



"SUSTAINABLE FORESTRY"

Timber Sale Appraisal String Bean

Sale AT-341-2015-58-

District: Astoria

Date: January 12, 2015

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$1,480,009.56	\$83,808.57	\$1,563,818.13
		Project Work:	(\$307,966.00)
		Advertised Value:	\$1,255,852.13



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District: Astoria

Date: January 12, 2015

Timber Description

Location: Portions of Section 16, T8N, R7W, and portions of Sections 18, 21, and 27, T8N, R6W, W.M., Clatsop County, Oregon.

Stand Stocking: 60%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	22	0	96
Western Hemlock / Fir	18	0	94
Sitka Spruce	23	0	95
Red Cedar	33	0	80
Alder (Red)	14	0	95
Maple	16	0	90

Volume by Grade	2S	3S	4S	Camprun	Total
Douglas - Fir	2,236	329	57	0	2,622
Western Hemlock / Fir	535	139	53	0	727
Sitka Spruce	31	0	2	0	33
Red Cedar	42	32	1	0	75
Alder (Red)	0	0	0	169	169
Maple	0	0	0	75	75
Total	2,844	500	113	244	3,701

Comments: Pond Values Used: 4th Quarter Calendar Year 2104.

Expected log markets:

Warrenton, OR; Clatskanie, OR; Tillamook, OR; Mist, OR; Garibaldi, OR; Longview, WA; Elma, WA; Chehalis, WA.

SCALING COST ALLOWANCE = \$5.00/MBF

FUEL COST ALLOWANCE = \$4.00/Gallon

HAULING COST ALLOWANCE:

Hauling costs equivalent to \$780 daily truck cost.

Other Costs (with Profit & Risk to be added):

Additional Logging costs:

Branding and Painting: \$1 per MBF x 3,701 MBF = \$3,701

Slash and Landing Piling (includes move-in and pile materials) = \$19,862

Line Pull: 97 MBF @\$20/MBF = \$1,940

Flaggers for felling along the highway in Area 3: 2 days for 2 flaggers at \$40/Hour = \$1,280.

TOTAL Other Costs (with Profit & Risk to be added) = \$26,783

Other Costs (No Profit & Risk added):

Machine Wash for Invasive Weeds = \$3,000

Construct Unsurfaced Spurs in Area 1: 10 stations @ \$122/station = \$1,220

4 hours to waterbar and block with excavator @ \$101/hour = \$404

Remobilize logging equipment between sale areas (2 log loaders and 1 grapple cat) 2x \$1,406 + 1x \$805 = \$3,617

TOTAL Other Costs (No Profit & Risk added) = \$8,241



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Logging Conditions

Combination#: 1

Douglas - Fir	86.76%
Western Hemlock / Fir	87.94%
Sitka Spruce	86.42%
Red Cedar	100.00%
Alder (Red)	96.02%
Maple	100.00%

Logging System: Shovel **Process:** Manual Falling/Delimbing
yarding distance: Medium (800 ft) **downhill yarding:** No
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 5 **bd. ft / load:** 4000
cost / mbf: \$99.27
machines: Shovel Logger

Combination#: 2

Douglas - Fir	13.24%
Western Hemlock / Fir	12.06%
Sitka Spruce	13.58%
Alder (Red)	3.98%

Logging System: Cable: Medium Tower >40 - <70 **Process:** Manual Falling/Delimbing
yarding distance: Medium (800 ft) **downhill yarding:** No
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF
loads / day: 9 **bd. ft / load:** 4600
cost / mbf: \$120.77
machines: Log Loader (A)
Tower Yarder (Medium)



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District: Astoria

Date: January 12, 2015

Logging Costs

Operating Seasons: 2.00	Profit Risk: 10%
Project Costs: \$307,966.00	Other Costs (P/R): \$26,783.00
Slash Disposal: \$0.00	Other Costs: \$8,241.00

Miles of Road

Road Maintenance: \$3.25

Dirt	Rock (Contractor)	Rock (State)	Paved
0.0	0.0	0.0	0.0

Hauling Costs

Species	\$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	\$0.00	2.0	3.8
Western Hemlock / Fir	\$0.00	3.0	3.8
Sitka Spruce	\$0.00	1.0	4.8
Red Cedar	\$0.00	1.0	4.0
Alder (Red)	\$0.00	2.0	3.8
Maple	\$0.00	3.0	4.0



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District: Astoria

Date: January 12, 2015

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
\$102.12	\$3.38	\$2.37	\$106.74	\$7.24	\$22.18	\$0.00	\$5.00	\$2.23	\$251.26
Western Hemlock / Fir									
\$101.86	\$3.44	\$2.37	\$72.53	\$7.24	\$18.74	\$0.00	\$5.00	\$2.23	\$213.41
Sitka Spruce									
\$102.19	\$3.41	\$2.37	\$170.62	\$7.24	\$28.58	\$0.00	\$5.00	\$2.23	\$321.64
Red Cedar									
\$99.27	\$3.90	\$2.37	\$234.00	\$7.24	\$34.68	\$0.00	\$5.00	\$2.23	\$388.69
Alder (Red)									
\$100.12	\$3.41	\$2.37	\$107.76	\$7.24	\$22.09	\$0.00	\$5.00	\$2.23	\$250.22
Maple									
\$99.27	\$3.58	\$2.37	\$71.50	\$7.24	\$18.40	\$0.00	\$5.00	\$2.23	\$209.59

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$699.56	\$448.30	\$0.00
Western Hemlock / Fir	\$0.00	\$541.88	\$328.47	\$0.00
Sitka Spruce	\$0.00	\$527.58	\$205.94	\$0.00
Red Cedar	\$0.00	\$1,175.00	\$786.31	\$0.00
Alder (Red)	\$0.00	\$635.00	\$384.78	\$0.00
Maple	\$0.00	\$460.00	\$250.41	\$0.00



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Date: January 12, 2015

Summary

Amortized

Specie	MBF	Value	Total
Douglas - Fir	0	\$0.00	\$0.00
Western Hemlock / Fir	0	\$0.00	\$0.00
Sitka Spruce	0	\$0.00	\$0.00
Red Cedar	0	\$0.00	\$0.00
Alder (Red)	0	\$0.00	\$0.00
Maple	0	\$0.00	\$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	2,622	\$448.30	\$1,175,442.60
Western Hemlock / Fir	727	\$328.47	\$238,797.69
Sitka Spruce	33	\$205.94	\$6,796.02
Red Cedar	75	\$786.31	\$58,973.25
Alder (Red)	169	\$384.78	\$65,027.82
Maple	75	\$250.41	\$18,780.75

Gross Timber Sale Value

Recovery: \$1,563,818.13

Prepared By: Edward Holloran

Phone: 503-325-5451

Road Maintenance Cost Summary (Interim and Post Harvest)

Sale: String Bean
Date: October 1, 2014
By: Ed Holloran

MBF: 3,699
\$/MBF: \$3.26

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Interim Operations Entries - 1	Grader 14G	\$778	1	10	\$100	\$1,778
	Dump Truck 12CY	\$163	1	4	\$79	\$479
	Rubber Tired Backhoe-small	\$321	1	4	\$77	\$629
Final Road Maintenance	Grader 14G	\$778	1	20	\$100	\$2,778
	Dump Truck 12CY	\$163	1	8	\$79	\$795
	FE Loader C966	\$778	1	4	\$83	\$1,110
	Vibratory Roller	\$778	1	20	\$77	\$2,318
	Water Truck 2,500 gallon	\$190	1	8	\$89	\$902
	Rubber Tired Backhoe-small	\$321	1	8	\$77	\$937
	Labor			8	\$40	\$320
Total						\$12,046

Interim Operations Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	4.0	2.90	0.7	7

Final Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Process - Grader	1.5	2.9	1.9	19
Grade only	2	0.6	0.3	3
Vibratory Roller	1.5	2.9	1.9	19

Process and compact: All crushed rock roads -

Windy Ridge and side spur (1.3 miles), McFarlane Road (0.6 miles), 4C to 4D (0.3 miles), I5 to I6 (0.7miles)

Grade & Process Total = 2.9 miles

Shape pit run roads 2A-2B (0.3 miles), 3A-3B (0.15 miles), 4A-4B (0.15 miles) =0.6 miles

Site Prep Appraisal

Sale Number: 341-15-58
Sale Name: String Bean
Date: 08/28/2014

Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre
Doug-fir	A	1.0	3.0
Hemlock/Fir	B	1.5	4.5
Hemlock/Spruce	C	2.0	6.0
Hemlock	D	2.0	6.0
Conifer/Hardwood	E	1.5	4.5
Whole Tree Yarding	F	0.5	0.5

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area
1	MC	F	20.0	10	\$129.00	\$1,290.00
2	MC	A	17.0	17	\$129.00	\$2,193.00
3	MC	E	16.0	24	\$129.00	\$3,096.00
4	MC	A	7.0	7	\$129.00	\$903.00
In-unit Piling						Sub Total = \$7,482.00

Sale Area	Number of Landings to be Piled	Cost/Landing Pile	Total Cost/Area	Number of In-Unit Piles	Material Cost/Pile	Total Cost/Area
1	4	\$645.00	\$2,580.00	10	\$5.00	\$50.00
2	5	\$645.00	\$3,225.00	51	\$5.00	\$255.00
3	1	\$645.00	\$645.00	72	\$5.00	\$360.00
4	2	\$645.00	\$1,290.00	21	\$5.00	\$105.00

*Cost includes separating firewood

Materials **Sub Total =** \$770.00

Landing Piling **Sub Total =** \$7,740.00

Move-In Allowance	Number of Move-In's	Total Move-In Allowance	Move-In	Sub Total =
\$1,290.00	3	\$3,870.00		\$3,870.00

Grand Total = \$19,862.00

SUMMARY OF ALL PROJECT COSTS

SALE NAME: String Bean

ROAD CONSTRUCTION:

Project No. 1

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Surfaced		
2A-2B, 3A-3B	45.75	\$54,186
4A-4B, & 4C-4D		
TOTAL	45.75	\$54,186

0.87 Miles

ROAD IMPROVEMENT:

Project No. 2

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
I1-I2, I3-I4, & I5-I6	140.55	\$19,104
TOTAL	140.55	\$19,104

2.66 Miles

SPECIAL PROJECTS:

	<u>Description</u>	<u>Cost</u>
Project No. 3	Crushing - Big Noise (18,625 cyds.)	\$201,659
Project No. 4	Vacating (V1-V4, V5-V6, V7-V8, V9-V10, V11)	\$10,619
TOTAL		\$212,278

Project Road

Maintenance:	Big Noise Road and Fertile Valley Road - 4.4 mile:	\$5,966
TOTAL		\$5,966

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
Excavator (C330 @ \$1,406 x 2 + 1 @ \$803))	\$3,615
Excavator (C315 @ \$805 x 2 + 1 @ \$403)	\$2,013
Dozer (D8 @ \$1,406 x 2 + 1 @ \$803))	\$3,615
Dozer (D6 @ \$778 x 2 + 1 @ \$389))	\$1,945
Large Grader (14G @ \$778)	\$778
Vibratory Roller (@ \$778 x 3)	\$2,334
10-12 yd dump truck (@ \$163 x 4) + (2 in crushing	\$652
20 yd dump truck (@ \$191 x 3)	\$573
Rubber Tired Skidder (C 538 @ \$717)	\$717
Water Truck (2,500 gal @ \$190)	\$190
TOTAL	\$16,432

GRAND TOTAL

\$307,966

Compiled By: Ed Holloran

Date: 11/10/2014

SUMMARY OF NEW CONSTRUCTION COSTS

SALE NAME: String Bean
 ROAD: 2A-2B (16.6), 3A-3B (7.3)
 POINTS: 4A-4B (8.0), & 4C-4D (13.85)

NEW S. CONSTRUCTION: 45.75 STATIONS
 DIRT CONSTRUCTION: STATIONS
 0.87 MILES
 MILES

CLEARING & GRUBBING						
Method	Acres/amount	x	Rate	=	Cost	
Clear & scatter per acre	4.7	x	\$1,337.00	=	\$6,283.90	
SUB TOTAL FOR CLEARING & GRUBBING						\$6,284

EXCAVATION						
Material	Cy/amount	x	Rate	=	Cost	
2A-2B Balanced Constructin per station	16.60	x	\$122.00	=	\$2,025.20	
3A-3B Balanced Constructin per station	7.30	x	\$122.00	=	\$890.60	
4A-4B Balanced Constructin per station	8.00	x	\$122.00	=	\$976.00	
4C-4D Drift earth up to 200 feet per station	13.85	x	\$190.00	=	\$2,631.50	
4C-4D Fill compaction per yard	1,600	x	\$0.70	=	\$1,120.00	
4C-4D (6+75-7+50 & 11+50-13+25) Cut slope rounding per station	2.50	x	\$43.00	=	\$107.50	
3A-3B Removal of material (subgrade)		x		=		
3A-3B Large - 2 yd3 (C330) per hour	2.00	x	\$155.00	=	\$310.00	
3A-3B Haul Material to Waste Area		x		=		
3A-3B 12 yd³ Dump Truck per hour	2.00	x	\$79.00	=	\$158.00	
3A-3B Close 3 A-3B - (C330) per hour	1.00	x	\$155.00	=	\$155.00	
3A-3B Landing Construction per landing	5.00	x	\$389.00	=	\$1,945.00	
SUB TOTAL FOR EXCAVATION						\$10,319

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
2A-2B 1+80	18" CPP	30	\$19.53	\$585.90					
7+20	18" CPP	30	\$19.53	\$585.90					
3A-3B 5+50	18" CPP	40	\$19.53	\$781.20					
4A-4B 2+60	18" CPP	40	\$19.53	\$781.20					
4C-4D 0+46	18" CPP	30	\$19.53	\$585.90					
5+42	18" CPP	30	\$19.53	\$585.90					
12+72	18" CPP	25	\$19.53	\$488.25					
13+62	18" CPP	25	\$19.53	\$488.25					
Other/miscellaneous:					Description				
					Flaggers for Highway access				
					Quantity				
					Rate				
					Cost				
					16.00				
					\$40.00				
					\$640.00				
Culvert stakes & markers:					White Fiberglass (Carsonite) 6' x 2½" posts				
					8				
					\$20.00				
					\$160.00				
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION						\$5,683			
						\$22,285			

Subtotal of Clearing, Exc., Culv.

