



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Cost Summary Fishhawk Basin Combination Sale 341-02-61

District: Astoria

Date: 2/1/02

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$4,737,805.55	\$178,292.78	\$4,916,098.33
		Project Work	(\$967,685.00)
		Advertised Value	\$3,948,413.33



Timber Sale Appraisal Timber Description Fishhawk Basin Combination Sale 341-02-61

"STEWARDSHIP IN FORESTRY"

District: Astoria

Location: Portions Secs 21,22,23,25,26,27,28,34,35, & 36, T7N, R6W; Portions Secs 1,2, & 3, T6N ,R6W, Clatsop County. Portion Sec 30, T7N, R5W, Columbia County

Date: 2/1/02

Stand Stocking: 60%

Species	Avg. DBH	Amortized%	Recovery%
Douglas - Fir	17	0	98
Western Hemlock / Fir	13	0	98
Red Cedar	17	0	98
Alder (Red)	15	0	98

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Red Cedar	Alder (Red)	Total
2S	9,107	645	0	0	9,752
3S	4,051	513	7	604	5,175
4S	574	277	1	109	961
Total	13,732	1,435	8	713	15,888

Comments: Pond Values Used: 4th Quarter 2001

Combination of 12 sale units: 3 clearcut, 8 partial cut, and 1 R/W area.
Anticipated Log Markets: Mist (D-fir); Estacada (hemlock); Longview (hardwoods & cedar)
See attached page for Additional P&R and Non-P&R Costs.

Yarding Distance: Medium (800 ft) **Downhill Yarding:** No
Logging System: Cable: Small Tower <=40 **Process:** Stroke Delimber
Tree Size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF
Loads/Day: 5 **Bd. Ft./Load:** 4,000
Cost/MBF: \$138.64
Machines:
Log Loader (A)
Stroke Delimber (A)
Tower Yarder (Small)



Timber Sale Appraisal Logging Costs Fishhawk Basin Combination Sale 341-02-61

"STEWARDSHIP IN FORESTRY"

Date: 2/1/02

Operating Seasons: 2.0

Profit & Risk: 16%

Project Costs: \$967,685

Other Costs (P/R): \$49,847

Slash Disposal: \$0

Other Costs: \$27,170

Road Maintenance: \$2.55

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

Hauling Costs

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



Timber Sale Appraisal Logging Costs Breakdown Fishhawk Basin Combination Sale 341-02-61

"STEWARDSHIP IN FORESTRY"

Costs	Douglas - Fir	Western Hemlock / Fir	Red Cedar	Alder (Red)
Logging	118.66	118.54	76.21	98.01
Road Maintenance	2.60	2.60	2.60	2.60
Fire Protection	0.34	0.34	0.34	0.34
Hauling	29.34	67.04	52.14	52.14
Other (P/R appl.)	3.14	3.14	3.14	3.14
Profit & Risk	24.65	30.67	21.51	25.00
Slash Disposal	0.00	0.00	0.00	0.00
Scaling	2.00	2.00	2.00	2.00
Other	1.71	1.71	1.71	1.71
Total	182.44	226.04	159.65	184.94

Amortization	0.00	0.00	0.00	0.00
Pond Value	515.49	336.73	850.00	435.00
Stumpage	333.05	110.69	690.35	250.06
Amortized	0.00	0.00	0.00	0.00



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal Summary

Fishhawk Basin Combination Sale 341-02-61

Amortized

	Douglas - Fir	Western Hemlock / Fir	Red Cedar	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	Red Cedar	Alder (Red)
MBF	13,732.00	1,435.00	8.00	713.00
Value	333.05	110.69	690.35	250.06
Total	4,573,442.60	158,840.15	5,522.80	178,292.78

Gross Timber Sale Value

Recovery \$4,916,098.33

Prepared by: Tom Scoggins

Date: 2/1/02

District: Astoria

Phone: (503) 325-5451

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Fishhawk Basin Combination

NEW CONSTRUCTION:

	Road segment	Length/Sta	Cost
Project No. 1	1A-1B, 1C-1D, 2A-2B, 2C-2D, 3A-3B, 3C-3D, 3E-3F, 3I, 3G-3H	78.45	\$62,191
	4A-4B, 4C-4D, 4E-4F, 5A-5B, 5C-5D, 6A, 6B-6C 7A-7B, 7C-7D, 7E-7F, 7G-7H, 7I-7J, 7K-7L, 7M, 8A-8B, 8C-8D, 8E-8F, 8G-8H, 8I	73.75	\$88,749
	10A-10B, 10C-10D, 10E-10F	143.70	\$118,011
		37.35	\$23,982
TOTALS		333.25	\$292,933
		6.31 Miles	

ROAD IMPROVEMENT:

	Road segment	Length/Sta	Cost
Project No. 1	I1-I2, I3-I4, I5-I6	34.85	\$24,541
	I7-I8, I9-I10, I11-I12, I13-I14, I15-I16, I19-I20	171.31	\$29,054
	I17-I18	318.34	\$157,522
	I21-I22	145.20	\$85,990
TOTALS		669.70	\$297,107
		12.68 Miles	

SPECIAL PROJECTS:

	Description	Cost
Project No. 2	Brushing	\$6,479
Project No. 3	Viewpoint Quarry Crushing	\$254,731
Project No. 4	Vacating: V1-V2, V3-V4, V5-V6, V7-V8	\$33,573
Project No. 5	Warner Creek Crossing	\$60,987
	Project Road Maintenance	\$15,318
TOTAL		\$371,088

MOVE IN:

	Cost
Equipment	
Excavator C325 X 2	\$1,800
Dozer D8	\$980
Dozer D7	\$560
Skidder C518	\$520
Vibratory Roller	\$540
Dump Truck 12cy X 4	-\$456
Dump Truck 20cy X 6	\$804
Grader 14G	\$540
Water Truck 2,500 gallon	\$132
Brush Cutter	\$225
TOTAL	\$6,557

GRAND TOTAL **\$967,685**

Compiled By: D. Goody Date: 4/4/01

**FISHHAWK BASIN COMBINATION
FY 2001
TIMBER CRUISE REPORT**

1. **Sale Area Location:** Area 1 – Located in the S½ of Section 2, T6N, R6W; Area 2 – Located in the S½ of Section 2, and the SW¼ of the SW¼ of Section 1 T6N, R6W; Area 3 – Located in portions of Section 2, T6N, R6W, and the SE¼ of Section 35, T7N, R6W; Area 4 - Located in the N½ of Section 3, T6N, R6W, and in portions of Section 34 and 35, T7N, R6W; Area 5 - Located in portions of Section 34, T7N, R6W; Area 6 – Located in portions of Sections 34 and 35, T7N, R6W; Area 7 – Located in portions of Section 27, 28, and 34, T7N, R6W; Area 8 – Located in portions of Sections 21, 22, 23, 26, 27, and 28, T7N, R6W; Area 10 – Located in portions of Section 25, T7N, R6W, W.M., Clatsop County, Oregon, and portions of the SW¼ of the SW¼ of Section 30, T7N, R5W, W.M., Columbia County, Oregon; Area 11 – Located in portions of the SW¼ of the SW¼ of Section 30, T7N, R5W, W.M., Columbia County, Oregon; Area 12 – Located in the NE¼ of the NE¼ of Section 36, T7N, R6W, W.M., Clatsop County, Oregon.

Timber sale areas 1-8 and 10-12 are posted with ODF "Timber Sale Boundary" signs, pink ribbon, (and blue paint along property lines and stream buffers). Area 9 R/W is posted with ODF "Right-of-Way Boundary" signs, and with blue paint outside of sale area boundaries.

