



Timber Sale Appraisal
Boxcar Willie
Sale FG-341-2018-28-

District: Forest Grove

Date: July 11, 2017

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$1,654,942.01	\$50,453.52	\$1,705,395.53
		Project Work:	(\$241,830.00)
		Advertised Value:	\$1,463,565.53



Timber Sale Appraisal Boxcar Willie Sale FG-341-2018-28-

District: Forest Grove

Date: July 11, 2017

Timber Description

Location: Portions of Sections 9 and 16, T1S, R6W, W.M., Washington County, Oregon, and portions of Section 27, T1N, R6W, W.M., Tillamook County, Oregon.

Stand Stocking: 20%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	18	0	98
Western Hemlock / Fir	13	0	98
Alder (Red)	11	0	95

Volume by Grade	2S	3S	4S	Camprun	Total
Douglas - Fir	2,187	1,394	173	0	3,754
Western Hemlock / Fir	108	408	37	0	553
Alder (Red)	0	0	0	157	157
Total	2,295	1,802	210	157	4,464

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

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
 $\$1,160.96/\text{MBF} = \$1,434.78/\text{MBF} - \$273.82/\text{MBF}$

SCALING COST ALLOWANCE = $\$5.00/\text{MBF}$

BRANDING AND PAINTING COST ALLOWANCE = $\$2.00/\text{MBF}$

FUEL COST ALLOWANCE = $\$3.00/\text{MBF}$

HAULING COST ALLOWANCE

Hauling costs equivalent to \$780 daily truck cost.

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

None.

Other Costs (No Profit & Risk added):

Mechanical Site-Prep: 25 acres @ $\$150/\text{acre} = \$3,750$

Block/Waterbar Roads/Skid Trails: 15 hrs x $\$150/\text{hour} = \$2,250$

Pile Landing Slash: 20 hrs @ $\$150/\text{hour} = \$3,000$

Equipment Cleaning: 3 pieces @ $\$1,000/\text{piece} = \$3,000$

Weyerhaeuser Road Use Fee: $\$47,752.23$

TOTAL Other Costs (No Profit & Risk added) = $\$59,752.23$

Road Maintenance

Move in: $\$2,000$

Road Maintenance: 8.9 miles @ $\$1,200/\text{mile} = \$10,680$

TOTAL Road Maintenance: $\$12,680/4,464 \text{ MBF} = \$2.84/\text{MBF}$



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Logging Conditions

Combination#: 1

Douglas - Fir	56.86%
Western Hemlock / Fir	56.95%
Alder (Red)	56.89%

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

yarding distance: Long (1,500 ft) **downhill yarding:** No

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

loads / day: 6 **bd. ft / load:** 4600

cost / mbf: \$217.39

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

Combination#: 2

Douglas - Fir	43.14%
Western Hemlock / Fir	43.05%
Alder (Red)	43.11%

Logging System: Shovel **Process:** Stroke Delimber

yarding distance: Short (400 ft) **downhill yarding:** No

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

loads / day: 10 **bd. ft / load:** 4600

cost / mbf: \$68.96

machines: Stroke Delimber (B)



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Logging Costs

Operating Seasons: 1.00	Profit Risk: 15%
Project Costs: \$241,830.00	Other Costs (P/R): \$0.00
Slash Disposal: \$0.00	Other Costs: \$59,752.23

Miles of Road

Road Maintenance: \$2.84

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	3.0	4.2
Western Hemlock / Fir	\$0.00	2.0	3.7
Alder (Red)	\$0.00	2.0	3.7



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Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
Douglas - Fir									
\$153.35	\$2.90	\$0.98	\$63.14	\$0.00	\$33.06	\$0.00	\$7.00	\$13.39	\$273.82
Western Hemlock / Fir									
\$153.49	\$2.90	\$0.98	\$107.52	\$0.00	\$39.73	\$0.00	\$7.00	\$13.39	\$325.01
Alder (Red)									
\$153.40	\$2.98	\$0.98	\$110.68	\$0.00	\$40.21	\$0.00	\$7.00	\$13.39	\$328.64

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$679.25	\$405.43	\$0.00
Western Hemlock / Fir	\$0.00	\$565.44	\$240.43	\$0.00
Alder (Red)	\$0.00	\$650.00	\$321.36	\$0.00



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Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	3,754	\$405.43	\$1,521,984.22
Western Hemlock / Fir	553	\$240.43	\$132,957.79
Alder (Red)	157	\$321.36	\$50,453.52