Compiled By: Ed Holloran

Date: 11/10/2014

SALE NAME: String Bean		Page 1						
SURFACING		Subgrade prep:	Description	Stations/ amount	x	Rate/ sta/amt	Cost	
			Grade, Shape and Ditch 16'	30.45	x	\$24.83	\$756.07	
			Grade, Shape, outslope	15.30	x	\$18.35	\$280.76	
			Subgrade Compaction	45.75	x	\$20.19	\$923.69	
ROAD SEGMENT 2A-2B				POINT TO POINT	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A-2B	0+00 to 16+60			
				Volume (CY) per	Number of			
Base Rock	4"- 0" crushed	0+00-16+60	8	station	50	stations	16.60	\$301
Junctions	4"- 0" crushed	0+00	8	junction	40	junctions	1	\$7.52
Junctions	1½"-0" crushed	0+00	N/A	junction	20	junctions	1	\$150
Landings	6"- 0" pit-run	11+80; 15+00; 16+60	N/A	landing	80	landings	3	\$2,318
Total Rock for Road Segment:				2A-2B		1,130		\$9,011
ROAD SEGMENT 3A-3B				POINT TO POINT	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A-3B	0+00 to 7+30			
				Volume (CY) per	Number of			
Base Rock	6"- 0" pit-run	2+00--7+30	10	station	63	stations	5.30	\$2,795
Junctions	4"- 0" crushed	0+00 - 2+00	8	station	50	stations	2	\$752
Junctions	1½"-0" crushed	0+00 - 2+00	4	station	19	stations	2	\$286
Turnouts	6"- 0" pit-run	2+85-3+85	10	TO	46	TO's	1	\$444
Turnarounds	6"- 0" pit-run	end of rd. (7+30)	10	TA	20	TA's	1	\$193
Landings	6"- 0" pit-run	7+30	N/A	landing	80	landings	1	\$773
Total Rock for Road Segment:				3A-3B		618		\$5,243
ROAD SEGMENT 4A-4B				POINT TO POINT	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4A-4B	0+00 to 8+00			
				Volume (CY) per	Number of			
Base Rock	6"- 0" pit-run	0+00-8+00	10	station	63	stations	8.00	\$1,320
Junctions	1½"-0" crushed	0+00	N/A	junction	20	junctions	1	\$150
Culvert Bedding	1½"-0" crushed	5+50	N/A	culvert	22	culverts	1	\$165
Landings	6"- 0" pit-run	8+00	N/A	landing	80	landings	1	\$210
Total Rock for Road Segment:				4A-4B		626		\$1,846
ROAD SEGMENT 4C-4D				POINT TO POINT	Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	4C-4D	0+00 to 13+85			
				Volume (CY) per	Number of			
Base Rock	4"- 0" crushed	0+00-13+85	8	station	50	stations	13.85	\$5,208
Surface Rock	1½"-0" crushed	0+00-13+65	3	station	19	stations	13.85	\$1,979
Junction - 4 way	4"- 0" crushed	12+95	8	junction	50	junctions	1	\$376
Junction - 4 way	1½"-0" crushed	12+95	N/A	junction	25	junctions	1	\$188
Fill Widening (1 ft /side)	4"- 0" crushed	5+45-5+85	8	station	8	stations	0.40	\$24
Fill Widening (1 ft /side)	1½"-0" crushed	5+45-5+85	3	station	4	stations	0.40	\$12
Fill Widening (2 ft /side)	4"- 0" crushed	7+90-8+80	8	station	16	stations	0.90	\$108
Fill Widening (2 ft /side)	1½"-0" crushed	7+90-8+80	3	station	4	stations	0.90	\$27
Turnouts	4"- 0" crushed	0+85-1+95; 4+35- 5+45	8	TO	60	TO's	2	\$902
Turnouts	1½"-0" crushed	0+85-1+95; 4+35- 5+45	3	TO	20	TO's	2	\$301
Total Rock for Road Segment:				4C-4D		1,214		\$9,125
Processing:		Description		No.sta	Rate/sta	Cost		
		Water, Process & Compact		48.05	\$56.48	\$2,714		
		Pit run rock compaction w/D6		15.30	\$31.54	\$483		
				24"-6"rr	6"-0"pr	4"-0"	1 1/2"-0"	Total
SUB TOTAL FOR SURFACING				1,304	1,850	434	3,588	\$30,382
SPECIAL PROJECTS								
		Description		Quantity	Rate/Qu.	Cost		
		Develop pit-run on McFarlane Rd.		per cyd	584	\$2.60	\$1,518.40	
		Develop riprap		per cyd		\$4.30		
SUB TOTAL FOR SPECIAL PROJECTS								\$1,518
				Subtotal of Surfacing & Spec. Proj.				\$31,900
				Subtotal of Clearing, Exc.,Culv.				\$22,285
GRAND TOTAL								\$54,186
Compiled By:		Ed Holloran		Date:		11/10/2014		

SALE NAME:	String Bean
ROAD:	11 - 12 (69.8), 13 - 14 (32.95), 15-16 (37.8)
POINTS:	

2.66 MILES

CLEARING & GRUBBING

SUB TOTAL FOR CLEARING & GRUBBING

SUB TOTAL FOR EXCAVATION

\$1,722

[illegible]

11-12

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION	
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\$1,017

Subtotal of Clearing, Exc., Culv.

\$2,739

Compiled By: Ed Holloran

Date: 10/01/2014

SURFACING

Subgrade prep:

Description

Stations/
amount

x

Rate/
sta/amt

Cost

Grade, Shape and Ditch 16"-includes sod removal (I3-I4)

(Sta.)

140.55

x

\$24.83

\$3,489.86

Subgrade Compaction(spot locations)

(Sta.)

50.00

x

\$20.19

\$1,009.50

x

\$0.00

\$0.00

x

\$0.00

\$0.00

ROAD SEGMENT

I1-I2

POINT TO POINT

Sta. to Sta.

Application	Rock Size and Type	Location	Depth of Rock (inches)	I1-I2		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
				Volume (CY) per		Number of				
Leveling Rock	1½"-0" crushed	0+00 to 69+80	N/A	load	11	loads	10.00	110	\$7.52	\$827
Junctions	1½"-0" crushed	2+40; 26+10; 43+30; 62+20; 62+70	N/A	junction	20	junctions	5	100	\$7.52	\$752
Turnouts	1½"-0" crushed	18+00; 35+80; 48+90;	N/A	TO	11	TO's	3	33	\$7.52	\$248
Turnaround	1½"-0" crushed	29+00; 69+80	N/A	TA	11	TA's	2	22	\$7.52	\$165
Culvert Bedding	1½"-0" crushed	30+60; 40+90	N/A	culvert	11	culverts	2	22	\$7.52	\$165
Surface rock over Culvert	1½"-0" crushed	30+60; 40+90	N/A	culvert	11	culverts	2	22	\$7.52	\$165
Total Rock for Road Segment:								309		

\$2,324

ROAD SEGMENT

I3-I4

POINT TO POINT

Sta. to Sta.

Application	Rock Size and Type	Location	Depth of Rock (inches)	I3-I4		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
				Volume (CY) per		Number of				
Leveling Rock	1½"-0" crushed	0+00 to 32+95	N/A	load	11	loads	5.00	55	\$7.52	\$414
Junctions	1½"-0" crushed	22+75; 23+35	N/A	junction	20	junctions	2	40	\$7.52	\$301
Turnouts	1½"-0" crushed	32.95	N/A	TO	11	TO's	1	11	\$7.52	\$83
Total Rock for Road Segment:								106		

\$797

ROAD SEGMENT

I5-I6

POINT TO POINT

Sta. to Sta.

Application	Rock Size and Type	Location	Depth of Rock (inches)	I5-I6		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
				Volume (CY) per		Number of				
Surface Rock	1½"-0" crushed	0+00 to 18+40	3	station	19	stations	18.40	350	\$7.52	\$2,629
Surface Rock	1½"-0" crushed	18+40 to 37+80	2	station	13	stations	19.40	252	\$7.52	\$1,897
Junctions	1½"-0" crushed	0+00; 18+40; 36+40	N/A	junction	20	junctions	3	60	\$7.52	\$451
Turnouts	1½"-0" crushed	6+30; 14+50; 22+50;	N/A	TO	11	TO's	3	33	\$7.52	\$248
Turnaround	1½"-0" crushed	7+75	N/A	TA	11	TA's	1	11	\$7.52	\$83
Total Rock for Road Segment:								706		

\$5,308

Processing:

Description

No. sta

Rate/sta

Cost

Water, Process & Compact:

140.55

\$56.48

\$7,938

\$0

SUB TOTAL FOR SURFACING

24"-6"rr

6"-0"pr

4"-0"

1½"-0"

¾"-0"

Total

1,121

1,121

\$16,367

SPECIAL PROJECTS

Description

Cost

SUB TOTAL FOR SPECIAL PROJECTS

\$0

Subtotal of Surfacing & Spec. Proj.

\$16,367

Subtotal of Clearing, Exc., Culv.

\$2,739

GRAND TOTAL

\$19,105

Compiled By: Ed Holloran

Date: 11/10/2014

CRUSHED ROCK COST

SALE NAME:	String Bean
PROJECT:	Nos. 1 & 2
QUARRY:	Big Noise

MATERIAL: Crushed
1 1/2" & 0" & 4"-0"

DATE: 11/10/2014
BY: Ed Holloran & John T

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES								Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH		
I1 - I2	69.80	309	2	3	1.5	0.30	0.30	0.20	0.10	7.40	
I3 - I4	32.95	106	3	3	2	0.90	0.50	0.40	0.19	9.99	
I5-I6	37.80	706	3	3	2	1.00	1.00	0.75	0.17	10.92	
2A-2B	16.60	890	2	3	1.5	0.50	0.50	0.40	0.19	8.09	
3A-3B	2.00	138	2	3	2	0.50	0.50	0.40	0.18	8.58	
4A-4B	0.50	42	3	3	2	1.00	1.50	0.60	0.24	11.34	
4C-4D	13.85	1,214	3	3	2	1.00	0.75	0.50	0.18	10.43	

ROCK HAUL:

Truck type: D20 No. trucks: 3
 Delay min.: 8 Efficiency: 85%

Ave haul:	\$6.68	/cy
Load:		/cy
Spread:	\$0.84	/cy

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

Truck type: D10 No. trucks: 6
 Delay min.: 5 Efficiency: 85%

Production: cy/day = 927

CRUSHED ROCK HAUL COSTS 3,405 cy @ \$7.52 /cy

PIT RUN ROCK COST

SALE NAME: String Bean
PROJECT: No. 1
QUARRY: Big Noise

MATERIAL: 6"-0" Pit -run

DATE: 10/31/2014
BY: Ed Holloran & John T.

[illegible]

ROCK HAUL:

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

Ave haul:	\$7.26	/cy
Load:	\$0.84	/cy
Spread:	\$1.56	/cy

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

Truck type: D10 No. trucks: 6
 Delay min.: 5 Efficiency: 85%

Production: cy/day = 522

PIT RUN ROCK HAUL COSTS

720 cy @ \$9.66 /cy

PIT RUN ROCK COST

SALE NAME:	String Bean
PROJECT:	No. 1
QUARRY:	McFarlane spur

MATERIAL: 6"-0" Pit -run

DATE: 10/01/2014
BY: Ed Holloran & John T.

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		
										0.40	
4A-4B	8.00	504					0.20	0.10	0.10		
										0.47	
4B	1.00	80					0.20	0.10	0.17		
TOTAL		9.00	584							AVERAGE HAUL	
STA./NO.		CU. YD.					0.20	0.10	0.11		
CUBIC YARD WEIGHTED HAUL							Average Round Trip Distance (miles)			0.82	

ROCK HAUL:

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

Ave haul:	\$1.36	/cy
Load:	\$0.48	/cy
Spread:	\$0.78	/cy

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

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

Production: cy/day = 1,394

PIT RUN ROCK HAUL COSTS

584 cy @ \$2.62 /cy

SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3 Timber Sale Name: String Bean (# 341-15-58)
 Quarry: Big Noise Swell: _____
 Location: NW¼, Ssec 1, T7N, R7W, WM, Clatsop Co., OR Shrink: 16%
 County: Clatsop
 By: Kraig Kirkpatrick Loading Hopper: Yes
 Date: 09/08/2014 Update: 11/10/2014

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	5%	CR	2,500	1,555	4,455
4"-0"	5%	CR	10,000	1,850	13,450
6"-0"		PR		720	720
24"-6"		RR			
36"		RR			
TOTAL CUBIC YARDS OF ROCK:			12,500	4,125	18,625

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Dump Trucks	2	\$163	\$326	Off Highway Dump Truck	1	\$553	\$553
Screening Plants	1	\$553	\$553	Screening Plant	1	\$553	\$553
				Loading Hopper	1	\$553	\$553
D6 Cat	1	\$778	\$778	Loader	1	\$805	\$805
Drill & Compressor	1	\$1,406	\$1,406				
Powder	1	\$351	\$351	3 Stage Crusher	1	\$2,891	\$2,891
Excavator	1	\$1,406	\$1,406				

SUB TOTAL FOR MOBILIZATION

\$10,174

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$3,439	\$3,439
Screening Plants	2	\$293	\$586
Loading Hopper	1	\$293	\$293
Original Calibration	2	\$544	\$1,088

SUB TOTAL FOR SET UP COSTS

\$5,406

TOTAL MOBILIZATION & SET UP COSTS

\$15,580

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
		hr		
Clear, Pile, & Burn Slash, and Stumps (1 exc)	3.0	ac	\$2,702	\$8,106
Move-in Fire Truck for the burning of the Clearing Debris	1.0	ea	\$190	\$190

TOTAL CLEARING & GRUBBING COSTS

\$8,296

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal (excavate, load haul, spread)	2,000	bcy	\$2.60	\$5,200

TOTAL EXCAVATION COSTS

\$5,200

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping	50%	9,313	\$2.20	\$20,488
crushed	17,905	96%	Drill & shoot	50%	9,760	\$2.30	\$22,448
pit run	720	4%	Oversize red	10%	1,863	\$5.80	\$10,803
rip rap	0	0	Other				
Total	18,625						
reject	895	4.8%					

TOTAL ROCK DEVELOPMENT COSTS

\$53,738

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$507.00	\$1,014
Calibrate			
Test	23	\$57.30	\$1,318
Test			

TOTAL CALIBRATION & TESTING COSTS

\$2,332

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	18,800	\$0.81	\$15,177

TOTAL FEEDING & LOADING COSTS

\$15,177

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed		3 stage w/s			
1-1/2"-0"	crushed	4,455	3 stage w/s	120	\$3.24	\$14,442
4"-0"	crushed	13,450	2 stage w/s	140	\$2.48	\$33,337

TOTAL ROCK CRUSHING COSTS

\$47,778

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer	4	\$120.00	\$480.00
Compactor		\$72.00	
Grader		\$90.00	
Excavator		\$138.00	

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

\$480.00

SUB TOTAL

\$480

HAUL & STOCKPILE STOCKPILE LOCATION

	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1.					
2. Bigfoot	1-1/2"-0"	4	2,900	\$4.08	\$11,831
3. Big Noise	4"-0"	4	11,600	\$2.17	\$25,147
4.					
5.					
6.					

