,187		93	5	2	6	8	64	22	32	81	0.76	53.3
D	?	4S		2		449	479	577	0	100	0		49	51			20	28	0.49	16.9
D Totals				73		14,728	14,919	17,992	0	30	41	29	9	9	53	29	28	129	1.16	115.7
A	?	?			00.0	5											3		0.00	.1
A	?	2S		0		6	6	7			56	44			76	24	33	261	1.73	.0
A	?	3S		2		311	311	375		83	6	11	4	6	82	8	32	93	0.82	3.3
A	?	4S		0		63	63	76		99	1		57	37	6		19	30	0.59	2.1
A Totals				2	1.4	385	379	457		84	6	9	13	11	70	7	26	69	0.76	5.5
H	?	?			00.0	131											5		0.00	5.6
H	?	2S		11		1,983	2,164	2,610			85	15	8	10	42	40	30	220	1.59	9.9
H	?	3S		12		2,225	2,436	2,938		90	10		2	7	50	40	34	89	0.72	27.3
H	?	4S		3		473	518	624	2	98			58	37	5		19	30	0.47	17.5
H Totals				25		4,812	5,117	6,172	0	53	41	6	10	12	42	36	26	85	0.82	60.2
NF	?	2S		0		95	95	115			23	77	0		96	4	32	427	2.64	.2
NF	?0	3S		0		9	9	11		99	1		1		97	2	32	81	0.95	.1
NF Totals				1		104	104	126		9	21	70	0		96	4	32	312	2.08	.3
S		DO3S		0		1	1	1			15	85		15	85		29	540	4.17	.0
S Totals				0		1	1	1			15	85		15	85		29	540	4.17	.0
SN	?	?			00.0	23											28		0.00	.3
SN Totals					00.0	23											28		0.00	.3
C	?	?			00.0	0											4		0.00	.0
C	?	3S		0		3	3	4				100				100	37	490	3.49	.0
C	?	4S		0		1	1	1		100				100			22	80	1.18	.0
C Totals				0	8.1	4	4	5		14		86		14		86	21	190	2.46	.0
Totals					-2.3	20,057	20,524	24,752	0	37	40	23	9	10	51	30	27	113	1.04	182.1

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T4N R6W S5 TyTK35	297.00
T5N R6W S29 TyTK30	660.00

Project: NETTLE

Acres 957.00

Page 1
Date 3/12/2002
Time 3:07:11PM

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D	?	?			100.0	553											6		0.00	11.5
D	?	2S		38		5,764	6,307	6,036		0	74	26	13	6	37	43	31	264	1.90	23.9
D	?	3S		23		3,457	3,796	3,633		93	5	2	7	8	61	24	32	81	0.75	47.0
D	?	4S		3		378	415	398		100			35	65			20	30	0.51	13.8
D Totals				63		10,152	10,518	10,066		38	46	16	12	9	44	35	27	109	1.03	96.2
H	?	?			100.0	156											5		0.00	6.8
H	?	2S		15		2,327	2,555	2,445			87	13	8	10	40	41	30	217	1.57	11.8
H	?	3S		18		2,660	2,927	2,801		90	10		2	8	50	41	34	90	0.72	32.7
H	?	4S		4		558	614	587	2	98			57	38	5		19	30	0.47	20.7
H Totals				37		5,700	6,095	5,833	0	53	41	5	10	12	41	37	26	85	0.81	71.8
Totals					-4.8	15,853	16,613	15,899	0	43	44	12	11	10	43	35	27	99	0.94	168.0

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: NETTLE

Date 3/1/2002
Time 11:24:27AM

T5N R6W S29 TTK30

Twp	Rge	Sec	Tract	Typ	*Acres*	Plots	Sample Trees
5N	6W	29	A 1&2 TK	TK30	660.00	64	116

T5N R6W S29 TTK30

Spp	S T	So rt	Gr ad Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		?	?		00.0	623											7		0.00	11.7
D		?	2S	64		6,681	7,300	4,818			76	24	13	5	35	48	32	273	1.93	26.7
D		?	3S	33		3,458	3,797	2,506	95	2	3		7	10	56	27	33	80	0.74	47.7
D		?	4S	3		330	363	240	00				28	72			20	33	0.52	11.1
D	**Totals**			59		11,092	11,460	7,564	35	49	16		11	9	41	39	28	118	1.07	97.3
H		?	?		00.0	178											5		0.00	8.8
H		?	2S	42		3,063	3,363	2,219			86	14	7	11	39	43	30	215	1.55	15.6
H		?	3S	48		3,560	3,916	2,585	89	11			2	8	48	42	34	89	0.71	43.8
H		?	4S	10		745	820	541	00				59	36	5		19	30	0.46	27.3
H	**Totals**			41		7,547	8,099	5,345	53	41	6		10	12	40	38	26	85	0.81	95.5
Type Totals					-4.9	18,638	19,559	12,909	42	46	12		11	10	40	39	27	101	0.94	192.8

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: NETTLE

Page 1
Date 3/1/2002
Time 11:22:49AM

T4N R6W S5 TTK35

Twp	Rge	Sec	Tract	Typ	*Acres*	Plots	Sample Trees
4N	6W	5	A3458TK	TK35	297.00	45	59

T4N R6W S5 TTK35

Spp	S T	So rt	Gr ad Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		DO	CU		00.0	397											6		0.00	11.1
D		DO	2S	49		3,727	4,100	1,218		1	67	32	15	11	48	26	30	231	1.81	17.7
D		?	3S	45		3,457	3,793	1,127		90	10		8	4	72	16	31	84	0.77	45.2
D		?	4S	6		483	531	158		00			47	53			20	27	0.50	19.7
D	**Totals**			84		8,065	8,425	2,502		48	37	16	14	10	56	20	25	90	0.93	93.8
H		?	?		00.0	105											6		0.00	2.2
H		?	2S	46		691	760	226			100		21		49	29	26	238	1.94	3.2
H		?	3S	44		661	727	216		00				5	66	29	34	94	0.82	7.8
H		?	4S	9		141	155	46	24	76			30	70			24	26	0.56	6.0
H	**Totals**			16		1,597	1,642	488	2	51	46		13	9	52	26	26	86	0.91	19.2
Type Totals					-4.2	9,662	10,067	2,990	0	48	38	13	14	10	55	21	25	89	0.93	113.0

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: NETTLE

Page 1
Date 2/27/2002
Time 4:11:23PM

T4N R6W S4 TCCTK

Twp	Rge	Sec	Tract	Typ	*Acres*	Plots	Sample Trees
4N	6W	4	AREAS679	CCTK	210.00	67	182

T4N R6W S4 TCCTK

Spp	S T	So rt	Gr ad Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		DO	CU		00.0	357											3		0.00	7.4
D		DO	2S	78	.1	24,819	24,783	5,204		0	42	58	3	9	66	21	32	328	2.27	75.5
D		DO	3S	20	.2	6,275	6,260	1,315		90	7	3	4	9	73	15	32	81	0.78	77.7
D		DO	4S	2		716	716	150	1	99			82	18			18	25	0.46	29.1
D	**Totals**			91	1.3	32,167	31,759	6,669	0	20	34	46	5	9	66	20	29	167	1.40	189.7
A		DO	CU		00.0	23											4		0.00	.3
A		DO	3S	84		1,608	1,608	338		84	4	11	4	5	84	8	32	94	0.81	17.1
A		DO	4S	16		313	313	66		00			54	39	6		19	30	0.59	10.3
A	**Totals**			6	1.2	1,944	1,921	403		87	4	9	12	10	71	7	27	69	0.75	27.7
H		DO	2S	46		235	235	49			33	67			100		32	420	2.67	.6
H		DO	3S	37		187	187	39		00			7		93		30	79	0.75	2.4
H		DO	4S	17		85	85	18		00			100				16	27	0.44	3.2
H	**Totals**			1		506	506	106		54	15	31	20		80		23	83	0.88	6.1
NF		DO	2S	91		491	491	103			23	77			100		32	421	2.61	1.2
NF		DO	3S	9		48	48	10		00					100		32	81	0.95	.6
NF	**Totals**			2		539	539	113		9	21	70			100		32	308	2.06	1.8
Type Totals					1.2	35,155	34,725	7,292	0	24	32	44	5	9	67	18	28	154	1.32	225.2

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T4N R6W S4 TyCCRW	12.00
T4N R6W S5 Ty35RW	8.00
T5N R6W S29 Ty30RW	19.00

Project: NETTLE

Acres 39.00

Page 1
Date 3/12/2002
Time 3:12:24PM

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D	?	?			100.0	786											5		0.00	15.1
D	?	2S		63	.4	25,420	25,329	988		0	45	54	4	8	48	39	32	328	2.17	77.2
D	?	3S		15	.2	6,158	6,147	240		91	6	3	5	9	59	26	32	80	0.77	77.3
D	?	4S		2	.1	754	753	29	0	98	1		55	45			19	29	0.51	26.4
D Totals				81	2.7	33,118	32,229	1,257	0	20	37	43	6	9	49	36	28	164	1.36	196.1
A	?	?			100.0	44											3		0.00	1.6
A	?	2S		0		177	177	7			56	44			76	24	33	261	1.73	.7
A	?	3S		2		956	956	37		72	22	6	6	14	71	10	31	87	0.83	11.0
A	?	4S		1		252	252	10		93	7		72	18	9		19	30	0.56	8.3
A Totals				3	3.1	1,428	1,385	54		67	23	10	17	13	60	10	24	64	0.78	21.5
H	?	?			100.0	227											5		0.00	6.4
H	?	2S		7	.3	2,970	2,962	116			73	27	7	16	49	28	30	223	1.57	13.3
H	?	3S		6		2,506	2,506	98		91	9		2	6	53	39	34	84	0.68	30.0
H	?	4S		1		492	492	19	2	98			57	39	4		19	28	0.45	17.7
H Totals				15	3.8	6,195	5,960	232	0	46	40	14	9	13	47	31	27	89	0.82	67.3
NF	?	2S		1		297	297	12			24	76	1		61	38	33	491	2.94	.6
NF	?0	3S		0		22	22	1		92	8		8		66	25	33	77	0.95	.3
NF Totals				1		319	319	12		6	23	71	2		61	37	33	359	2.31	.9
S		DO3S		0		23	23	1			15	85		15	85		29	540	4.17	.0
S Totals				0		23	23	1			15	85		15	85		29	540	4.17	.0
SN	?	?			100.0	726											28		0.00	8.6
SN Totals					100.0	726											28		0.00	8.6
C	?	?			100.0	10											4		0.00	.2
C	?	3S		0		101	101	4				100				100	37	490	3.49	.2
C	?	4S		0		16	16	1		100				100			22	80	1.18	.2
C Totals				0	8.1	127	117	5		14		86		14		86	21	190	2.46	.6
Totals					4.5	41,936	40,033	1,561	0	25	37	38	7	10	49	34	28	136	1.17	295.0

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: NETTLE

Page 1
Date 2/27/2002
Time 4:11:23PM

T5N R6W S29 T30RW

Twp	Rge	Sec	Tract	Typ	*Acres*	Plots	Sample Trees
5N	6W	29	A1&2 ROW	30RW	19.00	65	272

T5N R6W S29 T30RW

Spp	S T	So rt	Gr ad Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		?	?		00.0	912											6		0.00	16.9
D		?	2S	81	.5	26,567	26,431	502			47	53	4	7	43	46	33	336	2.15	78.6
D		?	3S	17	.1	5,375	5,369	102		96	2	2	6	10	52	32	33	76	0.74	71.1
D		?	4S	2		673	673	13		97	3		42	58			20	34	0.56	20.0
D	**Totals**			72	3.1	33,527	32,474	617		18	39	43	5	9	43	43	29	174	1.39	186.6
H		?	?		00.0	403											5		0.00	11.8
H		?	2S	48	.3	5,088	5,071	96			74	26	6	19	48	27	30	215	1.52	23.6
H		?	3S	44		4,599	4,599	87		90	10		2	6	50	41	34	84	0.67	54.8
H		?	4S	8		862	862	16		00			57	38	4		19	28	0.44	30.5
H	**Totals**			23	3.8	10,951	10,531	200		47	40	13	9	15	45	31	27	87	0.80	120.6
A		?	?		00.0	75											3		0.00	3.1
A		?	2S	23		362	362	7			56	44			76	24	33	261	1.73	1.4
A		?	3S	60		930	930	18		59	41		8	22	58	12	30	81	0.85	11.4
A		?	4S	17		263	263	5		00			86		14		18	27	0.49	9.7
A	**Totals**			3	4.6	1,631	1,556	30		52	38	10	19	13	55	13	22	61	0.79	25.7
SN		?	?		00.0	759											29		0.00	10.1
SN	**Totals**				00.0	759											29		0.00	10.1
C		?	?		00.0	21											4		0.00	.4
C		?	3S	86		206	206	4				100				00	37	490	3.49	.4
C		?	4S	14		34	34	1		00				100			22	80	1.18	.4
C	**Totals**			1	8.1	261	240	5		14		86		14		86	21	190	2.46	1.3
NF		?	2S	00		129	129	2			5	95	5		26	69	30	557	3.53	.2
NF	**Totals**			0		129	129	2			5	95	5		26	69	30	557	3.53	.2
Type Totals					4.9	47,258	44,931	854		26	39	35	7	10	44	39	28	130	1.12	344.5

