Pre-Operations Report

Operation Name: **Burgett King**
County: **Benton**
Management Basin: **Bonner Ridge**

Table 1. Operation Areas, Types and Acres

Area	Type of Operation	Net Acres
I	Moderate Partial Cut	249
II	Retention Cut	6
III	Light Partial Cut	4
IV	Moderate Partial Cut	21
Total PC		274
Total RC		6

I. PHYSICAL DESCRIPTION OF OPERATION AREA:

The operation consists of three partial cut units and one retention cut unit. The units lie in the western hemlock vegetation zone. Average rainfall is 60 to 78 inches per year.

Soils are predominantly Renhaven, covering about 86 percent of the sale area. Bateman makes up the remaining 14 percent. Renhaven soils are deep, well drained, moderately fine-textured colluvial soils that developed from Elkton siltstone. Bateman soils are deep, well-drained, fine textured, residual soils that developed from Elkton siltstone. The soil information is derived from a soil survey completed in 1980.

Aspect for the operations areas is as follows: Area I is primarily east/west; Area II is south; Areas III and IV are west.

II. CURRENT STAND CONDITION:

Area I supports a 46 year old Douglas-fir plantation that received a moderate density commercial thinning in 1993.

Area II contains a Douglas-fir plantation that is approximately 46 years old with an older cohort of sparsely stocked Douglas-fir intermixed. The younger timber was very lightly pre-commercially thinned in 2000.

Area III supports a natural stand of 73 year old Douglas-fir timber with a few pockets of 46 year old Douglas-fir included.

A natural stand of 78 year old Douglas-fir is present within Area IV.

Areas I and II have been inventoried using SLI and contain about 110 cu. ft. of down wood per acre in all decay classes but no snags are present that are 15" DBH and greater. Snags and downed wood are present in higher numbers in Areas III and IV based on district observation.

There are scattered red alder and big leaf maple within all the stands.

Brush species consist of salal, vine maple, sword fern, salmonberry, red huckleberry, snowberry and hazel.

The stand type for Areas I, II, and IV is classified as Understory (UDS). The stand type for Area III is Layered (LYR) The stand types for Areas I and III were derived from Stand Level Inventory (SLI). The stand types for Areas II and IV were derived from professional judgement.

Table 2. Stand Inventory Information

Area	Prescription	Stand ID[1]	Species	Age	DBH	BA	TPA	RD	Acres [2]
I	Partial Cut	18359	Douglas-fir	46	17	205	101	50	249
		Target [3]			20	140	64	31	
II	Retention Cut	18077	Douglas-fir	46	12	200	254	58	6
		Target [3]			16	50	36	13	
III	Partial Cut	18361	Douglas-fir	73	22	220	83	46	4
		Target [3]			23	200	70	42	
IV	Partial Cut	18073	Douglas-fir	78	18	285	161	67	21
		Target [3]			22	160	61	34	

1 The source of stand inventory is SLI and district plot data from 2006, 2007.
2 The acres are based on orthophotos and GIS and exclude roads, streams buffers, reserve areas, etc.
3 The Target identifies expected stand characteristics (DBH, BA, TPA and RD) after harvesting has been completed.

III. DESIRED STAND CONDITION:

According to the district's landscape design, Areas I, III and IV are designated as desired future condition (DFC) of older forest structure (OFS). Area II is designated as DFC of Layered (LYR).

Area I Vision: The OFS condition will be attained by the time the stand is approximately age 90 (in 44 years). At that time, the stand will consist of an

overstory of Douglas-fir with a few scattered bigleaf maple. Overstory trees will be both scattered and grouped in small clumps and will average about 32 inches DBH. A second layer consisting of patches of western hemlock, western redcedar, grand fir, Douglas-fir and red alder will be present. An understory of natural Douglas-fir, hemlock, alder, bigleaf maple and brush species (vine maple, elderberry and salal) will be present in small gaps and low density areas. Snags and downed wood will be present throughout the stand.

