Timber Sale Appraisal
Rockpit 2015

Sale GP-341-2015-87-

District: Southwest

Date: March 12, 2015

Cost Summary

	Conifer	Hardwood	Total
Gross Timber Sale Value	$255,050.76	$0.00	$255,050.76
		Project Work:	($72,724.78)
		Advertised Value:	$182,325.98

Timber Sale Appraisal
Rockpit 2015

Sale GP-341-2015-87-

District: Southwest **Date: March 12, 2015**

Timber Description

Location: Portions of Sections 6, T32S, R5W, W.M., Douglas County, Oregon.

Stand Stocking: 40%

Specie Name	AvgDBH	Amortization (%)	Recovery (%)
Douglas - Fir	14	0	90
Western Hemlock / Fir	13	0	90

Volume by Grade	2S	3S	4S	Total
Douglas - Fir	106	375	196	677
Western Hemlock / Fir	10	142	85	237
Total	116	517	281	914

Comments: Pond Values Used: Local Pond Values

Combined White Fir, Western Hemlock/Fir, and Grand Fir volumes from Rockpit 2015 cruise report. Adjusted the local pond for Western Hemlock/Fir down, based on a weighted volume average (more Western Hemlock (165 MBF)then Grand Fir (72 MBF).

Sugar Pine and Other Pines Stumpage Price = Pond Value minus Logging Cost:
$150/MBF = $415/MBF - $265/MBF

Incense Cedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:
$300/MBF = $700/MBF - $400/MBF

Madrone and Other Hardwoods Stumpage Price = Pond Value minus Logging Cost:
$40/MBF = $440/MBF - $400/MBF

SCALING COST ALLOWANCE = $5.00/MBF

FUEL COST ALLOWANCE = $3.00/Gallon

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

Other Costs (with Profit & Risk to be added):
None.

Other Costs (No Profit & Risk added):
None.

SLASH DISPOSAL
$2,000

Timber Sale Appraisal
Rockpit 2015

Sale GP-341-2015-87-

District: Southwest **Date: March 12, 2015**

Logging Conditions

Combination#: 1 Douglas - Fir 12.61%

Logging System: Cable: Small Tower <=40 **Process:** Manual Falling/Delimbing

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

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

loads / day: 6.75 **bd. ft / load:** 3700

cost / mbf: $248.25

machines: Log Loader (A)
Tower Yarder (Small)

Combination#: 2 Douglas - Fir 37.46%
Western Hemlock / Fir 8.86%

Logging System: Track Skidder **Process:** Manual Falling/Delimbing

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

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

loads / day: 22 **bd. ft / load:** 3700

cost / mbf: $54.73

machines: Log Loader (B)
Track Skidder

Combination#: 3 Douglas - Fir 49.93%
Western Hemlock / Fir 91.14%

Logging System: Cable: Small Tower <=40 **Process:** Manual Falling/Delimbing

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

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

loads / day: 7 **bd. ft / load:** 3700

cost / mbf: $239.38

machines: Log Loader (A)
Tower Yarder (Small)

Timber Sale Appraisal
Rockpit 2015

Sale GP-341-2015-87-

District: Southwest

Date: March 12, 2015

Logging Costs

Operating Seasons:	1.00	**Profit Risk:**	12%
Project Costs:	$72,724.78	**Other Costs (P/R):**	$0.00
Slash Disposal:	$2,000.00	**Other Costs:**	$0.00

Miles of Road

Road Maintenance: $0.00

Dirt	Rock (Contractor)	Rock (State)	Paved
2.0	0.0	3.0	0.0

Hauling Costs

Species	$ / MBF	Trips/Day	MBF / Load
Douglas - Fir	$0.00	3.0	3.5
Western Hemlock / Fir	$0.00	3.0	3.5
Grand Fir	$0.00	3.0	3.5

Local Pond Values

Date	Specie	Grade	Value
03/12/2015	Western Hemlock / Fir	2S	$550.00
03/12/2015	Western Hemlock / Fir	3S	$525.00
03/12/2015	Western Hemlock / Fir	4S	$500.00
03/12/2015	Douglas - Fir	2S	$650.00
03/12/2015	Douglas - Fir	3S	$625.00
03/12/2015	Douglas - Fir	4S	$600.00

Timber Sale Appraisal
Rockpit 2015

Sale GP-341-2015-87-

District: Southwest

Date: March 12, 2015

Logging Costs Breakdown

Logging	Road Maint	Fire Protect	Hauling	Other P/R appl	Profit & Risk	Slash Disposal	Scaling	Other	Total
Douglas - Fir									
$171.33	$4.03	$4.80	$81.72	$0.00	$31.43	$2.19	$5.00	$0.00	$300.50
Western Hemlock / Fir									
$223.02	$4.03	$4.80	$81.72	$0.00	$37.63	$2.19	$5.00	$0.00	$358.39