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: NETTLE

Page 1
Date 2/27/2002
Time 4:11:23PM

T4N R6W S5 T35RW

Twp	Rge	Sec	Tract	Typ	*Acres*	Plots	Sample Trees
4N	6W	5	A3458 ROW	35RW	8.00	45	185

T4N R6W S5 T35RW

Spp	S T	So rt Grade	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		?0	?		00.0	1,128											6		0.00	22.5
D		?0	2S	73	.3	23,600	23,529	188		0	47	52	6	10	36	48	32	308	2.10	76.4
D		?0	3S	24	.2	7,842	7,824	63		84	12	4	6	7	55	31	32	85	0.81	91.6
D		?0	4S	3	.3	1,004	1,001	8		00			48	52			20	27	0.50	37.7
D	**Totals**			89	3.6	33,574	32,354	259		24	37	39	8	11	39	42	28	142	1.26	228.2
H		?	?		00.0	148											6		0.00	3.2
H		?	2S	62		2,043	2,043	16			73	27	10		49	41	30	258	1.86	7.9
H		?0	3S	31		1,015	1,015	8		00				4	69	27	34	82	0.74	12.4
H		?	4S	7		224	224	2	22	78			27	73			24	25	0.52	9.1
H	**Totals**			9	4.3	3,430	3,282	26	1	36	45	17	8	6	52	34	27	101	0.97	32.6
SN		?	?		00.0	1,736											28		0.00	17.7
SN	**Totals**				00.0	1,736											28		0.00	17.7
A		?	3S	23		39	39	0		00				100			30	50	0.87	.8
A		?	4S	77		134	134	1		37	63		70	30			21	77	1.26	1.7
A	**Totals**			0		173	173	1		51	49		54	46			24	69	1.10	2.5
NF		?0	2S	92		404	404	3			38	62			15	85	38	627	3.29	.6
NF		?0	3S	8		36	36	0		75	25		25			75	34	70	0.95	.5
NF	**Totals**			1		441	441	4		6	37	57	2		14	84	36	379	2.32	1.2
S		DO	3S	00		114	114	1			15	85		15	85		29	540	4.17	.2
S	**Totals**			0		114	114	1			15	85		15	85		29	540	4.17	.2
Type Totals					7.9	39,468	36,364	291	0	25	38	37	8	10	40	42	28	129	1.15	282.4

T TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: NETTLE

Page 1
Date 2/27/2002
Time 4:11:23PM

T4N R6W S4 TCCRW

Twp	Rge	Sec	Tract	Typ	*Acres*	Plots	Sample Trees
4N	6W	4	A679 ROW	CCRW	12.00	67	182

T4N R6W S4 TCCRW

Spp	S T	So rt	Gr ad Grade	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		DO	CU		00.0	357											3		0.00	7.4
D		DO	2S	78	.1	24,819	24,783	297		0	42	58	3	9	66	21	32	328	2.27	75.5
D		DO	3S	20	.2	6,275	6,260	75		90	7	3	4	9	73	15	32	81	0.78	77.7
D		DO	4S	2		716	716	9	1	99			82	18			18	25	0.46	29.1
D	**Totals**			91	1.3	32,167	31,759	381	0	20	34	46	5	9	66	20	29	167	1.40	189.7
A		DO	CU		00.0	23											4		0.00	.3
A		DO	3S	84		1,608	1,608	19		84	4	11	4	5	84	8	32	94	0.81	17.1
A		DO	4S	16		313	313	4		00			54	39	6		19	30	0.59	10.3
A	**Totals**			6	1.2	1,944	1,921	23		87	4	9	12	10	71	7	27	69	0.75	27.7
H		DO	2S	46		235	235	3			33	67			100		32	420	2.67	.6
H		DO	3S	37		187	187	2		00			7		93		30	79	0.75	2.4
H		DO	4S	17		85	85	1		00			100				16	27	0.44	3.2
H	**Totals**			1		506	506	6		54	15	31	20		80		23	83	0.88	6.1
NF		DO	2S	91		491	491	6			23	77			100		32	421	2.61	1.2
NF		DO	3S	9		48	48	1		00					100		32	81	0.95	.6
NF	**Totals**			2		539	539	6		9	21	70			100		32	308	2.06	1.8
Type Totals					1.2	35,155	34,725	417	0	24	32	44	5	9	67	18	28	154	1.32	225.2

TC TSTATS

STATISTICS

PROJECT NETTLE

DATE 2/27/2002

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
5N	6W	29	A 1&2 LV	LV30	660.00	65	156

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	65	302	4.6		
CRUISE	33	156	4.7	42,226	.4
REFOREST					
COUNT	32	146	4.6		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV	106	30.9	25.2	92		106.5	22,434	22,027	4,923	4,867
HEMLEAV	17	10.1	18.4	75		18.6	3,571	3,322	822	779
ALDRLEAV	15	15.3	14.3	39		17.1	1,631	1,556	473	459
SNAG	16	7.2	17.0	42		11.4	759		232	
CEDLEAV	1	.4	30.0	65		2.1	261	240	69	65
NFIRLEAV	1	.1	35.0	94	0	.5	129	129	24	24
TOTAL	*156*	*64.0*	*21.2*	*71*		*156.2*	*28,785*	*27,274*	*6,543*	*6,195*

TREES/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	37.2	4.6	29	31	32			
HEMLEAV	192.6	23.9	8	10	12			
ALDRLEAV	274.4	34.0	10	15	21			
SNAG	226.9	28.1	5	7	9			
CEDLEAV	393.6	48.8	0	0	1			
NFIRLEAV	806.2	100.0		0	0			
TOTAL	*74.4*	*9.2*	*58*	*64*	*70*	*222*	*55*	*25*

BASAL AREA/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	32.8	4.1	102	107	111			
HEMLEAV	177.8	22.1	15	19	23			
ALDRLEAV	249.0	30.9	12	17	22			
SNAG	292.1	36.2	7	11	15			
CEDLEAV	393.6	48.8	1	2	3			
NFIRLEAV	806.2	100.0	0	1	1			
TOTAL	*34.1*	*4.2*	*150*	*156*	*163*	*47*	*12*	*5*

NET BF/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	34.0	4.2	21,098	22,027	22,955			
HEMLEAV	180.7	22.4	2,577	3,322	4,066			
ALDRLEAV	258.3	32.0	1,057	1,556	2,055			
SNAG								
CEDLEAV	393.6	48.8	123	240	357			
NFIRLEAV	806.2	100.0		129	258			
TOTAL	*20.9*	*2.6*	*26,566*	*27,274*	*27,982*	*18*	*4*	*2*

STATISTICS

PROJECT NETTLE

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
5N	6W	29	A 1&2 TK	TK30	660.00	64	116

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	64	236	3.7		
CRUISE	31	116	3.7	63,318	.2
REFOREST					
COUNT	30	120	4.0		
BLANKS	3				
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	65	41.4	17.8	68		71.4	11,092	10,418	2,749	2,635
WHEMLOCK	51	54.5	13.3	48		52.5	7,547	7,362	1,887	1,845
TOTAL	*116*	*95.9*	*15.4*	*56*		*123.9*	*18,638*	*17,781*	*4,635*	*4,480*

	COEFF		**TREES/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	88.2	11.0	37	41	46			
WHEMLOCK	123.6	15.5	46	55	63			
TOTAL	*68.7*	*8.6*	*88*	*96*	*104*	*189*	*47*	*21*

	COEFF		**BASAL AREA/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	91.7	11.5	63	71	80			
WHEMLOCK	104.4	13.1	46	53	59			
TOTAL	*55.3*	*6.9*	*115*	*124*	*133*	*122*	*31*	*14*

	COEFF		**NET BF/ACRE**			# OF PLOTS REQ.		INF. POP.
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	94.9	11.9	9,183	10,418	11,654			
WHEMLOCK	104.2	13.0	6,403	7,362	8,322			
TOTAL	*56.9*	*7.1*	*16,517*	*17,781*	*19,045*	*129*	*32*	*14*

STATISTICS

PROJECT NETTLE

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
5N	6W	29	AREAS 1&2	RD30	660.00	65	272

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	65	538	8.3		
CRUISE	33	272	8.2	104,570	.3
REFOREST					
COUNT	32	266	8.3		
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
DOUGLEAV	106	30.9	25.2	92		106.5	22,434	22,027	4,923	4,867
DOUG FIR	65	40.8	17.8	68		70.3	10,921	10,258	2,706	2,595
WHEMLOCK	51	53.7	13.3	48		51.7	7,431	7,249	1,858	1,816
HEMLEAV	17	10.1	18.4	75		18.6	3,571	3,322	822	779
ALDRLEAV	15	15.3	14.3	39		17.1	1,631	1,556	473	459
SNAG	16	7.2	17.0	42		11.4	759		232	
CEDLEAV	1	.4	30.0	65		2.1	261	240	69	65
NFIRLEAV	1	.1	35.0	94	0	.5	129	129	24	24
TOTAL	*272*	*158.4*	*17.9*	*62*		*278.2*	*47,136*	*44,781*	*11,107*	*10,606*

TREES/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	37.2	4.6	29	31	32			
DOUG FIR	89.8	11.1	36	41	45			
WHEMLOCK	125.2	15.5	45	54	62			
HEMLEAV	192.6	23.9	8	10	12			
ALDRLEAV	274.4	34.0	10	15	21			
SNAG	226.9	28.1	5	7	9			
CEDLEAV	393.6	48.8	0	0	1			
NFIRLEAV	806.2	100.0		0	0			
TOTAL	*45.5*	*5.6*	*150*	*158*	*167*	*83*	*21*	*9*

BASAL AREA/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	32.8	4.1	102	107	111			
DOUG FIR	93.2	11.6	62	70	78			
WHEMLOCK	106.0	13.1	45	52	59			
HEMLEAV	177.8	22.1	15	19	23			
ALDRLEAV	249.0	30.9	12	17	22			
SNAG	292.1	36.2	7	11	15			
CEDLEAV	393.6	48.8	1	2	3			
NFIRLEAV	806.2	100.0	0	1	1			
TOTAL	*28.8*	*3.6*	*268*	*278*	*288*	*33*	*8*	*4*

NET BF/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	34.0	4.2	21,098	22,027	22,955			
DOUG FIR	96.4	12.0	9,031	10,258	11,485			
WHEMLOCK	105.8	13.1	6,298	7,249	8,200			
HEMLEAV	180.7	22.4	2,577	3,322	4,066			
ALDRLEAV	258.3	32.0	1,057	1,556	2,055			
SNAG								
CEDLEAV	393.6	48.8	123	240	357			
NFIRLEAV	806.2	100.0		129	258			
TOTAL	*29.3*	*3.6*	*43,153*	*44,781*	*46,409*	*34*	*9*	*4*

TC TSTATS

STATISTICS

PROJECT NETTLE

DATE 2/27/2002

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
4N	6W	5	A3458LV	LV35	297.00	45	126

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	45	251	5.6		
CRUISE	23	126	5.5	21,740	.6
REFOREST					
COUNT	22	125	5.7		
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	105	50.7	22.9	79		144.9	25,531	24,715	6,032	5,902
SNAG	11	15.5	16.6	39		23.2	1,736		446	
HEMLEAV	4	4.3	23.1	88		12.7	2,439	2,439	591	591
ALDRLEAV	3	2.1	18.3	30		3.7	173	173	65	65
NFIRLEAV	2	.5	28.2	84	0	2.2	441	441	95	95
SPRUCELV	1	.1	36.0	60		.7	114	114	26	26
TOTAL	*126*	*73.2*	*21.7*	*70*		*187.5*	*30,433*	*27,881*	*7,255*	*6,679*

TREES/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	40.4	6.0	48	51	54			
SNAG	192.2	28.7	11	15	20			
HEMLEAV	213.5	31.8	3	4	6			
ALDRLEAV	365.5	54.5	1	2	3			
NFIRLEAV	411.2	61.3	0	1	1			
SPRUCELV	670.8	100.0	0	0	0			
TOTAL	*47.5*	*7.1*	*68*	*73*	*78*	*90*	*23*	*10*

BASAL AREA/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	26.1	3.9	139	145	151			
SNAG	187.8	28.0	17	23	30			
HEMLEAV	213.3	31.8	9	13	17			
ALDRLEAV	344.4	51.3	2	4	6			
NFIRLEAV	378.4	56.4	1	2	4			
SPRUCELV	670.8	100.0	0	1	1			
TOTAL	*25.8*	*3.8*	*180*	*187*	*195*	*27*	*7*	*3*

