



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Cost Summary Saint Nick Thinning Sale 341-03-01

District: Astoria

Date: 8/8/02

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$524,345.62	\$27,382.84	\$551,728.46
		Project Work	(\$110,467.00)
		Advertised Value	\$441,261.46



Timber Sale Appraisal Timber Description Saint Nick Thinning Sale 341-03-01

"STEWARDSHIP IN FORESTRY"

District: Astoria

Location: Sections 8, 9, 16, 17, 20, 21, T7N,R6W, W.M., Clatsop County, Oregon

Date: 8/8/02

Stand Stocking: 40%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	12	0	100
Western Hemlock / Fir	13	0	100
Sitka Spruce	12	0	100
Alder (Red)	12	0	100

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)	Total
2S	355	686	0	0	1,041
3S	1,118	551	65	0	1,734
4S	591	342	67	0	1,000
Utility	0	0	0	163	163
Camprun	0	0	0	223	223
Total	2,064	1,579	132	386	4,161

Comments: Pond Values Used: 2nd Quarter 2002

Log Markets: Stimson in Forest Grove; RSG in Mist
Other Costs (No P&R): Slash Piling 25 hours @ \$95/hr + move-in = \$2875
Other Costs (Plus P&R): Brand/Paint Logs @ \$1 per MBF = \$4161
Thinning corridor layout: \$5/MBF x 2954 MBF = \$14,770
Thinning tree selection: \$5/MBF x 3400 = \$17,000
Skid trail layout: \$3/MBF = 1040 MBF = \$3,120
Slash Piling @ Landings: \$130/landing x 30 landings = \$3900
Total Other Costs Plus P&R = \$42,951



Timber Sale Appraisal

Logging Conditions

Saint Nick Thinning

Sale 341-03-01

"STEWARDSHIP IN FORESTRY"

Combination#: 1	Douglas - Fir	67.57%	
	Western Hemlock / Fir	69.21%	
	Sitka Spruce	68.94%	
	Alder (Red)	85.80%	
Yarding Distance:	Medium (800 ft)		Downhill Yarding: No
Logging System:	Cable: Small Tower <=40		Process: Stroke Delimber
Tree Size:	Small / Thinning 9in (70 Bft/tree), 20+ logs/MBF		
Loads/Day:	4		Bd. Ft./Load: 3,400
Cost/MBF:	\$203.88		
Machines:	Log Loader (A)		
	Stroke Delimber (A)		
	Tower Yarder (Small)		
Combination#: 2	Douglas - Fir	26.95%	
	Western Hemlock / Fir	27.31%	
	Sitka Spruce	29.55%	
	Alder (Red)	13.68%	
Yarding Distance:	Medium (800 ft)		Downhill Yarding: Yes
Logging System:	Track Skidder		Process: Feller Buncher
Tree Size:	Small / Thinning 9in (70 Bft/tree), 20+ logs/MBF		
Loads/Day:	7		Bd. Ft./Load: 3,400
Cost/MBF:	\$147.85		
Machines:	Feller Buncher w/ Delimber		
	Log Loader (B)		
	Stroke Delimber (B)		
	Track Skidder		
Combination#: 3	Douglas - Fir	5.47%	
	Western Hemlock / Fir	3.48%	
	Sitka Spruce	1.52%	
	Alder (Red)	0.52%	
Yarding Distance:	Short (400 ft)		Downhill Yarding: Yes
Logging System:	Shovel		Process: Manual Delimiting
Tree Size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
Loads/Day:	8		Bd. Ft./Load: 3,400
Cost/MBF:	\$85.35		
Machines:	Shovel Logger		



Timber Sale Appraisal Logging Costs Saint Nick Thinning Sale 341-03-01

"STEWARDSHIP IN FORESTRY"

Date: 8/8/02

Operating Seasons: 2.0

Profit & Risk: 16%

Project Costs: \$110,467

Other Costs (P/R): \$42,951

Slash Disposal: \$0

Other Costs: \$2,875

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

Road Maintenance: \$6.81

Hauling Costs

Species	\$/MBF	Trips/Day	MBF/Load
Douglas - Fir	\$0.00	3.0	3.4
Western Hemlock / Fir	\$0.00	3.0	3.5
Sitka Spruce	\$0.00	3.0	3.5
Alder (Red)	\$0.00	3.0	3.5

Local Pond Values

Date	Species	Grade	Value
8/8/02	Sitka Spruce	3S	\$353.45
8/8/02	Sitka Spruce	4S	\$353.45



Timber Sale Appraisal Logging Costs Breakdown Saint Nick Thinning Sale 341-03-01

"STEWARDSHIP IN FORESTRY"

Costs	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)
Logging	182.29	184.45	185.53	195.60
Road Maintenance	6.81	6.81	6.81	6.81
Fire Protection	1.44	1.44	1.44	0.00
Hauling	43.80	43.80	43.80	43.80
Other (P/R appl.)	11.38	11.38	11.38	0.00
Profit & Risk	39.32	39.66	39.83	39.39
Slash Disposal	0.00	0.00	0.00	0.00
Scaling	2.00	2.00	2.00	2.00
Other	0.76	0.76	0.76	0.00
Total	287.80	290.30	291.55	287.60

Amortization	0.00	0.00	0.00	0.00
Pond Value	490.53	352.20	353.45	358.54
Stumpage	202.73	61.90	61.90	70.94
Amortized	0.00	0.00	0.00	0.00



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Summary Saint Nick Thinning Sale 341-03-01

Amortized

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

Unamortized

	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)
MBF	2,064.00	1,579.00	132.00	386.00
Value	202.73	61.90	61.90	70.94
Total	418,434.72	97,740.10	8,170.80	27,382.84

Gross Timber Sale Value

Recovery \$551,728.46

Prepared by: Kraig Kirkpatrick

Date: 8/8/02

District: Astoria

Phone: (503) 325-5451

SUMMARY OF ALL PROJECT COSTS

SALE NAME: St. Nick Thinning

NEW CONSTRUCTION:

PROJECT NO. 1

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
1A-1B, 2A-2B	32.65	\$26,236
3G-3H, 3I-3J, 3K-3L.		
3A-3B, 3C-3D, 3E-3F.	62.5	\$51,692
TOTALS	95.2	\$77,928

ROAD IMPROVEMENT

PROJECT NO. 1

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
I1-I2	88.5	\$23,470
TOTALS	88.5	\$23,470

SPECIAL PROJECTS:

	<u>Description</u>	<u>Cost</u>
Project No. 2	Fill Vacating (2 fills in Area 5)	\$978
	Road maintenance after project work	\$3,810
TOTALS		\$4,788

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
Dozer (Medium D7)	\$560
Grader (Large 14G)	\$540
Rubber Tire Skidder	\$520
Vibratory Roller	\$540
Front End Loader	\$540
Dump Trucks (6 x \$57)	\$342
Excavator (Medium C325)	\$900
Water Truck (1500 gal)	\$114
Brush Cutter	\$225
TOTAL	\$4,281

GRAND TOTAL \$110,467

Compiled By: J. Long *2*

Date: 3/28/02

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: St. Nick Thinning
 ROAD: Design Roads
 POINTS: 3A-3B, 3C-3D, and 3E-3F

NEW CONSTRUCTION: 62.50 STATIONS 1.18 MILES
 IMPROVEMENT: STATIONS MILES

CLEARING & GRUBBING					
Method	Ac./amount	x	Rate	=	Cost
Scatter debris outside of right-of-way includes all road segments and landings.	6.50	x	\$840.00	=	\$5,460.00
		x		=	
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING \$5,460

EXCAVATION					
(All roads listed above. \$\$/CY)	Material	Cy/amount	x	Rate	= Cost
	Common Excavation, Design Roads	5,121.00	x	\$1.35	\$6,913.35
	Fill Compaction, Designed Roads	4,162.00	x	\$0.40	\$1,664.80
	Truck End Haul \$\$/CY	200.00	x	\$2.75	\$550.00
	Landings w/D-7: 3 ldgs. @ 3 hrs. ea.	9.00	x	\$90.00	\$810.00
	Cut slope rounding all roads \$\$/Sta	20.00	x	\$27.00	\$540.00

SUB TOTAL FOR EXCAVATION \$10,478

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
3A-3B 1+60	18" CPP	40	\$11.00	\$440.00					
3A-3B 12+60	18" CPP	30	\$11.00	\$330.00					
3A-3B 16+00	18" CPP	30	\$11.00	\$330.00					
3C-3D 0+40	18" CPP	40	\$11.00	\$440.00					
3C-3D 16+50	18" CPP	30	\$11.00	\$330.00					
3E-3F 1+25	18" CPP	30	\$11.00	\$330.00					
3E-3F 5+10	18" CPP	30	\$11.00	\$330.00					
3E-3F 12+10	18" CPP	30	\$11.00	\$330.00					
3E-3F 19+85	18" CPP	34	\$11.00	\$374.00					
3E-3F 22+90	18" CPP	30	\$11.00	\$330.00					

Description		Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers: 6 foot long carsonite markers for all surface culverts.		10	\$14.10	\$141.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION \$3,705

ROCKING

Subgrade prep:	Description	Stations/amo	x	Rate/sta/am	Cost
3A-3B, 3C-3D, and 3E-3F.	Grade, Shape, Construct Ditches \$\$/sta	62.50	x	\$15.20	\$950.00
	Compact subgrades (new roads) w/VIB \$\$/sta	62.50	x	\$12.50	\$781.25
			x		
			x		

Points:

	Size	Totals	Size	Totals	Size	Totals	Size	Totals
Base:	4"-0"	3,679						
Surface:	3/4"-0"	1,042						
Miscellaneous:	4"-0"	270	6"-0"	240				
Miscellaneous:	3/4"-0"	100	24"-0"	20				
Miscellaneous:	1 1/2"-0"	10						
		5,101 CY		260 CY				

