

***Myrtle Creek Commercial Thinning and Density Management
Environmental Assessment***

**Bobbin Weave Commercial Thinning
Decision Document**

Bureau of Land Management
South River Field Office, Roseburg District Office
EA # OR-105-05-09

Decision:

It is my decision to authorize the Bobbin Weave Commercial Thinning project, completing the implementation of Alternative One described in the Myrtle Creek Commercial Thinning and Density Management EA (pp. 5-10). Nine units totaling 223 acres in area will be treated. Approximately five additional acres, located entirely within the boundaries of the thinning units, will be clearcut for road right-of-way.

The units are located in Sections 21, 26, 28, 33, 34, 35 and 36, T. 28 S., R. 3 W.; and Section 11, T. 29 S., R. 3 W. The unit numbers and their corresponding designation in the EA are as follows: Unit 1 (29-3-11A), Unit 2 (29-3-11B), Unit 3 (29-3-11D), Unit 4 (29-3-11C), Unit 5 (28-3-35A), Units 6 and 7 (28-3-33B), Unit 8 (28-3-21A), and Unit 9 (28-3-26A).

Commercial thinning of 95 acres in the General Forest Management Area; and 86 acres in a Connectivity/Diversity Block will yield an estimated 2,218 thousand board feet chargeable to the Roseburg District annual sale quantity (ASQ) of 45 million board feet. Density management in 47 acres of Riparian Reserves will yield an estimated 519 thousand board feet not chargeable to the ASQ.

Thinning will be primarily accomplished utilizing cable-yarding equipment, with the exception of the northern half of Unit 9, which is designated for ground-based harvest. Cable-yarding equipment will be capable of maintaining a minimum of one-end log suspension to reduce soil compaction and displacement, and have a minimum of 100 feet of lateral-yarding capability to minimize the number of landings required. As discussed in the EA (p. 8), ground-based harvest will utilize pre-designated skid trails on slopes of less than 35 percent. Existing skid trails will be used to the greatest degree practical. Primary skid trails, including those already existing, and landings will collectively affect no more than 10 percent of the ground-based harvest area.

Thinning operations on units or portions of units designated for ground-based yarding or accessed by unsurfaced roads will be seasonally restricted to the dry season, typically between mid-May and mid-October.

As described in the EA (p. 9), felling and yarding of timber, other than for clearing road rights-of-way, is seasonally restricted from April 15 to July 15 during the bark slip period.

Access will be provided by existing roads, supplemented by the construction of three temporary spur roads totaling 3,840 feet in length (~ 0.73 miles), and two permanent spur roads totaling 360 feet (~ 0.07 miles). As discussed in the EA (p. 8) the intent is to decommission temporary roads within the same operating season in which they are constructed or renovated, and used.

As described in the EA (p. 9), a 595 foot section of Road No.28-3-21.6 will be realigned so that the road is situated on the ridge top where it will provide yarding access to either side of the ridge. The bypassed section of the existing road will be decommissioned.

Portions of Road Nos. 28-3-35.1, 29-3-11.1, 29-3-11.4 and 29-3-15.1 will be renovated. Renovation will generally consist of blading road surfaces, brushing road sides, cleaning culverts, and reshaping ditch lines. Additionally, the segment of Road No. 29-3-11.1 to be renovated will be surfaced with 12 inches of aggregate, and additional cross-drain culverts will be installed on the portion of Road No. 29-3-15.1 being renovated. After use, Road No. 28-3-35.1 will be waterbarred and blocked to vehicular use.

Rationale for the Decision:

The Myrtle Creek Commercial Thinning and Density Management EA analyzed two alternatives in detail, Alternative One, the Proposed Action (EA, pp. 5-10), and Alternative Two, the alternative of No Action (EA, p. 10).

The objectives of the thinning and density management treatments are to reduce relative density of stands in order to maintain individual tree and stand vigor; provide a high level of quality wood and sustainable timber production from the General Forest Management Area; and moderately high levels of timber production from the Connectivity/Diversity Blocks; recover the commodity value of trees that would be lost to suppression mortality; and diversify the species and structural composition, and accelerate the growth of the retained trees in Riparian Reserves. Alternative One will meet the stated objectives of the project, whereas Alternative Two will not.

Survey and Manage

In Northwest Ecosystem Alliance et al. v. Rey et al. the U.S. District Court modified its order on October 11, 2006, amending paragraph three of the January 9, 2006 injunction. This order exempted the following categories of projects from compliance with the 2001 ROD (as the 2001 ROD was amended or modified as of March 21, 2004), except that this order will not apply to:

- a. Thinning projects in stands younger than 80 years old;
- b. Replacing culverts on roads that are in use and part of the road system, and removing culverts if the road is temporary or to be decommissioned;
- c. Riparian and stream improvement projects where the riparian work is riparian planting, obtaining material for placing in-stream, and road or trail decommissioning; and where the stream improvement work is the placement large wood, channel and floodplain reconstruction, or removal of channel diversions; and
- d. The portions of project involving hazardous fuel treatments where prescribed fire is applied. Any portion of a hazardous fuel treatment project involving commercial logging will remain subject to the survey and management requirements except for thinning of stands younger than 80 years old under subparagraph a. of this paragraph.”

The South River Field Office has reexamined the objectives of the Bobbin Weave Commercial Thinning project described in the Myrtle Creek Commercial Thinning and Density Management EA. As illustrated in the EA (p. 16), with the exception of Unit 28-3-26A typed at 85 years old, the project thins stands that are approximately 39 to 59 years old.

In the case of Unit 28-3-26A, as indicated in the EA (p. 16, Table 3-1), the stand presently has a quadratic mean diameter (QMD) of 15.4 inches. As set forth in the *Survey Protocol for the Red Tree Vole* Version 2.1 (October 2002), within the Mesic Forest Distribution Zone suitable habitat is defined as stands or portions of stands with an estimated QMD \geq 18 inches diameter breast height (dbh) or an average mean diameter \geq 14 inches dbh. As the stand conditions do not represent suitable habitat, surveys are not required.

The two Survey and Manage mollusk species that could occupy the sale area, the Oregon shoulderband snail (*Helminthoglypta hertleini*) and Chace sideband snail (*Monadenia chaceana*) were surveyed for under the BLM Special Status Species program. The results of those surveys are documented below.