SUB TOTAL

\$36,978

TOTAL STOCKPILING COSTS

\$37,458

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area.	\$3,384
\$3.78 /CY 895 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	\$2,565
Oversize rock reduction, Excavator w/hammer, \$145/hr X 70hr, Rock Souce Area 1	\$10,150

TOTAL MISCELLANEOUS COSTS

\$16,099

10) GRAND TOTAL:

\$201,659

\$/Cubic Yard

\$11.26

Footnotes:

STRING BEAN Project No. 4 - Fill Vacating

Location/Description	Est. Cubic Volume	Length Feet	C330 Excavator	D 8 Cat	D 24yd Dump Truck	D 12yd Dump Truck	Labor	Pump	Hand Seeding	Straw Mulch	Total
V1 -V4 - Fill Fill and CMP Removal Hand Grass Seeding & mulching (labor & seed), acres	425 cyds.	75	6 hrs	3 hrs	0 hrs	0 hrs	6 hrs	3 hrs	0.30 ac	20 bales	\$2,077.00
Fill and CMP Removal Hand Grass Seeding & mulching (labor & seed), acres	500 cyds.	60	6 hrs	3 hrs	0 hrs	0 hrs	6 hrs	3 hrs	0.30 ac	20 bales	\$2,077.00
V9-V10 - Fill Fill Removal Hand Grass Seeding & mulching (labor & seed), acres	300 cyds.	75	4 hrs	0 hrs	0 hrs	0 hrs	4 hrs	2 hrs	0.20 ac	8 bales	\$1,011.44
V11 Pull Culvert Remove Culvert+(labor & seed)		10	1 hrs	0 hrs	0 hrs	0 hrs	1 hrs	1 hrs	0.10 ac	2 bales	\$249.26
Totals			17 hrs	6 hrs	0 hrs	0 hrs	17 hrs	9 hrs	0.90 ac	50 Bales	
Rates	N/A		\$155 /hr	\$158 /hr	\$127 /hr	\$79 /hr	\$40 /hr	\$10 /hr	\$628 /ac	\$10.73 /Bale	
Cost			\$2,635	\$948	\$0	\$0	\$680	\$90	\$565	\$537	\$5,455
											\$5,415

Location/Description	Sta.	Block Roads	Sidcaste pullback	Subgrade Ripping	Waterbars	Culvert & Fill Vacate	Labor	Pump	Hand Seeding	Straw Mulch	Total
V5 -V6 - road Road, Fill & CMP Removal Hand Grass Seeding & mulching (labor & seed), acres	16	2	3 sta.	16 sta.	8 ea.	4 hrs (2)	8 hrs	4 hrs	0.10 ac	10 bales	\$3,219.70
V7-V8 - road Road, Fill & CMP Removal Hand Grass Seeding & mulching (labor & seed), acres	10.2	3	0 sta.	10.2 sta.	5 ea.	2 hrs (2)	4 hrs	2 hrs	0.10 ac	10 bales	\$1,086.02
Totals		5	3 sta.	26.2 sta.	13 ea.	6 hrs	12 hrs	6 hrs	0.20 ac	20 Bales	
Rates	N/A	\$155	\$362 /sta.	##### /sta.	\$35 /ea.	\$155 /hr	\$40 /hr	\$10 /hr	\$628 /ac	\$10.73 /Bale	
Cost		\$775	\$1,086	\$645	\$455	\$930	\$480	\$60	\$126	\$215	\$4,771
											\$4,306

Location/Description	C330 Excavator	D 12yd Dump Truck	Total
Haul old culverts away	0.5 hrs	4 hrs	\$394
Totals	0.5 hrs	4 hrs	
Rates	\$155 /hr	\$79 /hr	
Cost	\$78	\$316	\$394

Prepared by: Ed Holloran

Date: 11/10/2014

\$10,619

Projects Road Maintenance Cost Summary

Sale: String Bean
Date: 11/10/14
By: Ed Holloran

Type	Equipment/Rationale			Hours	Rate	Cost	
Final Project Haul Road Maintenance	Grader 14G			22.0	\$100	\$2,200	
	Dump Truck 12CY			4.0	\$79	\$316	
	FE Loader C966			4.0	\$83	\$332	
	Vibratory Roller			22.0	\$77	\$1,694	
	Water Truck 2,500 gallon			16.0	\$89	\$1,424	
Total							\$5,966

Production Rates

Grader

Vibratory Roller

Miles/day	Distance(miles)	Days
1.5	4.00	2.7
1.5	4.00	2.7

Big Noise Quarry to Highway 30 = 4.0 miles

**STRING BEAN
FY 2015
TIMBER CRUISE REPORT**

1. **Sale Area Location:** Areas 1, 2, 3, 4, and 5 are located in portions of Section 16, T8N, R7W, and Sections 18, 21 and 27 T8N, R6W, W.M., Clatsop County, Oregon.

2. **Fund Distribution:** Fund: BOF 100% CSL 0%
Tax Code: 4-03 84%
J 6-01 16%

3. **Sale Acreage by Area:**

Area	Harvest Type	Gross Acres	Stream Buffer Acres	New R/W Acres	Existing R/W Acres	GTRA	Net Acreage
1	MC	23	3	0	0		20
2	MC	24		2	0		22
3	MC	21	2	0	1	2	16
4	MC	10	0	0	0		10
5	RW	3					3
TOTALS		81	5	2	1	2	71

4. **Cruisers and Cruise Dates:** Areas 1 and 3 were cruised by Andrew Arvin, John Choate, and Ed Holloran. Areas 2 and 4 were cruised by John Choate, and Ed Holloran. Area 5 was cruised by Ed Holloran. The cruise was performed in late July and August, 2014.

5. **Cruise Method and Computation:** Areas 1, 2, and 4 are modified clearcut units. A variable plot cruise with a 62.5 BAF was used. 46 plots were sampled on a grid of 4.5 chains by 2.5 chains, with a count/cruise plot ratio of 1 to 1. There were 23 measured plots and 23 count plots sampled.

Area 3 is a modified clearcut unit. A variable plot cruise with a 40 BAF was used. A variable plot cruise with a 40 BAF was used. 33 plots were sampled on a 2 chain by 2 chain grid. 17 measured plots and 16 count plots were installed, which is a 1:1 ratio.

Area 5 R/W was calculated applying road R/W acreage and using cruise per acre volumes from Areas 1, 2, and 4 for the 2 acres within the timber sale areas, and a separate cruise for the R/W outside of the timber sale areas. There is approximately 1.5 acre of R/W in Area 2 and 0.5 acres in Area 4. The acre outside of the timber sale areas were cruised using a variable plot cruise with a 40 BAF. Plots were placed every 300 feet along the R/W. A total of 4 plots were measured.

Cruisers used Corvallis Micro Technology (CMT) data collectors, and were downloaded to the Atterbury Super A.C.E. program at the Astoria District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

<u>AREAS</u>	<u>PROJECT</u>	<u>TRACT</u>	<u>CRUISE TYPE</u>
1, 2, & 4	STRINGBE	A124	MCC1, TAKE, STAY
3	STRINGBE	A3	MCC2, TAKE, STAY
5 R/W	STRINGBE	A5	000R

6. **Timber Description:**

Areas 1, 2, and 4: These Areas range in age from 76 to 102 years old of Douglas-fir, with hemlock and spruce with some alder. The average Douglas-fir tree size for harvest is approximately 23 inches DBH, with an average merchantable tree height of 78 feet. The average hemlock tree size is approximately 18 inches DBH, with an average merchantable tree height of 55 feet. The average spruce tree size is approximately 23 inches with an average merchantable tree height of 85 feet. The average alder tree size is approximately 14 inches DBH with an average merchantable tree height of 40 feet. The average volume per acre to be harvested (net) is approximately 61 MBF. All trees were cruised to a merchantable top of 6 inches DIB. or 40% fp.

Cedar is a reserved species in Areas 1, 2, 4.

Area 3: This stand is approximately 67 year-old timber, consisting of a mixed conifer stand, of western hemlock, sitka spruce, Douglas-fir, cedar, maple, and alder. The average take alder tree size is approximately 14 inches DBH, with an average merchantable tree height of 39 feet. The average take cedar tree size is approximately 33 inches DBH, with an average merchantable tree height of 66 feet. The average take hemlock tree size is approximately 18 inches DBH, with an average merchantable tree height of 49 feet. The average take Douglas-fir tree size to be harvested is approximately 26 inches DBH, with an average merchantable tree height of 85 feet. The average take maple tree size is approximately 16 inches DBH, with an average merchantable tree height of 42 feet. The average volume per acre to be harvested (net) is approximately 23 MBF. All trees were cruised to a merchantable top of 6 inch DIB. or 40% fp.

Area 5 R/W: Approximately 1 acres of the 3 acres are a 35 year old plantation of Douglas-fir, with some alder and hemlock. The average Douglas-fir tree size for harvest is approximately 12 inches DBH, with an average merchantable tree height of 40 feet. The average alder tree size is approximately 10 inches DBH with an average merchantable tree height of 28 feet. The average hemlock tree size is approximately 19 inches DBH, with an average merchantable tree height of 66 feet. The volume for this portion of the right-of-way is approximately 12 MBF per acre. The other 2 acres are in Area 2 so the cruise for Areas 1, 2, and 4 was used for this right-of-way (refer to the tree sizes for the cruise in Areas 1, 2, & 4 shown on page one). The combined volume to remove from Area 5 R/W is approximately 33 MBF per acre. All trees were cruised to a merchantable top of 6 inch DIB. or 40% fp.

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

Area	Target CV	Target SE%	Actual CV	Actual SE%
1, 2, and 4	54	9	43.2	6.4
3	50	9	60.7	10.6
5R/W (outside TSB)	40	15	24.6	14.1

The statistics are for all areas and Take and Leave trees combined based on Net BF/Acre.

8. Take Volumes by Species and Log Grades for All Sale Areas by MBF: (See "Species, Sort Grade-Board Feet Volumes (Project)", "Statistics (Project)", and the "Stand Table Summary" attached). Volumes do not include "in-growth." The majority of defect and breakage was taken out during the cruise.

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	Camp Run	% D & B	% Sale
Douglas-fir	22	2,622	2,237	328	57		6	71
W. Hemlock & True Fir	18	727	535	139	53		4	19
Cedar	33	75	42	32	1		10	2
Sitka Spruce	23	33	31	0	2		4	1
Maple	16	75				75	10	2
Alder	14	169				169	5	5

TOTAL NET VOLUME	3,701
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9. Prepared by: Edward M. Holloran

Date: November 10, 2014

10. Approved by: *John Tullitt*

Date: 11/10/2014

11. Attachments: Cruise Plans & Maps – (12 pages)
Species, Sort, Grade Reports – Take (5 pages)
Statistics Reports – (7 pages)
Stand Table Report – Take (3 page)
Log Stock Table Report – Take (3 pages)

CRUISE DESIGN ASTORIA DISTRICT

Sale Name: String Bean Area(s) 1, 2 & 4

Harvest Type: CC PC CT "Automark Thinning" (circle one)

Approx. Cruise Acres: 54 Estimated CV% 55 BA/Acre SE% Objective 9 BA/Acre

Planned (Unit) Sale Volume: 2,320 MBF Estimated Sale Area Value/Acre: \$16,800
(1.231 MMBF with \$15,200/Acre for the sale)

- A. **Cruise Goals:** (a) Grade minimum 90 conifer and 10 hardwood trees:
(b) Sample 46 cruise plots; (c) Other goals (Determine "automark" thinning standards; Determine log grades for sale value; Determine snag and leave tree species and sizes; Determine LWD (down wood) cubic feet and decay classes; Determine "diameter limit" harvest parameters;

B1= 62.5 B2 = 54.44

B. Cruise Design:

1. **Plot Cruises:** BAF 62.5 for all species (Full point Half point) (circle one)
Fixed Plot Size Plot Radius feet
Cruise Line Direction(s) 90°/270° for Areas 1 & 4; 0°/180° for Area 2
Cruise Line Spacing 4.5 (chains) (feet)
Cruise Plot Spacing 2.5 (chains) (feet)
Grade/Count Ratio 1 : 1

If plot falls clearly inside a buffer drop the plot. Take plots as marked on map. All cedar are leave trees. Grade all hardwoods as Camp Run.

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is 8" for conifers and 8" 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" 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
- D. Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.
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 Intervisible 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.
ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.
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
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).
B. Data Recorder Instructions
C. Other

Cruise Design by:

Ed Holloran

Approved by:

[Signature]

Date:

9/30/14

BASE MAP
EXHIBIT A
TIMBER SALE CONTRACT 341-15--58
STRING BEAN

PORTIONS OF SECTION 16, T.8N., R.7W.,
SECTIONS 18, 21, 27, T.8N., 6W.,
W.M., CLATSOP COUNTY, OR.