Gross Timber Sale Value

Recovery: \$1,705,395.53

Prepared By: Mark Savage

Phone: 503-503-2191

TIMBER SALE SUMMARY
Boxcar Willie
Contract No. 341-18-28

1. **Location:** Portions of Sections 9 and 16, T1S, R6W, W.M., Washington County, Oregon & portions of Section 27, T1N, R6W, W.M., Tillamook County, Oregon.
2. **Type of Sale:** This timber sale is 114 net acres of Modified Clearcut, 2 acres of Right-of-Way, and 1 acre of tree removal associated with a stockpile site. The timber will be sold on a recovery basis at a sealed bid auction.
3. **Revenue Distribution:** 100% BOF; 99.8% Washington County, 0.2 % Tillamook County.
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 May of 2017. For more information see Cruise Report.
6. **Timber Description:** The Timber Sale Area consists of an well-stocked 60 year old Douglas-fir stand with minor amounts of western hemlock, western redcedar, and hardwoods. The stand has an average of 236 ft² of basal area (all species), an average Douglas-fir DBH of 18 inches, and an estimated average net Douglas-fir volume of approximately 32.9 MBF per acre.
7. **Topography and Logging Method:** Slopes within the sale areas range from 10% to 80%, and western in aspect. The timber sale is 58% cable yarding and 42% ground-based yarding. The average cable corridor length is 700 feet and the maximum is 1,700 feet. The average horizontal skid trail length is approximately 200 feet and the maximum is approximately 500 feet.
8. **Access:** From Forest Grove, proceed south on Highway 47 for 15 miles. Turn right onto Pike Road and continue for 4.5 miles. Pike Road then becomes Turner Cr. Road. Continue down Turner Cr. Road for 4 miles and there is a Weyerhaeuser gate that requires a key. Continue through this gate on Turner Cr. Road for 4.5 miles. Turn right onto North Fork Trask River Road and continue for 1.5 miles and there is a Weyerhaeuser gate that requires a key. Continue through this gate on North Fork Trask River Road for 4.5 miles. Turn right onto Williams Road and continue for 2 miles and there is a Stimson gate that requires a combination. Continue through this gate on

Williams Road for 2.1 miles to the timber sale area. **Keys and lock combination are available at the district office in Forest Grove.**

9. Projects:

Project No. 1: Road Construction and Improvement	\$56,036.58
Project No. 2: Road Surfacing	\$134,098.15
Project No. 3: Grass Seed, Fertilize, and Mulch	\$1,140.69
Project No. 4: Expand Stockpile Site and Crush a 2,500 cy Stockpile	\$44,634.84
Move in and equipment cleaning:	\$5,919.74
Total Credit for all Projects (rounded)	\$241,830.00

PROJECT COST SUMMARY SHEET

Timber Sale: Boxcar Willie
Sale Number: 341-18-28

PROJECT NO. 1: ROAD CONSTRUCTION AND IMPROVEMENT

CONSTRUCTION

<u>Road Segment</u>	<u>Length</u>	<u>Cost</u>
C to D	7+55	\$2,843.90
E to F	18+25	\$6,757.60
	25+80 stations	
	0.49 miles	
<u>SUBTOTAL CONSTRUCTION =</u>		\$9,601.50

IMPROVEMENTS

<u>Road Segment</u>	<u>Length</u>	<u>Cost</u>
A to B	85+90	\$45,923.96
G to H	3+00	\$511.12
	88+90 stations	
	1.68 miles	
<u>SUBTOTAL IMPROVEMENTS =</u>		\$46,435.08
<u>TOTAL PROJECT NO. 1 COST =</u>		\$56,036.58

PROJECT NO. 2: SURFACING

<u>Road Segment</u>	<u>Rock Amount</u>	<u>Rock Type</u>	<u>Cost</u>
A to B	72	1½" - 0	1223.28
	5234 cy	3" - 0	\$92,694.14
	108 cy	36" - 24"	\$288.36
C to D	24 cy	1½" - 0	\$426.96
	793 cy	3" - 0	\$14,107.47
E to F	75 cy	1½" - 0	\$1,248.00
	1312 cy	3" - 0	\$22,776.32
G to H	93 cy	1½" - 0	\$1,333.62
Total	264 cy	1½" - 0	
	7339 cy	3" - 0	
	108 cy	36" - 24"	
<u>TOTAL PROJECT NO. 2 COST =</u>			\$134,098.15

PROJECT NO. 3 GRASS SEED, FERTILIZE, & MULCH

TOTAL PROJECT NO. 3 COST = \$1,140.69

PROJECT NO. 4 EXPAND STOCKPILE SITE AND CRUSH A 2,500cy STOCKPILE

TOTAL PROJECT NO. 4 COST = \$44,634.84

MOVE-IN, EQUIPMENT CLEANING, & WITHIN AREA MOVE

Grader	(within area move)	\$818.29
Roller (smooth/grid) & Compactor	(within area move)	\$496.67
Excavator - Equipment Cleaning	(within area move)	\$1,841.97
Dozer - Equipment Cleaning	(within area move)	\$1,886.70
Dump Trucks		\$730.36
Water Truck		\$145.75
<u>TOTAL MOVE-IN & EQUIPMENT CLEANING COST =</u>		\$5,919.74

TOTAL CREDITS \$241,830.00

SUMMARY OF CONSTRUCTION COST

Timber Sale: Boxcar Willie
Road Segment: A to B

Sale Number: 341-18-28
Improvement: 85+90 stations
1.63 miles

PROJECT NO. 1

EXCAVATION

Clearing & grubbing (scatter)	1.98	ac @	\$1,078.00	per acre =	\$2,134.44
Road widening (drift)	42.95	sta @	\$110.00	per sta =	\$4,724.50
Clean/Construct ditch & scatter waste	85.90	sta @	\$60.00	per sta =	\$5,154.00
Approach to landing	1.00	sta @	\$110.00	per sta =	\$110.00
Landing	2	ea @	\$314.00	per ea =	\$628.00
Fill Excavation					
Excavate existing puncheons	1,852	cy @	\$1.64	per cy =	\$3,037.04
End-haul unsuitable fill material	1,806	cy @	\$1.31	per cy =	\$2,365.29
Excavate fill material	1,806	cy @	\$1.64	per cy =	\$2,961.12
Place Fill	2,407	cy @	\$2.40	per cy =	\$5,777.79
Compact fill	2,407	cy @	\$0.50	per cy =	\$1,203.71
Pump culvert installation	3	day @	\$150.00	per day =	\$450.00
Compact waste area	1,806	cy @	\$0.30	per cy =	\$541.67
Balanced road construction (84+30 to 85+90)	1.40	sta @	\$110.00	per sta =	\$154.00
Grade, ditch, & roll	86.90	sta @	\$36.00	per sta =	\$3,128.40
TOTAL EXCAVATION COSTS =					\$32,369.96