Area II Vision: The LYR condition will be attained in about 25 years. At that time, the overstory will consist of two co-horts of Douglas-fir, which will be scattered in some areas and grouped in others. The second layer will consist of cedar, hemlock, Douglas-fir and grand fir. An understory of brush (vinemaple, elderberry, etc.) and scattered conifer and hardwood will exist in small openings located throughout the stand. Snags and down wood will be present as well.

Area III Vision: The OFS condition will be attained around the time that the overstory trees reach age 97 (in 24 years). When the stand reaches this DFC, it will consist of an overstory of Douglas-fir that are an average of 32 inches dbh. These overstory trees will be both scattered and grouped in small clumps. The second layer will consist of Douglas-fir and a few alder. A third layer will consist of small patches of hemlock and western redcedar. Hemlock will be beginning to seed-in naturally in the understory. Snags and downed wood will be present throughout the stand.

Area IV Vision: The DFC for this stand is OFS. Because this stand is 78 years old and the current condition of the stand is UDS with no layering species present it will be difficult to attain the OFS stand type through management practices. It is likely that at the time of final harvest this stand will consist of an overstory of large evenly spaced Douglas-fir with an understory of brush. Snags and downed wood will be present, but the stand will likely be missing the second canopy layer that is required to classify it as OFS. If the stand looks like it will not develop beyond the UDS structure, it is likely that a regeneration harvest will be considered to start OFS development.

Table 3. Stand Structure Information

Area	Stand ID	Current	Post Harvest [1]	Desired Future	Acres
I	18359	UDS	UDS	OFS	249
II	18077	UDS	REG	LYR	6
III	18361	LYR	LYR	OFS	4
IV	18073	UDS	UDS	OFS	21

1 The stand is expected to develop into this condition in the five to ten years after this operation is completed.

IV. PROPOSED MANAGEMENT PRESCRIPTION:

Area I Anticipated Pathway: During this commercial entry, this Douglas-fir stand will be thinned to an RD of about 31 and 64 tpa. Average DBH of residual trees will be approximately 20 inches.

- Most hardwood, snags and downed wood will be left.
- All conifer trees other than Douglas-fir will be reserved from cutting.
- Approximately 25 acres of patch cuts will be made (10% of the area), ranging from 0.5 acre to 3 acres in size each. In patchcuts that are greater than one acre in size, a few trees will be marked for retention.
- Patchcut boundaries will be posted within 25' horizontal distance of type F streams to develop future mature forest condition in the riparian area.
- Patchcut areas will be treated with site preparation herbicides in order to deter brush competition.
- Patchcut areas will be planted at a rate of approximately 360 TPA. Primary species will be western hemlock and western red cedar with a few grand fir and Douglas fir.
- All cedar will be tubed to protect against deer and elk browse.

At least one herbicide application will likely be needed within the first 3 years after planting in order to release planted seedlings from competing vegetation.

Ten to fifteen years after this thinning, the RD is expected to be 50-55 and the stand will be thinned a third time, leaving approximately 20 TPA. Additional patchcuts will be made and replanted to a mix of conifers. Hardwood and conifer will have seeded naturally into the understory. Thinning the stand will capture harvest volume and will allow natural trees to persist in the understory. The amount of natural snags and downed wood will be evaluated. If it is determined that additional amounts are needed, then snags and downed wood will be created. Around this time, trees planted in the first set of patchcuts will be pre-commercially thinned (PCT) if needed.

At about age 80 years, trees planted in the patchcuts and trees naturally regenerated in the understory will have reached at least 30 feet over 30% of the stand, moving the stand from UDS to LYR.

By age 90 years the average overstory tree will have reached 32 inches in diameter and there will be enough snags and down wood of the appropriate sizes and decay classes to classify the stand as OFS. Over time, more of the overstory will become snags or down wood. The understory will gradually become the overstory and will be commercially thinned as needed to encourage understory re-initiation and to keep the stand in the OFS condition.

