



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Cost Summary Boyington Salvage Sale 341-07-18

District: Astoria

Date: 6/6/06

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$83,352.97	\$1,435.76	\$84,788.73
		Project Work	\$0.00
		Advertised Value	\$84,788.73



Timber Sale Appraisal Timber Description Boyington Salvage Sale 341-07-18

"STEWARDSHIP IN FORESTRY"

District: Astoria

Location: Portions of Section 30 T7N, R7W, and Portions of Section 36, T7N, R8W, W.M., Clatsop County, Oregon.

Date: 6/6/06

Stand Stocking: 40%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	15	0	92
Western Hemlock / Fir	16	0	85
Sitka Spruce	18	0	76
Alder (Red)	11	0	98

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)	Total
2S	0	196	60	0	256
3S	1	158	69	0	228
4S	0	22	11	0	33
Camprun	0	0	0	4	4
Total	1	376	140	4	521

Comments: Pond Values Used: 1st Quarter Calendar Year 2006.

Log Markets: Mist; Tillamook; Longview, WA; Garabaldi

Hauling costs adjusted to make equivalent to \$700 daily truck cost.

Hauling Cost Calculation Douglas-fir:

\$700 - % Profit & Risk ($\$700 / 1.18$) = \$593 Daily Truck Cost.

\$593 Daily Truck Cost / (3 trips per day x 4.0 mbf per load) = \$49.42/MBF Gross Hauling Cost.

\$49.42/MBF Gross Hauling Cost - Recovery Percentage Adjustment

($\$49.42 - \3.95 [8%]) = \$45.47/MBF Net Hauling Cost.

Hauling Cost Calculation Western Hemlock:

\$700 - % Profit & Risk ($\$700 / 1.18$) = \$593 Daily Truck Cost.

\$593 Daily Truck Cost / (2 trips per day x 4.0 mbf per load) = \$74.13/MBF Gross Hauling Cost.

\$74.13/MBF Gross Hauling Cost - Recovery Percentage Adjustment

($\$74.13 - \11.12 [15%]) = \$63.01/MBF Net Hauling Cost.

Hauling Cost Calculation Sitka Spruce:

\$700 - % Profit & Risk ($\$700 / 1.18$) = \$593 Daily Truck Cost.

\$593 Daily Truck Cost / (3 trips per day x 4.0 mbf per load) = \$49.42/MBF Gross Hauling Cost.

\$49.42/MBF Gross Hauling Cost - Recovery Percentage Adjustment

($\$49.42 - \11.86 [24%]) = \$37.56/MBF Net Hauling Cost.

Hauling Cost Calculation Red Alder:

\$700 - % Profit & Risk ($\$700 / 1.18$) = \$593 Daily Truck Cost.

\$593 Daily Truck Cost / (2 trips per day x 3.5 mbf per load) = \$84.71/MBF Gross Hauling Cost.

\$84.71/MBF Gross Hauling Cost - Recovery Percentage Adjustment

($\$84.71 - \1.69 [2%]) = \$83.02/MBF Net Hauling Cost.

Other Costs (Profit & Risk to be added):

Additional Logging Costs:

Felling & Bucking \$20/MBF x 521MBF = \$10,420

Rigging Cost for Yarder \$20/MBF x 60MBF = \$ 1,200

Branding & Painting \$ 1/MBF x 521MBF = \$ 521

TOTAL Other Costs (P&R to be added) = \$12,141

Other Costs (No Profit and Risk)

Additional Hauling Costs @ 16.7/MBF \$ 8,700

Additional cable landing slash piling in
Areas 1 & 3:

2 landings X 2 hours/landing @ \$87.50/hr. \$ 350

TOTAL Other Costs (No P&R) = \$9,050

Western Red Cedar Stumpage = Pond Value minus Logging Cost

\$744.03/MBF = \$985/MBF - \$240.97/MBF



Timber Sale Appraisal

Logging Conditions

Boyington Salvage

Sale 341-07-18

"STEWARDSHIP IN FORESTRY"

Combination#: 1	Douglas - Fir	25.00%	
	Western Hemlock / Fir	20.41%	
	Sitka Spruce	19.50%	
	Alder (Red)	25.00%	
Yarding Distance:	Short (400 ft)		Downhill Yarding: No
Logging System:	Cable: Medium Tower >40 - <70		Process: Manual Delimiting
Tree Size:	Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF		
Loads/Day:	6		Bd. Ft./Load: 4,000
Cost/MBF:	\$138.19		
Machines:			
	Log Loader (A)		
	Tower Yarder (Medium)		
Combination#: 2	Douglas - Fir	75.00%	
	Western Hemlock / Fir	79.59%	
	Sitka Spruce	80.50%	
	Alder (Red)	75.00%	
Yarding Distance:	Short (400 ft)		Downhill Yarding: No
Logging System:	Shovel		Process: Manual Delimiting
Tree Size:	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
Loads/Day:	6		Bd. Ft./Load: 4,000
Cost/MBF:	\$98.11		
Machines:			
	Shovel Logger		