CULVERTS - MATERIALS & INSTALLATION

Culverts					
400 LF of 18"	\$8,000.00				
50 LF of 24"	\$1,450.00				
100 LF of 30"	\$3,900.00				
Culvert Markers					
16 markers	\$160.00				
		Bands			
		1 ea of 30"	\$44.00		
TOTAL CULVERT COSTS =					\$13,554.00

PROJECT NO. 1 TOTAL COST = \$45,923.96

PROJECT NO. 2:

SURFACING		10" deep =	53 cy/sta			
A to B	4,553	cy of	3" - 0	@	\$17.71	per cy = \$80,633.63
Turnouts	264	cy of	3" - 0	@	\$17.71	per cy = \$4,675.44
Turnaround	16	cy of	3" - 0	@	\$17.71	per cy = \$283.36
Junctions	48	cy of	3" - 0	@	\$17.71	per cy = \$850.08
Landings	300	cy of	3" - 0	@	\$17.71	per cy = \$5,313.00
Culvert bedding	72	cy of	1½" - 0	@	\$16.99	per cy = \$1,223.28
Approach to landings	53	cy of	3" - 0	@	\$17.71	per cy = \$938.63
Energy Dissipator	108	cy of	36" - 24"	@	\$2.67	per cy = \$288.36
Rock Total =	5,414					
	72	cy of	1½" - 0			
	5,234	cy of	3" - 0			
	108	cy of	36" - 24"			
PROJECT NO. 2 TOTAL COST =					\$94,205.78	

PROJECT NO. 3:

Grass seed & fertilizer	0.99	acres	@	\$425.00	per acre =	\$419.05
Mulch	10	bales	@	\$8.00	per bale =	\$80.00
PROJECT NO. 3 TOTAL COST =					\$499.05	

TOTAL COST = \$140,628.79

SUMMARY OF CONSTRUCTION COST

Timber Sale: Boxcar Willie
 Road Segment: C to D

Sale Number: 341-18-28
 Construction: 7+55 stations
0.14 miles

PROJECT NO. 1

EXCAVATION

Clearing & grubbing (scatter)	0.70	ac @	\$1,078.00	per acre =	\$754.60
Balanced road construction	5.55	sta @	\$110.00	per sta =	\$610.50
Drift	2.00	sta @	\$180.00	per sta =	\$360.00
Approach to landing	1.50	sta @	\$110.00	per sta =	\$165.00
Landing	2	ea @	\$314.00	per ea =	\$628.00
Grade, ditch, & roll	9.05	sta @	\$36.00	per sta =	\$325.80

PROJECT NO. 1 TOTAL COST = \$2,843.90

PROJECT NO. 2:

SURFACING

		10 " deep =	53 cy/sta				
C to D	401	cy of	3" - 0	@	\$17.79	per cy =	\$7,133.79
Junction	12	cy of	3" - 0	@	\$17.79	per cy =	\$213.48
Landing	300	cy of	3" - 0	@	\$17.79	per cy =	\$5,337.00
Approach to landing	80	cy of	3" - 0	@	\$17.79	per cy =	\$1,423.20
Traction rock	24	cy of	1½" - 0	@	\$17.79	per cy =	\$426.96
Rock Total =	817						
	24	cy of	1½" - 0				
	793	cy of	3" - 0				

PROJECT NO. 2 TOTAL COST = \$14,534.43

PROJECT NO. 3:

Grass seed & fertilizer	0.35	acres	@	\$425.00	per acre =	\$148.75
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PROJECT NO. 3 TOTAL COST = \$148.75

TOTAL COST = \$17,527.08

SUMMARY OF CONSTRUCTION COST

Timber Sale: Boxcar Willie
Road Segment: E to F

Sale Number: 341-18-28
Construction: 18+25 stations
0.35 miles

PROJECT NO. 1

EXCAVATION

Clearing & grubbing (scatter)	2.10	ac @	\$1,078.00	per acre =	\$2,263.80
Balanced road construction	12.00	sta @	\$110.00	per sta =	\$1,320.00
Drift	6.25	sta @	\$180.00	per sta =	\$1,125.00
"Y" Junction	1	sta @	\$110.00	per sta =	\$110.00
Turnouts	2	ea @	\$66.00	per ea =	\$132.00
Approach to landing	1.30	sta @	\$110.00	per sta =	\$143.00
Landing	1	ea @	\$314.00	per ea =	\$314.00
Grade, ditch, & roll	20.55	sta @	\$36.00	per sta =	\$739.80

TOTAL EXCAVATION COSTS = \$6,147.60

CULVERTS - MATERIALS & INSTALLATION

Culverts	
30 LF of 18"	\$600.00
Culvert Markers	
1 markers	\$10.00

TOTAL CULVERT COSTS = \$610.00

PROJECT NO. 1 TOTAL COST = \$6,757.60

PROJECT NO. 2:

SURFACING	10" deep =	53 cy/sta				
E to F	968	cy of	3" - 0	@	\$17.36	per cy = \$16,804.48
Turnouts	48	cy of	3" - 0	@	\$17.36	per cy = \$833.28
Junction	24	cy of	3" - 0	@	\$17.36	per cy = \$416.64
Y Junction	53	cy of	3" - 0	@	\$17.36	per cy = \$920.08
Landing	150	cy of	3" - 0	@	\$17.36	per cy = \$2,604.00
Approach to landing	69	cy of	3" - 0	@	\$17.36	per cy = \$1,197.84
Traction rock	75	cy of	1½" - 0	@	\$16.64	per cy = \$1,248.00
Rock Total =	1,387					
	75	cy of	1½" - 0			
	1,312	cy of	3" - 0			

PROJECT NO. 2 TOTAL COST = \$24,024.32

PROJECT NO. 3:

Grass seed & fertilizer	1.05	acres	@	\$425.00	per acre =	\$446.25
Mulch	4	bales	@	\$8.00	per bale =	\$32.00

PROJECT NO. 3 TOTAL COST = \$478.25

TOTAL COST = \$31,260.17

SUMMARY OF CONSTRUCTION COST

Timber Sale: Boxcar Willie
 Road Segment: G to H

Sale Number: 341-18-28
 Improvement: 3+00 stations
0.06 miles

PROJECT NO. 1

EXCAVATION

Clearing & grubbing (scatter)	0.04	ac @	\$1,078.00	per acre =	\$43.12
Clean/Construct ditch both sides	3.00	sta @	\$120.00	per sta =	\$360.00
Grade, ditch, & roll	3.00	sta @	\$36.00	per sta =	\$108.00

PROJECT NO. 1 TOTAL COST = \$511.12

PROJECT NO. 2:

SURFACING

	6 " deep =	31 cy/sta			
G to H	93	cy of	1½" - 0	@	\$14.34 per cy = \$1,333.62
Rock Total =	93				
	93	cy of	1½" - 0		

PROJECT NO. 2 TOTAL COST = \$1,333.62

PROJECT NO. 3:

Grass seed & fertilizer	0.03	acres	@	\$425.00	per acre = \$14.64
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PROJECT NO. 3 TOTAL COST = \$14.64

TOTAL COST = \$1,859.38

SUMMARY OF CONSTRUCTION COST

Timber Sale: Boxcar Willie

Sale Number: 341-18-28

PROJECT NO. 4

Clearing & grubbing (scatter)	0.16	acres	@	\$1,078.00	per ac =	\$172.48
Expand and construct site	10.00	hr	@	\$160.00	per hr =	\$1,600.00
Grade, shape and roll site	0.6	acres	@	\$435.60	per ac =	\$261.36
Crush 2,500cy (Stockpile Measurement)	2,900	cy of 1½"-0	@	\$13.59	per cy =	\$39,411.00
Build & shape stockpile	2,900	cy of 1½"-0	@	\$1.10	per cy =	\$3,190.00

PROJECT NO. 4 TOTAL COST = \$44,634.84

ROCK PIT DEVELOPMENT & CRUSHING COST SUMMARY

Timber Sale:	<u>Boxcar Willie</u>
Sale Number:	<u>341-18-28</u>
Pit Name:	<u>Seven Cedars Pit</u>

1½" - 0:	<u>264 cy</u>	(truck measure)
3" - 0:	<u>7,339 cy</u>	(truck measure)
Stockpile:	<u>2,500 cy</u>	(stockpile measure)
Total truck yardage:	<u>10,503 cy</u>	
Total in place yardage:	<u>8,079 cy</u>	

Swell:	<u>130%</u>
Shrinkage:	<u>116%</u>
Screening Loss:	<u>15%</u>

Pit development, including clearing & grubbing of waste area, place overburden in waste area, spread & compact.

					\$1,577.33
Drill & shoot	<u>\$2.80</u>	/ cy x	<u>9,505</u>	cy =	\$26,613.94
Load crusher	<u>\$0.80</u>	/ cy x	<u>12,356</u>	cy =	\$9,885.18
Screen rock	<u>\$2.90</u>	/ cy x	<u>12,356</u>	cy =	\$35,833.76
Waste reject	<u>\$0.80</u>	/ cy x	<u>1,853</u>	cy =	\$1,482.78
Crush (1 ½" - 0)	<u>\$3.30</u>	/ cy x	<u>264</u>	cy =	\$871.20
Crush (3" - 0)	<u>\$3.30</u>	/ cy x	<u>7,339</u>	cy =	\$24,218.70
Crush (1½"-0 Stockpile)	<u>\$3.30</u>	/ cy x	<u>2,900</u>	cy =	\$9,570.00
Load dump truck	<u>\$0.80</u>	/ cy x	<u>10,503</u>	cy =	\$8,402.40
				Subtotal:	\$118,455.29

Move in & setup drill		\$674.81
Equipment cleaning & move in excavator		\$2,096.20
Move in & setup screening plant		\$1,843.00
Move in loader		\$957.49
Move in crusher		\$3,286.00
Setup crusher		\$3,327.00
Gradation tests	\$275.00 /2,000cy x <u>6</u> tests	\$1,650.00
Change gradation		\$71.50
Clean up pit		\$500.00
	Subtotal:	\$14,406.00

TOTAL PRODUCTION COST = \$132,861.29

ROCK DEVELOPMENT COST = \$12.65/cy

CRUISE REPORT
Boxcar Willie
341-18-28

1. LOCATION: Portions of Sections 9 & 16, T1S, R6W, Washington County, Oregon. Portions of Section 27, T1N, R6W, W.M., Tillamook County, Oregon.