Specie	Amortization	Pond Value	Stumpage	Amortized
Douglas - Fir	$0.00	$621.68	$321.18	$0.00
Western Hemlock / Fir	$0.00	$517.09	$158.70	$0.00

Timber Sale Appraisal
Rockpit 2015

Sale GP-341-2015-87-

District: Southwest **Date: March 12, 2015**

Summary

Amortized

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

Unamortized

Specie	MBF	Value	Total
Douglas - Fir	677	$321.18	$217,438.86
Western Hemlock / Fir	237	$158.70	$37,611.90

Gross Timber Sale Value

Recovery: $255,050.76

Prepared By: Joanna Delegan **Phone:** 541-474-3152

TIMBER SALE SUMMARY
Rockpit 2015
Contract No. 341-15-87

1. **Type of Sale:** Recovery sale, sealed bid auction of 156 acres of thinning.

2. **Revenue Distribution:** 100% BOF

3. **Sale Acreage:** For the sale, 156 net acres were used for the cruise expansion. Acreage was determined with ArcGIS 10.1 and GPS traverse.

4. **Volume:** Take trees are marked in blue in Area IV. Areas I, II, and III are not marked and will be thinned according to the specifications for Designated Timber in the Section 2210 and the Thinning Specifications in Section 2320 of the sale prospectus. Other volume will come from cable corridor trees. Area IV was marked to a 100-120 BA ft^2/ac target. In addition, a few smaller trees (<8") that have not been marked may need to be removed to facilitate logging. See the cruise report for additional detail.

SPECIES	2 SAW	3 SAW	4 SAW	NET VOL (MBF)
Douglas-fir	106	375	196	677
W. Hemlock/Fir	10	110	45	165
Grand Fir	0	32	40	72
Total	**116**	**517**	**281**	**914**

5. **Cruise Data**: The total volume above is measured to 9.60% sampling error, meaning the actual volume will fall between 826 MBF and 1,002 MBF (68% of the time). The volume of individual species will be more variable due to the smaller sample compared to the total volume sample. See the cruise report for more detail.

6. **Timber Description:** The timber has been marked to remove the smaller trees in suppressed and intermediate canopy positions and to release dominant and codominant trees. Additionally, dominant trees have been marked for harvest where possible to improve the economics of the sale and improve the quality of the residual stand. The stand age is 48-53 years for Areas I, II, III, and IV. The averages for DBH for take trees are: Douglas-fir 14", W. Hemlock 13", Grand Fir 12". The cruise report gives a breakdown of log lengths and scaling diameters by species for the combined cruise.

7. **Topography and Logging Method:** Ground based logging will be located in I and Area IV. Although ground based logging is permitted in Area I, in order to haul the logs out of the unit they will need to be cable yarded to the top of the ridge due to the stream that borders Area I. Ground based logging will not be permitted in areas where slopes exceed 40%. In total, about 25% of the sale can be logged with ground based equipment and the remaining 75% will be cable logged with a maximum yarding distance of 1500 ft. Roads provide access to the ridges of Area II and III.

8. **Access:** All hauling routes are located on state maintained roads. The appraisal includes road grading and maintenance during and at the close of the sale. A winter haul option is available for logging in Areas II and III, with added road improvement at the purchaser's expense. Details are included in the sale prospectus.

9. **Projects:**

   - Road Improvement and culvert installation: $11,004.78
   - Road Surfacing along A-C Road: $30,720.00
   - Rock Drill-Shoot-Crush: $31,000.00

10. **Road Maintenance:** The appraisal includes $4.03/MBF for road maintenance (grading, pulling ditches, etc.).

11. **Other Costs:** The appraisal includes $5/ MBF for Scaling and $2.19/MBF for slash disposal. Costs not accounted for in the appraisal are the responsibility of the Purchaser.

12. **Slash Disposal:** Purchaser will pile slash on landings with an excavator or log loader, sorting out firewood into a separate pile. ODF will burn the slash piles.