Suitable habitat for great gray owls is characterized by: (1) large diameter nest trees, (2) forest canopy providing roosting cover, and (3) proximity [within 200m] to openings ten acres or larger in size that could be used as foraging areas. As discussed in the EA (p. 21), an evaluation of the proposed thinning units indicates that there are no natural meadows or openings \geq 10 acres within 200m. Absent suitable habitat, no surveys for great gray owls were required.

On July 25, 2007, a new *Record of Decision to Remove the Survey and Manage Mitigation Measure Standards and Guidelines from Bureau of Land Management Resource Management Plans Within the Range of the Northern Spotted Owl* was signed by Assistant Secretary, U.S. Department of the Interior C. Stephen Allred. The effect of the decision is to eliminate the provisions of the Survey and Manage program set forth in the *Record of Decision for Amendments (ROD) to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl*. The 2007 *Record of Decision* addresses both the deficiencies in the 2004 Record of Decision set aside by the District Court in Northwest Ecosystem Alliance et al. v. Rey et al., 380 F. Supp. 2d 1175 (W.D. Wash. 2005) and the decision of the United States Court of Appeals for the Ninth Circuit in Klamath Siskiyou Wildlands Center et al. v. Boody et al., 468 F. 3d 549 (2006) which set aside the Annual Species Review findings for the red tree vole.

Consequently, for the aforementioned reasons the decision to eliminate Survey and Manage is effective on this project.

Public Comments

Comments from one organization received during preparation of the Myrtle Creek Commercial Thinning and Density Management EA suggested two alternatives that should be analyzed.

The first suggested alternative was helicopter yarding in lieu of any new road construction. As discussed in the EA (pp. 11-13), it was not considered a reasonable alternative because:

- Primary road access already exists to 21 of the 22 units proposed for treatment in this analysis. New construction would be minimal and simply provide access to advantageous yarding locations or allow landings to be moved off of main road systems in order to avoid impeding the regular flow of traffic; and
- Using representative appraisal criteria for a comparison of costs indicates that helicopter yarding would be more than two and a half times more expensive than traditional cable yarding methods.

The second alternative was retention of all of the best and largest trees in all the units in the Connectivity/Diversity Block land use allocation and Riparian Reserves proposed for treatment. It was also suggested that an upper diameter limit be established for trees designated for cutting. With respect to these subjects, these suggestions were not considered to be necessary for the following reasons:

- The largest trees would already be reserved by the marking prescription which primarily targets removing trees from intermediate and suppressed canopy classes (EA, p. 13);
- It is anticipated that coarse woody debris will be adequately provided for because: contract provisions will stipulate reservation of all existing coarse woody debris in Decay Classes 3, 4 and 5; snags felled in Riparian Reserves for safety or operational reasons will be retained on site to supplement existing coarse woody debris; and tops of trees broken out during thinning operations, as well as natural events such as windthrow, snow break and suppression mortality would provide additional coarse woody debris in the near term (EA, p. 13); and
- There is no silvicultural basis for limiting the size of trees cut. To do so would be arbitrary, and could preclude achievement of the stand density objectives (pp. 6-7) and the anticipated outcome of the treatments (pp. 33-36) discussed in the EA.

Comments on the completed EA were received from three organizations. These comments did not provide any new information or identify any relevant issues the BLM should have considered in the analysis. Some comments did not pertain to the project being analyzed. A selection of these comments is addressed below.

“This project seems to be very timber-friendly, focusing on treating stands to increase future timber production while foregoing the opportunity to optimize the complexity and diversity of these stands. Large trees and snags will be felled for pure convenience.”

The objectives of the Myrtle Creek Commercial Thinning and Density Management project were clearly described in the EA (p. 3) and this decision. These are reducing relative density of stands in order to maintain individual tree and stand vigor; providing a high level of quality wood and sustainable timber production from the General Forest Management Area; and moderately high levels of timber production from the Connectivity/Diversity Blocks; recovering the commodity value of trees that would be lost to suppression mortality; and diversifying the species and structural composition, and accelerating the growth of the retained trees in Riparian Reserves.

As was described in the EA (pp. 5-6), large remnant trees and snags will be reserved to the greatest extent practical. Large remnant trees are not the objective of the thinning treatment which is managing the density of the younger and numerically superior stand components. Circumstances under which these trees may be cut are extremely limited. Snags will also be reserved to the greatest degree practical, but not at the expense of worker safety or the silvicultural objectives for management of the stands.

“Given the increasing risk faced by the spotted owl the BLM should conduct all stand treatments to enhance the under-represented characteristics found in older forests, e.g., species diversity, age class diversity, large structures, large patch scale, reduced habitat fragmentation, reduced soil compaction, decadence, vertical and horizontal variability and complexity.”

These are the management objectives of the Roseburg District Resource Management Plan as pertains to Late-Successional Reserves. They are not the objectives for the Matrix where suitable forest land is to be managed for permanent sustainable timber production in support of local and regional economies.

“The EA failed to describe the specific silvicultural prescription for the Riparian Reserves. The silvicultural prescription for the Riparian Reserves must be designed to restore the reserves to the density and species mix of the *original forest*, not the current mix of the planted forest.”

A discussion of the silvicultural objectives of density management for Riparian Reserves is contained in the EA (p, 6). It states that a variable marking prescription would be applied in Riparian Reserves outside of “no-harvest” buffers with a relative density objective of 0.25 and canopy closure of 40 to 50 percent. To maintain structural and habitat diversity, tree selection would not be solely based on the best formed trees, and would include trees with broken or deformed tops. Hardwoods and minor conifer species, reflecting the species distribution in the riparian forest, would be retained. Because there is not a concern for regeneration of shade intolerant species, canopy gaps would generally be no larger than ¼-acre. The anticipated appearance, post-treatment, is depicted in Figure 4-2 on page 34.

With respect to species mix, it should be noted that Douglas-fir is the numerically dominant species in native stands throughout the South River Resource Area and in the Myrtle Creek watershed where the project area is located. This is borne out by decades of timber cruise data where Douglas-fir regularly comprised upwards of 70 percent of total stem counts, and often accounted for more than 90 percent of the trees in a stand. In the Bobbin Weave Commercial Thinning sale, Douglas-fir trees comprise slightly more than 89 percent of all of the trees designated for cutting. Where retention in Riparian Reserves of species other than Douglas-fir is consistent with relative density objectives, these other species will generally be selected for retention to enhance species diversity.

