# PROSPECTUS

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Springfield Interagency Office, Northwest Oregon District
3106 Pierce Parkway, Suite E, Springfield, Oregon 97477
http://www.blm.gov

July 30, 2025

**Parcel No. 2**
**Contract No. ORN05-TS-2025.0565**
**Upper Willamette Field Office**

**Shotgun Formation**

TIMBER SALE NOTICE

**NOTICE IS HEREBY GIVEN** that the Bureau of Land Management will offer for sale timber as described herein for oral auction, pursuant to Instructions to Bidders, as stated on Form No. 5440-9, attached. Written and oral bids will be received by the District Manager, or their representative, at the **NORTHWEST OREGON DISTRICT'S SPRINGFIELD INTERAGENCY OFFICE, 3106 PIERCE PARKWAY, SPRINGFIELD, OREGON**. The timber sale will commence at 10:00 a.m. on Thursday, **August 28, 2025**.

**THIS TIMBER SALE NOTICE** does not constitute the decision document for purposes of appeal of a forest management decision. Consistent with 43 CFR Subpart 5003.2(b), the date the BLM posts the forest management decision on the BLM's ePlanning website establishes the effective date of the decision for purposes of an administrative appeal.

**A WRITTEN BID** on Form 5440-9 at not less than the appraised price on a unit basis per species and the required minimum bid deposit shall be required to participate in oral bidding for each tract.

**THE SUCCESSFUL BIDDER**, as a condition of award, will be required to complete and/or sign the following forms:

1. Form 5430-11, a certification that the bid was arrived at by the bidder or offerer independently, and was tendered without collusion with any other bidder or offerer.
2. Form 5450-17, Export Determination.

**PRE-AWARD QUALIFICATIONS**. The high bidder may be required to furnish information to determine the ability to perform the obligations of the contract. If the high bidder is determined not qualified, not responsible or refuses to respond within 15 days of a request for information pertaining to qualifications, the contract may be offered and awarded for the amount of the high bid to the highest of the bidders who is qualified, responsible, and willing to accept the contract.

**A PERFORMANCE BOND** in an amount not less than 20 percent of the total purchase price will be required for all contracts of $2,500 or more, but the amount of the bond shall not be in excess of $500,000, except when the Purchaser opts to increase the minimum bond as provided in 43 CFR 5451.2. A minimum performance bond of not less than $500 will be required for all installment contracts less than $2,500.

**INSTALLMENT PAYMENTS** may be authorized for sales of $500 or more. Required installments will be determined by BLM. For sales under $500,000, installments will not be less than 10% of the total purchase price. For sales of $500,000 or more, installment payments shall be $50,000.

**LOG EXPORT AND SUBSTITUTION**. All timber sales, including timber from Federal rights-of-ways, shall be subject to the restrictions relating to the export and substitution of unprocessed timber from the United States in accordance with P.L. 94-165 and 43 CFR 5400 and 5424, as amended.

**LOG EXPORT AND SUBSTITUTION RESTRICTIONS**. Excepting Port-Orford-cedar, all timber offered for sale hereunder is restricted from export from the United States in the form of unprocessed timber and is prohibited from being used as a substitute for exported private timber.

**SPECIAL PROVISIONS.** A revised Special Provision has been added to the contract which enables the Contracting Officer to suspend the contract to facilitate protection of certain plant or animal species, and/or to modify or terminate the contract when necessary to: (1) Comply with the Endangered Species Act or to prevent incidental take of northern spotted owls in accordance with management direction in the Record of Decision (ROD) and Resource Management Plan (RMP), or; (2) Comply with a stay or remedy issued by the Interior Board of Land Appeals or a court order, or; (3) Protect species which were identified for protection in accordance with management direction established in the ROD and RMP.

**ADDITIONAL INFORMATION** concerning each timber sale tract described herein is available at the Springfield Interagency Office. A copy of the timber sale contract is also available for inspection at the Springfield Interagency Office. This prospectus includes maps and tables that cannot be made Section 508 compliant. For help with its data or information, please contact the Northwest Oregon District's Springfield Interagency Office at (541) 683-6776.

**THE VOLUMES LISTED** herein are estimates only, based on 16-foot taper breaks, which must be taken into consideration if comparisons are made with volume predictions based on other standards. The volumes based on 32-foot taper breaks are shown for comparison purposes. No sale shall be made for less than the total purchase price, without regard to the amount bid per unit, even though quantity of timber actually cut or removed or designated for taking is more or less than the estimated volume or quantity so listed.

**AN ENVIRONMENTAL ASSESSMENT** was prepared for this sale, and a Finding of No Significant Impact has been documented. These documents are available for inspection as background for this sale at the Northwest Oregon District's Springfield Interagency Office.

**ACCESS** to a sale may be through a locked gate (see individual sale information). Prospective bidders may obtain a key from the Northwest Oregon District's Springfield Interagency Office. Any other persons interested in visiting the timber sale site should first contact Brian Bickford of our office at (541) 683-6164.

Attachments:
- Form 5440-9
- Form 5430-11
- Form 5450-17
- Form 5450-22

NORTHWEST OREGON DISTRICT
UPPER WILLAMETTE FIELD OFFICE

**TIMBER SALE NOTICE**
**LUMP SUM**
**EUGENE MASTER UNIT**

PARCEL NO.: 2
SALE DATE: August 28, 2025

Contract No.: ORN05-TS-2025.0565, Shotgun Formation
Linn County, Oregon: O&C: Oral Auction

Bid Deposit Required: $151,100.00

All timber designated for cutting on S1/2NE1/4, SW1/4, N1/2SE1/4, SE1/4SE1/4, Section 11, NW1/4, N1/2SW1/4, Section 13, T. 15 S., R 2 W., Will. Mer.

| Estimated Volume 32' Log (MBF) | Species | Estimated Volume 16' Log (MBF) | Appraised Price Per MBF | Estimated Volume Times Approx. Price |
|---|---|---|---|---|
| 4,138 | Douglas-fir | 4,900 | $293.90 | $1,440,100.00 |
| 447 | Western hemlock | 553 | $88.30 | $48,829.90 |
| 48 | Western redcedar | 62 | $343.10 | $21,272.20 |
| 1 | Bigleaf maple | 2 | $16.30* | $32.60 |
| 4,634 | Totals | 5,517 | | $1,510,244.70 |

*=10% of Pond Value

APPRAISED PRICES are calculated by determining market value through the analytical appraisal method. The minimum bid increment will be $0.10 per MBF or multiples thereof.

LOG EXPORT RESTRICTIONS: All timber offered for sale hereunder is restricted from export from the United States in the form of unprocessed timber and is prohibited from being used as a substitute for exported private timber.

NOTE: The volume for this timber sale has been calculated using 16 foot eastside Scribner rules, and the 32 foot log volumes are estimates derived from the 16 foot volumes.

CRUISE INFORMATION: The timber volumes for Douglas-fir, western hemlock, and western redcedar in the Regeneration Harvest Areas were based on a variable plot cruise for estimating board foot volume. Plots were measured using a 40 basal area factor for a total of 195 plots. The timber volumes for Douglas-fir, western hemlock, and western redcedar in the Partial Harvest Areas were also based on a variable plot cruise for estimating board foot volume. Plots were measured using a 25.15 basal area factor for a total of 64 plots. Bigleaf maple in all Regeneration Harvest Areas were based on a 100% cruise for estimating board foot volume. The timber volumes for Douglas-fir in the rights-of-way were based on a 3P cruise for estimating board foot volume. Western hemlock in the rights-of-way were based on a 100% cruise for estimating board foot volume. A map showing the location of the plots and sample trees is available at the Springfield Interagency Office.

With respect to merchantable Douglas-fir; the average tree is 15.9" DBHOB; the average log contains 64 bd. ft.; the total gross merchantable volume is approximately 5,162 MBF; and 95% recovery is expected.

CUTTING AREA: Approximately 138 acres shall be regeneration harvested, 52 acres partially harvested, and approximately 2.9 acres of right-of-way shall be cleared.

ACCESS: Access to the sale is provided by:

1. A public road;
2. BLM existing roads;
3. BLM roads to be constructed;
4. Roads covered by Right-of-Way and Road Use Agreement E-573 between Weyerhaeuser Timber Holdings Inc., and the United States. In the renovation, use, and maintenance of private roads, and in the use of tailholds and guybacks, the Purchaser shall enter into a license agreement with Weyerhaeuser Timber Holdings Inc. The license agreement shall be delivered to Weyerhaeuser Timber Holdings Inc. for execution at least 15 days prior to any use of company roads. See the Prospectus for full terms and conditions of use.

ROAD MAINTENANCE: The Purchaser shall pay to the BLM a maintenance fee of $21,868.53 and a rockwear fee of $14,561.25. The Purchaser shall pay a use fee of $2,718.00 and a rockwear fee of $471.98 to Weyerhaeuser Timber Holdings Inc. See the Exhibit D map for specifications of road maintenance responsibility. Only the map page of the Exhibit D is included in the Prospectus. Refer to the contract file for the full Exhibit D.

**In addition to the quantities shown below, 600 cubic yards (truck measure) of maintenance rock (400 cubic yards of 1 ½" minus and 200 cubic yards of 3" minus) is required. Additional road reinforcement (rocking) may be**

**required for wet weather haul and will be at the Purchaser's expense.**

ROAD CONSTRUCTION: Spurs 11A, 13A and 13B
Length: 7+90 Stations / 22+82 Stations
Class: SN-14 / SN-16
Special Requirements: Operations limited to periods of dry weather.

ROAD RENOVATION: Spurs. 11B, 11C. 14B, 14C and Road Nos. 15-1-19, 15-2-3.1, -10.1, -11, -11.2, -11.4, -13, -15.2, and 16-1-5 Length: 153.23 Stations / 781.95 Stations
Class: SN-14 / SN-16
Special Requirements: Operations limited to periods of dry weather. Installation of stream crossing culvert will be limited to the ODFW in-stream work window, June 1 – October 31.

**Rock Source:** Blagen Quarry (T. 15 S., R. 2 W., Section 3), Asphalt (Commercial)

| 3/4" Minus | 1-1/2" Minus | 3" Minus | 6" Minus | Jaw Run | Asphalt |
|---|---|---|---|---|---|
| 1192 | 2,083 | 3,547 | 2649 | 171 | 18 |

Culverts:

| Diameter: | Length: | Number: |
|---|---|---|
| 18" | 1150' | 27 |
| 24" | 300' | 7 |
| 36" | 50' | 1 |

**Total Estimated Exhibit C Road Costs (construction, and renovation): $469,069.84**

ROAD DECOMMISSIONING:
Spurs 11A, 11B, 11C, 13A, 13B, 14B, 14C, Designated Equipment Trail and Truck Turnaround at MP .01 on Road No 15-2-11.2, Road Nos. 15-2-11 and 15-2-11.4
Barriers: 9
Estimated Cost of Decommissioning: $6,669.93
Special Requirements: Operations limited to periods of dry weather.

DURATION OF CONTRACT: Duration of the contract will be 36 months for cutting and removal of timber.

SPECIAL PROVISIONS: The contract will contain special provisions regarding road construction, road renovation, road maintenance, road decommissioning, designated equipment trail construction, use and decommissioning, logging methods, prevention of erosion, logging residue reduction, snag creation, and submission of a written logging plan specifying landing locations and logging schedule.

Under Sec. 26 of the timber sale contract, ground-based logging and mechanical felling will be prohibited during periods of excessive soil moisture. This will normally limit ground-based logging and mechanized felling from June 1 to October 15.

OTHER SPECIAL REQUIREMENTS:

1. The Purchaser shall be required to clean logging, road, decommissioning, and slash piling equipment prior to entry on BLM lands.
2. Haul on all natural surface roads shall be limited to the dry season (typically June 1-Oct. 31).
3. The Purchaser shall be required to cut and process non-merchantable trees in the Regeneration Harvest Areas.
4. The Purchaser shall be required to cut and leave all white painted trees in the Right-of-Way (Clearing) of Spur 11A and the Designated Equipment Trail
5. No felling, yarding, or loading is permitted in or through the Reserve Area shown on Exhibit A, except in the Special Operating Area, Special Yarding Area and Designated Equipment Trail.
6. The Purchaser shall provide warning signs and flaggers in accordance with Section 29 of this contract to control traffic in the contract area during active operations. Roads shall not be blocked by such operations for more than 20 minutes. Extended closures of Road No. 16-1-5 shall be limited to weekdays, May 1 – September 30.
7. Tracked logging equipment ingress and egress on the Designated Equipment Trail to the harvest unit shall be limited to the minimum number of occurrences as to remain operationally feasible. Pavement protection will be

required when loading and unloading equipment at this location. The Purchaser shall request written approval from the Authorized Officer 14 days in advance for approval of any closures beyond 20 minutes.

8. Long reaches, intermediate supports, and lift trees will be needed during cable operations.
9. Upon completion of yarding, the Purchaser shall create one hundred and ninety-two (192) snags by topping and girdling.
10. The Purchaser shall perform logging residue reduction and site preparation work, to include machine piling, piling at landings and along roadsides, covering, lop and scatter, and pile burning.
11. In all Partial Harvest Areas, felled trees shall be bucked into log lengths not to exceed forty-one (41) feet before yarding.
12. In the Regeneration Harvest Areas whole tree yarding or yarding with tops attached will be required
13. No harvest activites shall be conducted in the Partial Harvest Areas during sap flow from April 1 to June 15 of each year, unless otherwise approved by the Authorized Officer.
14. Black 6 Mil plastic shall be required for all pile covering.
15. The Purchaser shall be required to file a Notification of Operations with the Oregon Department of Forestry for all harvest operations, snag creation, road construction, renovation, and improvement on BLM and private lands.
16. Ashalt repair over culvert installations and replacements shall be completed during the same season as the install or replacement.
17. Purchaser shall submit a Haul Authorization request for all loads over 80,000 lbs. for bridges on Road Nos. 16-1-5 (Shotgun Creek Road) and 15-1-19 (Crooked Creek Road).
18. Prior to construction and renovaton, Puchaser shall locate all underground utilities.

NARRATIVE DESCRIPTION OF HOW TO GET TO SALE AREA:

This sale is accessed through BLM land and locked gates over private land. Prospective bidders may obtain a key from the Springfield Interagency Office and proceed to the sale area. Any other persons interested in visiting the timber sale should first contact Brian Bickford at 541-683-6164.

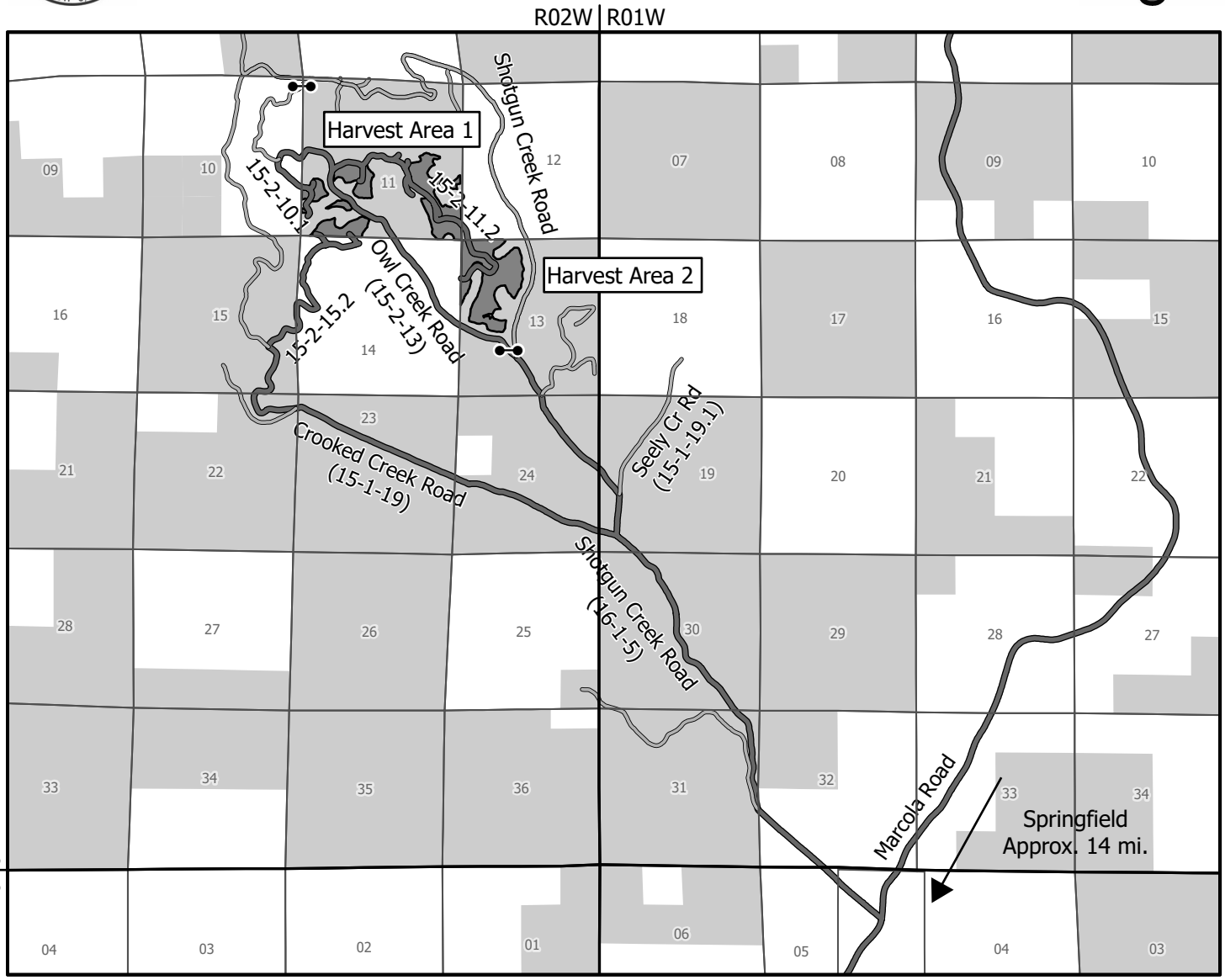
To Harvest Area No. 1: From Springfield, proceed on Marcola Road for approximately 13 miles to the junction of Shotgun Creek Road. Proceed on Shotgun Creek Road (Road No. 16-1-5) for approximately 5.1 miles to the junction of Owl Creek Road (Road No. 15-2-13). Proceed on Owl Creek Road for approximately 1.8 miles to Harvest Area 1.

To Harvest Area No. 2: From the junction of Shotgun Creek Road and 15-2-11.2 turn right on to 15-2-11.2. Proceed on 15-2-11.2 for approximately 1 mile to Harvest Area 2.

To SW corner of Harvest Area No.1: From the junction of Shotgun Creek Road and Crooked Creek Road (Road No. 15-1-19), proceed West on Crooked Creek Road for approximately 3 miles to the junction of Road No. 15-2-15.2. Proceed on Road No.15-2-15.2 for 1.3 miles to Harvest Area 1 SW corner.

**UNITED STATES**
**DEPARTMENT OF THE INTERIOR**
**Bureau of Land Management**

Shotgun Formation Timber Sale Contract No. ORN05-TS-2025.0565
T. 15 S., R. 02 W., Sec. 11,13 Will. Mer., Northwest Oregon District

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**To Harvest Area No. 2:** From the junction of Owl Creek Road and 15-2-11.2 turn right on to 15-2-11.2. Proceed on 15-2-11.2 for approximately 1 mile to Harvest Area 2.

**To SW corner of Harvest Area No. 1:** From the junction of Shotgun Creek Road (Road No. 16-1-5) and Crooked Creek Road (Road No. 15-1-19), proceed West on Crooked Creek Road for approximately 3 miles to the junction of Road No. 15-2-15.2 Proceed on Road No. 15-2-15.2 for 1.3 miles to Harvest Area 1 SW corner.

BLM Administered Lands
Harvest Area
Township Lines
Section Lines
Travel Route
Exisiting Road
Gates

N
0 1 2 Miles

United States Department of the Interior
Bureau of Land Management
Oregon State Office
P.O. Box 2965
Portland, Oregon 97208-2965

# Seasonal Restriction Matrix

**Restricted Times**

| **Restricted Activity:** | Jan | | Feb | | Mar | | Apr | | May | | June | | July | | Aug | | Sept | | Oct | | Nov | | Dec | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 15 | 1 | 15 | 1 | 15 | 1 | 15 | 1 | 15 | 1 | 15 | 1 | 15 | 1 | 15 | 1 | 15 | 1 | 15 | 1 | 15 | 1 | 15 |
| **Road Construction, Road Renovation, Dry Season Haul, and Road Decommisioning** | | | | | | | | | | | | | | | | | | | | | | | | |
| • October 31st - June 1st, both days inclusive. | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | | | | | | | | | | | ⊠ | ⊠ | ⊠ | ⊠ |
| • May vary due to weather conditions; soil moisture still overrrides weather conditions. | | | | | | | | | | | | | | | | | | | | | | | | |
| **Mechanized felling and Ground based yarding** | | | | | | | | | | | | | | | | | | | | | | | | |
| • October 31st - June 1st, both days inclusive. | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | | | | | | | | | | | ⊠ | ⊠ | ⊠ | ⊠ |
| • May vary due to weather conditions; soil moisture still overrrides weather conditions. | | | | | | | | | | | | | | | | | | | | | | | | |
| **Stream Culvert Replacement, Installation, and Removal (instream work period)** | | | | | | | | | | | | | | | | | | | | | | | | |
| • November 1st to May 31st, both days inclusive. | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | ⊠ | | | | | | | | | | | ⊠ | ⊠ | ⊠ | ⊠ |

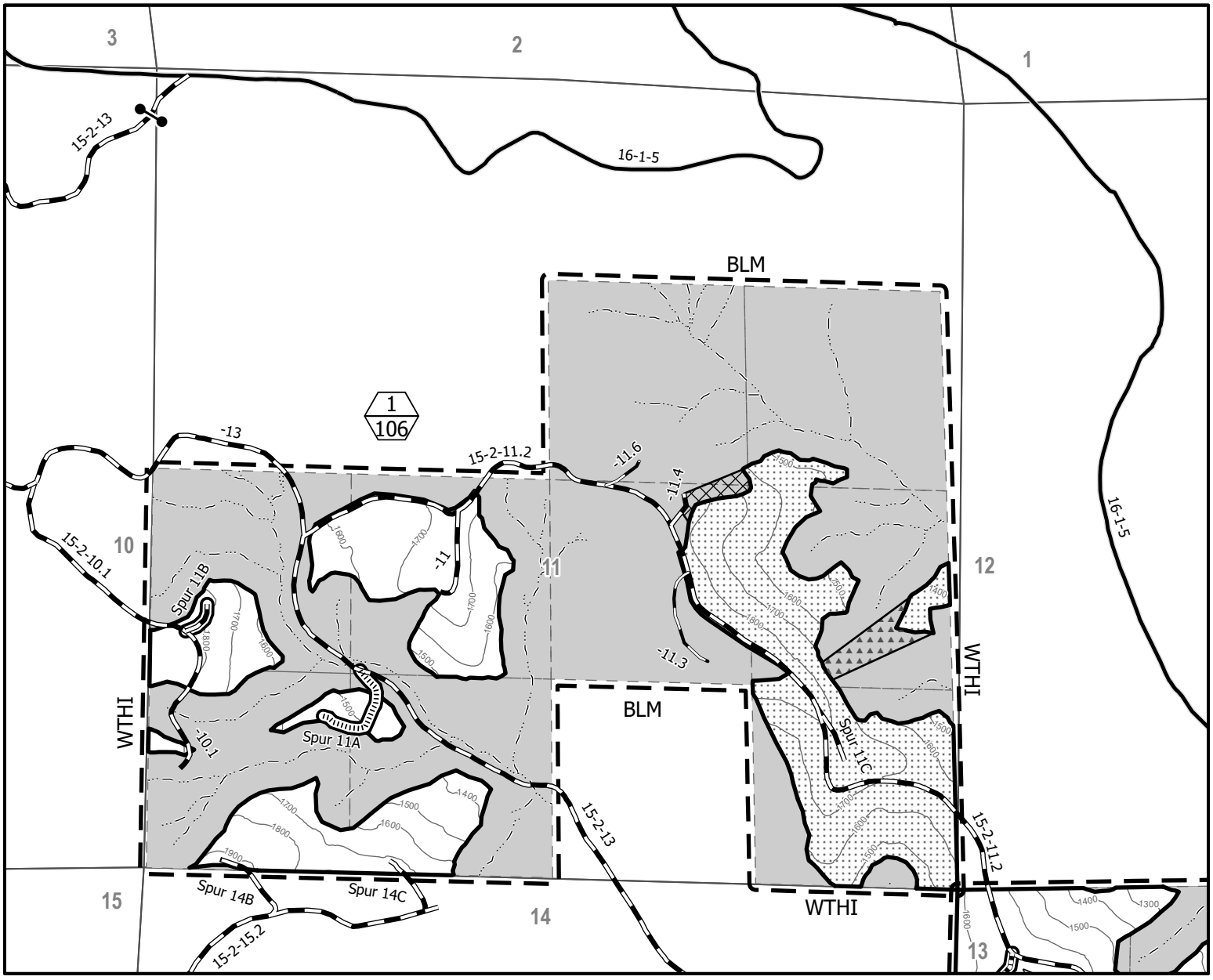
NOTE: This chart is for informational purposes only. Refer to Section 44 Special Provisions of the timbersale contract for exact date restrictions and specifications.
Subject to transient winter snow, elevations ranges from 1000-1600 feet.

**UNITED STATES**
**DEPARTMENT OF THE INTERIOR**
**Bureau of Land Management**

Shotgun Formation Timber Sale Contract No. ORN05-TS-2025.0565
T. 15 S., R. 02 W., Sec. 11 Will. Mer., Northwest Oregon District

**EXHIBIT A**






- Contract Area
- Boundary of Cutting Area - Posted/Painted
- Reserve Area
- Subdivisions
- Partial Harvest
- Regeneration Harvest
- Special Operating Area
- Special Yarding Area
- Unit Number (Top) Unit Acres (Bottom)
- Right-of-Way (Clearing)
- New Construction - Rocked Surface
- New Construction - Natural Surface
- Exisiting Rocked Road
- Existing Paved Road
- Renovation/Improvement
- Streams
- Gates

N

0 1,000 2,000 Feet

| Totals for Sale | |
|---|---|
| Regeneration Harvest Area | 138.0 |
| Partial Harvest Area | 52.0 |
| Right-of-Way (Clearing) | 2.9 |
| Reserve Area | 407.1 |
| Contract Area | 600 |

| Totals for Section 11 | |
|---|---|
| Regeneration Harvest Area | 54 |
| Partial Harvest Area | 52 |
| Right-of-Way (Clearing) | 1 |
| Reserve Area | 253 |
| Contract Area | 360 |



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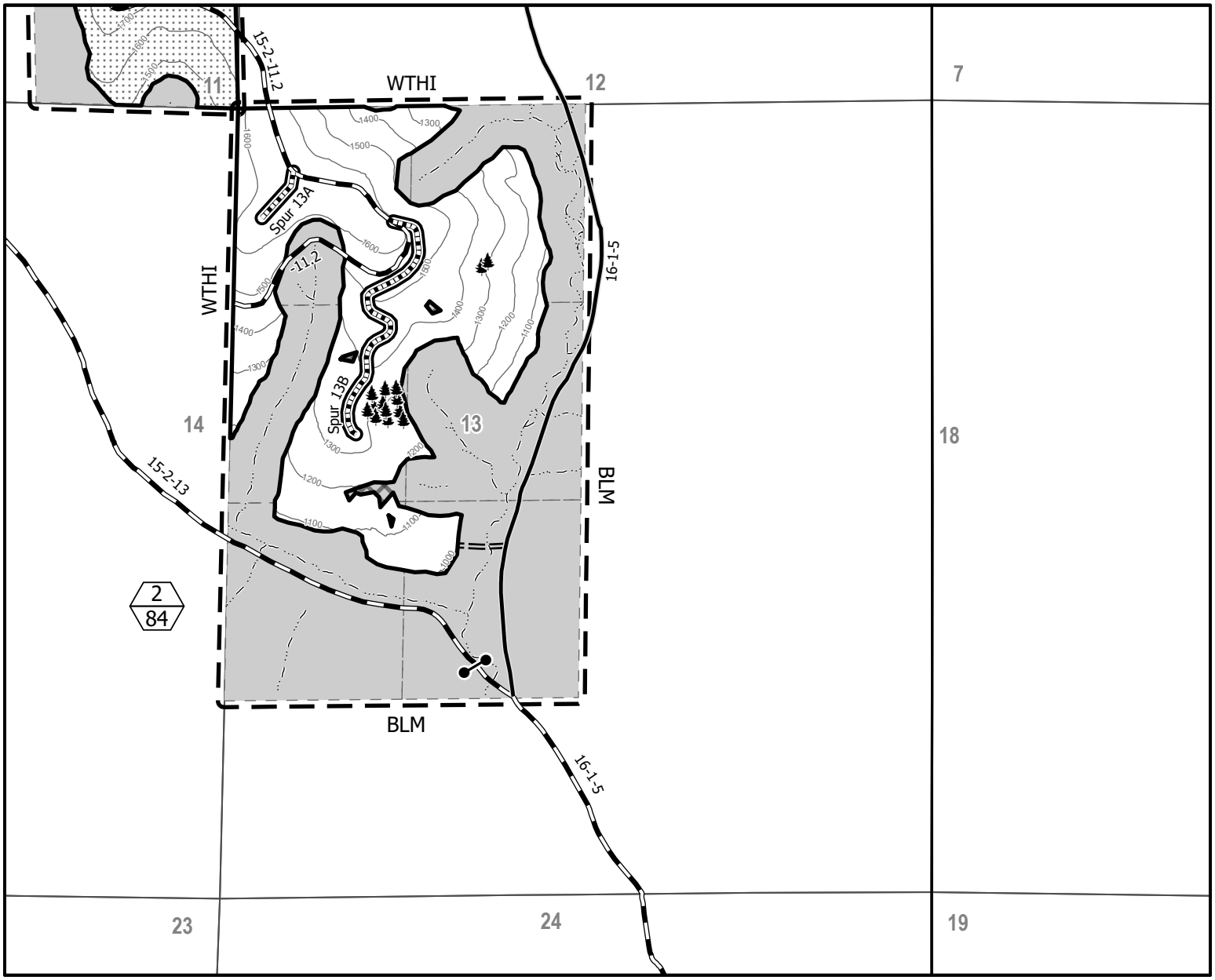
Shotgun Formation Timber Sale Contract No. ORN05-TS-2025.0565
T. 15 S., R. 02 W., Sec. 13 Will. Mer., Northwest Oregon District

**EXHIBIT A**

Sheet 2 of 2




- Contract Area
- Boundary of Cutting Area - Posted/Painted
- Reserve Area
- Subdivisions
- Partial Harvest
- Regeneration Harvest
- Equipment and Operations Exclusion Area
- Unit Number (Top) Unit Acres (Bottom)
- Right-of-Way (Clearing)
- New Construction - Rocked Surface
- Existing Paved Road
- Renovation/Improvement
- Designated Equipment Trail
- Streams
- Gates
- Approximate Location of Pink Painted Trees

N

0 1,000 2,000 Feet

| Totals for Section 13 | |
|---|---|
| Regeneration Harvest Area | 84.0 |
| Right-of-Way (Clearing) | 1.9 |
| Reserve Area | 154.1 |
| Contract Area | 240 |

United States Department of the Interior
Bureau of Land Management
Oregon State Office
P.O. Box 2965
Portland, Oregon 97208-2965

Form 5450-003a
(February 1986)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

**EXHIBIT B / PRE-SALE**

5450-003

Contract No.
ORN05-TS-2025.0565
Shotgun Formation

The following estimates and calculations of value of timber sold are made solely as an administrative aid for determining: (1) adjustments made or credits given in accordance with Secs. 6, 9, or 11; (2) when payments are due; and (3) value of timber subject to any special bonding provisions. The value of timber will be determined by multiplying the value per acre as shown below, times the amount of acreage as determined by the Authorized Officer, which has been cut or removed or designated for taking. Except as provided in Sec. 2, Purchaser shall be liable for total purchase price even though quantity of timber actually cut or removed or designated for taking is less than the estimated volume or quantity shown. Cutting areas are shown on **Exhibit A.**

| SPECIES | ESTIMATED VOLUME OR QUANTITY *(Units Specified)* | PRICE PER UNIT | ESTIMATED VOLUME OR QUANTITY X UNIT PRICE |
|---|---|---|---|
| Douglas Fir | 4,900.0 MBF | | |
| Western Hemlock | 553.0 MBF | | |
| Western Redcedar | 62.0 MBF | | |
| Bigleaf Maple | 2.0 MBF | | |
| TOTALS | 5,517.0 MBF | | |

The apportionment of the total purchase price is as follows:

Unit PH1 - Partial Harvest Unit 1

| | | |
|---|---|---|
| Western Redcedar | 9.0 MBF | |
| Western Hemlock | 122.0 MBF | |
| Douglas Fir | 1,070.0 MBF | |
| Total | 1201.0 MBF | ÷ 52.0 acres = 23.1 MBF/Acre |

Unit RH1 - Regen Harvest Unit 1

| | | |
|---|---|---|
| Western Redcedar | 21.0 MBF | |
| Western Hemlock | 168.0 MBF | |
| Douglas Fir | 1,463.0 MBF | |
| Bigleaf Maple | 1.0 MBF | |
| Total | 1653.0 MBF | ÷ 54.0 acres =30.6 MBF/Acre |

Unit RH2 - Regen Harvest Unit 2

| | | |
|---|---|---|
| Western Redcedar | 32.0 MBF | |
| Western Hemlock | 261.0 MBF | |
| Douglas Fir | 2,275.0 MBF | |
| Bigleaf Maple | 1.0 MBF | |
| Total | 2569.0 MBF | ÷ 84.0 acres = 13.0 MBF/Acre |

Unit ROW1 - Right-of-Way Unit 1

| | | |
|---|---|---|
| Douglas Fir | 13.0 MBF | |
| Total | 13.0 MBF | ÷ 1.0 acres =13.0 MBF/Acre |

Unit ROW2 - Right-of-Way Unit 2

| | | |
|---|---|---|
| Western Hemlock | 2.0 MBF | |
| Douglas Fir | 79.0 MBF | |
| Total | 81.0 MBF | ÷ 1.9 acres = 42.6 MBF/Acre |

SEC. 43 - Timber Reserved From Cutting and/or Removal

(a) All timber on the Reserve Areas shown on Exhibit A, which is attached hereto and made a part hereof, and all yellow painted and posted trees which are on or mark the boundaries of the Reserve Areas. Exhibit A contains 2 sheets.

(b) All trees marked with yellow paint above and below stump height in the Regeneration Harvest Areas and Partial Harvest Areas shown on Exhibit A.

(c) All trees marked with pink paint above and below stump height in the Approximate Location of Pink Painted Trees shown on Exhibit A. Pink painted trees felled for safety or operational reasons shall remain on site. Where necessary for safety or operational reasons, pink painted trees may be bucked into shorter lengths and/or moved within the unit as close to where felled as safely possible.

(d) All trees marked with white paint above and below stump height in the Right-of-Way (Clearing) of Spur 11 A and the Designated Equipment Trail where it passes through the Reserve Area as shown on Exhibit A. White painted trees shall be felled and left on site in the Reserve Areas. Where necessary for safety or operational reasons, white painted trees may be bucked into shorter lengths and/or moved within the Reserve Area adjacent to the Right-of-Way (Clearing) to facilitate the use and maintenance of roads.

(e) All existing decay class 1-2 down wood and snags greater than 20 inches in diameter at the large end and greater than 20 feet in length in the Harvest Areas, Special Yarding Area on Exhibit A Decay classes are illustrated on Exhibit I and Exhibit L, which are attached hereto and made a part hereof. Where necessary for safety or operational reasons, such down woody material and snags may be felled and/or bucked into shorter lengths and/or moved within the unit.

(f) All existing decay class 3-5 down wood and snags in the Harvest Areas, Special Yarding Area shown on Exhibit A Decay classes are illustrated on Exhibit I and Exhibit L. Where necessary for safety or operational reasons, such down woody material and snags may be felled and/or bucked into shorter lengths and/or moved within the unit

(g) In the Harvest Areas, Special Yarding Area and Special Operating Area shown on Exhibit A, all oaks and pines which do not present a safety hazard, or where felling is not needed for operational activities, as determined by the Authorized Officer. All oaks and pines that are felled for safety and operational reasons shall remain on site. Where necessary for safety or operational reasons, oaks and pines may be bucked into shorter lengths and/or moved within the unit as close to where felled as safely possible.

(h) In the Partial Harvest Areas shown on Exhibit A, all Pacific yew and hardwood trees which do not present a safety hazard, or where removal is not needed for operational activities, as determined by the Authorized Officer. All Pacific yew and hardwood trees that are felled for safety and operational reason shall remain on site. Where necessary for safety or operational reasons, Pacific yew and hardwood trees may be bucked into shorter lengths and/or moved within the unit as close to where felled as safely possible.

SEC. 44 - Special Provisions

(a) <u>Logging</u>

(1) Before beginning operations on the contract area for the first time or after a shutdown of 14 or more days, the Purchaser shall notify the Authorized Officer in writing of the date they plan to begin operations. This written notification must be received by the Authorized Officer no less than 14 days prior to the date the Purchaser shall also notify the Auhorized Officer in writing if they intend to cease operations for any period of 10 or more days.

(2) Prior to the commencement of operations, the Purchaser shall obtain from the Authorized Officer written approval of a written operations and logging plan commensurate with the terms and conditions of the contract which shall include measures needed to assure protection of the environment and watershed. A pre-work conference between the Purchaser's authorized representative and the Authorized Officer's representative must be held at a location designated by the Authorized Officer before the logging plan will be approved. All logging shall be done in accordance with the plan.

