Prescribed Fire Plan

USDA-Forest Service
Huron-Manistee National Forest
Huron Shores Ranger Station
5761 N Skeel Ave
Oscoda, MI 48750

PRESCRIBED FIRE NAME:

Prescribed Fire Unit (Ignition Unit): Brittle Landscape Rx Burn

Prescribed Fire Project Description:

This document plans the broadcast burning of multiple burn blockson the Tawas Ranger District. This treatment will result in the reduction of hazardous fuel loadings and improvement of wildlife habitats within the treatment area. This plan will be reviewed on an annual basis and revised or rewritten if needed; the Agency Administrator will determine if there is a need.

This approved Prescribed Fire Plan constitutes the authority to burn as addressed in the 2011 Brittle 2 Fuels Reduction Project Environmental Assessment signed by Sue Kocis. Documentation is filed at the Huron Shores Ranger Station, Oscoda, Michigan

Burning must occur only in compliance with an approved prescribed fire plan. This prescribed fire plan, when appropriately approved, constitutes authority to utilize fire as a management tool in the manner and locations as described in the plan. This prescribed fire plan complies with direction as defined in Forest Service Manual 5140- Fire Use, the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide, PMS 424 Prescribed Fire Complexity Rating System Guide, and the project environmental analysis decision document.		
Prepared By:	*Name and qualifications*	**Date:**
Technical Review By:	*Name and qualifications*	**Date:**
Line Officer Approval:	*Name and qualifications*	**Date:**

Appropriate people review and initial below according to local unit policy. Staff review is optional.

Initial and Date								
Reviewed By:								

Element 2A: Agency Administrator Ignition Authorization

AGENCY ADMINISTRATOR IGNITION AUTHORIZATION

(Prescribed Fire Plan, Element 2A)

Instructions: The Agency Administrator Ignition Authorization must be completed before a prescribed fire can be implemented. If ignition of the prescribed fire is not initiated prior to expiration date determined by the agency administrator, a new authorization will be required.

Prior to signature the agency administrator should discuss the following key items with the fire management officer (FMO) or burn boss. Attach any additional instructions or discussion documentation (optional) to this document.

Key Discussion Items

A.	Has anything changed since the Prescribed Fire Plan was approved or revalidated? *Such as drought or other climate indicators of increased risk, insect activity, new subdivisions/structures, smoke requirements, Complexity Analysis Rating.*
B.	Have compliance requirements and pre-burn considerations been completed? *Such as preparation work, NEPA mitigation requirements, cultural, threatened and endangered species, smoke permits, state burn permits/authorizations.*
C.	Can all of the elements and conditions specified in Prescribed Fire Plan be met? *Such as weather, scheduling, smoke management conditions, suitable prescription window, correct season, staffing and organization, safety considerations, etc.*
D.	Are processes in place to ensure all internal and external notifications and media releases will be completed?
E.	Have key agency staffs been fully briefed about the implementation of this prescribed fire?
F.	Are there circumstances that could affect the successful implementation of the plan? *Such as preparedness level restrictions, resource availability, other prescribed fire or wildfire activity*
G.	Have you communicated your expectations to the Burn Boss and FMO regarding if and when you are to be notified that contingency actions are being taken?
H.	Have you communicated your expectations to the Burn Boss and FMO regarding decisions to declare the prescribed fire a wildfire?

Implementation Recommended by:
FMO or Prescribed Fire Burn Boss Signature:_____ Date:_____

I am authorizing ignition of this prescribed fire between the dates of _____ and _____. It is my expectation that the project will be implemented within this time frame and as discussed and documented and attached to this plan. If the conditions we discussed change during this time frame, it is my expectation you will brief me on the circumstances and an updated authorization will be negotiated if necessary.

Additional Instructions or Discussion Documentation attached (Optional): Yes ☐ No☐

Ignition Authorized by:
Agency Administrator Signature and Title:_____ Date:_____

Element 2B: Prescribed Fire Go/No-Go Checklist

PRESCRIBED FIRE GO/NO-GO CHECKLIST

(Prescribed Fire Plan, Element 2B)

* Preliminary Questions	Circle YES or NO
A. Have conditions in or adjacent to the ignition unit changed, (for example: drought conditions or fuel loadings), which were not considered in the prescription development? If **NO** proceed with the Go/NO-GO Checklist below, if **YES** go to item B.	YES NO
B. Has the prescribed fire plan been reviewed and an amendment been approved; or has it been determined that no amendment is necessary? If **YES**, proceed with checklist below. If **NO, STOP: Implementation is not allowed. An amendment is needed.**	YES NO

GO/NO-GO Checklist	Circle YES or NO
* Have ALL permits and clearances been obtained?	YES NO
* Have ALL the required notifications been made?	YES NO
* Have ALL the pre-burn considerations and preparation work identified in the prescribed fire plan been completed or addressed and checked?	YES NO
* Have ALL required current and projected fire weather forecast been obtained and are they favorable?	YES NO
* Are ALL prescription parameters met?	YES NO
* Are ALL smoke management specifications met?	YES NO
* Are ALL planned operations personnel and equipment on-site, available and operational?	YES NO
* Has the availability of contingency resources applicable to today's implementation been checked and are they available?	YES NO
* Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?	YES NO

If all the questions were answered "**YES**" proceed with a test fire. Document the current conditions, location and results. If any questions were answered "**NO**", DO NOT proceed with the test fire: Implementation is not allowed.

After evaluating the test fire, in your judgment can the prescribed fire be carried out according to the prescribed fire plan and will it meet the planned objective? **Circle: YES or NO**

* Items required if checklist is modified *

Burn Boss Signature:_____ Date:_____

Element 3: Complexity Analysis Summary

This summary should include the same summary rationale that is in the complexity analysis in Appendix C of the prescribe fire plan.

ELEMENT	RISK	POTENTIAL CONSEQUENCE	TECHNICAL DIFFICULTY
1. Potential for escape	LOW	MODERATE	LOW
2. The number and dependence of activities	LOW	MODERATE	LOW
3. Off-site values	LOW	MODERATE	LOW
4. On-site values	LOW	LOW	LOW
5. Fire behavior	LOW	LOW	LOW
6. Management organization	LOW	LOW	LOW
7. Public and political interest	LOW	MODERATE	LOW
8. Fire treatment objectives	LOW	LOW	LOW
9. Constraints	LOW	LOW	LOW
10. Safety	LOW	LOW	LOW
11. Ignition procedures/methods	LOW	MODERATE	MODERATE
12. Interagency coordination	LOW	LOW	LOW
13. Project logistics	LOW	LOW	LOW
14. Smoke management	LOW	MODERATE	LOW

COMPLEXITY RATING SUMMARY	OVERALL RATING
RISK	Low
CONSEQUENCES	Moderate
TECHNICAL DIFFICULTY	Moderate
SUMMARY COMPLEXITY DETERMINATION	Moderate

Rationale: This prescribed burn rates as a MODERATE complexity due to the overall rating of this project, the possibility of aerial ignition, and the proximity to urban interface. Full Complexity Analysis and Agency Administrator signature found in Appendix

Fill out Elements 4 through 21 based on the guidance provided in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484.

Element 4: Description of Prescribed Fire Area

A. Physical Description

1. LOCATION: The Brittle Fuels Reduction Project area is on Huron National Forest lands within Iosco County, Michigan. The project area that will be treated with prescribed fire is divided into burn blocks that are identified in the table below.

Block Number	Latitude	Longitude	Legal Description
1	N 44° 26’ 45”	W 083° 41’ 21.7”	T24N R6E SEC. 27 & 26
2	N 44° 26’ 37.6”	W 083° 41’ 59.6”	T24N R6E SEC. 27
3	N 44° 26’ 41.9”	W 083° 42’ 56.4”	T24N R6E SEC. 28
4	N 44° 26’ 39.2”	W 083° 44’ 10.6”	T24N R6E SEC. 29
5	N 44° 26’ 42.1”	W 083° 45’ 19.1”	T24N R6E SEC. 30
6	N 44° 27’ 7.4”	W 083° 44’ 3.3”	T24N R6E SEC. 20 & 29
7	N 44° 26’ 55.7”	W 083° 40’ 49.9”	T24N R6E SEC. 28
8	N 44° 26’ 3.1”	W 083° 41’ 37.5”	T24N R6E SEC. 34
9	N 44° 25’ 53”	W 083° 42’ 58.5”	T24N R6E SEC. 33 T23N R6E SEC. 4
10	N 44° 25’ 53”	W 083° 44’ 13.6”	T24N R6E SEC. 32
11	N 44° 25’ 46.4”	W 083° 45’ 15.7”	T24N R6E SEC. 33
12	N 44° 25’ 16.1”	W 083° 42’ 15.6”	T24N 6E SEC. 33&34 T23N 6E S. 3&4
14	N 44° 25’ 46.8”	W 083° 36’ 48.0”	T24N R7E SEC. 32
15	N 44° 25’ 12.2”	W 083° 36’ 38.4”	T23N R7E SEC. 5
16	N 44° 27’ 8.3”	W 083° 46’ 23.0”	T24N R5E SEC. 25
17	N 44° 24’ 57.3”	W 083° 45’ 25.4”	T23N R6E SEC. 6
18	N 44° 25’ 9.4”	W 083° 44’ 12.3”	T23N R6E SEC. 5

19	N 44° 24’ 1.1”	W 083° 45’ 3.3”	T23N R6E SEC. 7
20	N 44° 24’ 15.3”	W 083° 44’ 10.1”	T23N R6E SEC. 5 & 8
21	N 44° 23’ 5.5”	W 083° 45’ 0.3”	T23N R6E SEC. 18
23	N 44° 24’ 11.6”	W 083° 42’ 57.1”	T23N R6E SEC. 4, 9, & 10
25	N 44° 25’ 47.7”	W 083° 40’ 29.6”	T24N R6E SEC. 35
26	N 44° 25’ 47.7”	W 083° 39’ 19.0”	T24N R6E SEC. 36
27	N 44° 25’ 43.7”	W 083° 38’ 6.8”	T24N R7E SEC. 31
28	N 44° 25’ 3.8”	W 083° 38’ 5.5”	T23N R7E SEC. 6

2. SIZE: The project area totals approximately 13,548 acres subdivided into 25 blocks that will be treated with prescribed fire.

3. TOPOGRAPHY: Topography can best be described as flat with occasional gently rolling slopes. These slight changes in relief will minimally impact fire behavior.

4. PROJECT AREA: The project area boundary is comprised of a mix of private property and larger continuous stands of coniferous forest. The Au Sable River borders the project area to the north, the Sand Lake community is located south, and the community of Jack Pine is located to the west. East of the project area is a relatively large track of red pine, jack pine, and northern pin oak.

IGNITION UNIT:

Block Number	Ignition Unit
1	Burn block 1 is bordered on all sides by property under Forest Service administration. North of the project area is the Au Sable River. In addition, it is bordered on all sides by roads. River Road is used as the control line on the northeast side of the unit.
2	Block 2 is bordered on three sides by property under Forest Service administration, and the north edge of the burn block is bordered by private property and Highway M-65. See Unit map for boundaries.
3	Burn block 3 is bordered on all sides by property under Forest Service administration. North of the project area is designated old growth and Highway M-65. M-65 is used as the control line on the north side of the unit.
4	Burn block 4 is bordered on all sides by property under Forest Service administration. North of the project area is designated old growth and

	Highway M-65. M-65 is used as the control line on the north side of the unit.
5	Burn block 5 is bordered on all sides by property under Forest Service administration. North of the project area is Highway M-65. M-65 is used as the control line on the north side of the unit, and Forest Service roads are used as control lines on the east, south, and west sides of the burn unit. A power line runs along the north control line (M-65).
6	Burn block 6 is bordered by property under Forest Service administration on the north east and south sides. North of the project area is a summer home group with cabins. South of the unit is Highway M-65. West of the unit is private property owned by Consumers Power Inc. M-65 is used as the control line on the south side of the unit. A Forest Service road is used as a control line on the east side of the burn unit. A power line runs along the south control line (M-65).
7	Burn block 7 is bordered by property under Forest Service administration on the west and south sides. North of the project area is private property with cabins. East of the unit is private property owned by Consumers Power Inc. West of the unit is Highway M-65 and is used as the control line on the west side of the unit. River Road is used as a control line on the south side of the burn unit. A power line runs along the east side of the unit and the corresponding road is used as a control line.
8	Burn block 8 is bordered on all sides by property under Forest Service administration. In addition, it is bordered on all sides by roads. All of the area around block 8 has been treated with prescribed burning since 2007.
9	Burn block 9 is bordered on all sides by property under Forest Service administration. In addition, it is bordered on all sides by roads.
10	Burn block 10 is bordered on all sides by property under Forest Service administration. In addition, it is bordered on all sides by roads.
11	Burn block 11 is bordered on the north, east, and south sides by property under Forest Service administration. The west side of the burn unit has some private property with dwellings present. Forest Service roads are used as control features on all sides of the burn block.
12	Burn block 12 is bordered on all sides by property under Forest Service administration. In addition, it is bordered on all sides by roads. The burn block was treated with prescribed burning in 2007.
14	Burn block 14 is bordered on all sides by property under Forest Service administration. The north control line is River Road and the west is Monument Road. The east and west control lines are Forest Service roads. The area east of the block 14 was treated with prescribed burning in 2011.

15	The south west corner of burn block 15 is adjacent to the Alpine subdivision. The west control line is a shaded fuel break along the subdivision and Monument Road. The north, east, and south control lines are comprised of forest service roads. The south east corner of block 15 can be burned with the prescribed burn unit "Memorable South" to prevent the need to refresh the dozer line around that portion of burn block 15.
16	Burn block 16 is bordered on the north and east sides by property under Forest Service administration. South and west of burn block 16 is private property with dwellings and cabins. North of the project area is Highway M-65, and it is used as the control line on the north side of the unit. The east side of the burn block has a Forest Service road that is used as a control line. A power line runs through the middle of the burn block. Within burn block 16 is a summer home group with cabins that uses a shaded fuel break as a control feature to protect this area during the prescribed burn. The summer home group has had multiple fuels treatments applied to it since 2004.
17	Burn block 17 is bordered on the north, east, and south sides by property under Forest Service administration. The west side of the burn unit has some private property with dwellings present. Forest Service roads are used as control features on all sides of the burn block.
18	Burn block 18 is bordered on all sides by property under Forest Service administration. In addition, it is bordered on all sides by roads. All of the areas to the north and east of block 18 have been treated with prescribed burning since 2007.
19	Burn block 19 is bordered on the north, east, and south sides by property under Forest Service administration. The west side of the burn unit has private property with dwellings present. Forest Service roads are used as control features on all sides of the burn block.
20	Burn block 20 is bordered on all sides by property under Forest Service administration. In addition, it is bordered on all sides by roads.
21	Burn block 21 is bordered on the north, northeast, and northwest sides by property under Forest Service administration. The southwest, south, and southeast sides of the burn unit are bordered by private property with dwellings present. Forest service roads are used as control features on all sides of the burn block.
23	Burn block 23 is bordered on all sides by property under Forest Service administration. In addition, it is bordered on all sides by roads. In the center of the burn unit is private property with dwellings. This area has a shaded fuel break to help protect it during the implementation of the prescribed burn.
25	Burn block 25 is bordered on all sides by property under Forest Service administration. River Road will be used as a control feature on the north edge of the burn block, and Forest Service roads are used as control features

	on the rest of the sides of the burn block.
26	Burn block 26 is bordered on all sides by property under Forest Service administration. River Road will be used as a control feature on the north edge of the burn block, and Forest Service roads are used as control features on the rest of the sides of the burn block.
27	Burn block 27 is bordered on all sides by property under Forest Service administration with the exception of a 15 acre triangle of Consumers Energy Inc. land on the north edge of block 27. An agreement with Consumers energy to allow the Forest Service to burn that property should be completed prior to burning block 27. River Road will be used as a control feature on the north edge of the burn block, and Forest Service roads are used as control features on the rest of the sides of the burn block.
28	Burn block 28 is bordered on the north and west sides by property under Forest Service administration. The east and south sides have private property with dwellings present. Monument Road will be used as a control feature on the east edge of the burn block, and Forest Service roads are used as control features on the rest of the sides of the burn block.

