"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Ice Hole
Sale WO-341-2018-110-

District: West Oregon

Date: May 21, 2018

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	$1,030,687.18	$36,196.90	$1,066,884.08
		Project Work:	($61,801.00)
		Advertised Value:	$1,005,083.08

"STEWARDSHIP IN FORESTRY"

District: West Oregon **Date: May 21, 2018**

Timber Description

Location: Portions of Sections 19 and 20, T11S, R8W, W.M., Lincoln County, Oregon.

Stand Stocking: 60%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	18	0	95
Alder (Red)	14	0	80

Volume by Grade	2S	3S & 4S 6"-11"	Camprun	Total
Douglas - Fir	1,048	774	0	1,822
Alder (Red)	0	0	95	95
Total	1,048	774	95	1,917

Comments: Pond Values Used: Local Pond Values, March 2018.

Expected Log Markets: Philomath, Eugene, Springfield, Willamina.

Western Hemlock and Other Conifers Stumpage Price = Pond Value minus Logging Cost:
$293.85/MBF = $660/MBF - $366.15/MBF

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
$1,053.85/MBF = $1,420/MBF - $366.15/MBF- $100/MBF (additional haul cost)

SCALING COST ALLOWANCE = $5.00/MBF

BRANDING AND PAINTING COST ALLOWANCE = $2.00/MBF

FUEL COST ALLOWANCE = $3.00/Gallon

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

Other Costs (with Profit & Risk to be added):
Intermediate Support/Tail Trees: 10 supports @ $100/support = $1,000.
TOTAL Other Costs (with Profit & Risk to be added) = $1,000.

Other Costs (No Profit & Risk added):
Equipment Cleaning (Invasive Species): $2,000
Non-Project Roads and Landings: $750
Landing Slash Piling: 6 Landings @ $100/Landing = $600
Landing Slash Piling and Firewood Sorting:5 Landings @ $180/Landing = $900
Water bar and block unsurfaced roads: 23 stations @ $15.96/sta. = $367
Remove temp. culvert (Pt. 5 to 6): 3 hr. @ 140/hr. = $420
Haul culvert to ODF Philomath: 1 hr. @ 100/hr. = $100
TOTAL Other Costs (No Profit & Risk added) = $5,137

SLASH DISPOSAL
Move-In: $1,290
Machine Wash: $300
Project Work: 36 hrs. @ $150/hr. = $5,400
TOTAL Slash Disposal = $6,990

Logging Conditions

Combination#: 1

Douglas - Fir	54.00%
Alder (Red)	54.00%

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

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

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

loads / day: 8 **bd. ft / load:** 3800

cost / mbf: $255.93

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

Combination#: 2

Douglas - Fir	19.00%
Alder (Red)	19.00%

Logging System: Cable: Medium Tower >40 - <70 **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: 11 **bd. ft / load:** 3800

cost / mbf: $186.13

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

Combination#: 3

Douglas - Fir	27.00%
Alder (Red)	27.00%

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: 18 **bd. ft / load:** 3800

cost / mbf: $78.13

machines: Forwarder
Harvester

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Ice Hole
Sale WO-341-2018-110-

District: West Oregon **Date: May 21, 2018**

Logging Costs

Operating Seasons:	2.00	**Profit Risk:**	10%
Project Costs:	$61,801.00	**Other Costs (P/R):**	$1,000.00
Slash Disposal:	$6,990.00	**Other Costs:**	$5,137.00

Miles of Road **Road Maintenance:** $7.15

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	4.0
Alder (Red)	$0.00	2.0	3.8

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Ice Hole

Sale WO-341-2018-110-

District: West Oregon

Date: May 21, 2018

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling / Brand & Paint	Other	Total
Douglas - Fir									
$194.66	$7.51	$4.58	$102.38	$0.52	$30.96	$3.65	$2.00	$2.68	$348.94
Alder (Red)									
$194.66	$8.58	$4.58	$123.16	$0.52	$33.15	$3.65	$2.00	$2.68	$372.98

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	$0.00	$914.63	$565.69	$0.00
Alder (Red)	$0.00	$754.00	$381.02	$0.00

"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal
Ice Hole
Sale WO-341-2018-110-

District: West Oregon **Date: May 21, 2018**

Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	1,822	$565.69	$1,030,687.18
Alder (Red)	95	$381.02	$36,196.90

Gross Timber Sale Value

Recovery: $1,066,884.08

Prepared By: Matt McBride **Phone:** 541-929-3266

SUMMARY OF ALL PROJECT COSTS

Sale Name: Ice Hole Date: March 2018

Project #1 - Road Improvement

Road Segment	Length	Cost
1 to 2	144.3 sta	$13,536
2 to 3	37.7 sta	$3,453
2 to 4	95.5 sta	$3,446
5 to 6	16.2 sta	$3,019
7 to 8	6.8 sta	$387
9 to 10	6.8 sta	$1,772
11 to 14	57.9 sta	$2,740
12 to 13	14.3 sta	$4,206
14 to 15	1.0 sta	$1,353
16 to 17	120.5 sta	$11,661
18 to 19	9.7 sta	$178
20 to 21	14.5 sta	$266
22 to 23	10.6 sta	$195
24 to 25	7.9 sta	$2,878
26 to 27	13.5 sta	$180
TOTALS	557.2 sta 10.6 mi	$49,270

Project #2 - Roadside Brushing 7.4 mi $8,129.00

Move in	Cost
Excavator, C325 or equv.	$1,290
Crawler tractor, D-6 or equiv.	$778
Road brusher	$778
Grader, G14 or equiv.	$778
Vibratory roller	$778
TOTAL	$4,402

