



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Skywalker
Sale 341-14-33

District: Astoria

Date: January 15, 2014

cost summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	\$2,499,884.10	\$1,716.75	\$2,501,600.85
Project Work:			\$(445,089.00)
Advertised Value:			\$2,056,511.85



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timber description

Location: Portions of Sections 7, 8, 17, & 18,
T5N, R6W, W.M., Clatsop County, Oregon.

Stand Stocking: 80%

SpecieName	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	17	0	97
Western Hemlock / Fir	20	0	97
Alder (Red)	17	0	95

Volume by Grade	2S	3S	4S	Camprun	Total
Douglas - Fir	3,860	2,534	459	0	6,853
Western Hemlock / Fir	31	17	1	0	49
Alder (Red)	0	0	0	5	5
Total	3,891	2,551	460	5	6,907



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comments: Pond Values Used: 4th Quarter Calendar Year 2013 + Local Pond Values.

Expected Log Markets: Warrenton, OR; Mist, OR; Clatskanie, OR; Tillamook, OR; Forest Grove, OR.

Western redcedar and Other Cedars Stumpage Price = Pond Value
minus Logging Cost:
 $\$833.73/\text{MBF} = \$1,050/\text{MBF} - \$216.27/\text{MBF}$

SCALING COST ALLOWANCE = \$5.00/MBF

FUEL COST ALLOWANCE = \$4.00/Gallon

HAULING COST ALLOWANCE

Hauling costs equivalent to \$780 daily truck cost.

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

100% Branding and Painting: $\$1/\text{MBF} \times 6,907 \text{ MBF} = \$6,907$

Machine Washing for Noxious Weed Compliance = \$2,000

TOTAL Other Costs (with Profit & Risk to be added) = \$8,907

Other Costs (No Profit & Risk added):

Waterbar and Block Dirt Road Segments after Harvest:

$\$15.96/\text{station} \times 16.9 \text{ stations} = \269.72

Snag Creation: Create 75 snags $\times \$25/\text{snag} = \$1,875$

TOTAL Other Costs (No Profit & Risk added) = \$2,144.72



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logging conditions

combination#: 1	Douglas - Fir	21.00%		
	Western Hemlock / Fir	21.00%		
	Alder (Red)	21.00%		
yarding distance:	Medium (800 ft)		downhill yarding:	No
logging system:	Cable: Medium Tower >40 - <70		Process:	Manual Falling/Delimbing
tree size:	Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF			
loads / day:	5.0		bd. ft / load:	4,500
cost / mbf:	\$153.78			
machines:				
Log Loader (A)				
Tower Yarder (Medium)				
combination#: 2	Douglas - Fir	55.00%		
	Western Hemlock / Fir	55.00%		
	Alder (Red)	55.00%		
yarding distance:	Long (1,500 ft)		downhill yarding:	No
logging system:	Shovel		Process:	Manual Falling/Delimbing
tree size:	Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF			
loads / day:	8.0		bd. ft / load:	4,500
cost / mbf:	\$69.57			
machines:				
Shovel Logger				
combination#: 3	Douglas - Fir	3.00%		
	Western Hemlock / Fir	3.00%		
	Alder (Red)	3.00%		
yarding distance:	Short (400 ft)		downhill yarding:	No
logging system:	Cable: Small Tower <=40		Process:	Manual Falling/Delimbing
tree size:	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF			
loads / day:	4.0		bd. ft / load:	3,700
cost / mbf:	\$182.50			
machines:				
Log Loader (A)				
Tower Yarder (Small)				
combination#: 4	Douglas - Fir	21.00%		
	Western Hemlock / Fir	21.00%		
	Alder (Red)	21.00%		
yarding distance:	Medium (800 ft)		downhill yarding:	No
logging system:	Shovel		Process:	Manual Falling/Delimbing
tree size:	Small / Thinning 12in (130 Bft/tree), 12-17 logs/MBF			
loads / day:	6.0		bd. ft / load:	3,700
cost / mbf:	\$112.82			
machines:				
Shovel Logger				



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logging costs

Operating Seasons:	3.00	Profit Risk:	14.00%
Project Costs:	\$445,089.00	Other Costs (P/R):	\$8,907.00
Slash Disposal:	\$0.00	Other Costs:	\$2,144.72

Miles of Road

Road Maintenance: \$3.73

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	4.5
Western Hemlock / Fir	\$0.00	2.0	4.0
Alder (Red)	\$0.00	2.0	3.3

Local Pond Values

Date	Specie	Grade	Value
1/15/14	Douglas - Fir	2S	\$600.00
1/15/14	Douglas - Fir	3S	\$555.00
1/15/14	Douglas - Fir	4S	\$540.00
1/15/14	Western Hemlock / Fir	2S	\$475.00
1/15/14	Western Hemlock / Fir	3S	\$455.00
1/15/14	Western Hemlock / Fir	4S	\$450.00
1/15/14	Alder (Red)	Camprun	\$580.00



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logging costs breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
\$99.72	\$3.84	\$1.90	\$78.30	\$1.29	\$25.91	\$0.00	\$5.00	\$0.31	\$216.27
Western Hemlock / Fir									
\$99.72	\$3.84	\$1.90	\$88.10	\$1.29	\$27.28	\$0.00	\$5.00	\$0.31	\$227.44
Alder (Red)									
\$99.72	\$3.92	\$0.00	\$108.85	\$0.00	\$19.16	\$0.00	\$5.00	\$0.00	\$236.65

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	\$0.00	\$579.34	\$363.07	\$0.00
Western Hemlock / Fir	\$0.00	\$467.55	\$240.11	\$0.00
Alder (Red)	\$0.00	\$580.00	\$343.35	\$0.00



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Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	6,853	\$363.07	\$2,488,118.71
Western Hemlock / Fir	49	\$240.11	\$11,765.39
Alder (Red)	5	\$343.35	\$1,716.75

Gross Timber Sale Value

Recovery: \$2,501,600.85

Prepared by: Dave Rygell

Phone: 503-325-5451

SUMMARY OF ALL PROJECT COSTS

SALE NAME: Skywalker

ROAD CONSTRUCTION:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 1	1A-1B, 1C-1D, 1Y-1Z, 1E-1F	67.40	\$73,103
	1G-1H, 1I-1J, 1K-1L, 2A-2B		
	2C-2D, 3A-3B, 3C-3D		
	TOTALS	67.40	\$73,103

ROAD IMPROVEMENT:

	<u>Road segment</u>	<u>Length/Sta</u>	<u>Cost</u>
Project No. 2	11-12, 13-14, 15-16, 17-18	297.04	\$145,140
	19-110, 111-112, 113-114		
	115-116, 117-118, 119, 120, 121		
	TOTALS		\$145,140

SPECIAL PROJECTS:

	<u>Description</u>	<u>Cost</u>
Project No. 3	Quarry Development and Rock Crushing	\$192,597
Project No. 4	Road Vacating and Fill Removal	\$11,031
	Project Road Maintenance	\$15,178
	TOTAL	\$218,806

MOVE IN:

<u>Equipment</u>	<u>Cost</u>
Excavator (C330)	\$1,406
Excavator (C315)	\$805
Dozer (D8)	\$1,406
Rubber Tired Skidder	\$717
Vibratory Roller	\$163
10-12 yd dump truck (X 5 @ \$163 each)	\$815
20 yd dump truck (X 5 @ \$191 each)	\$955
Large Grader (14G)	\$778
Water Truck (2,500 gal)	\$190
Front End Loader (C980)	\$805
*Mobilization costs for Quarry work added to Project No. 3	
TOTAL	\$8,040

GRAND TOTAL

\$445,089

FL

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Skywalker

ROAD: 1A-1B, 1C-1D, 1Y-1Z, 1E-1F, 1G-1H, 1I-1J, 1K-1L, 2A-2B, 2C-2D, 3A-3B, 3C-3D

POINTS:

NEW CONSTRUCTION: 67.40 STATIONS

IMPROVEMENT: STATIONS

1.30 MILES

MILES

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
Scatter Outside of R/W	6	x	\$ 1,337	=	\$8,022.00
		x		=	
		x		=	
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING

\$8,022

EXCAVATION

	Material	Cy/amount	x	Rate	=	Cost
1A-1B	Common drift excavation \$/cy	923	x	\$1.80	=	\$1,661.40
	Embankment compaction \$/cy	802	x	\$0.70	=	\$561.40
	Landing Construction	1	x	\$389.00	=	\$389.00
1C-1D	Balanced Construction Field Design \$/Sta	5.1	x	\$122.00	=	\$622.20
	Landing Construction	1	x	\$389.00	=	\$389.00
1Y-1Z	Balanced Construction Field Design \$/Sta	1.7	x	\$122.00	=	\$207.40
	Landing Construction	1	x	\$389.00	=	\$389.00
1E-1F	Balanced Construction Field Design \$/Sta	1.7	x	\$122.00	=	\$207.40
	Landing Construction	1	x	\$389.00	=	\$389.00
1G-1H	Balanced Construction Field Design \$/Sta	6.2	x	\$122.00	=	\$756.40
	Landing Construction	2	x	\$389.00	=	\$778.00
1I-1J	Common drift excavation \$/cy	407	x	\$1.80	=	\$732.60
	Embankment compaction \$/cy	338	x	\$0.70	=	\$236.60
	Sta. 2+90 Ditchout culvert outlet C330 Hrs.	0.5	x	\$155.00	=	\$77.50
1K-1L	Balanced Construction Field Design \$/Sta	4.7	x	\$122.00	=	\$573.40
	Landing Construction	1	x	\$389.00	=	\$389.00
2A-2B	Balanced Construction Field Design \$/Sta	6.7	x	\$122.00	=	\$817.40
	Landing Construction	1	x	\$389.00	=	\$389.00
	Sta 0+00: Fall cut trees Labor Hrs.	0.25		\$40.00	=	\$10.00
	Place cut trees C330 Hrs.	0.25		\$155.00	=	\$38.75
2D-2D	Balanced Construction Field Design \$/Sta	5.5	x	\$122.00	=	\$671.00
	Landing Construction	1	x	\$389.00	=	\$389.00
3A-3B	Balanced Construction Field Design \$/Sta	2.5	x	\$122.00	=	\$305.00
	Landing Construction	1	x	\$389.00	=	\$389.00
3D-3D	Common drift excavation \$/cy	2,930	x	\$1.80	=	\$5,274.00
	Embankment compaction \$/cy	2,738	x	\$0.70	=	\$1,916.60
	Landing Construction	1	x	\$389.00	=	\$389.00

SUB TOTAL FOR EXCAVATION

\$18,948

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
1A-1B					1I-1J				
4+20	18" CPP	30	\$19.53	\$585.90	2+90	18" CPP	30	\$19.53	\$585.90
9+10	18" CPP	30	\$19.53	\$585.90	7+00	18" CPP	30	\$19.53	\$585.90
Unposted	18" CPP	40	\$19.53	\$781.20	2A-2B				
1C-1D					0+00	18" CPP	40	\$19.53	\$781.20
0+00	18" CPP	40	\$19.53	\$781.20	2C-2D				
1G-1H					0+00	18" CPP	40	\$19.53	\$781.20
4+50	18" CPP	30	\$19.53	\$585.90	3C-3D				
					0+30	18" CPP	40	\$19.53	\$781.20

	Description	Quantity	Rate	Cost
Other/miscellaneous:				
Culvert stakes & markers:		10	\$20.00	\$200.00

SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION

\$7,036

Subtotal of Clearing, Exc., Culv.

