Timber Sale Appraisal
High On The Hog
Sale FG-341-2018-019-

District: Forest Grove **Date: October 04, 2017**

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	$2,306,699.61	$24,279.30	$2,330,978.91
		Project Work:	($73,500.00)
		Advertised Value:	$2,257,478.91

Timber Sale Appraisal
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District: Forest Grove **Date: October 04, 2017**

Timber Description

Location: Portions of Sections 20, 21, 28, & 29, T2N, R6W, W.M., Tillamook County, Oregon

Stand Stocking: 20%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	20	0	98
Western Hemlock / Fir	17	0	98
Noble Fir	20	0	97
Alder (Red)	14	0	95

Volume by Grade	2S	3S	4S	Camprun	Total
Douglas - Fir	2,049	1,172	109	0	3,330
Western Hemlock / Fir	633	472	30	0	1,135
Noble Fir	398	143	15	0	556
Alder (Red)	0	0	0	90	90
Total	3,080	1,787	154	90	5,111

Comments: Pond Values Used: Local Pond Values, August 2017.

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
$1,323.17/MBF = $1,541.35/MBF - $218.18/MBF

SCALING COST ALLOWANCE = $5.00/MBF

BRANDING AND PAINTING COST ALLOWANCE = $2.00/MBF

FUEL COST ALLOWANCE = $3.00/Gallon

HAULING COST ALLOWANCE
Hauling costs equivalent to $780 daily truck cost.

Other Costs (with Profit & Risk to be added):
Non Project Road: 4.2 Stations @ $200/Station= $840

Other Costs (No Profit & Risk added):
Machine Time to Block/Waterbar Roads,and Skid Trails:
15 hours x $150/hour = $2,250
Machine Time to Pile Landing Slash and Sort Firewood:
20 hours x $150/hour = $3,000
Equipment Cleaning: 4 pieces x $1,000/Piece = $4,000
Slash Treatment: 20 acres x $200/acre = $4,000
Snag creation: 100 trees @ $50/tree= $5000
TOTAL Other Costs (No Profit & Risk added) = $18,250

ROAD MAINTENANCE
Move-in: $4,000
General Road Maintenance: 5.3 miles x $1,200/mile = $6,360
TOTAL Road Maintenance: $10,360/5,111 MBF = $2.03/MBF

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Logging Conditions

Combination#: 1

Douglas - Fir	62.00%
Western Hemlock / Fir	62.00%
Noble Fir	62.00%
Alder (Red)	62.00%

Logging System: Cable: Medium Tower >40 - <70 **Process:** Stroke Delimber

yarding distance: Medium (800 ft) **downhill yarding:** No

tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF

loads / day: 12 **bd. ft / load:** 4600

cost / mbf: $108.70

machines: Log Loader (A)
Stroke Delimber (A)
Tower Yarder (Medium)

Combination#: 2

Douglas - Fir	38.00%
Western Hemlock / Fir	38.00%
Noble Fir	38.00%
Alder (Red)	38.00%

Logging System: Shovel **Process:** Harvester Head Delimbing

yarding distance: Medium (800 ft) **downhill yarding:** No

tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF

loads / day: 14 **bd. ft / load:** 4100

cost / mbf: $93.10

machines: Forwarder
Harvester

Timber Sale Appraisal
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District: Forest Grove **Date: October 04, 2017**

Logging Costs

Operating Seasons:	1.00	**Profit Risk:**	15%
Project Costs:	$73,500.00	**Other Costs (P/R):**	$840.00
Slash Disposal:	$0.00	**Other Costs:**	$18,250.00

Miles of Road **Road Maintenance:** $2.03

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

Hauling Costs

Species	$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	$0.00	2.0	4.8
Western Hemlock / Fir	$0.00	2.0	3.9
Noble Fir	$0.00	2.0	4.0
Alder (Red)	$0.00	1.0	3.8

Timber Sale Appraisal
High On The Hog
Sale FG-341-2018-019-

District: Forest Grove **Date: October 04, 2017**

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
Douglas - Fir									
$102.77	$2.07	$0.86	$82.88	$0.16	$28.31	$0.00	$7.00	$3.57	$227.62
Western Hemlock / Fir									
$102.77	$2.07	$0.86	$102.00	$0.16	$31.18	$0.00	$7.00	$3.57	$249.61
Noble Fir									
$102.77	$2.09	$0.86	$100.42	$0.16	$30.94	$0.00	$7.00	$3.57	$247.81
Alder (Red)									
$102.77	$2.13	$0.86	$215.52	$0.16	$48.22	$0.00	$7.00	$3.57	$380.23

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	$0.00	$735.16	$507.54	$0.00
Western Hemlock / Fir	$0.00	$612.88	$363.27	$0.00
Noble Fir	$0.00	$615.22	$367.41	$0.00
Alder (Red)	$0.00	$650.00	$269.77	$0.00

Timber Sale Appraisal
High On The Hog
Sale FG-341-2018-019-

"STEWARDSHIP IN FORESTRY"

District: Forest Grove **Date: October 04, 2017**

Summary

Amortized

Specie	MBF	Value	Total
Douglas - Fir	0	$0.00	$0.00
Western Hemlock / Fir	0	$0.00	$0.00
Noble Fir	0	$0.00	$0.00
Alder (Red)	0	$0.00	$0.00

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	3,330	$507.54	$1,690,108.20
Western Hemlock / Fir	1,135	$363.27	$412,311.45
Noble Fir	556	$367.41	$204,279.96
Alder (Red)	90	$269.77	$24,279.30

Gross Timber Sale Value

Recovery: $2,330,978.91

Prepared By: Eric Foucht **Phone:** 503-359-7473

TIMBER SALE SUMMARY
High on the Hog
Contract No. 341-18-19

1. **Location:** Portions of Sections 20, 21, 28, & 29 T2N, R6W, W.M., Tillamook County, Oregon.

2. **Type of Sale:** This timber sale is 112 net acres of Modified Clearcut. The timber will be sold on a recovery basis at a sealed bid auction.

3. **Revenue Distribution:** 100% BOF, Tillamook County, Tax Code 56.

4. **Sale Acreage:** Acres are net of stream buffers and road prisms. Acreage was determined using ESRI ArcMap GIS software.