GRAND TOTAL **$61,801**

Compiled by J. Long Date 03/21/2018

SUMMARY OF CONSTRUCTION COST

SALE	Ice Hole		Project #	1	LENGTH	improve		144.3 sta
ROAD	1 to 2	Cline Creek Road			Surfaced, ditch			

IMPROVEMENT

Clean culverts (inlets and outlets)	12		@	$25.00	/culv.	=	$300
Culvert installation (2) (materials & installation)	80	ft	@	$19.53	/ft	=	$1,562
Grade/compact surface rock (with vibratory roller)	144.3	sta	@	$24.28	/sta	=	$3,504
					TOTAL IMPROVEMENT =		$5,366

SURFACING			Size	Cost/yd			
Culvert bedding/backfill	40	cy of	1½-0"	$19.04	=	$762	
Spot rock	280	cy of	1½-0"	$19.04	=	$5,331	
Fill cover (4" lift)	20	cy of	1½-0"	$19.04	=	$381	
Turnouts (8)	80	cy of	3-0"	$18.70	=	$1,496	
					TOTAL ROCK COST =		$7,970

Culvert disposal (Hauling and disposal)	2	culverts	@	$100.00	/culv.	=	$200.00 $200.00

Compiled by: J. Long
Date: Mar 21, 2018

GRAND TOTAL =====> $13,536

SUMMARY OF CONSTRUCTION COST

SALE	Ice Hole	Project # 1	LENGTH const		37.7 sta
ROAD	2 to 3	Burnt Woods Ridge Road	Surfaced, ditch		

IMPROVEMENT

Clean culverts (inlets and outlets)	2	culvs	@	$25.00	/culv.	=	$50
Construct roadside Landings (3)	3	ldgs	@	$165.00	/ldg	=	$495
Grade/compact surface rock (with vibratory roller)	37.7	sta	@	$24.28	/sta	=	$915
					TOTAL IMPROVEMENT =		$1,460

SURFACING

			Size	Cost/yd			
Spot rock	50	cy of	1½-0"	$19.04	=	$952	
Landing rock	60	cy of	jaw-run	$17.35	=	$1,041	
				TOTAL ROCK COST =			$1,993

Compiled by: J. Long

Date: Mar 21, 2018

GRAND TOTAL =====> $3,453

SUMMARY OF CONSTRUCTION COST

SALE	Ice Hole		Project #	1	LENGTH	improve		95.5 sta
ROAD	2 to 4	Burnt Woods Ridge Road			Surfaced, ditch			

IMPROVEMENT

Clean culverts (inlets and outlets)	7 culvs	@	$25.00	/culv.	=	$175	
Grade/compact surface rock	95.5 sta	@	$24.28	/sta	=	$2,319	
				TOTAL IMPROVEMENT =			$2,494

SURFACING			Size	Cost/yd			
Spot rock	50	cy of	1½-0"	$19.04	=	$952	
				TOTAL ROCK COST =			$952

Compiled by: J. Long
Date: Mar 21, 2018

GRAND TOTAL =====> $3,446

SUMMARY OF CONSTRUCTION COST

SALE	Ice Hole	Project # 1	LENGTH	improve		16.2 sta
ROAD	5 to 6		Dirt, outsloped			

EXCAVATION

Re-open road and landing (with dozer)	16.2 sta	@	$24.76	/sta	=	$401
Install 24"x40' culvert and construct temporary fill (see fill cost sheet)	See Fill # 1 worksheet				=	$1,069
Grade/shape surface (with road grader)	16.2 sta	@	$15.40	/sta	=	$249
Compact subgrade (with vibratory roller)	16.2 sta	@	$16.80	/sta	=	$272
Spread and compact junction rock (0+00 to 0+75)	0.3 hr	@	$140.00	/hr	=	$42

TOTAL IMPROVEMENT = $2,033

SURFACING

			Size	Cost/yd		
Junction rock	50 cy of		jaw-run	$19.72	=	$986

TOTAL ROCK COST = $986

Compiled by: J. Long
Date: Mar 21, 2018

GRAND TOTAL =====> $3,019

SUMMARY OF CONSTRUCTION COST

SALE	Ice Hole		Project #	1	LENGTH	improve	6.8	sta
ROAD	7 to 8				Dirt, outsloped			

EXCAVATION

Re-open road and landing (with dozer)	6.8 sta	@	$24.76	/sta	=	$168
Grade/shape surface (with road grader)	6.8 sta	@	$15.40	/sta	=	$105
Compact subgrade (with vibratory roller)	6.8 sta	@	$16.80	/sta	=	$114

TOTAL IMPROVEMENT = $387

Compiled by: J. Long
Date: Mar 21, 2018

SUMMARY OF CONSTRUCTION COST

SALE	Ice Hole		Project #	1	LENGTH	improve		6.8 sta
ROAD	9 to 10				Surfaced, outsloped			

IMPROVEMENT

Remove sod and clear landing (with road grader)	6.8 sta	@	$18.35	/sta	=	$125	
Grade/compact surface rock	6.8 sta	@	$24.28	/sta	=	$165	
				TOTAL IMPROVEMENT =			$290

SURFACING			Size	Cost/yd			
Junction	10	cy of	1½-0"	$21.46	=	$215	
Spot rock	40	cy of	3-0"	$21.12	=	$845	
Landing rock	20	cy of	3-0"	$21.12	=	$422	
				TOTAL ROCK COST =			$1,482

Compiled by: J. Long
Date: Mar 21, 2018

GRAND TOTAL =====> $1,772

SUMMARY OF CONSTRUCTION COST

SALE	Ice Hole	Project # 1	LENGTH	improve	57.9 sta
ROAD	11 to 14	Burnt Woods Forest Road	Surfaced, ditch		

