"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Cost Summary
Ironman
Sale 341-07-41

District: Astoria **Date:** 2/8/07

	Conifer	Hardwood	Total
Gross Timber Sale Value	$1,467,965.21	$7,458.92	$1,475,424.13
		Project Work	($128,357.00)
		Advertised Value	$1,347,067.13

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Timber Description
Ironman
Sale 341-07-41

District: Astoria

Location: Portions of Sections 15, 16 and 22, T4N, R7W, W.M., Clatsop County, Oregon.

Date: 2/8/07 **Stand Stocking:** 60%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	17	0	97
Western Hemlock / Fir	14	0	96
Sitka Spruce	28	0	94
Alder (Red)	14	0	95

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)	Total
2S	2,709	1,297	1	0	4,007
3S	1,026	1,375	0	0	2,401
4S	245	244	0	0	489
Camprun	0	0	0	17	17
Total	3,980	2,916	1	17	6,914

Comments: Pond Values Used: 4th Quarter Calendar Year 2006.

Log Markets: Mist, Clatskanie, Tillamook, Forest Grove.

Western Red Cedar Stumpage Price = Pond Value minus Logging Cost
$745/MBF = $960/MBF - $215/MBF

HAULING
Hauling costs adjusted to make equivalent to $700 daily truck cost.
$700 - % Profit & Risk ($700 / 1.14) = $614 Daily Truck Cost.
Hauling Cost Calculation Douglas-fir:
$614 Daily Truck Cost / (2 trips per day x 4.5 MBF per load) = $68.22/MBF Hauling Cost.
Hauling Cost Calculation Western Hemlock:
$614 Daily Truck Cost / (2 trips per day x 3.5 MBF per load) = $87.71/MBF Hauling Cost.
Hauling Cost Calculation Sitka Spruce:
$614 Daily Truck Cost / (2 trips per day x 3.5 MBF per load) = $87.71/MBF Hauling Cost.
Hauling Cost Calculation Red Alder:
$614 Daily Truck Cost / (2 trips per day x 3.5 MBF per load) = $87.71/MBF Hauling Cost.

Other Costs (with Profit & Risk to be added):
100% Branding and Painting: $1per MBF x 6,914 = $6,914
Additional log loader piling: 3 hours x $65/hr x 5 landings = $975
TOTAL Other Costs w/P&R = $7,889

Other Costs (No Profit & Risk):
Excavator Slash Piling: 68 hours x $120/hr = $8,160
Excavator move-in: 2 move-in's x $945/move-in = $1,890
Vacate and crunch dirt road segment 3A to 3B after harvest:
$50/station x 26.5 stations = $1,325
Snag Creation in Areas 2 and 3: 91 snags x $45/snag = $4,095
TOTAL Other Costs (No P&R) = $15,470

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Logging Conditions
Ironman
Sale 341-07-41

Combination#: 1

	Douglas - Fir	31.64%
	Western Hemlock / Fir	15.69%
	Sitka Spruce	54.00%
	Alder (Red)	54.00%

Yarding Distance: Long (1,500 ft) **Downhill Yarding:** No
Logging System: Cable: Large Tower >=70 **Process:** Stroke Delimber
Tree Size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
Loads/Day: 8 **Bd. Ft./Load:** 4,800
Cost/MBF: $97.52
Machines:
Log Loader (A)
Stroke Delimber (A)
Tower Yarder (Large)

Combination#: 2

	Douglas - Fir	19.88%
	Western Hemlock / Fir	34.06%

Yarding Distance: Medium (800 ft) **Downhill Yarding:** No
Logging System: Cable: Medium Tower >40 - <70 **Process:** Manual Delimbing
Tree Size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
Loads/Day: 5 **Bd. Ft./Load:** 4,000
Cost/MBF: $165.83
Machines:
Log Loader (A)
Tower Yarder (Medium)

Combination#: 3

	Douglas - Fir	21.53%
	Western Hemlock / Fir	36.90%

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: 6 **Bd. Ft./Load:** 4,000
Cost/MBF: $136.06
Machines:
Log Loader (B)
Track Skidder

Combination#: 4

	Douglas - Fir	26.95%
	Western Hemlock / Fir	13.36%
	Sitka Spruce	46.00%
	Alder (Red)	46.00%

Yarding Distance: Short (400 ft) **Downhill Yarding**: Yes
Logging System: Shovel **Process:** Manual Delimbing
Tree Size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
Loads/Day: 7 **Bd. Ft./Load:** 4,800
Cost/MBF: $70.08
Machines:
Shovel Logger

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Logging Costs
Ironman
Sale 341-07-41

Date: 2/8/07

Operating Seasons: 2.0

Profit & Risk: 14%

Project Costs: $128,357

Other Costs (P/R): $7,889

Slash Disposal: $0

Other Costs: $15,470

Road Maintenance: $2.31

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	$68.22	2.0	4.5
Western Hemlock / Fir	$87.71	2.0	3.5
Sitka Spruce	$87.71	2.0	3.5
Alder (Red)	$87.71	2.0	3.5

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Logging Costs Breakdown
Ironman
Sale 341-07-41

Costs	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)
Logging	112.00	131.34	84.90	84.90
Road Maintenance	2.38	2.41	2.46	2.43
Fire Protection	0.78	0.78	0.78	0.78
Hauling	70.33	91.36	93.31	92.33
Other (P/R appl.)	1.14	1.14	1.14	1.14
Profit & Risk	26.13	31.78	25.56	25.42
Slash Disposal	0.00	0.00	0.00	0.00
Scaling	2.00	2.00	2.00	2.00
Other	2.24	2.24	2.24	2.24
Total	217.00	263.05	212.39	211.24

Amortization	0.00	0.00	0.00	0.00
Pond Value	522.49	349.45	385.00	650.00
Stumpage	305.49	86.40	172.61	438.76
Amortized	0.00	0.00	0.00	0.00

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Summary
Ironman
Sale 341-07-41

Amortized

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

Unamortized

	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)
MBF	3,980.00	2,916.00	1.00	17.00
Value	305.49	86.40	172.61	438.76
Total	1,215,850.20	251,942.40	172.61	7,458.92

Gross Timber Sale Value

Recovery $1,475,424.13

Prepared by: Jasen McCoy Date: 2/8/07

District: Astoria Phone: (503) 325-5451

Road Maintenance Cost Summary

Sale: Ironman
Date: 29-Sep-06
By: P, Stone

MBF: 6,914
$$/MBF: $2.31

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Progressive Operations 1st Entry	Grader 14G	$570	1	25	$84	$2,100
	Dump Truck 12CY x 3	$357	3	8	$59	$1,415
	FE Loader C966	$570	1	8	$79	$630
Progressive Operations 2nd Entry	Grader 14G	$570	1	25	$84	$2,100
	Dump Truck 12CY x 3	$357	3	8	$59	$1,415
	FE Loader C966	$570	1	8	$79	$630
Final Road Maintenance	Grader 14G	$570	1	25	$84	$2,100
	Dump Truck 12CY x 3	$357	3	8	$59	$1,415
	FE Loader C966	$570	1	8	$79	$630
	Vibratory Roller	$570	1	25	$79	$1,975
	Water Truck 2,500 gallon	$139	1	20	$70	$1,400
	Labor			8	$18	$144
Total						$15,954

Production Rates

Production Rates	Miles/day	Distance(miles)	Days
Grader	2.5	5.6	2.2

Production Rates	Miles/day	Distance(miles)	Days
Grader	2.5	5.6	2.2

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	5.6	2.2
Vibratory Roller*	1.5	5.6	2.2

*Final Road Maintenance Only

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SUMMARY OF ALL PROJECT COSTS

SALE NAME: Ironman

NEW CONSTRUCTION:

	Road segment	Length/Sta	Cost	
Project No. 1	1A-1B, 1C-1D, 1E-1F,	101.00	$59,092	
	1G-1H, 1I-1J, 1K-1L,			
	1N-1O, 3A-3B.			
	TOTALS	101.00		$59,092

ROAD IMPROVEMENT:

	Road segment	Length/Sta	Cost	
Project No. 1	I1-I2 and I2-I3.	299.00	$19,371	
	TOTALS	299.00		$19,371

SPECIAL PROJECTS:

Project No. 2	Roadside Brushing (33mi.)	$44,823	
	TOTALS		**$44,823**

MOVE IN:

Equipment	Cost	
Dozer (D8)	$1,030	
Dump Trucks (12 cy x 3)	$357	
Dump Trucks (20 cy x 2)	$280	
F E Loader (C966)	$570	
Grader (14G)	$570	
Rubber Tire Skidder (C518)	$525	
Vibratory Roller	$570	
Water Truck (2,500 gallon)	$139	
Excavator (C330)	$1,030	
TOTAL		$5,071

GRAND TOTAL **$128,357**

Compiled By: J. McCoy Date: 11/28/2006

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SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Ironman (Designed Roads)
ROADS: 1A-1B (37.4), 1C-1D (10.6), 1N-1O (6.8), and 3A-3B (26.0)

NEW CONSTRUCTION: 80.80 **STATIONS** 1.53 **MILES**
IMPROVEMENT: **STATIONS** 0.00 **MILES**

CLEARING & GRUBBING

Method	Acres/amount		Rate	=	Cost
Scatter Outside of R/W	8.3	x	$980.00	=	$8,134.00

SUB TOTAL FOR CLEARING & GRUBBING $8,134

EXCAVATION

Material	Cy/amount/station		Rate	=	Cost
Common drift excavation $$/cy	13,018	x	$1.28	=	$16,663.04
Embankment comapaction $$/cy	11,736	x	$0.45	=	$5,281.20

SUB TOTAL FOR EXCAVATION $21,944

CULVERT MATERIALS AND INSTALLATION

	Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
1A-1B	1+90	18"CPP	40	$13.60	$544.00			
1A-1B	4+50	18"CPP	30	$13.60	$408.00			
1A-1B	10+32	18"CPP	35	$13.60	$476.00			
1A-1B	13+17	18"CPP	30	$13.60	$408.00			
1A-1B	15+37	18"CPP	30	$13.60	$408.00			
1A-1B	22+45	18"CPP	35	$13.60	$476.00			
1A-1B	29+60	18"CPP	30	$13.60	$408.00			
1C-1D	1+20	18"CPP	35	$13.60	$476.00			
1C-1D	4+30	18"CPP	35	$13.60	$476.00			
3A-3B	8+42	18"CPP	40	$13.60	$544.00			

	Description	Quantity	Rate	Cost
Other/miscellaneous:				$0.00
				$0.00
Culvert stakes & markers:	6' FIBERGLASS MARKERS	10	$14.10	$141.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $1,569

Subtotal **$31,647**

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Ironman (Field Design)
ROAD: 1E-1F (1.5), 1G-1H (4.0), 1I-1J (12.7), and 1K-1L (2.0)

NEW CONSTRUCTION: 20.20 **STATIONS** 0.38 **MILES**
IMPROVEMENT: **STATIONS** 0.00 **MILES**

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
Scatter Outside of R/W	2.1	x	$980.00	=	$2,058.00

SUB TOTAL FOR CLEARING & GRUBBING $2,058

EXCAVATION

Material	Sta/amount	x	Rate	=	Cost
Common (Drift Earth up to 200') $$/sta.	10.00	x	$139.00	=	$1,390.00
Balanced construction $$/sta.	10.20	x	$89.00	=	$907.80
Landing Construction $$/landing	4	x	$285.00	=	$1,140.00
1F, 1H, 1J, and 1L					