AREA 1 16 plots

Approximate Scale 1 inch = 500 feet

500 250 0 500 7 Count

Feet

Fertile Valley Road

T8N R7W

Legend

AST_Ownership

Fish

Nonfish

Unknown

Timber_Sale_Posted_Boundary

Paved

Surfaced

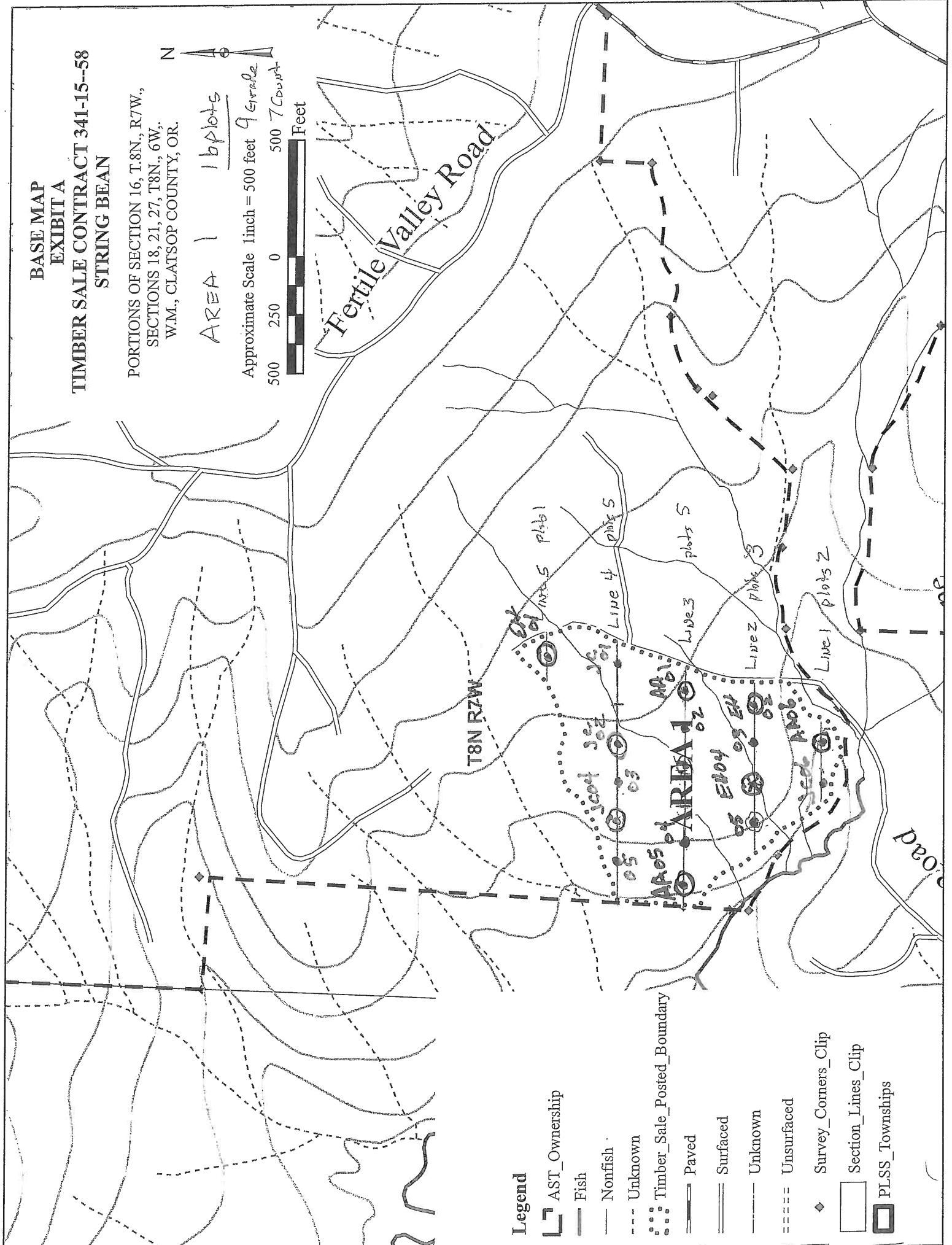
Unknown

Unsurfaced

Survey_Corners_Clipping

Section_Lines_Clipping

PLSS_Townships



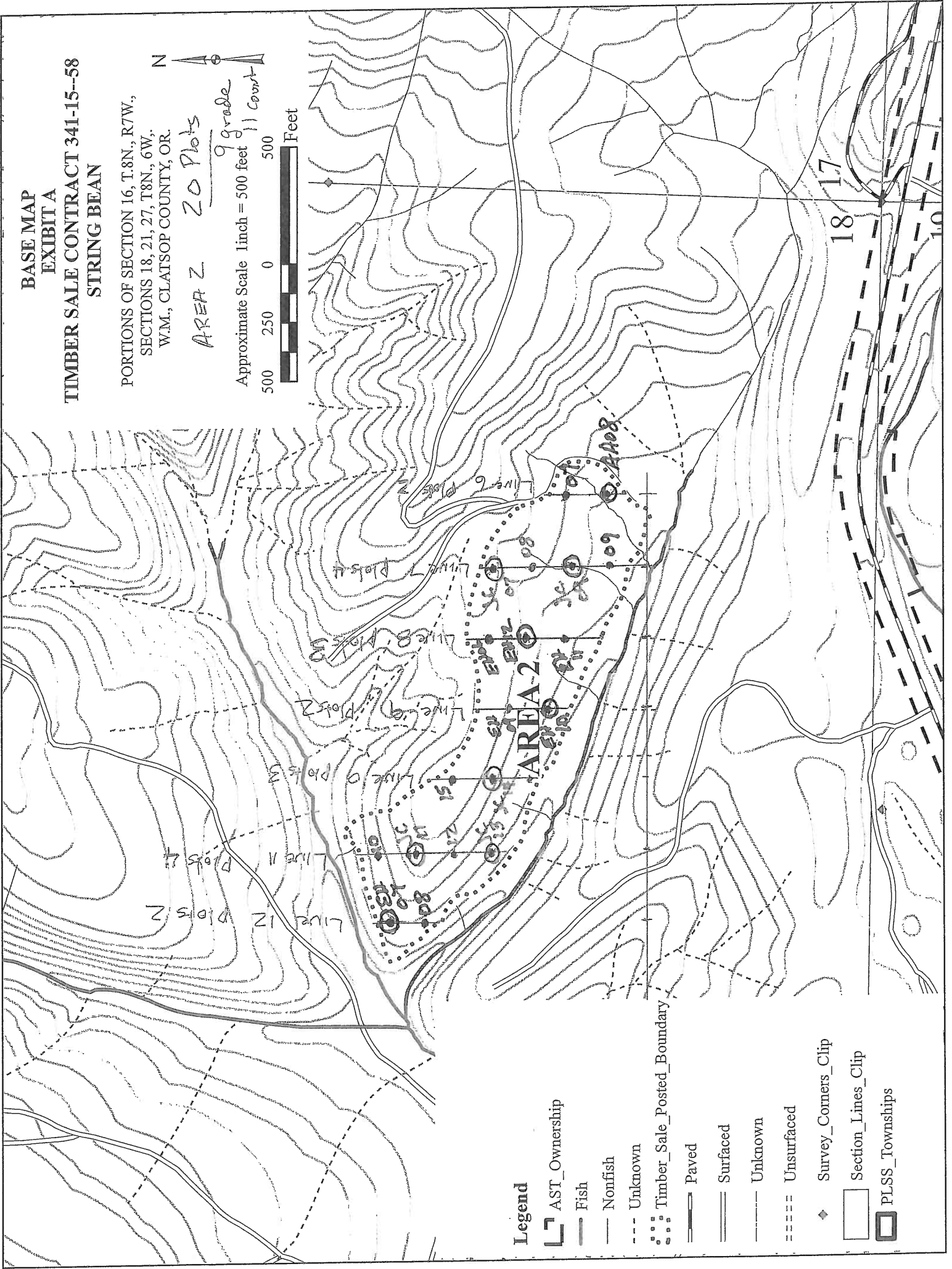
BASE MAP EXHIBIT A

TIMBER SALE CONTRACT 341-15-58
STRING BEAN

PORTIONS OF SECTION 16, T.8N., R.7W.,
SECTIONS 18, 21, 27, T.8N., 6W.,
W.M., CLATSOP COUNTY, OR.

AREA 2 20 Plots

9 grade
Approximate Scale 1 inch = 500 feet
11 Count



Legend

- AST_Ownership
- Fish
- Nonfish
- Unknown
- Timber_Sale_Posted_Boundary
- Paved
- Surfaced
- Unknown
- Unsurfaced
- Survey_Corners_Clip
- Section_Lines_Clip
- PLSS_Townships

BASE MAP EXHIBIT A

TIMBER SALE CONTRACT 341-15-58 STRING BEAN

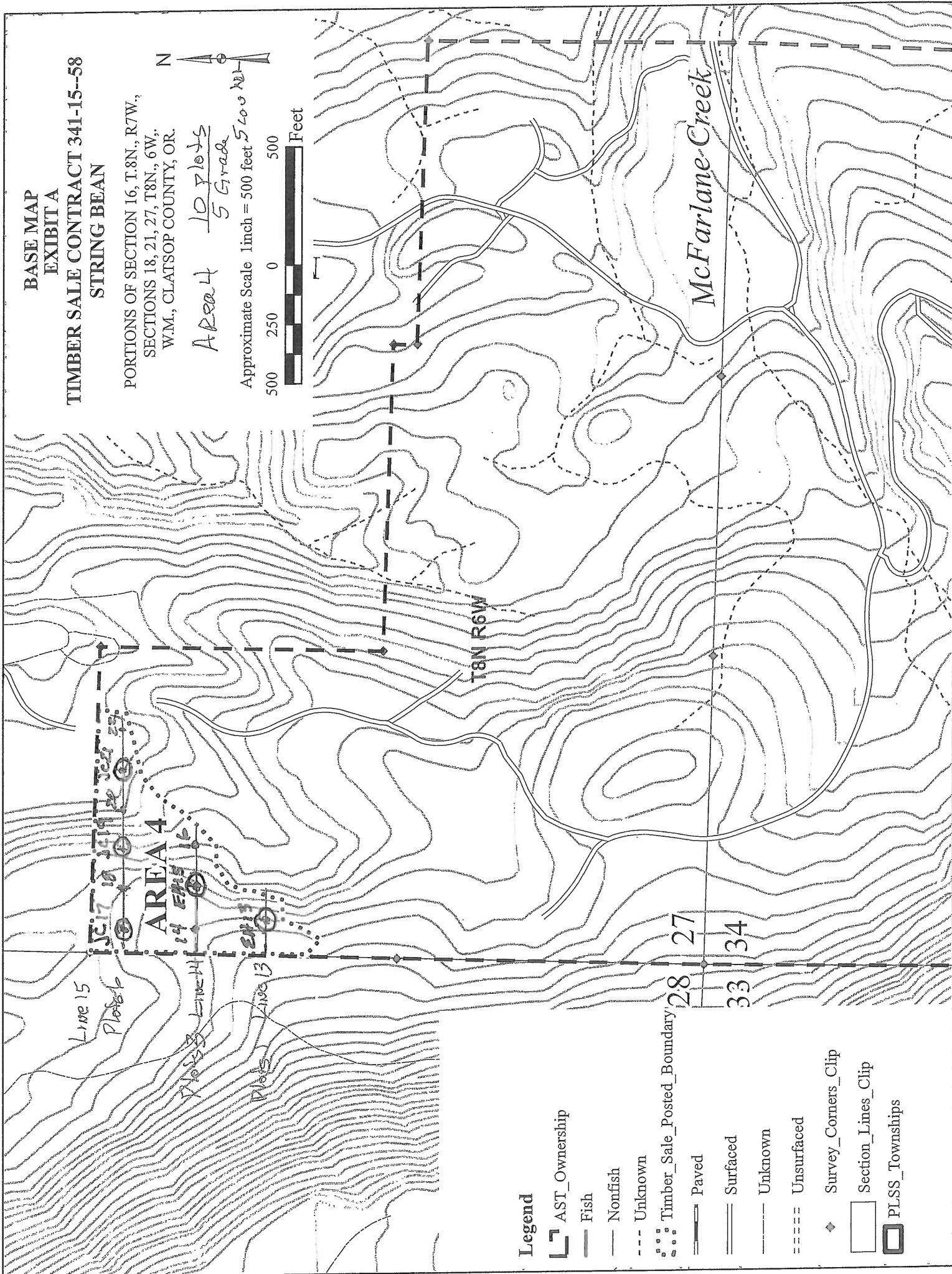
PORTIONS OF SECTION 16, T.8N., R.7W.,
SECTIONS 18, 21, 27, T.8N., 6W.,
W.M., CLATSOP COUNTY, OR.

Area 4 10 Plots
5 Grade

Approximate Scale 1 inch = 500 feet 500 250 0

Feet

N



Legend

- AST_Ownership
- Fish
- Nonfish
- Unknown
- Timber_Sale_Posted_Boundary
- Paved
- Surfaced
- Unknown
- Unsurfaced
- Survey_Corners_Clip
- Section_Lines_Clip
- PLSS_Townships

CRUISE DESIGN ASTORIA DISTRICT

Sale Name: String Bean Area(s) 3

Harvest Type: CC PC CT "Automark Thinning" (circle one)
Net BF or

Approx. Cruise Acres: 17 Estimated CV% 50 BA/Acre SE% Objective 9 BA/Acre

Planned (Unit) Sale Volume: 864 MBF Estimated Sale Area Value/Acre: \$14,700
(1.231 MMBF with \$15,200/Acre for the sale)

- A. **Cruise Goals:** (a) Grade minimum 150 conifer and 50 hardwood trees:
(b) Sample 33 cruise plots; (c) Other goals (___ Determine "automark" thinning standards; ___ Determine log grades for sale value; ___ Determine snag and leave tree species and sizes; ___ Determine LWD (down wood) cubic feet and decay classes; ___ Determine "diameter limit" harvest parameters;

B. Cruise Design:

1. **Plot Cruises:** BAF 40 for all species (Full point; Half point) (circle one)
Fixed Plot Size ___ Plot Radius ___ feet
Cruise Line Direction(s) 315°/135°
Cruise Line Spacing 2 (chains) (feet)
Cruise Plot Spacing 2 (chains) (feet)
Grade/Count Ratio 1 : 1 (17 measure - 16 count)

If plot falls clearly inside a buffer drop the plot. Take plots as marked on map. Grade all hardwoods as Camp Run.

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods.
Record dbh to nearest 1/2" 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" 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

D. Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.

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 Intervisible 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.

ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.

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

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.

B. Data Recorder Instructions

C. Other

Cruise Design by: Ed Hofferan

Approved by: Till

Date: 7/30/14

BASE MAP
EXHIBIT A
TIMBER SALE CONTRACT 341-15--58
STRING BEAN

PORTIONS OF SECTION 16, T.8N., R.7W.,
 SECTIONS 18, 21, 27, T.8N., 6W.,
 W.M., CLATSOP COUNTY, OR.

Area 3 19 Plots

Approximate Scale 1 inch = 500 feet

500 250 0 500
 contour plots 16 500

Feet

Legend

✂ Clatsop_Quarries

☐ AST_Ownership

◆ Survey_Corners_Clip

☐ Section_Lines_Clip

Fish,

— Fish, Perennial

— Fish, Seasonal

— Fish, Unknown

Nonfish,

— Nonfish, Perennial

— Nonfish, Perennial

— Nonfish, Seasonal

— Nonfish, Unknown

☐ Buffer

☐ Timber_Sale_Posted_Boundary

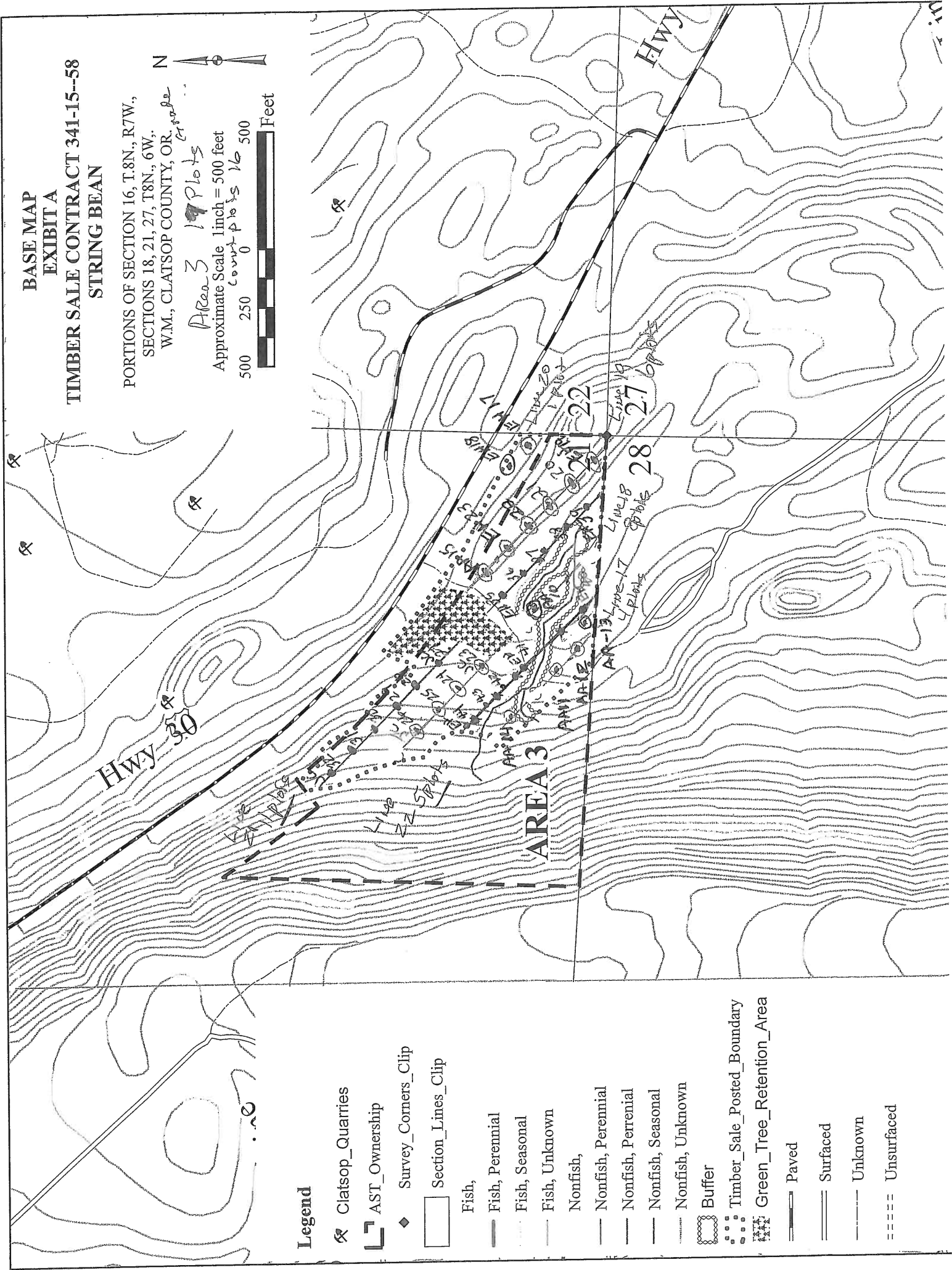
☐ Green_Tree_Retention_Area

— Paved

— Surfaced

— Unknown

===== Unsurfaced



**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: String Bean **Area(s)** 5 R/W

Harvest Type: CC PC CT RW "Automark Thinning"