(3) No felling, yarding, or loading is permitted in or through the Reserve Area shown on Exhibit A, except:

(aa) When yarding through the Special Operating Area shown on Exhibit A. Full suspension of logs over streams is required. Full-suspension within 50 feet of definable stream channels is required on steep slopes (generally greater than 60 percent). Only the minimum amount of trees that are needed for safety and operational activities may be cut. Trees felled for corridors within the Special Operating Area shall be felled towards streams as safely as possible and remain on site, unless otherwise approved by the Authorized Officer. Where necessary for safety or operational reasons, corridor trees may be felled and bucked into shorter lengths and/or moved within the Reserve Area.

(bb) When felling or yarding through the Special Yarding Area shown on Exhibit A, corridor trees shall be felled and removed in accordance with Section 44(a)(19).

(cc) The Designated Equipment Trail as shown on Exhibit A, shall be constructed during the dry season and approved by the authorized officer. Construction, use and decommissioning shall be completed in the same dry season. Designated Equipment Trail shall be constructed from logs and slash such that tracked machinery remains elevated above the soil surface 50 feet from the instream wetted channel. The instream portion of Designated Equipment Trail shall be constructed of a poled ford with logs spaced 1-3 feet. Logs shall be placed parallel to stream flow and spaced such that stream flow is not restricted. Tracked equipment shall remain elevated above the water surface at all times. Purchaser must repair all damage to the asphalt inured during the unloading and loading of equipment

(4) In the Regeneration Harvest Areas shown on Exhibit A, all trees designated for cutting shall be felled to the lead, whole tree yarded, or yarded with tops attached, unless otherwise approved by the Authorized Officer. Trees shall be directionally felled away from Equipment and Operations Exclusion Areas, Reserve Areas, pink painted trees, and yellow painted trees, except when necessary for safety reasons.

(5) In the Regeneration Harvest Areas Shown on Exhibit A, all hardwoods except when reserved in Section 43(g) and more than six (6) inches in diameter shall be felled concurrently with all other trees designated for cutting. All tops and branches must be free of the central stem to the extent that it is within a maximum of twenty (20) inches of the ground at all points.

(6) In the Regeneration Harvest Areas shown on Exhibit A, at all landings, all non-merchantable togs (including hardwoods) more than 8 inches in diameter at the large end and exceeding 8 feet in length shall be decked at a location designated by the Authorized Officer.

(7) In the Partial Harvest Areas shown on Exhibit A, no harvest activities shall be conducted from April 1 to June 15 of each year, both days inclusive, for sap flow, unless otherwise requested and approved in writing by the Authorized Officer.

(8) Mechanized felling and ground based and ground based yarding shall be limited to the dry season (June 1- October 15) or as approved by the Authorized Officer.

(9) Haul on all natural surface roads shall be limited to the dry season (June 1-October 31) or as approved by the Authorized Officer.

(10) Designated Equipment Trail construction, use and decommissioning shall be limited to the dry season (June 1 - October 31) or as approved by the Authorized Officer.

(11) In the Partial Harvest Areas shown on Exhibit A, all trees designated for cutting shall be felled to the lead and bucked into log lengths not to exceed 41 feet before being yarded unless otherwise approved by the Authorized Officer. Trees shall be directionally felled away from Reserve Areas, except when necessary for safety or operational reasons.

(12) Prior to attaching any logging equipment to a reserve tree, the Purchaser shall obtain approval from the Authorized Officer and shall take precautions to protect the tree from damage as directed in writing by the Authorized Officer.

(13) The Purchaser shall provide warning signs and flaggers in accordance with Section 29 of this contract to control traffic in the contract area during active operations. Roads shall not be blocked by such operations for more than 20 minutes. Extended closures of Road No. 16-1-5 shall be limited to weekdays, May 1 - September 30. The Purchasher shall request written approval from the Authorized Officer 14 days in advance for approval of any closure beyond 20 minutes.

(14) In the Harvest Areas shown on Exhibit A, felling and yarding may be done with ground based equipment on slopes of 35% or less. In the Partial Harvest Areas, the use of a log loader shall not be permitted for in-unit yarding unless approved by the Authorized Officer. Felling and yarding may be done with specialized ground based equipment on slopes up to 50%. The specialized ground based equipment shall be approved by the Authorized Officer prior to the start of mechanized felling and yarding operations. Only purpose-built carriers with boom-mounted felling heads may be approved. Purpose-built carriers may be of articulated, rubber-tired design, or the leveling track-mounted design.

(15) In the Harvest Areas, Special Yarding Area, and Special Operating Area shown on Exhibit A, all slopes greater than 35% or 50% if specialized ground based equipment is used as stated in Section 44(a)(14) shall be yarded with a carriage equipped skyline system capable of laterally yarding at least 75 feet from the skyline road. The carriage shall be capable of being held in position on the skyline during lateral yarding. During yarding, the lead end of the logs shall be suspended clear of the ground. Intermediate supports and/or lift trees may be needed.

(16) Logging equipment as well as logging debris including logs, limbs and tops, shall not be permitted in the Equipment and Operations Exclusion Areas, shown on Exhibit A. Trees shall be directionally felled away from these areas.

(17) Before clearing any skid trail or skyline road necessary for yarding, the Purchaser shall:

(aa) Space designated skid trails or skyline roads at a minimum of 150 feet apart unless approved by the Authorized Officer. Parallel settings are preferred if topography allows.

(bb) Mark the location of the skid trail or skyline road on the ground with fluorescent pink plastic flagging. Such skid trails or skyline roads shall be limited to the minimum width necessary for yarding of logs. The width of each skid road or skyline road shall not exceed 12 feet.

(cc) Place skid trails and skyline roads on the landscape to avoid disturbance to reserved trees, where feasible.

(dd) Provide a map of requested skid trail or skyline road locations a minimum of seven (7) working days in advance of cutting to obtain approval of the locations from the Authorized Officer. Proposed skid trails and skyline roads shall remain free from felled trees until approved.

(18) Before cutting and removing any reserve trees necessary to facilitate logging in the Harvest Areas, Special Yarding Area, and Special Operating Area shown on Exhibit A, the Purchaser shall identify the location of the skyline roads in accordance with Section 44(a)(17) and tieback, guyline, lift, intermediate support, and danger trees on the ground in a manner approved by the Authorized Officer at the pre-work conference and documented in the Logging Plan. Said Purchaser identification of trees to be cut and removed does not constitute authority to proceed with cutting and removal. In addition, before proceeding, the following conditions must be met:

(aa) All skid trails and/or skyline roads upon which timber is identified by the Purchaser to be cut and removed in accordance with this special provision must be necessary for the safe and expeditious removal of timber sold under this contract and shall be limited to the minimum width necessary for yarding of logs with a minimum of damage to reserve trees, however, unless otherwise approved in writing by the Authorized Officer, the width of each skid trail, and/or skyline road shall be limited to 12 feet.

(bb) The Purchaser may immediately cut and remove additional timber to clear skid trails and skyline roads; and provide tailhold, tieback, guyUne, lift and intermediate support trees; and clear danger trees when the trees have been marked with blue paint above and below stump height by the Authorized Officer and thereby approved for cutting and removal by the Authorized Officer. The volume of the timber to be sold will be determined by the Authorized Officer in accordance with Bureau of Land Management prescribed procedures.

No timber may be cut or removed under terms of this provision unless sufficient installment payments have been made in accordance with Section 3(b) of the contract or sufficient bonding has been provided in accordance with Section 3(d) of the contract.

(cc) The Purchaser agrees that sale of this additional timber shall be accomplished by a unilateral modification of the contract executed by the Contracting Officer and that such timber shall be sold at the unit prices shown in Exhibit B of this contract unless: the value of the timber must be reappraised subject to the terms for contract extension set forth in Section 9 of the contract.

(dd) This authorization for the Purchaser to cut and remove additional timber prior to the execution of a modification may be withdrawn by the Contracting Officer if the Authorized Officer determines that the Purchaser has cut and removed any tree not previously marked and approved for cutting by the Authorized Officer, which under Section 10 of the contract constitutes a violation of the contract and under Section 13 of the contract may constitute a trespass rendering the Purchaser liable for damages under applicable law.

(ee) If authorization is withdrawn, the Contracting Officer shall issue a written notice to the Purchaser that the sale of additional timber under this special provision is no longer approved. In this case, the Purchaser shall inform the Authorized Officer at least one (1) working day prior to the need for cutting and removing any additional timber, and execute a bilateral modification prior to cutting for such additional approved timber at the unit prices shown in Exhibit B of the contract, or in accordance with Section 8 or Section 9 of the contract, as determined by Authorized Officer in accordance with this provision. The Contracting Officer may issue a written order to the Purchaser to suspend, delay, or interrupt any or all contract work for the period of time deemed necessary and appropriate for the Government to safely measure and mark additional timber.

(ff) The Government may reserve trees previously designated for cutting and removal by applying yellow paint in the Harvest Areas, and Special Yarding Area above and below stump height and the letter “R” on two sides of the trees as replacements for additional trees cut and removed for skid trails, and/or skyline roads, when the Authorized Officer determines such reservation is necessary to maintain stand densities consistent with objectives set forth in the management prescription. This may include the replacement of trees damaged by storm events, insects, or disease. The volume of this timber to be reserved shall be determined by the Authorized Officer in accordance with Bureau of Land Management prescribed procedures and the value shall be based on the unit prices shown in Exhibit B of the contract. The Purchaser agrees that the Total Purchase Price shall be reduced accordingly through a unilateral modification to the contract executed by the Contracting Officer.

(19) In accordance with the requirements of Section 8 of the contract it has been determined that it is in the best interest of the Government and within the provisions of 43 CFR 5402.0-6 to sell additional timber located in the Harvest Areas and Special Yarding Area to meet all applicable State safety laws, codes, or regutations. This timber must be cut or removed so that the Purchaser can continue active falling and yarding operations. The Purchaser is, therefore, authorized to cut and remove such additional timber in accordance with the provisions of Section 8 of the contract provided, that:

(aa) Pink painted trees felled for safety or operational reasons shall not be removed, in accordance with Section 43(c).

(bb) The Purchaser shall identify each tree sold and cut in accordance with the provision by marking the cut surface of the stump immediately after falling with a large "X". The "X" shall be cut with a chain saw. The stump shall be marked by hanging flagging so that the stump can be visually located from a distance of not less than 50 feet. The Purchaser shall also paint an identifiable “X” on the butt log. The butt log shall remain on the contract area until such time as the Authorized Officer has scaled such additional timber and authorizes removal from the contract area.

(cc) The volume and price for such timber shall be determined by the Authorized Officer in accordance with Bureau of Land Management prescribed procedures and paid for by the Purchaser in accordance with Section 3(b) or 3(f) of the contract as required by Section 8 of the contract.

(dd) No timber may be cut or removed under the terms of this provision if all contract payments required by Section 3(b) or 3(f) of the contract have been made.

(ee) The permission to cut and remove additional timber contained in this provision may be withdrawn by the Contracting Officer if the Authorized Officer determines that the Purchaser:

(1) Failed to properly mark any stump with the “X” cut.

(2) Failed to identify the location of any stump.

(3) Cut any reserve tree in or adjacent to skyline yarding roads that was not necessary to facilitate skyline yarding.

(4) Cut any reserve tree in or adjacent to tractor skid trails that was not necessary to facilitate ground based yarding.

(5) Failed to properly segregate any pulled over tree that was yarded to the landing.

(6) Cut any reserve tree that was not severely (as defined during the prework conference and documented in the approved logging plan) damaged from felling and yarding operations.

(7) Cut more than the minimum number of trees necessary to properly serve as guyline anchor stumps.

(8) Cut or topped more than the minimum number of trees necessary to properly serve as tailhold trees.

(9) Failed to maintain accurate and current (no more than 24 hours old) documentation of cut and removed timber.

If the permission to cut and remove additional timber provision is withdrawn, the Purchaser shall inform the Authorized Officer at least five working days prior to the need for cutting and yarding any guyline tree, tailhold tree, tie-back tree, danger tree, corridor tree, pulled over tree, and severely damaged tree. All sales of additional timber shall comply with Section 8 of the contract. The Contracting Officer may order the Purchaser, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the Government to safely measure and mark additional timber.

All skyline yarding and/or ground based equipment skid trails upon which timber may be cut and removed in accordance with this special provision must be needed for the removal of timber sold under this contact and shall be limited to the narrowest width necessary for the yarding of logs with minimum damage to reserved trees.

The Purchaser shall be liable for damages in accordance with Section 13 of the contract for any reserved timber cut or removed in violation of the terms of this special provision.

(20) Unless otherwise authorized in writing by the Contracting Officer, the Purchaser shall brand clearly and legibly one end of all logs with a scaling diameter (small end inside bark) of over ten (10) inches, prior to the removal of timber from the contract area. All loads of eleven (11) logs or more will have a minimum of ten (10) logs clearly and legibly branded on one end regardless of the diameter of the logs. All logs will be branded on loads of ten (10) logs or less. One end of all branded logs to be processed domestically will be marked with a three (3) square inch spot of highway yellow paint. The purchaser will stop trucks for accountability monitoring at mutually agreed upon locations when notified by the Authorized Officer.

If multiple trailers (mule trains) are used, each bunked load shall be considered an individual load, and these guidelines will apply to each bunked load. If a flatbed stake trailer is used, each bundle will be treated as a separate load.

At the discretion of the Contracting Officer, the Purchaser may be required to brand and paint all logs. Any increased costs for log branding and painting shall be the responsibility of the Purchaser.

(b) Road Construction, Renovation, Improvement, Use, and Maintenance

(1) The Purchaser shall Construct Spurs 11A, 13A, 13B. Renovate Spurs 11B, 11C, 14B, 14C and Road Nos. 15-1-19, 15-2-3.1, 15-2-10.1, 15-2-11, 15-2-11.2, 15-2-11.4, 15-2-13, 15-2-15.2 an 16-1-5 in strict accordance with the plans and specifications shown on Exhibit C, which is attached hereto and made part hereof. Exhibit C contains 55 sheets.

(2) Prior to removal of any timber, except right-of-way timber, the required construction, improvement and/or renovation of the haul route for that timber shall be completed as specified in Exhibit C. The required construction and renovation of roads shall occur between June 1 and October 31 and are subject to dry conditions as determined by the Authorized Officer.

(3) Purchaser shall submit a Bridge Haul Authorization request for all loads over 80,000 lbs. prior to operations over Crooked Creek, Road No. 15-1-19 and Shotgun Creek, Road No. 16-1-5. The Haul Authorization forms will be provided by the BLM at the road construction and renovation, pre-work conference.

(4) Culvert replacement/installation on streams shall be done between June 1 and October 31 (both days inclusive) and shall be completed prior to hauling and Fall rains. During installation of the stream culverts, dewatering of the culvert bed, silt fences and/or straw bales may be required as directed by the Authorized Officer. All work shall be completed in accordance with the plans and specifications shown in Exhibit C.

(5) Prior to any quarry operations, the Purchaser shall provide a quarry development plan which must be reviewed on site with the Authorized Officer and the contractor performing the drilling, blasting, and crushing, as detailed in the Exhibit C.

(6) The Purchaser shall furnish and place 400 cubic yards 1 ½" minus and 200 cubic yars of 3"minus of maintenance rock in accordance with Exhibit D, which is attached hereto and made part hereof. Exhibit D contains 6 sheets. Road reinforcement (rocking) and additional maintenance that may be required for wet weather haul shall be at the Purchaser's expense. Purchaser shall be required to provide to the BLM notice of placement as well locations of where maintenance rock is placed.

(7) BLM Maintenance: The Purchaser is authorized to use the roads listed below and shown on Exhibit D, which are under the jurisdiction of the Bureau of Land Management, for the removal of Government timber sold under the terms of this contract, and/or the hauling of rock as required in Exhibits C and D, provided that the Purchaser pay the required maintenance and/or rockwear obligations described in Section 44(b)(10) and Section 42(b)(11). The Purchaser shall pay current Bureau of Land Management maintenance and rockwear fees for the sale of additional timber under modifications to the contract

| Road No. and Segment | Length Miles Used | Road Ownership | Road Surface Type |
|---|---|---|---|
| 15-1-19 por. 1 | 1.50 | BLM | BST |
| 15-1-19 por. 2 | 1.67 | BLM | Rock |
| 16-1-5 por. 1 & 2 | 4.66 | BLM | BST |

(8) Purchaser Maintenance: The Purchaser is authorized to use the roads listed below and shown on Exhibit D which are under the jurisdiction of the Bureau of Land Management, and/or Weyerhaeuser Timber Holdings Inc., for the removal of Government timber sold under the terms of this contract and/or the hauling of rock as required in Exhibits C and D, provided that the Purchaser comply with the conditions set forth in Section 44(b)(9), 44(b)(12), and pay the required rockwear obligation described in Section 44(b)(11) and 44(b)(12). The Purchaser shall pay current Bureau of Land Management rockwear fees for the sale of additional timber under modification to the contract.

| Road No. and Segment | Length Miles Used | Road Ownership | Road Surface Type |
|---|---|---|---|
| Spur 11A | 0.15 | BLM | Natural |
| Spur 11B | 0.06 | BLM | Rock |
| Spur 11C | 0.08 | BLM | Rock |
| Spur 13A | 0.09 | BLM | Rock |
| Spur 13B | 0.34 | BLM | Rock |
| Spur 14B | 0.11 | BLM | Rock |
| Spur 14C | 0.07 | BLM | Rock |
| 14-2-35 | 0.99 | BLM | Rock |
| 15-1-19 por. 3 | 2.23 | BLM | Rock |
| 15-2-10.1 | 0.47 | BLM | Rock |
| 15-2-11 | 0.15 | BLM | Rock |
| 15-2-11.2 | 1.78 | BLM | Rock |
| 15-2-11.4 | 0.05 | BLM | Rock |
| 15-2-13 por. 1 and 2 | 2.13 | BLM | Rock |
| 15-2-13 por. 3 and 4 | 1.09 | WTHI | Rock |
| 15-2-15.2 por. 3 | 0.35 | BLM | Rock |
| 15-2-15.2 por. 1 and 2 | 0.92 | WTHI | Rock |
| 15-2-3.1 | 0.09 | BLM | Rock |
| 16-1-5 por. 3 | 0.47 | BLM | Rock |

WTHI= Weyerhaeuser Timber Holdings, Inc.

(9) The Purchaser shall perform any required road repair and maintenance work on roads used by them, under the terms of Exhibit D, "Road Maintenance Specifications", of this contract.

(10) The Purchaser shall pay to the Government a road maintenance obligation in the amount of Twenty-one Thousand Eight Hundred Sixty-eight and 53/100 dollars ($21,868.53) for the transportation of timber included in the contract price over the roads listed in Section 44(b)(7).

This road maintenance fee shall be paid prior to removal of any timber from the contract area; provided, however, that if the total of such amount exceeds One Thousand and 00/100 dollars ($1,000.00), the Authorized Officer may allow the Purchaser to make the payment in installments of not less than One Thousand and 00/100 dollars ($1,000.00) in the same manner as and together with payments required in Section 3 of this contract.

(11) The Purchaser shall pay to the Government a road maintenance obligation for rockwear in the amount of Fourteen Thousand Five Hundred Sixty-one and 25/100 dollars ($14,561.25) for the transportation of timber included in the contract price over the roads listed in Section 44(b)(7) and 44(b)(8).

This rockwear fee shall be paid prior to removal of any timber from the contract area; provided, however, that if the total of such amount exceeds One Thousand and 00/100 dollars ($1,000.00), the Authorized Officer may allow the Purchaser to make the payment in installments of not less than One Thousand and 00/100 dollars ($1,000.00) in the same manner as and together with payments required in Section 3 of this contract.

(12) In the renovation, use, and maintenence of Road Nos. 15-2-13 por. 3 and 4, and 15-2-15-15.2 por. 1 and 2, and use of tailholds, and/or guybacks, the Purchaser shall comply with the conditions of Right-of-Way and Road Use Agreement No. E-573 between the United States of America and Weyerhaeuser Timber Holdings, Inc. Prior to the use of said roads, the Purchaser shall furnish the Authorized Officer a copy of the executed License Agreement. Default by the Purchaser of said Right-of-Way and Road Use Agreement, or any License Agreement executed pursuant thereto, for failure to pay appropriate road use fees shall be considered a violation of this contract. The amount of unpaid fees shall be considered as the amount of damage suffered by the Government as a result of the violation of this provision. Said agreement is available for inspection at the Bureau of Land Management, Springfield Interagency Office, 3106 Pierce Parkway Suite E, Springfield, Oregon. Such conditions include but are not limited to the following actions by the Purchaser:

(aa) Obtain a license agreement from Weyerhaeuser Timber Holdings, Inc. The license agreement, bond and insurance certificate shall be delivered to Weyerhaeuser Timber Holdings, Inc., at least 15 days prior to use of company roads.

(bb) Furnish a performance bond in the amount of Ten Thousand and 00/100 dollars ($10,000.00).

(cc) Maintain comprehensive liability insurance covering all operations, including vehicles, in amounts not less than One Million and 00/100 dollars ($1,000,000.00) bodily injury for injury to any one person, One Million and 00/100 dollars ($1,000,000.00) for any one occurrence, and One Million and 00/100 dollars ($1,000,000.00) property damage for any one occurrence.

(dd) Pay a lump sum road use fee of Two Thousand Seven Hundred Eighteen and 00/100 dollars ($2,718.00) prior to log hauling. Additional road use fees may be due as a result of modification volume to the contract will be charged road use fees as a system at the rate of $3.00 per MBF, if applicable, payable at the time of the modification.

(ee) Pay a lump sum rockwear fee of Four Hundred Seventy-one and 98/100 dollars ($471.98) prior to log hauling. All rockwear fees due as a result of modification shall be paid at rates current at the time of modification, with payment made prior to contract termination.

(ff) The Purchaser shall maintain Road Nos. 15-2-15.2 Por. 1 and 2, and 15-2-13 Por. 3 and 4 in accordance with Section 44(b)(9).

(13) During the culvert installations and replacements on Road No. 16-1-5 (Shotgun Creek Backcountry Byway), restrict delays to 20 minutes or less and limit extended closures to weekdays from May 1 through September 30 of each year. If extended closure (greater than 20 minutes) of these roads is required for any purpose, the purchaser shall notify the Authorized Officer no less than two weeks prior to any proposed extended closures.

(14) With the prior written approval of the Authorized Officer, the Purchaser may arrange for cooperative maintenance with other users on roads included in Section 44(b)(8) of this contract; provided, that such cooperative arrangement shall not relieve the Purchaser of their liability for the maintenance and repair of such roads resulting from wear or damage, in accordance with this contract. Prior to hauling, the Purchaser shall furnish the Authorized Officer a copy of any cooperative maintenance agreement(s) entered into with other users on these roads.

(15) The Purchaser also agrees that if they elect to use any private road which is the subject of a right-of-way agreement with the Government, for the removal of Government timber sold under the terms of this contract, they shall request and agree to the modification of this contract to provide for such use.

(c) Environmental Protection

(1) The Purchaser shall be required to clean logging, piling, road, and decommissioning equipment to remove dirt and plant debris that may contain noxious weed seeds from the undercarriage, tracks and tire treads prior to entry on BLM lands. The Authorized Officer shall require inspection of equipment to see that it was cleaned prior to arrival on site.

(2) In addition to the requirements set forth in Section 26 of this contract, the Purchaser shall apply native seed and certified weed-free mulch to cut and fill slopes and ditch lines with the potential for sediment delivery to wetlands, Riparian Reserves, floodplains, and waters of the State, as determined by the Authorized Officer. The BLM will provide native seed and mulch as needed.

(3) Snag Creation

(aa) Snag creation shall be completed within 90 days upon receiving notification from the Authorized Officer.

(bb) Purchaser shall select and top 64 trees and girdle 128 standing trees greater than 20 inch DBH. Location of selected trees shall be in accordance with and approved in writing by the Authorized Officer. Portions of trees topped shall remain reserved.

(cc) Purchaser shall top trees at a height between 40 and 60 feet. Where necessary for safety or operational reasons, trees shall be topped as close to between 40 and 60 feet as possible. Trees shall have the top completely severed.

(dd) The Purchaser shall girdle the stem of the tree at a height of 2 to 5 feet from the ground line. The Purchaser shall complete three parallel cuts spaced 10 to 12 inches apart around the entire stem of the tree for each girdle. The Purchaser shall make cuts to penetrate into the wood and cambium layer of the tree. Trees shall be greater than 20 inch DBH or as directed by the Authorized Officer.

(ee) No adjustment of volume or value shall be made to meet these requirements.

(ff) The Purchaser shall tally all trees by diameter class and species on a daily basis. The tally may be requested by the Authorized Officer at any time during topping/girdling operations. At the end of topping/girdling operations, a completed tree tally shall be submitted to the Authorized Officer.

(4) Cable yarding corridors shall be waterbarred and covered with slash immediately after use if necessary to prevent erosion, as determined by the Authorized Officer.

(5) Upon each season's shutdown and prior to fall rains, the Purchaser shall block skid trails and natural surfaced roads and shall place them in an erosion-resistant condition by constructing waterbars and/or lead-off ditches. Rocked roads on which Exhibit D final maintenance has not been completed, and that have been determined by the Authorized Officer to not be in an erosion-resistant condition shall have waterbars and/or lead-off ditches constructed. Waterbars shall be constructed in accordance with the specifications shown on Exhibit H, which is attached hereto and made a part hereof. Exhibit H contains 2 sheets. Blocking and water bars shall be completed as directed by the Authorized Officer.

(6) In addition to the requirements set forth in Section 26 of this contract, the Purchaser shall, upon completion of hauling, and yarding, complete skid trail and road decommissioning measures. Skid trail and road decommissioning shall be completed during the dry season, typically between June 1 and October 31, as determined by the Authorized Officer.

(aa) Purchaser shall decompact skid trails and natural surface roads, to a depth of 18 inches with decompaction equipment such as a track mounted excavator with ripping teeth and an opposable thumb, during the dry season.

(bb) Slash and cull logs shall be placed on top of the decompacted surface. Total depth of slash, not including cull logs, shall be less than 12 inches.

(cc) Construct drainage dips, waterbars and/or lead-off ditches as directed by the Authorized Officer. Waterbars and drainage dips shall be constructed in accordance with the specifications shown on Exhibit H.

(dd) Purchaser shall block skid trails and roads with root wads, logs and/or slash as directed by the Authorized Officer.

| **Roads** | **Surface** | **(aa) Decompact** | **(bb) Slash** | **(cc) Drainage** | **(dd) Block** |
|---|---|---|---|---|---|
| Skid Trails | Natural | X | X | X | X |
| 15-2-11 | Rocked | | | X | X |
| 15-2-11.4 | Rocked | | | X | X |
| Spur 11A | Natural | X | X | X | X |
| Spur 11B | Rocked | | | X | X |
| Spur 11C | Rocked | | | X | X |
| Spur 13A | Rocked | | | X | X |
| Spur 13B*** | Rocked | | | X | X |
| Spur 14B** | Rocked | | | X | X |
| Spur 14C* | Rocked | | | X | X |
| Loaded log truck turnaround MP .01 on 15-2-11.2 | Natural | X | X | X | X |
| Designated Equipment Trail* | Natural | X | X | X | X |

* All cribbing logs shall be removed from the Designated Equipment Trail and placed randomly across the trail area and in the stream channel.

** Block at property boundary.

*** Block below TTA at station 10+50 (midway point of road, maintain access to TTA).

(d) Fire Prevention

(1) Primarily for purposes of fire prevention and control, the Purchaser shall, prior to the operation of power driven equipment in construction or logging operations under this contract during fire season or periods of fire danger, prepare a fire prevention and control plan to the satisfaction of the Authorized Officer.

(e) Logging Residue Reduction

(1) In addition to the requirements of Sections 15 and 26 of this contract, and notwithstanding the Purchaser's satisfactory compliance with State laws and regulations regarding offsetting or abating the additional fire hazard created by this operation and the State's willingness to release the Purchaser from liability for such hazard, the Purchaser shall remain responsible to the Government for performance of the following logging residue reduction and/or site preparation measures required by this contract: Perform logging residue reduction and site preparation work on approximately sixty (67) acres of Harvest Area. Slash, as defined for this section, shall mean all material (brush, limbs, tops, unmerchantable stems, and chunks) severed or knocked over as a result of purchasers operations under the terms of this contract.

(aa) Prior to commencement of any logging residue reduction and/or site preparation, a pre-work conference between the Purchaser’s representative and the Authorized Officer must be held at a location designated by the Authorized Officer. All logging residue reduction and/or site preparation shall be done in accordance with the plans developed at the pre-work conference.

(bb) Lop and Scatter slash within ten (10) acres of cable yarded portions of the Regeneration Harvest Areas as directed by the Authorized Officer. All top and side branches must be cut free of the central stem so that such stem is reduced to the extent that it is within twelve (12) inches of the ground at all points. All logging slash and slashed woody vegetation that is greater than six (6) feet in length and between one (1) inch and six (6) inches in diameter shall be lopped and scattered. Larger material which has a portion meeting this specification must be bucked at the six (6) inch diameter.

(cc) Machine pile and cover slash within ground-based harvested portions of the Regeneration Harvest Areas as directed by the Authorized Officer. Slash be piled by a machine equipped with a hydraulic thumb or a controllable, grapple head. If the purchaser elects to cable yard areas that were planned for ground-based harvest (areas less that 35% slope) and the slash exceeds 6 inches in depth, piling will be required as directed by the Authorized Officer.

(1) Unmerchantable logs greater than six (6) inches on the small end shall be left in place, or positioned so that they will not be burned.

(2) Machine piles shall be located as far as possible from reserve trees, culverts, or unit boundaries to minimize damage.

(3) Machine piles shall be kept free of dirt and other non-woody debris and constructed as compactly as possible. There should be an adequate supply of finer fuels located within and under the covered area of the pile to ensure ignition of the larger fuels. Slash left on the ground shall not exceed 6 inches in depth.

(4) All piles shall be covered with black six (6) Mil polyethylene plastic to cover at least fifty (50) percent of the surface of each pile, minimum plastic size of 10’ x 10’ cover. Plastic shall be held in place with woody debris and tied with combustible cord.
The plastic must be secured so that it is held in place during strong wind conditions and maintains coverage for at least one year. The Purchaser is required to furnish the covering materials. Covering shall be completed at the time of piling and no later than September 15th of the year it was harvested, or as directed by the Authorized Officer.

(5) Harvest Areas shall be piled during the same season that they are logged, unless otherwise directed by the Authorized Officer.

(dd) Pile and cover landing slashm, and slash within twenty-five (25) feet of all roads within or adjacent to the harvest units. All tops, broken pieces, limbs and debris more than two (2) inches in diameter at the large end and longer than three (3) feet in length shall be piled within fifteen (15) days of completion of hauling logs from that landing. Landing piles shall be kept free of dirt and located at least twenty (20) feet from any reserve tree and/or as directed by the Authorized Officer.

(1) All logs greater than six (6) inches in diameter at the large end and longer than eight (8) feet in length shall be decked or windrowed at the location designated by the Authorized Officer, except logs sold and removed from the contract area.

(2) Upon completion of landing and roadside piling, the Purchaser shall prepare the piles for burning by securely covering each pile with black six (6) Mil polyethylene plastic. Landing and roadside piles shall be at least fifty (50) percent covered with the covering extending half of the way down all sides, minimum plastic size of 10’ x 10’. There should be an adequate supply of finer fuels located within and under the covered area of the pile to ensure ignition of the larger fuels. Plastic shall be held in place with woody debris and tied with combustible cord. The plastic must be secured so that it is held in place during strong wind conditions and maintains coverage for at least one year. The Purchaser is required to furnish the covering materials. Covering shall be completed at the time of piling and no later than September 15th of the year it was harvested, or as directed by the Authorized Officer.

(3) If the structure of the landing piles will not permit adequate consumption of piled debris by burning, the Purchaser shall re-pile them at the direction of the Authorized Officer.

(2) Notwithstanding the provisions of Sec. 15 of this contract, the Government shall assume all obligations for disposal or reduction of fire hazards created by Purchaser’s operations on Government lands, except for burning and mop-up assistance as required herein, and measures required in Section 44(e). In accordance with written instruction to be issued by the Authorized Officer at least 10 days in advance of the earliest date of required performance, the Purchaser shall, under supervision of the Authorized Officer or designated representative, assist in preparing units for burning, mop-up, and patrol by furnishing, at the Purchaser’s own expense, the services of personnel and equipment on harvest area as shown below:

(aa) For Igniting, Holding, and Mop-Up of Piles:

(1) One (1) work leader (Firefighter Type 1 (FFT1)) to supervise crew and equipment operations, and to serve as Purchaser's representative.

(2) Two (2) person crew (Firefighter Type 2 (FFT2)).

(3) Sufficient fuel for burning, five (5) drip torches or propane burners, one (1) power saw, and one (1) backpack pump, one (1) tool for each crew member.

(4) Radios capable of inter-crew communications and communication with a BLM representative at a ratio of one (1) radio per every five (5) crew members.

(5) All ignition, holding, and mop-up personnel will be directly supervised by a BLM representative.

Aircraft and pilots used for Logging Residue Reduction or the suppression of escaped fires from Logging Residue Reduction operations, shall be acquired from a list of aircraft and pilots approved (i.e., carded for these specific activities) by the Office of Aircraft Services or the U.S. Forest Service. This list is available from BLM District Offices upon request.

All listed personnel shall be physically fit, experienced and fully capable of functioning as required. In addition, all listed personnel shall be qualified according to the National Wildfire Coordinating Group (NWCG) Wildland Fire Qualification System Guide, PMS-310-1 and provide documentation of these qualifications. On the day of ignition all listed personnel shall be fluent in speaking and understanding English, clothing shall consist of long pants and long-sleeved shirts and be of approved aramid fabric (Nomex™ or equivalent), as well as being free of diesel fuel oil.

All personnel shall wear boots with minimum eight (8) inch tall uppers that provide ankle support, approved hardhats and leather gloves. Personnel who do not meet these requirements or do not have proper clothing and personal protective equipment (PPE) will not be allowed to participate. All listed tools and equipment shall be in good usable condition. All power-driven equipment shall be fully fueled and available for immediate use. During periods of use under this subsection, the Purchaser shall provide fuel and maintenance for all such power-driven equipment.

Except as provided hereafter for fire escapement, the Purchaser shall continue the required assistance in mop up on each cutting unit shown on Exhibit A for seventy-two (72) hours, as directed by the Authorized Officer within a five (5) day period commencing at 8:00 a.m. the day following the completion of ignition in that unit, or until released from such service by the Government, whichever occurs first.

In event of a fire escapement, the Purchaser's personnel and equipment shall, under supervision of the Authorized Officer, take action to control and mop up the escaped fire until released from such service by the Government. If it becomes necessary to use furnished personnel and equipment for the suppression of a fire which escapes from the prescribed fire area for a period beyond the remainder of the day in which the fire escapes, then the Government shall, at its option: (1) reimburse the Purchaser for such additional use of personnel and equipment at wage rates shown in the current Administratively Determined Pay Rates for the Western Area and at equipment rates shown in the current Oregon-Washington Interagency Fire Fighting Equipment Rental Rates schedule until the Purchaser is released from such service by the Government; or (2) release the Purchaser from additional suppression work and assume responsibility for suppressing the escaped fire.

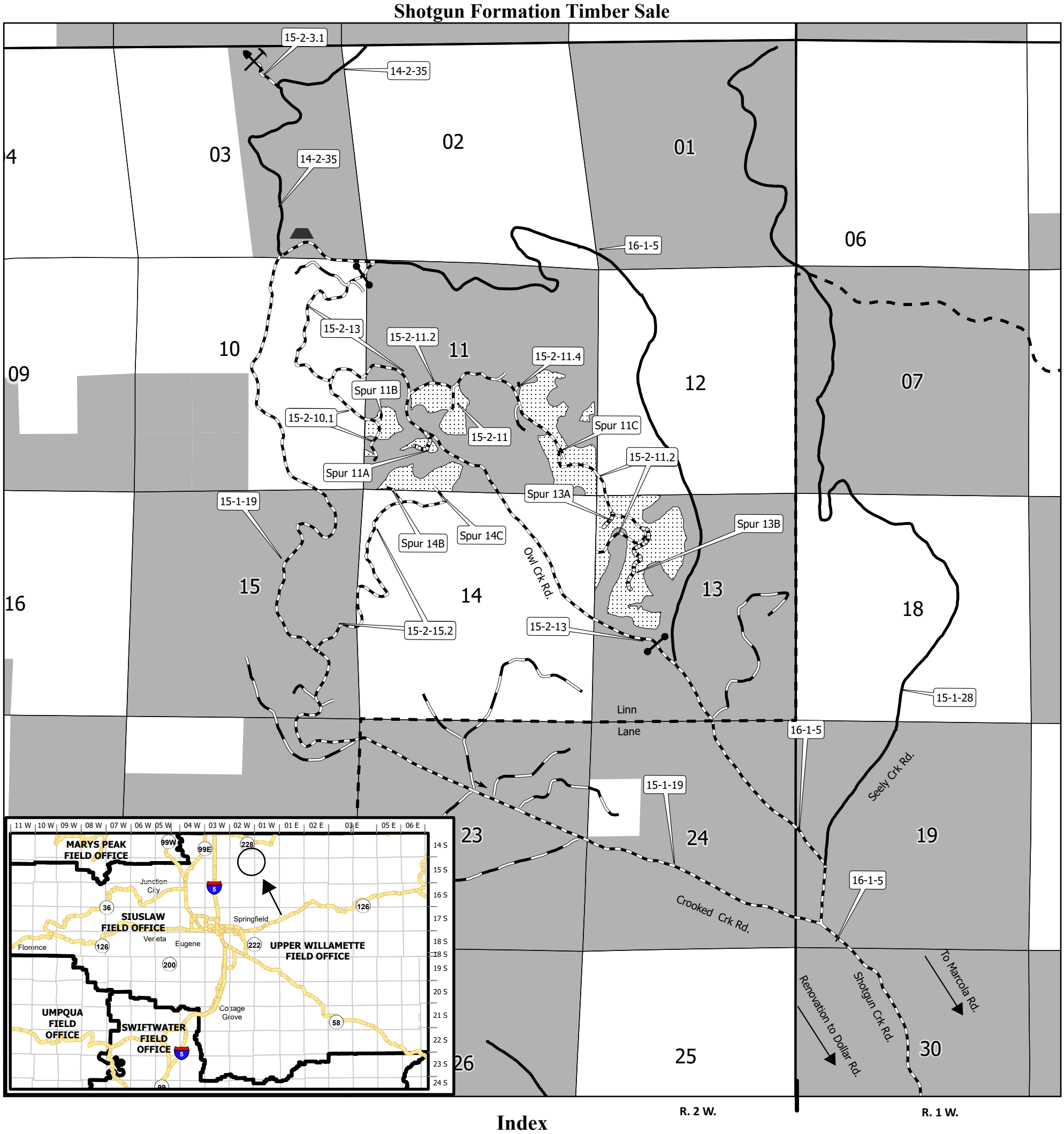
In situations where an escaped fire is controlled and contained by an adequate fire break (i.e., trail, road, stream, rock formation, etc.), the Government may permit the Purchaser to remove personnel for that day; provided that all mop up work on the escaped fire is included with mop up work on the prescribed fire area. In such an event, the Purchaser must sign a statement of agreement to complete mop up work on all escaped fire areas concurrently with mop up work on the prescribed fire area.