2. CRUISE DESIGN:

Pre-cruise evaluation indicated that the stand's average DBH is approximately 18 inches and its 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 cruised in 05/2017. The Timber Sale Area was sampled with 26 variable radius grade plots using a 40 BAF prism, as well as 6 variable radius grade plots using a 54.45 BAF prism. Originally this cruise was designed to use a 40 BAF prism, but due to encountering high tree densities areas a 54.45 BAF prism was used to maximize efficiency in the field. Plots were laid out on a 5 chain x 5 chain grid. Plots falling on or near existing roads or no-harvest areas were offset 1 chain.

4. CRUISE RESULTS

180 trees were measured and graded producing a cumulative Sampling Error of 9.3% on the Basal Area and 9.8% on the Board Foot Volume.

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 cruisers Mark Savage and Kenton Burns.

Prepared by:

Mark Savage

Date

Reviewed by:

Erik Marcy

Date

Erik Marcy

6-30-17

TC PSTATS			PROJECT STATISTICS					PAGE	1			
			PROJECT		BOXCARA		DATE 6/12/2017					
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt		
05N	03	09	00A1	00MC		114.00	32	180	S	W		
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			32	180	5.6							
CRUISE			32	180	5.6	18,156	1.0					
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			150	113.1	17.9	107	46.5	196.5	33,413	32,944	7,848	7,848
WHEMLOCK			21	29.2	13.3	108	7.7	28.1	4,880	4,855	1,097	1,097
R ALDER			9	17.0	11.0	87	3.4	11.3	1,448	1,419	300	300
TOTAL			180	159.3	16.5	105	58.1	235.8	39,741	39,219	9,245	9,245
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL	68.1	COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10		15	
DOUG FIR		68.0	5.5	449	475	501						
WHEMLOCK		92.9	20.8	197	249	301						
R ALDER		50.3	17.7	78	94	111						
TOTAL		75.1	5.6	406	430	454		225	56		25	
CL	68.1	COEFF		SAMPLE TREES - CF				# OF TREES REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10		15	
DOUG FIR		63.8	5.2	106	112	118						
WHEMLOCK		92.0	20.6	45	57	68						
R ALDER		51.2	18.1	16	20	24						
TOTAL		71.6	5.3	96	101	106		204	51		23	
CL	68.1	COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10		15	
DOUG FIR		82.8	14.6	97	113	130						
WHEMLOCK		305.5	54.0	13	29	45						
R ALDER		478.0	84.4	3	17	31						
TOTAL		95.6	16.9	132	159	186		365	91		41	
CL	68.1	COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10		15	
DOUG FIR		52.9	9.3	178	197	215						
WHEMLOCK		297.4	52.5	13	28	43						
R ALDER		504.7	89.1	1	11	21						
TOTAL		57.5	10.2	212	236	260		132	33		15	
CL	68.1	COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10		15	
DOUG FIR		55.8	9.8	29,699	32,944	36,189						
WHEMLOCK		299.6	52.9	2,286	4,855	7,425						
R ALDER		531.8	93.9	86	1,419	2,753						
TOTAL		60.5	10.7	35,026	39,219	43,412		146	37		16	
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		54.0	9.5	7,099	7,848	8,597						
WHEMLOCK		299.4	52.9	517	1,097	1,678						

TC PSTATS				PROJECT STATISTICS				PAGE	2
				PROJECT BOXCARA				DATE	6/12/2017
TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	03	09	00A1	00MC	114.00	32	180	S	W
CL	68.1	COEFF	NET CUFT FT/ACRE				# OF PLOTS REQ.	INF. POP.	
SD:	1.00	VAR.	S.E.%	LOW	AVG	HIGH	5	10	15
R ALDER		529.6	93.5	19	300	580			
TOTAL		57.2	10.1	8,311	9,245	10,179	131	33	15

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																	
<div>T05N R03W S09 Ty00MC114.00</div>				Project: BOXCARAW										Page 1							
				Acres 114.00										Date 6/12/2017							
														Time 11:12:30AM							
Spp	S T	So rt	Gr ad	% Net BdFt	Bd. Ft. per Acre Def%GrossNet			Total Net MBF	Percent of Net Board Foot Volume								Average Log				Logs Per /Acre
									Log Scale Dia.				Log Length				Ln Ft	Dia In	Bd Ft	CF/ Lf	
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99					
DF			CU														10	11		0.00	7.9
DF			2M	58	1.9	19,575	19,201	2,189			64	36	1	1	0	98	39	15	336	1.93	57.2
DF			3M	37	.7	12,320	12,232	1,394		93	4	3		1	4	95	39	8	102	0.66	119.9
DF			4M	5	.4	1,518	1,512	172		100			35	65			21	6	25	0.33	61.0
DF Totals				84	1.4	33,413	32,944	3,756		39	39	22	2	4	2	93	34	9	134	0.95	246.0
RA			CU														5	10		0.00	5.4
RA			CR	100	2.0	1,448	1,419	162		93	7		21	24	19	37	28	8	57	0.43	25.0
RA Totals				4	2.0	1,448	1,419	162		93	7		21	24	19	37	24	8	47	0.42	30.4
WH			CU														8	20		0.00	.4
WH			2M	19		943	943	108			62	38				100	40	14	324	1.78	2.9
WH			3M	74	.7	3,609	3,585	409		100					3	97	39	8	89	0.51	40.4
WH			4M	7		327	327	37		100			32	68			21	6	25	0.28	13.2
WH Totals				12	.5	4,880	4,855	554		81	12	7	2	5	2	91	35	8	85	0.55	56.9
Totals					1.3	39,741	39,219	4,471		46	34	19	3	5	2	90	33	9	118	0.84	333.3