SUB TOTAL FOR EXCAVATION $3,438

CULVERT MATERIALS AND INSTALLATION

	Location	Dia/type	Lineal ft.	Rate	Cost	No. bands	Rate	Cost
1I-1J	6+00	18"CPP	30	$13.60	$408.00			

	Description	Quantity	Rate	Cost
Other/miscellaneous:	Culvert markers:	1	$14.10	$14.10

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION $422

Subtotal **$5,918**

Project No. 1 New Road Construction

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Ironman
ROAD: 1A-1B (37.4), 1C-1D (10.6), 1E-1F (1.5), 1G-1H (4), 1I-1J (12.7), 1K-1L (2), 1N-1O (6.8), and 3A-3B (26.0)

NEW CONSTRUCTION: 101.00 **STATIONS** 1.91 **MILES**
IMPROVEMENT: 0.00 **STATIONS** 0.00 **MILES**

SURFACING

Subgrade prep:

Description	Stations/ amount	x	Rate/ sta/amt	Cost
Grade, Shape and Ditch 16'	75.00	x	$18.20	$1,365.00
Subgrade Compaction	75.00	x	$14.80	$1,110.00
Grade, 14' Outslope	26.00	x	$13.45	$349.70
Waterbar	26.00	x	$11.70	$304.20

ROAD SEGMENT 1A to 1B — POINT TO POINT: 1A to 1B — Sta. to Sta.: 0+00 to 37+40

Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0" Crushed	1A to 1B	10	station	54	stations	37.40	2,020	$1.99	$4,019	
Turnouts	4"-0" Crushed		10	turnouts	24	turnouts	4.00	96	$1.99	$191	
Turn-Around	4"-0" Crushed		10	TA	14	TA	1	14	$1.99	$28	
Junction	3/4"-0" Crushed	1A	2	Junction	10	Junction	1	10	$1.99	$20	
Culvert Bedding	3/4"-0" Crushed	1+90			20	Culverts	1	20	$1.99	$40	
Traction Rock	3/4"-0" Crushed	0+00 to 13+00	2	station	11	stations	13	143	$1.99	$285	
Traction Rock	3/4"-0" Crushed	30+00 to 36+00	2	station	11	stations	6	66	$1.99	$131	
Curve Widening	4"-0" Crushed		10					100	$1.99	$199	
Landing	6"-0" Pit-run	1B	N/A	Landing	80	Landings	1	80	$4.37	$350	
Total Rock for Road Segment:			1A to 1B					2,549			$5,262

ROAD SEGMENT 1C to 1D — POINT TO POINT: 1C to 1D — Sta. to Sta.: 0+00 to 10+60

Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0" Crushed	1C to 1D	8	station	43	stations	10.60	456	$1.99	$907	
Turnouts	4"-0" Crushed		8	turnout	19	turnouts	3	57	$1.99	$113	
Turn-Around	4"-0" Crushed		N/A	TA	12	TA	1	12	$1.99	$24	
Traction Rock	3/4"-0" Crushed	0+00 to 7+00	2	station	11	stations	7	77	$1.99	$153	
Curve Widening	4"-0" Crushed		8					50	$1.99	$100	
Junction	4"-0" Crushed	1C	10	Junction	24	junctions	1	24	$1.99	$48	
Landing	6"-0" Pit-run	1D	N/A	Landing	50	Landings	1	50	$4.37	$219	
Total Rock for Road Segment:			1C to 1D					726			$1,563

ROAD SEGMENT 1E to 1F — POINT TO POINT: 1E to 1F — Sta. to Sta.: 0+00 to 1+50

Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0" Crushed		8	station	43	stations	1.50	65	$1.99	$128	
Junction	4"-0" Crushed	1E	10	Junction	24	junctions	1	24	$1.99	$48	
Landing	6"-0" Pit-run	1F	N/A	Landing	50	Landings	1	50	$4.37	$219	
Total Rock for Road Segment:			1E to 1F					139			$395

ROAD SEGMENT 1G to 1H — POINT TO POINT: 1G to 1H — Sta. to Sta.: 0+00 to 4+00

Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Base Rock	4"-0" Crushed		8	station	43	stations	4.00	172	$1.99	$342	
Turn-Around	4"-0" Crushed		N/A	TA	24	TA	1	24	$1.99	$48	
Junction	4"-0" Crushed	1G	10	Junction	24	junctions	1	24	$1.99	$48	
Landing	6"-0" Pit-run	1H	N/A	Landing	50	Landings	1	50	$4.37	$219	
Total Rock for Road Segment:			1G to 1H					270			$656

ROAD SEGMENT	1I to 1J			POINT TO POINT	1I to 1J	Sta. to Sta.	0+00 to 12+70	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of					
Base Rock	4"-0" Crushed	1I to 1J	8	station	43	stations	12.70	546	$1.99	$1,087	
Turnouts	4"-0" Crushed		8	turnout	19	turnouts	2	38	$1.99	$76	
Turn-Around	4"-0" Crushed		N/A	TA	12	TA	1	12	$1.99	$24	
Junction	3/4"-0" Crushed	1I	2	junction	10	junctions	1	10	$1.99	$20	
Junction	4"-0" Crushed	1I	8	junction	24	junctions	1	24	$1.99	$48	
Landing	6"-0" Pit-run	1J	N/A	Landing	50	Landings	1	50	$4.37	$219	
Total Rock for Road Segment:			1I to 1J					680			$1,472
ROAD SEGMENT	1K to 1L			POINT TO POINT	1K to 1L	Sta. to Sta.	0+00 to 2+00	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of					
Base Rock	6"-0" Pit-run	1K to 1L	10	station	54	stations	2.00	108	$3.00	$324	
Turn-Around	6"-0" Pit-run		10	TA	14	TA	1	14	$3.00	$42	
Junction	3/4"-0" Crushed	1K	2	junction	10	junctions	1	10	$1.99	$20	
Junction	6"-0" Pit-run	1K	10	junction	30	junctions	1	30	$3.00	$90	
Landing	6"-0" Pit-run	1L	N/A	Landing	50	Landings	1	50	$3.00	$150	
Total Rock for Road Segment:			1K to 1L					212			$626
ROAD SEGMENT	1M			POINT TO POINT	1M	Sta. to Sta.	N/A	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of					
Landings	6"-0" Pit-run		N/A	Landing	50	Landings	1	50	$3.00	$150	
Total Rock for Road Segment:			1M					50			$150
ROAD SEGMENT	1N to 1O			POINT TO POINT	1N to 1O	Sta. to Sta.	0+00 to 6+80	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of					
Base Rock	6"-0" Pit-run	1N to 1O	10	station	54	stations	6.80	367	$3.00	$1,102	
Turnouts	6"-0" Pit-run		10	turnout	19	turnouts	1.00	19	$3.00	$57	
Turn-Around	6"-0" Pit-run		10	TA	14	TA	1	14	$3.00	$42	
Junction	3/4"-0" Crushed		2	junction	10	junctions	1	10	$1.99	$20	
Junction	6"-0" Pit-run		10	junction	30	junctions	1	30	$3.00	$90	
Landing	6"-0" Pit-run	1O	N/A	Landing	50	Landings	1	50	$3.00	$150	
Total Rock for Road Segment:			1N to 1O					490			$1,461
ROAD SEGMENT	3A to 3B			POINT TO POINT	3a to 3B	Sta. to Sta.	0+00 to 0+50	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per		Number of					
Base Rock	4"-0" Crushed	0+00 to 0+50	8	Station	20	junctions	1	20	$1.99	$40	
Junction	3/4"-0" Crushed		2	junction	10	junctions	1	10	$1.99	$20	
Junction	4"-0" Crushed		8	junction	24	junctions	1	24	$1.99	$48	
Total Rock for Road Segment:			3a to 3B					54			$107 **$14,822**

Processing:

Description	No.sta	Rate/sta	Cost
Water, Process & Compact Crushed Rock:	75.00	$41.40	$3,105
Process traction rock	20.00	$41.40	$828

SUB TOTAL FOR SURFACING **$3,933**

SPECIAL PROJECTS

Description	Cost
Develop Rip Rap 978c/y @ $2.83/cubic yard	$2,772

SUB TOTAL FOR SPECIAL PROJECTS $2,772

GRAND TOTAL **$59,092**

Compiled By: J. McCoy

Date: 12/04/2006

Project No. 1 Road Improvement

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Ironman
ROAD: I1-I2 (166+50), I2-I3 (132+50)

NEW CONSTRUCTION: 0.00 STATIONS 0.00 MILES
IMPROVEMENT: 299.00 STATIONS 5.66 MILES

SURFACING

Subgrade prep:

Description	Stations/ amount	x	Rate/ sta/amt	Cost
Grade, Shape and Ditch	299.00	x	$18.20	$5,441.80

ROAD SEGMENT I1 to I2

Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT I1 to I2 Volume (CY) per	Sta. to Sta. 0+00 to 166+50 Number of	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Subgrade Leveling	1 1/2"-0" Crushed		N/A			500	$2.82	$1,410
Total Rock for Road Segment:		I1 to I2				500		$1,410

ROAD SEGMENT I2 to I3

Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT I2 to I3 Volume (CY) per	Sta. to Sta. 0+00 to 132+50 Number of	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Subgrade Leveling	1 1/2"-0" Crushed	I2-I3	N/A			200	$2.82	$564
Surfacing Rock	1 1/2"-0" Crushed	58+00 to 59+00	N/A			20	$2.82	$56
Base Rock	4"-0" Crushed	58+00 to 59+00	N/A			30	$2.82	$85

Processing:

Description	No.sta	Rate/sta	Cost
Water, Process & Compact Crushed Rock:	299.00	$41.40	$12,379

SUB TOTAL FOR SURFACING $19,230

SPECIAL PROJECTS

Description			Cost
Installing Culvert Markers	10 Markers x $14.10	=	$141

SUB TOTAL FOR SPECIAL PROJECTS $141

GRAND TOTAL **$19,371**

Compiled By: J. McCoy

Date: 10/19/2006

SALE NAME: Ironman
PROJECT: No. 1 Road Construction
QUARRY: Quartz Creek Stockpile

ROCK TYPE: Crushed
3/4"-0", and 4"-0"

DATE: 09/19/2006
BY: J. McCoy

		Cubic Yards							
Segment	Stations	Base	Surfacing	Turnout	Turnaround	Junction	Curves	Misc	Total
1A-1B	37.40	2,356	247	120	24	0	100	20	2,867
1C-1D	10.60	530	91	72	24	24	50	0	791
1E-1F	1.50	75				24			99
1G-1H	4.00	200			24	24			248
1I-1J	12.70	635		48	24	24			731
Grand Total	66.20	3,796	338	240	96	96	150	20	4,736

			ONE WAY HAUL IN MILES							
Road Segment	Stations	Cubic Yards	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1A-1B	37.40	2,867					0.10	0.20	0.05	0.35
1C-1D	10.60	791					0.10	0.10	0.05	0.25
1E-1F	1.50	99					0.15	0.20	0.05	0.40
1G-1H	4.00	248					0.30	0.15	0.05	0.50
1I-1J	12.70	731					0.35	0.45	0.05	0.85
TOTAL	66.20	4,736								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL						**0.00**	**0.15**	**0.22**	**0.05**	**0.42**
							Average Round Trip Distance (miles)		0.84	