Surfacing rock:	Size/type	Tot. cy	Rate/cy	Cost
	4"-0"	3,679	\$4.02	\$14,789.58
	3/4"-0"	1,042	\$2.84	\$2,959.28

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
	Landings: 3 lds. @ 80 cy ea.	6"-0"	240	\$6.18	\$1,483.20
	(includes loading and spreading cost)				
	Curve widening	4"-0"	270	\$4.02	\$1,085.40
	Curve widening	3/4"-0"	100	\$2.84	\$284.00
	Culvert bedding	1 1/2"-0"	10	\$2.84	\$28.40
	Riprap-energy dissipators (includes loading)	24"-6"	20	\$6.18	\$123.60

Processing:	Description	No. sta	Rate/sta	Cost
	Water process and compact crushed rock \$\$/Sta.	170	\$37.00	\$6,290.00

SUB TOTAL FOR ROCKING

\$28,775

SPECIAL PROJECTS

Description	Cost
Develop pit run and riprap rock cy/\$\$ 260cy x \$1.85	\$481.00
Grass seeding and fertilizing \$\$/Ac. 3.5 Ac. x \$798.00	\$2,793.00

SUB TOTAL FOR SPECIAL PROJECTS

\$3,274

GRAND TOTAL

\$51,691.86

Compiled By: J. Long

Date: 3/28/02

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: St. Nick Thinning NEW CONSTRUCTION: 32.65 STATIONS 0.62 MILES
 ROAD: Low Standard Roads IMPROVEMENT: _____ STATIONS _____ MILES
 POINTS: 1A-1B, 2A-2B, 3G-3H, 3I-3J, 3K-3L.

CLEARING & GRUBBING					
Method	Acres	x	Rate	=	Cost
Scatter debris outside of right-of-way	3.00	x	\$840.00	=	\$2,520.00
includes all road segments and		x		=	
landings		x		=	
		x		=	
		x		=	
SUB TOTAL FOR CLEARING & GRUBBING					\$2,520

EXCAVATION					
Material	Stations/Hrs	x	Rate	=	Cost
Low Standard Construction:		x		=	
All roads listed above: \$\$/Sta.	32.65	x	\$117.00	=	\$3,820.05
Ldg. W/D-7: 5 Idgs. X 3hrs. Per Idg.	15.00	x	\$90.00	=	\$1,350.00
		x		=	
		x		=	
SUB TOTAL FOR EXCAVATION					\$5,170

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
1A-1B 2+40	18" CPP	40	\$11.00	\$440.00					
1A-1B 6+70	18" CPP	30	\$11.00	\$330.00					
1A-1B 11+45	18" CPP	30	\$11.00	\$330.00					
2A-2B 0+80	18" CPP	34	\$11.00	\$374.00					
3I-3J 0+00	18" CPP	40	\$11.00	\$440.00					
3I-3J 9+00	18" CPP	30	\$11.00	\$330.00					
Other/miscellaneous:						Description	Quantity	Rate	Cost
Culvert stakes & markers:						6 foot long carsonite markers for all surface culverts.	6	\$14.10	\$84.60
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION									\$2,329

ROCKING

Subgrade prep:	Description	Stations/amo	x	Rate/sta/am	Cost
1A-1B, 2A-2B, 3G-3H, 3I-3J, and 3K-3L.	Grade, Shape, Construct Ditches	32.65	x	\$15.20	\$496.28
	Compact Subgrades (new roads)		x		
	With Vibratory Roller	32.65	x	\$12.50	\$408.13
			x		

	Size	Totals	Size	Totals	Size	Totals	Size	Totals
Base:	4"-0"	1,953						
Surface:	3/4"-0"	163						
Miscellaneous:			6"-0"	400				
Miscellaneous:	1 1/2"-0"	20						
Miscellaneous:								
Miscellaneous:								
		2,136 CY		400 CY		CY		CY

Surfacing rock:	Size/type	Tot. cy	Rate/cy	Cost
	4"-0"	1,953	\$4.02	\$7,851.06
	3/4"-0"	163	\$2.84	\$462.92
	1 1/2"-0"	20	\$2.84	\$56.80

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
	Landings 5 @ 80 cy ea. (includes loading, and spreading)	6"-0"	400	\$6.18	\$2,472.00

Processing:	Description	No. sta	Rate/sta	Cost
	Grade, Water, Compaction	72.8	\$37.00	\$2,693.60

SUB TOTAL FOR ROCKING

\$14,441

SPECIAL PROJECTS

Description	Cost
Develop pit run rock \$\$/cy \$1.85 x 400 cy	\$740.00
Grass seeding and fertilizer \$\$/acre \$798 x 1.3 acres	\$1,037.00

SUB TOTAL FOR SPECIAL PROJECTS

\$1,777

GRAND TOTAL

\$26,236.44

Compiled By: J. Long

Date: 3/28/02

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Saint Nick Thinning
 ROAD: I1 to I2
 POINTS:

NEW CONSTRUCTION: _____ STATIONS _____ MILES
 IMPROVEMENT: 88.50 STATIONS 1.68 MILES

Method	Amount	x	Rate	=	Cost
Turnouts - Clearing/Devlopment	\$115.00	x	\$3.50	=	\$402.50
		x		=	
		x		=	
		x		=	
		x		=	
SUB TOTAL FOR CLEARING & GRUBBING					\$403

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
4+06	18/CPP	34	\$11.00	\$374.00					
7+50	18/CPP	32	\$11.00	\$352.00					
24+49	24/CPP	30	\$16.30	\$489.00					
26+46	18/CPP	38	\$11.00	\$418.00					
30+01	18/CPP	32	\$11.00	\$352.00					
35+57	18/CPP	32	\$11.00	\$352.00					
42+60	18/CPP	32	\$11.00	\$352.00					
49+55	18/CPP	32	\$11.00	\$352.00					
60+00	18/CPP	32	\$11.00	\$352.00					
65+32	18/CPP	32	\$11.00	\$352.00					
70+90	18/CPP	30	\$11.00	\$330.00					
82+85	18/CPP	32	\$11.00	\$352.00					
						Description	Quantity	Rate	Cost
Other/miscellaneous: Remove existing culverts @ 25+60, 78+72						2	\$115.00	\$230.00	
2 hrs. excavator time total									
Culvert stakes & markers: 6' x 2-1/2" white fibreglass (Carsonite)						13	\$14.10	\$183.30	
1 beam posts									
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION								\$4,466	

ROCKING

Subgrade prep:	Description	Stations/amo	x	Rate/sta/am	Cost
			x		
			x		
			x		
			x		

Points:

	Size	Totals	Size	Totals	Size	Totals	Size	Totals
Surface/Cv. Wid.:	1-1/2"-0"	1,781						
Turnouts-Base:			4"-0"	242				
Turnouts-Surface:	1-1/2"-0"	110						
Junctions:					3/4"-0"	40		
Level/Patch:	1-1/2"-0"	340						
Bedding/Backfill	1-1/2"-0"	288	24"-6"	10				
		2,519 CY		252 CY		40 CY		CY

Surfacing rock:	Size/type	Tot. cy	Rate/cy	Cost
	4"-0"	242	\$4.02	\$972.84
	1 1/2"-0"	1,791	\$4.74	\$8,489.34

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
	All Culvert Backfill and Bedding	1 1/2"-0"	288	\$4.74	\$1,365.12
	Level/Patch	1 1/2"-0"	340	\$4.74	\$1,611.60
	Curve Widening	1 1/2"-0"	100	\$4.74	\$474.00
	Junctions	3/4"-0"	40	\$4.74	\$189.60
	Energy Dissipator	24"-6"	10	\$6.18	\$61.80

Processing:	Description	No. Cy/sta	Rate/cy/sta	Cost
	Grade, Water, Compaction	88.50	\$37.00	\$3,274.50

SUB TOTAL FOR ROCKING

\$16,377

SPECIAL PROJECTS

Description	Cost
Haul away old culverts to refuse sites with dump truck \$57.00/hr x 4hrs	\$288.00
Culvert Disposal - 2 tons @ \$ 15/ton.	\$30.00
Medium Brushing - 1.68 miles@\$1,100/mile	\$1,848.00
Dissipator construction @ 14+61, 1/2 hr. @ \$115/hr.	\$58.00

SUB TOTAL FOR SPECIAL PROJECTS

\$2,224

GRAND TOTAL

\$23,469.80

Compiled By: C.Bangs

Date: 3/28/02

CRUSHED ROCK COST

SALE NAME: St. Nick Thinning
 PROJECT: Project No. 1
 QUARRY: Knob Point 4"-0"

ROCK TYPE: crushed

DATE: 3/28/02
 BY: J. Long

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul	
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH		
1A-1B	13.00	754				1.70		0.60	0.20	2.50	
2A-2B	3.85	223				3.10		0.40	0.20	3.70	
3A-3B	18.15	1,199				2.20		0.70	0.20	3.10	
3C-3D	19.20	1,252				2.00		0.70	0.20	2.90	
3E-3F	25.15	1,498				2.10		0.70	0.20	3.00	
3G-3H	1.30	95				2.20		0.60	0.20	3.00	
3I-3J	10.00	604				1.10		0.50	0.20	1.80	
3K-3L	4.50	277				1.10		0.40	0.20	1.70	
I1- I2	88.50	242				2.20		0.70	0.15	3.05	
TOTAL	183.65	6,144									AVERAGE HAUL
	STA./NO.	CU. YD.									
CUBIC YARD WEIGHTED HAUL							1.95		0.64	0.20	2.79
Average Round Trip Distance (miles)										5.58	

ROCK HAUL:

Truck type <u>D20</u>	No. trucks: <u>3</u>	
Delay min. <u>15</u>	Efficiency: <u>75%</u>	
Truck type <u>D12</u>	No. trucks: <u>3</u>	
Delay min. <u>12</u>	Efficiency: <u>75%</u>	
Truck type <u>D10</u>	No. trucks: <u> </u>	
Delay min. <u>10</u>	Efficiency: <u>75%</u>	