2. **Fund Distribution:** **Fund:** BOF (99.67%) CSL (0.33%)
Tax Code: 8-01 (54%), 30-05 (43%), Columbia County (3%)

3. **Sale Acreage by Area:**

Area	Gross Acreage	New R/W Acreage	Existing R/W Acreage	Stream Buffer Acreage	Net Acreage
1	41	2	0	0	39
2	53	0	0	0	53
3	160	2	4	4	150
4	61	7	0	0	54
5	88	1	3	0	84
6	24	0	0	2	22
7	174	3	5	0	166
8	247	6	8	5	228
9 R/W					25
10	113	4	0	2	107
11	15	0	0	0	15
12	7	0	0	0	7
TOTALS	983	25	20	13	950

4. **Cruisers and Cruise Dates:** Area 1 – Ty Williams and Dave Beck, January, 2001; Area 2 – Ty Williams, Jon Long, and Dave Beck, January, 2001; Area 3 – John Tillotson and Tom Scoggins, December, 2000; Area 4 – Jon Long and John Tillotson, December, 2000; Area 5 – Jon Long, December, 2000; Area 6 – Tom Scoggins, December, 2000; Area 7 – Scoggins and Dan Goody, December, 2000; Area 8 – Dan Goody and Ed Holloran, December, 2000; Area 10 – John Tillotson and Tom Scoggins, December, 2000; Area 11 – Dan Goody and Tom Scoggins, December, 2000; Area 12 – Tom Scoggins, December, 2000. Cruises for Area 9 R/W were calculated using all applicable sale area cruises and applying road R/W acreage.

5. Cruise Method and Computation: All cruises used Corvallis MicroTechnology (CMT) data collectors, and were downloaded to the Atterbury Super A.C.E. program in District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria district office.

<u>AREAS</u>	<u>PROJECT</u>	<u>CRUISE TYPE</u>
2, 6, 11, & 12	FISHHAWK	6N6WSEC2TYPE:CCTK
1 & 3	FISHHAWK	6N6WSEC2TYPE:RRTK
4	FISHHAWK	6N6WSEC3TYPE:4TK
5 & 7	FISHHAWK	7N6WSEC34TYPE:CTTK
8 & 10	FISHHAWK	7N6WSEC27TYPE:PCTK
9 R/W	FISHHAWK	6N6WSEC2TYPE:ROW

6. Timber Description:

Areas 1 and 3 Are Douglas-fir stands, 60 to 65 years old. Portions of Area 3 had been previously thinned. Average diameter is about 23 inches DBH, averaging 78 trees per acre with a basal area of 220 ft² per acre. Volumes to remove in these phellinus partial cut areas averages 15.7 MBF per acre, while retaining residual basal area of 140 ft² per acre. Trees to be removed average about 20 inches DBH, and 94 feet in merchantable height.

Area 2 is a Douglas-fir stand, averaging 65 years old, with variable stocking, due mostly to the presence of widespread root rot infection (*Phellinus weirii*). This stand averages about 20" DBH, about 82 feet of merchantable height, 225 square feet of basal area, and 43 MBF per acre. Volumes to remove average 25 MBF per acre, while retaining residual basal area of about 100 square feet per acre. Trees to be removed average about 19 inches dbh.

Area 4 (partial cut area) is a Douglas-fir stand with a large component of hardwoods, approximately 53 years old. Average diameter is about 18 inches DBH, averaging 146 trees per acre with a basal area of 250 ft² per acre. Volumes to remove in this thinning area averages 10.0 MBF per acre, while retaining residual basal area of 170 ft² per acre. Trees to be removed average about 14 inches DBH, and 47 feet in merchantable height.

Area 6 (clearcut) is a mixed conifer-hardwood stand, averaging 58 years old, with hardwoods accounting for about 48% of the stand stocking. Conifers average 19" DBH, 85 feet in merchantable height, 129 square feet of basal area, and 22 MBF per acre. Hardwoods (mostly red alder) average 16" DBH, 54 feet in merchantable height, 110 square feet of basal area, and 15 MBF per acre.

Areas 5 and 7 (thinning areas) are Douglas-fir dominated mixed conifer stands, 50 to 55 years old. Average diameter is about 17 inches DBH, averaging 178 trees per acre with a basal area of 264 ft² per acre. Volumes to remove in this thinning area averages 12.7 MBF per acre, while retaining residual basal area of 170 ft² per acre. Trees to be removed average about 14 inches DBH, and 58 feet in merchantable height.

Areas 8 and 10 (partial cut areas) are Douglas-fir dominated mixed conifer stands, with a small component of hardwoods, approximately 50 to 60 years old. Average diameter is about 17 inches DBH, averaging 118 trees per acre with a basal area of 193 ft² per acre. Volumes to remove in this thinning area averages 12.1 MBF per acre, while retaining residual basal area of 100 ft² per acre. Trees to be removed average about 15 inches DBH, and 53 feet in merchantable height.

Areas 11 & 12 (clearcuts) are 62 year old conifer stands of predominantly Douglas-fir, with hemlock and cedar present. The stands average 20" DBH, 85-90 feet in merchantable height, 254-307 square feet of basal area, and about 56 MBF per acre.

Area 9 R/W is comprised of most of the stand types within the sale areas. Therefore, this area includes varying sizes and stocking levels of Douglas-fir, hemlock, and alder.

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

Area	Target CV	Target SE%	Actual CV	Actual SE%
6, 11 & 12 Clearcut	50%	12%	46.8%	5.8%
1, 2 & 3 Phellinus Partial Cut	50%	8%	42.4%	8.2%
4 Partial Cut	50%	8%	39.6%	14.0%
5 & 7 Thinning	50%	8%	28.3%	4.8%
8 & 10 Partial Cut	50%	8%	58.3%	8.7%

8. Volumes by Species and Log Grades for All Sale Areas by MBF: (See "Species, Sort, Grade, Length % Type Reports" attached, of the thinning and regeneration harvest areas combined.) Volumes do not include "ingrowth." The majority of defect and breakage was culled out during the cruise.

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	D & B	% Sale
Douglas-fir	17"	13,732	9,107	4,051	574	213	86%
Hemlock	13"	1,435	645	513	277	7	9%
Hardwoods	15"	713		604	109	11	4%
Cedar	17"	8		7	1	0	<1%
TOTALS		15,888					