Rockpit 2015
PROJECT SUMMARY

PROJECT SUMMARY (1-3): 341-15-87

SALE NAME: Rockpit 2015

Project 1:

Road Improvement/Maintenance/Culvert Replacement:

Road improvement/maintenance: Costs are reflected in the timber sale appraisal at $4.03/MBF

Culvert: 81" X 59" X 45' -14 guage aluminized squash pipe @ station 11+76

Purchase Price:

Culvert Items	Sub Total
45' @ $67.40	$3,033.00
1 band @ $156.40	$156.40
1 gasket @ $50.38	$50.38
Delivery to Glendale @ $340	$340.00
Sub Total Purchase Price	**$3,579.78**

Installation:	Sub Total
Excavation & Fill Construction	$4,500.00
Bedding gravel (1 1/2" -0") 20 cu yds @ $15	$300.00
Stream Retention Material 24"-6"	$300.00
Fill Armoring (24"-6") 30 cu yds @ $25	$375.00
Surfacing 50 cu yds (1 1/2 - 0")@$15	$450.00
Mobilization	$1,500.00
Sub Total Installation:	**$7,425.00**

Total Culvert Cost	**$11,004.78**

Project 2: Surfacing Costs to Spread 2,383 Cubic Yards of Rock from Project Pts. A-C

Rockpit 2015

Project 2 Summary: Surfacing Costs to Spread 2,383 Cubic Yards of Rock

341-15-87

	Rate/hour	# of Days	Rate Per day	Yards/Hour	Hours /Day	Yards/Day	TOTAL
DUMP TRUCK 1							
Mobilization	$600 fixed						$600.00
Equipment Rental Cost	$85.00						
Production Rate				24	12	144	
Operational Cost		8	$1,020.00				$8,160.00
Total Cost							$8,760.00
DUMP TRUCK 2							
Mobilization	$600 fixed						$600.00
Equipment Rental Cost	$85.00						
Production Rate				24	12	144	
Operational Cost		8	$1,020.00				$8,160.00
Total Cost							$8,760.00
LOADER							
Mobilization	$600 fixed						$600.00
Equipment Rental Cost	$80.00						
Production Rate					12.0		
Operational Cost		8	$960.00				$7,680.00
Total Cost							$8,280.00
ROLLER							
Mobilization	$600 fixed						$600.00
Equipment Rental Cost	$80.00						
Production Rate					12.0		
Operational Cost		1.5	$960.00				$1,440.00
Total Cost							$2,040.00
GRADER							
Mobilization	$600 fixed						$600.00
Equipment Rental Cost	$95.00						
Production Rate					12.0		
Operational Cost		2	$1,140.00				$2,280.00
Total Cost							$2,880.00

RESOURCE SUMMARY

Total Surfacing Expenses:	**$30,720.00**

Rockpit 2015
PROJECT SUMMARY

Project 3:

DRILL - SHOOT - CRUSH COSTS:

2000 cu yds of 3"-0 rock

2000 Cubic Yards @ $12/cu yard	$24,000.00
Mobilization	$7,000.00
Total Drill-Shoot-Crush Cost	**$31,000.00**

TOTAL PROJECT COSTS (1, 2, & 3):	**$72,724.78**

OREGON DEPARTMENT of FORESTRY
CRUISE REPORT

SALE NAME: Rockpit 2015 SALE NUMBER: 341-15-87

1. **Acreage Calculation:** There are 156 net cruise acres in the sale area determined by a combination of GPS traverse waypoints and ArcGIS 10.2 software. Net acres do not include the riparian management areas, regeneration areas within the stand, and non-stocked areas which were not cruised.

2. **Cruise Method:** Rock 'n' Windy was cruised by ODF during the Fall of 2014. A variable plot cruise was conducted on four harvest areas, each of which were treated as individual strata.

3. **RIGHT of WAY VOLUMES**: There are currently no right of ways within the sale area. If ROW's are established, they will be assigned the same per acre volumes as their respective area, and expanded by the area of the right of way to estimate the total volume for removal.

4. **Sampling Intensity**:

# Plots	76 Total Plots (38 measured, 38 counted)
CV (BDFT)	84%
SE (BDFT)	9.60

   As per ODF standards, total harvest volume of conifers and hardwoods ("take" trees) is estimated to be 914 MBF ± 88 MBF at the 68% confidence level and a sampling error of 9.60%**. 68 times out of 100 the volume estimate will be within range of error specified.

5. **Computation Procedures:** Volume was computed using the SuperACE cruise program. Volumes reported are based on the Scribner Log Rule (West).

6. **Form Factors:** Form factors (a ratio of diameter at 4 and 16 feet) were sampled across the diameter distribution in all strata. Those form factors which were not measured were estimated by SuperACE.

7. **Height Standards:** Most conifer trees were measured for total height with a laser rangefinder.

8. **Diameter standards:** Diameters were measured outside bark at breast height to the nearest inch.

9. **Grading System:** Trees were graded primarily as 34 foot segments lengths and according to the Official Log Scaling and Grading Rules published by the Northwest Log Rules Advisory Group.

