

# Timber Sale Appraisal Frosty Shingle Sale AT-341-2016-27-

District: Astoria Date: May 10, 2016

## **Cost Summary**

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$768,427.40	\$0.00	\$768,427.40
		Project Work:	(\$97,799.00)
		Advertised Value:	\$670,628.40



Sale AT-341-2016-27-

District: Astoria Date: May 10, 2016

#### Timber Description

Location: Located in portions of Sections 17, 20, and 21, T7N, R6W, W.M., Clatsop County, Oregon.

Stand Stocking: 60%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	15	0	97
Western Hemlock / Fir	28	0	95

Volume by Grade	28	38	48	Total
Douglas - Fir	734	1,593	253	2,580
Western Hemlock / Fir	7	0	1	8
Total	741	1,593	254	2,588

**Comments:** Pond Values Used: 1st Quarter Calendar Year 2016 + Local Pond Values.

Expected Log Markets: Warrenton, Tillamook, Forest Grove, Banks, and Mist, OR and Longview, WA.

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost: \$856.01/MBF = \$1,150.76/MBF - \$294.75/MBF

Red Alder and Other Hardwoods Stumpage Price = Pond Value minus Logging Cost: \$133.85/MBF = \$428.6/MBF - \$294.75/MBF

SCALING COST ALLOWANCE = \$5.00/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):

Additional Logging Costs:

Branding and Painting:  $$1/MBF \times 2,588 MBF = $2,588$ 

Slash & Landing Piling (includes Move-in and Piling Materials) = \$4,429 (see attached appraisal)

Line Pull in Area  $1 = $20/MBF \times 50 MBF = $1,000$ 

TOTAL Other Costs (with Profit & Risk to be added) = \$8,017

Other Costs (No Profit & Risk added):

Recreation Trail Rehab (w/C315).: 20hrs. @ \$101/hr = \$2,020

C315 Move-In = \$805

Water bar and block rocked spur after harvest 4hrs @ \$101/hr = \$404

Machine Washing for Invasive Weed Compliance = \$3,000 TOTAL Other Costs (No Profit & Risk added) = \$6,229

5/10/16



Sale AT-341-2016-27-

District: Astoria Date: May 10, 2016

#### **Logging Conditions**

Combination#: 1 Douglas - Fir 74.00%

Western Hemlock / Fir 74.00%

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

tree size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF

loads / day: 8 bd. ft / load: 4200

cost / mbf: \$196.43

machines: Log Loader (A)

Tower Yarder (Medium)

Combination#: 2 Douglas - Fir 7.00%

Western Hemlock / Fir 7.00%

Logging System: Track Skidder Process: Manual Falling/Delimbing

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

tree size: Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF

loads / day: 8 bd. ft / load: 4200

cost / mbf: \$132.60 machines: Log Loader (B)

Track Skidder

Combination#: 3 Douglas - Fir 19.00% Western Hemlock / Fir 19.00%

Logging System: Shovel Process: Harvester Head Delimbing

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

tree size: Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF

loads / day: 13 bd. ft / load: 4200

cost / mbf: \$97.88
machines: Forwarder

Harvester



Sale AT-341-2016-27-

District: Astoria Date: May 10, 2016

### **Logging Costs**

**Operating Seasons: 3.00** 

Profit Risk: 12%

**Project Costs:** \$97,799.00

Other Costs (P/R): \$8,017.00

Slash Disposal: \$0.00 Other Costs: \$6,229.00

#### Miles of Road

Road Maintenance:

\$12.49

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	4.3	
Western Hemlock / Fir	\$0.00	4.0	4.6	



## Timber Sale Appraisal Frosty Shingle Sale AT-341-2016-27-

District: Astoria Date: May 10, 2016

## **Logging Costs Breakdown**

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas -	Fir								
\$173.24	\$12.86	\$5.08	\$62.28	\$3.10	\$30.79	\$0.00	\$5.00	\$2.41	\$294.76
Western H	lemlock /	/ Fir		_					
\$173.24	\$13.11	\$5.08	\$44.51	\$3.10	\$28.68	\$0.00	\$5.00	\$2.41	\$275.13

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$592.01	\$297.25	\$0.00
Western Hemlock / Fir	\$0.00	\$465.43	\$190.30	\$0.00



Sale AT-341-2016-27-

District: Astoria Date: May 10, 2016

### **Summary**

#### Amortized

Specie	MBF	Value	Total
Douglas - Fir	0	\$0.00	\$0.00
Western Hemlock / Fir	0	\$0.00	\$0.00

#### Unamortized

Specie	MBF	Value	Total
Douglas - Fir	2,580	\$297.25	\$766,905.00
Western Hemlock / Fir	8	\$190.30	\$1,522.40

**Gross Timber Sale Value** 

**Recovery:** \$768,427.40

Prepared By: Edward Holloran Phone: 503-325-5451

#### **Road Maintenance Cost Summary (Interim and Post Harvest)**

Sale:

Frosty Shingle (341-16-27)

2,588

Date:

February 19, 2016

MBF: \_\_ \$\$/MBF: \_\_

\$12.49

By:

Andrew Arvin

	1	Move-in				
Type	Equipment/Rationale	Rate	Times	Hours	Rate	Cost
	Grader 14G	\$778	2	50	\$100	\$6,556
Interim	Dump Truck 12CY	\$163	1	8	\$79	\$795
Operations	FE Loader C966	\$778	1	2	\$77	\$932
Entries: 2						
					<b>*</b> 4 0 0	40.070
	Grader 14G	\$778	1	75	\$100	\$8,278
	Dump Truck 12CY	\$163	2	40	\$79	\$3,486
Final	FE Loader C966	\$778	1	10	\$83	\$1,608
Road	Vibratory Roller	\$778	1	75	\$77	\$6,553
Maintenance	Water Truck 2,500 gallon	\$190	1	30	\$89	\$2,860
(Crushed)	Rubber tired backhoe	\$321	1	8	\$77	\$937
,	Labor			8	\$40	\$320
		ı				
	X					·
Total						

Interim Operations Road Maintenance and snow removal

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	2.0	14.0	7.0	56

Final Road Maintenance

Production Rates	Miles/day	Distance (miles)	Days	Hours
Grader	1.5	14.0	9.3	75
Vibratory Roller	1.5	14.0	9.3	75

*Maintenance calculations were determined as follows:
Sale Area via Nicolai Lookout via Simonsen via Foster ML Via Nicolai ML to Highway 30 = 15.0 Mi.
Pit-run spurs: 1 mile anticipated maintenance. (Patch rock only)

Site Prep Apprais
-------------------

	Vegetation Type/Zone	Vegetation Type/Zone Code	Production Rate (hr/ac)	Estimated Piles/Acre
<b>Sale Number:</b> 341-16-27	Doug-fir	Α	1.0	3.0
Sale Name: Frosty Shingle	Hemlock/Fir	В	1.5	4.5
<b>Date:</b> 02/19/2016	Hemlock/Spruce	С	2.0	6.0
	Hemlock	D	2.0	6.0
	Conifer/Hardwood	E	1.5	4.5
	Whole Tree Yarding	F	0.5	0.5

Sale Area	Harvest Type	Veg Type/Zone	Ground Based Yarding Acres	Estimated Piling Hours/Area	Cost/Hour	Total Cost/Area	
1	MC	F	37.0	19	\$129.00	\$2,386.50	
					In-unit Piling	Sub Total =	\$2,386.50
	Number of						
	Landings to be		T / 10 //1	Number of In-		Total	
Sale Area	Piled	Pile	Total Cost/Area	Unit Piles	Cost/Pile	Cost/Area	
1	3	\$220.00	\$660.00	18.5	\$5.00	\$92.50	
*Cost includes s	separating firewood	<b>1</b>			Materials	Sub Total =	\$92.50
Cost includes s	separating mewood	ı.			Materials	Sub Total =	\$92.50
Move-In	Number of	Total Move-In			Landing Piling	Sub Total =	\$660.00
Allowance	Move-In's	Allowance					
\$1,290.00	1	\$1,290.00			Move-In	Sub Total =	\$1,290.00

Grand Total =

\$4,429.00

#### SUMMARY OF ALL PROJECT COSTS

SALE NAME:	Frosty Shing	ıle	_			
ROAD CONSTRUC Project No. 1	CTION & IMPROVEMEN	T:				
New Constructtion	Road segment 1A-1B 1C-1D 1E-1F 1G-1H 1I-1J 1K-1L 1M-1N	Length/Sta 7.80 3.60 7.50 7.65 15.00 13.70		Cost		
Road Improvement	10-1P 1Q-1R TOTAL	10.40 1.50 <b>68.65</b> 92.00 12.70	- · ·	\$83,256.00		
	TOTAL	104.70	 	\$2,215.00		
	TOTALS	<b>173.35</b> 3.28	stations miles		\$85,471.00	
			-			
SPECIAL PROJEC	TS: <u>Descriptio</u> Project Road Maintena			<u>Cost</u> \$4,431		
	TOTAL				\$4,431	
MOVE IN:	Eguipmen	ıt		Cost		
	Excavator - C330  Dozer - D6  Dozer - D8  Excavator - C315  Vibratory Roller  Front End Loader - 966  10-12 yard Dump Truck  Large Grader - 14G  Water Truck - 2,500 Ga	x (6 @ \$163)		\$1,406.00 \$778.00 \$1,406.00 \$805.00 \$778.00 \$778.00 \$978.00 \$190.00		
	TOTAL				\$7,897.00	
GRAND TOTAL					\$97,799.00	

Date: 02/22/2016

Bryce Rodgers

Compiled By:

#### SUMMARY OF CONSTRUCTION COSTS

 
 SALE NAME:
 Frosty Shingle

 ROAD:
 1A-1B(7.8)1C-1D(3.6)1E-1F(7.5)1G-1H(7.65)

 POINTS:
 1I-1J(15.0)1K-1L(13.7)1M-1N(1.5)1O-1P(10.4)1Q-1R(1.5)

 II-1J(92)I3-I4(12.7)
 68.65 **STATIONS**104.70 **STATIONS** 1.30 MILES 1.98 MILES NEW CONSTRUCTION: IMPROVEMENT:

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

Method	Acres/amount	X	Rate	=	Cost	
Scatter outside of R/W	5.6	X	\$1,337.00	=	\$7,487.20	
		X		=		
		x		=		
		X		=		

	Material	Cy/amount	X	Rate	=	Cost	
1A to 1B	Balanced Construction Field Design \$/sta.	7.8	×	\$122.00	=	\$951.60	
	Landing Construction	1	×	\$389.00	=	\$389.00	
1C to 1D	Balanced Construction Field Design \$/sta.	3.6	×	\$122.00	=	\$439.20	
	Landing Construction	1	×	\$389.00	=	\$389.00	
1E to 1F	Balanced Construction Field Design \$/sta.	8	×	\$122.00	=	\$915.00	
	Landing Construction	1	×	\$389.00	=	\$389.00	
1G to 1H	Balanced Construction Field Design \$/sta.	7.65	×	\$122.00	=	\$933.30	
]	Dissipator Rock Placement (315) \$/Hr.	2	×	\$101.00	=	\$202.00	
7	Excavator time for ditch development \$/Hr.	2	· ×	\$155.00	=	\$310.00	
	Landing Construction	1	×	\$389.00	=	\$389.00	
1I to 1J	Balanced Construction Field Design \$/sta.	13	×	\$122.00	=	\$1,586.00	
	Dissipator Rock Placement (315) \$/Hr.	2	×	\$101.00	=	\$202.00	
Ī	Balance Construction Drift up to 200' \$/sta.	2	×	\$190.00	=	\$380.00	
1	Excavator time for ditch development \$/Hr.	3	×	\$155.00	=	\$465.00	
7	Landing Construction	1	×	\$389.00	=	\$389.00	
1K to 1L	Balanced Construction Field Design \$/sta.	13.7	×	\$122.00	=	\$1,671.40	
	Excavator time for ditch development \$/Hr.	3	x	\$155.00	=	\$465.00	
-	Landing Construction	1	×	\$389.00	=	\$389.00	
1M to 1N	Balanced Construction Field Design \$/sta.	1.5	×	\$122.00	=	\$183.00	
7	Excavator time for ditch development \$/Hr.	1	×	\$155.00	=	\$155.00	
7	Landing Construction	1	×	\$389.00	=	\$389.00	
10 to 1P	Balanced Construction Field Design \$/sta.	10.4	×	\$122.00	=	\$1,268.80	
-	Landing Construction	1	×	\$389.00	=	\$389.00	
1Q to 1R	Balanced Construction Field Design \$/sta.	1.5	×	\$122.00	=	\$183.00	
	Landing Construction	1	×	\$389.00	=	\$389.00	
I1 to I2	Clean Culvert Catch basins (315) \$/Hr.	5.0	x	\$101.00	=	\$505.00	
7	Scatter Ditch Waste Materials \$/sta.	15	×	\$12.41	=	\$188.63	

ocation	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
1G-1H	7,	-							
3+00	18" ACSP	30	\$24.68	\$740.40					
7+00	18" ACSP	30	\$24.68	\$740.40					
1I-1J									
7+60	18" ACSP	30	\$24.68	\$740.40					
1K-1L									
4+20	18" ACSP	30	\$24.68	\$740.40					
*									
				Description		Quantity	Rate	Cost	
	Other/miscellan	eous:							
	Culvert stakes 8	& markers:	Culvert Marke	ers		4	\$20.00	\$80.00	

Subtotal of Clearing, Exc., Culv.