IMPROVEMENT

Slough/stump removal & cutslope rounding	2.0	hr	@	$140.00	/hr	=	$280
End-haul excavation (endhaul to W1)	30	cy	@	$3.00	/cy	=	$90
Compact waste area	30	cy	@	$0.40	/cy	=	$12
Grade/compact surface rock	57.9	sta	@	$24.28	/sta	=	$1,406

TOTAL IMPROVEMENT = $1,788

SURFACING

			Size	Cost/yd		
Spot rock (Pt. 11 to 12)	50	cy of	1½-0"	$19.04	=	$952

TOTAL ROCK COST = $952

Compiled by: J. Long
Date: Mar 21, 2018

GRAND TOTAL =====> $2,740

SUMMARY OF CONSTRUCTION COST

SALE	Ice Hole		Project #	1	LENGTH	improve		14.3 sta
ROAD	12 to 13				Surfaced, outsloped			

IMPROVEMENT

Remove sod and clear landing (with road grader)	14.3 sta	@	$18.35	/sta	=	$262	
Grade/compact surface rock	14.3 sta	@	$24.28	/sta	=	$347	
				TOTAL IMPROVEMENT =			$609

SURFACING

			Size	Cost/yd			
Junction	20	cy of	1½-0"	$21.46	=	$429	
Spot rock	100	cy of	3-0"	$21.12	=	$2,112	
Turnaround	10	cy of	3-0"	$21.12	=	$211	
Landing rock	40	cy of	3-0"	$21.12	=	$845	
				TOTAL ROCK COST =			$3,597

Compiled by:	J. Long		
Date:	Mar 21, 2018	**GRAND TOTAL =====>**	**$4,206**

SUMMARY OF CONSTRUCTION COST

SALE	Ice Hole	Project #	1	LENGTH improve	1.0 sta
ROAD	14 to 15 Pump Chance Improvement			Surfaced, outsloped	

IMPROVEMENT

Remove sod (with grader)	1.0	sta	@	$18.35	/sta	=	$18
Sediment removal from water hole	1.5	hr	@	$140.00	/hr	=	$210
De-water stream	2.0	hr	@	$10.00	/hr	=	$20
End-haul excavation (endhaul to W1)	20	cy	@	$3.00	/cy	=	$60
Grade/compact surface rock	1.0	sta	@	$24.28	/sta	=	$24

TOTAL IMPROVEMENT = $332

SURFACING

			Size	Cost/yd		
Junction	20	cy of	1½-0"	$21.46	=	$429
Surface rock	20	cy of	3-0"	$21.12	=	$422
Boulders	5	cy of	36"-24"	$33.93	=	$170

TOTAL ROCK COST = $1,021

Compiled by: J. Long
Date: Mar 21, 2018

GRAND TOTAL =====> $1,353

SUMMARY OF CONSTRUCTION COST

SALE	Ice Hole		Project #	1	LENGTH	improve	120.5	sta
ROAD	16 to 17	Miller Creek Road			Surfaced, outsloped			

IMPROVEMENT

Clean culverts (inlets and outlets)	9		@	$25.00	/culv.	=	$225
Improve Waste Area 2	0.5	hr	@	$140.00	/hr	=	$70
Slough removal	3.0	hr	@	$140.00	/hr	=	$420
End-haul excavation (endhaul to W1)	50	cy	@	$3.00	/cy	=	$150
Remove maple tree and debris (sta. 104+30)	0.5	hr	@	$140.00	/hr	=	$70
Re-construct fill and Install 24"x40' culvert (see fill cost sheet)	See Fill # 2 worksheet					=	$4,393
Grade/compact surface rock	120.5	sta	@	$24.28	/sta	=	$2,926
					TOTAL IMPROVEMENT =		$8,254

SURFACING

			Size	Cost/yd		
Turnaround	20	cy of	3-0"	$18.70	=	$374
Turnouts (4)	40	cy of	3-0"	$18.70	=	$748
Spot rock	120	cy of	1½-0"	$19.04	=	$2,285
				TOTAL ROCK COST =		$3,407

Compiled by: J. Long
Date: Mar 21, 2018

GRAND TOTAL =====> $11,661

SUMMARY OF CONSTRUCTION COST

SALE	Ice Hole	Project #	1	LENGTH	improve	9.7 sta
ROAD	18 to 19			Surfaced, outsloped		

Remove sod and brushing debris (with road grader)	9.7 sta	@	$18.35	/sta	=	$178

TOTAL IMPROVEMENT COST = $178

Compiled by: J. Long
Date: Mar 21, 2018

SUMMARY OF CONSTRUCTION COST

SALE ROAD	Ice Hole 20 to 21		Project #	1	LENGTH	improve Surfaced, outsloped	14.5	sta
Remove sod and brushing debris (with road grader)		14.5 sta	@	$18.35	/sta	=	$266	

TOTAL IMPROVEMENT COST = $266

Compiled by: J. Long
Date: Mar 21, 2018

SUMMARY OF CONSTRUCTION COST

SALE ROAD	Ice Hole 22 to 23		Project #	1	LENGTH improve Surfaced, outsloped	10.6	sta
Remove sod and brushing debris (with road grader)	10.6	sta	@	$18.35	/sta	=	$195

TOTAL IMPROVEMENT COST = $195

Compiled by: J. Long
Date: Mar 21, 2018

SUMMARY OF CONSTRUCTION COST

SALE ROAD	Ice Hole 24 to 25		Project #	1	LENGTH Surfaced, outsloped	improve	7.9	sta
Remove sod and brushing debris (with road grader)		7.9 sta	@	$18.35	/sta	=	$145	
Grade/compact surface rock		7.9 sta	@	$24.28	/sta	=	$192	
					TOTAL IMPROVEMENT =			$337