5. **Cruise**: The Timber Sale was cruised by ODF Cruisers in September of 2017. For more information see Cruise Report.

6. **Timber Description:** The Timber Sale Area consists of a well-stocked 68 year old Douglas-fir stand with minor amounts of western hemlock, western redcedar, true firs, and red alder. Including all species, the stand has an average of 217 ft^2 of basal area an average diameter of 19" and a total net volume per acre of 45.6 MBF. For Douglas-fir, the average DBH is approximately 20 inches, and the estimated average net volume per acre is 29.7 MBF.

7. **Volume Summary**

SPECIES		2 SAW	3 SAW	4 SAW	CR	TOTAL
Douglas-fir	Cruise Volume	2,091	1,196	111		3,398
	Hidden D&B (2%)	(42)	(24)	(2)		(68)
	NET TOTAL	2,049	1,172	109		3,330
	% of Total	62	35	3		
Western hemlock	Cruise Volume	646	482	31		1,159
	Hidden D&B (2%)	(13)	(10)	(1)		(24)
	NET TOTAL	633	472	30		1,135
	% of Total	55	42	3		
Noble fir	Cruise Volume	406	146	15		567
	Hidden D&B (2%)	(8)	(3)	()		(11)
	NET TOTAL	398	143	15		556
	% of Total	71	26	3		
Red alder	Cruise Volume	0	0	0	92	92
	Hidden D&B (2%)	()	()	()	(2)	(2)
	NET TOTAL	0	0	0	90	90
	% of Total	0	0	0	100	

SALE TOTAL

SPECIES	2 SAW	3 SAW	4 SAW	CR	TOTAL
Douglas-fir	2,049	1,172	109		3,330
Western hemlock	633	472	30		1,135
Noble fir	398	143	15		556
Red alder				90	90
TOTAL	3,080	1,787	154	90	5,111

8. **Topography and Logging Method:** Slopes within the sale areas range from 5% to 80%, and are variable in aspect. The timber sale is 38% ground-based yarding and 62% cable yarding. The average cable corridor length is 500 feet and the maximum is approximately 1100 feet. The average horizontal skid trail length is approximately 250 feet and the maximum is approximately 500 feet.

9. **Access:** All access to the Timber Sale Area is on surfaced all-weather roads. From Forest Grove travel northwest on Highway 8 to its junction with Highway 6. Turn left and continue west on Highway 6 for approximately 11.7 miles then turn right onto Drift Creek Road. Continue approximately 400 feet and take the first left onto Idiot Creek Road. Continue north on Idiot Creek road for 1.5 miles then turn left onto the Idiot Creek Loop Road. Continue approximately 800 feet to the east side of the Timber Sale Area.

10. **Projects:**

Project No. 1: Road Construction and Improvement	$15,479.82
Project No. 2: Road Surfacing	$39,309.40
Project No. 3: Grass Seed, Fertilize, and Mulch	$150.88
Project No. 4: Road Brushing	$13,100.25
Move in and equipment cleaning:	$5,459.65
Total Credit for all Projects (rounded)	$73,500.00

PROJECT COST SUMMARY SHEET

Timber Sale: High on the Hog

Sale Number: 341-18-19

PROJECT NO. 1: ROAD CONSTRUCTION AND IMPROVEMENT

CONSTRUCTION

Road Segment	Length	Cost
A to B	3+10	$1,003.76
C to D	7+10	$1,878.82
	10+20 stations	
	0.19 miles	

SUBTOTAL CONSTRUCTION = $2,882.58

IMPROVEMENTS

Road Segment	Length	Cost
E to C	15+45	$556.20
F to G	166+15	$4,730.80
H to I	21+90	$2,066.40
J to K	62+65	$4,012.04
K to N	12+00	$432.00
K to O	12+00	$432.00
L to M	15+25	$367.80
	305+40 stations	
	5.78 miles	

SUBTOTAL IMPROVEMENTS = $12,597.24

TOTAL PROJECT NO. 1 COST = $15,479.82

PROJECT NO. 2: SURFACING

Road Segment	Rock Amount	Rock Type	Cost
A to B	412 cy	Pit-run	$3,007.60
C to D	701 cy	Pit-run	$5,117.30
E to C	499 cy	Pit-run	$3,537.91
F to G	180 cy	1 1/2" - 0	$1,065.60
H to I	769 cy	1 1/2" - 0	$5,236.89
J to K	1261 cy	1 1/2" - 0	$8,587.41
J to K	882 cy	Pit-run	$7,673.40
L to M	603 cy	Pit-run	$5,083.29
Total	2,210 cy	1 1/2" - 0	
	3,097 cy	Pit-run	

TOTAL PROJECT NO. 2 COST = $39,309.40

PROJECT NO. 3 GRASS SEED, FERTILIZE, & MULCH

TOTAL PROJECT NO. 3 COST = $150.88

PROJECT NO. 4 ROAD BRUSHING

TOTAL PROJECT NO. 4 COST = $13,100.25

MOVE-IN, EQUIPMENT CLEANING, & WITHIN AREA MOVE

Grader	$706.61
Rollers (smooth/grid) & Compactor	$461.25
Excavator - Equipment Cleaning	$1,785.94
Dozer - Equipment Cleaning	$1,800.19
Dump Trucks	$582.66

TOTAL MOVE-IN & EQUIPMENT CLEANING COST = $5,459.65

TOTAL CREDITS $73,500.00

SUMMARY OF CONSTRUCTION COST

Timber Sale: High on the Hog Sale Number: 341-18-19

Road Segment: A to B Construction: 3+10 stations

0.06 miles

PROJECT NO. 1

EXCAVATION					
Clearing & grubbing (scatter)	0.22	ac @	$1,078.00	per acre =	$237.16
Balanced road construction	3.10	sta @	$110.00	per sta =	$341.00
Landing	1	ea @	$314.00	per ea =	$314.00
Grade, ditch, & roll	3.10	sta @	$36.00	per sta =	$111.60

PROJECT NO. 1 TOTAL COST = $1,003.76

PROJECT NO. 2:

SURFACING	12	" deep =	65 cy/sta				
A to B	202	cy of	Pit-run	@	$7.30	per cy =	$1,474.60
Junction	30	cy of	Pit-run	@	$7.30	per cy =	$219.00
Landing	180	cy of	Pit-run	@	$7.30	per cy =	$1,314.00
Rock Total =	412						
	412	cy of	Pit-run		$7.30	per cy =	$3,007.60

PROJECT NO. 2 TOTAL COST = $3,007.60

PROJECT NO. 3:

Grass seed & fertilizer	0.11	acres	@	$425.00	per acre =	$46.75

PROJECT NO. 3 TOTAL COST = $46.75

TOTAL COST = $4,058.11

SUMMARY OF CONSTRUCTION COST

Timber Sale: High on the Hog Sale Number: 341-18-19

Road Segment: C to D Construction: 7+10 stations

0.13 miles

PROJECT NO. 1

EXCAVATION					
Clearing & grubbing (scatter)	0.49	ac @	$1,078.00	per acre =	$528.22
Balanced road construction	7.10	sta @	$110.00	per sta =	$781.00
Landing	1	ea @	$314.00	per ea =	$314.00
Grade, ditch, & roll	7.10	sta @	$36.00	per sta =	$255.60

PROJECT NO. 1 TOTAL COST = $1,878.82

PROJECT NO. 2:

SURFACING		12 " deep =	65 cy/sta				
C to D	462	cy of	Pit-run	@	$7.30	per cy =	$3,372.60
Turnaround	29	cy of	Pit-run	@	$7.30	per cy =	$211.70
Junction	30	cy of	Pit-run	@	$7.30	per cy =	$219.00
Landing	180	cy of	Pit-run	@	$7.30	per cy =	$1,314.00
Rock Total =	701						
	701	cy of	Pit-run		$7.30	per cy =	$5,117.30

PROJECT NO. 2 TOTAL COST = $5,117.30

PROJECT NO. 3:

Grass seed & fertilizer	0.25	acres	@	$425.00	per acre =	$104.13

PROJECT NO. 3 TOTAL COST = $104.13

TOTAL COST = $7,100.25

SUMMARY OF CONSTRUCTION COST

Timber Sale: High on the Hog Sale Number: 341-18-19

Road Segment: E to C Improvement: 15+45 stations

0.29 miles

PROJECT NO. 1

EXCAVATION						
Grade, ditch, & roll	15.45	sta @	$36.00	per sta =	$556.20	

PROJECT NO. 1 TOTAL COST = $556.20

PROJECT NO. 2:

SURFACING	6	" deep =	31 cy/sta				
E to C	479	cy of	Pit-run	@	$7.09	per cy =	$3,396.11
Turnouts (1)	20	cy of	Pit-run	@	$7.09	per cy =	$141.80
Rock Total =	499						
	499	cy of	Pit-run		$7.09	per cy =	$3,537.91

PROJECT NO. 2 TOTAL COST = $3,537.91

TOTAL COST = $4,094.11

SUMMARY OF CONSTRUCTION COST

Timber Sale: High on the Hog Sale Number: 341-18-19

Road Segment: F to G Improvement: 166+15 stations

3.15 miles

PROJECT NO. 1

EXCAVATION						
Clean culvert inlet & outlet	19	ea @	$25.00	per ea =	$475.00	
Grade, ditch, & roll (104+50 to 166+15)	61.65	sta @	$36.00	per sta =	$2,219.40	
Grade & roll (0+00 to 104+50)	104.50	sta @	$19.20	per sta =	$2,006.40	
				TOTAL EXCAVATION COSTS =		$4,700.80

Culvert Markers

3 markers $30.00

TOTAL CULVERT COSTS = $30.00

PROJECT NO. 1 TOTAL COST = $4,730.80

PROJECT NO. 2:

Spot Rock		180	cy of	1 1/2" - 0	@	$5.92	per cy =	$1,065.60
	Rock Total =	180						
		180	cy of	1 1/2" - 0	@	$5.92	per cy =	$1,065.60

PROJECT NO. 2 TOTAL COST = $1,065.60

TOTAL COST = $5,796.40

SUMMARY OF CONSTRUCTION COST

Timber Sale: High on the Hog Sale Number: 341-18-19

Road Segment: H to I Improvement: 21+90 stations

0.41 miles

PROJECT NO. 1

EXCAVATION						
End-haul						
Excavate & load	60	cy @	$1.64	per cy =	$98.40	
Haul	60	cy @	$4.82	per cy =	$289.20	
Place fill	60	cy @	$2.40	per cy =	$144.00	
Clean culvert inlet & outlet	4	ea @	$25.00	per ea =	$100.00	
Install Bio-bags	6.00	ea @	$5.00	per ea =	$30.00	
Grade, ditch, & roll	21.80	sta @	$36.00	per sta =	$784.80	
				TOTAL EXCAVATION COSTS =		$1,446.40

CULVERTS - MATERIALS & INSTALLATION

Culverts

30 LF of 18" $600.00

Culvert Markers

2 markers $20.00

TOTAL CULVERT COSTS = $620.00

PROJECT NO. 1 TOTAL COST = $2,066.40

PROJECT NO. 2:

SURFACING	6	" deep =	31 cy/sta				
H to I	679	cy of	1 1/2" - 0	@	$6.81	per cy =	$4,623.99
Turnouts (2)	40	cy of	1 1/2" - 0	@	$6.81	per cy =	$272.40
Junction	30	cy of	1 1/2" - 0	@	$6.81	per cy =	$204.30
Culvert bedding/Backfill	20	cy of	1 1/2" - 0	@	$6.81	per cy =	$136.20
Rock Total =	769						
	769	cy of	1 1/2" - 0		$6.81	per cy =	$5,236.89