NET BF/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	29.1	4.3	23,644	24,715	25,786			
SNAG								
HEMLEAV	213.8	31.9	1,661	2,439	3,216			
ALDRLEAV	331.8	49.5	88	173	259			
NFIRLEAV	382.3	57.0	189	441	692			
SPRUCELV	670.8	100.0	0	114	228			
TOTAL	*21.5*	*3.2*	*26,988*	*27,881*	*28,775*	*18*	*5*	*2*

STATISTICS

PROJECT NETTLE

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
4N	6W	5	A3458TK	TK35	297.00	45	59

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	45	104	2.3		
CRUISE	21	59	2.8	16,955	.3
REFOREST					
COUNT	18	45	2.5		
BLANKS	6				
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	48	45.5	15.9	54		62.7	8,065	7,659	2,093	2,014
WHEMLOCK	11	11.6	15.3	45		14.9	1,597	1,492	434	414
TOTAL	*59*	*57.1*	*15.8*	*53*		*77.7*	*9,662*	*9,152*	*2,527*	*2,428*

TREES/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	91.0	13.6	39	45	52			
WHEMLOCK	157.6	23.5	9	12	14			
TOTAL	*78.9*	*11.8*	*50*	*57*	*64*	*249*	*62*	*28*

BASAL AREA/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	85.9	12.8	55	63	71			
WHEMLOCK	148.3	22.1	12	15	18			
TOTAL	*79.3*	*11.8*	*68*	*78*	*87*	*251*	*63*	*28*

NET BF/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	91.8	13.7	6,611	7,659	8,707			
WHEMLOCK	153.7	22.9	1,150	1,492	1,835			
TOTAL	*88.6*	*13.2*	*7,942*	*9,152*	*10,361*	*314*	*79*	*35*

TC TSTATS

STATISTICS

PROJECT NETTLE

DATE 2/27/2002

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
4N	6W	5	AREAS3458	RD35	297.00	45	185

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	45	355	7.9		
CRUISE	23	185	8.0	38,695	.5
REFOREST					
COUNT	22	170	7.7		
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	105	50.7	22.9	79		144.9	25,531	24,715	6,032	5,902
DOUG FIR	48	45.5	15.9	54		62.7	8,065	7,659	2,093	2,014
SNAG	11	15.5	16.6	39		23.2	1,736		446	
WHEMLOCK	11	11.6	15.3	45		14.9	1,597	1,492	434	414
HEMLEAV	4	4.3	23.1	88		12.7	2,439	2,439	591	591
ALDRLEAV	3	2.1	18.3	30		3.7	173	173	65	65
NFIRLEAV	2	.5	28.2	84	0	2.2	441	441	95	95
SPRUCELV	1	.1	36.0	60		.7	114	114	26	26
TOTAL	*185*	*130.3*	*19.3*	*62*		*265.1*	*40,095*	*37,033*	*9,782*	*9,107*

SD: 1	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	40.4	6.0	48	51	54			
DOUG FIR	91.0	13.6	39	45	52			
SNAG	192.2	28.7	11	15	20			
WHEMLOCK	157.6	23.5	9	12	14			
HEMLEAV	213.5	31.8	3	4	6			
ALDRLEAV	365.5	54.5	1	2	3			
NFIRLEAV	411.2	61.3	0	1	1			
SPRUCELV	670.8	100.0	0	0	0			
TOTAL	*44.4*	*6.6*	*122*	*130*	*139*	*79*	*20*	*9*

SD: 1	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	26.1	3.9	139	145	151			
DOUG FIR	85.9	12.8	55	63	71			
SNAG	187.8	28.0	17	23	30			
WHEMLOCK	148.3	22.1	12	15	18			
HEMLEAV	213.3	31.8	9	13	17			
ALDRLEAV	344.4	51.3	2	4	6			
NFIRLEAV	378.4	56.4	1	2	4			
SPRUCELV	670.8	100.0	0	1	1			
TOTAL	*30.7*	*4.6*	*253*	*265*	*277*	*38*	*9*	*4*

SD: 1	COEFF VAR.%	S.E.%	NET BF/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	29.1	4.3	23,644	24,715	25,786			
DOUG FIR	91.8	13.7	6,611	7,659	8,707			
SNAG								
WHEMLOCK	153.7	22.9	1,150	1,492	1,835			
HEMLEAV	213.8	31.9	1,661	2,439	3,216			
ALDRLEAV	331.8	49.5	88	173	259			
NFIRLEAV	382.3	57.0	189	441	692			
SPRUCELV	670.8	100.0	0	114	228			
TOTAL	*34.2*	*5.1*	*35,143*	*37,033*	*38,923*	*47*	*12*	*5*

TC TSTATS

STATISTICS

PROJECT NETTLE

DATE 2/27/2002

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
4N	6W	4	AREAS679	CCTK	210.00	67	182

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	67	378	5.6		
CRUISE	34	182	5.4	21,497	.8
REFOREST					
COUNT	33	195	5.9		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	151	77.9	21.2	72		191.0	32,167	31,759	7,658	7,594
R ALDER	24	19.3	14.3	40		21.6	1,944	1,921	560	556
WHEMLOCK	4	4.6	13.9	32		4.8	506	506	124	124
NOB FIR	3	.6	27.4	99	0	2.4	539	539	115	115
TOTAL	*182*	*102.4*	*19.8*	*65*		*219.8*	*35,155*	*34,725*	*8,457*	*8,389*

	COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	53.7	6.6	73	78	83			
R ALDER	222.3	27.2	14	19	25			
WHEMLOCK	328.6	40.1	3	5	6			
NOB FIR	407.7	49.8	0	1	1			
TOTAL	*46.1*	*5.6*	*97*	*102*	*108*	*85*	*21*	*9*

	COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	51.5	6.3	179	191	203			
R ALDER	214.8	26.2	16	22	27			
WHEMLOCK	310.0	37.9	3	5	7			
NOB FIR	399.9	48.9	1	2	4			
TOTAL	*39.9*	*4.9*	*209*	*220*	*230*	*64*	*16*	*7*

	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	53.7	6.6	29,676	31,759	33,842			
R ALDER	215.1	26.3	1,416	1,921	2,426			
WHEMLOCK	317.3	38.8	310	506	702			
NOB FIR	400.1	48.9	275	539	802			
TOTAL	*45.5*	*5.6*	*32,796*	*34,725*	*36,654*	*83*	*21*	*9*

STATISTICS

PROJECT NETTLE

DATE 2/27/2002

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES
4N	6W	4	AREAS679	CCUT	210.00	67	193

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	67	409	6.1		
CRUISE	34	193	5.7	22,705	.9
REFOREST					
COUNT	33	215	6.5		
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	151	77.9	21.2	72		191.0	32,167	31,759	7,658	7,594
R ALDER	24	19.3	14.3	40		21.6	1,944	1,921	560	556
SNAG	10	5.0	25.6	35		17.9	840		230	
WHEMLOCK	4	4.6	13.9	32		4.8	506	506	124	124
NOB FIR	3	.6	27.4	99	0	2.4	539	539	115	115
DOUGLEAV	1	.8	24.0	99		2.4	471	471	113	113
TOTAL	*193*	*108.1*	*20.2*	*63*		*240.1*	*36,466*	*35,196*	*8,799*	*8,502*

TREES/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	53.7	6.6	73	78	83			
R ALDER	222.3	27.2	14	19	25			
SNAG	163.0	19.9	4	5	6			
WHEMLOCK	328.6	40.1	3	5	6			
NOB FIR	407.7	49.8	0	1	1			
DOUGLEAV	644.2	78.7	0	1	1			
TOTAL	*44.1*	*5.4*	*102*	*108*	*114*	*78*	*19*	*9*

BASAL AREA/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	51.5	6.3	179	191	203			
R ALDER	214.8	26.2	16	22	27			
SNAG	146.9	18.0	15	18	21			
WHEMLOCK	310.0	37.9	3	5	7			
NOB FIR	399.9	48.9	1	2	4			
DOUGLEAV	644.2	78.7	1	2	4			
TOTAL	*38.6*	*4.7*	*229*	*240*	*251*	*59*	*15*	*7*

NET BF/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	53.7	6.6	29,676	31,759	33,842			
R ALDER	215.1	26.3	1,416	1,921	2,426			
SNAG								
WHEMLOCK	317.3	38.8	310	506	702			
NOB FIR	400.1	48.9	275	539	802			
DOUGLEAV	644.2	78.7	100	471	842			
TOTAL	*44.5*	*5.4*	*33,282*	*35,196*	*37,111*	*79*	*20*	*9*

TC PSTATS

PROJECT STATISTICS

PROJECT NETTLE

DATE 2/27/2002

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES
4N	6W	4	A679 ROW	CCR	39.00	177	639
4N	6W	5	A3458 ROW	35RW			
5N	6W	29	A1&2 ROW	30RW			

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	177	1272	7.2		
CRUISE	90	639	7.1	5,302	12.1
REFOREST					
COUNT	87	632	7.3		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	476	78.4	21.0	74		187.7	33,118	32,229	7,753	7,610
WHEMLOCK	86	36.5	14.4	51		41.2	6,195	5,960	1,522	1,476
R ALDER	42	13.8	14.4	39		15.7	1,428	1,385	416	408
SNAG	27	6.7	16.8	41		10.3	726		205	
NOB FIR	6	.3	28.6	93	0	1.4	319	319	68	68
WR CEDAR	1	.2	30.0	65		1.0	127	117	33	32
S SPRUCE	1	.0	36.0	60		.2	23	23	5	5
TOTAL	*639*	*136.0*	*18.6*	*63*		*257.5*	*41,936*	*40,033*	*10,002*	*9,599*

TREES/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	55.4	4.2	75	78	82			
WHEMLOCK	184.9	13.9	32	37	41			
R ALDER	277.6	20.9	11	14	17			
SNAG	286.4	21.5	5	7	8			
NOB FIR	487.7	36.7	0	0	0			
WR CEDAR	659.5	49.6	0	0	0			
S SPRUCE	1330.4	100.0		0	0			
TOTAL	*48.2*	*3.6*	*131*	*136*	*141*	*93*	*23*	*10*

BASAL AREA/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	47.6	3.6	181	188	194			
WHEMLOCK	165.3	12.4	37	41	46			
R ALDER	256.2	19.3	13	16	19			
SNAG	307.4	23.1	8	10	13			
NOB FIR	462.7	34.8	1	1	2			
WR CEDAR	659.5	49.6	1	1	1			
S SPRUCE	1330.4	100.0		0	0			
TOTAL	*34.4*	*2.6*	*251*	*258*	*264*	*47*	*12*	*5*

NET BF/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	48.3	3.6	31,062	32,229	33,396			
WHEMLOCK	176.0	13.2	5,312	5,960	6,607			
R ALDER	267.1	20.1	1,115	1,385	1,654			
SNAG								
NOB FIR	467.0	35.1	192	319	447			
WR CEDAR	659.5	49.6	73	117	161			
S SPRUCE	1330.4	100.0		23	52			
TOTAL	*39.0*	*2.9*	*38,893*	*40,033*	*41,173*	*61*	*15*	*7*

TC TSTNDSUM

Stand Table Summary

Project NETTLE

T4N R6W S5 TLV35

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
4N	6W	5	A3458LV	LV35	297.00	45	126