\$34,006

SURFACING		Subgrade prep:		Description		Stations/ amount		Rate/ sta./amt	Cost
				Grade, Shape and Ditch 16' (1A-1B, 1C-1D, 1Y-1Z, 1E-1F, 1G-1H, 1I-1J, 3A-3B, 3C-3D)		50.50	x	\$24.83	\$1,253.92
				Subgrade Compaction (1A-1B, 1C-1D, 1Y-1Z, 1E-1F, 1G-1H, 1I-1J, 3A-3B, 3C-3D)		50.50	x	\$20.19	\$1,019.60
				Outslope 14' (1K-1L, 2A-2B, 2C-2D)		16.90	x	\$18.35	\$310.12

ROAD SEGMENT		1A to 1B	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Sta. to Sta. Number of			
Base Rock	4"-0" crushed	1A to 1B	8	station	13.00 stations	650	\$6.81	\$4,427
Junctions	4"-0" crushed	0+00, 13+00	n/a	junction	2 junctions	44	\$6.81	\$300
Turnouts	4"-0" crushed	5+20, 8+50	n/a	TO	2 TO's	44	\$6.81	\$300
Turnarounds	4"-0" crushed	7+10	n/a	TA	22 TA's	22	\$6.81	\$150
Curve Widening	4"-0" crushed	1+25, 2+65, 4+18, 8+96, 11+08	8	curve	n/a curves	5	\$6.81	\$1,703
Culvert Bedding/Backfill	1 1/2"-0" crushed	4+20, 9+10, Unposted	n/a	culvert	33 culverts	99	\$6.81	\$674
Dissapator	24"-6" ntrap	4+20	n/a	culvert	33 culverts	33	\$9.59	\$316
Landings	6"-0" Pit Run	1+60	n/a	Landing	55 Landings	55	\$9.59	\$527
Total Rock for Road Segment:		1A to 1B		1,197				\$8,396

ROAD SEGMENT		1C to 1D	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Sta. to Sta. Number of			
Base Rock	4"-0" crushed	1C to 1D	8	station	5.10 stations	255	\$6.81	\$1,737
Junctions	4"-0" crushed	0+00	n/a	junction	22 junctions	22	\$6.81	\$150
Turnarounds	4"-0" crushed	3+00	n/a	TA	22 TA's	22	\$6.81	\$150
Culvert Bedding/Backfill	1 1/2"-0" crushed	0+00	n/a	culvert	33 culverts	33	\$6.81	\$225
Landings	6"-0" Pit Run	5+10	n/a	Landing	55 Landings	55	\$9.59	\$527
Total Rock for Road Segment:		1C to 1D		387				\$2,788

ROAD SEGMENT		1E to 1F	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Sta. to Sta. Number of			
Base Rock	4"-0" crushed	1E to 1F	8	station	1.70 stations	85	\$6.81	\$579
Junctions	4"-0" crushed	0+00	n/a	junction	22 junctions	22	\$6.81	\$150
Culvert Bedding/Backfill	1 1/2"-0" crushed	0+00	n/a	culvert	33 culverts	33	\$6.81	\$225
Landings	6"-0" Pit Run	1+70	n/a	Landing	55 Landings	55	\$9.59	\$527
Total Rock for Road Segment:		1E to 1F		195				\$1,481

ROAD SEGMENT		1G to 1H	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Sta. to Sta. Number of			
Base Rock	4"-0" crushed	1G to 1H	8	station	6.20 stations	310	\$6.81	\$2,111
Junctions	4"-0" crushed	0+00	n/a	junction	22 junctions	22	\$6.81	\$150
Turnouts	4"-0" crushed	1+00	n/a	TO	22 TO's	22	\$6.81	\$150
Turnarounds	4"-0" crushed	4+00	n/a	TA	22 TA's	22	\$6.81	\$150
Culvert Bedding/Backfill	1 1/2"-0" crushed	4+50	n/a	culvert	33 culverts	33	\$6.81	\$225
Landings	6"-0" Pit Run	1+20, 6+20	n/a	Landing	55 Landings	110	\$9.59	\$1,055
Total Rock for Road Segment:		1G to 1H		519				\$3,840

ROAD SEGMENT		1I to 1J	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Sta. to Sta. Number of			
Base Rock	4"-0" crushed	1I to 1J	8	station	8.70 stations	435	\$6.81	\$2,962
Junctions	4"-0" crushed	0+00	n/a	junction	22 junctions	22	\$6.81	\$150
Turnouts	4"-0" crushed	4+50	n/a	TO	22 TO's	44	\$6.81	\$300
Turnarounds	4"-0" crushed	7+80	n/a	TA	22 TA's	22	\$6.81	\$150
Curve Widening	4"-0" crushed	3+00, 5+10, 6+86, 8+71	8	curve	n/a curves	4	\$6.81	\$375
Culvert Bedding/Backfill	1 1/2"-0" crushed	2+90, 7+00	n/a	culvert	33 culverts	66	\$6.81	\$449
Landings	6"-0" Pit Run	8+70	n/a	Landing	55 Landings	55	\$9.59	\$527
Total Rock for Road Segment:		1I to 1J		699				\$4,913

ROAD SEGMENT		1K to 1L	POINT TO POINT		Sta. to Sta.	TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	Volume (CY) per	Sta. to Sta. Number of			
Junctions	4"-0" crushed	0+00	n/a	junction	22 junctions	22	\$6.81	\$150
Total Rock for Road Segment:		1K to 1L		22				\$150

ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	1Y to 1Z Volume (CY) per station	0+00 to 1+70 Number of stations					
Base Rock	4"-0" crushed	1Y to 1Z	8	50	1.70	85	\$6.81	\$579		
Junctions	4"-0" crushed	0+00	n/a	22	junctions	1	\$6.81	\$150		
Culvert Bedding/Backfill	1 1/2"-0" crushed	0+00	n/a	33	culverts	1	\$6.81	\$225		
Landings	6"-0" Pit Run	1+70	n/a	55	Landings	1	\$9.59	\$527		
Total Rock for Road Segment:				1Y to 1Z		195				\$1,481
ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2A to 2B Volume (CY) per junction	0+00 to 6+70 Number of junctions					
Junctions	4"-0" crushed	0+00	n/a	22	junctions	1	\$6.81	\$150		
Culvert Bedding/Backfill	1 1/2"-0" crushed	0+00	n/a	33	culverts	1	\$6.81	\$225		
Total Rock for Road Segment:				2A to 2B		55				\$375
ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	2C to 2D Volume (CY) per junction	0+00 to 5+50 Number of junctions					
Junctions	1 1/2"-0" crushed	0+00	n/a	22	junctions	1	\$6.81	\$150		
Culvert Bedding/Backfill	1 1/2"-0" crushed	0+00	n/a	33	culverts	1	\$6.81	\$225		
Total Rock for Road Segment:				2C to 2D		55				\$375
ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A to 3B Volume (CY) per station	0+00 to 2+50 Number of stations					
Base Rock	4"-0" crushed	3A to 3B	8	50	2.50	125	\$6.81	\$851		
Junctions	4"-0" crushed	0+00	n/a	22	junctions	1	\$6.81	\$150		
Landings	6"-0" Pit Run	2+50	n/a	55	Landings	1	\$9.59	\$527		
Total Rock for Road Segment:				3A to 3B		202				\$1,529
ROAD SEGMENT				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)	3C to 3D Volume (CY) per junction	0+00 to 11+60 Number of junctions					
Base Rock	4"-0" crushed	3C to 3D	8	50	11.60	580	\$6.81	\$3,950		
Junction leveling	4"-0" crushed	0+00	n/a	22	junctions	1	\$6.81	\$150		
Junctions	4"-0" crushed	0+00	n/a	22	junctions	1	\$6.81	\$150		
Turnouts	4"-0" crushed	6+50	n/a	TO	TO's	2	\$6.81	\$300		
Turnarounds	4"-0" crushed	11+00	n/a	TA	TA's	1	\$6.81	\$150		
Curve Widening	4"-0" crushed	6+61, 7+27, 9+56	8	curve	curves	3	\$6.81	\$300		
Traction Rock	1 1/2"-0" crushed	7+40-11+40	2	station	stations	4.00	\$6.81	\$354		
Culvert Bedding/Backfill	1 1/2"-0" crushed	0+30	n/a	33	culverts	1	\$6.81	\$225		
Fill Armor	24"-6" riprap	8+20 to 8+80	n/a	fill	fill	1	\$9.59	\$1,477		
Landings	6"-0" Pit Run	8+85, 11+60	n/a	Landings	Landings	2	\$9.59	\$1,055		
Total Rock for Road Segment:				3C to 3D		1,083				\$8,109
Processing:				Description		No. sta	Rate/sta	Cost		
				Water, Process & Compact Base Rock:		50.50	\$56.82	\$2,852		
				Water, Process & Compact Traction Rock:		4.00	\$56.48	\$226		
				24"-0"	6"-0"	4"-0"	1 1/2"-0"			
				187	550	3,402	470	4,609		
SUB TOTAL FOR SURFACING										

SPECIAL PROJECTS				Description		rate		hours		Cost	

SUMMARY OF CONSTRUCTION COSTS

SALE NAME: Skywalker

NEW CONSTRUCTION: _____

STATIONS _____

MILES _____

ROAD: _____

IMPROVEMENT: 297.04

STATIONS _____

5.63

MILES _____

POINTS: I1-I2 (149+46), I3-I4 (30+13), I5-I6 (17+06), I7-I8 (6+33), I9-I10 (10+27), I11-I12 (25+97), I13-I14 (19+20), I15-I16 (7+42), I17-I18 (31+20)

CLEARING & GRUBBING

Method	Acres/amount	x	Rate	=	Cost
		x		=	
I13 - I14 Junction Flare C315 (Hours)	1.5	x	\$101	=	\$152
		x		=	
		x		=	

SUB TOTAL FOR CLEARING & GRUBBING

\$152

EXCAVATION

Material	Cy/amount	x	Rate	=	Cost
I1 - I2 Turnout work C315 (Hours)	4.75	x	\$101	=	\$479.75
Culvert Repair Labor (Hours)	2.5	x	\$40	=	\$100.00
Ditchout work C315 (Hours)	2	x	\$101	=	\$202.00
Catch basin work C315 (Hours)	1.25	x	\$101	=	\$126.25
Riprap placement C315 (Hours)	2	x	\$101	=	\$202.00
Ditchline Debris C315 (Hours)	0.5	x	\$101	=	\$50.50
Settling Ponds C315 (Hours)	4.5	x	\$101	=	\$454.50
C315 Travel C315 (Hours)	0.75	x	\$101	=	\$75.75
Sta. 149+46 Fall cut trees Labor (Hours)	0.25	x	\$40	=	\$10.00
Provide for Drainage C315 (Hours)	0.50	x	\$101	=	\$50.50
Reconstruct Landing D8 (Hours)	0.50	x	\$158	=	\$79.00
I3 - I4 Riprap placement C315 (Hours)	0.25	x	\$101	=	\$25.25
Catch basin work C315 (Hours)	0.25	x	\$101	=	\$25.25
Ditchout work C315 (Hours)	0.5	x	\$101	=	\$50.50
I5 - I6 Ditchout work C315 (Hours)	0.25	x	\$101	=	\$25.25
Turnout work C315 (Hours)	0.5	x	\$101	=	\$50.50
Riprap placement C315 (Hours)	0.25	x	\$101	=	\$25.25
I7 - I8 Ditchout work C315 (Hours)	0.25	x	\$101	=	\$25.25
I9 - I10 Ditchout work C315 (Hours)	0.5	x	\$101	=	\$50.50
I11 - I12 Catch basin work C315 (Hours)	0.25	x	\$101	=	\$25.25
Culvert Repair Labor (Hours)	0.5	x	\$40	=	\$20.00
Turnout work C315 (Hours)	0.5	x	\$101	=	\$50.50
I13 - I14 Catch basin work C315 (Hours)	0.5	x	\$101	=	\$50.50
I17 - I18 Catch basin work C315 (Hours)	0.5	x	\$101	=	\$50.50
Culvert Repair Labor (Hours)	0.5	x	\$40	=	\$20.00
Pt I19 Settling Pond/blockage C315 (Hours)	3.0	x	\$101	=	\$303.00
Pt I20 Outlet ditch C315 (Hours)	0.5	x	\$101	=	\$50.50
Pt I21 Outlet ditch C315 (Hours)	0.5	x	\$101	=	\$50.50

SUB TOTAL FOR EXCAVATION

\$2,729

CULVERT MATERIALS AND INSTALLATION

Location	Dia/type	Lineal ft.	Rate	Cost	Location	Dia/type	Lineal ft.	Rate	Cost
I1-I2 (46+50)	18" CPP	30	\$19.53	\$585.90	I9-I10 (0+99)	18" CPP	30	\$19.53	\$585.90
I1-I2 (62+39)	18" CPP	30	\$19.53	\$585.90	I11-I12 (17+87)	18" CPP	40	\$19.53	\$781.20
I1-I2 (98+60)	18" CPP	30	\$19.53	\$585.90	I11-I12 (19+28)	18" CPP	40	\$19.53	\$781.20
I1-I2 (104+63)	18" CPP	40	\$19.53	\$781.20	I17-I18 (2+70)	18" CPP	40	\$19.53	\$781.20
I1-I2 (109+50)	18" CPP	40	\$19.53	\$781.20	Pt I20 (0+00)	18" CPP	40	\$19.53	\$781.20
I3-I4 (5+96)	18" CPP	40	\$19.53	\$781.20	Pt I21 (0+00)	18" CPP	40	\$19.53	\$781.20
I5-I6 (4+75)	18" CPP	30	\$19.53	\$585.90					
I5-I6 (14+46)	18" CPP	40	\$19.53	\$781.20					
I7-I8 (2+44)	18" CPP	40	\$19.53	\$781.20					

* See cost sheet breakdown

Description	Quantity	Rate	Cost
Other/miscellaneous:			
Culvert stakes & markers:	24	\$20.00	\$480.00

Subtotal of Clearing, Exc., Culv.