B. Vegetation/Fuels Description:

1. ON-SITE FUELS DATA

Block #	Fuel Model(s)	Comments
1	TL8	Rx burn since 2007.
2	TL8/TU2	Rx burn since 2007.
3	TL8/TU2	Rx burn since 2007.
4	TL8/TU2	Rx burn since 2007.
5	TL6/TU2	
6	TL6/TU2	
7	TL6/TU2	
8	TL 6 / SH7 model jack pine crown	Small stands of jack pine could increase the fire Bx if the needle moisture is lower than 120%

2. ADJACENT FUELS DATA

Block #	Fuel Model(s)	Comments
1	TL8/TU2 & TL6	West of unit has had Rx burn since 2007.
2	TL8/TU2 & TL6	West & east of unit has had Rx burn since 2007.
3	TL8/Tu2 & TL6	West, south, & east of unit has had Rx burn since 2007.
4	TL8/TU2 & TL6	South & east of unit has had Rx burn since 2007.
5	TL8/TU2 & TL6	East of unit has had Rx burn since 2007.
6	TL8/TU2 & TL6	South of unit has had Rx burn since 2007. North of the unit has a balsam fir component.
7	TL8/TU2 & TL6	South of unit has had Rx burn since 2007.
8	TL8/TU2	All sides of unit have

	fire	
9	TL8/TU2	Rx burn since 2007.
10	TL8/TU2	Rx burn since 2007.
11	TL6 /SB2	Areas of logging slash
12	TL 8	Rx burn since 2007.
14	TL 6	Dense stands of 6-8" DBH red pine in the middle of the unit.
15	TL6/TU2	Shaded fuel break.
16	TL6/TU2	Shaded fuel break around the summer home group
17	TL6/ SB2	Areas of logging slash
18	TL6/ SB2	Areas of logging slash
19	TL6	
20	TL6/TU1	The south end has stands of aspen and birch.
21	TL6	
23	TL6/TU1/SB2	The south end has stands of aspen and birch. The north end has Logging slash.
25	TL6/SH7 model jack pine crown fire	Small stands of jack pine could increase the fire Bx if the needle moisture is lower than 120%
26	TL6	
27	TL6	
28	TL6/TU2	Shaded fuel break.

	& TL6	had Rx burn since 2007.
9	TL8/TU2 & TL6	South, west, & north of unit has had Rx burn since 2007.
10	TL8/TU2 & TL6	North & east of unit has had Rx burn since 2007.
11	TL8/TU2 & TL6	East of unit has had Rx burn since 2007.
12	TL8/TU2/ SB2 & TL6	North of unit has had Rx burn since 2007. West of the unit has logging slash.
14	TL8/TU2 TL6	East of the unit has been Rx burn since 2010.
15	TL8/TU2 TL6	East of the unit has been Rx burn since 2009.
16	TL6/TU2	
17	TL6/SB2	Logging Slash.
18	TL6/SB2	Logging Slash.
19	TL6/SB2	Logging Slash.
20	TL6/TU1	
21	TL6/TU1	
23	TL6/TU1	
25	TL8/ TL6	West & north of unit has had Rx burn since 2007.
26	TL6	
27	TL6	
28	TL6	

3. **Percent of vegetative type and fuels model(s):** Approximately 97% of the project areas are in Land Type Association (LTA) 1, dry sandy outwash plains, supporting conifer and oak forest types with low site indexes. The burn units are approximately 97% forested, consist of 98% ground cover, are almost entirely comprised of dry sandy plains, and major precipitation events occur when soils are frost-free. Average age of the overstory is 50-70 years, and is comprised of red pine (*pinus resinosa*), northern pin oak (*quercus ellipsoidalis*), and some jack pine (*pinus*

banksiana). Surface fuels are comprised primarily of needle cast and Pennsylvania sedge (*Carex pensylvanica*). The pre-burn primary fuel models are the standard TU2 and TL6 with main fuel being grasses, sedges, blueberry, and needle cast. In Brittle burn **blocks 11, 17, 18, and 23** pockets of slash from logging activities exist across the burn block, and are typically 12' X 12' piles of red pine slash. The pockets of slash SB2 increased fire behavior within those areas. Burn blocks that have historically received a prescribed burn treatment are best represented by a TL8.

C. Description of Unique Features, Natural Resources, Values:

Block Number	Unique Features
1	Prior to burning any of the project area that includes the Michigan Highway M-65 right-of-way the Michigan Department of Transportation (MDOT) should be contacted should be contacted to deploy smoke signs on the highway.
2	ATV trail through the unit would require a temporary re-route. Prior to burning any of the project area that includes the Michigan Highway M-65 right-of-way the Michigan Department of Transportation (MDOT) should be contacted should be contacted to deploy smoke signs on the highway.
3	ATV trail through the unit would require a temporary re-route. Prior to burning any of the project area that includes the Michigan Highway M-65 right-of-way the Michigan Department of Transportation (MDOT) should be contacted should be contacted to deploy smoke signs on the highway.
4	ATV trail through the unit would require a temporary re-route. Harvest activity should be completed prior to burning. Prior to burning any of the project area that includes the Michigan Highway M-65 right-of-way the Michigan Department of Transportation (MDOT) should be contacted to deploy smoke signs on the highway. If possible 3 small plots of Alleghany plum should be excluded from burning (wildlife personnel know the location of the plots).
5	ATV trail through the unit would require a temporary re-route. Power line within unit. Prior to burning any of the project area that includes the Michigan Highway M-65 right-of-way the Michigan Department of Transportation (MDOT) should be contacted to deploy smoke signs on the highway.
6	Power line within unit. Summer homes north of the unit. Prescribed burning within the Au Sable Massasauga Management Unit (Blocks 6 and 7) should be limited to periods when the eastern massasauga is not active, therefore, activities would be permitted between October 1 and May 15. However, burning may continue for several weeks after May 15 if unusually cold weather persists (<59F). Likewise, implementation of burns should be conservative during unusually warm years. Prior to burning any of the project area that includes the Michigan Highway M-65 right-of-way the Michigan Department of Transportation (MDOT) should be contacted to

	deploy smoke signs on the highway.
7	Power line within unit. Prescribed burning within the Au Sable Massasauga Management Unit (Blocks 6 and 7) should be limited to periods when the eastern massasauga is not active, therefore, activities would be permitted between October 1 and May 15. However, burning may continue for several weeks after May 15 if unusually cold weather persists (<59F). Likewise, implementation of burns should be conservative during unusually warm years. Prior to burning any of the project area that includes the Michigan Highway M-65 right-of-way the Michigan Department of Transportation (MDOT) should be contacted to deploy smoke signs on the highway.
8	Shore-to-shore trail through the unit would require a temporary re-route.
9	Shore-to-shore trail & ATV trail through the unit would require a temporary re-route.
10	Shore-to-shore trail & ATV trail cuts through unit. Block 10 also has “visual study plots” developed to study ascetics of clear cutting. These plots should have no bearing on prescribed burn activities. Harvest activity should be completed prior to burning.
11	Shore-to-shore trail cuts through unit. To allow sufficient time for Alleghany plum to recover, burn block 11 would be burned no more than once every 7 years or excluded from burning.
12	None
14	Power line within unit.
15	Power line within unit.
16	Shore-to-shore trail & ATV trail through the unit would require a temporary re-route. Power line within unit. Prior to burning any of the project area that includes the Michigan Highway M-65 right-of-way the Michigan Department of Transportation (MDOT) should be contacted should be contacted to deploy smoke signs on the highway.
17	ATV trail through the unit would require a temporary re-route.
18	ATV trail through the unit would require a temporary re-route.
19	None
20	Aspen at the south end of the burn unit should be allowed to burn mosaic (do not force fire into areas that don’t burn).
21	none
23	Private property within the unit.

25	none
26	Within burn block 26 in the northwest corner (near the intersection of Binder Road and River Road) is a stand of young white pine that should be excluded from fire intensities that could cause significant mortality (Compartment 364 Stand 2).
27	Consumers Energy Incorporated land within the unit will require an agreement signed prior to ignition or land can be excluded.
28	Shore-to-shore trail & ATV trail through the unit would require a temporary re-route.

D. Maps - Attach in Appendix A

1. Vicinity (Required)
2. Project/Ignition Unit(s) (Required)
3. Significant or Sensitive Features (Optional): ☐ Included ☐ Not Included
4. Fuels or Fuel Model(s)(Optional): ☐ Included ☐ Not Included
5. Smoke Impact Area (Optional): ☐ Included ☐ Not Included

Element 5: Objectives

A. Resource objectives: Reduce forest fuels and restore ecological condition class at a landscape level through use of low to moderate intensity prescribed fire. Micro-mosaic burn patterns are acceptable and beneficial. The enhancement of habitat and an increase in the variety of wildlife, with an emphasis given to managing deer, wild turkey, and improving suitability of adjacent habitat for the federally endangered Kirtland warbler (Dendroica kirtlandii).

B**. Prescribed fire objectives:**

- Provide for firefighter and public safety.
- Reduce needle cast by no less than 15% but no more than 95%.
- Acceptable fuel loading reduction ranges by category are:
  - 10 hr. fuels - 5-100%
  - 100 hr. fuels - 0-85%
  - 1000hr. fuels – 0-50% Fuel reduction in piles may reach 100% .

Huron Zone Project Implementation Objectives Worksheet

The Huron Zone Fire program implements projects with focus on the long term, landscape-level effort with emphasis on long-term fire regime instead of the effects of a single burn unless specific management objectives are identified for a project area.

Objectives (Initial all that apply)		Met/Not Met	Comments/Reason/Location
	Hazardous Fuels Reduction		
	Deciduous oak topkill		
	Minimize red pine mortality (overstory)		
	Minimize oak mortality (overstory)		
	Encourage warm season grasses		
	Encourage cool season grasses		
	Increase % ground cover		
	Introduction of fire to landscape		
	Maintain effects of fire on the landscape		
	Snag Creation (note %)		
	Training		
	Other:		
General Comments:			

Element 6: Funding

PRESCRIBED FIRE PHASE:	FUNDING SOURCE	COST:
Planning phase	WFHF & KV	$2625
Site preparation	WFHF	$5075
Implementation (including Helicopter) average of $20-30 / ac	WFHF	$66,452
Monitoring	WFHF	$1000
TOTAL OF ALL ESTIMATED COSTS:		$75,152.00

Element 7: Prescription

A. Prescription Narrative:

The environmental prescription has been developed from past experiences burning on the Huron National Forest, and from fire behavior calculations made using both Fuel Characteristic Classifications System (FCCS) & Behave Plus Version 5 Fire Modeling System. A wide range of temperature and relative humidity are allowed but the emphasis is placed on fine dead fuel moistures and wind speed as 1hr. time lag fuels drive fire behavior in the models used in most of the timber litter and herbaceous fuels. The fuel models used are TL6= Timber litter used for hard wood areas. The adjacent fuels that were modeled are SB 2= Areas of logging slash usually the tops of red pine trees with needles – Fine fuel load is an average of 16 tons / acre, 1-3" diameter coarse woody fuels have an average depth of 2'. TU2= Timber understory red

pine and northern pin oak, fuel bed has a moderate load with blueberry component and best represents any open area such a pine or oak barrens. TL8= this model best depicts areas that have already received a prescribed fire treatment. TL8 has moderate to low fuel loading including herbaceous fuels, with moderate rates of spread and low flame length. SH7= Areas of thick jack pine – Very heavy shrub load depth 4-6' tall (specific areas should be modeled for crown fire to better demonstrate rates of spread). TU 1= Areas with aspen and hardwoods mixed with the red pine, this model has a low fuel load including grasses with low rates of spread and flame length. The special concerns category is a trigger point to help the burn boss to identify significant factors that can have an impact on fire behavior. The special concerns are not designed to be a prescription parameter.

The fire behavior tables are provided to compare maximum flame length and rate of spread of optimal, hot, cool conditions. The values were obtained from the maximum output values within prescription as modeled by Behave. Dynamic fuel models with live herbaceous fuel moisture of 30% (100% cured) were used to simulate seasonal curing similar to a spring burn. For fall burns with fuels 75% cured, modeled rates of spread may decrease up to 25% depending on conditions.

