



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal  
South Bushong  
Sale TL-341-2019-W00762-01

District: Tillamook

Date: January 18, 2019

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**Cost Summary**

	<b>Conifer</b>	<b>Hardwood</b>	<b>Total</b>
<b>Gross Timber Sale Value</b>	\$1,239,859.50	\$341,457.82	\$1,581,317.32
		<b>Project Work:</b>	(\$83,510.00)
		<b>Advertised Value:</b>	\$1,497,807.32



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**Timber Description**

**Location:** Sections 13, 24, and 25, T2S, R8W, and Sections 18, 19, and 30, T2S, R7W, W.M.,

**Stand Stocking: 80%**

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	17	0	95
Alder (Red)	12	0	95

Volume by Grade	2S	3S & 4S 6"-11"	8" - 9"	10" - 11"	12"+	Total
Douglas - Fir	1,774	2,301	0	0	0	4,075
Western Hemlock / Fir	0	0	0	0	0	0
Alder (Red)	0	0	697	242	95	1,034
Maple	0	0	0	0	0	0
<b>Total</b>	1,774	2,301	697	242	95	5,109

**Comments:** Pond Values Used: November 2018  
Region: Astoria, Forest Grove, and Tillamook

Western Red Cedar and Other Cedars Stumpage Price = Pond Value – Logging Cost  
 $\$1,052/\text{MBF} - \$413.99/\text{MBF} = \$638.01/\text{MBF}$

Western Hemlock and other Conifers = Pond Value – Logging Cost  
 $\$583/\text{MBF} - \$413.99/\text{MBF} = \$169.01/\text{MBF}$

Maple and other Hardwoods = Pond Value – Logging Cost  
 $\$438.3/\text{MBF} - \$413.99/\text{MBF} = \$24.31/\text{MBF}$

Pulp (Conifer and Hardwood) Price = \$ 2.5/ MBF

BRAND AND PAINT ALLOWANCE = \$2.00/ MBF

FUEL COST ALLOWANCE = \$3.00/ Gallon

HAULING COST ALLOWANCE

Hauling cost equivalent to \$950 daily truck cost

Other Costs with Profit and Risk to be added:  
Snag creation: 428 snags x \$10/ snag = \$4,280

TOTAL Other Costs with profit and Risk to be added = \$4,280

Other Costs with No Profit and Risk Added:

Non-Project road 1# construction: 7+40 stations x \$400/station = \$2,960

Machine Cleaning: \$1,000/machine x 2 machines x 2 seasons = \$4,000

Slash piling and sorting (Cable Ground): \$5/ac x 209 ac. = \$1,045

Heliport Construction: \$400 (\$200/area)

Road blocking \$50/ block x 1 roads = \$50

Ditch Cleaning and Bank Sluff Removal:

Mobilization: two times – dump truck w/ tilt bed & small excavator: \$890 x 2 = \$1,780

Small excavator (Cat 312 or equivalent): 40 hours @ \$135/ hour = \$5,400

Dump truck: 40 hours @ \$90/ hour = \$3,600

TOTAL Other Costs no Profit and Risk added = \$19,235

ROAD MAINTENANCE:

Spot Rocking: 20cy/MMBF/mile x 5.109 MMBF x \$19/cy x 10.6 miles / 5,109 MBF= \$4.03/MBF Interim

Grading: \$1,150/ mile x 10.6 miles x 2 times/ 5,109 MBF = \$4.77/MBF

Final Maintenance Grading: \$1,500 x 10.6 miles/ 5,109 MBF = \$3.11/MBF

Final Maintenance Compaction: \$950/mile x 4.2 miles/ 5,109 MBF = \$0.78/ MBF

Total Road Maintenance: \$12.69/MBF



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**Logging Conditions**

**Combination#: 1**                      Douglas - Fir                      39.74%  
    Alder (Red)                      42.63%

**Logging System:** Cable: Medium Tower >40 - <70                      **Process:** Harvester Head Delimiting

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

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

**loads / day:** 8                      **bd. ft / load:** 4300

**cost / mbf:** \$226.17

**machines:** Log Loader (A)  
 Forwarder  
 Harvester  
 Tower Yarder (Medium)

**Combination#: 2**                      Douglas - Fir                      6.58%  
    Alder (Red)                      7.54%

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

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

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

**loads / day:** 14                      **bd. ft / load:** 4000

**cost / mbf:** \$95.43

**machines:** Forwarder  
 Harvester

**Combination#: 3**                      Douglas - Fir                      53.67%  
    Alder (Red)                      49.83%

**Logging System:** Cable: Large Tower >=70                      **Process:** Harvester Head Delimiting

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

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

**loads / day:** 7                      **bd. ft / load:** 4300

**cost / mbf:** \$265.13

**machines:** Log Loader (A)  
 Forwarder  
 Harvester  
 Tower Yarder (Large)



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### Logging Costs

<b>Operating Seasons:</b> 2.00	<b>Profit Risk:</b> 10%
<b>Project Costs:</b> \$83,510.00	<b>Other Costs (P/R):</b> \$4,280.00
<b>Slash Disposal:</b> \$0.00	<b>Other Costs:</b> \$19,235.00

**Miles of Road**

**Road Maintenance:** \$12.69

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	4.3
Alder (Red)	\$0.00	2.0	3.3



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**Logging Costs Breakdown**

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Brand & Paint	Other	Total
<b>Douglas - Fir</b>									
\$238.48	\$13.32	\$1.72	\$115.99	\$0.84	\$37.04	\$0.00	\$2.00	\$3.76	\$413.15
<b>Alder (Red)</b>									
\$235.72	\$13.32	\$1.72	\$151.14	\$0.84	\$40.27	\$0.00	\$2.00	\$3.76	\$448.77

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$717.41	\$304.26	\$0.00
Alder (Red)	\$0.00	\$779.00	\$330.23	\$0.00



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**Summary**

**Amortized**

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

**Unamortized**

Specie	MBF	Value	Total
Douglas - Fir	4,075	\$304.26	\$1,239,859.50
Alder (Red)	1,034	\$330.23	\$341,457.82

