# Timber Sale Appraisal
# Beaver Nation
# Sale TL-341-2020-W00288-01

**District: Tillamook**

**Date: August 08, 2019**

## Cost Summary

| | Conifer | Hardwood | Total |
|---|---|---|---|
| **Gross Timber Sale Value** | $447,789.49 | $17,547.74 | $465,337.23 |
| | | **Project Work:** | ($148,610.00) |
| | | **Advertised Value:** | $316,727.23 |

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## Timber Description

**Location:** PORTIONS OF SECTIONS 30, 32, 33 OF T3S R9W, 25 OF T3S,R10W,W.M.TILLAMOOK COUNTY, OREGON

**Stand Stocking:** 20%

| Specie Name | AvgDBH | Amortization (%) | Recovery (%) |
|---|---|---|---|
| Douglas - Fir | 12 | 0 | 95 |
| Western Hemlock / Fir | 14 | 0 | 95 |
| Alder (Red) | 14 | 0 | 90 |

| Volume by Grade | 3S & 4S 6"-11" | 2S | 8" - 9" | 10" - 11" | 12"+ | 6" - 7" | Total |
|---|---|---|---|---|---|---|---|
| **Douglas - Fir** | 838 | 0 | 0 | 0 | 0 | 0 | 838 |
| **Western Hemlock / Fir** | 1,187 | 88 | 0 | 0 | 0 | 0 | 1,275 |
| **Sitka Spruce** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Alder (Red)** | 0 | 0 | 25 | 5 | 36 | 35 | 101 |
| **Total** | 2,025 | 88 | 25 | 5 | 36 | 35 | 2,214 |

**Comments:** Pond Values Used: September 2019
Region: Astoria, Forest Grove, and Tillamook

Western Red Cedar and Other Cedars Stumpage Price = Pond Value – Logging Cost
$1,069/MBF - $361.00/MBF = $708.00/ MBF

Other Conifer Stumpage Price = Pond Value – Logging Cost
$494/MBF - $361.00/MBF = $133.00/ MBF

Pulp (Conifer and Hardwood) Price = $ 2.50/ Ton

BRAND AND PAINT ALLOWANCE =$2.00/ MBF
FUEL COST ALLOWANCE = $3.00/ Gallon
HAULING COST ALLOWANCE
Hauling cost equivalent to $950 daily truck cost

Other Costs with Profit and Risk to be added:

TOTAL Other Costs with profit and Risk to be added = $0

Other Costs with No Profit and Risk Added:

Non-Project road 1# construction: 2+25 stations x $250/station = $563
Non-Project road 2# construction: 0+94 stations x $250/station = $235

L&C Tree Farms, LLC Easement
Administration fee = $500
Logs Hauling @ $1.80x700 MBF x 2.3 miles = $2,898
Reprod damage @ 3.4 acres x $900/ac = $3,060
Rock wear @ $1.00 x 700 MBF x 2.3 miles = $1,610
Slash pile burning fee = $100
Excavator for pile burning (16hrs x $130 + $105 move-in) = $2,185
Total Cost Estimate = $10,353

Ditch Cleaning and Bank Sluff Removal:
Mobilization: one time – dump truck w/ tilt bed & small excavator: $890 x 10 = $8900
Small excavator (Cat 312 or equivalent): 10 hours @ $135/ hour = $1,350
Dump truck: 10 hours @ $90/ hour = $900

Move-in Guyline Dozer (Area 1&2) : $1,000 x 4 machines = $4,000
Move-in Tailhold Dozer (Area 1&2): $1,000 x 2 machine = $2,000
Machine Cleaning: $1,000/machine x 3 machines x 1 season = $3,000
Slash piling and sorting (Cable Settings): $5/ac x 94/ac. = $470

TOTAL Other Costs No Profit and Risk added = $23,761

ROAD MAINTENANCE:
Spot Rocking: 20cy/MMBF/mile x 1.603 MMBF x $33/cy x 1.95 miles / 1,603 MBF= $1.29/MBF
Interim Grading: $1,150/ mile x 1.95 miles x 1 times/ 1,603 MBF = $1.40/MBF
Final Maintenance Grading: $1,500 x 1.95 miles/ 1,603 MBF = $1.82/MBF
Final Maintenance Compaction: $950/mile x 1.5 miles/ 1,603 MBF = $0.89/ MBF

Total Road Maintenance: $5.40/MBF


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## Logging Conditions

**Combination#: 1**

| | |
|---|---|
| Douglas - Fir | 90.18% |
| Western Hemlock / Fir | 72.40% |
| Alder (Red) | 85.86% |

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

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

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

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

**cost / mbf:** $258.48

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

**Combination#: 2**

| | |
|---|---|
| Douglas - Fir | 9.82% |
| Western Hemlock / Fir | 27.60% |
| Alder (Red) | 14.14% |

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

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

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

**loads / day:** 16 **bd. ft / load:** 4300

**cost / mbf:** $77.68

**machines:** Forwarder
Harvester

# Timber Sale Appraisal
# Beaver Nation
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**District: Tillamook** **Date: August 08, 2019**

## Logging Costs

| | | | |
|---|---|---|---|
| **Operating Seasons:** | 1.00 | **Profit Risk:** | 10% |
| **Project Costs:** | $148,610.00 | **Other Costs (P/R):** | $0.00 |
| **Slash Disposal:** | $0.00 | **Other Costs:** | $26,761.00 |

**Miles of Road**

**Road Maintenance:** $5.40

| Dirt | Rock (Contractor) | Rock (State) | Paved |
|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 |

**Hauling Costs**

| Species | $ / MBF | Trips/Day | MBF / Load |
|---|---|---|---|
| Douglas - Fir | $95.00 | 2.0 | 4.2 |
| Western Hemlock / Fir | $95.00 | 2.0 | 4.2 |
| Alder (Red) | $95.00 | 1.0 | 4.0 |


# Timber Sale Appraisal
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**District: Tillamook**

**Date: August 08, 2019**

## Logging Costs Breakdown

| Logging | Road Maint | Fire Protect | Hauling | Other P/R appl | Profit & Risk | Slash Disposal | Brand & Paint | Other | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Douglas - Fir** | | | | | | | | | |
| $240.72 | $5.67 | $1.98 | $99.75 | $0.00 | $34.81 | $0.00 | $2.00 | $12.09 | $397.02 |
| **Western Hemlock / Fir** | | | | | | | | | |
| $208.57 | $5.67 | $1.98 | $99.75 | $0.00 | $31.60 | $0.00 | $2.00 | $12.09 | $361.66 |
| **Alder (Red)** | | | | | | | | | |
| $232.92 | $5.94 | $1.98 | $104.50 | $0.00 | $34.53 | $0.00 | $2.00 | $12.09 | $393.96 |

| Specie | Amortization | Pond Value | Stumpage | Amortized |
|---|---|---|---|---|
| Douglas - Fir | $0.00 | $670.00 | $272.98 | $0.00 |
| Western Hemlock / Fir | $0.00 | $533.45 | $171.79 | $0.00 |
| Alder (Red) | $0.00 | $567.70 | $173.74 | $0.00 |

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## Summary

**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 | 838 | $272.98 | $228,757.24 |
| Western Hemlock / Fir | 1,275 | $171.79 | $219,032.25 |
| Alder (Red) | 101 | $173.74 | $17,547.74 |

**Gross Timber Sale Value**

**Recovery:** $465,337.23

**Prepared By:** Nathan Atchison **Phone:** 503-815-7063

"STEWARDSHIP IN FORESTRY"

# PROJECT SUMMARY SHEET

Sale: Beaver Nation

## IMPROVEMENT

| | | | | |
|---|---|---|---|---|
| Point | A to B | 33+15 | stations = | $34,059.48 |
| Point | C to D | 16+20 | stations = | $6,042.40 |
| Point | E to F | 82+70 | stations = | $93,239.14 |
| Point | G to E | 85+00 | stations = | $8,258.50 |
| | | | **SUBTOTAL IMPROVEMENT** | **$141,599.52** |

**MOVE IN** **$7,010.48**

**GRAND TOTAL** **$148,610.00**

# SUMMARY OF CONSTRUCTION COST

Sale: **Beaver Nation** Road: **A to B**

| Construction - | 0+00 | stations | Improvement - | 33+15 | stations | Reconstruction - | 0+00 | stations |
|---|---|---|---|---|---|---|---|---|
| | 0.00 | miles | | 0.63 | miles | | 0.00 | miles |

**IMPROVEMENT:** CLEARING AND GRUBBING -

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Pullback & Widening (Endhaul) | 0.200 | acres @ | $1,600.00 | per acre = | $320.00 | | |
| Scattering | 0.150 | acres @ | $1,275.00 | per acre = | $191.25 | | |
| | | | | **TOTAL CLEARING AND GRUBBING** | | | **$511.25** |

**IMPROVEMENT**: EXCAVATION -

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pullback & Widening | 17+75 | to | 22+75 | 700 | cy. @ | $2.00 | per c.y.= | $1,400.00 |
| | | | | | | | **TOTAL EXCAVATION** | **$1,400.00** |

**IMPROVEMENT**: ENDHAUL -

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pullback & Widening | 17+75 | to | 22+75 | 700 | cy. @ | $1.62 | per c.y.= | $1,134.00 |
| Spread & compact | | | | 700 | cy. @ | $0.50 | per c.y.= | $350.00 |
| | | | | | | | **TOTAL ENDHAUL** | **$1,484.00** |