B. Prescription Parameters:

TARGET PRESCRIPTION AREA	***Fuels Within Project Area***
Representative fuel models:	SB2,TL8, TU2, SH7, TL6, TU1
Representative slope:	Flat
Method used to determine prescription:	Behave, Landfire Data and field reconnaissance

A. Environmental Rx Range SB2	OPTIMAL	COOL END	HOT END
1 HR Fuel Moistures (%)	6	10	4
Days Since Last Rain	2	1	5+
Long Term Drought Indicator (KBDI)	100-200	0-100	350+
Probability of Ignition (%)	50-60	20	75
Relative Humidity (%)	35-40	85	30
Temperature (F)	40-60	25	85
Wind Speed (20' - mph)	7	0	16
Preferred Wind Direction (az ^{o})	*See Wind Table for Project Specific constraints.*		

B. Fire Behavior Rx Range SB2	OPTIMAL	COOL END	HOT END
Flame Length (ft)	4	1	6.3
Rate-of-spread (ch/hr)	*26*	2.2	16
Scorch Height (ft)	*N/A*	N/A	N/A
Spotting Distance (mi)			

A. Environmental Rx Range TL8	OPTIMAL	COOL END	HOT END
1 HR Fuel Moistures (%)	6	10	4
Days Since Last Rain	2	1	5+
Long Term Drought	100-200	0-100	350+

Indicator (KBDI)			
Probability of Ignition (%)	50-60	30	70
Relative Humidity (%)	35-40	85	30
Temperature (F)	40-60	25	85
Wind Speed (20' - mph)	4-8	0	16
Preferred Wind Direction (az ^{o})	*See Wind Table for Project Specific constraints.*		

B. Fire Behavior Rx Range TL8	**OPTIMAL**	**COOL END**	**HOT END**
Flame Length (ft)	2	0.5	4
Rate-of-spread (ch/hr)	3	0.5	8
Scorch Height (ft)			
Spotting Distance (mi)			

A. Environmental Rx Range TU2	**OPTIMAL**	**COOL END**	**HOT END**
1 HR Fuel Moistures (%)	6	10	4
Days Since Last Rain	2	1	5+
Long Term Drought Indicator (KBDI)	100-200	0-100	350+
Probability of Ignition (%)	50-60	54	67
Relative Humidity (%)	35-40	85	30
Temperature (F)	40-60	25	85
Wind Speed (20' - mph)	4-8	0	16
Preferred Wind Direction (az ^{o})	*See Wind Table for Project Specific constraints.*		

B. Fire Behavior Rx Range TU2	**OPTIMAL**	**COOL END**	**HOT END**
Flame Length (ft)	4	1	8
Rate-of-spread (ch/hr)	5	0.8	11
Scorch Height (ft)			
Spotting Distance (mi)			

A. Environmental Rx Range SH7	**OPTIMAL**	**COOL END**	**HOT END**
1 HR Fuel Moistures (%)	7	12	4
Days Since Last Rain	2	1	5+
Long Term Drought Indicator (KBDI)	100-200	0-100	350+
Probability of Ignition (%)	50-60	54	67
Relative Humidity (%)	35-40	85	30

Temperature (F)	40-60	25	85
Wind Speed (20' - mph)	4-8	0	16
Preferred Wind Direction (az ^{o})	*See Wind Table for Project Specific constraints.*		

B. Fire Behavior Rx Range SH7	**OPTIMAL**	**COOL END**	**HOT END**
Flame Length (ft)	7-10	4.4	17
Rate-of-spread (ch/hr)	30-40	6.6	60
Scorch Height (ft)			
Spotting Distance (mi)			

A. Environmental Rx Range TL6	**OPTIMAL**	**COOL END**	**HOT END**
1 HR Fuel Moistures (%)	7	8	4
Days Since Last Rain	2	1	5+
Long Term Drought Indicator (KBDI)	100-200	0-100	350+
Probability of Ignition (%)	50-60	54	67
Relative Humidity (%)	35-40	85	30
Temperature (F)	40-60	25	85
Wind Speed (20' - mph)	4-8	0	16
Preferred Wind Direction (az ^{o})	*See Wind Table for Project Specific constraints.*		

B. Fire Behavior Rx Range TL6	**OPTIMAL**	**COOL END**	**HOT END**
Flame Length (ft)	2	1	4
Rate-of-spread (ch/hr)	4	2	8
Scorch Height (ft)			
Spotting Distance (mi)			

A. Environmental Rx Range TU1	**OPTIMAL**	**COOL END**	**HOT END**
1 HR Fuel Moistures (%)	7	8	4
Days Since Last Rain	2	1	5+
Long Term Drought Indicator (KBDI)	100-200	0-100	350+
Probability of Ignition (%)	50-60	54	67
Relative Humidity (%)	35-40	85	30
Temperature (F)	40-60	25	85
Wind Speed (20' - mph)	4-8	0	16
Preferred Wind Direction (az ^{o})	*See Wind Table for Project Specific constraints.*		

B. Fire Behavior Rx Range TU1	OPTIMAL	COOL END	HOT END
Flame Length (ft)	3	1	6
Rate-of-spread (ch/hr)	10	2	29
Scorch Height (ft)			
Spotting Distance (mi)			

Wind Direction Matrix for Brittle Landscape Burn			
Burn Blocks	Remarks	Allowable Wind Directions for Vent Rates **Below** 300	Additional Allowable Wind Directions for Vent Rates **Above** 300
1	Adjacent to River Road & M-65.	NW, N, NE, E	SW
2	Adjacent to M-65	W, NW, N, NE, E	None
3	Adjacent to M-65	W, NW, N, NE, E	None
4	Adjacent to M-65	W, NW, N, NE, E	None
5	Adjacent to M-65	W, NW, N, NE, E	None
6	Adjacent to M-65	SW, S, SE	None
7	Adjacent to River Road & M-65.	W	NW, SW
8	None	Any	Any
9	None	Any	Any
10	None	Any	Any
11	Adjacent to dwellings	N, NW, W, SW, S	Any
12	None	Any	Any
14	Adjacent to River Road & Monument Road	W, NW	N
15	Adjacent to dwellings & Monument Road	W, SW	S
16	Adjacent to M-65	W, NW, N, NE, E	None
17	Adjacent to dwellings	N, NW, W, SW, S	Any
18	None	Any	Any
19	Adjacent to dwellings	N, NW, W, SW, S	Any
20	Close to dwellings	N, NW, W, SW, S	Any
21	Adjacent to dwellings	N, NW, W, SW, S	Any
23	None	Any	Any
25	Adjacent to River Road	W, NW, N, NE, E	None
26	Adjacent to River Road	W, NW, N, NE, E	None
27	Adjacent to River Road	N, NE, E	None
28	Adjacent to River Road & Monument Road	N, NE, E, SE	S

2. Desired Fire Behavior: A wide range of fire behavior will meet resource objectives. Strip head firing with a low intensity fire behavior is preferred through the interior of the unit to maximize potential to top-kill small woody stems. However at the "hot" range of the prescription the fire behavior as modeled in Behave may appear unmanageable. The Burn Boss

will decide based on the test fire whether fire behavior at the perimeter of the burn can be moderated through ignition patterns to a desirable level using a combination of backing, flanking, or head fire.

Allowable Fire Behavior within the Unit

After sufficient black is established on the perimeter to contain the highest predicted fire behavior for the day, the full range of fire behavior can be allowed within the unit. Fire behavior for head fires in the fuel types contained in the project as predicted by Behave at the driest and windiest conditions of the prescription are documented in Appendix E.

Element 8: Scheduling

A: Implementation Schedule *(Ignition Time Frames or Season(s) (or both)*			
Season:	**ANY**	***Time of Day:***	**ANY**
Anytime weather, fuel conditions and constraints permit.			

B. Projected Duration
For each individual project day it may take 1-2 days for ignition depending upon smoke effects and 1-3 additional days of patrol/mop up for each unit. If weather and time allows, multiple units can be ignited on the same day.

C: Constraints
Prescribed burning within the Au Sable Massasauga Management Unit (Blocks 6 and 7) should be limited to periods when the eastern massasauga is not active, therefore, activities would be permitted between October 1 and May 15. However, burning may continue for several weeks after May 15 if unusually cold weather persists (<59F). Likewise, implementation of burns should be conservative during unusually warm years. Conduct prescribed burning in red pine stands during the period of bud dormancy, generally after July 15 and prior to May 1.

Element 9: Pre-burn Considerations and Weather

A. Considerations:

1. On-site: Harvest activity should be completed in burn blocks prior to burning. Temporary re-routes would be designated for affected portions of the Shore-to-Shore Trail, the Snowmobile Trail and the Huron ATV Trail during prescribed burning activities. Huron-Manistee Dispatch will be responsible for notifying Michigan Department of Natural Resources on the day of the burn. The district will report to Huron-Manistee Dispatch the day of the burn to give information needed for situation report. This information will include acres, township, range, section, and burn unit names. Protect known Alleghany plum stems from cutting and wet down/foam during burns. Coordination with the biologist prior to ignition is necessary to determine exact locations of this plant.

2. Off-site: : Seasonal and permanent dwellings exist near many of the burn blocks, and should be notified prior to ignition. The rest of the adjacent area is property under Forest Service administration, and the off-site values at risk would be the timber values.

B. Method and Frequency for Obtaining Weather and Smoke Management Forecast(s):

Obtain Fire Weather Report from the NOAA office for the burn units. Request a Spot Weather Forecast from Dispatch the morning of the burn. If possible take onsite weather for the Spot Weather Forecast.

C. NOTIFICATIONS:

Who	When*	Phone Number and/or e-mail	Responsibility	Date / Time	Method
Huron-Manistee Dispatch	**Day of burn**	**231-145-4882**	**Burn Boss**		
Huron-Manistee S.O.	**Day of burn**	**231 775 5023**	**Dispatch**		
National Weather Service	**Day of burn**	**Spot weather**	**Dispatch**		
Michigan DNR	**Day of burn**	**989-275-5151**	**Dispatch**		
Iosco County Dispatch	**Day of burn**	**989-362-1430**	**Dispatch**		

Element 10: Briefing

A. Briefing Checklist; including, but not limited to: (additional items may be added)

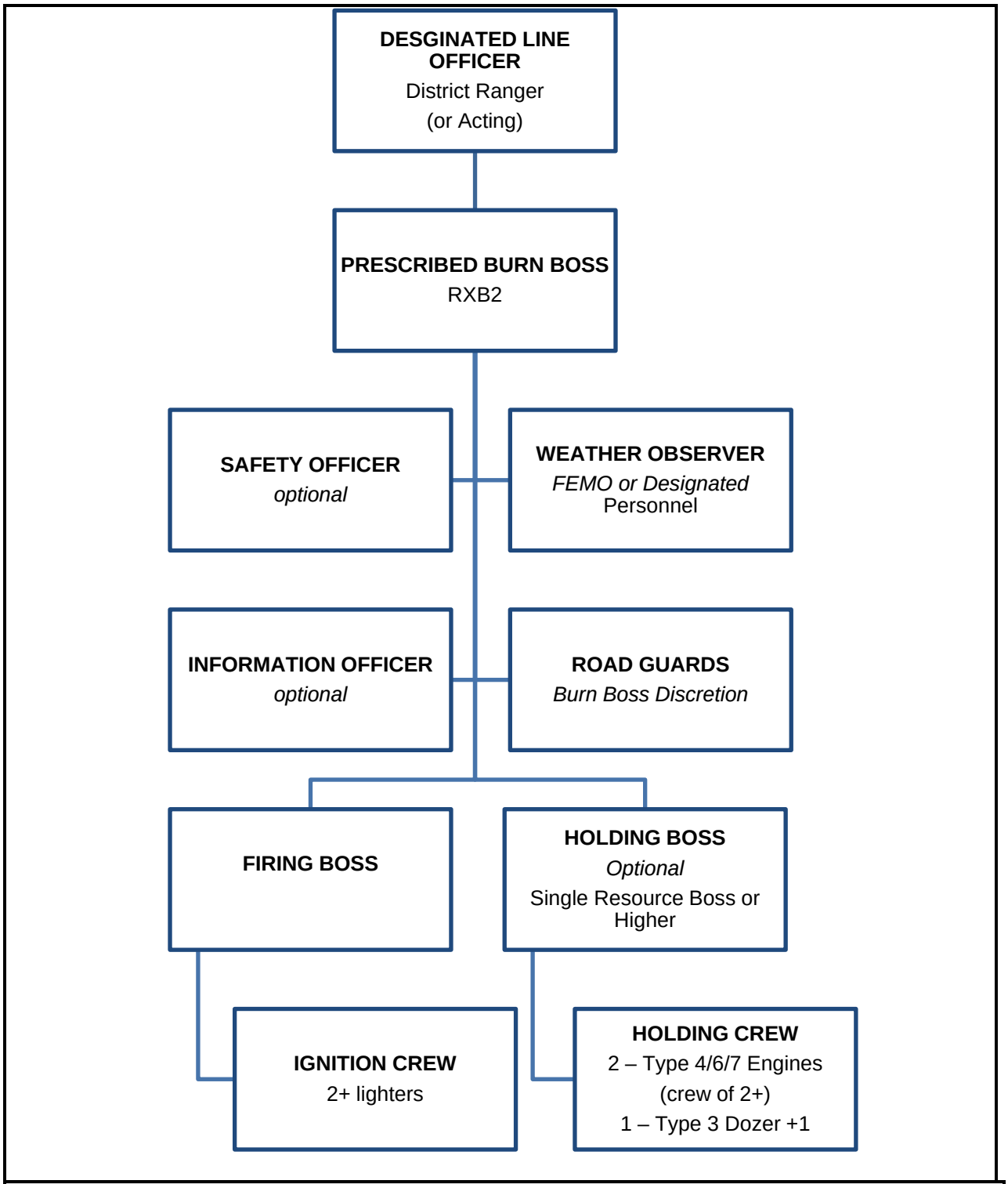
☐ Burn organization and assignments ☐ Prescribed Fire objectives and prescription ☐ Description of prescribed fire project area ☐ Special considerations and sensitive features ☐ Expected weather and fire behavior ☐ Communication	☐ Ignition plan ☐ Holding plan ☐ Contingency plan and assignments ☐ Wildfire declaration ☐ Safety and medical plan ☐ Aerial ignition briefing (if aerial ignition devices will be used)

Element 11: Organization and Equipment

A. Positions: Any changes to the organization during implementation must be documented. These are changes that may reflect assignments to other personnel not changes to the capabilities, equipment or supplies which would require an amendment.

A: Positions[1]

[1] At Burn Boss' discretion, engine can be replaced with an ATV/UTV with a slip-on pump unit. The minimum number of holding personnel will remain the same.



B. Equipment

Item	Number	Comments
Type 7 or larger	2	*Minimum of 2 personnel per engine*
Dozer/Tractor Plow	1	*Type 3 or larger with transport*
ATV/UTV	Optional	
Drip Torches	2+	*Minimum of 1 per lighter, not counting drip torches listed as inventory on*

		engines or dozers.

C. Supplies		
Item	**Number**	**Comments**
Signs	TBD	*Appropriate roadway warning signs and alphabetical "drop point" signs as determined by Burn Boss.*
Drip Torch Mix	10-25 gals	*Amount depends upon expected ignition techniques and fire behavior.*
PSD Machine and Spheres	TBD	*Plastic spheres for the PSD machine (will be determined based on burning conditions).*

Element 12: Communication

A. Radio Frequencies: The 800 mgh radios can be used to communicate with dispatch by the overhead positions.

Chann	RX	RX	TX	TX	ASSIGNMENT	REMARKS
1	169.925	N/A	169.925	N/A	Command	Administration
2	169.925	N/A	170.525	110.9	Glennie Repeater	Code 2
2	169.925	N/A	170.525	131.8	Silver Valley	Code 8
3	169.125	N/A	169.125	N/A	Tac 1	As assigned
4	171.550	N/A	171.550	N/A	Tac 2	As assigned
7	170.00000	N/A	170.00000	N/A	East Air-ground	Communication with aircraft
10	168.625	N/A	168.625	110.9	Air Guard	Aircraft

B. Telephone Numbers:

PERSONNEL NAME	PHONE NUMBER
Huron-Manistee Dispatch	231-145-4882
National Weather Service	989 732 9306
District Ranger	989-739-0728 ext. 3002
District Ranger cell phone	989-305-0977
Huron Zone FMO cell phone	989-305 1227

Element 13: Public and Personnel Safety, Medical

A and B: Safety Hazards and Measures Taken to Reduce the Hazards

Hazard: Standing snags within and bordering the burn unit.
Mitigation: Any snags left standing after burn prep that are considered a hazard to firefighters will be identified, the hazard communicated to all personnel and mitigated as needed at the time. Mitigation may include but is not limited to flagging, pushed over by dozer or felled.

