



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Cost Summary Foster Divide Combination Sale 341-03-21

District: Astoria

Date: 4/14/03

	Conifer	Hardwood	Total
<b>Gross Timber Sale Value</b>	\$3,230,704.28	\$637,194.63	\$3,867,898.91
		<b>Project Work</b>	(\$471,421.00)
		<b>Advertised Value</b>	\$3,396,477.91



# Timber Sale Appraisal Timber Description Foster Divide Combination Sale 341-03-21

"STEWARDSHIP IN FORESTRY"

**District:** Astoria

**Location:** Portions of Sections 31 & 32, T7N, R6W and Portions of Sections 5, 6, 8, 9, & 16, T6N, R6W, W.M., Clatsop County, Oregon

**Date:** 4/14/03

**Stand Stocking:** 60%

Species	Avg. DBH	Amortized%	Recovery %
Douglas - Fir	19	0	97
Western Hemlock / Fir	15	0	97
Alder (Red)	14	0	95
Maple	17	0	95

Volume by Grade	Douglas - Fir	Western Hemlock / Fir	Alder (Red)	Maple	Total
2S	5,792	158	0	0	5,950
3S	2,385	429	1,440	0	4,254
4S	414	53	354	7	828
<b>Total</b>	8,591	640	1,794	7	11,032

**Comments:** Pond Values Used: 1st Quarter 2003

Log Markets: Mist, Clatskanine, Tillamook

Additional Costs with P&R:

100% branding and painting:  $\$1/\text{MBF} \times 11,032 \text{ MBF} = \$11,032$

Additional cutting costs for thinning (bucking tops, topping/girdling tail lift trees, etc.):

$\$5/\text{MBF} \times 5,965 \text{ MBF} = \$29,825$

Additional costs for cable corridor layout:  $\$3/\text{MBF} \times 5,965 = \$17,895$

Placement of logs in Northrup Creek for stream enhancement:  $50 \text{ logs} \times \$60/\text{log} = \$3,000.$

Total Cost w/P&R =  $\$61,752$

Costs without P&R:

Vacating dirt spur 7A to 7B after slash piling:  $\$45/\text{station} \times 10.5 \text{ stations} = \$473$

Slash piling at Areas 2, 5, 6B, & 7 cable landings:  $\$65/\text{landing} \times 18 \text{ landings} = \$1,170.00$

Slash piling in Areas 2, 5, 6B, & 7:  $163 \text{ hrs} \times \$95/\text{hr} + \$1,000(\text{two mobilizations}) = \$16,485$

Total Non-P&R Costs =  $\$18,128$



# Timber Sale Appraisal Logging Conditions Foster Divide Combination Sale 341-03-21

"STEWARDSHIP IN FORESTRY"

<b>Combination#: 1</b>	Douglas - Fir	44.73%	
	Western Hemlock / Fir	80.46%	
	Alder (Red)	29.76%	
<b>Yarding Distance:</b>	Medium (800 ft)		<b>Downhill Yarding:</b> No
<b>Logging System:</b>	Cable: Medium Tower >40 - <70		<b>Process:</b> Manual Delimiting
<b>Tree Size:</b>	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF		
<b>Loads/Day:</b>	6		<b>Bd. Ft./Load:</b> 4,000
<b>Cost/MBF:</b>	\$138.19		
<b>Machines:</b>			
	Log Loader (A)		
	Tower Yarder (Medium)		
<b>Combination#: 2</b>	Douglas - Fir	9.82%	
	Western Hemlock / Fir	17.66%	
	Alder (Red)	6.53%	
<b>Yarding Distance:</b>	Short (400 ft)		<b>Downhill Yarding:</b> Yes
<b>Logging System:</b>	Shovel		<b>Process:</b> Manual Delimiting
<b>Tree Size:</b>	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
<b>Loads/Day:</b>	6		<b>Bd. Ft./Load:</b> 4,000
<b>Cost/MBF:</b>	\$96.74		
<b>Machines:</b>			
	Shovel Logger		
<b>Combination#: 3</b>	Douglas - Fir	27.27%	
	Western Hemlock / Fir	1.13%	
	Alder (Red)	38.23%	
	Maple	60.00%	
<b>Yarding Distance:</b>	Short (400 ft)		<b>Downhill Yarding:</b> No
<b>Logging System:</b>	Cable: Medium Tower >40 - <70		<b>Process:</b> Stroke Delimber
<b>Tree Size:</b>	Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF		
<b>Loads/Day:</b>	10		<b>Bd. Ft./Load:</b> 4,500
<b>Cost/MBF:</b>	\$72.95		
<b>Machines:</b>			
	Log Loader (A)		
	Stroke Delimber (A)		
	Tower Yarder (Medium)		
<b>Combination#: 4</b>	Douglas - Fir	18.18%	
	Western Hemlock / Fir	0.75%	
	Alder (Red)	25.48%	
	Maple	40.00%	

<b>Yarding Distance:</b>	Short (400 ft)	<b>Downhill Yarding:</b>	Yes
<b>Logging System:</b>	Shovel	<b>Process:</b>	Manual Delimiting
<b>Tree Size:</b>	Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF		
<b>Loads/Day:</b>	10	<b>Bd. Ft./Load:</b>	4,500
<b>Cost/MBF:</b>	\$51.59		
<b>Machines:</b>	Shovel Logger		



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Logging Costs Foster Divide Combination Sale 341-03-21

Date: 4/14/03

Operating Seasons: 2.0

Profit & Risk: 15%

Project Costs: \$471,421

Other Costs (P/R): \$61,752

Slash Disposal: \$0

Other Costs: \$18,128

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

Road Maintenance: \$3.34

### Hauling Costs

Species	\$/MBF	Trips/Day	MBF/Load
Douglas - Fir	\$0.00	3.0	4.5
Western Hemlock / Fir	\$0.00	3.0	4.0
Alder (Red)	\$0.00	3.0	3.5
Maple	\$0.00	3.0	3.5



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Logging Costs Breakdown Foster Divide Combination Sale 341-03-21

<b>Costs</b>	<b>Douglas - Fir</b>	<b>Western Hemlock / Fir</b>	<b>Alder (Red)</b>	<b>Maple</b>
<b>Logging</b>	100.58	129.49	88.47	64.41
<b>Road Maintenance</b>	3.44	3.44	3.52	3.52
<b>Fire Protection</b>	0.59	0.59	0.00	0.59
<b>Hauling</b>	35.15	39.54	46.11	46.11
<b>Other (P/R appl.)</b>	6.68	6.68	0.00	6.68
<b>Profit &amp; Risk</b>	21.97	26.96	20.72	18.20
<b>Slash Disposal</b>	0.00	0.00	0.00	0.00
<b>Scaling</b>	2.00	2.00	2.00	2.00
<b>Other</b>	1.96	1.96	0.00	1.96
<b>Total</b>	172.37	210.66	160.82	143.47

<b>Amortization</b>	0.00	0.00	0.00	0.00
<b>Pond Value</b>	539.45	331.16	515.00	400.00
<b>Stumpage</b>	367.08	120.50	354.18	256.53
<b>Amortized</b>	0.00	0.00	0.00	0.00



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Summary

## Foster Divide Combination Sale 341-03-21

**Amortized**

	Douglas - Fir	Western Hemlock / Fir	Alder (Red)	Maple
<b>MBF</b>	0.00	0.00	0.00	0.00
<b>Value</b>	0.00	0.00	0.00	0.00
<b>Total</b>	0.00	0.00	0.00	0.00

**Unamortized**

	Douglas - Fir	Western Hemlock / Fir	Alder (Red)	Maple
<b>MBF</b>	8,591.00	640.00	1,794.00	7.00
<b>Value</b>	367.08	120.50	354.18	256.53
<b>Total</b>	3,153,584.28	77,120.00	635,398.92	1,795.71