In case of injury to personnel or damage to equipment furnished as required by this subsection, liability shall be borne by the Purchaser, unless such injury or damage is caused by Government negligence.

Time is of the essence in complying with this provision. In the event the Purchaser fails to provide the personnel and equipment required herein, the Purchaser shall be responsible for all additional cost incurred by the Government in disposing of slash including but not limited to the wages and other costs of providing federal employees and others as substitute labor force, the cost of providing substitute equipment and appropriate additional overhead expenses. If the Purchaser's failure results in a deferral of burning and new conditions necessitate additional personnel and equipment to accomplish the planned burn, the Purchaser also shall be responsible for such additional costs.

Exhibit C

# UNITED STATES
# DEPARTMENT OF THE INTERIOR
## Bureau of Land Management, Northwest Oregon District
## Shotgun Formation Timber Sale




## Index



Sale Name: Shotgun Formation

Contract No.: ORN05-TS-2025.0565

**Construction:** Spurs 11A, 13A, 13B

**Renovation:** Spurs 11B, 11C, 14B and 14C,.

Road Nos. 15-1-19, 15-2-3.1, -10.1, -11, -11.2, -11.4, -13, -15.2, 16-1-5

T. 15 S., R. 1 W ., Secs. 19, 30 and 31

T. 15 S., R. 2 W., Secs. 3, 10, 11, 12, 13, 14, 15, 22, 23 and 24

Willamette Meridian, Linn/Lane County, Oregon

Recommended

Designed: S. McCauley

Drawn: S. McCauley

Lead Engineer

Approved

Checked: C. Conklin

Date: 02/12/2025 Field Manager

**Legend**

- Construction
- Renovation
- Existing Paved
- Existing Rocked
- Gate
- Harvest Unit
- Bureau of Land Management
- Private
- Stockpile Site
- County Line
- Quarry

0 0.25 0.5 1 Miles

N

# SPECIAL PROVISIONS

1. The Purchaser shall clean road equipment to remove dirt and plant debris that may contain noxious weed seeds from the undercarriage, tracks, and tire treads prior to entry on BLM lands.

2. All road segments not completed during dry weather periods shall be winterized, by providing a well-drained roadway by water barring, maintaining drainage, and any additional measures necessary to minimize erosion and other damage to the roadway, as directed by the Authorized Officer. Any portion of road not having surfacing rock in place will be waterbarred and blocked or barricaded to prevent vehicular traffic.

3. Before beginning road construction operations for the first time or after a shutdown of 7 or more days, the Purchaser shall notify the Authorized Officer of the date he plans to begin operations. The Purchaser shall also notify the Authorized Officer if he intends to cease operations for any period of 30 or more days.

4. During culvert installations and replacements on Road No. 16-1-5 (Shotgun Creek Backcountry Byway), restrict delays to 20 minutes or less and limit extended closures to weekdays from May through September. If an extended closure (greater than 20 minutes) of these roads is required for any purpose, the purchaser shall notify the Authorized Officer no less than two weeks prior to any proposed extended closures.

5. Purchaser shall provide proof at the pre-work conference that operations permits with the Oregon Department of Forestry have been obtained for road work on private land.

6. The P-lines, as Flagged in the field and as shown in this Exhibit C, are intended to be used as a control and should be considered as being in the area of the finished grade.

7. Suggested Asphalt Source: Commercial Supplier

   Suggested Rock Source: Blagen Quarry located in T. 15 S., R. 2 W., Section 3, Will. Mer.

| Quantities: Crushed Rock | Gradation: | Truck Yards: |
|---|---|---|
| Exhibit C: Surfacing/Base Rock | ¾" Minus | 307 CY |
| | 1-1/2" Minus | 2,083 CY |
| | 3" Minus | 3,547 CY |
| | 6" Minus | 2,649 CY |
| | Asphalt | 18 CY |
| Culvert Bedding/Back Fill | ¾" Minus | 885 CY |
| Armoring | Jaw Run | 171 CY |
| Exhibit D: Maintenance Rock | 1-1/2" Minus | 400 CY |
| | 3" Minus | 200 CY |
| | **TOTAL:** | **10,260 Truck Yds** |

8. Prior to any quarry operations, the Purchaser shall provide a quarry development plan which must be reviewed on site with the Authorized Officer and the contractor performing the drilling, blasting, and crushing, as detailed in Exhibit C.

9. The Purchaser will be required to crush and stockpile 400CY of 1-1/2” minus and 200CY of 3” minus rock to be used for maintenance during hauling as well as final road maintenance. Additional road reinforcement (rocking) may be required for wet weather haul and will be at the Purchaser’s expense.

10. The removal and installation of all culverts shall comply with the following requirements:

    a. The Authorized Officer shall be given 2 business days’ notice prior to the commencement of stream culvert installations.

    b. Road closed signs or traffic control flaggers shall be used above and below the culvert replacement site whenever the situation is unsafe for through traffic as determined by the Authorized Officer. Road closure plans shall be coordinated with other users.

    c. Culvert replacement/installation on streams shall be done between June 1 and October 31 (both days inclusive), and all removal and replacement/installation shall be completed prior to hauling and fall rains. During installation of stream culverts, silt fences and/or straw bales may be required as directed by the Authorized Officer. All work shall be completed in accordance with the plans and specifications shown on the Exhibit C.

    d. Dewatering of the culvert is required on all live streams and as directed by the Authorized Officer.

    e. No bedding shall be done on culvert installation of CMPs or CPPs 30” in diameter and greater unless the Authorized Officer is present. Backfill material shall not be placed prior to approval from the Authorized Officer.

    f. All culvert replacements on existing rocked roads shall be resurfaced in accordance with the Worklist Maps and surfacing detail sheets. Upon completion of all culvert replacements/installations on existing paved roads, the road surface of the disturbed roadbed shall be paved with a four-inch compacted depth of hot mix asphalt concrete for each location in accordance with Worklist maps and surfacing detail sheets. The base course of the disturbed roadbed shall be restored with an eight-inch depth of ¾-inch minus crushed rock material, applied in four-inch compacted lifts, for each location in accordance with Section 1000 of this Exhibit and shall be resurfaced in accordance with the Worklist maps and surfacing detail sheets.

    g. All CMPs shall use an "O" ring neoprene gasket to insure a water-tight joint.

    h. All excess and unsuitable material from culvert removals shall be hauled to waste area locations approved by the Authorized Officer. All borrow site locations shall be approved by the Authorized Officer.

11. Seed and mulch will be required at all culvert installation/replacement sites, and designated cut banks, landings, and waste disposal sites in accordance with Section 1800 of this Exhibit.

12. Purchaser shall locate all underground utilities prior to construction and renovation. Known underground utilities are present on 16-1-5.

13. Purchaser shall replace asphalt during culvert replacements or installations the same season as the culvert replacement or installation.

14. Purchaser shall submit a Haul Authorization request for all loads over 80,000lbs. prior to operations over Crooked Creek, Road No. 15-1-19 and Shotgun Creek, Road No. 16-1-5. The Haul Authorization forms will be provided by the BLM at the road construction and renovation, pre-work conference.

# TIMBER SALE ROAD SPECIFICATIONS

## TABLE OF CONTENTS

## GENERAL – 100

101 — Prework Conference:

A prework conference will be held prior to the start of new construction, improvement, renovation, quarry development, and surfacing operations. The Purchaser shall request the conference at least 48 hours prior to the time it is to be held. The conference will be attended by the Purchaser and/or his representative, subcontractors and/or his or their representatives and the Authorized Officer and/or his representatives.

The purpose of the prework conference will be to review the required work, exhibits and specifications, and to establish a work schedule and a list of the Purchaser's representatives and subcontractors. A prework conference shall be scheduled at the worksite for quarry development and large culvert installations.

102 — Definitions:

AASHTO - American Association of State Highway and Transportation Officials. Current editions of tests and specifications.

Abrasion Resistance - The ability of a fabric surface to resist wear by friction.

ACI - American Concrete Institute

Apparent Opening Size (AOS) - Number of the U.S. Bureau of Standard sieve (or its opening size in millimeters or inches) having openings closest in size to the diameter of uniform particles which will allow 5 percent by weight to pass through the geotextile material when shaken in a prescribed manner. This is also referred to as Equivalent Opening Size (EOS).

ASTM - American Society for Testing and Materials.

Base Course - Surfacing structure consisting of crushed gravel or stone, crushed sandstone, pitrun rock, bank or river-run gravels, etc., to provide support and, in the event no surface course is placed, the running surface for traffic load.

BLM - Bureau of Land Management

Borrow - Excavated material required for embankments and other portions of the work.

Burst Strength - The resistance of a geotextile material to rupture from pressure applied at right angles to the plane of the geotextile material under specified conditions, usually expressed as the amount of pressure causing failure. Rupture or burst results from tensile failure of the geotextile material.

Culvert - A pipe, pipe-arch, arch, or box structure constructed of metal, concrete, plastic or wood which provides an opening under the roadway primarily for the conveyance of liquids, pedestrians or livestock.

Curve Widening - Widening required on inside of curves to accommodate long log and equipment hauling trucks.

Embankment - A structure of soil, aggregate, or rock material placed on a prepared ground surface and constructed to subgrade.

End Haul - Excavated material moved, other than by dozer, to an embankment or waste area to prevent sidecasting material outside of the road prism.

Excess Excavation - Material from the roadway in excess of that needed for construction of the designed roadway (waste).

Grading - Leveling to grade, shaping and smoothing of a road subgrade; the shaping of roadside ditches as to grade and contour. In some instances includes smoothing of the cut bank.

MSHA – Mining Safety and Health Administration

Overhaul - Distance excavated material is transported in excess of the distance included in the cost for excavation.

Pioneer Road - Temporary construction access built along the route of the project.

Piping - The process by which soil particles are washed in or through pore spaces in drains and filters or poorly compacted fill/backfill material.

Plans - The approved drawings, or exact reproductions thereof which show the locations, character, dimensions, and details of the work to be done.

Purchaser - The individual, partnership, joint venture, or corporation contracting with the Government under the terms of a Timber Sale Contract and acting independently or through their, or its agents, employees, or contractors.

Reasonably Close Conformity - Compliance with reasonable and customary manufacturing and construction tolerances where working tolerances are not specified.

Reinforcement - Strengthening of concrete with iron bars or mesh: geotextile with geotextile material inclusion: subgrade with aggregate: etc.

Roadbed - The graded portion of the road within top and side slopes, prepared as a foundation for the pavement structure and shoulders.

Road Centerline - The longitudinal center of a roadbed.

Road Improvement - Work done to an existing road which improves it over its original design standard.

Road Renovation - Work done to an existing road which restores it to its original design.

Roadway - The portion of a road within limits of construction. Usually from the toe of the fill slope to a point where the cut slope intersects natural ground line. Synonym - road prism.

Scale - In quarrying, consists of the removal of loose or overhanging rock adhering to the solid face after a shot or a round of shots has been fired.

Scarification - The process of loosening or breaking up of the surface layer of soil or road, usually to a specified depth.

Shoulder - The portion of the roadbed contiguous with the traveled way designed for accommodation

of stopped vehicles, safety, and lateral support of base and surface courses.

Spalls - Flakes or chips of stone.

Specifications - A general term applied to all directions, provisions, and requirements pertaining to performance of the work.

Specific Gravity - The ratio of the density of a material to the density of water obtained by weighing known volumes of both items in air. A specific gravity less than one implies that the material will float.

Structures - Bridges, culverts, catch basins, retaining walls, underdrains, flumes, splash pads, downspouts, and other project features which may be involved in the work and not otherwise classified in these specifications.

Subbase - Reinforcement of the subgrade with large particles of pitrun rock or crushed stone. Usually confined to roads having wet subgrades or subgrades with weak support characteristics.

Surface Course - Top layer of a road structure consisting of finely crushed gravels or asphalt designed to provide a smooth running surface for traffic load.

Subgrade - The top surface of a roadbed upon which the traveled way and shoulders are constructed.

Tensile Stress - Strain Modulus - A measure of the resistance to elongation under stress. The ratio of the change in tensile stress to the corresponding change in strain.

Timber - Standing trees, downed trees, or logs which can be measured in board feet.

Traveled Way - The portion of the roadbed used for the movement of vehicles, exclusive of shoulders.

Typical Cross Sections - Cross-sectional plane of a typical roadway; showing natural ground line and designed roadway in relation to cut and fill, through cut, and through fill.

Turnout - Extra widening of the roadbed at appropriate intervals on single-lane roads for passing purposes.

Ultraviolet (UV) Radiation Stability - The ability of geotextile material to resist deterioration from exposure to sunlight.

Un-aged Cloth - Cloth in condition received from the manufacturer or distributor.

Woven Geotextile Material - A textile structure comprising two or more sets of filaments of yarns interlaced in such a way that the elements pass each other at essentially right angles with one set of elements parallel to the geotextile material axis.

102a — Tests Used in These Specifications:

| | |
|---|---|
| AASHTO T 11 | Quantity of rock finer than No. 200 sieve. |
| AASHTO T 27 | Sieve analysis of fine and coarse aggregate using sieves with square openings; gradation. |
| AASHTO T 89 | Liquid limit of material passing the No. 40 sieve. Water content at which the soil |

passes from a plastic to a liquid state.

AASHTO T 90 — Plastic limits and plasticity index of soil.
a. Plastic limit - lowest water content at which the soil remains plastic.
b. Plasticity index - range of water content, within which the material is in a plastic state. Numerical difference between the liquid and plastic limits of the soil.

AASHTO T 96 — Resistance to abrasion of small size coarse aggregate by use of the Los Angeles machine.

AASHTO T 99 — Relationship between soil moisture and density of soil.
Method A - 4" mold, soil passing a No. 4 sieve
25 blows/layer & 3 layers.
Method C - 4" mold, soil passing a 3/4 inch sieve
25 blows/layer & 3 layers.
Method D - 6" mold, soil passing a 3/4 inch sieve.
56 blows/layer & 3 layers.

AASHTO T 166 — Specific Gravity of compacted Bituminous Mixtures.

AASHTO T 176 — Shows relative portions of fine dust or claylike materials in soil or graded aggregate.

AASHTO T 180 — (OSHD 106-71) moisture density relationship of soil same as AASHTO T 99 proctor but uses a 10-lb rammer & 18-in drop height.

AASHTO T 191 — Sand Cone. Density of soil in place: For subgrade use 6-inch or 12-inch cone. For rock surfacing for 1-1/2-inch minus to 3-inch minus use 12-inch cone.

AASHTO T 205 — Rubber balloon. Density of soil in place. Use for compacted or firmly bonded soil.

AASHTO T 210 — Durability of aggregates based on resistance to produce fines.

AASHTO T 224 — Correction for coarse particles in the soil.

AASHTO T 238 — Density of Soil and Soil-Aggregate in place by nuclear methods.

AASHTO T 248 — Reducing field samples of aggregate to testing size by mechanical splitter, quartering, or miniature stockpile sampling.

ASTM D 4564 — Determination of relative density of cohensionless soils.

DMSO (dimethyl sulfide) — Determines volume of expanding clays in aggregates. Usually associated with marine basalts.

103 — Compaction equipment shall meet the following requirements:

103a — Padded Drum (Tamping) Rollers. The unit shall consist of a drum with pads, be either self-propelled or towed by a tractor, and capable of operating at a speed of 6 mph. The drum shall be no less than 48 inches in diameter over the pads and not less than 60 inches in width. The pads shall have a minimum height of 3 inches, and a face area of not less than 14 square inches. The weight at drum shall be no less than 8000 lb.

103d — Pneumatic-tired rollers. Pneumatic-tired rollers shall be of the double-axle type equipped with pneumatic tires each of equal size and type. The spacing between the sidewalls of adjacent tires shall not exceed 5 inches and the rear tires shall be staggered in relation to the front tires. The rolling width of the unit shall be not less than 60 inches, exclusive of the power unit. The roller shall be so constructed that the contact pressure is uniformly distributed on all of the tires, and the tires shall be inflated to maintain the air pressure in the several tires within a total tolerance of 5 pounds per square inch. The roller shall be so constructed that the total weight shall be between 1,000 and 2,000 pounds per tire. The actual operating weight of the rollers shall be as ordered by the Authorized Officer.

Each pneumatic-tired roller shall be drawn by equipment having sufficient power and weight under normal working condition to pull the roller at a minimum speed of 5 miles per hour, or it may be self-propelled to obtain a minimum speed of 5 miles per hour.

103e — Grid roller. A grid roller shall consist of two or more cylindrical drums independently mounted on a common shaft in a rigid frame. Each drum shall have a minimum outside diameter of 5 feet and a minimum width of 2 feet 6 inches. The overall width of the roller exclusive of frame shall be not less than 5 feet 6 inches of which not more than 6 inches shall be used for center spacing between two roller drums. The face of the drums shall have the appearance of woven open-mesh made by interlacing bars of not less than 1-1/4 inches nor more than 1-3/4 inches diameter space spaced on 4-1/2 inches to 5-1/2 inches center. Net opening between the bars shall be not less than 3 inches nor more than 4 inches. The roller shall be so constructed that counterweights can be used to adjust the gross weight of the roller to not less than 27,000 pounds. The grid roller shall be drawn by a power unit capable of propelling the fully loaded roller through 6 inches of loose embankment material at a speed of at least 4 miles per hour.

103f — Vibratory roller. The drum diameter shall be not less than 48 inches, the drum width not less than 58 inches, and have a turning radius of 15 feet or less. Vibration frequency shall be regulated in steps to 1400, 1500, and 1600 vibrations per minute (VPM), corresponding to engine speeds of 1575, 1690, and 1800 RPM. The centrifugal force developed shall be 7 tons at 1600 RPM. It shall be activated by a power unit of not less than 25 horsepower. The vibratory roller shall be self-propelled or drawn by a vehicle of sufficient horsepower to enable the unit to travel through a loose layer of material at a speed ranging from 0.9 mile to 1.8 miles per hour, as directed by the Authorized Officer.

The towing vehicle and roller or self-propelled unit meeting the above requirements shall be considered a vibratory roller unit.

103g — Vibratory compactor. Vibratory compactors shall consist of multiple or gang-type compacting units or pads with a minimum variable width of 2 feet. It shall be self-contained and capable of compacting material as required.

103i — Other. Compaction equipment approved by the Authorized Officer.

## CLEARING AND GRUBBING – 200

201 — This work shall consist of clearing, grubbing, removing and disposing of vegetation, debris, surface objects and protruding obstructions within the clearing limits in accordance with these specifications and conforming to the lines, grades, dimensions and typical cross sections shown on the plans.

201a — This work shall consist of clearing, grubbing, removing and disposing of vegetation, debris, surface objects and protruding obstructions from borrow pits, quarries, channel changes, stockpile sites, etc., in accordance with these specifications.

202 — Where clearing limits have not been staked, established by these specifications or shown on the plans, the limits shall extend 5 feet back of the top of the cut slope and 5 feet out from the toe of the fill slope.

203 — Clearing shall consist of the removal and disposal of trees, logs, rotten material, brush, and other vegetative materials and surface objects in accordance with these specifications and within the limits established for clearing as specified under Subsection 202 and as posted on the ground.

203a — Brush under 2 feet in height does not need to be cut within the limits established for clearing.

203b — Standing trees and snags to be cleared shall be felled within the limits established for clearing unless otherwise authorized.

204 — Grubbing shall consist of the removal and disposal of stumps, roots, and other wood material embedded in the ground and protruding obstacles remaining as a result of the clearing operation in accordance with Subsections 204a, 204b, 204c, 204d, and 204e between the top of the cut slope and the toe of the fill slope. Undisturbed stumps, roots and other solid objects which will be a minimum of 3 feet below subgrades or slope surfaces or embankments are excluded.

204a — Stumps, including those overhanging cut banks, shall be removed within the required excavation limits.

204b — Stumps and other protruding objects shall be completely removed within the limits of required embankments having heights of less than 4 feet. When authorized, stumps and other nonperishable objects may be left provided they do not extend more than 6 inches above the existing ground line.

204c — On excavated areas, roots and embedded wood shall be removed to a depth not less than 6 inches below the subgrade.

204d — On areas to be occupied by embankments having heights greater than 4 feet, no stump or portion thereof shall remain within 3 feet of embankment subgrades or slope surfaces after grubbing is completed.

204e — Roots and embedded wood material shall be removed to a depth not less than 1 foot below embankment subgrades or slope surfaces.

205 — Clearing and grubbing debris shall not be placed or permitted to remain in or under road embankment sections. Such debris will, however, be permitted to remain under waste material from full-bench construction on steep side slopes.

206 — Clearing and grubbing debris shall be disposed of by scattering in accordance with Subsection 210.

206a — Notwithstanding Subsections 204, 204a, 204d, and 205, clearing and grubbing debris resulting from landing construction shall be placed at disposal sites and shall not be covered with excavated material. Location of disposal sites will be determined by the Authorized Officer.

210 — Disposal of clearing and grubbing debris stumps and cull logs shall be by scattering over government owned lands outside of established clearing limits in a manner acceptable to the Authorized Officer. The areas for such scattering shall have the prior approval of the Authorized Officer.

210a — Disposal of clearing and grubbing debris stumps and cull logs on non-government property by scattering this material outside of clearing limits will be permitted provided the Purchaser obtains a written permit from the property owner on whose property the disposal is to be made. The Purchaser shall furnish the Authorized Officer a certified copy of the permit and a written release from the property owner absolving the Government from responsibilities in connection with the disposal of debris on said property.

210b — Clearing and grubbing debris, stumps, and cull logs resulting from road construction on non-Government property shall be disposed of as stated in the terms and conditions of the license agreement between the Purchaser and non-Government land owner.

212 — No grading will be permitted prior to completion and approval by the Authorized Officer of the required clearing and grubbing work, except that stump grubbing may proceed with the excavation of the road prism.

213 — No clearing or grubbing debris shall be left lodged against standing trees.

## EXCAVATION AND EMBANKMENT – 300

301 — This work shall consist of excavating, overhaul, placement of embankments, backfilling, borrowing, leveling, ditching, grading, insloping, outsloping, crowning and scarification of the subgrade, compaction, disposal of excess and unsuitable materials, and other earth-moving work in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans.

302 — Excavation shall also consist of the excavation of road and landing cut sections, borrow sites, backfilling, leveling, ditching, grading, compaction, and other earth moving work necessary for the construction of the roadway in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans and as marked on the ground.

303 — Suitable material removed from the excavation shall be used in the formation of embankment subgrade, shoulders, slopes, bedding, backfill for structures, and for other purposes as shown on the plans.

304 — Borrow shall consist of suitable material required for the construction of embankments or for other portions of the work; such material shall be obtained from sources selected by the Purchaser at his option and approved by the Authorized Officer.

305 — Embankment construction shall consist of the placement of excavated and borrowed materials, backfilling, leveling, grading, compaction, and other earth-moving work necessary for the construction of the roadway and landings in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections.

305a — Material used in the construction of embankment sections shall be free of stumps, cull logs, brush, muck, sod, roots, frozen material, and other deleterious materials and shall be placed and compacted as specified.

305b — Embankment materials shall be placed in successive parallel layers on areas cleared of stumps, cull logs, brush, sod, and other vegetative and deleterious materials, except as provided under Subsection 204. Roadway embankments of earth material shall be placed in horizontal layers not exceeding 6 inches in depth.

306 — Layers of embankment, selected borrow, final subgrade, and selected roadway excavation material as specified under Subsections 305a, 305b, 317, and 317a shall be moistened or dried to a uniform optimum moisture content suitable for maximum density and compacted to full width with compacting equipment conforming to requirements of Subsections 103a, 103d, 103e, 103f, 103g, and 103i.

306a — Minimum compaction for each layer of embankment, selected borrow, and selected roadway excavation material placed at optimum moisture shall be 1 hour of continuous compacting for each 4 stations of road or fraction thereof.

306d — Compacted materials within 3 feet of the established subgrade elevation shall have a density in place of not less than 95 percent of maximum density, and below the 3-foot limit, these materials shall have a density in place of not less than 90 percent of maximum density. Maximum density shall be determined by AASHTO T 99, Method A or Method D.

306e — The final subgrade including landings shall be compacted to full width with compacting equipment conforming to the requirements of Subsections 103a, 103d, 103e, 103f, 103g, and 103i. Minimum compaction shall be 1 hour of continuous compacting for each 4 stations of road or a fraction of as measured along the center line of the constructed road.

311 — In solid rock cuts where pockets that will not drain are formed by blasting below the subgrade elevation, drainage shall be provided by ditching to the edge of the subgrade and backfilling to grade, and compacting the pockets and the ditch with rock fragments, gravel, or other suitable porous material.

312 — When material, except solid rock, encountered in cuts at subgrade, is suitable for use in forming the finished roadbed, the top 6-inch layer of the subgrade shall be thoroughly scarified for the full width of the roadbed. Roots, sod, and other deleterious material or stones that will not pass a 6-inch square opening shall be removed. The scarified material shall be processed to the optimum moisture content suitable for maximum density and compacted in accordance with Subsection 306.

313 — In cut areas where solid rock is encountered at, or near subgrade, the rock shall be excavated to a minimum depth of 6 inches below subgrade elevation and the excavated area backfilled with suitable material. The backfill material shall be processed to the optimum moisture content suitable for maximum density and compacted to full width in accordance with the requirements of Subsection 306.

314 — When heavy clays, muck, clay shale, or other deleterious material for forming the roadbed is encountered in cuts at subgrade, it shall be excavated to a minimum depth of 2 feet below the subgrade elevation and the excavated area backfilled with a selected borrow material approved by the Authorized Officer. The backfill material shall be uniformly moistened or dried to the optimum moisture content suitable for maximum density in accordance with the requirements of Subsection 306. Unsuitable material shall be disposed of as directed by the Authorized Officer.

316 — Borrow material from sources selected at the Purchaser's option shall be inspected and approved in writing by the Authorized Officer prior to placement.

317 — Selected borrow shall consist of talus material, finely broken rock, gravel, or other material of granular or favorable characteristics and as approved by the Authorized Officer.

317a — Where indicated on the plans, the Purchaser shall conserve excavation material consisting of talus material, gravel, finely broken rock or other material of granular or favorable characteristics for placement on the top portions of the roadbed as directed by the Authorized Officer.

318 — Selected borrow or selected roadway excavation material shall be uniformly spread on the roadbed in lifts not to exceed 6 inches in depth until the required thickness shown on the plans is attained.

Each layer shall be uniformly moistened or dried to the optimum moisture content suitable for maximum density and compacted to full width in accordance with the requirements of Subsection 306.

318a — Selected borrow or selected roadway excavation material shall be uniformly spread on the roadbed to a depth which, after compaction, will provide the depth shown on the plans. Compaction shall be accomplished by 1 hour of continuous compaction per 4 stations of road.

320 — Ditches shall conform to the slope, grade, dimensions, and shape of the required cross section shown on the plans. Roots, stumps, rocks, and other projections shall be removed to form smooth, even slopes.

321 — Excess excavated, unsuitable, or slide materials shall not be disposed of on areas where the material will encroach on a stream course or other body of water. Such materials shall be disposed of in accordance with Subsection 321c. Materials not disposed of in this manner shall be retrieved and disposed of at the Purchaser's expense and at the direction of the Authorized Officer.

321c — End-dumping will be permitted for the placement of excess materials under Subsection 321 in designated disposal areas or within areas approved by the Authorized Officer. Watering, rolling, and placement in layers are not required. Materials placed shall be sloped, shaped, and otherwise brought to a visible condition acceptable to the Authorized Officer.

323 — In the construction of channel changes and stream-crossing embankment sections, natural stream flow shall be maintained unless otherwise provided.

324 — Excavated material shall not be allowed to cover boles of standing trees to a depth in excess of 2 feet on the uphill side.

325 — Where shown on the plans, topsoil shall be conserved from areas of excavation or embankment. Topsoil shall consist of friable earth material which may include the natural or native sod and be reasonably free of undesirable subsoil, large roots, wood refuse, and coarse gravel or stones which might interfere with the sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. The removed topsoil shall be transported and deposited in stockpiles at locations shown on the plans or in locations determined by the Authorized Officer.

327 — The finished grading shall be approved in writing by the Authorized Officer in segments or for the total project. The Purchaser shall give the Authorized Officer 3 days' notice prior to final inspection of the grading operations, and start of surfacing operations.

## PIPE CULVERTS – 400

401 — This work shall consist of furnishing and installing pipe culverts, downspouts, and other erosion control devices in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans. Individual lengths and locations are approximate; final lengths and locations will be determined by the Authorized Officer upon completion of the roadbed. Additional pipe and erosion control devices may be required at the option of the Authorized Officer, in which case a reduction in the total purchase price shall be made to offset the cost of furnishing and installing such items. Costs will be based upon the unit prices set forth in the current BLM Timber Appraisal Production Cost Schedule.

402 — The pipe culverts are located as shown on the plans and the Culvert Worklist, and shall be installed in such a manner as not to impede fish passage. Installation shall conform to the lines, grades, dimensions, and typical cross sections shown on the plans or as directed by the Authorized Officer.

403 — Cross drain culverts shall have a gradient of from 1 percent to 4 percent greater than the adjacent road grade. Culverts shall be skewed down grade 20 degrees as measured from parallel to the centerline unless otherwise specified on the plans.

404 — Damage to the spelter, or burn back in excess of 3/8 inch, shall be wire brushed and painted with two coats of zinc-rich paint on zinc-coated, steel pipe and aluminum-rich paint on aluminum or aluminum-coated pipe.

405a — Corrugated-aluminized steel-welded pipe culverts and special sections shall conform to the requirements of AASHTO M 36 and AASHTO M 218, AASHTO M 274, or AASHTO M 289 as specified on the plans.

405e — Corrugated-polyethylene pipe for culverts 12-inch through 36-inch diameter shall meet the requirements of AASHTO M 294.

Corrugated-polyethylene pipe for culverts 42-inch through 60-inch diameter shall meet the requirements of AASHTO M 294-03, Type D or Type S.

Corrugated-polyethylene pipe for culverts to be used for downspouts 12-inch through 60-inch diameter shall meet the requirements of AASHTO M 294-03, Type C.

Installation will be subject to the same specification as other pipe materials.

405f — Ring gaskets for rigid pipe shall meet the requirements of AASHTO M 198. Continuous flat gaskets for flexible metal pipe shall meet the requirements of ASTM D 1056, with grade RE 41 used for bands with projections or flat bands, and grade RE 43 used for corrugated bands. When used with metal pipe with annular reformed ends, the ring gasket shall be one-fourth greater in diameter than the depth of the corrugation. Gasket thickness for bands with projections or flat bands shall be 1/2 inch greater than the nominal depth of the corrugation and shall be 3/8 inch for corrugated bands. For pipe with flanged ends, a butyl-rubber-strip gasket shall be placed inside the channel band.

406 — Coupling bands shall conform to the requirements of AASHTO M 36 and AASHTO M 218 or AASHTO M 274 with the exception of band widths and the "Hugger"-type band which shall conform to the details, dimensions, and typical diagram shown on the plans.

406b — Coupling bands produced from flat galvanized steel sheets with impressed dimples will be permitted only for connecting annular corrugated steel pipe to helically corrugated steel pipe. Such coupling bands shall conform to the width requirements shown on the plans.

406c — Elbow sections used in conjunction with full-round pipe culvert downspouts shall be connected at both ends by "Hugger"-type bands, and "O" ring neoprene gaskets shall be inserted between the band and pipe as shown on the plans to insure a water-tight joint.

406e — Bituminous coated bands or a full-size gasket shall be used to join aluminum pipe culvert to galvanized steel pipe culvert.

406f — Channel-type or flanged-end coupling bands may be used on helical pipe with reformed rolled ends and flanged specifically to receive these bands. Such coupling bands shall conform to the requirements shown on the plans.

407 — Special sections, such as elbows, branch connections, and flared-end sections, shall be of the same gauge as the pipe to which they are joined, and shall conform to the requirements of AASHTO M 36 and AASHTO M 218 or AASHTO M 274.

408 — Pipe culverts and pipe-arch culverts shall be placed on the bed starting at the downstream end with the inside circumferential laps pointing downstream and with the longitudinal laps at the side or quarter points. Coupling bands of the type required under these specifications shall be installed so as to provide the circumferential and longitudinal strength necessary to preserve the pipe alignment, prevent separation of the pipe sections, and minimize infiltration of fill material.

410 — Pipes shall be unloaded and handled with reasonable care. If the Authorized Officer determines any structure is damaged to the extent that it is unsuitable for use in the road construction, it shall be replaced at the Purchaser's expense.

411 — Trenches necessary for the installation of pipe culverts shall conform to the lines, grades, dimensions, and typical diagram included in the plans and the Culvert Installation Details.

412 — Where ledge rock, boulders, soft, or spongy soils are encountered, they shall be excavated a minimum of 24 inches below the invert grade for a width of one pipe diameter plus 2 feet on each side of the pipe and shall be backfilled with crushed rock material in accordance with Section 1200 gradation E.

413 — Pipe culverts shall be bedded on a selected granular crushed rock material in accordance with Section 1200 gradation E material having a depth of not less than 4 inches as shown on plans. Foundation material shall be of uniform density throughout the length of the structure and shall be shaped to fit the pipe.

414a — The invert grade of the bedding shall be cambered at the middle ordinate a minimum of 1 percent of the total length of the drainage structure. Camber shall be developed on a parabolic curve.

415 — Inspection of pipe culverts having a diameter of 30 inches or greater shall be made before backfill is placed. Culverts found to be out of alignment or damaged shall be replaced, reinstalled or repaired as directed by the Authorized Officer and at the Purchaser's expense.

416 — Back-fill material for all pipe culverts shall be placed at a minimum of 2 feet of the sides of the pipe barrel, and to 1 foot over the pipe with crushed rock material in accordance with Section 1200 gradation E or granular fill material that has been approved by the Authorized Officer and is free of excess moisture, muck, frozen material, roots, sod, or other deleterious or caustic material and devoid of rocks or stones of sizes which may impinge upon and damage the pipe or otherwise interfere with proper compaction.

417 — Back-fill material for all pipe culverts shall conform to the requirements of Subsection 416 and shall be placed and compacted under the haunches of the pipe, and shall be brought up evenly and simultaneously on both sides of the pipe to 1 foot above the pipe, in layers not exceeding 6 inches in depth and a minimum of 2 feet in width each side of, and adjacent to, the full length of the pipe barrel. Each layer shall be moistened or dried to uniform moisture content suitable for maximum compaction and immediately compacted by approved hand or pneumatic tampers until a uniform density of 85 percent of the maximum density is attained as determined by AASHTO T 99, Method C.

418 — Back-fills beyond the compaction limits specified under Subsection 417 shall be compacted as specified under Section 300.

419 — The pipe culverts, after being bedded and backfilled as required by these specifications, shall be protected by a 2-foot cover of fill before heavy equipment is permitted to cross the drainage structures. Removal of the protection fill shall be as directed by the Authorized Officer.

423 — Construction of catch basins and ditch dams conforming to lines, grades, dimensions and typical diagrams shown on the plans, shall be required as specified on the Worklist Maps.

424 — Construction of splash pads/energy dissipaters conforming to lines, grades, dimensions and typical diagram shown on the plans, shall be required as specified on the Culvert Worklist and Worklist Maps.

425 — Where pervious materials are used for backfill and bedding, collars consisting of selected impervious material shall be placed at the inlet and at various intervals along the pipe barrel as shown on the plans and as directed by the Authorized Officer.

427 — Record culvert sizes, lengths and location actually installed on a copy of the culvert list. This culvert list shall be furnished to the Authorized Officer.

428 — Remove and dispose of old culverts in a legal manner, and pay any fees required.

429 — Keep the excavation site dewatered so that the installation of culverts is completed under dry conditions. Dispose of excess water by using pumping or natural drainage ways near the site in a manner that will avoid damage to adjacent property. Provide for downstream water flow with no more than 10% increase in natural stream turbidity due to transport of excavated material or sediment during construction. Diversion streams shall not be returned to the natural channel until all in-stream work has been completed.

## RENOVATION AND IMPROVEMENT OF EXISTING ROADS – 500

501 — This work shall consist of reconditioning and preparing the roadbed and shoulders, minor excavation and/or embankment, cleaning and shaping drainage ditches, trimming vegetation from cut and embankment slopes, and cleaning and repairing drainage structures of existing roads in accordance with these specifications, and as marked on the ground with stakes or metal tags.

501a — This work shall include the removal and disposal of slides in accordance with these specifications and as marked on the ground.

502 — The existing road surface shall be scarified to its full width and to a depth of 6 inches to eliminate surface irregularities and bladed and shaped to the lines, grades, dimensions, and typical cross sections shown on the plans and shown on the Worklist Maps.

502a — Rocks larger than 4 inches in maximum dimension shall be removed from the scarified layers of the roadbed. Material so removed will not be permitted to remain on road shoulders or in ditches.

502b — Drainage ditches shall be bladed and shaped in accordance with the lines, grades, dimensions, and typical cross sections shown on the plans.

503 — Debris from slides shall be disposed of as directed by the Authorized Officer.