10. **Merchantable top:** Conifer were graded to a merchantable top specified by the official log scaling rules. For all species except pine, 2S segments were graded to a 12" top inside bark, 3S to a 6" top, and 4S to a 5" top (inside bark). Pine 4S logs were graded to a 12" top inside bark, 5S to a 6" top, and 6S to a 5" top (inside bark).

11. **Deductions for Cull, Defect and Breakage:** All visible field cull was removed in the cruise computation. Additional volume was deducted for the anticipated amount of hidden cull and breakage during logging. The estimated volume reduction used for this anticipated loss to volume was 10%.

12. **Cruisers:** Cruising was performed by Joanna Delegan and Chris Rudd with assistance by Curtis Clark.

*ODF does not guarantee the volume of this or any other cruise. Prospective purchasers are advised to do their own cruise and sale volume calculations.

Chris Rudd, Unit Forester _____ Date_____

STRATA VOLUME SUMMARY (TOTAL NET MBF*)

Area 1	2 Saw	3 Saw	4 Saw	5 Saw	6 Saw	TOTAL MBF
Douglas-fir	62	52	21			135
Total	62	52	21			135

Area 2	2 Saw	3 Saw	4 Saw	5 Saw	6 Saw	TOTAL MBF
Douglas-fir	28	148	96			272
W-Hemlock	11	7				18
Grand Fir		22	7			29
White Fir		6	2			8
Total	39	183	105			327

Area 3	2 Saw	3 Saw	4 Saw	5 Saw	6 Saw	TOTAL MBF
Douglas-fir		57	48			105
W-Hemlock		116	50			166
Grand Fir		8	12			20
Total		181	110			291

Area 4	2 Saw	3 Saw	4 Saw	5 Saw	6 Saw	TOTAL MBF
Douglas-fir	28	160	53			241
Grand Fir			23			23
Total	28	160	76			264
*Not Adjusted					**TOTAL**	**1,017**

FINAL VOLUME--STRATA VOLUME SUMMARY (ADJUSTED NET MBF*)

Area 1	2 Saw	3 Saw	4 Saw	5 Saw	6 Saw	TOTAL MBF
Douglas-fir	56	47	19			122
Total	56	47	19			122

Area 2	2 Saw	3 Saw	4 Saw	5 Saw	6 Saw	TOTAL MBF
Douglas-fir	25	133	86			245
W-Hemlock	10	6				16
Grand Fir		20	6			26
White Fir		5	2			7
Total	35	165	95			294

Area 3	2 Saw	3 Saw	4 Saw	5 Saw	6 Saw	TOTAL MBF
Douglas-fir		51	43			95
W-Hemlock		104	45			149
Grand Fir		7	11			18
Total		162	99			261

Area 4	2 Saw	3 Saw	4 Saw	5 Saw	6 Saw	TOTAL MBF
Douglas-fir	25	144	48			217
Grand Fir			21			21
Total	25	144	68			237
					TOTAL	**914 MBF**

*Adjusted for 10% hidden cull and breakage.

*Because of the nature of the stratified sample, area (stratum) volume estimates will be less accurate than the total combined volume estimate.

Species by Grade - Board Foot Volumes (Project)

								Percent of Net BF Volume											
								Log Scale Dia				Log Length				Average Log			
SPP	**GRADE**	**NET BD**	**% Total Volume**	**DEF%**	**Gross BF/Ac**	**Net BF/Ac**	**Total Net MBF**	**4-5**	**6-11**	**12-16**	**17+**	**12-20**	**21-30**	**31-35**	**36-99**	**Ft.**	**Diam**	**BdFt**	**Logs per Ac**
GF	3M	56	4%	19.0	338	274	43		64	36				100		34	10	98	2.8
GF	4M	44	3%	8.7	236	215	34	57	43				11	55	34	34	6	44	4.9
GF Totals		**3**	**8%**	**14.8**	**574**	**490**	**76**	**25**	**55**	**20**			**5**	**80**	**15**	**34**	**7**	**63**	**7.7**
DF	2M	13	10%	1.9	638	625	98			83	17			63	37	36	14	262	2.4
DF	3M	54	40%	0.6	2,607	2,591	404		86	14				91	9	34	10	119	21.7
DF	4M	33	23%	0.7	1,536	1,525	238	42	58	2		8	11	72	9	31	6	42	36.0
DF Totals		**24**	**73%**	**0.8**	**4,780**	**4,742**	**740**	**14**	**66**	**18**	**2**	**3**	**4**	**81**	**13**	**32**	**8**	**79**	**60.1**
WH	2M	7	1%	11.8	106	93	15			100				100		34	16	300	0.3
WH	3M	66	12%	4.2	836	800	125		63	37				84	16	35	9	98	8.1
WH	4M	27	5%		317	317	49	38	62			8	34	34	23	29	6	37	8.6
WH Totals		**6**	**19%**	**3.8**	**1,258**	**1,210**	**189**	**10**	**58**	**32**		**2**	**9**	**72**	**17**	**32**	**7**	**71**	**17**
WF	3M	76	1%		41	41	6		100					100		34	9	100	0.4
WF	4M	24	0%		12	12	2	100					100			27	5	30	0.4
WF Totals		**0**	**1%**		**54**	**54**	**8**	**23**	**77**				**23**	**77**		**31**	**7**	**65**	**0.8**
Totals			**100%**		**6,666**	**6,496**	**1,013**												