**CULVERTS - MATERIALS & INSTALLATION**

| | | | |
|---|---|---|---|
| Culverts | | | |
| 30 | LF of 18" | $600.00 | |
| Culvert Stakes & Markers | | | |
| 1 | markers | $8.00 | |
| | | **TOTAL CULVERTS** | **$608.00** |

**ROCK**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0+00 to | 33+15 | 760 | cy. of | Crushed | @ | $34.95 | per c.y.= | $26,562.00 |
| Culvert Backfill | 23+55 | 10 | cy. of | Crushed | @ | $33.40 | per c.y.= | $334.00 |
| Junction Rock | 7+00 & 30+45 | 40 | cy. of | Crushed | @ | $35.10 | per c.y.= | $1,404.00 |
| Energy Dissipator | 23+55 | 10 | cy. of | Riprap | @ | $26.28 | per c.y.= | $262.80 |
| | | | | | | | **TOTAL ROCK** | **$28,562.80** |

**SPECIAL PROJECTS**

| | | | | | | |
|---|---|---|---|---|---|---|
| Construct Road Dip @ 32+15 - | 1.00 | @ | $100.00 | each | $100.00 | |
| Grade and shape road - | 33.15 | stations @ | $22.00 | per station | $729.30 | |
| Roll subgrade w/ vibratory roller prior to rocking - | 33.15 | stations @ | $17.50 | per station | $580.13 | |
| Grass seed and fertilize - | 0.30 | acres @ | $280.00 | per acre | $84.00 | |
| | | | | TOTAL SPECIAL PROJECTS | | **$1,493.43** |

**GRAND TOTAL** **$34,059.48**

# SUMMARY OF CONSTRUCTION COST

Sale: **Beaver Nation** Road: **C to D**

| Construction - | 0+00 | stations | Improvement - | 16+20 | stations | Reconstruction - | 0+00 | stations |
|---|---|---|---|---|---|---|---|---|
| | 0.00 | miles | | 0.31 | miles | | 0.00 | miles |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **IMPROVEMENT:** CLEARING AND GRUBBING - | | | | | | | | | | |
| Scattering | | | | | 0.780 | acres @ | $1,500.00 | per acre = | $1,170.00 | |
| | | | | | | | | **TOTAL CLEARING AND GRUBBING** | | **$1,170.00** |
| **IMPROVEMENT**: EXCAVATION - | | | | | | | | | | |
| Road Earthwork | | | | | 16.20 | sta. @ | $50.00 | per sta. = | $810.00 | |
| Pullback & Widening | 3+35 | to | 4+85 | | 200 | cy. @ | $2.00 | per c.y.= | $400.00 | |
| | | | | | | | | **TOTAL EXCAVATION** | | **$1,210.00** |
| **IMPROVEMENT**: ENDHAUL - | | | | | | | | | | |
| Pullback & Widening | 3+35 | to | 4+85 | | 200 | cy. @ | $1.39 | per c.y.= | $278.00 | |
| Spread & compact | | | | | 200 | cy. @ | $0.50 | per c.y.= | $100.00 | |
| | | | | | | | | **TOTAL ENDHAUL** | | **$378.00** |
| **ROCK** | | | | | | | | | | |
| 0+00 to | 1+00 | | 50 | cy. of | Crushed | @ | $35.15 | per c.y.= | $1,757.50 | |
| Junction Rock | 0+00 | | 20 | cy. of | Crushed | @ | $35.15 | per c.y.= | $703.00 | |
| | | | | | | | | **TOTAL ROCK** | | **$2,460.50** |
| **SPECIAL PROJECTS** | | | | | | | | | | |
| Construct Road Dip @ 0+00 - | | | | | 1.00 | @ | $100.00 | each | $100.00 | |
| Grade and shape road - | | | | | 16.20 | stations @ | $22.00 | per station | $356.40 | |
| Roll subgrade w/ vibratory roller prior to rocking - | | | | | 16.20 | stations @ | $17.50 | per station | $283.50 | |
| Grass seed and fertilize - | | | | | 0.30 | acres @ | $280.00 | per acre | $84.00 | |
| | | | | | | | | TOTAL SPECIAL PROJECTS | | **$823.90** |
| | | | | | | | | **GRAND TOTAL** | | **$6,042.40** |

# SUMMARY OF CONSTRUCTION COST

Sale: **Beaver Nation** Road: **E to F**

| Construction - | 0+00 | stations | Improvement - | 82+70 | stations | Reconstruction - | 0+00 | stations |
|---|---|---|---|---|---|---|---|---|
| | 0.00 | miles | | 1.57 | miles | | 0.00 | miles |

**IMPROVEMENT:** CLEARING AND GRUBBING -

| | | | | | | |
|---|---|---|---|---|---|---|
| Sidecast Pullback Sections | 1.557 | acres @ | $1,600.00 | per acre = | $2,491.20 | |
| Widening Sections | 0.656 | acres @ | $1,600.00 | per acre = | $1,049.60 | |
| End-haul Sections | 0.760 | acres @ | $1,600.00 | per acre = | $1,216.00 | |
| | | | | **TOTAL CLEARING AND GRUBBING** | | **$4,756.80** |

**IMPROVEMENT**: EXCAVATION -

| | | | | | | |
|---|---|---|---|---|---|---|
| Pullback | 9178 | cy. @ | $2.00 | per c.y.= | $18,356.00 | |
| Widening | 2667 | cy. @ | $2.00 | per c.y.= | $5,334.00 | |
| | | | | **TOTAL EXCAVATION** | | **$23,690.00** |

**IMPROVEMENT**: ENDHAUL -

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pullback | 13+60 | to | 16+20 | 627 | cy. @ | $1.54 | per c.y.= | $965.58 |
| Pullback | 17+10 | to | 17+80 | 203 | cy. @ | $1.34 | per c.y.= | $272.02 |
| Pullback | 18+10 | to | 21+50 | 819 | cy. @ | $1.47 | per c.y.= | $1,203.93 |
| Pullback | 22+25 | to | 27+10 | 1169 | cy. @ | $1.57 | per c.y.= | $1,835.33 |
| Pullback | 28+05 | to | 34+60 | 2043 | cy. @ | $1.79 | per c.y.= | $3,656.97 |
| Pullback | 35+05 | to | 49+10 | 4060 | cy. @ | $2.13 | per c.y.= | $8,647.80 |
| Pullback | 50+30 | to | 53+85 | 257 | cy. @ | $2.12 | per c.y.= | $544.84 |
| Widening | 13+60 | to | 16+20 | 282 | cy. @ | $1.26 | per c.y.= | $355.32 |
| Widening | 18+10 | to | 21+50 | 246 | cy. @ | $1.47 | per c.y.= | $361.62 |
| Widening | 22+25 | to | 27+10 | 140 | cy. @ | $1.57 | per c.y.= | $219.80 |
| Widening | 28+05 | to | 31+15 | 179 | cy. @ | $1.83 | per c.y.= | $327.57 |
| Widening | 35+05 | to | 49+10 | 1691 | cy. @ | $2.13 | per c.y.= | $3,601.83 |
| Widening | 50+30 | to | 53+85 | 129 | cy. @ | $2.12 | per c.y.= | $273.48 |
| Spread & compact | | | | 11845 | cy. @ | $0.50 | per c.y.= | $5,922.50 |
| | | | | | | | **TOTAL ENDHAUL** | **$28,188.59** |

**CULVERTS - MATERIALS & INSTALLATION**

| | | |
|---|---|---|
| Culverts | | |
| 70 | LF of 18" | $1,400.00 |
| 80 | LF of 30" | $3,746.00 |
| Culvert Stakes & Markers | | |
| 4 | markers | $32.00 |
| | | **TOTAL CULVERTS** **$5,178.00** |

**ROCK**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0+00 to | 82+70 | 980 | cy. of | Crushed | @ | $24.17 | per c.y.= | $23,686.60 |
| Culvert Backfill/Bedding | Culv. In Exhibit G | 60 | cy. of | Crushed | @ | $22.47 | per c.y.= | $1,348.20 |
| Energy Dissipator | Culv. In Exhibit G | 20 | cy. of | Riprap | @ | $13.00 | per c.y.= | $260.00 |
| | | | | | | | **TOTAL ROCK** | **$25,294.80** |

**SPECIAL PROJECTS**

| | | | | | |
|---|---|---|---|---|---|
| Grade and shape road - | 82.70 | stations @ | $27.00 | per station | $2,232.90 |
| Roll subgrade w/ vibratory roller prior to rocking - | 82.70 | stations @ | $17.50 | per station | $1,447.25 |
| Remove culverts from state lands | 4.00 | @ | $584.00 | total | $584.00 |
| Grass seed and fertilize - | 2.21 | acres @ | $280.00 | per acre | $618.80 |
| Mulching including pullback - | 1.600 | acres @ | $780.00 | per acre | $1,248.00 |
| | | | | TOTAL SPECIAL PROJECTS | **$6,130.95** |

**GRAND TOTAL** **$93,239.14**

# SUMMARY OF CONSTRUCTION COST

Sale: **Beaver Nation** Road: **G to E**

| Construction - | 0+00 | stations | Improvement - | 85+00 | stations | Reconstruction - | 0+00 | stations |
|---|---|---|---|---|---|---|---|---|
| | 0.00 | miles | | 1.61 | miles | | 0.00 | miles |

**ROCK**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Spot Rocking | As Directed by State | 200 | cy. of | Crushed | | @ | $22.38 | per c.y.= | $4,476.00 | |
| | | | | | | | | | **TOTAL ROCK** | **$4,476.00** |