PROJECT NO. 2 TOTAL COST = $5,236.89

TOTAL COST = $7,303.29

SUMMARY OF CONSTRUCTION COST

Timber Sale: High on the Hog Sale Number: 341-18-19

Road Segment: J to K Improvement: 62+65 stations

1.19 miles

PROJECT NO. 1

EXCAVATION						
End-haul						
Excavate & load	20	cy @	$1.64	per cy =		$32.80
Haul	20	cy @	$4.82	per cy =		$96.40
Compact waste area	20	cy @	$0.30	per cy =		$6.00
Install Bio-bags	34.00	ea @	$5.00	per ea =		$170.00
Install Settling Ponds	6.00	ea @	$15.00	per ea =		$90.00
Silt fence (installation & labor)	440.00	feet @	$4.40	per foot =		$1,936.00
Grade & roll	34.20	sta @	$19.20	per sta =		$656.64
Grade, Ditch & Roll	28.45	sta @	$36.00	per sta =		$1,024.20
				PROJECT NO. 1 TOTAL COST =		$4,012.04

PROJECT NO. 2:

SURFACING	6	" deep =	31 cy/sta				
J to K (0+00 to 34+20)	1061	cy of	1 1/2" - 0	@	$6.81	per cy =	$7,225.41
J to K (34+20 to 62+65)	882	cy of	Pit-run	@	$8.70	per cy =	$7,673.40
Turnouts (9)	180	cy of	1 1/2" - 0	@	$6.81	per cy =	$1,225.80
Junction	20	cy of	1 1/2" - 0	@	$6.81	per cy =	$136.20
Rock Total =	2,143						
	1,261	cy of	1 1/2" - 0		$6.81	per cy =	$8,587.41
	882	cy of	Pit-run		$8.70	per cy =	$7,673.40

PROJECT NO. 2 TOTAL COST = $16,260.81

TOTAL COST = $20,272.85

SUMMARY OF CONSTRUCTION COST

Timber Sale: High on the Hog Sale Number: 341-18-19

Road Segment: K to N Improvement: 12+00 stations

0.23 miles

PROJECT NO. 1

EXCAVATION					
Grade, ditch, & roll	12.00	sta @	$36.00	per sta =	$432.00

PROJECT NO. 1 TOTAL COST = $432.00

TOTAL COST = $432.00

SUMMARY OF CONSTRUCTION COST

Timber Sale: High on the Hog Sale Number: 341-18-19

Road Segment: K to O Improvement: 12+00 stations

0.23 miles

PROJECT NO. 1

EXCAVATION					
Grade, ditch, & roll	12.00	sta @	$36.00	per sta =	$432.00

PROJECT NO. 1 TOTAL COST = $432.00

TOTAL COST = $432.00

SUMMARY OF CONSTRUCTION COST

Timber Sale: High on the Hog Sale Number: 341-18-19

Road Segment: L to M Improvement: 15+25 stations

0.29 miles

PROJECT NO. 1

EXCAVATION						
Clean culvert inlet & outlet	3	ea @	$25.00	per ea =		$75.00
Grade, ditch, & roll	15.25	sta @	$19.20	per sta =		$292.80

PROJECT NO. 1 TOTAL COST = $367.80

PROJECT NO. 2:

SURFACING	6	" deep =	31 cy/sta				
L to M	473	cy of	Pit-run	@	$8.43	per cy =	$3,987.39
Turnouts (1)	20	cy of	Pit-run	@	$8.43	per cy =	$168.60
Junction	20	cy of	Pit-run	@	$8.43	per cy =	$168.60
Landing	90	cy of	Pit-run	@	$8.43	per cy =	$758.70
Rock Total =	603						
	603	cy of	Pit-run		$8.43	per cy =	$5,083.29

PROJECT NO. 2 TOTAL COST = $5,083.29

TOTAL COST = $5,451.09

SUMMARY OF CONSTRUCTION COST

Timber Sale: High on the Hog Sale Number: 341-18-19

PROJECT NO. 4:

Road Brushing

Brush Density	miles @	$ per mile =	
Light	13.20	$700.00	$9,240.00
Moderate	1.80	$1,000.00	$1,800.00
Heavy	1.23	$1,300.00	$1,599.00
Total Miles=	16.23		

Move In & Within Area Move

Brush Cutter $461.25

TOTAL COST = $13,100.25

ROCK PIT DEVELOPMENT & CRUSHING COST SUMMARY

Timber Sale: High on the Hog
Sale Number: 341-18-19
Pit Name: Idiot Creek Pit

Pit-run: 3,097 cy (truck measure)
Total truck yardage: 3,097 cy
Total in place yardage: 2,382 cy

Swell: 130%
Shrinkage: 116%

Pit development, including clearing & grubbing of waste area, place overburden in waste area, spread & compact.					$4,200.00
Rip rock	$2.10	/ cy x	3,097 cy	cy =	$6,503.70
Load dump truck	$0.80	/ cy x	3,097 cy	cy =	$2,477.60
				Subtotal:	$13,181.30
Clean up pit					$525.00
				Subtotal:	$525.00

TOTAL PRODUCTION COST = $13,706.30

ROCK DEVELOPMENT COST = $4.43/cy

CRUISE REPORT
High On the Hog
341-18-19

1. LOCATION: Portions of Sections 20, 21, 28, & 29, T2N, R6W, W.M., Tillamook County, Oregon

2. CRUISE DESIGN:
Pre-cruise evaluation indicated that the stand's average DBH is approximately 19 inches and the Coefficient of Variation is about 50%. For sales of this size and approximate value, ODF cruise standards require a Sampling Error of 9% at a 68% confidence level, and a minimum sample size of 100 graded trees. The cruise design chosen for this sale is a variable radius sample plot using a 40 BAF prism.

3. SAMPLING METHOD:
The Timber Sale Area was sampled in September, 2017 with 37 variable radius grade plots using a 40 BAF prism. Plots were laid out on a 3 chain x 6 chain grid. Plots falling on or near existing roads or no-harvest areas were offset 1 chain

4. CRUISE RESULTS
201 trees were measured and graded producing a cumulative Sampling Error of 10% on the Douglas-fir Basal Area and 9.3% on the Douglas-fir Board Foot Volume. While the SE on the volume was slightly higher than ODF cruise standards for these stands, the relatively high tree count was judged to be an adequate sample and no additional plots were measured.

5. TREE MEASUREMENT AND GRADING:
All sample trees were measured and graded following Columbia River Log Scale grade rules and favored 40 foot segments.

a) **Height Standards:**
Total tree heights were measured to the nearest foot. Bole heights were calculated to a six inch top.

b) **Diameter Standards:** Diameters were measured outside bark at breast height to the nearest inch.

c) **Form Factors** were measured for each grade tree using a form point of 16 feet.