T4N R6W S5 TLV35

Date: 2/27/02

Time: 4:21:02PM

Spc	S T	Sample DBH	Trees	FF 16	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net *Bd.Ft.*	Tons/ *Acre*	Net Cu.Ft. Acre	Net *Bd.Ft.* Acre	Totals Tons	Totals Cunits	Totals MBF
DL		13	2	88	52	2.994	2.76	2.99	19.5	55.0		58	165		173	49
DL		14	1	89	43	1.291	1.38	1.29	19.0	50.0		25	65		73	19
DL		15	1	89	67	1.124	1.38	2.25	18.0	70.0		40	157		120	47
DL		16	2	86	100	1.977	2.76	4.94	20.8	78.0		103	385		305	114
DL		17	2	88	81	1.751	2.76	3.50	25.8	95.0		90	333		268	99
DL		18	4	89	83	3.124	5.52	7.03	25.0	91.1		176	640		522	190
DL		19	2	85	106	1.402	2.76	3.50	33.0	120.0		116	421		343	125
DL		20	7	87	100	4.428	9.66	9.49	39.3	137.3		373	1,303		1,108	387
DL		21	5	88	96	2.869	6.90	6.88	38.6	150.0		266	1,033		789	307
DL		22	16	87	108	8.364	22.08	21.96	41.6	167.1		913	3,670		2,712	1,090
DL		23	2	89	109	.957	2.76	2.87	40.0	166.7		115	478		341	142
DL		24	11	87	115	4.832	15.18	14.06	47.1	198.7		662	2,794		1,965	830
DL		25	5	89	111	2.024	6.90	4.86	59.8	249.2		291	1,210		863	359
DL		26	10	87	117	3.743	13.80	9.73	62.8	260.4		611	2,534		1,814	753
DL		27	2	88	109	.694	2.76	1.74	69.6	296.0		121	514		359	153
DL		28	7	88	110	2.259	9.66	5.81	69.1	302.8		401	1,759		1,192	522
DL		29	4	88	126	1.203	5.52	3.91	68.9	328.5		270	1,285		801	382
DL		30	8	88	104	2.249	11.04	5.62	80.0	359.0		450	2,018		1,335	599
DL		31	5	88	119	1.316	6.90	3.69	82.2	398.6		303	1,469		900	436
DL		32	6	87	115	1.482	8.28	3.95	90.8	421.2		359	1,665		1,066	495
DL		33	2	89	105	.465	2.76	1.16	83.8	416.0		97	483		289	144
DL		41	1	89	127	.151	1.38	.45	140.7	740.0		64	334		189	99
DL		Totals	105	88	100	50.698	144.90	121.68	48.5	203.1		5,902	24,715		17,528	7,340
HL		22	2	89	105	2.405	6.35	6.01	48.8	206.0		293	1,239		871	368
HL		24	1	89	121	1.010	3.17	3.03	54.3	230.0		165	697		489	207
HL		25	1	88	95	.931	3.17	1.86	71.5	270.0		133	503		395	149
HL		Totals	4	89	107	4.347	12.70	10.91	54.2	223.6		591	2,439		1,756	724
NFL		23	1	91	99	.388	1.12	.78	59.0	235.0		46	182		136	54
NFL		40	1	89	107	.128	1.12	.39	128.7	670.0		50	258		147	77
NFL		Totals	2	91	101	.517	2.24	1.16	82.1	379.2		95	441		283	131
AL		17	2	86	35	1.579	2.49	1.58	25.5	50.0		40	79		120	23
AL		22	1	82	38	.472	1.24	.94	26.5	100.0		25	94		74	28
AL		Totals	3	85	36	2.051	3.73	2.52	25.9	68.7		65	173		194	51
SL		36	1	86	72	.106	.75	.21	121.0	540.0		26	114		76	34
SL		Totals	1	86	72	.106	.75	.21	121.0	540.0		26	114		76	34
SN		9	1	88	56	4.764	2.10									
SN		13	1	89	43	2.284	2.10									
SN		14	1	84	62	1.969	2.10									
SN		15	1	89	39	1.715	2.10									
SN		16	1	85	119	1.508	2.10									
SN		18	1	80	27	1.191	2.10									
SN		22	2	89	68	1.595	4.21									
SN		40	1	80	27	.241	2.10									
SN		60	2	89	52	.214	4.21									
SN		Totals	11	87	58	15.481	23.15									
Totals			126	87	90	73.199	187.47	136.49	48.9	204.3		6679	27,881		19,837	8,281

TC TSTNDSUM

Stand Table Summary

Project NETTLE

T5N R6W S29 TLV30

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
5N	6W	29	A 1&2 LV	LV30	660.00	65	156

Date: 2/27/02
Time: **4:21:02PM**

Spc	S T	DBH	Sample Trees	FF 16	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net *Bd.Ft.*	Tons/ *Acre*	Net Cu.Ft. Acre	Net *Bd.Ft.* Acre	Totals Tons	Totals Cunits	Totals MBF
DL		16	1	88	109	.720	1.00	1.44	30.0	120.0		43	173		285	114
DL		17	1	88	112	.638	1.00	1.91	23.0	90.0		44	172		290	114
DL		18	2	90	127	1.137	2.01	3.41	29.0	120.0		99	409		653	270
DL		20	7	89	106	3.224	7.03	7.83	37.2	148.2		292	1,161		1,924	766
DL		21	5	89	112	2.089	5.02	6.27	35.1	152.0		220	953		1,453	629
DL		22	6	89	107	2.284	6.03	6.47	39.4	165.3		255	1,070		1,683	706
DL		23	2	88	104	.697	2.01	1.39	58.0	220.0		81	306		533	202
DL		24	14	88	118	4.478	14.07	12.79	49.6	213.0		634	2,725		4,186	1,799
DL		25	3	89	119	.884	3.01	2.65	50.0	227.8		133	604		876	399
DL		26	17	88	120	4.633	17.08	12.81	61.0	272.1		781	3,486		5,154	2,301
DL		27	5	87	110	1.264	5.02	3.03	70.6	299.2		214	907		1,413	599
DL		28	13	90	120	3.055	13.06	9.17	66.7	320.3		611	2,935		4,034	1,937
DL		29	2	90	123	.438	2.01	1.31	73.3	348.3		96	458		636	302
DL		30	14	88	125	2.866	14.07	8.19	81.3	381.5		666	3,124		4,395	2,062
DL		31	2	88	132	.383	2.01	1.34	75.4	368.6		101	495		668	326
DL		32	9	90	135	1.619	9.04	5.22	89.3	460.3		466	2,402		3,074	1,585
DL		34	1	86	103	.159	1.00	.48	83.3	323.3		40	155		263	102
DL		36	2	90	124	.284	2.01	.85	106.2	576.7		91	492		598	325
DL		Totals	106	89	117	30.853	106.52	86.57	56.2	254.4		4,867	22,027		32,119	14,538
HL		12	1	91	46	1.394	1.09	1.39	16.0	50.0		22	70		147	46
HL		16	4	88	111	3.137	4.38	7.06	28.9	112.2		204	792		1,346	523
HL		17	1	94	118	.695	1.09	2.08	27.0	113.3		56	236		371	156
HL		18	3	92	99	1.859	3.28	4.96	29.8	126.3		147	626		973	413
HL		19	1	93	79	.556	1.09	1.11	34.0	135.0		38	150		250	99
HL		20	1	92	79	.502	1.09	1.00	21.5	80.0		22	80		142	53
HL		22	1	91	110	.415	1.09	1.24	44.0	196.7		55	245		361	162
HL		23	1	89	128	.380	1.09	1.14	47.0	236.7		54	269		353	178
HL		26	2	89	101	.594	2.19	1.48	59.4	276.0		88	410		582	270
HL		27	1	86	101	.275	1.09	.83	48.7	226.7		40	187		265	124
HL		28	1	91	110	.256	1.09	.77	69.3	333.3		53	256		352	169
HL		Totals	17	90	97	10.062	18.61	23.07	33.8	144.0		779	3,322		5,143	2,192
AL		9	1	87	24	2.575	1.14	2.57	6.0	20.0		15	51		102	34
AL		10	1	87	21	2.086	1.14	2.09	7.0	30.0		15	63		96	41
AL		11	1		53	1.724	1.14	1.72	16.0	50.0		28	86		182	57
AL		12	1	86	23	1.448	1.14	1.45	10.0	30.0		14	43		96	29
AL		13	2	87	99	2.468	2.28	6.17	14.4	54.0		89	333		586	220
AL		17	3	93	68	2.165	3.41	3.61	27.2	92.0		98	332		648	219
AL		18	1	83	48	.644	1.14	.64	38.0	60.0		24	39		161	25
AL		20	2	87	51	1.043	2.28	1.56	33.3	80.0		52	125		344	83
AL		22	2	84	64	.862	2.28	1.72	38.0	127.5		66	220		432	145
AL		25	1	89	121	.334	1.14	1.00	58.0	263.3		58	264		383	174
AL		Totals	15	88	52	15.348	17.06	22.54	20.4	69.0		459	1,556		3,031	1,027
CL		30	1	86	86	.421	2.07	.84	77.5	285.0		65	240		431	159
CL		Totals	1	86	86	.421	2.07	.84	77.5	285.0		65	240		431	159
NFL		35	1	89	116	.077	.52	.23	104.7	556.7		24	129		160	85
NFL		Totals	1	89	116	.077	.52	.23	104.7	556.7		24	129		160	85
SN		11	1	89	68	1.077	.71									
SN		12	3	88	61	2.716	2.13									

TC TSTNDSUM

Stand Table Summary

Project NETTLE

T5N R6W S29 TLV30

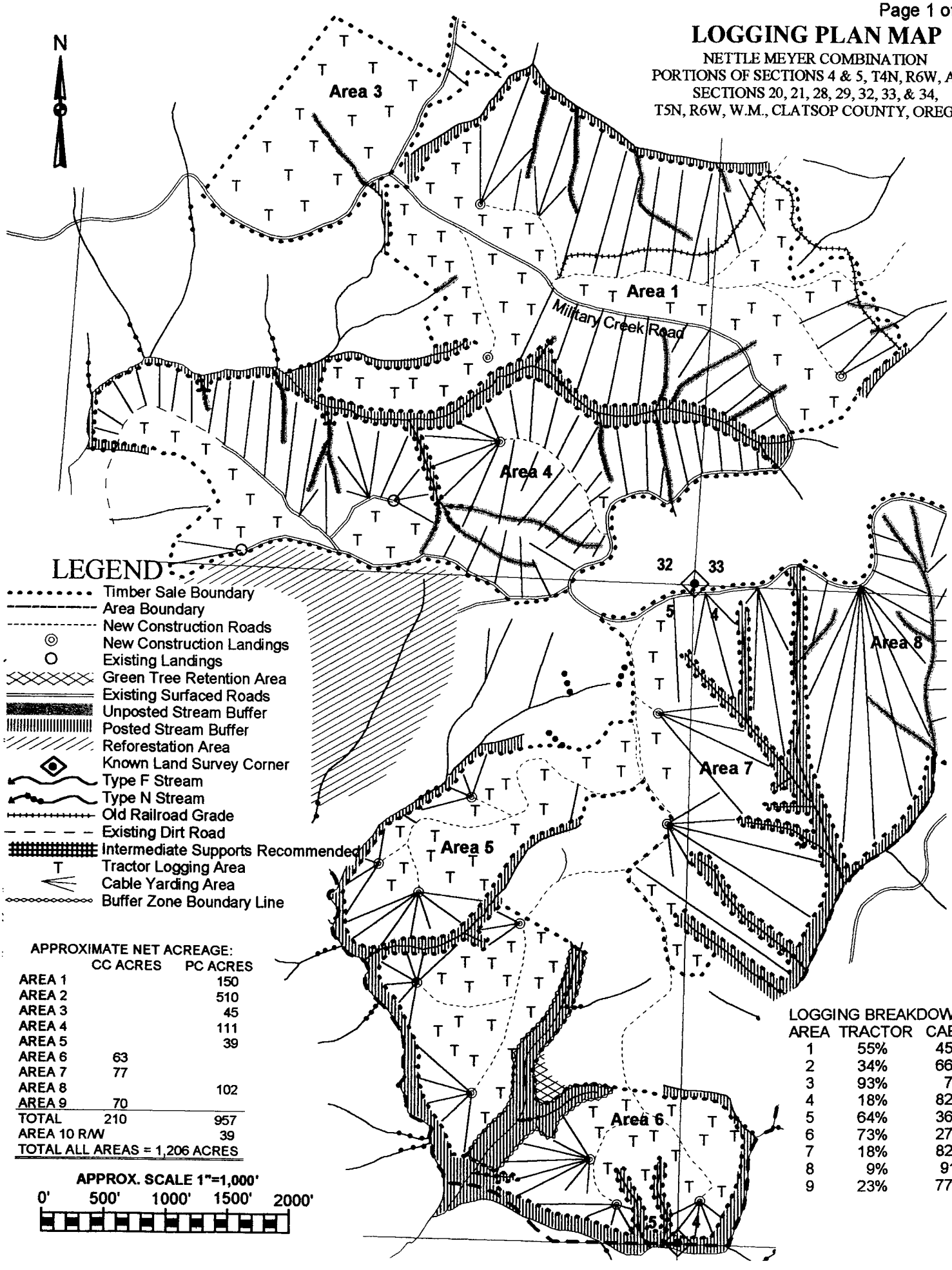
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
5N	6W	29	A 1&2 LV	LV30	660.00	65	156

Date: 2/27/02
Time: **4:21:02PM**

Spc	S T	DBH	Sample Trees	FF 16	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net *Bd.Ft.*	Tons/ *Acre*	Net Cu.Ft. Acre	Net *Bd.Ft.* Acre	Totals Tons	Totals Cunits	Totals MBF
SN		13	1	88	45	.771	.71									
SN		16	1	89	80	.509	.71									
SN		18	3	88	66	1.207	2.13									
SN		20	1	88	86	.326	.71									
SN		30	1	88	18	.145	.71									
SN		32	1	89	25	.127	.71									
SN		36	1	89	35	.101	.71									
SN		40	2	88	20	.163	1.42									
SN		42	1	88	38	.074	.71									
SN		Totals	16	88	61	7.216	11.38									
Totals			156	89	92	63.979	156.16	133.27	46.5	204.7		6195	27,274		40,886	18,001

LOGGING PLAN MAP

NETTLE MEYER COMBINATION
PORTIONS OF SECTIONS 4 & 5, T4N, R6W, AND
SECTIONS 20, 21, 28, 29, 32, 33, & 34,
T5N, R6W, W.M., CLATSOP COUNTY, OREGON