Area II Anticipated Pathway: At this harvest entry, the stand will be thinned to an RD of about 13, leaving approximately 36 TPA and 50 ft^2 BA. District personnel will mark the leave trees.

- Leave trees will consist of the largest trees and any minor conifer species that are present. There is at least one Oregon white oak in the stand. All oak trees will be reserved.
- Trees will be both left in clumps and scattered to create an un-even overstory.
- Following harvest, the area will be machine piled if necessary and piles will be burned.
- The stand will be underplanted with an even mix of western hemlock and western redcedar, with a few grand fir. Total TPA will be about 360.
- Animal damage mitigation will consist of tubing all cedar to protect against deer and elk browse.

This area will be used as an example of a one-time heavy thinning (Retention Cut) to a level of overstory that allows the LYR structure to be developed without having to thin again in the future.

Future management activities will likely include an herbicide application to release planted seedlings from competing vegetation and pre-commercial thinning of the understory trees. In addition, the amount of natural snags and downed wood will be evaluated over time. If additional amounts are needed, snags and downed wood will be created.

Area III Anticipated Pathway: During this harvest the stand will be thinned lightly to an RD of about 42, leaving about 70 TPA and a BA of 200 ft^2. District personnel will mark the trees to be removed.

- Most of the older Douglas-fir co-hort will be designated to leave. However, some will be marked to take in order to create gaps and clumps in the overstory.
- The younger Douglas-fir co-hort will be thinned evenly to increase their vigor.
- Hardwood and minor conifer species will be retained as leave trees.
- Gaps created from removing the overstory will be planted to western hemlock and western redcedar at a rate of 360 TPA.
- All cedar will be tubed to protect against deer and elk browse.

Ten to fifteen years after this thinning, the RD will be 55-60 and the stand will be thinned a second time, leaving approximately 20 TPA in the overstory and another 20-30 TPA in the second layer. This thinning will capture harvest volume, increase vigor in the second layer and will allow trees planted in gaps to persist in the understory. The amount of natural snags and downed wood will be evaluated. If it is determined that additional amounts are needed, then snags and downed wood will be created.

By age 97 years the average overstory tree will have reached 32 inches in diameter and there will be enough snags and down wood of the appropriate sizes and decay classes to classify the stand as OFS. Over time, more of the

overstory will become snags or down wood. Natural seed-in of hemlock and hardwood will have begun in the understory. The understory will gradually become the overstory and will be commercially thinned as needed to encourage understory re-initiation and to keep the stand in the OFS condition.

Area IV Anticipated Pathway: During this harvest, the stand will be thinned to an RD of about 34, leaving around 61 TPA and 160 ft^2 BA. The average DBH of residual trees is expected to be 22 inches. Snags and downed wood will be left wherever possible and all trees other than Douglas-fir will be reserved from cutting.

In 15 to 20 years, the stand's growth rate and understory development will be assessed. If natural seed-in of shade tolerant species has occurred over at least 30% of the area, then the stand will likely be thinned again to try and promote growth of this understory and to put the stand on a pathway to OFS. If the stand looks like it will not develop beyond the UDS structure, it is likely that a regeneration harvest will be considered to start OFS development.

V. ESTIMATED TIMBER AND REVENUE INFORMATION:

Table 4. Timber and Revenue

Ownership		Sale Type	
BOF	CSL	Cash	Recovery
100%	0%		X
Planned Quarter: 2			

	Conifer	Hardwood	Total
Net Volume (MBF)	2,600	0	2,600
Stumpage Value ($/MBF)	$250		
Estimated Gross Value	$650,000		$650,000
		Project Costs:	$74,000
		Estimated Net Value:	$576,000

VI. TRANSPORTATION PLANNING AND HARVESTING:

Access to this operation will be from Bonner Creek road. The northen portion is over a small woodland owner where a permanent easement is in place.