**Gross Timber Sale Value**

Recovery: \$1,581,317.32

Prepared By: Nathan Atchison

Phone: 503-842-2545



## PROJECT SUMMARY SHEET

Sale: South Bushong

### CONSTRUCTION

Point	A to B	17+30	stations =	\$27,383.84
<b>SUBTOTAL CONSTRUCTION</b>				<b>\$27,383.84</b>

### IMPROVEMENT

Point	A to B	12+20	stations =	\$3,476.91
Point	C to D	51+75	stations =	\$15,549.93
Point	E to F	10+80	stations =	\$6,290.75
Point	G to H	44+10	stations =	\$3,951.30
<b>SUBTOTAL IMPROVEMENT</b>				<b>\$29,268.89</b>

### SPECIAL PROJECTS

Project 2 Rock Pit Development	\$22,000.00
<b>SUBTOTAL SPECIAL PROJECTS</b>	<b>\$22,000.00</b>

<b>MOVE IN</b>	<b>\$4,857.27</b>
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<b>GRAND TOTAL</b>	<b>\$83,510.00</b>
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## SUMMARY OF CONSTRUCTION COST

Sale:

**South Bushong**

Road:

**A to B**

Construction -	17+30	stations	Improvement -	12+20	stations	Reconstruction -	0+00	stations
	0.33	miles		0.23	miles		0.00	miles

**CONSTRUCTION:** CLEARING, GRUBBING, SCATTERING, EXCAVATION, COMPACTION, LOADING, END-HAULING AND SPREADING/COMPACTING AT WASTE AREA -

Station	to	Station	<u>Avg. Sideslope</u> or Activity	<u>Avg. Dist.</u> To W.A. (mi.)	Outslope/Ditch	Cost per Station	=		
12+20		17+90	65%	0.5	Outslope	\$2,755	=	\$15,703.50	
17+90		21+70	55%		Outslope	\$862	=	\$3,275.60	
21+70		28+90	50%		Outslope	\$573	=	\$4,125.60	
28+90		29+50	Land. Const.		Outslope	\$1,200	=	\$720.00	
								<b>TOTAL</b>	<b>\$23,824.70</b>

**IMPROVEMENT:** CLEARING AND GRUBBING -

Scattering	0.280	acres @	\$1,275.00	per acre =	\$357.00			
							<b>TOTAL CLEARING AND GRUBBING</b>	<b>\$357.00</b>

**IMPROVEMENT:** EXCAVATION -

Road Earthwork	12.20	sta. @	\$50.00	per sta. =	\$610.00			
							<b>TOTAL EXCAVATION</b>	<b>\$610.00</b>

**ROCK**

Spot Rock	0+00 to 12+20	240	cy. of	Pit-Run	@	\$12.43	per c.y.=	\$2,983.20	
Landing Rock	12+20	100	cy. of	Pit-Run	@	\$12.75	per c.y.=	\$1,275.00	
								<b>TOTAL ROCK</b>	<b>\$4,258.20</b>

**SPECIAL PROJECTS**

Construct waste areas -	2.00	hours @	\$180.00	per hour	\$360.00				
Grade and shape road -	29.50	stations @	\$22.00	per station	\$649.00				
Roll subgrade w/ vibratory roller prior to rocking -	29.50	stations @	\$17.50	per station	\$516.25				
Grass seed and fertilize -	1.02	acres @	\$280.00	per acre	\$285.60				
								<b>TOTAL SPECIAL PROJECTS</b>	<b>\$1,810.85</b>

**GRAND TOTAL** **\$30,860.75**

## SUMMARY OF CONSTRUCTION COST

Sale:

**South Bushong**

Road:

**C to D**

<u>Construction -</u>	<u>0+00</u>	stations	<u>Improvement -</u>	<u>51+75</u>	stations	<u>Reconstruction -</u>	<u>0+00</u>	stations
	0.00	miles		0.98	miles		0.00	miles

**IMPROVEMENT: CLEARING AND GRUBBING -**

Scattering	0.590	acres @	\$1,275.00 per acre =	\$752.25	
<b>TOTAL CLEARING AND GRUBBING</b>				<b>\$752.25</b>	

**IMPROVEMENT: EXCAVATION -**

Construct Split Level Landing @ 42+80	1	@	\$3,000.00 each =	\$3,000.00	
Construct Landing 47+35	1	@	\$800.00 each =	\$800.00	
<b>TOTAL EXCAVATION</b>				<b>\$3,800.00</b>	

**ROCK**

Spot Rock	0+00 to 51+75	200	cy. of	Crushed	@	\$24.76 per c.y.=	\$4,952.00
Landing Rock	42+80 & 47+35	250	cy. of	Pit-Run	@	\$12.43 per c.y.=	\$3,107.50
<b>TOTAL ROCK</b>							<b>\$8,059.50</b>

**SPECIAL PROJECTS**

Construct waste areas -	3.00	hours @	\$180.00 per hour	\$540.00	
Grade and shape road -	51.75	stations @	\$25.00 per station	\$1,293.75	
Roll subgrade w/ vibratory roller prior to rocking -	51.75	stations @	\$17.50 per station	\$905.63	
Grass seed and fertilize -	0.71	acres @	\$280.00 per acre	\$198.80	
<b>TOTAL SPECIAL PROJECTS</b>				<b>\$2,938.18</b>	

**GRAND TOTAL**

**\$15,549.93**

## SUMMARY OF CONSTRUCTION COST

Sale:

**South Bushong**

Road:

**E to F**

<u>Construction -</u>	<u>0+00</u>	stations	<u>Improvement -</u>	<u>10+80</u>	stations	<u>Reconstruction -</u>	<u>0+00</u>	stations
	0.00	miles		0.20	miles		0.00	miles

**IMPROVEMENT:** CLEARING AND GRUBBING -

Scattering	0.690	acres @	\$1,275.00 per acre =	\$879.75	
<b>TOTAL CLEARING AND GRUBBING</b>				<b>\$879.75</b>	

**IMPROVEMENT:** EXCAVATION -

Road Earthwork	10.80	sta. @	\$100.00 per sta. =	\$1,080.00	
<b>TOTAL EXCAVATION</b>				<b>\$1,080.00</b>	