**Gross Timber Sale Value**

**Recovery \$3,867,898.91**

Prepared by: Ty Williams

Date: 4/14/03

District: Astoria

Phone: (503) 325-5451



### Road Maintenance Cost Summary

**Sale:** Foster Divide Combination  
**Date:** 6-Feb-03  
**By:** J. Long

**MBF:** 11,032  
**\$/MBF:** \$3.34

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
Progressive Operations Entries (2)	Grader 14G	\$540	2	40	\$80	\$4,280
	Dump Truck 12CY x 2	\$114	4	40	\$57	\$2,736
	FE Loader C966	\$540	2	20	\$75	\$2,580
Final Haul Road Maintenance Haul Route	Grader 14G	\$540	1	90	\$80	\$7,740
	Dump Truck 12CY x 3	\$114	3	60	\$57	\$3,762
	FE Loader C966	\$540	1	20	\$75	\$2,040
	Vibratory Roller	\$540	1	90	\$75	\$7,290
	Water Truck 2,500 gallon	\$132	1	90	\$67	\$6,162
	Labor			10	\$25	\$250
<b>Total</b>						<b>\$36,840</b>

Production Rates

Grader

Vibratory Roller\*

Miles/day	Distance(miles)	Days
1.5	12.7	8.5
1.5	12.7	8.5

\*Final Road Maintenance Only

**SUMMARY OF ALL PROJECT COSTS**

**SALE NAME:** Foster Divide Combination

**NEW CONSTRUCTION:**

**PROJECT NO. 1**

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
1A-1B, 1C-1D, 2A-2B	62.45	\$57,122
2A-2B, 2C-2D, 2E-2F,		
2H-2I, 3C-3D, 3G-3H,		
3I-3J, 3K-3L, 5A-5B,		
5C-5D, 6E-6F,7A-7B.		
3A-3B, 3E-3F, 4A-4B,	31.9	\$37,309
5E-5F, 6A-6B, 6C-6D.		

**ROAD IMPROVEMENT**

**PROJECT NO. 1**

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
I1-I2, I3-I4	112.5	\$17,792

**TOTALS** \$112,223

**NEW CONSTRUCTION:**

**PROJECT NO. 2**

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
P1-P2, P3-P4.	69.7	\$103,714

**ROAD IMPROVEMENT**

**PROJECT NO. 2**

<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
I5-I6, I6-P1, P2-P3	83.25	\$53,053
I6-I7	86.75	\$13,371

**TOTALS** \$170,137


**SPECIAL PROJECTS:**

<u>Project No.</u>	<u>Description</u>	<u>Cost</u>
<b>Project No. 3</b>	Sterling Quarry Development and Rock Crushi	\$92,583
<b>Project No. 4</b>	Cow Creek Road Vacating	\$60,000
	Road maintenance after project work	\$27,682
<b>TOTALS</b>		\$180,265

**MOVE IN:**

<u>Equipment</u>	<u>Cost</u>
Dozer (Medium D7) X 2	\$1,120
Grader (Large 14G) X 2	\$1,080
Rubber Tire Skidder X 2	\$1,040
Vibratory Roller X 2	\$1,080
Front End Loader X 2	\$1,080
Dump Trucks (12 x \$114)	\$1,368
Excavator (Medium C325) X 2	\$1,800
Water Truck (1500 gal) X 2	\$228
<b>TOTAL</b>	\$8,796

**GRAND TOTAL** \$471,421

Compiled By: J. Long 

Date: 2/20/03



**ROCKING**

Subgrade prep:	Description	Stations/amount	x	Rate/sta/amt	Cost
All roads listed above, except for 7A-7B.	Grade, Shape, Construct Ditches \$\$/St	52.00	x	\$15.20	\$790.40
	Compact Subgrades (new roads)		x		
	With Vibratory Roller \$\$/station	52.00	x	\$12.50	\$650.00
7A-7B	Grade, Outslope, Waterbar	10.50	x	\$11.20	\$117.60

	Size	Totals	Size	Totals	Size	Totals	Size	Totals
Base:	4"-0"	3,085						
Surface:	3/4"-0"	178						
Miscellaneous:	4"-0"	90	6"-0"	1,330				
Miscellaneous:	1 1/2"-0"	60	24"-6"	30				
Miscellaneous:								
Miscellaneous:								
		3,413 CY		1,360 CY				

Surfacing rock:	Size/type	Tot. cy	Rate/cy	Cost
	4"-0"	3,085	\$4.82	\$14,869.70
	3/4"-0"	178	\$4.82	\$857.96

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
	Culvert bedding/backfill	1 1/2"-0"	60	\$4.82	\$289.20
	Curve Widening	4"-0"	90	\$4.82	\$433.80
	Landings 16 @ 80 cy ea. (includes load and spreading)	6"-0"	1,280	\$5.94	\$7,603.20
	Energy dissipators	24"-0"	30	\$7.31	\$219.30
	Pit run road block at Pt. 7A	6"-0"	50	\$5.94	\$297.00

Processing:	Description	No. sta	Rate/sta	Cost
	Grade, Water, Compaction	110.0	\$37.00	\$4,070.00

SUB TOTAL FOR ROCKING \$30,198

**SPECIAL PROJECTS**

Description	Cost
Develop pit run and riprap rock \$\$/cy \$1.85 x 1360 cy	\$2,516.00

SUB TOTAL FOR SPECIAL PROJECTS \$2,516

**GRAND TOTAL** \$57,121.81

Compiled By: J. Long

Date: 2/7/03

**Foster Divide Combinati Project No. 1 3I - 3J Road Construction Fill Reconstruction Costs**

Points/ Station	Description	C325 # 1	C325 # 2	Rubber Tire	Truck	Mechanical Tamper with operator	
3I to 3J 20+00	Culvert replacement/ fill reconstruction 6' fill ht.	5 hr	hr	3 hr	2 hr	2 hr	
3I to 3J 24+25	Culvert replacement/ fill reconstruction 6' fill ht.	5 hr	hr	3 hr	2 hr	2 hr	
3I to 3J 22+00	Construct energy dissipator.	2 hr					
	Haul away old culverts to an approved refuse site.				6 hr		
Total		12 hr	hr	6 hr	10 hr	4 hr	
Rate		\$115	\$115 /hr	\$60 /hr	\$57 /hr	\$34 /hr	
Cost		\$1,380		\$360	\$570	\$136	\$2,446

**PROJECT NO. 1**  
**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Foster Divide Combination  
 ROAD: Roadeng Design Roads  
 POINTS: 3A-3B, 3E-3F, 4A-4B, 5E-5F, 6A-6B, 6C-6

NEW CONSTRUCTION: 31.90 STATIONS 0.60 MILES  
 IMPROVEMENT:            STATIONS            MILES

**CLEARING & GRUBBING**

Method	Ac./amount	x	Rate	=	Cost
Scatter debris outside of right-of-way includes all road segments and landings.	4.00	x	\$840.00	=	\$3,360.00
		x		=	
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING

\$3,360

**EXCAVATION**

Material	Cy/amount	x	Rate	=	Cost
(All roads listed above. \$\$/CY) Common Excavation, Design Roads	3,263.00	x	\$1.35	=	\$4,405.05
Fill Compaction, Designed Roads	3,582.00	x	\$0.40	=	\$1,432.80
Truck End Haul \$\$/CY	1,118.00	x	\$2.75	=	\$3,074.50
Landings w/D-7: 17 ldrs. @ 3 hrs. ea.	51.00	x	\$90.00	=	\$4,590.00
Cut slope rounding all roads \$\$/Sta	22.00	x	\$27.00	=	\$594.00

SUB TOTAL FOR EXCAVATION

\$14,096

**CULVERT MATERIALS AND INSTALLATION**

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
3E-3F 0+00	18" CPP	50	\$11.00	\$550.00					
6A-6B 4+50	18" CPP	30	\$11.00	\$330.00					

Description	Quantity	Rate	Cost
Other/miscellaneous: _____			
Culvert stakes & markers: <u>6 foot long carsonite markers for all surface culverts.</u>	2	\$14.10	\$28.20

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$908

**ROCKING**

Subgrade prep:	Description	Stations/amo	x	Rate/sta/am	Cost
(All roads listed above. \$\$/Sta.)	Grade, Shape, Construct Ditches \$\$/sta	31.90	x	\$15.20	\$484.88
	Compact subgrades (new roads) w/VIB \$\$/sta	31.90	x	\$12.50	\$398.75
			x		
			x		