ROCK HAUL:

Truck type: D20 No. trucks: 0
Delay min.: 8 Efficiency: 85%

Truck type: D12 No. trucks: 2
Delay min.: 6 Efficiency: 85%

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

Ave haul: $0.94 /cy
Load: $0.40 /cy
Spread: $0.65 /cy

Production: cy/day = 966

CRUSHED ROCK HAUL COSTS 4,736 cy @ **$1.99 /cy**

SALE NAME: Ironman
PROJECT: Nos. 1 Road Improvement
QUARRY: Quartz Creek Stockpile

ROCK TYPE: Crushed
3/4", 1 1/2", & 4"-0"

DATE: 10/19/2006
BY: J. McCoy

		Cubic Yards								
Segment	Stations	Base	Leveling	Surfacing	Turnout	Turnaround	Junction	Curves	Misc	Total
I1-I2	166.50	0	500	0	0		0	0	0	500
I2-I3 (3/4,11/2")	135.50		200	20	0		0	0	0	220
I2-I3 (4")	135.50	30								30
										0
										0
										0
Grand Total	437.50	30	700		0	0	0	0	0	750

			ONE WAY HAUL IN MILES							
Road Segment	Stations	Cubic Yards	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
I1-I2	166.50	500			0.80	0.80	0.50	0.15	0.05	2.30
I2-I3 (3/4,11/2")	135.50	220			1.00	1.05	0.60	0.50	0.05	3.20
I2-I3 (4")	135.50	30								0.00
0	0.00	0								0.00
0	0.00	0								0.00
0	0.00	0								0.00
TOTAL	437.50	750								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL			**0.00**		**0.00**	**0.83**	**0.84**	**0.51**	**0.25**	**0.05**	**2.47**
								Average Round Trip Distance (miles)		4.94

ROCK HAUL:

Truck type: D20 No. trucks: 2
Delay min.: 8 Efficiency: 85%

Truck type: D12 No. trucks: 2
Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks: 0
Delay min.: 5 Efficiency: 85%

Ave haul: $1.77 /cy
Load: $0.40 /cy
Spread: $0.65 /cy

Production: cy/day = 1,118

CRUSHED ROCK HAUL COSTS 730 cy @ **$2.82 /cy**

SALE NAME: Ironman
PROJECT: No. 1
QUARRY: Spruce Run Quarry

ROCK TYPE: Pit Run
6"-0"

DATE: 10/19/2006
BY: J. McCoy

		Cubic Yards							
Segment	Stations	Base	Curve Widden	Turnout	Turnaround	Junction	Landings	Misc	Total
1K-1L	2.00	126			24	30	50		230
1N-1O	6.80	428			24	30	50		532
									0
									0
									0
									0
									0
Grand Total	8.80	554	0	0	48	60	100	0	762

			ONE WAY HAUL IN MILES							
Road Segment	Stations	Cubic Yards	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1K-1L	2.00	230					0.20	0.40	0.08	0.68
1N-1O	6.80	532					0.50	0.45	0.05	1.00
										0.00
										0.00
										0.00
										0.00
										0.00
TOTAL	8.80	762								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL			**0.00**	**0.00**	**0.00**	**0.00**	**0.41**	**0.43**	**0.06**	**0.90**
							Average Round Trip Distance (miles)		1.81	

ROCK HAUL:

Truck type: D20 — No. trucks: 0
Delay min.: 8 — Efficiency: 85%

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

Truck type: D10 — No. trucks: 0
Delay min.: 5 — Efficiency: 85%

Ave haul: $1.40 /cy
Load: $0.70 /cy
Spread: $0.90 /cy

Production: cy/day = 978

CRUSHED ROCK HAUL COSTS — 762 cy @ **$3.00 /cy**

SALE NAME:	Ironman			DATE:	09/19/2006
PROJECT:	No. 1	ROCK TYPE:	Pit Run	BY:	J. McCoy
QUARRY:	Spruce Run Quarry		6"-0"		

		Cubic Yards							
Segment	Stations	Base	Curve Widden	Turnout	Turnaround	Junction	Landings	Misc	Total
1A-1B	38.00						80		80
1C-1D	11.00						50		50
1E-1F	1.50						50		50
1G-1H	4.00						50		50
1I-1J	13.00						50		50
									0
									0
									0
									0
									0
									0
									0
Grand Total	67.50	0	0	0	0	0	280	0	280

			ONE WAY HAUL IN MILES							
Road Segment	Stations	Cubic Yards	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Total Haul
1A-1B	38.00	80			1.50	0.50	1.35	0.30	0.05	3.70
1C-1D	11.00	50			1.50	0.50	1.00	0.25	0.05	3.30
1E-1F	1.50	50			1.50	0.50	1.05	0.25	0.05	3.35
1G-1H	4.00	50			1.50	0.50	1.00	1.10	0.05	4.15
1I-1J	13.00	50			1.50	0.25	1.00	0.10	0.05	2.90
										0.00
										0.00
										0.00
										0.00
										0.00
										0.00
										0.00
TOTAL	67.50	280								AVERAGE HAUL
	STA./NO.	CU. YD.								
CUBIC YARD WEIGHTED HAUL			**0.00**	**0.00**	**1.50**	**0.46**	**1.11**	**0.39**	**0.05**	**3.50**
							Average Round Trip Distance (miles)		7.01	

ROCK HAUL:

Truck type:	D20	No. trucks:	0			
Delay min.:	8	Efficiency:	85%	Ave haul:	$2.77	/cy
				Load:	$0.70	/cy
Truck type:	D12	No. trucks:	3	Spread:	$0.90	/cy
Delay min.:	6	Efficiency:	85%			
Truck type:	D10	No. trucks:	0	Production: cy/day =	493	
Delay min.:	5	Efficiency:	85%			

CRUSHED ROCK HAUL COSTS 280 cy @ **$4.37 /cy**

Project No. 2 Ironman Brushing

Segment	Length (Miles)	Brush Type	Cost/Mile	Cost
I1 - I2	3.15	M	$1,350	$4,252.50
I2 -B19	2.60	M	$1,350	$3,510.00
I2 - I3	2.50	L	$1,150	$2,875.00
B1	0.23	M	$1,350	$310.50
B2	0.25	L	$1,150	$287.50
B3	0.10	H	$1,650	$165.00
B4	0.45	H	$1,650	$742.50
B5	0.10	H	$1,650	$165.00
B6	0.10	H	$1,650	$165.00
B7	0.10	H	$1,650	$165.00
B8	0.35	L	$1,150	$402.50
B9	0.15	L	$1,150	$172.50
B10	0.40	M	$1,350	$540.00
B11	0.50	L	$1,150	$575.00
I3 - B13	1.50	L	$1,150	$1,725.00
B14	0.10	L	$1,150	$115.00
B15	0.40	VH	$2,300	$920.00
B16	0.35	VH	$2,300	$805.00
B17 - B18	0.50	H	$1,650	$825.00
B20	0.15	M	$1,350	$202.50
B21	0.10	H	$1,650	$165.00
B22 - B38	0.60	L	$1,150	$690.00
B22 - B38	0.60	M	$1,350	$810.00
B23	0.90	M	$1,350	$1,215.00
B24	0.25	M	$1,350	$337.50
B25	0.15	L	$1,150	$172.50
B26	0.25	L	$1,150	$287.50
B27	0.35	M	$1,350	$472.50
B28	0.50	M	$1,350	$675.00
B29	0.25	L	$1,150	$287.50
B30	0.10	M	$1,350	$135.00
B31	0.45	M	$1,350	$607.50
B32	0.50	M	$1,350	$675.00
B33	0.25	H	$1,650	$412.50
B34	0.15	H	$1,650	$247.50
B35	0.15	M	$1,350	$202.50
B36	0.75	L	$1,150	$862.50
B37	0.30	L	$1,150	$345.00
B38 - B63	0.90	H	$1,650	$1,485.00
B38 - B63	0.60	M	$1,350	$810.00
B39	0.95	M	$1,350	$1,282.50
B40	0.10	L	$1,150	$115.00
B41	0.20	M	$1,350	$270.00
B42	0.05	H	$1,650	$82.50
B43	0.20	H	$1,650	$330.00
B44	0.10	M	$1,350	$135.00
B45	0.10	M	$1,350	$135.00
B46	0.20	H	$1,650	$330.00

B47	0.10	L	$1,150	$115.00
B48	0.15	L	$1,150	$172.50
B49	0.20	M	$1,350	$270.00
B38 - B50 (Both Legs of JCT.)	0.75	M	$1,350	$1,012.50
B51	0.20	M	$1,350	$270.00
B52 - B62	3.90	M	$1,350	$5,265.00
B53	0.25	L	$1,150	$287.50
B54	0.20	M	$1,350	$270.00
B55	0.40	M	$1,350	$540.00
B56	0.10	M	$1,350	$135.00
B57	1.50	M	$1,350	$2,025.00
B58	0.30	L	$1,150	$345.00
B59	0.80	M	$1,350	$1,080.00
B61	0.10	M	$1,350	$135.00
B60	0.30	M	$1,350	$405.00

Total Miles 33.23 **Total Project Cost** **$44,823**

L = Light Brush $1,150
M = Medium Brush $1,350
H = Heavy Brush $1,650
VH= Very Heavy $ 2,300
(1-11-05)

Road Maintenance Cost Summary

Sale: Ironman
Date: 29-Sep-06
By: P, Stone

MBF: 6,914
$$/MBF: $2.31

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Progressive Operations 1st Entry	Grader 14G	$570	1	25	$84	$2,100
	Dump Truck 12CY x 3	$357	3	8	$59	$1,415
	FE Loader C966	$570	1	8	$79	$630
Progressive Operations 2nd Entry	Grader 14G	$570	1	25	$84	$2,100
	Dump Truck 12CY x 3	$357	3	8	$59	$1,415
	FE Loader C966	$570	1	8	$79	$630
Final Road Maintenance	Grader 14G	$570	1	25	$84	$2,100
	Dump Truck 12CY x 3	$357	3	8	$59	$1,415
	FE Loader C966	$570	1	8	$79	$630
	Vibratory Roller	$570	1	25	$79	$1,975
	Water Truck 2,500 gallon	$139	1	20	$70	$1,400
	Labor			8	$18	$144
Total						$15,954

Production Rates

Production Rates	Miles/day	Distance(miles)	Days
Grader	2.5	5.6	2.2

Production Rates	Miles/day	Distance(miles)	Days
Grader	2.5	5.6	2.2

Production Rates	Miles/day	Distance(miles)	Days
Grader	1.5	5.6	2.2
Vibratory Roller*	1.5	5.6	2.2

*Final Road Maintenance Only

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CRUISE REPORT **Ironman**
FY 2007

1. **Sale Area Location:** Areas 1, 2, 3, and 4 are located in Portions of Sections 15, 16 and 22, T4N, R7W; 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	GTRA	Non-Thinnable	Stream Buffer	Net Acres	Survey Method
1	Partial Cut	362	8	7	0	41	23	283	GIS
2	Modified Clearcut	58	2	0	5	0	6	45	GIS
3	Modified Clearcut	54	0	3	4	0	1	46	GIS
4 R/W	Right-of-way	10	0	0	0	0	0	10	GIS
TOTALS		**484**	**10**	**10**	**9**	**41**	**30**	**384**	

4. Cruisers and Cruise Dates: Areas 1-4 were cruised by Derek Bangs, Lanny Freeman, Jon Long, Peter Stone, Jay Morey, Ty Williams, Art Simpson, Jenny Laughman, Bruce Hazen and Nate Agalzoff, in July, 2006.