9. Approvals:

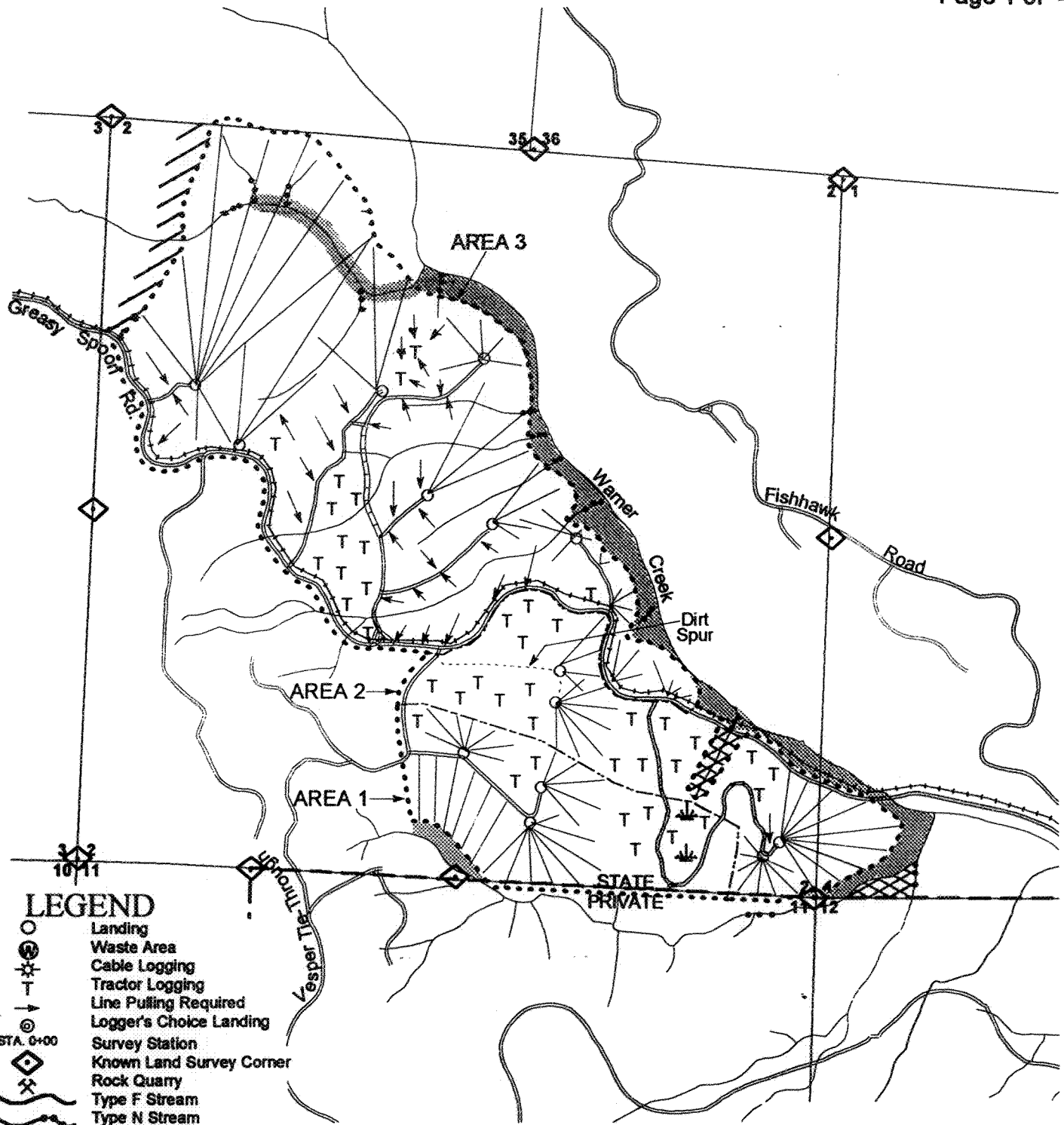
Prepared by: Dan Goody

Date: March 8, 2001

Approved by: Tom Scoggin
Unit Forester

Date: Dec 14, 2001

10. Attachments: Species, Sort, Grade Reports (7 pages)
Statistics Reports (15 pages)
Stand Table Reports (4 pages)
Cruise Plans & Maps (14 pages)



LEGEND

- Landing
- Waste Area
- Cable Logging
- Tractor Logging
- Line Pulling Required
- Logger's Choice Landing
- Survey Station
- Known Land Survey Corner
- Rock Quarry
- Type F Stream
- Type N Stream
- Stock Pile Site
- Ownership Boundary
- CSL/BOF Property Line
- TIMBER SALE BOUNDARY
- Area Boundary
- Right Of Way Boundary
- Stream Buffer
- Reforestation Area
- POINT "A"
- Unsurfaced Road
- Surfaced Road
- New Construction
- State Highway
- Road to be Vacated
- Green Tree Retention Area
- Wetland or Marsh
- Powerline (Buried)

Logging Plan

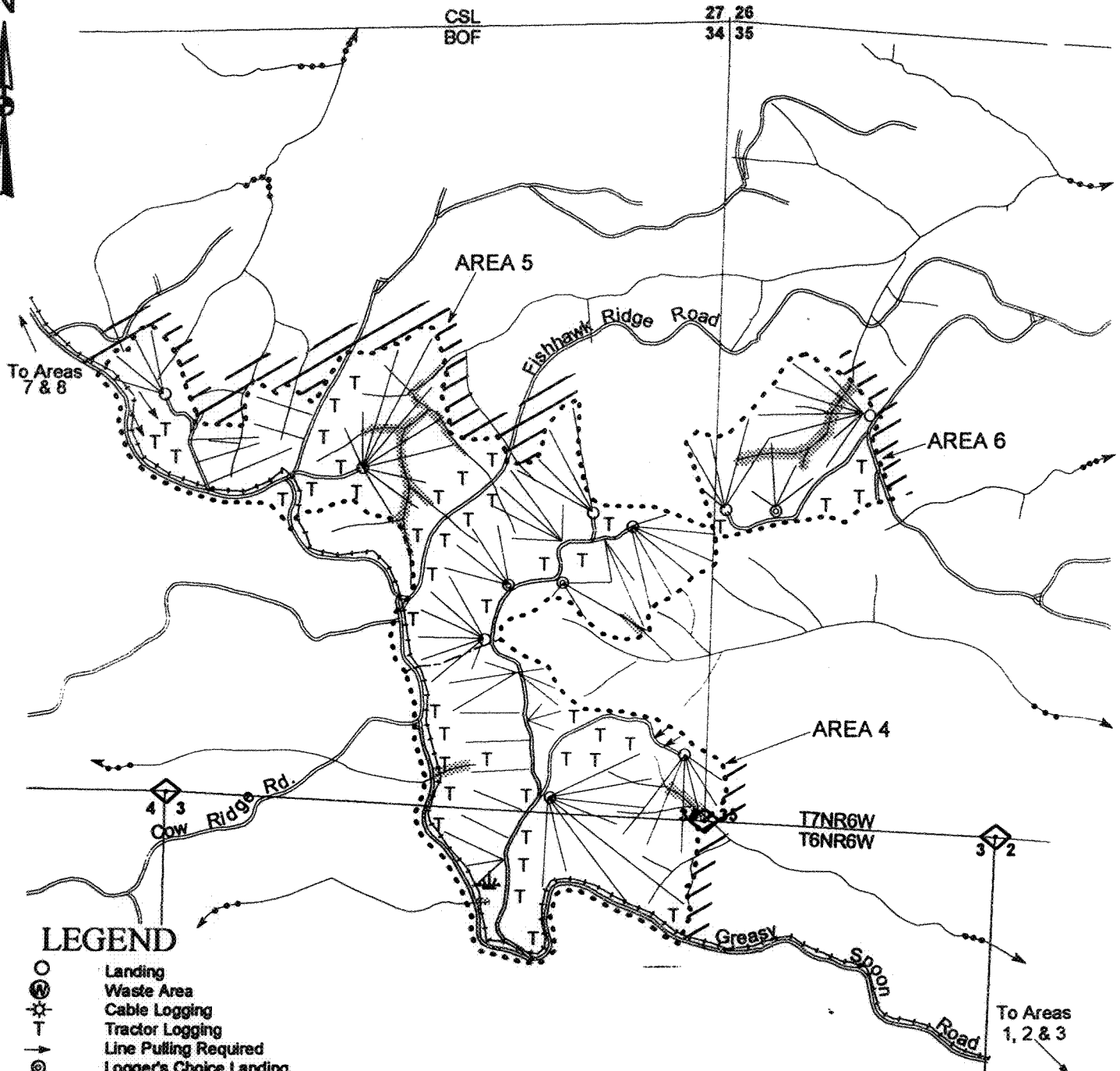
OF TIMBER SALE CONTRACT NO. 341-01-65
 FISHHAWK BASIN COMBINATION
 PORTIONS OF SECTIONS 1, 2 & 3, T6N, R6W &
 PORTIONS OF SECTIONS 21, 22,
 23, 25, 26, 27, 28, 34, 35 & 36, T7N, R6W
 W.M., CLATSOP COUNTY, OREGON
 PORTIONS OF SECTION 30, T7N, R5W,
 W.M., COLUMBIA COUNTY, OREGON

APPROX. SCALE 1"=1,000'