TC PLOGSTVB				Log Stock Table - MBF																
T05N R03W S09 Ty00MC 114.00				Project: BOXCARAW Acres 114.00				Page 1 Date 6/12/2017 Time 11:12:30AM												
Spp	S T	So Gr rt 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		2M	16	9	22.2	7	.2							7						
DF		2M	18	10		10	.3							10						
DF		2M	23	7	9.1	6	.2					6								
DF		2M	27	7	6.2	6	.2					6								
DF		2M	34	10		10	.3					10								
DF		2M	36	18	9.5	16	.4							16						
DF		2M	40	2,171	1.8	2,133	56.8					470	566	911	169	17				
DF		3M	22	8	8.0	7	.2							7						
DF		3M	28	3		3	.1			3										
DF		3M	30	5		5	.1			5										
DF		3M	32	20		20	.5			18	2									
DF		3M	34	32		32	.8			32										
DF		3M	36	40		40	1.1			40										
DF		3M	38	6		6	.2			6										
DF		3M	40	1,291		1,282	34.1			302	371	518	56	14	22					
DF		4M	12	13		13	.3			13										
DF		4M	14	10		10	.3			10										
DF		4M	16	10		10	.3			10										
DF		4M	18	16		16	.4			13	3									
DF		4M	20	12		12	.3			12										
DF		4M	22	10		10	.3			10										
DF		4M	24	22		22	.6			20	1									
DF		4M	26	10		10	.3			10										
DF		4M	28	29		29	.8			29										
DF		4M	30	42	1.7	41	1.1			41										
DF		Totals		3,809	1.4	3,756	84.0			574	376	518	548	566	966	191	17			
RA		CR	14	6		6	4.0			6										
RA		CR	16	19		19	11.9			9		11								
RA		CR	18	9		9	5.3			9										
RA		CR	22	13	25.0	10	6.0			10										
RA		CR	24	9		9	5.3			9										
RA		CR	28	13		13	8.1			13										
RA		CR	30	7		7	4.1			7										
RA		CR	34	30		30	18.7			13		17								
RA		CR	38	15		15	9.3			15										
RA		CR	40	44		44	27.2			28	16									

Log Stock Table - MBF

T05N R03W S09 Ty00MC 114.00

Project: BOXCARAW
Acres 114.00Page 2
Date 6/12/2017
Time 11:12:30AM

Spp	S T	So Gr rt de	Log Len	Gross MBF	Def %	Net MBF	% Sp	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+
RA		Totals		165	2.0	162	3.6			94	40	17	11						
WH		2M	40	108		108	19.4					49		18	19	22			
WH		3M	32	12		12	2.2			12									
WH		3M	38	48		48	8.6			48									
WH		3M	40	352		349	63.0			70	212	66							
WH		4M	12	4		4	.7			4									
WH		4M	18	3		3	.5			3									
WH		4M	20	6		6	1.0			6									
WH		4M	22	6		6	1.2			6									
WH		4M	26	5		5	1.0			5									
WH		4M	30	13		13	2.4			13									
WH		Totals		556		554	12.4			167	212	66	49	18	19	22			
Total		All Species		4,530	1.3	4,471	100.0			835	629	601	607	584	985	213	17		