Additional access to Area I will be supplied by re-opening an existing unsurfaced spur and using existing rocked spurs off Bonner Creek road. Wet weather access will be provided for the majority of the sale area.

Access to Area II will be exclusively from Bonner Creek road. This area is 100% ground based harvestable, and not planned for wet weather haul.

Access to Area III will be from an existing surfaced spur off Bonner Creek road. This area is also 100% ground based harvestable and not planned for wet weather haul.

Access to Area IV will require reopening an unsurfaced spur off the Fort Extension road and constructing an unsurfaced spur to the north. Some sidehill construction will be necessary which will require some drifting of material. This new construction will not require any endhaul.

There are three small stream crossing culverts in the Bonner Creek parcel which are approaching the end of their design life. Fish distribution surveys are needed for these stream crossing culverts which are on small tributaries to Burgett Creek. These stream crossing culverts may be replaced based on stream designations.

Existing roads provide timber harvest access to 90% of the timber sale area. Because existing roads already access the majority of the sale area, no other transportation alternatives were considered.

Harvesting timber in the operation areas will require a combination of 80% cable yarding and 20% ground skidding.

All unsurfaced roads will be waterbarred and blocked to vehicular traffic after harvesting operations are completed and/or at the beginning of the wet season.

Table 5. Transportation Planning Summary (Miles).

Activity	Mainline	Collector	Rocked Spur	Dirt Spur
Construct				0.2
Improve			0.2	0.3
Maintain		1.5	3.5	
Close/Block				0.5
Vacate				

VII. AQUATIC RESOURCES AND WATER QUALITY:

Water flowing from streams in the operation areas is part of the Luckiamute River System. Water from the north half of the operation area flows into Bonner Creek, a medium Type F stream. Water from the south half of the operation area flows into an unnamed small Type F stream which flows into Burgett Creek, a medium Type F stream.

Type F streams exist within Area I. Where patch cuts are created adjacent to these streams the boundary will be posted 25 feet from the edge of the stream course. When reforested, this will allow mature forest condition to develop. For the type F stream reaches where patch cuts will not be created, the boundary will be posted about 100' from the stream.

Type N streams exist in Areas I and IV. For these streams, a unposted 25' horizontal distance buffer will be established on each side of the stream.

For both type F or N streams, no harvesting will be allowed within the buffer except to facilitate cable yarding. The partial cut thinning prescription will retain sufficient trees in the RMA to comply with current FMP standards.

Vegetation along streams consists of Douglas-fir and red alder trees and brush species such as salmonberry, sword fern, and vine maple.

There are no registered domestic water intakes in the vicinity of the operation areas.

The following mitigation measures will be employed to minimize impacts to streams from timber felling and yarding activities: 1) no timber will be felled within the buffer except to facilitate cable yarding, 2) timber above the buffer will be felled away from or parallel to the stream, 3) timber will be yarded away from the stream, where possible, 4) if it is necessary to yard logs across the stream, logs will be fully suspended above the buffer vegetation, and 5) single-end suspension of logs will be required elsewhere in the units.

Other requirements designed to minimize impacts to streams include seasonal restrictions for road construction and log hauling.

VIII. T&E SPECIES CONSIDERATIONS:

The area wildlife biologist determined the operation areas contain suitable habitat for northern spotted owls but did not contain suitable habitat for marbled murrelets. Northern spotted owl surveys were conducted in 2007 and 2008 with no detections. Surveys will continue in 2009.

The operation areas were checked against district knowledge for any listed plant locations. The operation areas were also checked against the Oregon Natural Heritage Program (ONHP) database of known threatened or endangered listed plant locations as well as local records in the Land Management Classification System (LMCS). No listed plants were identified within or adjacent to the sale areas.

IX. SLOPE STABILITY AND GEOTECHNICAL ISSUES:

This assessment is based off of USGS 1:24,000 topographic maps and available geologic maps. There are a few high landslide hazard locations in Area I. Areas II, III, and the south half of Area I drain to Burgett Creek. Area IV and the north half of Area I drain to Bonner Creek. The risk of landslides delivering to Burgett Creek from the operation is low and to Bonner Creek from the operation is low to moderate.