APPROXIMATE ACREAGE

	GROSS:	NET:
AREA 1	41 ACRES	39 ACRES
AREA 2	53 ACRES	53 ACRES
AREA 3	160 ACRES	150 ACRES
AREA 4	61 ACRES	54 ACRES
AREA 5	88 ACRES	84 ACRES
AREA 6	24 ACRES	22 ACRES
AREA 7	174 ACRES	166 ACRES
AREA 8	247 ACRES	228 ACRES
AREA 9 R/W		25 ACRES
AREA 10	113 ACRES	107 ACRES
AREA 11	15 ACRES	15 ACRES
AREA 12	8 ACRES	7 ACRES
TOTAL	984 ACRES	950 ACRES

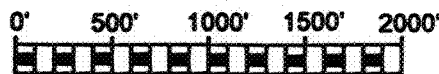


LEGEND

- Landing
- Waste Area
- Cable Logging
- Tractor Logging
- Line Pulling Required
- Logger's Choice Landing
- Survey Station
- Known Land Survey Corner
- Rock Quarry
- Type F Stream
- Type N Stream
- Stock Pile Site
- Ownership Boundary
- CSL/BOF Property Line
- TIMBER SALE BOUNDARY
- Area Boundary
- Right Of Way Boundary
- Stream Buffer
- Reforestation Area
- Point For Project Work
- Unsurfaced Road
- Surfaced Road
- New Construction
- State Highway
- Wetland or Marsh
- Powerline (Buried)

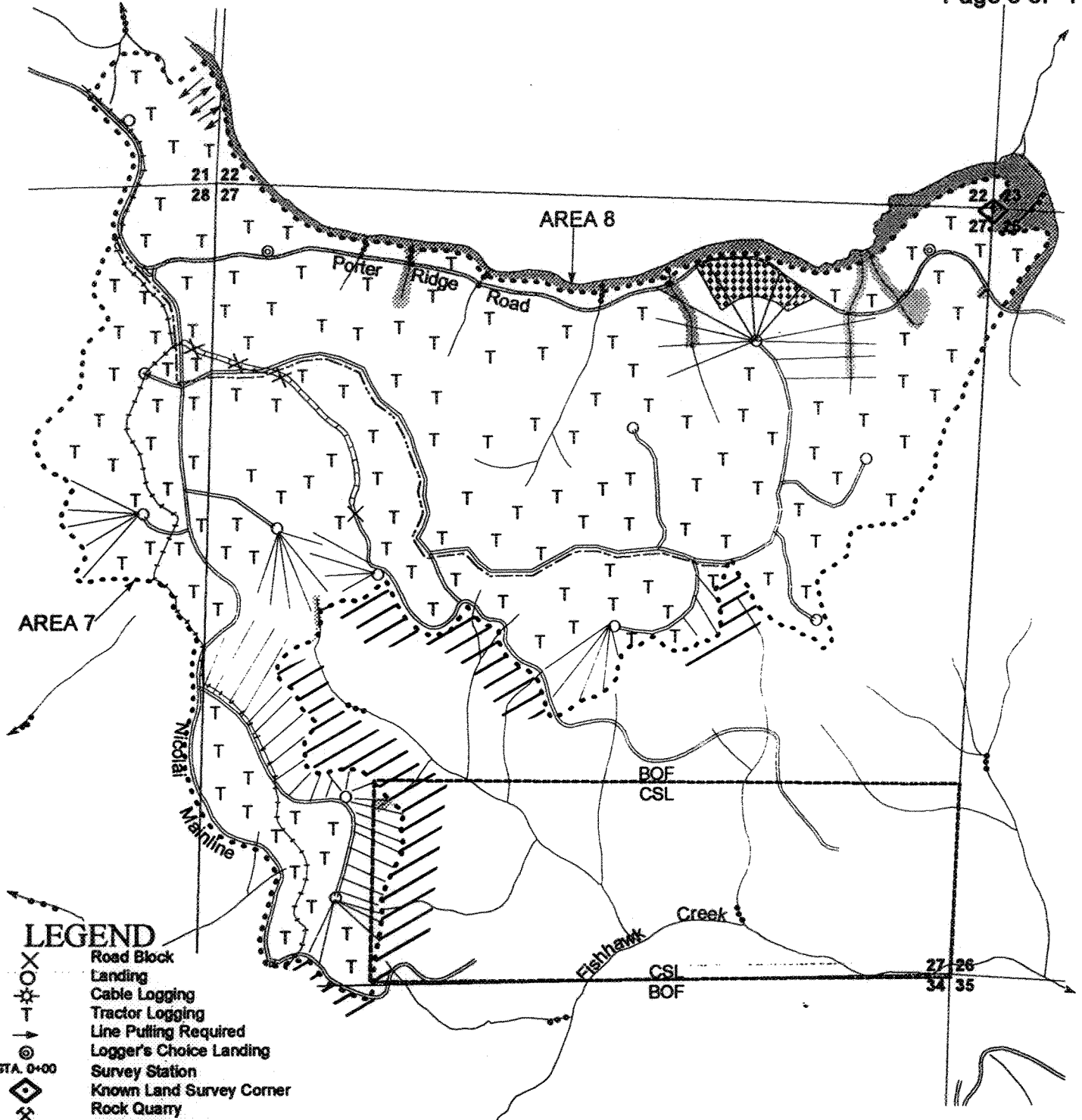
Logging Plan

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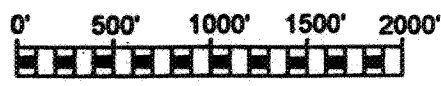
LEGEND

- Road Block
- Landing
- Cable Logging
- Tractor Logging
- Line Pulling Required
- Logger's Choice Landing
- Survey Station
- Known Land Survey Corner
- Rock Quarry
- Type F Stream
- Type N Stream
- Stock Pile Site
- 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 to be Vacated
- Powerline (Buried)
- Intermediate Support Area