LEGEND

- Timber Sale Boundary
- Area Boundary
- New Construction Roads
- New Construction Landings
- Existing Landings
- Green Tree Retention Area
- Existing Surfaced Roads
- Unposted Stream Buffer
- Posted Stream Buffer
- Reforestation Area
- Known Land Survey Corner
- Type F Stream
- Type N Stream
- Old Railroad Grade
- Existing Dirt Road
- Intermediate Supports Recommended
- T — Tractor Logging Area
- Cable Yarding Area
- Buffer Zone Boundary Line

APPROXIMATE NET ACREAGE:

	CC ACRES	PC ACRES
AREA 1		150
AREA 2		510
AREA 3		45
AREA 4		111
AREA 5		39
AREA 6	63	
AREA 7	77	
AREA 8		102
AREA 9	70	
TOTAL	210	957
AREA 10 R/W		39
TOTAL ALL AREAS = 1,206 ACRES		

APPROX. SCALE 1"=1,000'

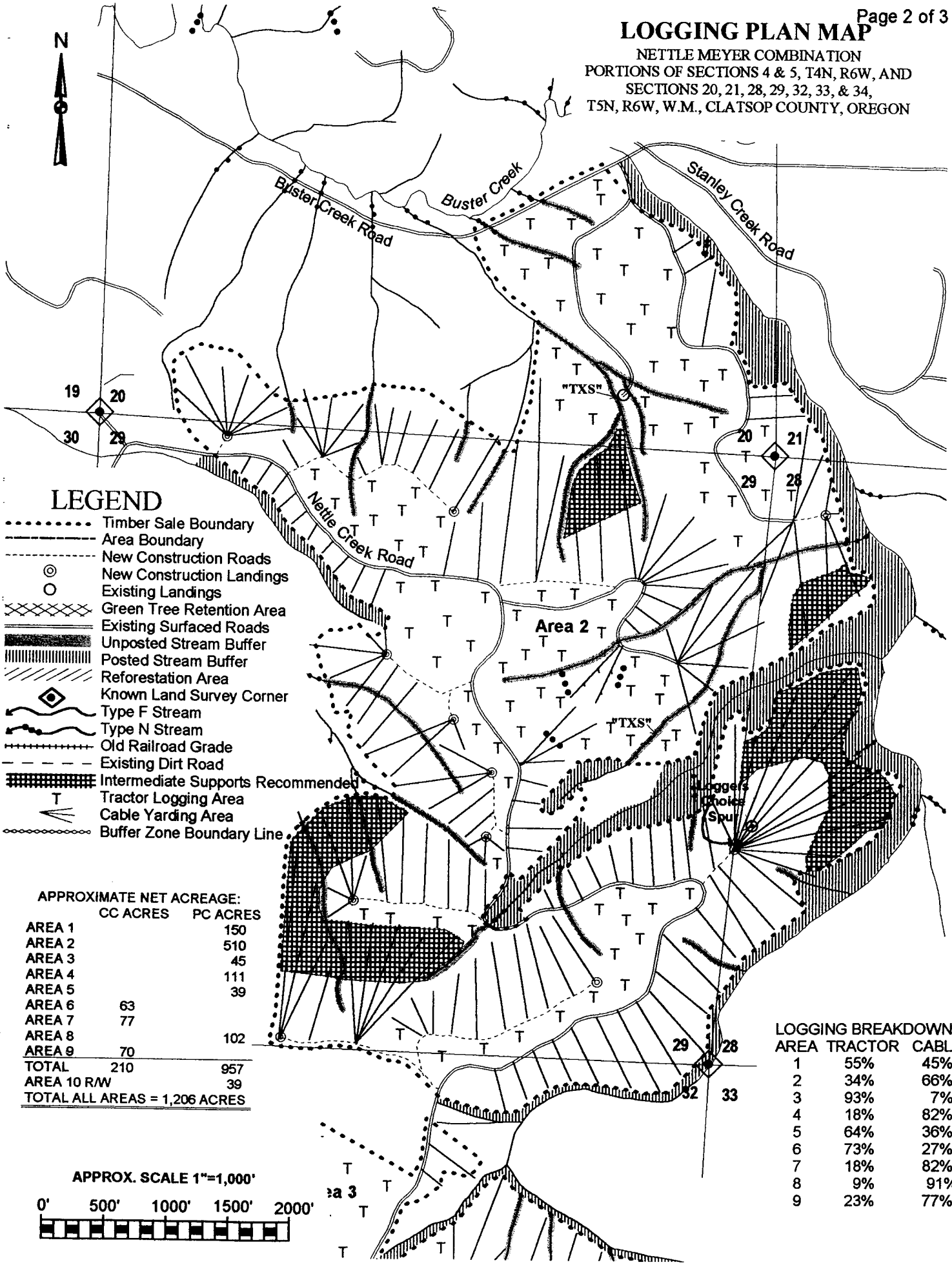
0' 500' 1000' 1500' 2000'

LOGGING BREAKDOWN

AREA	TRACTOR	CABLE
1	55%	45%
2	34%	66%
3	93%	7%
4	18%	82%
5	64%	36%
6	73%	27%
7	18%	82%
8	9%	91%
9	23%	77%

LOGGING PLAN MAP

NETTLE MEYER COMBINATION
PORTIONS OF SECTIONS 4 & 5, T4N, R6W, AND
SECTIONS 20, 21, 28, 29, 32, 33, & 34,
T5N, R6W, W.M., CLATSOP COUNTY, OREGON



LEGEND

- Timber Sale Boundary
- Area Boundary
- New Construction Roads
- New Construction Landings
- Existing Landings
- Green Tree Retention Area
- Existing Surfaced Roads
- Unposted Stream Buffer
- Posted Stream Buffer
- Reforestation Area
- Known Land Survey Corner
- Type F Stream
- Type N Stream
- Old Railroad Grade
- Existing Dirt Road
- Intermediate Supports Recommended
- T — Tractor Logging Area
- Cable Yarding Area
- Buffer Zone Boundary Line

APPROXIMATE NET ACREAGE:

	CC ACRES	PC ACRES
AREA 1		150
AREA 2		510
AREA 3		45
AREA 4		111
AREA 5		39
AREA 6	63	
AREA 7	77	
AREA 8		102
AREA 9	70	
TOTAL	210	957
AREA 10 R/W		39
TOTAL ALL AREAS = 1,206 ACRES		

APPROX. SCALE 1"=1,000'

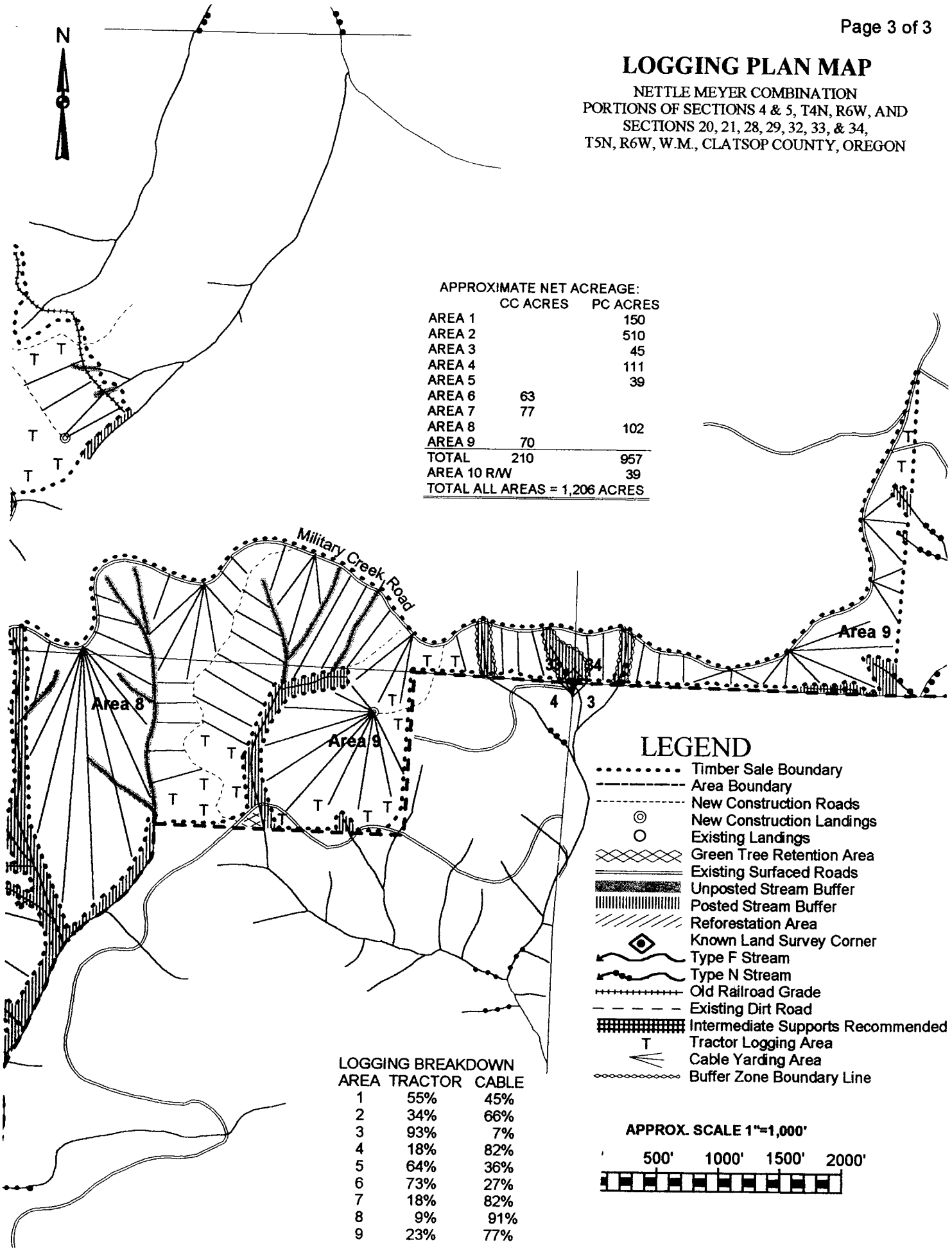
0' 500' 1000' 1500' 2000'

LOGGING BREAKDOWN

AREA	TRACTOR	CABLE
1	55%	45%
2	34%	66%
3	93%	7%
4	18%	82%
5	64%	36%
6	73%	27%
7	18%	82%
8	9%	91%
9	23%	77%

LOGGING PLAN MAP

NETTLE MEYER COMBINATION
PORTIONS OF SECTIONS 4 & 5, T4N, R6W, AND
SECTIONS 20, 21, 28, 29, 32, 33, & 34,
T5N, R6W, W.M., CLATSOP COUNTY, OREGON



APPROXIMATE NET ACREAGE:

	CC ACRES	PC ACRES
AREA 1		150
AREA 2		510
AREA 3		45
AREA 4		111
AREA 5		39
AREA 6	63	
AREA 7	77	
AREA 8		102
AREA 9	70	
TOTAL	210	957
AREA 10 R/W		39
TOTAL ALL AREAS = 1,206 ACRES		

LOGGING BREAKDOWN

AREA	TRACTOR	CABLE
1	55%	45%
2	34%	66%
3	93%	7%
4	18%	82%
5	64%	36%
6	73%	27%
7	18%	82%
8	9%	91%
9	23%	77%

LEGEND

- Timber Sale Boundary
- Area Boundary
- New Construction Roads
- New Construction Landings
- Existing Landings
- Green Tree Retention Area
- Existing Surfaced Roads
- Unposted Stream Buffer
- Posted Stream Buffer
- Reforestation Area
- Known Land Survey Corner
- Type F Stream
- Type N Stream
- Old Railroad Grade
- Existing Dirt Road
- Intermediate Supports Recommended
- T — Tractor Logging Area
- Cable Yarding Area
- Buffer Zone Boundary Line

APPROX. SCALE 1"=1,000'

500' 1000' 1500' 2000'

FOREST PRACTICES ACT "WRITTEN PLAN"
For Harvest of Nettle Meyer Combination

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

Protected Resources:

TYPE F STREAMS: There are 9 Medium Type F streams possibly located within 100 feet of operations. These streams are as follows:

1. Stanley Creek is located along the northeast boundary of Area 2 (partial cut), in Sections 20, 21, and 28, T5N, R6W. Length of the affected stream requiring protection is approximately 6,000 feet.
2. Unnamed tributary to Stanley Creek is located in the west half of Area 2 (partial cut), in Sections 28 and 29, T5N, R6W. Length of the affected stream requiring protection is approximately 4,000 feet.
3. Another unnamed tributary to Stanley Creek is located along the southeast boundary of Area 2 (partial cut), in Section 28, T5N, R6W. Length of the affected stream requiring protection is approximately 2,500 feet.
4. Nettle Creek is located along the western boundary of Area 2 (partial cut), in Section 29, T5N, R6W. Length of the affected stream requiring protection is approximately 1,000 feet.
5. Unnamed Tributary to Nettle Creek is located in the southwest portion of Area 2 (partial cut), in Section 29, T5N, R6W. Length of the affected stream requiring protection is approximately 900 feet.
6. Unnamed tributary to the North Fork of Rock Creek is located along the southern boundary of Area 1 (partial cut) and the northern and western boundary of Area 4 (partial cut), in Section 32, T5N, R6W. Length of the affected stream requiring protection is approximately 4,500 feet.
7. Another unnamed tributary to the North Fork of Rock Creek is located along the southwest boundary of Area 5 (partial cut), in Section 5, T4N, R6W. Length of the affected stream requiring protection is approximately 1,200 feet.
8. The North Fork of Rock Creek is located along the southwest and south boundary of Area 6 (clearcut), in Section 5, T4N, R6W. Length of the affected stream requiring protection is approximately 4,000 feet.
9. Another unnamed tributary to the North Fork of Rock Creek is located along the southeast boundary of Area 6 (clearcut), in Section 4, T4N, R6W. Length of the affected stream requiring protection is approximately 1,000 feet.
10. Another unnamed tributary to the North Fork of Rock Creek is located within Area 6 (clearcut), in Section 5, T4N, R6W, W.M., Clatsop County, Oregon. Length of the affected stream requiring protection is approximately 1,300 feet.