5. Cruise Method and Computation:
AREA 1 is an "auto-mark" thinning unit (SDI 30), and were variable plot cruised using a 33.6 BAF. These plots are located on a 3 chain by 12 chain grid, with every third plot measured and graded. A total of 95 plots were sampled, with 25 measured and graded plots, and 70 count plots. Cedar and alder are reserve species, and were recorded as "leave" trees. The "biggest and best" trees were recorded as "leave" trees to meet a target residual basal area of 130 ft^2/acre. Hardwoods do not count towards the residual basal area.
AREAS 2 and 3 are modified clearcut units and were variable plot cruised using a 40 BAF. These plots are located on a 5 chain by 5 chain grid, with every other plot measured and graded. A total of 41 plots were sampled, with 22 measured and graded plots, and 19 count plots. Cedar is a reserve species.
AREA 4 R/W The Right-of Way volume was calculated by multiplying the R/W acreage and the average volume per acre from the plots in Area 1. In-sale right of way totals 10 acres.

All cruisers used Corvallis MicroTechnology (CMT) and/or Allegro 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	TRACT	TYPE
1	04N07W SEC 15	PC	TAKE
2 and 3	04N07W SEC 22	CC	TAKE
4 R/W	04N07W SEC 15	PC	R/W

6. Timber Description: Area 1 is an "auto-mark" thinning unit, approximately 60 years old, consisting of Douglas-fir stands mixed with western hemlock, noble fir, red alder, with an occasional Western redcedar. Non-thinnable pockets are scattered throughout the unit. The larger non-thinnable types have been mapped out and were not included in the cruise or net acres. This stand will be thinned to a SDI of 30 (130 Sq.Ft.BA), removing approximately 81 trees per acre and 13 MBF/acre. The average conifer "take" tree size is 15 inches DBH and 53 feet to a merchantable top (6 inches d.i.b.).
Areas 2 and 3 are clearcut units, approximately 60 years old, consisting of Douglas-fir, western hemlock, Noble Fir, red alder, with a minor component of Western redcedar. The Douglas-fir averages 20.5 inches DBH, with an average height of 75 feet to a merchantable top (6 inches d.i.b.). The average hemlock tree size is 13.5 inches DBH and 50 feet to a merchantable top (6 inches d.i.b.). The average volume per acre to be harvested (net) is 31.1 MBF.
Area 4 R/W is similar to the timber description mentioned above for Area 1. The average volume (net) is approximately 36.4 MBF/acre.

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

Statistics for Stand B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1 (PC)	50%	7%	41.2%	4.2%
2 and 3 (MC)	50%	10%	60.1%	9.4%

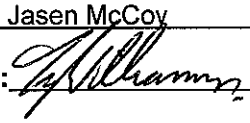
* Statistics for the thinning unit (Area 1) is for the current stand (Take and leave trees combined).

8. Volumes by Species and Log Grade: (See "Species, Sort, Grade - Type and Project Reports, attached, of individual sale areas and combined areas and two 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	CR	% D & B	% Sale
Douglas-fir	17"	3,980	2,709	1,026	245	0	1.7	58
Hemlock	14"	2,749	1,202	1,306	241	0	1.0	40
Spruce	28"	1	1	0	0	0	0	<1
Alder	14"	17	0	0	0	17	1.7	<1
True Fir	15"	167	95	69	3	0	5.0	2
TOTALS		**6,914**	**4,007**	**2,401**	**489**	**17**		

9. Approvals:

Prepared by: Jasen McCoy **Date:** August 16, 2006

Unit Forester Approval:  **Date:** 12/1/06

10. Attachments:

Cruise Designs - 4 pages
Cruise Maps - 2 pages
Volume Reports - 4 pages
Statistics Reports - 6 pages
Stand Tables - 2 pages
Log Stock Tables - 3 pages

X:\Jewell_Unit\Timber Sales\2007\Ironman\Pre-Sale\CruiseReport.doc

Revised August, 2002

CRUISE DESIGN
ASTORIA DISTRICT

Sale Name: Ironman **Area(s)** 1

Harvest Type: (PC) "Automark Thinning"

Approx. Cruise Acres: 283 **Estimated CV%** 50 Net BF or BA/Acre **SE% Objective** 7 Net BF or BA/Acre

Planned Sale Volume : 3,848 MBF (Area 1) **Estimated Sale Area Value/Acre:** $4,550/Ac (13 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum 100 conifer:
(b) Sample 94 cruise plots (1 grade/3 count); (c) Other goals (____ Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

B. Cruise Design:

1. **Plot Cruises:** BAF 33.6 (Full point; Half point) (circle one)
   Cruise Line Direction(s) AZ= 0° (North/South)
   Cruise Line Spacing 12 (chains)
   Cruise Plot Spacing 3 (chains)
   Grade/Count Ratio 1/3

Basal Area leave target 130 sq. ft. Cruiser needs to select 4 leave trees per plot. Cruise all take and leave trees. If a cruise line ends up paralleling in a buffer offset by 1 or 2 chains and continue. Do not take plots in Non-thinnable areas shown on cruise map. Alder will not be thinned; Record alder as leave trees. All cedar are leave trees and count towards the leave tree basal area. ***Alder will not count towards the leave tree BA.***

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.

2. **Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.

3. **Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 8" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.

4. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

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

A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code "1" (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: R = CampRun

7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Jasen McCoy
Approved by: _____
Date: 7/24/06

Revised August, 2002

CRUISE DESIGN
ASTORIA DISTRICT

Sale Name: Ironman **Area(s)** 2 & 3

Harvest Type: CC

Approx. Cruise Acres: 91 **Estimated CV%** 50 Net BF or BA/Acre **SE% Objective** 10% Net BF or BA/Acre

Planned Sale Volume: 3,120 MBF (Areas 3 & 5) **Estimated Sale Area Value/Acre:** $ 10,500/Ac (30 MBF/Ac)

A. **Cruise Goals:** (a) Grade minimum 100 conifer and 50 hardwood trees: (b) Sample 40 cruise plots (1 grade/ 1 count); (c) Other goals (____ Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

B. **Cruise Design:**

1. **Plot Cruises:** BAF 40 (Full point; Half point) (circle one)
   Cruise Line Direction(s) AZ=315° (Northwest/Southwest)
   Cruise Line Spacing 5
   Cruise Plot Spacing 5 (chains) (feet)
   Grade/Count Ratio 1/1

   Do not take plots in stream buffers shown on cruise map. If a cruise line ends up paralleling in a buffer offset by 1 or 2 chains and continue. All cedar and marked wildlife trees are leave trees and are recorded as leave trees.

C. **Tree Measurements:**

1. **Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods. Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.

2. **Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.

3. **Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 8" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.

4. **Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.
5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to

maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

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

A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)

B. Sort: Use code "1" (Domestic).

C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull
Hardwoods: R = CampRun

7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.

8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.

10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Jasen McCoy
Approved by: _____
Date: 3/24/2006

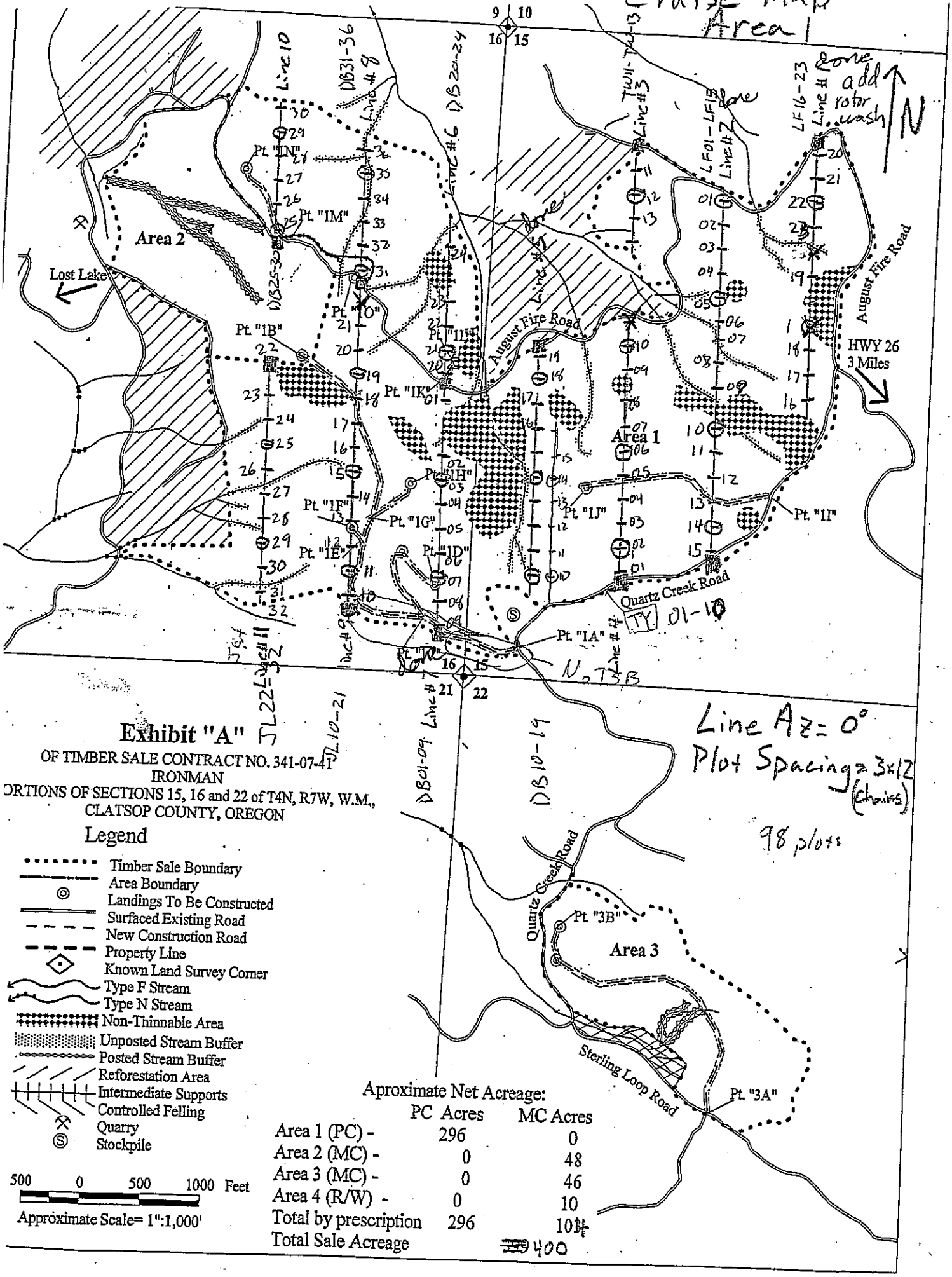


Exhibit "A"