**Points:**

	Size	Totals	Size	Totals	Size	Totals	Size	Totals
Base:	4"-0"	1,938						
Surface:	3/4"-0"	243						
Miscellaneous:	4"-0"	50	6"-0"	560				
Miscellaneous:	3/4"-0"	20						
Miscellaneous:	1 1/2"-0"							
		2,251 CY		560 CY				

Surfacing rock:	Size/type	Tot. cy	Rate/cy	Cost
	4"-0"	1,938	\$4.82	\$9,341.16
	3/4"-0"	243	\$4.82	\$1,171.26

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
	Landings: 7 ldgs. @ 80 cy ea. (includes loading and spreading cost)	6"-0"	560	\$5.94	\$3,326.40
	Curve widening	4"-0"	50	\$4.82	\$241.00
	Curve widening	3/4"-0"	20	\$4.82	\$96.40

Processing:	Description	No. sta	Rate/sta	Cost
	Water process and compact crushed rock \$\$/Sta.	77	\$37.00	\$2,849.00

SUB TOTAL FOR ROCKING

\$17,909

**SPECIAL PROJECTS**

Description	Cost
Develop pit run rock cy/\$\$ 560cy x \$1.85	\$1,036.00

SUB TOTAL FOR SPECIAL PROJECTS

\$1,036

GRAND TOTAL

\$37,309.40

Compiled By: J. Long

Date: 2/5/03

**PROJECT NO. 1**  
**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Foster Divide Combination  
 ROAD: Road Improvement  
 POINTS: I1-I2, I3-I4

NEW CONSTRUCTION: \_\_\_\_\_ STATIONS \_\_\_\_\_ MILES  
 IMPROVEMENT: 112.50 STATIONS 2.13 MILES

ROCKING							
Subgrade prep:		Description	Stations/amo	x	Rate/sta/am	Cost	
I1-I2, I3-I4		Process, Compact (with vibratory roller)	112.50	x	\$15.50	\$1,743.75	
				x			

	Size	Totals	Size	Totals	Size	Totals	Size	Totals
Base:								
Surface:	3/4"-0"	2,406						
Miscellaneous:	3/4"-0"	60						
Miscellaneous:								
Miscellaneous:								
Miscellaneous:								
		2,466 CY		0 CY		0 CY		0 CY

Surfacing rock:	Size/type	Tot. cy	Rate/cy	Cost
	3/4"-0"	2,406	\$4.82	\$11,596.92

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
	Curve Widening	3/4"-0"	60	\$4.82	\$289.20

Processing:	Description	No. sta	Rate/sta	Cost
	Grade, Water, Compaction	112.5	\$37.00	\$4,162.50

SUB TOTAL FOR ROCKING \$17,792

GRAND TOTAL \$17,792.37

Compiled By: J. Long Date: 2/4/03











**ROCKING**

Subgrade prep:	Description	Stations/amo	x	Rate/sta/am	Cost
(All roads listed above. \$\$/Sta.)	Grade, Shape, Construct Ditches \$\$/sta	69.70	x	\$16.90	\$1,177.93
	Compact subgrades (new roads) w/VIB \$\$/sta	69.70	x	\$15.60	\$1,087.32
			x		
			x		

**Points:**

	Size	Totals	Size	Totals	Size	Totals	Size	Totals
Base:	4"-0"	7,797						
Surface:	3/4"-0"	1,865						
Miscellaneous:	4"-0"	100						
Miscellaneous:	3/4"-0"	40	24"-6"	20				
Miscellaneous:	1 1/2"-0"	40						
Miscellaneous:								
		9,842 CY		20 CY		CY		CY

Surfacing rock:	Size/type	Tot. cy	Rate/cy	Cost
	4"-0"	7,797	\$2.79	\$21,753.63
	3/4"-0"	1,865	\$2.79	\$5,203.35

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
	Energy dissipators	24"-6"	20	\$4.33	\$86.60
	Culvert bedding	1 1/2"-0"	40	\$2.79	\$111.60
	Curve widening	4"-0"	100	\$2.79	\$279.00
	Curve widening	3/4"-0"	40	\$2.79	\$111.60

Processing:	Description	No. sta	Rate/sta	Cost
	Water process and compact crushed rock \$\$/Sta.	210	\$37.00	\$7,770.00

**SUB TOTAL FOR ROCKING** \$37,581

**SPECIAL PROJECTS**

Description	Cost
Develop riprap rock cy/\$\$ 20 CY x \$1.85	\$37.00

**SUB TOTAL FOR SPECIAL PROJECTS** \$37

**GRAND TOTAL** \$103,713.78

Compiled By: J. Long

Date: 2/5/03



**ROCKING**

Subgrade prep:	Description	Stations/amo	x	Rate/sta/am	Cost
	Grade, Shape, Construct Ditches \$\$/Station	83.25	x	\$16.90	\$1,406.93
	Compact Subgrades (new roads)		x		
	With Vibratory Roller \$\$/station	83.25	x	\$15.60	\$1,298.70
			x		

	Size	Totals	Size	Totals	Size	Totals	Size	Totals
Base:	4"-0"	3,752						
Surface:	3/4"-0"	2,248						
Miscellaneous:			24"-6"	70				
Miscellaneous:	1 1/2"-0"	100						
Miscellaneous:	4"-0"	690	36"-12"	120				
Miscellaneous:								
		6,790 CY		190 CY		0 CY		0 CY

Surfacing rock:	Size/type	Tot. cy	Rate/cy	Cost
	4"-0"	3,752	\$2.79	\$10,468.08
	3/4"-0"	2,248	\$2.79	\$6,271.92

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
	Subgrade Leveling, curve widening	4"-0"	690	\$2.79	\$1,925.10
	Culvert bedding/backfil	1 1/2"-0"	100	\$2.79	\$279.00
	Energy disipators	24"-6"	70	\$4.33	\$303.10
	Fill armor	36"-12"	120	\$4.33	\$519.60

Processing:	Description	No. sta	Rate/sta	Cost
	Grade, Water, Compaction	83.3	\$37.00	\$3,080.25
				\$0.00
				\$0.00
				\$0.00

SUB TOTAL FOR ROCKING \$25,553

**SPECIAL PROJECTS**

Description	Cost
Develop riprap rock \$\$/cy \$1.85 x 190 cy	\$351.50
Hyro-seeding w/wood fibre, fertilizer \$\$/acre \$1,100 x 1.3 acres (15-16 and waste areas only)	\$1,430.00
Crush and load old culverts to be hauled away \$\$/hr \$115 x 3 hrs	\$345.00
Haul away old culverts \$\$/hr \$57 x 6 hrs	\$342.00

SUB TOTAL FOR SPECIAL PROJECTS \$2,469

GRAND TOTAL \$53,052.68

Compiled By: J. Long

Date: 2/14/03





**PROJECT NO. 2**  
**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Foster Divide Combination  
ROAD: Road Improvement and Reconstruction  
POINTS: 16-17

NEW CONSTRUCTION: \_\_\_\_\_ STATIONS \_\_\_\_\_ MILES  
IMPROVEMENT: 86.75 STATIONS 1.64 MILES

EXCAVATION						
Material	Stations/Hrs	x	Rate	=	Cost	
C325 excavator for all fill reconstructions	30	x	115	=	\$3,450.00	
Skidder w/operator for all fills	14	x	60	=	\$840.00	
Dump truck for fill reconstructions	14	x	57	=	\$798.00	
Mechanical tamper w/operator for fills	7.00	x	\$34.00	=	\$238.00	
SUB TOTAL FOR EXCAVATION						\$5,326

CULVERT MATERIALS AND INSTALLATION									
Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
Sta. 28+80	18" CPP	32	\$11.00	\$352.00					
Sta. 34+85	18" CPP	32	\$11.00	\$352.00					
Sta. 44+40	18" CPP	32	\$11.00	\$352.00					
Sta. 48+20	18" CPP *	40	\$7.50	\$300.00					
Sta. 53+40	18" CPP *	30	\$7.50	\$225.00					
Sta. 72+25	18" CPP *	40	\$7.50	\$300.00					
Sta. 77+90	18" CPP	30	\$11.00	\$330.00					
Sta. 82+80	18" CPP	50	\$11.00	\$550.00					
Culvert costs include installation, except for fills as indicated with *.									
Description					Quantity	Rate	Cost		
Other/miscellaneous:							\$0.00		
							\$0.00		
Culvert stakes & markers: 6 foot long carsonite markers for all surface culverts.					5	\$14.10	\$70.50		
SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION							\$2,832		