**SPECIAL PROJECTS**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Grade and shape road - | 85.00 | stations @ | $27.00 | per station | $2,295.00 | | | |
| Roll subgrade w/ vibratory roller prior to rocking - | 85.00 | stations @ | $17.50 | per station | $1,487.50 | | | |
| | | | | | TOTAL SPECIAL PROJECTS | | | **$3,782.50** |

**GRAND TOTAL** **$8,258.50**

# ROCK COST SUMMARY

| | | | | | | |
|---|---|---|---|---|---|---|
| Source: | Crushed_Commercial | | Location: | Approved Commercial Source | | |
| Sale: | **Beaver Nation** | | | Road: | | 890 c.y. |
| | | | | Total Truck Loads: | | 890 c.y. |
| Rock Purchased Price: | | $13.00 /cu.yd. | x | 890 cu.yds. | = | $11,570.00 |
| | | | | | Subtotal | $11,570.00 |
| Move in Roller and Compactor | | 1 | @ | $669.50 | = | $669.50 |
| Move in Grader | | 1 | @ | $913.10 | = | $913.10 |
| Move in Trucks | | 3 | @ | $249.74 | = | $749.22 |
| | | | | | Subtotal | $2,331.82 |
| | | | | TOTAL PRODUCTION COSTS | | $13,901.82 |

Base Cost = $15.62 Per Cu.Yd.
(Move In + Rock Price)

| Road Segment | Haul Cost $/cu.yd. | Proc Cost $/cu.yd. | Base Cost. $/cu.yd. | Cost $/cu.yd. | Number Cu. Yds | | ROCK COST |
|---|---|---|---|---|---|---|---|
| A to B 0 3315 (Crushed) | 16.13 | 3.20 | 15.62 | 34.95 | 760 | | $26,562.00 |
| A to B Culvert Backfill (Crushed) | 16.28 | 1.50 | 15.62 | 33.40 | 10 | | $334.00 |
| A to B Junction Rock (Crushed) | 16.28 | 3.20 | 15.62 | 35.10 | 40 | | $1,404.00 |
| A to B Energy Dissipator (Riprap) | 16.28 | 2.00 | 8.00 | 26.28 | 10 | | $262.80 |
| C to D 0 100 (Crushed) | 16.33 | 3.20 | 15.62 | 35.15 | 50 | | $1,757.50 |
| C to D Junction Rock (Crushed) | 16.33 | 3.20 | 15.62 | 35.15 | 20 | | $703.00 |
| | | | | Total C.Y. | 890 | Sub Total | $31,023.30 |
| | | | | | TOTAL ROCKING COSTS | | $31,023.30 |

## ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Pit: | Jordan_Stockpile | | | Location: | SW 1/4 Sec. 29, T1N, R7W, W.M. | | |
| Sale: | **Beaver Nation** | | | | Road: | | 1240 c.y. |
| | | | | | Total Truck Loads: | | 1240 c.y. |
| Load Dump Truck: | | $1.00 | /cu.yd. | x | 1240 | cu.yds. = | $1,240.00 |
| | | | | | | Subtotal | $1,240.00 |
| Move in Roller and Compactor | | 1 | @ | | $669.50 | = | $669.50 |
| Move in Grader | | 1 | @ | | $913.10 | = | $913.10 |
| Move in Loader | | 1 | @ | | $965.71 | = | $965.71 |
| Move in Trucks | | 3 | @ | | $249.74 | = | $749.22 |
| | | | | | | Subtotal | $3,297.53 |
| | | | | | | TOTAL PRODUCTION COSTS | $4,537.53 |
| Base Cost= | $3.66 | Per Cu.Yd. | | | | | |

| Road Segment | Haul Cost $/cu.yd. | Proc Cost $/cu.yd. | Base Cost. $/cu.yd. | Cost $/cu.yd. | Number Cu. Yds | | ROCK COST |
|---|---|---|---|---|---|---|---|
| E to F 0 8270 (Crushed) | 17.31 | 3.20 | 3.66 | 24.17 | 980 | | $23,686.60 |
| E to F Culvert Backfill/Bedding (Crushed) | 17.31 | 1.50 | 3.66 | 22.47 | 60 | | $1,348.20 |
| G to E Spot Rocking (Crushed) | 15.72 | 3.00 | 3.66 | 22.38 | 200 | | $4,476.00 |
| | | | | Total C.Y. | 1240 | Sub Total | $29,510.80 |
| | | | | | | TOTAL ROCKING COSTS | $29,510.80 |

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

Sale: **Beaver Nation**

| LOWBOY HAUL (Round Trip) | | |
|---|---|---|
| DIST. (mi) | ROADWAY | AVE SPEED (mph) |
| 41.0 | Pavement | 30 |
| 7.0 | Main Lines | 7 |
| 4.0 | Steep Grades | 2 |

| No. | EQUIPMENT DESCRIPTION | Move in Cost | Pilot Cars | Within Area Move ($/mile) | Begin Mileage | End Mileage | Total Miles | Within Area Cost | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2 | Excavators (Small) | $1,339.00 | | $22.00 | 0.00 | 1.00 | 1 | $44.00 | $1,383.00 |
| 2 | Excavators (Large) | $2,161.43 | 1 | $44.80 | 0.00 | 1.00 | 1 | $89.60 | $2,251.03 |
| 2 | Tractors (D7) | $2,325.43 | 2 | $11.30 | 0.00 | 0.00 | 0 | $0.00 | $2,325.43 |
| 4 | Dump Truck (10 cy +) | $1,005.42 | | $2.85 | 0.00 | 4.00 | 4 | $45.60 | $1,051.02 |
| | | | | | TOTAL MOVE-IN COSTS: | | | | $7,010.48 |

# OREGON DEPARTMENT OF FORESTRY
# CRUISE REPORT
*Beaver Nation*

## 1. Type of Sale
Regeneration harvest, Recovery

## 2. Legal Description
Sections 30, 32, 33 of T3S R9W, and Sections 25 of T3S R10W, W.M., Tillamook County, Oregon.

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

| | ACRES | |
|---|---|---|
| | Gross | Net |
| **Area 1 (Modified Clear cut)** | 82 | 68 |
| **Area 2 (Modified Clear cut)** | 84 | 45 |

Gross Acres
Area within the Timber Sale Boundary signs

Net acres
*Used for calculating the advertised volume.*
Gross acres, less green tree retention, roads, Non-required thinning areas, and riparian areas classified as Special Stewardship in LMCS inside the sale boundary.

## 4. Cruising Procedures

### A. Cruise Method
Area 1 and 2 was cruised on a 175’ between plots and 700’ between lines spacing.

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

### B. Plot size
Point of observation was 4.0’. Form factor was measured at 16.0’.

| Area | BAF |
|---|---|
| 1 | 40.00 |
| 2 | 27.78 |

### C. Grading System

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

## 5. Computation Procedure

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

Net sale acreage was used for volume calculation.

| Cruise Statistics (Board Foot Volumes) | | | |
|---|---|---|---|
| Area | Number of Plots | SE (%) | CV (%) |
| 1 | 19 | 10.1 | 39.2 |
| 2 | 15 | 7.7 | 36.9 |

## 6. Hidden Defect and Breakage

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

## 7. Timber Description

Area 1 is comprised primarily of Western Hemlock interspersed with Douglas-fir, with minor components of Red Alder exist near the riparian zones and the area also has a component of other conifer. The age of the stand is approximately 38 years old and has had no management. Area 2 is comprised primarily of Douglas-fir that is severely infected with Swiss Needle Cast. Red alder is interspersed with small pockets of Western Hemlock. The age of the stand is approximately 40 years old and has had no past management.

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

| Sale Area | Species | DBH | Merchantable Bole Height (feet) | Merchantable top (inches inside bark) |
|---|---|---|---|---|
| 1 | Douglas-fir | 11 | 42 | 5 |
| 1 | Western Hemlock | 14 | 57 | 5 |
| 1 | Red Alder | 13 | 38 | 6 |
| 2 | Douglas-fir | 12 | 49 | 5 |
| 2 | Western Hemlock | 14 | 59 | 5 |
| 2 | Red Alder | 15 | 51 | 6 |

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

## 8. Cruiser /Dates

The timber sale area was cruised by the Tillamook District Marketing Unit in 2019.