OF TIMBER SALE CONTRACT NO. 341-07-41
IRONMAN
ORTIONS OF SECTIONS 15, 16 and 22 of T4N, R7W, W.M.,
CLATSOP COUNTY, OREGON

Legend

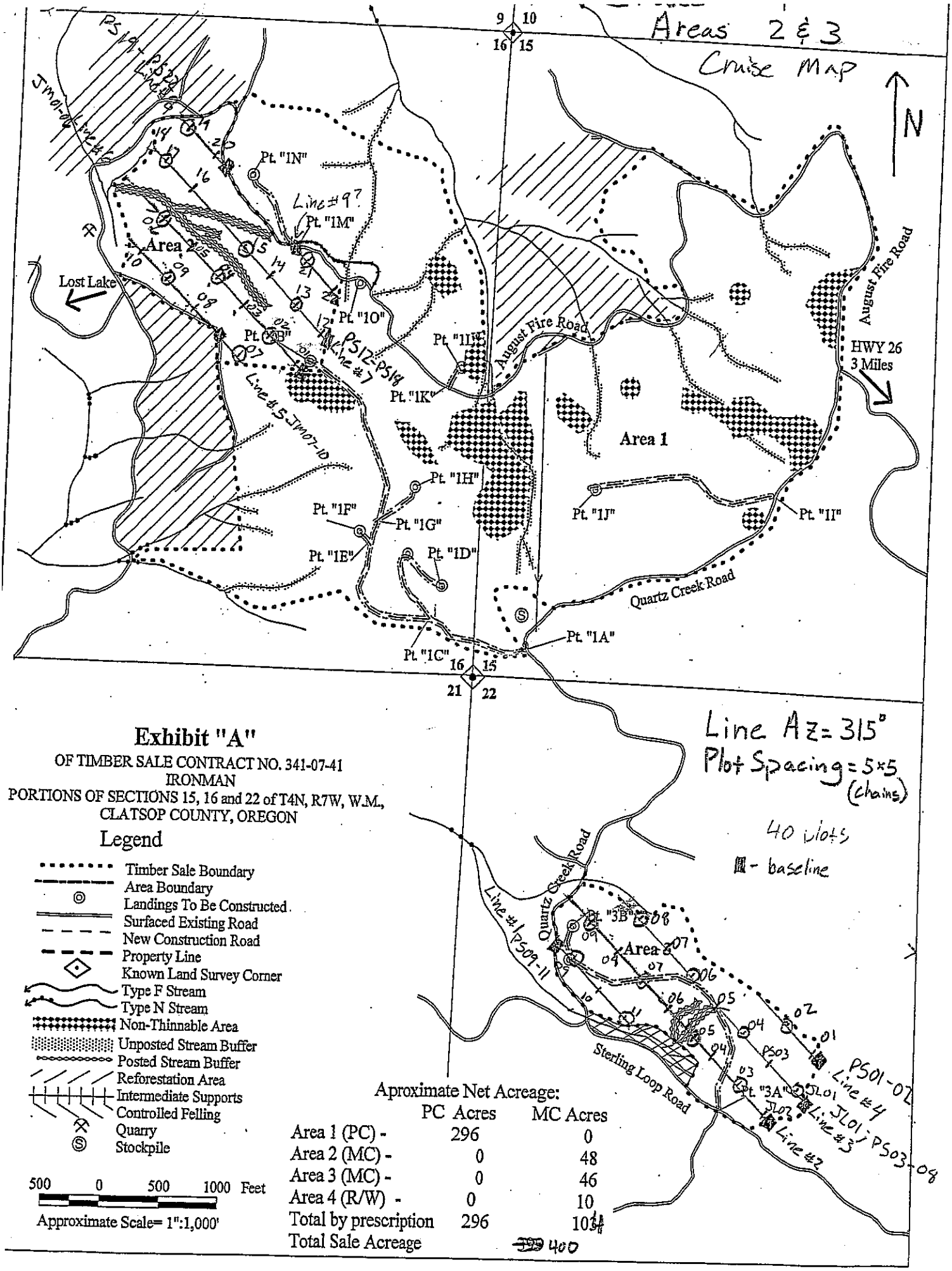
- Timber Sale Boundary
- Area Boundary
- Landings To Be Constructed
- Surfaced Existing Road
- New Construction Road
- Property Line
- Known Land Survey Corner
- Type F Stream
- Type N Stream
- Non-Thinnable Area
- Unposted Stream Buffer
- Posted Stream Buffer
- Reforestation Area
- Intermediate Supports
- Controlled Felling
- Quarry
- Stockpile

500 0 500 1000 Feet

Approximate Scale= 1":1,000'

Aproximate Net Acreage:

	PC Acres	MC Acres
Area 1 (PC) -	296	0
Area 2 (MC) -	0	48
Area 3 (MC) -	0	46
Area 4 (R/W) -	0	10
Total by prescription	296	104
Total Sale Acreage		~~399~~ 400



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PORTIONS OF SECTIONS 15, 16 and 22 of T4N, R7W, W.M.,
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- Timber Sale Boundary
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500 0 500 1000 Feet

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Area 3 (MC) -	0	46
Area 4 (R/W) -	0	10
Total by prescription	296	104
Total Sale Acreage		~~399~~ 400

Line Az = 315°
Plot Spacing = 5×5 (chains)
40 plots
= baseline

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T04N R07W S15 TyRW	10.00
T04N R07W S15 TyTAKE	283.00
T04N R07W S22 TyTAKE	91.00

Project: IRONMAN
Acres 384.00

Date 8/17/2006
Time 10:26:29AM

Spp	S T	So Gr rt ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		DO0														8		0.00	4.4
D		DO2	39	2.0	7,199	7,055	2,709		3	61	36	2	0	32	66	36	298	1.96	23.7
D		DO3	15	1.2	2,702	2,671	1,026	0	95	5		1	8	39	53	35	83	0.71	32.2
D		DO4	4	.2	639	637	245	1	99			44	39	1	16	21	28	0.41	22.5
D	**Totals**		58	1.7	10,539	10,363	3,980	0	33	43	24	4	4	32	59	30	125	1.07	82.7
NF		DO0														3		0.00	.2
NF		DO2	1	8.5	271	248	95			79	21			6	94	40	313	1.85	.8
NF		DO3	1	.1	180	180	69		100				31	32	37	29	61	0.60	2.9
NF		DO4	0		8	8	3		100			100				13	21	0.45	.4
NF	**Totals**		2	5.0	459	436	167		43	45	12	2	13	17	69	28	102	0.92	4.3
H		DO0														12		0.00	2.5
H		DO2	17	1.4	3,176	3,130	1,202		14	51	35	3	0	24	72	37	257	1.64	12.2
H		DO3	19	.7	3,428	3,402	1,306		92	8	0		3	30	67	37	87	0.66	39.0
H		DO4	3		626	626	240	3	97			34	57	2	8	22	27	0.43	23.2
H	**Totals**		40	1.0	7,230	7,158	2,749	0	58	26	15	4	6	25	64	31	93	0.79	77.0
A		DOCR	0	1.7	44	43	17	3	66	30		5	29	49	16	31	68	0.73	.6
A	**Totals**		0	1.7	44	43	17	3	66	30		5	29	49	16	31	68	0.73	.6
S		DO2	0		3	3	1				100		100			30	520	3.63	.0
S		DO3	0		0	0	0		100				100			30	70	1.37	.0
S	**Totals**		0		4	4	1		12		88		100			30	295	2.50	.0
Totals				1.5	18,276	18,005	6,914	0	43	36	20	4	5	29	61	31	109	0.93	164.6

TC TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: IRONMAN

Date 8/14/2006
Time 12:37:18PM

T04N R07W S15 TTAKE

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
04N	07W	15	PC	TAKE	283.00	95	77	1	W

T04N R07W S15 TTAKE

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
H		DO	0														15		0.00	2.1
H		DO	2	49	1.6	3,421	3,366	953		12	50	38	4		18	78	37	261	1.63	12.9
H		DO	3	44	.4	3,012	3,000	849		92	8			3	22	74	37	87	0.64	34.4
H		DO	4	7		510	510	144		100			31	69			22	28	0.47	18.2
H	**Totals**			52	1.0	6,944	6,875	1,946		54	28	19	4	7	18	71	32	102	0.82	67.5
D		DO	0														8		0.00	4.3
D		DO	2	58	3.0	3,508	3,402	963		4	79	17	2		38	60	35	253	1.77	13.4
D		DO	3	32	.4	1,841	1,834	519		95	5		1	7	44	48	35	77	0.65	23.8
D		DO	4	10		585	585	166	1	99			33	45		22	23	29	0.37	19.9
D	**Totals**			44	1.9	5,934	5,821	1,647	0	42	48	10	5	7	36	52	29	95	0.86	61.4
NF		DO	0														3		0.00	.3
NF		DO	2	47	1.9	208	204	58			100					100	40	311	1.74	.7
NF		DO	3	51		221	221	63		100				32	31	37	29	61	0.59	3.6
NF		DO	4	2		8	8	2		100			100				13	20	0.38	.4
NF	**Totals**			3	.9	437	433	123		53	47		2	16	16	66	28	88	0.80	4.9
Type Totals					1.4	13,315	13,130	3,716	0	48	37	14	4	7	26	62	31	98	0.84	133.8

TC TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: IRONMAN

Date 8/17/2006

Time 10:24:17AM

T04N R07W S22 TTAKE

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
04N	07W	22	CC	TAKE	91.00	41	133	1	W

T04N R07W S22 TTAKE

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		DO	0														8		0.00	4.3
D		DO	2	75	1.4	17,657	17,411	1,584		3	52	45	2	0	28	70	36	330	2.09	52.8
D		DO	3	22	2.0	5,296	5,189	472		94	6		1	7	33	58	35	91	0.79	57.3
D		DO	4	3	.8	776	770	70	1	99			72	25	3		18	26	0.49	29.6
D	**Totals**			75	1.5	23,729	23,369	2,127	0	26	40	34	4	3	29	65	31	162	1.30	143.9
H		DO	0														7		0.00	3.8
H		DO	2	25		1,845	1,845	168		29	59	12			56	44	35	214	1.60	8.6
H		DO	3	62	1.4	4,652	4,585	417		91	9			2	46	52	36	87	0.70	52.8
H		DO	4	13		991	991	90	8	92			40	36	4	20	22	25	0.38	39.4
H	**Totals**			24	.9	7,489	7,422	675	1	76	20	3	5	6	43	46	30	71	0.69	104.7
NF		DO	2	89	22.4	347	269	25			48	52				100	40	283	1.93	1.0
NF		DO	3	8		25	25	2		100					100		33	50	0.61	.5
NF		DO	4	2		7	7	1		100			100				14	30	0.79	.2
NF	**Totals**			1	20.5	379	301	27		11	43	46	2		8	89	34	180	1.49	1.7
A		DO	CR	100		46	46	4		100				100			30	50	0.67	.9
A	**Totals**			0		46	46	4		100				100			30	50	0.67	.9
Type Totals					1.6	31,642	31,138	2,834	0	38	35	26	4	3	32	60	31	124	1.06	251.2

TC TSPCSTGR

Species, Sort Grade - Board Foot Volumes (Type)

Project: IRONMAN

Page 1
Date 8/14/2006
Time 11:57:30AM

T04N R07W S15 TRW

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt
04N	07W	15	PC	RW	10.00	95	186	1	W