Specific Site Characteristics:

The streambeds are approximately 6 feet wide, with moderate to steep streambank slopes. Streamside vegetation is dominated by mature alder and brush, with a significant component of conifer trees, which are mostly located above the flood plain.

Tree and Vegetation Retention:

The FPA defines the RMA width of a medium, Type F stream at 70 feet. In all of the specified harvest areas, all trees and shrubs within the posted buffers will be retained and left undamaged.
The timber sale boundary for Areas 1, 2, 4, and 5 (partial cuts) are posted between 30 feet to well over 100 feet from the stream. Additionally, within the partial cut units, upslope from the posted buffers, between 140 and 160 square feet of basal area retention of the largest trees will provide sufficient shade and large down wood potential.
The timber sale boundary for Area 6 is a minimum of 100 feet (horizontal distance) from all Type streams, well exceeding FPA requirements.

FOREST PRACTICES ACT "WRITTEN PLAN"
For Harvest of Nettle Meyer Combination

Practices:

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

- No trees will be felled within posted stream buffers (RMA's).
- Trees adjacent to the posted stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- No ground based logging equipment will be permitted within the posted RMA's nor within 50 feet of any live stream.
- When cable logging is conducted nearby the RMA's, logging lines may cross, but will not be lowered into the RMA's during yarding, except during rigging. During rigging the lines must be pulled out of the RMA's when changing corridors.

Attachments: Logging Plan Map

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

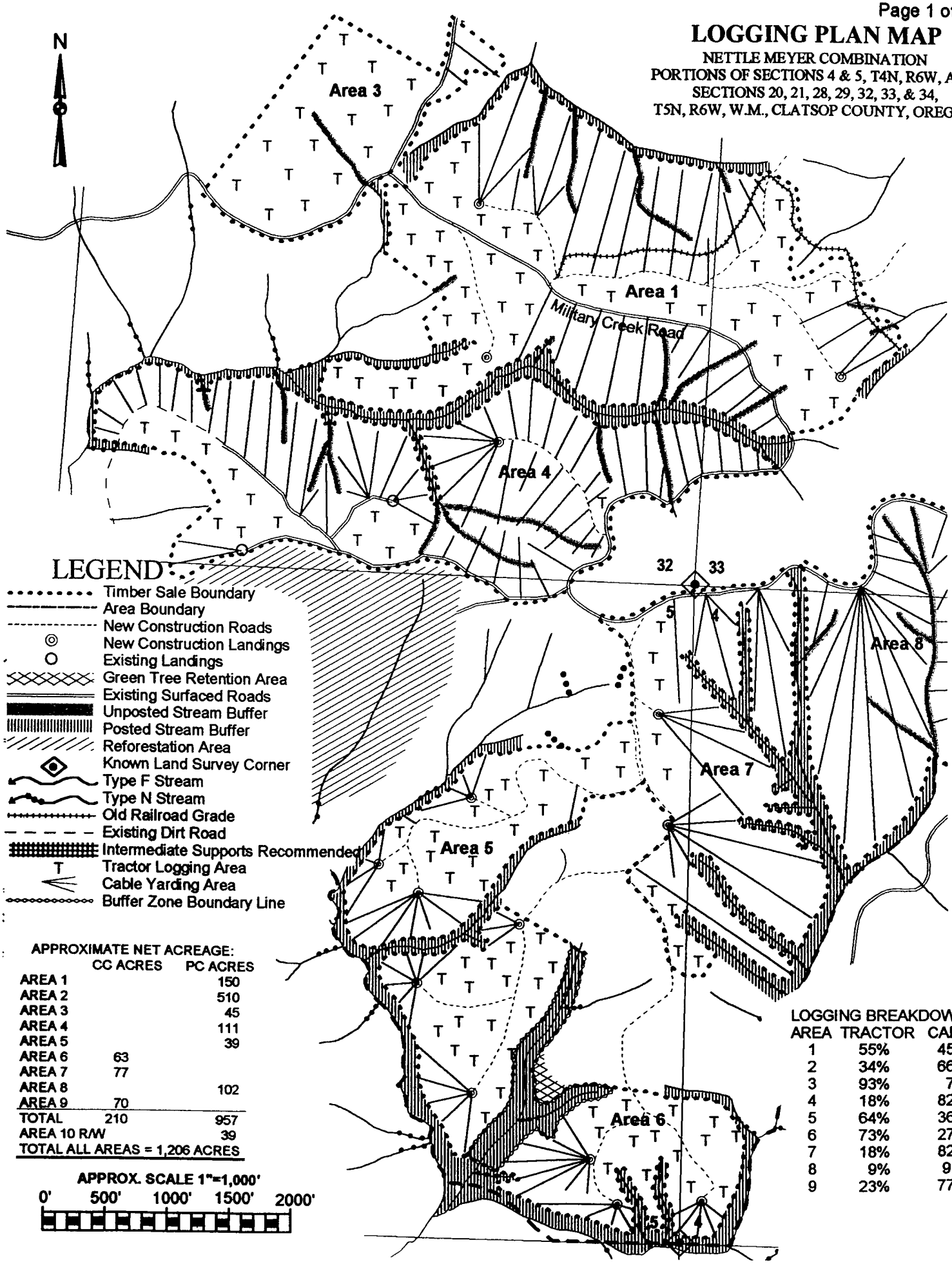
Approved: Dan Goody Date: 3/16/02
State Lands Forester

Approved: _____ Date: _____
Forest Practices Forester

X:\Timber Mgt\Jewell\Timber Sales\2002\Nettle Meyer Combination\Sale Prep\Sale reports\Written Plan-Harvest.doc

LOGGING PLAN MAP

NETTLE MEYER COMBINATION
PORTIONS OF SECTIONS 4 & 5, T4N, R6W, AND
SECTIONS 20, 21, 28, 29, 32, 33, & 34,
T5N, R6W, W.M., CLATSOP COUNTY, OREGON



LEGEND

- Timber Sale Boundary
- Area Boundary
- New Construction Roads
- New Construction Landings
- Existing Landings
- Green Tree Retention Area
- Existing Surfaced Roads
- Unposted Stream Buffer
- Posted Stream Buffer
- Reforestation Area
- Known Land Survey Corner
- Type F Stream
- Type N Stream
- Old Railroad Grade
- Existing Dirt Road
- Intermediate Supports Recommended
- T — Tractor Logging Area
- Cable Yarding Area
- Buffer Zone Boundary Line

APPROXIMATE NET ACREAGE:

	CC ACRES	PC ACRES
AREA 1		150
AREA 2		510
AREA 3		45
AREA 4		111
AREA 5		39
AREA 6	63	
AREA 7	77	
AREA 8		102
AREA 9	70	
TOTAL	210	957
AREA 10 R/W		39

TOTAL ALL AREAS = 1,206 ACRES

APPROX. SCALE 1"=1,000'

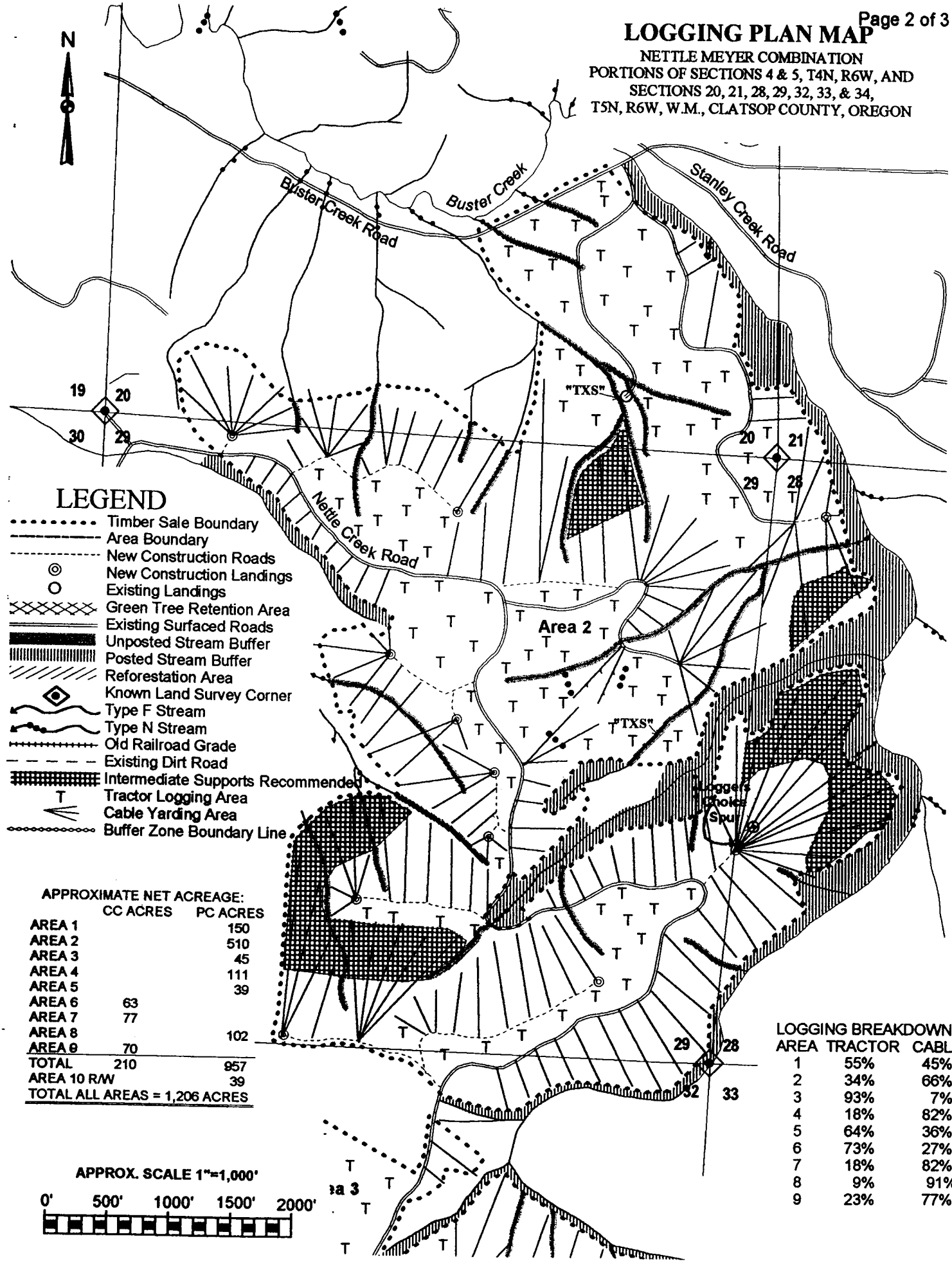
0' 500' 1000' 1500' 2000'

LOGGING BREAKDOWN

AREA	TRACTOR	CABLE
1	55%	45%
2	34%	66%
3	93%	7%
4	18%	82%
5	64%	36%
6	73%	27%
7	18%	82%
8	9%	91%
9	23%	77%

LOGGING PLAN MAP

NETTLE MEYER COMBINATION
PORTIONS OF SECTIONS 4 & 5, T4N, R6W, AND
SECTIONS 20, 21, 28, 29, 32, 33, & 34,
T5N, R6W, W.M., CLATSOP COUNTY, OREGON



LEGEND

- Timber Sale Boundary
- Area Boundary
- New Construction Roads
- New Construction Landings
- Existing Landings
- Green Tree Retention Area
- Existing Surfaced Roads
- Unposted Stream Buffer
- Posted Stream Buffer
- Reforestation Area
- Known Land Survey Corner
- Type F Stream
- Type N Stream
- Old Railroad Grade
- Existing Dirt Road
- Intermediate Supports Recommended
- T — Tractor Logging Area
- Cable Yarding Area
- Buffer Zone Boundary Line

APPROXIMATE NET ACREAGE:

	CC ACRES	PC ACRES
AREA 1		150
AREA 2		510
AREA 3		45
AREA 4		111
AREA 5		39
AREA 6	63	
AREA 7	77	
AREA 8		102
AREA 9	70	
TOTAL	210	957
AREA 10 R/W		39
TOTAL ALL AREAS = 1,206 ACRES		