**ROCK**

Spot Rock	0+00 to 10+80	220	cy. of	Pit-Run	@	\$11.95 per c.y. =	\$2,629.00
Landing Rock	10+80	80	cy. of	Pit-Run	@	\$12.11 per c.y. =	\$968.80
Junction Rock	0+00	20	cy. of	Pit-Run	@	\$12.53 per c.y. =	\$250.60
<b>TOTAL ROCK</b>							<b>\$3,848.40</b>

**SPECIAL PROJECTS**

Grade and shape road -	10.80	stations @	\$22.00 per station	\$237.60	
Roll subgrade w/ vibratory roller prior to rocking -	10.80	stations @	\$17.50 per station	\$189.00	
Grass seed and fertilize -	0.20	acres @	\$280.00 per acre	\$56.00	
<b>TOTAL SPECIAL PROJECTS</b>				<b>\$482.60</b>	

**GRAND TOTAL** **\$6,290.75**

## SUMMARY OF CONSTRUCTION COST

Sale: **South Bushong**

Road: **G to H**

<u>Construction -</u>	<u>0+00</u>	stations	<u>Improvement -</u>	<u>44+10</u>	stations	<u>Reconstruction -</u>	<u>0+00</u>	stations
	0.00	miles		0.84	miles		0.00	miles

**IMPROVEMENT:**

**ROCK**

Riprap Road Block	In Exhibit D	50	cy. of	Riprap	@	\$16.35 per c.y.=	<u>\$817.50</u>	
							<b>TOTAL ROCK</b>	<b>\$817.50</b>

**SPECIAL PROJECTS**

Block OHV Trail -	1	@	\$30.00	each	\$30.00
Construct Tank Trap Block -	4	@	\$90.00	each	\$360.00
Construct or Reconst. Waterbars every 100' -	44	@	\$30.00	each	\$1,320.00
Grade and shape road -	44.10	stations @	\$22.00	per station	\$970.20
Grass seed and fertilize -	1.62	acres @	\$280.00	per acre	\$453.60
				<b>TOTAL SPECIAL PROJECTS</b>	<b>\$3,133.80</b>

**GRAND TOTAL** **\$3,951.30**

## ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

Pit:	Pit_run	Location:	SW 1/4 Sec. 19, T2S, R7W, W.M.
Sale:	<b>South Bushong</b>	Road:	960 c.y.
Swell:	1.40		
Shrinkage	1.16	Total Truck Loads:	960 c.y.
Drill Pct.:	0%	In Place Total:	686 c.y.

Rip Rock:	\$3.00	/cu.yd.	x	686	cu.yds.	=	\$2,058.00
Load Dump Truck:	\$1.00	/cu.yd.	x	960	cu.yds.	=	\$960.00

Subtotal \$3,018.00

Move in Roller and Compactor	1	@	\$870.50	=	\$870.50
Move in Grader	1	@	\$1,107.74	=	\$1,107.74
Move in Excavator	1	@	\$1,235.79	=	\$1,235.79
Move in Trucks	2	@	\$331.10	=	\$662.20
					Subtotal \$3,876.23

Base Cost= \$7.18 Per Cu.Yd.

**TOTAL PRODUCTION COSTS \$6,894.23**

Road Segment	Haul Cost \$/cu.yd.	Proc Cost \$/cu.yd.	Base Cost. \$/cu.yd.	Cost \$/cu.yd.	Number Cu. Yds	ROCK COST
A to B Spot Rock (Pit-Run)	3.55	1.70	7.18	12.43	240	\$2,983.20
A to B Landing Rock (Pit-Run)	3.87	1.70	7.18	12.75	100	\$1,275.00
C to D Landing Rock (Pit-Run)	3.55	1.70	7.18	12.43	250	\$3,107.50
E to F Spot Rock (Pit-Run)	3.07	1.70	7.18	11.95	220	\$2,629.00
E to F Landing Rock (Pit-Run)	3.23	1.70	7.18	12.11	80	\$968.80
E to F Junction Rock (Pit-Run)	2.90	2.45	7.18	12.53	20	\$250.60
G to H Riprap Road Block (Riprap)	7.17	2.00	7.18	16.35	50	\$817.50
				Total C.Y.	960	Sub Total \$12,031.60

**TOTAL ROCKING COSTS \$12,031.60**

## STOCKPILE ROCKING COST SUMMARY

Stockpile:	Stockpile	Location:	SE 1/4 Sec. 1, T3S, R7W, W.M.			
Sale:	<b>South Bushong</b>	Road:	200 c.y.			
		Total Truck Loads:	200 c.y.			
Load Dump Truck:	\$1.00	/cu.yd.	x	200	cu.yds. =	\$200.00
				Subtotal		\$200.00
Move in Loader		1	@	\$1,120.79	=	\$1,120.79
				Subtotal		\$1,120.79
Base Cost=	\$6.60	Per Cu.Yd.		TOTAL PRODUCTION COSTS		\$1,320.79

Road Segment	Haul Cost \$/cu.yd.	Proc Cost \$/cu.yd.	Base Cost. \$/cu.yd.	Cost \$/cu.yd.	Number Cu. Yds	ROCK COST
C to D Spot Rock (Crushed)	14.96	3.20	6.60	24.76	200	\$4,952.00
				Total C.Y.	200	Sub Total
						\$4,952.00
				TOTAL ROCKING COSTS		\$4,952.00

## Move-In Calculations for Project Work not Involving Rocking/Pit Work

Sale: **South Bushong**

LOWBOY HAUL (Round Trip)		
DIST. (mi)	ROADWAY	AVE SPEED (mph)
26.0	Pavement	30
18.2	Main Lines	7
3.0	Steep Grades	2

No.	EQUIPMENT DESCRIPTION	Move in Cost	Pilot Cars	Within Area Move (\$/mile)	Begin Mileage	End Mileage	Total Miles	Within Area Cost	Total Cost
1	Excavators (Large)	\$1,235.79	1	\$44.80	0.00	2.00	2	\$89.60	\$1,325.39
1	Tractor (D8)	\$1,287.79	2	\$15.10	0.00	2.00	2	\$30.20	\$1,317.99
2	Dump Truck (10 cy +)	\$666.25		\$2.85	0.00	0.00	0	\$0.00	\$666.25
1	Dump Truck (Off Hiway)	\$1,207.04	1	\$4.75	0.00	2.00	2	\$9.50	\$1,216.54
1	Water Truck (1500 Gal)	\$331.10		\$2.85	0.00	0.00	0	\$0.00	\$331.10
<b>TOTAL MOVE-IN COSTS:</b>									<b>\$4,857.27</b>



# OREGON DEPARTMENT OF FORESTRY

## CRUISE REPORT

### *South Bushong*

#### 1. Type of Sale

Regeneration harvest, Recovery

#### 2. Legal Description

Sections 18, 19, and 30, T2S, R7W, and Sections 13, 24, and 25, T2S, R8W, W.M., Tillamook County, Oregon.