Hazard: Traffic on roads bordering the unit.
Mitigation: Road guards with vehicles with lights should be utilized on roads where traffic or smoke may be heavy during operations. Road guards will wear proper PPE identified in current JHA. Signs will be placed accordingly to warn road traffic of operations.

Hazard: Public utilizing the trail systems that run through or adjacent to burn units.
Mitigation: Trails may be temporarily re-routed while project area is considered hazardous to public. This determination is made at the Burn Boss' discretion. Signs will be posted indicating temporary route.

A thorough pre-burn briefing will be conducted by the Burn Boss and all participating individuals on the project will be required to attend. This briefing will cover at required briefing topics at a minimum. An Incident Action Plan should supplement the briefing and be provided to each resource. Copy of the IAP will be included in project documentation.

Dispatch will be notified at the start and stop of ignition and will be updated as personnel are released from the site. The Burn Boss, prior to the ignition of the test fire, will establish communications protocol and appropriate use of frequencies.

All personnel involved for project will be responsible for maintaining LCES during operations. All personnel will wear required PPE in accordance with the U.S. Forest Service Health and Safety Code Handbook, FSH 6709.11 and the attached Prescribed Fire JHA.

A. Emergency Medical Procedures

Responsibilities

1. **Burn Boss**
   - In a medical emergency the Burn Boss will contact Huron-Manistee Dispatch.
   - The Burn Boss is responsible for coordination of evacuation.
   - The Burn Boss may designate a qualified individual to coordinate evacuation or supervise the prescribed burn. Inform Dispatch of changes.
   - The Burn Boss will provide to Dispatch:
     A. Nature and extent of injury.
     B. Resource and transportation needs.
     C. Location and best access to patient.

2. **Huron-Manistee Dispatch**
   - Dispatch will request ordered or requested resources and transportation needs.
   - Dispatch will announce a Medical Emergency and request all other radio traffic to be cleared.
   - Dispatch will flight follow with emergency aircraft.
3. **EMT or First Responder**
   - Is responsible for patient evaluation and treatment.
   - Will coordinate with the Burn Boss in organizing evacuation plans and necessary medical resources.
   - Will keep the Burn Boss informed on patient condition.
4. **Ranger District**
   - Assist in providing local resources as requested by dispatch.
   - Coordinate with Dispatch as requested.

D. Emergency Evacuation Methods

All injuries or other medical events will be assessed by medically qualified personnel available on scene (First Aid/CPR, First Responder, EMT, etc). They will make the determination whether or not to activate an EMS transport (ambulance or life flight) or to transport with an agency vehicle. In the event there are no medically trained personnel on scene or none are available due to fire behavior/situation, then the Burn Boss should automatically request Forest Dispatch to activate EMS or if possible call 911. Once an EMS unit arrives on scene, they will assess the situation and determine best method of transportation.

E. Emergency Facilities

Hospitals

Name	Address	Travel Time		Phone	Helipad		Burn Center	
		Air	Grnd		Yes	No	Yes	No
Tawas St. Joseph Hospital	200 Hemlock, Tawas City, MI	10	30	989-362-3411	X			X
West Branch Regional Center	2463 S. M-30, West Branch, MI	20	60	989-345-3660	X			X
Hurley Medical Center	1 Hurley Plaza, Flint, MI 48503	1 Hr.	2 ½ Hrs	810-257-9000			X	

Element 14: Test Fire

A: Planned Location

The test fire will be conducted in a representative fuel type and in an area that can be easily controlled; preferably downwind and/or at an uphill point in the burn unit near the planned starting point, and located in an area that would not compromise the safety of personnel and resources. Test fire results will help the Burn Boss to determine which ignition sequence should be used on the burn. Once the test fire is completed the Burn Boss will determine whether to proceed or cancel the burn, and that decision will be communicated to Forest Dispatch and all resources on the burn.

A separate test fire will be required for each individual unit, even if multiple units are ignited on the same day.

B. Test Fire Documentation

- On-site weather conditions and test fire results will be documented in Burn Boss Notes and filed in the project folder.

Element 15: Ignition Plan

A. Firing Methods (Techniques, Sequences and Patterns)

Option 1: Aerial and Hand Ignition

This prescribed fire will be executed using a combination of aerial and hand ignited techniques to include backing, strip-heading, spotting, flanking or combination as designated by the Burn Boss and Firing Boss. All control lines will be ignited by hand until sufficient black is established utilizing Phase 1 and Phase 2 listed below. Aerial ignition will be conducted following completion of these phases utilizing the Plastic Sphere Dispenser (PSD). Communication will be maintained between the Burn Boss and Aerial Firing Boss at all times. Aviation Project Safety Plan will be attached to the Burn Plan.

Option 2: Hand Ignition

This prescribed fire will be executed using a combination of hand ignited techniques to include backing, strip-heading, spotting, flanking or combination as designated by the Burn Boss and Firing Boss. All ignition tactics and procedures will coordinate directly with the burn boss and holding resources. The phases of ignition include:
Phase 1: After weather observations are obtained and the results favorable for a test burn, the Burn Boss will designate a test fire location on the downwind side of the unit, adjacent to a control line. Fire behavior will be observed and monitored for intensity, rate of spread, and fuels consumption. If test fire results are adequate and approval of burn boss is given, Phase 2 will be initiated.
Phase 2: Ignition crews will begin ignition on the downwind control line to establish a backing fire. A combination of strip-heading and spot ignitions will be used during this phase. After a backing fire is established, approximately 1 chain in width, Phase 3 will be initiated.
Phase 3: Ignition crews will proceed with igniting the remainder of the unit using strip-heading, spotting, flanking or a combination of. Ignition crews will anchor ignition from a control line on the flanks and proceed through the unit, ending on the opposite flank tying their lines of fire together as igniters exit the unit. Firing timing, sequences and spacing will be adjusted to keep flame length and rate of spread within prescribed limits. After main body of the unit is ignited, a small ignition team will ignite the upwind boundary, completing the last line of ignition.

B. Firing Devices

Can include but not limited to: drip torches, pneumatic torch, fusees, and flare guns or similar types of ignition devices. Devices used will be determined by the Burn Boss and/or Firing Boss on the day of the burn. All devices used will be covered in pre-burn briefing.

C. Minimum Ignition Staffing

If aerial ignition is used, then as few as 2 people can be used for ground firing operations. Without aerial ignitions as few as 4 people can be used for firing operations.

If aerial ignition (or other aerial operations) is planned, also cover aviation operations, organization, and safety. If a specific administrative or agency aerial ignition plan exists, attach to the prescribed fire plan

Element 16: Holding Plan

A. General Procedures for Holding: Depending on wind direction, holding forces will be moved in to proper position by Holding Boss prior to ignition. Holding forces will have same role no matter where ignition starts. Holding Boss will decide how many and where resources will be stationed depending on wind direction. Ignition will start on the downwind end of the unit, which will also serve as a starting point for the holding resources. If additional holding crew personnel are used they will be under the direction of the Holding Boss and will be put at the most critical location during all firing operations. The Type 3 dozer/scout will be strategically located so to have the fastest response time to any spot that this resource may be needed. The Holding Boss will be responsible for positioning holding forces around unit and will give opportunities for all resources to move out of smoke and into fresh air as needed. If it is determined that additional holders are needed they will be taken from the lighting crew. The holding and Ignition forces should coordinate operation through the entire ignition sequence. Mop up will begin after fuel consumption has been determined adequate and personnel can safely enter the unit. Burn Boss will determine the distance mop-up will occur inside the line depending on temperature, humidity recovery, and precipitation. After the initial mop-up, the Burn and Holding Boss will determine a patrol plan and a time frame to excuse resources. The burn unit will remain in patrol status until the burn is declared out by the burn boss or designated qualified person.

B. Critical Holding Points and Actions: Burn blocks 2, 5, 6, 7, 11, 15, 16, 17, 19, 21, 23, and 28 are bordered by private property. The burn boss will indicate the critical holding points during the briefing. The north boundary of burn block 2, 3, 4, 5, 6, 7, and 16 are bordered by highway M-65. Critical holding points should be identified on the burn block unit maps.

C. Minimum Organization or Capabilities Needed: : A minimum of 2 Engine (any type) for burning during low-mod fire danger, and 1 Dozer. (A Holding Specialist is optional if the burn boss elects to appoint someone who is a minimum of single resource qualified).

Element 17: Contingency Plan

Management Action Points or Limits: The burn plan identifies resources needed to safely and successfully ignite, execute, and hold prescribed fire throughout the range of prescriptive parameters identified. The contingency resources identified within the prescribed fire plan are identified for those rare events that occur and lead to a situation where the burn may become a problem, based on the capabilities of existing on-site resources. The contingency plan is divided into three phases A, B and C. See the burn block area maps for the contingency line locations.

1. Fire intensity, severity, and/or smoke production and duration exceed the maximum limits established by the prescription to be acceptable to the objectives set forth in this plan.

2. Available resources are not able to control the fire, which has spotted or spread outside the prescribed fire project area.

3. Project funds programmed for this prescribed fire are not sufficient to finance required actions to control the fire.

4. Fire has spotted or spread outside the prescribed fire project area contingency lines.

(Optional MAP Table Format)

B. Actions Needed:

Plan A:
The prescribed burn proceeds as planned, and fire is kept within unit perimeters. Any spot fires or slop-over is minimal and requires no additional resources. Burn is also kept within prescription parameters.

Plan B:
May experience slop-over or spotting that is more difficult for on-site holding forces to control. However, fire spread and/or spotting is manageable with available resources. On site resources will be plentiful and will be equipped to handle suppression of spots in this project area. The adjacent fuels should give holding crew opportunities to contain any spots or fall back to local gravel roads to gain containment. A suppression helicopter with bucket could be used if this was available but suppression success is not dependent on this resource. Specific tactics involve direct attack with engines, dozer plow units, and using the manmade barriers such as roads and open areas.

Plan C:
If fire intensity, severity, and duration exceed the maximum limits established in the prescription, and/or this prescribed fire spots or spreads outside the parameters allowed (Plan B) and such fire spread and spotting cannot be controlled with available resources and funds programmed for this project, the Burn Boss will initiate the Appropriate Management Response (AMR) and declare it an unwanted wildland fire. The Burn Boss will notify Huron-Manistee Dispatch and the line officer of the change in status from prescribed fire to unwanted wildland fire and assumes the role of Incident Commander (IC) or transfer command of the incident to a qualified Incident Commander. The new IC will reevaluate the AMR, guided by the Forest Fire Management Plan. This includes, if necessary, the selected strategy defined by a Wildland Fire Situation Analysis (WFSA) as determined by the line officer. Alternatives should be analyzed to determine the most appropriate response. Incident objectives and an organization will have to be developed to meet those objectives outlined in the selected alternative. Once declared a wildland fire, the incident cannot be returned to prescribed fire status.

C. Minimum Contingency Resources and Maximum Response Time(s):

1 hour response time – See Contingency Resource Worksheet and Determining Contingency Level

For the purpose of this discussion, the worst-case scenario will focus on weather criteria representative of the hot end of the prescription (surface spread with wind- not vectored) considering a fuel model representative of locations outside of the project to the north, south, east, and west. See Fire behavior section for rates of spread.

Contingency Resource Selection Rationale: The results depicted above were produced with mathematical modeling equations that incorporate assumptions that are beyond the scope of this document. However, one of these assumptions is that the fuel bed is (infinitely) uniform and continuous. The fuels outside of the burn project are uniform and continuous, but there is a still is a variance in the fuel loading and aspect. This fact and taking into consideration that some areas adjacent to the treatment area are more sheltered and will generally experience rates of spread lower than that found in the burn unit itself.

This model also assumes one ignition source. If multiple spots occur the situation may dictate multiple resources to contain fire outside project area. Also, SH7 represents

Jack Pine fuels on the district. If fire transitions from ground to crown, it is assumed a second dozer will be required to assist in suppression efforts.

Nonetheless, under the right conditions, fires may spread quickly in both hardwood litter and grass vegetation. If fire becomes well established outside the burn project, forces may have to utilize a defensive posture, backfiring off some of the trails and two tracks and other natural firebreaks located in the area.

Element 18: Wildfire Declaration

A. Wildfire Declared By: The Burn Boss or the Zone FMO can declare a wildfire.

B. IC Assignment: To be determined the day of the burn by the burn boss or duty officer.

C. Notifications: As soon as the burn is declared a wildfire Huron-Manistee Dispatch will be contacted by the burn boss or someone designated by the burn boss, and any transfer of command will be communicated. The line officer will be contacted by the burn boss or dispatch. The Forest FMO, and zone FMO will also be contacted by the burn boss or dispatch.

D. Extended Attack Actions and Opportunities to Aid in Fire Suppression (Optional): Additional resources can be requested by the Incident Commander through dispatch. A suppression helicopter with bucket could be used if this was available but suppression success is not dependent on this. Resource specific tactics involve direct attack with engines, dozer plow units, and using the manmade barriers such as roads and open areas.

Element 19: Smoke Management and Air Quality

A. Compliance: The management of smoke impacting sensitive areas near the burn unit will be closely monitored and ignition will be postponed if the smoke management parameters are not met. Smoke will be monitored throughout the burn to identify if smoke is adversely affecting smoke critical areas, and implement mitigation measures to reduce the smoke related impacts. See the Smoke and Contingency Maps in the appendix for the areas that maybe affected by smoke. Mitigation measures to reduce smoke related impacts for critical targets are detailed below:

B. Permits to be Obtained: None

C. Smoke-Sensitive Receptors: M- 65, River Road & Other Forest Roads: Along the north boundary of the project area is M-65 and River Road. The portion of these roads along the project area is designated as a scenic byway. Adequate mixing heights, transport winds, and ventilation indexes should allow the unit to be burned without significant impact to the road. Road guards and signs will be posted on the roads if the smoke is impacting the visibility of motor vehicle operators.