Ave haul: \$2.97 /cy
 Load: \$0.40 /cy
 Spread: \$0.65 /cy

Production: cy/day = 1,001

CRUSHED ROCK HAUL COSTS 6,144 cy @ \$4.02 /cy

CRUSHED ROCK COST

SALE NAME: St. Nick Thinning
 PROJECT: New Road Construction
 QUARRY: Nicolai Stockpile 3/4" - 0"/1 1/2"-0"

ROCK TYPE: crushed

DATE: 3/28/02
 BY: J. Long

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
3A-3B	18.15	465				0.30		0.20	0.20	0.70
3C-3D	19.20	485				0.55		0.20	0.20	0.95
3E-3F	25.15	203				0.60		0.20	0.20	1.00
3I-3J	7.50	163				1.00		0.20	0.20	1.40
1A-1B	13.00	10				2.00		0.40	0.20	2.60
2A-2B	3.85	10				1.00		0.30	0.20	1.50
TOTAL	86.85	1,336				0.54		0.20	0.20	AVERAGE HAUL 0.94
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.			0.54		0.20	0.20	AVERAGE HAUL 0.94
										Average Round Trip Distance (miles) 1.88

ROCK HAUL:

Truck type	<u>D20</u>	No. trucks:	<u>2</u>		
Delay min.	<u>15</u>	Efficiency:	<u>75%</u>	Ave haul:	\$1.79 /cy
				Load:	\$0.40 /cy
Truck type	<u>D12</u>	No. trucks:	<u>2</u>		
Delay min.	<u>12</u>	Efficiency:	<u>75%</u>	Spread:	\$0.65 /cy
Truck type	<u>D10</u>	No. trucks:	<u> </u>	Production: cy/day =	1,106
Delay min.	<u>10</u>	Efficiency:	<u>75%</u>		

CRUSHED ROCK HAUL COSTS 1,336 cy @ \$2.84 /cy

CRUSHED ROCK COST

SALE NAME: Saint Nick Thinning
 PROJECT: Project No. 1
 QUARRY: Kerry Stockpile

ROCK TYPE: 1-1/2, 3/4"

DATE: 3/28/02
 BY: C.Bangs

Segment	Stations	Cubic Yards						Misc	Total
		Base	Running	Turnout	Turnaroun	Junction			
I1-I2	88.50		1,681	110		40	728	2,559	
Grand Total	88.50		1,681	110		40	728	2,559	

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES						Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	
I1-I2	88.50	2,559				3.30	0.70	0.20	4.20
TOTAL	88.50	2,559				3.30	0.70	0.20	4.20
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.			3.30	0.70	0.20	AVERAGE HAUL
									4.20
Average Round Trip Distance (miles)									8.40

ROCK HAUL:

Truck type <u>D20</u>	No. trucks: <u>3</u>	Ave haul: \$3.49 /cy
Delay min. <u>15</u>	Efficiency: <u>75%</u>	
Truck type <u>D12</u>	No. trucks: <u>3</u>	Load: \$0.45 /cy
Delay min. <u>12</u>	Efficiency: <u>75%</u>	Spread: \$0.80 /cy
Truck type <u>D10</u>	No. trucks: <u> </u>	Production: cy/day = 851
Delay min. <u>10</u>	Efficiency: <u>75%</u>	

CRUSHED ROCK HAUL COSTS 2,559 cy @ \$4.74 /cy

CRUSHED ROCK COST

SALE NAME: St. Nick Thinning
 PROJECT: New Road Construction
 QUARRY: Knob Point

ROCK TYPE: pit run & riprap

DATE: 3/28/02
 BY: J. Long

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	
Pit run Landings		640				1.90		1.00	0.10	3.00
riprap		30				2.00		1.00	0.10	3.10
TOTAL		670								
	STA./NO.	CU. YD.								AVERAGE HAUL
CUBIC YARD WEIGHTED HAUL						1.90		1.00	0.10	3.00
									Average Round Trip Distance (miles)	6.01

ROCK HAUL:

Truck type <u>D20</u>	No. trucks: _____	
Delay min. <u>15</u>	Efficiency: <u>75%</u>	Ave haul: \$3.68 /cy
Truck type <u>D12</u>	No. trucks: <u>4</u>	Load: \$0.90 /cy
Delay min. <u>12</u>	Efficiency: <u>75%</u>	Spread: \$1.60 /cy
Truck type <u>D10</u>	No. trucks: _____	Production: cy/day = 496
Delay min. <u>10</u>	Efficiency: <u>75%</u>	

CRUSHED ROCK HAUL COSTS 670 cy @ \$6.18 /cy

PROJECT NO. 1

Road Improvement I1 to I2

Road Brushing Costs

<u>Road</u>	<u>Miles</u>	<u>Road</u>	<u>Miles</u>	<u>Road</u>	<u>Miles</u>
Microwav	1.68				

Total Brushing 1.68 Miles

1.68 miles @ \$1,100/mile= \$ 1,848.00

St. Nick Thinning

Project No. 2 Fill Vacating

Location/Description	C325 #1	C330 #2	D-7 CAT	Truck	Labor	Straw Mulch & Seed	Total
Fill #1 Pt. V1 Fill removal [6' fill ht.] develop 4' stream channel.	3 hr				2 hr	6 bales/ * Seed	
Fill #2 Pt. V2 Fill removal [8' fill ht.] develop 4' stream channel.	4 hr				2 hr	6 bales/ * Seed	
Total	7 hr	0 hr	0 hr	0 hr	4 hr	bales/ * 12 Seed	
Rate	\$115 /hr	\$105 /hr	\$85 /hr	\$50 /hr	\$25 /hr	\$6.10	
Cost	\$805	\$0	\$0	\$0	\$100	\$73.20	\$978

***Cost for bales/seed includes bales of straw and grass seed @ 100 lbs/ac.**

J. Long 1/7/02

x:\document\2002 sales\st nick thinning\projects\fill vacating\fill vacating cost work sheet.xls

**Road Maintenance Cost Summary
at Completion of Project Work**

Sale: St. Nick Thinning
Date: 18-Dec-01
By: J. Long

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
	Grader			24	\$80	\$1,920
	Dump Truck			20	\$57	\$1,140
	FE Loader			10	\$75	\$750
Total						\$3,810

Road Maintenance Cost Summary

Sale: St. Nick Thinning
Date: 18-Dec-01
By: J. Long

MBF: 4,161
\$\$/MBF: \$6.81

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Progressive Operations Entries	Grader	\$540	1	40	\$80	\$3,740
	Dump Truck	\$114	2	20	\$57	\$1,368
	FE Loader	\$540	1	10	\$75	\$1,290
Final Haul Road	Grader	\$540	1	80	\$80	\$6,940
	Dump Trucks	\$114	2	40	\$57	\$2,508
	FE Loader	\$540	1	40	\$75	\$3,540
Maintenance Haul Route	Vibratory Roller	\$540	1	80	\$75	\$6,540
	Water Truck	\$114	1	40	\$57	\$2,394
Total						\$28,320

**SAINT NICK THINNING
FY 2002
TIMBER CRUISE REPORT**

1. **Sale Area Location:** All sale areas are within Township 7 North, Range 6 West, W.M., Clatsop County, Oregon. Area 1- Portions of Sections 8, 9, 16 and 17. Area 2 - Portions of Sections 16, 17, 20 and 21. Areas- 3, 4, and 5- Portions of Sections 16, and 21.
2. **Fund Distribution:** BOF 100%
Tax Code: 1-02 = 11%
30-05 = 89%
3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	New R/W	Non-thin Acres/ Buffers	Net Acres	Survey Method	Closure
1	Partial Cut	79.9	-6.7	-1.2	-4.5	67.5	Orthophoto	N/A
2	Partial Cut	175.4	-4.1	-0.4	-2.7	168.2	Orthophoto	N/A
3	Partial Cut	311.6	-15.3	-6.6	-32.9	256.8	Orthophoto	N/A
4	Clear Cut	3.7	0	NA	-0.7	3.0	Orthophoto	N/A
5	Clear Cut	24.1	0	NA	-4.4	19.7	Orthophoto	N/A
6	R/W			8.2		8.2	Road Design Calculations	N/A
Total		594.7	-26.1		-45.2	523.4		

4. Cruisers and Cruise Dates: Areas 1, 2, 3, and 6 R/W were cruised by Dave Beck, Chuck Day, Alan Kelso, Kraig Kirkpatrick, Jon Long and John Tillotson in October 2001. Areas 4 and 5 were cruised by Tom Scoggins, in October 2001.

5. Cruise Method and Computation: AREAS 1, 2 & 3 are "auto-mark" thinning units (RD 35) cruised with fixed area, 1/25th acre plots. Cruise lines were located for efficiency, minimizing walking and "deadheading" between plots (See *Cruise Plan Map for detailed cruise plot locations*). 55 plots were sampled along cruise lines 7 chains apart. All "take" and "leave" trees were measured and graded. AREA 4 and 5, was variable plot cruised with a 33.6 BAF. Ten plots were sampled along cruise lines 5 chains apart. All "take" and "leave" trees were measured and graded. AREA 6 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, 2 and 3.

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. Cruise volumes for thinning areas are increased by 15% due to past experiences with underestimating thinning volumes because of thinning corridors and skid trails.

AREA	CRUISE	CRUISE TYPE
1-3	SDI 35 Auto-mark Thinning	7N6WSEC16,TRACT:THINNING,TYPE:TAKE, LEAV
4-5	Clear Cut	7N6WSEC16,TRACT:CC,TYPE:0002,TK02
6 R/W	In-Sale Right-of-way	7N6WSEC16,TRACT:AREA6,TYPE:RW

6. Timber Description: Areas 1, 2 & 3 (Partial Cut) are "auto-mark" thinning units, about 40 to 50 years old, consisting of mostly Douglas Fir and mixed conifer stands, with small isolated clumps of hardwoods. These stands will be harvested to an SDI of 30-40%, removing approximately 100 trees per acre, 85ft² of basal area/acre, and 6.0 MBF/acre. The average "take" tree size is 12.5" DBH and 33 feet to a merchantable top (6" d.i.b.).