#### 3. Sale Acreage

Sale acreage was determined by GPS and orthophotographs along with GIS.

	<u>ACRES</u>	
	<u>Gross</u>	<u>Net</u>
<b>Area 1 (Modified Clearcut)</b>	139	110
<b>Area 2 (Modified Clearcut)</b>	126	99

#### Gross Acres

Area within the Timber Sale Boundary signs

#### Net acres

*Used for calculating the advertised volume.*

Gross acres, less green tree retention, roads, Non-required thinning areas, and riparian areas classified as Special Stewardship in LMCS inside the sale boundary.

#### 4. Cruising Procedures

##### A. Cruise Method

Area 1 was cruised on a 425' between plots and 400' between lines and Area 2 was cruised on a rectangular grid with 350' between plots and 350' between lines.

The timber sale areas were cruised using variable plot sampling. All conifers 8" DBH and greater and all hardwoods 10" DBH and greater were recorded on all plots. On every plot species, diameter (inch), height, form factor, and sawmill grade were recorded. Merchantable heights were recorded to 6" and 7" outside bark for conifers and hardwoods, respectively.

##### B. Plot size

Point of observation was 4.0'. Form factor was measured at 16.0'.

Area	BAF
1	40.00
2	40.00



### C. Grading System

All trees were graded according to Columbia River Log Scaling and Grading Rules. Log lengths favored 40' lengths.

### 5. Computation Procedure

Plot data was entered into SuperAce for computation of basal area, advertised volume, volume summary, log stock table, and stand table for each species and type. Cruise volumes were grown forward to 2019 from the cruise date. Plots landing in riparian management areas or areas excluded from the timber sale harvest areas were removed from computation procedures.

Net sale acreage was used for volume calculation.

Cruise Statistics (Board Foot Volumes)			
Area	Number of Plots	SE (%)	CV (%)
1	28	8.8	45.9
2	34	7.0	41.0
Total	62	7.9 (avg.)	43.2 (avg.)

### 6. Hidden Defect and Breakage

A 1% reduction was applied to conifers and a 2% reduction to hardwood volumes for hidden defect and breakage.

### 7. Timber Description

Both sale areas burned in the 1933 Tillamook Fire and again with the 1951 North Fork Fire. Seeding occurred in the early 1950's and reseeded in the early 1960's. Then portions were replanted between 1965 and 1969. Portions of both units were sprayed in the 1970's to treat the red alder and the southern half of Area 1 was pre-commercially thinned in 1992. The Douglas-fir in these stands are showing symptoms of SNC.

The stand is comprised of multiple merchantable species, please see the table below:

Sale Area	Species	DBH	Merchantable Bole Height (feet)	Merchantable top (inches inside bark)
1	Red alder	13.3	41	6
1	Douglas-fir	17.5	68	5
1	Sitka Spruce	14.0	20	5
2	Red alder	12.3	12.3	6
2	Douglas-fir	16.4	16.4	5

Above data derived from Statistics (type) report using SuperAce 2008, developed by Atterbury consultants, Inc.

## **8. Cruiser /Dates**

The timber sale area was cruised by contracts in 2019.