SURFACING						Stations/		Rate/	
	Subgrade prep:	Grade, Shape	Description and Ditch 16			amount 37.85	X	sta/amt \$24.83	\$939.82
		Grade, Shape Subgrade Com	and Ditch 14			43.50	×	\$18.35	\$798.23
		Subgrade Con	ipaction			81.35	x	\$20.19	\$1,642.46
ROAD SEGMENT	1A to 1B			POINT TO POINT	Sta. to Sta.				1
	Rock Size		Depth of Rock		0+00 to 7+80	TOTAL	Rate/	Cost	
Application	and Type	Location	(inches)	per	Number of	VOLUME (CY)	Sta./ amt.		
Base Rock Junctions	6"-0" pit-run 6"-0" pit-run	0+00-7+80 0+00	8 N/A	station 50 junction 33	stations 7.80 junctions 1	390	\$5.75 \$5.75	\$2,243 \$190	
Turnouts	6"-0" pit-run	4+00	8	TO 22	TO's 1	22	\$5.75	\$127	
Landing Total Rock for Road S	6"-0" pit-run Segment:	7+80	1A to 1B	Landing 60	Landings 1	505	\$5.75	\$345	\$2,904
ROAD SEGMENT	1C to 1D		Depth of	POINT TO POINT 1C to 1D	Sta. to Sta. 0+00 to 3+60	TOTAL	Datak		
Application	Rock Size		Rock	Volume (CY)	Number	VOLUME	Rate/ Sta./	Cost	
Base Rock	and Type 6"-0" pit-run	0+00-3+60	(inches)	per station 50	of stations 3.60	(CY) 180	<b>amt.</b> \$5.75	\$1,035	
Junctions	6"-0" pit-run	0+00	8	junction 33	junctions 1	33	\$5.75	\$190	
Landing Total Rock for Road S	6"-0" pit-run Segment:	3+60	1C to 1D	Landing 60	Landings 1	60 273	\$5.75	\$345	\$1,570
ROAD SEGMENT	1E to 1F			POINT TO POINT	Sta. to Sta.				]
Application	Rock Size		Depth of Rock	1E to 1F Volume (CY)	0+00 to 7+50 Number	VOLUME	Rate/ Sta./	Cost	
Base Rock	and Type 6"-0" pit-run	0+00-7+50	(inches)	per station 50	of stations 7.50	(CY) 375	amt.	\$0.4E0	
Junctions	6"-0" pit-run	0+00	8	junction 33	junctions 1	33	\$5.75 \$5.75	\$2,156 \$190	
Turnouts Landing	6"-0" pit-run 6"-0" pit-run	3+00 7+50	8 N/A	TO 22 Landing 60	TO's 1 Landings 1	60	\$5.75 \$5.75	\$127 \$345	
Total Rock for Road S ROAD SEGMENT	egment:		1E to 1F			490	20.10	Ψ040	) \$2,818
NOAD SEGMENT	1G to 1H		Depth of	POINT TO POINT 1G to 1H	Sta. to Sta. 0+00 to 7+65	TOTAL	Rate/	Cost	
Application	Rock Size and Type	Location	Rock (inches)	Volume (CY)	Number	VOLUME	Sta./	Cost	
Base Rock	6"-0" pit-run	0+00-7+65	8	station 50	of stations 7.65	(CY) 383	<b>amt.</b> \$5.75	\$2,199	
Turnouts Dissipator	6"-0" pit-run 24"-6" rip-rap	3+50 7+00	8 N/A	TO 22 dissipator 11	TO's 1 dissipator 1	22	\$5.75 \$5.96	\$127 \$66	
Culvert Bedding/Backf	ill 3/4"-0" Crushed	3+00, 7+00	N/A	culvert 33	culverts 2	66	\$5.14	\$339	
Traction Rock Landing	3/4"-0" Crushed 6"-0" pit-run	0+00-7+65 7+65	2 N/A	station 13 Landing 60	stations 7.65	99	\$5.14 \$5.75	\$511 \$345	
Total Rock for Road Se ROAD SEGMENT	egment:		1G to 1H	POINT TO POINT		641			\$3,587
KOAD SEGWENT			Depth of	1l to 1J	Sta. to Sta. 0+00 to 15+00	TOTAL	Rate/	Cost	,
Application	Rock Size and Type	Location	Rock (inches)	Volume (CY) per	Number of	VOLUME (CY)	Sta./ amt.	Cost	
Base Rock	6"-0" pit-run	0+00-15+00	8	station 50	stations 15.00	750	\$5.75	\$4,313	
Junctions Turnouts	6"-0" pit-run 6"-0" pit-run	0+00 12+30	8	junction 33 TO 22	junctions 1 TO's 1	33 22	\$5.75 \$5.75	\$190 \$127	
Turnaround	6"-0" pit-run	12+30	8	TA 13	TA's 1	13	\$5.75	\$75	
Dissipator Culvert Bedding/Backfi	24"-6" rip-rap ill 3/4"-0" Crushed	7+60 7+60	N/A N/A	dissipator 11 culvert 33	dissipator 1 culverts 1	11 33	\$5.96 \$5.14	\$66 \$170	
Traction Rock Landing	3/4"-0" Crushed 6"-0" pit-run	0+00-15+00 15+00	2 N/A	station 13 Landing 60	stations 15 Landings 1	195 60	\$5.14 \$5.75	\$1,002 \$345	
Total Rock for Road Se	egment:	10.00	11 to 1J			1,117	ψ5.75	φυτυ	\$6,286
ROAD SEGMENT	1K to 1L		Depth of	POINT TO POINT 1K to 1L	Sta. to Sta. 0+00 to 13+70	TOTAL	Rate/		
Application	Rock Size		Rock	Volume (CY)	Number	VOLUME	Sta./	Cost	
Base Rock	and Type 6"-0" pit-run	0+00-13+70	(inches)	per station 50	stations 13.70	(CY) 685	<b>amt.</b> \$5.75	\$3,939	
Junctions Turnouts	6"-0" pit-run	0+00 8+00	8	junction 33	junctions 1	33	\$5.75	\$190	
Culvert Bedding/Backfi		4+20	8 N/A	TO 22 culvert 33	TO's 1 culverrts 1	33	\$5.75 \$5.14	\$127 \$170	
Traction Rock Landing	3/4"-0" Crushed 6"-0" pit-run	0+00-11+30 13+70	2 N/A	station 13 Landing 60	stations 11.3 Landings 1	147 60	\$5.14 \$5.75	\$755 \$345	
Total Rock for Road Se	egment:	19:19	1K to 1L			980	Ψ0.70	φοτο	\$5,525
ROAD SEGMENT	1M to 1N		Depth of	POINT TO POINT 1M to 1N	Sta. to Sta. 0+00 to 1+50	TOTAL	Rate/		
Application	Rock Size and Type	Logation	Rock	Volume (CY)	Number	VOLUME	Sta./	Cost	
Base Rock	6"-0" pit-run	<b>Location</b> 0+00-1+50	(inches)	per station 50	of stations 1.50	75	<b>amt.</b> \$5.75	\$431	
Junctions Landing	6"-0" pit-run 6"-0" pit-run	0+00 1+50	8 N/A	junction 33 Landing 60	junctions 1 Landings 1	33 60	\$5.75 \$5.75	\$190 \$345	
Total Rock for Road Se	egment:	1.00	1M to 1N			168	Ψ5.75	ΨΟΨΟ	\$966
ROAD SEGMENT	10 to 1P		Depth of	POINT TO POINT 10 to 1P	Sta. to Sta. 0+00 to 10+40	TOTAL	Rate/		
Application	Rock Size		Rock	Volume (CY)	Number	VOLUME	Sta./	Cost	
Base Rock	and Type 6"-0" pit-run	0+00-10+40	(inches) 8	per station 50	of stations 10.40	(CY) 520	<b>amt.</b> \$5.75	\$2,990	
Turnouts Turnaround	6"-0" pit-run 6"-0" pit-run	8+00 8+00	8	TO 22	ŤO's 1	22	\$5.75	\$127	
Landing	6"-0" pit-run	10+40	N/A	TA 13 Landing 60	TA's 1 Landings 1	13 60	\$5.75 \$5.75	\$75 \$345	
Total Rock for Road Se ROAD SEGMENT	egment: 1Q to 1R		10 to 1P	POINT TO POINT	Sta. to Sta.	615			\$3,536
			Depth of	1Q to 1R	0+00 to 1+50	TOTAL	Rate/	Cost	
Application	Rock Size and Type	Location	Rock (inches)	Volume (CY) per	Number of	VOLUME (CY)	Sta./ amt.		
Base Rock Landing	6"-0" pit-run 6"-0" pit-run	0+00-1+50 1+50	8 N/A	station 50 Landing 60	stations 1.50	75	\$5.75	\$431	
Total Rock for Road Se	egment:	1700	1Q to 1R	-,	Landings 1	135	\$5.75	\$345	\$776
ROAD SEGMENT	I1 to I2		Depth of	POINT TO POINT I1 to I2	Sta. to Sta. 0+00 to 92+00	TOTAL	Rate/		
Application	Rock Size		Rock	Volume (CY)	Number	VOLUME	Sta./	Cost	
Patch Rock	and Type 3/4"-0" Crushed	<b>Location</b> 0+00 to 92+00	(inches) N/A	per load 11	of loads 20.00	(CY) 220	<b>amt.</b> \$5.14	\$1,131	
Total Rock for Road Se	egment:		I1 to I2	•		220		7.,,,,,,,	\$1,131
CAD SEGMENT	13 to 14		Depth of	POINT TO POINT 13 to 14	<b>Sta. to Sta.</b> 0+00 to 12+70	TOTAL	Rate/	Cost	
	Rock Size		Rock	Volume (CY)	Number	VOLUME	Sta./	COST	
Application .	and Type	Location	(inches)	per	of	(CY)	amt.		

Fotal Rock for Road Segment:	13 to 14					635			\$3,651	
Processing:		Description					No.sta	Rate/sta	Cost	
		Pit-Run Pro	ccessing (D	6 and Roller	)		81.35	\$51.54	\$4,193	
		Water, Proc	ess & Com	pact: Traction	n Rock		33.95	\$56.48	\$1,917	
Improvement		Water, Proc	ess and Co	mpact (I1-I2)	)		92.00	\$56.48	\$5,196	
		STATE OF THE STATE OF	24"-6"	6"-0"	3/4"-0"		Total			
SUB TOTAL FOR SURFACING			22	4,964	793		5,779	5,779		\$47,436
SPECIAL PROJECTS										
			Description				Cost			
Rock Developn	nent	(pit-run) 4,9	64 CY x \$2.	60/CY			\$12,906.40			
		(rip-rap) 22	CY x \$4.30	/CY			\$94.60			
SUB TOTAL FOR SPECIAL PRO	JECTS									\$13,00°
							Subtotal or	Surfacing & 3	Spec. Proj.	\$60,437
							Subtota	al of Clearing,	Exc., Culv.	\$25,034
GRAND TOTAL										\$85,471
Compiled By: B Rodgers					_		Date:	02/11/2016		

#### **Projects Road Maintenance Cost Summary**

Sale:

Frosty Shingle

Date:

2/19/16

By:

Ed Holloran FL

Type	Equipment/Rationale		Hours	Rate	Cost	
	Grader 14G		16.0	\$100	\$1,600	
Final Project	Dump Truck 12CY		8.0	\$79	\$632	
Haul Road	FE Loader C966		2.0	\$83	\$166	
Maintenance	Vibratory Roller		16.0	\$77	\$1,232	
	Water Truck 2,500 gallon		9.0	\$89	\$801	
Total						\$4

Production Rates Grader Vibratory Roller

Miles/day	Distance(miles)	Days	Hours
1.5	2.90	1.9	15.5
1.5	2.90	1.9	15.5

Knob Point Quarry to Shingle Mill road (0.1 mi.), Shingle Mill road to Simonson road (1.5 mi.), Simonson road to Nicolai Look out road (1.3 mi.),

Total Miles = 2.9

X:\DOCUMENT\STATE\_FOREST\UNIT\_SUNSET\2016 FY Sales\Frosty Shingle\Sale Prep\Project Costing\Project Road

Maintenance\_FS.xls

# FROSTY SHINGLE FY 2016 TIMBER CRUISE REPORT

**1. Sale Area Location:** Areas 1, and 2 are located in portions of Sections 17, 20, and 21, T7N, R6W, W.M., Clatsop County, Oregon.

2. Fund Distribution: Fund:

BOF '

100%

CSL 0%

Tax Code:

30-05 100%

3. Sale Acreage by Area:

Area	Harvest Type	Gross Acres	Stream Buffer Acres	New R/W Acres	Existing R/W Acres	Non- Stocked Acres	Non- stocked R/W Acres	Net Acreage
1	PC	193	2	1	3	17		170
2	MCC	41	3		1			37
3	R/W	5	5 0				2	3
1	OTALS	239	5	1	4	17	2	210

- **4. Cruisers and Cruise Dates:** <u>Areas 1 was</u> cruised by Andrew Arvin, John Choate, Nora Young, and Bryce Rodgers. <u>Area 2</u> was cruised by Andrew Arvin, and Nora Young. The cruise was performed in early February, 2016.
- **5.** Cruise Method and Computation: Area 1 is a partial cut unit. A variable plot cruise with a 27.78 BAF used in this Area. These plots were located on a 10 chain by 2 chain grid, with a count/cruise plot ratio of 1 to 2. A total of 81 plots were sampled, with 27 measured plots and 54 count plots.

<u>Area 2</u> is a modified clear cut unit. A variable plot cruise with a 40 BAF was used. 17 plots were sampled on a grid of 8 chains by 3 chains, with a count/cruise plot ratio of 1 to 1. There were 9 measured plots and 8 count plots sampled.

Area 3 R/W. was calculated applying road R/W acreage and using the cruise volume per acre from Area

Cruisers used Allegro data collectors, and were downloaded to the Atterbury <u>Super A.C.E.</u> program at the Astoria District for computing. See the attached <u>Cruise Design</u> for more details on the cruise method. The cruise calculations were processed in the Astoria District office.

<u>PROJECT</u>	TRACT	<u>CRUISE TYPE</u>
FROSTYS	AREA1	00PC TAKE, STAY
FROSTYS	AREA2	00MC
FROSRYS	AREA3	RW
	FROSTYS FROSTYS	FROSTYS AREA1 FROSTYS AREA2

**6. Timber Description:** <u>Area 1</u> is an approximately 58 to 66 year old stand of Douglas-fir. The average take Douglas-fir tree size for harvest is approximately 14 inches DBH, with an average merchantable tree height of 42 feet. The average volume per acre to be harvested (net) is approximately 9 MBF. All trees were cruised to a merchantable top of 6 inch DIB or 40% fp. This unit was cruised to a leave basal area of 140 square feet, with an SDI of 33.