Areas 4 and 5 (Clear Cut) are alder dominated mixed conifer stands. These stands average 13.4 inches in DBH, with an average merchantable height of 49 feet to a merchantable top. The average volume (net) is 25.7 MBF/acre.

Area 6 R/W is a Douglas-fir dominated mixed conifer stand. This stand averages 15 inches in DBH, with an average merchantable height of 42 feet to a merchantable top. The average volume (net) is 21.3 MBF/acre.

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

Area	Est. CV	Target SE%	Actual CV	Actual SE%
1, 2, & 3 (RD35) *	25-40	12%	72	9.8
4 & 5	25-40	12%	84	26.4
All Areas Combined	N.A.	12%	70	9.2

*"Take" and the "leave" stands combined.

8. Volumes by Species and Log Grade: (See "Species, Sort, Grade, Length%" - Type Report FJ and FA, attached, of individual sale areas and combined areas and three cruise types)

Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	D & B	% Sale
Douglas-fir	12.6	2,064	355	1,118	591	205	50
Hemlock	12.7	1,268	485	463	320	138	30
Silver fir	17.6	275	193	69	13	17	7
Noble fir	11.1	36	8	19	9	4	1
Sitka spruce	11.6	132		65	67	17	3
Alder	12.0	386		223	163	0	9
TOTALS		4161					

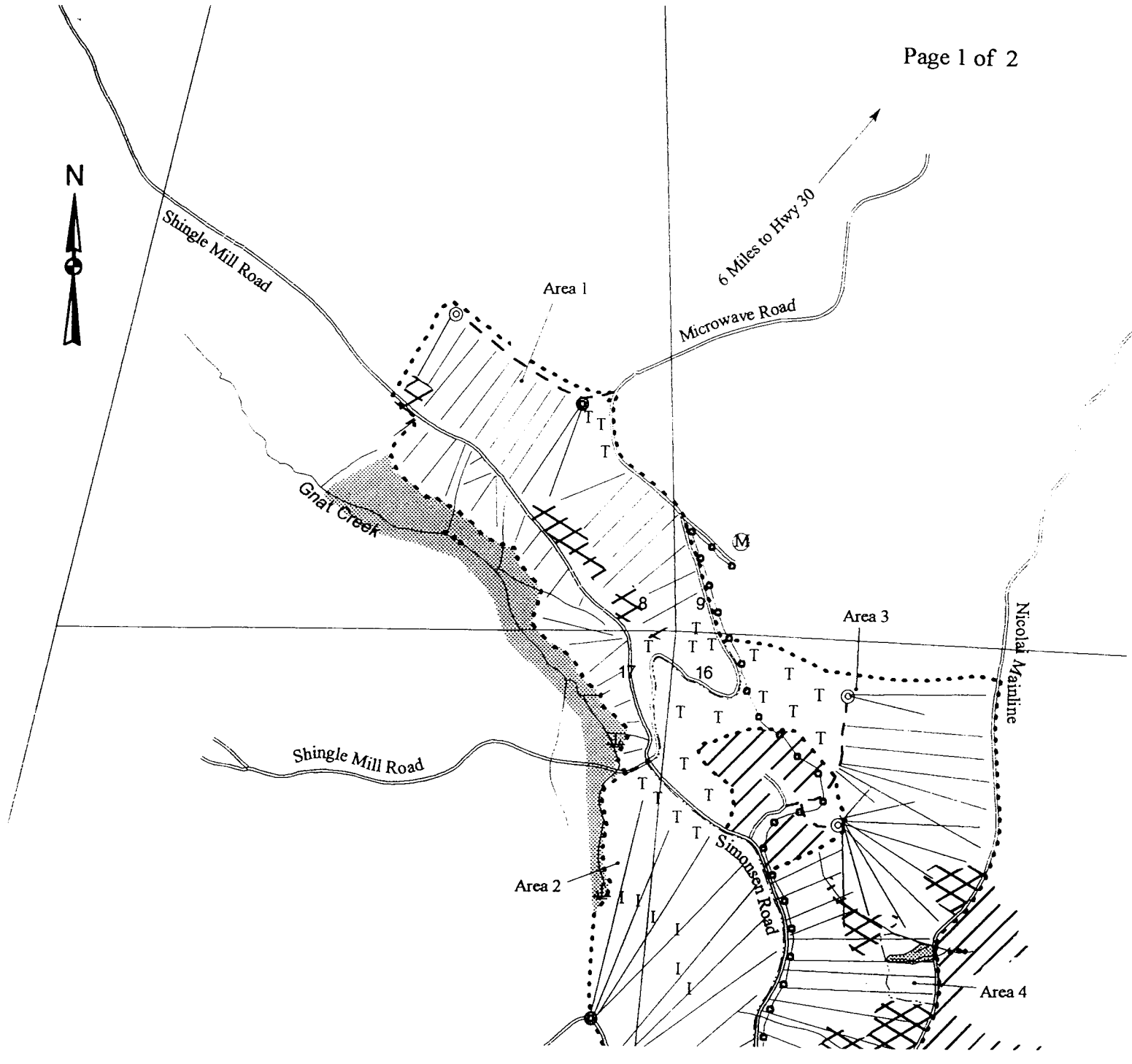
9. Approvals:

Prepared by: Kraig Kirkpatrick Date: February 5, 2002

Approved by: Tom Scoggins Date: March 20, 2002

10. Attachments:

- Cruise Designs (3)
- Cruise Maps (1)
- Volume Reports - 4 pages
- Statistics Reports - 4 pages
- Stand Tables - 2 pages



Legend

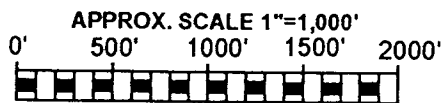
- Type F Stream
- Type N Stream
- Landing to be Constructed
- Timber Sale Boundary
- Area Boundary
- Stream Buffer
- Reforestation Area
- Logger's Choice Landing
- Intermediate Support
- Surfaced Road
- New Construction
- Non-thinnable
- Tractor Thinning
- Cable Thinning
- Microwave Tower
- Underground Powerline

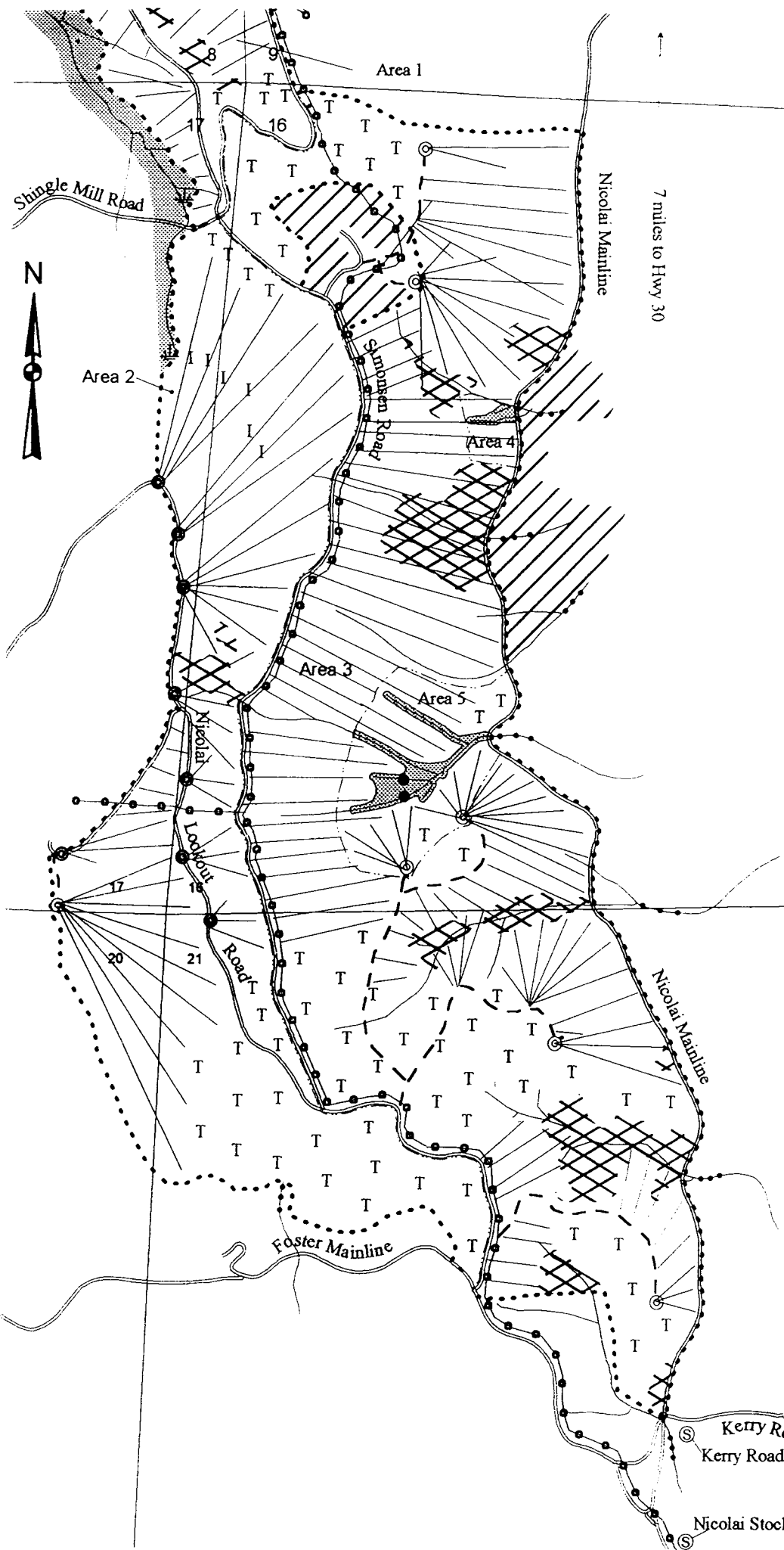
Logging Map

OF TIMBER SALE CONTRACT NO.
 341-03-01
 SAINT NICK THINNING
 PORTIONS OF SECTIONS 8, 9, 16, 17,
 20 & 21 T7N, R6W, WM, CLATSOP COUNTY, OREGON