\$12,930

SURFACING		Subgrade prep:		Description		Stations/amount		Rate/sta/amt		Cost	
				Grade, Shape and Ditch 16'				x			
				Subgrade Compaction				x		\$24.83	
				Sod Removal				x		\$20.19	
				Sod Removal				x		\$12.41	
				Sod Removal				x		\$22.92	
				Ditchline Re-establishment				x		\$22.92	
								x		\$539.31	

ROAD SEGMENT		I1 to I2		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)		Rate/ Sta./ amt.		Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I1 to I2		0+00 to 149+46		TOTAL VOLUME (CY)		Rate/ Sta./ amt.		Cost	
				Volume (CY)	per	Number of	stations						
Surface Rock	4"-0" crushed	I1 to I2	6	38	station	149.46	52	5.679		\$6.81		\$38.677	
Leveling Rock	4"-0" crushed		n/a	11	load		19	572		\$6.81		\$3,895	
Curve Widening	4"-0" crushed		n/a	11	curve			209		\$6.81		\$1,423	
Junctions	4"-0" crushed	10+63, 49+41, 54+51, 83+59	6	n/a	junction		4	99		\$6.81		\$674	
Turnouts, improve	4"-0" crushed	23+60, 27+25, 31+31, 42+20, 44+20, 46+50, 62+48, 68+90, 80+45, 91+26, 95+66, 130+45, 139+90, 143+62	6	22	turnout		14	308		\$6.81		\$2,097	
Turnouts, Construction	4"-0" crushed	8+44, 17+95, 21+65, 36+25, 40+18, 135+50	6	n/a	turnout		6	165		\$6.81		\$1,124	
Turnouts Construction 100'	4"-0" crushed	110+47	6	44	turnout		1	44		\$6.81		\$300	
Junction Widening	4"-0" crushed	62+00, 84+61	n/a	11	junction		2	22		\$6.81		\$150	
Culvert bedding/backfill	1 1/2"-0" crushed	46+50, 62+00, 98+60, 104+63, 108+50	n/a	33	culvert		5	165		\$6.81		\$1,124	
Junctions	1 1/2"-0" crushed	0+00, 1+09	n/a	n/a	junction		3	99		\$6.81		\$674	
Landings	6"-0" pit-run	12	n/a	55	landing		1	55		\$9.59		\$527	
Dissipators	24"-6" riprap	46+50, 62+00, 98+60, 109+50	n/a	11	dissipator		4	44		\$9.59		\$422	
Settling Pond/Ditch Block	4"-0" crushed	2+00, 45+00	n/a	11	pond		2	22		\$9.59		\$211	
Catch basin armor	24"-6" riprap	85+42	n/a	11	c.basin		1	11		\$9.59		\$105	
Total Rock for Road Segment:		I1 to I2						7,494				\$51,404	

ROAD SEGMENT		I3 to I4		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)		Rate/ Sta./ amt.		Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I3 to I4		0+00 to 30+13		TOTAL VOLUME (CY)		Rate/ Sta./ amt.		Cost	
				Volume (CY)	per	Number of	stations						
Surface Rock	4"-0" crushed	0+00 to 21+05	6	38	station	21.05	4	800		\$6.81		\$5,447	
Leveling Rock	4"-0" crushed		n/a	11	load		4	44		\$6.81		\$300	
Curve Widening	4"-0" crushed		6	n/a	curve		4	44		\$6.81		\$300	
Turnouts Construction 100'	4"-0" crushed	3+30	6	44	turnout		1	44		\$6.81		\$300	
Turnouts Improve	4"-0" crushed	13+80	6	22	turnout		1	22		\$6.81		\$150	
Tracton Rock	1 1/2"-0" crushed	0+00 to 13+80	3	19	station	13.80	262	262		\$6.81		\$1,786	
Culvert bedding/backfill	1 1/2"-0" crushed	5+96	n/a	33	culvert		1	33		\$6.81		\$225	
Curve widening	1 1/2"-0" crushed		3	n/a	curve		2	22		\$6.81		\$150	
Junction Rock	1 1/2"-0" crushed	0+00, 9+56	3	22	junction		2	44		\$6.81		\$300	
Dissipators	24"-6" riprap	5+96	n/a	11	dissipator		1	11		\$9.59		\$105	
Total Rock for Road Segment:		I3 to I4						1,326				\$8,956	

ROAD SEGMENT		I5 to I6		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)		Rate/ Sta./ amt.		Cost	
Application	Rock Size and Type	Location	Depth of Rock (inches)	I5 to I6		0+00 to 17+06		TOTAL VOLUME (CY)		Rate/ Sta./ amt.		Cost	
				Volume (CY)	per	Number of	stations						
Surface Rock	4"-0" crushed	I5 to I6	6	38	station	17.06	648	648		\$6.81		\$4,415	
Turnouts, Construction	4"-0" crushed	2+95, 7+83	n/a	n/a	turnout		2	55		\$6.81		\$375	
Turnouts Improve	4"-0" crushed	5+52	6	22	turnout		1	22		\$6.81		\$150	
Leveling Rock	4"-0" crushed		n/a	11	load		6	66		\$6.81		\$449	
Curve Widening	4"-0" crushed		6	n/a	curve		3	33		\$6.81		\$225	
Junctions	4"-0" crushed	17+06	6	22	junction		1	22		\$6.81		\$150	
Culvert bedding/backfill	1 1/2"-0" crushed	4+75, 14+46	n/a	n/a	culvert		2	77		\$6.81		\$524	
Dissipators	24"-6" riprap	4+75, 14+46	n/a	11	dissipator		2	22		\$9.59		\$211	
Total Rock for Road Segment:		I5 to I6						945				\$6,499	

ROAD SEGMENT					17 to 18		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)				Volume (CY) per		0+00 to 8+33	Number of			
Surface Rock	4"-0" crushed	17 to 18	6			station	38		stations	6.33	241	\$6.81	\$1,638
Curve Widening	4"-0" crushed		6			curve	11		curves	2	22	\$6.81	\$150
Turnouts, improve	4"-0" crushed	3+07	n/a			turnout	22		turnouts	1	22	\$6.81	\$150
Culvert bedding/backfill	1 1/2"-0" crushed	2+44	n/a			culvert	33		culverts	1	33	\$6.81	\$225
Landings	6"-0" pit-run	18	n/a			landing	55		landings	1	55	\$9.59	\$527

Total Rock for Road Segment:

373

\$2,690

ROAD SEGMENT					19 to 110		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)				Volume (CY) per		0+00 to 10+27	Number of			
Surface Rock	4"-0" crushed	19 to 110	6			station	38		stations	10.27	390	\$6.81	\$2,658
Leveling Rock	4"-0" crushed		n/a			load	11		loads	5	55	\$6.81	\$375
Junction Widening	4"-0" crushed	0+00	n/a			corner	11		corners	1	11	\$6.81	\$75
Turnouts, improve	4"-0" crushed	2+90	6			turnout	22		turnouts	1	22	\$6.81	\$150
Turnouts, Construction	4"-0" crushed	4+80	6			turnout	22		turnouts	1	22	\$6.81	\$150
Culvert bedding/backfill	1 1/2"-0" crushed	0+99	n/a			culvert	33		culverts	1	33	\$6.81	\$225
Landings	6"-0" pit-run	110	n/a			landing	55		landings	1	55	\$9.59	\$527

Total Rock for Road Segment:

588

\$4,159

ROAD SEGMENT					111 to 112		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)				Volume (CY) per		0+00 to 25+97	Number of			
Surface Rock	4"-0" crushed	111 to 112	6			station	38		stations	25.97	987	\$6.81	\$6,721
Leveling Rock	4"-0" crushed		n/a			load	11		loads	8	88	\$6.81	\$599
Curve Widening	4"-0" crushed		6			curve	11		curves	6	66	\$6.81	\$449
Removed culvert backfill	4"-0" crushed	18+74	n/a			culvert	11		culverts	1	11	\$6.81	\$75
Turnaround	4"-0" crushed	0+00	6			turnaround	22		turnaround	1	22	\$6.81	\$150
Turnouts, improve	4"-0" crushed	3+61, 7+71, 20+97	n/a			turnout	22		turnouts	4	88	\$6.81	\$599
Turnout, Construction	4"-0" crushed	13+03	6			turnout	33		turnouts	1	33	\$6.81	\$225
Turnout, Construction 100'	4"-0" crushed	17+11	6			turnout	44		turnouts	1	44	\$6.81	\$300
Junctions	4"-0" crushed	9+43	n/a			junction	22		junctions	1	22	\$6.81	\$150
Culvert bedding/backfill	1 1/2"-0" crushed	17+87, 19+28	n/a			culvert	n/a		culverts	2	77	\$6.81	\$524

Total Rock for Road Segment:

1,438

\$9,792

ROAD SEGMENT					113 to 114		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)				Volume (CY) per		0+00 to 19+20	Number of			
Surface Rock	4"-0" crushed	113 to 114	6			station	38		stations	19.20	730	\$6.81	\$4,969
Leveling Rock	4"-0" crushed		n/a			load	11		loads	3	33	\$6.81	\$225
Junction Triangle	4"-0" crushed	0+00	6			junction	22		junctions	1	22	\$6.81	\$150
Junction east flare	4"-0" crushed	0+00 to 1+10	8			flare	88		flare	1	88	\$6.81	\$599
Curve Widening	4"-0" crushed		6			curve	n/a		curves	5	55	\$6.81	\$375
Turnouts, improve	4"-0" crushed	8+77, 14+38	6			turnout	22		turnouts	2	44	\$6.81	\$300

Total Rock for Road Segment:

972

\$6,617

ROAD SEGMENT					115 to 116		POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost
Application	Rock Size and Type	Location	Depth of Rock (inches)				Volume (CY) per		0+00 to 7+42	Number of			
Surface Rock	4"-0" crushed	15 to 16	6			station	38		stations	7.42	282	\$6.81	\$1,920
Leveling Rock	4"-0" crushed		n/a			load	11		loads	1	11	\$6.81	\$75
Curve Widening	4"-0" crushed		6			curve	11		curves	1	11	\$6.81	\$75
Turnout/Turnaround	4"-0" crushed	2+80	6			turnout	22		turnouts	1	22	\$6.81	\$150
Landings	6"-0" pit-run	18	n/a			landing	55		landings	1	55	\$9.59	\$527

Total Rock for Road Segment:

381

\$2,747

ROAD SEGMENT												
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost		
				117 to 118	Volume (CY) per	0+00 to 31+20	Number of					
Surface Rock	4"-0" crushed	0+00 to 12+00	6	station	38	stations	12.00	456	\$6.81	\$3,105		
Leveling Rock	4"-0" crushed	0+00 to 12+00	n/a	load	11	loads	4	44	\$6.81	\$300		
Turnouts, improve	4"-0" crushed	4+70, 7+67	n/a	turnout	22	turnouts	2	44	\$6.81	\$300		
Settling Pond/Ditch Block	4"-0" crushed	2+70	n/a	pond	11	ponds	1	11	\$6.81	\$75		
Junctions	1 1/2"-0" crushed	0+00	6	junction	33	junctions	1	33	\$6.81	\$225		
Culvert bedding/backfill	1 1/2"-0" crushed	2+70	n/a	culvert	n/a	culverts	1	77	\$6.81	\$524		
Dissipators	24"-6" riprap	2+70	n/a	dissipator	11	dissipators	1	11	\$9.59	\$105		
Total Rock for Road Segment:				117 to 118				676		\$4,634		
ROAD SEGMENT												
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost		
				Pt I19	Volume (CY) per	0+00 to 0+00	Number of					
Settling Pond/Ditch Block	4"-0" crushed	0+00	n/a	n/a	n/a	n/a	n/a	22	\$6.81	\$150		
Total Rock for Road Segment:				Pt I19				22		\$150		
ROAD SEGMENT												
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost		
				Pt I20	Volume (CY) per	0+00 to 0+00	Number of					
Culvert bedding/backfill	1 1/2"-0" crushed	0+00	n/a	culvert	33	culverts	1	33	\$6.81	\$225		
Surface Rock	1 1/2"-0" crushed	0+00	4"	culvert	11	culverts	1	11	\$6.81	\$75		
Road Base	4"-0" crushed	0+00	10"	culvert	22	culverts	1	22	\$6.81	\$150		
Total Rock for Road Segment:				Pt I20				66		\$449		
ROAD SEGMENT												
Application	Rock Size and Type	Location	Depth of Rock (inches)	POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)	Rate/ Sta./ amt.	Cost		
				Pt I21	Volume (CY) per	0+00 to 0+00	Number of					
Culvert bedding/backfill	1 1/2"-0" crushed	0+00	n/a	culvert	33	culverts	1	33	\$6.81	\$225		
Surface Rock	1 1/2"-0" crushed	0+00	4"	culvert	11	culverts	1	11	\$6.81	\$75		
Road Base	4"-0" crushed	0+00	10"	culvert	22	culverts	1	22	\$6.81	\$150		
Total Rock for Road Segment:				Pt I21				66		\$449		
Processing:												
Description				Gradation		# Lifts		No. sta		Rate/sta Cost		
Water, Process & Compact:				4"-0"		1		268.76		\$15,180		
Water, Process & Compact:				1 1/2"-0"		1		14.8		\$836		
(Traction Rock & I13 to 13 flare)												
</												

Processing:					Cost	
Water, Process & Compact:					No sta	Rate/sta
Water, Process & Compact:					1	\$15,180
(Traction Rock & I13 to 13 flare)					14.8	\$56.48
						\$836

24"-6"	6'-0"	4'-0"	1 1/2"-0"	Total
99	220	12,985	1,043	14,347

SPECIAL PROJECTS		Cost	
Description			
SUB TOTAL FOR SPECIAL PROJECTS		\$0	
GRAND TOTAL		\$145,140	

Compiled By: d.mellison Date:

Subtotal of Clearing, Exc., Culv. \$12,930

CRUSHED ROCK COST

SALE NAME:	Skywalker
PROJECT:	No. 3
QUARRY:	Buster Creek

MATERIAL: Crushed
4"-0", 1 1/2"-0"

DATE: 10/28/2013
BY: Dave Rygell

[illegible]

ROCK HAUL:

Truck type: D20 No. trucks: 5
 Delay min.: 8 Efficiency: 85%

Ave haul:	\$5.55	/cy
Load:	\$0.48	/cy
Spread:	\$0.78	/cy

Truck type: D12 No. trucks: 5
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks:
 Delay min.: 5 Efficiency: 85%

Production: cy/day = 1,290

CRUSHED ROCK HAUL COSTS 17,900 cy @ \$6.81 /cy

PIT RUN ROCK COST

SALE NAME:	Skywalker
PROJECT:	No. 3
QUARRY:	Buster Creek

MATERIAL: 6'-0" Pit Run
24'-0" Rip Rap

DATE: 10/28/2013
BY: Dave Rygell

[illegible]

ROCK HAUL:

Truck type: D20 No. trucks:
 Delay min.: 8 Efficiency: 85%

Ave haul:	\$6.59	/cy
Load:	\$1.08	/cy
Spread:	\$1.92	/cy

Truck type:	<u>D12</u>	No. trucks:	<u>5</u>
Delay min.:	<u>6</u>	Efficiency:	<u>85%</u>

Truck type: D10 No. trucks:
 Delay min.: 5 Efficiency: 85%

Production: cy/day = 479

PIT RUN ROCK HAUL COSTS	1,056 cy @	\$9.59 /cy
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SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

PROJECT NO. 3 Timber Sale Name: Skywalker

Quarry: _____ Swell: _____

Location: NW 1/4, Sec 25, T5N, R7W, W.M. Shrink: 16%

County: Clatsop

By: d.mellison Loading Hopper: Yes

Date: 07/26/13

ROCK SIZE	REJECT	GRADATION	STOCKPILE CU. YDS.	TRUCK MEAS CU. YDS.	TOTAL CU. YDS.
3/4"-0"		CR			
1-1/2"-0"	40%	CR		1,513	1,513
4"-0"	40%	CR		16,387	16,387
6"-0"		PR		770	770
24"-6"		RR		286	286
36"		RR			
TOTAL CUBIC YARDS OF ROCK:				18,956	18,956

1) MOBILIZATION & SET UP:

EQUIPMENT	QUANTITY	RATE	COST	EQUIPMENT	QUANTITY	RATE	COST
Dump Trucks	2	\$163	\$326	Loader	2	\$805	\$1,610
Screening Plants	1	\$553	\$553	3 Stage Crusher	1	\$2,891	\$2,891
D8 Cat	1	\$1,406	\$1,406	Loading Hopper	1	\$553	\$553
D6 Cat		\$778					
Drill & Compressor	1	\$1,406	\$1,406				
Powder	1	\$351	\$351				
Screening Plants	1	\$553	\$553				
Excavator	1	\$1,406	\$1,406				

SUB TOTAL FOR MOBILIZATION

\$11,055

EQUIPMENT SET UP	TIMES	RATE	COST
3 Stage Crusher	1	\$3,439	\$3,439
Screening Plants	1	\$293	\$293
Loading Hopper	1	\$293	\$293
Original Calibration	1	\$544	\$544

SUB TOTAL FOR SET UP COSTS

\$4,569

TOTAL MOBILIZATION & SET UP COSTS

\$15,623

2) CLEARING & GRUBBING

DESCRIPTION	QUANTITY	UNIT	RATE	COST
Clear Rock Source No. 2 and load and haul to the waste area.	0.2	acres	\$2,702	\$549
Move in Excavator for fall burning	1	ea.	\$1,290	\$1,290
Move-in Fire Truck for the burning of the Clearing Debris	1	ea.	\$190	\$190

TOTAL CLEARING & GRUBBING COSTS

\$2,029

3) EXCAVATION

MATERIAL DESCRIPTION	QUANTITY	UNIT	RATE	COST
Overburden Removal	1,000	bcy	\$3.90	\$3,900

TOTAL EXCAVATION COSTS

\$3,900

4) DEVELOP ROCK

ROCK SUMMARY			METHOD	%	QUANTITY	RATE	COST
Type	Cu. yd. Vol.	Weight	Ripping			\$2.20	
crushed	17,900	94%	Drill & shoot	100%	26,116	\$2.30	\$60,067
pit run	770	4%	Oversize red	10%	1,867	\$5.80	\$10,829
rip rap	286	2%	Other				
Total	18,956						
reject	7,160	37.8%					

TOTAL ROCK DEVELOPMENT COSTS

\$70,895

5) CALIBRATION & TESTING

DESCRIPTION	NO.	\$/TEST	COST
Calibrate	2	\$507.00	\$1,014
Calibrate			
Test	7	\$57.30	\$401
Test			

TOTAL CALIBRATION & TESTING COSTS

\$1,415

6) FEEDING & LOADING

DESCRIPTION	CU. YD. QUANTITY	COST CU. YD.	TOTAL COST
Dig & Feed Rock	25,060	\$0.79	\$19,749

TOTAL FEEDING & LOADING COSTS

\$19,749

7) ROCK CRUSHING

ROCK SIZE	ROCK TYPE	CU. YD. QUANTITY	CRUSHER TYPE	HOURLY PRODUCTION	RATE CU. YD.	TOTAL COST
3/4"-0"	crushed		3 stage w/s			
1-1/2"-0"	crushed	1,513	3 stage w/s	120	\$3.24	\$4,905
4"-0"	crushed	16,387	3 stage w/s	140	\$2.78	\$45,532

TOTAL ROCK CRUSHING COSTS

\$50,437

8) STOCKPILING

STOCKPILE SITE PREPARATION

Equipment	Hours	Rate	Total
Dozer		\$120.00	
Compactor		\$72.00	
Grader		\$90.00	
Excavator		\$138.00	

SUB TOTAL

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

HAUL & STOCKPILE		# of			
STOCKPILE LOCATION	SIZE	TRUCKS	CU. YDS.	RATE	COST

1. _____
2. _____
3. _____
4. _____

SUB TOTAL

TOTAL STOCKPILING COSTS

9) MISCELLANEOUS COSTS

DESCRIPTION	COST
Load, Haul, and Spread the reject material at the waste area:	\$27,924
\$3.90 /CY 7,160 CY	
Final Quarry Dev., Access Road Const., Waterbarring, Drainage, Block Quarry Access:	
C330 \$155 \HR. 2 Hours	\$310
Hand Seed and Mulch Waste Area:	
\$628 \Acre 0.5 Acres	\$314

TOTAL MISCELLANEOUS COSTS \$28,548

10) GRAND TOTAL: \$192,597

\$/Cubic Yard \$10.76

Footnotes:

Skywalker Timber Sale

Vacating Costs (Segment V1 to V2)

Work Description	Station	C.Y.	C330	C315	D10 Trk	C980	Compaction	Labor	Straw
Begin Vacating.	0+00								
Block road with large rip rap.		11	1		1	0.25			
Begin Fill Removal.	3+07	2,300	24	12	24				
Waste fill material in road prism.							2,300		
Seed and mulch waste material.								4	20
Remove culvert and develop stream channel									
Remove culvert.			0.5						
Develop stream channel.			3						
Dispose of old culvert.			0.3		3				
End Fill Removal.	4+07								
End Vacating.	5+90								
Block road with large rip rap.		11	1		1	0.25			
Total Quantity Hours			29.8	12	29	0.50		4	
Hourly Rates			\$155	\$101	\$79	\$109		\$40	
Quantity Rates							\$0.40		\$11
Sub Total Dollars			\$4,619	\$1,212	\$2,291	\$55	\$920	\$160	\$220

Total Dollars

\$9,477

Skywalker Project No. 4 Fill Vacating at Point V3 to V4

Description	Quantity	Rate	Cost
Remove fill @ Pt. "V3". Develop minimum 8' stream channel.			
Slope back material @ 1 1/2:1 (C330:\$/hr)	8	\$155.00	\$1,240.00
Spread grass seed and straw mulch (Laborer \$/hr)	4	\$40.00	\$160.00
Straw	10	\$10.00	\$100.00
Pasture seed mix (Annual Rye 33%, Orchard Grass 33%, Perennial Rye 34%) (\$/lb.)	10	\$1.40	\$14.00
Waterbar and block road (C330:\$/hr)	1	\$40.00	\$40.00
Move-In: Equipment on site, moved in with Project No. 1	0	\$1,406.00	\$0.00

Grand Total	\$1,554
--------------------	----------------

Projects Road Maintenance Cost Summary

Sale: Skywalker
Date: 30-Oct-13
By: Dave Rygell *FL*

Type	Equipment/Rationale		Hours	Rate	Cost
Final Haul	Grader 14G		48	\$100	\$4,800
Road	Dump Truck 12CY		20	\$79	\$1,580
Maintenance	FE Loader C966		10	\$83	\$830
Haul Route	Vibratory Roller		48	\$77	\$3,696
	Water Truck 2,500 gallon		48	\$89	\$4,272
Total					\$15,178

Miles/day	Distance(miles)	Days
1.5	4.5	3.0
1.5	4.5	3.0

Production Rates
 Grader
 Vibratory Roller
 Deep Creek Road, Wage Road.

**Skywalker
TIMBER CRUISE REPORT
FY 2014**

1. **Sale Area Location:** Areas 1, 2, 3, and 4 are located in Section 7, 8, 17, and 18, T5N, R6W, W.M., Clatsop County, Oregon.