## 9. Revenue Distribution

FDF BOF 51 57%, CSL 52 43%
Tax Code: 800-61%, 802-39%
Deed Numbers: 0 (CSL), 186, 376

## 10. Attachments

Volume Summary
Stand Table
Log Stock Tables
Logging Plan

## 11. Stand and Log Stock Tables Species Key

WH – Western hemlock take
DF – Douglas-fir take
RA – Red alder take

TC TSTATS

# STATISTICS

PROJECT **BEAVER**



DATE 8/15/2019

| TWP | RGE | SECT | TRACT | TYPE | ACRES | PLOTS | TREES | CuFt | BdFt |
|---|---|---|---|---|---|---|---|---|---|
| **03S** | **10W** | **25** | **AREA1 NOSS** | **0000** | 68.00 | 16 | 92 | S | W |

| | PLOTS | TREES | TREES PER PLOT | ESTIMATED TOTAL TREES | PERCENT SAMPLE TREES |
|---|---|---|---|---|---|
| TOTAL | 16 | 92 | 5.8 | | |
| CRUISE | 11 | 65 | 5.9 | 16,961 | .4 |
| DBH COUNT | | | | | |
| REFOREST | | | | | |
| COUNT | 5 | 27 | 5.4 | | |
| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| WHEMLOCK | 44 | 147.9 | 14.1 | 57 | 42.6 | 160.0 | 19,296 | 18,680 | 4,744 | 4,744 |
| DOUG FIR | 14 | 79.3 | 10.8 | 42 | 15.2 | 50.0 | 4,542 | 4,371 | 1,148 | 1,148 |
| R ALDER | 7 | 22.2 | 12.8 | 38 | 5.6 | 20.0 | 942 | 772 | 245 | 245 |
| **TOTAL** | *65* | *249.4* | *13.0* | *51* | *63.8* | *230.0* | *24,780* | *23,822* | *6,136* | *6,136* |

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 |
|---|---|---|---|---|---|---|---|---|
| WHEMLOCK | 53.1 | 8.0 | 148 | 161 | 174 | | | |
| DOUG FIR | 66.2 | 18.3 | 54 | 66 | 79 | | | |
| R ALDER | 173.1 | 70.4 | 21 | 71 | 122 | | | |
| **TOTAL** | *71.0* | *8.8* | *119* | *131* | *142* | *201* | *50* | *22* |

CL: 68.1 % COEFF — **SAMPLE TREES - CF** — # OF TREES REQ. — INF. POP.

| SD: 1.0 | VAR.% | S.E.% | LOW | AVG | HIGH | 5 | 10 | 15 |
|---|---|---|---|---|---|---|---|---|
| WHEMLOCK | 52.2 | 7.9 | 38 | 42 | 45 | | | |
| DOUG FIR | 61.6 | 17.1 | 15 | 18 | 21 | | | |
| R ALDER | 166.3 | 67.7 | 7 | 22 | 37 | | | |
| **TOTAL** | *70.1* | *8.7* | *31* | *34* | *37* | *196* | *49* | *22* |

CL: 68.1 % COEFF — **TREES/ACRE** — # OF PLOTS REQ. — INF. POP.

| SD: 1.0 | VAR.% | S.E.% | LOW | AVG | HIGH | 5 | 10 | 15 |
|---|---|---|---|---|---|---|---|---|
| WHEMLOCK | 62.0 | 16.0 | 124 | 148 | 172 | | | |
| DOUG FIR | 126.6 | 32.7 | 53 | 79 | 105 | | | |
| R ALDER | 302.1 | 77.9 | 5 | 22 | 40 | | | |
| **TOTAL** | *42.3* | *10.9* | *222* | *249* | *277* | *76* | *19* | *8* |

CL: 68.1 % COEFF — **BASAL AREA/ACRE** — # OF PLOTS REQ. — INF. POP.

| SD: 1.0 | VAR.% | S.E.% | LOW | AVG | HIGH | 5 | 10 | 15 |
|---|---|---|---|---|---|---|---|---|
| WHEMLOCK | 55.5 | 14.3 | 137 | 160 | 183 | | | |
| DOUG FIR | 129.0 | 33.3 | 33 | 50 | 67 | | | |
| R ALDER | 301.1 | 77.7 | 4 | 20 | 36 | | | |
| **TOTAL** | *34.5* | *8.9* | *210* | *230* | *250* | *51* | *13* | *6* |

CL: 68.1 % COEFF — **NET BF/ACRE** — # OF PLOTS REQ. — INF. POP.

| SD: 1.0 | VAR.% | S.E.% | LOW | AVG | HIGH | 5 | 10 | 15 |
|---|---|---|---|---|---|---|---|---|
| WHEMLOCK | 56.9 | 14.7 | 15,938 | 18,680 | 21,421 | | | |
| DOUG FIR | 131.8 | 34.0 | 2,885 | 4,371 | 5,857 | | | |
| R ALDER | 295.7 | 76.3 | 183 | 772 | 1,360 | | | |
| **TOTAL** | *39.2* | *10.1* | *21,411* | *23,822* | *26,232* | *66* | *16* | *7* |

CL: 68.1 % COEFF — **NET CUFT FT/ACRE** — # OF PLOTS REQ. — INF. POP.

| SD: 1.0 | VAR.% | S.E.% | LOW | AVG | HIGH | 5 | 10 | 15 |
|---|---|---|---|---|---|---|---|---|
| WHEMLOCK | 54.7 | 14.1 | 4,075 | 4,744 | 5,412 | | | |
| DOUG FIR | 131.6 | 33.9 | 758 | 1,148 | 1,537 | | | |
| R ALDER | 268.6 | 69.3 | 75 | 245 | 414 | | | |

# STATISTICS



**PROJECT BEAVER**

DATE 8/15/2019

| TWP | RGE | SECT | TRACT | TYPE | ACRES | PLOTS | TREES | CuFt | BdFt |
|---|---|---|---|---|---|---|---|---|---|
| **03S** | **10W** | **25** | **AREA1 NOSS** | **0000** | 68.00 | 16 | 92 | S | W |

CL: 68.1 %
SD: 1.0

| | COEFF VAR. | S.E.% | NET CUFT FT/ACRE LOW | AVG | HIGH | # OF PLOTS REQ. 5 | 10 | INF. POP. 15 |
|---|---|---|---|---|---|---|---|---|
| **TOTAL** | *36.8* | *9.5* | *5,554* | *6,136* | *6,718* | *58* | *14* | *6* |

TC TSTNDSUM

# Stand Table Summary

**Project** **BEAVER**

**T03S R10W S25 T0000**

**T03S R10W S25 T0000**

| Twp | Rge | Sec | Tract | Type | Acres | Plots | Sample Trees |
|---|---|---|---|---|---|---|---|
| 03S | 10W | 25 | AREA1_NOSS | 0000 | 68.00 | 16 | 65 |

**Page:** 1
**Date:** 08/15/201
**Time:** 12:47:22PM

| Spc | ST | DBH | Sample Trees | FF 16' | Av Ht Tot | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WH | | 9 | 3 | 87 | 60 | 24.693 | 10.91 | 24.69 | 7.1 | 36.7 | 5.58 | 174 | 905 | 379 | 119 | 62 |
| WH | | 10 | 2 | 90 | 71 | 13.334 | 7.27 | 13.33 | 12.2 | 50.0 | 5.19 | 162 | 667 | 353 | 110 | 45 |
| WH | | 11 | 2 | 90 | 81 | 11.020 | 7.27 | 16.53 | 12.7 | 56.7 | 6.74 | 211 | 937 | 458 | 143 | 64 |
| WH | | 12 | 3 | 91 | 78 | 13.890 | 10.91 | 18.52 | 15.5 | 62.5 | 9.20 | 288 | 1,157 | 626 | 196 | 79 |
| WH | | 13 | 2 | 92 | 89 | 7.890 | 7.27 | 15.78 | 13.4 | 47.5 | 6.77 | 212 | 750 | 460 | 144 | 51 |
| WH | | 14 | 3 | 91 | 90 | 10.205 | 10.91 | 20.41 | 17.4 | 75.0 | 11.39 | 356 | 1,531 | 775 | 242 | 104 |
| WH | | 15 | 7 | 92 | 94 | 20.742 | 25.45 | 41.48 | 20.4 | 80.0 | 27.03 | 845 | 3,319 | 1,838 | 574 | 226 |
| WH | | 16 | 4 | 91 | 94 | 10.417 | 14.55 | 18.23 | 25.1 | 100.0 | 14.66 | 458 | 1,823 | 997 | 311 | 124 |
| WH | | 17 | 5 | 90 | 76 | 11.535 | 18.18 | 18.46 | 25.7 | 87.5 | 15.16 | 474 | 1,615 | 1,031 | 322 | 110 |
| WH | | 18 | 7 | 92 | 91 | 14.404 | 25.45 | 28.81 | 29.1 | 113.6 | 26.78 | 837 | 3,272 | 1,821 | 569 | 222 |
| WH | | 19 | 3 | 91 | 93 | 5.541 | 10.91 | 11.08 | 31.3 | 115.0 | 11.09 | 347 | 1,274 | 754 | 236 | 87 |
| WH | | 21 | 1 | 91 | 92 | 1.512 | 3.64 | 3.02 | 41.5 | 145.0 | 4.02 | 126 | 438 | 273 | 85 | 30 |
| WH | | 22 | 2 | 92 | 100 | 2.755 | 7.27 | 5.51 | 46.4 | 180.0 | 8.17 | 255 | 992 | 556 | 174 | 67 |
| WH | | Totals | 44 | 90 | 82 | 147.939 | 160.00 | 235.86 | 20.1 | 79.2 | 151.79 | 4,744 | 18,680 | 10,322 | 3,226 | 1,270 |
| DF | | 8 | 1 | 83 | 53 | 10.231 | 3.57 | 10.23 | 6.1 | 30.0 | 1.77 | 62 | 307 | 120 | 42 | 21 |
| DF | | 9 | 2 | 85 | 60 | 16.168 | 7.14 | 16.17 | 7.6 | 30.0 | 3.52 | 124 | 485 | 240 | 84 | 33 |
| DF | | 10 | 3 | 83 | 56 | 19.644 | 10.71 | 19.64 | 9.6 | 36.7 | 5.39 | 189 | 720 | 367 | 129 | 49 |
| DF | | 11 | 1 | 82 | 50 | 5.412 | 3.57 | 5.41 | 10.6 | 30.0 | 1.63 | 57 | 162 | 111 | 39 | 11 |
| DF | | 12 | 3 | 87 | 87 | 13.642 | 10.71 | 22.74 | 13.3 | 50.0 | 8.62 | 302 | 1,137 | 586 | 206 | 77 |
| DF | | 13 | 3 | 87 | 84 | 11.624 | 10.71 | 19.37 | 16.2 | 62.0 | 8.93 | 313 | 1,201 | 607 | 213 | 82 |
| DF | | 16 | 1 | 88 | 80 | 2.558 | 3.57 | 5.12 | 19.6 | 70.0 | 2.85 | 100 | 358 | 194 | 68 | 24 |
| DF | | Totals | 14 | 85 | 66 | 79.279 | 50.00 | 98.68 | 11.6 | 44.3 | 32.71 | 1,148 | 4,371 | 2,225 | 781 | 297 |
| RA | | 10 | 1 | 91 | 75 | 5.238 | 2.86 | | | | | | | | | |
| RA | | 11 | 1 | 91 | 75 | 4.329 | 2.86 | | | | | | | | | |
| RA | | 12 | 1 | 91 | 74 | 3.638 | 2.86 | | | | | | | | | |
| RA | | 13 | 1 | 86 | 58 | 3.100 | 2.86 | 3.10 | 20.7 | 40.0 | 1.76 | 64 | 124 | 120 | 44 | 8 |
| RA | | 14 | 1 | 92 | 83 | 2.673 | 2.86 | 5.35 | 17.0 | 65.0 | 2.50 | 91 | 347 | 170 | 62 | 24 |
| RA | | 15 | 1 | 79 | 42 | 2.328 | 2.86 | | | | | | | | | |
| RA | | 24 | 1 | 93 | 85 | .909 | 2.86 | 1.82 | 49.3 | 165.0 | 2.47 | 90 | 300 | 168 | 61 | 20 |
| RA | | Totals | 7 | 89 | 70 | 22.216 | 20.00 | 10.26 | 23.8 | 75.2 | 6.73 | 245 | 772 | 457 | 166 | 52 |
| Totals | | | 65 | 89 | 76 | 249.433 | 230.00 | 344.81 | 17.8 | 69.1 | 191.23 | 6136 | 23,822 | 13,004 | 4,172 | 1,620 |