504 — Scarified material or existing road surface shall be uniformly moistened or dried to the optimum moisture content suitable for maximum density and compacted to full width with equipment conforming to requirements of Subsections 103a, 103c, 103d, 103e, 103f, 103g, and 103i.

504a — Minimum compaction required shall be 1 hour of continuous rolling for each 4 stations of road, or fraction thereof, as measured along the centerline per layer of material.

504c — A uniform density of not less than 95 percent of the maximum density as determined by AASHTO T 99, Method A, C, or D shall be attained.

506 — The inlet end of all existing drainage structures shall be cleared of vegetative debris and boulders that are of sufficient size to obstruct normal stream flow. Pipe inverts shall be cleared of sediment and other debris lodged in the barrel of the pipe. The outflow area of designated pipe structures shall be cleared of rock and vegetative obstructions which will impede the structure's designed outflow configuration. Catch basins shall conform to the lines, grade, dimensions, and typical diagram shown on the plans.

507 — Existing and new drainage structures shown on the Culvert Worklist sheet shall be replaced or installed with structures of the type, gauge, diameter, and length shown on the plans and in accordance with the placement requirements set forth under Section 400 of these specifications.

508 — Vegetation encroaching on the roadbed and the drainage ditches of existing roads shall be removed by cutting and disposed of in accordance with Subsection 2100 of these specifications.

509 — The finished grading shall be approved in writing by the Authorized Officer 1 day prior to surfacing operations. The Purchaser shall give the Authorized Officer 3 days’ notice prior to final inspection of the grading operations.

## WATERING – 600

601 — This work shall consist of furnishing and applying water required for the compaction of embankments, roadbeds, backfills, base courses, surface courses, finishing and reconditioning of existing roadbeds, laying dust, or for other uses in accordance with these specifications.

602 — Water, when needed for compaction or laying dust, shall be applied at the locations, in the amounts, and during the hours as directed by the Authorized Officer. Amounts of water to be provided will be the minimum needed to properly execute the compaction requirements in conformance with these specifications, and for laying dust during work periods where the road crosses private property.

603 — Water trucks used in this work shall be equipped with a distributing device of ample capacity and of such design as to ensure uniform application of water on the road bed.

604 — Water required under these specifications shall be obtained from a source approved by the Authorized Officer.

Willamette Meridian

| Common Name | Section | T. | R. |
|---|---|---|---|
| Crooked Creek | 19 | 15S | 1W |

Use of water sources are subject to applicable State water regulations. In the event that the required water is not available at the location specified, water shall be obtained from a source approved by the Authorized Officer. A reduction shall be made in the total purchase price to reflect additional hauling distance based on rental rates from current BLM Timber Appraisal Cost Schedules.

605 — The Purchaser shall secure the necessary water permits and pay all required water fees for use of the water source specified under Subsection 604 and for use of water sources selected by the Purchaser and approved by the Authorized Officer.

## AGGREGATE BASE COURSE – 1000
### CRUSHED ROCK MATERIAL

1001 — This work shall consist of furnishing , hauling, and placing one or more lifts of crushed rock material on roadbeds and landings approved for placing crushed rock material, in accordance with these specifications and conforming to the dimensions and typical cross sections shown on the plans. Material not conforming to these specifications will be rejected and shall be removed from the road at the Purchaser's expense.

1002a — Crushed rock materials may be obtained from commercial sources selected by the Purchaser at his option and expense providing that the rock materials selected comply with the specifications in this section.

1003 — Crushed rock material produced from gravel shall have 2 manufactured fractured faces on 65 percent, by weight, of the material retained on the No. 4 sieve. If necessary to meet the above requirement, or to eliminate an excess of filler, the gravel shall be screened before crushing.

1004 — Crushed rock materials shall consist of hard durable rock fragments conforming to the following gradation requirements:

TABLE 1004

AGGREGATE BASE COURSE
CRUSHED ROCK MATERIAL
Percentage by Weight Passing
Square Mesh Sieves
(AASHTO T 11 & T 27)

| Sieve Designation | GRADATION | |
|---|---|---|
| | A | I |
| 6-inch | - | 100 |
| 3-inch | 100 | 45-65 |
| 2-inch | 90-95 | - |
| 1-1/2-inch | - | - |
| 1-inch | 45-75 | - |
| 3/4-inch | - | - |
| 1/2-inch | - | - |
| 3/8-inch | - | - |
| No. 4 | 15-45 | 5-15 |
| No. 8 | - | - |
| No. 10 | - | - |
| No. 30 | - | - |
| No. 40 | 5-25 | - |
| No. 200 | 2-15 | - |

1004a — The Purchaser shall be required to take one (1) sample of each 1,000 cubic yards of crushed rock material produced, using approved AASHTO sampling procedures. The Purchaser shall submit samples to a certified lab or shall perform testing for gradation requirements using AASHTO T 27 testing procedures. Prior to testing, each sample shall be split, making one-half of the sample with proper identification available for testing by the Authorized Officer. Each sample and the results of Purchaser testing shall be made available to the Authorized Officer within twenty-four (24) hours of sampling. The Purchaser shall provide test results for the first five hundred (500) cubic yards produced prior to commencing production crushing and hauling.

1005 — Commercial crushed rock material retained on the No. 4 sieve shall have a percentage of loss of not more than 35 at 500 revolutions, as determined by AASHTO T 96.

1006 — Commercial crushed rock material shall show durability value of not less than 35, as determined by AASHTO T 210.

1007 — That portion of commercial crushed rock material passing the No. 40 sieve, including blending filler, shall have liquid limits of not more than 35, and a plasticity index of not less than 4 and not more than 12 as determined by AASHTO T 89 and AASHTO T 90.

1007a — That portion of commercial crushed rock material passing No. 4 sieve, including blending filler shall have a sand equivalent of not less than 35, as determined by AASHTO T 176, except where that portion exhibits a sand equivalent of less than 35, the aggregate will be accepted if it complies with the additional requirement as follows:

TABLE 1007a

| Sand Equivalent | Percent Passing #200 Sieve AASHTO T 27 |
|---|---|
| 34 | 9 |
| 33 | 8 |
| 32 | 7 |
| 31 | 6 |
| 30 | 5 |
| 29 or less | 4 |

1008 — If additional binder or filler is necessary in order to meet the grading or plasticity requirements, or for satisfactory bonding of the material, it shall be uniformly blended with the crushed rock material at the crushing and screening plant prior to placing on the road, unless otherwise agreed. The material for such purposes shall be obtained from sources approved by the Authorized Officer and shall be free from stones, vegetative matter, and other deleterious materials.

1008a — Each layer of crushed rock material shall be thoroughly mixed on the roadbed by alternately blading, to full depth, until a uniform mixture has been obtained. The mixture shall then be spread to full width. When completed, the spreading shall produce a surface which is smooth, presents uniform shoulder lines, and conforms to the specified cross section.

1009 — The roadbed, as shaped and compacted under Sections 300 and 500 of these specifications, shall be approved in writing by the Authorized Officer prior to placement of crushed rock materials. Notification for final inspection prior to rocking shall be 72 hours prior to that inspection and shall be 10 days prior to start of rocking operations.

1010 — Crushed rock materials shall be placed and processed on the approved roadbed in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans and as staked on the ground and compacted in layers not to exceed 6 inches (loose) in depth. When more than one layer is required, each shall be shaped, processed, compacted, and approved in writing by the Authorized Officer before the succeeding layer is placed. Irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and adding or removing crushed rock material until the surface is smooth and uniform.

1010a — Crushed rock material used to repair or reinforce a soft, muddy, frozen, yielding, or rutted roadbed shall not be construed as surfacing under this specification unless approved as such by the Authorized Officer prior to placement.

1012 — Each layer of crushed rock material shall be placed, processed, shaped, moistened or dried to a uniform moisture content suitable for maximum compaction, and compacted to full width by compaction equipment conforming to the requirements of Subsections 103a, 103d, 103e, 103f, 103g and 103i. Minimum compaction shall be one (1) hour of continuous compacting for each 150 cubic yards, or fraction thereof, of crushed rock material placed per layer and deemed adequate when the surface can withstand five passes of a truck with H-20 loading without appreciable deformation and 6 passes over each full-width layer.

1013 — Each layer of crushed rock material for base placed, processed, and shaped as specified shall be uniformly moistened or dried to the optimum moisture content suitable for maximum density and

compacted to full width until a uniform density of not less than 85 percent of the maximum density as determined by AASHTO T 99, Method D.

1018 — The equipment and methods used for stockpiling crushed rock material and for removing material from the stockpiles shall be such that minimum degradation or segregation of the material will result and that minimal amounts of foreign material will be incorporated into the crushed base material. There will be no intermingling of stockpiled materials.

## AGGREGATE SURFACE COURSE – 1200
## CRUSHED ROCK MATERIAL

1201 — This work shall consist of furnishing , hauling, and placing one or more layers of crushed rock material on roadbeds and base courses approved for placing crushed rock material in accordance with these specifications and conforming to the dimensions and typical cross sections shown on the plans. Material not conforming to these specifications will be rejected, and shall be removed from the road at the Purchaser's expense.

1202a — Crushed rock materials used in this work may be obtained from commercial sources selected by the Purchaser at his option and expense, providing laboratory tests performed by BLM of furnished rock samples are in accordance with Subsection 1220 and indicate compliance with the specifications in this section.

1203 — When crushed rock material is produced from gravel, not less than 65 percent by weight of the particles retained on the No. 4 sieve will have 2 manufactured fractured faces. If necessary to meet the above requirements or to eliminate an excess of filler, the gravel shall be screened before crushing.

1204 — Crushed rock material shall consist of hard durable rock fragments conforming to the following gradation requirements:

TABLE 1204

AGGREGATE SURFACE COURSE
CRUSHED ROCK MATERIAL
Percentage by weight passing
square mesh sieves
(AASHTO T 11 & T 27)

| Sieve Designation | GRADATION | |
|---|---|---|
| | C | E |
| 1-1/2-inch | 100 | - |
| 1-inch | - | - |
| 3/4-inch | 50-90 | 100 |
| 1/2-inch | - | - |
| No. 4 | 25-50 | 40-75 |
| No. 8 | - | - |
| No. 30 | - | - |
| No. 40 | 5-25 | 5-35 |
| No. 200 | 2-15 | 2-15 |

1204a — The Purchaser shall be required to take one sample for each 1,000 cubic yards of crushed rock material to be utilized or a minimum of 1 sample per day using AASHTO sampling procedures. The

Purchaser shall submit samples to a certified lab or perform testing for gradation requirements using AASHTO T 11 and AASHTO T 27 testing procedures and also perform testing for sand equivalency requirements using AASHTO T 176 testing procedures. Prior to testing, each sample shall be split, making one half of the sample, with proper identification, available for testing by the Authorized

Officer. Each sample and the results of Purchaser testing shall be made available to the Authorized Officer within 24 hours of sampling. The Purchaser shall provide test results for the first 500 cubic yards produced prior to commencing production crushing and hauling.

1205 — Crushed rock material retained on the No. 4 sieve shall have a percentage of loss of not more than 35 at 500 revolutions, as determined by AASHTO T 96.

1206 — Commercial crushed rock material shall show a durability value of not less than 35 as determined by AASHTO T210 and will be accepted if it complies with the additional DMSO requirements as shown on Table 1206a.

1206a — The commercial crushed rock material shall show a loss of not more than the percentage shown in Table 1206a, when submerged in DMSO, dimethyl sulfoxide, for five days, according to Federal Highway Administration Region 10 Accelerated Weathering Test Procedure.

TABLE 1206a

| **Durability** | **DMSO (% loss by wt.)** |
|---|---|
| 35 | 20 |
| 40 | 25 |
| 45 | 30 |
| 50 | 35 |
| 55 | 40 |
| 60 | 45 |

1207 — That portion of commercial crushed rock material passing the No. 40 sieve, including blending filler, shall have a liquid limit of not more than 35 and a plasticity index not more than 12 as determined by AASHTO T 89 and AASHTO T 90.

1207a — That portion of commercial crushed rock material passing No. 4 sieve, including blending filler, shall have a sand equivalent of not less than 35, as determined by AASHTO T 176, except where that portion exhibits a sand equivalence of less than 35, the aggregate will be accepted if it complies with the additional requirement as follows:

TABLE 1207a

| Sand Equivalent | Percent Passing #200 Sieve AASHTO T 27 |
|---|---|
| 34 | 9 |
| 33 | 8 |
| 32 | 7 |
| 31 | 6 |
| 30 | 5 |
| 29 or less | 4 |

1208 — If additional binder or filler material is necessary to meet the grading or plasticity requirements or for satisfactory bonding of the material, it shall be uniformly blended with the crushed rock material at the crushing and screening plant prior to placing on the road, unless otherwise agreed. The material for such purposes shall be obtained from sources approved by the Authorized Officer and shall be free from stones, vegetative matter, and other deleterious materials.

1208a — Each layer of crushed rock material shall be thoroughly mixed on the roadbed by alternately blading, to full depth, until a uniform mixture has been obtained. The mixture shall then be spread to full width. When completed, the spreading shall produce a surface which is smooth, presents uniform shoulder lines, and conforms to the specified cross section.

1209 — Shaping and compacting of roadbed base course shall be completed and approved in writing, prior to placing crushed rock material, in accordance to the requirements of Subsections 300 and 500 for placing on the roadbed, landings, and Subsection 1000 for placing on the base course. Notification for final inspection prior to rocking shall be 72 hours prior to the inspection and shall be 10 days prior to start of surfacing operations.

1210 — Crushed rock material conforming to the requirements of these specifications shall be placed on the approved roadbed, landings, and base course in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans and staked on the ground. Compacted layers shall not exceed 4 inches in depth. When more than one layer is required, each shall be shaped, processed, compacted, and approved in writing by the Authorized Officer before the succeeding layer is placed. Irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and then adding or removing crushed rock material until the surface is smooth and uniform.

1210a — Crushed rock material used to repair or reinforce soft, muddy, frozen, yielding, or rutted roadbed shall not be construed as surfacing required by this specification unless approved by the Authorized Officer.

1212 — Each layer of crushed rock material placed, processed, and shaped as specified shall be moistened or dried to a uniform moisture content suitable for maximum compaction and compacted to full width by compacting equipment conforming to the requirements of Subsections 103a, 103d, 103e, 103f, 103g, and 103i. Minimum compaction shall be 1 hour of continuous compacting for each 4 stations, or fraction thereof.

1213 — Each layer of crushed rock material placed, uniformly processed, and shaped as specified shall be uniformly moistened or dried to the optimum moisture content suitable for maximum density and

compacted to full width until a uniform density of not less than 95 percent of maximum density is attained as determined by AASHTO T 99, Method C or D.

1218 — The equipment and methods used for stockpiling crushed rock material and for removing material from the stockpiles shall be such that minimum degradation or segregation of the material will result and that minimal amounts of foreign material will be incorporated into the crushed base material and that there will be no intermingling of stockpiled materials.

1220 — Crushed rock material required under Section 1200 of these specifications shall first be placed in stockpile after crushing. The Purchaser shall notify the Authorized Officer a minimum of 3 days in advance of the date he intends to commence the crushing and stockpiling operations so that progressive test samples can be taken as the crushed rock material is produced. Sampled materials shall remain in stockpile until such time the Authorized Officer receives test results which indicate compliance with Subsections 1203, 1204, 1205, 1206, 1207, 1207a and 1208. Crushed rock material so tested shall be approved in writing by the Authorized Officer within 6 days from sampling date. Approved material may then be removed from stockpile for placement on the designated road. In no event shall the Purchaser place crushed rock materials on the road from sources other than the tested and approved stockpiles. Noncompliance with the requirements of this subsection shall constitute grounds for the rejection of all crushed rock materials furnished under this contract.

## SLOPE PROTECTION – 1400

1401 — This work shall consist of furnishing, hauling, and placing stone materials for slope protection structures in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross-sections shown on the plans. Material not conforming to these specifications will be rejected and shall be removed from the slope protection structure at the Purchaser's expense and as directed by the Authorized Officer.

1402 — Stone material shall consist of hard angular quarry rock, blasted rock, and coarse stone from roadway excavation of such quality that it will not disintegrate on exposure to water or weathering, and shall be graded in accordance with these specifications.

1404 — The material shall be well graded from the smallest to the maximum size specified. Stones smaller than the specified 10 percent size shall consist of spalls and fine rock fragments so distributed as to provide a stable compact mass.

1405 — Rip rap shall conform to the following gradations:

TABLE 1405

| Class | Approx. Cubic Dimension (inches) | Sphere Diameter (inches) | % of Total Volume Smaller than Size of Stone |
|---|---|---|---|
| 1 | 6-8 | 8 | 100 |
| | 5-6 | 6 | 80 |
| | 2-5 | 6 | 50 |
| | 0-2 | 2 | 10 |
| 2 | 8-10 | 12 | 100 |
| | 6-8 | 8 | 80 |
| | 3-6 | 6 | 50 |
| | 0-3 | 4 | 10 |
| 3 | 14-16 | 21 | 100 |
| | 10-14 | 18 | 80 |
| | 5-10 | 12 | 50 |
| | 0-5 | 6 | 10 |
| 4 | 18-20 | 24 | 100 |
| | 14-18 | 22 | 80 |
| | 6-14 | 18 | 50 |
| | 0-6 | 8 | 10 |
| 5 | 26-28 | 36 | 100 |
| | 20-26 | 32 | 80 |
| | 8-20 | 25 | 50 |
| | 0-8 | 10 | 10 |
| 6 | 28-34 | 42 | 100 |
| | 22-28 | 34 | 80 |
| | 10-22 | 27 | 50 |
| | 0-10 | 12 | 10 |

*Rocks smaller than six inches in diameter are not counted.

1405a — Stone materials shall show a durability value of not less than 50 as determined by AASHTO T 210.

1406 — The placement of slope protection stones by the end dumping method shall be conducted to prevent the stones from escaping beyond the embankment toe.

1406a — The embankment shall be placed in successive horizontal layers of sufficient depth to contain the maximum size rock present in the material. Spalls and finer fragments of stone other than specified in Subsection 1405 shall be used to chock the larger stones solidly in position and to fill voids between the major stones as laid in the embankment. The exposed face of the embankment shall be reasonably smooth and uniform; material shall be prevented from escaping beyond the toe of the structure.

1406b — Spaces in back of hand-laid embankment shall be filled with hand-tamped or rammed rock-spall material.

1407 — Determination of the acceptability of the slope protection material gradation will be through visual inspection and physical measurements by the Authorized Officer.

1408 — Trenches for slope protection structures shall be excavated to the lines, elevations, and typical diagram shown on the plans. They shall be of sufficient size to permit the placing of structure footing of the full widths and length shown. Trenches shall be approved by the Authorized Officer prior to placement of slope protection material.

1408a — Foundation trenches and other required excavation as shown on the plans shall be approved prior to placing the slope protection material.

1409 — Slope protection material shall be placed so as to form the cross sections shown on the plans. The face of the slope protection structure above the low-water line shall be uniform, free from humps, depressions, or large cavities.

## QUARRY AND BORROW PIT DEVELOPMENT - 1600

1601 — This work shall consist of quarry development in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the plans.

1602 — The developed rock quarry site (Blagen Quarry) located at the following location:

| Willamette Meridian | | | |
|---|---|---|---|
| **Subdivision** | **Sec.** | **T.** | **R.** |
| NE1/4 | 3 | 15S | 2W |

shall be developed and mined in strict accordance with these specifications and the mining and reclamation plan shown on the plans. The Purchaser shall perform reclamation work in accordance with the requirements of Subsection 1617, as shown on the plans, and as directed by the Authorized Officer.

1603 — If the Purchaser elects to use a rock source other than the designated source, the rock material produced shall comply with applicable sections of these specifications. If the alternate source is located on BLM ownership and a current BLM plan is not available, a development, mining, and reclamation plan shall be prepared by the Purchaser, and submitted for review by the Authorized Officer. Development, mining and reclamation work shall be in accordance with the approved plan and 1600 specifications.

1604 — If the designated source proves insufficient as to quantity and quality of the required rock material, the Purchaser shall, when ordered in writing by the Authorized Officer, move his operation to an alternate materials source selected by the Authorized Officer. Development and extraction work on the alternate source shall be in accordance with the mining plan. An equitable adjustment will be made in the contract price.

1605c — The operation of equipment related to the production of rock aggregate and quarry operations shall be confined to the quarry operations area and to the designated tractor trails as shown on the plans.

1606 — Prior to removal of overburden from the quarry site, topsoil shall be removed and stockpiled. Stockpiles shall not be covered by overburden or waste materials and will be readily accessible for final backfilling and grading. The location of stockpile sites shall be shown on the mining and

reclamation plan. Topsoil stockpiles shall be seeded to minimize erosion.

1608 — Overburden or reject material which does not conform to the requirements of Subsections 1005, 1006, 1205, and 1206 shall be wasted as directed by the Authorized Officer.

1609a — Overburden and/or reject material shall be removed back from the upper edge of the quarry for a distance equal to one-half of the working face or a minimum of 15 feet whichever is greater. Overburden shall be sloped no steeper than 1 to 1.

1609c — Overburden and reject material shall be placed at the disposal sites shown on the plans, or as directed by the Authorized Officer.

1610 — Waste disposal sites shall be selected and prepared to minimize erosion and establish conditions conducive to vegetative growth. Disposal areas shall be seeded and mulched in accordance with the requirements set forth in Section 1800 of these specifications.

1611 — The Purchaser shall notify the Authorized Officer, in writing, at least 3 days prior to commencing quarry operations.

1611a — The Purchaser shall not commence production drilling or crushing until the Authorized Officer has accepted and reviewed the site development in writing.

1612 — The Purchaser shall notify MSHA (Mining Safety and Health Administration) by standard form or telephone, and in accordance with part 56, Chapter 1 of Title 30 Code of Federal Regulations (CFR), of what date he intends to commence, terminate, and/or temporarily close down operations of the quarry. Notice shall be submitted a minimum of 10 days prior to the proposed date of the action to be taken. Notification shall be submitted to:

Mining Safety and Health Administration
Attn: Supervisor
P.O. Box 70
Albany, OR 97321
Commercial Phone No. (503)967-5825

Or

Mining Safety and Health Administration
117 107th Ave. N.E.
Bellevue, WA 98004
Commercial Phone No. (206)442-7037

The Purchaser shall also prepare and submit to MSHA at the above address the quarterly Employment Report and Injury and Illness Report for the mining operation.

1613 — The Purchaser shall comply with local and State Safety Codes covering quarrying operations, warning signs, seismic monitoring, and traffic control. All quarrying operations will be conducted by appropriately licensed personnel; i.e. blasting and powder handler's license, etc.

1613a — The Purchaser shall submit a written blasting plan or modification of the plan to the Authorized Officer for the Blagen Quarry, 3 working days prior to the start of drilling. The plan shall include: a) plan view of delay pattern; b) cross section of a typical loaded hole; c) types of explosives; d) powder factor; e) burden spacing, hole diameter, depth of holes, and depth of subdrill; and f) number of lifts. Acceptance of the blasting plan does not relieve the Purchaser of the liability or responsibility for the

results of the blasting.

1613b — Controlled blasting techniques shall be employed during production blasting to contain blasted rock.

1613c — The Purchaser shall submit to the Authorized Officer a blasting log showing "as built" data and a brief summary of the blasting results, within 10 days after the shot.

1614 — Rock materials extracted from the quarry walls shall be utilized or disposed of as shown on the plans. Secondary blasting or other methods shall be employed to reduce the quarried rock to a maximum of 24 inches in any dimension.

1614a — Oversized boulders shall not be wasted but shall be broken and utilized concurrent with acceptable material, or set aside as directed by the Authorized Officer.

1615 — Operations on the quarry site shall be so conducted that, both during and after completion of work, erosion will be minimized and sediment will not enter streams or other bodies of water. Waste or disposal areas and quarry access roads shall be located, constructed, and maintained in a manner that will prevent sediment from entering live streams or other bodies of water. Noncombustible debris and silt-laden water material resulting from the quarry operations shall be placed in such waste or disposal areas as shown on the plans and as directed by the Authorized Officer.

1616 — Upon completion of quarrying operations, overburden and waste materials shall be disposed of in accordance with requirements of the approved reclamation plan or in a manner approved in writing by the Authorized Officer.

1617 — Upon completion of quarrying operations, required site reclamation measures shall be performed to the satisfaction of the Authorized Officer, including but not limited to the following:

(a) Permanently seal or fill unused drill holes as directed by the Authorized Officer.
(b) Backfill pits and excavations with overburden and waste as directed by the Authorized Officer.
(c) Grade backfill material to the natural contour or desired landforms as directed by the Authorized Officer.
(d) Clear quarry benches and scale wall of loose or dislodged shot material and move to a designated location within the quarry.

## EROSION CONTROL – 1700

1701 — This work shall consist of measures to control soil erosion or water pollution during the construction operation through the use of berms, dikes, dams, sediment basins, fiber mats, netting, gravel, mulches, grasses, slope drains, and other erosion control devices or methods in accordance with these specifications and conforming to the lines, grades, dimensions and typical cross sections shown on the plans.

1702 — The Purchaser shall construct dikes, dams, diversion channels, settling basins, and other erosion control structures located outside of the road right-of-way in accordance with the requirements and details as directed by the Authorized Officer.

1703 — This work shall consist of furnishing and installing brush barriers or sediment fences in accordance with these specifications as directed by the Authorized Officer.

1704 — The erosion control provisions specified under this Subsection shall be coordinated with the Soil Stabilization requirements of Section 1800.

1708 — Newly constructed or graded native surfaced roads to be carried over the winter period, shall be blocked to vehicular traffic as directed by the Authorized Officer.

1708a — Road segments not completed during dry weather periods shall be winterized, by providing a well-drained roadway using water bars, maintaining drainage, and performing additional measures necessary to minimize erosion and other damage to the roadway, as directed by the Authorized Officer. Portions of roads not having surface rock in place will be blocked or barricaded to prevent vehicular traffic.

1711 — The Purchaser shall construct sedimentation pools, temporary berms, brush barriers, sediment and check dams, catch basins, and energy dissipaters for pipe culverts and diversion channels conforming to the requirements and details shown on the respective exhibits.

1712 — Where shown on the plans or as directed by the Authorized Officer, the Purchaser shall provide erosion control measures for newly constructed ditches on steep grades which include but are not limited to, dumped stone, jute mesh, sod, check dams consisting of hay bales, and earth or stone. Width of protective lining or dam should extend far enough up the ditch slopes to effectively contain the runoff and prevent erosion and washout at the edges and prevent sediment from reaching live water.

1713 — Where newly constructed logging spur roads join with existing surfaced roads, the Purchaser shall construct a sag in the spur road profile and install culverts in accordance with the requirements and details as shown on the plans and directed by the Authorized Officer.

## SOIL STABILIZATION – 1800

1801 — This work shall consist of seeding, and mulching on designated cut, fill, borrow, disposal, and special areas in accordance with these specifications and as shown on the plans. This work is not required for road acceptance under Section 18 of this contract.

1802 — Soil stabilization work consisting of seeding and mulching shall be performed at new culverts and designated locations in accordance with these specifications and as shown on the plans.

1803 — Soil stabilization work at stream crossing culvert locations as specified under Subsection 1802 shall be performed during the following seasonal periods:

From: May 15 to November 30

Or as permitted.

The Authorized Officer may modify the above seasonal dates to conform to existing weather conditions and changes in the construction schedule.

1803a — The Purchaser shall begin soil stabilization work promptly after machine operations.

1804 — The BLM shall provide native grass/forb seed and mulch for this project. If BLM is unable to provide native seed or other plant materials, the contract may be modified to delete the requirement to complete soil stabilization work and to increase the Total Purchase Price by the cost of this work as appraised at the time of sale.

1809 — After seed and mulch material is furnished to the Purchaser, it shall be maintained in a dry state. Material to be used in the mulching operation may be stockpiled along the road designated for treatment provided that it is maintained in a dry state and has the approval of the Authorized Officer.

1812 — The Purchaser shall apply to the area designated for treatment as shown on the plans and as specified under Subsection 1802, a mixture of grass seed and mulch material at the application rate to be determined by the Authorized Officer based on visual observation of trial applications.

Mulches shall be spread/placed in treatment areas to a depth of 2 inches to allow seed germination or as directed by the Authorized Officer. Treatment area will be covered evenly and completely. Mulch can be broadcast onto the soil surface by hand or with hand/mechanical operated spreaders.

1814 — The Purchaser may reduce the application rate on partially covered slopes and refrain from application on areas already well stocked with grass or on rock surfaces as determined by the Authorized Officer.

1824 — Twine, rope, sacks, and other debris resulting from the soil-stabilization operation shall be picked up and disposed of to the satisfaction of the Authorized Officer.

## ROADSIDE BRUSHING – 2100

2101 — This work shall consist of the removal of vegetation from the road prism - variable distance, and inside curves in accordance with these specifications and conforming to the lines, grades, dimensions, and typical cross sections shown on the Roadside Brushing Detail Sheet of this exhibit, at designated locations as shown in the plans.

2102 — Roadside brushing shall be performed mechanically with self-powered, self-propelled equipment and/or manually with hand tools, including chain saws.

2103 — Vegetation cut manually or mechanically less than 6 inches in diameter when measured 6 inches above the ground at DBHOB shall be cut to a maximum height of 2 inches above the ground surface or above obstructions such as rocks or stumps on cut and fill slopes, and all limbs below the 2 inch area will be severed from the trunk.

2103a — Vegetation shall be cut and removed from the road bed between the outside shoulders and the ditch centerline and such vegetation shall be cut to a maximum height of 2 inches above the ground and running surface. Limbs below the 2 inch area will be severed from the trunk. Sharp pointed ends will not be permitted. Cuts shall be parallel to the ground line or running surface.

2104 — Trees in excess of 6 inches in diameter when measured 6 inches above the ground line shall be limbed, so that no limbs extend into the treated area or over the roadbed to a height of 15 feet above the subgrade running surface of the roadway on cut and fill slopes, within the road prism-variable distance. Limbs shall be cut to within 1 inch of the trunk to produce a smooth vertical face. Removal of trees larger than 6 inches in diameter for sight distance or safety may be directed by the Authorized Officer.

2105 — Vegetation that is outside of the road prism-variable distance that protrudes into the road prism and within 15 feet in elevation above the subgrade running surface shall be cut, to within 1 inch of the trunk to produce a smooth vertical face.

2106 — Vegetative growth capable of growing 1 foot in height or higher shall be cut, within the road prism-variable distance or as directed by the Authorized Officer.

2107 — Inside curves shall be brushed out for a sight distance of 200 feet, or a middle ordinate distance of 25 feet whichever is achieved first. Overhanging limbs and vegetation in excess of 1 foot in height shall be cut within these areas.

2108 — Self-propelled equipment shall not be permitted on cut and fill slopes or in ditches.

2109 — Debris resulting from this operation shall be scattered downslope from the roadway. Debris shall not be allowed to accumulate in concentrations. Debris in excess of 1 foot in length and 2 inches in diameter shall not be allowed to remain on cut slopes, ditches, roadways or water courses, or as directed by the Authorized Officer.

2116 — Traffic warning signs shall be required at each end of the work area. Signs shall meet the requirements of the Manual on Uniform Traffic Control Devices (MUTCD).

## HOT MIX ASPHALT CONCRETE PAVING – 2600

2601 — This work shall consist of furnishing, applying and compacting Hot Mix Asphalt Concrete on prepared surfaces, in the depths, amounts and locations as shown on the plans.

2602 — Submit 2 copies of the bituminous job mix formula to be used on this project 3 weeks prior to placement of paving. The Purchaser shall have written approval of the formula by the Authorized Officer prior to placement of pavement.

2603 — Vehicular traffic, including heavy equipment, will not be permitted on the pavement until all rolling and compacting operations have been completed.

2604 — Place bituminous mixture only when air temperature is above 45°F, on surfaces that do not have standing water, and when it is not raining.

2605 — Asphalt paving shall conform to the Oregon Department of Transportation, Level III, ½" dense, PG 64-22 Asphalt Binder mix for use on roadways. Furnish aggregate that conform to the aggregate requirements for hot mix asphalt concrete by the Oregon Department of Transportation.

2606 — Aggregate shall be tested by AASHTO T 11 and T 27. The aggregate selected for use in the work shall have a gradation within the limits designated in Table 2606.

TABLE 2606

TOLERANCE GRADATION OF AGGREGATES
Total Percentage by Weight Passing Square Mesh Sieves
(AASHTO T 11 and AASHTO T 27)

| Sieve Size | Percent |
|---|---|
| 3/4 inch | 100 |
| 1/2 inch | 90-100 |
| No. 4 | JMF +/- 5 |
| No. 8 | JMF +/- 4 |
| No. 30 | JMF +/- 4 |
| No. 200 | JMF +/- 2 |

JMF = Job Mix Formula

2607 — Bituminous material shall meet the requirements of AASHTO M 320.

2608 — Water shall be clean and free from deleterious materials.

2609 — The asphalt spreader shall be capable of spreading hot bituminous mixtures without tearing, shoving, or gouging and produce a finished surface of the specified grade and smoothness.

2610 — The number, type and weight of rollers shall be sufficient to compact the mixture to the required density without detrimentally affecting the compacted material. All rollers shall be suitable for rolling hot-mix bituminous pavements and capable of being operated without turning on the mat and without loosening the surface being rolled. Rollers shall have suitable devices and apparatus to keep the rolling surfaces wet and prevent adherence of bituminous mixture.

2610a — Vibratory rollers shall be especially designed for bituminous concrete compacting and may be used provided the rollers do not impair stability of the pavement structure and any underlying layers. Depressions in pavement surfaces resulting from the use of vibratory rollers are not acceptable. Rollers shall be self-propelled, single or dual vibrating drums, and steel drive wheels, as applicable; equipped with variable amplitude and separate controls for energy and propulsion.

2611 — Make pavement cuts with parallel, straight lines, 1 foot wider than trench width on each side of trenches.

2612 — Prior to laying the asphalt concrete pavement the Purchaser shall obtain written approval from the Authorized Officer by showing satisfactory test results of the crushed aggregate base course that has been tested and meets the requirements of the specifications.

2613 — Prior to laying the asphalt concrete, remove unsuitable material from the underlying course.

2615 — Restore disturbed edges of existing bituminous pavements, matching existing edges.

2616 — The thickness of the asphalt concrete pavement shall be as shown on the plans.

2617 — Plants used for the preparation of bituminous mixtures shall conform to AASHTO M 156 and to Oregon Department of Transportation requirements.

2618 — Transport bituminous material from the mixing plant to the paving site in trucks having tight, clean, smooth beds that have been coated with a minimum amount of concentrated solution of hydrated lime and water or other approved coating to prevent adhesion of the mixture to the truck bodies. Petroleum products will not be permitted for coating truck bodies. When the air temperature is less than 60°F or if haul time is greater than 30 minutes, cover each load with canvas or other approved material of ample size to protect the mixture from the loss of heat.

2619 — Compact each layer of Hot Mix Asphalt Concrete to a minimum density of 91 percent of the maximum specific gravity determined by AASHTO T 166 and T 209. Percent compaction will be determined from at least one production sample per day.

**16-1-5 – Renovation**

**Exhibit C**

0.00 – Left at Jct. with Marcola Road.

1.10 – Keep right at Jct. with 16-1-31 (Dollar Road).

1.17 – Replace stream culvert: 24”x50’ CPP with splash pad.

1.29 – Replace stream culvert: 24”x40’ CPP with 10 CY splash pad.

1.44 – Replace cross-drain: 18”x45’ CPP with splash pad.

2.09 – Replace cross-drain: 18”x40’ CPP with splash pad.

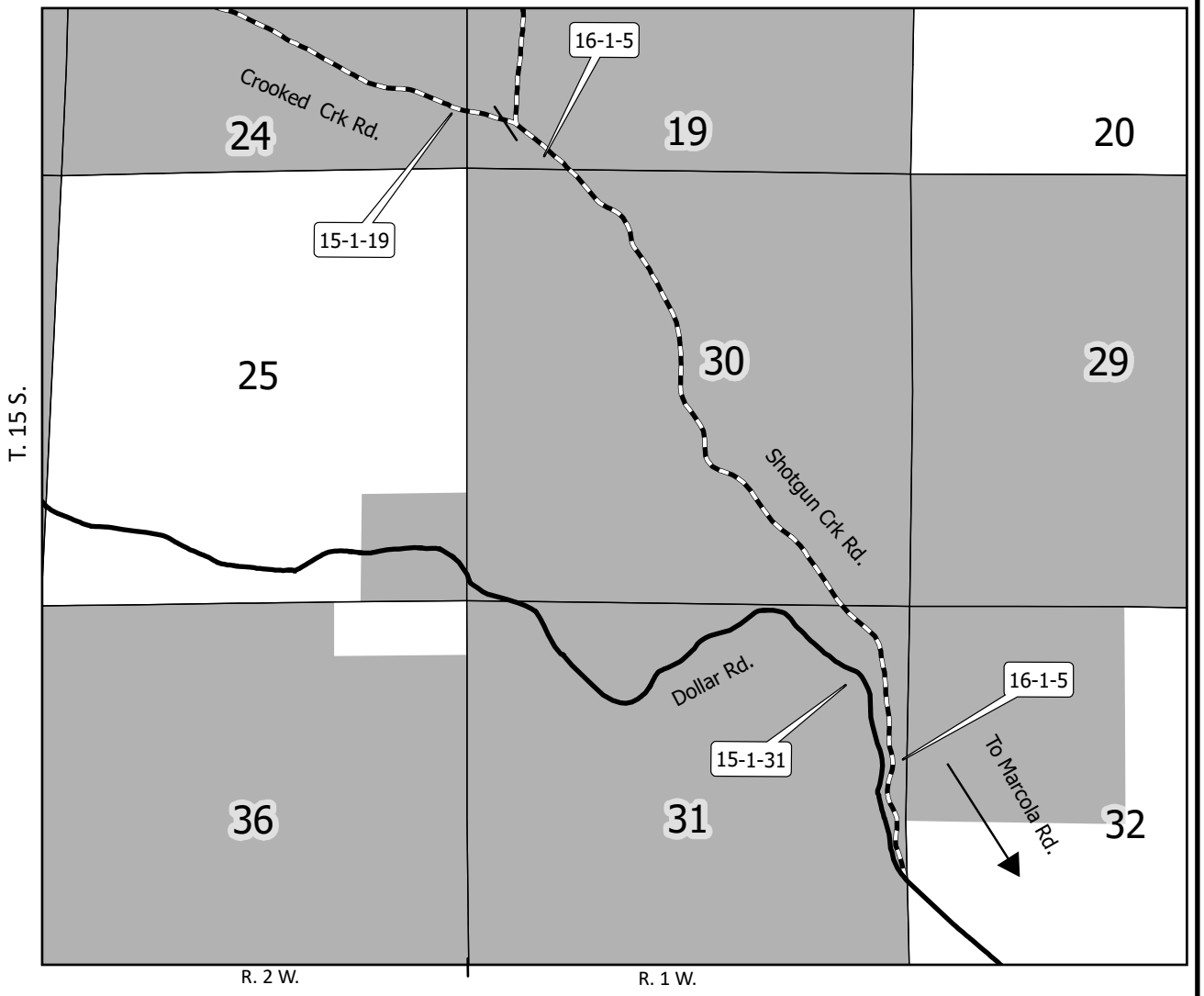
2.26 – Replace stream culvert: 24”x40’ CPP with 10 CY splash pad.