5. DATA PROCESSING

a) **Volumes and Statistics**, Cruise estimates and sampling statistics, were derived from Super Ace 2008 cruise software

b) **Deductions:** Two percent of the volume was subtracted from the computed volumes to account for hidden defect and breakage.

6. Cruisers: The sale was cruised by ODF cruiser Kenton Burns.

Prepared by: _____ 9-18-17
ODF Forester Date

Reviewed by: Eric Foucht 9-18-2017
Eric Foucht Date

TC PSTATS

PROJECT STATISTICS

PROJECT HIHOGFIN

DATE 9/18/2017

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T2N	R6	20	00A1	00MC	112.00	37	201	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	37	201	5.4		
CRUISE	37	201	5.4	12,137	1.7
DBH COUNT					
REFOREST					
COUNT					
BLANKS					
100 %					

STAND SUMMARY

	SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR	129	62.4	20.2	127	31.0	139.5	30,856	30,339	6,523	6,523
WHEMLOCK	47	30.9	17.4	110	12.2	50.8	10,496	10,349	2,276	2,276
NOB FIR	19	9.0	20.4	129	4.5	20.5	5,225	5,059	1,038	1,038
R ALDER	6	6.0	14.1	83	1.7	6.5	839	823	200	200
TOTAL	*201*	*108.4*	*19.2*	*120*	*49.6*	*217.3*	*47,415*	*46,570*	*10,037*	*10,037*

CONFIDENCE LIMITS OF THE SAMPLE

68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR

CL 68.1 SD: 1.0

SAMPLE TREES - BF

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	56.1	4.9	605	637	668			
WHEMLOCK	87.5	12.7	501	574	647			
NOB FIR	71.1	16.8	846	1,016	1,187			
R ALDER	46.8	20.9	133	168	203			
TOTAL	*70.8*	*5.0*	*612*	*644*	*676*	*200*	*50*	*22*

CL 68.1 SD: 1.0

SAMPLE TREES - CF

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	50.9	4.5	129	135	141			
WHEMLOCK	74.6	10.9	109	122	136			
NOB FIR	65.1	15.3	173	204	236			
R ALDER	45.8	20.4	33	41	49			
TOTAL	*62.9*	*4.4*	*130*	*136*	*142*	*158*	*40*	*18*

CL 68.1 SD: 1.0

TREES/ACRE

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	90.6	14.9	53	62	72			
WHEMLOCK	189.2	31.1	21	31	41			
NOB FIR	253.2	41.6	5	9	13			
R ALDER	387.0	63.6	2	6	10			
TOTAL	*99.4*	*16.3*	*91*	*108*	*126*	*395*	*99*	*44*

CL 68.1 SD: 1.0

BASAL AREA/ACRE

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	60.7	10.0	126	139	153			
WHEMLOCK	143.3	23.5	39	51	63			
NOB FIR	175.5	28.8	15	21	26			
R ALDER	371.0	60.9	3	6	10			
TOTAL	*50.0*	*8.2*	*199*	*217*	*235*	*100*	*25*	*11*

CL 68.1 SD: 1.0

NET BF/ACRE

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	57.1	9.4	27,494	30,339	33,184			
WHEMLOCK	137.9	22.7	8,004	10,349	12,694			
NOB FIR	178.3	29.3	3,577	5,059	6,540			
R ALDER	366.2	60.1	328	823	1,319			

TC PSTATS

PROJECT STATISTICS

PROJECT HIHOGFIN

DATE 9/18/2017

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
T2N	R6	20	00A1	00MC	112.00	37	201	S	W

CL 68.1	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
TOTAL	*47.0*	*7.7*	*42,974*	*46,570*	*50,166*	*88*	*22*	*10*

CL 68.1	COEFF		NET CUFT FT/ACRE			# OF PLOTS REQ.		INF. POP.
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15
DOUG FIR	57.7	9.5	5,905	6,523	7,142			
WHEMLOCK	138.7	22.8	1,757	2,276	2,794			
NOB FIR	178.7	29.4	733	1,038	1,343			
R ALDER	367.9	60.4	79	200	321			
TOTAL	*46.4*	*7.6*	*9,272*	*10,037*	*10,802*	*86*	*22*	*10*

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

TT2N RR6W S20 Ty00MC 112.00

Project: **HIHOGFIN**

Acres **112.00**

Page **1**
Date **9/18/2017**
Time **8:39:34AM**

Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
WH			2M	55	2.0	5,882	5,764	646			41	59	1			99	40	16	393	1.99	14.7
WH			3M	42	.7	4,336	4,306	482	0	85	13	2			18	82	37	8	104	0.67	41.4
WH			4M	3		278	278	31	3	97			73	27			15	6	16	0.33	17.6
WH	**Totals**			22	1.4	10,496	10,349	1,159	0	38	28	34	3	1	7	89	32	9	140	0.96	73.7
DF			CU														15	10		0.00	.8
DF			2M	61	2.5	19,143	18,666	2,091			50	50	0	1	0	99	40	16	396	1.97	47.1
DF			3M	35	.4	10,718	10,679	1,196	1	78	21		0	3	5	92	38	9	121	0.76	88.0
DF			4M	4		994	994	111	58	42			26	52	22		21	6	22	0.33	46.1
DF	**Totals**			65	1.7	30,856	30,339	3,398	2	29	38	31	1	3	3	93	34	10	167	1.06	182.1
RA			CR	100	1.8	839	823	92	6	71	23		12	15	6	68	30	8	74	0.61	11.1
RA	**Totals**			2	1.8	839	823	92	6	71	23		12	15	6	68	30	8	74	0.61	11.1
NF			2M	71	4.4	3,795	3,629	406			33	67				100	40	17	503	2.41	7.2
NF			3M	26		1,300	1,300	146		68	32			1	2	97	38	9	115	0.71	11.3
NF			4M	3		130	130	15		100			53	47			17	6	19	0.35	6.8
NF	**Totals**			11	3.2	5,225	5,059	567		20	32	48	1	1	1	97	33	10	200	1.24	25.3
Totals					1.8	47,415	46,570	5,216	2	31	35	33	2	3	4	92	33	10	159	1.03	292.2