## **9. Revenue Distribution**

FDF 100%

Tax Code: 901 – 81%  
801 – 19%

Deed Numbers: 54

## **10. Attachments**

Volume Summary

Stand Table

Log Stock Tables

Logging Plan

## **11. Stand and Log Stock Tables Species Key**

WH – Western hemlock take

DF – Douglas-fir take

NF – Noble fir take

SS – Sitka Spruce take

RA – Red alder take

BM – Big leaf maple take

RC – Western red cedar

OC – Other conifer

FI		TSTNDSUM											Stand Table Summary			
Project													SOUTHBUS			
T02S R07W S19 T0001											T02S R07W S19 T0001					
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees			Page:	1					
02S	07W	19	A4GROW	0001	110.00	28	126			Date:	01/31/2015					
										Time:	1:55:51PM					
S Spc	T	Sample		Av		Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals		
		DBH	Trees	FF 16'	Ht Tot				Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF
DF		8		80	46	4.065	1.45	4.12	3.1	20.7	.36	13	85	40	14	9
DF		10		84	67	5.203	2.90	5.27	12.9	51.7	1.94	68	272	213	75	30
DF		11		86	81	2.150	1.45	4.36	10.2	46.5	1.26	44	203	139	49	22
DF		12		83	78	5.420	4.36	10.98	11.4	43.1	3.56	125	473	392	137	52
DF		14		84	82	9.291	10.16	17.48	16.8	59.7	8.38	294	1,043	922	323	115
DF		15		81	91	8.094	10.16	16.39	20.0	71.6	9.35	328	1,175	1,029	361	129
DF		16		84	87	7.114	10.16	14.41	21.6	82.7	8.87	311	1,192	975	342	131
DF		17		88	100	.900	1.45	2.74	19.5	82.7	1.52	53	226	167	59	25
DF		18		82	96	5.621	10.16	13.01	26.4	97.6	9.78	343	1,270	1,076	378	140
DF		19		85	97	3.603	7.26	9.49	25.5	96.2	6.89	242	913	758	266	100
DF		20		85	102	2.602	5.81	7.25	28.9	113.7	5.98	210	824	657	231	91
DF		21		83	110	5.899	14.52	16.73	31.7	125.2	15.12	531	2,094	1,663	584	230
DF		22		84	113	2.150	5.81	5.99	36.6	140.1	6.25	219	839	687	241	92
DF		23		85	110	3.934	11.62	9.96	42.2	169.6	11.99	421	1,689	1,319	463	186
DF		24		86	111	2.258	7.26	5.95	44.5	181.4	7.54	265	1,078	829	291	119
DF		25		84	99	.833	2.90	2.11	50.5	204.7	3.03	106	432	334	117	47
DF		26		85	125	2.694	10.16	8.19	53.8	233.9	12.56	441	1,914	1,381	485	211
DF		28		87	126	.664	2.90	2.02	59.7	270.6	3.43	120	546	378	132	60
DF		29		87	135	.619	2.90	1.88	71.2	337.8	3.81	134	635	420	147	70
DF		30		86	138	.289	1.45	.88	76.7	358.5	1.92	67	315	211	74	35
DF		Totals		84	91	73.403	124.87	159.18	27.2	108.2	123.54	4,335	17,219	13,590	4,768	1,894
RA		8		77	39	4.017	1.44	4.04	3.6	20.9	.40	15	84	44	16	9
RA		10		73	53	12.854	7.21	15.52	9.3	33.0	3.96	144	513	436	158	56
RA		11		75	54	10.623	7.21	14.97	9.7	31.3	4.00	145	468	440	160	52
RA		12		77	56	8.927	7.21	12.58	12.8	46.2	4.41	160	581	485	176	64
RA		13		80	60	3.042	2.89	4.59	12.7	31.3	1.60	58	144	176	64	16
RA		14		73	68	1.312	1.44	2.64	13.7	36.5	1.00	36	96	110	40	11
RA		15		85	86	3.428	4.33	6.90	19.2	78.2	3.65	133	540	401	146	59
RA		16		79	82	2.008	2.89	4.04	20.5	75.6	2.27	83	306	250	91	34
RA		17		85	86	5.337	8.66	10.74	23.8	93.9	7.03	256	1,008	773	281	111
RA		18		82	67	1.587	2.89	2.40	27.0	73.0	1.78	65	175	195	71	19
RA		19		86	70	1.424	2.89	2.87	27.4	91.3	2.16	79	262	238	87	29
RA		21		82	106	.583	1.44	1.17	42.5	156.4	1.37	50	184	151	55	20
RA		22		87	79	1.062	2.89	2.67	30.6	137.7	2.25	82	368	247	90	40
RA		24		78	98	.446	1.44	.90	43.6	135.6	1.08	39	122	119	43	13
RA		27		86	117	.353	1.44	.71	77.2	307.7	1.51	55	218	166	60	24
RA		Totals		78	62	57.004	56.27	86.73	16.1	58.4	38.46	1,398	5,067	4,230	1,538	557
SS		14		78	43	1.306	1.45	1.32	11.9	21.1	.41	16	28	45	17	3
SS		Totals		78	43	1.306	1.45	1.32	11.9	21.1	0.41	16	28	45	17	3
Totals				81	78	131.713	182.59	247.23	23.3	90.3	162.41	5749	22,314	17,865	6,324	2,455

**Log Stock Table - MBF**  
**Project: SOUTHBUS**

T02S R07W S19 T0001

T02S R07W S19 T0001

**Twp** Rge **Sec** **Tract** **Type** **Acres** **Plots** **Sample Trees** **Page** **1**  
**02S** **07W** **19** **A4GROW** **0001** **110.00** **28** **126** **Date** **1/31/2019**  
**Time** **1:55:50PM**

Spp	T	S	So	Gr	Log	Gross	% Def	Net	% Spc	Net Volume by Scaling Diameter in Inches										
										MBF	MBF	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23
DF		CO	2		24	6		6	.3					6						
DF		CO	2		32	45		45	2.4					45						
DF		CO	2		40	853	.4	850	44.9					194	370	212	73			
DF		CO	3		12	6		6	.3						6					
DF		CO	3		20	10		10	.5											
DF		CO	3		24	49	1.7	49	2.6					22	26					
DF		CO	3		26	2		2	.1					2						
DF		CO	3		28	2		2	.1					2						
DF		CO	3		32	142		142	7.5					5	71	27	40			
DF		CO	3		35	4		4	.2					4						
DF		CO	3		37	3		3	.2					3						
DF		CO	3		40	540	.9	535	28.3					69	196	197	38	17	19	
DF		CO	4		12	1		1	.1					1	0					
DF		CO	4		13	4		4	.2					4						
DF		CO	4		14	3		3	.2					3						
DF		CO	4		15	16		16	.8					16						
DF		CO	4		16	7		7	.4					6	1					
DF		CO	4		17	11		11	.6					9	2					
DF		CO	4		18	9		9	.5					8	1					
DF		CO	4		19	9		9	.5					5	3					
DF		CO	4		20	7		7	.4					7						
DF		CO	4		21	12		12	.6					7						
DF		CO	4		22	1		1	.1					5						
DF		CO	4		23	3		3	.2						3					
DF		CO	4		24	38		38	2.0					15	8	14				
DF		CO	4		25	5		5	.2					5						
DF		CO	4		27	7		7	.4					5	2					
DF		CO	4		28	17		17	.9					13	5					
DF		CO	4		29	5		5	.2					5						
DF		CO	4		30	3		3	.1					3						
DF		CO	4		31	7		7	.4					5	2					
DF		CO	4		32	4		4	.2					4						
DF		CO	4		33	12	15.6	11	.6					11						
DF		CO	4		34	6		6	.3					6						
DF		CO	4		35	8		8	.4					4						
DF		CO	4		36	3		3	.2					3						
DF		CO	4		37	3		3	.1					3						
DF		CO	4		38	2		2	.1					2						
DF		CO	4		39	12		12	.6					12						
DF		CO	4		41	26		26	1.4					26						
DF		Totals				1,905		1,894	77.2		183	116	319	255	323	394	230	73		
RA		H	2		16	11		11	2.0						11					
RA		H	2		22	15		15	2.8							15				
RA		H	2		32	12		12	2.1						12					
RA		H	2		40	38		38	6.8					16		22				
RA		H	3		18	10	11.1	9	1.7					9						
RA		H	3		24	35	1.7	35	6.2					13	7		15			
RA		H	3		30	13		13	2.4					13						
RA		H	3		32	13		13	2.3					13						
RA		H	3		40	92		92	16.4					75	16					

**Log Stock Table - MBF**  
**Project: SOUTHBUS**

T02S R07W S19 T0001

T02S R07W S19 T0001

Twp Rge Sec Tract Type Acres Plots Sample Trees Page  
 02S 07W 19 A4GROW 0001 110.00 28 126 Date 1/31/2019  
 Time 1:55:50PM