<u>Area 2</u> is an approximately 58 to 60 year old stand of Douglas-fir with some western hemlock. The average take Douglas-fir tree size to be harvested is approximately 22 inches DBH, with an average merchantable tree height of 71 feet. The average take hemlock tree size is approximately 28 inches DBH, with an average merchantable tree height of 74 feet. The average volume per acre to be harvested (net) is approximately 25 MBF. All trees were cruised to a merchantable top of 6 inch DIB or 40% fp.

<u>Area 3 R/W.</u> The volume to be removed from the R/W is based on the cruise from Area 1. There is a total of 5 acres of R/W but only 3 acres have merchantable volume. The average take Douglas-fir tree size to be harvested is approximately 16 inches DBH, with an average merchantable tree height of 49 feet. The average volume per acre to be harvested (net) is approximately 23 MBF. All trees were cruised to a merchantable top of 6 inch DIB or 40% fp.

Cedar was a reserved species in Areas 1 and 2.

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

Area	Target CV	Target SE%	Actual CV	Actual SE%
1	60	8	37.5	4.2
2	40	8	29	7.3

The statistics are for all areas and Take and Leave trees combined based on Net BF/Acre.

**8.** Take Volumes by Species and Log Grades for All Sale Areas by MBF: (See "Species, Sort Grade-Board Feet Volumes (Project)", "Statistics (Project)", and the "Stand Table Summary" attached). Volumes do not include "in-growth." The majority of defect and breakage was taken out during the cruise.

Species	DBH	Net Vol.	2 Saw	3Saw	4 Saw	% D & B	% Sale
Douglas-fir	15	2,580	734	1,593	253	3.5	99.7
W. Hemlock & True Fir	28	8	7	0	1	5.5	0.3
TOTAL NET VOLUME		2,588	741	1,593	254	4	100

Э.	Prepared by:	Edward M. Holloran	Date:	February 19 , 2016
10.	Approved by:_	Mr Tulle	Date:_	4/1/2016

**11. Attachments:** Cruise Plans & Maps – (6 pages)

Species, Sort, Grade Reports – Take – (4 pages)

Statistics Reports – (5 pages) Stand Table Report – (4 page)

Log Stock Table Report – Take (2 pages)

X:\Sunset\2016FY\Frosty Shingle\Sale Prep\Cruise\Cruise Report FS

Area(s) 1

#### CRUISE DESIGN ASTORIA DISTRICT

Frosty Shingle

Sale Name:

Ha	arve	est Type: PC  Net BF or Net BF or
Αŗ	pro	ox. Cruise Acres: 160 Estimated CV% 60 BA/Acre SE% Objective 8 BA/Acre
Pla	ann	ed Sale Volume: 1.120 MMBF Estimated Sale Area Value/Acre: \$2,100
A.	(b)	uise Goals: (a) Grade minimum 60 conifer and 20 hardwood trees: Sample 86 cruise plots; (c) Other goals (X Determine "automark" thinning andards; X Determine log grades for sale value; X Determine snag and leave e species and sizes.
	Ва	sal Area leave target 130 sq. ft. Cruiser needs to select 4 or 5 leave trees per plot.
В.	1.	uise Design:  Plot Cruises: BAF 27.78 Full point Cruise Line Directions 45°/225° Cruise Line Spacing 10 chains Cruise Plot Spacing 2 chains Grade/Count Ratio 1:2  ke plots as marked on cruise map. All cedar will be reserved. Grade all alder as
		mprun. Record all snags as SN.
C.		Diameter: Minimum DBH to cruise is 8 " for conifers and 8" for hardwoods.  Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
	2.	<b>Bole Length:</b> Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
	3.	<b>Top Cruise Diameter (TCD):</b> Minimum top outside bark for conifer is7",7" for hardwoods or _40% of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.
	4.	Form Factors: (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major

conifer species on the cruise area, and use these to calculate average FF for the

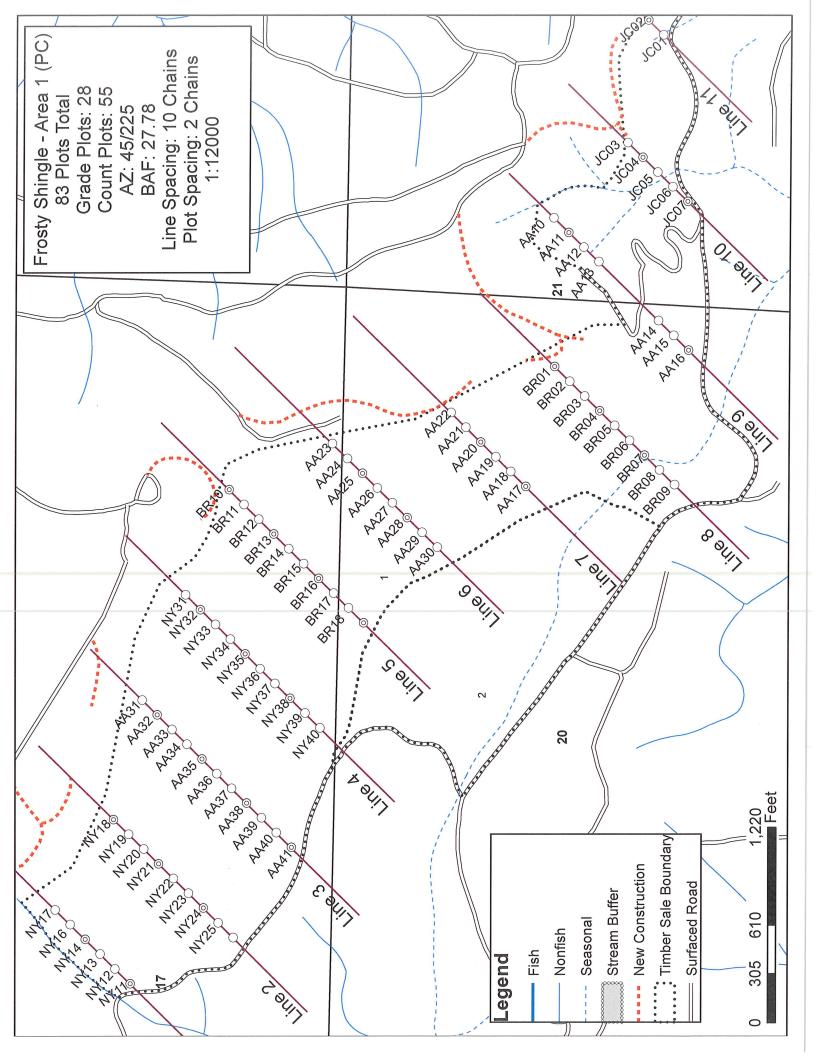
species on the cruise. Hardwood form factors are a Standard 87.

- 5. Tree Segments: Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. log segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.
- 6. Species, Sort, and Grade Codes:
- A. <u>Species</u>: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
- B. Sort: Use code "1" (Domestic).
- C. <u>Grade</u>: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull Hardwoods: <u>Alder Grades</u>: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull. All Maple Camp Run = R
- 7. Deductions: Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
- 8. Standard Field Procedures: Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at intervisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

<u>ITS and 100% Cruises</u>: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with yellow paint.

- **9. Cruising Equipment:** Relaskop, Rangefinder or Lazer, Logger's Tape (with dbh on back), Biltmore Stick, Compass, Cruise Cards or Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
- **10. Attachments:** A. <u>Cruise Map</u> (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Approved by: 1 Tillb	
Date:	



#### CRUISE DESIGN ASTORIA DISTRICT

Sale Name: Frosty Shingle Area(s) Area 2
Harvest Type: CC
Approx. Cruise Acres: 41 Estimated CV%: 40 Net BF SE% Objective: 8% Net BF
Planned Sale Volume: 1.120 MMBF Estimated Sale Area Value/Acre: \$9,100
<ul> <li>A. <u>Cruise Goals</u>: (a) Grade minimum <u>100</u> conifer and <u>10</u> hardwood trees:</li> <li>(b) Sample <u>18</u> cruise plots; (1 Grade/1 Count); (c) Other <u>X</u> Determine log grades for sale value; <u>X</u> Determine snag and leave tree species and sizes.</li> <li>B. <u>Cruise Design</u>:</li> <li>1. Plot Cruises: BAF <u>40</u> (Full point; Half point) (circle one)</li> </ul>
Cruise Line Direction(s) 0°/180°  Cruise Line Spacing 8 chains  Cruise Plot Spacing 3 chains  Grade/Count Ratio 1:1  Take plots as marked on cruise map. All cedar will be reserved. Grade all alder as Camprun. Record all snags as SN.

#### C. Tree Measurements:

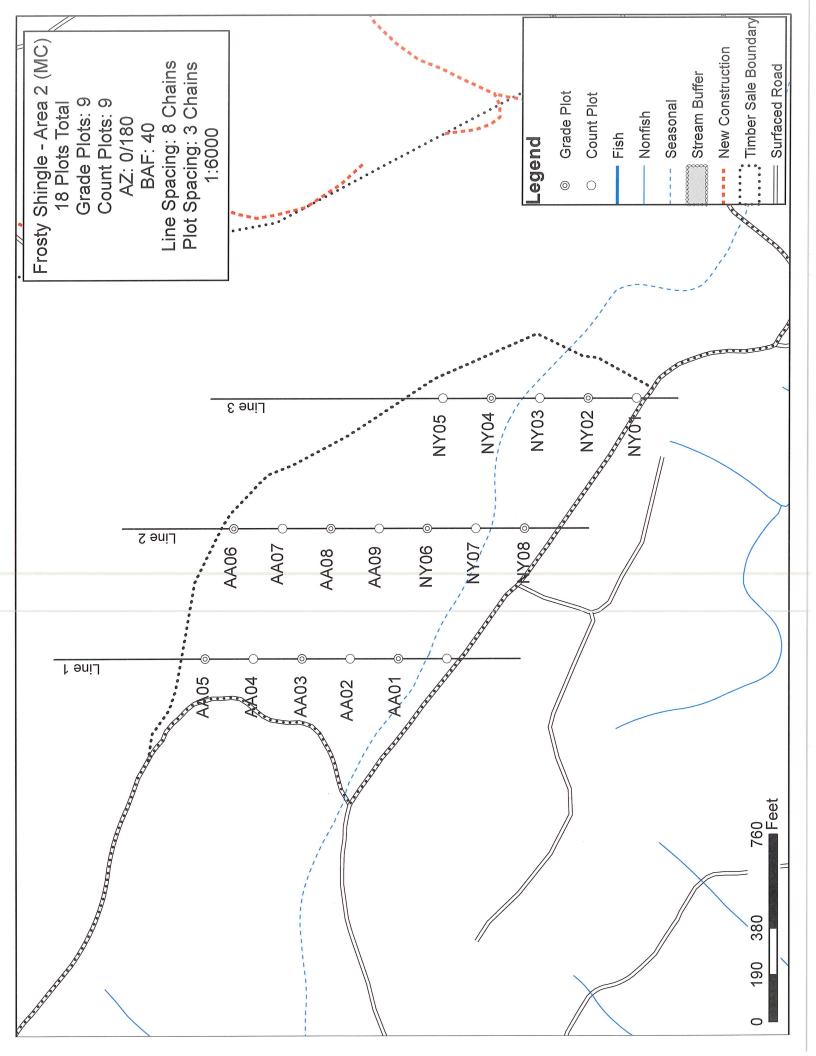
- **1. Diameter:** Minimum DBH to cruise is <u>8"</u> for conifers and <u>8"</u> for hardwoods. Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- **2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD): Minimum top outside bark is <u>7"</u> for conifers and <u>7"</u> for hardwoods or <u>40</u> % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.
- **4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.
- **5. Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. log segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.

- 6. Species, Sort, and Grade Codes:
- A. <u>Species</u>: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
- B. Sort: Use code "1" (Domestic).
- C. <u>Grade</u>: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camp Run; 0 = Cull Hardwoods: <u>Alder Grades</u>: 12" + = 1 Sawmill; 10"-12" = 2 Sawmill; 10"-8" = 3 Sawmill; and 8"-6" 4 Sawmill, or R = Camp Run; 0 = Cull. All Maple Camp Run = R
- 7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
- 8. Standard Field Procedures: Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at intervisible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.

ITS and 100% Cruises: Mark cruise "strips" with various colored flagging (not pink). Mark trees measured and graded with <u>yellow</u> paint.