Project Statistics: All Statistics are reported at the 68% confidence level.

	PLOTS	TREES	TREES PER PLOT
CRUISE	38	171	4.5
COUNT	38	198	4.9
TOTAL	76	369	5.2

PROJECT SUMMARY

Species Status	SAMPLE TREES	TPA	AVG DBH	BOLE LEN	BA	GROSS BF/AC	NET BF/AC	Total MBF
DOUG FIR-T	39	34.6	14.3	87	38.5	4,780	4,742	740
GR FIR-T	6	5.7	12.5	78	4.9	574	490	76
WHEMLOCK-T	14	13.4	12.6	74	11.5	1,258	1,210	189
WHITE-FIR	1	0.4	14.0	92	0.4	54	54	8
TOTAL	**60**	**54.1**			**55.3**	**6,666**	**6,496**	**1,013**

NET BF/ACRE CONFIDENCE INTERVAL

Species-Status	CV%	S.E.%	LOW	AVG	HIGH
DOUG FIR-T	103.2	11.8	4,181	4,742	5,303
GR FIR-T	348.7	40.0	294	490	685
WHEMLOCK-T	246.3	28.2	869	1,210	1,552
WHITE FIR	871.8	99.9	0	54	108
Totals	**84%**	**9.6%**	5,344	6,496	7,648

Board Foot Volume Summary by Strata

Area	Acres	Plots	Avg. Net BF/ac	CV	SE%	SE (BdFt)	Low (BF)	Total Net Volume (BF)	High (BF)
1	22	13	6,192	0.92	0.26	34,839	101,385	136,224	171,063
2	61	31	5,380	1.00	0.18	58,840	269,340	328,180	387,020
3	38	19	7,670	0.74	0.17	49,586	241,874	291,460	341,046
4	35	13	7,559	0.68	0.19	49,641	214,924	264,565	314,206
Combined	**156**	**0**	**6,700**	**84%**	**9.6%**	**0**	**0**	**0**	**0**