“Unit 35A has a “significant” cultural site that will be adversely affected by the logging, on its east side. This is close to a Tater Tot unit. On the east side of 35A, what is the cultural site you are planning on adversely affecting. Will it be destroyed? Why didn’t the EA consider how to avoid it?”

The EA seems to contradict itself. How can you say that the significant site in 35A would likely be adversely affected by the logging, yet in the next paragraph say ‘If modification is not practical, mitigation would be applied’

This comment does not accurately reflect the discussion in the EA (p. 30) which states that:

“The fifth site on the east side of Unit 28-3-35 A was determined to be significant through consultation with the Oregon State Historic Preservation Office in 1994, and would likely be adversely affected by the proposed thinning.”

Key to this statement is that the site would likely be affected by the **proposed** [emphasis added] thinning. The EA goes on to describe measures of mitigation that could be applied to lessen impacts or eliminate them altogether. If modification is not practical, mitigation would be applied, as provided by the State Historic Preservation Office.

Mitigation, described later in this decision (p. 9), is being applied such that the commercial thinning will have “No Effect” on cultural resources on the east side of Unit 28-3-35 A (Unit 5).

With respect to the location and nature of the site in question, we are not at liberty to divulge this information as specified in Section 9 (a) of the Archaeological Resources Protection Act (Public Law 96-95).

Wildlife

As noted in the EA (p. 41), Unit 28-3-26A is overlapped by the Curtin Creek and Johnson Creek **northern spotted owl** home ranges. Density management will downgrade the function of the stand from suitable habitat to dispersal-only habitat by reducing horizontal and vertical cover, removing potential hunting perches, and disturbing coarse woody debris providing habitat for prey species. Thinning of the remaining units will modify dispersal-only habitat. Spotted owls are expected to continue to use the stands because canopy cover will remain above 40 percent with mean tree diameters greater than 11 inches, figures widely accepted as a threshold for dispersal function.

No effect to spotted owls from noise disruption is expected, as thinning operations will either occur outside of the disruption threshold for known spotted owl sites or activity centers, or be seasonally restricted from March 1st to June 30th if within the disruption threshold of unsurveyed suitable spotted owl habitat. Seasonal restrictions could be waived if surveys indicate that spotted owls are not present, not nesting, or failed in nesting. These factors will ensure that noise disruption will not cause spotted owls to abandon nests or fledge prematurely.

The U.S. Fish and Wildlife Service has concurred with a determination of not likely to adversely affect listed species or critical habitat pursuant to section 7 of the Endangered Species Act of 1973 (Ref. # 1-15-05-I-0511).

As described in the EA (p. 19), habitat for the **Oregon shoulderband snail** (*Helminthoglypta hertleni*), a Bureau Sensitive species, is present throughout the project area. Surveys have been conducted and neither shoulderband snails were located.

As described in the EA (p. 19), suitable habitat for the **Chace sideband snail** is present throughout the project area. Two occupied sites were identified, one in Unit 28-3-21A and the other in Unit 29-3-11A. The site in unit 28-3-21A was buffered in a ¾-acre untreated area, while the site in unit 29-3-11A is protected by a 1-acre untreated area. Neither harvest nor yarding will occur in these unthinned areas, which will retain shade, vegetation, undisturbed substrate, and intact down wood on the sites. Both of these sites occur on north-facing aspects that receive little direct sun, and both occur in draws that provide shade from adjacent slopes. Because these factors will provide appropriately shady and moist microclimate conditions, and suitable aestivation opportunities, Chace sideband snails are expected to persist at these sites

As described in the EA (p. 19), there is a known **peregrine falcon** aerie located within a mile of Unit 28-3-35A. Thinning will not modify nesting or foraging habitat for the falcons. To avoid disturbance during nesting and fledging, seasonal restrictions described in the EA (p. 10), will prohibit operations between January 1st and August 15th, but may be waived earlier if no young are present, or once the young have fledged.

Botany

The Bobbin Weave Commercial Thinning units were surveyed for Special Status Species identified in the EA (pp. 21-22 and Appendix C). The results of these surveys were negative. Consequently, no effects to any Special Status botanical species are expected.

Aquatic Habitat, Fish, and Essential Fish Habitat

As described in the EA (p. 48), the Bobbin Weave Commercial Thinning project would not affect stream substrate and sediment. “No harvest” buffers at least 20 feet in width would be established on all streams. Equipment operations would be prohibited within these buffers so that soils would not be displaced or compacted. Non-compacted forest soils in the Pacific Northwest have very high infiltration capacities and are not effective in transporting sediment by rain splash or sheet erosion. Any potential sediment resulting from thinning operations would be intercepted by the vegetated “no-harvest” buffers and precipitate out rather than reach stream channels. These buffers would also provide root strength sufficient to protect bank stability and prevent abnormal bank erosion that would contribute additional sediment to streams where it could accumulate and become embedded in streambed gravels. As further described in the EA (pp. 49-50), no effects from sediment associated with road construction, renovation, use and decommissioning would be expected either.

It is acknowledged in the EA (p. 50) that thinning would remove trees within a half site-potential tree height (80 feet) of streams which could result in a short-term reduction in available wood. This smaller diameter wood does not persist for long due to higher decay rates, however, and is more easily flushed from the system than large pieces. Current down wood will be reserved to provide for the short term, while density management will accelerate the growth of large diameter trees to provide long-term sources of large wood for in-stream habitat.

The availability of pool habitat will be unaffected by either thinning and density management, or road construction as no existing large wood will be removed from streams.

As described in the EA (p. 51), road construction and renovation, whether permanent or temporary, will not involve construction or replacement of stream crossings on any fish-bearing streams. Two temporary stream crossings to be installed on intermittent streams will be removed at the end of the summer operating season. As a consequence, access to aquatic habitat by fish and other aquatic fauna will be unaffected by the Bobbin Weave Commercial Thinning project.

As discussed in the EA (p. 51), direct effects to fish species from the harvest and hauling of timber could result from deposition of additional fine sediment and a temporary increase in turbidity, which can hinder survival of eggs and alevin buried in gravel. Turbidity can reduce foraging ability, impair breathing by clogging gill membranes, and increase overall stress levels in fish. None of these direct effects are expected, however. As discussed above, thinning in upland stands and density management in Riparian Reserves will not result in fine sediment reaching streams as uncompacted soils and vegetation in “no-harvest” buffers will filter out sediment from run-off. The effects of sediment generated by road related activities are expected to be so small as to not be measurable at the project scale.