SURFACING			Size	Cost/yd			
Junction rock	20	cy of	1½-0"	$21.46	=	$429	
Landing rock (Point 25)	20	cy of	3-0"	$21.12	=	$422	
Spot rock	80	cy of	3-0"	$21.12	=	$1,690	
				TOTAL ROCK COST =			$2,541

Compiled by: J. Long
Date: Mar 21, 2018

GRAND TOTAL =====> $2,878

SUMMARY OF CONSTRUCTION COST

SALE ROAD	Ice Hole 26 to 27		Project #	1	LENGTH Surfaced, outsloped	improve		9.8 sta
Remove sod and brushing debris (with road grader)	9.8 sta	@	$18.35	/sta	=	$180		
				TOTAL IMPROVEMENT COST =				**$180**

Compiled by: J. Long
Date: Mar 21, 2018

Ice Hole Timber Sale
No. 341-18-110

Project No. 2

Mechanical Brushing Costs

Date: Mar 21, 2018

Road Segment/ Point	Road Name	Length (Feet)	Miles	Brush Density	Cost / Mile	Segment Cost
11 to 2	Cline Creek Rd.	7,600	1.44	Medium	$1,100.00	$1,584
2 to 3	Burnt Woods Ridge Rd.	3,800	0.72	Medium	$1,100.00	$792
2 to 4	Burnt Woods Ridge Rd.	9,600	1.82	Medium	$1,100.00	$2,002
14 to 15	Pump chance	100	0.02	Medium	$1,100.00	$22
16 to 17	Miller Creek Rd.	12,100	2.29	Medium	$1,100.00	$2,519
18 to 19		1,000	0.19	Medium	$1,100.00	$209
20 to 21		1,500	0.28	Medium	$1,100.00	$308
22 to 23		1,100	0.21	Medium	$1,100.00	$231
24 to 25		800	0.15	Medium	$1,100.00	$165
26 to 27		1,400	0.27	Medium	$1,100.00	$297
Totals		**39,000**	**7.39**			**$8,129**

Fill Reconstruction Cost Estimate

Segment:	5 to 6	Station:	2+70
Fill:	1	Height:	6'

Materials	Quantity		$	Total	
24"x 40', CPP	1		$0.00	$0.00	
(From ODF culvert stockpile)					
Haul culvert from ODF office to site				$100.00	
1 1/2"-0" Crushed Rock for	20	cy	$21.46	$429.20	
Bedding/Backfill					
4"-0" Crushed Rock for Road		cy		$0.00	
Erosion Control		ac		$0.00	
Mulch and seed					**$529.20**

Excavation	Rate		CY/amount	Total	
End-Haul excavation $/cy	$3.00		0	$0.00	
Backfill from barrow site				$0.00	
Culvert placement and fill const.	$140.00	hr	3	$420.00	
Compaction					
Backfill (barrow & crushed rock)	$0.50	cy	80	$40.00	
Waste material compaction				$0.00	
Fill armor placement w/C325, $/hr				$0.00	
Laborer $/hr	$40.00	hr	2	$80.00	
(hand held compactor)					
					$540.00

Project Total	**$1,069**

Fill Reconstruction Cost Estimate

Segment:	16 to 17	Station:	109+50
Fill:	2	Height:	6'

Materials	Quantity		$	Total	
24"x 40', CPP	40		$18.24	$729.60	
Haul away old culvert				$100.00	
1 1/2"-0" Crushed Rock for Bedding/Backfill	20	cy	$21.46	$429.20	
6"-0" Jaw-run base rock for Road	30	cy	$19.72	$591.60	
6"-0" Jaw-run fill armor rock	30	cy	$19.72	$591.60	
12"-6" pit run disapater rock	10	cy	$18.76	$187.60	
1 1/2"-0" Surfacing Rock	30	cy	$21.46	$643.80	
Erosion Control		ac		$0.00	
Mulch and seed					**$3,273.40**

Excavation	Rate		CY/amount	Total	
End-Haul excavation $/cy	$3.00	cy	40	$120.00	
Backfill from barrow site				$0.00	
Culvert placement and fill const.	$140.00	hr	4	$560.00	
Volume pump for de-watering stream	$10.00		4	$40.00	
Compaction					
Backfill (barrow & crushed rock)	$0.50	cy	80	$40.00	
Waste material compaction				$0.00	
Fill armor and disapater placement w/C325, $/hr	$140.00	hr	2	$280.00	
Laborer $/hr	$40.00	hr	2	$80.00	
(hand held compactor)					
					$1,120.00

Project Total	**$4,393**

SUMMARY OF MAINTENANCE COST

SALE Ice Hole - Final Maintenance Cost Estimate

(Costed in appraisal, not in project costs)

Grading/Compaction

Move-in		
Grader	$	778
Roller	$	778

Road Segment	Length	Cost/Sta	Cost	Mileage
1 to 2	144.3	$24.28	$3,503.60	2.73
2 to 3	37.7	$24.28	$915.36	0.71
9 to 10	6.8	$24.28	$165.10	0.13
Total	188.8		$4,584.06	3.57

Maintenance Rock:

	Volume	Cost/CY	Cost
1½-0"	200	$21.46	$4,292.00
Grand Total			$ 10,432.06
TS Volume	1,459	MBF	
Cost / MBF =			$7.15

NOTES:

Rock Haul Cost Computation

SALE NAME: Ice hole
DATE: Mar 21, 2018
ROAD NAME: Cline Ck Rd
CLASS: Medium
ROCK SOURCE: Wild Rose Rock Quarry
10 CY truck
Route: Hwy 223, Hwy. 20, Cline Creek Road
Points:
5-6, 9-10,12-13, & 24-25.