- **9. Cruising Equipment:** Relaskop, Rangefinder or Lazer, Logger's Tape (with dbh on back), Biltmore Stick, Compass, Cruise Cards or Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
- **10.Attachments:** A. <u>Cruise Map</u> (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by:	John Choate	
Approved by:	The Table	
Date:	2/1/16	



ТС	PSPCSTGR		S	pecies,	Sort G	rade - Boar	d Fo	ot V	olum	es (P	roject	t)							
Гто	T07N R06W S20 TyTAKE 170.00 Project: FROSTYS															Page		1	
T(	7N R06W S2	0 Ty00l	MC	37.00		Acres	210.00								Date		31/20		
T	)7N R06W S2	0 TyRV	V	3.00										Time	. /	:05:3	3AM		
		%					Per	cent of	Net Bo	oard F	oot Volume					Avera	ige Lo	g	Logs
	S So Gr	Net		t. per Acre		Total			ale Dia.			Log L			Ln		Bd	CF/	Per
Spp	T rt ad	BdFt	Def%	Gross	Net	Net MBF	4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	In	Ft	Lf	/Acre
D	DOCU		100.0	93												10		0.00	3.1
D	DO2S	28	.2	3,501	3,495	734		5	57	38	3	5	19	73		14	279	2.07	12.5
D	DO3S	62 10	.8 1.1	7,648 1,216	7,587 1,203	1,593 253	$\begin{bmatrix} 0 \\ 2 \end{bmatrix}$	97 98	2	1	1 54	4 46	40 0	55 0	35 21	7 6	80 25	0.72 0.45	95.1 47.7
D	DO4S	10	1.1	1,210	1,203	233					34				_		-		
D	Totals	100	1.4	12,458	12,285	2,580	0	71	18	12	7	9	30	55	30	8	78	0.79	158.5
11	DOGLI		100.0	24											10	24		0.00	.1
H H	DOCU DO2S	88	11.1	35	31	7			100					100		15	320	2.32	.1
Н	DO2S DO4S	12	11.1	4	4	1		100	100			100		100	22	7	40		.1
	Totals	0	44.6	63	35	87		11	89			11		89	24	15	120	1.54	.3
SN	DOCU		100.0	1											41	4		0.00	.0
SN	Totals		100.0	1											41	4		0.00	.0
Tota	alo.		1.6	12 522	12,320	<b>3,588</b> 2,587	0	70	18	12	7	9	30	55	30	8	70	0.79	158.8
100	115		1.0	12,322	12,320	1000	U	70	10	12	/	7	30	33	30	o	70	0.19	150.0

T T	FSPCSTG	R			Species,	Sort G Projec	rade - Boar et: FRO	d Fo		olun	nes (7	Гуре)				I	Page Date Time	3	1 /31/20 7:03:1	
Tw	T07N R06W S20 TTAKE Twp Rge Sec Tract Type Acres Plots Sample Trees CuFt BdFt 07N 06W 20 AREA1 TAKE 170.00 81 108 1 W														TAKE					
			%		1			Per	cent N	let Bo	ard Fo	ot Vo	lume			Av	erage	e Log		Laga
Spp	т	Gr ad	Net BdFt	Bd. Def%	Ft. per Ac Gross	re Net	Total Net MBF	Lo 4-5	og Sca 6-11	ile Di 12-16		1	g Ler 21-30		36-99	Ln I Ft I		Bd Ft	CF/ Lf	Logs Per /Acre
D	DO	CU		100.0	47											4	9		0.00	3.1
D	DO	2S	4	1.1	455	450	76		25	58	16	16	28	56		27 1	11	122	1.31	3.7
D	DO	3S	83	.8	7,790	7,725	1,313	0	98	1		1	5	43	51	35	7	77	0.69	100.2
D	DO	4S	13	1.3	1,231	1,215	206	2	98			59	41			20	6	24	0.44	49.7
D	Totals		100	1.4	9,523	9,390	1,596	0	95	4	1	9	11	38	42	30	7	60	0.65	156.7
Туре Т	otals			1.4	9,523	9,390	1,596	0	95	4	1	9	11	38	42	30	7	60	0.65	156.7

Т	TSPCSTG	R			Species	, Sort G Projec	rade - Boai t: FRO	d Foot	Volu	mes ('	Гуре)				Pag Date Tim	e 3	1 3/31/20 7:03:5		
T07N Tw 07N	•	ge	Sec	Tract		Туре					le Tree	s	1	CuFt	T07N I BdFt W				
			%					Percent	Net B	oard Fo	oot Vol	ume			Averag	ge Log	5	Logg	
Spp	S So T rt	Gr ad	Net BdFt	Bd. Def%	Ft. per Ac Gross	ore Net	Total Net MBF	Log S 4-5 6-1		ia. 6 17+	Log	g Lei 21-30	_	36-99	Ln Dia Ft In	Bd Ft	CF/ Lf	Logs Per /Acre	
D	DO	CU		0.00	300										9 15		0.00	3.0	
D	DO	2S	70	.1	17,357	17,346	642	3	56	42	1	3	15	82	37 15	333	2.27	52.1	
D	DO	3S	25	.6	6,382	6,344	235	85	7	8		4	20	77	37 8	97	0.91	65.6	
D	DO	4S	5		1,055	1,055	39	100			27	73			25 6	30	0.48	34.8	
D	Totals		99	1.4	25,093	24,745	916	28	41	31	2	6	16	77	34 10	159	1.33	155.6	
Н	DO	CU		100.0	138										10 24	11	0.00	.6	
Н	DO	2S	88	11.1	198	176	7		100					100	40 15	320	2.32	.6	
Н	DO	4S	12		22	22	1	100				100			22 7	40	0.82	.6	
Н	Totals		1	44.6	358	198	7	11	89			11		89	24 15	120	1.54	1.7	
Туре Т	otals			2.0	25,451	24,943	923	28	41	31	2	6	15	77	34 10	159	1.34	157.2	

Т	FSPCSTG	R			Species	, Sort G Projec	Frade - Boar et: FRO	rd Fo		olun	nes (T	Гуре)					Pago Date Timo	3	1 5/31/20 7:04:1	
T07N Tw <sub>j</sub> 07N		ge	Sec	Tract AREA3		Type RW		es 00	Plot 81		-	le Trees	S	C 1	uFt		7N F	R06W		
Spp	т	Gr ad	% Net BdFt	Bd. Def%	Ft. per A	cre Net	Total Net MBF		og Sca		a.	Log	g Len	_	36-99	An En Ft	Dia	ge Log Bd Ft	CF/ Lf	Logs Per /Acre
D	DO	CU		100.0	166												11		0.00	7.0
D	DO	2S	22	.5	5,216	5,191	16		2	90	8	4	11	24	60	34		201		25.8
D	DO	3S	67	.8	15,197	15,071	45	0	98	2		1	3	42	54	35	8	90	0.81	167.4
D	DO	4S	11	.6	2,407	2,393	7	3	97			59	33	3	4	20	6	26	0.49	93.6
D	Totals		100	1.4	22,986	22,655	68	1	76	22	2	8	8	34	50	30	8	77	0.82	293.8
SN	DO	CU		100.0	69											41	4		0.00	2.8
SN	Totals			100.0	69							7				41	4		0.00	2.8
Туре Т	otals			1.7	23,055	22,655	68	1	76	22	2	8	8	34	50	30	8	76	0.81	296.6

	TATS					OJECT ROJECT		ISTICS OSTYS			PAGE DATE	1 2/19/2016
TWP	RGE	SC	TRACT		TYPE	TOOLO I		CRES	PLOTS	TREES	CuFt	
07N	06	20	AREA1		TAKE			210.00	179	1,278	1	W
07N	06W	20	AREA2		00MC							
07N	06W	20	AREA3		RW				to the second second			
						TREES		ESTIMATED TOTAL		PERCENT SAMPLE		
		F	PLOTS	TREES		PER PLOT	Γ	TREES		TREES		
TOTA	 AL		179	1278		7.1		190000000000000000000000000000000000000				
CRU			60	405		6.8		23,177		1.7		
DBH	COUNT											
REFO	DREST											
COU	NT		114	873		7.7						
BLA			5									
100 %	6											
					STA	AND SUM	MARY					
			MPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
		Γ	REES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
	G FIR		400	110.2	15.1	46	35.2	136.9	12,458	12,285	3,795	3,775
SNAC			4	.1	13.1	38	0.0	.0	1		1	
	MLOCK		1	.1	28.0	74	0.1	.4	63	35	15	11
			405	110.4	15.1	46	35.3	137.4	12,522	12,320	3,811	3,786
CON	FIDENC			HE SAMP		ME WILL	BE WIT	HIN THE SAN	IPLE ERRO	)R		
							BE WIT	HIN THE SAM		OR 4 OF TREES I	REQ.	INF. POP.
CON	68.1 1.0		COEFF VAR.%	Γ OF 100 T S.E.%	HE VOLU	<b>SAMPL</b> .OW	E TREE AVG				REQ. 10	
CL SD:	68.1 1.0 G FIR		COEFF	Г ОГ 100 Т	HE VOLU	SAMPL	E TREE	S - BF		OF TREES I		
CON  CL SD: DOUG	68.1 1.0 6 FIR		COEFF VAR.%	Γ OF 100 T S.E.%	HE VOLU	<b>SAMPL</b> .OW	E TREE AVG	S - BF HIGH		OF TREES I		
CL SD: DOUG SNAG	68.1 1.0 G FIR MLOCK		COEFF VAR.% 90.7	S.E.% 4.5	HE VOLU	SAMPL LOW 155	AVG 163	<b>S - BF</b> HIGH 170		OF TREES I	10	1:
CCL SD: DOUG SNAC WHE:	68.1 1.0 G FIR MLOCK		COEFF VAR.% 90.7	Γ OF 100 T S.E.%	HE VOLU	SAMPI .OW 155	AVG 163	S - BF HIGH	ħ	F OF TREES I	84	1:
CL SD: DOUG SNAG WHE. TOTA	68.1 1.0 G FIR 3 MLOCK AL 68.1		COEFF VAR.% 90.7 91.5 COEFF	S.E.% 4.5	HE VOLU	SAMPL .OW 155 154 TREES,	AVG 163 162 ACRE	S - BF HIGH 170	ħ	OF PLOTS I	10 84 REQ.	37 INF. POP.
CL SD: DOUG SNAC WHE. TOTA	68.1 1.0 G FIR MLOCK AL 68.1 1.0		COEFF VAR.% 90.7 91.5 COEFF VAR.%	S.E.%  S.E.%  S.E.%	HE VOLU	SAMPL .OW 155 154 TREES	AVG 163 162 ACRE AVG	S - BF HIGH 170 169 HIGH	ħ	F OF TREES I	84	37 INF. POP.
CL SD: DOUG	68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2	S.E.% 4.5 S.E.% 8.7	HE VOLU	SAMPL .OW 155 154 TREES/ .OW	AVG 163  162  (ACRE AVG 110	S - BF HIGH 170 169 HIGH	ħ	OF PLOTS I	10 84 REQ.	37 INF. POP.
CON  CL SD: DOUG SNAG WHE TOTA  CL SD: DOUG SNAG	68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2 457.5	S.E.% 4.5 S.E.% 8.7 34.2	HE VOLU	SAMPL .OW 155 154 TREES/ .OW 101 0	AVG 163  162  ACRE AVG 110 0	S - BF HIGH 170 169 HIGH 120 0	ħ	OF PLOTS I	10 84 REQ.	37 INF. POP.
CON  CL SD: DOUG SNAG WHE TOTA  CL SD: DOUG SNAG	68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR G MLOCK		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2	S.E.% 4.5 S.E.% 8.7	HE VOLU	SAMPL .OW 155  154  TREES/ .OW 101 0 0	AVG 163  162  (ACRE AVG 110	S - BF HIGH 170 169 HIGH	ħ	OF PLOTS I	10 84 REQ.	37 INF. POP.
CCL SD: DOUG SNAC WHEE SD: DOUG SNAC WHEE TOTA	68.1 1.0 G FIR MLOCK AL 68.1 1.0 G FIR 68.1 1.0 G FIR MLOCK AL		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2 457.5 1337.9 117.0	S.E.% 4.5 S.E.% 8.7 34.2 99.9	HE VOLU	SAMPL .OW 155  154  TREESOW 101 0 101	AVG 163  162  ACRE AVG 110 0 110	S - BF HIGH 170 169 HIGH 120 0 120	#	334 OF PLOTS I 5	84 REO. 10	37 INF. POP. 15
CL SD: DOUG SNAC WHE. SD: DOUG SNAC WHE. TOTA	68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR G MLOCK AL 68.1		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2 457.5 1337.9 117.0 COEFF	S.E.% 4.5  S.E.% 8.7 34.2 99.9 8.7	HE VOLU	SAMPL .OW 155  154  TREES .OW 101 0 101 BASAL	ACRE AVG 163  162  ACRE AVG 110 0 110 AREA/A	S - BF HIGH 170 169 HIGH 120 0 120 CRE	#	FOF PLOTS IS 547	84 REO. 10  137 REQ.	37 INF. POP. 15 61 INF. POP.
CL SD: DOUG SNAC WHE! SD: DOUG SNAC WHE! TOTA	68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR G MLOCK AL 68.1 1.0		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2 457.5 1337.9 117.0 COEFF VAR.%	S.E.% 4.5  S.E.% 8.7 34.2 99.9 8.7  S.E.%	HE VOLU	SAMPL .OW 155  154  TREES .OW 101 0 101 BASAL OW	ACRE AVG 162 ACRE AVG 110 0 110 AREA/A AVG	S - BF HIGH 170  169  HIGH 120 0 120  CRE HIGH	#	334 OF PLOTS I 5	84 REO. 10	37 INF. POP. 15 61 INF. POP.
CL SD: DOUG SNAC WHE. SD: DOUG SNAC WHE. TOTA	68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR MLOCK AL 68.1 1.0 G FIR		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2 457.5 1337.9 117.0 COEFF	S.E.% 4.5  S.E.% 8.7 34.2 99.9 8.7	HE VOLU	SAMPL .OW 155  154  TREES .OW 101 0 101 BASAL	ACRE AVG 163  162  ACRE AVG 110 0 110 AREA/A	S - BF HIGH 170 169 HIGH 120 0 120 CRE	#	FOF PLOTS IS 547	84 REO. 10  137 REQ.	37 INF. POP. 15 61 INF. POP.
CON  CL SD: DOUG SNAG WHE TOTA  CL SNAG WHEI TOTA  CL SD: DOUG SNAG SNAG SNAG SNAG SNAG	68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR MLOCK AL 68.1 1.0 G FIR		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2 457.5 1337.9 117.0 COEFF VAR.% 112.6	S.E.% 4.5  S.E.% 8.7 34.2 99.9 8.7  S.E.% 8.4	HE VOLU	SAMPL .OW 155  154  TREES .OW 101 0 101 BASAL .OW 125	AVG 163  162  ACRE AVG 110 0 110 AREA/A AVG 137	S - BF HIGH 170  169  HIGH 120 0 120 CRE HIGH 148	#	FOF PLOTS IS 547	84 REO. 10  137 REQ.	37 INF. POP. 15 61 INF. POP.
CON  CL SD: DOUG SNAG WHE TOTA  CL SNAG WHEI TOTA  CL SD: DOUG SNAG SNAG SNAG SNAG SNAG	68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR G MLOCK AL		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2 457.5 1337.9 117.0 COEFF VAR.% 112.6 452.1	S.E.% 4.5  S.E.% 8.7 34.2 99.9 8.7  S.E.% 8.4 33.8	HE VOLU	SAMPL   OW   155   154     TREES   OW   101   0   0   101     BASAL   OW   125   0   0	AVG 163  162  ACRE AVG 110 0 110 AREA/A AVG 137 0	S - BF HIGH 170 169 HIGH 120 0 120 CRE HIGH 148 0	#	FOF PLOTS IS 547	84 REO. 10  137 REQ.	37 INF. POP. 15 61 INF. POP. 15
CL SD: DOUG SNAC WHELE SD: DOUG SNAC WHELE SD: DOUG SNAC WHELE SD: DOUG SNAC WHELE SD: CL SNAC WHELE SD: CL	68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR MLOCK AL 68.1 1.0 G FIR MLOCK AL 68.1 1.0 G FIR 68.1 1.0 G FIR 68.1 1.0 G FIR 68.1 1.0 68.1		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2 457.5 1337.9 117.0 COEFF VAR.% 112.6 452.1 1337.9 112.9 COEFE	S.E.% 4.5  S.E.% 8.7 34.2 99.9 8.7  S.E.% 8.4 33.8 99.9 8.4	HE VOLU	SAMPL .OW 155  154  TREES .OW 101 0 101 BASAL .OW 125 0 0 126 NET BF	ACRE AVG 163  162  ACRE AVG 110 0 110  AREA/A AVG 137 0 0 137	S - BF HIGH 170  169  HIGH 120 0 120  CRE HIGH 148 0 1	#	OF PLOTS IS 547  OF PLOTS IS 547	10 84 REO. 10 137 REO. 10	37 INF. POP. 15
CL SD: DOUG SNAC WHELT TOTAL SD: DOUG SNAC WHELT TOTAL SD: CL SD: CL SNAC WHELT TOTAL SD: CL	68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR G MLOCK AL		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2 457.5 1337.9 117.0 COEFF VAR.% 112.6 452.1 1337.9 112.9 COEFE	S.E.%  4.5  S.E.%  8.7  34.2  99.9  8.7  S.E.%  8.4  33.8  99.9  8.4  S.E.%	L L	SAMPL	AVG 137 0 0 137 0 137 0 0 137 0 0 137 0 0 137	S - BF HIGH 170  169  HIGH 120 0 120 CRE HIGH 148 0 1 149 HIGH	#	334 OF PLOTS I 5  547 OF PLOTS I 5  547 OF PLOTS I 5	10 84 REO. 10 137 REO. 10	37 INF. POP. 15 61 INF. POP. 15
CL SD: DOUG SNAC WHELE SD: DOUG SNAC WHELE SD: DOUG SNAC WHELE SD: DOUG SNAC WHELE SD: CL SNAC WHELE SD: CL CL	68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR MLOCK AL 68.1 1.0 G FIR G MLOCK AL		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2 457.5 1337.9 117.0 COEFF VAR.% 112.6 452.1 1337.9 112.9 COEFE	S.E.% 4.5  S.E.% 8.7 34.2 99.9 8.7  S.E.% 8.4 33.8 99.9 8.4	L L	SAMPL	AVG 137 0 0 137 0 137 0 0 137	S - BF HIGH 170  169  HIGH 120 0 120  CRE HIGH 148 0 1 149	#	OF PLOTS F  5  5  547  OF PLOTS F  5  509  OF PLOTS F	10  84  REO. 10  137  REO. 10	37 INF. POP. 15 61 INF. POP. 15
CL SD: DOUG SNAC WHELE SD: DOUG SNAC SNAC SNAC SNAC SNAC SNAC SNAC SNAC	68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR G MLOCK AL 68.1 1.0 G FIR MLOCK AL 68.1 1.0 G FIR MLOCK AL		COEFF VAR.% 90.7 91.5 COEFF VAR.% 117.2 457.5 1337.9 117.0 COEFF VAR.% 112.6 452.1 1337.9 112.9 COEFE	S.E.%  4.5  S.E.%  8.7  34.2  99.9  8.7  S.E.%  8.4  33.8  99.9  8.4  S.E.%	L L	SAMPL	AVG 137 0 0 137 0 137 0 0 137 0 0 137 0 0 137	S - BF HIGH 170  169  HIGH 120 0 120 CRE HIGH 148 0 1 149 HIGH	#	OF PLOTS F  5  5  547  OF PLOTS F  5  509  OF PLOTS F	10  84  REO. 10  137  REO. 10	37 INF. POP. 15 61 INF. POP. 15