2. **Fund Distribution:** BOF 100%
Tax Code 8-01 (100%)

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Non-thinnable	Existing R/W	New R/W	Stream Buffer	Net Acres	Survey Method
1	Partial Cut	323	3	14	4	63	239	GIS
1(a) 1(b) 1(c)	Group Selection	4					4	GIS
2	Partial Cut	73		3	1	11	58	GIS
3	Partial Cut	16		1	1	1	13	GIS
4	Right-of-Way (in unit)	5.5					5.5	GIS
4	Right-of-Way (out of unit)	0.5					0.5	GIS
TOTALS		422	3	18	6	75	320	

4. **Cruisers and Cruise Dates:** Areas 1, 2, and 3 were cruised by Derek Bangs, Nick Haile, Kevin Berry, Ty Williams, and Dave Rygell during July of 2013.

5. **Cruise Method and Computation:** Areas 1 and 2 are partial cut thinning units and were variable plot cruised. Area 1 was cruised with a 40 BAF on a 3 by 12 chain grid, with every third plot measured and graded. A total of 54 plots were sampled in Area 1, with 18 measured and graded plots, and 36 count plots. Area 2 was cruised with a 33.62 BAF on a 3 by 8 chain grid, with every third plot measured and graded. A total of 32 plots were sampled in Area 2, with 11 measured and graded plots, and 21 count plots. Alder and Cedar are reserve species and were recorded as leave trees in both areas.

All cruisers used Corvallis MicroTechnology (CMT) data collectors. Data was downloaded to the Atterbury Super A.C.E. program for computations. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria district office.

* Statistic reports "cruise" and "count" plot totals vary due to the following: In Area 1, four count plots had a measured and graded snag, one count plot had a measured and graded Red alder, and one additional measure plot was added in the field. In Areas 2 and 3, one count plot had a measured and graded Red alder, two count plots had a measured and graded Hemlock, and one count plot had a measured and graded Sitka spruce.

AREA	CRUISE	TRACT	TYPE	ACRES
1	T5NR6W08	A1 TAKE	00PC	239
1(a), 1(b), 1(c)	T5NR6W08	A1 GROUP SEL	00PC	4
2 and 3	T5NR6W18	A 23 TAKE	00PC	71
4 R/W	T5NR6W18	A 23 R/W	R/W	6

6. **Timber Description:** Area 1 is a partial cut thinning unit, approximately 73 years old, dominated by Douglas-fir. The average Douglas-fir tree size to be harvested is 18.0 inches DBH, with an average bole height of 89 feet to a merchantable top (6 inch d.i.b.). The average volume per acre to be harvested (net) is 25.3 mbf.

Areas 1(a), 1(b), and 1(c) are $\frac{3}{4}$ to 1.5 acre group selection patch cuts within Area 1. The average Douglas-fir tree size to be harvested is 20.7 inches DBH, with an average bole height of 95 feet to a merchantable top (6 inch d.i.b.). The average volume per acre to be harvested (net) is 57.3 mbf.

Areas 2 and 3 are partial cut thinning units, approximately 39 years old, dominated by Douglas-fir. The average Douglas-fir tree size to be harvested is 13.9 inches DBH, with an average bole height of 45 feet to a merchantable top (6 inch d.i.b.). The average volume per acre to be harvested (net) is 7.2 mbf.

Area 4 (Right-of-Way) totals 6 acres of right-of-way, 0.5 acres of which is outside of the Sale Area. The average Douglas-fir tree size to be harvested is 16.0 inches DBH, with an average bole height of 52 feet to a merchantable top (6 inch d.i.b.). The average volume per acre to be harvested is 19.8 mbf.

7. Statistical Analysis and Stand Summary: See "Statistics" - Type Reports, attached
Statistics for Stand B.F. volumes

Areas	Estimated CV	Target SE%	Actual CV	Actual SE%
1 (PC)	58%	10%	27.3%	3.7%
2 and 3 (PC)	40%	9%	40.0%	7.1%

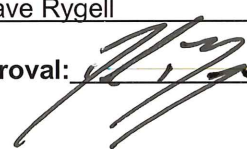
8. Volumes by Species and Log Grade: (See "Species, Sort, Grade" - Project Report, attached).
Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

Species	DBH	Net Vol.	2 Saw	3 Saw	4 Saw	Camp Run	% D & B	% Sale
Douglas-fir	17.2"	6,853	3,860	2,534	459	0	3%	99%
Hemlock/True-fir	20.5"	49	31	17	1	0	4%	1%
Red alder	16.8"	5	0	0	0	5	0%	<1%
TOTALS		6,907	3,891	2,551	460	5		100%

9. Approvals:

Prepared by: Dave Rygell

Date: 10-15-13

Unit Forester Approval: 

Date: 10-15-13

10. Attachments:

Cruise Design and Map – 6 pages
Volume Report - 5 pages
Statistics Reports - 10 page
Log Stock Table - 3 page
Stand Table Summary – 1 page

X:\Jewell_Unit\Timber Sales\2014\Skywalker\Skywalker - Cruise_Report.docx

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Skywalker **Area** 1

Harvest Type: (PC) "Partial Cut"

Approx. Cruise Acres: 280 **Estimated CV%** 58% Net BF **SE% Objective** 10 Net BF

Planned Sale Volume : 7,000 MBF **Estimated Sale Area Value/Acre:** \$8,125
(25 MBF/Ac.)

A. Cruise Goals: (a) Grade minimum 100 conifer
(b) Sample 53 cruise plots (17 grade/ 36 count); (c) Other goals (X Determine
"automark" thinning standards; X Determine log grades for sale value; X
Determine snag and leave tree species and sizes.

B. Cruise Design:

1. Plot Cruises: BAF 40 (Full point; Half point) (circle one)
Cruise Line Direction(s) AZ= 90° (East/West)
Cruise Line Spacing 12 (chains)
Cruise Plot Spacing 3 (chains)
Grade/Count Ratio 1/2

The BA target is 140 sqft. Leave 3 to 4 trees per plot. Alder and Cedar do not count for Basal Area. Record all hardwood as camp run. Record all cedar and hardwoods as leave trees. Cruise all snags as SN and estimate total height and diameter. If plot lands in buffer then offset at least 1/2 chain outside the buffer

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods.
Record dbh to nearest 1/2" 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 7" for conifers and 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. 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. Species: 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. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camprun; 0 = Cull
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 each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible 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.
9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
10. **Attachments:** A. Cruise Map (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: Dave Rygell
Approved by:  7/23/13
Date: 7/23/2013

Skywalker FY2013

Portions of Sections 7, 8, 17, & 18,
T5N, R6W, W.M., Clatsop County, Oregon.

Area 1 (PC) = 280 Acres

Area 2 (PC) = 69 Acres

Area 3 (PC) = 15 Acres

Total PC Acres = 364

Legend

Skywalker_GrossAcres

Non posted 50'

posted 25'

ODF Ownership

Fish

Paved

Nonfish

Surfaced

Unknown

Count

Grade

0 500 1,000 Feet
1 inch equals 1,000 feet

7

Area 3

Area 2

WALKER RIDGE ROAD

WAGE ROAD

18

8

9

Line 1: 6 count, 2 grade

Line 2: 7 count, 4 grade

Line 3: 7 count, 3 grade

Line 4: 6 count, 3 grade

Line 5: 6 count, 4 grade

16

Line 6: 4 count, 1 grade

NH01
NH02
NH03
NH04
NH05
NH06
NH07
NH08

NH09
NH10
NH11
NH12
NH13
NH14
NH15

DR01
DR02
DR03
DR04
DR05
DR06
DR07
DR08
DR09
DR10
DR16
DR17
DR20
DR25

KB01
KB02
KB03
KB04
KB05
KB06
KB07
KB08
KB09

DB01
DB02
DB03
DB04
DB05
DB06
DB07
DB08
DB09
DB10
DB11
DB12
DB13
DB14
DB15

**CRUISE DESIGN
ASTORIA DISTRICT**

Sale Name: Skywalker **Areas** 2&3

Harvest Type: (PC) "Partial Cut"

Approx. Cruise Acres: 84 **Estimated CV%** 40% Net BF **SE% Objective** 9 Net BF

Planned Sale Volume : 588 MBF **Estimated Sale Area Value/Acre:** \$2,275/Ac
(Sale Areas 2 and 3) (7 MBF/Ac.)

- A. Cruise Goals:** (a) Grade minimum 70 conifer
(b) Sample 32 cruise plots (11 grade/ 21 count); (c) Other goals (X Determine "automark" thinning standards; X Determine log grades for sale value; X Determine snag and leave tree species and sizes.

B. Cruise Design:

- 1. Plot Cruises:** BAF 33.61 (Full point, Half point) (circle one)
Cruise Line Direction(s): AZ= 255°
Cruise Line Spacing 8 (chains)
Cruise Plot Spacing 3 (chains)
Grade/Count Ratio 1/2

The BA target is 120 sqft. Alternate leaving 3 and 4 trees every other plot. Alder and Cedar do not count for Basal Area. Record all hardwood as camp run. Record all cedar and hardwoods as leave trees. Record all snags as SN and estimate total height and diameter. If plot lands in buffer then offset at least 1/2 chain outside the buffer.

C. Tree Measurements:

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods.
Record dbh to nearest 1/2" 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 7" for conifers and 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. 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. **Species:** 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. **Grade:** A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; R = Camprun; 0 = Cull
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 each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible 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.
9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
10. **Attachments:** A. Cruise Map (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: Dave Rygell

Approved by: [Signature] 7/24/13

Date: 7/23/2013

Skywalker

FY2013

Portions of Sections 7, 8 17, & 18,
T5N, R6W, W.M., Clatsop County, Oregon.

Area 1 (PC) = 280 Acres
Area 2 (PC) = 69 Acres
Area 3 (PC) = 15 Acres
Total PC Acres = 364

Legend

Skywalker_GrossAcres

Non posted 50'

posted 25'

ODF Ownership

Fish

Nonfish

Unknown

Paved

Surfaced

Count

Grade

0 500 1,000 Feet

1 inch equals 1,000 feet

WAGE ROAD

17

16

9

8

7

6

5

4

Walker Ridge Road

Area 1

Line 5: 8 count, 3 grade

Line 4: 5 count, 3 grade

Line 3: 4 count, 2 grade

Line 2: 3 count, 2 grade

Line 1: 1 count, 1 grade

Area 2

Area 3

Area 4

Area 5

Area 6

Area 7

Area 8

Area 9

Area 10

Area 11

Area 12

Area 13

Area 14

Area 15

Area 16

Area 17

Area 18

TC		PSPCSTGR		Species, Sort Grade - Board Foot Volumes (Project)																
T05N R06W S08 Ty00PC THRU T05N R06W S18 Ty00PC				Project: SKYWLKR										Page 1						
				Acres 320.00										Date 10/9/2013						
														Time 8:50:13AM						
Spp	So Gr T rt ad	% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent of Net Board Foot Volume								Average Log			Logs Per /Acre		
							Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf			
			4-5	6-11	12-16		17+	12-20	21-30	31-35	36-99									
D	DOCU		100.0	438												7		0.00	8.6	
D	DO2S	56	2.0	12,304	12,063	3,860		13	63	24	1	4	8	87	38	265	1.64	45.6		
D	DO3S	37	.9	7,991	7,919	2,534	0	98	2		1	5	22	71	36	93	0.72	85.3		
D	DO4S	7	.0	1,433	1,433	459	8	92			28	34	5	33	25	33	0.40	43.6		
D Totals		99	3.4	22,166	21,415	6,853	1	49	36	14	3	7	13	78	32	117	0.93	183.0		
A	DOCR	100		14	14	5		100				21		79	37	104	1.10	.1		
A Totals		0		14	14	5		100				21		79	37	104	1.10	.1		
H	DOCU		100.0	1											10		0.00	.0		
H	DO2S	61	4.7	100	96	31		17	83					100	40	296	1.93	.3		
H	DO3S	36		55	55	17		53	47				49	51	37	133	1.04	.4		
H	DO4S	3		4	4	1		100				100			21	30	0.57	.1		
H Totals		1	3.7	161	155	50		32	68			3	17	80	35	173	1.36	.9		
S	DOCU		100.0	10											24		0.00	.1		
S Totals			100.0	10											24		0.00	.1		
Totals			3.4	22,352	21,584	6,907	1	49	37	13	3	7	13	78	33	117	0.93	184.1		