**ROCKING**

Subgrade prep:	Description	Stations/amo	x	Rate/sta/am	Cost
	Grade, Shape, Construct Ditches	86.75	x	\$15.20	\$1,318.60
	Compact Subgrades (new roads)		x		\$0.00
	With Vibratory Roller	86.75	x	\$12.50	\$1,084.38
			x		\$0.00

	Size	Totals	Size	Totals	Size	Totals	Size	Totals
Base:	4"-0"							
Surface:	3/4"-0"							
Miscellaneous:	1 1/2"-0"	570						
Miscellaneous:	4"-0"	48						
Miscellaneous:	24"-6"	40						
		658 CY		0 CY		0 CY		0 CY

Surfacing rock:	Size/type	Tot. cy	Rate/cy	Cost
	4"-0"		\$2.79	\$0.00
	3/4"-0"		\$2.79	\$0.00
	1 1/2"-0"		\$2.79	\$0.00

Other/misc:	Description	Size/type	Cy	Rate/cy	Cost
	Subgrade Leveling	1 1/2"-0"	400	\$2.79	\$1,116.00
	Culvert bedding/backfil	1 1/2"-0"	170	\$2.79	\$474.30
	Base rock replacement	4"-0"	48	\$2.79	\$133.92
	Riprap	24"-6"	40	\$4.33	\$173.20

Processing:	Description	No. sta	Rate/sta	Cost
	Grade, Water, Compaction		\$37.00	\$0.00

**SUB TOTAL FOR ROCKING**

**\$4,300**

**SPECIAL PROJECTS**

Description	Cost
Develop riprap rock \$\$/cy \$1.85 x 60 cy	\$111.00
Crush and load old culverts to be hauled away \$\$/hr \$115 x 4 hrs	\$460.00
Haul away old culverts \$\$/hr \$57 x 6 hrs	\$342.00

**SUB TOTAL FOR SPECIAL PROJECTS**

**\$913**

**GRAND TOTAL**

**\$13,370.90**

Compiled By: J. Long

Date: 2/14/03

Foster Divide Combination Project No. 2 I6 - I7 Road Improvement

Fill Reconstruction Costs

Points/Station	Description	C325 # 1	C325 # 2	Rubber Tire Skidder	Truck	Mechanical Tamper with operator	
I6 to I7 48+20	Culvert replacement/ fill reconstruction 6' fill ht.	5 hr	hr	3 hr	2 hr	2 hr	
I6 to I7 53+40	Culvert replacement/ fill reconstruction 6' fill ht.	5 hr	hr	3 hr	2 hr	2 hr	
I6 to I7 72+25	Culvert replacement/ fill reconstruction 10' fill ht.	16 hr	hr	8 hr	10 hr	3 hr	
I6 to I7	Construct 4 riprap energy dissipators.	4 hr					
I6 to I7	Crush and load old culverts to be hauled away.		4 hr				
	Haul away old culverts to an approved refuse site.				6 hr		
<b>Total</b>		<b>30 hr</b>	<b>4 hr</b>	<b>14 hr</b>	<b>20 hr</b>	<b>7 hr</b>	
<b>Rate</b>		<b>\$115</b>	<b>\$115 /hr</b>	<b>\$60 /hr</b>	<b>\$57 /hr</b>	<b>\$34 /hr</b>	
<b>Cost</b>		<b>\$3,450</b>	<b>\$460</b>	<b>\$840</b>	<b>\$1,140</b>	<b>\$238</b>	<b>\$6,128</b>

CRUSHED ROCK COST

SALE NAME: Foster Divide Combination  
 PROJECT: Project No. 2  
 QUARRY: Cow Creek 4"-0", 3/4"-0",  
 and Northrup 1 1/2"-0"

ROCK TYPE: crushed

DATE: 2/5/03  
 BY: J. Long

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
I5-I6	28.75	2,226					0.20	0.08	0.10	0.38
I6-I7	86.75	618					0.50	0.35	0.10	0.95
I6-P1	7.50	360							0.10	0.10
P1-P2	58.70	8,435					0.30	0.26	0.10	0.66
P2-P3	47.00	4,135					0.40	0.26	0.10	0.76
P3-P4	11.00	1,587					2.00	0.36	0.10	2.46
<b>TOTAL</b>	<b>239.70</b>	<b>17,361</b>								
	<b>STA./NO.</b>	<b>CU. YD.</b>								
<b>CUBIC YARD WEIGHTED HAUL</b>							<b>0.47</b>	<b>0.24</b>	<b>0.10</b>	<b>AVERAGE HAUL 0.81</b>
<b>Average Round Trip Distance (miles)</b>									<b>1.62</b>	

ROCK HAUL:

Truck type: <u>D20</u>	No. trucks: <u>2</u>	Ave haul: \$1.74 /cy
Delay min.: <u>15</u>	Efficiency: <u>75%</u>	
Truck type: <u>D12</u>	No. trucks: <u>  </u>	Spread: \$0.65 /cy
Delay min.: <u>12</u>	Efficiency: <u>75%</u>	
Truck type: <u>D10</u>	No. trucks: <u>2</u>	Production: cy/day = 1,143
Delay min.: <u>10</u>	Efficiency: <u>75%</u>	

CRUSHED ROCK HAUL COSTS      17,361 cy @      **\$2.79 /cy**

RIP RAP ROCK COST

SALE NAME: Foster Divide Combination  
 PROJECT: Project 2  
 QUARRY: Northrup

ROCK TYPE: Rip Rap

DATE: 2/7/03  
 BY: J. Long

Road Segment	Stations	Cubic Yards	ONE WAY HAUL IN MILES							Total Haul	
			50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH		
I5-I6		190				1.00	0.40	0.50	0.10	2.00	
I6-I7		40				1.00	0.40	0.30	0.10	1.80	
P1-P2		10				1.00	0.50	0.20	0.10	1.80	
P3-P4		10				2.00	1.00	0.60	0.10	3.70	
TOTAL		250									
CUBIC YARD WEIGHTED HAUL		STA./NO.	CU. YD.				1.04	0.43	0.46	0.10	AVERAGE HAUL 2.03
Average Round Trip Distance (miles) 4.06											

ROCK HAUL:

Truck type: D12 No. trucks:             
 Delay min.: 12 Efficiency: 75%

Truck type: D10 No. trucks: 3  
 Delay min.: 10 Efficiency: 75%

Ave haul: \$3.18 /cy  
 Load: \$1.15 /cy  
 Develop:            /cy

Production: cy/day = 430

RIP RAP ROCK HAUL COSTS      250 cy @ \$4.33 /cy

**SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS**

PROJECT NO. 3

Timber Sale Name: Foster Divide Combination

Quarry: Sterling  
 Location: Sec. 23, T4N, R7W, WM  
 County: Clatsop  
 By: Bangs  
 Date: 2/12/2003

Swell: \_\_\_\_\_  
 Shrink: 16%

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"	5%	CR	_____	_____	_____
1 1/2"-0"	5%	CR	_____	_____	_____
4"-0"		CR	10,000	_____	11,600
6"-0"		PR	_____	_____	_____
24"-6"		RR	_____	_____	_____
<b>TOTAL CUBIC YARDS OF ROCK:</b>			<b>10,000</b>		<b>11,600</b>

**1) MOBILIZATION & SET UP:**

EQUIPMENT MOBILIZATION	DISTANCE IN MILES	DIST. FACTOR	BASE RATE	COST
2Stage Crusher	75	1.40	\$1,670	\$2,338
Screening Plants (1)	75	1.40	\$450	\$630
D8 Cat & D6 Cat	75	1.40	\$1,540	\$2,156
Loader	75	1.40	\$560	\$784
Drill & Compressor	75	1.40	\$1,080	\$1,512
Powder	75	1.40	\$270	\$378
4 Dump Trucks	75	1.40	\$536	\$750
Excavator	75	1.40	\$500	\$700
<b>SUB TOTAL FOR MOBILIZATION</b>				<b>\$9,248</b>