Spp	T	S	So	Gr	Log	Gross	% Def	Net	% Spc	Net Volume by Scaling Diameter in Inches											
										MBF	MBF	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29
RA	H	4	13			9		9	1.7			9									
RA	H	4	14			2	50.0	1	.2			1									
RA	H	4	15			13		13	2.4			13									
RA	H	4	16			2		2	.3			2									
RA	H	4	17			14		14	2.5			14									
RA	H	4	18			4		4	.6			4									
RA	H	4	19			9		9	1.5			9									
RA	H	4	20			12		12	2.1			2		10							
RA	H	4	21			5	33.3	3	.5			3									
RA	H	4	23			6		6	1.1			6									
RA	H	4	24			127	5.5	120	21.5			72	17	22	8						
RA	H	4	25			11		11	2.0			11									
RA	H	4	27			8		8	1.5			8									
RA	H	4	28			3		3	.6			3									
RA	H	4	29			15		15	2.7			15									
RA	H	4	32			19	4.9	18	3.2			12	5								
RA	H	4	35			9		9	1.6			9									
RA	H	4	37			35		35	6.3			35									
RA	H	4	38			7		7	1.2			7									
RA	H	4	41			21		21	3.7			21									
RA	Totals					569	2.1	557	22.7			256	23	137	67	23	52				
SS	CO	4	19			3		3	100.0			3									
SS	Totals					3		3	.1			3									
Total All Species						2,477		2,455	100.0			186	373	341	392	390	417	282	73		

FI		TSTNDSUM		Stand Table Summary												
Project														SOUTHBUS		
T02S R08W S13 T0001										T02S R08W S13 T0001						
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	Page:	1							
02S	08W	13	A5GROW	0001	99.00	34	178	Date:	01/31/2015							
								Time:	1:43:18PM							
S Spc	T	Sample		Av	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals			
		DBH	Trees	FF 16'				Ht Tot	Net Cu.Ft.				Net Bd.Ft.	Tons	Cunits	MBF
DF		8		87	64	6.710	2.38	6.83	6.0	36.1	1.17	41	247	116	41	24
DF		9		83	73	2.651	1.19	2.70	10.6	41.3	.81	28	111	80	28	11
DF		10		84	83	4.294	2.38	6.55	11.8	55.1	2.20	77	361	217	76	36
DF		11		82	83	5.323	3.58	10.83	10.4	46.5	3.20	112	503	317	111	50
DF		12		84	86	11.935	9.52	21.20	12.6	52.1	7.58	266	1,105	751	263	109
DF		13		86	91	6.352	5.96	12.93	14.3	57.8	5.26	184	748	520	183	74
DF		14		83	101	7.668	8.34	18.95	15.6	63.2	8.44	296	1,197	835	293	119
DF		15		84	94	11.456	14.28	23.28	19.8	77.2	13.12	460	1,798	1,299	456	178
DF		16		84	102	7.552	10.71	19.60	19.4	80.1	10.85	381	1,569	1,075	377	155
DF		17		85	102	4.458	7.15	9.83	24.9	96.1	6.98	245	945	691	242	94
DF		18		86	104	5.305	9.52	13.46	25.6	96.6	9.82	345	1,300	972	341	129
DF		19		83	103	4.163	8.34	12.10	24.0	91.4	8.29	291	1,106	820	288	110
DF		20		84	111	4.294	9.54	12.01	28.6	111.7	9.78	343	1,342	969	340	133
DF		21		84	106	4.384	10.71	11.38	32.7	119.8	10.62	373	1,364	1,051	369	135
DF		22		85	118	3.549	9.54	10.83	34.2	139.4	10.55	370	1,510	1,045	367	150
DF		23		85	109	2.029	5.96	5.37	41.5	166.8	6.35	223	896	628	220	89
DF		24		80	116	1.118	3.58	3.03	44.4	170.4	3.84	135	517	380	133	51
DF		25		86	113	1.031	3.58	2.45	53.2	218.4	3.71	130	534	367	129	53
DF		26		85	119	.953	3.58	2.59	56.3	237.5	4.15	146	614	411	144	61
DF		27		68	113	.884	3.58	2.40	61.3	192.4	4.19	147	461	415	146	46
DF		28		86	127	.274	1.19	.84	63.9	275.4	1.52	53	230	151	53	23
DF		29		82	116	1.021	4.77	3.12	59.2	253.0	5.26	185	789	521	183	78
DF		30		84	109	.477	2.38	1.46	65.2	297.8	2.71	95	434	268	94	43
DF		32		85	119	.419	2.38	1.07	86.1	413.1	2.62	92	441	259	91	44
DF		34		82	119	.186	1.19	.57	82.8	337.4	1.34	47	191	132	46	19
DF		36		80	126	.331	2.38	1.01	101.0	423.4	2.91	102	428	288	101	42
DF		Totals		84	96	98.818	147.71	216.35	23.9	95.9	147.26	5,167	20,741	14,579	5,115	2,053
RA		7		91	73	4.308	1.19	4.34	3.0	20.9	.36	13	91	36	13	9
RA		8		86	60	3.299	1.19	3.33	3.6	20.9	.33	12	70	32	12	7
RA		9		87	59	15.751	7.08	15.84	5.5	27.4	2.41	88	434	239	87	43
RA		10		83	65	8.490	4.73	8.54	10.9	44.0	2.55	93	376	253	92	37
RA		11		84	60	8.761	5.91	12.34	9.2	35.4	3.13	114	437	310	113	43
RA		12		81	75	7.394	5.90	10.39	12.8	51.5	3.66	133	535	363	132	53
RA		13		83	59	4.997	4.74	6.30	14.9	48.1	2.58	94	303	255	93	30
RA		14		87	70	6.509	7.08	9.80	16.1	50.7	4.34	158	497	430	156	49
RA		15		86	66	2.815	3.56	4.73	17.1	62.8	2.22	81	297	220	80	29
RA		16		88	70	3.299	4.74	4.99	23.6	76.7	3.24	118	383	321	117	38
RA		17		88	76	2.938	4.73	5.17	23.9	83.2	3.39	123	430	336	122	43
RA		18		75	70	2.606	4.74	3.94	22.6	69.7	2.45	89	275	243	88	27
RA		19		83	75	1.170	2.37	2.36	25.0	94.1	1.62	59	222	160	58	22
RA		21		68	70	.479	1.19	.97	18.4	62.8	.49	18	61	48	18	6
RA		25		72	76	.338	1.19	.68	39.8	115.1	.75	27	78	74	27	8
RA		26		46	76	.312	1.19	.63	15.5	41.8	.27	10	26	27	10	3
RA		Totals		85	66	73.465	61.52	94.33	13.0	47.8	33.79	1,229	4,513	3,345	1,217	447
Totals				84	83	172.282	209.22	310.68	20.6	81.3	181.05	6396	25,254	17,924	6,332	2,500