T04N R07W S15 TRW

Spp	ST	Sort	Grad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log Ln Ft	Bd Ft	CF/ Lf	Logs Per /Acre
D		DO	0														8		0.00	8.5
D		DO	2	79	1.8	16,486	16,193	162		2	44	54	3	1	36	60	35	340	2.16	47.6
D		DO	3	17	.3	3,459	3,450	35	0	93	7		1	15	41	44	34	79	0.73	43.9
D		DO	4	4	.3	915	913	9	1	99			35	48		17	22	29	0.41	31.3
D	**Totals**			56	1.5	20,861	20,556	206	0	22	36	42	4	5	35	56	30	157	1.28	131.2
H		DO	0														13		0.00	2.7
H		DO	2	64	2.2	8,336	8,155	82		4	44	52	1	0	37	61	36	335	2.02	24.3
H		DO	3	32	.3	4,032	4,022	40		90	8	2		7	29	64	36	91	0.73	44.0
H		DO	4	5		590	590	6		100			33	67			22	29	0.48	20.2
H	**Totals**			35	1.5	12,959	12,767	128		36	30	34	2	5	33	59	32	140	1.07	91.2
A		DO	CR	100	2.2	1,273	1,245	12	4	55	40		7	6	66	21	31	77	0.76	16.2
A	**Totals**			3	2.2	1,273	1,245	12	4	55	40		7	6	66	21	31	77	0.76	16.2
NF		DO	0														12		0.00	.4
NF		DO	2	75	4.5	1,362	1,300	13			41	59			47	53	37	404	2.36	3.2
NF		DO	3	24	1.5	423	417	4		100				23	17	59	32	72	0.75	5.8
NF		DO	4	1		14	14	0		100			100				13	20	0.46	.7
NF	**Totals**			5	3.8	1,800	1,731	17		25	30	45	1	6	40	54	31	171	1.33	10.1
S		DO	2	88		129	129	1				100		100			30	520	3.63	.2
S		DO	3	12		17	17	0		100				100			30	70	1.37	.2
S	**Totals**			0		146	146	1		12		88		100			30	295	2.50	.5
Type Totals					1.6	37,038	36,445	364	0	28	34	38	4	6	35	55	31	146	1.17	249.3

STATISTICS

PROJECT IRONMAN

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	07W	15	PC	TAKE	283.00	95	271	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	95	271	2.9		
CRUISE	21	75	3.6	22,873	.3
DBH COUNT					
REFOREST					
COUNT	51	194	3.8		
BLANKS	23				
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
WHEMLOCK	24	42.3	14.4	54		47.7	6,944	6,875	1,789	1,784
DOUG FIR	47	35.5	15.2	52		44.6	5,934	5,821	1,538	1,537
NOB FIR	4	3.0	13.9	46	1	3.2	437	433	109	109
TOTAL	*75*	*80.8*	*14.7*	*53*		*95.5*	*13,315*	*13,130*	*3,436*	*3,430*

SAMPLE TREES - BF

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
WHEMLOCK	210.2	24.3	69	91	113			
DOUG FIR	124.0	14.3	156	182	208			
NOB FIR	520.9	60.1	6	15	23			
TOTAL	*79.0*	*9.1*	*261*	*287*	*313*	*250*	*62*	*28*

TREES/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	159.9	16.4	35	42	49			
DOUG FIR	129.3	13.3	31	36	40			
NOB FIR	467.6	48.0	2	3	4			
TOTAL	*99.2*	*10.2*	*73*	*81*	*89*	*394*	*98*	*44*

BASAL AREA/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	159.9	16.4	40	48	56			
DOUG FIR	120.2	12.3	39	45	50			
NOB FIR	437.5	44.9	2	3	5			
TOTAL	*92.7*	*9.5*	*86*	*95*	*105*	*344*	*86*	*38*

NET BF/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
WHEMLOCK	164.3	16.9	5,716	6,875	8,035			
DOUG FIR	127.5	13.1	5,059	5,821	6,583			
NOB FIR	414.9	42.6	249	433	618			
TOTAL	*97.2*	*10.0*	*11,820*	*13,130*	*14,440*	*378*	*95*	*42*

STATISTICS

PROJECT IRONMAN

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	07W	15	PC	LEAV	283.00	95	392	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	95	392	4.1		
CRUISE	25	111	4.4	14,881	.7
DBH COUNT					
REFOREST					
COUNT	69	281	4.1		
BLANKS	1				
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV	64	24.2	25.1	85		82.8	15,425	15,234	3,570	3,552
HEMLEAV	23	11.6	21.6	79		29.7	5,649	5,543	1,309	1,309
ALDRLEAV	12	11.9	14.6	42		13.8	1,241	1,214	377	377
NFIRLEAV	8	1.8	27.2	86	2	7.4	1,309	1,239	291	291
SNAG	3	2.8	12.8	38		2.5				
SPRUCELV	1	.2	28.0	62		1.1	146	146	37	37
TOTAL	*111*	*52.6*	*21.9*	*71*		*137.2*	*23,770*	*23,376*	*5,584*	*5,566*

SAMPLE TREES - BF

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	108.3	10.3	397	443	488			
HEMLEAV	231.0	21.9	105	134	164			
ALDRLEAV	345.6	32.8	9	14	18			
NFIRLEAV	387.8	36.8	34	54	74			
SNAG								
SPRUCELV	1053.6	100.0		5	11			
TOTAL	*63.1*	*6.0*	*611*	*650*	*689*	*159*	*40*	*18*

TREES/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	62.7	6.4	23	24	26			
HEMLEAV	131.8	13.5	10	12	13			
ALDRLEAV	268.2	27.5	9	12	15			
NFIRLEAV	212.5	21.8	1	2	2			
SNAG	398.2	40.9	2	3	4			
SPRUCELV	556.7	57.1	0	0	0			
TOTAL	*63.7*	*6.5*	*49*	*53*	*56*	*162*	*41*	*18*

BASAL AREA/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	57.1	5.9	78	83	88			
HEMLEAV	130.8	13.4	26	30	34			
ALDRLEAV	271.7	27.9	10	14	18			
NFIRLEAV	210.5	21.6	6	7	9			
SNAG	356.4	36.6	2	2	3			
SPRUCELV	556.7	57.1	0	1	2			
TOTAL	*31.5*	*3.2*	*133*	*137*	*142*	*40*	*10*	*4*

NET BF/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	57.7	5.9	14,332	15,234	16,137			
HEMLEAV	132.3	13.6	4,790	5,543	6,295			
ALDRLEAV	270.1	27.7	877	1,214	1,550			
NFIRLEAV	209.0	21.4	973	1,239	1,504			
SNAG								
SPRUCELV	556.7	57.1	63	146	230			
TOTAL	*27.0*	*2.8*	*22,729*	*23,376*	*24,022*	*29*	*7*	*3*

TC TSTATS

STATISTICS

PROJECT IRONMAN

DATE 8/16/2006

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	07W	15	PC	0002	283.00	95	664	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	95	664	7.0		
CRUISE	25	187	7.5	37,761	.5
DBH COUNT					
REFOREST					
COUNT	70	475	6.8		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV	64	24.2	25.1	85		82.8	15,425	15,234	3,570	3,552
WHEMLOCK	24	42.3	14.4	54		47.7	6,944	6,875	1,789	1,784
DOUG FIR	47	35.5	15.2	52		44.6	5,934	5,821	1,538	1,537
HEMLEAV	23	11.6	21.6	79		29.7	5,649	5,543	1,309	1,309
ALDRLEAV	12	11.9	14.6	42		13.8	1,241	1,214	377	377
NFIRLEAV	8	1.8	27.2	86	2	7.4	1,309	1,239	291	291
NOB FIR	5	3.1	14.6	50	1	3.5	497	493	127	126
SNAG	3	2.8	12.8	38		2.5				
SPRUCELV	1	.2	28.0	62		1.1	146	146	37	37
TOTAL	*187*	*133.4*	*17.9*	*60*		*233.1*	*37,144*	*36,565*	*9,038*	*9,014*

SD: 1	COEFF VAR.%	S.E.%	SAMPLE TREES - BF LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUGLEAV	163.0	11.9	232	263	294			
WHEMLOCK	352.6	25.8	27	36	46			
DOUG FIR	230.3	16.8	61	73	85			
HEMLEAV	310.5	22.7	62	80	98			
ALDRLEAV	455.4	33.3	5	8	11			
NFIRLEAV	509.2	37.2	20	32	44			
NOB FIR	711.0	52.0	4	7	11			
SNAG								
SPRUCELV	1367.5	100.0		3	6			
TOTAL	*77.5*	*5.7*	*474*	*503*	*531*	*240*	*60*	*27*

SD: 1	COEFF VAR.%	S.E.%	TREES/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	62.7	6.4	23	24	26			
WHEMLOCK	159.9	16.4	35	42	49			
DOUG FIR	129.3	13.3	31	36	40			
HEMLEAV	131.8	13.5	10	12	13			
ALDRLEAV	268.2	27.5	9	12	15			
NFIRLEAV	212.5	21.8	1	2	2			
NOB FIR	451.7	46.3	2	3	4			
SNAG	398.2	40.9	2	3	4			
SPRUCELV	556.7	57.1	0	0	0			
TOTAL	*59.1*	*6.1*	*125*	*133*	*142*	*140*	*35*	*16*

SD: 1	COEFF VAR.%	S.E.%	BASAL AREA/ACRE LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	57.1	5.9	78	83	88			
WHEMLOCK	159.9	16.4	40	48	56			
DOUG FIR	120.2	12.3	39	45	50			
HEMLEAV	130.8	13.4	26	30	34			
ALDRLEAV	271.7	27.9	10	14	18			
NFIRLEAV	210.5	21.6	6	7	9			
NOB FIR	403.4	41.4	2	4	5			
SNAG	356.4	36.6	2	2	3			

STATISTICS

PROJECT IRONMAN

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	07W	15	PC	0002	283.00	95	664	1	W

BASAL AREA/ACRE

SD: 1	COEFF VAR.	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
SPRUCELV	556.7	57.1	0	1	2			
TOTAL	*41.4*	*4.2*	*223*	*233*	*243*	*68*	*17*	*8*

NET BF/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUGLEAV	57.7	5.9	14,332	15,234	16,137			
WHEMLOCK	164.3	16.9	5,716	6,875	8,035			
DOUG FIR	127.5	13.1	5,059	5,821	6,583			
HEMLEAV	132.3	13.6	4,790	5,543	6,295			
ALDRLEAV	270.1	27.7	877	1,214	1,550			
NFIRLEAV	209.0	21.4	973	1,239	1,504			
NOB FIR	381.2	39.1	300	493	686			
SNAG								
SPRUCELV	556.7	57.1	63	146	230			
TOTAL	*41.2*	*4.2*	*35,021*	*36,565*	*38,109*	*68*	*17*	*8*

STATISTICS

PROJECT IRONMAN

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	07W	22	CC	TAKE	91.00	41	217	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	41	217	5.3		
CRUISE	22	133	6.0	11,767	1.1
DBH COUNT					
REFOREST					
COUNT	19	83	4.4		
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	95	63.1	20.5	75		144.4	23,729	23,369	5,858	5,858
WHEMLOCK	35	64.6	13.5	50		64.4	7,489	7,422	2,141	2,141
NOB FIR	2	.7	22.2	81	0	2.0	379	301	86	86
R ALDER	1	.9	14.0	31		1.0	46	46	18	18
TOTAL	*133*	*129.3*	*17.3*	*62*		*211.7*	*31,642*	*31,138*	*8,103*	*8,103*