EQUIPMENT SET UP	TIMES	RATE	COST
2Stage Crusher	1	\$1,600	\$1,600
Screening Plants (1)	1	\$215	\$215
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
<b>SUB TOTAL FOR SET UP COSTS</b>			<b>\$1,815</b>

**TOTAL MOBILIZATION & SET UP COSTS** **\$11,063**

**2) CLEARING & GRUBBING**

DESCRIPTION	QUANTITY	UNIT	RATE	COST
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

**TOTAL CLEARING & GRUBBING COSTS**

**3) EXCAVATION**

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST

**TOTAL EXCAVATION COSTS**

**4) DEVELOP ROCK**

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping		11,600	\$1.85	\$22,040
crushed	11,600	100%	Drill & shoot	100%		\$1.90	
pit run	0	0	Oversize red			\$5.04	
rip rap	0	0	Other				
Total	11,600						
reject							

**TOTAL ROCK DEVELOPMENT COSTS**

\$22,040

**5) CALIBRATION & TESTING**

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	1	\$400	\$400
Calibrate			
Test	5	\$50	\$250
Test			

**TOTAL CALIBRATION & TESTING COSTS**

\$650

**6) FEEDING & LOADING**

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	11,600	\$0.65	\$7,540

**TOTAL FEEDING & LOADING COSTS**

\$7,540

**7) ROCK CRUSHING**

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTIO	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed	11,600	3 stage w/s	110	\$1.71	\$19,886
1 1/2"-0"	crushed		3 stage w/s	120		
4"-0"	crushed		2 stage	140		

**TOTAL ROCK CRUSHING COSTS**

\$19,886

**8) STOCKPILING**

STOCKPILE PREPARATION OR CONST		COST
Construct Stockpile Site		\$480
(See Footnote)		
<b>SUB TOTAL</b>		<b>\$480</b>

HAUL & STOCKPILE STOCKPILE LOCATION	SIZE	# of TRUCKS	CU. YDS.	RATE	COST
1. Quartz Creek Stockpile to quarry	3/4"-0"	1	3,500	\$0.81	\$2,824
2.	1 1/2"-0"				
3. Quartz Creek	4"-0"	4	10,000	\$2.61	\$26,100
4.					
5.					
6.					
<b>SUB TOTAL</b>					<b>\$28,924</b>

**TOTAL STOCKPILING COSTS** **\$29,404**

**9) MISCELLANEOUS COSTS**

DESCRIPTION	COST
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access	\$2,000
<b>TOTAL MISCELLANEOUS COSTS</b>	<b>\$2,000</b>

**10) GRAND TOTAL:** **\$92,583**  
\$/Cubic Yard **\$7.98**

**Footnotes:**

Construct/Reconstruct Stockpile Floor

Equipment	Hours	Rate	Total
Dozer	4	\$120.00	\$480.00
Compactor		\$75.00	
Grader		\$80.00	
Excavator		\$130.00	
			<b>\$480.00</b>

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

Total Construct Stockpile Floor \$480.00



## HAUL and STOCKPILE COST

SALE NAME: Foster Divide Combination  
 QUARRY: Sterling ROCK TYPE: Crushed

Location 1. Quartz Cret 3/4"-0"	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
					0.03	0.05	0.02
Truck type: <u>OR</u>	No. trucks: <u>1</u>						Ave haul: \$0.41 /cy
Delay min.: <u>5</u>	Efficiency: <u>90%</u>						Load: \$0.25 /cy
Truck type: <u>D12</u>	No. trucks: _____						Stockpile: \$0.15 /cy
Delay min.: <u>12</u>	Efficiency: <u>75%</u>						
Truck type: _____	No. trucks: _____						Production: cy/day = 1,868
Delay min.: <u>10</u>	Efficiency: <u>75%</u>						
<b>Location 1. Quartz Creek Stockpile to qua Haul and Stockpile Cost</b>						<b>\$0.81 /cy</b>	

Location 2. 1 1/2"-0"	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
			7.50		1.30		
Truck type: <u>D20</u>	No. trucks: _____						Ave haul: #DIV/0! /cy
Delay min.: <u>15</u>	Efficiency: <u>75%</u>						Load: #N/A /cy
Truck type: <u>D12</u>	No. trucks: _____						Stockpile: #N/A /cy
Delay min.: <u>12</u>	Efficiency: <u>75%</u>						
Truck type: <u>D10</u>	No. trucks: _____						Production: cy/day =
Delay min.: <u>10</u>	Efficiency: <u>75%</u>						
<b>Location 2. Haul and Stockpile Cost</b>						<b>#DIV/0! /cy</b>	

Location 3. Quartz Creek 4"-0"	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				2.00	0.43		0.10
Truck type: <u>D20</u>	No. trucks: <u>2</u>						Ave haul: \$1.68 /cy
Delay min.: <u>5</u>	Efficiency: <u>85%</u>						Load: \$0.28 /cy
Truck type: <u>D12</u>	No. trucks: <u>2</u>						Stockpile: \$0.65 /cy
Delay min.: <u>5</u>	Efficiency: <u>85%</u>						
Truck type: <u>D10</u>	No. trucks: _____						Production: cy/day = 1,182
Delay min.: <u>5</u>	Efficiency: <u>85%</u>						
<b>Location 3. Quartz Creek Haul and Stockpile Cost</b>						<b>\$2.61 /cy</b>	

Location 4.	ONE WAY HAUL IN MILES						
	50 MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH
				1.00	1.00		

**FOSTER DIVIDE COMBINATION**

**Project No. 4 Cow Creek Vacating. V1 to V2**

Location/Description	330#1	330#2	D-7 CAT	10 CY Truck #1	10 CY Truck #2	Front End Loader	Grader	Laborer	Straw	Seed	Lowboy Transport
0+00 to 68+90 Waterbar/Block Road	2										
0+00 to 68+90 Salvage 3310 CY Rock				28	28	28	28				
0+00 to 68+90 Rip and Till/Outslope	23							80	400	100	
1+40 to 4+65 Remove Fill	17		2	17	17			4	30	20	
2+10 Remove Culvert	0.5										
4+65 to 6+00 Sidecast Pullback	1.5							1	6	10	
6+00 Remove Culvert	0.5										
7+40 to 9+70 Sidecast Pullback	2.5							2	10	15	
8+80 Remove Culvert/Fill Develop 5' Stream Channel	2		2					2	8	15	
12+75 Remove Culvert/Fill Develop 4' Stream Channel	2		2					2	6	10	
12+75 to 13+50 Sidecast pullback	1							1	5	10	

**Road Maintenance after completion of Project Work**

**Sale:** Foster Divide Combination  
**Date:** 6-Feb-03  
**By:** J. Long

Type	Equipment/Rationale			Hours	Rate	Cost
	Grader 14G			70	\$80	\$5,600
Final Haul	Dump Truck 12CY x 3			60	\$57	\$3,420
Road	FE Loader C966			20	\$75	\$1,500
Maintenance	Vibratory Roller			70	\$75	\$5,250
Haul Route	Water Truck 2,500 gallon			70	\$67	\$4,690
	Labor			10	\$25	\$250
<b>Total</b>						\$20,710

Production Rates  
 Grader  
 Vibratory Roller

Miles/day	Distance(miles)	Days
1.5	10.5	7.0
1.5	10.5	7.0

x:\Jewell Unit\timber sales\2003sales\foster divide\projectcosts\road maintenance after project work.xls

**Road Maintenance after completion of Project No. 3 - Sterling Quarry Crushing**

**Sale:** Foster Divide Combination  
**Date:** 6-Feb-03  
**By:** Cullen Bangs

Type	Equipment/Rationale	Move-in Rate	Times	Hours	Rate	Cost
	Grader 14G	\$540	1	20	\$80	\$2,140
Final Haul	Dump Truck 12CY			10	\$57	\$570
Road	FE Loader C966			10	\$75	\$750
Maintenance	Vibratory Roller	\$540	1	20	\$75	\$2,040
Haul Route	Water Truck 2,500 gallon	\$132	1	20	\$67	\$1,472
<b>Total</b>						<b>\$6,972</b>