Public Residents: For any of the residential areas that are located next to the project area (identified in section C “Impact Areas”). Adequate mixing heights, transport winds, and ventilation indexes will provide good dispersion with no effect. There is no significant change in elevation between the burn site and the residences so smoke settling should not be a concern.

D. Potential Impacted Areas:

Block Number	Public Residents	Roads
1	Within one mile to the northwest & northeast.	River Rd, Iargo Rd, Channels Rd, and the ATV trail.
2	Adjacent to the burn block (north).	M-65, Channels Rd, Greenwood Rd, Slosser Rd, and the ATV trail.
3	Within one mile to the northeast.	M-65, National City Rd, Greenwood Rd, Slosser Rd.
4	More than one mile east and west.	M-65, National City Rd, Allen Rd, Slosser Rd.
5	Within one mile to the west.	M-65, Britt Rd, Allen Rd, Slosser Rd
6	Adjacent to the burn block (north).	M-65
7	Within one mile to the northwest.	River Rd and M-65
8	More than one mile west.	Channels Rd, Greenwood Rd, Slosser Rd, Iargo Rd.
9	More than one mile northeast.	Iargo Rd, National City Rd, Greenwood Rd, Slosser Rd
10	More than one mile northeast and west.	Kokosing Rd, National City Rd, Allen Rd, Slosser Rd.
11	Within one mile to the west.	Kokosing Rd, Britt Rd, Allen Rd, Slosser Rd
12	More than two miles from burn block.	Iargo Rd, Sand Lake Rd, Trout Rd, FS Road 2028.
14	Within one mile to the south	Monument Rd, River Rd, Slosser Rd, Lorenze Rd.
15	Adjacent to the burn block (southwest).	Monument Rd, Kokosing Rd, Shelinbarger Rd, Lorenze
16	Adjacent to the burn block (north, south, and west).	M-65, Britt Rd, Tower Line Rd.
17	Within one mile to the west.	Kokosing Rd, Britt Rd, Allen Rd, Iargo Rd
18	Within one mile to the west.	Kokosing Rd, National City Rd, Allen Rd, Iargo Rd
19	Within one mile to the west.	Morawa Trl, Largo Trl, Webb Rd, Iargo Rd.
20	Within one mile to the west.	National City Rd, Allen Rd, Iargo Rd, Webb Rd.
21	Within one mile to the east and west.	Webb Rd, Largo Trl, Allen Rd, Esmon Rd.
23	Located within the burn block boundaries.	Trout Rd, Webb Rd, National City Rd.
25	More than two miles.	Iargo Rd, Kokosing Rd, River Rd, Binder Rd.
26	More than one mile south.	River Rd, Kokosing Rd, Chambers Rd Binder Rd.
27	More than one mile south.	River Rd, Kokosing Rd, Chambers Rd, Monument Rd.
28	Adjacent to the burn block (south and east).	Shelinbarger Rd, Kokosing Rd, Chambers Rd, Monument Rd.

E. Mitigation Strategies and Techniques to Reduce Smoke Impacts: In the event of smoke impacting any of the smoke sensitive areas the follow mitigations should be taken. Smoke signs should be deployed along any of the impacted travel routes. Road guards (with lights on) placed outside the smoke areas to warn the public of the danger. National Forest, County, or State law enforcement can be called to assist with traffic duties if necessary. If smoke impacts a residential area, the burn boss will determine if burn activities should be halted. Contact with residence may be required to determine if there is any residence with respiratory concerns.

Element 20: Monitoring

A. Fuels Information Required and Procedures: The collection of fuels data such as tons / acre and litter / duff depth is measured as part of the fuels program at the Huron Shores Ranger Station.

B. Weather Monitoring (Forecasted and Observed) Required and Procedures: Spot weather forecast will be the responsibility of the burn boss. Weather observation during the burn can be delegated to someone the day of the burn.

C. Fire Behavior Monitoring Required and Procedures: The collection of data such as rate of spread, flame length, and fine dead fuel moisture is desired for the burn day record but not a requirement. Procedures can be established by the burn boss on the day of the burn.

D. Monitoring Required to Ensure that Prescribed Fire Plan Objectives are Met: All monitoring requirements are establish in the Huron Shores Fuels Program, and out lined in the project protocols.

E. Smoke Dispersal Monitoring Required and Procedures: Measurement of smoke are recorded by the burn boss or delegated to someone the day of the burn.

Element 21: Post-burn Activities

A. Post-Burn Activities that must be Completed:

- Conduct an After Action Review (AAR) with all parties involved immediately post burn or as soon as possible.
- Burn Boss or designee will notify Forest Dispatch when operations have been completed. Acreage completed will also be reported to Dispatch and/or Zone FMO.
- Rehab all equipment used on the fire. All damaged or defective equipment will be repaired or taken out of service.
- At Burn Boss's discretion, control lines will be rehabbed as needed. Lines should not be rehabbed until after fire is called out by the Burn Boss or his/her designee.
- Post burn monitoring as outlined in monitoring plan and objectives.
- Complete a cost estimate for the day's activities.

Report Rx burn accomplishments by fiscal year in FACTS, Fastracs, and/or NFPORS

Prescribed Fire Plan Appendices

Appendix A: Maps: Vicinity, Project or Ignition Units (or both), Optional: Significant or Sensitive Features, Fuels or Fuel Model, Smoke Impact Areas

Appendix B: Technical Reviewer Checklist

Appendix C: Complexity Analysis

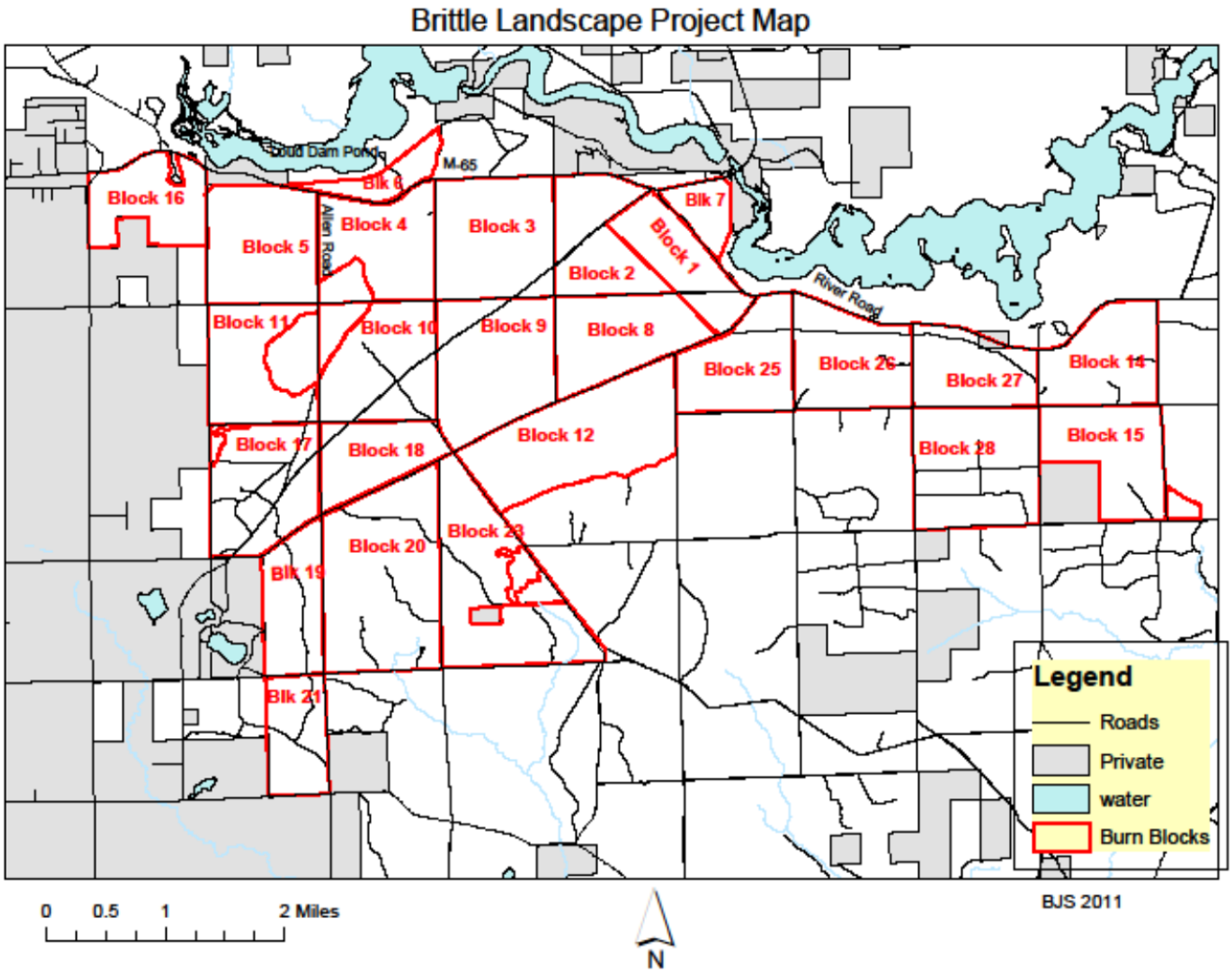
Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment

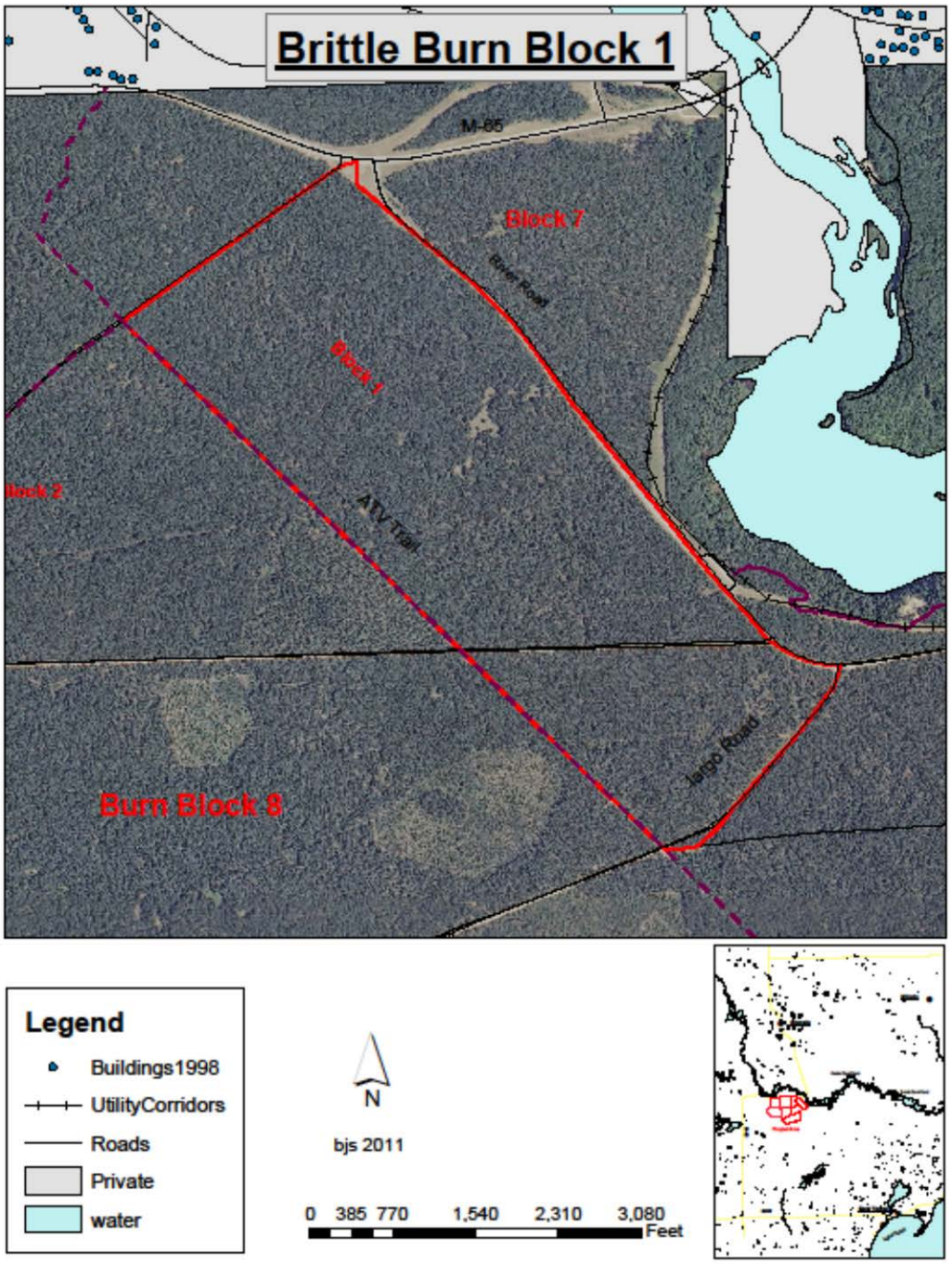
Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation

Appendix F: Smoke Management Plan and Smoke Modeling Documentation (Optional)

Appendix A: Vicinity Map

Insert your vicinity maps here. Refer to Element 4D in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