X. RECREATION RESOURCES:

The operation areas support dispersed recreation opportunities such as hunting.

XI. CULTURAL RESOURCES:

The operation area was checked for cultural resources with the district's GIS inventory. No cultural resources are located in the vicinity of the operation area.

XII. SCENIC RESOURCES:

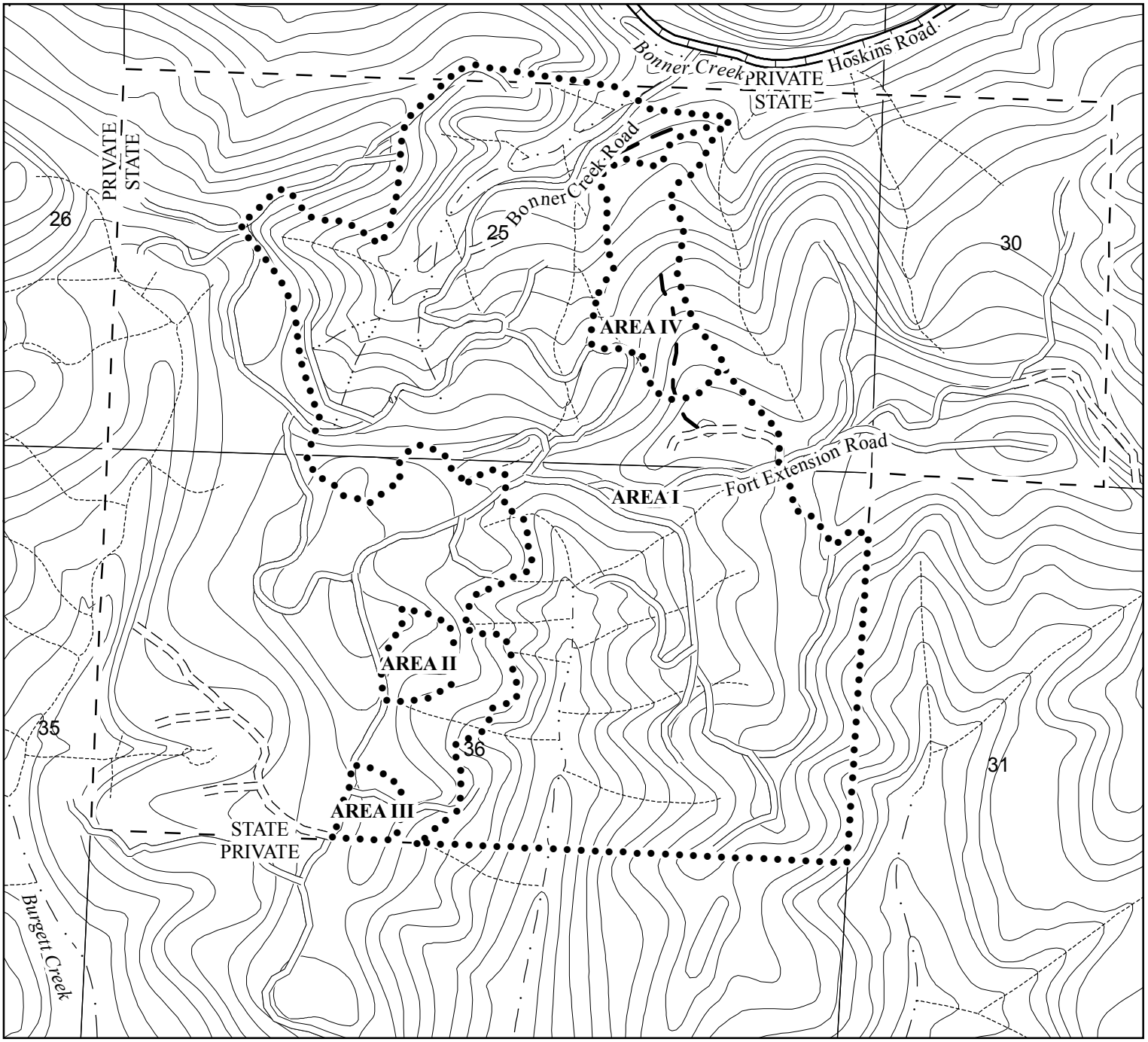
The operation areas are not visible from a paved road.