Approx. Cruise Acres: 1 **Estimated CV%** 40 of Net BF/Acre **SE% Objective** 15 of Net BF/Acre

Planned (Unit) Sale Volume: 24 MBF **Estimated Sale Area Value/Acre:** \$1,050
(1.231 MMBF with \$15,200/Acre for the sale)

A. Cruise Goals: (a) Grade minimum 20 conifer and 5 hardwood trees:
(b) Sample 10 cruise plots; (c) Other goals (___ Determine "automark" thinning standards; ___ Determine log grades for sale value; ___ Determine snag and leave tree species and sizes; ___ Determine LWD (down wood) cubic feet and decay classes; ___ Determine "diameter limit" harvest parameters;

B. Cruise Design:

1. Plot Cruises: BAF 40 for all species Full point
Fixed Plot Size _____ Plot Radius _____ feet
Cruise Line Direction(s) along Right-of-Way
Cruise Line Spacing 0
Cruise Plot Spacing 300 feet
Grade/Count Ratio 1 : 0

Take plots as marked on map. Grade all hardwoods as Camp Run.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 8" for hardwoods. Record dbh to nearest 1/2" 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" 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

D. Alder Grades: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull.

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 Intervisible 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.

ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.

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

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.

B. Data Recorder Instructions

C. Other

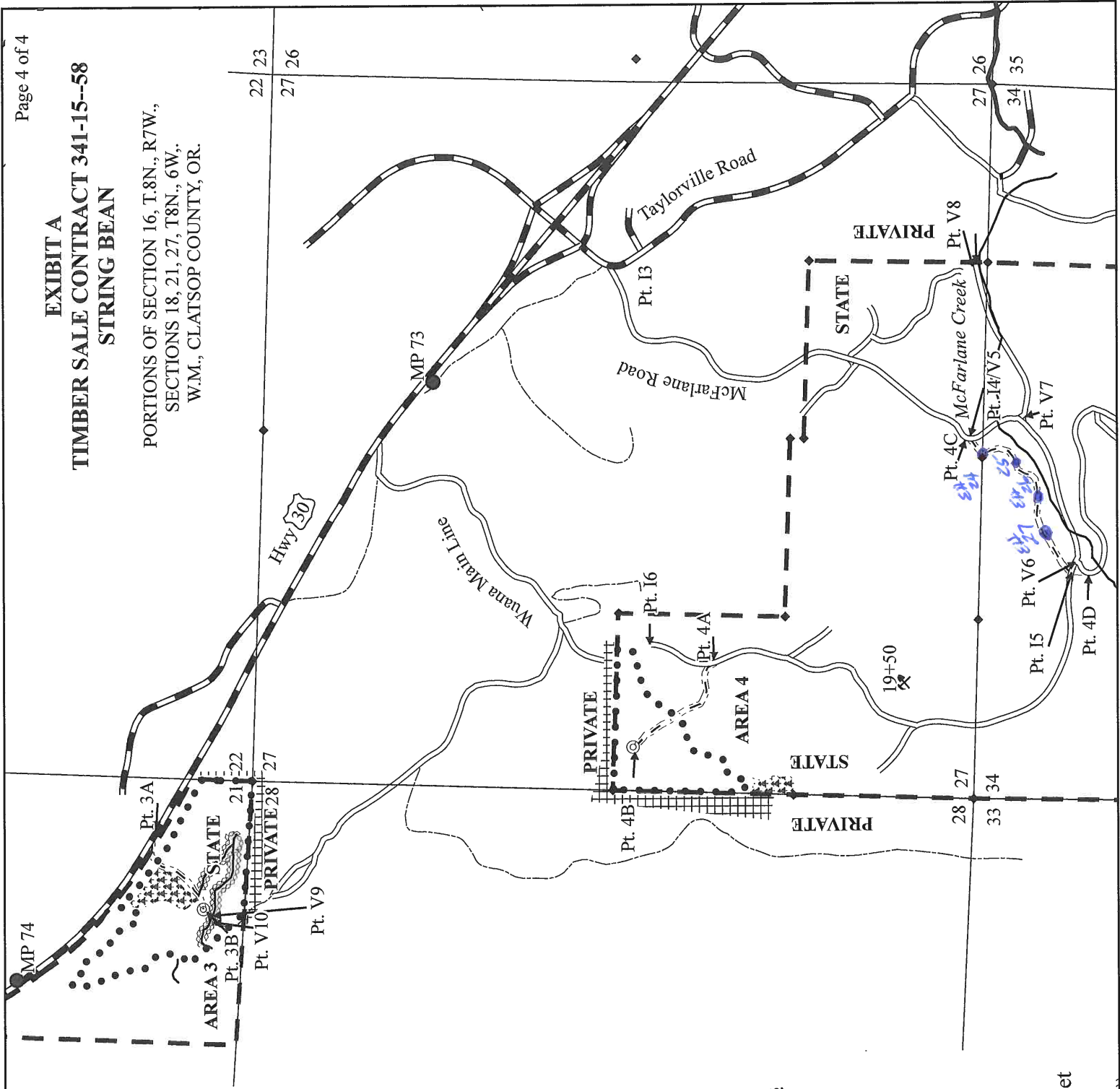
Cruise Design by: Ed Holloran

Approved by: [Signature]

Date: 9/30/14

EXHIBIT A
TIMBER SALE CONTRACT 341-15-58
STRING BEAN

PORTIONS OF SECTION 16, T.8N., R.7W.,
SECTIONS 18, 21, 27, T.8N., 6W.,
W.M., CLATSOP COUNTY, OR.



Legend

- Survey Monument
- Type F Stream
- Type N Stream
- Paved Road
- Surfaced Road
- Unknown Surface Road
- Timber Sale Boundary
- Buffer
- Controlled Felling Area
- Green Tree Retention Area
- New Construction
- Right-of-Way Boundary
- Landing
- Registered Waterhole
- Quarry
- Stockpile

APPROXIMATE NET ACRES	
AREA	MC ACRES
Area 1 (MC)	20
Area 2 (MC)	22
Area 3 (MC)	16
Area 4 (MC)	10
Area 5 R/W	5
TOTAL =	73

Approximate Scale 1 inch = 1,000 feet



TC		PSPCSTGR Species, Sort Grade - Board Foot Volumes (Project)																
T08N R06W S18 TyR/W THRU T08N R06W S27 Ty000R						Project: STRINGBE Acres 71.00								Page 1 Date 11/10/2014 Time 1:00:39PM				
Spp	So Gr T rt ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent of Net Board Foot Volume								Average Log			Logs Per /Acre
							Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf	
							4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99				
H	DOCU														11		0.00	9.1
H	DO2S	73	2.4	7,714	7,531	535			35	65	3	4	16	77	36	434	2.60	17.4
H	DO3S	19	2.9	2,011	1,952	139		79	21		10	3	38	49	31	93	0.94	20.9
H	DO4S	8	4.4	777	743	53	3	97			53	22	4	21	21	31	0.50	23.7
H Totals		20	2.6	10,501	10,226	727 726	0	22	30	48	8	5	19	68	27	144	1.32	71.0
A	DOCU														12		0.00	4.5
A	DOCR	100	.6	2,388	2,375	169		76	22	2	12	22	43	23	28	70	0.80	33.9
A Totals		5	.6	2,388	2,375	169		76	22	2	12	22	43	23	26	62	0.75	38.4
D	DOCU														10		0.00	2.6
D	DO2S	85	1.6	32,023	31,501	2,237		4	23	73	0	1	6	92	38	476	2.59	66.1
D	DO3S	12	.7	4,656	4,625	328		86	11	3	8	16	36	40	31	89	0.85	51.9
D	DO4S	3		797	797	57	16	80	4		59	29	11	1	21	24	0.45	33.3
D Totals		71	1.5	37,476	36,924	2,622	0	16	21	63	3	4	10	83	32	240	1.69	154.0
SN	DOCU														34		0.00	.3
SN Totals															34		0.00	.3
C	DOCU														10		0.00	2.1
C	DO2S	56	4.3	623	597	42				100	3	7	51	39	33	789	5.54	.8
C	DO3S	42	1.7	460	452	32		31	46	23	2	1	72	26	34	166	1.69	2.7
C	DO4S	2		15	15	1		100			81	19			18	34	1.00	.4
C Totals		2	3.1	1,098	1,063	75 76		15	19	66	4	5	59	33	24	177	2.07	6.0
S	DOCU														8		0.00	.7
S	DO2S	95		430	430	31			28	72		28	72		28	300	2.05	1.4
S	DO4S	5		21	21	2		100			100				18	30	0.61	.7
S Totals		1		451	451	33 32		5	27	68	5	27	68		21	157	1.54	2.9
M	DOCU														8		0.00	3.9
M	DOCR	100	5.5	1,123	1,061	75		44	16	40	28	18	33	21	27	96	0.99	11.1
M Totals		2	5.5	1,123	1,061	75		44	16	40	28	18	33	21	22	71	0.89	15.0
Totals			1.8	53,038	52,100	3,701 3,699	0	20	22	57	5	5	15	75	29	181	1.46	287.6

Species, Sort Grade - Board Foot Volumes (Type)													Page 1								
Project: STRINGBE													Date 8/26/2014								
													Time 10:50:19AM								
T08N R06W S18 TTAKE													T08N R06W S18 TTAKE								
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
08N	06W	18	A124	TAKE	52.00	46	113	1	W												
S So Gr			%	Bd. Ft. per Acre			Total	Percent Net Board Foot Volume								Average Log			Logs Per /Acre		
Sp	T	rt ad	Net BdFt	Def%	Gross	Net	Net MBF	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													10		0.00	3.2		
D		DO	2S	85	1.6	41,501	40,817	2,122		4	22	73	0	1	6	92	39	478	2.59	85.3	
D		DO	3S	12	.7	5,909	5,869	305		86	11	3	8	17	36	39	31	89	0.85	66.0	
D		DO	4S	3		1,005	1,005	52		16	79	4		58	30	12	1	21	24	0.45	42.2
D Totals			78	1.5	48,416	47,691	2,480		0	16	21	63	3	4	10	84	32	242	1.70	196.8	
H		DO	CU													11		0.00	8.2		
H		DO	2S	74	2.3	9,137	8,931	464			34	66	4	4	17	75	35	436	2.62	20.5	
H		DO	3S	18	3.0	2,317	2,248	117		80	20		11	3	37	49	31	93	0.93	24.1	
H		DO	4S	8	4.9	905	861	45		100			48	23	4	24	22	32	0.51	26.6	
H Totals			20	2.6	12,360	12,040	626		22	29	49		8	5	20	67	27	152	1.35	79.4	
A		DO	3S	17		156	156	8		100					100		32	120	1.06	1.3	
A		DO	4S	17		163	163	8		100			16		84		27	40	0.44	4.0	
A		DO	CR	66	1.0	601	596	31		72	28		10	28	49	14	28	77	0.89	7.7	
A Totals			1	.6	920	915	48		82	18			9	18	64	9	28	70	0.78	13.1	
S		DO	CU														8		0.00	.9	
S		DO	2S	95		565	565	29	30		28	72			28	72	28	300	2.05	1.9	
S		DO	4S	5		28	28	1		100			100				18	30	0.61	.9	
S Totals			1		593	593	31		5	27	68		5	27	68		21	157	1.54	3.8	
Type Totals				1.7	62,289	61,239	3,184		0	18	22	59		4	5	13	78	30	209	1.57	293.0

T	Species, Sort Grade - Board Foot Volumes (Type)										Page 1										
Project: STRINGBE										Date	8/26/2014										
										Time	10:52:08AM										
T08N R06W S21 TTAKE										T08N R06W S21 TTAKE											
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt												
08N	06W	21	A3	TAKE	16.00	33	125	1	W												
S So Gr T rt ad Spp		% 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				
A	DO	CU																12		0.00	19.8
A	DO	CR	100	.5	7,383	7,344	117			73	24	3		13	23	34	30	27	71	0.82	103.5
A Totals			31	.5	7,383	7,344	117			73	24	3		13	23	34	30	25	60	0.75	123.3
C	DO	CU																10		0.00	9.3
C	DO	2S	56	4.3	2,766	2,648	42					100		3	7	51	39	33	789	5.54	3.4
C	DO	3S	42	1.7	2,040	2,004	32			31	46	23		2	1	72	26	34	166	1.69	12.1
C	DO	4S	2		67	67	1			100				81	19			18	34	1.00	2.0
C Totals			20	3.1	4,872	4,719	76			15	19	66		4	5	59	33	24	177	2.07	26.7
M	DO	CU																8		0.00	17.4
M	DO	CR	100	5.5	4,982	4,706	75			44	16	40		28	18	33	21	27	96	0.99	49.2
M Totals			20	5.5	4,982	4,706	75			44	16	40		28	18	33	21	22	71	0.89	66.5
H	DO	CU																13		0.00	12.4
H	DO	2S	68	3.4	3,331	3,220	52				44	56				4	96	39	425	2.48	7.6
H	DO	3S	23	2.6	1,088	1,059	17			73	27			2	3	44	52	34	93	0.98	11.4
H	DO	4S	9		391	391	6			27	73			90	10			17	26	0.48	15.2
H Totals			20	2.9	4,809	4,669	75			2	23	36	39	8	1	13	78	24	100	1.12	46.6
D	DO	2S	85		1,869	1,869	30				32	68			13	12	75	36	414	2.53	4.5
D	DO	3S	13		292	292	5			76	24				13	39	48	34	97	0.96	3.0
D	DO	4S	2		33	33	1			100				100				16	30	0.62	1.1
D Totals			9		2,195	2,195	35			12	30	58		2	13	15	70	33	254	1.84	8.6
Type Totals				2.5	24,241	23,633	378			0	40	24	35	12	13	33	42	24	87	1.02	271.7