TC PSTNDSUM		Stand Table Summary											Page	1
													Date:	6/12/2017
T05N R03W S09 Ty00MC 114.00		Project BOXCARAW											Time:	11:12:29AM
		Acres 114.00											Grown Year:	
S	Sample	Tot				Average Log		Net		Net	Net	Totals		
Spe T	DBH	Trees	FF	Av	Ht	Trees/	BA/	Logs	Net	Net	Tons/	Tons	Cunits	MBF
			16'			Acre	Acre	Acre	Cu.Ft.	Bd.Ft.	Acre	Acre		
DF	9	4	89	75		12.340	5.45	12.34	9.2	48.5	3.23	113	599	369
DF	10	2	88	79		4.584	2.50	4.58	11.8	55.0	1.54	54	252	176
DF	11	4	87	90		8.261	5.45	12.05	11.9	49.0	4.08	143	590	465
DF	12	4	87	87		7.516	5.90	12.87	11.5	45.8	4.21	148	590	480
DF	13	7	88	96		9.983	9.20	19.97	14.7	59.0	8.36	293	1,178	954
DF	14	4	87	94		5.100	5.45	10.20	16.9	69.5	4.92	173	709	561
DF	15	5	87	100		5.093	6.25	10.19	20.6	84.0	5.98	210	856	681
DF	16	7	86	114		6.590	9.20	13.18	26.4	111.1	9.92	348	1,464	1,131
DF	17	5	86	106		4.538	7.15	9.08	28.1	110.7	7.28	255	1,005	830
DF	18	9	87	119		6.877	12.15	15.88	30.9	124.4	13.96	490	1,975	1,591
DF	19	7	86	112		4.444	8.75	10.79	30.7	120.0	9.43	331	1,295	1,075
DF	20	9	86	122		5.571	12.15	14.01	36.2	143.9	14.47	508	2,015	1,650
DF	21	11	86	127		5.904	14.20	15.97	38.6	159.1	17.55	616	2,540	2,001
DF	22	5	87	130		2.539	6.70	7.14	42.6	189.6	8.68	305	1,355	990
DF	23	13	85	125		5.945	17.15	16.54	41.9	175.8	19.76	693	2,906	2,253
DF	24	12	85	130		4.918	15.45	14.76	46.7	193.9	19.62	688	2,861	2,237
DF	25	7	85	130		2.567	8.75	7.70	51.4	219.0	11.29	396	1,687	1,287
DF	26	8	84	137		2.957	10.90	8.87	57.6	250.7	14.56	511	2,224	1,660
DF	27	6	83	136		1.886	7.50	5.66	61.1	258.9	9.86	346	1,465	1,124
DF	28	6	87	138		1.754	7.50	4.97	71.8	331.8	10.17	357	1,649	1,159
DF	29	8	82	138		2.180	10.00	6.81	66.9	276.8	12.98	455	1,886	1,480
DF	30	2	83	143		.509	2.50	1.53	78.9	361.7	3.44	121	553	392
DF	31	1	80	135		.238	1.25	.72	79.7	333.3	1.62	57	238	185
DF	32	1	84	130		.224	1.25	.67	82.1	363.3	1.57	55	244	179
DF	34	1	79	150		.198	1.25	.59	97.5	436.7	1.65	58	260	188
DF	35	1	79	153		.187	1.25	.56	109.6	473.3	1.75	61	266	200
DF	39	1	80	160		.151	1.25	.45	137.1	630.0	1.77	62	285	201
DF	Totals	150	87	107		113.054	196.53	238.06	33.0	138.4	223.67	7,848	32,944	25,498
WH	9	1	92	86		2.829	1.25	2.83	10.9	60.0	.99	31	170	113
WH	10	1	92	90		2.292	1.25	2.29	14.2	70.0	1.04	33	160	119
WH	11	2	90	96		3.788	2.50	7.58	11.3	50.0	2.74	86	379	312
WH	12	4	88	108		6.941	5.45	13.88	14.8	62.0	6.57	205	860	749
WH	13	3	87	118		4.558	4.20	9.12	19.4	87.0	5.66	177	793	646
WH	14	4	89	113		5.100	5.45	10.20	21.4	96.9	6.99	218	988	797
WH	15	1	91	129		1.019	1.25	3.06	18.6	86.7	1.82	57	265	208
WH	17	1	87	131		.793	1.25	2.38	24.9	103.3	1.90	59	246	216
WH	19	1	85	131		.864	1.70	2.59	30.5	123.3	2.53	79	320	288
WH	23	1	86	116		.433	1.25	.87	49.9	225.0	1.38	43	195	158
WH	27	1	85	110		.314	1.25	.94	55.2	230.0	1.67	52	217	190
WH	30	1	87	118		.255	1.25	.76	74.5	343.3	1.82	57	262	208
WH	Totals	21	89	108		29.186	28.06	56.50	19.4	85.9	35.12	1,097	4,855	4,003
RA	9	1	89	64		2.829	1.25	2.83	6.8	30.0	.53	19	85	60
RA	10	2	92	89		4.584	2.50	4.58	12.1	60.0	1.52	55	275	173
RA	11	3	92	95		5.682	3.75	11.36	9.6	46.7	3.01	109	530	343
RA	12	1	91	79		1.592	1.25	1.59	20.2	90.0	.88	32	143	101
RA	14	2	93	96		2.339	2.50	4.68	18.0	82.5	2.31	84	386	263
RA	Totals	9	92	87		17.025	11.25	25.05	12.0	56.7	8.25	300	1,419	940
Totals		180	88	105		159.266	235.84	319.60	28.9	122.7	267.03	9,245	39,219	30,442

VOLUME SUMMARY

(Shown in MBF)

Boxcar Willie**341-18-28****June, 2017****AREA 1: MC (114 ACRES)**

SPECIES		2 SAW	3 SAW	4 SAW	Camp Run	TOTAL
Douglas-fir	Cruise Volume	2,189	1,394	172		3,755
	Hidden D&B (2%)	(44)	(28)	(3)		(75)
	NET TOTAL	2,145	1,366	169		3,680
	% of Total	58	37	5		
Western Hemlock	Cruise Volume	108	409	37		554
	Hidden D&B (2%)	(2)	(8)	(1)		(11)
	NET TOTAL	106	401	36		543
	% of Total	20	74	7		
Red Alder	Cruise Volume				162	162
	Hidden D&B (5%)				(8)	(8)
	NET TOTAL				154	154
	% of Total				100	

AREA 2: R/W (2 ACRES)

SPECIES		2 SAW	3 SAW	4 SAW	Camp Run	TOTAL
Douglas-fir	Cruise Volume	38	25	3		66
	Hidden D&B (2%)	(1)	(1)	()		(2)
	NET TOTAL	37	24	3		64
	% of Total	58	38	5		
Western Hemlock	Cruise Volume	2	7	1		10
	Hidden D&B (2%)	()	()	()		()
	NET TOTAL	2	7	1		10
	% of Total	20	70	10		
Red Alder	Cruise Volume				3	3
	Hidden D&B (5%)				()	()
	NET TOTAL				3	3
	% of Total				100	

AREA 3: MC (1 ACRES)