TIME Computation:
Road speed time factors:

1.	55 MPH	17.5	MRT	19.1 minutes
2.	50 MPH	10.0	MRT	12.0 minutes
3.	45 MPH	5.0	MRT	6.7 minutes
4.	40 MPH		MRT	0.0 minutes
5.	35 MPH		MRT	0.0 minutes
6.	30 MPH		MRT	0.0 minutes
7.	25 MPH	2.6	MRT	6.2 minutes
8.	20 MPH		MRT	0.0 minutes
9.	15 MPH	2.0	MRT	8.0 minutes
10.	10 MPH	1.0	MRT	6.0 minutes
11.	05 MPH	0.5	MRT	6.0 minutes
		38.60		

Dump or spread time per RT 0.50 minutes
Total hauling cycle time for this setting
(100% efficiency) 64.50 minutes

Operator efficiency correction 0.85 75.88 minutes
Job efficiency correction 0.90 84.31 minutes

Truck capacity (CY) 10.00 8.43 min/CY
Loading time, delay time per CY 0.25 min/CY
TIME (minutes) per cubic yard 8.68 min/CY

COST per CY computation
Cost of truck and operator per hour $68.88 /hr.
Cost of truck and operator per minute $1.15 /min

Cost per CY $9.98 /CY

Spread and compact Water truck, Grader & Roller $1.50 /CY

Size	**Cost/Yd (Pit)**	**Cost Delivered w/o processing**	**Cost Delivered with processing**
1½ - 0"	$ 11.48	$21.46	$22.96
3 - 0"	$ 11.14	$21.12	$22.62
Jaw Run	$ 9.74	$19.72	$21.22
Pit-Run	8.78	$18.76	$20.26
Boulders	23.95	$33.93	

Rock Haul Cost Computation

SALE NAME: Ice hole DATE: Mar 21, 2018
ROAD NAME: Cline Creek Road CLASS: Medium
ROCK SOURCE: Wild Rose Rock Quarry 18 CY truck
Route: Hwy 223, Hwy 20, Cline Creek Road, Burnt Woods Ridge Rd.
Points: 1-2, 2-3, 2-4, 11-14, 16-17

TIME Computation:
Road speed time factors:

1.	55 MPH	17.5	MRT	19.1	minutes
2.	50 MPH	10.0	MRT	12.0	minutes
3.	45 MPH	5.0	MRT	6.7	minutes
4.	40 MPH		MRT	0.0	minutes
5.	35 MPH		MRT	0.0	minutes
6.	30 MPH		MRT	0.0	minutes
7.	25 MPH	2.0	MRT	4.8	minutes
8.	20 MPH		MRT	0.0	minutes
9.	15 MPH	2.6	MRT	10.4	minutes
10.	10 MPH	1.0	MRT	6.0	minutes
11.	05 MPH	0.5	MRT	6.0	minutes
	Total MRT	38.60			

Dump or spread time per RT		1.00	minutes
Total hauling cycle time for this setting (100% efficiency)		66.00	minutes
Operator efficiency correction	0.85	77.65	minutes
Job efficiency correction	0.90	86.28	minutes
Truck capacity (CY)	18.00	4.79	min/CY
Loading time, delay time per CY		0.25	min/CY
TIME (minutes) per cubic yard		5.04	min/CY

COST per CY computation

Cost of truck and operator per hour	$90.22	/hr.
Cost of truck and operator per minute	$1.50	/min
Cost per CY	$7.56	/CY
Spread and compact — Water truck, Grader & Roller	$1.50	/CY

Size	Cost/Yd (Pit)	Cost Delivered w/o processing	Cost Delivered with processing
1½ - 0"	$ 11.48	$19.04	$20.54
3 - 0"	$ 11.14	$18.70	$20.20
Jaw Run	$ 9.79	$17.35	$18.85
Pit-Run	8.78	$16.34	$17.84

Ice Hole (341-18-110)
FY 2018

TIMBER CRUISE REPORT

1. **Sale Area Location**: Portions of Sections 19 & 20, T11S, R8W, W.M., Lincoln County, Oregon.

2. **Fund Distribution:**
   a. **Fund** BOF 100%
   b. **Tax Code**

3. **Sale Acreage by Area:**

Area	Treatment	Gross Acres	Stream Buffers	Reforestation Areas	Green Tree Retention Areas	Existing Roads	Net Sale Acres	Acreage Comp. Method
1	Modified Clearcut	102	5	5	1	5	86	Ortho photo, GIS, GPS

4. **Cruisers and Cruise Dates:** This sale was cruised by Matt McBride and Andrew Arvin in February 2018. Plots No. 29 (measured) and 30 (count) were added by Jon long and Matt McBride in March 2018.

5. **Cruise Method and Computation:** The sale consists of one modified clearcut area that was cruised using variable radius plot sampling. The sale area was cruised using a 33.6 BAF with plots spaced 4 chains apart on plot lines spaced 8 chains apart. A total of 31 plots were taken with 21 measure plots and 10 count plots. One of the count plots had a minor species cruised and shows as a measure plot on the project Statistics report. Measure plots were measured for DBH, height, form factor, grade, and defect. Data was entered into the Atterbury SuperACE cruise program to determine stand statistics and net board foot volume.

   Digital ortho photos, Lidar data, and GPS data were used to map the boundaries for the sale, and ArcMap GIS was used to determine gross and net acreage.

6. **Measurement Standards:** Tree heights were measured to the nearest foot, to a top diameter of 7 inches outside bark or to 40% of form factor. Diameters were measured to the nearest inch, and a form point of 16 feet was used to calculate form factor. Form factors were measured or estimated on every tree. Most trees were graded in 40 foot log segments unless breakage, defect, or length to top of grade cruise diameter warranted otherwise.