Timber Sale Appraisal Logging Costs Boyington Salvage Sale 341-07-18

"STEWARDSHIP IN FORESTRY"

Date: 6/6/06

Operating Seasons: 1.0

Profit & Risk: 18%

Project Costs: \$0

Other Costs (P/R): \$12,141

Slash Disposal: \$0

Other Costs: \$9,050

Road Maintenance: \$8.73

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	\$45.47	3.0	4.0
Western Hemlock / Fir	\$63.01	2.0	4.0
Sitka Spruce	\$37.56	3.0	4.0
Alder (Red)	\$83.02	2.0	3.5



Timber Sale Appraisal Logging Costs Breakdown Boyington Salvage Sale 341-07-18

"STEWARDSHIP IN FORESTRY"

Costs	Douglas - Fir	Western Hemlock / Fir	Sitka Spruce	Alder (Red)
Logging	108.13	106.29	105.93	108.13
Road Maintenance	9.49	10.27	11.49	8.91
Fire Protection	5.20	5.20	5.20	5.20
Hauling	49.42	74.13	49.42	84.71
Other (P/R appl.)	23.30	23.30	23.30	23.30
Profit & Risk	35.20	39.45	35.16	41.44
Slash Disposal	0.00	0.00	0.00	0.00
Scaling	2.00	2.00	2.00	2.00
Other	17.37	17.37	17.37	17.37
Total	250.11	278.01	249.87	291.06

Amortization	0.00	0.00	0.00	0.00
Pond Value	650.00	432.29	428.04	650.00
Stumpage	399.89	154.28	178.17	358.94
Amortized	0.00	0.00	0.00	0.00



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Summary Boyington Salvage Sale 341-07-18

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	1.00	376.00	140.00	4.00
Value	399.89	154.28	178.17	358.94
Total	399.89	58,009.28	24,943.80	1,435.76

Gross Timber Sale Value

Recovery \$84,788.73

Prepared by: Edward Holloran

Date: 6/6/06

District: Astoria

Phone: (503) 325-5451

Additional Hauling Rate

Amount to add to appraisal to equal \$700/day hauling cost.

Species	Trips/Day	MBF/Load	MBF/day	\$700/mbf	existing hauling price	F minus G	Percent	weighted haul
Douglas fir	4	4	16	\$43.75	\$41.68	2.07	0.001919	0.003973129
Western Hemlock	2	4	8	\$87.50	\$67.65	19.85	0.721689	14.32552783
Sitka Spruce	3	4	12	\$58.33	\$50.46	7.873333	0.268714	2.115674984
Alder	2	3.5	7	\$100.00	\$67.04	32.96	0.007678	0.253051823
						0	0	\$16.70

Total Volume

Douglas fir	1	0.19%
Western Hemlock	376	72.17%
Sitka Spruce	140	26.87%
Alder	4	0.77%
	0	0.00%
521 MBF		100.00%

X \$16.70 = **\$8,700**

Road Maintenance Cost Summary
Harvesting

Sale: Boyington Salvage (07-18)
Date: May 24, 2006
By: Ed Holloran

MBF: 582
\$\$/MBF: \$8.73

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Final Haul	Grader 14G	\$570	1	30	\$84	\$3,090
Road	Dump Truck 12CY	\$119	1	8	\$59	\$591
Maintenance	FE Loader C966	\$570	1	8	\$79	\$1,202
Haul Route	Labor			8	\$25	\$200
Total						\$5,083

Final Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	2.3	7.0	3.0	30

California-Barrel road to Spur 30, Spur 30 to working spur + Working spur, then from Calif.- Barrel up south working spur, + From Spur 30 up California-Barrel road to left working spur (past Leonard Basin) and this working spur to Area 2 = TOTAL of 7.0 miles

TIMBER CRUISE REPORT

BOYINGTON SALVAGE FY 2007

1. **Sale Area Location:**

Area 1 is located in a portion of Section 36, T7N, R8W, and Areas 2 & 3 are located in portions of Section 30, T7N, R7W, all in the Willamette Meridian, Clatsop County, Oregon.