TC PSTNDSUM

Stand Table Summary

Page 1
Date: 9/18/2017

TT2N RR6W S20 Ty00MC 112.00

Project HIHOGFIN
Acres 112.00

Time: 8:39:36AM
Grown Year:

Spc	S T	DBH	Sample Trees	FF 16'	Tot Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
DF		10	1	89	102	1.982	1.08	3.96	7.2	35.0	.82	29	139	92	32	16
DF		11	1	88	85	1.638	1.08	1.64	16.3	70.0	.76	27	115	85	30	13
DF		13	3	89	111	3.519	3.24	8.21	14.4	65.7	3.38	119	540	379	133	60
DF		14	1	89	121	1.011	1.08	3.03	14.8	70.0	1.28	45	212	143	50	24
DF		15	6	89	120	5.286	6.49	14.10	18.3	81.9	7.35	258	1,154	823	289	129
DF		16	9	89	120	6.968	9.73	19.36	20.8	92.8	11.47	402	1,796	1,285	451	201
DF		17	5	89	120	3.429	5.41	9.60	23.0	98.6	6.30	221	946	706	248	106
DF		18	5	89	128	3.059	5.41	9.18	26.1	110.7	6.82	239	1,016	763	268	114
DF		19	6	89	128	3.294	6.49	10.43	27.2	118.9	8.10	284	1,241	907	318	139
DF		20	8	89	135	3.964	8.65	11.89	34.3	155.8	11.63	408	1,853	1,303	457	208
DF		21	12	89	132	5.394	12.97	16.63	36.7	172.4	17.41	611	2,868	1,950	684	321
DF		22	12	90	129	4.914	12.97	14.33	42.8	196.6	17.47	613	2,818	1,957	687	316
DF		23	10	89	140	3.747	10.81	11.99	44.2	206.2	15.09	530	2,473	1,690	593	277
DF		24	11	90	132	3.785	11.89	11.36	50.7	229.4	16.41	576	2,605	1,837	645	292
DF		25	13	89	142	4.123	14.05	13.32	53.4	250.0	20.29	712	3,330	2,272	797	373
DF		26	6	90	141	1.759	6.49	5.86	56.2	277.5	9.38	329	1,627	1,051	369	182
DF		27	3	89	144	.816	3.24	2.99	56.7	287.3	4.83	169	859	541	190	96
DF		28	4	90	140	1.011	4.32	3.54	61.0	309.3	6.16	216	1,095	690	242	123
DF		29	5	90	143	1.178	5.41	4.24	65.6	327.2	7.93	278	1,388	888	312	155
DF		30	2	89	143	.440	2.16	1.54	72.3	352.9	3.18	111	544	356	125	61
DF		31	1	86	133	.206	1.08	.62	81.4	386.7	1.44	50	239	161	56	27
DF		32	1	84	151	.194	1.08	.58	95.8	416.7	1.59	56	242	178	62	27
DF		33	3	90	154	.546	3.24	2.18	81.7	433.3	5.08	178	946	569	200	106
DF		34	1	88	164	.171	1.08	.69	90.1	427.5	1.76	62	293	197	69	33
DF		Totals	129	89	127	62.436	139.46	181.28	36.0	167.4	185.91	6,523	30,339	20,822	7,306	3,398
WH		8	1	92	85	3.097	1.08	3.10	7.4	50.0	.74	23	155	82	26	17
WH		9	1	89	69	2.447	1.08	2.45	9.3	50.0	.73	23	122	81	25	14
WH		10	1	92	92	1.982	1.08	3.96	7.8	35.0	.99	31	139	110	35	16
WH		12	1	92	112	1.376	1.08	2.75	16.1	85.0	1.42	44	234	159	50	26
WH		13	1	89	119	1.173	1.08	2.35	18.7	90.0	1.40	44	211	157	49	24
WH		14	1	89	108	1.011	1.08	2.02	22.4	100.0	1.45	45	202	163	51	23
WH		15	3	89	120	2.643	3.24	7.93	17.6	77.8	4.47	140	617	500	156	69
WH		16	4	88	107	3.097	4.32	7.74	22.8	94.0	5.65	176	728	632	198	82
WH		17	5	89	113	3.429	5.41	9.60	23.6	93.6	7.24	226	898	811	253	101
WH		18	2	88	105	1.224	2.16	3.06	28.2	108.0	2.76	86	330	310	97	37
WH		19	4	88	122	2.196	4.32	6.59	30.0	127.5	6.33	198	840	709	222	94
WH		21	2	87	131	.899	2.16	2.70	38.5	171.7	3.32	104	463	372	116	52
WH		22	2	89	127	.819	2.16	2.46	42.9	185.0	3.37	105	455	378	118	51
WH		23	4	90	129	1.499	4.32	4.50	47.1	216.7	6.78	212	974	759	237	109
WH		24	3	89	130	1.032	3.24	3.10	51.6	240.0	5.11	160	743	572	179	83
WH		25	2	86	125	.634	2.16	1.90	53.9	241.7	3.28	103	460	367	115	52
WH		26	1	91	135	.293	1.08	.88	66.1	346.7	1.86	58	305	208	65	34
WH		27	3	86	127	.816	3.24	2.45	63.5	294.4	4.97	155	721	557	174	81
WH		28	2	91	115	.506	2.16	1.52	65.3	316.7	3.17	99	480	355	111	54
WH		29	1	90	141	.236	1.08	.71	85.7	433.3	1.94	61	306	217	68	34
WH		32	1	94	130	.194	1.08	.58	101.2	480.0	1.88	59	279	211	66	31
WH		33	1	88	156	.182	1.08	.73	84.8	445.0	1.98	62	324	221	69	36
WH		39	1	88	163	.130	1.08	.65	95.8	556.0	2.00	62	362	224	70	41
WH		Totals	47	89	109	30.915	50.81	73.71	30.9	140.4	72.83	2,276	10,349	8,156	2,549	1,159
NF		9	1	91	108	2.447	1.08	4.89	6.1	35.0	.71	30	171	80	33	19
NF		14	1	91	126	1.011	1.08	3.03	15.6	73.3	1.13	47	222	127	53	25
NF		18	3	88	140	1.835	3.24	5.51	29.5	138.9	3.89	162	765	436	182	86