Production Rates  
 Grader  
 Vibratory Roller

Miles/day	Distance(miles)	Days
1.5	2.5	1.7
1.5	2.5	1.7

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# TIMBER CRUISE REPORT

## FOSTER DIVIDE COMBINATION FY 2003

1. **Sale Area Location:** Areas 1 - 9 R/W are located in portions of Sections 5, 6, 8, 9, and 16, T6N, R6W, and portions of Sections 31 and 32, T7N, R6W, W.M., Clatsop County, Oregon.
2. **Fund Distribution:** BOF 100%  
Tax Code 8-01 (50%)  
30-05 (50%)
3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Existing R/W	New R/W	Stream Buffer	Net Acres	Survey Method	Closure
1	RD30 Thinning	52	0	0.4	2.6	49	GIS	N/A
2	RD30 Thinning	62	0	0.6	7.4	54	GIS	N/A
3	RD35 Thinning	251	4.0	2.0	31.0 *	214	GIS	N/A
4	RD30 Thinning	39	0	1.2	1.8	36	GIS	N/A
5	Clearcut	68	1.5	0.5	3.0	63	GIS	N/A
6A	RD30 Thinning	51	0	0.6	2.4	48	GIS	N/A
6B	Clearcut	52	0	0.7	2.3	49	GIS	N/A
7	Clearcut	74	0.3	0	5.7 **	68	GIS	N/A
8 R/W	New Roads	0	0	6.0	0	6	L X W	N/A
9 R/W	New Roads	0	0	9.0	0	9	L X W	N/A
<b>TOTALS</b>		<b>649</b>	<b>5.8</b>	<b>15</b>	<b>55.2</b>	<b>596</b>		

\* Area 3 stream buffers include 22 acres of non-thinnable hardwood types.

\*\* Area 7 stream buffers include 2 Green Tree Retention Areas.

4. **Cruisers and Cruise Dates:** Areas 1 – 9 R/W were cruised by Kevin Berry, Lanny Freeman, Alan Kelso, Jenny Laughman, Jon Long, Tom Scoggins, and David Wolfgram, in November/December, 2002.

5. **Cruise Method and Computation:** AREAS 1, 4, and 6A are "auto-mark" thinning units (RD 30), and were variable plot cruised using a 27.78 BAF. A total of 56 plots were sampled, with 29 measured and graded, and 27 count. These plots are located on a 9 chain by 3 chain grid. All "take" and "leave" trees were measured and graded. All alder 10' dbh and greater are "take" trees. Areas 1 and 4 were combined separately for volume computation. Area 6A was combined with Area 2 because of similarities in timber types.

AREA 2 is an "auto-mark" partial cut unit with conifer patches thinned to RD 30, and was variable plot cruised using a 40 BAF for conifer and a 33.61 BAF for hardwoods. These plots are located on a 10 chain by 3 chain grid, with every third plot measured and graded. A total of 20 plots were sampled, with 8 measured and graded, and 12 count. All alder 10' dbh and greater are "take" trees. Areas 2 and 6A were combined for volume computation.

AREA 3 is an "auto-mark" thinning (RD 35), and was variable plot cruised using a 27.78 BAF. These plots were sampled on transects with plots on a 3 chain spacing. See cruise map for details. A total of 44 plots were sampled, with 21 measured and graded, and 23 count.

AREAS 5, 6B, and 7 are clearcut units and were variable plot cruised using a 40 BAF for conifer and a 33.61 BAF for hardwoods. These plots are located on a 10 chain by 3 chain grid, with every third plot measured and graded. A total of 52 plots were sampled, with 17 measured and graded plots, and 35 count plots.

AREA 8 R/W, in-sale Right-of Way, volume was calculated by multiplying R/W acreage and the average volume per acre from the plots in Areas 1-7.

AREA 9 R/W, out-of-sale Right-of Way was variable plot cruised using a 40 BAF. A total of 20 plots were sampled on a 5.3 chain spacing. All plots were measured and graded.

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>AREA</u>	<u>CRUISE</u>	<u>CRUISE TYPE</u>
1 & 4	RD 30 Auto-mark Thinning	7N 6W SEC 6 TRACT: A 1 4 PC TYPE:TAKE
2 & 6A	RD 30 Auto-mark Thinning	6N 6W SEC 6 TRACT:A 2 6A PC TYPE:TAKE
3	RD 35 Auto-mark Thinning	7N 6W SEC 31 TRACT:AREA 3 TYPE:TAKE
5, 6B, & 7	Clearcuts	7N 6W SEC 32 TRACT:A 5 6B 7 CC TYPE:CC
8 R/W	In-Sale Right-of-way	7N 6W SEC 31 TRACT:AREA 8 R/W TYPE:8RW
9 R/W	Out-of-Sale Right-of-way	6N 6W SEC 20 TRACT:BOVINE ML TYPE:9RW

6. **Timber Description:** Areas 1 & 4 are "auto-mark" thinning units, age 60 to 65 years old, consisting of dense Douglas-fir stands with alder patches. The conifer in these stands will be thinned to an RD of 30, with a target basal area of 140 ft<sup>2</sup>. Hardwoods and cedar will not be harvested. Approximately 75 trees per acre and 17.7 MBF/acre (net) will be harvested from these stands. The average Douglas-fir "take" tree size is 16.6" DBH and 61 feet to a merchantable top (6" d.i.b.).

Areas 2 & 6A are "auto-mark" partial cut units, age 65 to 68 years old, red alder stands with scattered conifer patches. The conifer in these stands will be thinned to an RD of 30, with a target basal area of 120 ft<sup>2</sup>. Cedar will not be harvested. Approximately 85 trees per acre and 11.7 MBF/acre (net) will be harvested from these stands. The average Douglas-fir "take" tree size is 22.2" DBH and 82 feet to a merchantable top (6" d.i.b.). The average alder tree size is 15" DBH and 35 feet to a merchantable top (8" d.i.b.).

Area 3 is an "auto-mark" thinning, about 55 to 65 years old, consisting of Douglas-fir dominated stands with clumps of non-thinnable hardwoods along the draws. These stands will be harvested to an RD of 35, with a target basal area of 140 ft<sup>2</sup>, while removing approximately 67 trees per acre and 15.3 MBF/acre(net). The average "take" tree size is 16.4" DBH and 70 feet to a merchantable top (6" d.i.b.).

Areas 5, 6B, and 7 are clearcut units, ranging from 55 to 68 years old, consisting of mixed Douglas-fir and hardwood stands. The Douglas-fir averages 19.1" DBH, with an average merchantable height of 63 feet to a merchantable top(6" d.i.b.). The average alder tree size is 14" DBH and 37 feet to a merchantable top (8" d.i.b.). The average volume per acre to be harvested (net) is 25.5 MBF.

Area 8 R/W (In-sale R/W) is similar to the timber description mentioned above for Areas 1-7. The average volume (net) is 39.1 MBF/acre.

Area 9 R/W (Out-of-sale R/W) is a mixed Douglas-fir and hardwood stand. This stand averages 16 inches in DBH, with an average merchantable height of 51 feet to a merchantable top. The average volume (net) is 20.1 MBF/acre.

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

Statistics for "Take" tree B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1 and 4	60%	12%	86.2%	14.2%
2 and 6A	70%	12%	112.7%	19.0%
3	60%	12%	85.1%	12.8%
5, 6B, and 7	55%	8%	63.8%	8.8%
9 R/W	65%	12%	85.1%	19%

Statistics for total stand (Take and Leave trees combined) B.F. volumes

Area	Estimated CV	Target SE%	Actual CV	Actual SE%
1 and 4	50%	7%	37.3%	6.1%
2 and 6A	70%	7%	77.4%	13.1%
3	50%	7%	38.6%	5.8%
5, 6B, and 7	55%	8%	63.8%	8.8%
9 R/W	65%	12%	85.1%	19%

Combined SE% for all "take" tree b.f. volumes is 6.0%. See combined statistics calculations on attached worksheet.