TC TLOGSTVB

# Log Stock Table - MBF

**Project:** **BEAVER**

**T03S R10W S25 T0000**

**T03S R10W S25 T0000**

| Twp | Rge | Sec | Tract | Type | Acres | Plots | Sample Trees |
|---|---|---|---|---|---|---|---|
| 03S | 10W | 25 | AREA1_NOSS | 0000 | 68.00 | 16 | 65 |

**Page** 1
**Date** 8/15/2019
**Time** 12:47:21PM

| 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+ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WH | | CO | 2 | 40 | 91 | 3.4 | 88 | 6.9 | | | | | | | 88 | | | | | |
| WH | | CO | 3 | 20 | 59 | 10.5 | 53 | 4.2 | | | | | | 31 | 22 | | | | | |
| WH | | CO | 3 | 30 | 26 | | 26 | 2.1 | | | | | 26 | | | | | | | |
| WH | | CO | 3 | 32 | 16 | 22.2 | 12 | 1.0 | | | | 12 | | | | | | | | |
| WH | | CO | 3 | 40 | 851 | 3.0 | 826 | 65.0 | | | 119 | 220 | 282 | 205 | | | | | | |
| WH | | CO | 4 | 13 | 1 | | 1 | .1 | 1 | | | | | | | | | | | |
| WH | | CO | 4 | 14 | 2 | | 2 | .1 | 2 | | | | | | | | | | | |
| WH | | CO | 4 | 15 | 11 | | 11 | .9 | 11 | | | | | | | | | | | |
| WH | | CO | 4 | 16 | 38 | | 38 | 3.0 | 3 | | 17 | | | 18 | | | | | | |
| WH | | CO | 4 | 19 | 5 | | 5 | .4 | 5 | | | | | | | | | | | |
| WH | | CO | 4 | 20 | 16 | | 16 | 1.3 | 6 | | | 10 | | | | | | | | |
| WH | | CO | 4 | 22 | 25 | | 25 | 1.9 | 25 | | | | | | | | | | | |
| WH | | CO | 4 | 24 | 12 | 14.5 | 10 | .8 | 10 | | | | | | | | | | | |
| WH | | CO | 4 | 25 | 7 | | 7 | .5 | 7 | | | | | | | | | | | |
| WH | | CO | 4 | 29 | 4 | | 4 | .3 | 4 | | | | | | | | | | | |
| WH | | CO | 4 | 30 | 13 | | 13 | 1.0 | 13 | | | | | | | | | | | |
| WH | | CO | 4 | 32 | 10 | | 10 | .8 | 10 | | | | | | | | | | | |
| WH | | CO | 4 | 34 | 15 | | 15 | 1.2 | 15 | | | | | | | | | | | |
| WH | | CO | 4 | 36 | 34 | | 34 | 2.7 | 34 | | | | | | | | | | | |
| WH | | CO | 4 | 37 | 4 | | 4 | .3 | 4 | | | | | | | | | | | |
| WH | | CO | 4 | 40 | 72 | 2.5 | 70 | 5.5 | 40 | | | 30 | | | | | | | | |
| WH | | Totals | | | 1,312 | 3.2 | 1,270 | 78.4 | 190 | | 136 | 273 | 308 | 253 | 110 | | | | | |
| DF | | CO | 3 | 40 | 157 | 3.9 | 151 | 50.9 | | | 74 | 77 | | | | | | | | |
| DF | | CO | 4 | 13 | 3 | | 3 | .9 | 3 | | | | | | | | | | | |
| DF | | CO | 4 | 19 | 6 | | 6 | 2.1 | 6 | | | | | | | | | | | |
| DF | | CO | 4 | 20 | 3 | | 3 | 1.2 | 3 | | | | | | | | | | | |
| DF | | CO | 4 | 25 | 21 | | 21 | 7.0 | 21 | | | | | | | | | | | |
| DF | | CO | 4 | 28 | 9 | | 9 | 3.1 | 9 | | | | | | | | | | | |
| DF | | CO | 4 | 29 | 16 | | 16 | 5.5 | 16 | | | | | | | | | | | |
| DF | | CO | 4 | 31 | 24 | | 24 | 8.2 | 24 | | | | | | | | | | | |
| DF | | CO | 4 | 34 | 40 | 13.8 | 34 | 11.5 | 34 | | | | | | | | | | | |
| DF | | CO | 4 | 35 | 18 | | 18 | 6.0 | 18 | | | | | | | | | | | |
| DF | | CO | 4 | 40 | 11 | | 11 | 3.5 | 11 | | | | | | | | | | | |
| DF | | Totals | | | 309 | 3.8 | 297 | 18.3 | 146 | | 74 | 77 | | | | | | | | |
| RA | | H | 2 | 40 | 22 | 16.7 | 19 | 35.4 | | | | | | | 19 | | | | | |
| RA | | H | 4 | 21 | 5 | | 5 | 10.4 | | | 5 | | | | | | | | | |
| RA | | H | 4 | 23 | 2 | | 2 | 3.5 | | | 2 | | | | | | | | | |
| RA | | H | 4 | 37 | 13 | 33.3 | 8 | 16.1 | | | 8 | | | | | | | | | |
| RA | | H | 4 | 40 | 22 | 16.7 | 18 | 34.6 | | | | 18 | | | | | | | | |
| RA | | Totals | | | 64 | 18.1 | 52 | 3.2 | | | 16 | 18 | | | 19 | | | | | |
| Total All Species | | | | | 1,685 | 3.9 | 1,620 | 100.0 | 336 | | 225 | 368 | 308 | 253 | 129 | | | | | |

TC TSTATS

# STATISTICS

PROJECT **BEAVER**



DATE 8/15/2019

| TWP | RGE | SECT | TRACT | TYPE | ACRES | PLOTS | TREES | CuFt | BdFt |
|---|---|---|---|---|---|---|---|---|---|
| **03S** | **10W** | **25** | **AREA2** | **0100** | 45.00 | 24 | 128 | S | W |

| | PLOTS | TREES | TREES PER PLOT | ESTIMATED TOTAL TREES | PERCENT SAMPLE TREES |
|---|---|---|---|---|---|
| TOTAL | 24 | 128 | 5.3 | | |
| CRUISE | 15 | 85 | 5.7 | 8,092 | 1.1 |
| DBH COUNT | | | | | |
| REFOREST | | | | | |
| COUNT | 9 | 40 | 4.4 | | |
| 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 | 76 | 167.0 | 11.9 | 49 | 37.5 | 129.6 | 12,259 | 12,208 | 3,204 | 3,204 |
| R ALDER | 6 | 9.5 | 15.0 | 51 | 3.0 | 11.6 | 1,175 | 1,120 | 307 | 307 |
| WHEMLOCK | 3 | 3.4 | 13.7 | 59 | 0.9 | 3.5 | 412 | 395 | 101 | 101 |
| **TOTAL** | *85* | *179.8* | *12.1* | *49* | *41.5* | *144.7* | *13,846* | *13,723* | *3,612* | *3,612* |

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 | 59.8 | 6.9 | 85 | 91 | 97 | | | |
| R ALDER | 33.9 | 15.1 | 105 | 123 | 142 | | | |
| WHEMLOCK | 49.5 | 34.3 | 81 | 123 | 166 | | | |
| **TOTAL** | *57.4* | *6.2* | *89* | *95* | *100* | *132* | *33* | *15* |