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1			
				Project: SKYWLKR												Date		10/9/2013			
																Time		8:50:13AM			
T05N R06W S08 T00PC																T05N R06W S08 T00PC					
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt			
05N		06W		08		A1 TAKE		00PC		239.00		54		74		1		W			
S So Gr T rt ad Spp				% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre	
									Log Scale Dia.				Log Length				Ln	Bd	CF/ Lf		
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft			
D DO CU					100.0 467												6		0.00	7.6	
D DO 2S				59	2.0 15,161 14,852			3,550		13	63	24	1	4	6	89	38	264	1.63	56.3	
D DO 3S				35	.9 9,048 8,965			2,143	1	98	2		1	6	18	75	36	93	0.71	95.9	
D DO 4S				6	1,345 1,345			322	11	89			35	27	3	36	24	32	0.40	42.0	
D Totals				99	3.3 26,020 25,162			6,014	1	47	38	14	3	6	10	81	33	125	0.96	201.8	
H DO 2S				73	5.6 111 105			25		100							100	40	340	1.98	.3
H DO 3S				27	37 37			9		100							100	40	120	0.93	.3
H Totals				1	4.2 148 142			34	26	74						100	40	230	1.45	.6	
Type Totals					3.3 26,168 25,304			6,048	1	47	38	14	3	6	10	81	33	125	0.96	202.4	

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1							
Project: SKYWLKR										Date	10/9/2013								
										Time	8:50:13AM								
T05N R06W S08 T00PC										T05N R06W S08 T00PC									
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt										
05N	06W	08	A1 GROUP SEL	00PC	4.00	54	139	1	W										
S So Gr T rt ad Spp			% Net BdFt	Bd. Ft. per Acre			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
			Def%	Gross	Net	Log Scale Dia.				Log Length				Ln Ft	Bd Ft	CF/ Lf			
						4-5		6-11	12-16	17+	12-20	21-30	31-35				36-99		
D	DO	CU		100.0	941									7		0.00	10.7		
D	DO	2S	74	1.9	43,280	42,452	170		7	48	45	1	3	7	90	39	346	2.00	122.8
D	DO	3S	23	.7	12,646	12,557	50	0	95	4		1	9	23	68	35	93	0.74	135.0
D	DO	4S	3		1,660	1,660	7	9	91			34	30	6	31	24	33	0.42	50.9
D	Totals		99	3.2	58,526	56,670	227	0	29	37	34	2	5	10	83	34	177	1.25	319.4
A	DO	CR	100		494	494	2	100				49			51	34	89	1.00	5.6
A	Totals		1		494	494	2	100				49			51	34	89	1.00	5.6
H	DO	2S	73	5.6	111	105	0	100							100	40	340	1.98	.3
H	DO	3S	27		37	37	0	100							100	40	120	0.93	.3
H	Totals		0	4.2	148	142	1	26 74							100	40	230	1.45	.6
Type Totals				3.1	59,168	57,306	229	0	30	37	33	2	5	10	83	34	176	1.25	325.6

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	SKYWLKR			DATE	10/9/2013		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	08	A1 TAKE	00PC	239.00	54	189	1	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		54	189	3.5							
CRUISE		18	74	4.1	18,917	.4					
DBH COUNT											
REFOREST											
COUNT		30	114	3.8							
BLANKS		6									
100 %											
STAND SUMMARY											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR		73	78.8	18.0	89		139.3	26,020	25,162	6,477	6,393
WHEMLOCK		1	.3	21.0	90		.7	148	142	36	36
TOTAL		74	79.1	18.0	89		140.0	26,168	25,304	6,513	6,429
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %		COEFF		SAMPLE TREES - BF			# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR		54.5	6.4	376	401	427					
WHEMLOCK											
TOTAL		54.0	6.3	377	402	427	116	29	13		
CL: 68.1 %		COEFF		TREES/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR		67.8	9.2	72	79	86					
WHEMLOCK		734.8	99.9	0	0	1					
TOTAL		67.4	9.2	72	79	86	182	45	20		
CL: 68.1 %		COEFF		BASAL AREA/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR		58.7	8.0	128	139	150					
WHEMLOCK		734.8	99.9	0	1	1					
TOTAL		58.1	7.9	129	140	151	135	34	15		
CL: 68.1 %		COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15		
DOUG FIR		61.4	8.3	23,063	25,162	27,262					
WHEMLOCK		734.8	99.9	0	142	283					
TOTAL		60.6	8.2	23,218	25,304	27,390	147	37	16		

T TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)										Page 1						
Project: SKYWLKR										Date	10/9/2013							
										Time	8:50:13AM							
T05N R06W S18 T00PC										T05N R06W S18 T00PC								
Twp	Rge	Sec	Tract	Type	Acres	Plots	Sample Trees	CuFt	BdFt									
05N	06W	18	A23 TAKE	00PC	71.00	32	26	1	W									
S So Gr Spp T rt ad		% Net BdFt	Bd. Ft. per Acre Def% Gross Net		Total Net MBF	Percent Net Board Foot Volume								Average Log		Logs Per /Acre		
						Log Scale Dia.				Log Length				Ln	Bd		CF/	
						4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft	Lf		
D	DO	CU		100.0	296									9		0.00	11.1	
D	DO	2S	18		1,313	1,313	93		100		23	54	23	33	228	1.78	5.7	
D	DO	3S	59	.8	4,125	4,094	291		100		3		47	50	35	89	0.78	45.9
D	DO	4S	23		1,615	1,615	115		100		12	51	9	28	27	36	0.40	45.5
D	Totals		98	4.5	7,349	7,022	499		81	19	5	16	39	40	29	65	0.66	108.2
H	DO	2S	36		66	66	5		100				100	40	180	1.83	.4	
H	DO	3S	54		95	95	7		100				100	32	160	1.31	.6	
H	DO	4S	10		18	18	1		100				100	21	30	0.57	.6	
H	Totals		2		178	178	13		47	53	10	53	37	30	115	1.27	1.6	
S	DO	CU		100.0	43									24		0.00	.5	
S	Totals			100.0	43									24		0.00	.5	
Type Totals				4.9	7,571	7,200	511		80	20	5	16	40	40	29	65	0.67	110.2

T		TSPCSTGR		Species, Sort Grade - Board Foot Volumes (Type)												Page		1		
				Project: SKYWLKR												Date		10/9/2013		
																Time		8:50:13AM		
T05N R06W S18 T00PC												T05N R06W S18 T00PC								
Twp		Rge		Sec		Tract		Type		Acres		Plots		Sample Trees		CuFt		BdFt		
05N		06W		18		A23 R/W		00PC		6.00		32		68		1		W		
S So Gr Spp T rt ad				% Net BdFt	Bd. Ft. per Acre Def% Gross Net			Total Net MBF	Percent Net Board Foot Volume								Average Log			Logs Per /Acre
									Log Scale Dia.				Log Length				Ln	Bd	CF/ Lf	
									4-5	6-11	12-16	17+	12-20	21-30	31-35	36-99	Ft	Ft		
D DO CU					00.0 621												10		0.00	16.5
D DO 2S				41	.6 7,949 7,903			47		11	89			7	46	47	35	210	1.57	37.6
D DO 3S				45	1.2 8,531 8,425			51	1	97	2		3		55	41	35	89	0.81	94.3
D DO 4S				14	.7 2,639 2,622			16	4	96			16	51	11	23	26	32	0.45	80.8
D Totals				96	4.0 19,740 18,950			114	1	61	38		4	10	45	41	30	83	0.82	229.2
A DO CR				100	428 428			3		100						100	40	120	1.18	3.6
A Totals				2	428 428			3		100						100	40	120	1.18	3.6
H DO CU					00.0 71												10		0.00	.8
H DO 2S				21	87 87			1		100						100	40	180	1.82	.5
H DO 3S				73	293 293			2		14	86				100		32	123	0.99	2.4
H DO 4S				6	24 24			0		100				100			21	30	0.57	.8
H Totals				2	15.0 476 404			2		37	63			6	73	22	27	91	1.00	4.4
S DO CU					00.0 43												24		0.00	.5
S Totals					00.0 43												24		0.00	.5
Type Totals					4.4 20,687 19,782			119	1	61	38		3	10	45	42	30	83	0.83	237.6

TC PSTATS						PROJECT STATISTICS			PAGE	1		
						PROJECT	SKYWLKR		DATE	10/9/2013		
TWP	RGE	SC	TRACT	TYPE		ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06	08	A1 GROUP SEL	00PC	THR	320.00	172	848	1	W		
05N	06W	18	A23 TAKE	00PC								
			PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL			172	848	4.9							
CRUISE			61	307	5.0	25,581	1.2					
DBH COUNT												
REFOREST												
COUNT			100	505	5.1							
BLANKS			11									
100 %												
STAND SUMMARY												
			SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR			295	79.2	17.2	79		128.2	22,166	21,415	5,600	5,511
R ALDER			3	.1	16.8	41		.2	14	14	5	5
WHEMLOCK			7	.5	20.5	70		1.1	161	155	43	42
S SPRUCE			2	.1	20.0	25		.3	10		4	
TOTAL			307	79.9	17.2	79		129.7	22,352	21,584	5,652	5,559
CONFIDENCE LIMITS OF THE SAMPLE												
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR												
CL	68.1		COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD:	1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR			100.5	5.8	442	470	497					
R ALDER			27.9	19.3	83	103	123					
WHEMLOCK			49.5	20.1	213	267	321					
S SPRUCE												
TOTAL			101.9	5.8	432	458	485	415	104	46		
CL	68.1		COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR			138.4	10.5	71	79	88					
R ALDER			482.8	36.8	0	0	0					
WHEMLOCK			746.4	56.9	0	0	1					
S SPRUCE			1213.0	92.4	0	0	0					
TOTAL			137.0	10.4	72	80	88	749	187	83		
CL	68.1		COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR			140.3	10.7	114	128	142					
R ALDER			511.4	39.0	0	0	0					
WHEMLOCK			759.8	57.9	0	1	2					
S SPRUCE			1213.0	92.4	0	0	0					
TOTAL			138.5	10.5	116	130	143	765	191	85		
CL	68.1		COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD:	1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUG FIR			155.8	11.9	18,874	21,415	23,956					
R ALDER			513.5	39.1	9	14	20					
WHEMLOCK			927.7	70.7	45	155	264					
S SPRUCE												
TOTAL			154.6	11.8	19,042	21,584	24,125	954	238	106		

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	SKYWLKR			DATE	10/9/2013	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
05N	06W	08	A1	00PC	239.00	54	421	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
PLOTS		TREES		TREES		TREES				
TOTAL		54		421		7.8				
CRUISE		23		158		6.9		32,702		.5
DBH COUNT										
REFOREST										
COUNT		31		221		7.1				
BLANKS										
100 %										
STAND SUMMARY										
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		65	46.6	23.5	92	140.0	32,563	31,417	7,162	7,045
DOUG FIR		74	78.6	18.1	89	140.0	26,177	25,326	6,509	6,426
SNAG		16	5.7	27.5	44	23.7				
ALDRLEAV		2	5.6	15.6	37	7.4	494	494	189	189
WHEMLOCK		1	.3	21.0	90	.7	148	142	36	36
TOTAL		158	136.8	20.4	86	311.9	59,382	57,378	13,895	13,695
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %	COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV		68.6	8.5	920	1,006	1,091				
DOUG FIR		54.8	6.4	381	407	433				
SNAG										
ALDRLEAV		37.2	34.8	62	95	128				
WHEMLOCK										
TOTAL		95.6	7.6	566	612	659	365	91	41	
CL: 68.1 %	COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV		41.1	5.6	44	47	49				
DOUG FIR		67.5	9.2	71	79	86				
SNAG		164.1	22.3	4	6	7				
ALDRLEAV		299.2	40.7	3	6	8				
WHEMLOCK		734.8	99.9	0	0	1				
TOTAL		37.2	5.1	130	137	144	55	14	6	
CL: 68.1 %	COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV		18.2	2.5	137	140	143				
DOUG FIR		58.1	7.9	129	140	151				
SNAG		144.8	19.7	19	24	28				
ALDRLEAV		298.1	40.5	4	7	10				
WHEMLOCK		734.8	99.9	0	1	1				
TOTAL		20.1	2.7	303	312	320	16	4	2	
CL: 68.1 %	COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15		
DOUGLEAV		16.9	2.3	30,697	31,417	32,136				
DOUG FIR		60.8	8.3	23,232	25,326	27,421				
SNAG										
ALDRLEAV		298.1	40.5	294	494	694				
WHEMLOCK		734.8	99.9	0	142	283				
TOTAL		27.3	3.7	55,246	57,378	59,511	30	7	3	