Approximate Net Acreage

AREA 1	PC	68 ACRES
AREA 2	PC	168 ACRES
AREA 3	PC	257 ACRES
AREA 4	CC	3 ACRES
AREA 5	CC	20 ACRES
AREA 6	R/W	8 ACRES
TOTAL		524 ACRES

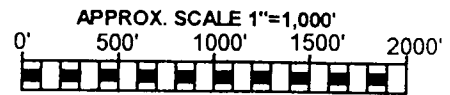




7 miles to Hwy 30

Logging Map

OF TIMBER SALE CONTRACT NO.
341-03-01
SAINT NICK THINNING
PORTIONS OF SECTIONS 8, 9, 16, 17,
20 & 21 T7N, R6W, WM,
CLATSOP COUNTY, OREGON



Legend

- Type F Stream
- Type N Stream
- Landing to be Constructed
- Timber Sale Boundary
- Area Boundary
- Stream Buffer
- Reforestation Area
- Surfaced Road
- New Construction
- Non-thimable
- Stockpile Site
- Cable Logging
- Tractor Logging
- Logger's Choice Landing
- Intermediate Support
- Powerline
- Vacating Project

Approximate Net Acreage

AREA 1	PC	68 ACRES
AREA 2	PC	168 ACRES
AREA 3	PC	257 ACRES
AREA 4	CC	3 ACRES
AREA 5	CC	20 ACRES
AREA 6	R/W	8 ACRES
TOTAL		524 ACRES

* Increased Values by 15%

TC PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																				
T7N R6W S16 TyRW		8.20		Project: STNICK				Page 1														
T7N R6W S16 TyTK02		22.80		Acres 523.40				Date														
T7N R6W S16 TyTAKE		492.40						Time														
S Spp	So T	Gr rt ad	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent of Net Board Foot Volume								Average Log			Logs Per /Acre			
				Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/Lf				
								4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99							
D	DOCU														9		0.00	7.9				
D	DO2S		9		636	678	355			2	79	19		1	16	48	35	32	205	1.47	3.3	
D	DO3S		27		1,909	2,136	1,118		0	100	0	0		0	5	51	44	35	76	0.63	28.1	
D	DO4S		14		1,008	1,130	592		6	94				54	42	4		19	28	0.43	41.1	
D Totals			50		3,553	3,944	2,064		2	81	14	3		16	17	37	30	24	49	0.57	80.4	
H	DOCU																	7		0.00	2.9	
H	DO2S		12		828	926	485				76	24		6	27	52	15	29	202	1.43	4.6	
H	DO3S		11		788	884	463			97	3			3	28	36	33	33	70	0.56	12.6	
H	DO4S		8		543	612	320		2	94	5			54	46	0		19	30	0.48	20.6	
H Totals			30		2,159	2,422	1,268		0	59	31	9		17	32	33	18	23	60	0.64	40.7	
NF	DO2S		0	.5	15	15	8				83	17		4	7	28	61	34	236	1.77	.1	
NF	DO3S		0		31	35	19			100					1	2	97	38	68	0.43	.5	
NF	DO4S		0		16	18	9			100				97	3			16	34	0.45	.5	
NF Totals			1		62	69	36			78	18	4		26	3	7	64	27	61	0.53	1.1	
SF	DOCU																	3		0.00	.0	
SF	DO2S		5		353	369	193				63	37			0	34	66	37	352	1.91	1.0	
SF	DO3S		2		118	132	69			100				3	33	33	31	33	74	0.69	1.8	
SF	DO4S		0		22	24	13			100				92	8			15	23	0.37	1.0	
SF Totals			7		492	525	275			30	44	26		5	9	32	54	29	135	1.06	3.9	
S	DOCU																	10		0.00	.5	
S	DO3S		2		108	124	65			100					32	41	27	33	84	0.72	1.5	
S	DO4S		2		113	130	68		17	83				99	0	0		16	26	0.48	4.9	
S Totals			3		221	253	133		9	91				51	16	20	13	19	37	0.55	6.9	
A	DOCU																	3		0.00	2.6	
A	DO3S		5		417	426	223			88	12			17	38	3	42	30	82	0.75	5.2	
A	DO4S		4	2.2	318	311	163			100				31	30	12	27	25	35	0.44	8.8	
A Totals			9		735	736	385			93	7			23	35	7	36	23	44	0.56	16.6	
Totals					-10.1	7,222	7,950	4,161		1	72	20	6		17	23	32	28	24	53	0.60	149.5

+152

T7N R6W S16 TTAKE		T7N R6W S16 TTAKE
Twp Rge Sec Tract Type Acre Plots Sample Trees		
7N 6W 16 THINNING TAKE 492.40 49 194		

S Spp	So T	Gr rt	ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
									Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D		DO	CU													9		0.00	7.7		
D		DO	2S	10		321	370	182			100			17	51	32	32	181	1.25	2.0	
D		DO	3S	58		1,898	2,142	1,055			100			4	52	44	35	76	0.63	28.1	
D		DO	4S	32		1,026	1,156	569	7	93			54	42	4	19	28	0.43	41.8		
D	Totals			53		3,245	3,667	1,806	2	88	10		17	18	37	29	24	46	0.54	79.6	
H		DO	CU														7		0.00	3.1	
H		DO	2S	37		816	921	454			76	24		6	28	54	11	29	201	1.42	4.6
H		DO	3S	37		801	904	445			97	3		3	29	36	32	33	71	0.55	12.8
H		DO	4S	26		566	640	315	2	94	5		54	46			19	30	0.48	21.4	
H	Totals			36		2,184	2,464	1,213	0	60	31	9	18	33	33	16	23	59	0.63	41.8	
S		DO	CU														10		0.00	5	
S		DO	3S	49		112	129	64			100				32	41	27	33	84	0.73	1.5
S		DO	4S	51		117	135	66	17	83			100				16	26	0.48	5.1	
S	Totals			4		230	264	130	9	91			51	16	20	13	19	37	0.55	7.1	
SF		DO	2S	55		148	170	84			100					100	40	334	1.64	5	
SF		DO	3S	38		102	117	58			100				35	35	30	34	77	0.67	1.5
SF		DO	4S	8		20	23	12			100		100				15	23	0.34	1.0	
SF	Totals			5		270	311	153	45	55			8	13	13	66	28	102	0.84	3.1	
A		DO	CU														3		0.00	5	
A		DO	3S	60		77	88	43			40	60		60		40	24	86	0.73	1.0	
A		DO	4S	40		51	59	29			100			60	40		21	38	0.55	1.5	
A	Totals			2		128	147	72	64	36			60	16	24		19	48	0.61	3.1	
NF		DO	3S	67		31	35	17			100					100	38	69	0.41	5	
NF		DO	4S	33		15	18	9			100		100				16	34	0.43	5	
NF	Totals			1		46	53	26	100				33		67		27	52	0.42	1.0	
Type Totals						13.2	6,102	6,906	3,400	2	76	20	3	19	23	33	25	24	51	0.58	135.7

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)							Page 1														
		Project: STNICK							Date 2/5/2002														
									Time 12:56:30PM														
T7N R6W S16 TTK02								T7N R6W S16 TTK02															
Twp	Rge	Sec	Tract	Typ	Acres	Plots	Sample Trees																
7N	6W	16	CC TAKE	TK02	22.80	10	61																
Spp	S T	So rt	Gr ad e	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre			
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf				
A		DO	CU																				
A		DO	3S	57	.6	7,886	7,838	179		00		6	47	4	43	32	81	0.75			96.5		
A		DO	4S	43	5.3	6,161	5,834	133		00		24	28	15	33	26	35	0.42			167.5		
A	Totals			53	2.7	14,048	13,672	312		00		14	39	9	38	24	44	0.55			312.3		
D		DO	CU																				
D		DO	2S	87	.7	5,603	5,563	127		6	49	46			2	7	47	44	33	256	1.79	21.7	
D		DO	3S	8	1.3	546	539	12		00					16	31	53	35	60	0.63	8.9		
D		DO	4S	4		267	267	6		00		57	43					22	30	0.52	8.9		
D	Totals			25	.7	6,416	6,369	145		18	43	40			4	9	44	43	25	124	1.22	51.5	
SF		DO	CU																				
SF		DO	2S	91	2.2	4,655	4,551	104			33	67					59	41	35	378	2.20	12.0	
SF		DO	3S	9		436	436	10		00					22	23	21	34	31	64	0.79	6.8	
SF		DO	4S	1	25.0	43	32	1		00					100			22	30	0.73	1.1		
SF	Totals			20	2.2	5,134	5,019	114		9	30	61			2	3	55	40	32	241	1.69	20.8	
H		DO	2S	52	.0	342	342	8			100							00	36	180	1.39	1.9	
H		DO	3S	48		314	314	7		00							30	70	36	57	0.58	5.5	
H	Totals			3		656	656	15		48	52						14	86	36	88	0.79	7.5	
Type Totals						2.0	26,254	25,716	586		61	18	22			9	24	27	41	25	66	0.72	392.1

T7N R6W S16 TRW T7N R6W S16 TRW
 Twp Rge Sec Tract Typ Acres Plots Sample Trees
 7N 6W 16 AREA 6 RW 8.20 55 423