For the reasons described above, it is not anticipated that the Bobbin Weave Commercial Thinning project will have any adverse effect on Essential Fish Habitat in the Myrtle Creek fifth-field watershed.

Water Quality

As described in the EA (p. 54), no measurable change in stream flows are expected because the thinning projects, of which the Bobbin Weave Commercial thinning is a component, would involve only partial removal of vegetation on areas constituting two percent or less of each affected project drainage.

Harvest in the Transient Snow Zone will have little risk of increasing peak flows, the present risk of such events already being assessed as low (EA, p. 27). This is because the risk of peak flow increases is generally associated with warm rain-on-snow events primarily occurring in areas with less than 30 percent canopy closure. As described in the EA (pp. 35 and 54), post-thinning canopy closure will generally remain above 40 percent.

The risk of new road construction influencing flows is also low. As described in the EA (p. 54), new road construction and reconstruction of older roads, whether intended to be permanent or temporary, would be primarily located on ridge tops and outside Riparian Reserves. These roads would be out-sloped in lieu of the construction of ditch lines and installation of cross drains. Consequently, the roads would be entirely disconnected from the drainage network and would have no potential for affecting stream flow levels.

The effects of the Bobbin Weave Commercial Thinning sale on sediment are addressed in the EA with respect to both the potential associated with thinning operations, and those associated with timber hauling. As discussed in the EA, (p. 55), “no harvest” buffers would prevent disturbance to stream channels and stream banks and would intercept surface run-off allowing for deposition of any sediment transported by overland flow before it reached active waterways.

As described in the EA (p. 55), new roads would not be connected to the drainage network. Since road segments must be connected directly to stream channels in order to deliver sediment-laden water, these roads would have no effect on stream sediment. This disconnection also eliminates the potential for these roads to affect stream flows as water discharged onto forested slopes will infiltrate into the soil rather than run off into streams.

Sediment effects from timber hauling in wet weather would be short term and limited to the immediate vicinity of stream crossings. Also, prior to log hauling, sediment-control devices such as silt fences and hay bales may be placed in ditch lines and at cross drain outlets to trap sediment locally and prevent migration into streams.

With respect to the potential for affecting stream temperatures, vegetation that provides primary shading for stream channels would be protected by “no harvest” buffers. Consequently, stream shading would not likely be affected by thinning and density management and it is not expected that stream temperatures would be affected.

Aquatic Conservation Strategy

Riparian Reserves have been designated on all perennial and intermittent streams in the Bobbin Weave Commercial Thinning sale. Applicable management direction is being applied, including: avoiding location of new roads and landings in Riparian Reserves; minimizing disruption of natural hydrologic flow paths, including diversion of stream flow and interception of surface and subsurface flow; minimizing sediment delivery from roads; and maintaining fish passage at all road crossings.

The Bobbin Weave Commercial Thinning sale is not located in a **Key Watershed**, so there is no additional management direction that applies.

As addressed in the Myrtle Creek Commercial Thinning and Density Management EA (pp. 1, 23, 30, 39, 45 and 58) recommendations and information from **Watershed Analysis** was considered and incorporated into the analysis of effects. Additional information from Aquatic Habitat Inventory surveys conducted by the Oregon Department of Fish and Wildlife was used, in conjunction with site-specific evaluations, in describing aquatic conditions throughout the watershed.

As described in the EA (p. 3), density management would be conducted in Riparian Reserves to retain hardwoods as stand components, diversify the species and structural composition, and accelerate the growth of the retained trees, making this project a **Watershed Restoration** action.

In consideration of these facts, and the analysis contained in the Myrtle Creek Commercial Thinning and Density Management EA, it is my conclusion that the Bobbin Weave Commercial Thinning sale is consistent with the intent and direction for the Aquatic Conservation Strategy set forth in the 1994 *Record of Decision for Amendments (ROD) to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl*, and the 1995 Roseburg District *Record of Decision and Resource Management Plan*.

Cultural/Historical Resources

Six archaeological sites were located within or in proximity to two of the original unit configurations. Four of the sites were within or in proximity to Unit 28-3-26 A. The unit has been subsequently reconfigured to avoid the landforms containing the sites, resulting in a "No Effect" determination for the four sites associated with Unit 28-3-26 A. Two of the sites were within Unit 28-3-35 A. The unit has been reconfigured to avoid harvest on the sites. However, reconstruction and use of the existing White Rock jeep trail to haul on has the potential to affect one of the sites. This potential to affect will be mitigated by placing geo-textile cloth on the existing, unaltered road and covering it with at least 12 inches of culturally sterile fill obtained from a known and examined stockpile. These two measures, avoidance and filling, will result in a "No Effect" determination for the two sites in Unit 28-3-35 A.

Noxious Weeds

All logging equipment, excluding log trucks and crew transport, will be pressure washed or steam cleaned prior to mobilization in and out of the project area to minimize the risk of introducing soil from outside the project area that may be contaminated with noxious weed seed or other propagative materials. Any equipment removed during the life of the contract must be cleaned before being returned to the project area.

Monitoring:

Monitoring of the effects of the proposed action, if implemented, would be done in accordance with provisions contained in the ROD/RMP, Appendix I (p. 84, 190, 193, & 195-199), and would focus on the following resources: Riparian Reserves; Matrix; Water and Soils; Wildlife Habitat; Fish Habitat; and Special Status Special Attention Species Habitat.

Protest Procedures:

As outlined in 43 CFR § 5003 – Administrative Remedies at § 5003.3 (a) and (b), protests may be filed within 15 days of the publication date of the timber sale notice. Publication of such notice on August 21, 2007, in *The News-Review*, Roseburg, Oregon, constitutes the decision date from which such protests may be filed. Protests shall be filed with the authorized officer and contain a written statement of reasons for protesting the decision.