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Block 7
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Block 2
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Burn Block 8
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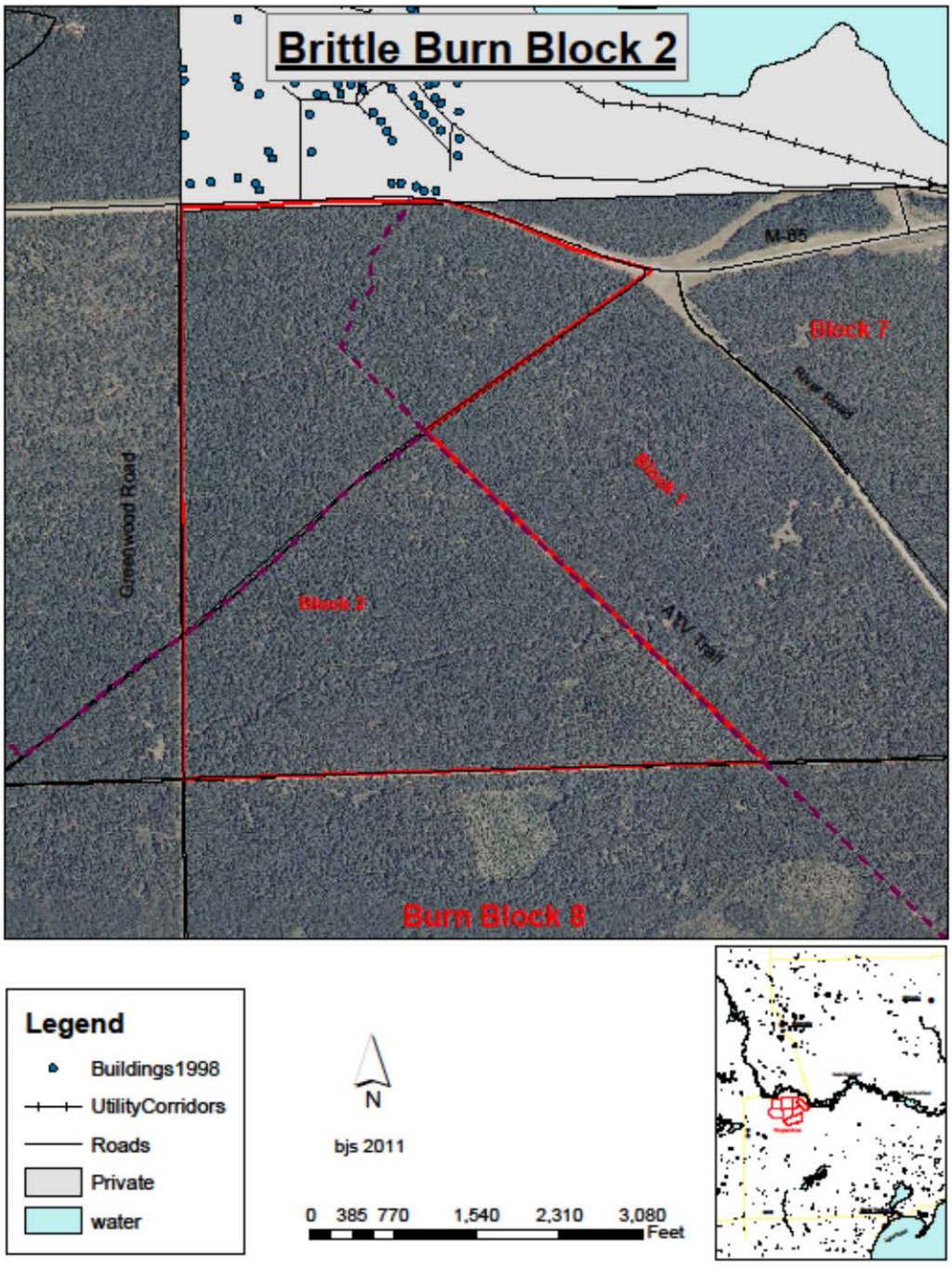
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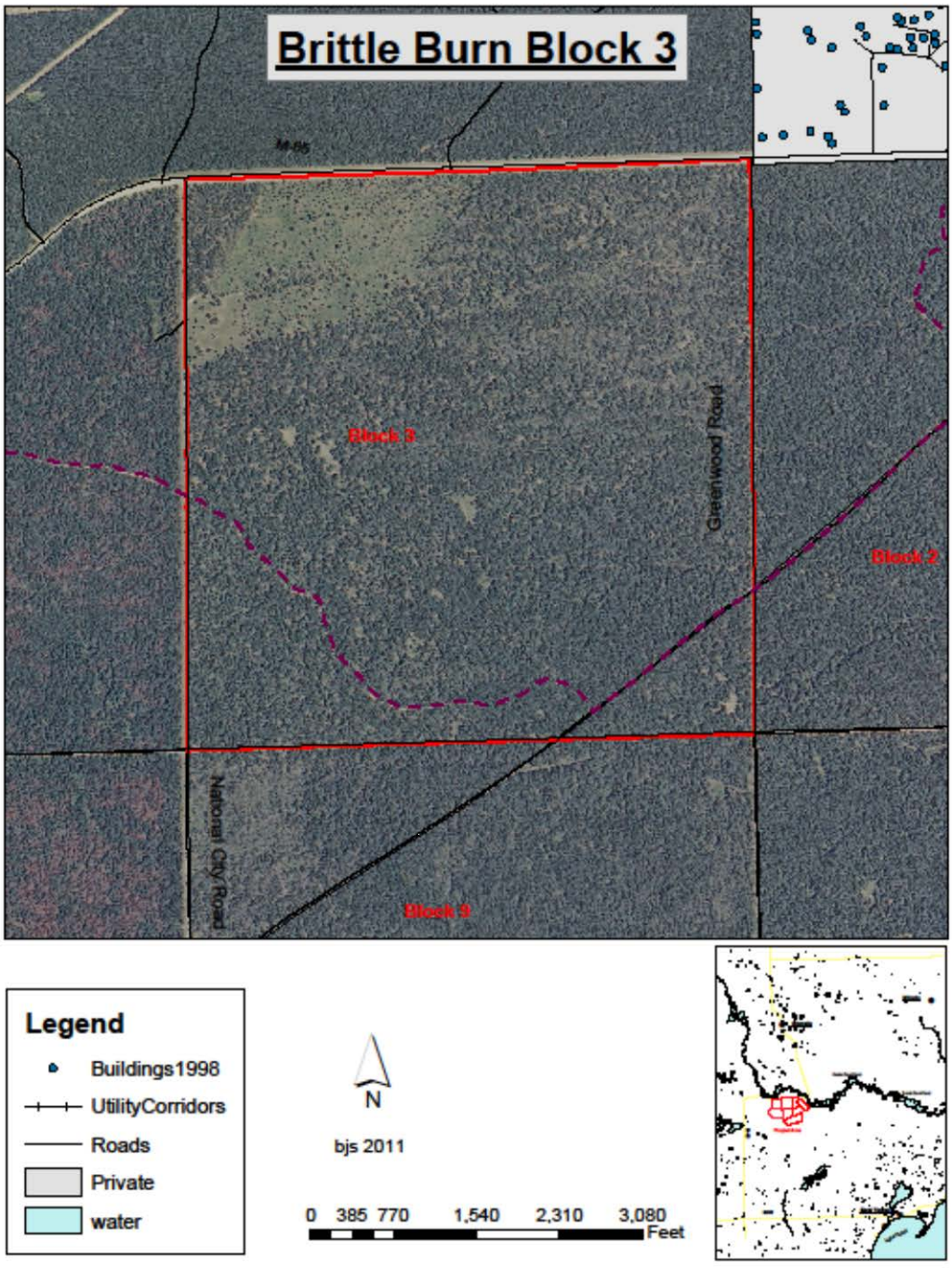
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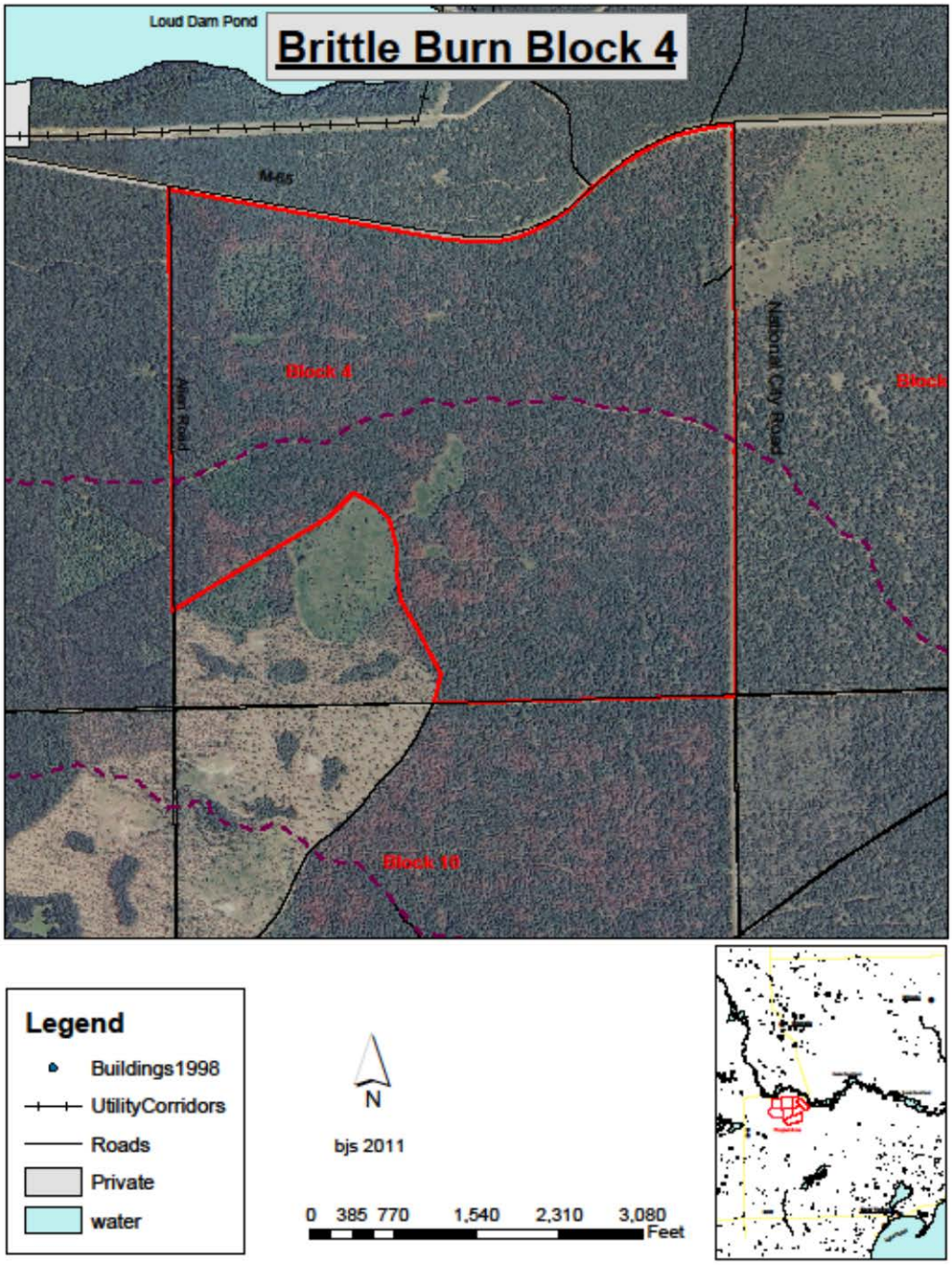