2. **Fund Distribution:**

BOF = 100%

Tax Code = 01-02

3. **Sale Acreage and Treatments by Area:**

Area	Harvest Type	Gross Acres	Existing roads	Stream Buffers & non-stocked sites *	Net Acres	Survey Method
1	Salvage	23	0.5	1.5 *	21	GIS
2	Salvage	19	1.5	1	16.5	GIS
3	Salvage	31	0.5	1.5	29	GIS
TOTAL		73	2.5	4	66.5	

* Portions of the sale area have minimal volume and are considered unstocked.

4. **Cruisers and Cruise Dates:**

Area 1 was cruised by Ed Holloran on April 21 and finished on April 24, 2006. Area 2 was cruised by Ed Holloran and Bryce Rodgers and Area 3 was cruised by Bryce Rodgers, Ed Holloran and Kevin Berry both on April 19, 2006.

5. **Cruise Method and Computations:**

Area 1 (salvage logging) was designed for a variable plot cruise using a 20 Basal Area Factor (BAF). 19 plots were sampled with 10 cruise plots (2:1 ratio) on a 4 x 3 chain grid. All "take" and "leave" trees were measured and graded on the cruise plots. A strip cruise was run concurrently (33 feet wide) in which all down and leaning timber and snags were measured that originated within the strip. The strips were 4 chains apart and matched the variable plot lines.

Areas 2 & 3 (salvage logging only) was designed as strip cruise (33 feet wide) sampling one out of every 5 western hemlock and sitka spruce and 1 out 2 for all other species. The strips were 5 chains apart.

The Atterbury Super A.C.E. program was used for all data computations. See the attached Cruise Design for more details on the cruise method.

The cruise calculations were processed in the Astoria District office. The field cruise volumes were then evaluated and reviewed to calculate a per acre and sale volume. Percentages were used from the cruise for species and grades to establish the total sale volume.

6. **Timber Description:**

Area 1 – This stand was an "auto-mark" partial cut about three years ago, approximately 60 years old, consisting of a moderate sized, western hemlock and Sitka spruce and other mixed conifer. Wind storms have repeatedly damaged this stand. This stand will be logged to salvage downed trees and the anticipated blowdown of the remaining standing trees. The average "take" tree size is about 17 inches DBH and 58 feet to a merchantable top.

Areas 2 & 3—These stands will be salvage logged, harvesting only those trees blown down and those that are root sprung (leaning). The stand was “auto mark” partial cut about three years ago. The target basal areas were around 150 square feet for Area 2 and about 100 square feet for Area 3. The average “take” tree is about 15.5 inches DBH and 57 feet to a merchantable top.

7. **Statistical Analysis and Stand Summary:** A statistical analysis was not calculated.

8. **Volumes by Species and Sale Areas:** Volumes do not include “in-growth”. The majority of defect and breakage was culled during the cruise. On down timber that was not green 1 to 3 inches were taken as defect depending on approximate time on the ground. The total net MBF volumes by species and grade are as follows:

Species	DBH	Net. Vol.	2 Saw	3 Saw	4 Saw	Camp Run	% D & B	Sale%
Douglas-fir	15.0	1	0	1	0		--	0.2
W. Hemlock / True Fir	16.1	376	196	158	22		15.1	72.2
S. Spruce	18.3	140	60	69	11		23.6	26.9
Red Alder	11.0	4	-	-	-	4	--	0.7
Totals	16.4	521	256	228	33	4	17.5	100