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1				
				Project: STRINGBE										Date 11/10/2014				
														Time 12:59:35PM				
T08N R06W S27 T000R										T08N R06W S27 T000R								
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt									
08N	06W	27	A5	000R	1.00	4	16	1	W									
S So Gr T rt ad Spp		% 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													3		0.00	12.7
D	DO	2S	13	4.7	1,351	1,287	1		100		100				20	95	1.24	13.5
D	DO	3S	68		6,662	6,662	7		100				24	76	38	91	0.72	73.0
D	DO	4S	19		1,769	1,769	2		100		89	11			20	26	0.47	68.3
D Totals			77	.6	9,782	9,718	10		87	13	29	2	16	52	26	58	0.67	167.4
A	DO	CR	100		1,730	1,730	2		100		21	35	44		27	36	0.43	48.6
A Totals			14		1,730	1,730	2		100		21	35	44		27	36	0.43	48.6
SN	DO	CU													34		0.00	14.3
SN Totals															34		0.00	14.3
H	DO	2S	79		965	965	1		100				100		32	190	1.50	5.1
H	DO	3S	21		254	254	0		100				100		32	50	0.59	5.1
H Totals			10		1,219	1,219	1		21	79			100		32	120	1.05	10.2
Type Totals				.5	12,731	12,668	13		82	18	26	6	28	40	27	53	0.59	240.6

T		Species, Sort Grade - Board Foot Volumes (Type)														Page		1				
TSPCSTGR		Project: STRINGBE														Date		8/28/2014				
																Time		12:40:57PM				
T08N R06W S18 TR/W										T08N R06W S18 TR/W												
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt				
08N		06W		18		A1234		R/W		2.00		46		119		1		W				
S So Gr T 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	Bd	CF/ Lf			
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft				
D		DO		CU													10		0.00	3.1		
D		DO		2S		85	1.7	42,166	41,454	83		4	22	74	0	1	6	92	39	480	2.60	86.3
D		DO		3S		12	.7	5,983	5,943	12		86	11	3	8	17	36	40	31	89	0.85	66.5
D		DO		4S		3		1,003	1,003	2	16	79	4		58	30	12	1	21	24	0.45	42.1
D		Totals				78	1.5	49,152	48,400	97	0	16	20	64	3	4	10	84	32	244	1.71	198.1
H		DO		CU														11		0.00	8.2	
H		DO		2S		74	2.3	9,137	8,931	18			34	66	4	4	17	75	35	436	2.62	20.5
H		DO		3S		18	3.0	2,317	2,248	4		80	20		11	3	37	49	31	93	0.93	24.1
H		DO		4S		8	4.9	905	861	2	100				48	23	4	24	22	32	0.51	26.6
H		Totals				19	2.6	12,360	12,040	24	22	29	49		8	5	20	67	27	152	1.35	79.4
SN		DO		CU														34		0.00	2.4	
SN		Totals																34		0.00	2.4	
A		DO		CR		100	.6	920	915	2	82	18			9	18	64	9	28	70	0.78	13.1
A		Totals				1	.6	920	915	2	82	18			9	18	64	9	28	70	0.78	13.1
S		DO		CU														8		0.00	.9	
S		DO		2S		95		565	565	1		28	72			28	72		28	300	2.05	1.9
S		DO		4S		5		28	28	0	100				100				18	30	0.61	.9
S		Totals				1		593	593	1	5	27	68		5	27	68		21	157	1.54	3.8
Type Totals							1.7	63,025	61,948	124	0	18	22	60	4	4	13	79	30	209	1.57	296.7

PROJECT STATISTICS							PAGE	1				
PROJECT							DATE	11/10/2014				
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt		
08N	06	18	A1234	R/W	THR	71.00	129	726	1	W		
08N	06W	27	A5	000R								
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			129	726	5.6							
CRUISE			67	371	5.5	9,958	3.7					
DBH COUNT												
REFOREST												
COUNT			62	343	5.5							
BLANKS												
100 %												
STAND SUMMARY												
			SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR			165	65.7	22.7	77		184.2	37,476	36,924	8,292	8,292
WHEMLOCK			90	36.3	18.5	54		67.6	10,501	10,226	2,485	2,485
R ALDER			62	26.7	14.2	39		29.4	2,388	2,375	744	744
WR CEDAR			28	2.3	33.2	66		13.7	1,098	1,063	300	300
BL MAPLE			18	8.2	16.5	42		12.3	1,123	1,061	297	297
SNAG			6	.3	19.3	50		.6				
S SPRUCE			2	.7	23.0	85		2.1	451	451	90	90
TOTAL			371	140.3	20.1	62		309.8	53,038	52,100	12,209	12,209
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL	68.1	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR			167.0	14.7	56	66	75					
WHEMLOCK			206.1	18.1	30	36	43					
R ALDER			240.8	21.2	21	27	32					
WR CEDAR			408.2	35.9	1	2	3					
BL MAPLE			316.8	27.9	6	8	11					
SNAG			507.8	44.7	0	0	0					
S SPRUCE			770.5	67.8	0	1	1					
TOTAL			99.1	8.7	128	140	152	393	98	44		
CL	68.1	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR			159.6	14.1	158	184	210					
WHEMLOCK			204.9	18.0	55	68	80					
R ALDER			241.3	21.2	23	29	36					
WR CEDAR			430.6	37.9	8	14	19					
BL MAPLE			292.5	25.8	9	12	15					
SNAG			402.6	35.4	0	1	1					
S SPRUCE			770.5	67.8	1	2	3					
TOTAL			104.7	9.2	281	310	338	439	110	49		
CL	68.1	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.			
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15			
DOUG FIR			161.6	14.2	31,670	36,924	42,177					
WHEMLOCK			235.0	20.7	8,110	10,226	12,343					
R ALDER			260.5	22.9	1,830	2,375	2,920					
WR CEDAR			450.8	39.7	641	1,063	1,486					
BL MAPLE			284.4	25.0	795	1,061	1,326					
SNAG												
S SPRUCE			770.5	67.8	145	451	757					
TOTAL			124.4	11.0	46,393	52,100	57,808	619	155	69		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	STRINGBE			DATE	10/16/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	06W	18	A124	MCC1	52.00	46	253	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
PLOTS		TREES								
TOTAL		46	253	5.5						
CRUISE		23	118	5.1		7,338		1.6		
DBH COUNT										
REFOREST										
COUNT		23	128	5.6						
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
DOUG FIR		72	83.4	22.8	78	236.4	48,416	47,691	10,687	10,687
WHEMLOCK		33	40.6	18.5	55	76.1	12,360	12,040	2,892	2,892
SNAG		5	6.2	20.9	36	14.9				
R ALDER		6	9.5	14.5	40	10.9	920	915	285	285
S SPRUCE		1	.9	23.0	85	2.7	593	593	119	119
DOUGLEAV		1	.5	32.0	123	2.7	705	681	151	151
TOTAL		118	141.1	21.1	67	343.8	62,995	61,920	14,134	14,134
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.			INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		74.4	11.0	74	83	93				
WHEMLOCK		128.8	19.0	33	41	48				
SNAG		274.0	40.4	4	6	9				
R ALDER		371.1	54.7	4	9	15				
S SPRUCE		474.2	69.9	0	1	2				
DOUGLEAV		474.2	69.9	0	0	1				
TOTAL		45.7	6.7	132	141	151	83	21	9	
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.			INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		65.0	9.6	214	236	259				
WHEMLOCK		127.2	18.7	62	76	90				
SNAG		219.2	32.3	10	15	20				
R ALDER		349.3	51.5	5	11	16				
S SPRUCE		474.2	69.9	1	3	5				
DOUGLEAV		474.2	69.9	1	3	5				
TOTAL		33.6	5.0	327	344	361	45	11	5	
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.			INF. POP.	
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR		65.7	9.7	43,070	47,691	52,312				
WHEMLOCK		144.1	21.2	9,482	12,040	14,598				
SNAG										
R ALDER		370.5	54.6	415	915	1,414				
S SPRUCE		474.2	69.9	178	593	1,008				
DOUGLEAV		474.2	69.9	205	681	1,157				
TOTAL		43.2	6.4	57,978	61,920	65,863	75	19	8	

TC TSTATS				STATISTICS				PAGE 1		
				PROJECT	STRINGBE			DATE	10/16/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	06W	21	A3	MCC2	16.00	33	223	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		33	223	6.8						
CRUISE		19	130	6.8	2,560		5.1			
DBH COUNT										
REFOREST										
COUNT		14	84	6.0						
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	47	83.6	14.2	39		92.1	7,383	7,344	2,307	2,307
WR CEDAR	28	10.1	33.2	66		60.6	4,872	4,719	1,333	1,333
BL MAPLE	18	36.6	16.5	42		54.5	4,982	4,706	1,316	1,316
WHEMLOCK	23	23.9	18.1	49		42.4	4,809	4,669	1,248	1,248
DOUG FIR	9	3.4	25.7	85		12.1	2,195	2,195	520	520
CEDLEAV	1	.7	30.0	62		3.6	289	289	90	90
SPRUCELV	1	.1	48.0	91		1.2	328	328	57	57
HEMLEAV	1	.5	22.0	74		1.2	188	170	47	47
MAPLELV	1	.1	45.0	66		1.2	164	144	39	39
SNAG	1	1.1	14.0	15		1.2				
TOTAL	130	160.0	17.6	44		270.3	25,210	24,563	6,957	6,957
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	103.9	18.1	68	84	99					
WR CEDAR	189.6	33.0	7	10	13					
BL MAPLE	136.4	23.7	28	37	45					
WHEMLOCK	152.1	26.5	18	24	30					
DOUG FIR	464.2	80.8	1	3	6					
CEDLEAV	321.1	55.9	0	1	1					
SPRUCELV	574.5	100.0	0	0	0					
HEMLEAV	574.5	100.0	0	0	1					
MAPLELV	574.5	100.0	0	0	0					
SNAG	574.5	100.0	0	1	2					
TOTAL	43.6	7.6	148	160	172	76	19	8		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	107.2	18.7	75	92	109					
WR CEDAR	202.2	35.2	39	61	82					
BL MAPLE	121.4	21.1	43	55	66					
WHEMLOCK	143.3	24.9	32	42	53					
DOUG FIR	462.9	80.6	2	12	22					
CEDLEAV	321.1	55.9	2	4	6					
SPRUCELV	574.5	100.0	0	1	2					
HEMLEAV	574.5	100.0	0	1	2					
MAPLELV	574.5	100.0	0	1	2					
SNAG	574.5	100.0	0	1	2					
TOTAL	48.0	8.3	248	270	293	92	23	10		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	118.9	20.7	5,823	7,344	8,864					
WR CEDAR	213.4	37.1	2,966	4,719	6,472					

TC TSTATS				STATISTICS				PAGE	2	
				PROJECT	STRINGBE		DATE	10/16/2014		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	06W	21	A3	MCC2	16.00	33	223	1	W	
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.	
SD:	1.0		VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
BL MAPLE			116.2	20.2	3,755	4,706	5,658			
WHEMLOCK			165.2	28.8	3,327	4,669	6,012			
DOUG FIR			469.7	81.8	400	2,195	3,989			
CEDLEAV			321.1	55.9	127	289	450			
SPRUCELV			574.5	100.0	0	328	656			
HEMLEAV			574.5	100.0	0	170	340			
MAPLELV			574.5	100.0	0	144	288			
SNAG										
TOTAL			60.7	10.6	21,967	24,563	27,160	147	37	16

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	STRINGBE			DATE	11/10/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	06W	27	A5	000R	1.00	4	16	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
PLOTS		TREES								
TOTAL		4		16		4.0				
CRUISE		4		16		4.0		169		9.5
DBH COUNT										
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
DOUG FIR		11	108.3	13.6	43	110.0	9,782	9,718	2,957	2,957
R ALDER		3	48.6	10.6	28	30.0	1,730	1,730	556	556
SNAG		1	7.2	16.0	73	10.0				
WHEMLOCK		1	5.1	19.0	66	10.0	1,219	1,219	340	340
TOTAL		16	169.2	13.2	40	160.0	12,731	12,668	3,854	3,854
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL:	68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		33.5	19.2	88	108	129				
R ALDER		122.3	69.9	15	49	83				
SNAG		200.0	114.4		7	15				
WHEMLOCK		200.0	114.4		5	11				
TOTAL		52.3	29.9	119	169	220	143	36	16	
CL:	68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		18.2	10.4	99	110	121				
R ALDER		127.7	73.0	8	30	52				
SNAG		200.0	114.4		10	21				
WHEMLOCK		200.0	114.4		10	21				
TOTAL		35.4	20.2	128	160	192	65	16	7	
CL:	68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		18.6	10.6	8,686	9,718	10,751				
R ALDER		149.0	85.2	256	1,730	3,204				
SNAG										
WHEMLOCK		200.0	114.4		1,219	2,613				
TOTAL		24.6	14.1	10,888	12,668	14,448	32	8	4	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	STRINGBE			DATE	8/28/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	06W	18	A124	TAKE	52.00	46	240	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		46	240	5.2						
CRUISE		22	112	5.1	6,988			1.6		
DBH COUNT										
REFOREST										
COUNT		24	127	5.3						
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
DOUG FIR	72	83.4	22.8	78		236.4	48,416	47,691	10,687	10,687
WHEMLOCK	33	40.6	18.5	55		76.1	12,360	12,040	2,892	2,892
R ALDER	6	9.5	14.5	40		10.9	920	915	285	285
S SPRUCE	1	.9	23.0	85		2.7	593	593	119	119
TOTAL	112	134.4	21.1	68		326.1	62,289	61,239	13,983	13,983
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	74.4	11.0	74	83	93					
WHEMLOCK	128.8	19.0	33	41	48					
R ALDER	371.1	54.7	4	9	15					
S SPRUCE	474.2	69.9	0	1	2					
TOTAL	45.4	6.7	125	134	143	82	21	9		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	65.0	9.6	214	236	259					
WHEMLOCK	127.2	18.7	62	76	90					
R ALDER	349.3	51.5	5	11	16					
S SPRUCE	474.2	69.9	1	3	5					
TOTAL	38.1	5.6	308	326	344	58	15	6		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR	65.7	9.7	43,070	47,691	52,312					
WHEMLOCK	144.1	21.2	9,482	12,040	14,598					
R ALDER	370.5	54.6	415	915	1,414					
S SPRUCE	474.2	69.9	178	593	1,008					
TOTAL	44.1	6.5	57,255	61,239	65,224	78	19	9		

TC TSTATS					STATISTICS			PAGE 1		
					PROJECT		STRINGBE		DATE 8/26/2014	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
08N	06W	21	A3	TAKE	16.00	33	217	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		33	217	6.6						
CRUISE		18	125	6.9	2,519	5.0				
DBH COUNT										
REFOREST										
COUNT		15	88	5.9						
BLANKS										
100 %										
STAND SUMMARY										
	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
R ALDER	47	83.6	14.2	39		92.1	7,383	7,344	2,307	2,307
WR CEDAR	28	10.1	33.2	66		60.6	4,872	4,719	1,333	1,333
BL MAPLE	18	36.6	16.5	42		54.5	4,982	4,706	1,316	1,316
WHEMLOCK	23	23.9	18.1	49		42.4	4,809	4,669	1,248	1,248
DOUG FIR	9	3.4	25.7	85		12.1	2,195	2,195	520	520
TOTAL	125	157.4	17.5	44		261.8	24,241	23,633	6,724	6,724
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	103.9	18.1	68	84	99					
WR CEDAR	189.6	33.0	7	10	13					
BL MAPLE	136.4	23.7	28	37	45					
WHEMLOCK	152.1	26.5	18	24	30					
DOUG FIR	464.2	80.8	1	3	6					
TOTAL	45.7	8.0	145	157	170	84	21	9		
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	107.2	18.7	75	92	109					
WR CEDAR	202.2	35.2	39	61	82					
BL MAPLE	121.4	21.1	43	55	66					
WHEMLOCK	143.3	24.9	32	42	53					
DOUG FIR	462.9	80.6	2	12	22					
TOTAL	52.4	9.1	238	262	286	110	27	12		
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
R ALDER	118.9	20.7	5,823	7,344	8,864					
WR CEDAR	213.4	37.1	2,966	4,719	6,472					
BL MAPLE	116.2	20.2	3,755	4,706	5,658					
WHEMLOCK	165.2	28.8	3,327	4,669	6,012					
DOUG FIR	469.7	81.8	400	2,195	3,989					
TOTAL	65.6	11.4	20,934	23,633	26,331	172	43	19		