SAMPLE TREES - BF

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	106.0	9.2	353	389	425			
WHEMLOCK	223.2	19.4	34	43	51			
NOB FIR	933.6	80.9	2	8	14			
R ALDER	1153.3	100.0		0	1			
TOTAL	*86.2*	*7.5*	*407*	*440*	*473*	*297*	*74*	*33*

TREES/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	79.7	12.5	55	63	71			
WHEMLOCK	153.5	24.0	49	65	80			
NOB FIR	478.1	74.7	0	1	1			
R ALDER	640.3	100.0	0	1	2			
TOTAL	*80.6*	*12.6*	*113*	*129*	*146*	*260*	*65*	*29*

BASAL AREA/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	71.9	11.2	128	144	161			
WHEMLOCK	131.7	20.6	51	64	78			
NOB FIR	447.1	69.8	1	2	3			
R ALDER	640.3	100.0		1	2			
TOTAL	*53.5*	*8.4*	*194*	*212*	*229*	*114*	*29*	*13*

NET BF/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	80.4	12.6	20,436	23,369	26,303			
WHEMLOCK	141.3	22.1	5,784	7,422	9,060			
NOB FIR	460.7	72.0	84	301	518			
R ALDER	640.3	100.0	0	46	91			
TOTAL	*60.1*	*9.4*	*28,216*	*31,138*	*34,059*	*144*	*36*	*16*

TC TSTATS

STATISTICS

PAGE 1

PROJECT IRONMAN

DATE 8/14/2006

TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
04N	07W	15	PC	RW	10.00	95	656	1	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	95	656	6.9		
CRUISE	25	184	7.4	1,321	13.9
DBH COUNT					
REFOREST					
COUNT	70	470	6.7		
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
DOUG FIR	111	64.4	19.0	63		127.3	20,861	20,556	5,027	5,010
WHEMLOCK	47	49.9	16.9	62		77.5	12,959	12,767	3,151	3,147
R ALDER	12	12.2	14.6	42		14.1	1,273	1,245	387	387
NOB FIR	13	5.3	19.5	62	3	11.0	1,800	1,731	422	421
S SPRUCE	1	.2	28.0	62		1.1	146	146	37	37
TOTAL	*184*	*132.1*	*17.9*	*60*		*231.0*	*37,038*	*36,445*	*9,025*	*9,003*

SAMPLE TREES - BF

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	122.3	9.0	311	341	372			
WHEMLOCK	228.7	16.9	98	118	138			
R ALDER	451.6	33.3	6	8	11			
NOB FIR	430.7	31.8	28	41	53			
S SPRUCE	1356.5	100.0		3	6			
TOTAL	*76.0*	*5.6*	*483*	*511*	*540*	*231*	*58*	*26*

TREES/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	71.6	7.3	60	64	69			
WHEMLOCK	121.7	12.5	44	50	56			
R ALDER	261.7	26.8	9	12	16			
NOB FIR	278.0	28.5	4	5	7			
S SPRUCE	556.7	57.1	0	0	0			
TOTAL	*50.8*	*5.2*	*125*	*132*	*139*	*103*	*26*	*11*

BASAL AREA/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	65.1	6.7	119	127	136			
WHEMLOCK	119.9	12.3	68	77	87			
R ALDER	265.1	27.2	10	14	18			
NOB FIR	211.8	21.7	9	11	13			
S SPRUCE	556.7	57.1	0	1	2			
TOTAL	*41.8*	*4.3*	*221*	*231*	*241*	*70*	*17*	*8*

NET BF/ACRE

SD: 1	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	67.2	6.9	19,140	20,556	21,972			
WHEMLOCK	123.1	12.6	11,155	12,767	14,379			
R ALDER	263.5	27.0	908	1,245	1,581			
NOB FIR	207.4	21.3	1,363	1,731	2,100			
S SPRUCE	556.7	57.1	63	146	230			
TOTAL	*44.7*	*4.6*	*34,772*	*36,445*	*38,118*	*80*	*20*	*9*

TC TSTNDSUM

Stand Table Summary

Project IRONMAN

T04N R07W S15 TLEAV

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
04N	07W	15	PC	LEAV	283.00	95	111

T04N R07W S15
Page: 1
Date: 08/16/20(
Time: 12:44:43PM

Spc	S T	DBH	Sample Trees	FF 16'	Av Ht Tot	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
DL		10	1	86	17	2.371	1.29	2.37	6.0	20.0		14	47		40	13
DL		18	1	89	106	.732	1.29	1.46	37.0	130.0		54	190		153	54
DL		19	1	89	120	.657	1.29	1.97	30.7	113.3		60	223		171	63
DL		20	1	86	94	.593	1.29	1.19	39.5	120.0		47	142		133	40
DL		21	2	86	96	1.075	2.59	2.15	47.0	157.5		101	339		286	96
DL		22	1	89	112	.490	1.29	1.47	38.7	166.7		57	245		161	69
DL		23	1	89	116	.448	1.29	1.34	44.0	190.0		59	255		167	72
DL		24	8	87	118	3.293	10.35	9.47	45.5	191.7		431	1,815		1,220	514
DL		25	5	85	108	1.897	6.47	4.55	59.3	221.7		270	1,009		764	286
DL		26	14	87	122	4.910	18.10	13.68	59.7	256.9		816	3,514		2,310	995
DL		27	6	87	114	1.951	7.76	5.20	65.2	280.6		339	1,460		960	413
DL		28	4	86	111	1.210	5.17	3.02	66.1	303.0		200	916		566	259
DL		29	3	87	121	.846	3.88	2.26	71.1	318.8		160	719		454	203
DL		30	5	85	119	1.317	6.47	3.69	80.0	342.1		295	1,262		835	357
DL		31	2	87	117	.493	2.59	1.23	92.8	400.0		114	493		324	140
DL		32	3	84	114	.695	3.88	2.08	78.3	357.8		163	746		462	211
DL		33	3	86	133	.653	3.88	1.74	100.1	473.7		174	825		494	234
DL		36	3	90	128	.549	3.88	1.65	118.7	626.7		195	1,032		553	292
DL		Totals	64	87	106	24.180	82.76	60.53	58.7	251.7		3,552	15,234		10,052	4,311
HL		12	1	89	40	1.645	1.29	1.64	15.0	40.0		25	66		70	19
HL		14	1	93	86	1.208	1.29	2.42	22.0	90.0		53	217		150	62
HL		16	1	89	119	.925	1.29	2.78	23.3	90.0		65	250		183	71
HL		20	1	91	101	.592	1.29	1.18	48.0	180.0		57	213		161	60
HL		21	3	87	118	1.611	3.88	4.30	46.0	195.0		198	838		559	237
HL		22	2	88	97	.979	2.58	1.96	56.5	180.0		111	352		313	100
HL		23	1	83	103	.448	1.29	.90	48.0	170.0		43	152		122	43
HL		24	3	88	102	1.233	3.88	3.29	53.0	222.5		174	732		493	207
HL		25	3	88	113	1.137	3.88	3.41	54.8	246.7		187	841		529	238
HL		26	1	92	119	.350	1.29	1.05	63.3	316.7		67	333		188	94
HL		27	2	88	109	.650	2.58	1.62	72.6	326.0		118	530		334	150
HL		29	1	90	91	.282	1.29	.56	92.0	400.0		52	225		147	64
HL		33	1	86	129	.217	1.29	.65	109.0	520.0		71	339		201	96
HL		35	1	81	135	.193	1.29	.58	81.0	410.0		47	238		133	67
HL		37	1	81	135	.173	1.29	.52	81.7	416.7		42	216		120	61
HL		Totals	23	88	98	11.643	29.71	26.86	48.7	206.4		1,309	5,543		3,703	1,569
NFL		22	1	86	93	.352	.93	.70	48.5	185.0		34	130		97	37
NFL		23	2	90	110	.644	1.86	1.61	52.0	218.0		84	351		237	99
NFL		29	1	91	95	.202	.93	.40	91.5	360.0		37	146		105	41
NFL		30	1	92	105	.189	.93	.57	73.7	370.0		42	210		118	59
NFL		31	2	90	97	.354	1.86	.89	83.2	356.0		74	315		209	89
NFL		42	1	87	135	.096	.93	.19	107.5	450.0		21	87		59	25
NFL		Totals	8	89	103	1.838	7.43	4.36	66.7	283.9		291	1,239		824	351
AL		10	1	86	82	2.108	1.15	2.11	17.0	60.0		36	126		101	36
AL		11	1	87	45	1.742	1.15	1.74	12.0	30.0		21	52		59	15
AL		12	1	86	18	1.464	1.15	1.46	10.0	30.0		15	44		41	12
AL		13	1	86	95	1.247	1.15	2.49	18.5	70.0		46	175		131	49
AL		14	1	86	42	1.075	1.15	1.08	20.0	50.0		22	54		61	15
AL		17	1	86	88	.729	1.15	1.46	30.5	100.0		44	146		126	41
AL		18	3	87	74	1.951	3.45	3.25	36.0	126.0		117	410		331	116
AL		19	2	86	60	1.168	2.30	1.75	35.0	93.3		61	163		173	46

TC TSTNDSUM

Stand Table Summary

Project IRONMAN

T04N R07W S15 TLEAV

Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees
04N	07W	15	PC	LEAV	283.00	95	111

Date: 08/16/20(
Time: 12:44:43PM

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
AL		22	1	87	24	.435	1.15	.44	35.0	100.0		15	44		43	12
AL		Totals	12	86	61	11.919	13.79	15.78	23.9	76.9		377	1,214		1,067	343
SL		28	1	84	73	.248	1.06	.50	75.0	295.0		37	146		105	41
SL		Totals	1	84	73	.248	1.06	.50	75.0	295.0		37	146		105	41
SN		9	1	91	80	1.868	.83									
SN		18	1	75	37	.467	.83									
SN		19	1	84	49	.419	.83									
SN		Totals	3	87	68	2.754	2.48									
Totals			111	87	92	52.582	137.23	108.03	51.5	216.4		5566	23,376		15,752	6,615