9. **Approvals:**

Prepared by: Ed Holloran

Date: May 24, 2006

Approved by: *Dan Gandy*

Date: 5/26/06

10. **Attachments:**

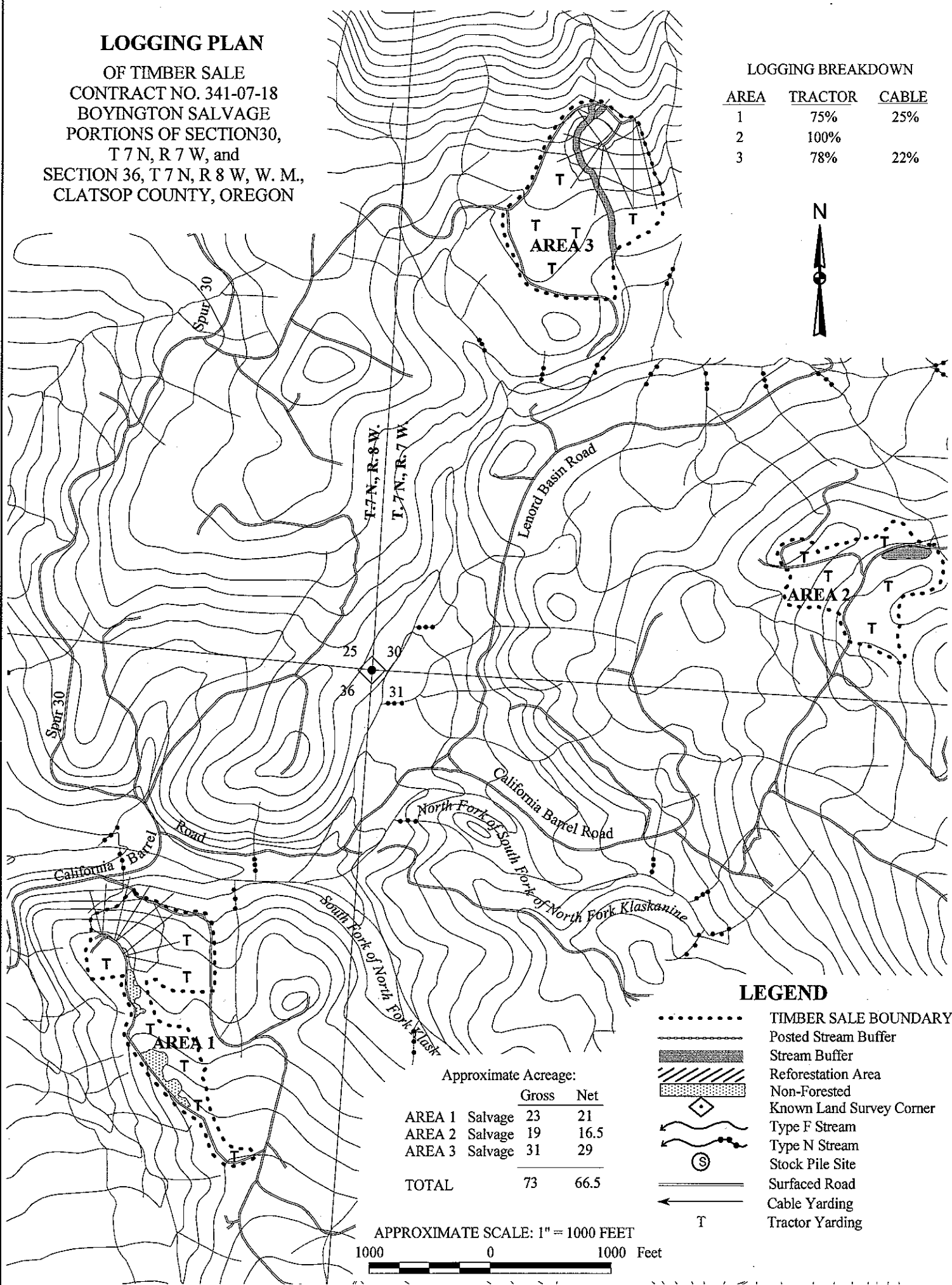
Cruise Designs and Maps: 7 pages

LOGGING PLAN

OF TIMBER SALE
 CONTRACT NO. 341-07-18
 BOYINGTON SALVAGE
 PORTIONS OF SECTION 30,
 T 7 N, R 7 W, and
 SECTION 36, T 7 N, R 8 W, W. M.,
 CLATSOP COUNTY, OREGON

LOGGING BREAKDOWN

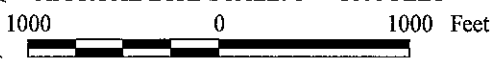
AREA	TRACTOR	CABLE
1	75%	25%
2	100%	
3	78%	22%



Approximate Acreage:

	Gross	Net
AREA 1 Salvage	23	21
AREA 2 Salvage	19	16.5
AREA 3 Salvage	31	29
TOTAL	73	66.5

APPROXIMATE SCALE: 1" = 1000 FEET



LEGEND

- TIMBER SALE BOUNDARY
- Posted Stream Buffer
- ████████ Stream Buffer
- ▨▨▨▨ Reforestation Area
- ▤▤▤▤ Non-Forested
- ◊ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- ⊙ Stock Pile Site
- ==== Surfaced Road
- ← Cable Yarding
- T Tractor Yarding

CRUISE DESIGN ASTORIA DISTRICT

Sale Name: Boyington Salvage Area(s) 1

Harvest Type: MC PC CT "Salvage Logging" (circle one)

Net BF or

Net BF or

Approx. Cruise Acres: 23 Estimated CV% N/A BA/Acre SE% Objective N/A BA/Acre

Planned Sale Volume: 594 MMBF Estimated Sale Area Value/Acre: \$945

A. **Cruise Goals:** (a) Grade minimum 20 green conifer, Grade minimum 80 down conifer and 0 hardwood trees; (b) Sample 20 cruise plots; Grade 10 plots; (c) Other goals: (Determine 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); Basal Area leave target N/A sq. ft. Cruiser needs to select or leave trees per plot.