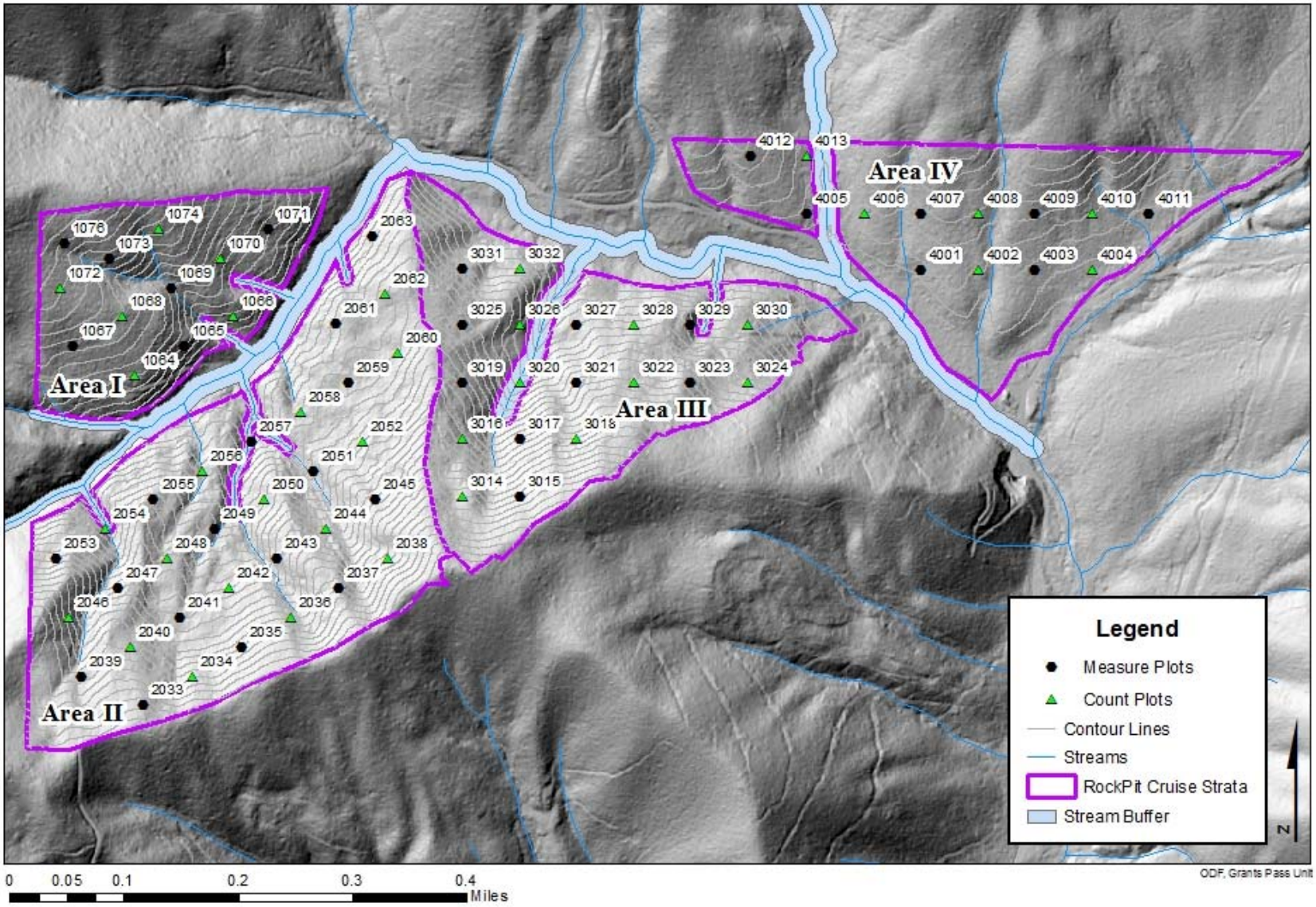
**Because of the nature of the stratified sample, area (stratum) volume estimates will be less accurate than the total combined volume estimate.

Log Stock Table - Percent Board Feet (Strata Combined)

						Percent Net Volume by Scaling Diameter in Inches											
SPP	GRD	LOG LEN	GROSS MBF	NET MBF	% SPC	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-19	20-23	24-29	30-39	40+
DF	2M	34	62	62	8.4						48	52					
DF	2M	40	38	36	4.8						52.6		47.4				
DF	3M	34	369	367	49.6					58.2	10.4						
DF	3M	40	37	37	5.0					53.3	46.7						
DF	4M	12	2	2	.3												
DF	4M	18	3	3	.5		100		100								
DF	4M	19	1	1	.2		100										
DF	4M	20	13	13	1.8		58			42							
DF	4M	22	2	2	.3		100										
DF	4M	24	11	11	1.5		53.1		46.9								
DF	4M	25	3	3	.4		100										
DF	4M	28	4	4	.6		100										
DF	4M	29	6	6	.8		100										
DF	4M	31	4	4	.6		100										
DF	4M	32	8	8	1.0		100										
DF	4M	33	6	6	.8		100										
DF	4M	34	155	153	20.7		18.6	69.8	11.6								
DF	4M	37	4	4	.6		100										
DF	4M	38	9	9	1.3		100										
DF	4M	39	7	7	.9		100										
DF Total			**746**	**740**													
WH	**3M**	**34**	**106**	**105**	**55.5**												
WH	3M	40	25	20	10.6												
WH	4M	13	1	1	.4		100										
WH	4M	19	3	3	1.7		100										
WH	4M	22	6	6	3.1		11.1			88.9							
WH	4M	26	9	9	4.6			100									
WH	4M	29	2	2	1.3		100										
WH	4M	34	17	17	8.9			69.8	30.2								
WH	4M	38	12	12	6.1		100										
WH Total			**196**	**189**													
GF	3M	34	53	43	56												
GF	4M	27	4	4	4.6		100										
GF	4M	32	4	4	5.4		100										
GF	4M	34	18	14	19			100									
GF	4M	38	11	11	15		100										
GF Total			**90**	**76**													
WF	3M	34	6	6	76.9				100								
WF	4M	27	2	2	23.1		100										
MATotal			**8**	**8**													
Total			**1,040**	**1,013**													