Logging Plan

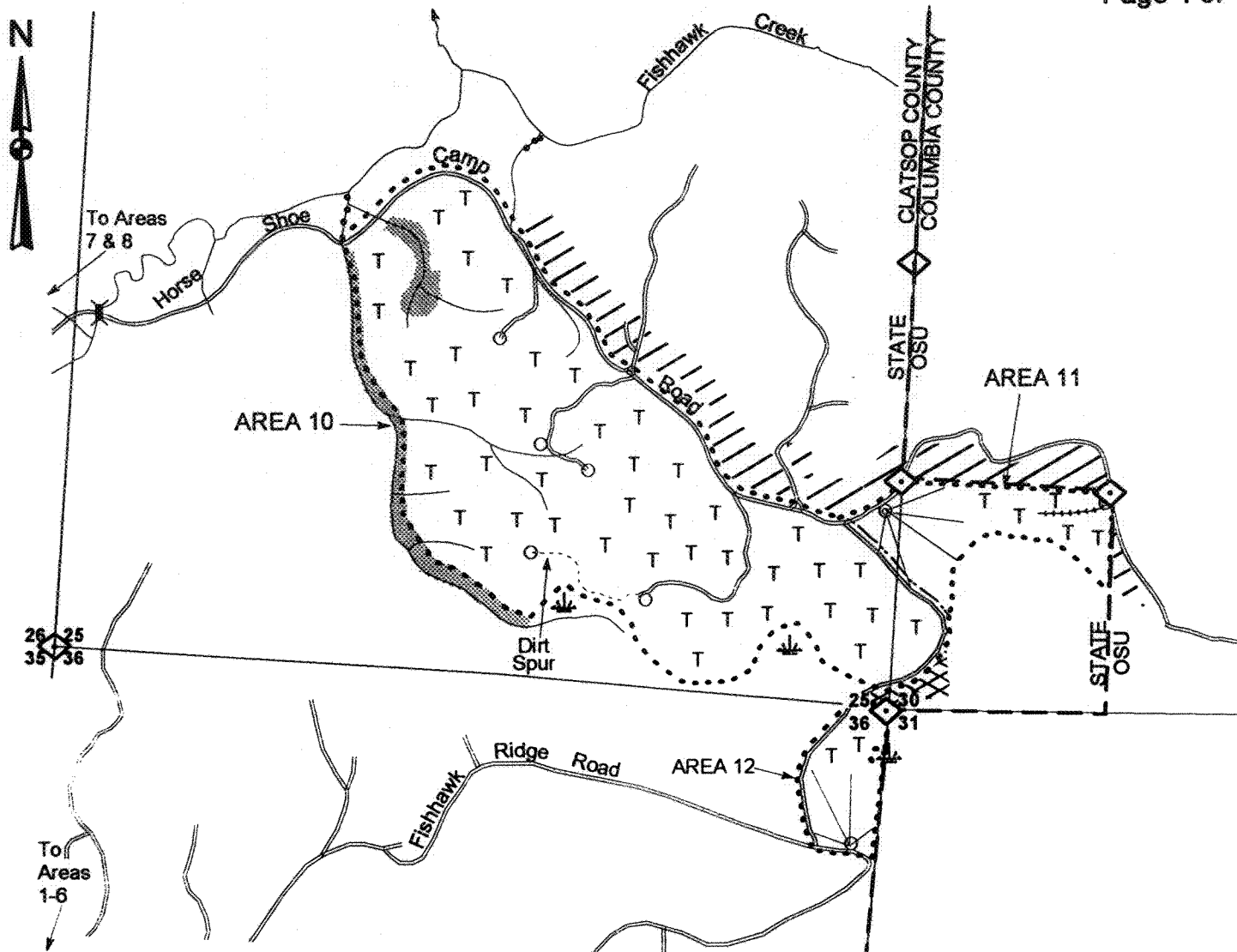
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- Landing
- Bridge
- Skid Road
- Waste Area
- Cable Logging
- Tractor Logging
- Line Pulling Required
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**FPA "Written Plan" for Harvest of State Timber
Sale No. 341-02-61
Fishhawk Basin Combination**

Portions of Sections 1, 2 & 3, T6N, R6W; Portions of Sections 21, 22, 23, 25, 26, 27, 28, 34, 35 & 36 T7N, R6W, W.M., Clatsop County; and Portions of Section 30, T7N, R5W, W.M., Columbia County, Oregon

Protected Resources:

Areas 2 & 3: Warner Creek (Type "F" stream) and several unnamed tributaries (all perennial Type "N" streams).

Area 8: Plympton Creek (Type "F" stream) and several unnamed tributaries to Plympton Creek (all perennial Type "N" streams).

Specific Site Characteristics:

Areas 2 & 3: Area 2 is a 53 acre partial cut harvest unit. Area 3 is a 150 acre partial cut harvest unit. A posted stream buffer of at least 100 feet separates Area 2 from the stream, and a posted buffer of at least 75 feet separates Area 3 from the stream. A perennial Type "N" stream in Area 2 is within a posted "green tree retention area." Several perennial Type "N" streams in Area 3 do not have posted buffers, but any harvest or harvest activity within 25 feet on either side of these streams is prohibited by contract language. Vegetation within the buffers consists of a combination of conifers, hardwoods, and shrubs.

Area 8: This is a 228 acre partial cut harvest unit. Plympton Creek, which flows along the north boundary of the sale, has three widths of buffer to go with the three classifications it goes through. Along the portion of stream that is classified as Type "F" there is a posted buffer of at least 80 feet. Then, along the portion of Plympton Creek that is classified as Type "N" (perennial), it has at least a 50 foot buffer posted. Then where it is an intermittent stream it has at least a 25 foot buffer posted. All of the perennial Type "N" streams have at least a 25 foot buffer posted along each side of the stream. Vegetation within the buffer is a combination of conifers, hardwoods, and shrubs.

Tree and Vegetation Retention:

Areas 2 & 3: There will be no harvesting or harvest activity within any of the posted stream buffers, Type F or Type N. Therefore, all existing vegetation will be retained. There will be additional conifer retention outside of the buffers, with a planned basal area of between 80 and 120 square feet per acre in Area 2 and 120 and 160 square feet per acre in Area 3.

Area 8: There will be no harvesting or harvest activity within any of the posted stream buffers, Type F or Type N. Therefore, all existing vegetation will be retained. There will be additional conifer retention outside of the buffers with a planned basal area of between 80 and 120 square feet per acre.

Practices:

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

- No trees will be felled within posted stream buffers (RMA's).
- Trees adjacent to the posted stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- No ground based logging equipment will be permitted within the posted RMA's nor within 50 feet of any live stream.
- When cable logging is conducted nearby the RMA's, logging lines may cross, but will not be lowered into the RMA's during yarding, except during rigging. During rigging the lines must be pulled out of the RMA's when changing corridors.
- Cable corridors must be at least 100 feet apart where they cross the RMA's.
- Trees that fall or slide into Type F RMA's shall not be removed without prior approval from STATE.

Attachments: Logging plan maps (4).

Submitted by: _____ Date: _____
Operator/ Purchaser

Approved by: T. Scoggins Date: 3/26/01
State Lands Forester

Approved by: JW Date: _____
Forest Practices Forester

FPA "Written Plan" for State Timber Sale Road Improvement Projects

FISHHAWK BASIN COMBINATION

Portions of Section 2, T6N, R6W, and Portions of Section 25, T7N, R6W, W.M., Clatsop County, Oregon.

Protected Resources: Unnamed small type N streams crossed with fills exceeding 15 feet in height. A "written plan" is required for construction/reconstruction of any fill over 15 feet high.

Situation: Existing steel culverts in fills located at stations 41+00 (21 feet), 71+77 (18 feet), and 79+46 (23 feet) on road I17 to I18 (Greasy Spoon Road) and at station 98+74 (16.5 feet) on road I21 to I22 (Horseshoe Camp Road) are in deteriorating conditions and need replacement. Further detailed work specifications for this project are included as portions of Project No. 1 of the Fishhawk Basin Combination timber sale as shown/described in Exhibits A, B, and C.

Drainage Area and Culvert Design: Current FPA guidelines were used to design the structure. The 50 year peak flow for these drainages is 300 cfs per square mile. A 1:1 beveled pipe inlet will be required to improve hydraulic efficiency and debris passage. In addition, a free-draining rock blanket will be constructed at the new fill base (to specified dimensions) and allow for water passage through the fill during peak flow conditions in order to provide for a reduction of embankment material pore water pressures during periods of saturation.

I17 to I18:

Culvert at 41+00 (21 feet): The drainage area is 25 acres. The 50 year flow for this stream crossing is 11.72 cfs. FPA guidelines require that a culvert with a minimum diameter opening of 27 inches is necessary to pass the 50 year peak flow. A 36 inch culvert will be installed, which exceeds the required FPA guidelines. A free draining fill base will be constructed to height of 10 feet. Common materials will then be used for a total fill height of 21.5 feet. Fill slopes for the free draining base shall be 1:1. Fill slope for common material shall be 1½:1. The culvert design includes a 1:1 inlet beveled opening to improve culvert efficiency.

Culvert at 71+77 (18 feet): The drainage area is 10 acres. The 50 year flow for this stream crossing is 4.69 cfs. FPA guidelines require that a culvert with a minimum diameter opening of 18 inches is necessary to pass the 50 year peak flow. A 36 inch diameter culvert will be installed, which exceeds the required FPA guidelines. A free draining fill base will be constructed to height of 9 feet. Common materials will then be used for a total fill height of 19.0 feet. Fill slopes for all materials shall be 1½:1. The culvert design includes a 1:1 inlet beveled opening to improve culvert efficiency.