B. Cruise Design:

Nested Plots: Strip and Variable Plots.

1. **Strip Cruise:** Cruise Line Direction(s) Area 1 – East/West & line 4 = N30°E
Strip Line Spacing 4 chains.
Strip Width 33 feet.
Grade/Count ratio Grade 100% of all species. Cruise down wood & heavy leaners. Cruise only trees originating in strip lines.

2. **Plot Cruises:** BAF 20.0 Full plot per point.
Fixed Plot Size _____ Plot Radius _____ feet
Cruise Line Direction(s) Area 1 – East/West & line 4 = N30°E
Cruise Line Spacing 4 chains
Cruise Plot Spacing 3 chains
Grade/Count Ratio Grade 1 out of 2

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is 8" or at least 20 board feet for conifers and 10" for hardwoods.

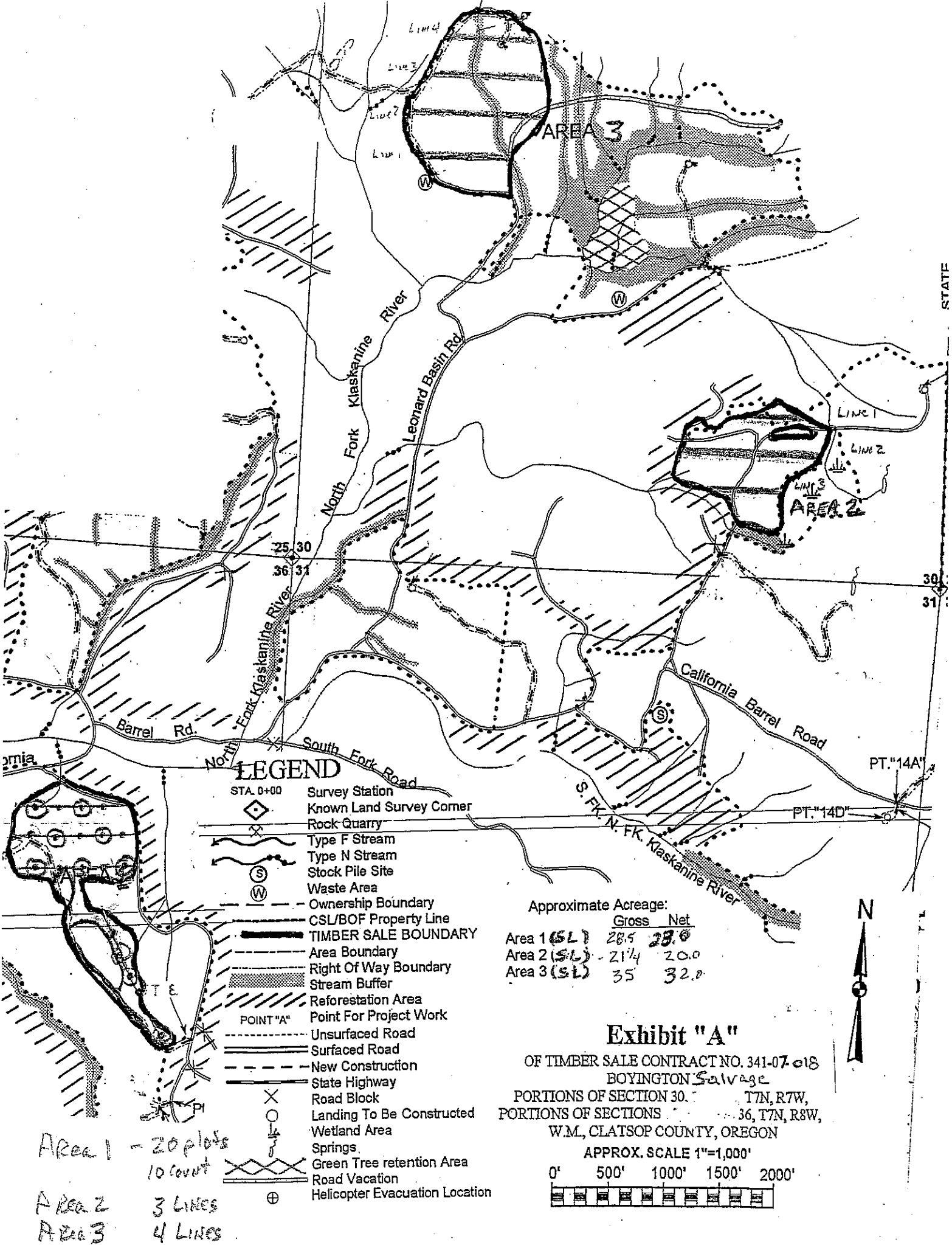
Record DBH to nearest 1/2" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate. **Cruise snags 15 DBH inches and over. Cruise all "W" (wildlife) trees and all reserved trees (cedar) as Leave trees by species.**

1. **Bole Length:** Cruise to the closest 16 foot log segment. Grade green Hardwood as grade 4 = 4 sawlog, will use camp run (later).