**8. Volumes by Species and Log Grade:** (See "Species, Sort, Grade - Type and Project Reports, attached, of individual sale areas and combined areas and five cruise types)

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

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	D & B	% Sale
Douglas-fir	19	8,591	5,792	2,385	414	137	78
Alder	14	1,794		1,440	354	31	16
Maple	17	7			7	0.4	0
Hemlock	15	640	158	429	53	6	6
<b>TOTALS</b>		<b>11,032</b>					

**9. Approvals:**

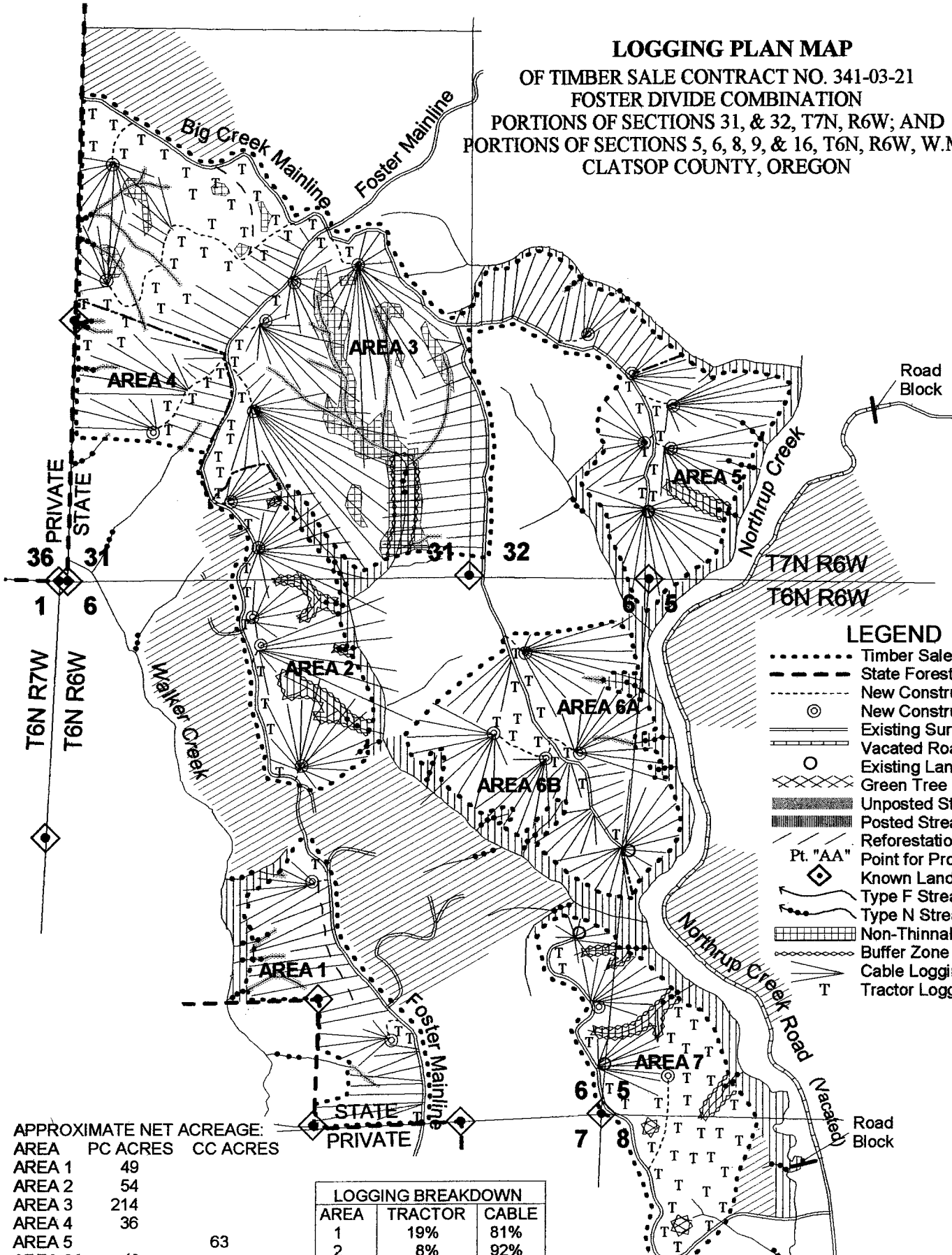
Prepared by: Jon Long Date: January 22, 2003

Reviewed by: Dave Grady R.Z. Date: 1/29/03

**10. Attachments:**

- Cruise Designs (4)
- Cruise Maps (5)
- Volume Reports - 9 pages
- Statistics Reports - 14 pages
- Stand Tables - 4 pages
- Statistics Calculations

**LOGGING PLAN MAP**  
 OF TIMBER SALE CONTRACT NO. 341-03-21  
 FOSTER DIVIDE COMBINATION  
 PORTIONS OF SECTIONS 31, & 32, T7N, R6W; AND  
 PORTIONS OF SECTIONS 5, 6, 8, 9, & 16, T6N, R6W, W.M.,  
 CLATSOP COUNTY, OREGON



**LEGEND**

- ..... Timber Sale Boundary
- State Forests Property Line
- New Construction Roads
- ⊙ New Construction Landings
- ==== Existing Surfaced Roads
- Vacated Roads
- Existing Landings
- ▨ Green Tree Retention Area
- ▩ Unposted Stream Buffer
- ▧ Posted Stream Buffer
- ▨ Reforestation Area
- Pt. "AA" Point for Project Work
- ◆ Known Land Survey Corner
- ~ Type F Stream
- ~ Type N Stream
- ▨ Non-Thinnable Type
- Buffer Zone Boundary
- ▨ Cable Logging Area
- T Tractor Logging Area

**APPROXIMATE NET ACREAGE:**

AREA	PC ACRES	CC ACRES
AREA 1	49	
AREA 2	54	
AREA 3	214	
AREA 4	36	
AREA 5		63
AREA 6A	48	
AREA 6B		49
AREA 7		68
TOTAL =	401	180
AREA 8 (INSALE RW)	6	
AREA 9 (OUTSIDE RW)	9	
TOTAL ALL AREAS =	596	ACRES

**LOGGING BREAKDOWN**

AREA	TRACTOR	CABLE
1	19%	81%
2	8%	92%
3	19%	81%
4	25%	75%
5	22%	78%
6A	14%	86%
6B	16%	84%
7	60%	40%

900 0 900 1800 Feet



**APPROXIMATE SCALE:**  
 1:15,840 or 1" = 1,320



**FOREST PRACTICES ACT "WRITTEN PLAN"**  
**For Project No. 2 - Northrup Creek Road Improvement**  
**Foster Divide Combination Timber Sale**

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

**Protected Resources:** Northrup Creek, large Type F stream, located in Section 16, T6N, R6W, W. M., Clatsop County, Oregon. A "written plan" is required for any activities within 100 feet of any Type F stream.

**Situation:**

- 1) ODF plans to widen, re-align, and improve 0.5 miles of the Lower Northrup Creek Road, shown on the attached Exhibit A, as I5 to I6. Portions of Northrup Creek Road are within 100 feet of a Large Type F stream. The first half mile of Northrup Creek Road on ODF land (just past the County Road) in Section 16 will be widened, re-aligned, and improved with new surfacing rock. New surface culverts will be added, and old deteriorated culverts will be replaced. Approximately 20 trees within the RMA will need to be removed to facilitate proper road reconstruction. The remaining number of trees within the affected portion of the RMA exceeds those required by the FPA for a large, Type F stream. No trees will be removed within 20 feet of the high water level of the stream channel.
- 2) Streambank erosion is occurring at a bend in Northrup Creek, impacting the stability of Northrup Creek Road. The portion of the road impacted by this, will be realigned into the hillside, and riprap rock will be used to armor the fill slope and stop erosion of the road prism adjacent to the stream bank.