Culvert at 79+46 (23 feet): The drainage area is 15 acres. The 50 year flow for this stream crossing is 7.03 cfs. FPA guidelines require that a culvert with a minimum diameter opening of 21 inches is necessary to pass the 50 year peak flow. A 36 inch diameter culvert will be installed, which exceeds the required FPA guidelines. A free draining fill base will be constructed to height of 10 feet. Common materials will then be used for a total fill height of 24.0 feet. Fill slopes for the free draining base shall be 1:1. Fill slope for common material shall be 1½:1. The culvert design includes a 1:1 inlet beveled opening to improve culvert efficiency.

I21 to I22:

Culvert at 98+74 (16.5 feet): The drainage area is 100 acres. The 50 year flow for this stream crossing is 46.88 cfs. FPA guidelines require that a culvert with a minimum diameter opening of 42 inches is necessary to pass the 50 year peak flow. A 48 inch diameter culvert will be installed, which exceeds the required FPA guidelines. The culvert design includes a 1:1 inlet beveled opening to improve culvert efficiency.

All culverts shall be constructed of 14 gauge aluminized steel. The fill slopes will be armored with pit-run rock to minimize surface erosion. The service life for these culverts is a minimum of 50 years.

FPA "Written Plan" for State Timber Sale Road Improvement Projects

FISHHAWK BASIN COMBINATION

Portions of Section 2, T6N, R6W, and Portions of Section 25, T7N, R6W,
W.M., Clatsop County, Oregon.

Resource Protection Measures:

- 1) Work will be performed only during dry weather periods, low water stream flows and between July 1 and August 31, annually.
- 2) Pit-run rock will be used to armor both the inlet and outlet fill slopes to minimize erosion.
- 3) Machine activity in stream channels will be minimized. All excavation and riprap rock placement will be performed using a minimum 1½ cubic yard track mounted excavator.
- 4) Selected native earth materials free from woody debris will be used for backfilling. Fill material will be thoroughly compacted with specialized compaction equipment.
- 5) Excavated waste materials will be hauled to approved waste areas and left in a stable condition.
- 6) All bare soils and waste areas will be mulched and/or seeded/fertilized to prevent erosion.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted when constructing a fill over 15 feet high.