2. **Top Cruise Diameter (TCD):** Minimum top outside bark for conifer is 7", 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.

3. **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.
4. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. **Cruise to the closest 16 foot log segment.** 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 ; 9 = Utility **Grade green Hardwood as grade 4 = 4 sawlog, will use camp run (later).**
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. **Take 1 or 2 inch deduction on older down timber.**
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 indivisible 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, 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: Ed Holloran
 Approved by: DS
 Date: 4/19/06



LEGEND

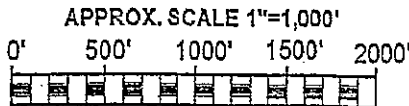
- STA. 0+00 Survey Station
- Known Land Survey Corner
- Rock Quarry
- Type F Stream
- Type N Stream
- Stock Pile Site
- Waste Area
- Ownership Boundary
- CSL/BOF Property Line
- TIMBER SALE BOUNDARY
- Area Boundary
- Right Of Way Boundary
- Stream Buffer
- Reforestation Area
- POINT "A" Point For Project Work
- Unsurfaced Road
- Surfaced Road
- New Construction
- State Highway
- Road Block
- Landing To Be Constructed
- Wetland Area
- Springs
- Green Tree retention Area
- Road Vacation
- Helicopter Evacuation Location

Approximate Acreage:

	Gross	Net
Area 1 (SL)	28.5	23.0
Area 2 (SL)	21.4	20.0
Area 3 (SL)	35	32.0

Exhibit "A"

OF TIMBER SALE CONTRACT NO. 341-07-018
 BOYINGTON Salvage
 PORTIONS OF SECTION 30, T7N, R7W,
 PORTIONS OF SECTIONS 36, T7N, R8W,
 W.M., CLATSOP COUNTY, OREGON



Area 1 - 20 plots
 10 count
 Area 2 3 LINES
 Area 3 4 LINES

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Boyington Salvage Areas 2 & 3

Harvest Type: MC PC CT "Salvage Logging" (circle one)

Approx. Cruise Acres: 52 Estimated CV N/A Net BF or BA/Acre SE% Objective X Net BF or BA/Acre

Planned Sale Volume: 594 MBF Estimated Sale Area Value/Acre: \$ 945

A. Cruise Goals: (a) Grade minimum 50 conifer and 0 hardwood trees:
 (b) Sample _____ cruise plots; Grade _____ plots; (c) Other goals (____ Determine standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes; _____ Determine LWD (down wood) cubic feet and decay classes; _____ Determine "diameter limit" harvest parameters;)
 Basal Area leave target N/A sq. ft. Cruiser needs to select or leave trees per plot.

B. Cruise Design:

1. **Strip Cruise:** Cruise Line Direction(s) Area 2 & 3 - East/West
 Strip Line Spacing 5 chains.
 Strip Line Width 33 feet.
 Grade/Count ratio Grade 1 out of 5 for W. Hemlock & Spruce and 1 out 2 for all other species. Cruise down wood & heavy leaners. Cruise only trees originating in strip.

2. **Plot Cruises:** BAF _____ (Full point; Half point) (circle one)
 Fixed Plot Size _____ Plot Radius _____ feet
 Cruise Line Direction(s) _____
 Cruise Line Spacing _____ (chains) (feet)
 Cruise Plot Spacing _____ (chains) (feet)
 Grade/Count Ratio _____

C. Tree Measurements:

1. **Diameter:** Minimum DBH to cruise is 8" or at least 20 board feet for conifers and 10" 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. **Cruise snags 15" DBH and over. Do not cruise standing "good" timber.**
2. **Bole Length:** Cruise to the closest 16 foot log segment. Grade green Hardwood as grade 4 = 4 sawlog, will use camp run (later).
3. **Top Cruise Diameter (TCD):** Minimum top outside bark for conifer is 7", 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. **Cruise to the closest 16 foot log.** 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 ; 9 = Utility
Grade green Hardwoods as grade 4 = 4 sawmill – will use camp run (later).