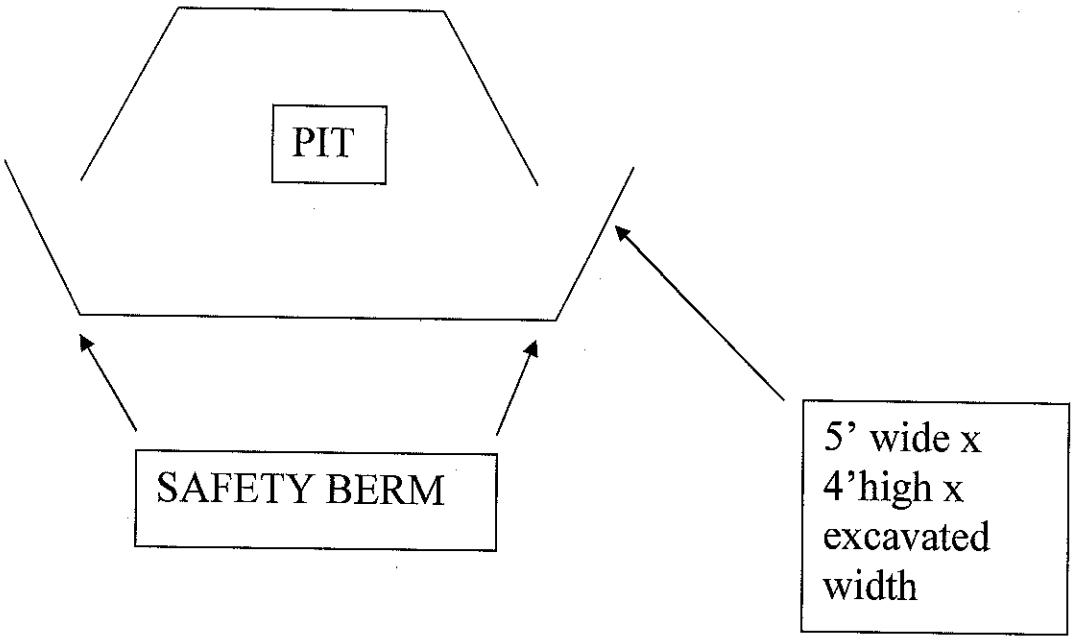
OREGON DEPARTMENT of FORESTRY
CRUISE REPORT

Rockpit 2015
Cruise Map (76 Plots- 38 count, 38 measure)
4 X 4 chain grid (Measure, Count, Measure, Count)



Rockpit 2015: Rock Crushing Specifications

Upon completion of the operation, the holder of the rock permit issued by the Grants Pass Unit of the Oregon Department of Forestry is required to construct a safety berm as indicated below. The berm must cover the entire reach where rock was removed. **Failure to construct the berm will make the holder of the permit ineligible for future permits.**



Rockpit 2015 Cruise Design

November 17, 2014

Type 5039 & 5041:

1. Objective: Measure trees in 38 plots and count trees in 38 plots to obtain grade and volume (Measure, Count, Measure, Count).
2. Variable plot cruise
3. All plots use a 33.61 BAF (11 bars)
4. Every other plot is a measure plot. Count-Measure for a total of 76 plots
5. Measure plots- 33.61 BAF, Measure all take and leave trees.
    a. Measure all trees with a DBH of 9" or more.
    b. Measure DBH, height, Form Factor, and grade of all trees.
    c. Record species and take (T) or leave (L) status.
    d. Measure hardwoods the same as conifer.

Stats- Estimate of CV=65%, SE% of 10.

Cruise lines- 4 X 4 chain line spacing

Plots- Measure, Count, Measure, Count- 4 chains apart. Total 76 plots: 38 Measure; 38 Count

Strata- Plots were broken up into four strata (1000 (area I), 2000 (area II), 3000 (area III), & 4000 (area IV)). Areas I, II, & III (Moderate Thin), Area IV (Heavy Thin).

General Instructions

Measure Standards:

1. View all conifers at DBH.
2. Form point is at 4.5 feet.
3. Record height to the nearest foot.
4. Diameter taken outside bark at 4.5 feet above stump height.
5. Measure total height of all trees or to 6 or 8 inches outside bark.
6. Cruise to 17, 26, 34, and 40 foot logs. Preferred lengths: When cruising think about the final product. Douglas-fir, White fir, and veneer pine should be graded to the preferred length, 34+10, 17+1-, and 26+10. At Swanson, the largest peeler log is 20" and at Murphy, the cutoff is 25". Boise has a 4 foot lathe, but will accept two foot multiples at the mill, where the extra two feet is chipped. Cruise to a 34+12 or 40+12 for oversize logs. In all cases, two and four foot multiples are acceptable. Cedar is cut to 32+10 or 16+10. Oversize pine is cut to 32+12 or 16+10.

Special Considerations:

1. Plot centers will be marked with ribbon.
2. The first tree is typically measured clockwise from the azimuth of travel.