TC TSTATS				ST PROJE	'ATIST CT	TICS FROSTYS			PAGE DATE 2	1 2/19/2016
TWP RGE	SECT T	RACT		TYPE		RES	PLOTS	TREES	CuFt	BdFt
07N 06W	20 A	REA1		00PC		170.00	81	815	11	W
			T	REES		ESTIMATED TOTAL		ERCENT AMPLE		
	PLOTS	TREES	Pl	ER PLOT		TREES	T	REES		
TOTAL	81	815		10.1						
CRUISE	27	254		9.4		33,181		.8		
DBH COUNT										
REFOREST										
COUNT	54	561		10.4						
BLANKS										
100 %										
			STAN	D SUMN	MARY					
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUGLEAV	142	75.6	18.3	57	32.4	138.8	13,273	13,078	4,151	4,126
DOUG FIR	108	115.9	13.9	42	32.7	122.0	9,523	9,390	3,026	3,014
SNAG	4	3.7	13.1	38	0.9	3.4	69		47	
TOTAL	254	195.2	15.8	48	66.6	264.3	22,864	22,468	7,224	7,140
68.1	TIMES OUT			/ILL BE	WITHIN	THE SAMPI	LE ERROR			
CL: 68.1 %	TIMES OUT COEFF	OF 100 THE	VOLUME W	SAMPL	E TREES	5 - BF		OF TREES		
CL: 68.1 % SD: 1.0	TIMES OUT COEFF VAR.%	OF 100 THE S.E.%	VOLUME W	SAMPL	E TREES	S - BF HIGH		OF TREES 5	REQ. 10	
68.1 CL: 68.1 % SD: 1.0 DOUGLEAV	COEFF VAR.% 49.3	S.E.% 4.1	VOLUME W	SAMPL	E TREES AVG 188	<b>S - BF</b> HIGH 196				
68.1  CL: 68.1 %  SD: 1.0  DOUGLEAV  DOUG FIR	TIMES OUT COEFF VAR.%	OF 100 THE S.E.%	VOLUME W	SAMPL	E TREES	S - BF HIGH				
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG	COEFF VAR.% 49.3	S.E.% 4.1	VOLUME W	SAMPL	E TREES AVG 188	<b>S - BF</b> HIGH 196				1
68.1 CL: 68.1 % SD: 1.0 DOUGLEAV	COEFF VAR.% 49.3 60.7	S.E.% 4.1 5.8	VOLUME W	SAMPL V 180 89	E TREES AVG 188 94 145	6 - <b>BF</b> HIGH 196 100	#	5	10	1 1
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 %	COEFF VAR.% 49.3 60.7 64.0	S.E.% 4.1 5.8 4.0	VOLUME W	SAMPL: V   180   89   39   FREES/	E TREES AVG 188 94 145	6 - <b>BF</b> HIGH 196 100	#	5	10	1 <i>I</i> INF. POP.
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 DOUGLEAV	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7	S.E.% 4.1 5.8 4.0 S.E.% 3.0	VOLUME W LOV	SAMPL: W   180   89   39   FREES/AV   73	AVG 188 94 145 ACRE AVG 76	5 - BF HIGH 196 100 151 HIGH 78	#	5 164 OF PLOTS	10 41 REQ.	1 <i>I</i> INF. POP.
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4	S.E.% 4.1 5.8 4.0 S.E.% 3.0 6.7	VOLUME W LOV	SAMPL:  80 89 39 FREES:  V 73 08	AVG 188 94 145 ACRE AVG 76 116	5 - BF HIGH 196 100 151 HIGH 78 124	#	5 164 OF PLOTS	10 41 REQ.	1 <i>I</i> INF. POP.
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4 299.7	S.E.% 4.1 5.8 4.0 S.E.% 3.0 6.7 33.3	VOLUME W LOV	5AMPL: W 80 89 39 FREES: W 73 08 2	AVG 188 94  145  ACRE AVG 76 116 4	5 - BF HIGH 196 100 151 HIGH 78 124 5	#	5 164 OF PLOTS 5	10 41 REO. 10	1  INF. POP.  1
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4 299.7 44.4	S.E.% 4.1 5.8 4.0 S.E.% 3.0 6.7	VOLUME W LOV	SAMPL:  80 89 39 FREES:  V 73 08	AVG 188 94 145 ACRE AVG 76 116	5 - BF HIGH 196 100 151 HIGH 78 124	#	5 164 OF PLOTS	10 41 REQ.	1  INF. POP.  1
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % CL: 68.1 %	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4 299.7	S.E.% 4.1 5.8 4.0 S.E.% 3.0 6.7 33.3	VOLUME W LOV LOV	SAMPL: W 80 89 39 FREES: W 73 08 2 86	AVG 188 94  145  ACRE AVG 76 116 4	B - BF HIGH 196 100 151 HIGH 78 124 5 205	#	5  164  OF PLOTS 5  79  OF PLOTS	10  41  REQ. 10	1  INF. POP.  1
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 CL: 68.1 % SD: 1.0	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4 299.7 44.4 COEFF VAR.%	S.E.% 4.1 5.8 4.0 S.E.% 3.0 6.7 33.3 4.9 S.E.%	VOLUME W LOV LOV LOV LOV LOV	5AMPL: W 80 89 39 FREES: W 73 08 2 86 BASAL	AVG  145  ACRE AVG  76  116  4  195  AREA/AG	B - BF HIGH 196 100 151 HIGH 78 124 5 205	#	5 164 OF PLOTS 5	10  41  REQ. 10	INF. POP.  INF. POP.
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 DOUGLEAV	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4 299.7 44.4 COEFF VAR.% 24.7	S.E.% 4.1 5.8 4.0 S.E.% 3.0 6.7 33.3 4.9 S.E.% 2.7	VOLUME W LOV LOV LOV LOV LOV LOV LOV LOV LOV	5AMPL: V 80 89 39 FREES: V 73 08 2 86 BASAL: V 35	E TREES AVG 188 94  145  ACRE AVG 76 116 4 195  AREA/AG AVG 139	B - BF HIGH 196 100 151 HIGH 78 124 5 205 CRE HIGH 143	#	5  164  OF PLOTS 5  79  OF PLOTS	10  41  REO. 10  20  REQ.	INF. POP.  INF. POP.
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4 299.7 44.4 COEFF VAR.% 24.7 59.5	S.E.% 4.1 5.8 4.0 S.E.% 3.0 6.7 33.3 4.9 S.E.% 2.7 6.6	VOLUME W LOV LOV LOV LOV LOV LOV LOV LOV LOV	SAMPL: V 80 89 39 FREES/AV 73 08 2 86 BASAL AV 35 14	AVG 116 4 195 AREA/A AVG 139 122	B - BF HIGH 196 100 151 HIGH 78 124 5 205 CRE HIGH 143 130	#	5  164  OF PLOTS 5  79  OF PLOTS	10  41  REO. 10  20  REQ.	INF. POP.  INF. POP.
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4 299.7 44.4 COEFF VAR.% 24.7 59.5 296.0	S.E.% 4.1 5.8 4.0  S.E.% 3.0 6.7 33.3 4.9  S.E.% 2.7 6.6 32.9	VOLUME W LOV LOV LOV LOV LOV LOV	5AMPL: W 80 89 39 FREES/A V 73 08 2 86 BASAL A V 35 14 2	AVG 116 4 195 AREA/A AVG 139 122 3	B - BF HIGH 196 100 151 HIGH 78 124 5 205 CRE HIGH 143 130 5	#	5  164  OF PLOTS 5  79  OF PLOTS 5	10  41  REO. 10  20  REO. 10	INF. POP.  INF. POP.  1
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUGLEAV DOUGLEAV DOUGLEAV DOUGLEAV	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4 299.7 44.4 COEFF VAR.% 24.7 59.5 296.0 37.3	S.E.% 4.1 5.8 4.0 S.E.% 3.0 6.7 33.3 4.9 S.E.% 2.7 6.6	VOLUME W LOV LOV LOV LOV LOV LOV	SAMPL: V 80 89 39 FREES/AV 73 08 2 86 BASAL AV 35 14	AVG 116 4 195 AREA/A AVG 139 122	B - BF HIGH 196 100 151 HIGH 78 124 5 205 CRE HIGH 143 130	#	5  164  OF PLOTS 5  79  OF PLOTS 5	10  41  REO. 10  20  REO. 10	INF. POP.  INF. POP.  1
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL CL: 68.1 % SD: 1.0 CL: 68.1 % CL: 68.1 % CL: 68.1 %	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4 299.7 44.4 COEFF VAR.% 24.7 59.5 296.0 37.3 COEFF	S.E.% 4.1 5.8 4.0  S.E.% 3.0 6.7 33.3 4.9  S.E.% 2.7 6.6 32.9 4.1	VOLUME W  LOV  LOV  LOV  LOV  LOV  LOV  LOV  LO	SAMPL: V 80 89 39 FREES/AV 73 08 2 86 BASAL AV 35 14 2 53 NET BFA	E TREES AVG 188 94  145  ACRE AVG 76 116 4 195  AREA/AC AVG 139 122 3 264	B - BF HIGH 196 100 151 HIGH 78 124 5 205 CRE HIGH 143 130 5 275	#	5  164  OF PLOTS 5  79  OF PLOTS 5  56  OF PLOTS	10  41  REO. 10  20  REO. 10  14  REQ.	INF. POP.  INF. POP.
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4 299.7 44.4 COEFF VAR.% 24.7 59.5 296.0 37.3 COEFF VAR.%	S.E.% 4.1 5.8 4.0  S.E.% 3.0 6.7 33.3 4.9  S.E.% 2.7 6.6 32.9 4.1  S.E.%	VOLUME W  LOV  LOV  LOV  LOV  LOV  LOV  LOV  LO	SAMPL: V 80 89 39 FREES/AV 73 08 2 86 BASAL AV 35 14 2 53 NET BFAV	E TREES AVG 188 94  145  ACRE AVG 76 116 4 195  AREA/A AVG 139 122 3 264  ACRE AVG	B - BF HIGH 196 100  151  HIGH 78 124 5 205  CRE HIGH 143 130 5 275	#	5  164  OF PLOTS 5  79  OF PLOTS 5	10  41  REO. 10  20  REO. 10	INF. POP.  1 INF. POP.  1 INF. POP.  1
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4 299.7 44.4 COEFF VAR.% 24.7 59.5 296.0 37.3 COEFF VAR.% 30.0	S.E.% 4.1 5.8 4.0  S.E.% 3.0 6.7 33.3 4.9  S.E.% 2.7 6.6 32.9 4.1  S.E.% 3.3	LOV  LOV  LOV  LOV  LOV  LOV  LOV  LOV	SAMPL: V 80 89 39 FREES/AV 73 08 2 86 BASAL AV 35 14 2 53 NET BEAV V 442	E TREES AVG 188 94  145  ACRE AVG 76 116 4 195  AREA/A AVG 139 122 3 264  /ACRE AVG (3,078	F HIGH  196 100  151  HIGH  78 124 5 205  CRE HIGH 143 130 5 275  HIGH 13,514	#	5  164  OF PLOTS 5  79  OF PLOTS 5  56  OF PLOTS	10  41  REO. 10  20  REO. 10  14  REQ.	INF. POP.  INF. POP.
CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 DOUGLEAV DOUG FIR SNAG TOTAL  CL: 68.1 % SD: 1.0 CL: 68.1 % CL: 68.1 %	COEFF VAR.% 49.3 60.7 64.0 COEFF VAR.% 26.7 60.4 299.7 44.4 COEFF VAR.% 24.7 59.5 296.0 37.3 COEFF VAR.%	S.E.% 4.1 5.8 4.0  S.E.% 3.0 6.7 33.3 4.9  S.E.% 2.7 6.6 32.9 4.1  S.E.%	LOV  LOV  LOV  LOV  LOV  LOV  LOV  LOV	SAMPL: V 80 89 39 FREES/AV 73 08 2 86 BASAL AV 35 14 2 53 NET BFAV	E TREES AVG 188 94  145  ACRE AVG 76 116 4 195  AREA/A AVG 139 122 3 264  ACRE AVG	B - BF HIGH 196 100  151  HIGH 78 124 5 205  CRE HIGH 143 130 5 275	#	5  164  OF PLOTS 5  79  OF PLOTS 5  56  OF PLOTS	10  41  REO. 10  20  REO. 10  14  REQ.	INF. POP.  INF. POP.  INF. POP.