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Block 4
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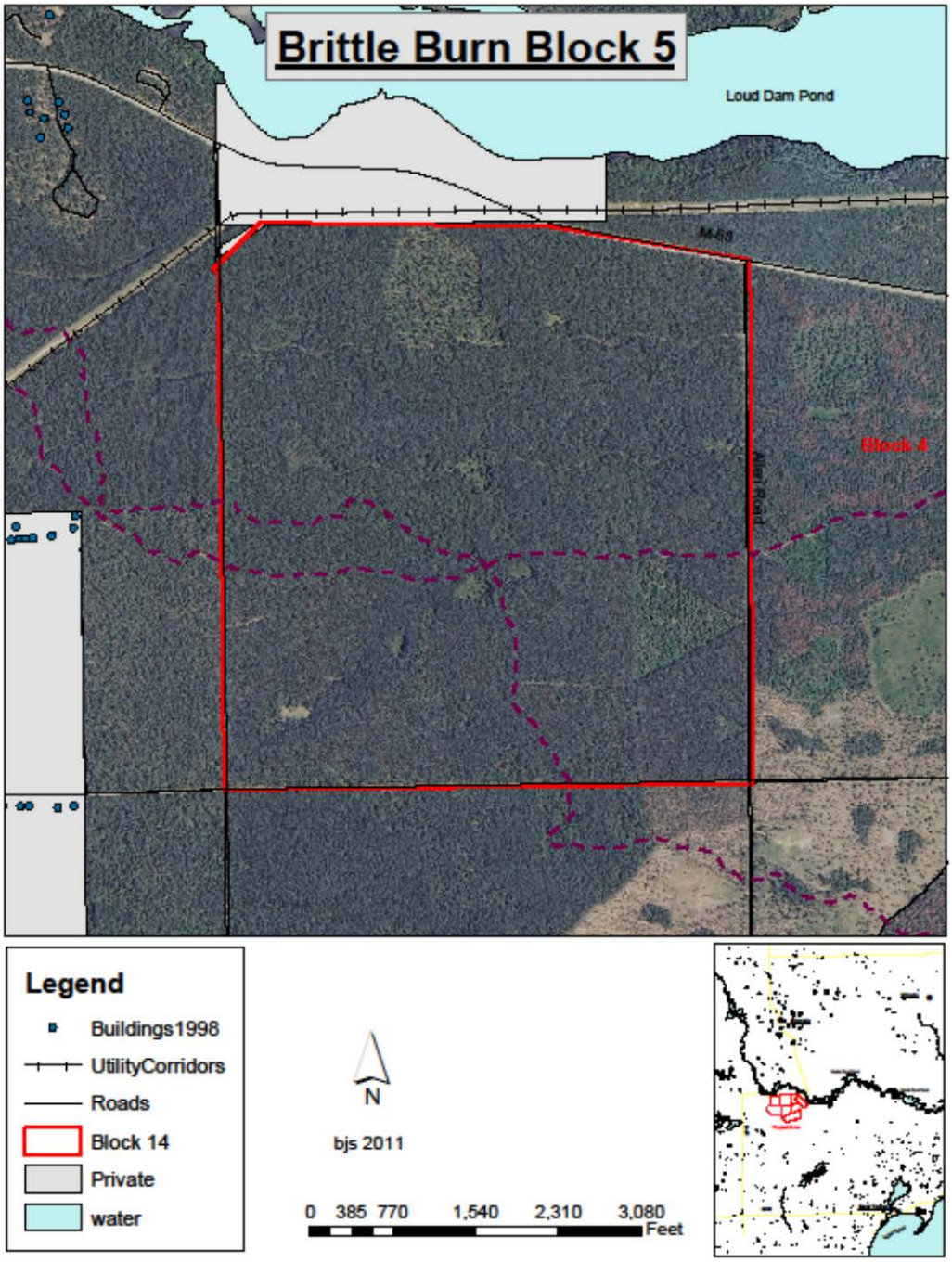
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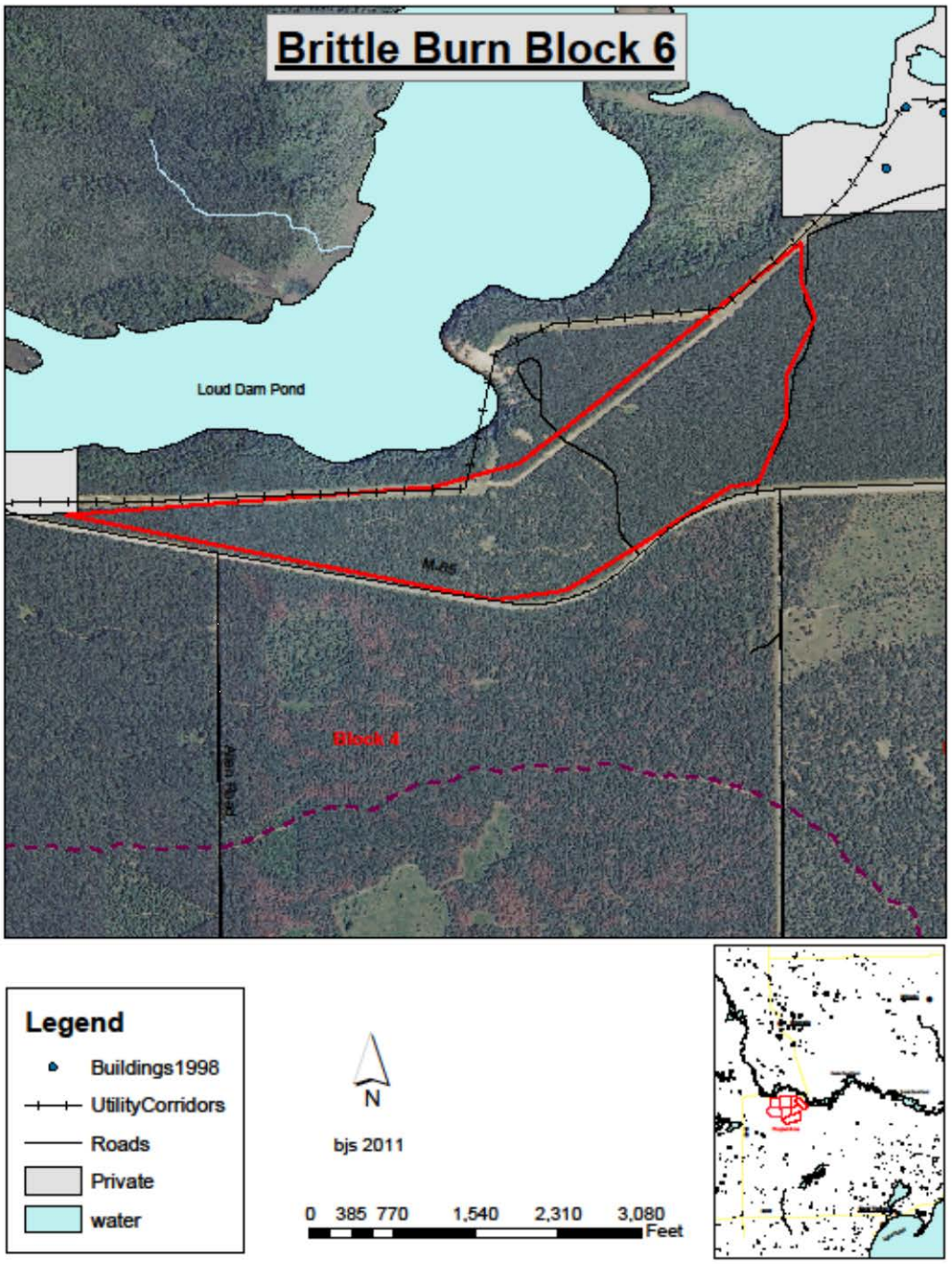
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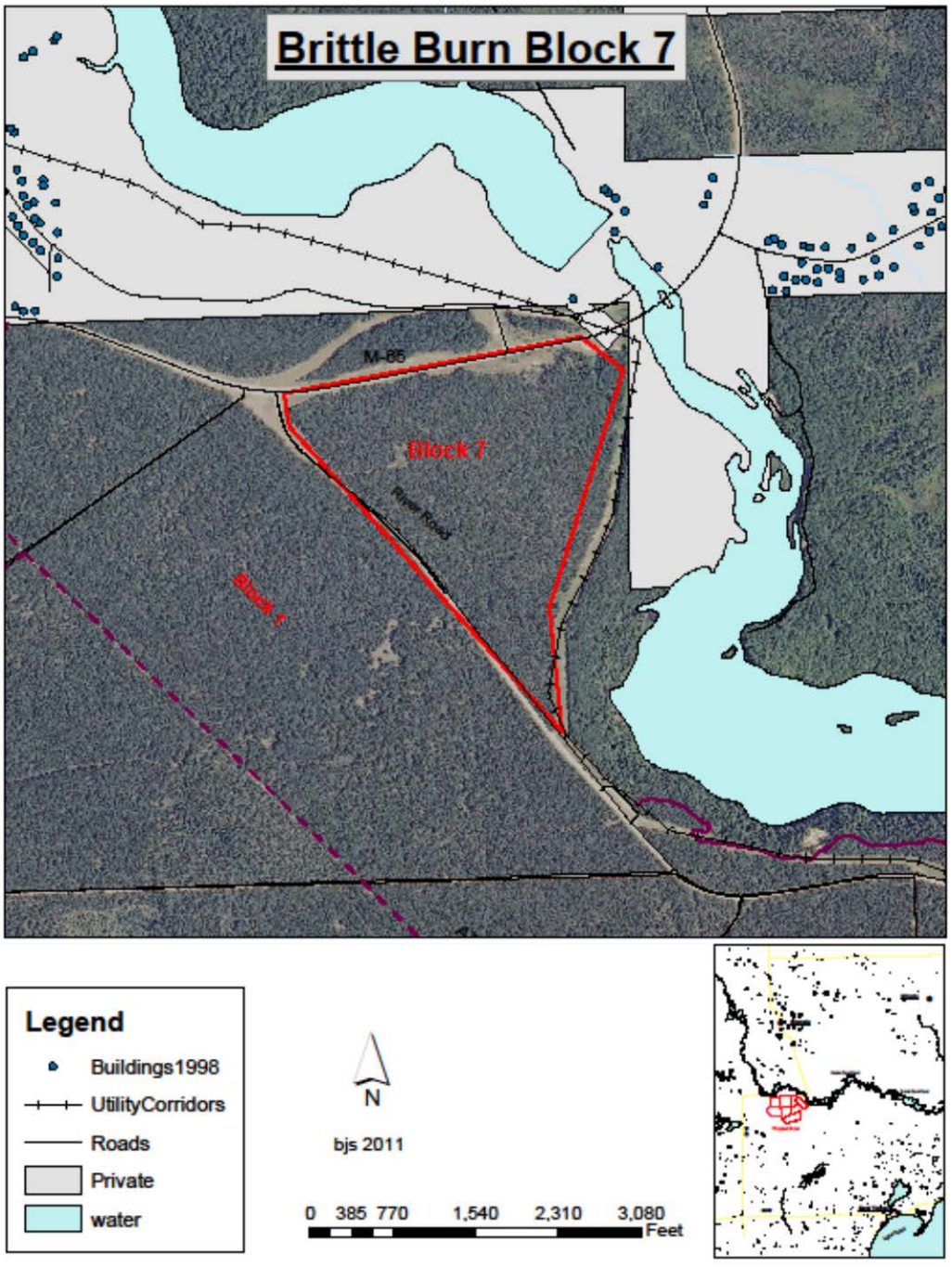
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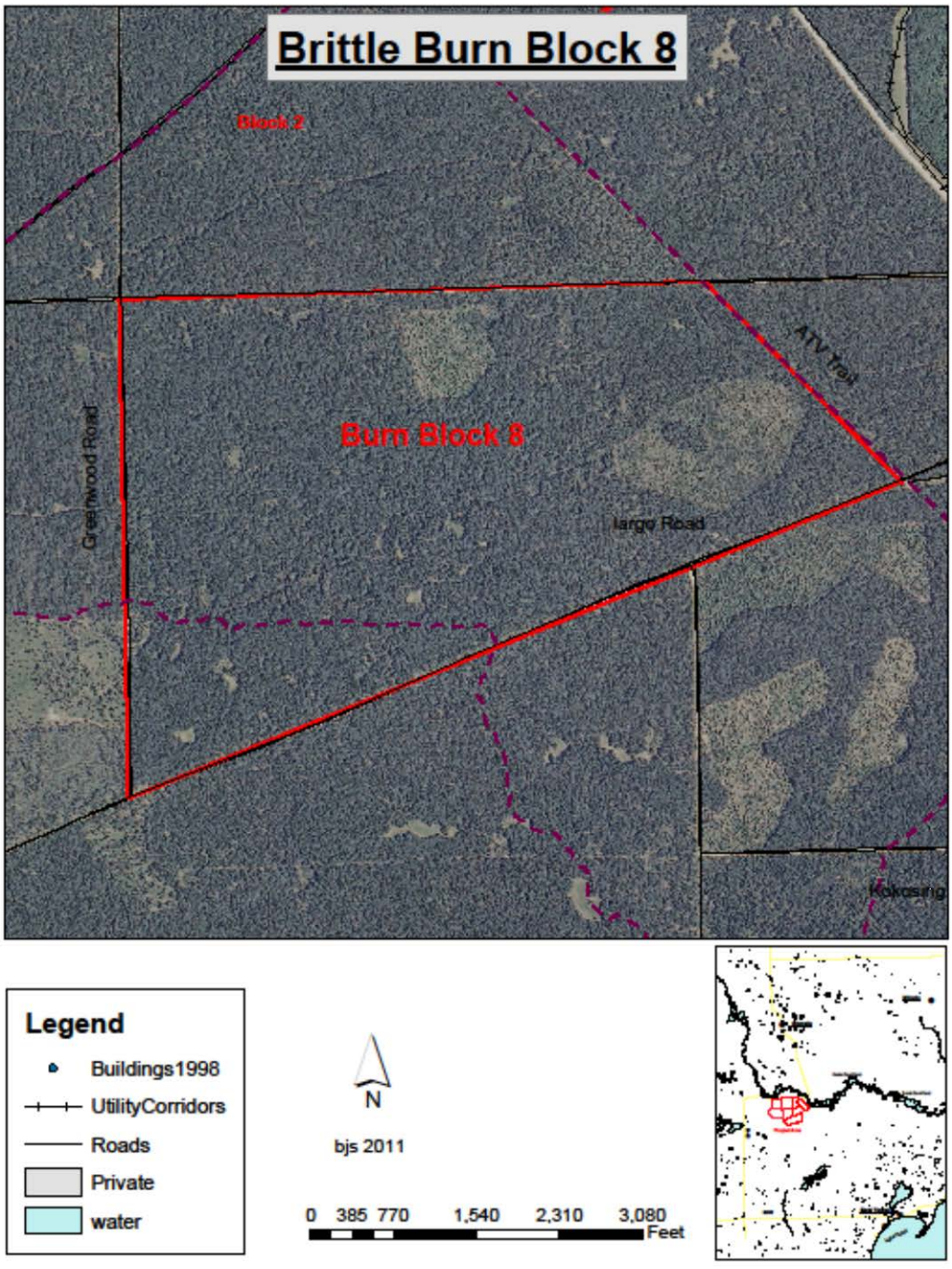