Log Stock Table - MBF

T08N R06W S18 TyR/W
THRU
T08N R06W S27 Ty000R

Project: STRINGBE
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Spp	S T	So rt	Gr de	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	20-21	22-29	30-39	40+
H		DO	2S	20	19	2.8	18	2.5						9		10				
H		DO	2S	26	12		12	1.6						12						
H		DO	2S	30	7		7	1.0							7					
H		DO	2S	32	85		85	11.7				25		32	8		20			
H		DO	2S	36	3	11.9	2	.3							2					
H		DO	2S	38	4		4	.6							4					
H		DO	2S	40	417	2.8	405	55.8					15	75	87	100	109		20	
H		DO	3S	16	9		9	1.2			4		3	1						
H		DO	3S	20	5		5	.7				1	4							
H		DO	3S	22	2		2	.2						2						
H		DO	3S	24	2		2	.3					2							
H		DO	3S	30	0		0	.1				0								
H		DO	3S	32	53	1.4	52	7.2			7	8	13	24						
H		DO	3S	34	1		1	.1			1									
H		DO	3S	36	9		9	1.2			9									
H		DO	3S	38	0		0	.0			0									
H		DO	3S	40	62	5.5	59	8.1			4	34	18	2						
H		DO	4S	16	25	7.6	23	3.2		2	15	3	3							
H		DO	4S	20	5		5	.7			5									
H		DO	4S	22	5		5	.6			5									
H		DO	4S	24	2		2	.3			2									
H		DO	4S	28	0		0	.0			0									
H		DO	4S	30	4		4	.6			4									
H		DO	4S	32	3	20.0	2	.3			2									
H		DO	4S	36	11		11	1.6			11									
H		Totals			746	2.6	726	19.6		2	69	47	45	69	127	109	109	129	20	
A		DO	CR	12	1		1	.7				1								
A		DO	CR	16	11	4.7	11	6.3			9	2								
A		DO	CR	20	9		9	5.2			4			2	2					
A		DO	CR	24	5		5	2.9			3	2	1							
A		DO	CR	26	6		6	3.3			6									
A		DO	CR	28	2		2	1.3			2									
A		DO	CR	30	24		24	14.0			2		15	6						
A		DO	CR	32	71		71	42.1			17	3	27	14	6	4				
A		DO	CR	34	1		1	.9			1									
A		DO	CR	36	10		10	5.9			6	4								
A		DO	CR	40	30	1.4	29	17.4			5	7	12	6						

Log Stock Table - MBF

T08N R06W S18 TyR/W
THRU
T08N R06W S27 Ty000R

Project: STRINGBE
Acres ~~55.00~~ 71

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S T Spp	So rt	Gr de	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	20-21	22-29	30-39	40+
C	DO	2S	32	22	4.6	21	28.3							2	2	10	7		
C	DO	2S	36	3	5.3	3	3.7									3			
C	DO	2S	40	14	3.3	14	18.2									14			
C	DO	3S	16	0		0	.4				0								
C	DO	3S	20	0		0	.4					0							
C	DO	3S	30	0		0	.2			0									
C	DO	3S	32	23	1.3	23	30.5			2	1	3	5	3	9				
C	DO	3S	36	0		0	.2			0									
C	DO	3S	40	8	3.1	8	10.8			1	1	2		5					
C	DO	4S	16	1		1	1.2			0	0								
C	DO	4S	28	0		0	.3			0									
C	Totals			78	3.1	76	2.0			4	2	5	5	8	12	4	30	7	
S	DO	2S	24	9		9	27.0							9					
S	DO	2S	32	22		22	68.3							22					
S	DO	4S	18	2		2	4.8			2									
S	Totals			32		32	.9			2				9	22				
M	DO	CR	12	3	7.1	3	3.5							3					
M	DO	CR	16	12		12	15.7			7				2			3		
M	DO	CR	20	7	7.8	6	8.4					1		1	4				
M	DO	CR	24	3	5.9	3	4.3							3					
M	DO	CR	30	10		10	13.5								10				
M	DO	CR	32	29	12.1	25	33.4			1	3	6	4		5	6			
M	DO	CR	40	16		16	21.3			11	5								
M	Totals			80	5.5	75	2.0			18	9	6	5	6	21	6	3		
Total	All Species			3,766	1.8	3,699	100.0	3	8	234	207	314	299	402	798	468	853	114	

TC		PSTNDSUM		Stand Table Summary										Page		1		
														Date:		11/10/2014		
T08N R06W S18 TyR/W THRU T08N R06W S27 Ty000R					Project					STRINGBE					Time:		1:00:41PM	
					Acres					71.00					Grown Year:			
S Spc	T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals				
		DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF		
D		11	3	86	37	3.997	2.64	4.00	9.9	10.5		40	42		28	3		
D		12	8	86	74	9.913	7.77	16.27	13.7	46.1		222	750		158	53		
D		13	4	91	91	3.015	2.78	5.88	17.8	68.4		105	402		74	29		
D		14	2	86	81	.264	.28	.40	20.7	76.7		8	30		6	2		
D		15	4	83	77	4.070	4.99	8.14	19.0	62.5		155	509		110	36		
D		16	3	89	93	1.889	2.64	3.78	25.3	89.5		96	338		68	24		
D		17	5	88	105	1.852	2.92	3.70	31.4	114.7		116	425		83	30		
D		18	9	88	90	5.824	10.29	11.65	32.2	108.6		375	1,265		266	90		
D		19	6	87	90	3.805	7.49	7.61	35.3	121.7		269	926		191	66		
D		20	2	92	87	1.145	2.50	2.29	39.0	145.0		89	332		63	24		
D		22	2	89	115	.946	2.50	2.84	39.7	170.0		113	482		80	34		
D		23	7	91	102	2.702	7.79	6.27	48.8	201.9		306	1,266		217	90		
D		24	10	90	118	3.974	12.49	11.13	52.5	222.1		584	2,472		415	176		
D		25	11	88	130	3.752	12.79	11.26	56.7	243.2		639	2,737		453	194		
D		26	4	85	121	.842	3.10	2.53	58.6	244.2		148	617		105	44		
D		28	12	88	131	3.504	14.98	11.10	66.6	306.8		739	3,405		525	242		
D		29	10	91	131	2.722	12.49	8.17	78.3	381.3		640	3,114		454	221		
D		30	8	90	132	1.650	8.10	4.95	83.8	402.8		415	1,993		294	142		
D		31	8	90	134	1.906	9.99	5.72	91.3	431.7		522	2,468		371	175		
D		32	6	85	133	.965	5.39	2.84	94.2	437.8		268	1,244		190	88		
D		33	7	86	135	1.312	7.79	3.94	100.5	474.5		396	1,868		281	133		
D		34	6	89	125	1.188	7.49	3.56	98.0	486.7		349	1,735		248	123		
D		35	6	88	137	1.121	7.49	3.36	115.4	577.8		388	1,943		276	138		
D		36	6	84	126	1.060	7.49	3.18	100.7	478.9		320	1,523		227	108		
D		37	4	87	139	.669	4.99	2.01	131.0	658.3		263	1,321		187	94		
D		38	6	86	138	.951	7.49	2.85	134.1	652.2		383	1,861		272	132		
D		43	2	91	146	.248	2.50	.74	188.3	1043.3		140	775		99	55		
D		45	2	86	112	.226	2.50	.68	160.3	766.7		109	520		77	37		
D		48	2	86	155	.199	2.50	.60	161.3	940.0		96	560		68	40		
D		Totals	165	88	101	65.709	184.16	151.42	54.8	243.9		8,292	36,924		5,887	2,622		
H		8	1	82	20	1.191	.42	1.19	4.0	20.0		5	24		3	2		
H		10	2	82	22	3.215	1.75	3.22	7.0	30.0		23	96		16	7		
H		11	6	86	41	7.972	5.26	7.97	10.3	33.3		82	266		58	19		
H		12	2	85	42	1.058	.83	.53	16.0	50.0		8	26		6	2		
H		13	2	89	92	1.902	1.75	3.80	19.5	65.0		74	247		53	18		
H		14	1	78	73	.389	.42	.78	8.5	35.0		7	27		5	2		
H		15	3	86	47	1.768	2.17	1.77	19.5	43.8		35	77		25	6		
H		16	2	76	78	1.256	1.75	2.51	22.0	60.0		55	151		39	11		
H		17	5	87	92	2.489	3.92	6.09	24.8	92.4		151	562		107	40		
H		18	4	84	93	1.985	3.51	4.96	27.0	96.0		134	476		95	34		
H		19	3	88	93	.962	1.89	1.92	41.8	147.8		80	284		57	20		
H		20	4	86	66	1.185	2.58	2.37	33.9	101.8		80	241		57	17		
H		21	7	88	68	2.360	5.68	3.99	42.5	156.8		169	626		120	44		
H		22	7	88	96	1.801	4.75	3.60	53.9	204.4		194	736		138	52		
H		23	4	90	111	.896	2.58	2.40	48.8	205.6		117	493		83	35		
H		24	1	85	86	.132	.42	.26	58.5	185.0		15	49		11	3		
H		25	2	91	87	.244	.83	.49	62.0	267.5		30	130		21	9		
H		26	4	90	120	.951	3.51	2.38	78.2	356.0		186	847		132	60		
H		28	4	87	62	.820	3.51	.82	92.5	375.0		76	308		54	22		
H		29	11	89	107	1.801	8.26	5.13	75.2	364.2		386	1,869		274	133		
H		30	4	89	121	.714	3.51	2.14	85.3	388.3		183	832		130	59		
H		31	2	89	108	.335	1.75	1.00	83.3	400.0		84	401		59	29		
H		32	2	89	116	.314	1.75	.94	94.0	443.3		89	418		63	30		

TC		PSTNDSUM		Stand Table Summary										Page Date:		2 11/10/2014		
T08N R06W S18 TyR/W THRU T08N R06W S27 Ty000R					Project					STRINGBE					Time:		1:00:41PM	
					Acres					71.00					Grown Year:			
S Spc	T	Sample		Tot		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals				
		DBH	Trees	FF 16'	Av Ht				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF		
H		33	1	83	121	.070	.42	.21	74.0	346.7		16	73	11	5			
H		35	1	86	105	.062	.42	.12	101.5	455.0		13	57	9	4			
H		36	2	85	121	.248	1.75	.74	122.3	553.3		91	412	65	29			
H		43	3	82	126	.215	2.17	.60	169.6	822.4		102	497	73	35			
H		Totals	90	86	68	36.335	67.57	61.96	40.1	165.0		2,485	10,226	1,765	726			
A		9	1	87	20	1.000	.44											
A		10	6	87	33	4.395	2.35	4.39	8.0	27.6		35	121	25	9			
A		11	6	87	42	3.918	2.54	3.92	12.3	40.4		48	158	34	11			
A		12	4	87	40	3.035	2.26	3.03	14.1	42.6		43	129	30	9			
A		13	2	87	65	.958	.88	1.44	17.7	56.7		25	81	18	6			
A		14	3	86	47	1.240	1.33	1.24	22.7	53.3		28	66	20	5			
A		15	8	86	76	2.879	3.53	5.04	23.3	77.9		117	392	83	28			
A		16	13	87	62	4.821	6.73	7.74	23.5	73.7		182	571	129	41			
A		17	4	87	65	1.121	1.77	1.40	30.2	98.0		42	137	30	10			
A		18	5	87	69	1.530	2.70	3.06	28.9	101.5		88	311	63	22			
A		19	1	86	91	.224	.44	.45	41.0	145.0		18	65	13	5			
A		20	2	86	56	.405	.88	.61	37.0	100.0		22	61	16	4			
A		22	1	87	77	.167	.44	.33	46.5	170.0		16	57	11	4			
A		23	3	86	58	.459	1.33	.61	53.8	165.0		33	101	23	7			
A		24	2	86	52	.439	1.38	.44	69.0	140.0		30	61	21	4			
A		26	1	87	73	.120	.44	.24	62.0	260.0		15	62	11	4			
A		Totals	62	87	52	26.711	29.45	33.95	21.9	70.0		744	2,375	529	169			
C		20	1	85	42	.224	.49	.22	36.0	60.0		8	13	6	1			
C		21	1	78	66	.203	.49	.20	55.0	140.0		11	28	8	2			
C		22	1	83	111	.185	.49	.37	56.5	170.0		21	63	15	4			
C		24	2	74	63	.311	.98	.47	35.7	110.0		17	51	12	4			
C		30	1	75	88	.099	.49	.20	33.0	105.0		7	21	5	1			
C		31	1	71	60	.093	.49	.09	42.0	50.0		4	5	3	0			
C		32	1	75	111	.087	.49	.17	51.0	205.0		9	36	6	3			
C		35	2	75	81	.146	.98	.29	58.0	190.0		17	55	12	4			
C		36	2	73	102	.138	.98	.28	89.0	325.0		25	90	17	6			
C		38	1	67	101	.062	.49	.19	42.0	163.3		8	30	6	2			
C		39	2	77	103	.118	.98	.24	129.0	457.5		30	108	22	8			
C		40	4	72	103	.224	1.95	.45	77.5	303.7		35	136	25	10			
C		42	2	73	108	.101	.98	.20	95.0	415.0		19	84	14	6			
C		44	1	79	81	.046	.49	.09	109.0	380.0		10	35	7	2			
C		46	1	78	105	.042	.49	.08	150.5	560.0		13	47	9	3			
C		47	2	80	94	.081	.98	.16	176.2	675.0		29	109	20	8			
C		48	2	77	102	.078	.98	.16	174.3	655.0		27	102	19	7			
C		54	1	80	96	.031	.49	.06	200.5	810.0		12	50	9	4			
C		Totals	28	76	84	2.268	13.66	3.92	76.6	271.1		300	1,063	213	76			
M		9	1	86	20	1.546	.68	1.55	6.0	30.0		9	46	7	3			
M		12	2	86	68	1.739	1.37	1.74	20.5	60.0		36	104	25	7			
M		13	1	87	57	.741	.68	.74	24.0	60.0		18	44	13	3			
M		14	2	87	75	1.278	1.37	2.56	18.2	57.5		47	147	33	10			
M		16	1	86	63	.489	.68	.98	20.5	65.0		20	64	14	5			
M		18	1	86	61	.386	.68	.77	27.5	95.0		21	73	15	5			
M		19	1	87	48	.347	.68	.35	29.0	40.0		10	14	7	1			
M		21	2	86	41	.568	1.37	.57	34.5	145.0		20	82	14	6			
M		24	1	86	115	.217	.68	.43	45.5	230.0		20	100	14	7			
M		25	1	86	49	.200	.68	.20	57.0	270.0		11	54	8	4			

TC PSTNDSUM		Stand Table Summary										Page 3				
												Date: 11/10/2014				
T08N R06W S18 TyR/W THRU T08N R06W S27 Ty000R					Project STRINGBE					Time: 1:00:41PM						
					Acres 71.00					Grown Year:						
S Sp	T	Tot			Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
		DBH	Sample Trees	FF 16'				Av Ht	Net Cu.Ft.				Net Bd.Ft.	Tons	Cunits	MBF
M		26	1	87	38	.185	.68	.19	63.0	100.0		12	19		8	1
M		28	2	85	81	.319	1.37	.64	73.5	275.0		47	176		33	12
M		29	1	82	84	.149	.68	.30	63.0	295.0		19	88		13	6
M		41	1	86	59	.074	.68	.07	104.0	660.0		8	49		5	3
M		Totals	18	86	56	8.239	12.29	11.08	26.8	95.7		297	1,061		211	75
S		23	2	91	98	.716	2.07	2.15	42.0	210.0		90	451		64	32
S		Totals	2	91	98	.716	2.07	2.15	42.0	210.0		90	451		64	32
SN		11	1	85	34	.128	.08									
SN		16	1	86	73	.101	.14									
SN		25	1	92	37	.025	.08									
SN		31	1	85	145	.016	.08									
SN		60	1	89	28	.004	.08									
SN		68	1	85	17	.003	.08									
SN		Totals	6	86	55	.277	.56									
Totals			371	87	80	140.254	309.76	264.48	46.2	197.0		12,209	52,100		8,668	3,699

LOGGIN PLAN MAP

TIMBER SALE CONTRACT 341-15-58
STRING BEAN
PORTIONS OF SECTION 16, T8N., R7W.,
SECTIONS 18, 21, 27, T8N., 6W.,
W.M., CLATSOP COUNTY, OR.