7. **Timber Description:** Timber in the sale area includes 59 acres of 45 year-old Douglas-fir with scattered red alder that was thinned approximately 15 years ago, 11 acres of 98 year-old Douglas-fir with scattered red alder, 6 acres of 59 year-old Douglas-fir with scattered red alder and 12 acres of 47 year-old Douglas-fir and mature red alder. The average Douglas-fir tree size to be harvested is approximately 18 inches DBH, with an average height of 72 feet to a merchantable top. The average red alder tree size to be harvested is approximately 15 inches DBH, with an average height of 39 feet to a merchantable top. The average volume per acre to be harvested (net) is approximately 22.5 MBF. Conifer trees other than Douglas-fir are reserved from cutting but were not observed during cruising or other field work.

8. **Statistical Analysis and Stand Summary:** (See attached "Statistics").

Target CV	Target SE	Actual CV	Actual SE
35%	9%	32%	6%

Note: Percentages are for net board foot volume.

9. **Total Volume (MBF) by Species and Grade:** (See attached volume report "Species, Sort Grade – Board Foot Volumes - Project").

Species	Gross Cruise Volume	Cruised D & B	Cruised D & B	Hidden D & B	Hidden D & B	Net Sale Volume
Douglas-fir	1,867	1.4%	26	1%	19	1,822
Red alder	97	1.7%	1	1%	1	95
Total	1,964	1.4%	27	1%	20	1,917

Species	Ave. DBH	Net Vol.	2-Saw	3-Saw	4-Saw	Camp Run	% by Species
Douglas-fir	18	Grade %	57%	37%	6%	--	95%
		1,822	1,048	681	93	--	
Red alder	15	Grade %	--	--	--	100%	5%
		95	--	--	--	95	
Total		1,917	1,048	681	93	95	100%

Attachments: Cruise Design
Cruise Maps
Species, Sort Grade – Board Foot Volumes
Statistics
Stand Table Summary
Log Stock Table – MBF

Prepared by: Jon Long Date: 5/16/2018

Unit Forester: Evelyn L. Hukari Digitally signed by Evelyn L. Hukari Date: 2018.05.17 17:42:53 -07'00' Date:

Evelyn Hukari

TC PSTATS

PROJECT STATISTICS

PROJECT ICEHOLE

DATE 5/16/2018

TWP	RGE	SC	TRACT	TYPE	ACRES	PLOTS	TREES	CuFt	BdFt
11S	08	19	AREA 1	00CC	86.00	31	155	S	W

	PLOTS	TREES	TREES PER PLOT	ESTIMATED TOTAL TREES	PERCENT SAMPLE TREES
TOTAL	31	155	5.0		
CRUISE	21	91	4.3	8,435	1.1
DBH COUNT					
REFOREST					
COUNT	10	57	5.7		
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	83	85.4	18.1	72	35.9	152.8	21,709	21,406	5,374	5,352
R ALDER	8	12.7	14.8	39	3.9	15.2	1,133	1,114	367	367
TOTAL	*91*	*98.1*	*17.7*	*68*	*39.9*	*168.0*	*22,842*	*22,520*	*5,740*	*5,719*

CONFIDENCE LIMITS OF THE SAMPLE

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

CL 68.1 SD: 1.0

SAMPLE TREES - BF

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF TREES REQ. 5	10	INF. POP. 15
DOUG FIR	47.6	5.2	294	310	327			
R ALDER	69.4	26.2	82	111	140			
TOTAL	*52.5*	*5.5*	*277*	*293*	*309*	*110*	*27*	*12*

CL 68.1 SD: 1.0

TREES/ACRE

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	41.7	7.5	79	85	92			
R ALDER	287.9	51.7	6	13	19			
TOTAL	*33.9*	*6.1*	*92*	*98*	*104*	*46*	*11*	*5*

CL 68.1 SD: 1.0

BASAL AREA/ACRE

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	36.7	6.6	143	153	163			
R ALDER	267.2	47.9	8	15	22			
TOTAL	*25.8*	*4.6*	*160*	*168*	*176*	*27*	*7*	*3*

CL 68.1 SD: 1.0

NET BF/ACRE

	COEFF VAR.%	S.E.%	LOW	AVG	HIGH	# OF PLOTS REQ. 5	10	INF. POP. 15
DOUG FIR	39.3	7.1	19,896	21,406	22,916			
R ALDER	261.5	46.9	591	1,114	1,636			
TOTAL	*31.8*	*5.7*	*21,236*	*22,520*	*23,803*	*40*	*10*	*4*

TC PSTNDSUM

Stand Table Summary

Page 1
Date: 5/16/2018

T11S R08W S19 Ty00CC 86.00

Project ICEHOLE
Acres 86.00

Time: 2:16:06PM
Grown Year:

Spc	S T	DBH	Sample Trees	FF 16'	Tot Av Ht	Trees/ Acre	BA/ Acre	Logs Acre	Average Log Net Cu.Ft.	Average Log Net Bd.Ft.	Net Tons/ Acre	Net Cu.Ft. Acre	Net Bd.Ft. Acre	Totals Tons	Totals Cunits	Totals MBF
DF		9	1	86	21	4.168	1.84	4.17	4.4	20.0	.52	18	83	45	16	7
DF		12	2	87	80	4.689	3.68	7.03	13.1	50.0	2.63	92	352	226	79	30
DF		13	3	86	75	5.993	5.52	9.99	13.3	50.0	3.78	133	499	325	114	43
DF		14	4	85	88	6.890	7.37	13.78	14.9	58.7	5.87	206	810	505	177	70
DF		15	2	85	88	3.001	3.68	6.00	17.7	67.5	3.02	106	405	260	91	35
DF		16	7	86	95	9.231	12.89	17.14	23.0	92.3	11.83	394	1,582	1,017	339	136
DF		17	4	86	113	4.673	7.37	10.51	26.2	110.0	7.84	275	1,156	674	237	99
DF		18	9	86	101	9.378	16.57	19.80	29.8	114.7	16.79	589	2,271	1,444	507	195
DF		19	5	86	101	4.676	9.21	10.29	31.5	119.1	9.22	324	1,225	793	278	105
DF		20	10	87	97	8.440	18.41	16.88	38.1	140.0	18.33	643	2,363	1,576	553	203
DF		21	10	86	113	7.655	18.41	20.67	35.3	141.9	20.81	730	2,932	1,790	628	252
DF		22	14	86	109	9.765	25.78	27.20	36.5	152.6	28.32	994	4,150	2,436	855	357
DF		23	5	85	113	3.191	9.21	8.93	41.3	175.7	10.52	369	1,570	905	318	135
DF		24	3	86	105	1.758	5.52	4.69	44.4	185.0	5.94	208	867	511	179	75
DF		26	2	85	107	.999	3.68	2.50	57.2	238.0	4.07	143	594	350	123	51
DF		27	1	86	105	.463	1.84	.93	65.5	300.0	1.73	61	278	149	52	24
DF		28	1	85	103	.431	1.84	.86	78.6	310.0	1.93	68	267	166	58	23
DF		Totals	83	86	95	85.398	152.83	181.37	29.5	118.0	153.14	5,352	21,406	13,170	4,603	1,841
RA		11	1	87	40	2.874	1.90	2.87	9.6	30.0	.76	28	86	66	24	7
RA		13	1	87	33	2.058	1.90	2.06	12.6	40.0	.71	26	82	61	22	7
RA		14	2	87	55	3.549	3.79	3.55	23.8	60.0	2.33	85	213	200	73	18
RA		15	1	86	75	1.546	1.90	3.09	19.0	70.0	1.62	59	216	139	51	19
RA		18	1	87	88	1.073	1.90	2.15	31.2	115.0	1.84	67	247	158	58	21
RA		20	1	87	71	.869	1.90	1.74	33.6	105.0	1.61	58	183	138	50	16
RA		22	1	85	52	.719	1.90	.72	61.6	120.0	1.22	44	86	105	38	7
RA		Totals	8	87	54	12.687	15.17	16.18	22.7	68.8	10.08	367	1,114	867	315	96
Totals			91	86	90	98.086	168.00	197.54	29.0	114.0	163.23	5,719	22,520	14,038	4,918	1,937

TC PSPCSTGR

Species, Sort Grade - Board Foot Volumes (Project)

T11S R08W S19 Ty00CC 86.00

Project: **ICEHOLE**

Acres **86.00**

Page **1**

Date **5/16/2018**

Time **2:14:01PM**

Spp	S T	So Gr rt ad	% Net BdFt	Bd. Ft. per Acre Def%	Gross	Net	Total Net MBF	Percent of Net Board Foot Volume: Log Scale Dia. 4-5	6-11	12-16	17+	Log Length 12-20	21-30	31-35	36-99	Average Log: Ln Ft	Dia In	Bd Ft	CF/ Lf	Logs Per /Acre
RA		DO K	100	1.7	1,133	1,114	96	3	64	33		8	15		77	31	7	69	0.74	16.2
RA	**Totals**		5	1.7	1,133	1,114	96	3	64	33		8	15		77	31	7	69	0.74	16.2
DF		CU CU														6	18		0.00	.5
DF		DO CU		100.0	105											11	12		0.00	2.5
DF		DO 2M	57	1.3	12,471	12,314	1,059		1	93	6		2	8	90	39	13	263	1.59	46.9
DF		DO 3M	37	.5	8,042	8,002	688		97	3				42	58	36	8	90	0.67	88.5
DF		DO 4M	6		1,091	1,091	94	4	96			69	24		7	19	6	24	0.35	46.0
DF	**Totals**		95	1.4	21,709	21,406	1,841	0	42	54	3	4	2	20	74	32	9	116	0.90	184.4
Totals				1.4	22,842	22,520	1,937	0	43	53	3	4	3	19	74	32	9	112	0.89	200.6