APPROX. SCALE 1"=1,000'

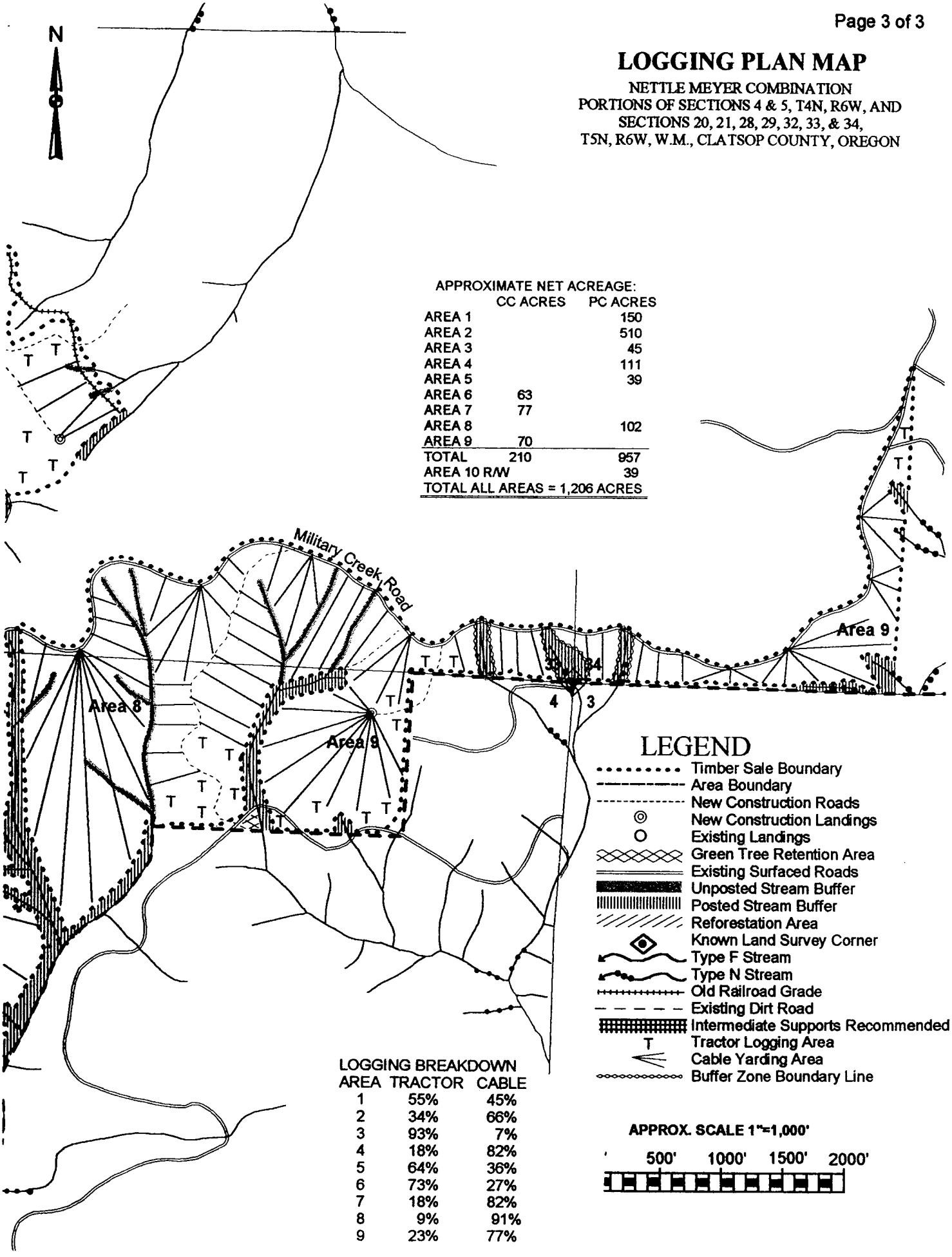
0' 500' 1000' 1500' 2000'

LOGGING BREAKDOWN

AREA	TRACTOR	CABLE
1	55%	45%
2	34%	66%
3	93%	7%
4	18%	82%
5	64%	36%
6	73%	27%
7	18%	82%
8	9%	91%
9	23%	77%

LOGGING PLAN MAP

NETTLE MEYER COMBINATION
PORTIONS OF SECTIONS 4 & 5, T4N, R6W, AND
SECTIONS 20, 21, 28, 29, 32, 33, & 34,
T5N, R6W, W.M., CLATSOP COUNTY, OREGON



APPROXIMATE NET ACREAGE:

	CC ACRES	PC ACRES
AREA 1		150
AREA 2		510
AREA 3		45
AREA 4		111
AREA 5		39
AREA 6	63	
AREA 7	77	
AREA 8		102
AREA 9	70	
TOTAL	210	957
AREA 10 R/W		39
TOTAL ALL AREAS = 1,206 ACRES		

LOGGING BREAKDOWN

AREA	TRACTOR	CABLE
1	55%	45%
2	34%	66%
3	93%	7%
4	18%	82%
5	64%	36%
6	73%	27%
7	18%	82%
8	9%	91%
9	23%	77%

LEGEND

- Timber Sale Boundary
- Area Boundary
- New Construction Roads
- New Construction Landings
- Existing Landings
- Green Tree Retention Area
- Existing Surfaced Roads
- Unposted Stream Buffer
- Posted Stream Buffer
- Reforestation Area
- Known Land Survey Corner
- Type F Stream
- Type N Stream
- Old Railroad Grade
- Existing Dirt Road
- Intermediate Supports Recommended
- T — Tractor Logging Area
- Cable Yarding Area
- Buffer Zone Boundary Line

APPROX. SCALE 1"=1,000'

500' 1000' 1500' 2000'

FOREST PRACTICES ACT "WRITTEN PLAN"
For the Buster Creek Road Re-alignment and Culvert Replacement
Nettle Meyer Combination Timber Sale

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

Protected Resources:

A) Buster Creek, large Type F stream, located in the SW¼, NW¼, Section 25, T5N, R6W, W. M., Clatsop County, Oregon. A "written plan" is required for any activities within 100 feet of any type F stream

B) A small type F tributary of Buster Creek, located in SE¼ Section 19, T5N, R6W, W. M., Clatsop County, Oregon. A "written plan" is required for any activities within 100 feet of any type F stream and for the construction of fills over 15 feet high.

Situation:

A) Streambank erosion is occurring at a bend in Buster Creek, causing chronic, small slumps on the riparian side of the Buster Creek Mainline, impacting the stability of the road prism. The portion of the road impacted by this, will be realigned into the hillside. Approximately 10 to 20 trees will be removed to facilitate proper road reconstruction. The remaining number of trees within the affected portion of the RMA exceeds those required by the FPA for a large, Type F stream.

B) An existing culvert stream crossing structure, located on Buster Creek Road is undersized and in a deteriorating condition. The existing structure is a blockage to fish passage upstream.

Drainage Area and Stream Crossing Design: The existing culvert will be replaced with an 81"x59" sunken 12 gage aluminized steel pipe arch. The stream crossing will be a streambed simulation and preserve a natural stream channel (waterway), a minimum of 4 feet wide. The stream crossing meets and exceeds the requirements of the FPA for type F stream crossings. The fill will be reconstructed to a height of 16.5 feet. It will take sufficient time and flow conditions for the stream bed to form inside and above the stream crossing.

Existing Stream Gradient:	6%
Size of Watershed:	45 acres
Developed Waterway Width:	4 feet
Stream Bed Materials:	Fines, Gravel, Cobbles
50-Year Peak Flow/Mile^2:	300 cfs
50-Year Peak Flow:	21 cfs
Flow Capacity of Structure:	114 cfs

Resource Protection Measures:

A)

1) All timber will be felled parallel to or away from protected waters.
2) No machine activity within 25 feet of stream channel.
3) Minimum 1½ cubic yard track mounted excavator type equipment shall be used for embankment excavation.
4) Excavated embankment materials will be hauled to approved waste areas, sloped for drainage and left in a stable condition.
5) Erosion control measures shall be applied to all exposed excavation areas, bare soils and waste materials.

B)

1) Machine activity in stream channels will be minimized.
2) In stream work shall be conducted during periods of low water flows and between July 1 and August 31, annually.
3) Minimum 1½ cubic yard track mounted excavator type equipment shall be used for embankment excavation, stream channel development and riprap placement.
4) Excavated embankment materials will be hauled to approved waste areas, sloped for drainage and left in a stable condition.
5) Erosion control measures shall be applied to all exposed excavation areas, bare soils and waste materials.
6) Riprap rock will be used to armor road embankments and stream banks.
7) Native (excavated) stream sediment materials shall be placed in the culvert barrel to a depth of 18 inches. Excavated boulders or riprap rock shall be placed and embedded at the outlet of the new culvert to allow additional stream sediment materials to settle in the barrel of the culvert.
8) The de-watering of the installation area during development of the culvert bed and stream channel will be accomplished by use of cofferdams, temporary diversion ditches, and/or drainage structures.

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

Ty Williams 5/8/02

LANDOWNER Date

OPERATOR Date

FOREST PRACTICES FORESTER Date

Attachments: Exhibits A and F

X:\Timber Mgt\Jewell\Timber Sales\2002\Nettle Meyer Combination\Sale Prep\Sale reports\Written Plan-Fish Pipe.doc

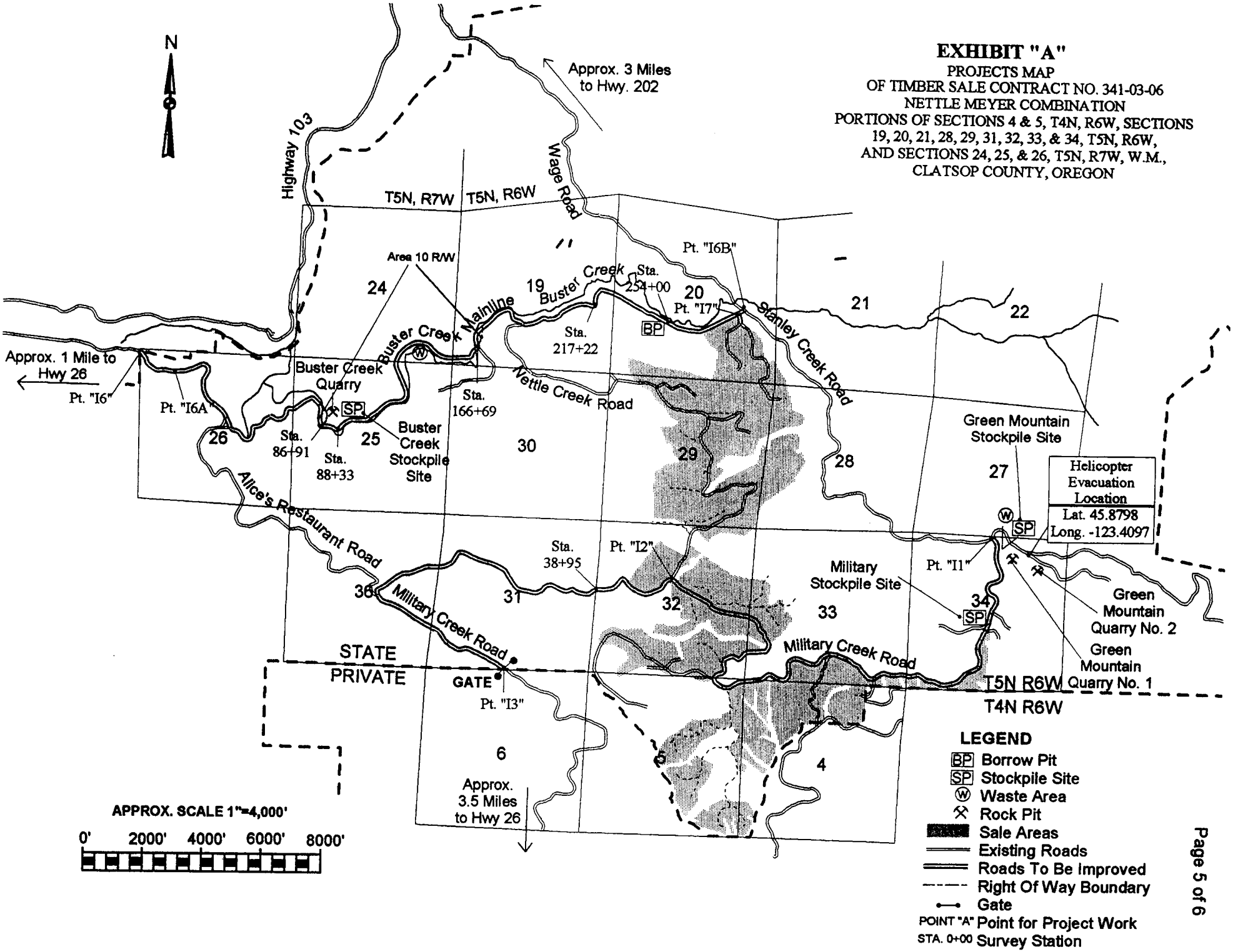


EXHIBIT "A"
PROJECTS MAP
OF TIMBER SALE CONTRACT NO. 341-03-06
NETTLE MEYER COMBINATION
PORTIONS OF SECTIONS 4 & 5, T4N, R6W, SECTIONS
19, 20, 21, 28, 29, 31, 32, 33, & 34, T5N, R6W,
AND SECTIONS 24, 25, & 26, T5N, R7W, W.M.,
CLATSOP COUNTY, OREGON
N
Approx. 3 Miles to Hwy. 202
Highway 103
Wage Road
T5N, R7W
T5N, R6W
Area 10 R/W
Pt. "I6B"
Buster Creek Mainline
Buster Creek
Sta. 254+00
Pt. "I7"
Stanley Creek Road
Sta. 217+22
Approx. 1 Mile to Hwy 26
Pt. "I6"
Pt. "I6A"
Buster Creek Quarry
Sta. 166+69
Nettle Creek Road
Sta. 86+91
Sta. 88+33
Buster Creek Stockpile Site
Green Mountain Stockpile Site
Helicopter Evacuation Location
Lat. 45.8798
Long. -123.4097
Alice's Restaurant Road
Sta. 38+95
Pt. "I2"
Pt. "I1"
Military Stockpile Site
Military Creek Road
Green Mountain Quarry No. 2
Green Mountain Quarry No. 1
STATE
PRIVATE
GATE
Pt. "I3"
T5N R6W
T4N R6W
Approx. 3.5 Miles to Hwy 26
APPROX. SCALE 1"=4,000'
0' 2000' 4000' 6000' 8000'
LEGEND
BP Borrow Pit
SP Stockpile Site
W Waste Area
Rock Pit
Sale Areas
Existing Roads
Roads To Be Improved
Right Of Way Boundary
Gate
POINT "A" Point for Project Work
STA. 0+00 Survey Station