1 in = 1,000 feet

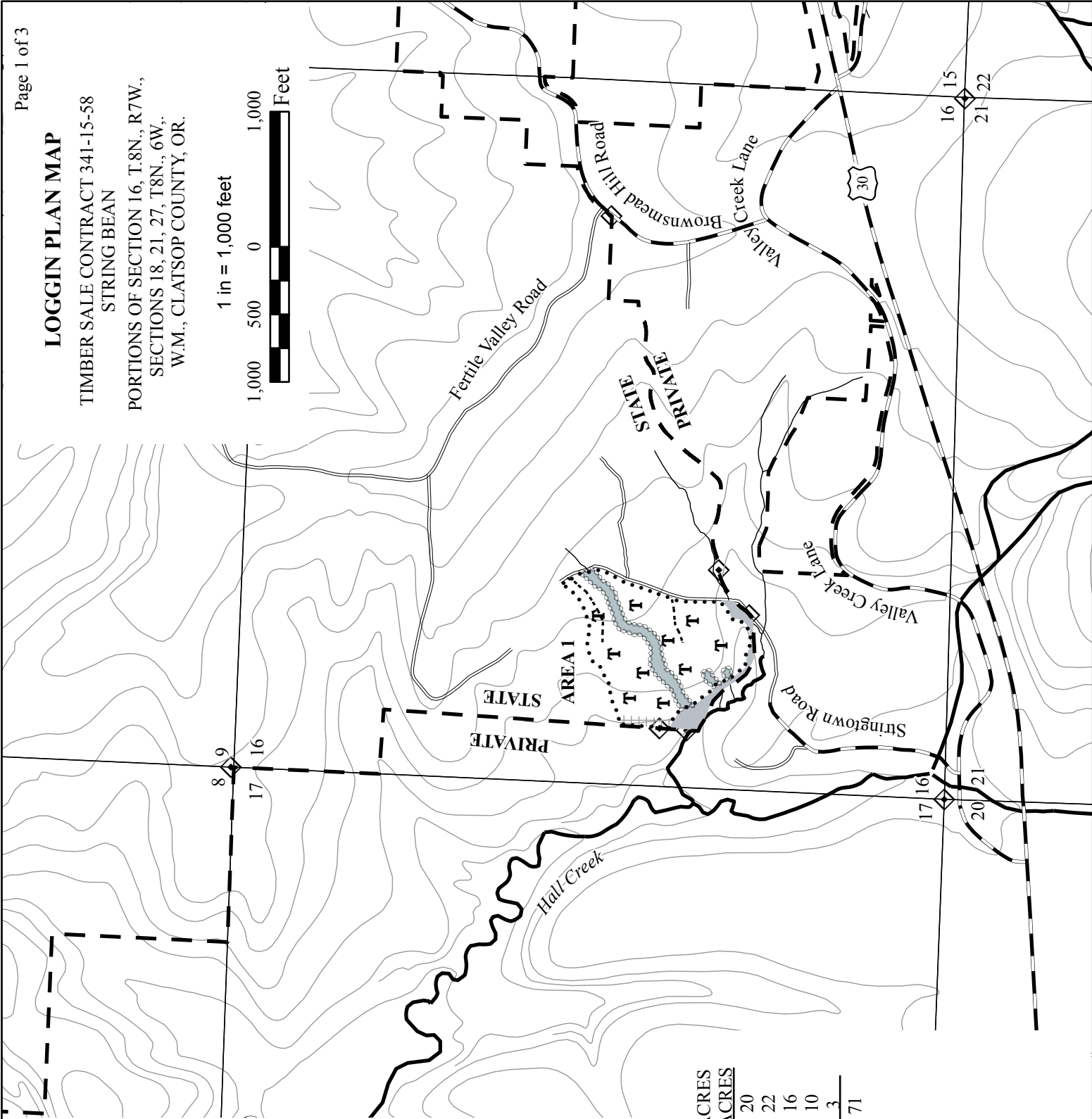


Legend

- Ownership
- Timber Sale Boundary
- Section Line
- Posted Buffer
- Paved Road
- Surfaced Road
- Type F Stream
- Type N Stream
- Controlled Felling Area
- Tractor Ground
- New Construction
- Loggers Choice Spur
- Landing
- Contour Line
- Survey Monument
- Registered Water Use Site

APPROXIMATE NET ACRES		
AREA	MC	ACRES
Area 1 (MC)	20	
Area 2 (MC)	22	
Area 3 (MC)	16	
Area 4 (MC)	10	
Area 5 R/W	3	
TOTAL =	71	

LOGGING BREAKDOWN		
AREA	TRACTOR	CABLE
Area 1	100%	
Area 2	77%	23%
Area 3	100%	
Area 4	70%	30%
Area 5 (R/W)	100%	
TOTAL	89%	11%



LOGGING PLAN MAP

TIMBER SALE CONTRACT 341-15-58
STRING BEAN
PORTIONS OF SECTION 16, T.8N., R.7W.,
SECTIONS 18, 21, 27, T.8N., 6W.,
W.M., CLATSOP COUNTY, OR.

1 inch = 1,000 feet



Legend

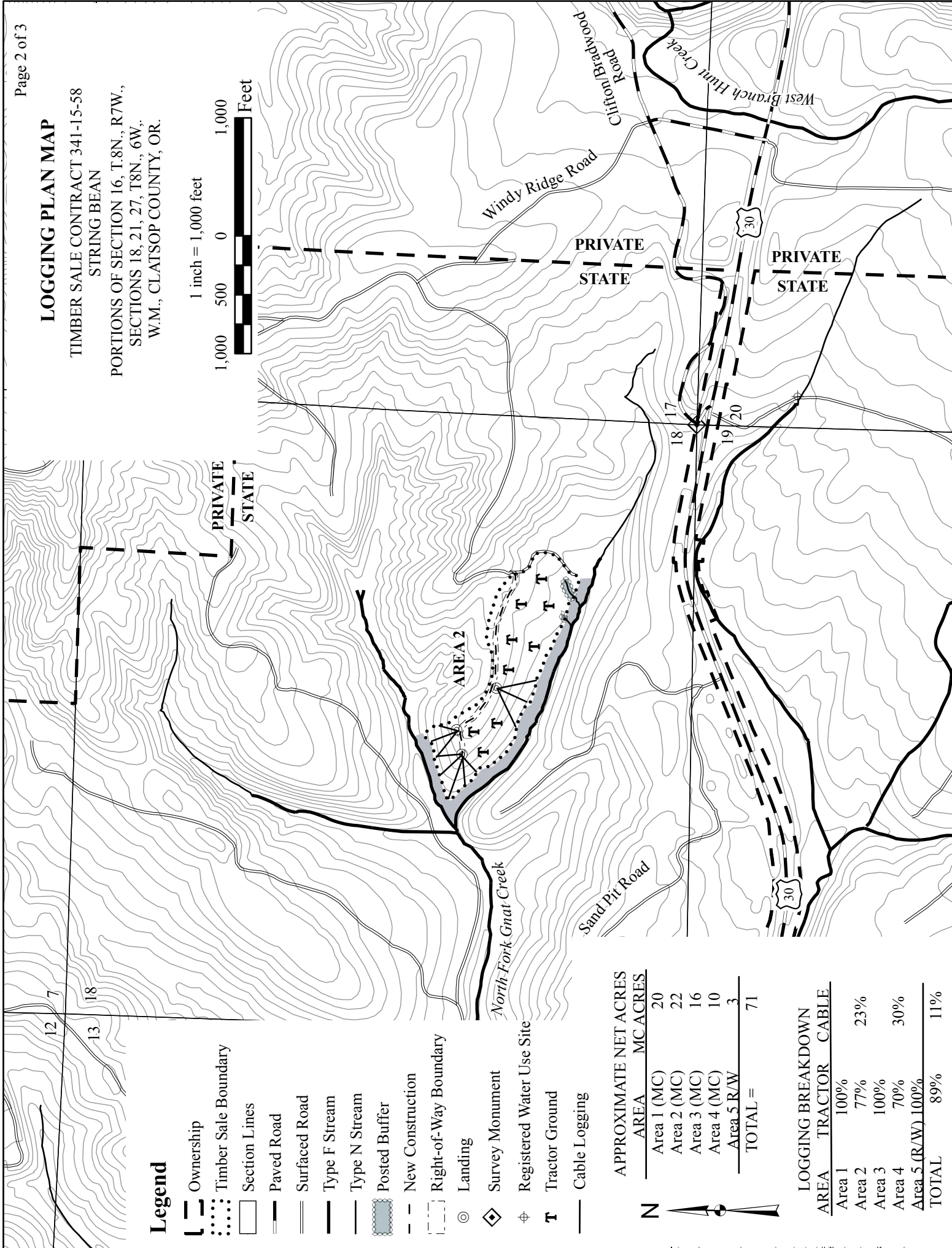
- Ownership
 - Timber Sale Boundary
 - Section Lines
 - Paved Road
 - Surfaced Road
 - Type F Stream
 - Type N Stream
 - Posted Buffer
 - New Construction
 - Right-of-Way Boundary
 - Landing
 - Survey Monument
 - Registered Water Use Site
 - Tractor Ground
 - Cable Logging

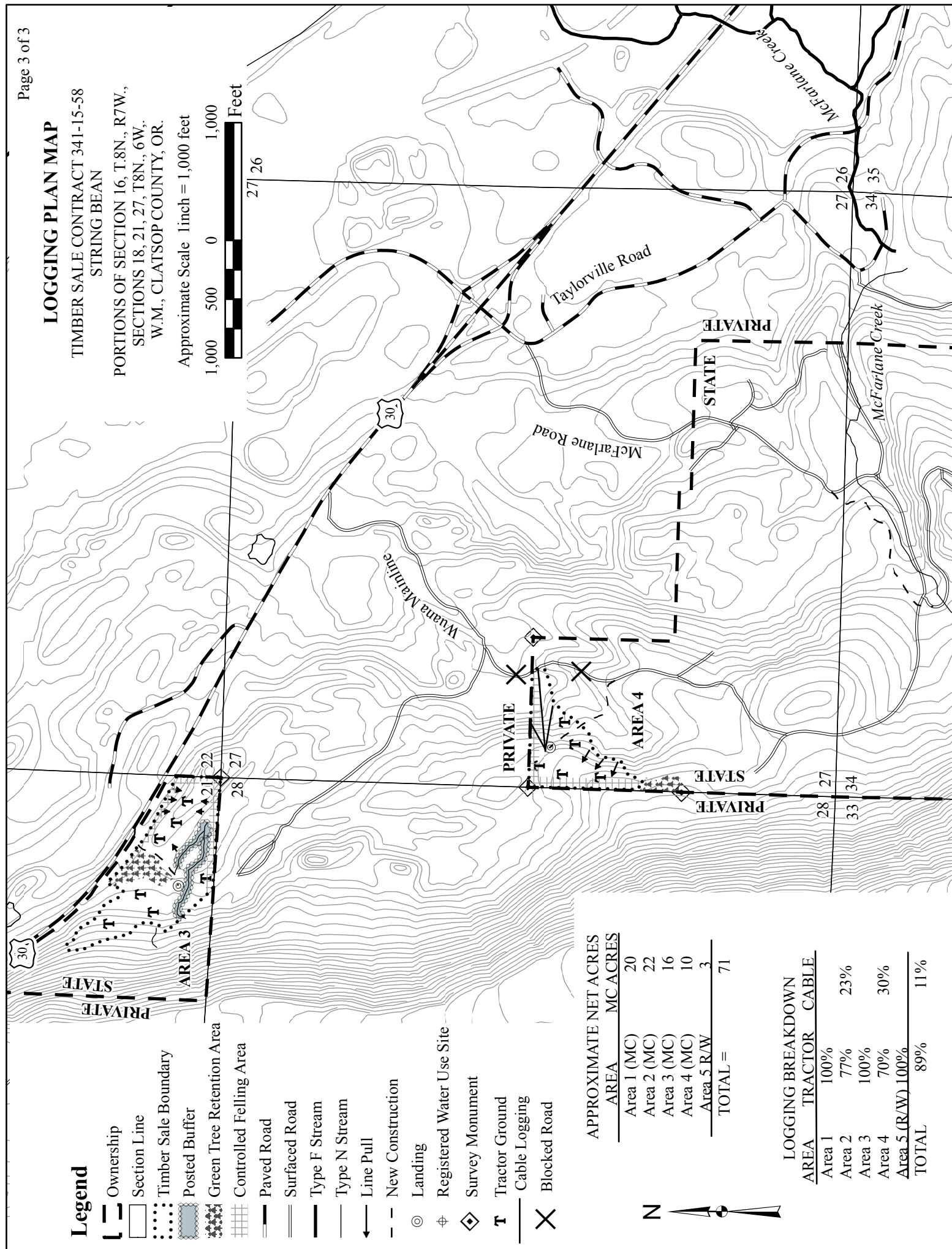
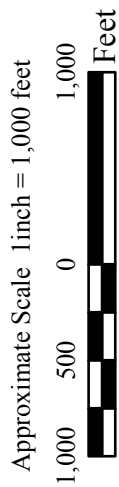
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