2.99 – Replace stream culvert: 36”x50’ CMP with splash pad, counter sink 12”.

3.24 – Replace stream culvert: 24”x45’ CPP with splash pad.

3.37 – Replace cross-drain: 18”x40’ CPP with splash pad.

3.50 – Keep right at Jct. with 15-1-19.




Construction
Renovation
Existing Rocked
Existing Paved
Harvest Area
BLM Land
Private Land
Segment Break
Gate
County Line
Stockpile Site
Quarry

**UNITED STATES DEPARTMENT OF THE INTERIOR**
**BUREAU OF LAND MANAGEMENT**
NORTHWEST OREGON DISTRICT SPRINGFIELD OREGON

SECTION MAP & WORKLIST
Shotgun Formation Timber Sale
T. 15 S., R. 1 W., Sections 19, 30 and 31

| DRAWN: S. MCCAULEY | NO SCALE |
|---|---|
| DATE: July 2025 | SHEET: 34 OF 55 |

***TTA = Truck Turnaround, *TO = Turnout, *LOD = Lead Out Ditch, *RSL = Roadside Landing**

**Exhibit C**

**16-1-5 – Renovation**

3.52 – Replace cross-drain: 18”x35’ CPP with splash pad.

4.43 – Replace stream culvert: 24”x45’ CPP with splash pad.

4.46 – Replace stream culvert: 24”x35’ CPP with splash pad.

4.66 – Keep right at Jct. with 15-2-13, end renovation.

8.51 – Keep right at Jct. with 15-2-13 in section 11.

8.75 – Begin renovation, Install cross-drain: 18”x40’ CPP with splash pad.

8.77 – Replace stream culvert: 18”x35’CPP with splash pad.

8.83 – Install cross-drain: 18”x65’ CPP with splash pad, construct LODL.

8.93 – Install cross-drain at Jct. with stockpile site:

18”x55’ CMP with splash pad, construct LODL,

do not skew, **Rock entrance to stockpile site:**

**10 CY 3” minus base, 10 CY ¾” minus surface.**

8.94 – Replace cross-drain: 18”x35’ CMP

with splash pad, **Rock alternate**

**entrance to stockpile site: 10 CY ¾” minus.**

8.97 – Rock alternate entrance to stockpile site:

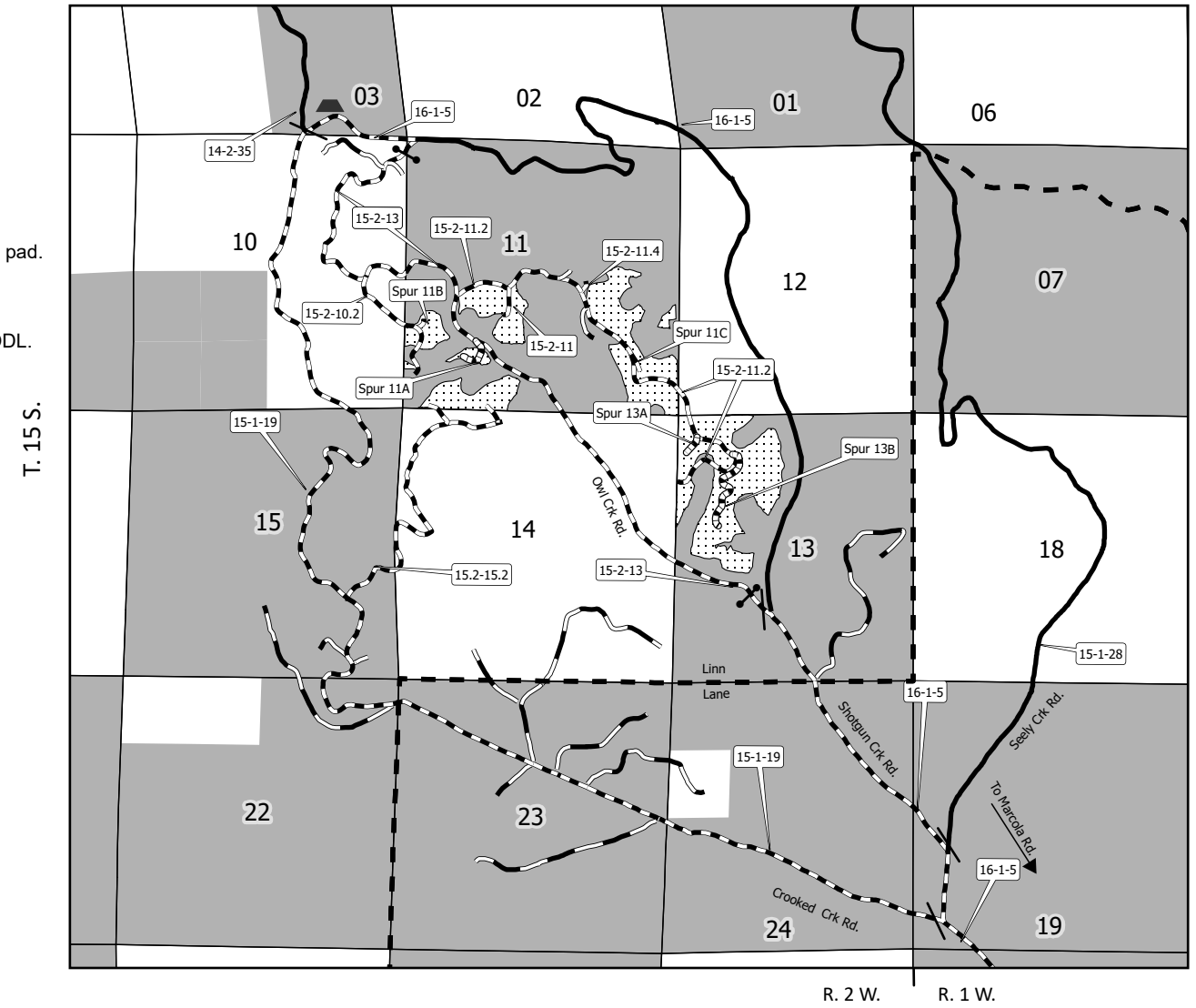
**10 CY 3” minus base,10 CY ¾” minus surface,**

begin reconstructing ditch to drain northwest,

**block muddy two track with one 3’x3’ boulder.**

8.98 – Jct. with 14-2-35, end ditch reconstruction,

end renovation.




Construction
Renovation
Existing Rocked
Existing Paved
Harvest Area
BLM Land
Private Land
Segment Break
Gate
County Line
Stockpile Site
Quarry

**UNITED STATES DEPARTMENT OF THE INTERIOR**
**BUREAU OF LAND MANAGEMENT**
NORTHWEST OREGON DISTRICT — SPRINGFIELD OREGON

SECTION MAP & WORKLIST
Shotgun Formation Timber Sale
T. 15 S., R. 1 W., Section 19 and T. 15 S., R. 2 W., Sections 3, 10 and 11

| DRAWN: S. MCCAULEY | NO SCALE |
|---|---|
| DATE: July 2025 | SHEET: 35 OF 55 |

***TTA = Truck Turnaround, *TO = Turnout, *LOD = Lead Out Ditch, *RSL = Roadside Landing**

Exhibit C

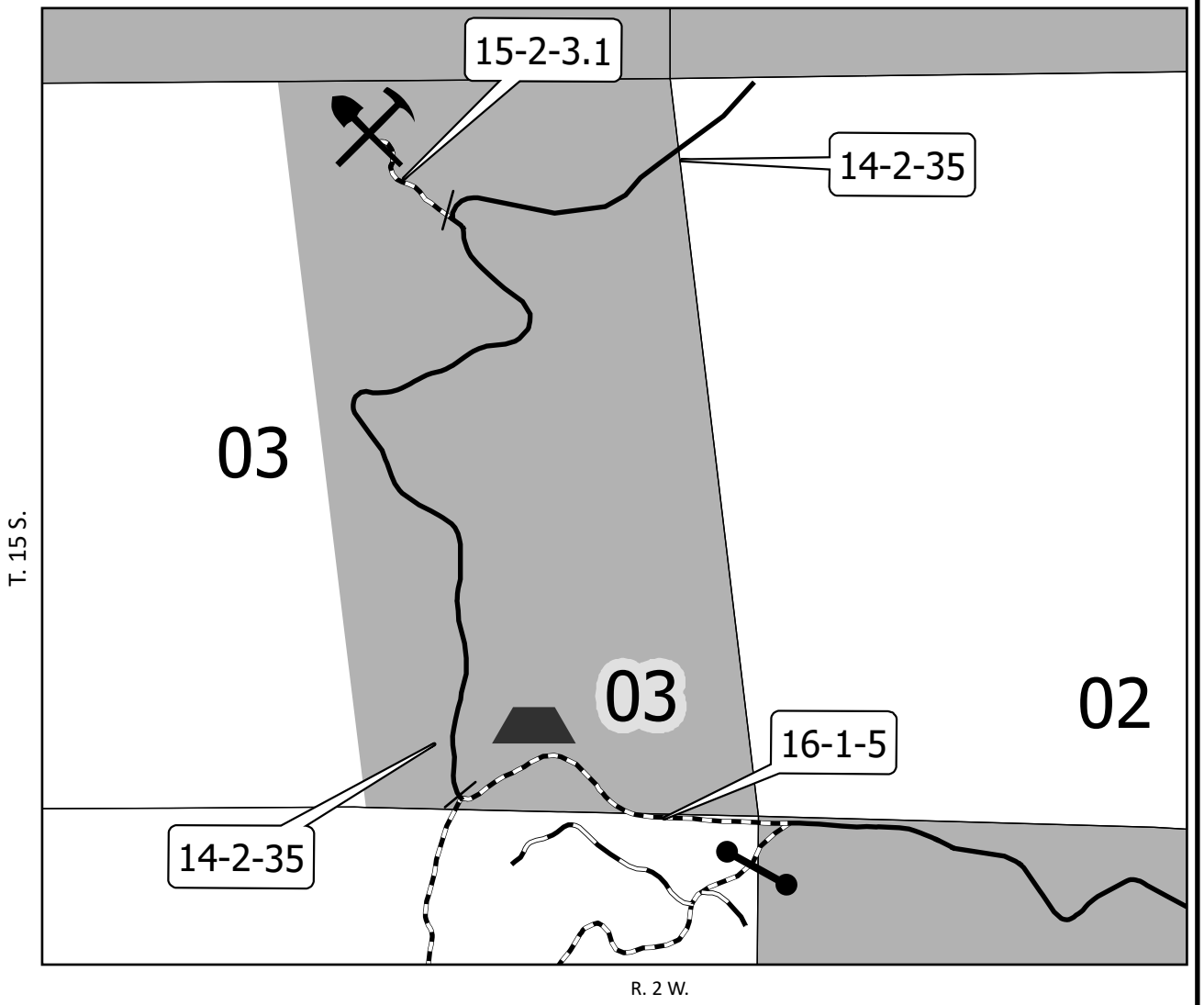
**15-2-3.1 – Renovation**

0.00 – Left at Jct. with 14-2-35 at MP .99, begin renovation, brush and crown.

0.04 – Install cross-drain: 18”x30’ CPP with splash pad.

0.06 – Install stream culvert: 18”X30’ CPP with splash pad.

0.09 – Quarry floor, end renovation.




| | |
|---|---|
| Construction | Segment Break |
| Renovation | Gate |
| Existing Rocked | County Line |
| Existing Paved | Stockpile Site |
| Harvest Area | Quarry |
| BLM Land | |
| Private Land | |

**UNITED STATES DEPARTMENT OF THE INTERIOR**
**BUREAU OF LAND MANAGEMENT**
NORTHWEST OREGON DISTRICT — SPRINGFIELD OREGON

SECTION MAP & WORKLIST
Shotgun Formation Timber Sale
T. 15 S., R. 2 W., Section 3

| | |
|---|---|
| DRAWN: S. MCCAULEY | NO SCALE |
| DATE: July 2025 | SHEET: 36 OF 55 |

***TTA = Truck Turnaround, *TO = Turnout, *LOD = Lead Out Ditch, *RSL = Roadside Landing**

**Exhibit C**

**15-2-13 – Renovation**

0.00 – Left at Jct. with 16-1-5 (Shotgun Rd,) at MP 4.66,

begin renovation: 16' subgrade, brush, crown and

**Rock: 4" of 3" minus.**

0.06 – Gate.

0.49 – Renovate TOR, 50'x20' with 25' taper, **Rock: 4" of 3" minus.**

0.84 – Renovate TOR, 50'x20' with 25' taper, **Rock: 4" of 3" minus.**

1.11 – **Change in Rock, begin 50 CY of 1 ½" minus spot rock.**

1.62 – Keep right at Jct. with Spur 11B, renovate TOL 40'x20' with 25' taper

**Rock: 3" of 1 ½" minus.**

1.63 – Begin steep grade, **Change in Rock: spot Rock 50 CY of ¾" minus.**

1.80 – Replace cross-drain: 18"x45' CPP with splash pad.

1.81 – Keep Left at Jct. with 15-2-11.2,

**Change in Rock: 4" lift of 3" minus.**

1.96 – Install cross-drain: 18"x45' CPP with splash pad.

1.99 – Install cross-drain: 18"x60' CPP with splash pad and LODL.

2.11 – Install cross-drain: 18"x50' CPP with splash pad,

reconstruct ditch right for 250'.

2.30 – Keep right at Jct. with 15-2-10.1, subgrade changes to 14',

**Change in Rock: 100 CY of 1 ½" spot rock.**

3.17 – Gate

3.21 – Clear, grub and construct TOR, 50'x20' with 15' taper

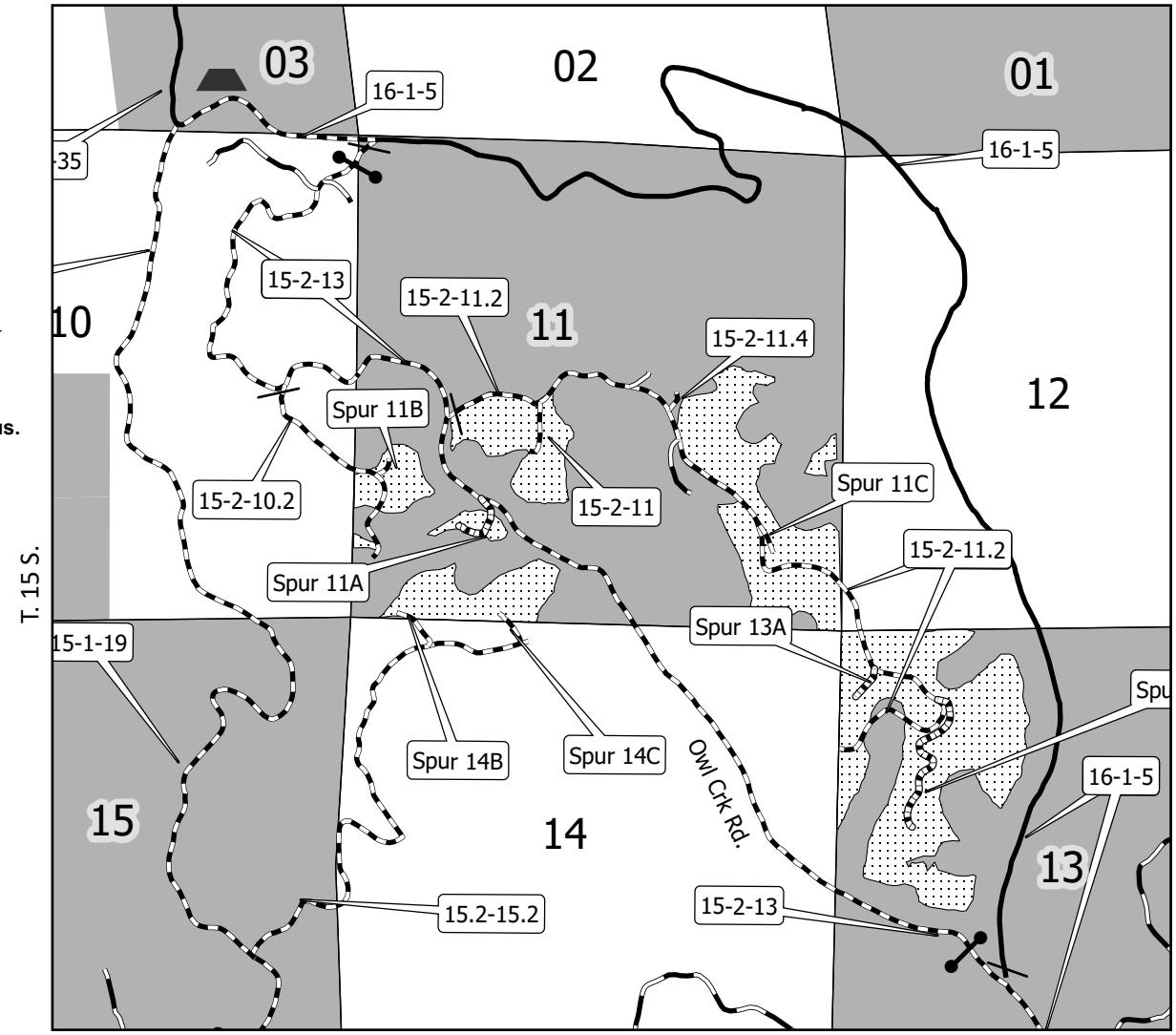
to Jct. with 16-1-5, use 10 CY fill from Blagen Quarry to level

and **Rock: 12" of 6" minus,**

**Rock existing apron at Jct. with 16-1-5:**

**10 CY of 1 ½" minus**

3.22 – Jct. with -5, end renovation.




Construction
Renovation
Existing Rocked
Existing Paved
Harvest Area
BLM Land
Private Land
Segment Break
Gate
County Line
Stockpile Site
Quarry

**UNITED STATES DEPARTMENT OF THE INTERIOR**
**BUREAU OF LAND MANAGEMENT**
NORTHWEST OREGON DISTRICT — SPRINGFIELD OREGON

SECTION MAP & WORKLIST
Shotgun Formation Timber Sale
T. 15 S., R. 2 W., Sections 3, 10, and 11

| DRAWN: S. MCCAULEY | NO SCALE |
|---|---|
| DATE: July 2025 | SHEET: 37 OF 55 |

***TTA = Truck Turnaround, *TO = Turnout, *LOD = Lead Out Ditch, *RSL = Roadside Landing**

Exhibit C

**Spur 11A – Construction**

0+00 – Left at Jct. with -13 at MP 1.62, begin construction: 14' subgrade, clear, grub, crown and ditch, construct 4 LODL and 1 LODR.

7+10 – Construct TTAL, continue drainage around TTAL.

7+25 – Begin taper to 40'x40' landing

7+90 – End landing, end construction.

**15-2-10.1 - Renovation**

0+00 – Left at Jct. with 15-2-13 at MP 2.3 on 15-2-13, begin renovation: 14' subgrade, crown and **Rock: 3" of 1 ½" minus.**

2+37 – 4-Way Jct, keep left, **Change in Rock: 9" of 3" minus.**

3+65 – Begin brushing**, Change in Rock: 7" of 3" minus.**

12+65 – Property line, level tank trap, Subgrade changes to 16', reconstruct right ditch for 40', brush, crown and **Rock: 7" lift of 3" minus.**

14+83 – Keep right at Jct. with spur 11B.

16+94 – Install cross-drain: 18"x40' CPP with splash pad.

19+10 – **Change in Rock: 12" of 3" minus** Renovate TOL 50'x20' with 25' taper and **Rock: 12" of 6" minus.**

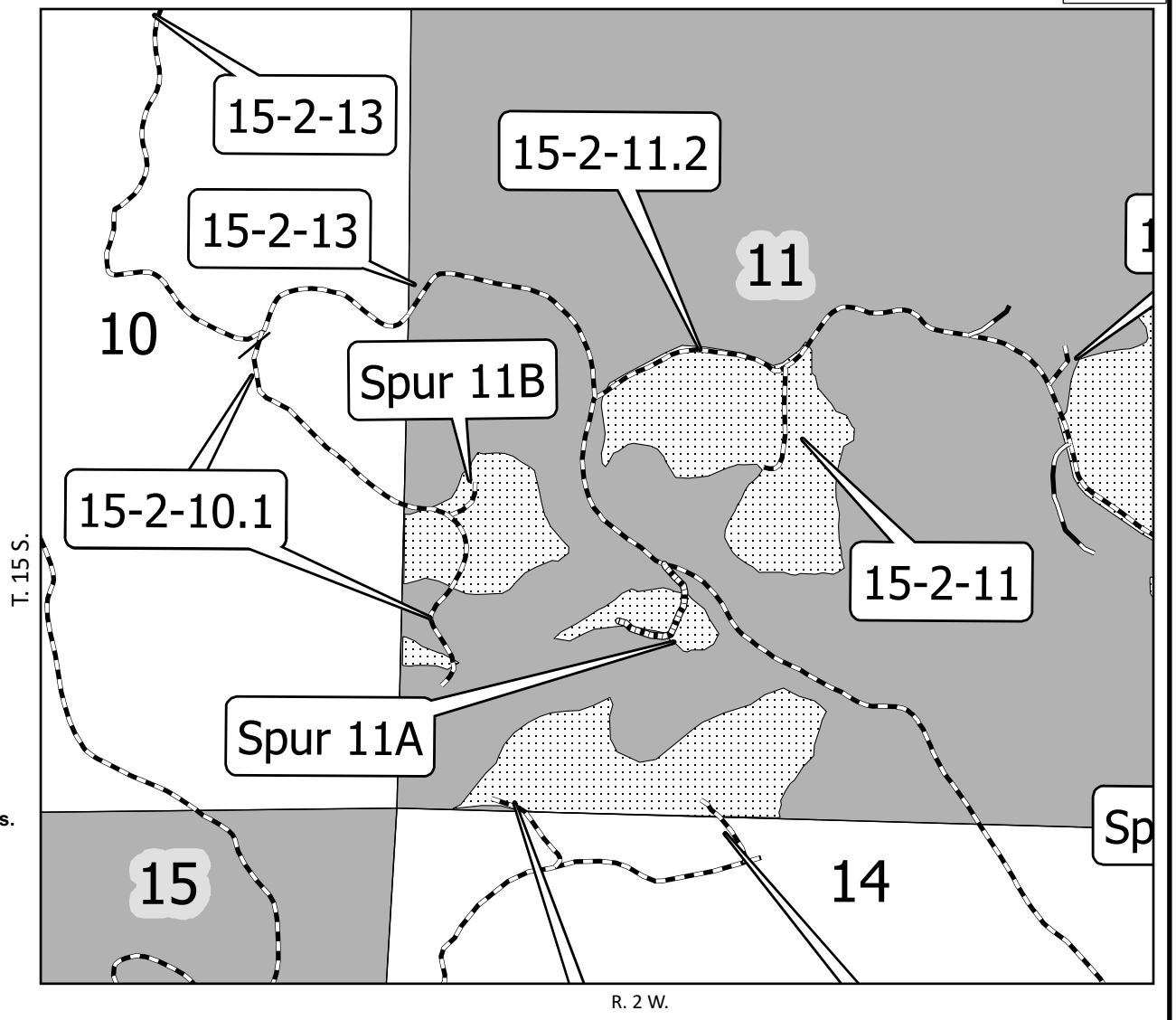
20+10 – **Change in Rock: 7" of 3" minus.**

20+47 – Install cross-drain: 18"x55' CPP with splash pad.

22+42 – Install cross-drain: 18"X35' CPP with splash pad.

24+18 – Begin Taper to 40'x40' landing, blade, reconstruct ditch around landing, tie into existing road ditch, **Change in Rock: 12" of 6" minus.**

24+83 – End landing, end renovation.




Construction
Renovation
Existing Rocked
Existing Paved
Harvest Area
BLM Land
Private Land
Segment Break
Gate
County Line
Stockpile Site
Quarry

**UNITED STATES DEPARTMENT OF THE INTERIOR**
**BUREAU OF LAND MANAGEMENT**
NORTHWEST OREGON DISTRICT SPRINGFIELD OREGON

SECTION MAP & WORKLIST
Shotgun Formation Timber Sale
T. 15 S., R. 2 W., Sections 10, and 11

| DRAWN: S. MCCAULEY | NO SCALE |
|---|---|
| DATE: July 2025 | SHEET: 38 OF 55 |

***TTA = Truck Turnaround, *TO = Turnout, *LOD = Lead Out Ditch, *RSL = Roadside Landing**

**Exhibit C**

**Spur 11B - Renovation**

0+00 – Left at Jct. with -10.1 at Sta. 14+83,

begin renovation: 16' subgrade, clear and grub,

construct ditches, crown and **Rock: 7" of 3" minus.**

1+79 – Construct LODL/R.

2+26 – Install cross-drain: 18"x40' CPP with splash pad.

2+66 – Begin taper to 40'x40' landing**, Rock 12" of 6" minus.**

3+31 – End landing, end renovation.

**15-2-11 – Renovation**

0.00 – Right at Jct. with 15-2-11.2 at MP 0.21,

begin renovation: excavate earthen barrier,

brush, crown, reconstruct ditches, **Rock: 9" of 3" minus.**

0+40 – Construct LODR.

0+50 – Renovate 30'x30' RSLL, **Rock: 9" of 6" minus.**

1+19 – Install cross-drain:18"x35' with splash pad, construct LODL.

**Change in Rock: 6" of 1 ½" minus.**

2+69 – Install cross-drain: 18"x40' CPP with splash pad.

4+42 – Begin taper to 60'x40' RSLL, renovate landing and

**Rock: 9" of 6" minus.**

4+60 – **Change in Rock: 9" of 3" minus.**

7+18 – Begin taper to 40'x40' landing,

**Change in Rock: 12" of 6" minus.**

7+83 – End landing, end renovation.

**15-2-11.4 – Renovation**

0+00 – Left at Jct. with -11.2 at MP 0.55, begin

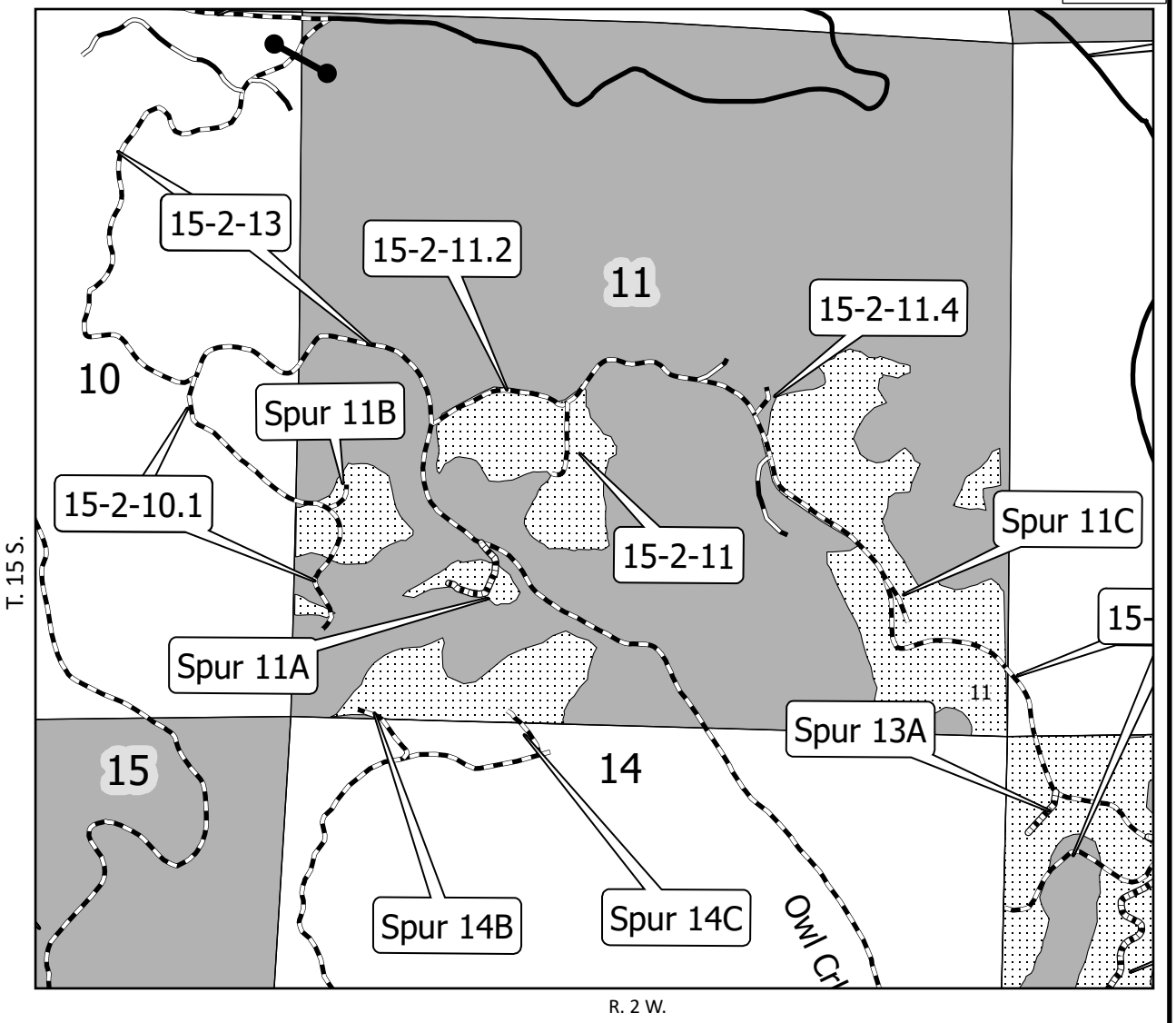
renovation,brush, crown,

**Rock: 2" of ¾" minus.**

2+00 – Begin taper to 60'x60' landing,

**Rock: 9" of 6" minus.**

2+85 – End landing, end renovation.




Construction
Renovation
Existing Rocked
Existing Paved
Harvest Area
BLM Land
Private Land
Segment Break
Gate
County Line
Stockpile Site
Quarry

**UNITED STATES DEPARTMENT OF THE INTERIOR**
**BUREAU OF LAND MANAGEMENT**
NORTHWEST OREGON DISTRICT — SPRINGFIELD OREGON

SECTION MAP & WORKLIST
Shotgun Formation Timber Sale
T. 15 S., R. 2 W., Section 11

| DRAWN: S. MCCAULEY | NO SCALE |
|---|---|
| DATE: July 2025 | SHEET: 39 OF 55 |

***TTA = Truck Turnaround, *TO = Turnout, *LOD = Lead Out Ditch, *RSL = Roadside Landing**

**15-2-11.2 – Renovation**

**Exhibit C**

0.00 – Keep right a Jct. with -13 at MP 1.81,

begin renovation: 16' subgrade, brush, crown and

**Spot Rock: 500 CY of 1 ½" minus.**

0.01 – Construct natural surface loaded truck turn around right,

150'x100' with LODR on uphill side of TTAR.

0.43 – Fill catch basin to bring level with cross-drain inlet.

0.54 – Keep right at Jct. with -11.4.

0.63 – Renovate TOL, 50'x15' with 25' taper and **Rock: 8" of 6" minus.**

0.75 – Renovate TOR and TOL, 50'x20' with 25' taper and

**Rock: 7" of 3" minus.**

0.84 – Renovate TOL, 100'x20' with 25' taper and **Rock: 8" of 6" minus.**

0.85 - Keep right at Jct. with Spur 11C.

0.96 – Renovate TOR, 50'x15' with 15' taper and **Rock: 5" of 3" minus.**

1.09 – Renovate TOL, 50'x10' with 15' taper and **Rock: 5" of 3" minus.**

1.25 – Construct TOL, 100'x20' with 25' taper and **Rock: 8" of 6" minus.**

1.32 – Keep left at Jct. with Spur 13A.

1.36 – Renovate RSLR, 30'x30' with 10' taper and **Rock: 4" of 3" minus.**

1.46 – **Begin cutting road and steepening grade and, cut material**

**shall be used for Spur 13B construction,**

**see design attachment on page 52**

**of Exhibit C, Change in Rock:**

**8" of 6" minus base, 4" of 1 ½" minus surface.**

1.48 – Replace cross-drain: 18"x40' CPP with splash pad,

begin clearing, grubbing and excavating cut-bank.

1.49 – Jct. with new construct Spur 13B,

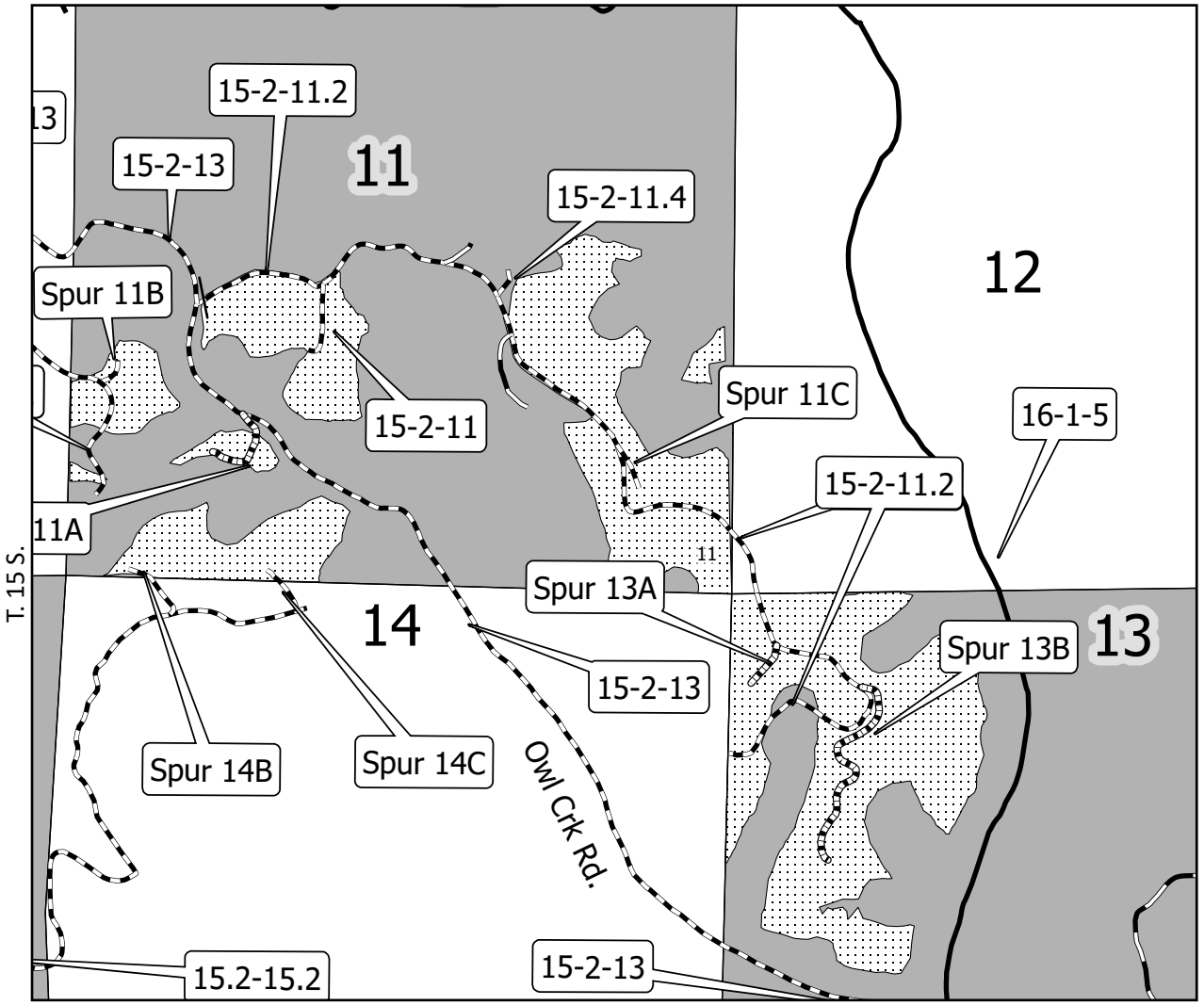
Reconstruct TOL, 50'x10' with 25' taper and

**Rock: 8" of 6" minus and 4" of 1 ½" minus.**

1.50 – End clearing, grubbing and cut-bank excavation.

1.52 – **End grade cut, return to existing road grade,**

**Change in Rock: Continue with Spot Rock.**




Construction
Renovation
Existing Rocked
Existing Paved
Harvest Area
BLM Land
Private Land
Segment Break
Gate
County Line
Stockpile Site
Quarry

**UNITED STATES DEPARTMENT OF THE INTERIOR**
**BUREAU OF LAND MANAGEMENT**
NORTHWEST OREGON DISTRICT — SPRINGFIELD OREGON

SECTION MAP & WORKLIST
Shotgun Formation Timber Sale
T. 15 S., R. 2 W., Sections 11, 12, and 13

| DRAWN: S. MCCAULEY | NO SCALE |
|---|---|
| DATE: July 2025 | SHEET: 40 OF 55 |

***TTA = Truck Turnaround, *TO = Turnout, *LOD = Lead Out Ditch, *RSL = Roadside Landing**

**15-2-11.2 – Renovation Continued**

1.56 – Renovate TOL 50'x10' with 25' taper and **Rock: 4" of 3" minus.**

1.77 – Begin taper to 40'x40' landing and **Rock: 5" of 3" minus.**

1.78 – End landing, end renovation.