TC TSTATS				S7 PROJE	CT	FICS FROSTYS			PAGE DATE	1 2/19/2016
TWP RGE	SECT 1	TRACT		TYPE	AC	CRES	PLOTS	TREES	CuFt	BdFt
07N 06W	20 A	AREA1		TAKE		170.00	81	379	1	W
						ESTIMATED	I	PERCENT		
				TREES		TOTAL		SAMPLE		
	PLOTS	TREES		PER PLOT	ſ	TREES	7	TREES		
TOTAL	81	379		4.7						
CRUISE	24	108		4.5		19,707		.5		
DBH COUNT										
REFOREST		Company Contribution								
COUNT	52	271		5.2						
BLANKS	5									
100 %										
			STA	ND SUM	MARY					
	SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
	TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
			The state of the s		and the second of the second		Next Period Tele			2011
DOUG FIR	108	115.9	13.9	42	32.7	122.0	9,523	9,390	3,026	3,014
DOUG FIR TOTAL	108 108	115.9 115.9	13.9 13.9	42 42	32.7 32.7	122.0 122.0	9,523 <i>9,523</i>	9,390 9,390	3,026 3,026	,
TOTAL  CONFIDENCE 68.1	108 CE LIMITS OF TIMES OUT	115.9 THE SAMPL OF 100 THE	13.9 LE	42	32.7	122.0	9,523		,	3,014
CL: 68.1 %	108 CE LIMITS OF TIMES OUT COEFF	THE SAMPLE OF 100 THE	13.9 LE	42 WILL BE	32.7	122.0	<i>9,523</i> LE ERROR		3,026	3,014
CONFIDENCE 68.1  CL: 68.1 % SD: 1.0	108 CE LIMITS OF TIMES OUT COEFF VAR.9	7 THE SAMPL F OF 100 THE F S.E.%	13.9 JE VOLUME	WILL BE SAMPL DW	32.7 E WITHIN E TREES AVG	122.0  THE SAMPI  S - BF  HIGH	<i>9,523</i> LE ERROR	9,390	3,026	3,014 INF. POP.
CONFIDENCE 68.1  CL: 68.1 % SD: 1.0  DOUG FIR	108 CE LIMITS OF TIMES OUT COEFF VAR.9 60.7	7 THE SAMPL F OF 100 THE S S.E.% 5.8	13.9 JE VOLUME	WILL BE SAMPL DW 89	32.7 E WITHIN E TREES AVG 94	122.0  THE SAMPI  S - BF  HIGH  100	<i>9,523</i> LE ERROR	9,390 OF TREES 5	3,026 REQ.	3,014 INF. POP.
CL: 68.1 % SD: 1.0 DOUG FIR TOTAL	108 CE LIMITS OF TIMES OUT COEFF VAR.% 60.7 60.7	7 THE SAMPLE OF 100 THE S.E.% 5.8 5.8	13.9 JE VOLUME	WILL BE SAMPL DW	32.7 E WITHIN E TREES AVG	122.0  THE SAMPI  S - BF  HIGH	<i>9,523</i> LE ERROR	9,390  OF TREES 5	3,026 REO. 10	,
CL: 68.1 % SD: 1.0 DOUG FIR	108 CE LIMITS OF TIMES OUT COEFF VAR.9 60.7	7 THE SAMPLE OF 100 THE S.E.% 5.8 5.8	13.9 JE VOLUME	WILL BE SAMPL DW 89	32.7  E WITHIN  E TREES  AVG 94 94	122.0  THE SAMPI  S - BF  HIGH  100	<i>9,523</i> LE ERROR	9,390 OF TREES 5	3,026 REO. 10	3,014 INF. POP.
CL: 68.1 % SD: 1.0 DOUG FIR TOTAL CL: 68.1 % SD: 1.0	LOS TIMES OUT  COEFF  VAR.9  60.7  COEFF  VAR.9  VAR.9	7 THE SAMPL OF 100 THE 5.8 5.8 5.8 5.8 5.8	13.9 JE VOLUME	WILL BE SAMPL DW 89 89 TREES/	32.7  E WITHIN  E TREES  AVG 94 94  7ACRE  AVG	122.0  THE SAMPI  S - BF  HIGH  100  100  HIGH	<i>9,523</i> LE ERROR	9,390  OF TREES 5	3,026 REO. 10	INF. POP.
CL: 68.1 % SD: 1.0 DOUG FIR TOTAL  CL: 68.1 % SD: 1.0 DOUG FIR TOTAL	108 CE LIMITS OF TIMES OUT COEFF VAR.% 60.7 COEFF VAR.% 60.4	7 THE SAMPI OF 100 THE S.E.% 5.8 5.8 6 S.E.% 6.7	13.9 JE VOLUME	WILL BE SAMPL DW 89 89 TREES/DW 108	32.7  E WITHIN  E TREES  AVG  94  94  CACRE  AVG  116	122.0  THE SAMPI  S - BF  HIGH  100  100  HIGH  124	<i>9,523</i> LE ERROR	9,390  OF TREES 5  147  OF PLOTS 5	3,026  REO. 10  37  REO. 10	3,014  INF. POP.  1  INF. POP.  1
CL: 68.1 % SD: 1.0 DOUG FIR TOTAL CL: 68.1 % SD: 1.0 DOUG FIR TOTAL CL: 68.1 % SD: 1.0 DOUG FIR TOTAL	108 CE LIMITS OF TIMES OUT COEFF VAR.% 60.7 60.7 COEFF VAR.% 60.4 60.4	7 THE SAMPL OF 100 THE S.E.% 5.8 5.8 6 S.E.% 6.7 6.7	13.9 JE VOLUME	WILL BE SAMPL DW 89 89 TREES/ DW 108 108	32.7  E WITHIN  E TREES  AVG  94  /ACRE  AVG  116  116	122.0  THE SAMPI  S - BF  HIGH  100  100  HIGH  124  124	<i>9,523</i> LE ERROR	9,390  OF TREES 5  147  OF PLOTS	3,026  REO. 10  37  REQ.	3,014  INF. POP.  1  INF. POP.
CL: 68.1 % SD: 1.0 DOUG FIR TOTAL  CL: 68.1 % SD: 1.0 DOUG FIR TOTAL	108 CE LIMITS OF TIMES OUT COEFF VAR.% 60.7 COEFF VAR.% 60.4	7 THE SAMPL OF 100 THE S.E.% 5.8 5.8 6 S.E.% 6.7 6.7	13.9 JE VOLUME	WILL BE SAMPL DW 89 89 TREES/ DW 108 108	32.7  E WITHIN  E TREES  AVG  94  94  CACRE  AVG  116	122.0  THE SAMPI  S - BF  HIGH  100  100  HIGH  124  124	9,523 LE ERROR #	9,390  OF TREES 5  147  OF PLOTS 5	3,026  REO. 10 37  REO. 10 36	3,014  INF. POP.  1  INF. POP.  1
CL: 68.1 % SD: 1.0 DOUG FIR TOTAL  CL: 68.1 % SD: 1.0 DOUG FIR TOTAL  CL: 68.1 % SD: 1.0 DOUG FIR TOTAL	108 CE LIMITS OF TIMES OUT  COEFF VAR.% 60.7 COEFF VAR.% 60.4 60.4 COEFF VAR.%	7 THE SAMPI OF 100 THE S.E.% 5.8 5.8 6 S.E.% 6.7 6.7 6.7	13.9 E VOLUME Lo	WILL BE SAMPL DW 89 89 TREES/ DW 108 108 BASAL	32.7 E WITHIN E TREES AVG 94 94  ACRE AVG 116 116 116 AREA/A AVG	122.0  THE SAMPI  S - BF  HIGH  100  100  HIGH  124  124  CRE  HIGH	9,523 LE ERROR #	9,390  OF TREES 5  147  OF PLOTS 5  145	3,026  REO. 10 37  REO. 10 36	INF. POP.  1  INF. POP.  1  INF. POP.  1
CU: 68.1 % SD: 1.0 DOUG FIR TOTAL  CL: 68.1 % SD: 1.0 DOUG FIR TOTAL  CL: 68.1 % SD: 1.0 DOUG FIR TOTAL	108 CE LIMITS OF TIMES OUT  COEFF  VAR.% 60.7 COEFF  VAR.% 60.4 60.4 COEFF  VAR.% 59.5	115.9 F THE SAMPI F OF 100 THE  S.E.%  5.8  5.8  6.7  6.7  6.7  6.6  S.E.%  6.6	13.9 E VOLUME Lo	WILL BE SAMPL DW 89 89 TREES/ DW 108 108 BASAL DW 114	32.7  E WITHIN  E TREES  AVG  94  94  ACRE  AVG  116  116  AREA/A  AVG  122	122.0  I THE SAMPI  S - BF  HIGH 100 100  HIGH 124 124  CRE HIGH 130	9,523 LE ERROR #	9,390  OF TREES 5  147  OF PLOTS 5  145  OF PLOTS 5	3,026  REO. 10 37  REO. 10 36  REO. 10	3,014  INF. POP.  1  INF. POP.  1  INF. POP.  1
CL: 68.1 % SD: 1.0  DOUG FIR  TOTAL	108 CE LIMITS OF TIMES OUT COEFF VAR.% 60.7 COEFF VAR.% 60.4 60.4 COEFF VAR.% 59.5	7 THE SAMPI OF 100 THE S.E.% 5.8 5.8 6 S.E.% 6.7 6.7 6 S.E.% 6.6 6.6	13.9 E VOLUME Lo	WILL BE SAMPL DW 89 89 TREES/ DW 108 108 BASAL	32.7 E WITHIN E TREES AVG 94 94  ACRE AVG 116 116 116 AREA/A AVG	122.0  THE SAMPI  S - BF  HIGH  100  100  HIGH  124  124  CRE  HIGH	9,523 LE ERROR #	9,390  OF TREES 5  147  OF PLOTS 5  145  OF PLOTS	3,026  REO. 10 37  REO. 10 36  REQ.	3,014  INF. POP.  1  INF. POP.  1  INF. POP.  1
CU: 68.1 % SD: 1.0  DOUG FIR  TOTAL  CL: 68.1 % SD: 1.0  DOUG FIR  TOTAL  CL: 68.1 % SD: 1.0  DOUG FIR  TOTAL	108 CE LIMITS OF TIMES OUT COEFF VAR.% 60.7 COEFF VAR.% 60.4 60.4 COEFF VAR.% 59.5 59.5 COEFF	7 THE SAMPLE OF 100 THE 5.8 5.8 5.8 6.7 6.7 6.7 6.6 6.6 6.6 6.6	13.9 E VOLUME Lo	WILL BE SAMPL DW 89 89 TREES/ DW 108 108 BASAL DW 114	32.7  E WITHIN  E TREES  AVG 94  ACRE  AVG 116  116  AREA/A  AVG 122  122	122.0  I THE SAMPI  S - BF  HIGH 100 100  HIGH 124 124  CRE HIGH 130	9,523 LE ERROR #	9,390  OF TREES 5  147  OF PLOTS 5  145  OF PLOTS 5	3,026  REO. 10 37  REO. 10 36  REO. 10 35	INF. POP.  1  INF. POP.  1  INF. POP.  1
CU: 68.1 % SD: 1.0  DOUG FIR  TOTAL  CL: 68.1 % SD: 1.0	108 CE LIMITS OF TIMES OUT COEFF VAR.% 60.7 60.7 COEFF VAR.% 60.4 60.4 COEFF VAR.% 59.5 59.5 COEFF	115.9  THE SAMPL OF 100 THE  S.E.%  5.8  5.8  6.7  6.7  6.7  6.6  6.6  6.6  6.6  6	LO LO	### ### ### ### ### ### ### ### ### ##	32.7  E WITHIN  E TREES  AVG 94 94  /ACRE  AVG 116 116 116  AREA/A  AVG 122 122 //ACRE  AVG	122.0  I THE SAMPI  S - BF HIGH 100 100  HIGH 124 124  CRE HIGH 130 130 HIGH	9,523 LE ERROR #	9,390  OF TREES 5  147  OF PLOTS 5  145  OF PLOTS 5  141	3,026  REO. 10 37  REO. 10 36  REO. 10 35	INF. POP.  1 INF. POP. 1 INF. POP. 1 INF. POP. 1
CL: 68.1 % SD: 1.0 DOUG FIR TOTAL  CL: 68.1 % SD: 1.0 DOUG FIR TOTAL	108 CE LIMITS OF TIMES OUT COEFF VAR.% 60.7 COEFF VAR.% 60.4 60.4 COEFF VAR.% 59.5 59.5 COEFF	7 THE SAMPLE OF 100 THE 5.8 5.8 5.8 6.7 6.7 6.7 6.6 6.6 6.6 6.6	LC LC LC LC LC S	### ### ### ### ### ### ### ### ### ##	32.7  E WITHIN  E TREES  AVG 94 94  /ACRE  AVG 116 116 116 212 122 122 //ACRE	122.0  THE SAMPI  S - BF HIGH 100 100  HIGH 124  CRE HIGH 130 130	9,523 LE ERROR #	9,390  OF TREES 5  147  OF PLOTS 5  145  OF PLOTS 5  141  OF PLOTS	3,026  REO. 10 37  REO. 10 36  REO. 10 35  REO.	INF. POP.  1  INF. POP.  1  INF. POP.  1  INF. POP.