Submitted: _____
Operator

Date: _____

Approved: Thomas Scoggins
State Lands Forester

Date: 4/3/01

Forest Practices Forester: _____ *SW*

Date: _____

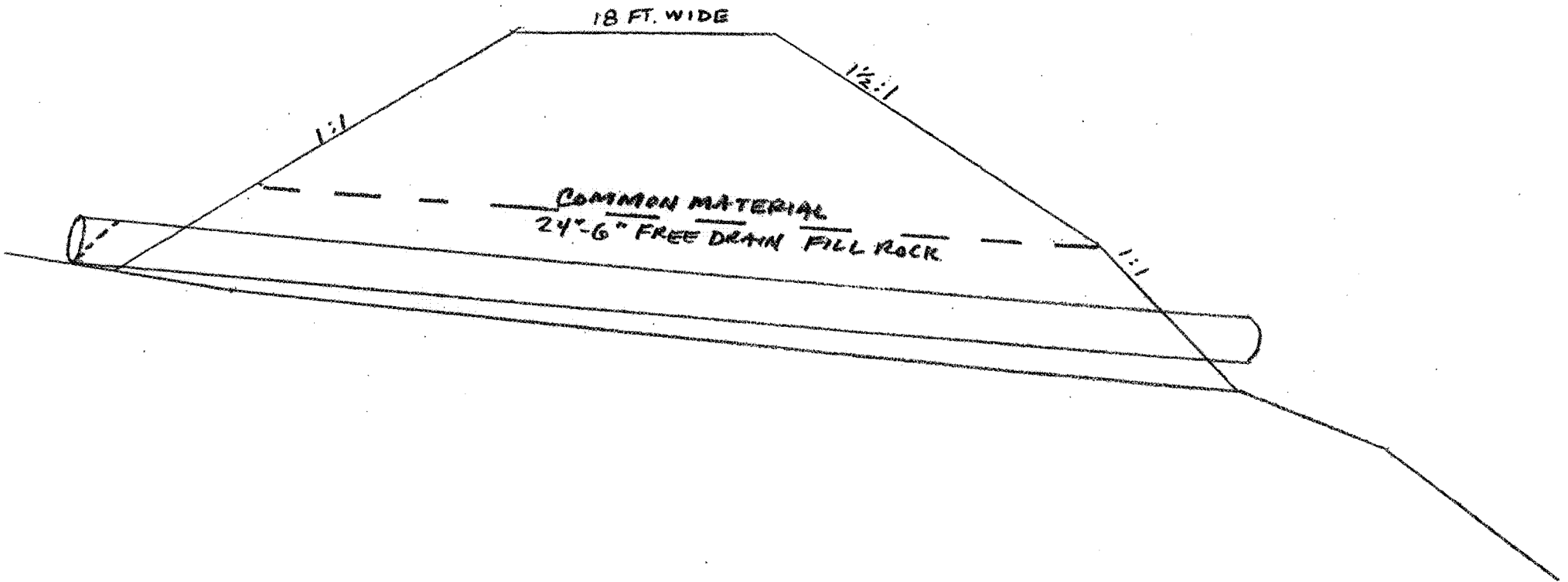
Attachments: Cross Sections

CC: Operator, Purchaser, District File, Salem, Engineering Unit, Sunset Unit

FISHHAWK BASIN COMBINATION

117 to 118 Station 41+00

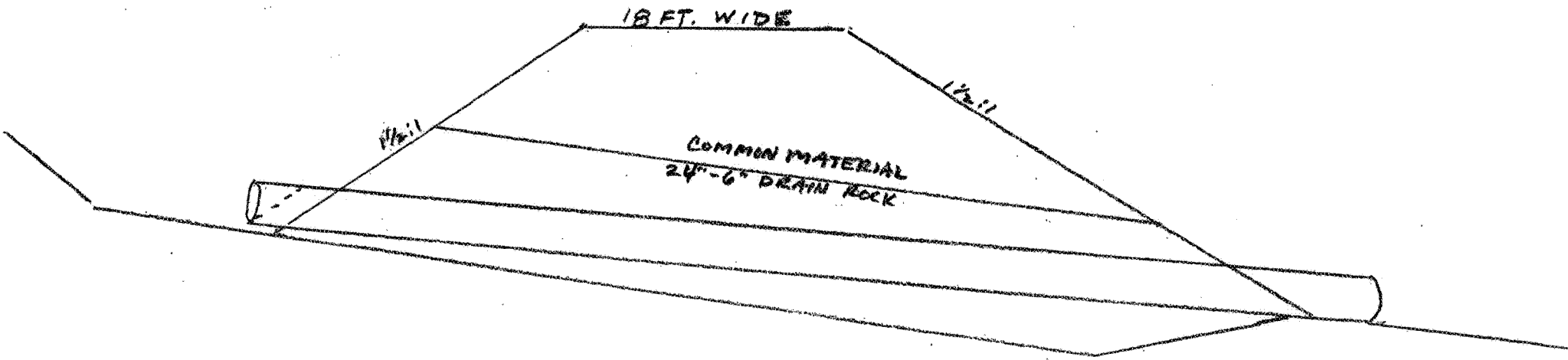
36" X 80' Aluminized Steel



FISHHAWK BASIN COMBINATION

117 to 118 Station 71+77

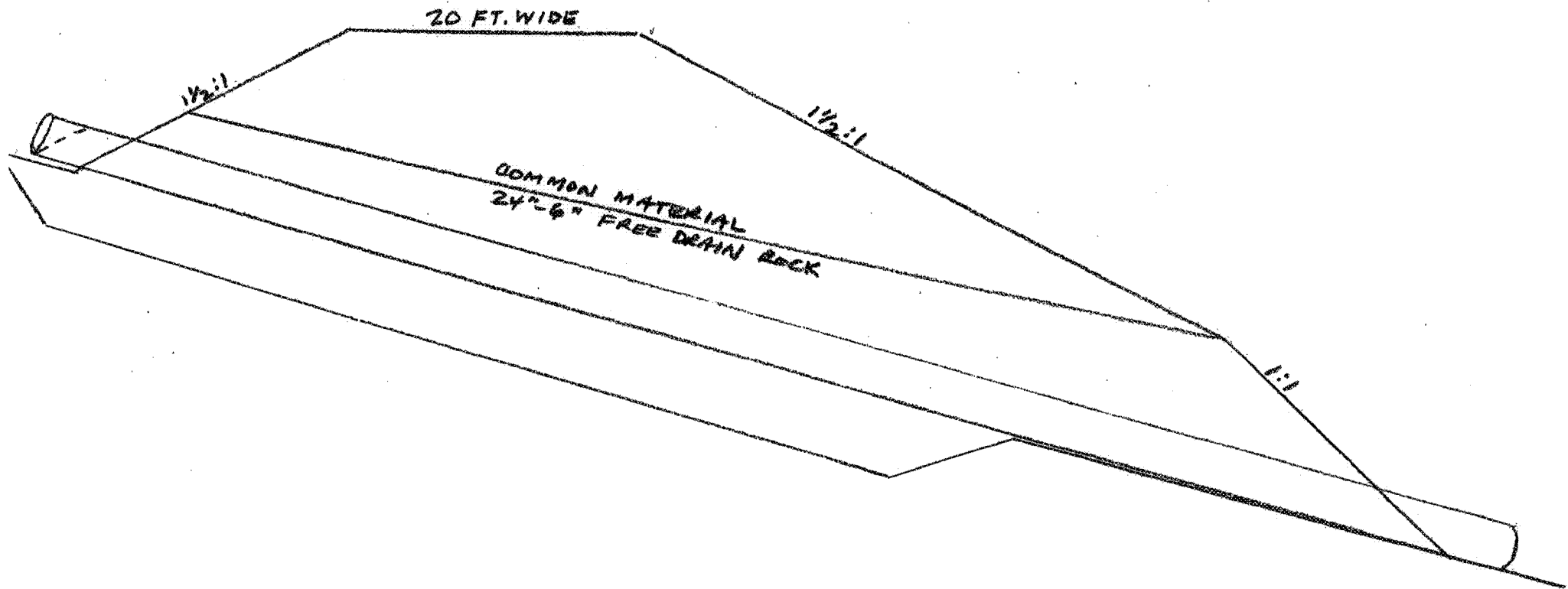
36" X 78' Aluminized Steel

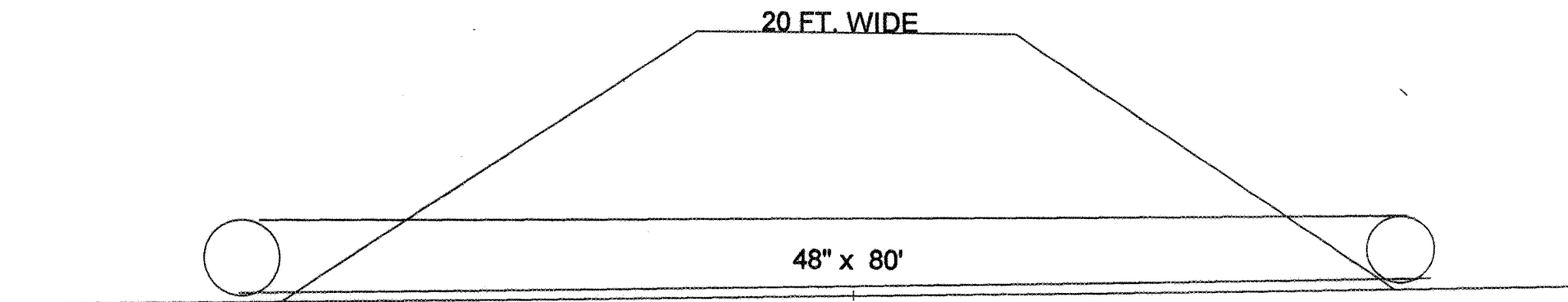


FISHHAWK BASIN COMBINATION

117 to 118 Station 79+46

36" X 104' Aluminized Steel





STATION 98+74
ON I21 TO I22

FISHHAWK BASIN COMBINATION
TIMBER SALE

DRAFT FOREST PRACTICES ACT "WRITTEN PLAN"
For the Warner Creek Stream Crossing
Project No. 5, Fishhawk Basin Combination Timber Sale

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

Protected Resources: Warner Creek, a medium type F fisheries resource, located in SW ¼ Section 1, T6N, R6W, W. M., Clatsop County, Oregon. A "written plan" is required for any activities within 100 feet of any type F stream.

Situation: An existing fill/culvert Warner Creek stream crossing structure, located on Greasy Spoon Road is in a deteriorating condition, undersized, and, will be replaced. The existing structure is a partial blockage to fish passage upstream.

Drainage Area and Stream Crossing Design: The stream crossing shall preserve a natural stream channel (waterway), a minimum of 12 feet wide. The stream crossing meets and exceeds the requirements of the FPA for type F stream crossings and provides for debris passage. The stream crossing structure will be a _____

Existing Stream Gradient:	3%
Size of Watershed:	956 acres
Developed Waterway Width:	12 feet
Stream Bed Materials:	Fines, Gravel, Cobbles, Boulders
50-Year Peak Flow/Mile ² :	250 cfs
50-Year Peak Flow:	373 cfs
Flow Capacity of Structure:	_____ cfs

Resource Protection Measures:

- 1) Machine activity in stream channels will be minimized.
- 2) In stream work shall be conducted during periods of low water flows and between July 15 and August 31, annually.
- 3) Minimum 1½ cubic yard track mounted excavator type equipment shall be used for embankment excavation, stream channel development and riprap placement.
- 4) Excavated embankment materials will be hauled to approved waste areas, sloped for drainage and left in a stable condition.
- 5) Erosion control measures shall be applied to all exposed excavation areas, bare soils and waste materials.
- 6) Riprap rock will be used to armor road embankments and stream banks.

7) De-watering of the construction area will be accomplished by _____

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

The highlighted items are subject to modifications based upon site investigations, preliminary designs, final designs, project plans and recommendations made by a professional engineer.