**Spur 11C – Renovation**

0+00 – Left at Jct. with -11.2 at MP 0.85, begin renovation,

brush, crown and **Rock: 7" of 3" minus.**

3+39 – Begin taper to 40'x40' landing,

**Change in Rock: 9" of 6" minus.**

4+04 – End landing, end renovation.

**Spur 13A – Construction**

0+00 – Right at Jct. with -11.2 at MP 1.37, begin construction.

16' subgrade, clear, grub, crown, ditch and

**Rock: 6" of 3" minus base, 3" of 1 ½" minus surface.**

1+06 – Construct TTAL 30'x30' with 25' taper and

**Rock: 9" of 6" minus.**

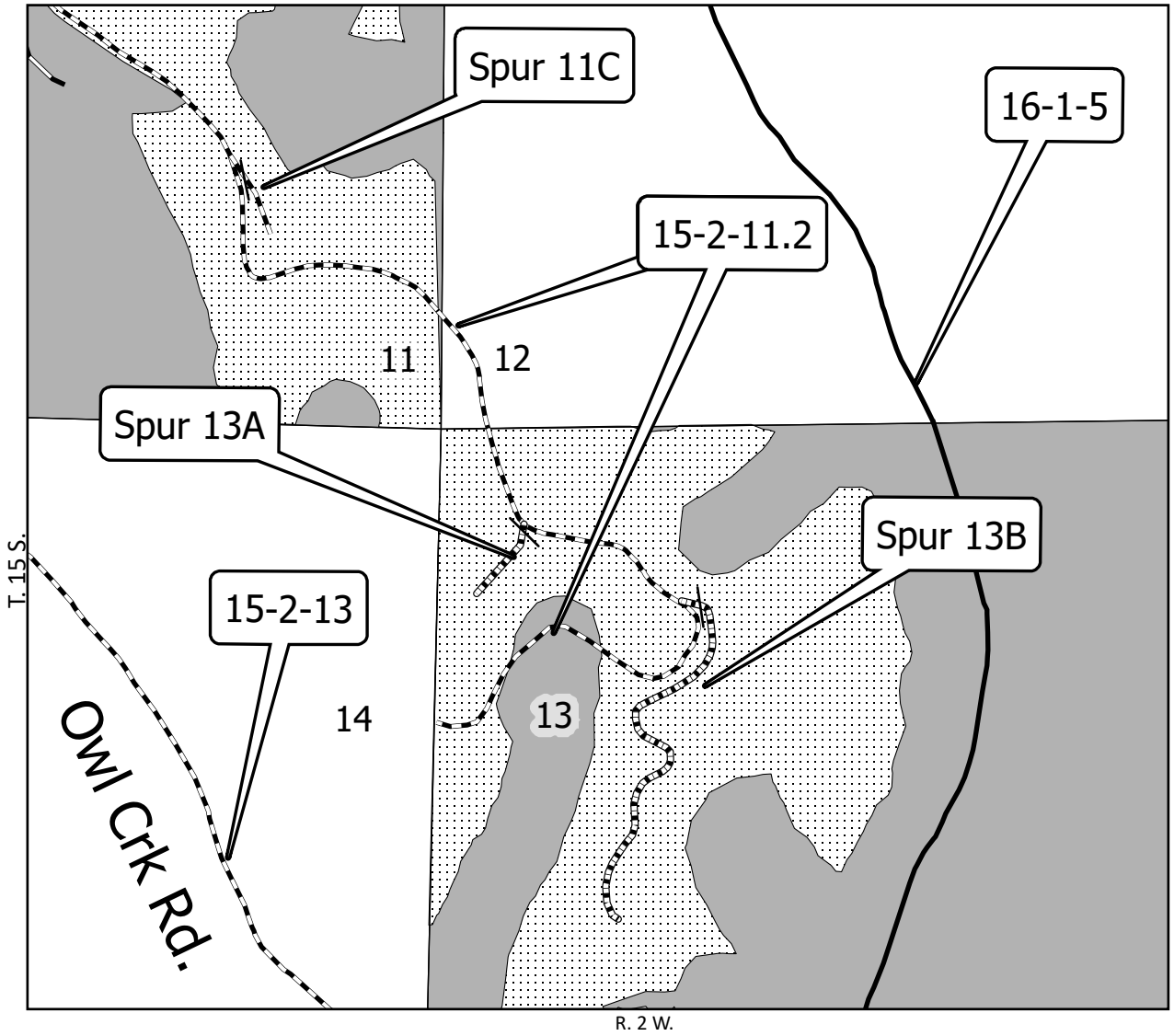
4+25 – Begin taper to 40'x40' landing,

**Change in Rock: 12" of 6" minus.**

4+90 – Construct LODR and LODL around landing,

end landing, end construction.

Exhibit C




Construction
Renovation
Existing Rocked
Existing Paved
Harvest Area
BLM Land
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Segment Break
Gate
County Line
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Quarry

**UNITED STATES DEPARTMENT OF THE INTERIOR**
**BUREAU OF LAND MANAGEMENT**
NORTHWEST OREGON DISTRICT SPRINGFIELD OREGON

SECTION MAP & WORKLIST
Shotgun Formation Timber Sale
T. 15 S., R. 2 W., Sections 11, 12, and 13

| DRAWN: S. MCCAULEY | NO SCALE |
|---|---|
| DATE: July 2025 | SHEET: 41 OF 55 |

***TTA = Truck Turnaround, *TO = Turnout, *LOD = Lead Out Ditch, *RSL = Roadside Landing**

**Exhibit C**

**Spur 13B – Construction**

0+00 – Left at Jct. with 15-2-11.2 at MP 1.49,

begin construction: 16' subgrade, clear, grub,

crown and ditch, **see design attachment on pages 53 - 55 of Exhibit C, Rock: 8" of 6" minus base,**

**4" of 1 ½" minus surface and 2" of ¾" minus traction coat.**

2+57 – Install cross-drain: 18"x45' CPP with a 10 CY splash pad.

3+83 – Install cross-drain: 18"x45' CPP with splash pad.

6+40 – Construct LODR.

8+05 – Install cross-drain: 18"x40' CPP with splash pad.

10+50 – Construct TTAL, **Rock 20 CY 6" minus.**

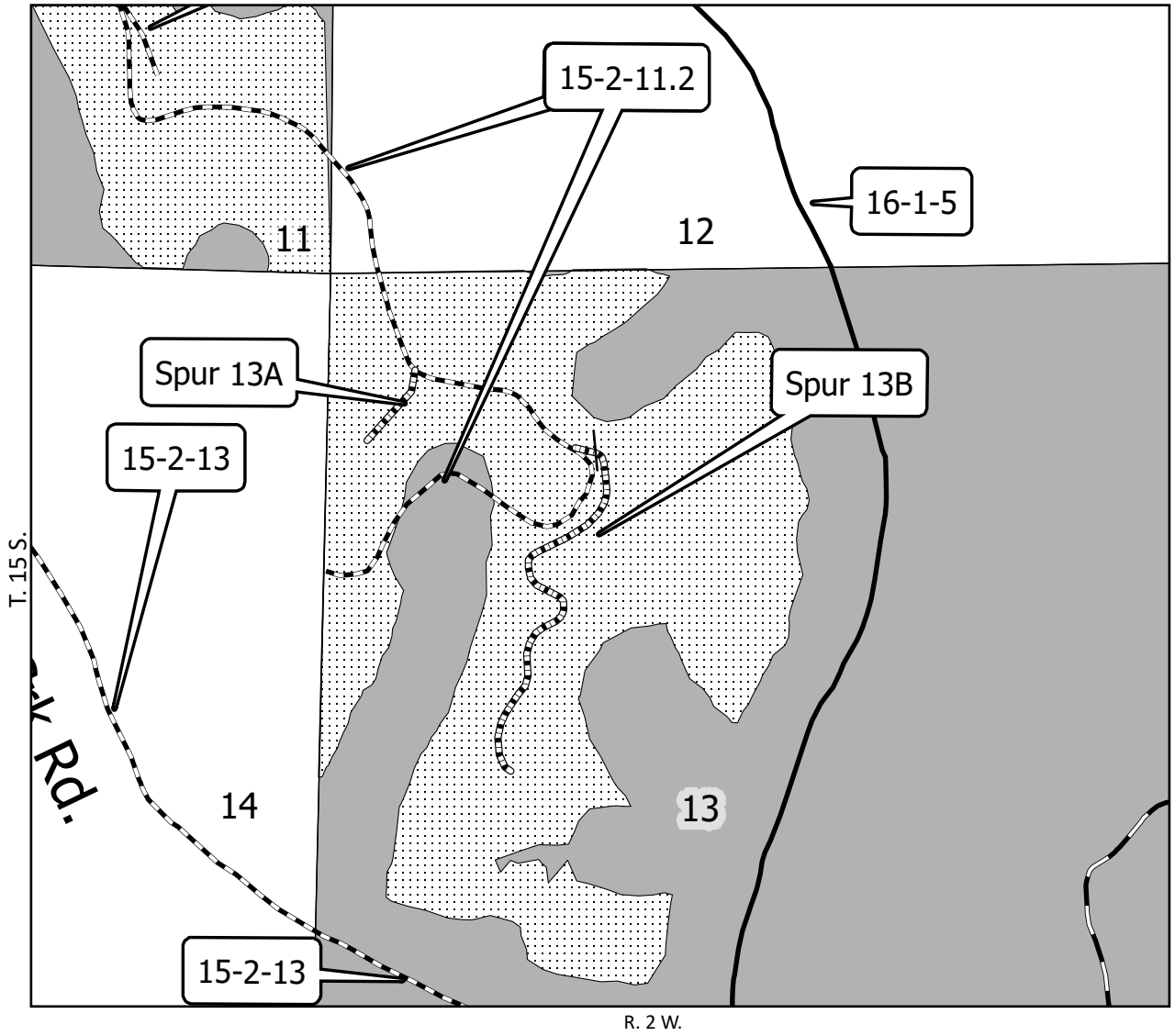
11+65 – Construct LODR.

15+65 – Construct LODL and LODR.

17+07 – Begin taper to 60'x40' landing,

**Change in Rock: 12" of 6" minus.**

17+92 – End landing, end construction.




Construction
Renovation
Existing Rocked
Existing Paved
Harvest Area
BLM Land
Private Land
Segment Break
Gate
County Line
Stockpile Site
Quarry

**UNITED STATES DEPARTMENT OF THE INTERIOR**
**BUREAU OF LAND MANAGEMENT**
NORTHWEST OREGON DISTRICT — SPRINGFIELD OREGON

SECTION MAP & WORKLIST
Shotgun Formation Timber Sale
T. 15 S., R. 2 W., Sections 13

| DRAWN: S. MCCAULEY | NO SCALE |
|---|---|
| DATE: July 2025 | SHEET: 42 OF 55 |

***TTA = Truck Turnaround, *TO = Turnout, *LOD = Lead Out Ditch, *RSL = Roadside Landing**

**Exhibit C**

**15-1-19 – Renovation**

0.00 – Left at Jct. with -5 at MP 3.16, begin renovation.

1.25 – Replace cross-drain: 18”x40’ CPP with splash pad.

1.50 – Asphalt ends, scarify potholes, crown and

**Spot Rock: 50 CY 1 ½” minus.**

3.04 – Install cross-drain: 18”x45’ CPP with splash pad.

3.17 – Keep left at Jct. with 15-2-15.2.

4.60 – Scarify long stretch of potholes,

**Change in Rock: Spot Rock 100 CY 1 ½” minus.**

5.40 – Jct. with -5 and -35, end renovation.

**15-2-15.2 – Renovation**

0.00 – Right at Jct. with 15-1-19 at MP 3.17, begin

renovation, brush, scarify ruts, crown, clean inline culvert

outlet at Jct. and **Rock: 4” of 1 ½” minus.**

0.28 – **Change in Rock: Spot Rock 100 CY 1 ½” minus.**

0.76 – Clean culvert inlet, flush culvert with hose.

0.82 – Clean culvert inlet, flush culvert with hose.

0.86 – Replace stream culvert: 24”x45’ CPP with splash pad.

1.05 – Renovate TTAR.

1.06 – Keep right at Jct. with Spur 11B.

1.27 – Jct. with Spur 14C, end renovation.

**Spur 14B – Renovation**

0.00 – Left at Jct. with 15-2-15.2 at MP 1.06, begin renovation

brush, crown and **Rock: 3” of 1 ½” minus.**

0.10 – Begin taper to 40’x40’ landing, **Change in Rock: 8” of 6” minus.**

0.11 – End landing, end renovation.

**Spur 14C – Renovation**

0.00 – Left at Jct. with 15-2-15.2 at MP 1.27,

begin renovation, brush, crown and

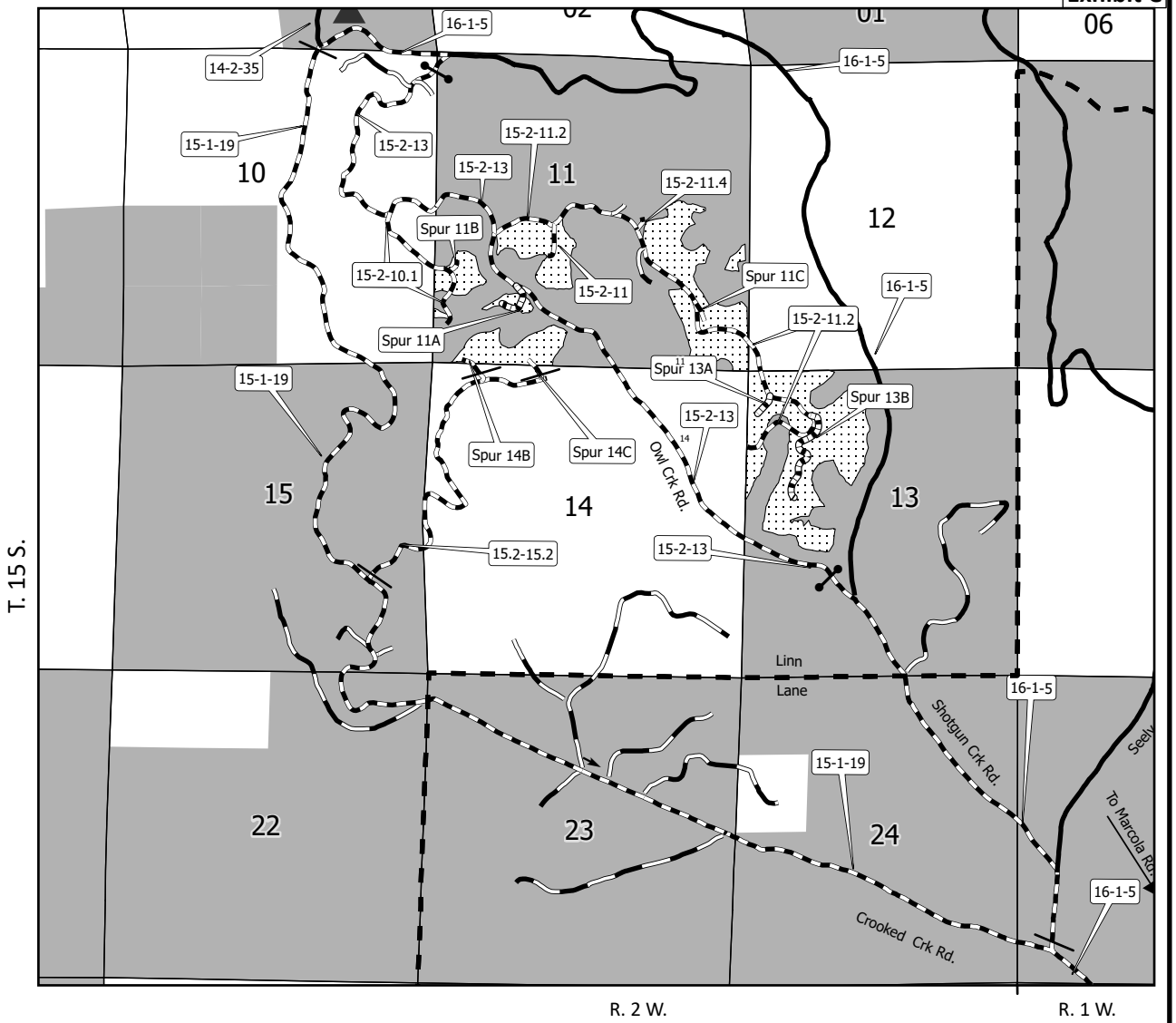
**Rock: 3" of 1 ½” minus.**

0.06 – Begin taper to 40’x40’ landing,

**Change in Rock: 8” of 6” minus.**

0.07 – End landing, end renovation.

***TTA = Truck Turnaround, *TO = Turnout, *LOD = Lead Out Ditch, *RSL = Roadside Landing**




Construction
Renovation
Existing Rocked
Existing Paved
Harvest Area
BLM Land
Private Land
Segment Break
Gate
County Line
Stockpile Site
Quarry

**UNITED STATES DEPARTMENT OF THE INTERIOR**
**BUREAU OF LAND MANAGEMENT**
NORTHWEST OREGON DISTRICT — SPRINGFIELD OREGON

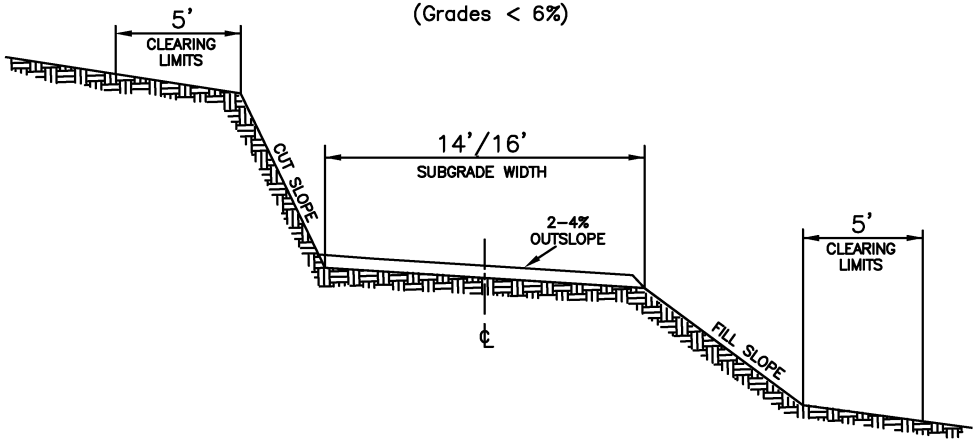
SECTION MAP & WORKLIST
Shotgun Formation Timber Sale
T. 15 S., R. 1 W., Section 19 and T. 15 S., R. 2 W., Sections 3, 10, 11, 14, 15, 22, 23 and 24

| DRAWN: S. MCCAULEY | NO SCALE |
|---|---|
| DATE: July 2025 | SHEET: 43 OF 55 |

EXHIBIT C

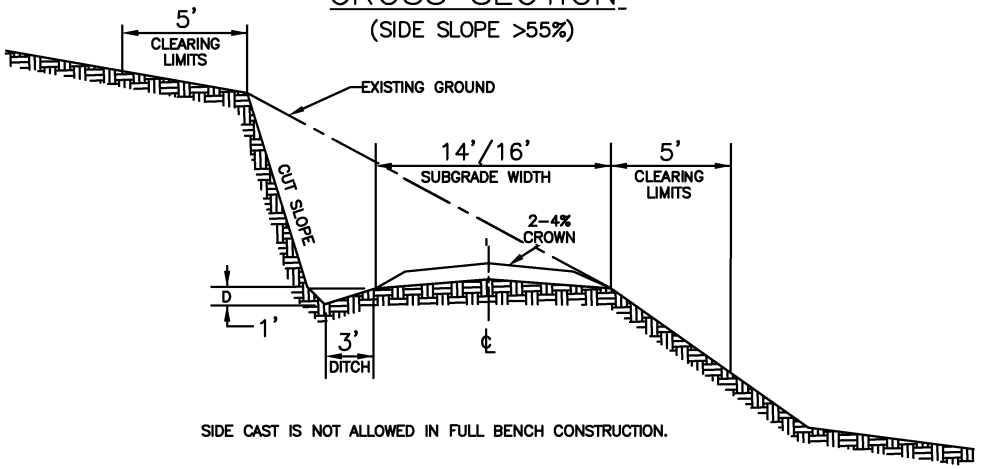
## TYPICAL OUTSLOPED CROSS SECTION

(Grades < 6%)




## TYPICAL FULL BENCH CROSS SECTION

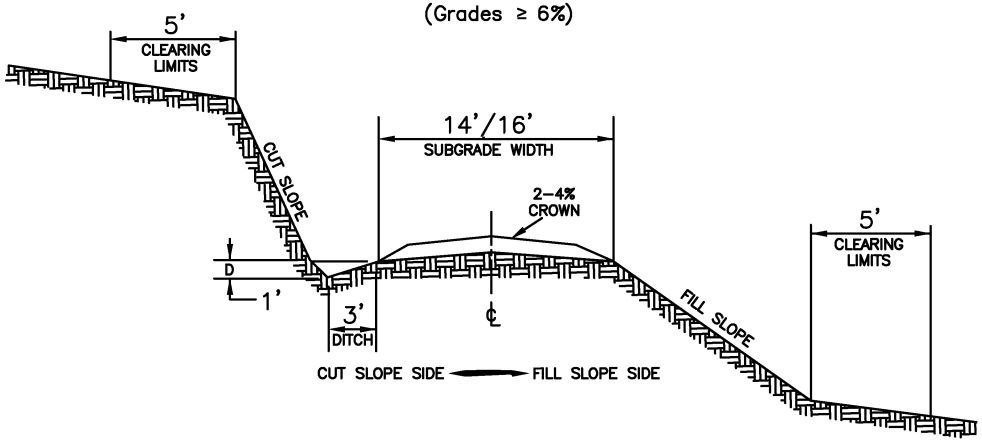
(SIDE SLOPE >55%)




SIDE CAST IS NOT ALLOWED IN FULL BENCH CONSTRUCTION.

## TYPICAL CROWNED CROSS SECTION

(Grades ≥ 6%)



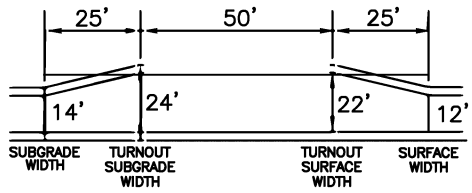

### CUT SLOPE RATIO

| | |
|---|---|
| 1:1 | COMMON, CUTS TO 6 FT. |
| 1/2:1 | COMMON, CUTS > 6 FT. |
| 1/4:1 | SOLID ROCK |
| 1/4:1 | SOFT ROCK OR HARDPAN |

### FILL SLOPE RATIO

| | |
|---|---|
| 1 1/2:1 | COMMON |
| 1 1/4:1 | ROCK |

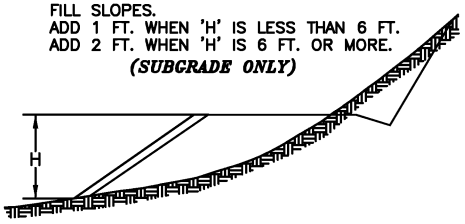
## TURNOUTS RIGHT OR LEFT




NOTE: TURNOUT WIDTHS CAN VARY. STANDARD IS 10 FEET ADDITIONAL WIDTH. WIDTHS SHOWN ARE FOR A 14' SUBGRADE. SEE WORKLIST FOR VARIED WIDTHS.

## FILL WIDENING

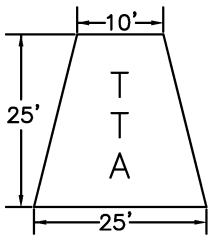
EXTRA WIDENING REQUIRED ON ALL FILL SLOPES.
ADD 1 FT. WHEN 'H' IS LESS THAN 6 FT.
ADD 2 FT. WHEN 'H' IS 6 FT. OR MORE.
***(SUBGRADE ONLY)***




## CURVE WIDENING

CW = 400/R
R = CURVE RADIUS (FT)
CW = CURVE WIDENING (FT)

## TRUCK TURNAROUND




NOTES:
1) THROUGH CUTS SHALL CONFORM TO CUT SLOPE SIDE OF THE TYPICAL CROWNED CROSS SECTION.
2) THROUGH FILLS SHALL CONFORM TO FILL SLOPE SIDE OF THE TYPICAL CROWNED CROSS SECTION.
3) CURVE WIDENING SHALL BE APPLIED TO THE INSIDE OF ALL CURVES UNLESS OTHERWISE SPECIFIED.

ALWAYS THINK ***SAFETY***

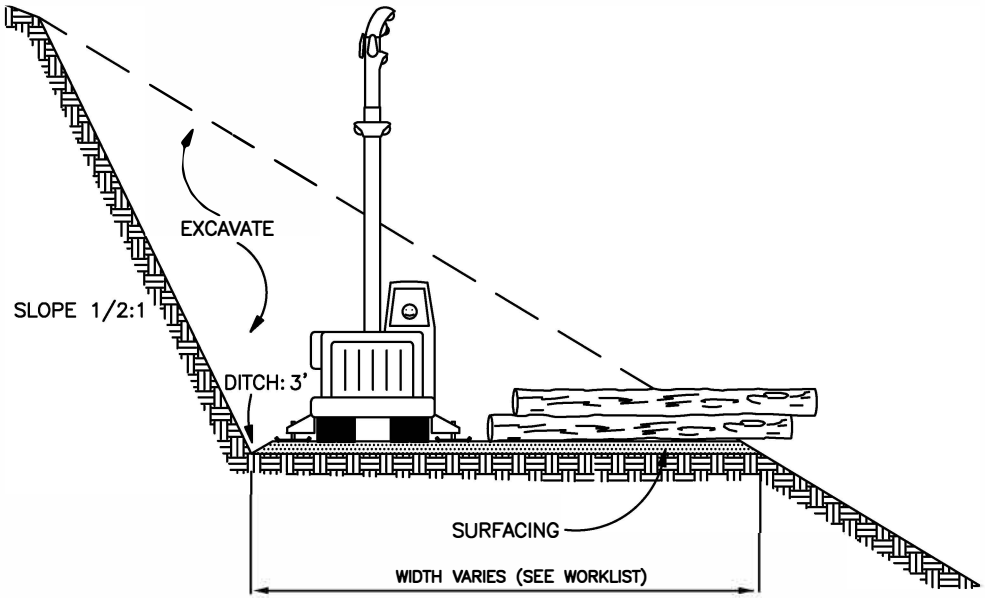
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT SPRINGFIELD, OREGON

TYPICAL SUBGRADE CROSS SECTIONS, TURNOUTS, TRUCK TURNAROUNDS, AND FILL WIDENING

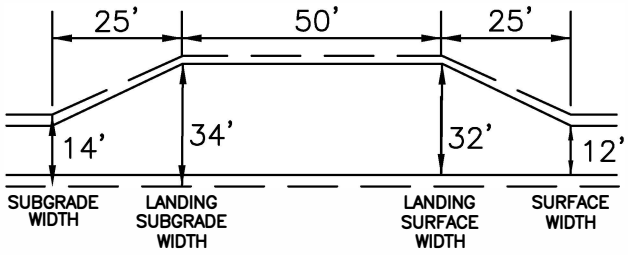
| | |
|---|---|
| DRAWN: S. McCAULEY | SCALE: NOT TO SCALE |
| DATE: January 2025 | SCALE SHEET: 44 OF 55 |

EXHIBIT C

## TYPICAL FULL BENCH LANDING CONSTRUCTION CROSS SECTION

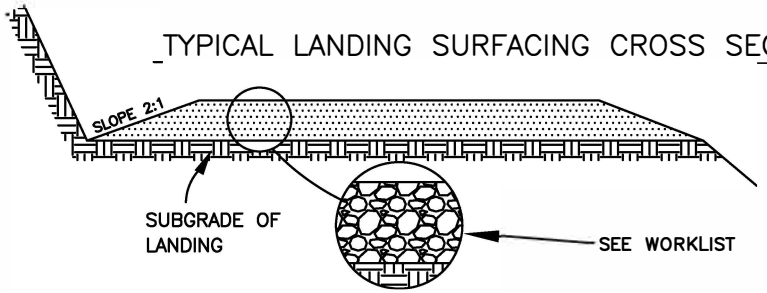


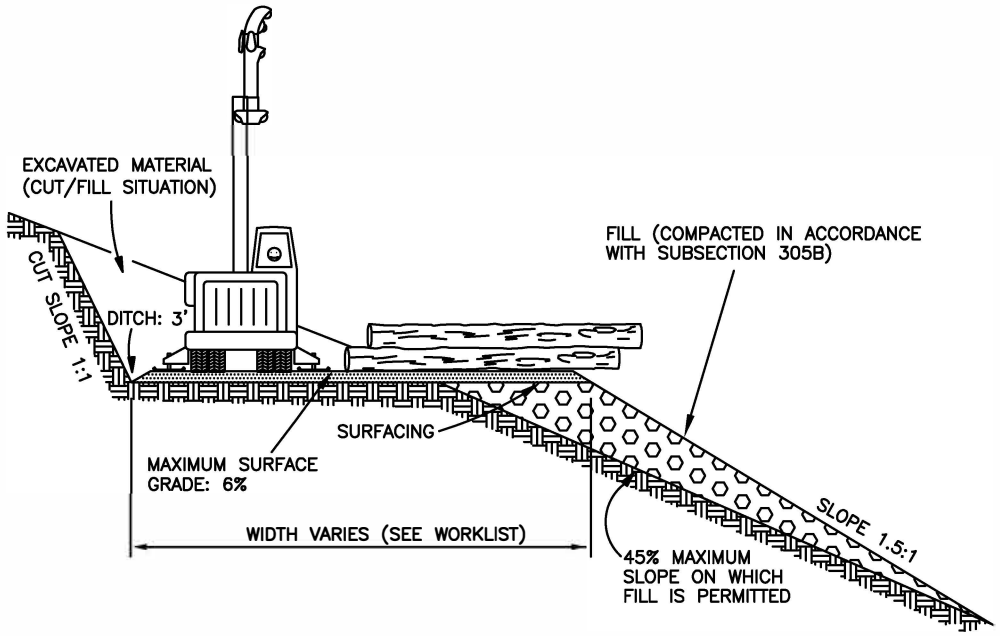

## ROADSIDE LANDINGS RIGHT OR LEFT




NOTE: ROADSIDE LANDING WIDTHS CAN VARY. STANDARD IS 20 FEET ADDITIONAL WIDTH. WIDTHS SHOWN ARE FOR A 14' SUBGRADE. SEE WORKLIST FOR VARIED WIDTHS.

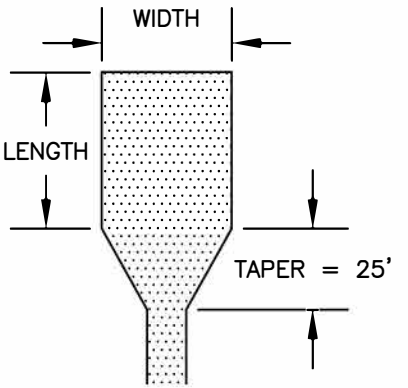
## TYPICAL LANDING SURFACING CROSS SECTION




## TYPICAL LANDING CONSTRUCTION CROSS SECTION

## PLAN VIEW TYPICAL LANDING CONSTRUCTION




## LANDING SPECIFICATIONS

1. ALL EXCAVATED MATERIAL SHALL BE END–HAULED TO DISPOSAL AREAS AS SPECIFIED BY THE AUTHORIZED OFFICER.
2. THE LANDING LENGTH IS MEASURED PARALLEL THE ROAD WHILE THE WIDTH IS MEASURED PERPENDICULAR
3. DITCH LINES SHALL BE LEAD–OFF WHERE APPROPRIATE
4. 25' TAPER LENGTH IS INCLUDED IN THESE SPECIFICATIONS.

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

LANDING CONSTRUCTION & SURFACING DETAILS

| | |
|---|---|
| DRAWN: S. MCCAULEY | SCALE: NOT TO SCALE |
| DATE: JANUARY 2025 | SHEET 45 OF 55 |

# CULVERT LIST

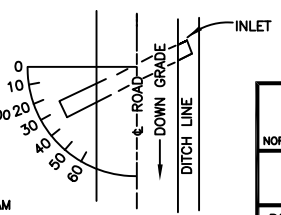
EXHIBIT C

| CULVERT REPLACEMENTS/ADDITIONS | | | | | | ENERGY | | REMARKS |
|---|---|---|---|---|---|---|---|---|
| ROAD NO. STATION OR M.P. | SIZE | LENGTH | GAUGE | SKEW ANGLE | INSTALLATION TYPE | INLET (CY) | OUTLET (CY) | |
| **Spur 11B** | | | | | | | | |
| Sta. 2+26 | 18 | 40' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| **Spur 13B** | | | | | | | | |
| Sta. 2+57 | 18" | 45' | CPP | 30 Degrees | 3 | | 10 | X-Drain Installation |
| Sta. 3+83 | 18" | 45' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| Sta. 8+05 | 18" | 40' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| **15-1-19** | | | | | | | | |
| MP 1.25 | 18" | 40' | CPP | 30 Degrees | 3 | | 2 | X-Drain Replacement |
| MP 3.04 | 18" | 45' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| **15-2-3.1** | | | | | | | | |
| MP 0.04 | 18" | 30' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| MP 0.06 | 18" | 30' | CPP | Align to channel | 1 | | 2 | Stream Culvert Installation |
| **15-2-10.1** | | | | | | | | |
| Sta. 16+94 | 18" | 40' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| Sta. 20+47 | 18" | 55' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| Sta. 22+42 | 18" | 35' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| **15-2-11** | | | | | | | | |
| Sta. 1+19 | 18" | 35' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| Sta. 2+69 | 18" | 40' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| **15-2-11.2** | | | | | | | | |
| MP 1.48 | 18" | 40' | CPP | 30 Degrees | 3 | | 2 | X-Drain Replacement |
| **15-2-13** | | | | | | | | |
| MP 1.80 | 18" | 45' | CPP | 30 Degrees | 3 | | 2 | X-Drain Replacement |
| MP 1.96 | 18" | 45' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| MP 1.99 | 18" | 60' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| MP 2.11 | 18" | 50' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| **15-2-15.2** | | | | | | | | |
| MP 0.86 | 24" | 45' | CPP | Align to channel | 1 | | 2 | Stream Culvert Replacement |
| **16-1-5** | | | | | | | | |
| MP 1.17 | 24" | 50' | CPP | Align to channel | 1 | | 2 | Stream Culvert Replacement |
| MP 1.29 | 24" | 40' | CPP | Align to channel | 1 | | 10 | Stream Culvert Replacement |
| MP 1.44 | 18" | 45' | CPP | 30 Degrees | 3 | | 2 | X-Drain Replacement |
| MP 2.09 | 18" | 40' | CPP | 30 Degrees | 3 | | 2 | X-Drain Replacement |
| MP 2.26 | 24" | 40' | CPP | Align to channel | 1 | | 10 | Stream Culvert Replacement |
| MP 2.99 | 36" | 50' | 14 | Align to channel | 1 | | 2 | Stream Culvert Replacement |
| MP 3.24 | 24" | 45' | CPP | Align to channel | 1 | | 2 | Stream Culvert Replacement |
| MP 3.37 | 18" | 40' | CPP | 30 Degrees | 3 | | 2 | X-Drain Replacement |
| MP 3.52 | 18" | 35' | CPP | 30 Degrees | 3 | | 2 | X-Drain Replacement |
| MP 4.43 | 24" | 45' | CPP | Align to channel | 1 | | 2 | Stream Culvert Replacement |
| MP 4.46 | 24" | 35' | CPP | Align to channel | 1 | | 2 | Stream Culvert Replacement |
| MP 8.75 | 18" | 40' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| MP 8.77 | 18" | 35' | CPP | Align to channel | 1 | | 2 | Stream Culvert Replacement |
| MP 8.83 | 18" | 65' | CPP | 30 Degrees | 3 | | 2 | X-Drain Installation |
| MP 8.93 | 18" | 55' | 14 | No Skew | 3 | | 2 | X-Drain Installation |
| MP 8.94 | 18" | 35' | 14 | No Skew | 3 | | 2 | X-Drain Installation |

NOTES:

1. ALL CULVERTS SHALL BE CORRUGATED POLYETHYLENE PIPE (CPP) CONFORMING TO SPECIFICATION 405e UNLESS NOTED OTHERWISE.
2. ALL CORRUGATED METAL PIPE (CMP) CULVERTS SHALL HAVE 5"x1" CORRUGATIONS UNLESS NOTED OTHERWISE.
3. SEE CULVERT INSTALLATION DETAIL.
4. DESIGNED CULVERT LENGTHS AND LOCATIONS ARE APPROXIMATE.
5. ALL CULVERTS SHALL HAVE A MINIMUM 6" BEDDING OF 3/4" MINUS CRUSHED ROCK MATERIAL CONFORMING TO SEC. 1200 UNLESS NOTED OTHERWISE.
6. EXCESS EXCAVATED MATERIAL SHALL BE PLACED AT WASTE SITES AS DIRECTED BY THE AUTHORIZED OFFICER'S REPRESENTATIVE. END DUMPING SHALL BE PERMITTED FOR PLACEMENT OF MATERIAL. WASTE PILES SHALL BE SLOPED, SHAPED, AND OTHERWISE BROUGHT TO A NEAT AND SIGHTLY CONDITION, AS DIRECTED BY THE AUTHORIZED OFFICER'S REPRESENTATIVE. WASTE MATERIAL SHALL NOT BE PLACED ON AREAS WHERE THE MATERIAL WILL ENCROACH ON A STREAM COURSE OR OTHER BODY OF WATER.
7. ENERGY DISSIPATORS = 2–3 LCY 6" JAW RUN

SKEW DIAGRAM




| SUMMARY | TOTAL (FT) |
|---|---|
| 18" CORRUGATED POLY PIPE | 1060 |
| 18" CORRUGATED METAL PIPE | 90 |
| 24" POLY PIPE | 300 |
| 36" CORRUGATED METAL PIPE | 50 |

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

CULVERT SUMMARY

| | |
|---|---|
| DRAWN: S. McCauley | SCALE: NO SCALE |
| DATE: July 2025 | SHEET: 46 OF 55 |

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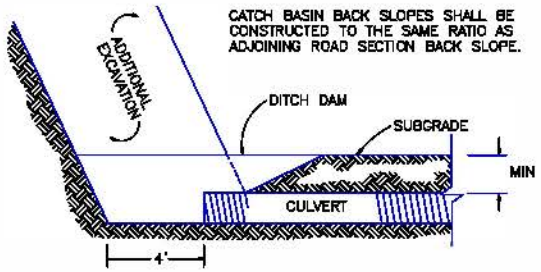
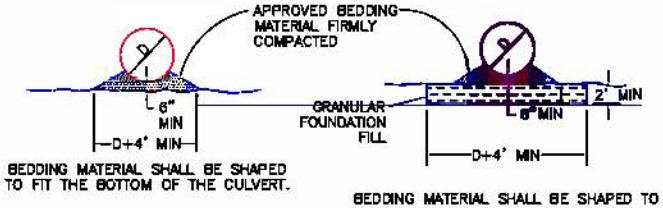
EXHIBIT C




CROSS SECTION AT CATCH BASIN

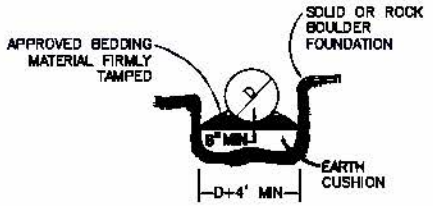



BEDDING MATERIAL SHALL BE SHAPED TO FIT THE BOTTOM OF THE CULVERT.