TC PLOGSTVB

Log Stock Table - MBF

T04N R07W S15 TyRW	10.00
T04N R07W S15 TyTAKE	283.00
T04N R07W S22 TyTAKE	91.00

Project: IRONMAN
Acres 384.00

Date 11/30/2006
Time 12:40:50PM

Spp	ST	Sort	Grade	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D		OG	2M	12	8		8	.2									8			
D		OG	2M	16	17		17	.4							17					
D		OG	2M	18	13		13	.3						13						
D		OG	2M	20	16	3.5	15	.4								13	1	1		
D		OG	2M	22	2		2	.1						2						
D		OG	2M	24	1		1	.0									1			
D		OG	2M	32	907	3.4	875	22.0					64	263	138	262	109	39		
D		OG	2M	38	37	4.3	35	.9					7	29						
D		OG	2M	40	1,763	1.2	1,742	43.8				1	14	280	556	643	218	30		
D		OG	3M	16	4		4	.1			4									
D		OG	3M	18	2		2	.0					2							
D		OG	3M	20	5		5	.1				2	3							
D		OG	3M	21	2		2	.0					2							
D		OG	3M	22	8	7.3	7	.2			2	3	2							
D		OG	3M	23	0		0	.0				0								
D		OG	3M	24	8		8	.2			1	4	3							
D		OG	3M	27	7		7	.2			6	1								
D		OG	3M	28	22		22	.6			12	9	0							
D		OG	3M	29	5		5	.1				5								
D		OG	3M	30	27	3.2	26	.7			5	13	9							
D		OG	3M	31	0		0	.0					0							
D		OG	3M	32	351	1.1	347	8.7			90	64	143	35	14					
D		OG	3M	33	21		21	.5			21	0								
D		OG	3M	34	26		26	.7	0		13	0	13							
D		OG	3M	35	3		3	.1				3								
D		OG	3M	36	17	12.6	15	.4			15									
D		OG	3M	37	10		10	.2			10									
D		OG	3M	38	17		17	.4			11	6								
D		OG	3M	39	10		10	.2			10									
D		OG	3M	40	458		455	11.4			135	167	147	6						
D		OG	3M	41	21	6.2	19	.5			19									
D		OG	3M	44	14		14	.4			14									
D		OG	4M	12	6		6	.2			6									
D		OG	4M	13	3		3	.1			3									
D		OG	4M	14	9		9	.2		2	5	2								
D		OG	4M	15	3		3	.1			2	1								
D		OG	4M	16	37		37	.9		1	31	5								

TC PLOGSTVB

Log Stock Table - MBF

T04N R07W S15 TyRW	10.00
T04N R07W S15 TyTAKE	283.00
T04N R07W S22 TyTAKE	91.00

Project: IRONMAN
Acres 384.00

Date 11/30/2006
Time 12:40:50PM

Spp	ST	Sort	Grade	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D		OG	4M	17	4		4	.1				2	2							
D		OG	4M	18	21		21	.5			19	1								
D		OG	4M	20	26		26	.6			21	5								
D		OG	4M	22	7		7	.2			7	0								
D		OG	4M	23	29		29	.7			28	2								
D		OG	4M	24	7		7	.2			6	0								
D		OG	4M	25	24		24	.6			24									
D		OG	4M	27	5		5	.1			5									
D		OG	4M	28	3		3	.1			3									
D		OG	4M	29	0		0	.0			0									
D		OG	4M	30	21		21	.5			21									
D		OG	4M	32	3	20.0	2	.1			2									
D		OG	4M	40	38		38	1.0			38									
D		Totals			4,047	1.7	3,980	57.6	0	3	590	296	411	629	726	918	337	69		
NF		OG	2M	32	7	6.0	6	3.7							1	1	3	1		
NF		OG	2M	36	0		0	.1						0						
NF		OG	2M	40	97	8.7	89	53.2						13	61	1	14			
NF		OG	3M	22	5		5	3.0			5									
NF		OG	3M	24	0		0	.1				0	0							
NF		OG	3M	25	16		16	9.5			16									
NF		OG	3M	32	20		20	12.0					20							
NF		OG	3M	33	2		2	1.3			2									
NF		OG	3M	37	0	36.4	0	.1				0								
NF		OG	3M	40	16		16	9.4			0	15	1							
NF		OG	3M	44	10		10	5.8			10									
NF		OG	4M	12	0		0	.0				0								
NF		OG	4M	13	2		2	1.4			2									
NF		OG	4M	14	1		1	.4				1								
NF		Totals			176	5.0	167	2.4			35	16	21	13	62	3	17	1		
H		OG	2M	16	42	4.8	40	1.5								40				
H		OG	2M	22	0		0	.0					0							
H		OG	2M	32	307	4.7	293	10.6					67	43	46	131	5	2		
H		OG	2M	40	870		869	31.6					101	311	192	180	83	3		
H		OG	3M	22	1		1	.0				0	0	0						
H		OG	3M	24	0		0	.0			0									
H		OG	3M	27	9		9	.3				9								

TC PLOGSTVB

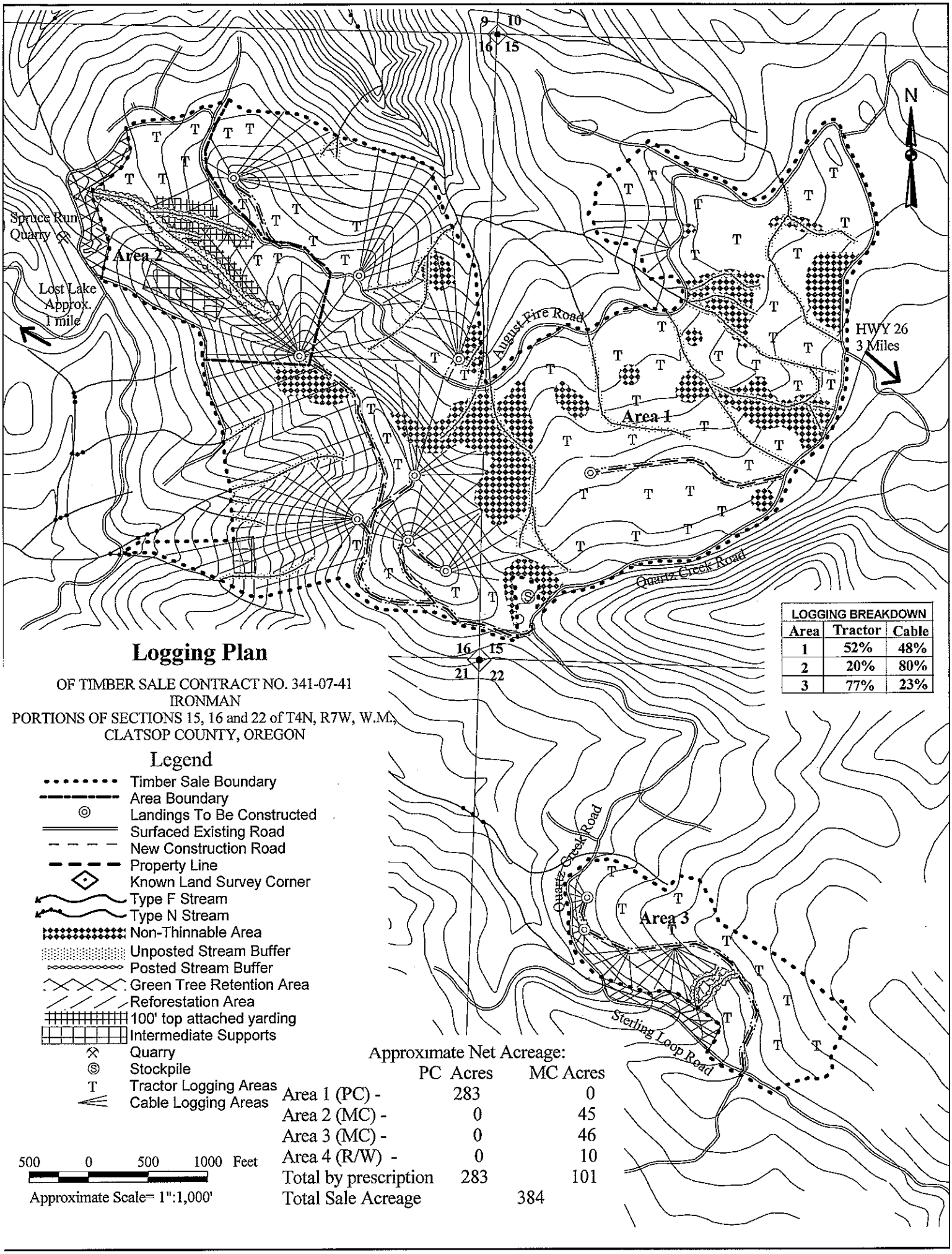
Log Stock Table - MBF

T04N R07W S15 TyRW	10.00
T04N R07W S15 TyTAKE	283.00
T04N R07W S22 TyTAKE	91.00

Project: IRONMAN
Acres 384.00

Date 11/30/2006
Time 12:40:50PM

Spp	S T	So	Grade	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
H		OG	3M	28	3		3	.1			3	0								
H		OG	3M	30	24		24	.9			24									
H		OG	3M	32	350	1.5	344	12.5			144	46	71	82		1				
H		OG	3M	33	24		24	.9			24									
H		OG	3M	34	28	9.9	25	.9			7	0	18							
H		OG	3M	36	4		4	.1			4									
H		OG	3M	38	33		33	1.2			33									
H		OG	3M	40	841		839	30.5			263	226	326	24						
H		OG	4M	13	15		15	.5			15									
H		OG	4M	14	1		1	.0			1									
H		OG	4M	15	0		0	.0			0									
H		OG	4M	16	37		37	1.3			32	5								
H		OG	4M	18	11		11	.4			9	2								
H		OG	4M	20	19		19	.7			19									
H		OG	4M	22	5		5	.2			5									
H		OG	4M	24	72		72	2.6			72	0								
H		OG	4M	26	16		16	.6			16									
H		OG	4M	28	13		13	.5	4		9									
H		OG	4M	30	30		30	1.1			30									
H		OG	4M	32	4		4	.1		4										
H		OG	4M	40	18		18	.7			18									
H		Totals			2,776		2,749	39.8	4	4	727	289	583	460	238	351	88	4		
A		OG	R	16	0		0	2.7				0								
A		OG	R	20	0		0	2.7						0						
A		OG	R	27	0		0	1.1			0									
A		OG	R	30	5		5	28.3			5									
A		OG	R	32	8	3.4	8	49.2		1	2	1		5						
A		OG	R	36	0		0	2.2			0									
A		OG	R	40	1		1	7.8			1									
A		OG	R	41	1		1	6.0			1									
A		Totals			17	1.7	17	.2		1	9	2		5						
S		OG	2M	30	1		1	88.1									1			
S		OG	3M	30	0		0	11.9				0								
S		Totals			1		1	.0				0					1			
Total		All Species			7,018	1.5	6,914	100.0	4	7	1362	604	1015	1107	1025	1272	443	74		



Logging Plan

OF TIMBER SALE CONTRACT NO. 341-07-41
IRONMAN
PORTIONS OF SECTIONS 15, 16 and 22 of T4N, R7W, W.M.,
CLATSOP COUNTY, OREGON

LOGGING BREAKDOWN		
Area	Tractor	Cable
1	52%	48%
2	20%	80%
3	77%	23%

Legend

- Timber Sale Boundary
- Area Boundary
- Landings To Be Constructed
- Surfaced Existing Road
- New Construction Road
- Property Line
- Known Land Survey Corner
- Type F Stream
- Type N Stream
- Non-Thinnable Area
- Unposted Stream Buffer
- Posted Stream Buffer
- Green Tree Retention Area
- Reforestation Area
- 100' top attached yarding
- Intermediate Supports
- Quarry
- Stockpile
- T — Tractor Logging Areas
- Cable Logging Areas

500 0 500 1000 Feet

Approximate Scale= 1":1,000'

Approximate Net Acreage:

	PC Acres	MC Acres
Area 1 (PC) -	283	0
Area 2 (MC) -	0	45
Area 3 (MC) -	0	46
Area 4 (R/W) -	0	10
Total by prescription	283	101
Total Sale Acreage	384	