EXHIBIT "F"

TYPE F STREAM CROSSING

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

(2) Work shall be conducted only during periods of low water flows and between July 1 and August 31, annually. STATE shall be notified a minimum of 48 hours prior to beginning work. STATE has prepared a "Written Plan" for this work.

(3) A minimum of 1½ cubic yard, track mounted excavator shall be used for all excavation, stream development/preparation, and riprap replacement. Use of an on site hydraulic rock hammer may be required for the breaking of rock strata encountered during the development of the culvert bed.

(4) Excavated debris and soil materials unsuitable for fill construction shall end-hauled to "Waste Areas" as directed by STATE, located at Station 138+00. The existing removed culvert shall be hauled to an approved refuse site off of STATE land.

(5) Waste materials shall be sloped for drainage and stability, as directed by STATE. Grass seed and straw mulch shall be applied to all exposed areas, bare soils and waste materials as directed by STATE. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.

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

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

(8) Remove additional fill and logs or woody debris for the development of the new culvert bed. The development of the new culvert bed will **NOT** be situated the same as the old culvert bed. The location of the new culvert will be calculated by using control points set in the field. The inlet of the new pipe will be set by referencing to Control Point 1 (HD = 37.0 feet at an Azimuth = 288 degrees and a Vertical Offset of 12.2 feet). The outlet end of the new culvert will be set by referencing to Control Point 2 (HD = 32.1 feet at an Azimuth = 89 degrees and a Vertical Offset of 15.3 feet). Utilize 90 cubic yards of 1½"- 0" crushed rock for the culvert bed and for backfill.

(9) Develop the stream channel for a distance of 25 feet upstream of the inlet of the new culvert and 12 feet downstream of the outlet. The stream channel width will be 4 feet and stream channel banks shall be sloped at 1½:1.

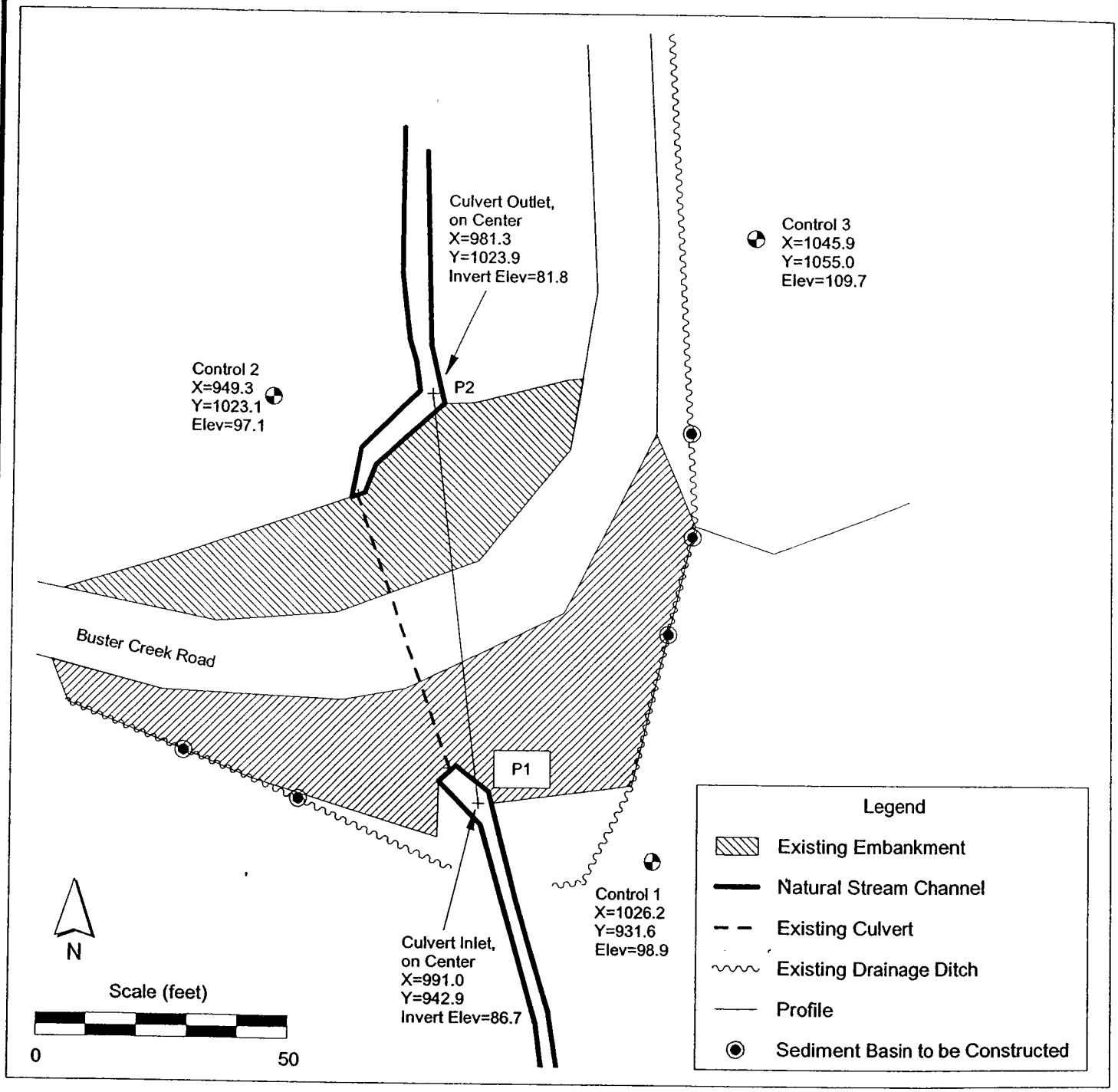
(10) Native (excavated) stream sediment materials shall be placed in the culvert barrel to a depth of 18 inches. Excavated boulders or riprap rock shall be placed and embedded at the outlet of the new culvert to allow additional stream sediment materials to settle in the barrel of the culvert.

EXHIBIT "F"

TYPE F STREAM CROSSING

(11) Fill Reconstruction backfill shall consist of select materials and be obtained a borrow pit located at Station 254+00, as directed by STATE. Utilize 60 cubic yards of 1½"-0" crushed rock for culvert bedding and backfill. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with Exhibit B. Utilize 100 cy of 24"-6" riprap for armoring fill slopes. The riprap rock shall be placed and tamped at a 1½:1 slope for a minimum thickness of 2 feet beginning at the toes. Finished sub-grade width shall be 20-feet with a 16-foot running surface. A minimum of 64 cubic yards 4"-0" base rock will be utilized to restore the base surfacing coarse for a compacted depth of 8 inches. A minimum of 50 cubic yards of ¾"-0" crushed rock will be utilized to restore the running surface coarse. Crushed rock will be processed and compacted in accordance with Exhibit B.

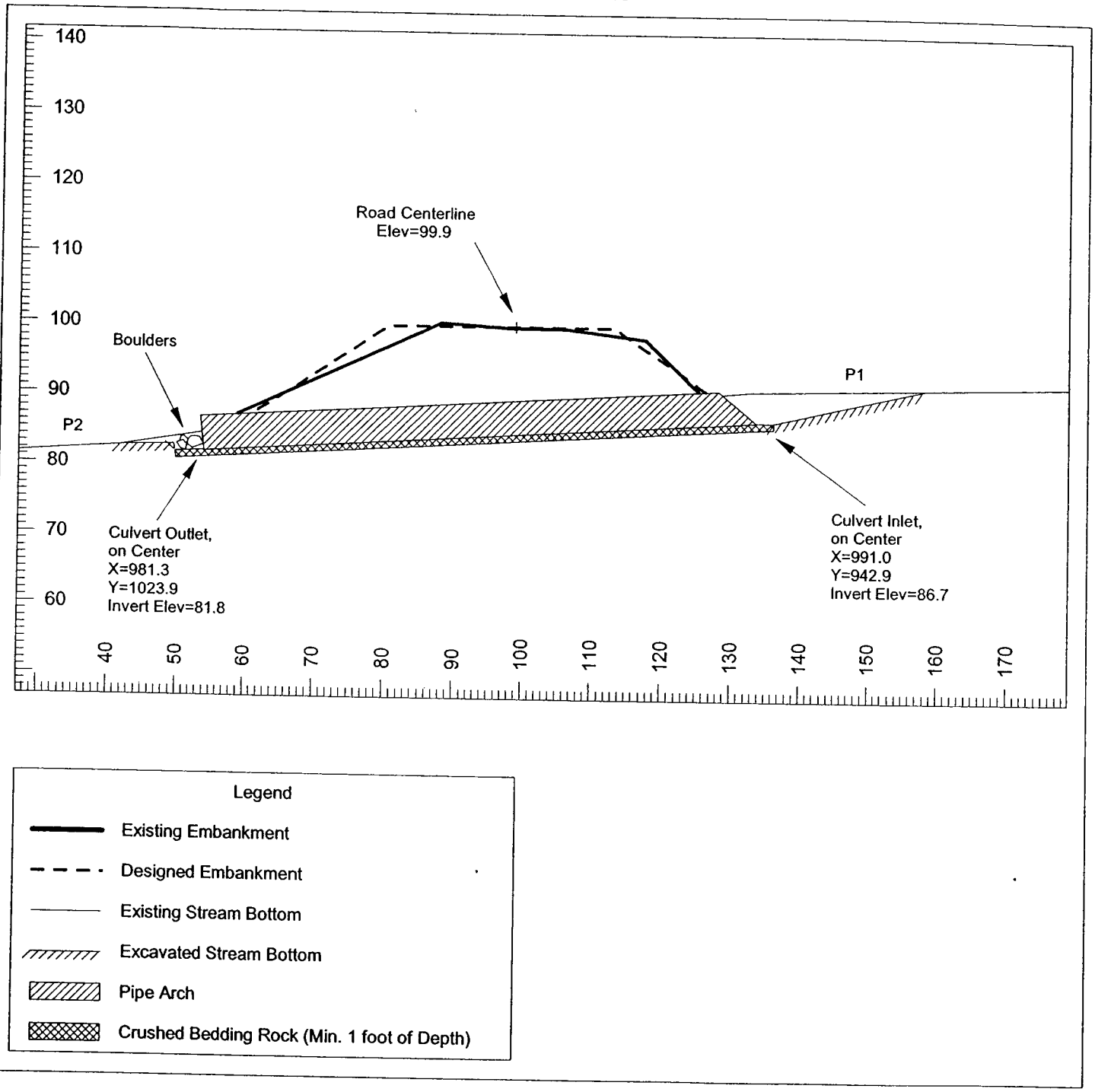
EXHIBIT "F"
STREAM CROSSING



Oregon Department of Forestry
Astoria District
Engineering Unit

Point I6A to Point I6B
Station 217+22
Buster Creek Tributary
SE1/4, Section 19, T5N, R6W, W. M.
Clatsop County, Oregon

EXHIBIT "F"
STREAM CROSSING



Oregon Department of Forestry
Astoria District
Engineering Unit

Point I6A to Point I6B
Station 217+22
Buster Creek Tributary
SE1/4, Section 19, T5N, R6W, W. M.
Clatsop County, Oregon