Stand Table Summary

Date: 9/18/2017

TT2N RR6W S20 Ty00MC 112.00

Project HIHOGFIN

Acres 112.00

Time: 8:39:36AM

Grown Year:

Spc	S T	DBH	Sample Trees	FF 16'	Tot Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
NF		22	3	91	138	1.229	3.24	3.69	44.9	202.2	3.97	165	745	445	185	83
NF		23	1	90	133	.375	1.08	1.12	48.8	233.3	1.32	55	262	147	61	29
NF		25	2	87	120	.634	2.16	1.90	52.5	238.3	2.40	100	454	268	112	51
NF		28	1	91	143	.253	1.08	.76	79.0	356.7	1.44	60	271	161	67	30
NF		29	1	91	140	.236	1.08	.71	80.5	386.7	1.37	57	273	153	64	31
NF		30	1	91	150	.220	1.08	.88	67.8	355.0	1.43	60	313	160	67	35
NF		33	1	88	130	.182	1.08	.55	93.2	463.3	1.22	51	253	137	57	28
NF		35	1	90	161	.162	1.08	.65	102.5	600.0	1.59	66	388	178	74	43
NF		36	1	83	166	.153	1.08	.61	100.6	532.5	1.48	62	326	165	69	36
NF		37	2	86	160	.290	2.16	1.01	121.9	607.1	2.97	124	615	332	138	69
NF		Totals	19	90	129	9.026	20.54	25.31	41.0	199.9	24.92	1,038	5,059	2,791	1,163	567
RA		11	2	89	79	3.276	2.16	4.91	11.6	46.7	1.57	57	229	175	64	26
RA		16	2	90	96	1.549	2.16	3.87	20.4	90.0	2.17	79	348	243	88	39
RA		18	1	93	85	.612	1.08	1.22	30.2	120.0	1.02	37	147	114	41	16
RA		19	1	88	63	.549	1.08	1.10	24.6	90.0	.74	27	99	83	30	11
RA		Totals	6	90	83	5.986	6.49	11.11	18.0	74.1	5.50	200	823	616	224	92
Totals			201	89	120	108.364	217.30	291.41	34.4	159.8	289.15	10,037	46,570	32,385	11,241	5,216

TC PLOGSTVB

Log Stock Table - MBF

TT2N RR6W S20 Ty00MC 112.00

Project: HIHOGFIN
Acres 112.00

Date 9/18/2017
Time 8:39:33AM

Spp	S T	So Grt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
WH		2M		16	11	25.7	8	.7												8
WH		2M		40	648	1.6	638	55.0						125	78	243	129	62		
WH		3M		32	52		52	4.5			41	11								
WH		3M		34	35		35	3.0			27	6	2							
WH		3M		36	45		45	3.9			25	20								
WH		3M		37	1		1	.1		1										
WH		3M		38	10		10	.8				10								
WH		3M		40	343		340	29.3			9	68	188	55	9		10			
WH		4M		12	11		11	1.0			11									
WH		4M		14	3		3	.2			3									
WH		4M		16	4		4	.4			4									
WH		4M		18	3		3	.2		1	2									
WH		4M		20	2		2	.2			2									
WH		4M		22	2		2	.2			2									
WH		4M		24	1		1	.1			1									
WH		4M		26	2		2	.1			2									
WH		4M		28	3		3	.2			3									
WH		4M		30	1		1	.1			1									
WH		Totals			1,176	1.4	1,159	22.2		1	132	115	191	179	87	243	139	62	8	
DF		2M		16	9	14.3	7	.2							7					
DF		2M		24	13	8.3	12	.3								12				
DF		2M		32	11	8.9	10	.3									10			
DF		2M		40	2,111	2.4	2,061	60.7						208	539	950	287	78		
DF		3M		20	4		4	.1				4								
DF		3M		21	3		3	.1		1			2							
DF		3M		22	1		1	.0		1										
DF		3M		24	5		5	.1					5							
DF		3M		28	9		9	.3			7	2								
DF		3M		30	20		20	.6			6	11	3							
DF		3M		32	30	3.8	29	.9			13	13	3							
DF		3M		34	25		25	.7			17	5	3							
DF		3M		35	2		2	.1		2										
DF		3M		36	55		55	1.6		2	25	25	3							
DF		3M		37	2		2	.1		2										
DF		3M		38	40		40	1.2		2	32	6								
DF		3M		39	2		2	.1		2										

TC PLOGSTVB

Log Stock Table - MBF

TT2N RR6W S20 Ty00MC 112.00

Project: HIHOGFIN
Acres 112.00

Date 9/18/2017
Time 8:39:33AM

Spp	S T	So Grt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
DF		3M		40	1,000		997	29.3		2	47	160	541	185	62					
DF		4M		12	21		21	.6			20	1								
DF		4M		14	1		1	.0			1									
DF		4M		18	1		1	.0			1									
DF		4M		19	3		3	.1		3										
DF		4M		20	2		2	.1		2										
DF		4M		21	4		4	.1		4										
DF		4M		22	5		5	.1		2	3									
DF		4M		23	3		3	.1		3										
DF		4M		24	4		4	.1		2	3									
DF		4M		25	7		7	.2		7										
DF		4M		26	8		8	.2		4	4									
DF		4M		27	1		1	.0		1										
DF		4M		28	4		4	.1		1	3									
DF		4M		29	5		5	.1		5										
DF		4M		30	18		18	.5		7	11									
DF		4M		31	6		6	.2		6										
DF		4M		32	13		13	.4		13										
DF		4M		33	3		3	.1		3										
DF		4M		35	2		2	.1		2										
DF		Totals			3,456	1.7	3,398	65.1		79	191	228	561	393	609	962	297	78		
RA		CR		12	1		1	1.3			1									
RA		CR		14	2		2	1.9			2									
RA		CR		18	10	18.2	8	8.5						8						
RA		CR		24	11		11	11.7			3	7								
RA		CR		25	3		3	3.0			3									
RA		CR		32	6		6	6.0		6										
RA		CR		36	10		10	10.7					10							
RA		CR		40	53		53	57.0			13	10	16	14						
RA		Totals			94	1.8	92	1.8		6	22	18	25	22						
NF		2M		40	425	4.4	406	71.7						53		146	122	85		
NF		3M		28	1		1	.2				1								
NF		3M		32	3		3	.6			3									
NF		3M		36	29		29	5.1			29									
NF		3M		38	3		3	.5				3								
NF		3M		40	110		110	19.4			4	8	51	47						