Spp	S T	So rt	Gr ad e	% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
					Def%	Gross	Net		Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
D		DO	CU														8		0.00	12.7	
D		DO	2S	41	1.5	5,705	5,618	46		1	80	20		3	34	42	21	30	196	1.73	28.6
D		DO	3S	45	1.7	6,341	6,232	51	0	92	4	4		0	9	44	47	35	75	0.73	83.6
D		DO	4S	14	1.3	2,027	2,000	16	4	96				57	40	3		19	24	0.45	84.5
D	Totals			65	1.6	14,073	13,850	114	1	56	34	10		10	24	37	30	26	66	0.79	209.5
H		DO	CU															8		0.00	4.1
H		DO	2S	60	1.4	2,905	2,864	23			66	34		7	20	21	52	31	242	1.78	11.8
H		DO	3S	27	1.7	1,305	1,282	11		98	2			2	24	49	25	33	63	0.62	20.5
H		DO	4S	14	2.0	673	659	5	1	95	3			58	39	3		18	26	0.50	25.5
H	Totals			23	1.6	4,882	4,805	39	0	39	40	20		13	24	26	38	25	78	0.85	61.8
NF		DO	2S	80	.5	968	964	8			83	17		4	7	28	61	34	236	1.77	4.1
NF		DO	3S	12	2.9	155	150	1		00					15	30	55	35	55	0.61	2.7
NF		DO	4S	8		95	95	1		00				67	33			19	30	0.59	3.2
NF	Totals			6	.7	1,218	1,209	10		20	66	14		8	10	26	56	29	121	1.16	10.0
S		DO	CU															10		0.00	.5
S		DO	3S	46		145	145	1		00					22	59	19	34	64	0.68	2.3
S		DO	4S	54	2.6	173	168	1	11	89				73	16	11		18	25	0.49	6.8
S	Totals			1	1.4	318	314	3	6	94				39	19	33	9	22	33	0.55	9.5
SF		DO	2S	76	4.0	682	655	5			72	28			10	70	20	33	240	1.73	2.7
SF		DO	3S	19	2.7	168	164	1		00					42	19	39	33	60	0.69	2.7
SF		DO	4S	5		45	45	0		00				40	60			21	25	0.43	1.8
SF	Totals			4	3.6	895	864	7		24	55	21		2	18	57	23	30	119	1.08	7.3
A		DO	CU															3		0.00	.5
A		DO	3S	55		100	100	1		59	41			73		27		22	73	0.76	1.4
A		DO	4S	45	5.3	86	82	1		00				44	56			22	30	0.51	2.7
A	Totals			1	2.4	186	182	1		78	22			60	25	15		20	40	0.59	4.5
Type Totals					1.6	21,573	21,223	174	1	49	38	12		11	23	34	32	26	70	0.82	302.7

#1576

TC TSTATS		STATISTICS					PAGE	1		
		PROJECT		STNICK		DATE		2/14/2002		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES			
7N	6W	16	THINNING	TAKE	492.40	49	194			
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		49	195	4.0						
CRUISE		49	194	4.0	48,989	.4				
REFOREST COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	114	58.2	12.4	34		48.9	3,245	3,667	1,066	1,045
WHEMLOCK	59	30.6	12.6	33		26.6	2,184	2,464	623	611
S SPRUCE	12	6.1	11.6	23		4.5	230	264	79	77
PS FIR	3	1.5	16.0	59	0	2.1	270	311	74	73
R ALDER	4	2.0	12.8	29		1.8	128	147	36	35
NOB FIR	2	1.0	10.3	28	0	.6	46	53	12	12
TOTAL	194	99.5	12.5	33		84.6	6,102	6,906	1,890	1,852
		COEFF VAR.	S.E.%	TREES/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1			LOW	AVG	HIGH	5	10	15	
DOUG FIR		82.0	11.7	51	58	65				
WHEMLOCK		203.7	29.1	22	31	40				
S SPRUCE		317.7	45.4	3	6	9				
PS FIR		517.4	73.9	0	2	3				
R ALDER		549.9	78.6	0	2	4				
NOB FIR		489.8	70.0	0	1	2				
TOTAL		60.6	8.7	91	99	108	147	37	16	
		COEFF VAR.	S.E.%	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1			LOW	AVG	HIGH	5	10	15	
DOUG FIR		87.0	12.4	43	49	55				
WHEMLOCK		194.7	27.8	19	26	34				
S SPRUCE		306.3	43.8	3	5	6				
PS FIR		563.8	80.5	0	2	4				
R ALDER		564.4	80.6	0	2	3				
NOB FIR		490.4	70.1	0	1	1				
TOTAL		59.5	8.5	77	84	92	142	35	16	
		COEFF VAR.	S.E.%	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1			LOW	AVG	HIGH	5	10	15	
DOUG FIR		112.8	16.1	3,076	3,667	4,258				
WHEMLOCK		229.1	32.7	1,674	2,488	3,303				
S SPRUCE		321.2	45.9	143	264	385				
PS FIR		590.7	84.4	49	311	573				
R ALDER		554.5	79.2	30	147	263				
NOB FIR		517.4	73.9	14	53	92				
TOTAL		91.1	13.0	6,028	6,930	7,831	332	83	37	

TC PSTATS		PROJECT STATISTICS					PAGE 1			
		PROJECT		STNICK		DATE 2/5/2002				
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES			
7N	6W	16	AREA 6	RW	523.40	114	678			
7N	6W	16	CC TAKE	TK02						
7N	6W	16	THINNING	TAKE						
		<i>PLOTS</i>	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		114	680	6.0						
CRUISE REFOREST COUNT BLANKS 100 %		114	678	5.9	55,307	1.2				
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	418	57.8	12.6	35		50.4	3,553	3,494	1,140	1,140
R ALDER	50	9.4	12.0	42		7.5	735	718	213	213
WHEMLOCK	146	29.7	12.7	33		26.0	2,159	2,120	616	616
PS FIR	18	1.8	17.6	64	1	3.1	492	487	122	122
NOB FIR	15	1.1	11.1	30	0	.7	62	62	16	16
S SPRUCE	31	5.9	11.6	23		4.3	221	221	76	76
TOTAL	678	105.7	12.6	35		92.0	7,222	7,102	2,184	2,184
SD: 1	COEFF VAR. %	S.E. %	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
			LOW	AVG	HIGH	5	10	15		
DOUG FIR	84.3	7.9	51	58	65					
R ALDER	336.9	31.6	4	9	15					
WHEMLOCK	208.0	19.5	23	30	36					
PS FIR	422.8	39.6	1	2	3					
NOB FIR	435.0	40.7		1	2					
S SPRUCE	418.8	39.2	3	6	9					
TOTAL	54.4	5.1	98	106	114	118	30	13		
SD: 1	COEFF VAR. %	S.E. %	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
			LOW	AVG	HIGH	5	10	15		
DOUG FIR	85.0	8.0	42	50	58					
R ALDER	318.7	29.8	3	7	12					
WHEMLOCK	211.8	19.8	19	26	33					
PS FIR	479.0	44.9	0	3	6					
NOB FIR	450.5	42.2		1	3					
S SPRUCE	387.0	36.3	3	4	6					
TOTAL	61.1	5.7	83	92	101	149	37	17		
SD: 1	COEFF VAR. %	S.E. %	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
			LOW	AVG	HIGH	5	10	15		
DOUG FIR	102.3	9.6	2,669	3,494	4,319					
R ALDER	344.7	32.3	285	718	1,152					
WHEMLOCK	286.9	26.9	1,226	2,120	3,014					
PS FIR	530.5	49.7	3	487	970					
NOB FIR	520.1	48.7		62	356					
S SPRUCE	381.4	35.7	132	221	310					
TOTAL	99.8	9.3	5,691	7,102	8,514	398	100	44		

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT		STNICK		DATE 2/5/2002		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES			
7N	6W	16	CC TAKE	TK02	22.80	10	61			
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL	10	61	6.1							
CRUISE	10	61	6.1		4,738		1.3			
REFOREST										
COUNT										
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
R ALDER	39	171.5	11.8	46		131.1	14,048	13,672	4,108	4,108
DOUG FIR	13	22.9	18.7	59		43.7	6,416	6,369	1,580	1,580
PS FIR	7	7.9	23.4	87	3	23.5	5,134	5,019	1,114	1,114
WHEMLOCK	2	5.5	14.9	50		6.7	656	656	211	211
TOTAL	<i>61</i>	<i>207.8</i>	<i>13.4</i>	<i>49</i>		<i>205.0</i>	<i>26,254</i>	<i>25,716</i>	<i>7,012</i>	<i>7,012</i>
	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	10		15
R ALDER	66.1	20.9	136	172	207					
DOUG FIR	135.8	43.0	13	23	33					
PS FIR	277.8	87.9	1	8	15					
WHEMLOCK	316.2	100.0	0	6	11					
TOTAL	<i>43.1</i>	<i>13.6</i>	<i>180</i>	<i>208</i>	<i>236</i>		<i>74</i>	<i>19</i>		<i>8</i>
	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	10		15
R ALDER	56.0	17.7	108	131	154					
DOUG FIR	131.0	41.4	26	44	62					
PS FIR	269.8	85.3	3	24	44					
WHEMLOCK	316.2	100.0	0	7	13					
TOTAL	<i>51.5</i>	<i>16.3</i>	<i>172</i>	<i>205</i>	<i>238</i>		<i>106</i>	<i>27</i>		<i>12</i>
	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1	VAR.%	S.E.%	LOW	AVG	HIGH		5	10		15
R ALDER	64.3	20.3	10,894	13,672	16,450					
DOUG FIR	156.6	49.5	3,215	6,369	9,523					
PS FIR	271.2	85.8	714	5,019	9,323					
WHEMLOCK	316.2	100.0	0	656	1,312					
TOTAL	<i>83.5</i>	<i>26.4</i>	<i>18,926</i>	<i>25,716</i>	<i>32,505</i>		<i>279</i>	<i>70</i>		<i>31</i>