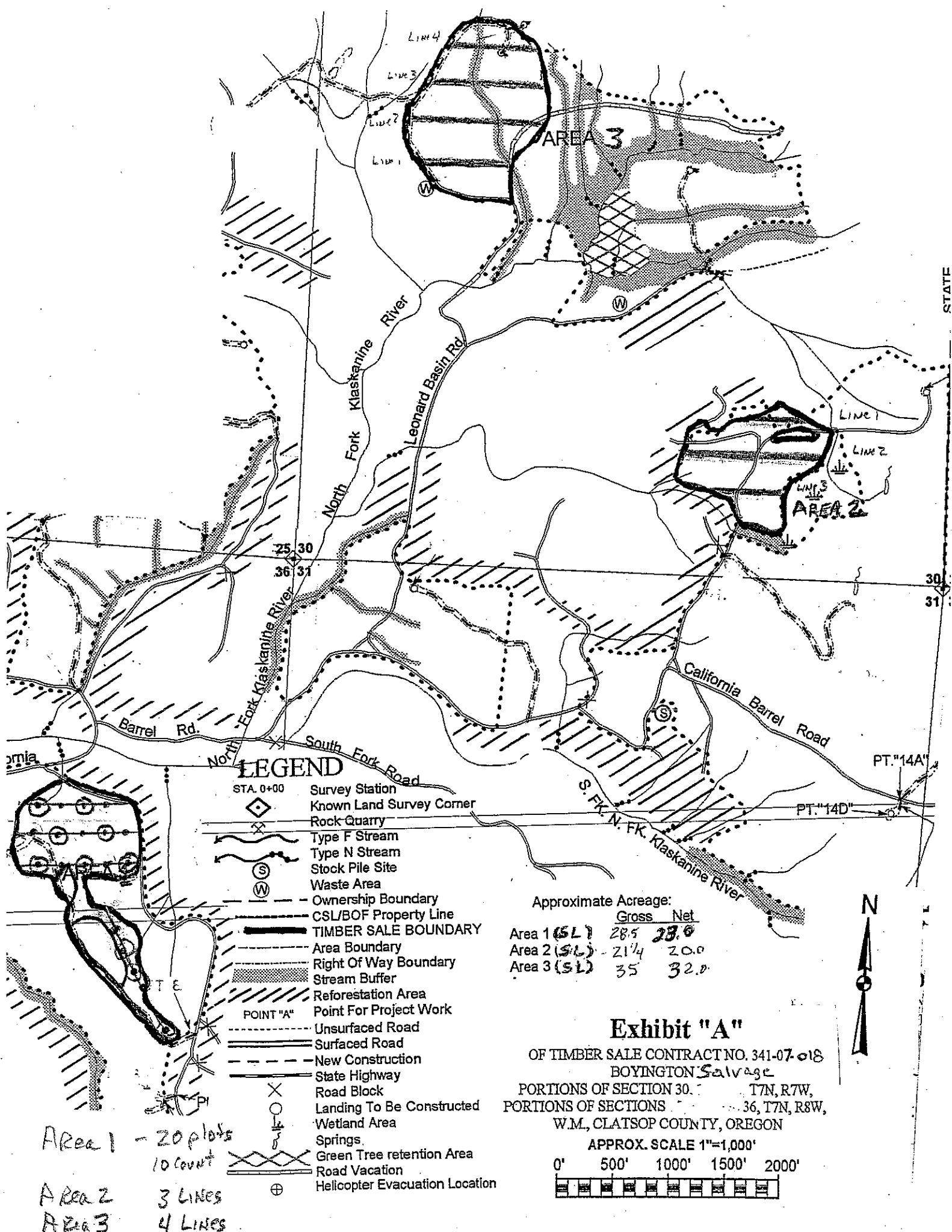
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8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot 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 indivisible 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: Ed Holloran
 Approved by: DE
 Date: 4/19/09



- LEGEND**
- STA. 0+00 Survey Station
 - Known Land Survey Corner
 - Rock Quarry
 - Type F Stream
 - Type N Stream
 - Stock Pile Site
 - Waste Area
 - Ownership Boundary
 - CSL/BOF Property Line
 - TIMBER SALE BOUNDARY**
 - Area Boundary
 - Right Of Way Boundary
 - Stream Buffer
 - Reforestation Area
 - POINT "A"
 - Point For Project Work
 - Unsurfaced Road
 - Surfaced Road
 - New Construction
 - State Highway
 - Road Block
 - Landing To Be Constructed
 - Wetland Area
 - Springs
 - Green Tree retention Area
 - Road Vacation
 - Helicopter Evacuation Location

Approximate Acreage:

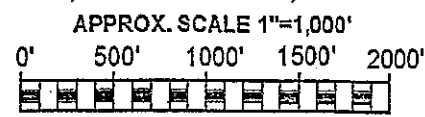
	Gross	Net
Area 1 (SL)	28.5	23.0
Area 2 (SL)	21.4	20.0
Area 3 (SL)	35	32.0

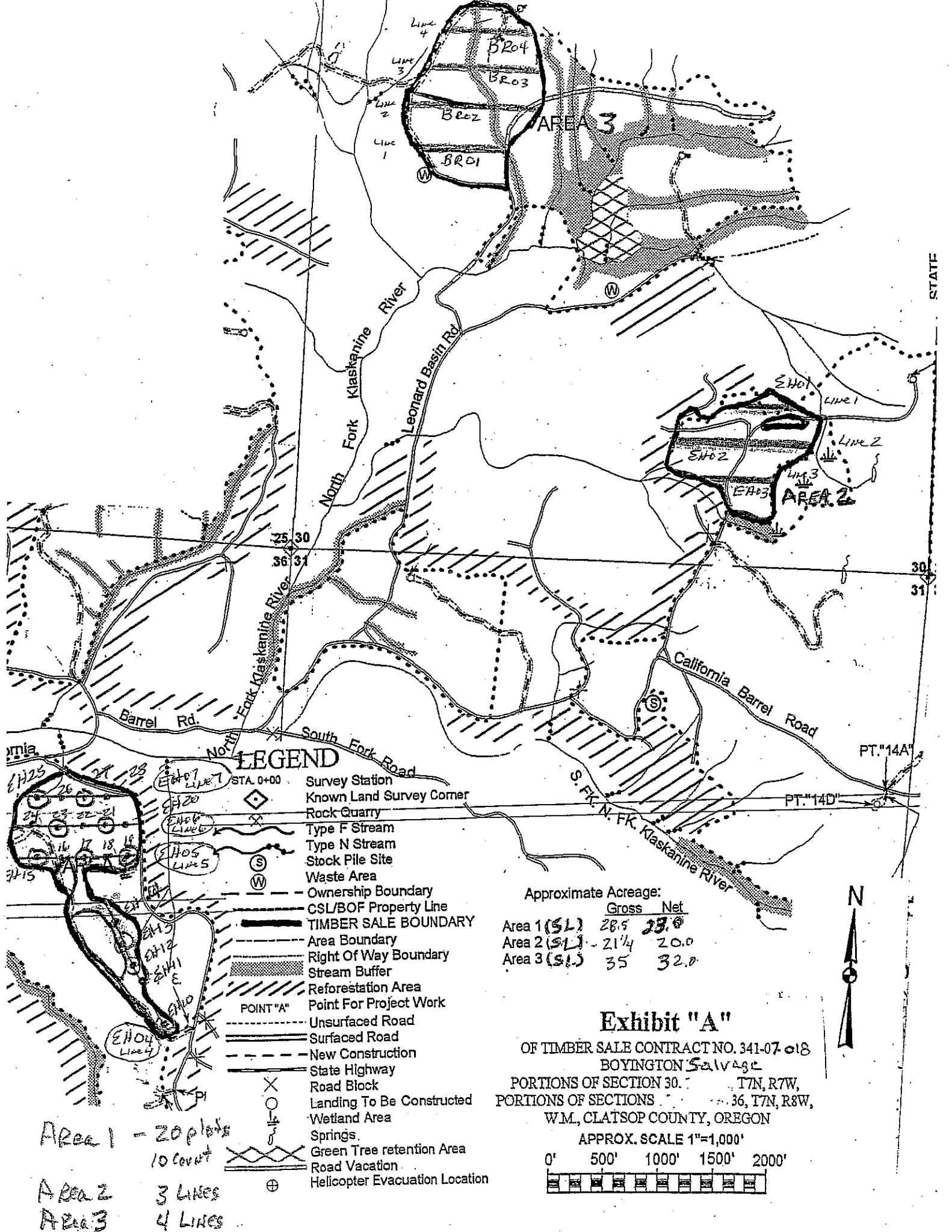
Area 1 - 20 plots
10 count

Area 2 3 LINES

Area 3 4 LINES

Exhibit "A"
 OF TIMBER SALE CONTRACT NO. 341-07-018
 BOYINGTON Salvage
 PORTIONS OF SECTION 30, T7N, R7W,
 PORTIONS OF SECTIONS 36, T7N, R8W,
 W.M., CLATSOP COUNTY, OREGON





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APPROX. SCALE 1"=1,000'



Area 1 - 20 plots
 10 count

Area 2 3 LINES

Area 3 4 LINES