BEDDING OF CULVERTS ON STABLE NATURAL GROUND FOUNDATION OR COMPACTED EMBANKMENT

BEDDING MATERIAL SHALL BE SHAPED TO FIT THE BOTTOM OF THE CULVERT.

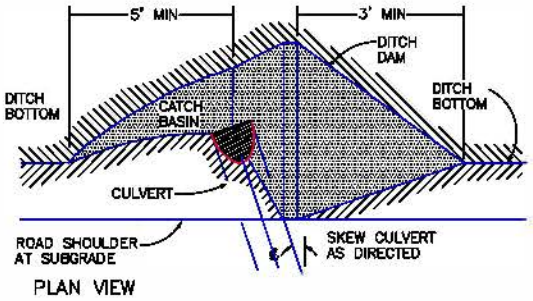
BEDDING OF CULVERTS ON SOFT SPONGY OR UNSTABLE SOIL FOUNDATION



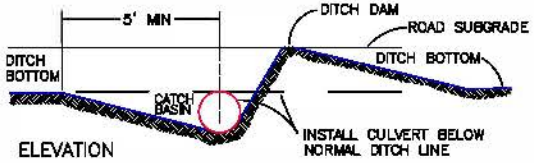

BEDDING MATERIAL SHALL BE SHAPED TO FIT THE BOTTOM OF THE CULVERT. EARTH CUSHIONING OF SILTY CLAY LOAM OR SAND MAY BE USED IF MATERIAL CAN BE PLACED IN THE DRY CONDITION. IF THE EXCAVATION IS WET, USE GRANULAR FOUNDATION FILL MATERIAL. MAINTAIN 8" MIN. DEPTH BETWEEN HIGH POINTS OF ROCKS AND/OR BOULDERS AND THE BOTTOM OF THE CULVERT.

BEDDING OF CULVERT IN SOLID ROCK OR BOULDER FOUNDATION

## CULVERT BEDDING DETAILS

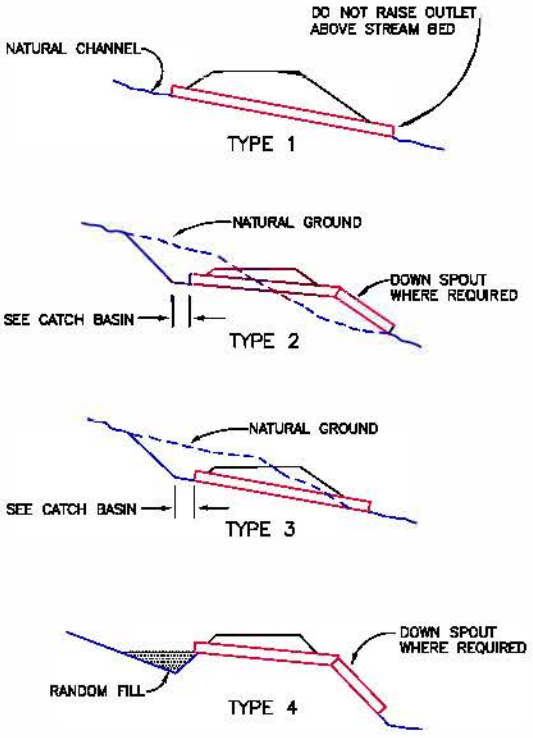



PLAN VIEW

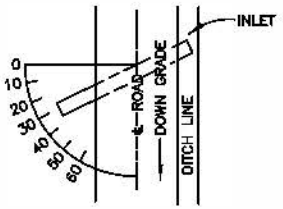



ELEVATION

## CATCH BASIN DETAIL




## CULVERT INSTALLATION TYPES




THE GRADE OF CROSSDRAINS SHALL BE AT LEAST 2% GREATER THAN THE GRADE OF THE DITCH.

## SKEW DIAGRAM

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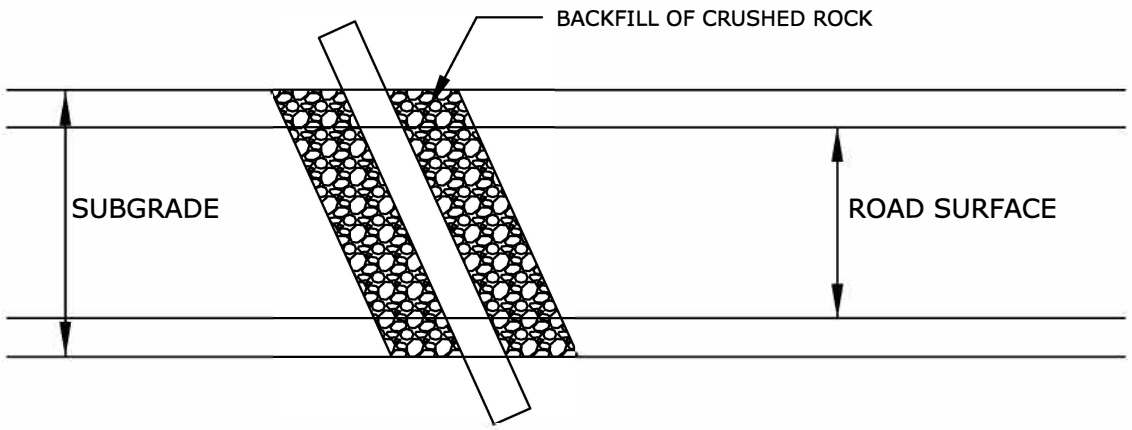
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

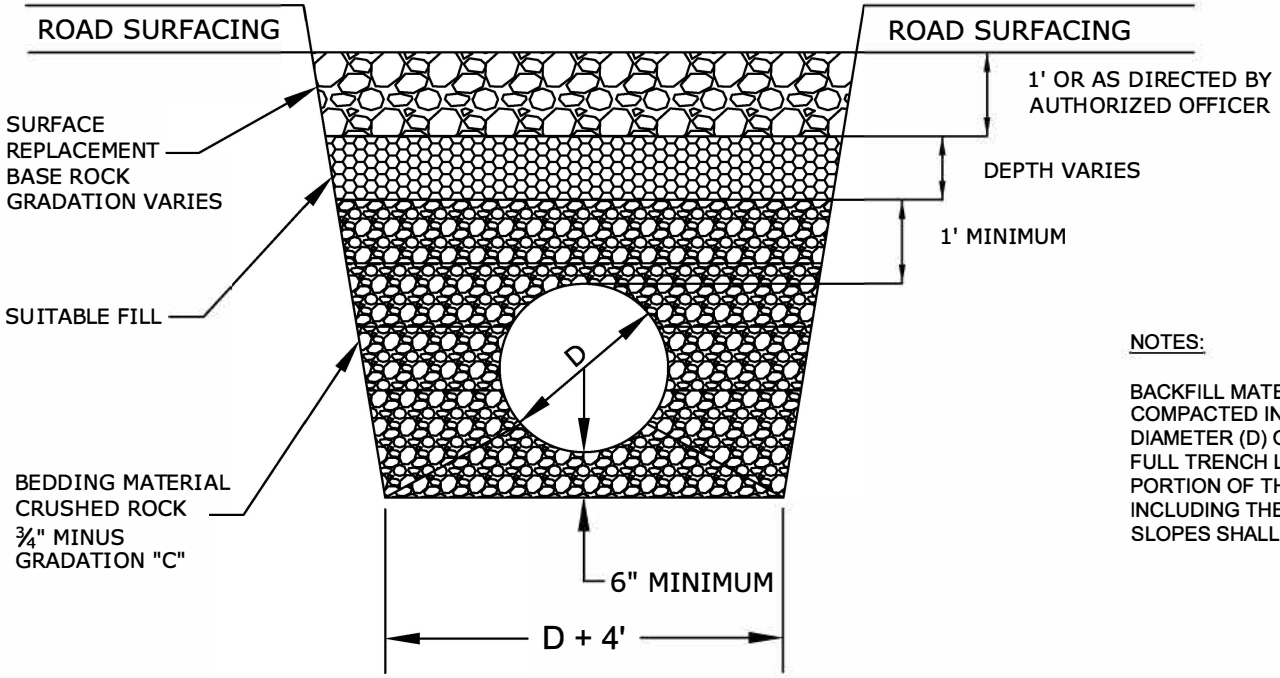
## CULVERT INSTALLATION DETAILS

| | |
|---|---|
| DRAWN: S. MCCAULEY | SCALE: NOT TO SCALE |
| DATE: JANUARY 2025 | SHEET: 47 OF 55 |

EXHIBIT 'C'




PLAN VIEW




PROFILE VIEW

NOTES:

BACKFILL MATERIAL SHALL BE ¾" MINUS CRUSHED ROCK COMPACTED IN LAYERS OF 6" MAXIMUM DEPTH, ONE PIPE DIAMETER (D) OR MINIMUM OF 2' WIDTH ON EACH SIDE, FOR THE FULL TRENCH LENGTH. THE MINIMUM DEPTH OVER ANY PORTION OF THE PIPE SHALL BE 1' OF CRUSHED ROCK, NOT INCLUDING THE CRUSHED ROCK FOR THE ROAD. ALL SIDE SLOPES SHALL CONFORM TO OSHA REGULATIONS.

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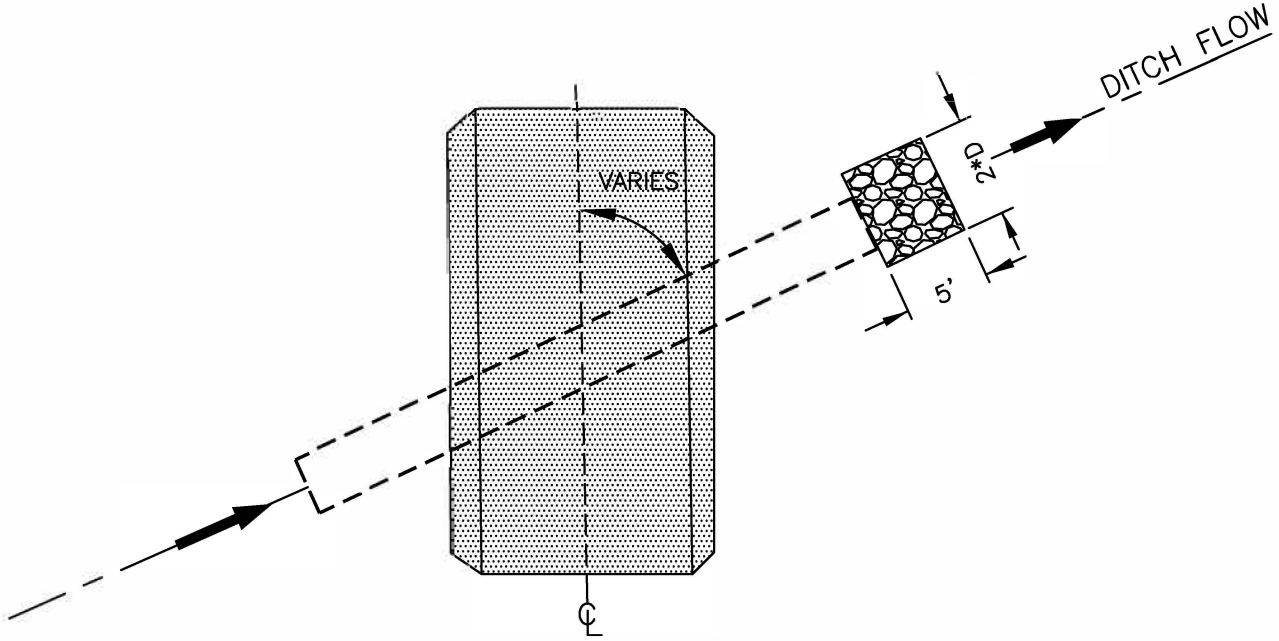
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT SPRINGFIELD, OREGON

CULVERT BEDDING & BACKFILL DETAILS

| | |
|---|---|
| DRAWN: S, MCAULEY | SCALE: NOT TO SCALE |
| DATE: AUGUST 2022 | SHEET: 48 OF 55 |

EXHIBIT C

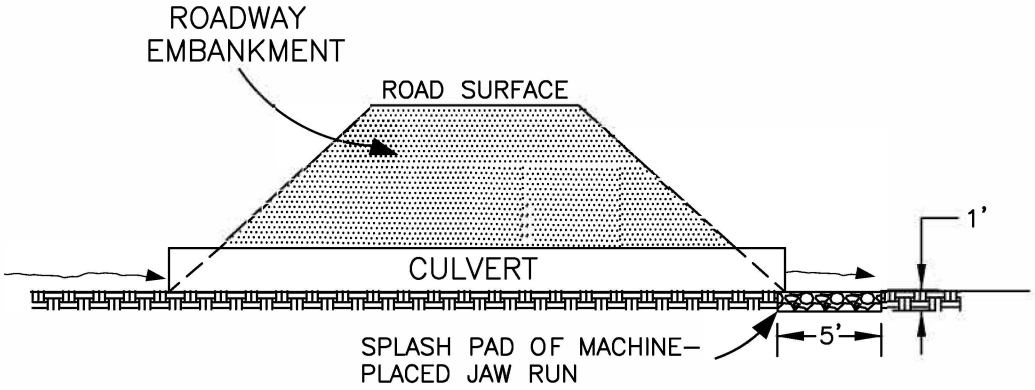



NOTES:

1 - SKEW ANGLES ARE MEASURED FROM THE CENTERLINE OF THE ROAD.

2 - APPROXIMATELY 2 CY OF JAW RUN IS NEEDED TO CREATE THE APPROPRIATE SIZED SPLASH PAD FOR A CROSS DRAIN.

## CROSS DRAIN SLOPE PROTECTION PLAN VIEW




## CROSS DRAIN SLOPE PROTECTION PROFILE VIEW

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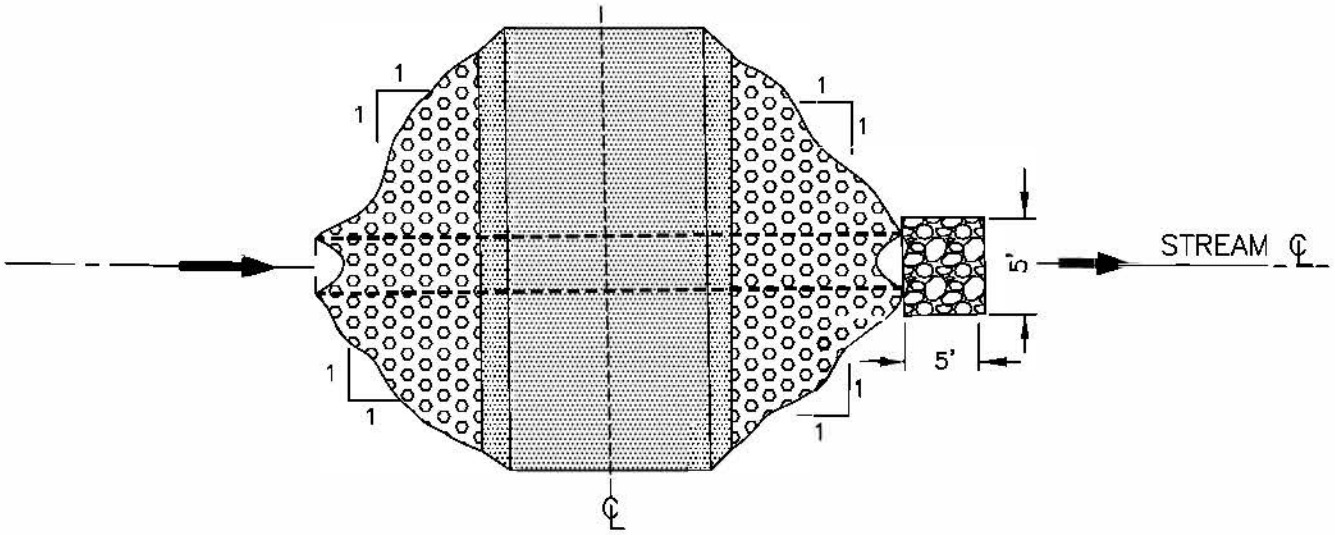
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NORTHWEST OREGON DISTRICT SPRINGFIELD, OREGON

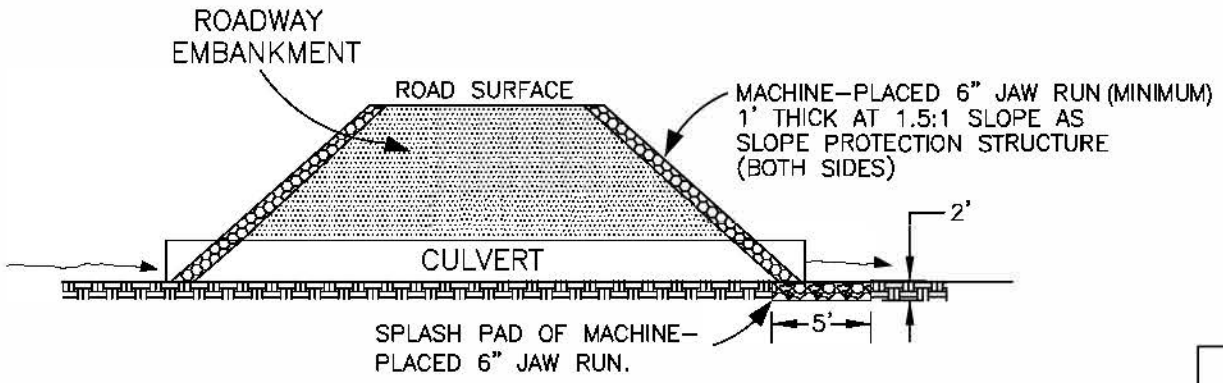
CROSS DRAIN SLOPE PROTECTION DETAILS

| | |
|---|---|
| DRAWN: S. MCCAULEY | SCALE: NOT TO SCALE |
| DATE: JANUARY 2025 | SHEET: 49 OF 55 |

EXHIBIT C




SLOPE PROTECTION PLAN VIEW




SLOPE PROTECTION PROFILE VIEW

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UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

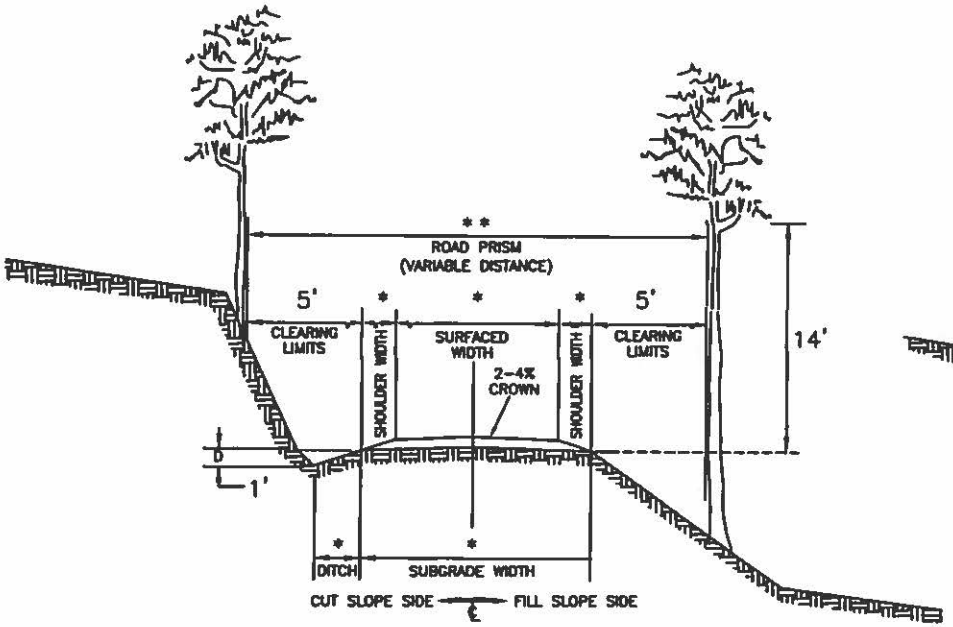
NORTHWEST OREGON DISTRICT — SPRINGFIELD, OREGON

STREAM CULVERT ARMORING DETAILS

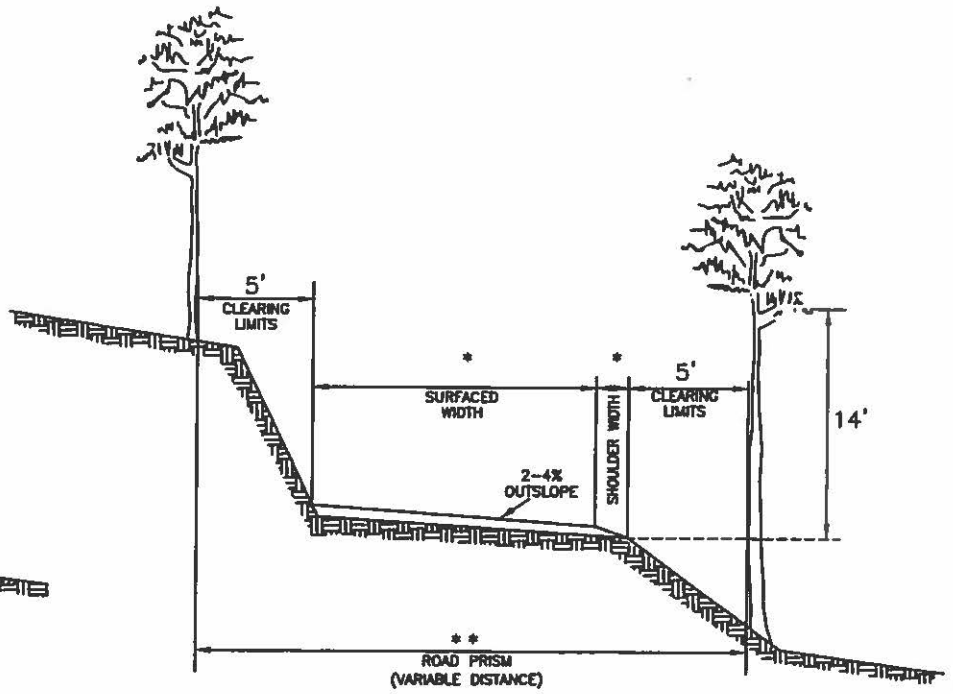
| | |
|---|---|
| DRAWN: S. MCCAULEY | SCALE: NOT TO SCALE |
| DATE: JANUARY 2025 | SHEET: 50 OF 55 |

EXHIBIT C

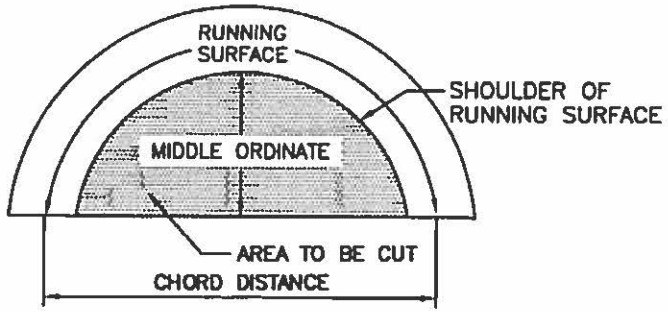
## BRUSHING
## TYPICAL CROWNED CROSS SECTION




## BRUSHING
## TYPICAL OUTSLOPED CROSS SECTION




## SIGHT DISTANCE
## DIAGRAM




* VARIABLE DISTANCE BETWEEN RUNNING SURFACE AND START OF FILL AND CUT SLOPE

** ALL AREAS WITHIN THE VARIABLE DISTANCE SHALL BE FREE OF ALL VEGETATION CAPABLE OF GROWING 1 FOOT IN HEIGHT OR HIGHER AND ALL OVERHANGING LIMBS AND BRANCHES 14 FEET IN ELEVATION ABOVE THE SUBGRADE.

NOTES:
1) BRUSHING OF THROUGH CUTS SHALL CONFORM TO CUT SLOPE SIDE OF THE TYPICAL CROWNED CROSS SECTION.
2) BRUSHING OF THROUGH FILLS SHALL CONFORM TO FILL SLOPE SIDE OF THE TYPICAL CROWNED CROSS SECTION.

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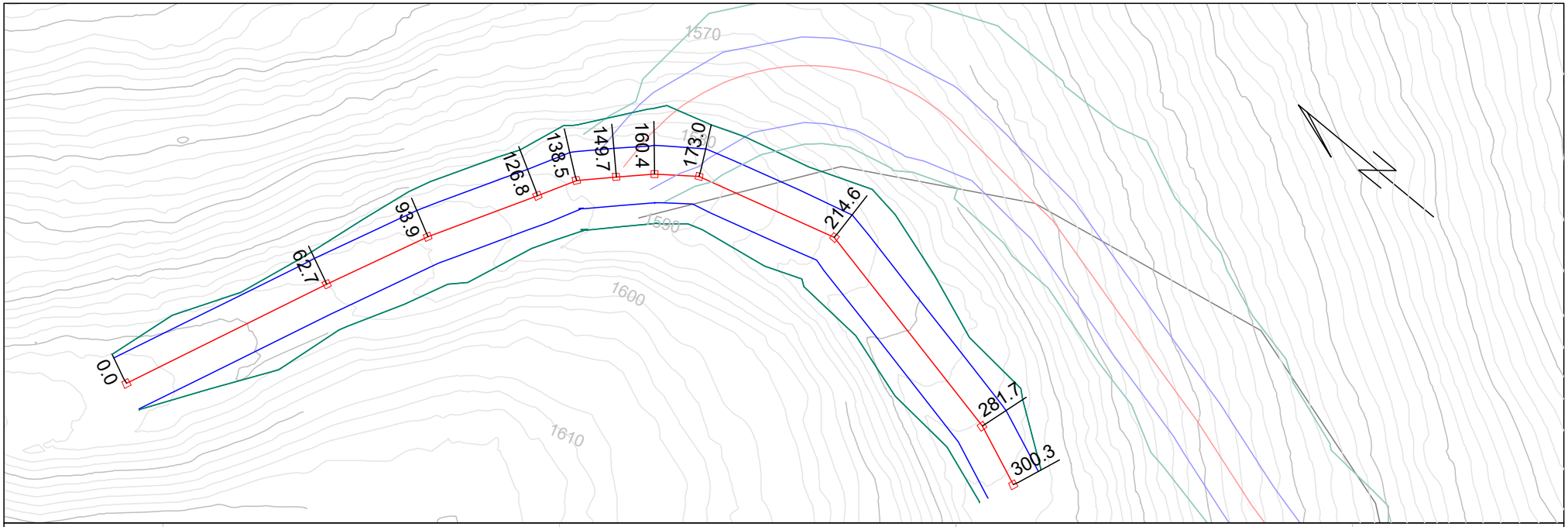
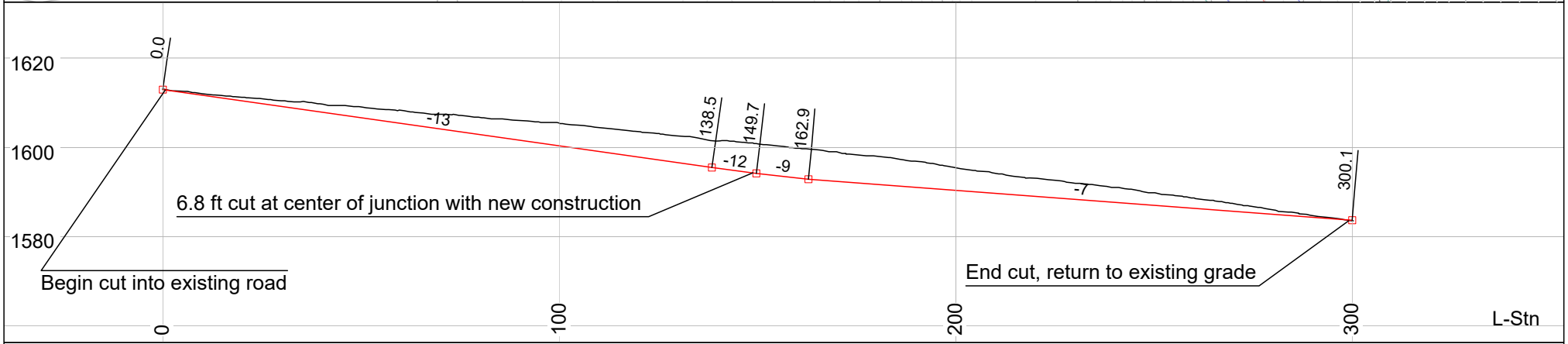
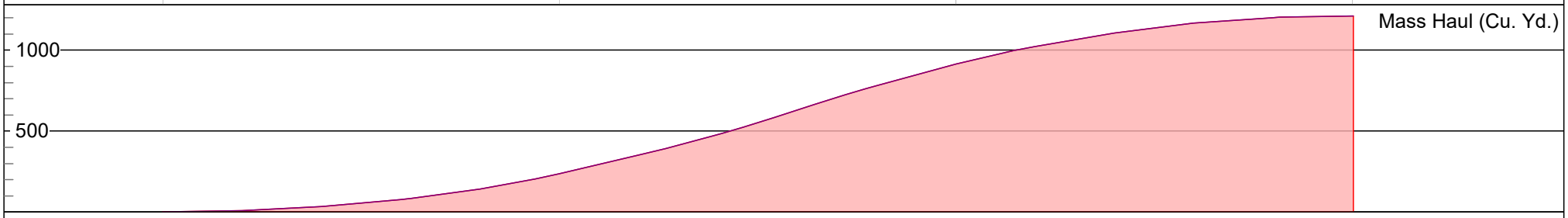
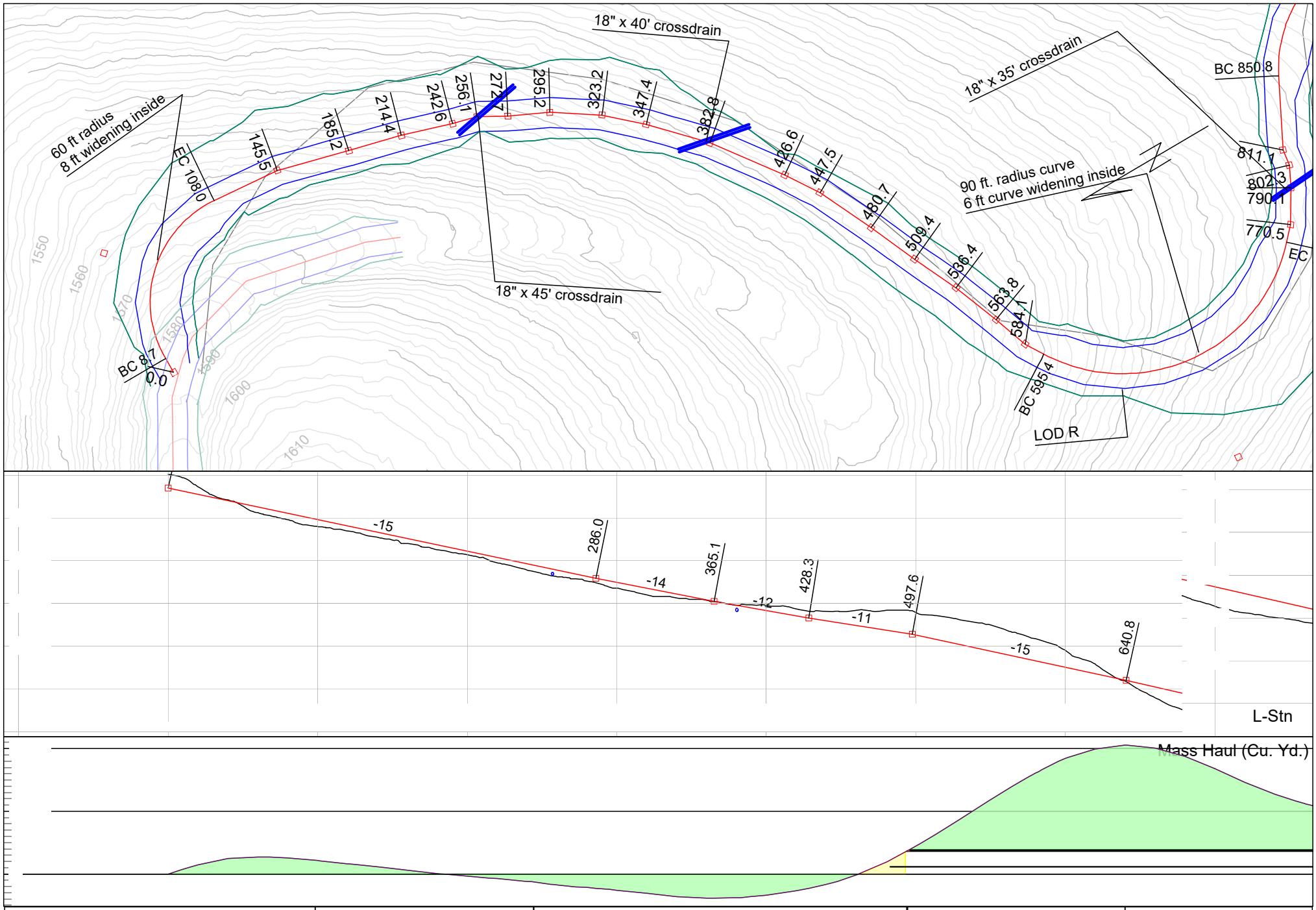
| UNITED STATES DEPARTMENT OF THE INTERIOR<br>BUREAU OF LAND MANAGEMENT | |
|---|---|
| NORTHWEST OREGON DISTRICT | SPRINGFIELD, OREGON |
| ROADSIDE BRUSHING DETAIL | |
| DRAWN: S. MCCAULEY | SCALE: NOT TO |
| DATE: JANUARY 2025 | SCALE SHEET: 51 of 55 |