TC TSTATS		STATISTICS						PAGE	1	
		PROJECT				STNICK		DATE	2/5/2002	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES			
7N	6W	16	AREA 6	RW	8.20	55	423			
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		55	424	7.7						
CRUISE REFOREST COUNT BLANKS 100 %		55	423	7.7	1,580	26.8				
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	291	132.3	14.8	43		158.2	14,073	13,850	4,360	4,360
WHEMLOCK	85	39.1	14.4	41		44.1	4,882	4,805	1,302	1,302
NOB FIR	13	5.9	17.9	51	2	10.3	1,218	1,209	341	341
S SPRUCE	19	8.6	11.5	24		6.2	318	314	113	113
PS FIR	8	3.6	17.5	62	1	6.1	895	864	234	234
R ALDER	7	3.2	12.5	30		2.7	186	182	53	53
TOTAL	423	192.7	14.7	42		227.5	21,573	21,223	6,404	6,404
	COEFF VAR. %	S.E. %	TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	61.0	8.2	121	132	143					
WHEMLOCK	196.1	26.4	29	39	49					
NOB FIR	335.3	45.2	3	6	9					
S SPRUCE	425.1	57.3	4	9	14					
PS FIR	406.0	54.8	2	4	6					
R ALDER	401.6	54.2	1	3	5					
TOTAL	37.9	5.1	183	193	203	58	14	6		
	COEFF VAR. %	S.E. %	BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	52.6	7.1	147	158	169					
WHEMLOCK	198.3	26.7	32	44	56					
NOB FIR	321.9	43.4	6	10	15					
S SPRUCE	390.3	52.6	3	6	9					
PS FIR	467.5	63.0	2	6	10					
R ALDER	419.8	56.6	1	3	4					
TOTAL	36.1	4.9	216	228	239	52	13	6		
	COEFF VAR. %	S.E. %	NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1			LOW	AVG	HIGH	5	10	15		
DOUG FIR	64.0	8.6	12,654	13,850	15,046					
WHEMLOCK	263.5	35.5	3,125	4,847	6,569					
NOB FIR	368.1	49.6	609	1,209	1,809					
S SPRUCE	377.7	50.9	154	314	473					
PS FIR	506.4	68.3	274	864	1,453					
R ALDER	427.1	57.6	77	182	287					
TOTAL	72.5	9.8	19,188	21,265	23,343	210	52	23		

TC TSTNDSUM														Stand Table Summary			
Project STNICK																	
T7N R6W S16 TLEAV										T7N R6W S16 TLEAV							
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:	1								
7N	6W	16	THINNING	LEAV	492.40	54	230	Date:	2/5/02								
								Time:	1:06:35PM								
Spc	T	DBH	Sample Trees	FF 16	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
									Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF	
DL		9	6	85	17	2.778	1.23	2.78	5.7	20.0		16	56		78	27	
DL		10	15	80	33	6.944	3.79	7.41	7.7	23.7		57	176		283	87	
DL		11	11	82	57	5.093	3.36	5.56	13.6	42.5		75	236		372	116	
DL		12	16	80	63	7.407	5.76	8.33	16.7	47.2		139	394		684	194	
DL		13	15	81	68	6.944	6.34	10.65	15.4	44.3		164	472		807	233	
DL		14	18	81	69	8.333	8.91	12.50	18.8	53.0		235	662		1,156	326	
DL		15	14	80	75	6.481	7.95	11.57	19.8	60.0		229	694		1,126	342	
DL		16	16	81	72	7.407	10.34	13.43	22.0	67.2		295	903		1,454	445	
DL		17	14	82	80	6.481	10.13	12.50	24.7	81.9		309	1,023		1,523	504	
DL		18	13	80	77	6.019	10.64	12.04	26.1	80.0		314	963		1,546	474	
DL		19	10	81	79	4.630	9.12	9.26	30.6	96.5		283	894		1,395	440	
DL		20	7	81	82	3.241	7.02	6.48	34.8	109.3		225	708		1,110	349	
DL		21	7	83	77	3.241	7.79	6.48	37.9	116.4		245	755		1,208	372	
DL		22	4	81	77	1.852	4.89	3.70	40.3	121.3		149	449		734	221	
DL		23	1	85	104	.463	1.34	1.39	38.7	163.3		54	227		264	112	
DL		24	1	80	79	.463	1.45	.93	45.5	150.0		42	139		207	68	
DL		25	2	85	121	.926	3.16	2.78	52.2	216.7		145	602		714	296	
DL		26	4	81	93	1.852	6.83	4.17	53.4	178.9		223	745		1,097	367	
DL		27	2	82	80	.926	3.61	1.85	63.0	200.0		117	370		574	182	
DL		35	1	84	137	.463	3.09	1.39	113.3	536.7		157	745		775	367	
DL		Totals	177	81	68	81.944	116.74	135.19	25.7	82.9		3,474	11,213		17,106	5,521	
HL		10	1	75	29	.463	.25	.46	8.0	20.0		4	9		18	5	
HL		11	1	85	71	.463	.28	.46	16.0	60.0		7	28		36	14	
HL		12	3	87	66	1.389	1.09	2.31	12.6	44.0		29	102		144	50	
HL		13	2	88	74	.926	.85	1.85	13.7	47.5		25	88		125	43	
HL		14	3	86	62	1.389	1.48	2.78	14.8	50.0		41	139		203	68	
HL		16	3	80	60	1.389	1.94	2.31	22.8	66.0		53	153		260	75	
HL		17	4	88	80	1.852	2.92	3.70	28.0	96.3		104	356		511	176	
HL		18	3	88	78	1.389	2.45	2.78	30.7	106.7		85	296		419	146	
HL		21	1	87	87	.463	1.11	.93	48.0	180.0		44	167		219	82	
HL		23	2	87	102	.926	2.61	2.31	47.8	200.0		111	463		545	228	
HL		25	1	88	110	.463	1.52	.93	49.5	210.0		46	194		226	96	
HL		28	1	87	117	.463	1.98	1.39	71.7	323.3		100	449		490	221	
HL		30	1	86	116	.463	2.27	1.39	80.3	363.3		112	505		549	248	
HL		Totals	26	86	77	12.037	20.77	23.61	32.2	124.9		761	2,949		3,745	1,452	
NFL		11	1	82	27	.463	.31	.46	9.0	20.0		4	9		21	5	
NFL		13	1	82	35	.463	.43	.46	14.0	30.0		6	14		32	7	
NFL		14	2	85	44	.926	.99	.93	20.0	50.0		19	46		91	23	
NFL		19	3	90	90	1.389	2.73	3.24	31.6	117.1		102	380		504	187	
NFL		21	1	87	97	.463	1.11	.93	48.0	175.0		44	162		219	80	
NFL		23	1	84	87	.463	1.34	.93	50.5	170.0		47	157		230	78	
NFL		25	2	85	83	.926	3.03	2.31	45.8	172.0		106	398		522	196	
NFL		Totals	11	86	70	5.093	9.94	9.26	35.5	126.0		329	1,167		1,619	574	
SFL		10	1	85	49	.463	.25	.46	11.0	30.0		5	14		25	7	
SFL		17	2	89	74	.926	1.46	1.85	25.8	90.0		48	167		235	82	
SFL		20	1	89	79	.463	.96	.93	33.5	120.0		31	111		153	55	
SFL		25	1	83	132	.463	1.58	1.39	55.0	213.3		76	296		376	146	
SFL		Totals	5	87	82	2.315	4.25	4.63	34.6	127.0		160	588		789	290	
SL		9	1	78	20	.463	.20	.46	6.0	20.0		3	9		14	5	

Project **STNICK**

T7N R6W S16 TLEAV **T7N R6W S16 TLEAV**

Twp Rge Sec Tract Type Acres Plots Sample Trees **Page: 2**
7N 6W 16 THINNING LEAV 492.40 54 230 **Date: 2/5/02**
Time: 1:06:35PM

S Spc T	Av				Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
	DBH	Sample Trees	FF 16	Ht Tot				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
SL	10	1	78	34	.463	.25	.46	9.0	20.0	4	9		21	5	
SL	11	3	81	40	1.389	.92	1.39	13.0	36.7	18	51		89	25	
SL	12	1	82	47	.463	.36	.46	17.0	40.0	8	19		39	9	
SL	14	1	82	45	.463	.49	.46	23.0	50.0	11	23		52	11	
SL	Totals	7	80	38	3.241	2.23	3.24	13.4	34.3	44	111		214	55	
AL	11	1	86	45	.463	.31	.46	13.0	30.0	6	14		30	7	
AL	12	1	86	34	.463	.36	.46	12.0	30.0	6	14		27	7	
AL	13	1	86	47	.463	.43	.93	11.0	45.0	10	42		50	21	
AL	Totals	3	86	42	1.389	1.10	1.85	11.7	37.5	22	69		107	34	
SN	12	1	84	48	.463	.36									
SN	Totals	1	84	48	.463	.36									
Totals		230	82	68	106.481	155.39	177.78	26.9	90.5	4789	16,097		23,580	7,926	

CRUISE DESIGN

Sale Name St. Nick Thinning Area(s) 1 (LPC)

1. Cruise Method:

- A. Variable Plot: BAF (Full) or Half Point F
Sighting point (BH or 16') _____
- B. Fixed Radius Plot: Plot Size (Acres) 1/25 Plot Radius 23.6 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 14 feet, (chains) apart (circle correct one)
Plots are 7 feet, (chains) apart
Cruise line direction is 45°.

3. Detailed Cruising Directions: (Include cruise objectives, such as estimated stand CV, target SE% for board foot volume, target number of conifer grade trees, estimated volume per acre, expected defect and breakage factors, grade/measure/count ratios, etc.)