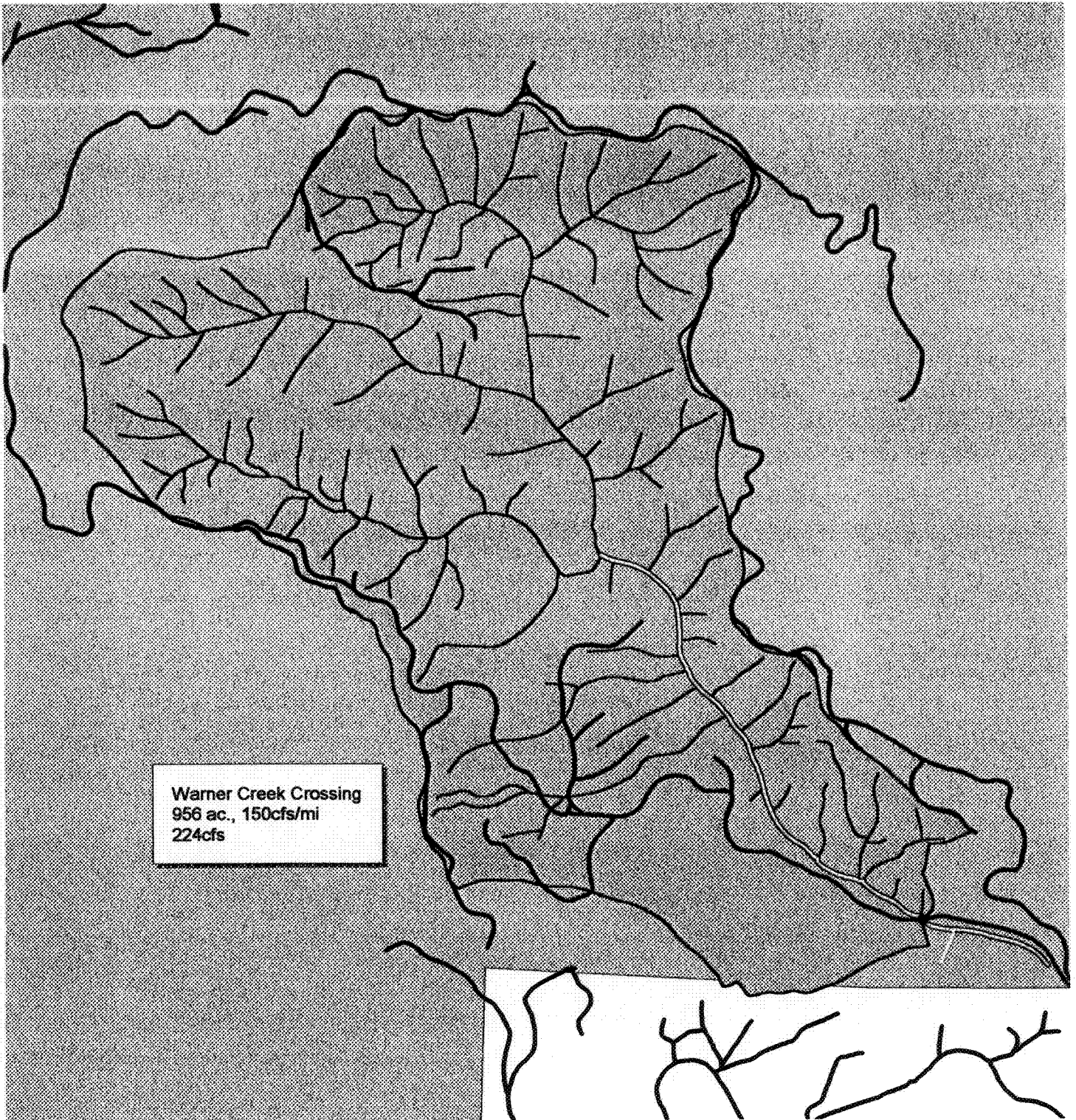
LANDOWNER Date

OPERATOR Date

FOREST PRACTICES FORESTER Date

Attachments: Drainage Basin Map, Exhibit A, H
CC: Operator, Purchaser, District file, Salem, Eng. Unit, Mgmt. Unit

DRAINAGE BASIN MAP
Warner Creek

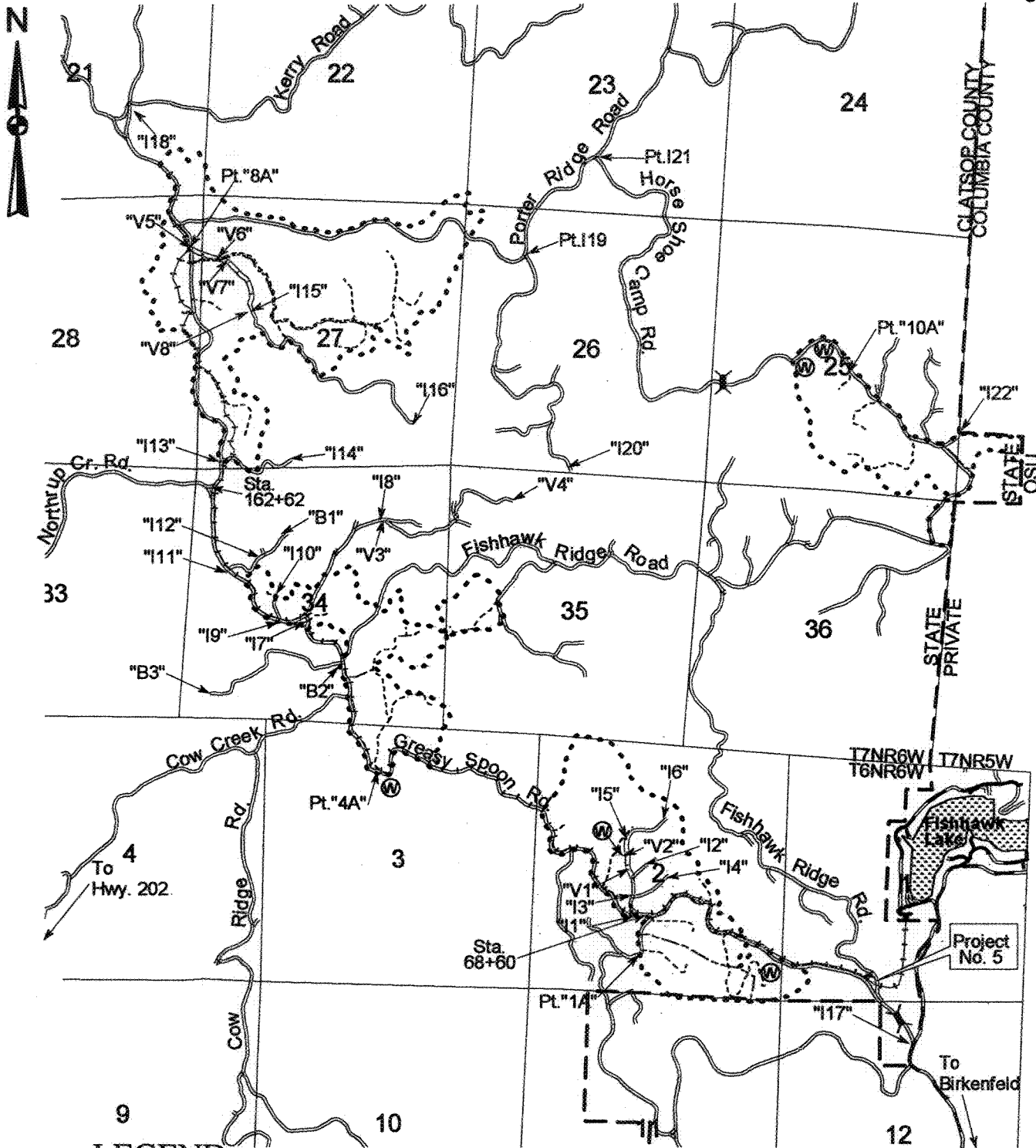


Warner Creek Crossing
956 ac., 150cfs/mi
224cfs

Warner Cr Type F
F
Warner Cr FPA Size
M
S
x

1000 0 1000 2000 Feet





LEGEND

- Bridge
- Waste Area
- Survey Station
- Known Land Survey Corner
- Rock Quarry
- TIMBER SALE BOUNDARY
- Area Boundary
- POINT "A"
- Unsurfaced Road
- Surfaced Road
- New Construction
- State Highway
- Powerline (Buried)
- Ownership Boundary
- Lake

Exhibit "A" Projects Map

OF TIMBER SALE CONTRACT NO. 341-02-61
 FISHHAWK BASIN COMBINATION
 PORTIONS OF SECTIONS 1, 2 & 3, T6N, R6W &
 PORTIONS OF SECTIONS 21, 22,
 23, 25, 26, 27, 28, 34, 35 & 36, T7N, R6W
 W.M., CLATSOP COUNTY, OREGON
 PORTIONS OF SECTION 30, T7N, R5W,
 W.M., COLUMBIA COUNTY, OREGON