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT SKYWLKR				DATE	10/9/2013	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
05N	06W	08	A1 GROUP SEL	00PC	4.00	54	386	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		54	386	7.1						
CRUISE		19	139	7.3	497		27.9			
DBH COUNT										
REFOREST										
COUNT		35	242	6.9						
BLANKS										
100 %										
STAND SUMMARY										
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		136	118.5	20.7	95	277.8	58,526	56,670	13,672	13,513
R ALDER		2	5.6	15.6	37	7.4	494	494	189	189
WHEMLOCK		1	.3	21.0	90	.7	148	142	36	36
TOTAL		139	124.4	20.5	93	285.9	59,168	57,306	13,897	13,737
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %		COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15
DOUG FIR		82.6	7.1	652	701	751				
R ALDER		37.2	34.8	62	95	128				
WHEMLOCK										
TOTAL		83.6	7.1	642	691	740	279	70	31	
CL: 68.1 %		COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15
DOUG FIR		42.8	5.8	112	118	125				
R ALDER		299.2	40.7	3	6	8				
WHEMLOCK		734.8	99.9	0	0	1				
TOTAL		39.0	5.3	118	124	131	61	15	7	
CL: 68.1 %		COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15
DOUG FIR		29.9	4.1	266	278	289				
R ALDER		298.1	40.5	4	7	10				
WHEMLOCK		734.8	99.9	0	1	1				
TOTAL		26.4	3.6	276	286	296	28	7	3	
CL: 68.1 %		COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH		5	10	15
DOUG FIR		30.8	4.2	54,293	56,670	59,047				
R ALDER		298.1	40.5	294	494	694				
WHEMLOCK		734.8	99.9	0	142	283				
TOTAL		29.2	4.0	55,031	57,306	59,580	34	9	4	

TC TSTATS				STATISTICS				PAGE	1		
				PROJECT	SKYWLKR			DATE	10/9/2013		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	08	A1 LEAVE	00PC	239.00	54	232	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL		54	232	4.3							
CRUISE		23	84	3.7	13,844			.6			
DBH COUNT											
REFOREST											
COUNT		31	128	4.1							
BLANKS											
100 %											
STAND SUMMARY											
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		66	46.6	23.5	92	140.7	32,458	31,362	7,167	7,052	
SNAG		16	5.7	27.5	44	23.7					
ALDRLEAV		2	5.6	15.6	37	7.4	494	494	189	189	
TOTAL		84	57.9	23.3	82	171.9	32,952	31,856	7,356	7,240	
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15			
DOUGLEAV		68.4	8.4	918	1,002	1,087					
SNAG											
ALDRLEAV		37.2	34.8	62	95	128					
TOTAL		91.5	10.0	719	799	880	334	84	37		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15			
DOUGLEAV		40.6	5.5	44	47	49					
SNAG		164.1	22.3	4	6	7					
ALDRLEAV		299.2	40.7	3	6	8					
TOTAL		34.1	4.6	55	58	61	46	12	5		
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15			
DOUGLEAV		18.1	2.5	137	141	144					
SNAG		144.8	19.7	19	24	28					
ALDRLEAV		298.1	40.5	4	7	10					
TOTAL		9.7	1.3	170	172	174	4	1	0		
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15			
DOUGLEAV		17.7	2.4	30,605	31,362	32,118					
SNAG											
ALDRLEAV		298.1	40.5	294	494	694					
TOTAL		15.8	2.1	31,171	31,856	32,540	10	2	1		

TC TSTATS				STATISTICS PROJECT SKYWLKR				PAGE 1 DATE 10/9/2013		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
05N	06W	18	A23	00PC	71.00	32	202	1	W	
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES				
TOTAL		32	202	6.3						
CRUISE		15	73	4.9	10,792	.7				
DBH COUNT										
REFOREST										
COUNT		17	102	6.0						
BLANKS										
100 %										
STAND SUMMARY										
SAMPLE TREES		TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUGLEAV		40	69.0	17.8	58	118.7	12,347	11,882	3,603	3,528
DOUG FIR		23	73.1	13.9	45	76.7	7,349	7,022	2,175	2,081
ALDRLEAV		3	3.6	18.0	46	6.3	428	428	168	168
SNAG		3	3.8	15.9	71	5.3				
WHEMLOCK		2	1.0	20.0	50	2.1	178	178	59	59
HEMLEAV		1	1.2	18.0	77	2.1	357	250	84	64
S SPRUCE		1	.5	20.0	25	1.1	43		17	
TOTAL		73	152.0	16.0	52	212.2	20,703	19,760	6,105	5,899
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %		COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUGLEAV		58.1	9.2	181	199	217				
DOUG FIR		75.3	16.1	108	129	149				
ALDRLEAV										
SNAG										
WHEMLOCK		3.8	3.6	178	185	192				
HEMLEAV										
S SPRUCE										
TOTAL		66.6	7.9	154	167	180	177	44	20	
CL: 68.1 %		COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUGLEAV		26.3	4.6	66	69	72				
DOUG FIR		72.6	12.8	64	73	82				
ALDRLEAV		343.7	60.7	1	4	6				
SNAG		367.4	64.9	1	4	6				
WHEMLOCK		405.4	71.6	0	1	2				
HEMLEAV		393.5	69.5	0	1	2				
S SPRUCE		565.7	99.9	0	0	1				
TOTAL		32.1	5.7	143	152	161	41	10	5	
CL: 68.1 %		COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUGLEAV		24.9	4.4	113	119	124				
DOUG FIR		71.5	12.6	67	77	86				
ALDRLEAV		343.7	60.7	2	6	10				
SNAG		367.4	64.9	2	5	9				
WHEMLOCK		393.5	69.5	1	2	4				
HEMLEAV		393.5	69.5	1	2	4				
S SPRUCE		565.7	99.9	0	1	2				
TOTAL		23.6	4.2	203	212	221	22	6	2	
CL: 68.1 %		COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUGLEAV		34.5	6.1	11,157	11,882	12,607				
DOUG FIR		81.2	14.3	6,015	7,022	8,029				
ALDRLEAV		343.7	60.7	168	428	688				

TC TSTATS				STATISTICS				PAGE	2
				PROJECT	SKYWLR			DATE	10/9/2013
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
05N	06W	18	A23	00PC	71.00	32	202	1	W
CL:	68.1 %	COEFF		NET BF/ACRE			# OF PLOTS REQ.		INF. POP.
SD:	1.0	VAR.	S.E. %	LOW	AVG	HIGH	5	10	15
SNAG									
WHEMLOCK		408.0	72.1	50	178	307			
HEMLEAV		393.5	69.5	76	250	423			
S SPRUCE									
TOTAL		<i>40.0</i>	<i>7.1</i>	<i>18,363</i>	<i>19,760</i>	<i>21,157</i>	<i>64</i>	<i>16</i>	<i>7</i>

TC TSTATS				STATISTICS				PAGE	1	
				PROJECT	SKYWLKR			DATE	10/9/2013	
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt	
05N	06W	18	A23 TAKE	00PC	71.00	32	76	1	W	
				TREES	ESTIMATED	PERCENT				
				PER PLOT	TOTAL	SAMPLE				
					TREES	TREES				
TOTAL		32	76	2.4						
CRUISE		9	26	2.9	5,290			.5		
DBH COUNT										
REFOREST										
COUNT		18	47	2.6						
BLANKS		5								
100 %										
STAND SUMMARY										
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		23	73.1	13.9	45	76.7	7,349	7,022	2,175	2,081
WHEMLOCK		2	1.0	20.0	50	2.1	178	178	59	59
S SPRUCE		1	.5	20.0	25	1.1	43		17	
TOTAL		26	74.5	14.0	45	79.8	7,571	7,200	2,250	2,139
CONFIDENCE LIMITS OF THE SAMPLE										
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR										
CL: 68.1 %		COEFF	SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		75.3	16.1	108	129	149				
WHEMLOCK		3.8	3.6	178	185	192				
S SPRUCE										
TOTAL		74.9	15.0	109	128	147	233	58	26	
CL: 68.1 %		COEFF	TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		72.6	12.8	64	73	82				
WHEMLOCK		405.4	71.6	0	1	2				
S SPRUCE		565.7	99.9	0	0	1				
TOTAL		69.4	12.3	65	75	84	192	48	21	
CL: 68.1 %		COEFF	BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		71.5	12.6	67	77	86				
WHEMLOCK		393.5	69.5	1	2	4				
S SPRUCE		565.7	99.9	0	1	2				
TOTAL		65.7	11.6	71	80	89	172	43	19	
CL: 68.1 %		COEFF	NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5	10	15	
DOUG FIR		81.2	14.3	6,015	7,022	8,029				
WHEMLOCK		408.0	72.1	50	178	307				
S SPRUCE										
TOTAL		77.1	13.6	6,220	7,200	8,181	237	59	26	

TC TSTATS				STATISTICS				PAGE 1			
				PROJECT SKYWLKR		DATE 10/9/2013					
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	18	A23 R/W	00PC	6.00	32	197	1	W		
		PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES					
TOTAL		32	197	6.2							
CRUISE		15	68	4.5	877	7.8					
DBH COUNT											
REFOREST											
COUNT		17	102	6.0							
BLANKS											
100 %											
STAND SUMMARY											
		SAMPLE TREES	TREES /ACRE	AVG DBH	BOLE LEN	REL DEN	BASAL AREA	GROSS BF/AC	NET BF/AC	GROSS CF/AC	NET CF/AC
DOUG FIR		63	140.0	16.0	52		195.4	19,740	18,950	5,788	5,622
R ALDER		1	3.6	18.0	46		6.3	428	428	168	168
WHEMLOCK		3	2.1	19.3	60		4.2	476	404	134	121
S SPRUCE		1	.5	20.0	25		1.1	43		17	
TOTAL		68	146.1	16.1	51		206.9	20,687	19,782	6,107	5,911
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %		COEFF		SAMPLE TREES - BF				# OF TREES REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		65.5	8.2	159	173	187					
R ALDER											
WHEMLOCK		7.9	5.5	183	193	204					
S SPRUCE											
TOTAL		65.3	7.9	157	171	184	170	43	19		
CL: 68.1 %		COEFF		TREES/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		39.5	7.0	130	140	150					
R ALDER		343.7	60.7	1	4	6					
WHEMLOCK		273.8	48.4	1	2	3					
S SPRUCE		565.7	99.9	0	0	1					
TOTAL		35.5	6.3	137	146	155	50	13	6		
CL: 68.1 %		COEFF		BASAL AREA/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		36.4	6.4	183	195	208					
R ALDER		343.7	60.7	2	6	10					
WHEMLOCK		268.8	47.5	2	4	6					
S SPRUCE		565.7	99.9	0	1	2					
TOTAL		31.5	5.6	195	207	218	39	10	4		
CL: 68.1 %		COEFF		NET BF/ACRE				# OF PLOTS REQ.		INF. POP.	
SD: 1.0		VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15		
DOUG FIR		47.1	8.3	17,374	18,950	20,525					
R ALDER		343.7	60.7	168	428	688					
WHEMLOCK		276.1	48.8	207	404	602					
S SPRUCE											
TOTAL		42.9	7.6	18,283	19,782	21,281	73	18	8		