TC PLOGSTVB

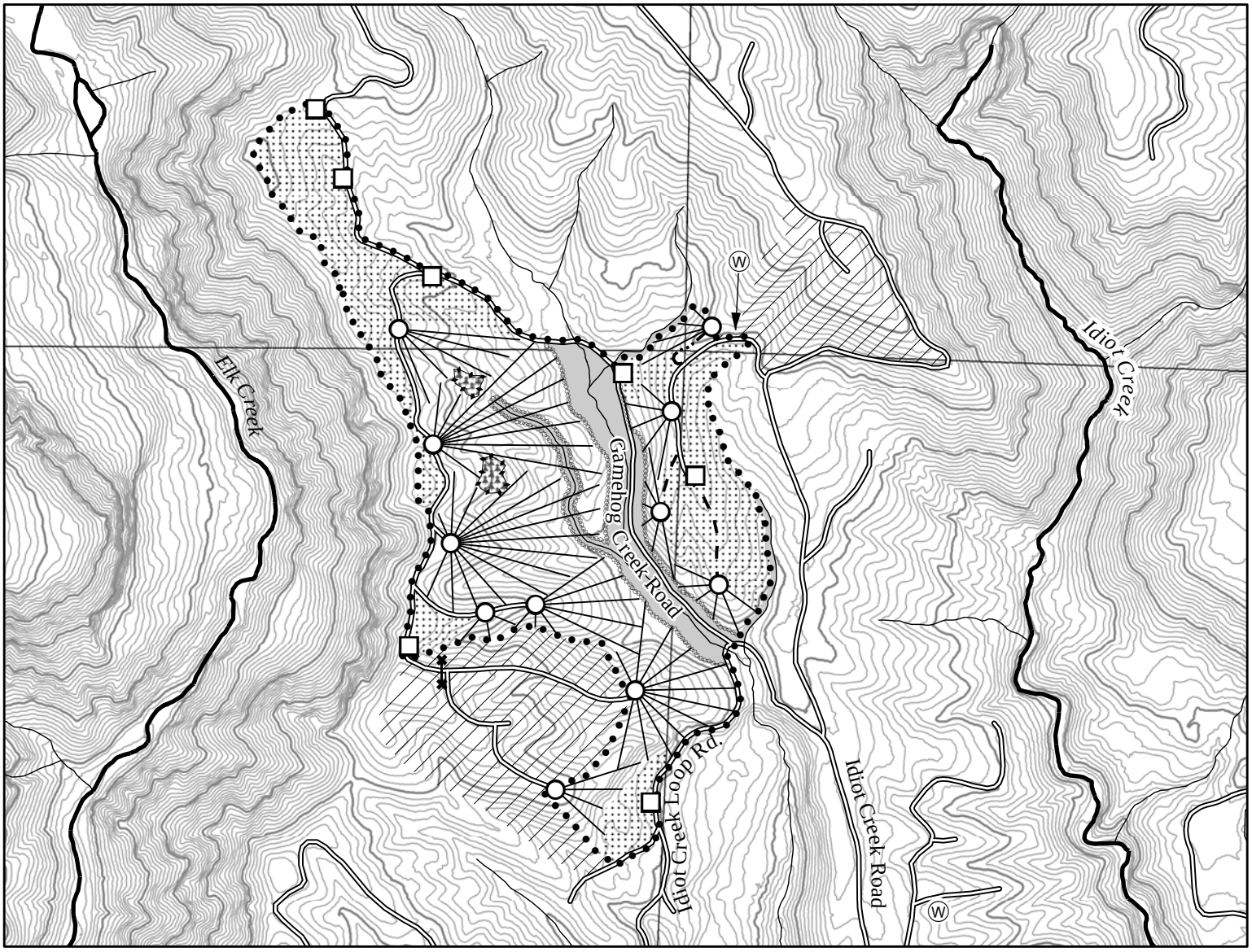
Log Stock Table - MBF

TT2N RR6W S20 Ty00MC 112.00

Project: HIHOGFIN
Acres 112.00

Date 9/18/2017
Time 8:39:33AM

Spp	S T	So Grt	Grade	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
NF		4M		12	4		4	.7			4									
NF		4M		14	1		1	.2			1	0								
NF		4M		16	1		1	.2				1								
NF		4M		20	1		1	.2			1									
NF		4M		28	2		2	.4			2									
NF		4M		30	4		4	.8			4									
NF		Totals			585	3.2	567	10.9			49	14	51	100		146	122	85		
Total		All Species			5,310	1.8	5,216	100.0		86	394	375	828	694	695	1351	559	225	8	



LOGGING PLAN

FOR TIMBER SALE CONTRACT 341-18 -19
HIGH ON THE HOG
PORTIONS OF SECTIONS 20, 21, 28, & 29
T2N, R6W, W.M.,
TILLAMOOK COUNTY, OREGON

Forest Grove District GIS
September, 2017
This product is for informational use and may not be suitable for legal, engineering, or surveying purposes.

Legend

- Timber Sale Boundary
- Surfaced Roads
- New Road Construction
- Non-Project Road
- Type F Stream
- Type N Stream
- Stream Buffers
- Stream Buffer Boundary
- Cable Landing
- Tractor Landing
- Reforested Area
- Green Tree Retention Area Boundary
- Green Tree Retention Area
- Tractor Yarding Area
- Cable Yarding Area
- ODF Ownership Boundary
- Section Line
- 20 Foot Contour
- 200 Foot Contour
- Road Blockage

1:12,000
1 inch = 1,000 feet

0 500 1,000 2,000
Feet

APPROXIMATE NET ACRES	
TRACTOR	43
CABLE	69
TOTAL	112