CL: 68.1 % COEFF — **SAMPLE TREES - CF** — # OF TREES REQ. — INF. POP.

| SD: 1.0 | VAR.% | S.E.% | LOW | AVG | HIGH | 5 | 10 | 15 |
|---|---|---|---|---|---|---|---|---|
| DOUG FIR | 59.8 | 6.9 | 23 | 24 | 26 | | | |
| R ALDER | 25.5 | 11.3 | 30 | 34 | 37 | | | |
| WHEMLOCK | 43.3 | 30.0 | 22 | 32 | 42 | | | |
| **TOTAL** | *56.7* | *6.1* | *24* | *25* | *27* | *129* | *32* | *14* |

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 | 47.5 | 9.9 | 150 | 167 | 184 | | | |
| R ALDER | 184.5 | 38.4 | 6 | 9 | 13 | | | |
| WHEMLOCK | 383.9 | 80.0 | 1 | 3 | 6 | | | |
| **TOTAL** | *43.0* | *8.9* | *164* | *180* | *196* | *77* | *19* | *9* |

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 | 41.3 | 8.6 | 118 | 130 | 141 | | | |
| R ALDER | 186.1 | 38.8 | 7 | 12 | 16 | | | |
| WHEMLOCK | 358.7 | 74.7 | 1 | 3 | 6 | | | |
| **TOTAL** | *34.9* | *7.3* | *134* | *145* | *155* | *51* | *13* | *6* |

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 | 44.5 | 9.3 | 11,075 | 12,208 | 13,341 | | | |
| R ALDER | 194.0 | 40.4 | 667 | 1,120 | 1,572 | | | |
| WHEMLOCK | 346.4 | 72.2 | 110 | 395 | 681 | | | |
| **TOTAL** | *36.9* | *7.7* | *12,667* | *13,723* | *14,779* | *57* | *14* | *6* |

CL: 68.1 % COEFF — **NET CUFT FT/ACRE** — # OF PLOTS REQ. — INF. POP.

| SD: 1.0 | VAR.% | S.E.% | LOW | AVG | HIGH | 5 | 10 | 15 |
|---|---|---|---|---|---|---|---|---|
| DOUG FIR | 42.9 | 8.9 | 2,918 | 3,204 | 3,490 | | | |
| R ALDER | 190.6 | 39.7 | 185 | 307 | 429 | | | |
| WHEMLOCK | 347.1 | 72.3 | 28 | 101 | 175 | | | |

# STATISTICS



**PROJECT** **BEAVER**

DATE 8/15/2019

| TWP | RGE | SECT | TRACT | TYPE | ACRES | PLOTS | TREES | CuFt | BdFt |
|---|---|---|---|---|---|---|---|---|---|
| **03S** | **10W** | **25** | **AREA2** | **0100** | 45.00 | 24 | 128 | S | W |

CL: 68.1 %
SD: 1.0

| | COEFF VAR. | S.E.% | NET CUFT FT/ACRE LOW | AVG | HIGH | # OF PLOTS REQ. 5 | 10 | INF. POP. 15 |
|---|---|---|---|---|---|---|---|---|
| **TOTAL** | *35.4* | *7.4* | *3,346* | *3,612* | *3,879* | *52* | *13* | *6* |

TC TSTNDSUM

# Stand Table Summary

**Project** **BEAVER**

**T03S R10W S25 T0100**

| Twp | Rge | Sec | Tract | Type | Acres | Plots | Sample Trees |
|---|---|---|---|---|---|---|---|
| 03S | 10W | 25 | AREA2 | 0100 | 45.00 | 24 | 89 |

**T03S R10W S25 T0100**



**Date:** 08/15/201

**Time:** 12:49:53PM

| Spc | S T | DBH | Sample Trees | FF 16' | Av Ht Tot | 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 | | 8 | 3 | 85 | 63 | 14.660 | 5.12 | 14.66 | 6.1 | 33.3 | 2.56 | 90 | 489 | 115 | 40 | 22 |
| DF | | 9 | 4 | 86 | 69 | 15.444 | 6.82 | 15.44 | 8.9 | 40.0 | 3.90 | 137 | 618 | 175 | 62 | 28 |
| DF | | 10 | 9 | 86 | 72 | 28.148 | 15.35 | 28.15 | 11.5 | 45.6 | 9.21 | 323 | 1,282 | 414 | 145 | 58 |
| DF | | 11 | 10 | 87 | 75 | 25.847 | 17.06 | 28.43 | 12.0 | 44.5 | 9.74 | 342 | 1,267 | 438 | 154 | 57 |
| DF | | 12 | 16 | 87 | 79 | 34.750 | 27.29 | 49.95 | 13.2 | 49.1 | 18.84 | 661 | 2,454 | 848 | 298 | 110 |
| DF | | 13 | 7 | 88 | 84 | 12.954 | 11.94 | 24.06 | 13.5 | 49.2 | 9.22 | 324 | 1,184 | 415 | 146 | 53 |
| DF | | 14 | 10 | 87 | 83 | 15.957 | 17.06 | 28.72 | 15.8 | 56.7 | 12.90 | 452 | 1,628 | 580 | 204 | 73 |
| DF | | 15 | 5 | 88 | 88 | 6.950 | 8.53 | 13.90 | 18.4 | 70.0 | 7.28 | 256 | 973 | 328 | 115 | 44 |
| DF | | 16 | 2 | 89 | 94 | 2.443 | 3.41 | 4.89 | 22.8 | 92.5 | 3.17 | 111 | 452 | 143 | 50 | 20 |
| DF | | 17 | 4 | 87 | 87 | 4.316 | 6.82 | 8.63 | 23.6 | 87.6 | 5.82 | 204 | 756 | 262 | 92 | 34 |
| DF | | 18 | 4 | 88 | 90 | 3.861 | 6.82 | 6.76 | 30.0 | 111.4 | 5.77 | 202 | 753 | 260 | 91 | 34 |
| DF | | 19 | 1 | 88 | 81 | .866 | 1.71 | 1.73 | 28.7 | 100.0 | 1.41 | 50 | 173 | 64 | 22 | 8 |
| DF | | 20 | 1 | 87 | 88 | .782 | 1.71 | 1.56 | 33.5 | 115.0 | 1.49 | 52 | 180 | 67 | 24 | 8 |
| DF | | Totals | 76 | 87 | 77 | 166.979 | 129.64 | 226.89 | 14.1 | 53.8 | 91.31 | 3,204 | 12,208 | 4,109 | 1,442 | 549 |
| RA | | 13 | 1 | 91 | 81 | 2.093 | 1.93 | 4.19 | 13.1 | 50.0 | 1.50 | 55 | 209 | 68 | 25 | 9 |
| RA | | 14 | 1 | 90 | 71 | 1.805 | 1.93 | 1.80 | 25.4 | 90.0 | 1.26 | 46 | 162 | 57 | 21 | 7 |
| RA | | 15 | 1 | 90 | 65 | 1.572 | 1.93 | 1.57 | 26.7 | 70.0 | 1.16 | 42 | 110 | 52 | 19 | 5 |
| RA | | 16 | 2 | 91 | 81 | 2.763 | 3.86 | 5.53 | 20.9 | 80.0 | 3.17 | 115 | 442 | 143 | 52 | 20 |
| RA | | 17 | 1 | 92 | 75 | 1.224 | 1.93 | 2.45 | 20.0 | 80.0 | 1.35 | 49 | 196 | 61 | 22 | 9 |
| RA | | Totals | 6 | 91 | 76 | 9.457 | 11.58 | 15.54 | 19.8 | 72.1 | 8.44 | 307 | 1,120 | 380 | 138 | 50 |
| WH | | 12 | 1 | 90 | 80 | 1.474 | 1.16 | 2.95 | 12.2 | 55.0 | 1.15 | 36 | 162 | 52 | 16 | 7 |
| WH | | 14 | 1 | 90 | 74 | 1.083 | 1.16 | 1.08 | 23.8 | 70.0 | .82 | 26 | 76 | 37 | 12 | 3 |
| WH | | 16 | 1 | 91 | 89 | .829 | 1.16 | 1.66 | 24.0 | 95.0 | 1.28 | 40 | 158 | 57 | 18 | 7 |
| WH | | Totals | 3 | 90 | 80 | 3.386 | 3.47 | 5.69 | 17.8 | 69.5 | 3.25 | 101 | 395 | 146 | 46 | 18 |
| Totals | | | 85 | 87 | 77 | 179.822 | 144.69 | 248.11 | 14.6 | 55.3 | 103.00 | 3612 | 13,723 | 4,635 | 1,626 | 618 |

TC TLOGSTVB

# Log Stock Table - MBF

**Project:** BEAVER

**T03S R10W S25 T0100**

| Twp | Rge | Sec | Tract | Type | Acres | Plots | Sample Trees |
|---|---|---|---|---|---|---|---|
| 03S | 10W | 25 | AREA2 | 0100 | 45.00 | 24 | 89 |