XIII. OTHER RESOURCE CONSIDERATIONS:

Burnt Woods seed orchard parent trees are located within Area I.

XIV. LAND MANAGEMENT CLASSIFICATION SUMMARY:

The operation areas contain 87 acres of Focused Stewardship, Aquatic and Riparian Habitat along the type N (assumed) stream riparian areas. The operation areas contains an additional 21 acres in Special Stewardship, Aquatic and Riparian Habitat along the type F (assumed) streams. See Section VII, Aquatic Resources and Water Quality, for the management guidelines to be utilized.



BURGETT KING

FY 2010 AOP
WEST OREGON DISTRICT
ATTACHMENT A : TOPOGRAPHY

PORTIONS OF SECTIONS 25 & 36, T10S, R7W, W.M.
BENTON COUNTY, OREGON

Topography Legend

- Timber Sale Boundary
- Highway
- County Road
- Surfaced Road
- Unsurfaced Road
- New Construction
- Type F Stream
- Type N Stream
- Unknown Stream
- State Forest Property Boundary
- 40 Foot Contour

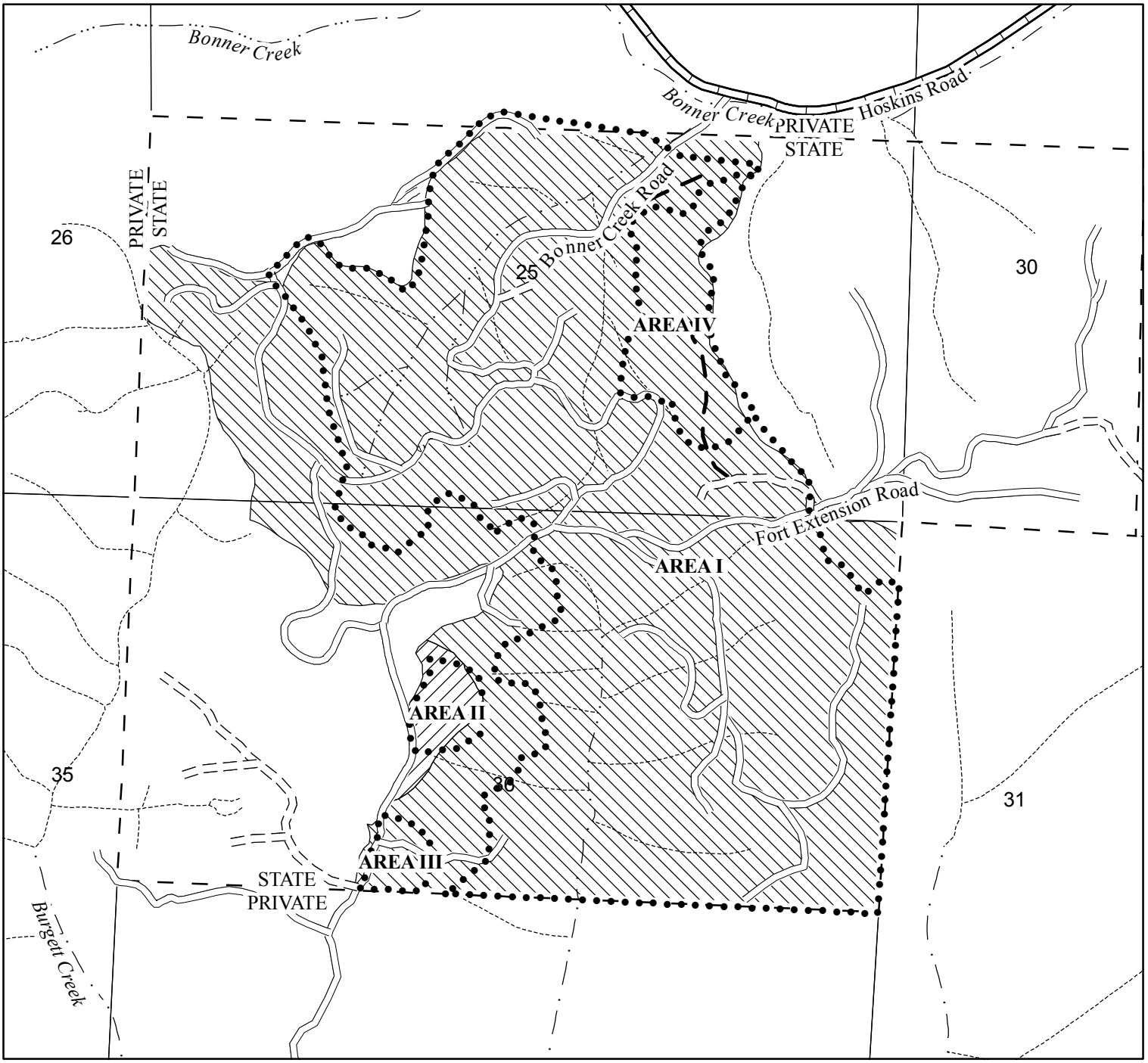
This product is for informational use and may not have been prepared for or be suitable for legal, engineering or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain its useability.