**Resource Protection Measures:**

- 1) All timber will be felled parallel to or away from protected waters.
- 2) New surface culverts will drain runoff from ditchline away from streams, and into areas that will allow sediment to filter before entering Northrup Creek.
- 3) Track mounted excavator type equipment shall be used for embankment excavation 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) All road improvement work described in (1) above, will be done during favorable weather conditions between May 1 and September 30.
- 7) Work described in (2) above, will be done during the in-water work period from July 1 to August 31.

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:

\_\_\_\_\_  
LANDOWNER Date

\_\_\_\_\_  
OPERATOR Date

*AMM*  
\_\_\_\_\_  
FOREST PRACTICES FORESTER Date

Attachments: Exhibit A

**FOREST PRACTICES ACT "WRITTEN PLAN"**  
**For Harvest of Foster Divide Combination  
and Stream Enhancement of Northrup Creek**

Page 1 of 2

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

**Situation:** A written plan is required for any activity within 100 feet of a Type F Stream.

**Protected Resources:** Type F streams located in portions of Sections 31 and 32 T7N, R6W, and Sections 5, 6, and 8, T6N, R6W, W.M., Clatsop County, Oregon, as shown on the attached Exhibit A.

**Specific Site Characteristics:**

**Northrup Creek:** A low gradient stream reach, characterized by wide valley flood plains, frequent stream meanders and "deep valley fill." The stream reach gradient is approximately one percent and bank full width is approximately 24 feet. Streamside vegetation is dominated by mature alder, with a significant component of conifer trees which are located above the flood plain.

**Type F tributaries to Northrup Creek:** The streambeds are approximately 7-9 feet wide, with moderate streambank slopes. Streamside vegetation is also dominated by mature alder, with conifer trees located mostly above the flood plain.

**Walker Creek:** The streambed is approximately 12 feet wide, with moderate streambank slopes. Streamside vegetation is dominated by mature alder with scattered conifer trees.

**Tree and Vegetation Retention:**

- 1) Northrup Creek (Large Type F): The FPA defines the RMA width of a Large, Type F stream at 100 feet. The timber sale boundary for Areas 5, 6A, and 7 are posted a minimum 100 feet from the stream channel.
- 2) Walker Creek (Large Type F): The FPA defines the RMA width of a Large, Type F stream at 100 feet. The timber sale boundary for Area 1 is posted a minimum 100 feet from the stream channel.
- 3) Unnamed Tributaries of Northrup Creek (Small Type F): The FPA defines the RMA width of a Small, Type F stream at 50 feet. The posted buffers on the Type F streams in Areas 5, 6B, and 7 are a minimum 100 feet wide. The posted buffers on the Type F streams in Areas 2 and 3 are a minimum 75 feet wide.

**Practices:**

- 1) Directional felling parallel to the stream will be required to prevent trees from entering the aquatic area. No ground based logging equipment will be permitted inside the posted RMA. Cable corridors may be strung through the RMA and will be located no closer than 100' feet apart. Cable lines will not be lowered into the RMA during yarding.

**FOREST PRACTICES ACT "WRITTEN PLAN"**  
**For Harvest of Foster Divide Combination**  
**and Stream Enhancement of Northrup Creek**

- 2) Areas 5, 6A, and 7: Ten stream enhancement structures will be created by the PURCHASER for stream improvement as recommended by ODFW fisheries biologist. Each structure will be created by placing 5 conifer logs in Northrup Creek during cable yarding operations. The logs will be lowered into the stream at locations specified by State, and with consultation from an ODFW fisheries biologist. All conifer logs will be taken from the sale area and not from within the stream buffer. If cables do not pass through the RMA of Northrup Creek, PURCHASER will create three stream enhancement structures using ground based equipment. These structures will be created using up to 15 logs at each location. This work will take place during the instream work period (July 1 – August 31) if possible. If the work cannot be done during the designated instream work period an ODFW fisheries biologist will be consulted to field verify any fish habitat concerns and approve any work to be conducted outside the designated period.

**Attachments:** Exhibit A  
Logging Plan Map

Submitted: \_\_\_\_\_  
Purchaser/Operator Contract Representative

Date: \_\_\_\_\_

Approved: \_\_\_\_\_  
State Lands Forester

Date: \_\_\_\_\_

Approved: AM \_\_\_\_\_  
Forest Practices Forester

Date: \_\_\_\_\_

**FPA "Written Plan" For Project No. 4. Cow Creek Road Vacating  
Foster Divide Combination Timber Sale 341-03-21  
Portions of Sections 4, 9, and 16, T6N, R6W, W.M., Clatsop County Oregon**

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

**Protected Resources:**

- 1) Cow Creek, which is designated as a Large Type F stream, is located within 100 feet of the road vacating project in portions of Sections 4, 9, and 16, T6N, R6W, W.M., Clatsop County, Oregon. Length of the affected stream requiring protection is approximately 7000 feet.
- 2) Unnamed Tributary of Cow Creek, which is designated as a Medium Type F stream, is located within 100 feet of the road vacating project in Section 9, T6N, R6W, W.M., Clatsop County, Oregon. Length of the affected stream requiring protection is approximately 300 feet.

**Situation:** The existing Cow Creek road is located in close proximity to Cow Creek, a Large Type F stream and an unnamed tributary of Cow Creek, a Medium Type F stream. Transportation planning has revealed an opportunity to relocate this road to a nearby ridge top.

In this project, Cow Creek road will be vacated and put to bed, fills will be removed and the stream channel will be restored. At risk sidecast material within 20 feet of the outside edge of the road prism will be pulled back and re-sloped as shown in Exhibit H. Removal of vegetation and trees within the RMA will be necessary in order to satisfactorily complete sidecast and fill removal in some areas. Removal of trees and vegetation within the RMA will be minimized in order to protect riparian resources and will be left on-site, in stable locations. Further detailed work specifications for this project are included as Project No. 4 of the Foster Divide Combination Timber Sale Contract shown/described in Exhibits A, F, G, and H.

**Specific Site Characteristics:**

- 1) Cow Creek. A relatively low gradient stream reach characterized by a moderate-width valley flood plain, and deep valley fill. Stream sediments are principally sedimentary in origin with intermixed igneous rocks (e.g. intermixed sedimentary fines, gravels, cobbles and boulders). The stream reach gradient is approximately three percent and bank full width is approximately 18 feet. The stream banks are relatively gentle and riparian vegetation is predominantly red alder with intermixed salmonberry, shrubs and grasses.
- 2) Unnamed Tributary of Cow Creek. The active bank-full channel width is approximately 6 to 8 feet with an associated floodplain that is 21 feet in width. Streamside vegetation is dominated by mature alder, with a minor component of conifer trees.

**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) Machine activity in stream channels will be minimized. All excavation and removed fill placement will be performed using a minimum 1 ½ cubic-yard track-mounted excavator.
- 3) De-watering of existing fills and development of the stream channel will be accomplished by use of coffer dams, temporary diversion ditches, or drainage structures and/or damming and pumping.

**FPA "Written Plan" For Project No. 4. Cow Creek Road Vacating  
Foster Divide Combination Timber Sale 341-03-21  
Portions of Sections 4, 9, and 16, T6N, R6W, W.M., Clatsop County Oregon**

- 4) Disturbance to existing vegetation will be minimized. Trees removed within the RMA will not be removed as designated timber and will be left in the RMA, in stable locations.
- 5) Excavated fill materials will be used for recontouring slopes or placed in approved waste areas and left in a stable condition.
- 6) Bare soils shall be grass seeded and/or mulched with a straw mulch approved by STATE. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.

Aquatic Protection: Debris entering the RMA or aquatic area will be removed by the end of operations each day or as soon as possible and placed in a stable location, unless an alternate practice is approved by STATE.

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:

Submitted: \_\_\_\_\_  
Purchaser/Operator Contract Representative

Date: \_\_\_\_\_

Approved: \_\_\_\_\_  
State Lands Forester

Date: \_\_\_\_\_

Approved: AML \_\_\_\_\_  
Forest Practices Forester

Date: \_\_\_\_\_

**Attachments: Exhibit A, F, G, and H**

Original: Salem

CC: Operator, Purchaser, District file, Salem, Eng. Unit, Jewell Unit