TC TSTATS					S' PROJI	FATIST ECT	TICS FROSTYS			PAGE DATE	1 2/19/2016
TWP RG	E	SECT	TRACT		TYPE	AC	CRES	PLOTS	TREES	CuFt	BdFt
07N 06V	W	20	AREA2		00MC		37.00	17	84	11	W
					TREES		ESTIMATED TOTAL		ERCENT AMPLE		
		PLOTS	TREES		PER PLO	Γ	TREES	T	REES		
TOTAL		17	84		4.9						
CRUISE		9	43		4.8		2,898		1.5		
DBH COUN	NT										
REFOREST	Γ										
COUNT		8	41		5.1						
BLANKS											
100 %											
				STA	ND SUM	MARY					
		SAMPLE	TREES	AVG	BOLE	REL	BASAL	GROSS	NET	GROSS	NET
		TREES	/ACRE	DBH	LEN	DEN	AREA	BF/AC	BF/AC	CF/AC	CF/AC
DOUG FIR		42	77.8	21.5	71	42.2	195.3	25,093	24,745	7,052	6,994
	~	1	.6	28.0	74	0.4	2.4	358	198	84	61
WHEMLOC	CK		.0								
TOTAL CONFIDE	NCE	43 LIMITS O		21.5 LE	71 WILL BI	42.6 E WITHIN	197.6 THE SAMPI	25,451 LE ERROR	24,943	7,136	7,055
TOTAL CONFIDE	NCE I	43 LIMITS O	78.3 OF THE SAMPL T OF 100 THE	21.5 LE	WILL B		THE SAMPI	LE ERROR	24,943 OF TREES		7,055
TOTAL  CONFIDE: 68	NCE 1 8.1 T	43 LIMITS O	78.3 OF THE SAMPL T OF 100 THE	21.5 LE VOLUME	WILL B	E WITHIN	THE SAMPI	LE ERROR			
TOTAL  CONFIDE 68  CL: 68.1	NCE 1 3.1 T	LIMITS OF COEF	78.3 OF THE SAMPL T OF 100 THE FF S.E.%	21.5 LE VOLUME	WILL BI	E WITHIN	THE SAMPI	LE ERROR	OF TREES	REQ.	INF. POP.
CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC	ENCE 13.1 T	LIMITS OU' COEF VAR. 59.5	78.3  OF THE SAMPL T OF 100 THE  FF  S.E.%  9.2	21.5 LE VOLUME	SAMPI SAMPI DW 390	E WITHIN LE TREES AVG 429	THE SAMPI S - BF HIGH 469	LE ERROR	OF TREES 5	REO. 10	INF. POP.
CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC	ENCE 13.1 T	LIMITS OF COEFF VAR.	78.3  OF THE SAMPL T OF 100 THE  FF  S.E.%  9.2	21.5 LE VOLUME	WILL BI SAMPI	E WITHIN LE TREES AVG	THE SAMPI S - BF HIGH	LE ERROR	OF TREES	REQ.	INF. POP.
CONFIDE 68 CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL	ENCE I	LIMITS OU' COEF VAR. 59.5	78.3  OF THE SAMPLET OF 100 THE  FF  S.E.%  9.2  9.0	21.5 LE VOLUME	SAMPI SAMPI DW 390	E WITHIN LE TREES AVG 429 428	THE SAMPI S - BF HIGH 469	LE ERROR	OF TREES 5	REO. 10	INF. POP.
CL: 68.1 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0	ENCE 13.1 TI %	LIMITS OF COEFFICIENTS OF COEF	78.3  OF THE SAMPLET OF 100 THE  OF S.E.%  9.2  9.0  OFF  S.E.%	21.5 E VOLUME	SAMPI SAMPI 390 389 TREES	E WITHIN  LE TREES  AVG 429  428  //ACRE  AVG	THE SAMPI  6 - BF  HIGH  469  466  HIGH	LE ERROR	OF TREES 5	REO. 10	INF. POP.
CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0 DOUG FIR	ENCE 13.1 Ti %	LIMITS OU COEF VAR. 59.5  59.1  COEF VAR. 38.1	78.3  OF THE SAMPLET OF 100 THE  FF  S.E.%  9.2  9.0  FF  S.E.%  9.5	21.5 E VOLUME	SAMPI OW 390 389 TREES	E WITHIN LE TREES AVG 429 428 /ACRE AVG 78	THE SAMPI  5 - BF  HIGH  469  466  HIGH  85	LE ERROR	OF TREES 5  139  OF PLOTS	REO. 10 35 REO.	INF. POP.  I INF. POP.
CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0 DOUG FR WHEMLOC	ENCE 13.1 Ti %	LIMITS OU COEF VAR. 59.5  COEF VAR. 38.1 412.3	78.3  OF THE SAMPL T OF 100 THE  FF % S.E.% 9.2  9.0  FF % S.E.% 9.5 103.0	21.5 E VOLUME	SAMPI DW 390 389 TREES DW 70	E WITHIN LE TREES AVG 429  428  /ACRE AVG 78 1	THE SAMPI  5 - BF  HIGH  469  466  HIGH  85	LE ERROR	OF TREES 5  139  OF PLOTS 5	REO. 10 35 REQ. 10	INF. POP.  1  INF. POP.  1
CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL	ENCE 13.1 Ti	LIMITS OU COEF VAR. 59.5  59.1  COEF VAR. 38.1	78.3  OF THE SAMPL T OF 100 THE  FF % S.E.% 9.2  9.0  FF % S.E.% 9.5 103.0	21.5 E VOLUME	SAMPI SAMPI 390 389 TREES	E WITHIN LE TREES AVG 429 428 /ACRE AVG 78	THE SAMPI  5 - BF  HIGH  469  466  HIGH  85	LE ERROR	OF TREES 5  139  OF PLOTS	REO. 10 35 REO.	INF. POP.  1 INF. POP.
CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL	ENCE 13.1 Ti	LIMITS OU COEF VAR. 59.5  COEF VAR. 38.1 412.3	78.3  OF THE SAMPLET OF 100 THE  FF  % S.E.%  9.0  FF  % S.E.%  9.5  103.0  9.6	21.5 E VOLUME	SAMPI DW 390 389 TREES DW 70	E WITHIN LE TREES AVG 429  428  /ACRE AVG 78 1	THE SAMPI  5 - BF  HIGH  469  466  HIGH  85  1  86	LE ERROR #	OF TREES 5  139  OF PLOTS 5	REO. 10 35 REO. 10	INF. POP.  I INF. POP.
CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0 CL: 68.1	ENCE 1 %  CK  %	LIMITS OUTONES	78.3  OF THE SAMPLET OF 100 THE  FF  S.E.%  9.2  9.0  FF  S.E.%  9.5  103.0  9.6  FF  S.E.%  S.E.%	21.5 E VOLUME LO	SAMPI DW 390 389 TREES DW 70 71 BASAL	E WITHIN  LE TREES  AVG  429  428  /ACRE  AVG  78  1  78  4 AREA/A	THE SAMPI  5 - BF  HIGH  469  466  HIGH  85  1  86  CRE  HIGH	LE ERROR #	OF TREES 5  139  OF PLOTS 5	REO. 10  35  REO. 10  16  REO.	INF. POP.  INF. POP.  INF. POP.
CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1	ENCE 13.1 T2 %  CK  %	43 LIMITS OU COEF VAR. 59.5 59.1 COEF VAR. 38.1 412.3 38.3 COEF VAR. 26.0	78.3  OF THE SAMPLET OF 100 THE  FF  % S.E.%  9.2  9.0  FF  % S.E.%  9.5  103.0  9.6  FF  % S.E.%  6.5	21.5 E VOLUME LO	SAMPI DW 390 389 TREES DW 70 71 BASAL	E WITHIN LE TREES AVG 429  428  /ACRE AVG 78 1 78 4AREA/A AVG 195	THE SAMPI  5 - BF  HIGH  469  466  HIGH  85  1  86  CRE  HIGH  208	LE ERROR #	OF TREES 5  139  OF PLOTS 5  62  OF PLOTS	REO. 10  35  REO. 10  16  REO.	INF. POP.  INF. POP.  INF. POP.
CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1	ENCE 13.1 T2 %  CK  %	43 LIMITS OU COEF VAR. 59.5  59.1 COEF VAR. 38.1 412.3 38.3 COEF VAR. 26.0 412.3	78.3  OF THE SAMPL T OF 100 THE  FF  % S.E.%  9.2  9.0  FF  % S.E.%  9.5  103.0  9.6  FF  % S.E.%  6.5  103.0	21.5 E VOLUME LO	SAMPI  OW  390  389  TREES  OW  70  BASAL  OW  183	E WITHIN LE TREES AVG 429  428  /ACRE AVG 78 1 78 4AREA/A AVG 195 2	THE SAMPI  5 - BF  HIGH  469  466  HIGH  85  1  86  CRE  HIGH  208  5	LE ERROR #	OF TREES 5  139  OF PLOTS 5  62  OF PLOTS 5	REO. 10  35  REO. 10  16  REO. 10	INF. POP.  I INF. POP.  1 INF. POP.
CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL CL: 68.1	ENCE 13.1 Ti %  CK  %  CK  %  CK	43 LIMITS OF COEF VAR. 59.5 59.1 COEF VAR. 38.1 412.3 38.3 COEF VAR. 26.0 412.3 27.2	78.3  OF THE SAMPLET OF 100 THE  FF  % S.E.%  9.2  9.0  FF  % S.E.%  9.5  103.0  9.6  FF  % S.E.%  6.5  103.0  6.8	21.5 E VOLUME LO	SAMPI DW 390 389 TREES DW 70 71 BASAL	E WITHIN LE TREES AVG 429  428  /ACRE AVG 78 1 78 4AREA/A AVG 195	THE SAMPI  5 - BF  HIGH  469  466  HIGH  85  1  86  CRE  HIGH  208	LE ERROR #	OF TREES 5  139  OF PLOTS 5  62  OF PLOTS	REO. 10  35  REO. 10  16  REO.	INF. POP.  I INF. POP.  1 INF. POP.
CL: 68.1  CL: 68.1  SD: 1.0  DOUG FIR  WHEMLOC  TOTAL  CL: 68.1  SD: 1.0  DOUG FIR  WHEMLOC  TOTAL  CL: 68.1  SD: 1.0  DOUG FIR  WHEMLOC  TOTAL  CL: 68.1  CL: 68.1	ENCE 13.1 T2 %  CK  %  CK  %	43 LIMITS OU COEF VAR. 59.5 59.1 COEF VAR. 38.1 412.3 38.3 COEF VAR. 26.0 412.3 27.2 COEF	78.3  OF THE SAMPLET OF 100 THE  FF  S.E.%  9.2  9.0  FF  9.5  103.0  9.6  FF  8 S.E.%  6.5  103.0  6.8	21.5 LC	SAMPI DW 390 389 TREES DW 70 71 BASAL DW 183 184 NET BI	E WITHIN  LE TREES  AVG  429  428  /ACRE  AVG  78  1  78  AREA/A  AVG  195  2  198  F/ACRE	THE SAMPI  5 - BF  HIGH  469  466  HIGH  85  1  86  CRE  HIGH  208  5  211	LE ERROR #	OF TREES 5  139  OF PLOTS 5  62  OF PLOTS 5	REO. 10  35  REO. 10  16  REO. 10  8  REO. 10	INF. POP.  INF. POP.  INF. POP.
TOTAL  CONFIDE 68  CL: 68.1 SD: 1.0  DOUG FIR WHEMLOC TOTAL  CL: 68.1 SD: 1.0  DOUG FIR WHEMLOC TOTAL  CL: 68.1 SD: 1.0  DOUG FIR WHEMLOC TOTAL  CL: 68.1 SD: 1.0  CL: 68.1 SD: 1.0  CL: 68.1	ENCE 13.1 T2 %  CK  %  CK  %	43 LIMITS OU COEF VAR. 59.5  59.1 COEF VAR. 38.1 412.3 38.3 COEF VAR. 26.0 412.3 27.2 COEF VAR.	78.3  OF THE SAMPL T OF 100 THE  FF % S.E.% 9.2  9.0  FF % S.E.% 9.5 103.0 9.6  FF % S.E.% 6.5 103.0 6.8  FF % S.E.%	21.5 LC	SAMPI DW 390 389 TREES DW 70 71 BASAL DW 183 184 NET BI	E WITHIN  LE TREES  AVG  429  428  /ACRE  AVG  78  1  78  4 AREA/A  AVG  195  2  198  F/ACRE  AVG	THE SAMPI  5 - BF  HIGH  469  466  HIGH  85  1  86  CRE  HIGH  208  5  211  HIGH	LE ERROR #	OF TREES 5  139  OF PLOTS 5  62  OF PLOTS 5	REQ. 10  35  REQ. 10  16  REQ. 10	INF. POP.  1  INF. POP.  1
TOT→  CONFIDE 68  CL: 68.1  SD: 1.0  DOUG FIR WHEMLOC TOT→  CL: 68.1	ENCE 13.1 Ti % CK % CK %	43 LIMITS OU COEF VAR. 59.5  59.1 COEF VAR. 38.1 412.3 38.3 COEF VAR. 26.0 412.3 27.2 COEF VAR. 29.0	78.3  OF THE SAMPLET OF 100 THE  FF  S.E.%  9.2  9.0  FF  S.E.%  9.5  103.0  9.6  FF  S.E.%  6.5  103.0  6.8  FF  S.E.%  7.2	21.5 LC	SAMPI DW 390 389 TREES DW 70 71 BASAL DW 183 184 NET BI	E WITHIN  LE TREES  AVG  429  428  /ACRE  AVG  78  1  78  AREA/A  AVG  195  2  198  F/ACRE  AVG  24,745	THE SAMPI  5 - BF  HIGH  469  466  HIGH  85  1  86  CRE  HIGH  208  5  211  HIGH  26,536	LE ERROR #	OF TREES 5  139  OF PLOTS 5  62  OF PLOTS 5	REO. 10  35  REO. 10  16  REO. 10  8  REO. 10	INF. POP.  INF. POP.  INF. POP.
TOTAL  CONFIDE 68  CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL  CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL  CL: 68.1 SD: 1.0 DOUG FIR WHEMLOC TOTAL  CL: 68.1 SD: 1.0 TOTAL  CL: 68.1	ENCE 13.1 Ti % CK % CK %	43 LIMITS OU COEF VAR. 59.5  59.1 COEF VAR. 38.1 412.3 38.3 COEF VAR. 26.0 412.3 27.2 COEF VAR.	78.3  OF THE SAMPL T OF 100 THE  FF  % S.E.%  9.2  9.0  FF  % S.E.%  9.5  103.0  9.6  FF  % S.E.%  6.5  103.0  6.8  FF  % S.E.%  7.2  103.0	LC LC LC 22	SAMPI DW 390 389 TREES DW 70 71 BASAL DW 183 184 NET BI DW 2,954	E WITHIN  LE TREES  AVG  429  428  /ACRE  AVG  78  1  78  4 AREA/A  AVG  195  2  198  F/ACRE  AVG	THE SAMPI  5 - BF  HIGH  469  466  HIGH  85  1  86  CRE  HIGH  208  5  211  HIGH	LE ERROR #	OF TREES 5  139  OF PLOTS 5  62  OF PLOTS 5	REO. 10  35  REO. 10  16  REO. 10  8  REO. 10	INF. POP.  INF. POP.  INF. POP.