Cruise & Grade all trees on all plots. Leave tree objectives are 140ft² of biggest & best trees. All cedar and yalder* are leave trees. Don't race through alder patches, resume pacing on the other side of the alder patch.

*Unless alders are over topping the conifers.

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

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

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

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

Sale Name St. Nick Thinning Area(s) 1 (pc)

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

9. **Species, Sort, and Grade Codes:**

- A. Species: D-fir = D; Hemlock = H; Sitka Spruce = S; Red Cedar = C; Silver fir = SF; Grand fir = GF; Noble fir = NF; Red Alder = A; Bifleaf Maple = M.
 B. Sorts: Domestic = 1; Leave tree = L; Take tree = T.
 C. Grades: #1 Peeler = A; #2 Peeler = B; #3 Peeler = C; Special Mill = D; #2 Sawmill = 2; #3 Sawmill = 3; #4 Sawmill = 4; Pulp = P; Camp Run = R; Cull = 0

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

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

12. **Attachments:**

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

CRUISE DESIGN

Sale Name St. Nick Thinning Area(s) 243 (ac)

1. Cruise Method:

- A. Variable Plot: BAF Full or Half Point F
Sighting point (BH or 16') _____
- B. Fixed Radius Plot: Plot Size (Acres) 1/25 Plot Radius 23.6 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 _____; Hwd _____; Other _____
- E. 100% Cruise: Grade all trees _____; Grade 1 in _____ trees by Species:
D-fir _____; Hemlock _____; Spruce _____; Cedar _____; Hwd _____; Other _____
- F. Clearcut; or Partial Cut: Indicate Take (T) and Leave (L) trees.

2. Plot Spacing: Lines are 14 feet, chains apart (circle correct one)
Plots are 7 feet, chains apart
Cruise line direction is 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, estimated volume per acre, expected defect and breakage factors, grade/measure/count ratios, etc.)

Cruise & grade all on all plots. Leave tree objectives are 40FT² of biggest & best trees. All cedar and *alder* are leave trees. Do not pace through alder patches, Resume pacing on the other side of the alder patch

*Unless alders are over topping the conifer.

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

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

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

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

Sale Name St. Nick Thinning Area(s) 243 (pc)

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

9. **Species, Sort, and Grade Codes:**

- A. Species: D-fir = D; Hemlock = H; Sitka Spruce = S; Red Cedar = C; Silver fir = SF; Grand fir = GF; Noble fir = NF; Red Alder = A; Bifleaf Maple = M.
 B. Sorts: Domestic = 1; Leave tree = L; Take tree = T.
 C. Grades: #1 Peeler = A; #2 Peeler = B; #3 Peeler = C; Special Mill = D; #2 Sawmill = 2; #3 Sawmill = 3; #4 Sawmill = 4; Pulp = P; Camp Run = R; Cull = 0

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

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

12. **Attachments:**

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

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

CRUISE DESIGN

Sale Name St. Nick Thinning Area(s) 4.5 (cc)

1. Cruise Method:

- A. Variable Plot: BAF 3.6 Full or Half Point F
Sighting point (BH) or 16' _____
- B. ___ Fixed Radius Plot: Plot Size (Acres) _____ Plot Radius _____ feet
- C. ___ Strip Cruise: Strip Width _____ feet Strip Spacing _____ feet
Strip factor _____ Strip (plot) length _____ feet
- D. ___ ITS Cruise: Measure/grade to Count ratio by Species:
D-fir ___; Hemlock ___; Spruce ___; Cedar ___; Hwdw ___; Other ___
- E. ___ 100% Cruise: Grade all trees ___; Grade 1 in ___ trees by Species:
D-fir ___; Hemlock ___; Spruce ___; Cedar ___; Hwdw ___; Other ___
- F. Clearcut; or ___ Partial Cut: Indicate Take (T) and Leave (L) trees.

2. Plot Spacing: Lines are 5 feet, chains apart (circle correct one)
Plots are 5 feet, chains apart
Cruise line direction is 280°.

3. Detailed Cruising Directions: (Include cruise objectives, such as estimated stand CV, target SE% for board foot volume, target number of conifer grade trees, estimated volume per acre, expected defect and breakage factors, grade/measure/count ratios, etc.)

Cruise & Grade all trees on all plots. All cedar are leave trees. Do not pace through buffer zones, resume pacing on the other side of the buffer zones.

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

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

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

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

Sale Name St. Nick Thinning Area(s) 445 (cc)

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

9. Species, Sort, and Grade Codes:

- A. Species: D-fir = D; Hemlock = H; Sitka Spruce = S; Red Cedar = C; Silver fir = SF; Grand fir = GF; Noble fir = NF; Red Alder = A; Bifleaf Maple = M.
 B. Sorts: Domestic = 1; Leave tree = L; Take tree = T.
 C. Grades: #1 Peeler = A; #2 Peeler = B; #3 Peeler = C; Special Mill = D; #2 Sawmill = 2; #3 Sawmill = 3; #4 Sawmill = 4; Pulp = P; Camp Run = R; Cull = 0

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

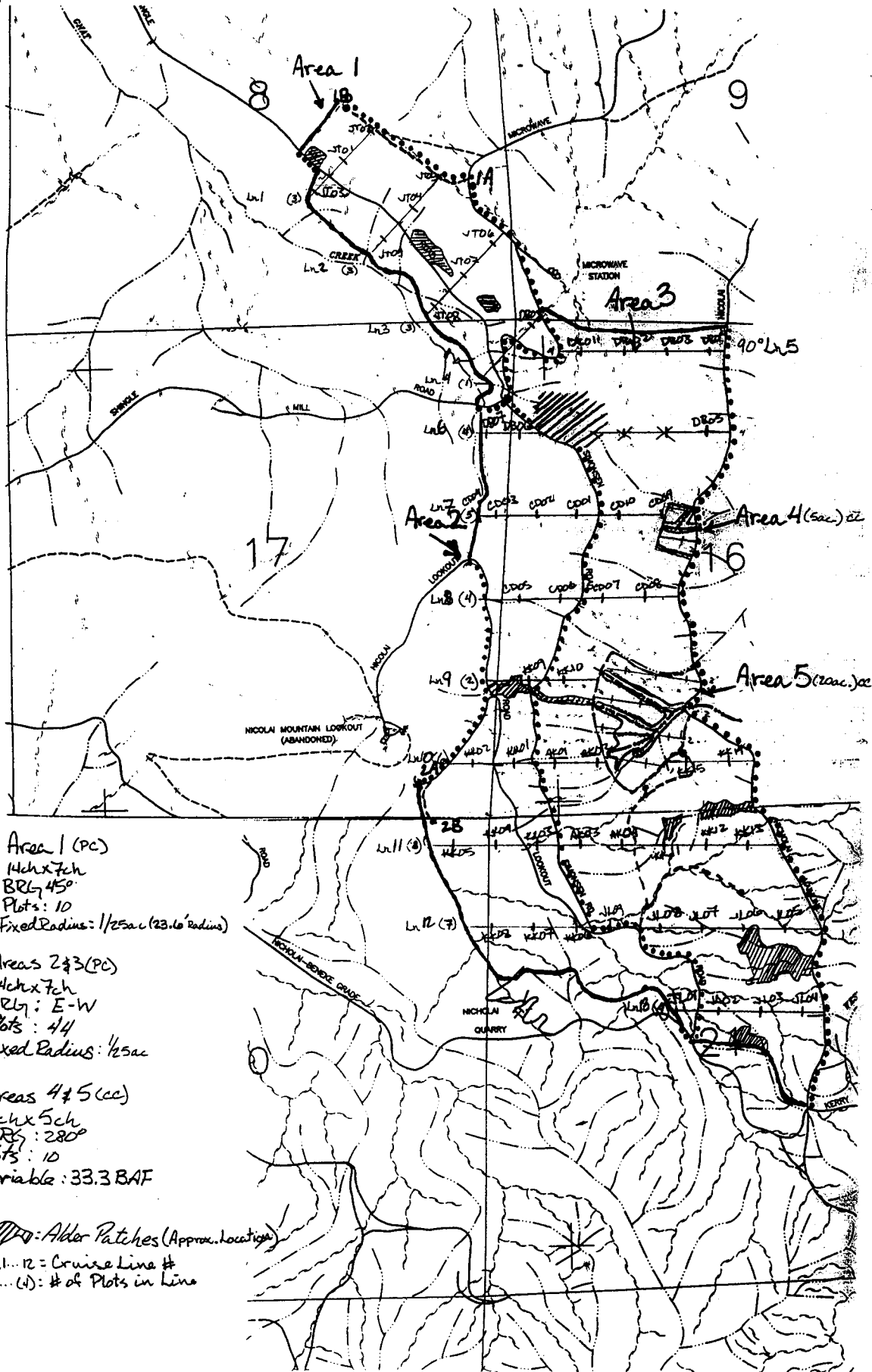
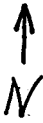
11. Cruising Equipment: Relaskop, rangefinder, diameter tape or rewind tape, biltmore stick, compass, increment borer, tatum and cruise cards or CMT data recorder, yellow and blue ribbon, permanent marker, Scaling and Grading Rules book, and Cruise Design and Map.

12. Attachments:

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

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

* St. Nick Thinning
 Areas 1-5 (Approx. 525ac)
 T.F.N., R6W.
 Portions of Section: 8, 9, 16, 17 & 20



* Area 1 (PC)
 14ch x 7ch
 BRG: 45°
 Plots: 10
 Fixed Radius: 1/25ac (23.16 radius)

* Areas 2 & 3 (PC)
 14ch x 7ch
 BRG: E-W
 Plots: 44
 Fixed Radius: 1/25ac

* Areas 4 & 5 (CC)
 5ch x 5ch
 BRG: 280°
 Plots: 10
 Variable: 33.3 BAF

▨ = Alder Patches (Approx. location)

Ln 1-12 = Cruise Line #
 (1) - (12) = # of Plots in Line