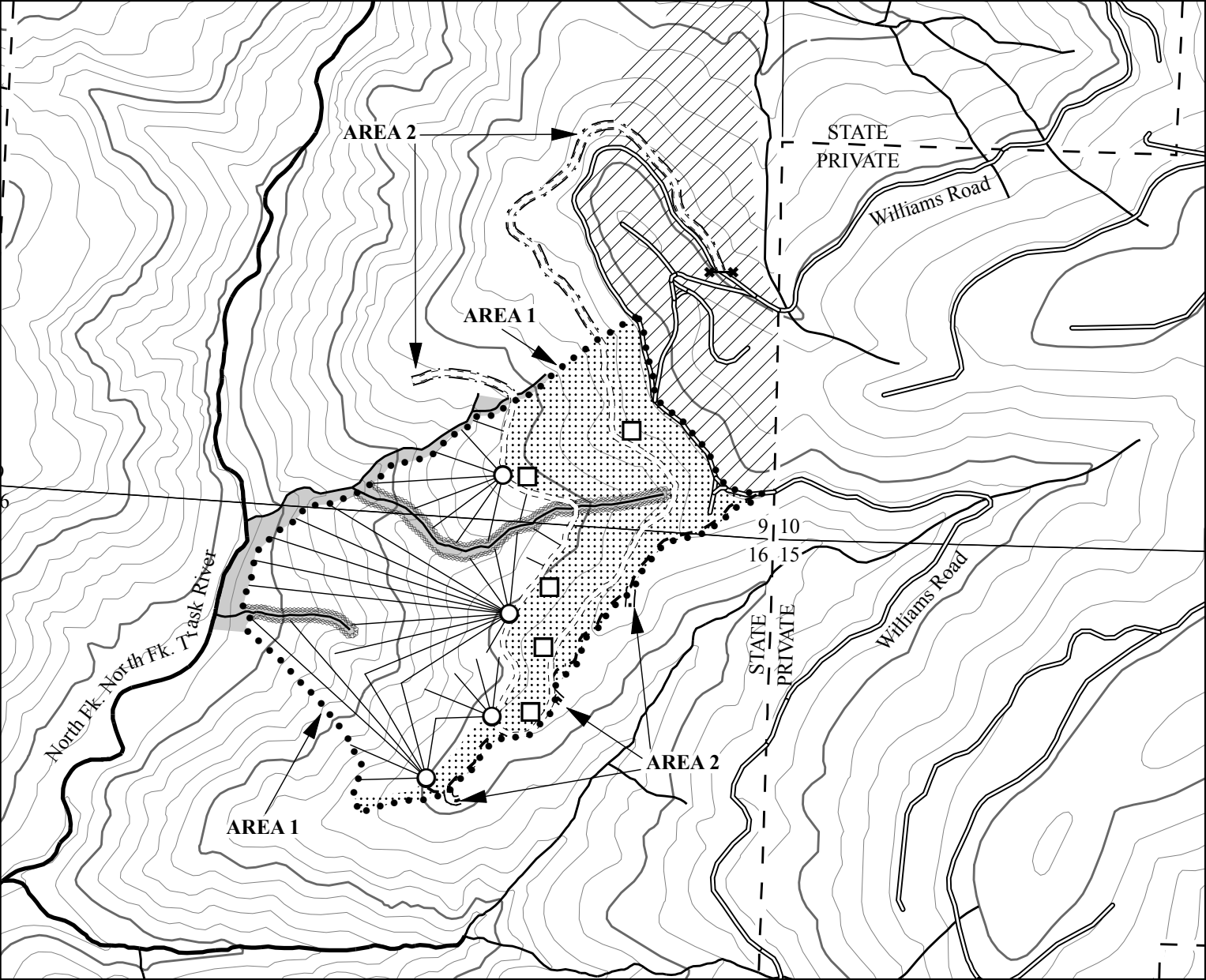
SPECIES		2 SAW	3 SAW	4 SAW	Camp Run	TOTAL
Douglas-fir	Cruise Volume	5	4	1		10
	Hidden D&B (2%)	()	()	()		()
	NET TOTAL	5	4	1		10
	% of Total	50	40	10		

SALE TOTAL

SPECIES		2 SAW	3 SAW	4 SAW	Camp Run	TOTAL
Douglas-fir		2,187	1,394	173		3,754
Western hemlock		108	408	37		553
Red Alder					157	157
Total		2,295	1,802	210	157	4,464

Enter Sale name/number, date, harvest type, acres and cruise volume

Print Page 1 only



LEGEND

- Timber Sale Boundary
- Surfaced Road
- - - Unsurfaced Road
- - - New Road Construction
- : Right-of-Way Boundary
- Type F Stream
- Type N Stream
- Stream Buffer Boundary
- Stream Buffer
- /// Reforestation Area
- Cable Landing
- Tractor Landing
- ← Cable Yarding Area
- Tractor Yarding Area
- 200 Foot Contour Band
- 40 Foot Contour Band
- *-* Road Blockage
- ODF Ownership Boundary
- Sections

LOGGING PLAN

FOR TIMBER SALE CONTRACT # 341-18-28
BOXCAR WILLIE
PORTIONS OF SECTIONS 9 & 16, T1S, R6W, W.M.,
WASHINGTON COUNTY, OREGON
AND PORTIONS OF SECTION 27, T1N, R6W, W.M.,
TILLAMOOK COUNTY, OREGON.

Forest Grove District GIS
June, 2017

This product is for informational use and may not be
suitable for legal, engineering, or surveying purposes.



**APPROXIMATE NET ACRES
TRACTOR CABLE**

	TRACTOR	CABLE
AREA 1	48	66
AREA 2	2	0
AREA 3	1	0
TOTAL	51	66

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