1 inch equals 1,000 feet

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

N

APPROXIMATE NET ACRES	
AREA I	249 ACRES (PC)
AREA II	6 ACRES (RC)
AREA III	4 ACRES (PC)
AREA IV	21 ACRES (PC)
TOTAL	274 ACRES (PC)
	6 ACRES (RC)



BURGETT KING

DFCC Legend

- Timber Sale Boundaries
- Highway
- County Road
- Surfaced Road
- Unsurfaced Road
- New Construction
- Type F Stream
- Type N Stream
- Unknown Stream
- State Forest Property Boundary
- Future Condition LYR
- Future Condition OFS

FY 2010 AOP
WEST OREGON DISTRICT
ATTACHMENT B : DESIRED FUTURE CONDITION
PORTIONS OF SECTIONS 25 & 36, T10S, R7W, W.M.
BENTON COUNTY, OREGON

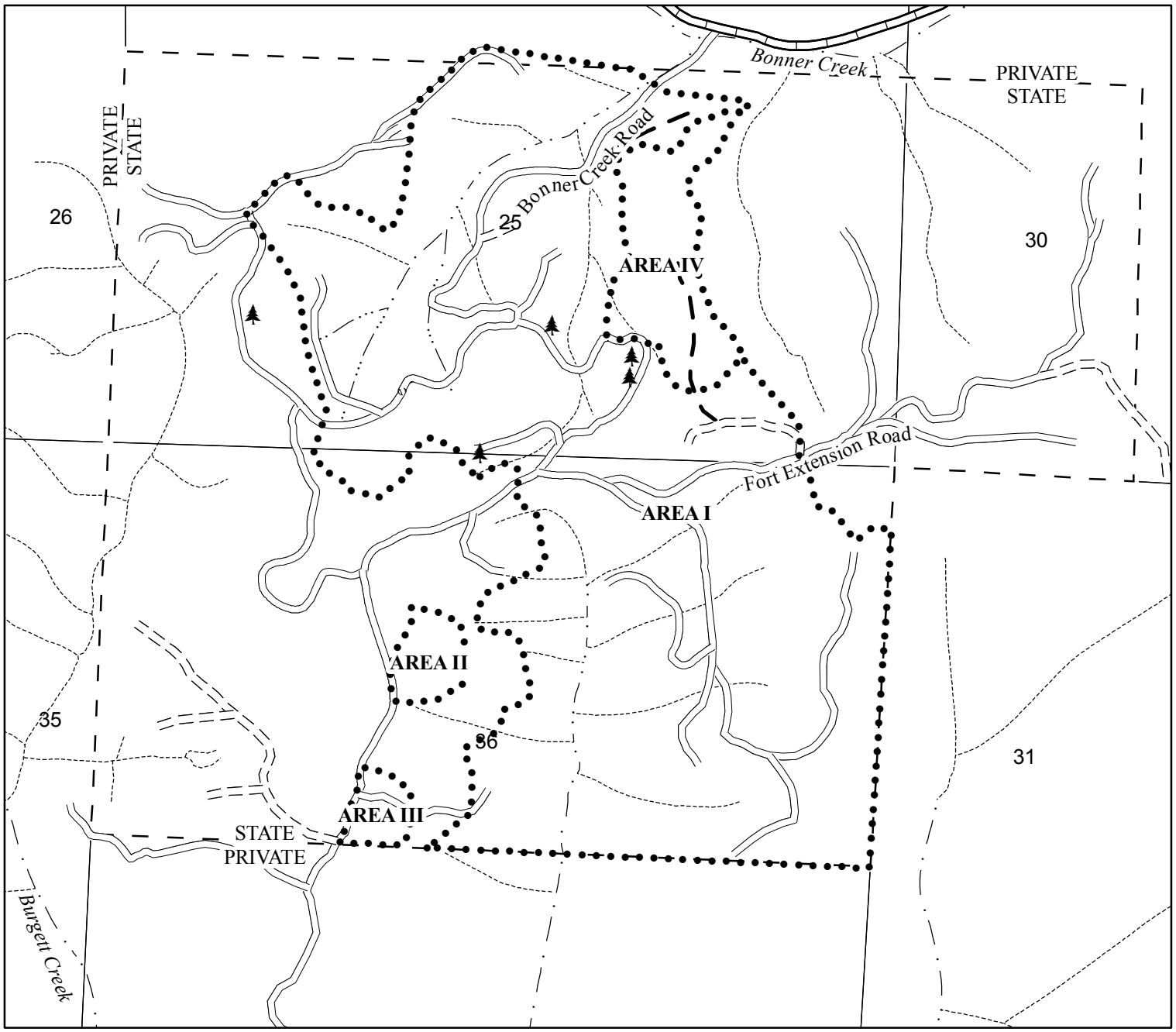
This product is for informational use and may not have been prepared for or be suitable for legal, engineering or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain its useability.

1 inch equals 1,000 feet

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

N

APPROXIMATE NET ACRES	
AREA I	249 ACRES (PC)
AREA II	6 ACRES (RC)
AREA III	4 ACRES (PC)
AREA IV	21 ACRES (PC)
TOTAL	274 ACRES (PC)
	6 ACRES (RC)



BURGETT KING

FY 2010 AOP
WEST OREGON DISTRICT
ATTACHMENT C : KEY RESOURCES
PORTIONS OF SECTIONS 25 & 36, T10S, R7W, W.M.
BENTON COUNTY, OREGON

Key Resources Legend

- Timber Sale Boundary
- Parent Trees
- Highway
- County Road
- Surfaced Road
- Unsurfaced Road
- New Construction
- Type F Stream
- Type N Stream
- Unknown Stream
- State Forest Property Boundary

This product is for informational use and may not have been prepared for or be suitable for legal, engineering or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain its useability.

N

APPROXIMATE NET ACRES	
AREA I	249 ACRES (PC)
AREA II	6 ACRES (RC)
AREA III	4 ACRES (PC)
AREA IV	21 ACRES (PC)
TOTAL	274 ACRES (PC)
	6 ACRES (RC)

1 inch equals 1,000 feet

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