TC PLOGSTVB

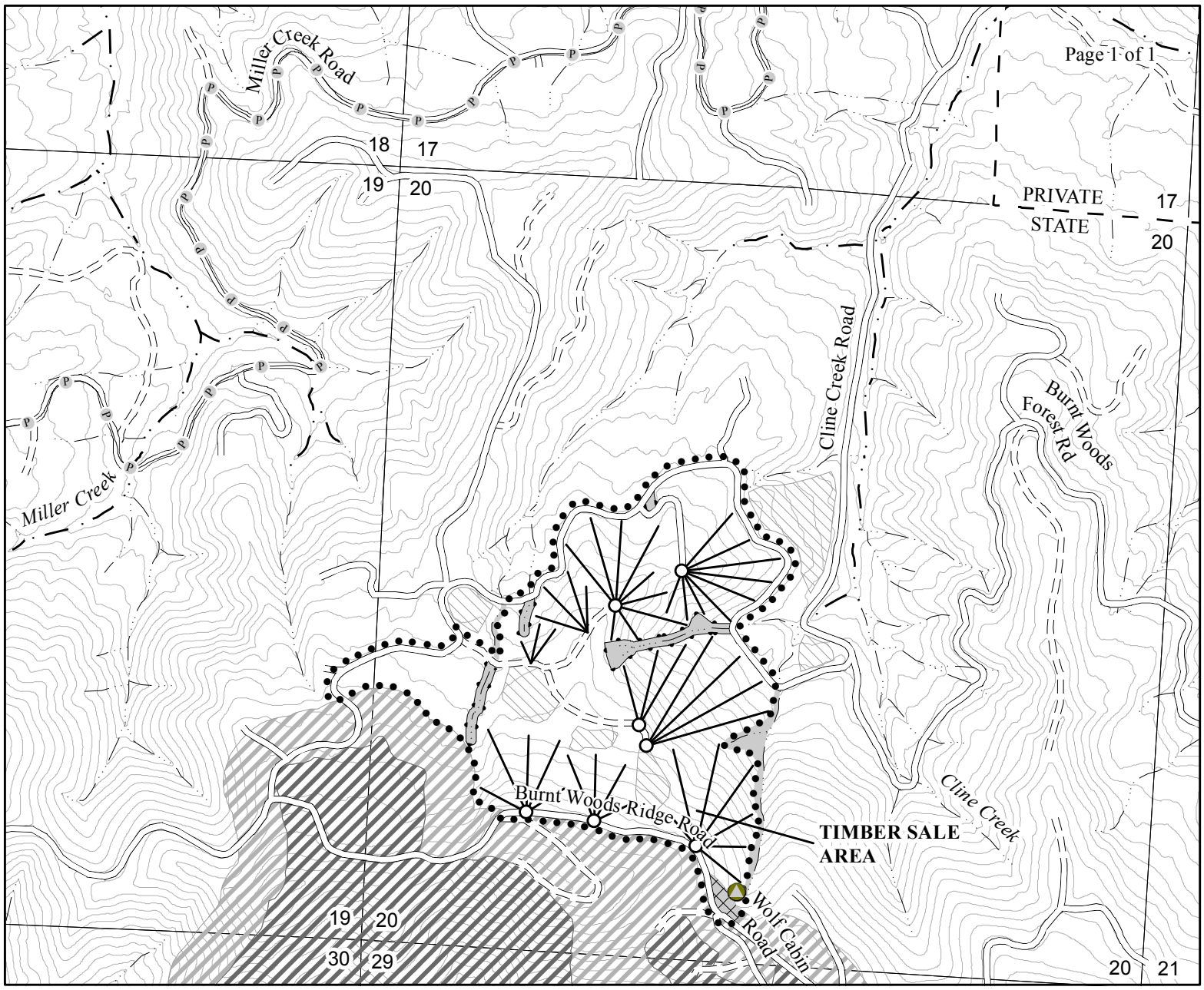
Log Stock Table - MBF

T11S R08W S19 Ty00CC 86.00

Project: ICEHOLE
Acres 86.00

Page 1
Date 5/16/2018
Time 2:10:14PM

Spp	ST	Sort	Grade	Log Len	Gross MBF	Def %	Net MBF	% Spc	Net Volume by Scaling Diameter in Inches 2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
RA		DO	K	16	4		4	4.3		3	1									
RA		DO	K	20	4		4	3.9				4								
RA		DO	K	24	7		7	7.4			7									
RA		DO	K	26	7		7	7.7			7									
RA		DO	K	40	75	2.2	73	76.7			18	23		32						
RA		Totals			97	1.7	96	4.9		3	34	27		32						
DF		DO	CU	16	9	100.0														
DF		DO	2M	30	18		18	1.0								18				
DF		DO	2M	32	72		72	3.9					14	24	15	19				
DF		DO	2M	34	12	5.9	12	.6						12						
DF		DO	2M	36	16		16	.9						16						
DF		DO	2M	40	954	1.3	941	51.1						352	468	121				
DF		DO	3M	32	236	1.1	233	12.7			11	118	104							
DF		DO	3M	34	59		59	3.2			25		34							
DF		DO	3M	36	26		26	1.4			26									
DF		DO	3M	37	10		10	.5			10									
DF		DO	3M	38	13		13	.7			13									
DF		DO	3M	40	348		347	18.9			124	76	131	17						
DF		DO	4M	15	2		2	.1			2									
DF		DO	4M	16	39		39	2.1		4	35									
DF		DO	4M	17	3		3	.2			3									
DF		DO	4M	18	9		9	.5			9									
DF		DO	4M	20	11		11	.6			11									
DF		DO	4M	21	2		2	.1			2									
DF		DO	4M	23	9		9	.5			3		6							
DF		DO	4M	24	6		6	.3			6									
DF		DO	4M	26	2		2	.1			2									
DF		DO	4M	28	4		4	.2			4									
DF		DO	4M	38	7		7	.4			7									
DF		Totals			1,867	1.4	1,841	95.1		4	293	194	288	421	483	158				
Total		All Species			1,964	1.4	1,937	100.0		6	327	221	288	453	483	158				



Legend

Boundaries
- Timber Sale Boundary
- State Forest Property Boundary

Roads
- Surfaced Road
- Unsurfaced Road

Streams
- Type F Stream
- Type N Stream
- Posted Stream Buffer
- Stream Buffer
- Reforestation Area
- Cable Corridors
- Green Tree Retention Area

Marbled Murrelet Management Area
- Occupied Habitat
- Non-Habitat Buffer
- Permanent Inventory Plots
- Buried Fiber Optic Line

LOGGING PLAN

OF TIMBER SALE CONTRACT NO. 341-18-110
ICE HOLE
PORTIONS OF SECTIONS 19 & 20, T11S, R8W, W.M.,
LINCOLN COUNTY, OREGON

NET ACRES Cable = 63
NET ACRES Tractor = 23

Scale
1:12,000

1,000 0 1,000 2,000 Feet

N

Created By: Blake McKinley
blake.mckinley@oregon.gov
Date: 05/17/2018