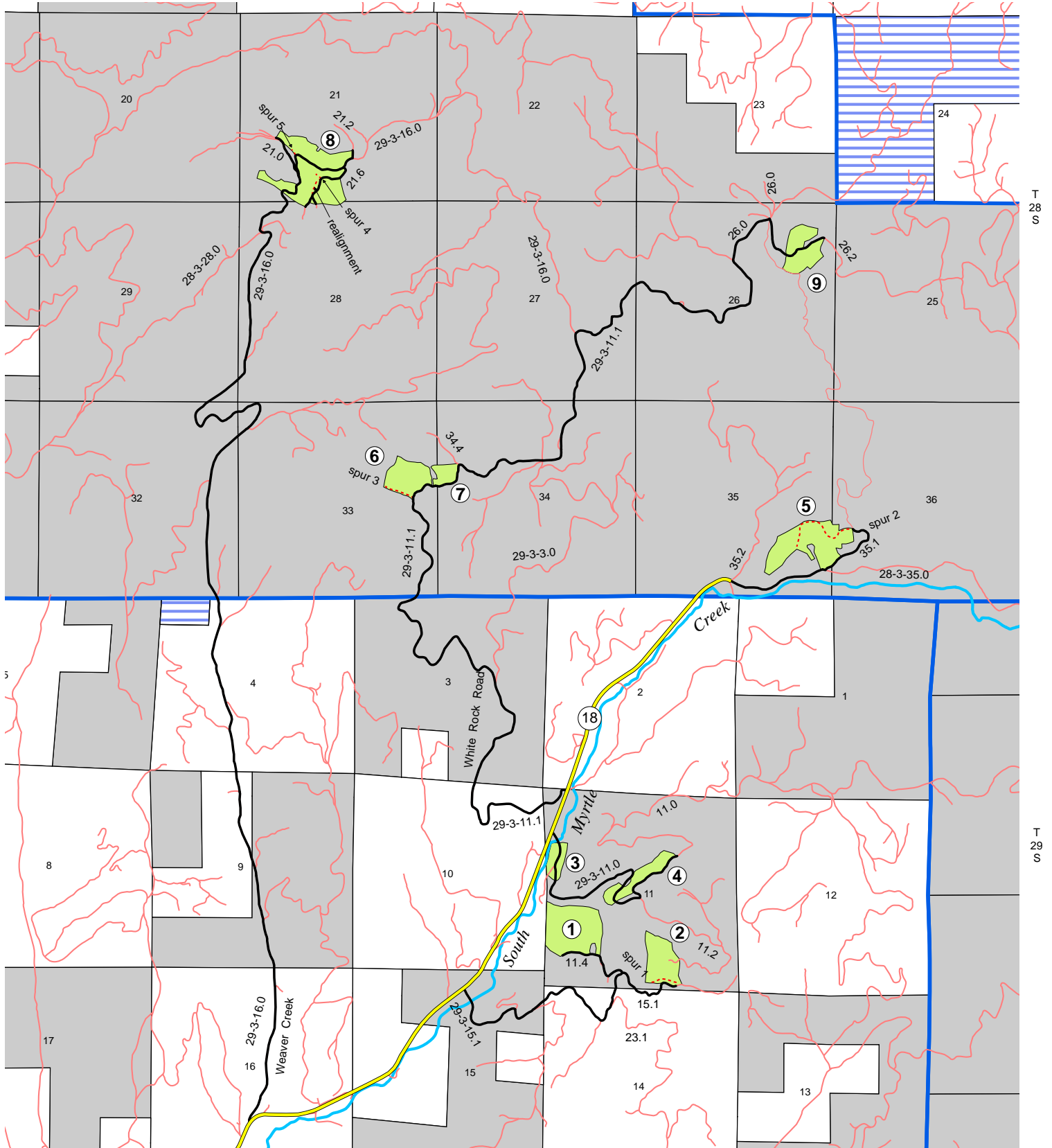
43 CFR 5003.3 subsection (b) states that: "Protests shall be filed with the authorized officer and shall contain a written statement of reasons for protesting the decision." This precludes the acceptance of electronic mail or facsimile protests. Only written and signed hard copies of protests that are delivered to the Roseburg District Office will be accepted.

Ralph Thomas
Field Manager
South River Field Office

Date

BOBBIN WEAVE

Commercial Thinning



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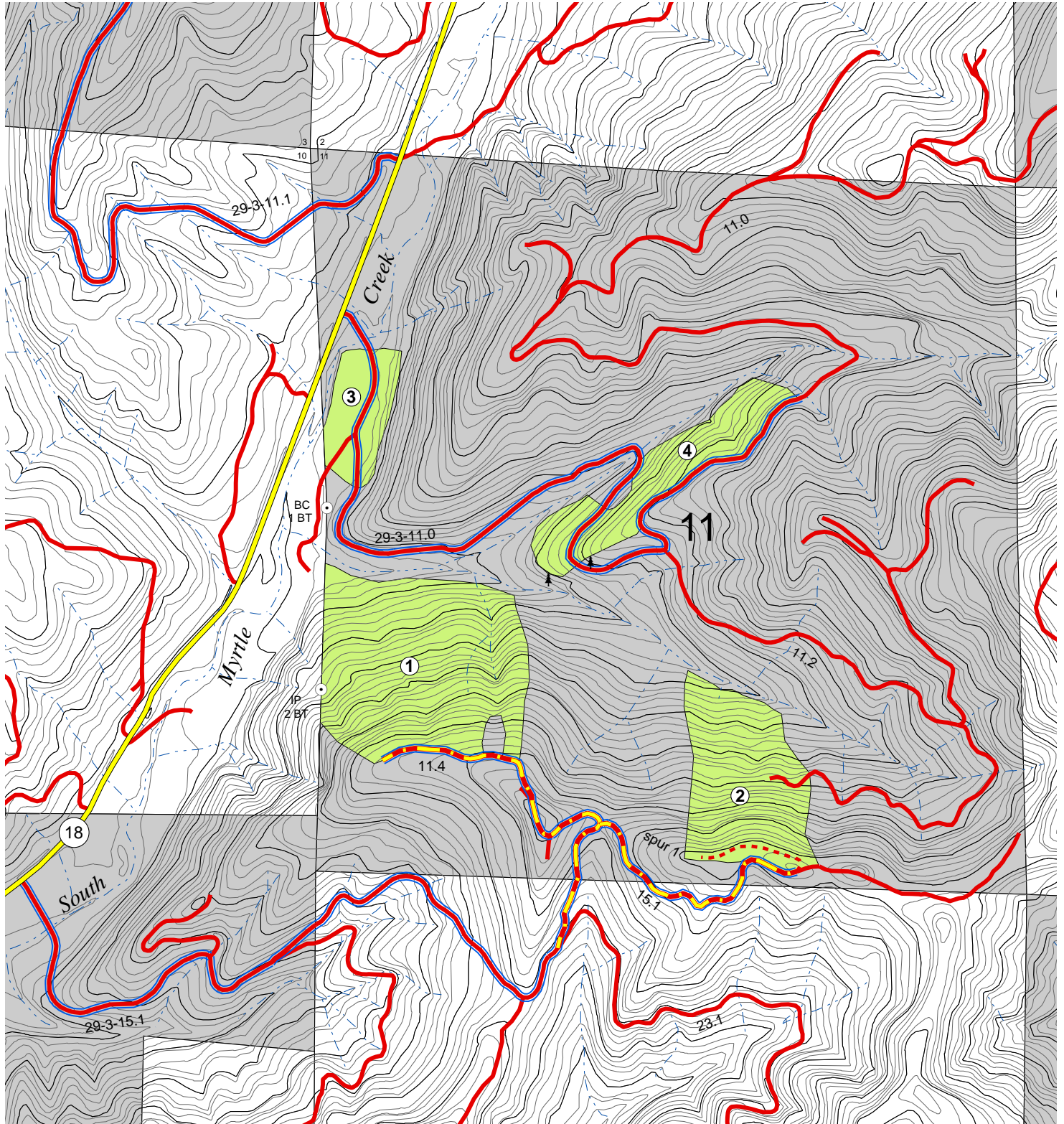
- Paved County Road
- Access/Haul Route
- Existing Road
- Road to be Constructed
- Thinning Area
- BLM (O&C) Land
- USFS, PD Land
- Non-BLM Land