**Log Stock Table - MBF**  
**Project: SOUTHBUS**

**T02S R08W S13 T0001**

**T02S R08W S13 T0001**

**Twp Rge Sec Tract Type Acres Plots Sample Trees Page**  
**02S 08W 13 A5GROW 0001 99.00 34 178 Date 1/31/2019**  
**Time 1:43:17PM**

Spp	T	S	So	Gr	Log	Gross	% Def	Net	% Spc	Net Volume by Scaling Diameter in Inches								
										MBF	MBF	2-3	4-5	6-7	8-9	10-11	12-13	14-15
DF		CO	2		23	5	15.0	4	.2					4				
DF		CO	2		24	10		10	.5					10				
DF		CO	2		32	120		120	5.9					53	30	7	30	
DF		CO	2		40	695	.5	691	33.7					230	191	208	62	
DF		CO	3		12	5		5	.2					5				
DF		CO	3		20	3		3	.2					3				
DF		CO	3		23	5		5	.2					5				
DF		CO	3		24	46	1.4	45	2.2		2			4	7		9	
DF		CO	3		32	267	1.0	265	12.9					79	80		90	
DF		CO	3		37	5		5	.3					5				
DF		CO	3		40	592	.7	588	28.7					93	258		169	
DF		CO	4		12	4		4	.2		3							
DF		CO	4		13	4		4	.2		4							
DF		CO	4		14	4		4	.2		4							
DF		CO	4		15	15		15	.7		14							
DF		CO	4		16	10		10	.5		10							
DF		CO	4		17	15		15	.7		10							
DF		CO	4		18	6		6	.3		5							
DF		CO	4		19	6		6	.3		6							
DF		CO	4		21	1		1	.0		1							
DF		CO	4		22	1		1	.0		1							
DF		CO	4		23	6		6	.3		5							
DF		CO	4		24	74	.8	73	3.6		30							
DF		CO	4		25	3		3	.1		3							
DF		CO	4		26	5		5	.2		5							
DF		CO	4		27	5		5	.3		5							
DF		CO	4		28	4		4	.2		4							
DF		CO	4		29	3		3	.1		3							
DF		CO	4		31	8		8	.4		8							
DF		CO	4		32	26		26	1.3		1							
DF		CO	4		33	23		23	1.1		23							
DF		CO	4		34	5	5.0	5	.2		5							
DF		CO	4		35	18		18	.9		18							
DF		CO	4		36	17		17	.8		17							
DF		CO	4		37	13		13	.6		13							
DF		CO	4		38	2		2	.1		2							
DF		CO	4		39	3		3	.1		3							
DF		CO	4		40	16		16	.8		14							
DF		CO	4		41	17		17	.8		17							
DF		Totals				2,066		2,053	82.1		233	214	397	280	360	263	215	92
RA		H	2		18	6	11.1	6	1.3									
RA		H	2		32	12		12	2.6					12				
RA		H	3		24	34	2.9	33	7.3					22	10			
RA		H	3		27	12		12	2.7					12				
RA		H	3		30	13		13	2.9					13				
RA		H	3		32	7		7	1.6					7				
RA		H	3		40	11		11	2.6					11				
RA		H	4		12	4	25.0	3	.8					3				
RA		H	4		13	4		4	.9									
RA		H	4		14	12		12	2.6					4				

**Log Stock Table - MBF**  
**Project: SOUTHBUS**

**T02S R08W S13 T0001**

**T02S R08W S13 T0001**

**Twp Rge Sec Tract Type Acres Plots Sample Trees Page**  
**02S 08W 13 A5GROW 0001 99.00 34 178 Date 1/31/2019**  
**Time 1:43:17PM**

Spp	T	S	So	Gr	Log	Gross	% Def	Net	% Spc	Net Volume by Scaling Diameter in Inches															
										MBF	MBF	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+		
RA	H	4	15			27		27	6.0			27													
RA	H	4	16			30	6.1	28	6.2			24	4												
RA	H	4	18			4		4	.8			4													
RA	H	4	19			8		8	1.7			8													
RA	H	4	21			2		2	.5			2													
RA	H	4	22			5		5	1.1			5													
RA	H	4	23			15		15	3.3			15													
RA	H	4	24			75		75	16.8			14	41	21											
RA	H	4	25			8		8	1.8			8													
RA	H	4	26			2		2	.5			2													
RA	H	4	31			4		4	1.0			4													
RA	H	4	32			68	1.6	67	15.0			35	20	12											
RA	H	4	34			7		7	1.5			7													
RA	H	4	35			4		4	.9			4													
RA	H	4	36			18	4.7	18	3.9			18													
RA	H	4	39			5		5	1.2			5													
RA	H	4	40			56		56	12.6			56													
RA	Totals					453	1.5	447	17.9			253	65	77	47			6							
Total All Species						2,519		2,500	100.0			233	466	462	357	407	263	221	92						





"STEWARDSHIP IN FORESTRY"

**South Bushong**

**Volume Summary**

<b>Area 1-Harvest Type</b>				
110 acres				
SPECIES	Cruised Net	Cruised Net	Hidden	Net Sale
	MBF/ Acre	MBF	D&B	MBF
Douglas-fir	18.94	2083.40	1%	2062.57
Hemlock		0.00	1%	0.00
Spruce		0.00	1%	0.00
Noble Fir		0.00	1%	0.00
Alder	5.57	612.70	2%	600.45
<b>TOTAL</b>	<b>24.5</b>	<b>2696.100</b>		<b>2663.012</b>