**T03S R10W S25 T0100**

**Page** 1
**Date** 8/15/2019
**Time** 12:50:46PM

| 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+ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DF | | CO | 3 | 22 | 5 | | 5 | .9 | | | | 5 | | | | | | | | |
| DF | | CO | 3 | 24 | 3 | | 3 | .5 | | 3 | | | | | | | | | | |
| DF | | CO | 3 | 36 | 6 | | 6 | 1.1 | | | 6 | | | | | | | | | |
| DF | | CO | 3 | 40 | 356 | .6 | 354 | 64.5 | | | 138 | 132 | 77 | 7 | | | | | | |
| DF | | CO | 4 | 12 | 3 | | 3 | .5 | | 3 | | | | | | | | | | |
| DF | | CO | 4 | 13 | 1 | | 1 | .2 | | 1 | | | | | | | | | | |
| DF | | CO | 4 | 14 | 1 | | 1 | .3 | | 1 | | | | | | | | | | |
| DF | | CO | 4 | 15 | 5 | | 5 | .9 | | 5 | | | | | | | | | | |
| DF | | CO | 4 | 16 | 5 | | 5 | .9 | | 5 | | | | | | | | | | |
| DF | | CO | 4 | 18 | 4 | | 4 | .7 | | | | 4 | | | | | | | | |
| DF | | CO | 4 | 19 | 2 | | 2 | .4 | | 2 | | | | | | | | | | |
| DF | | CO | 4 | 20 | 1 | | 1 | .3 | | 1 | | | | | | | | | | |
| DF | | CO | 4 | 22 | 2 | | 2 | .4 | | 2 | | | | | | | | | | |
| DF | | CO | 4 | 23 | 8 | | 8 | 1.4 | | 3 | | 5 | | | | | | | | |
| DF | | CO | 4 | 24 | 11 | | 11 | 1.9 | | 11 | | | | | | | | | | |
| DF | | CO | 4 | 25 | 3 | | 3 | .6 | | 3 | | | | | | | | | | |
| DF | | CO | 4 | 26 | 8 | | 8 | 1.5 | | 8 | | | | | | | | | | |
| DF | | CO | 4 | 27 | 1 | | 1 | .3 | | 1 | | | | | | | | | | |
| DF | | CO | 4 | 28 | 3 | | 3 | .6 | | 3 | | | | | | | | | | |
| DF | | CO | 4 | 29 | 7 | | 7 | 1.3 | | 7 | | | | | | | | | | |
| DF | | CO | 4 | 30 | 1 | | 1 | .2 | | 1 | | | | | | | | | | |
| DF | | CO | 4 | 31 | 8 | | 8 | 1.5 | | 8 | | | | | | | | | | |
| DF | | CO | 4 | 32 | 14 | | 14 | 2.5 | | 14 | | | | | | | | | | |
| DF | | CO | 4 | 33 | 8 | | 8 | 1.4 | | 8 | | | | | | | | | | |
| DF | | CO | 4 | 34 | 12 | | 12 | 2.1 | | 12 | | | | | | | | | | |
| DF | | CO | 4 | 35 | 12 | | 12 | 2.2 | | 12 | | | | | | | | | | |
| DF | | CO | 4 | 36 | 7 | | 7 | 1.3 | | 7 | | | | | | | | | | |
| DF | | CO | 4 | 38 | 19 | | 19 | 3.4 | | 19 | | | | | | | | | | |
| DF | | CO | 4 | 39 | 4 | | 4 | .7 | | 4 | | | | | | | | | | |
| DF | | CO | 4 | 40 | 31 | | 31 | 5.7 | | 31 | | | | | | | | | | |
| DF | | Totals | | | 552 | | 549 | 89.0 | | 176 | 144 | 145 | 77 | 7 | | | | | | |
| RA | | H | 2 | 16 | 13 | 4.8 | 12 | 24.4 | | | | | | | 12 | | | | | |
| RA | | H | 3 | 12 | 6 | | 6 | 11.1 | | | | | | | 6 | | | | | |
| RA | | H | 3 | 16 | 7 | 28.6 | 5 | 9.3 | | | | | 5 | | | | | | | |
| RA | | H | 4 | 32 | 3 | | 3 | 5.5 | | | 3 | | | | | | | | | |
| RA | | H | 4 | 34 | 5 | | 5 | 9.3 | | | 5 | | | | | | | | | |
| RA | | H | 4 | 39 | 4 | | 4 | 7.4 | | | 4 | | | | | | | | | |
| RA | | H | 4 | 40 | 17 | | 17 | 33.0 | | | 9 | 7 | | | | | | | | |
| RA | | Totals | | | 53 | 4.7 | 50 | 8.2 | | | 20 | 7 | 5 | | 18 | | | | | |
| WH | | CO | 3 | 40 | 16 | 4.6 | 15 | 86.3 | | | 3 | 6 | 6 | | | | | | | |
| WH | | CO | 4 | 17 | 1 | | 1 | 7.5 | | 1 | | | | | | | | | | |
| WH | | CO | 4 | 26 | 1 | | 1 | 6.3 | | 1 | | | | | | | | | | |
| WH | | Totals | | | 19 | 4.0 | 18 | 2.9 | | 2 | 3 | 6 | 6 | | | | | | | |
| Total All Species | | | | | 623 | | 618 | 100.0 | | 178 | 168 | 159 | 88 | 7 | 18 | | | | | |

# Beaver Nation

| A1 | |
|---|---|
| ***Harv Type*** | ***Acres*** |
| Road | 4 |
| Inner Gorge/Riparian | 14 |
| MC Ground | 19 |
| MC Cable | 49 |
| GROSS | 86 |

| A2 | |
|---|---|
| ***Harv Type*** | ***Acres*** |
| Road | 0 |
| Inner Gorge/Riparian | 39 |
| MC Ground | 0 |
| MC Cable | 45 |
| GROSS | 84 |

| | |
|---|---|
| ***Total Net MC*** | ***113*** |
| ***Total Gross*** | ***170*** |

Beaver Nation

Area 1

| Harvest Acres | Green Trees Needed | TPA (Cruise) trees 11" + Conifer | TPA (Cruise) trees 11" + Hardwood | Acres in buffer beyond 100' from Type F | Acres in stream buffers | Acres in GTRA | Non-harvest Acres Other | Total Acres Non-harvest | Total trees Non-harvest conifer | Total trees Non-harvest hardwood | Total trees Non-harvest total | Disbursed Leave Trees and Existing Hard Snags Conifer | Disbursed Leave Trees and Existing Hard Snags Class 1 & 2 Snags | Total reserve (green) trees |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 68.0 | **340.0** | 143.148 | 16.978 | | 14.44 | 0 | 0 | 14.44 | 2067 | 123 | 2190 | | | **2190** |

Area 2

| Harvest Acres | Green Trees Needed | TPA (Cruise) trees 11" + Conifer | TPA (Cruise) trees 11" + Hardwood | Acres in buffer beyond 100' from Type F | Acres in stream buffers | Acres in GTRA | Non-harvest Acres Other | Total Acres Non-harvest | Total trees Non-harvest conifer | Total trees Non-harvest hardwood | Total trees Non-harvest total | Disbursed Leave Trees and Existing Hard Snags Conifer | Disbursed Leave Trees and Existing Hard Snags Class 1 & 2 Snags | Total reserve (green) trees |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45.0 | **225.0** | 140.261 | 9.457 | 9.26 | 4.52 | 0 | 2.23 | 16.01 | 2246 | 76 | 2321 | 6 | | **2327** |

**Beaver Nation**

| **Area** | **acres** | **green req** | **green have** | **extra** |
|---|---|---|---|---|
| 1 | 68.0 | 340.0 | 2190 | 1850 |
| 2 | 45.0 | 225.0 | 2327 | 2102 |
| **Total** | **113.0** | **565.0** | **4517** | **3952** |

40 GT/Ac. Average

"STEWARDSHIP IN FORESTRY"

# Beaver Nation

## Volume Summary

| Area 1-Harvest Type | | | | |
|---|---|---|---|---|
| | | 68 acres | | |
| | Cruised Net | Cruised Net | Hidden | Net Sale |
| SPECIES | MBF/ Acre | MBF | D&B | MBF |
| Douglas-fir | 4 | 297 | 0 | 294 |
| Hemlock | 19 | 1270 | 0 | 1258 |
| Spruce | | 0 | 0 | 0 |
| Noble Fir | | 0 | 0 | 0 |
| Alder | 1 | 52 | 0 | 51 |
| TOTAL | 23.8 | 1619.964 | | 1603.239 |