TC TSTATS				STATISTICS				PAGE 1			
				PROJECT	SKYWLKR			DATE	10/9/2013		
TWP	RGE	SECT	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt		
05N	06W	18	A23 LEAVE	00PC	71.00	32	126	1	W		
				TREES	ESTIMATED	PERCENT					
				PER PLOT	TOTAL	SAMPLE					
					TREES	TREES					
TOTAL				32	126	3.9					
CRUISE				13	45	3.5	5,502	.8			
DBH COUNT											
REFOREST											
COUNT				18	69	3.8					
BLANKS				1							
100 %											
STAND SUMMARY											
		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		40	69.0	17.8	58		118.7	12,347	11,882	3,603	3,528
ALDRLEAV		1	3.6	18.0	46		6.3	428	428	168	168
SNAG		3	3.8	15.9	71		5.3				
HEMLEAV		1	1.2	18.0	77		2.1	357	250	84	64
TOTAL		45	77.5	17.7	58		132.3	13,131	12,560	3,855	3,760
CONFIDENCE LIMITS OF THE SAMPLE											
68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR											
CL: 68.1 %	COEFF	SAMPLE TREES - BF					# OF TREES REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15			
DOUGLEAV		58.1	9.2	181	199	217					
ALDRLEAV											
SNAG											
HEMLEAV											
TOTAL		65.3	9.7	166	184	202	170	43	19		
CL: 68.1 %	COEFF	TREES/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15			
DOUGLEAV		26.3	4.6	66	69	72					
ALDRLEAV		343.7	60.7	1	4	6					
SNAG		367.4	64.9	1	4	6					
HEMLEAV		393.5	69.5	0	1	2					
TOTAL		28.7	5.1	74	77	81	33	8	4		
CL: 68.1 %	COEFF	BASAL AREA/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15			
DOUGLEAV		24.9	4.4	113	119	124					
ALDRLEAV		343.7	60.7	2	6	10					
SNAG		367.4	64.9	2	5	9					
HEMLEAV		393.5	69.5	1	2	4					
TOTAL		24.1	4.3	127	132	138	23	6	3		
CL: 68.1 %	COEFF	NET BF/ACRE					# OF PLOTS REQ.		INF. POP.		
SD: 1.0	VAR.%	S.E.%	LOW	AVG	HIGH	5 10		15			
DOUGLEAV		34.5	6.1	11,157	11,882	12,607					
ALDRLEAV		343.7	60.7	168	428	688					
SNAG											
HEMLEAV		393.5	69.5	76	250	423					
TOTAL		30.5	5.4	11,884	12,560	13,235	37	9	4		

Log Stock Table - MBF

T05N R06W S08 Ty00PC
THRU
T05N R06W S18 Ty00PC

Project: SKYWLR
Acres 320.00

Page 1
Date 10/9/2013
Time 9:18:34AM

Spp	S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
									2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
D		DO	CU	3	6	100.0														
D		DO	CU	4	10	100.0														
D		DO	CU	6	68	100.0														
D		DO	CU	8	23	100.0														
D		DO	CU	10	19	100.0														
D		DO	CU	12	0	100.0														
D		DO	CU	16	1	100.0														
D		DO	CU	18	0	100.0														
D		DO	CU	29	13	100.0														
D		DO	2S	16	36		36	.5									36			
D		DO	2S	17	0		0	.0				0								
D		DO	2S	24	50		50	.7						1	49					
D		DO	2S	26	1		1	.0										1		
D		DO	2S	28	34		34	.5						34						
D		DO	2S	30	82		82	1.2					23		58			1		
D		DO	2S	32	295		295	4.3				152	80	59	2		1			
D		DO	2S	37	0		0	.0					0							
D		DO	2S	40	3,438	2.2	3,361	49.0			0	26	310	927	1149	775	165	6	1	1
D		DO	3S	13	0		0	.0						0						
D		DO	3S	16	7	1.4	7	.1			6			1						
D		DO	3S	17	6		6	.1			6		0							
D		DO	3S	19	0		0	.0				0								
D		DO	3S	20	10		10	.2				10								
D		DO	3S	21	23	18.0	19	.3				5		14						
D		DO	3S	22	5	25.0	4	.1				4								
D		DO	3S	23	0		0	.0					0							
D		DO	3S	24	26		26	.4			11	15								
D		DO	3S	25	7		7	.1			0	6								
D		DO	3S	26	42		42	.6		11	9		21	0						
D		DO	3S	27	6		6	.1			6	0								
D		DO	3S	29	22		22	.3				22	0	0						
D		DO	3S	30	10		10	.1			10		0							
D		DO	3S	31	0		0	.0				0	0							
D		DO	3S	32	474		473	6.9		0	75	198	171	28	0					
D		DO	3S	33	17		17	.2			16	0	0	1						
D		DO	3S	34	49		49	.7			19	1	29							
D		DO	3S	35	23		23	.3			12	11	0							

TC PLOGSTVB				Log Stock Table - MBF																
T05N R06W S08 Ty00PC THRU T05N R06W S18 Ty00PC				Project: SKYWLKR				Page 2												
				Acres 320.00				Date 10/9/2013												
								Time 9:18:34AM												
S T Spp	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches													
							2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+		
D	DO	3S	36	90	2.6	88	1.3			44	43	0								
D	DO	3S	37	28		28	.4			18	10	0								
D	DO	3S	38	1		1	.0			1										
D	DO	3S	39	1		1	.0				1									
D	DO	3S	40	1,708		1,693	24.7			275	787	631								
D	DO	4S	11	0		0	.0			0										
D	DO	4S	13	3		3	.0				3									
D	DO	4S	14	12		12	.2			12										
D	DO	4S	15	4		4	.1			4										
D	DO	4S	16	3		3	.1		0	3										
D	DO	4S	17	49		49	.7			49										
D	DO	4S	18	0		0	.0			0										
D	DO	4S	19	10		10	.1			10										
D	DO	4S	20	49		49	.7			43	6									
D	DO	4S	21	14		14	.2			14										
D	DO	4S	22	29		29	.4			23	6									
D	DO	4S	23	5		5	.1			0	5									
D	DO	4S	24	9		9	.1		9	0										
D	DO	4S	26	13		13	.2			13										
D	DO	4S	27	23		23	.3			23										
D	DO	4S	28	18		18	.3			18										
D	DO	4S	30	45		44	.6		11	26	8									
D	DO	4S	31	12		12	.2			12										
D	DO	4S	32	10		10	.1		0	10										
D	DO	4S	36	15		15	.2		15											
D	DO	4S	40	137		137	2.0			137										
D	Totals			7,093	3.4	6,853	99.2		48	905	1168	1316	1075	1244	885	202	8	1	1	
A	DO	CR	30	1		1	21.4			1										
A	DO	CR	40	4		4	78.6			4										
A	Totals			5		5	.1			5										
H	DO	CU	10	0	100.0															
H	DO	2S	40	32	4.7	31	61.8					5		25						
H	DO	3S	32	8		8	16.7					8								
H	DO	3S	33	0		0	.5			0										
H	DO	3S	40	9		9	18.1				9									

TC PLOGSTVB		Log Stock Table - MBF																	
T05N R06W S08 Ty00PC THRU T05N R06W S18 Ty00PC					Project: SKYWLKR Acres 320.00										Page 3				
															Date 10/9/2013				
															Time 9:18:34AM				
S T	So rt	Gr de	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches											
								2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
H	DO	4S	21	1		1	2.8			1									
H	Totals			51	3.7	50	.7			2	9	5	8	25					
S	DO	CU	24	3	100.0														
S	Totals			3	100.0														
Total	All Species			7,153	3.4	6,907	100.0		48	907	1182	1321	1083	1270	885	202	8	1	1

TC		PSTNDSUM		Stand Table Summary										Page		1		
												Date:		10/9/2013				
T05N R06W S08 Ty00PC THRU T05N R06W S18 Ty00PC					Project					SKYWLKR					Time:		9:18:04AM	
					Acres					320.00					Grown Year:			
S SpC	T	DBH	Sample Trees	Tot FF 16'	Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log		Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals				
									Net Cu.Ft.	Net Bd.Ft.				Tons	Cunits	MBF		
D		9	4	84	63	3.612	1.60	3.61	11.0	40.0		40	144		127	46		
D		10	2	92	53	1.463	.80	1.46	11.0	40.0		16	59		51	19		
D		12	7	86	112	4.783	3.76	8.48	16.2	59.7		137	506		440	162		
D		13	12	86	124	8.025	7.40	15.18	20.4	75.4		310	1,145		991	367		
D		14	21	86	91	10.569	11.30	18.10	21.2	75.1		383	1,360		1,225	435		
D		15	20	89	93	9.136	11.21	18.76	21.8	81.3		409	1,526		1,308	488		
D		16	14	86	114	4.425	6.18	9.79	25.0	93.9		244	919		782	294		
D		17	25	88	96	6.019	9.49	11.82	29.3	102.9		346	1,215		1,106	389		
D		18	24	86	136	7.215	12.75	20.99	30.6	115.2		642	2,418		2,054	774		
D		19	17	88	128	4.219	8.31	12.10	33.8	133.9		409	1,621		1,310	519		
D		20	15	88	116	4.366	9.53	10.74	39.0	149.7		419	1,607		1,339	514		
D		21	24	87	128	5.545	13.34	15.92	40.3	163.9		641	2,610		2,051	835		
D		22	19	87	108	1.847	4.87	4.85	42.1	163.7		204	794		653	254		
D		23	11	84	124	1.090	3.14	2.73	52.0	202.8		142	553		454	177		
D		24	15	88	133	1.924	6.05	5.75	54.0	229.4		311	1,320		995	422		
D		25	13	88	126	2.560	8.73	7.26	56.0	235.8		407	1,711		1,301	548		
D		26	10	86	121	.828	3.05	2.48	52.0	220.5		129	548		413	175		
D		27	7	84	116	.749	2.98	1.88	64.5	244.9		121	461		388	147		
D		28	9	88	143	.708	3.03	2.12	78.1	344.0		166	731		531	234		
D		29	5	87	148	.028	.13	.08	83.5	385.3		7	32		22	10		
D		30	5	86	144	.026	.13	.08	88.8	397.3		7	31		22	10		
D		31	6	88	141	.029	.15	.09	84.9	412.6		8	38		25	12		
D		32	3	87	155	.014	.08	.05	96.8	468.0		4	21		14	7		
D		34	1	86	140	.004	.03	.01	112.3	520.0		1	6		4	2		
D		35	1	89	169	.004	.03	.02	106.3	590.0		2	9		5	3		
D		36	1	86	126	.004	.03	.01	87.0	395.0		1	6		4	2		
D		37	1	86	121	.003	.03	.01	112.7	466.7		1	5		4	2		
D		38	2	86	146	.006	.05	.02	133.3	631.7		3	12		8	4		
D		58	1	84	155	.001	.03	.00	335.0	1673.3		1	7		4	2		
D		Totals	295	87	110	79.202	128.16	174.41	31.6	122.8		5,511	21,415		17,635	6,853		
H		18	3	89	70	.162	.29	.32	27.0	95.9		9	31		28	10		
H		21	2	89	110	.234	.56	.47	58.0	230.0		27	108		87	34		
H		23	2	86	58	.090	.26	.09	73.0	180.0		7	16		21	5		
H		Totals	7	88	87	.485	1.11	.88	48.2	175.7		42	155		136	50		
A		14	1	87	59	.043	.05	.04	26.0	70.0		1	3		4	1		
A		18	2	86	55	.093	.16	.09	47.0	120.0		4	11		14	4		
A		Totals	3	86	56	.136	.21	.14	40.3	104.1		5	14		18	5		
S		20	2	81	30	.116	.25											
S		Totals	2	81	30	.116	.25											
Totals			307	87	109	79.939	129.73	175.42	31.7	123.0		5,559	21,584		17,788	6,907		

Logging Plan
 OF TIMBER SALE CONTRACT NO. 341-14-33
 SKYWALKER
 PORTIONS OF SECTIONS 7, 8, 17, AND
 18, T5N, R6W, W.M.,
 CLATSOP COUNTY, OREGON.

Area 1 (PC) = 239 Acres
 Area 1A, 1B, 1C (GS) = 4 Acres
 Area 2 (PC) = 58 Acres
 Area 3 (PC) = 13 Acres
 Area 4 (R/W) = 6 Acres
 Total Acres = 320

Approximate Scale = 1"=1,000'
 0 500 1,000 1,500 Feet

STATE

Legend

- Existing Landings
- ⊙ New Landing Construction
- Existing Surfaced Roads
- New Road Construction Unsurfaced
- - - New Road Construction
- Type F Stream
- Type N Stream
- ▨ Non Thinnable
- ▨ Group Selection
- ⋯ Timber Sale Boundary
- ▨ Posted Stream Buffer
- ▨ Unposted Stream Buffer
- I ODF Ownership
- Yarding Area - Ground
- Yarding Area - Cable

Logging Breakdown

	Tractor	Cable
Area 1	72%	28%
Area 2	100%	0%
Area 3	21%	79%