T28,29S, R3W

Willamette Meridian, Douglas Co., OR.

BOBBIN WEAVE

Commercial Thinning



T29S, R3W

Willamette Meridian, Douglas Co., OR.



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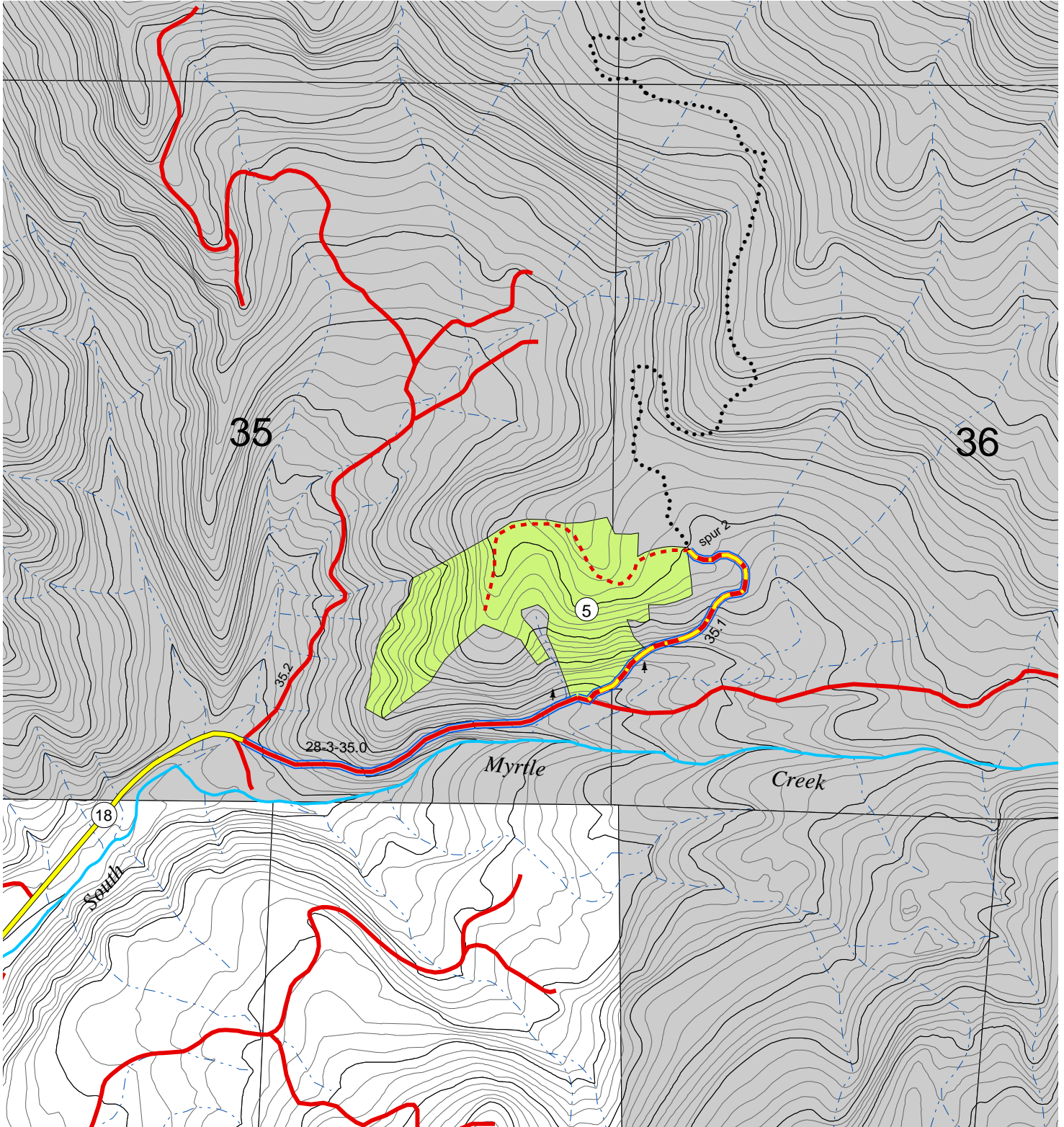


- Paved County Road
- Access/Haul Route
- Existing Road
- Renovate, Decommission
- Construct, Decommission
- Stream
- 100' Contour
- 20' Contour

- Seed Tree
- Thinning Area
- BLM (O&C) Land
- Non-BLM Land

BOBBIN WEAVE

Commercial Thinning



T28S, R3W

Willamette Meridian, Douglas Co., OR.