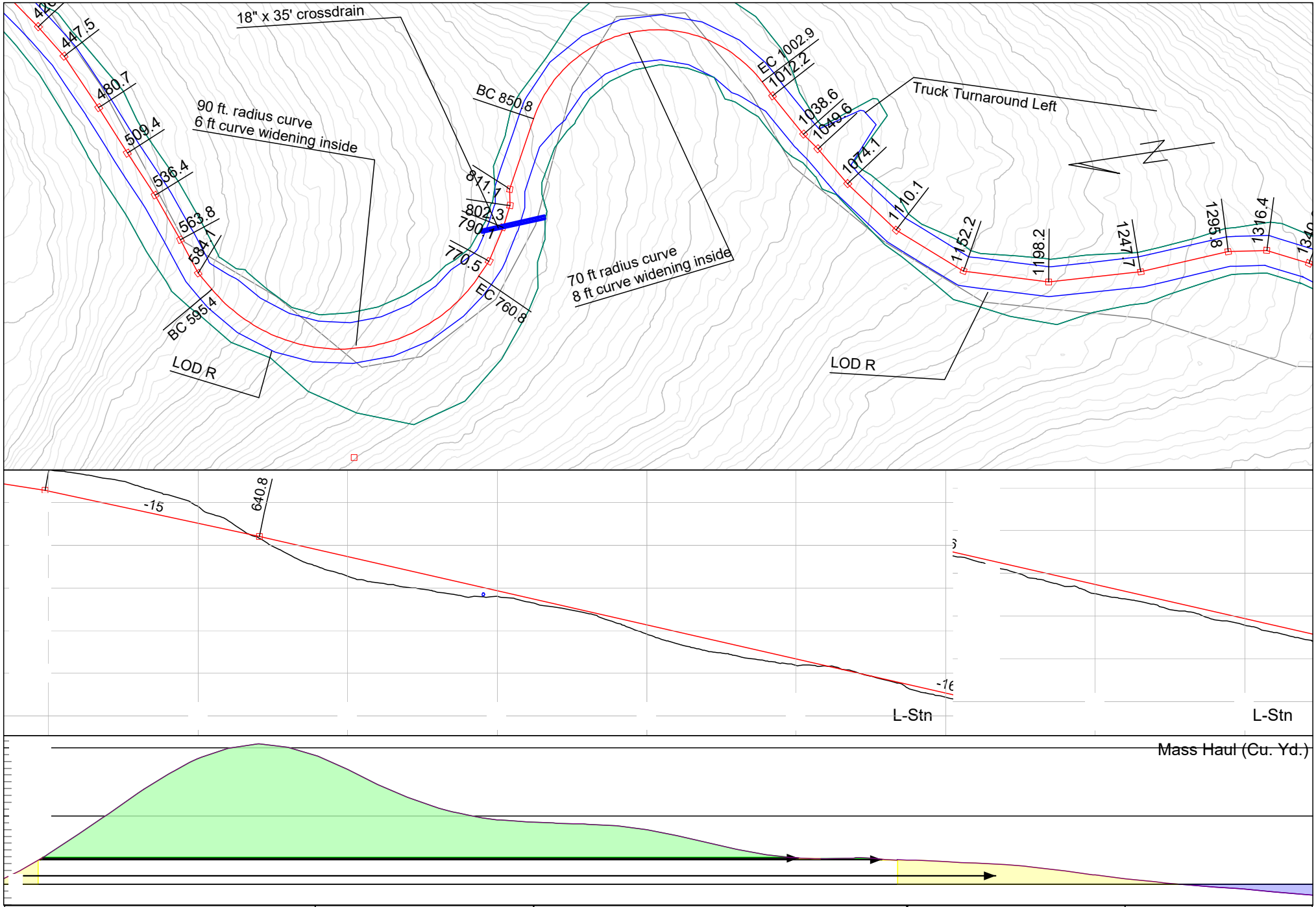



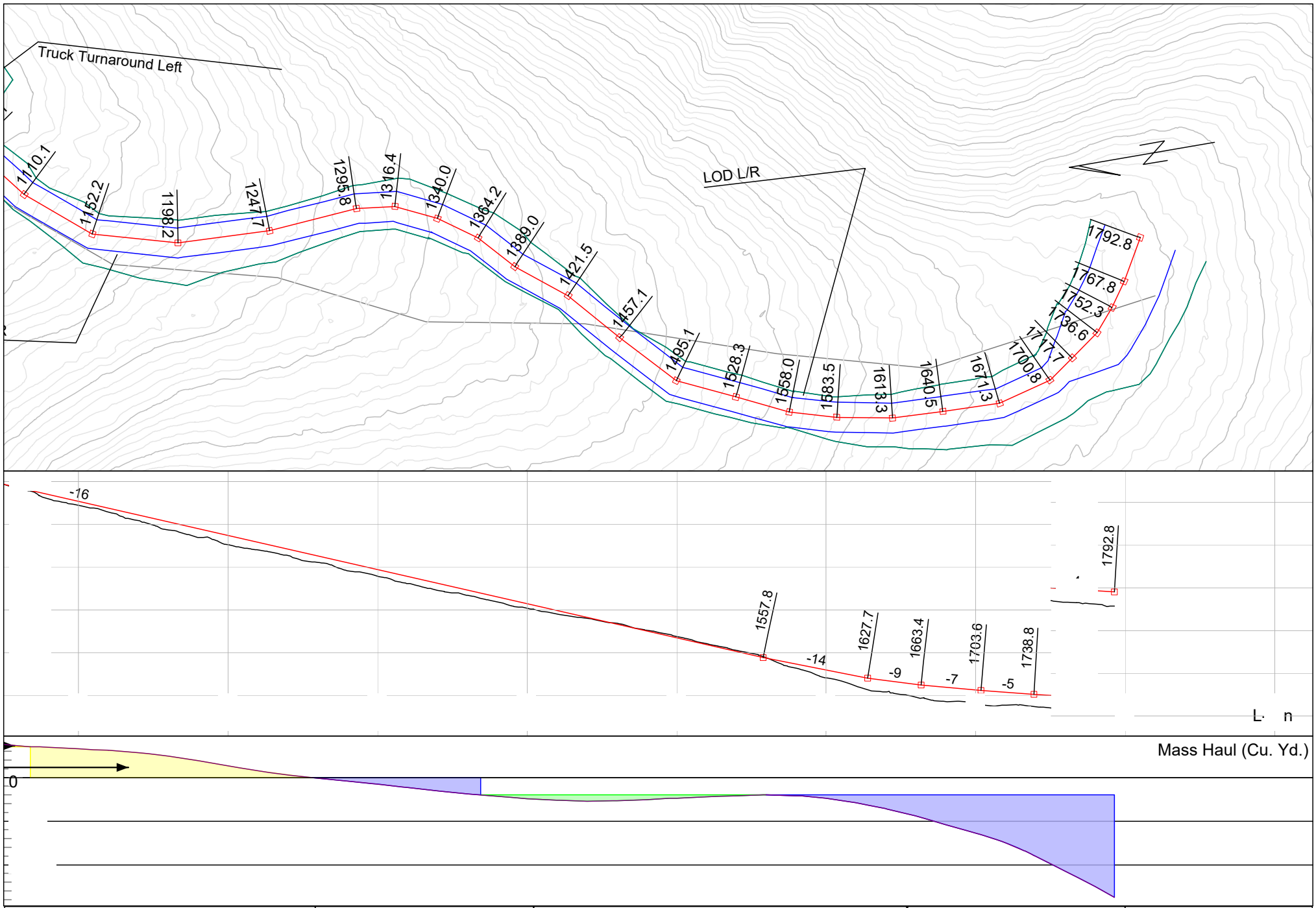

| | | | | |
|---|---|---|---|---|
| United States Department of the Interior<br>Bureau of Land Management<br>Northwest Oregon District<br>Upper Willamette Field Office | Page 1 of 1<br>Designed by: C. Conklin<br>Date: 6-25-2025 | Road No. 15-2-11.2<br>T. 15 S., R. 2 W., Sec. 13<br>Shotgun Formation Timber Sale | Plan Scale 1:500<br>Profile Vert Scale 1:400<br>Profile Horz Scale 1:450 | Sheet 52 of 55 |




| | | | | |
|---|---|---|---|---|
| United States Department of the Interior<br>Bureau of Land Management<br>Northwest Oregon District<br>Upper Willamette Field Office | Page 1 of 3<br>Designed by: C. Conklin<br>Date: 6-25-2025 | Spur 13B<br>T. 15 S., R. 2 W., Sec. 13<br>Shotgun Formation Timber Sale | Plan Scale 1:800<br>Profile Vert Scale 1:699<br>Profile Horz Scale 1:1000 | Sheet 53 of 55 |




| | | | | |
|---|---|---|---|---|
| United States Department of the Interior<br>Bureau of Land Management<br>Northwest Oregon District<br>Upper Willamette Field Office | Page 1 of 3<br>Designed by: C. Conklin<br>Date: 6-25-2025 | Spur 13B<br>T. 15 S., R. 2 W., Sec. 13<br>Shotgun Formation Timber Sale | Plan Scale 1:800<br>Profile Vert Scale 1:699<br>Profile Horz Scale 1:1000 | Sheet 54 of 55 |




| | | | | |
|---|---|---|---|---|
| United States Department of the Interior<br>Bureau of Land Management<br>Northwest Oregon District<br>Upper Willamette Field Office | Page 1 of 3<br>Designed by: C. Conklin<br>Date: 6-25-2025 | Spur 13B<br>T. 15 S., R. 2 W., Sec. 13<br>Shotgun Formation Timber Sale | Plan Scale 1:800<br>Profile Vert Scale 1:699<br>Profile Horz Scale 1:1000 | Sheet 55 of 55 |

## ROAD MAINTENANCE SPECIFICATIONS

General road maintenance specifications are designated by numeric symbols according to the type of work performed as follows:

| SECTION | DESCRIPTION |
|---|---|
| | Special Provisions |
| 3000 | General |
| 3100 | Operational Maintenance |
| 3200 | Seasonal Maintenance |
| 3300 | Final Maintenance |
| 3400 | Other Maintenance |

## SPECIAL PROVISIONS

1. The Purchaser shall clean road maintenance equipment to remove dirt and plant debris that may contain noxious weed seeds from the undercarriage, tracks, and tire treads prior to entry on BLM lands.
2. 400 CY of 1-1/2" minus and 200 CY of 3" minus (truck measure) of crushed rock is to be used for maintenance during hauling as well as final road maintenance. Purchaser shall be required to provide to the BLM notice of placement as well as locations of where maintenance rock is placed. Additional road reinforcement (rocking) may be required for wet weather haul and will be at the Purchaser's expense.
3. Prior to road maintenance, Purchaser shall be responsible for locating all underground utilities.
4. The Purchaser shall be permitted to remove ice or snow from roads authorized for use under this contract subject to the following terms and conditions:
   (aa) Snowplowing shall be performed by utilizing a motor patrol grader or similar machine as approved by the Authorized Officer. Grader blades shall be equipped with shoes, runners, or other device to keep the grader blade a minimum of four inches (4") above the road surface or Purchaser agrees to maintain the blade height as such.
   (bb) Snow shall be plowed to the outside shoulder of the road and not into the ditchline; in through-cut sections, snow shall be plowed to the short ditchline. Snow berms created on the shoulder of the road must be swept off the road surface or day lighted to allow surface water to drain off. Ditches and culverts shall be kept functional both during and upon completion of operations.
   (cc) Banks shall not be undercut, nor shall gravel or other surfacing material be bladed off the road.
   (dd) No chemical and/or salt-based de-icer is allowed for use. Pea gravel or ¾" minus rock may be applied to the road surface for additional traction on iced sections, at the Purchasers expense. Traction rock shall be uniformly distributed and no greater than 1" depth. Purchaser shall clear road surface of traction rock as directed by the Authorized Officer.
   (ee) Permission to remove snow/ice from Permittee maintained roads must be obtained from the Licensor prior to snow removal activities.

## GENERAL - 3000

3001 — The Purchaser shall be required to maintain all roads listed and/or referenced in Section 44(c)(10), Special Provisions and as shown on the Exhibit map of this contract in accordance with Sections 3000, 3100, 3200, 3300, and 3400 of this exhibit.

3001a — The Purchaser shall be required to provide maintenance on roads in accordance with Subsection 3403.

3002 — Purchaser shall maintain the cross section of existing native or aggregate surfaced roads to the existing geometric standards. Any roads required to be constructed, improved, or renovated under terms of this contract shall be maintained to the geometric standards required in Exhibit C of this contract.

3003 — The minimum required maintenance on any roads shall include the provisions specified in Subsections 3101, 3104, and 3105.

3004 — The Purchaser shall be responsible for providing timely maintenance and cleanup on any roads with logging units substantially completed prior to moving operations to other roads. The maximum length of non-maintained or non-cleanup of the road prism shall not exceed the sum of one (1) mile at any time. Release of maintenance requirements may be granted, upon written request, when the conditions specified in Sections 3300 and 3400 are met satisfactorily.

## OPERATIONAL MAINTENANCE - 3100

3101 — The Purchaser shall blade and shape the road surface and shoulders with a motor grader. Banks shall not be undercut. Back blading with tractors or similar equipment will be allowed only around landings and other areas when approved by the Authorized Officer.

3102a — Crushed rock materials used in this work may be obtained from commercial sources selected by the Purchaser at their option and expense, providing the rock materials furnished conform to the requirements in Section 1200 of Exhibit C of this contract

3103 — The Purchaser shall maintain established berms and place additional berms using adjacent material where needed to protect fills as directed by the Authorized Officer.

3104 — The Purchaser shall perform other road cleanup including removal of debris, fallen timber, bank slough, and slides which can practicably be accomplished by a motor grader, rubber tired front end bucket loader, rubber tired backhoe or comparable equipment, and by the use of hand tools.

3104a — Removal of bank slough and slide material includes placement of material at the nearest designated, suitable disposal site where material cannot erode into streams, lakes, or reservoirs or cause undue damage to road fill slopes which have been planted or mulched to control soil erosion as directed by the Authorized Officer.

3104b — The Purchaser shall be responsible for removal of all slides or slough, up to fifteen station yards in quantity, at any one site. This work includes unlimited multiple sites on all roads required to be maintained by the purchaser.

Prior to removal of any slough or slide material exceeding fifteen station yards at any one site, the Purchaser and the Authorized Officer or their Authorized Representatives shall agree in writing, in the field, to the quantity of material, method of disposal, and the disposal site. Work may commence immediately after agreement.

Upon completion of agreed upon work, a reduction in timber sale purchase price will be made to offset the cost of the work, based on current BLM Road Cost Guide. Adjustments in purchase price

for completed work shall be made as necessary and no less than once per year when actual work is ongoing.

3105 — The Purchaser shall be responsible for maintaining normal flow in drainage structures. This includes cleaning out drainage ditches, catch basins, clearing pipe inverts of sediment and other debris lodged in the barrel of the pipe, and maintaining water dips and water-bars using equipment specified in Subsection 3104 and other culvert cleaning and flushing equipment.

3106 — The Purchaser shall be responsible for repair and replacement of all materials eroded from road shoulders and fill slopes, up to fifteen station yards in quantity, at any one site. This work includes unlimited multiple sites on all roads required to be maintained by the Purchaser. Prior to repair and replacement of eroded material exceeding fifteen station yards at any one site, the Purchaser and the Authorized Officer or their Authorized Representatives shall agree in writing, in the field, to the quantity of material, borrow source and method of repair. Work may commence immediately after agreement.

Upon completion of agreed upon work, a reduction in timber sale purchase price will be made to offset the cost of the work based upon current BLM Road Cost Guide. Adjustments in purchase price for completed work shall be made as necessary and no less than once per year when actual work is ongoing.

3107 — The Purchaser shall cut or trim trees and brush which obstructs vision or prevents the safe passage of traffic along the traveled way when directed by the Authorized Officer.

The Purchaser shall also cut trees or brush encroaching on the road prism that are a result of his activities or winter damage during the contract period. Disposal of such vegetative material shall be by scattering below the road in accordance with Section 2100 of Exhibit C.

3108 — The Purchaser shall avoid fouling gravel or bituminous surfaces through covering with earth and debris from side ditches, slides or other sources. The Purchaser shall also avoid blading surfacing material off the running surface of the roadway. Skidding of logs on the roadway in or outside designated logging units is not authorized without prior written approval by the Authorized Officer. Repair required caused by such skidding activity is not considered maintenance and shall be repaired at the Purchaser's expense.

3108a The Purchaser shall perform logging operations on gravel roadways only where the locations have been marked on the ground and/or approved by the Authorized Officer. The Purchaser shall furnish gravel for necessary repairs at designated locations. Repair of the roads is not considered maintenance and shall be repaired at the Purchaser's expense.

## SEASONAL MAINTENANCE - 3200

3201 — The Purchaser shall perform preventative maintenance at the end of Purchaser's hauling each season and during non-hauling periods which occur between other operations on the contract area. This includes requirements specified in Section 3100.

3202 — The Purchaser shall perform and complete maintenance specified in Sections 3000, 3100, and 3200 on all roads maintained by him, prior to October 1 each year, except as specified in Subsection 3203, after initial commencement of construction or logging operations. Thereafter, all roads shall have continuous preventive maintenance and road cleanup until suspension of seasonal operations. This includes all roads used and not used during the preceding operating seasons.

3203 — The Purchaser shall complete road cleanup and maintenance, as specified in Section 3100, at the completion of logging operations on any roads located in an area separate from the area where logging activities will resume.

3204 — The Purchaser shall be responsible for performing post storm inspections and maintenance during the winter season to minimize erosion and potential road or watershed damage.

## FINAL MAINTENANCE - 3300

3301 — The Purchaser shall complete final maintenance and/or damage repairs on all roads used under terms of their contract within thirty 30 calendar days following the completion of hauling and in accordance with Sec. 16(b) of this contract. This work shall include any maintenance and/or damage repairs specified in Sections 3000, 3100, and 3200 necessary to meet the conditions specified in Subsection 3002 and shall be executed in accordance with Subsection 3302 of this section.

The Authorized Officer may grant acceptance of Purchaser's maintenance responsibility in part where certain individual roads or road segments are no longer of any use to the Purchaser's remaining removal operations, providing that all contract requirements as specified under Sec. 16(b), Special Provisions Sections 3000, 3100, 3200 and 3300 of the maintenance specifications have been completed and a relinquishment of cutting and removal rights on cutting units tributary to these roads is signed by the Purchaser. Request for partial acceptance must be submitted in writing by the Purchaser.

3302 — The Purchaser shall perform final road maintenance only when weather or soil moisture conditions are suitable for normal maintenance equipment operations as determined by the Authorized Officer.

If final maintenance is delayed after the date required in Subsection 3301 of this contract by adverse soil moisture or unsuitable equipment operating conditions, the Purchaser will be notified by the Authorized Officer when soil moisture and equipment operating conditions are suitable. The Purchaser shall then be required to complete final maintenance within 45 days.

## OTHER MAINTENANCE - 3400

3401 — The Purchaser shall repair any damage to road surfaces that was specified under Subsection 3108 and 3108a. This repair includes restoring the roadway to the designed standard and replacement of surfacing with approved surface material. This repair is not limited to use of equipment specified in Subsection 3104.

3402 — The Purchaser shall be permitted to remove ice or snow from roads authorized for use under this contract subject to the following terms and conditions:

(aa) Snowplowing shall be performed by utilizing a motor patrol grader or similar machine as approved by the Authorized Officer. Grader blades shall be equipped with shoes, runners, or other device to keep the grader blade a minimum of four inches (4”) above the road surface or Purchaser agrees to maintain the blade height as such.

(bb) Snow shall be plowed to the outside shoulder of the road and not into the ditchline; in through-cut sections, snow shall be plowed to the short ditchline. Snow berms created on the shoulder of the road must be swept off the road surface or day lighted to allow surface water to drain off. Ditches and culverts shall be kept functional both during and upon completion of operations.

(cc) Banks shall not be undercut, nor shall gravel or other surfacing material be bladed off the road.

(dd) No chemical and/or salt-based de-icer is allowed for use. Pea gravel or ¾” minus rock may be applied to the road surface for additional traction on iced sections, at the Purchasers expense. Traction rock shall be uniformly distributed and no greater than 1” depth.

Purchaser shall clear road surface of traction rock as directed by the Authorized Officer.

(ee) Permission to remove snow/ice from Permittee maintained roads must be obtained from the Licensor prior to snow removal activities.

3403 — The Purchaser shall be required to furnish and apply non-saline water during dry hauling periods, when directed by the Authorized Officer, for the purpose of laying dust and to prevent loss of surface material. The first application of water shall be made at the rate of one-half gallon per $yd^2$ of road surface traveled. Subsequent applications shall be made for each 40 MBF of timber or 120 $yds^3$ of rock hauled. Subsequent watering may be done at a rate less than one-half gallon per $yd^2$ when a specified lesser rate is approved by the Authorized Officer.

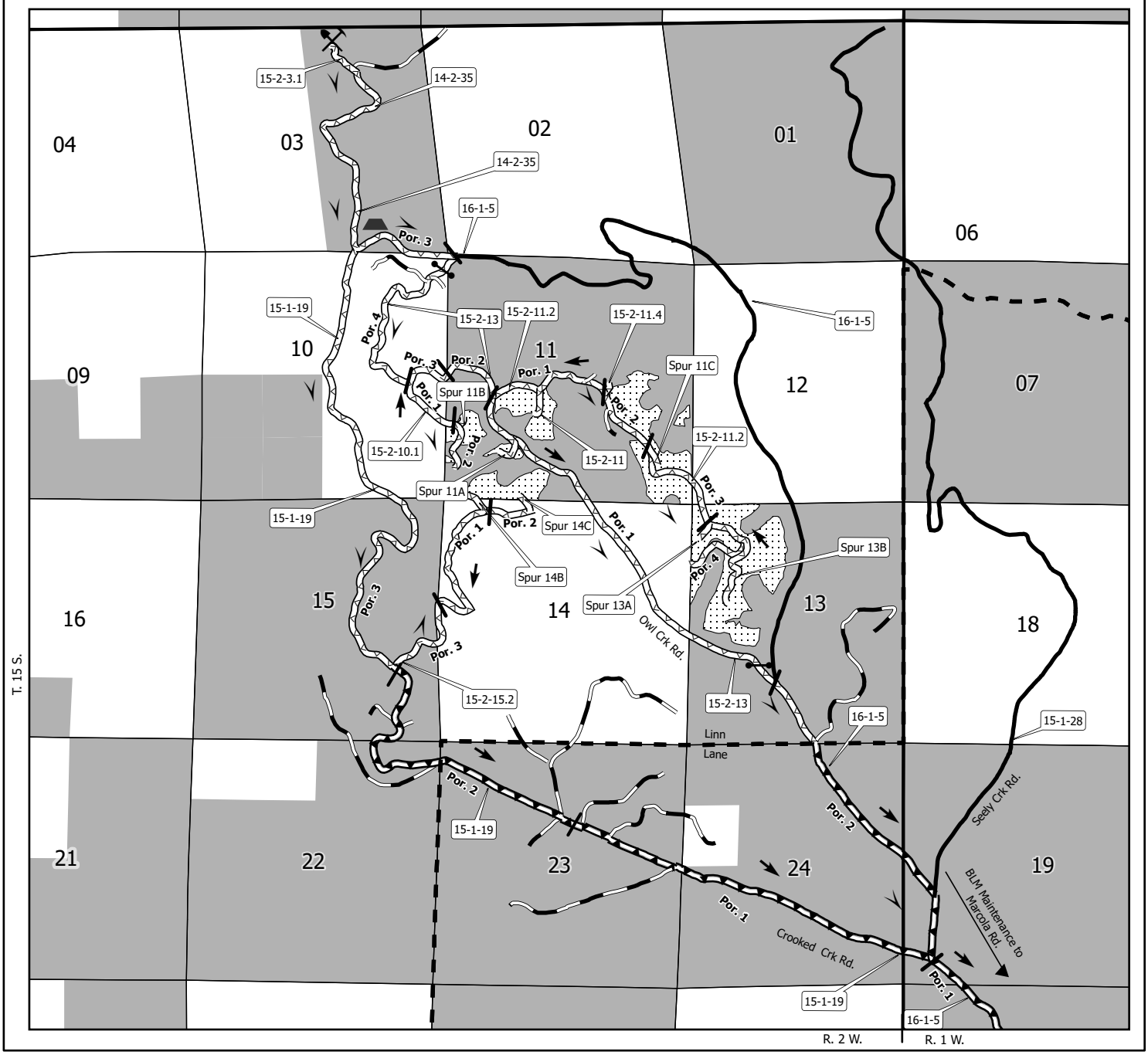
The Purchaser shall secure any necessary water permits and pay all required water fees for use of the water sources selected by the Purchaser and approved by the Authorized Officer.

Water required under these specifications shall be obtained at the times and at the locations indicated below:

Willamette Meridian

| Common Name | Section | T. | R. |
|---|---|---|---|
| Crooked Creek | 19 | 15S | 1W |

Exhibit D




SALE NAME: Shogun Formation

CONTRACT NO. ORN05-TS-2025.0565

**United States Department of the Interior**
**Bureau of Land Management**
Northwest Oregon District, Upper Willamette Field Office

**Legend**

- BLM Maintenance
- Purchaser Maintenance
- Existing Paved
- Existing Rocked
- Harvest Area
- Gate
- Timber Haul Route
- Mineral Haul Route
- Quarry
- Stockpile Site
- Segment Break
- County Line

Road Maintenance Map
T. 15 S., R. 1 W., Sections 19, 30, 31, 32,
T. 15 S., R. 2 W. Sections 3, 10, 11, 12, 13, 14, 15, 22, 23, 24,
T. 16 S., R. 1 W., Section 5
Willamette Meridian, Linn / Lane County, Oregon

| | |
|---|---|
| Designed By: | S. McCauley |
| Drawn By: | S. McCauley |
| Date: | July 22, 2025 |

Sheet 6 of 6

# United States
# Department of the Interior
# Bureau of Land Management

**Timber Appraisal**

| | | | |
|---|---|---|---|
| **Sale Name:** | Shotgun Formation | **Sale Date:** | Thursday, August 28, 2025 |
| **BLM District:** | NW Oregon DO | **Unit of Measure:** | 16' MBF |
| **Contract #:** | ORN05-TS-2025.0565 | **Contract Term:** | 36 months |
| **Sale Type:** | Advertised | **Contract Mechanism:** | 5450-003<br>Lump Sum Sale of Timber and other Wood Products |

**Content**



**Prepared By:** Dotson, Bryan J - 7/22/2025
**Approved By:** Caulfield, David J - 7/23/2025

### Legal Description of Contract Area

| Land Status | County | Township | Range | Section | Subdivision | Meridian |
|---|---|---|---|---|---|---|
| O&C | Linn | 15 S | 2 W | 11 | S1/2NE1/4, SW1/4, N1/2SE1/4, SE1/4SE1/4 | Willamette |
| O&C | Lane | 15 S | 2 W | 13 | NW1/4, N1/2SW1/4 | Willamette |

### Species Totals

| Species | Net | Gross Merch | Gross | # of Merch Logs | # of Cull Logs | # of Trees |
|---|---|---|---|---|---|---|
| Douglas Fir | 4,900.0 | 5,162.0 | 5,179.0 | 81,259 | 823 | 16,360 |
| Western Hemlock | 553.0 | 607.0 | 634.0 | 8,910 | 191 | 2,096 |
| Western Redcedar | 62.0 | 68.0 | 82.0 | 1,064 | 84 | 322 |
| Bigleaf Maple | 2.0 | 2.0 | 2.0 | 54 | 0 | 20 |
| **Totals** | **5,517.0** | **5,839.0** | **5,897.0** | **91,287** | **1,098** | **18,798** |

### Cutting Area Acres

| Regeneration Harvest Acres | Partial Cut Acres | Right of Way Acres | Total Acres | Net Volume per Acre |
|---|---|---|---|---|
| 138.0 | 52.0 | 2.9 | 192.9 | 28.6 |

### Logging Costs

| | |
|---|---|
| Stump to Truck | $1,191,862.25 |
| Transportation | $306,547.50 |
| Road Construction | $469,069.84 |
| Maintenance/Rockwear | $64,033.69 |
| Road Use | $2,718.00 |
| Other Allowances | $64,501.68 |
| **Total:** | **$2,098,732.96** |
| **Total Logging Cost per MBF:** | **$380.41** |

### Utilization Centers

| Location | Distance | % of Net Volume |
|---|---|---|
| Eugene/Springfield | 22.0 miles | 100% |

### Profit & Risk

| | |
|---|---|
| Profit | 11% |
| Risk | 0% |
| **Total Profit & Risk** | **11%** |

### Tract Features

| | |
|---|---|
| **Quadratic Mean DBH** | 16.0 in |
| **Average GM Log** | 64 bf |
| **Average Volume per Acre** | 28.6 mbf |
| **Recovery** | 94% |
| **Net MBF volume:** | |
| **Green** | 5,517.0 mbf |
| **Salvage** | 0 mbf |
| **Export** | 0 mbf |
| **Ground Base Logging:** | |
| **Percent of Sale Volume** | 13% |
| **Average Yarding Slope** | 15% |
| **Average Yarding Distance** | 250 ft |
| **Cable Logging:** | |
| **Percent of Sale Volume** | 87% |
| **Average Yarding Slope** | 46% |
| **Average Yarding Distance** | 305 ft |
| **Aerial Logging:** | |
| **Percent of Sale Volume** | 0% |
| **Average Yarding Slope** | 0% |
| **Average Yarding Distance** | 0 ft |

## Cruise

**Cruise Completed** December 2024

**Cruised By** Dotson, Cranmer, Maynard

**Cruise Method**

CRUISE INFORMATION: The timber volumes for Douglas-fir, western hemlock, and western redcedar in the Regeneration Harvest Areas were based on a variable plot cruise for estimating board foot volume. Plots were measured using a 40 basal area factor for a total of 195 plots. The timber volumes for Douglas-fir, western hemlock, and western redcedar in the Partial Harvest Areas were also based on a variable plot cruise for estimating board foot volume. Plots were measured using a 25.15 basal area factor for a total of 64 plots. Bigleaf maple in all Regeneration Harvest Areas were based on a 100% cruise for estimating board foot volume. The timber volumes for Douglas-fir in the rights-of-way were based on a 3P cruise for estimating board foot volume. Western hemlock in the rights-of-way were based on a 100% cruise for estimating board foot volume. A map showing the location of the plots and sample trees is available at the Springfield Interagency Office. With respect to merchantable Douglas-fir; the average tree is 15.9” DBHOB; the average log contains 64 bd. ft.; the total gross merchantable volume is approximately 5,162 MBF; and 95% recovery is expected.

### Stumpage Computation

| Species | # of Trees | Net Volume | Pond Value | (-) Profit & Risk | (-) Logging Costs | (+) Marginal Log Value | Appraised Price/MBF | | Appraised Value ($) |
|---|---|---|---|---|---|---|---|---|---|
| Douglas Fir | 16,360 | 4,900.0 | $757.60 | $83.34 | $380.41 | $0.00 | $293.90 | | $1,440,110.00 |
| Western Hemlock | 2,096 | 553.0 | $526.61 | $57.93 | $380.41 | $0.00 | $88.30 | | $48,829.90 |
| Western Redcedar | 322 | 62.0 | $812.91 | $89.42 | $380.41 | $0.00 | $343.10 | | $21,272.20 |
| Bigleaf Maple | 20 | 2.0 | $162.50 | $17.88 | $380.41 | $0.00 | $16.30 | * | $32.60 |
| **Totals** | **18,798** | **5,517.0** | | | | | | | **$1,510,244.70** |

* Minimum Stumpage values were used to compute the Appraised Price/MBF (10.00% of Pond Value)

### Percent of Volume By Log Grade

| Species | No. 1 & 2 Peeler | No. 3 Peeler | Special Mill | No. 2 Sawmill | No. 3 Sawmill | No. 4 Sawmill | Camp Run |
|---|---|---|---|---|---|---|---|
| **Douglas Fir** | | | | 58.0% | 38.0% | 4.0% | |

| Species | Peeler | No. 1 Sawmill | Special Mill | No. 2 Sawmill | No. 3 Sawmill | No. 4 Sawmill | Camp Run |
|---|---|---|---|---|---|---|---|
| **Western Hemlock** | | | | 51.0% | 45.0% | 4.0% | |

| Species | No. 1 Sawmill | No. 2 Sawmill | No. 3 Sawmill | No. 4 Sawmill | | | Camp Run |
|---|---|---|---|---|---|---|---|
| **Western Redcedar** | | | | | | | 100.0% |

| Species | No. 1 Sawmill | No. 2 Sawmill | No. 3 Sawmill | No. 4 Sawmill | No. 5 Sawmill | | Camp Run |
|---|---|---|---|---|---|---|---|
| **Bigleaf Maple** | | | | | | | 100.0% |

## Unit: 1 PH

**Net Volume/Acre: 23.1 MBF**

| Species | Net | Gross Merch | Gross | # of Trees |
|---|---|---|---|---|
| Douglas Fir | 1,070.0 | 1,120.0 | 1,120.0 | 4,840 |
| Western Hemlock | 122.0 | 133.0 | 142.0 | 753 |
| Western Redcedar | 9.0 | 10.0 | 10.0 | 82 |
| **Totals:** | **1,201.0** | **1,263.0** | **1,272.0** | **5,675** |

| | |
|---|---|
| Regeneration Harvest | 0.0 |
| Partial Cut | 52.0 |
| Right of Way | 0.0 |
| **Total Acres:** | **52.0** |

## Unit: 1 RH

**Net Volume/Acre: 30.6 MBF**

| Species | Net | Gross Merch | Gross | # of Trees |
|---|---|---|---|---|
| Douglas Fir | 1,463.0 | 1,543.0 | 1,550.0 | 4,430 |
| Western Hemlock | 168.0 | 185.0 | 192.0 | 522 |
| Western Redcedar | 21.0 | 23.0 | 28.0 | 94 |
| Bigleaf Maple | 1.0 | 1.0 | 1.0 | 11 |
| **Totals:** | **1,653.0** | **1,752.0** | **1,771.0** | **5,057** |

| | |
|---|---|
| Regeneration Harvest | 54.0 |
| Partial Cut | 0.0 |
| Right of Way | 0.0 |
| **Total Acres:** | **54.0** |

## Unit: 2 RH

**Net Volume/Acre: 30.6 MBF**

| Species | Net | Gross Merch | Gross | # of Trees |
|---|---|---|---|---|
| Douglas Fir | 2,275.0 | 2,400.0 | 2,410.0 | 6,892 |
| Western Hemlock | 261.0 | 287.0 | 298.0 | 813 |
| Western Redcedar | 32.0 | 35.0 | 44.0 | 146 |
| Bigleaf Maple | 1.0 | 1.0 | 1.0 | 9 |
| **Totals:** | **2,569.0** | **2,723.0** | **2,753.0** | **7,860** |

| | |
|---|---|
| Regeneration Harvest | 84.0 |
| Partial Cut | 0.0 |
| Right of Way | 0.0 |
| **Total Acres:** | **84.0** |

## Unit: R/W 1

**Net Volume/Acre: 13.0 MBF**

| Species | Net | Gross Merch | Gross | # of Trees |
|---|---|---|---|---|
| Douglas Fir | 13.0 | 14.0 | 14.0 | 30 |
| **Totals:** | **13.0** | **14.0** | **14.0** | **30** |

| | |
|---|---|
| Regeneration Harvest | 0.0 |
| Partial Cut | 0.0 |
| Right of Way | 1.0 |
| **Total Acres:** | **1.0** |

**Unit: R/W 2**

**Net Volume/Acre: 42.6 MBF**

| Species | Net | Gross Merch | Gross | # of Trees |
|---|---|---|---|---|
| Douglas Fir | 79.0 | 85.0 | 85.0 | 168 |
| Western Hemlock | 2.0 | 2.0 | 2.0 | 8 |
| **Totals:** | **81.0** | **87.0** | **87.0** | **176** |

| | |
|---|---|
| Regeneration Harvest | 0.0 |
| Partial Cut | 0.0 |
| Right of Way | 1.9 |
| **Total Acres:** | **1.9** |

| Total Stump To Truck | Net Volume | $/MBF |
|---|---|---|
| $1,191,862.25 | 5,517.0 | $216.03 |

### Stump to Truck: Falling, Bucking, Yarding, & Loading

| Yarding System | Unit of Measure | # of Units of Measure | $/Unit of Measure | Total Cost | Remarks |
|---|---|---|---|---|---|
| Cable: Medium Yarder | GM MBF | 121.0 | $284.52 | $34,426.92 | 5,000/LD, 5 Loads/Day, $4 Gal, 5 Acres, Partial Harvest Through Dead Ground, Unit 1 |
| Cable: Medium Yarder | GM MBF | 1,142.0 | $237.10 | $270,768.20 | 5,000/LD, 6 Loads/Day, $4 Gal, 47 Acres, Partial Harvest, Unit 1 |
| Cable: Medium Yarder | GM MBF | 3,827.0 | $203.23 | $777,761.21 | 5,000/LD, 7 Loads/Day, $4 Gal, 118 Acres, Regen, Unit 1 & 2 |
| Shovel | GM MBF | 101.0 | $152.96 | $15,448.96 | 5,000/LD, 5 Loads/Day, $4 Gal, 2.9 Acres, R/W Clearing, Ground Based, Unit 1 & 2 |
| Shovel | GM MBF | 648.0 | $140.52 | $91,056.96 | 5,000/LD, 9 Loads/Day, $4 Gal, 20 Acres, Regen Harvest, Ground Based, Unit 1 & 2 |
| **Subtotal** | | | | **$1,189,462.25** | |

### Additional Costs

| Item | Unit of Measure | # of Units of Measure | $/Unit of Measure | Total Cost | Remarks |
|---|---|---|---|---|---|
| Intermediate Support | Each | 8.0 | $300.00 | $2,400.00 | |
| **Subtotal** | | | | **$2,400.00** | |

### Additional Moves

| Equipment | Unit of Measure | # of Units of Measure | $/Unit of Measure | Total Cost | Remarks |
|---|---|---|---|---|---|
| **Subtotal** | | | | **$0.00** | |

**Comments:**
Logging cost printouts are located in the Shotgun Formation contract office folder.

| Total | Net Volume | $/MBF |
|---|---|---|
| $306,547.50 | 5,517.0 | $55.56 |

| Utilization Center | One Way Mileage | Description | Unit of Measure | # of Units | $/Unit of Measure | Total Cost | % of Sale Volume |
|---|---|---|---|---|---|---|---|
| Eugene/Springfield | 22.0 | Log Haul | GM MBF | 5,839.0 | $52.50 | $306,547.50 | 100% |

**Comments:**
$105.00/hour x 2.50 Hours round trip (60min delay included for loading and unloading) = $262.50 per trip / 5.0 MBF per load = $52.50

## Engineering Allowances

| Total | Net Volume | $/MBF |
|---|---|---|
| $535,821.53 | 5,517.0 | $97.12 |

| Cost Item | Total Cost |
|---|---|
| Road Construction: | $469,069.84 |
| Road Maintenance/Rockwear: | $64,033.69 |
| Road Use Fees: | $2,718.00 |

**Comments:**
See Shotgun Formation contract office folder for Road Construction & Road Maintenance and Road Use appraisals.

| Total | Net Volume | $/MBF |
|---|---|---|
| $64,501.68 | 5,517.0 | $11.69 |

### Environmental Protection

| Cost item | Total Cost |
|---|---|
| Equipment Washing | $800.00 |
| **Subtotal** | **$800.00** |

### Logging

| Cost item | Total Cost |
|---|---|
| Basal Girdle | $3,840.00 |
| Additional Tree Cutting | $2,250.00 |
| Tree Topping | $11,200.00 |
| Flaggers | $4,200.00 |
| Administrative Fee For Snag Creation 10% | $1,504.00 |
| **Subtotal** | **$22,994.00** |

### Road Construction, Maintenance, Use, & Decommissioning

| Cost item | Total Cost |
|---|---|
| Pavement Protection-Rock/Wood Chips | $2,000.00 |
| Skid Trail/Landing Decommissioning/Special Equipment Trail | $4,320.00 |
| Road Decommissioning | $6,669.93 |
| **Subtotal** | **$12,989.93** |

### Slash Disposal & Site Prep

| Cost item | Total Cost |
|---|---|
| Fuels Appraisal | $27,717.75 |
| **Subtotal** | **$27,717.75** |

**Comments:**
For More Information on Snag Creation: Tree Topping and Basal Girdle, Equipment Washing, Additional Tree Cutting: Submerch, 1850 Trees, Etc., Fuels Appraisal, Skid Trial/Landing Decommissioning/Special Equipment, Flaggers Needed For Logging, Pavement Protection, and Road Decommissioning appraisal. See cost sheets located in the Shotgun Formation contract office folder.