Oregon Department of Forestry

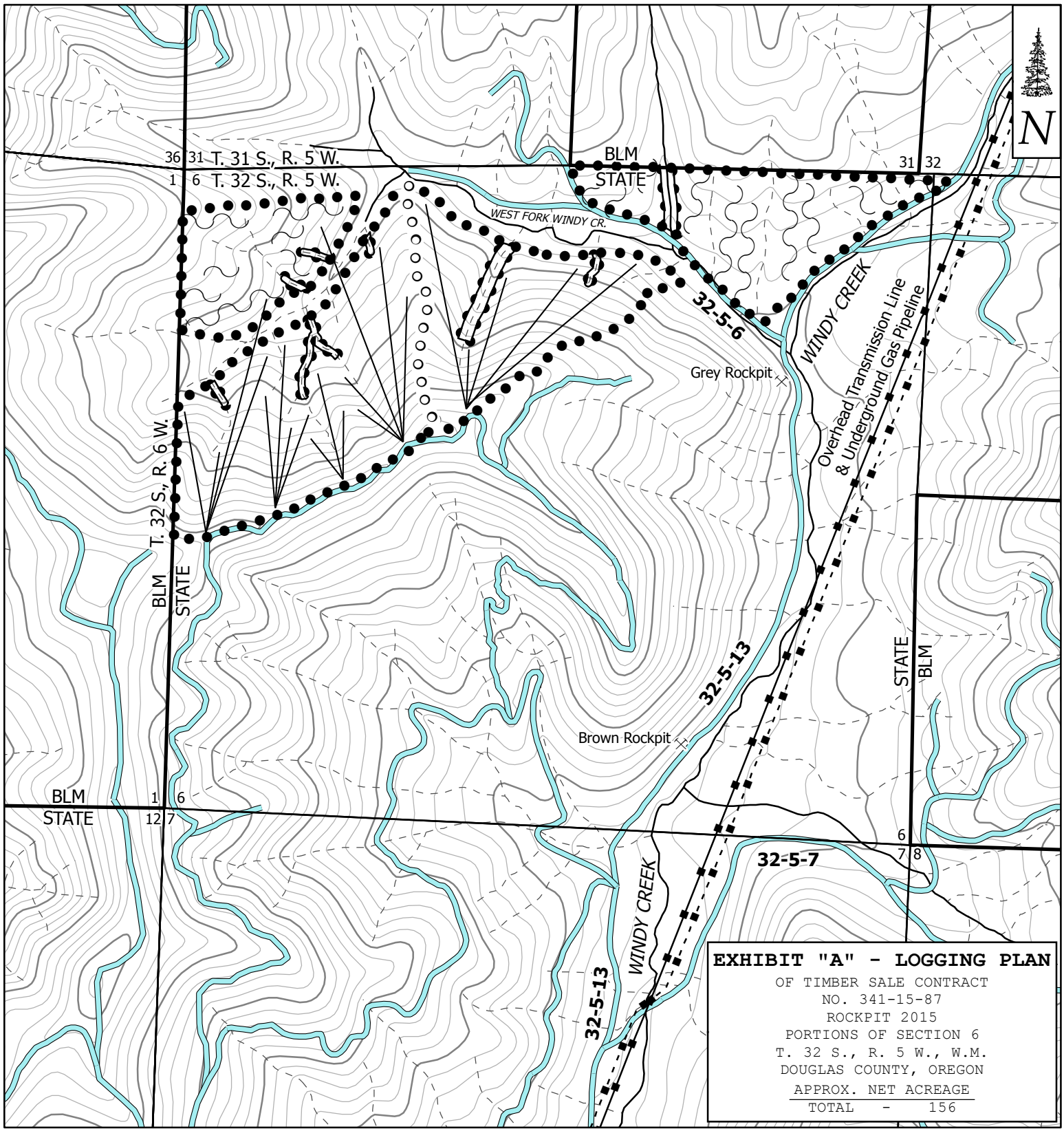


EXHIBIT "A" - LOGGING PLAN

OF TIMBER SALE CONTRACT
NO. 341-15-87
ROCKPIT 2015
PORTIONS OF SECTION 6
T. 32 S., R. 5 W., W.M.
DOUGLAS COUNTY, OREGON

APPROX. NET ACREAGE
TOTAL - 156

APPROX. SCALE 1:12,000 or 1 inch = 1,000 feet
40' contour interval

0 500 1,000 2,000 Feet

- Timber Sale Boundary
- Area Boundary
- Ownership Boundary
- State Forests Ownership
- Existing Road
- Cable
- Ground
- Fish Stream
- Nonfish or Unknown Stream
- Stream Buffer - Posted