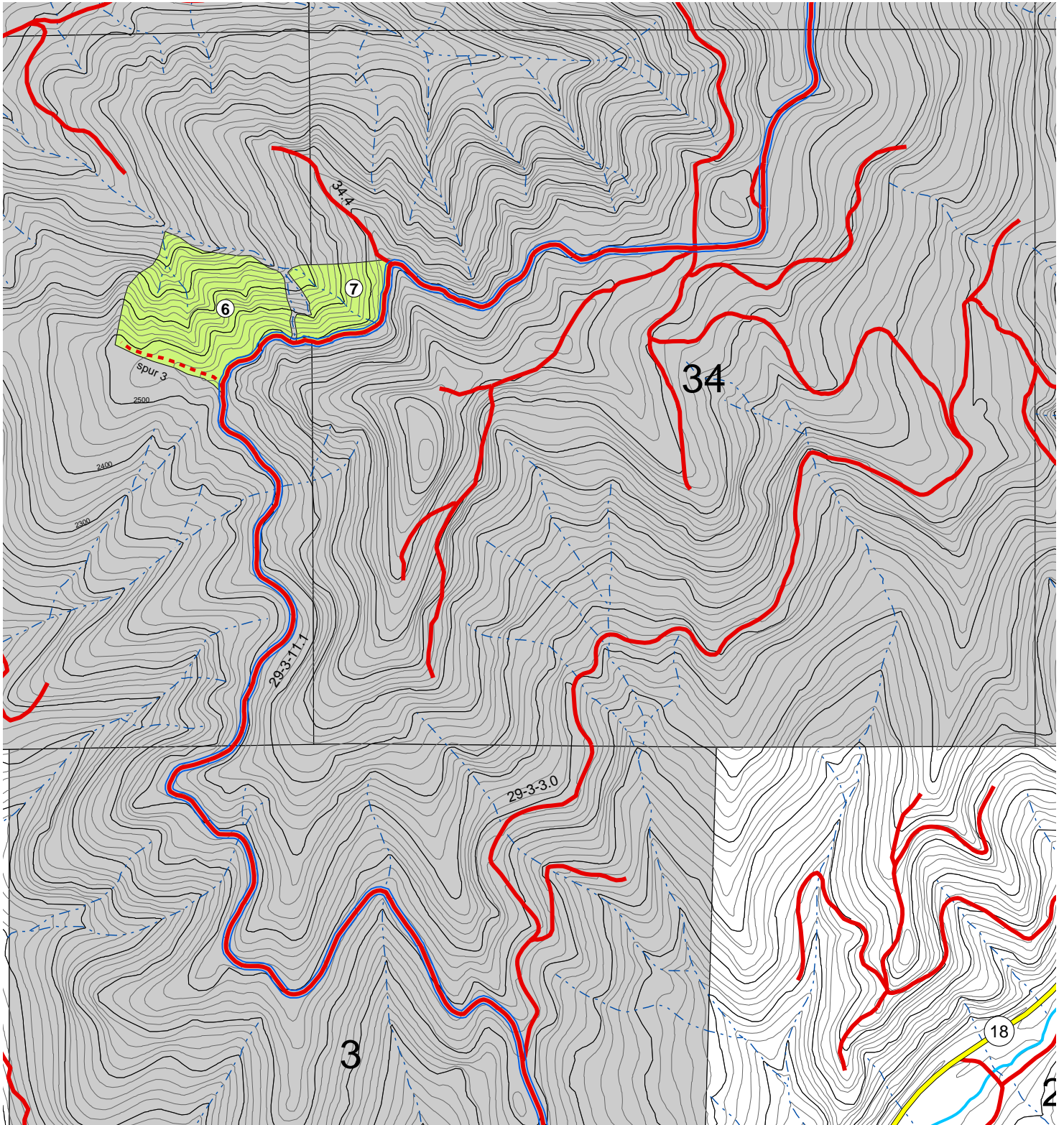
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- Paved County Road
- Access/Haul Route
- Existing Road
- Jeep Road
- Road to be Renovated
- Construct Road, Decommission
- Stream
- 100' Contour
- 20' Contour
- Seed Tree
- Thinning Area
- BLM (O&C) Land
- Non-BLM Land

BOBBIN WEAVE

Commercial Thinning



T28S, R3W

Willamette Meridian, Douglas Co., OR.



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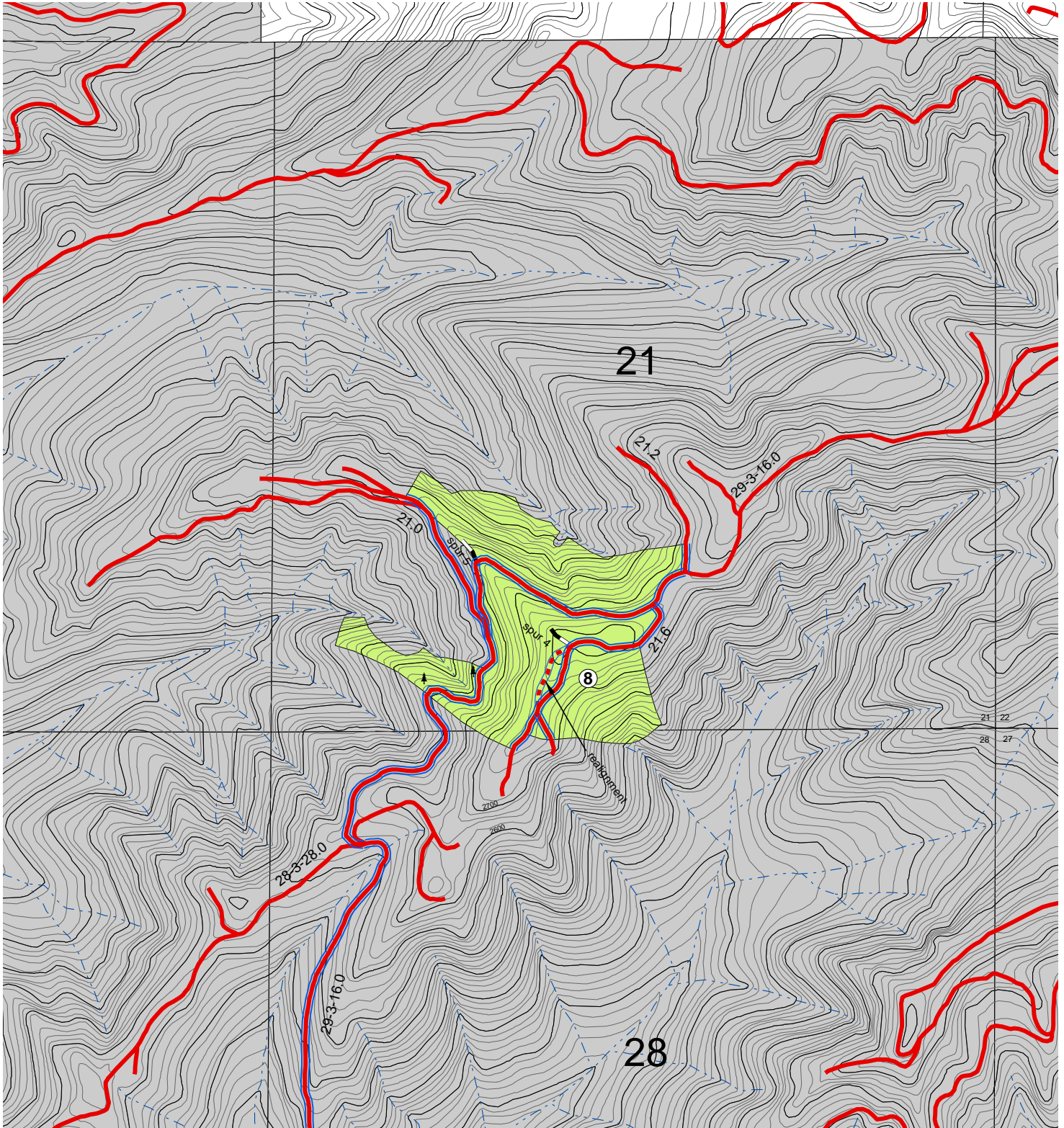