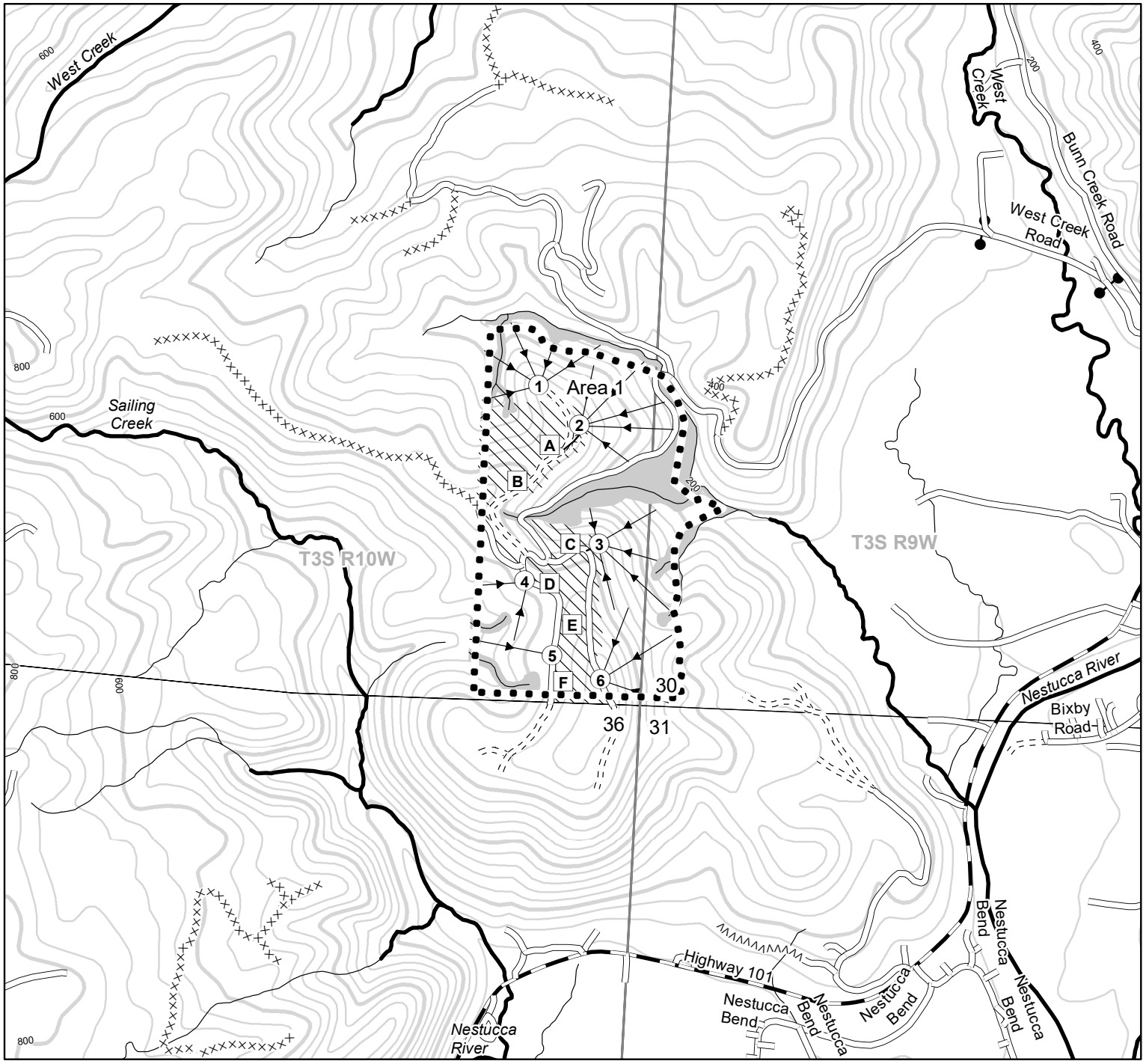
| Areas 2-Harvest Type | | | | |
|---|---|---|---|---|
| | | 45 acres | | |
| | Cruised Net | Cruised Net | Hidden | Net Sale |
| SPECIES | MBF/ Acre | MBF | D&B | MBF |
| Douglas-fir | 12 | 549 | 0 | 544 |
| Hemlock | 0 | 18 | 0 | 18 |
| Spruce | | 0 | 0 | 0 |
| Noble Fir | | 0 | 0 | 0 |
| Alder | 1 | 50 | 0 | 49 |
| TOTAL | 13.7 | 618 | | 611 |

"STEWARDSHIP IN FORESTRY"

# *Beaver Nation*

## Volume Summary

| TOTAL SALE VOLUME | 113 | acres |
|---|---|---|
| SPECIES | Cruised Net (MBF) | Net Sale (MBF) |
| Douglas-fir | 847 | 838 |
| Hemlock | 1288 | 1275 |
| Spruce | 0 | 0 |
| Noble Fir | 0 | 0 |
| Red Alder | 103 | 101 |
| **TOTAL** | 2237 | 2214 |




- Timber Sale Boundary
- Non-Project Road
- Unsurfaced Road
- Abandoned road
- Blocked road
- Type-F Stream
- Type-N Stream
- Cable Corridor
- Cable Landing
- Tractor Landing
- Sections
- Stream Buffer
- 200 Foot Contour Band
- 40 Foot Contour Band

# LOGGING PLAN

FOR TIMBER SALE CONTRACT # 341-2020-W00288-01
BEAVER NATION
PORTIONS OF SECTIONS 30, 32, 33 OF T3S R9W, 25 OF T3S,R10W,W.M.
TILLAMOOK COUNTY, OREGON

Tillamook District GIS
September, 2019
This product is for informational use and may not be suitable for legal, engineering, or surveying purposes.

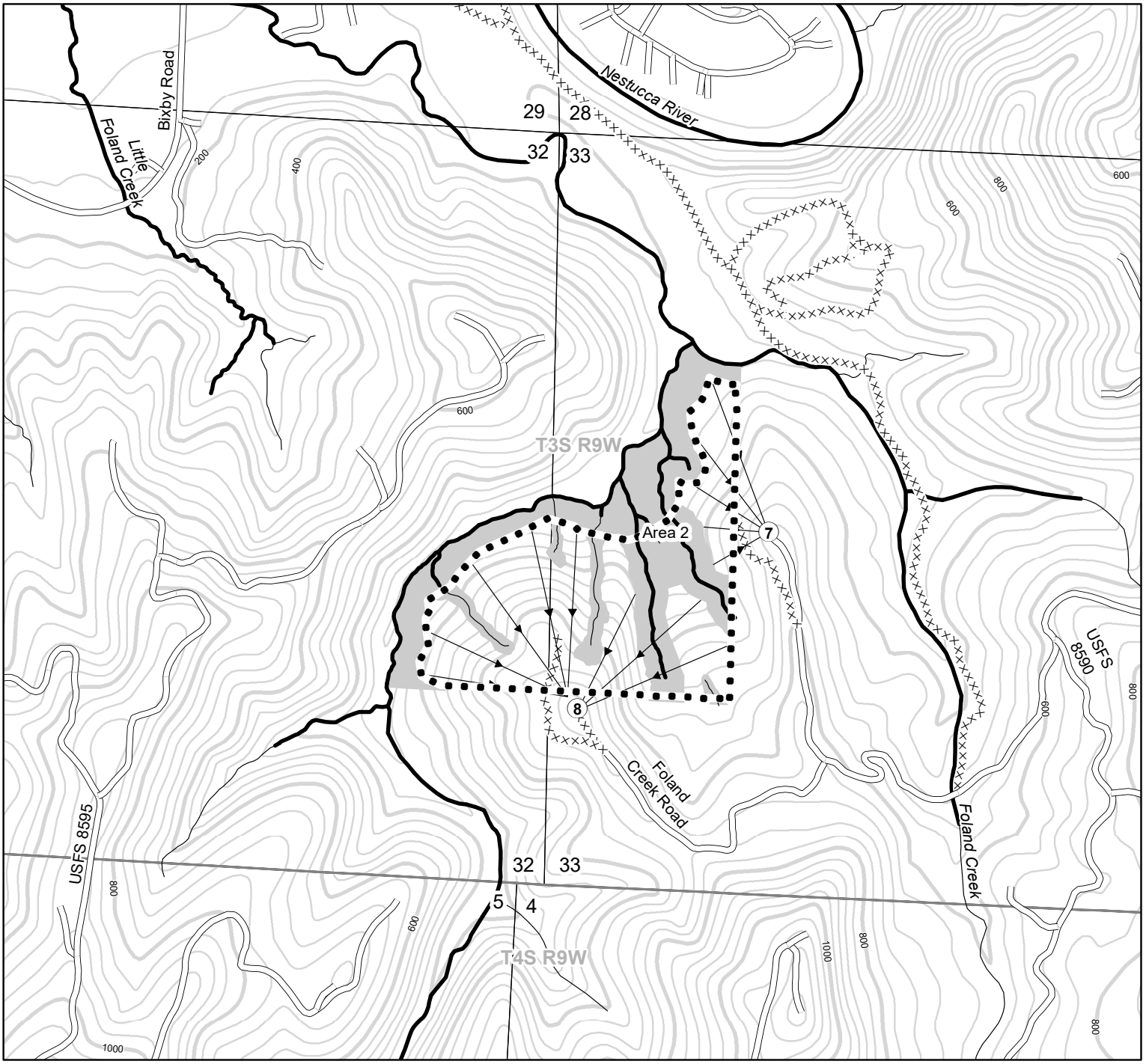
1:12,000
1 inch = 1,000 feet

0 250 500 1,000 1,500 2,000 Feet

N

NET ACRES

| | TRACTOR | CABLE |
|---|---|---|
| AREA 1 | 19 | 49 |
| AREA 2 | 0 | 45 |
| TOTAL | 19 | 94 |




# LOGGING PLAN

FOR TIMBER SALE CONTRACT # 341-2020-W00288-01
BEAVER NATION
PORTIONS OF SECTIONS 30, 32, 33 OF T3S R9W, 25 OF T3S,R10W,W.M.
TILLAMOOK COUNTY, OREGON

Tillamook District GIS
September, 2019
This product is for informational use and may not be suitable for legal, engineering, or surveying purposes.

1:12,000
1 inch = 1,000 feet

0 250 500 1,000 1,500 2,000 Feet

N

- Timber Sale Boundary
- Surfaced Road
- Unsurfaced Road
- Abandoned road
- Blocked road
- Type-F Stream
- Type-N Stream
- Cable Corridor
- Cable Landing
- Stream Buffer
- Sections
- 40 Foot Contour Band
- 200 Foot Contour Band

NET ACRES

| | TRACTOR | CABLE |
|---|---|---|
| AREA 1 | 19 | 49 |
| AREA 2 | 0 | 45 |
| TOTAL | 19 | 94 |