TC PLOGSTVB Log Stock Table - MBF Page 1 T07N R06W S20 TyTAKE 170.00 Project: **FROSTYS** Date 2/19/2016 T07N R06W S20 Ty00MC 37.00 Acres 210.00 Time 7:53:47AM 3.00 T07N R06W S20 TyRW So Gr Log Def % Net Volume by Scaling Diameter in Inches Gross Net Spp rt de Len **MBF** % **MBF** Spc 2-3 4-5 8-9 10-11 12-13 14-15 16-19 20-23 24-29 30-39 40+ D DO CU 0 100.0 D DO CU 4 100.0 4 100.0 D DO CU D DO CU 100.0 DO CU 12 10 100.0 D D DO CU 0 100.0 14 13 .5 D DO 2S 12 13 13 7 0 D DO 2S 20 .3 22 .8 DO 2S 22 5 0 D 24 16 28 17 .7 17 0 D DO 2S 17 0 D DO 2S 30 0 0 .0 142 5.5 32 56 15 D DO 2S 143 15 57 0 D DO 2S 34 0 .0 0 D DO 2S 36 1 .0 DO 2S 20.6 117 D 40 532 532 16 70 161 168 3 11 D DO 3S 20 14 14 .5 .8 DO 3S 24 25 18.4 20 3 D 6 11 2 0 D DO 3S 26 2 .1 2 DO 3S 28 16 14 D 16 .6 2 D DO 3S 30 33 33 1.3 10 0 3 18 559 21.7 0 D DO 3S 32 566 1.2 122 121 316 0 72 2.8 4 D DO 3S 34 72 69 158 DO 3S 36 158 6.1 157 D D DO 3S 38 64 64 2.5 60 4 655 25.4 236 19 D DO 3S 40 657 244 141 16 .3 0 8 DO 4S 12 8 8 0 D D DO 4S 14 10 28.5 7 .3 7 0 D DO 4S 16 54 54 2.1 5 44 3 2 21 D DO 4S 18 21 .8 0 21 D DO 4S 20 47 47 1.8 47 0 D DO 4S 22 0 .0 0 D DO 4S 24 36 36 1.4 36 D DO 4S 26 5 .2 5 D DO 4S 28 24 24 .9 24 D 30 51 51 2.0 51 DO 4S .0 D DO 4S 32 0 0

TC PL	.OGSTVB				Log	Stock	Table	- MB	F							
T07N	R06W S20 TyTA R06W S20 Ty000 R06W S20 TyRW	MC 37	0.00 7.00 6.00		Proj Acre		FRO	OSTYS 210						Page Date Time	2 2/19/2016 7:53:47A	
	S So Gr Log	Gross	Def	Net	%		ľ	Net Volu	ıme by	Scalin	g Dian	neter in 1	nches			
Spp	rt de Len		%	MBF	Spc	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23 24	-29 30-39	40+
D	DO 4S 34	0		0	.0			0								
D	DO 4S 40	0		0	.0					0						
D	Totals	2,616	1.4	2,580	99.7	2	5	911	396	515	166	253	202	130		
Н	DO CU 10	5	100.0													
Н	DO 2S 40	7	11.1	7	88.9							7				
Н	DO 4S 22	1		1	11.1			1								
Н	Totals	13	44.6	7	.3			1				7				
SN	DO CU 30	0	100.0													
SN	Totals	0	100.0													
Total	All Species	2,630	1.6	2,587	100.0	2	5	912	396	515	166	260	202	130		

TC PSTNDSUM		Stand Table Summary	Page 1 Date: 2/19/2016
T07N R06W S20 TyTAKE	170.00	Project FROSTYS	Time: 7:53:49AM
T07N R06W S20 Ty00MC T07N R06W S20 TyRW	37.00	Acres 210.00	Grown Year:

Spc T	DBH	Sample Trees	FF 16'	Tot Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Averag Net Cu.Ft.	ge Log Net Bd.Ft.	Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Tons	Totals Cunits	MBF
D	10	10	84	50	7.553	4.12	7.55	11.1	40.2		83	303		175	64
D	11	20	85	63	12.484	8.24	12.48	15.7	51.3		195	641		410	135
D	12	29	86	59	17.984	14.12	19.03	17.3	53.2		328	1,012		690	212
D	13	26	85	60	12.059	11.12	14.09	18.2	54.4		256	767		538	161
D	14	32	86	64	12.511	13.37	17.37	19.3	57.7		335	1,002		704	210
D	15	45	85	74	16.234	19.92	27.75	20.7	65.6		575	1,820		1,207	382
D	16	49	84	64	11.154	15.57	19.35	21.2	67.5		411	1,306		863	274
D	17	43	86	64	5.832	9.19	9.04	26.0	79.6		235	719		494	151
D	18	39	84	64	3.703	6.54	6.80	24.7	73.9		168	503		352	106
D	19	15	85	91	.523	1.03	1.03	35.9	121.2		37	125		78	26
D	20	15	84	84	1.584	3.45	3.16	36.3	110.3		115	348		241	73
D	21	10	82	70	.812	1.95	1.62	33.7	101.2		55	164		115	35
D	22	15	86	94	1.004	2.65	2.31	40.5	146.6		93	338		196	71
D	23	10	84	82	.886	2.56	1.77	47.5	156.5		84	277		177	58
D	24	11	84	81	1.448	4.55	2.89	50.9	171.6		147	496		309	104
D	25	5	82	91	.730	2.49	1.46	61.7	207.3		90	302		189	63
D	26	7	82	76	1.170	4.31	2.06	57.3	186.4		118	385		248	81
D	27	3	84	101 91	.416	1.65	.83	76.7	284.9		63	236		133	50
D	28 29	6 3	84		.817	3.49 1.65	1.63	72.6	270.1 293.1		119 67	442 263		249	93
D	30	2	84 84	108	.361 .334	1.65	.83	75.1	342.0		69			141 144	55
D	31	4	85	109			00000	82.4	392.7		101	285 432		213	60
D	32	1	86	89	.472 .147	2.47	1.10	92.0 99.5	405.0		29	119		61	91 25
D															
D	Totals	400	85	65	110.216	136.94	-	24.3	79.1		3,775	12,285		7,928	2,580
Н	28	1	86	83	.097	.41	.19	55.5	180.0		11	35		23	7
Н	Totals	1	86	83	.097	.41	.19	55.5	180.0		11	35		23	7
SN	11	2	85	53	.025	.02									
SN	14	1	85	62	.015	.02									
SN	16	1	88	18	.012	.02									
SN	Totals	4	86	48	.052	.05									
Totals		405	85	65	110.365	137.40	155.56	24.3	79.2		3,786	12,320		7,950	2,587

#### CRUSHED ROCK COST

Frosty Shingle Project No. 1 Knob Point Stockpile DATE: 02/11/2016 SALE NAME: \_\_\_ PROJECT: MATERIAL: Crushed BY: B Rodgers QUARRY:

GO/ II II I I										
Road		Cubic	I		ONE W	AY HAUL IN	IMILES			Total
Segment	Stations	Yards	50 MPH	30 MPH	25 MPH	20 MPH	0   15 MPH	10 MPH	5 MPH	Haul
1G to 1H	7.65	165		1.4	1.0	1.0	0.6	0.3	0.2	4.50
11 to 1J	15.00	228		1.4	0.95	0.8	0.6	0.2	0.1	4.05
1K to 1L	13.70	180		1.1	1.1	0.8	0.3	0.25	0.1	3.65
I1 to I2	92.00	220		1.1	1.1	0.8	0.3	0.25	0.1	3.65
11 10 12	32.00	220				0.0	5.5			
				1						
								-		
	-									
	-									
						,				
	<b>_</b>									
								<del></del>		
	·					-				
	100.00	700								AVERAGE
TOTAL	128.35	793								HAUL
		CU. YD.		4.5-	4.04	0.04	,,,	0.05	0.40	3.94
CUBIC YARD	WEIGHTE	HAUL		1.25	1.04	0.84	0.45	0.25	0.12	3.34
					Α	verage Rou	nd Trip Dista	ince (miles)	7.88	

#### ROCK HAUL:

Truck type: Delay min.:	D20 8	_ No. trucks: _ Efficiency:	85%	Ave haul: \$3.82 Load: \$0.48	/cy /cy
Truck type: Delay min.:	D12 6	_ No. trucks: _ Efficiency:	6 85%	Spread: \$0.84	/cy
Truck type: Delay min.:	D10 5	No. trucks: _ Efficiency:	85%	Production: cy/day =	993

CRUSHED ROCK HAUL COSTS 793 cy @ \$5.14 /cy

#### PIT RUN ROCK COST

DATE: 02/11/2016
BY: B Rodgers SALE NAME: Frosty Shingle
PROJECT: Project No. 1
QUARRY: Knob Point B Rodgers MATERIAL: Pit Run

Road	01-11-	Cubic				ONE W	AY HAUL IN	MILES		· · · · · · · · · · · · · · · · · · ·	Total
Segment	Stations	Yards	50	MPH	30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	
1A to 1B	7.80	505			1.4	1.2	1.5	0.7	0.3	0.2	5.30
1C to 1D	3.60	273			1.4	1.2	1.5	0.7	0.3	0.2	5.30
1E to 1F	7.50	490			1.4	1.2	1.4	0.6	0.3	0.2	5.10
1G to 1H	7.65	465			1.4	1.0	1.0	0.6	0.3	0.2	4.50
1I to 1J	15.00	878			1.4	1.0	0.8	0.6	0.2	0.1	4.05
1K to 1L	13.70	800			1.1	1.1	0.8	0.3	0.25	0.1	3.65
1M to 1N	1.50	168			1.1	1.1	0.8	0.3	0.3	0.2	3.75
10 to 1P	10.40	615			1.1	1.1	0.7	0.2	0.2	0.2	3.50
1Q to 1R	1.50	135			1.1	1.1	0.7	0.2	0.3	0.2	3.55
13 to 14	12.70	635			1.4	1.2	1.4	0.6	0.3	0.2	5.10
-											
					9						
											9
				- 1							
	•										
TOTAL	81.35	4,964							*		AVERAGE
	STA./NO.		1								HAUL
CUBIC YARD					1.3	1.1	1.0	0.5	0.3	0.2	4.37
						Α	verage Roui	nd Trip Dista	nce (miles)	8.74	

#### ROCK HAUL:

Truck type:	D20	No. trucks:			
Delay min.:	8	Efficiency:	85%	Ave haul: \$4.25	/cy
				Load: \$0.54	/cy
Truck type:	D12	No. trucks:	6	Spread: \$0.96	/cy
Delay min.:	6	Efficiency:	85%		
Truck type:	D10	No. trucks:		Production: cy/day =	892
Delay min.:	5	Efficiency:	85%		

PIT RUN ROCK HAUL COSTS 4,964 cy @

\$5.75 /cy

#### RIP RAP ROCK COST

SALE NAME:	Knob Point			DATE:	02/11/2016
PROJECT:	Project No. 1	MATERIAL:	Rip Rap	BY:	B Rodgers
QUARRY:	Knob Point				

QUARKT.		KIIOD FOILI	•	_						
Road	0	Cubic			ONE W	AY HAUL IN	MILES			Total
Segment	Stations	Yards	50 MPI	4 30 MPH	25 MPH	20 MPH	15 MPH	10 MPH	5 MPH	Haul
1G to 1H	7.65	11		1.4	1.0	1.0	0.6	0.3	0.2	4.50
1I to 1J	15.00	11		1.4	0.95	0.8	0.6	0.2	0.1	4.05
				-						
				-						
	-									
				<b>+</b>						
				<b>-</b>					/	a.
										2
										AVERAGE
TOTAL	22.65	22								HAUL
	STA./NO.	CU. YD.			4.0	00	0.6	0.3	0.2	4.28
CUBIC YARD	WEIGHTEL	HAUL		1.4	1.0	0.9 verage Rou			8.55	4.20
					<i>F</i>	werage Rou	nd Trip Dista	ince (miles)	0.00	

#### ROCK HAUL:

Truck type:	D12	No. trucks:	2		
Delay min.:	6	Efficiency:	85%	Ave haul: \$4	.15 /cy
				Load: \$1	.80 /cy
Truck type:	D10	No. trucks:		Develop:	/cy
Delay min .	5	- Efficiency:	85%		

Production: cy/day = 304

RIP RAP ROCK HAUL COSTS

22 cy @

\$5.96 /cy