- Paved County Road
- Access/Haul Route
- Existing Road
- Construct, Decommission
- Stream
- 100' Contour
- 20' Contour

- Thinning Area
- BLM (O&C) Land
- Non-BLM Land

BOBBIN WEAVE

Commercial Thinning



T28S, R3W

Willamette Meridian, Douglas Co., OR.



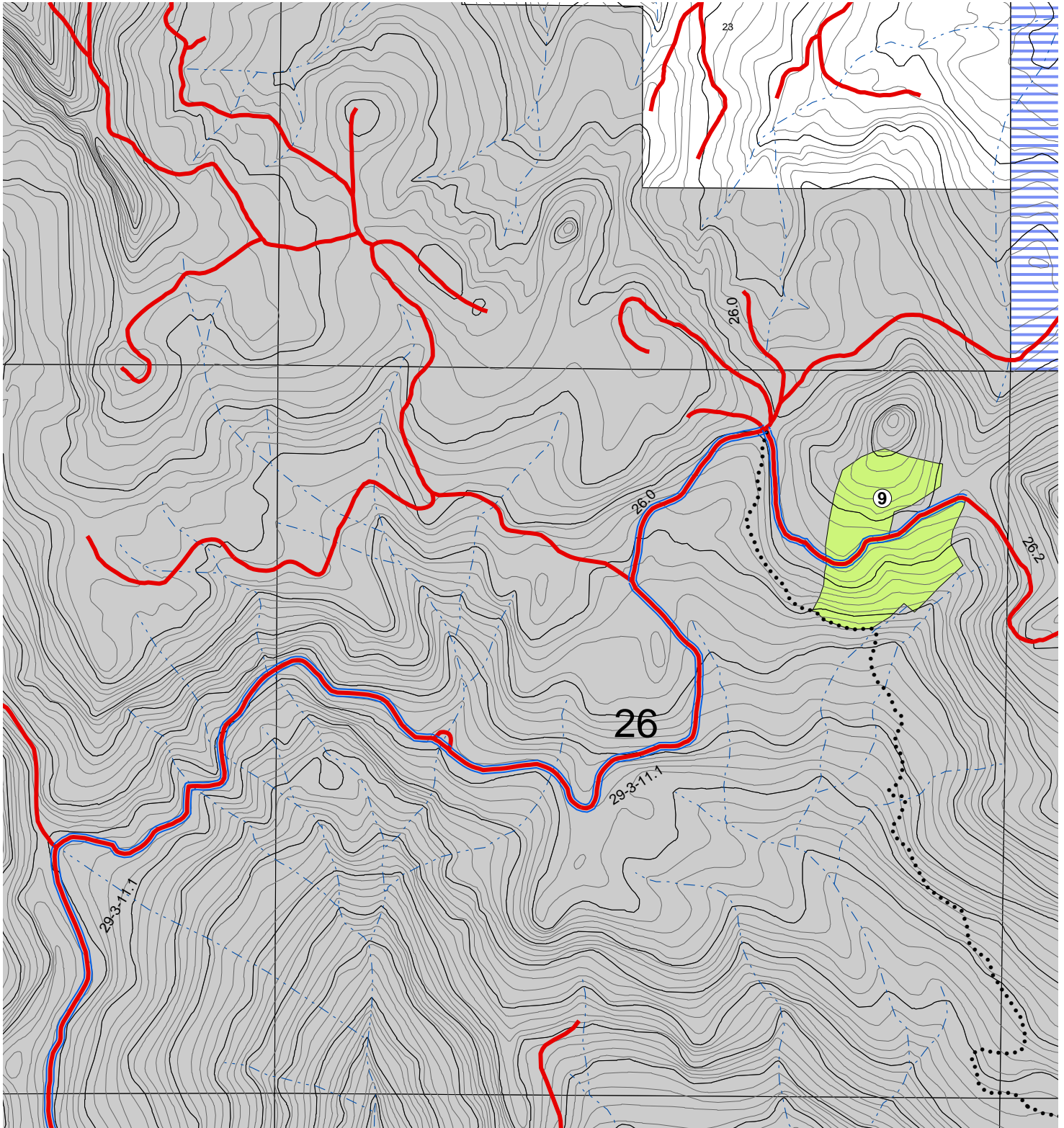
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- Access/Haul Route
- Existing Road
- Road to be Constructed, Rocked
- Road to be Realigned, Rocked
- Stream
- 100' Contour
- 20' Contour
- Seed Tree
- Thinning Area
- BLM (O&C) Land
- Non-BLM Land

BOBBIN WEAVE

Commercial Thinning



T28S, R3W

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- Access/Haul Route
- Existing Road
- Jeep Road
- Stream
- 100' Contour
- 20' Contour

- Thinning Area
- BLM (O&C) Land
- USFS Land
- Non-BLM Land