<b>Areas 2-Harvest Type</b>				
99 acres				
SPECIES	Cruised Net	Cruised Net	Hidden	Net Sale
	MBF/ Acre	MBF	D&B	MBF
Douglas-fir	20.53	2032	1%	2012
Hemlock		0	1%	0
Spruce		0	1%	0
Noble Fir		0	1%	0
Alder	4.47	443	2%	434
<b>TOTAL</b>	<b>25.0</b>	<b>2475</b>		<b>2446</b>



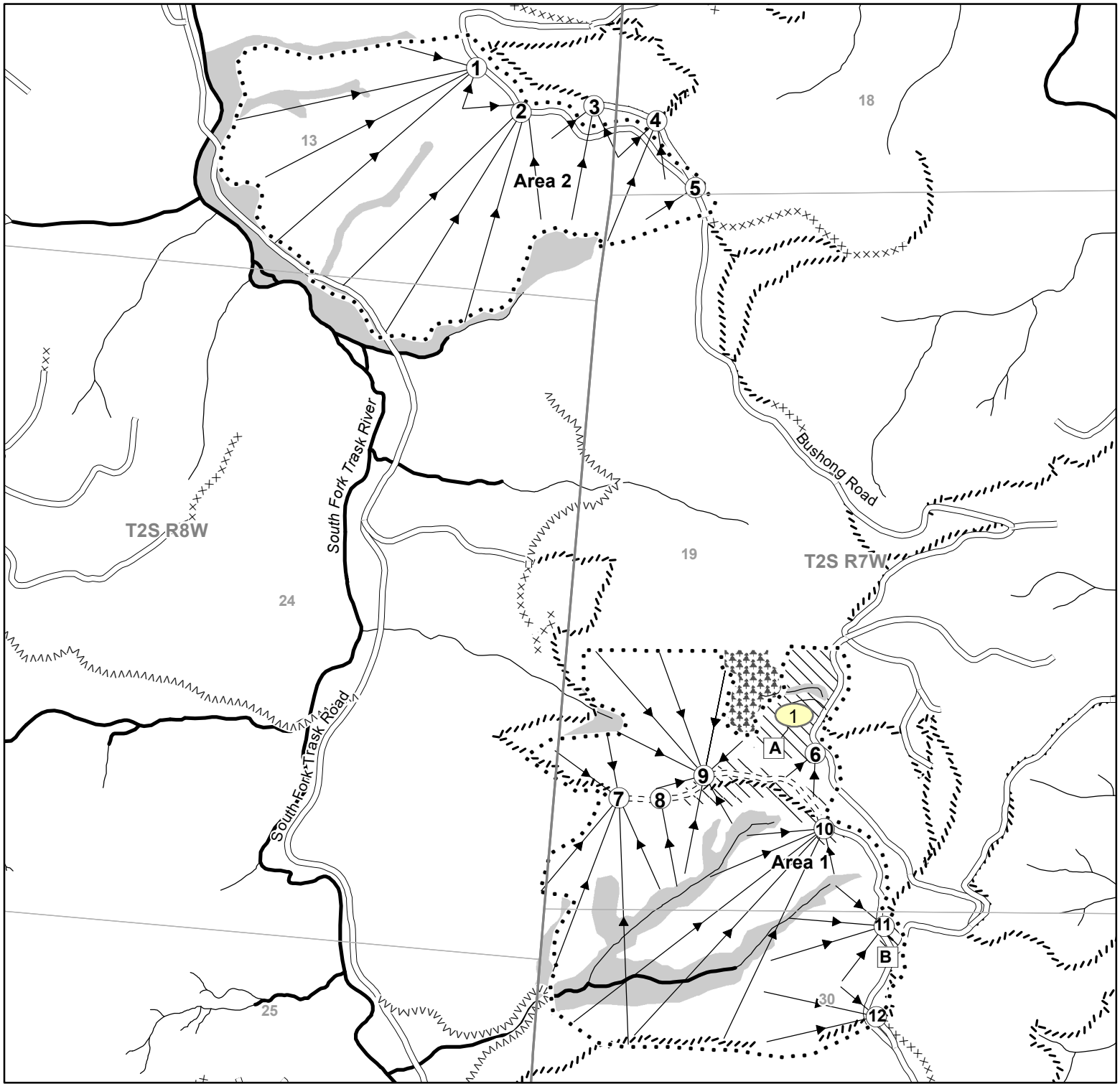
"STEWARDSHIP IN FORESTRY"

## South Bushong

### Volume Summary

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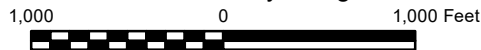
<b>TOTAL SALE VOLUME</b>		<b>209</b>	<b>acres</b>
<b>SPECIES</b>	<b>Cruised Net (MBF)</b>	<b>Net Sale (MBF)</b>	
Douglas-fir	4116	4075	
Hemlock	0	0	
Spruce	0	0	
Noble Fir	0	0	
Red Alder	1055	1034	
<b>TOTAL</b>	<b>5171</b>	<b>5109</b>	



**LOGGING PLAN**

Timber Sale Contract No.  
 TL-341-2019-W00762-01  
 SOUTH BUSHONG

Sections 13, 24, and 25, T2S, R8W, and  
 Sections 18, 19, and 30, T2S, R7W, W.M.,  
 Tillamook County, Oregon



Area	Type of Operation		Acres	
	Modified Clearcut	Other	Gross	Net
1	Modified Clearcut		139	110
2	Modified Clearcut		126	99
<b>Total</b>			<b>265</b>	<b>209</b>

Tillamook District GIS  
 9/10/2018

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



- Rock source
- Stock pile
- Waste area
- Bridge
- Gate
- Survey corner
- Domestic water supply intake
- Truck turn-around
- Helicopter landing zone
- Cultural site
- Buffer
- Cable yarding
- Ground yarding
- Helicopter yarding
- Downhill yarding
- Green tree retention area
- Restricted area
- Sale boundary
- Ownership boundary
- Fish stream
- Non-fish stream
- Unsurfaced road
- Surfaced road
- Paved road
- Abandoned road
- Swing road
- Non-project road
- Blocked road
- OHV trail
- Non-motorized trail
- Transmission line
- Railroad
- Cable yarding
- Ground Landing
- Yarder Landing