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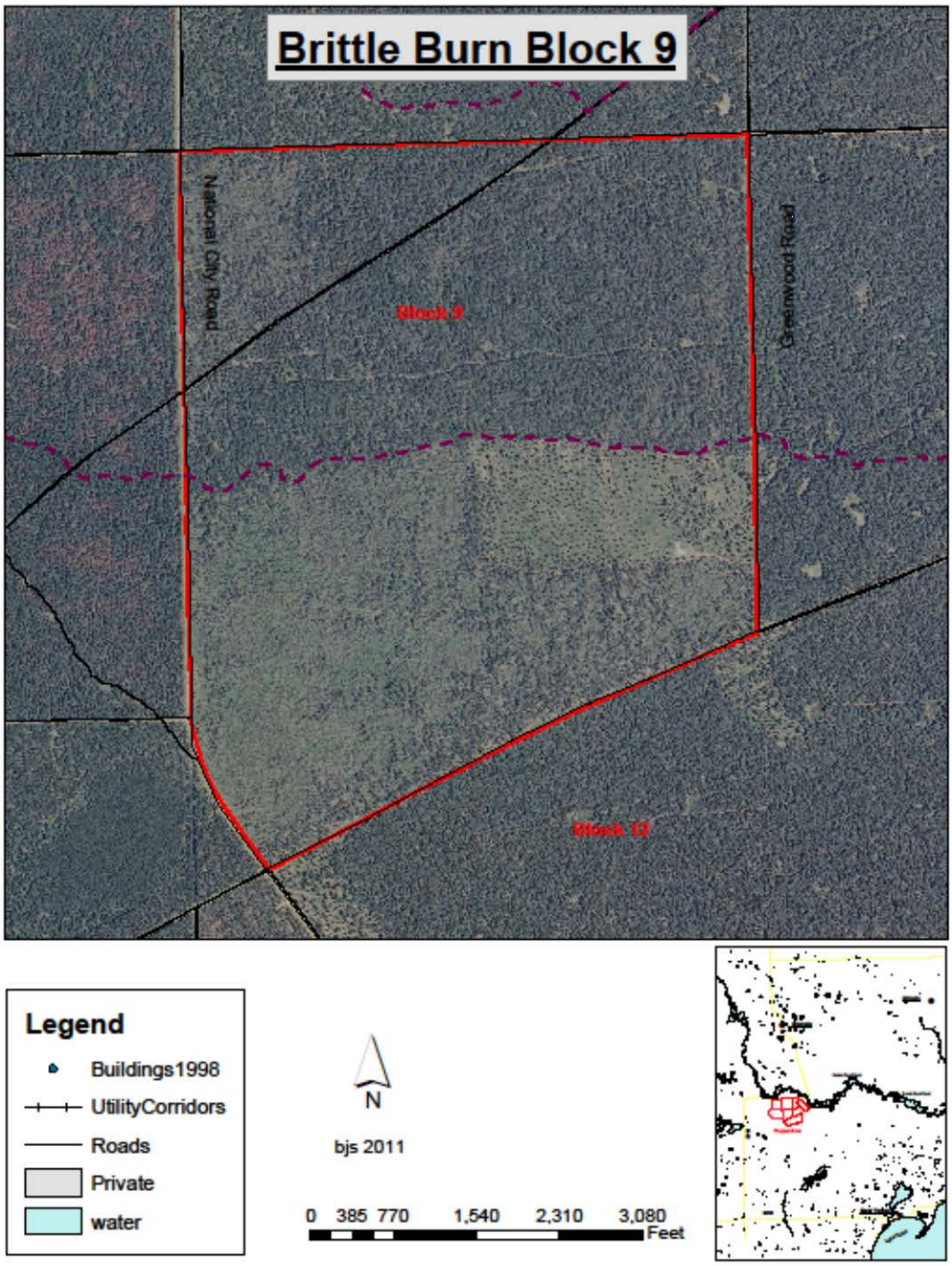
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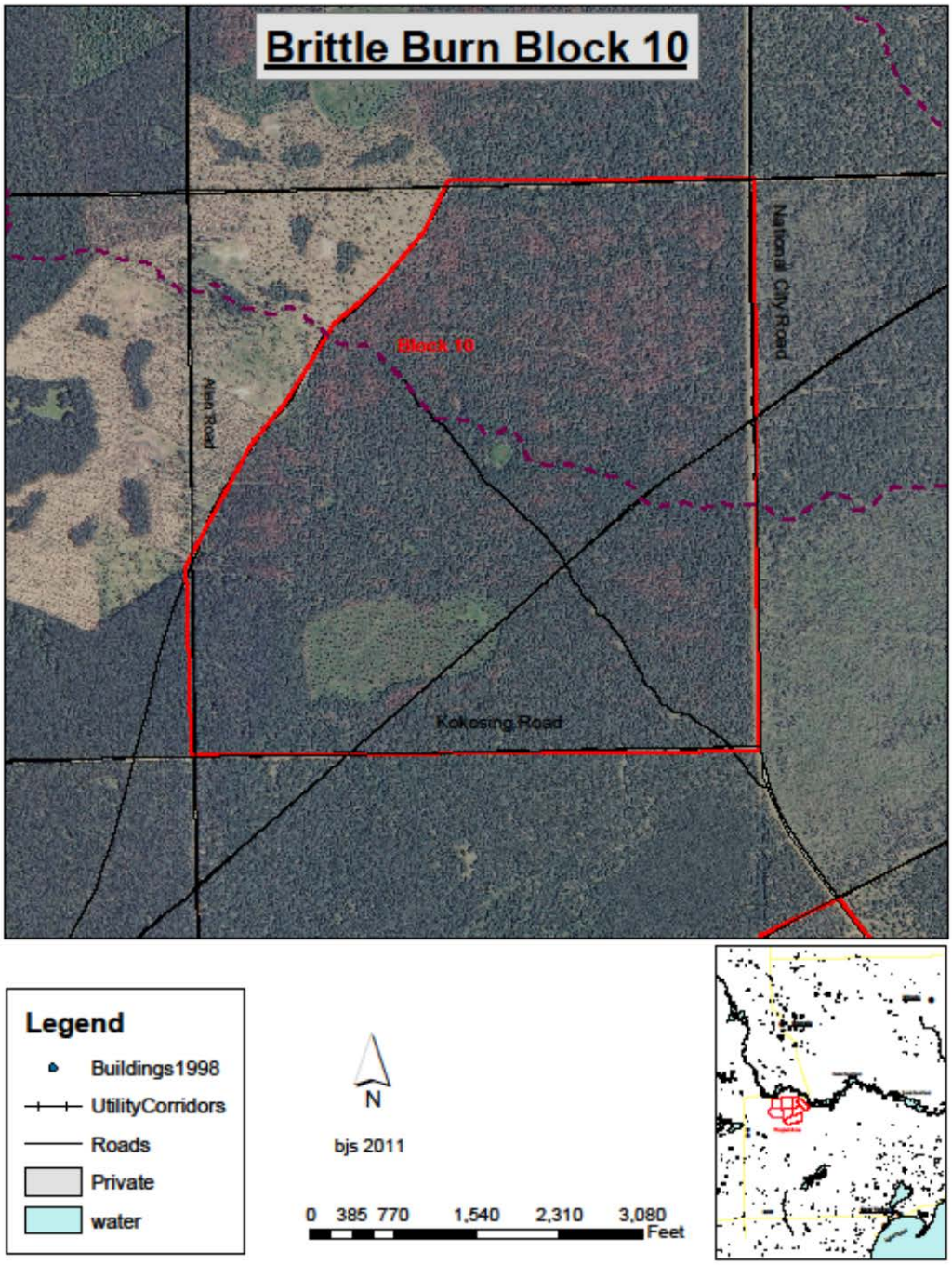
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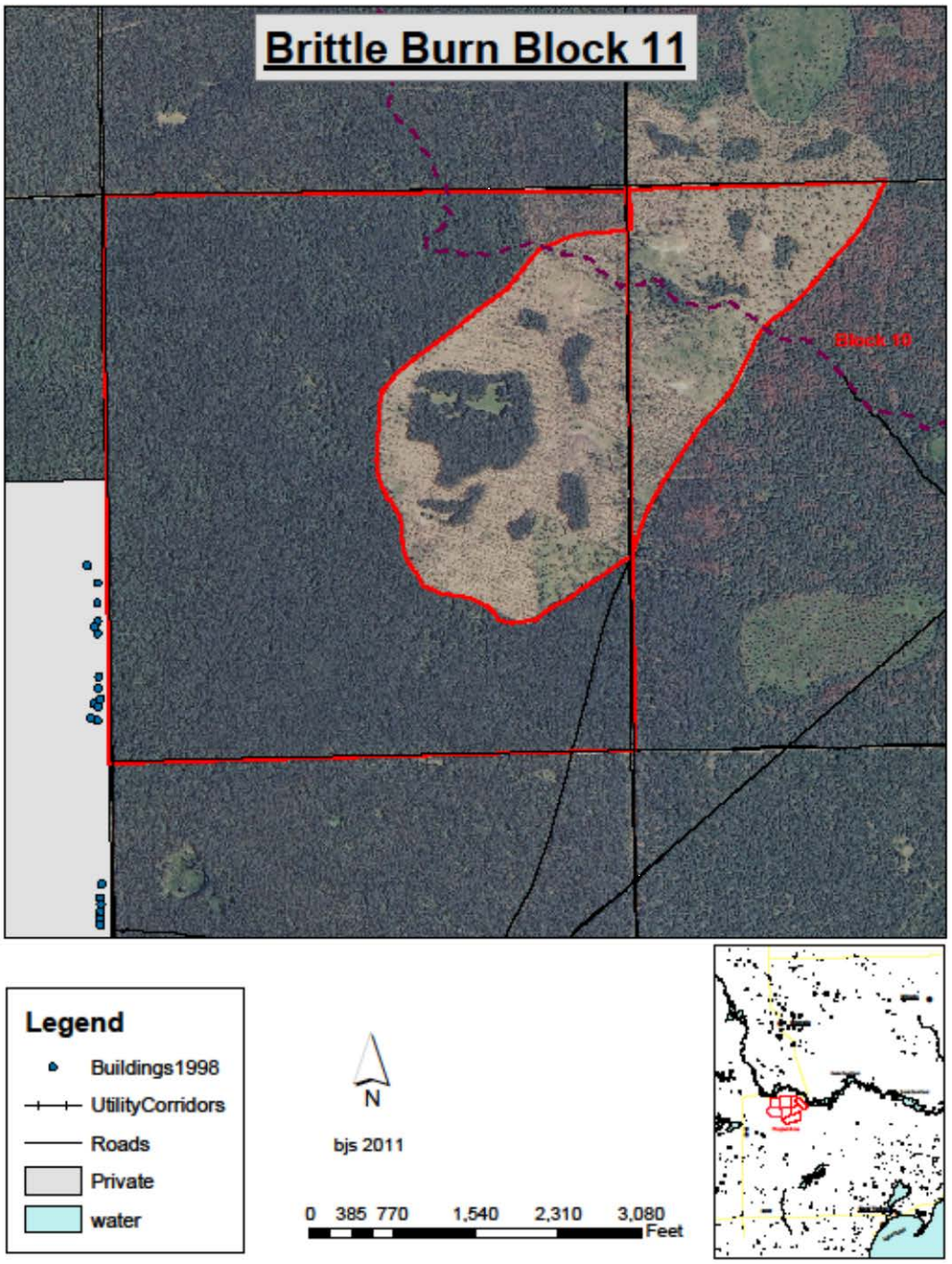
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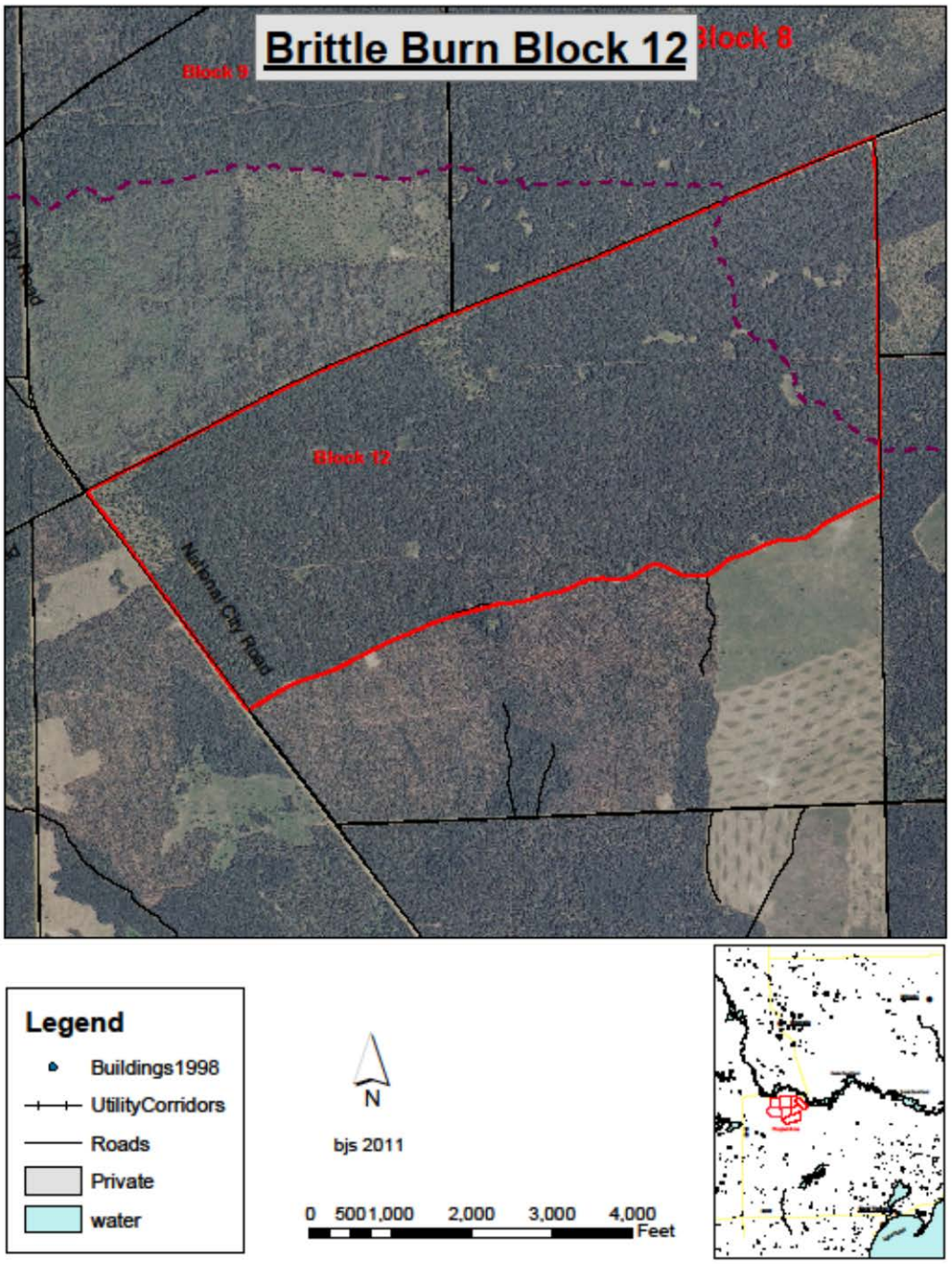
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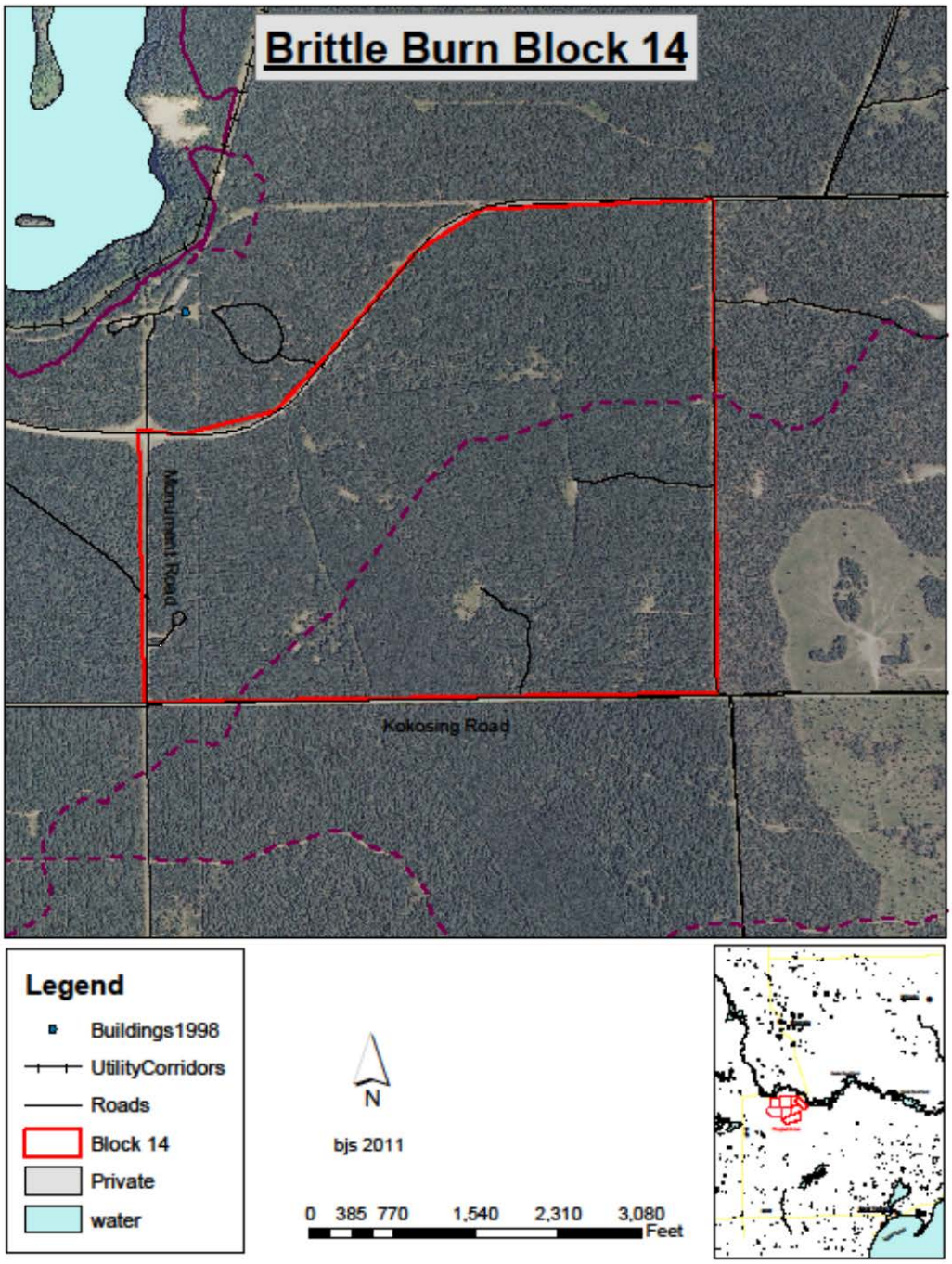
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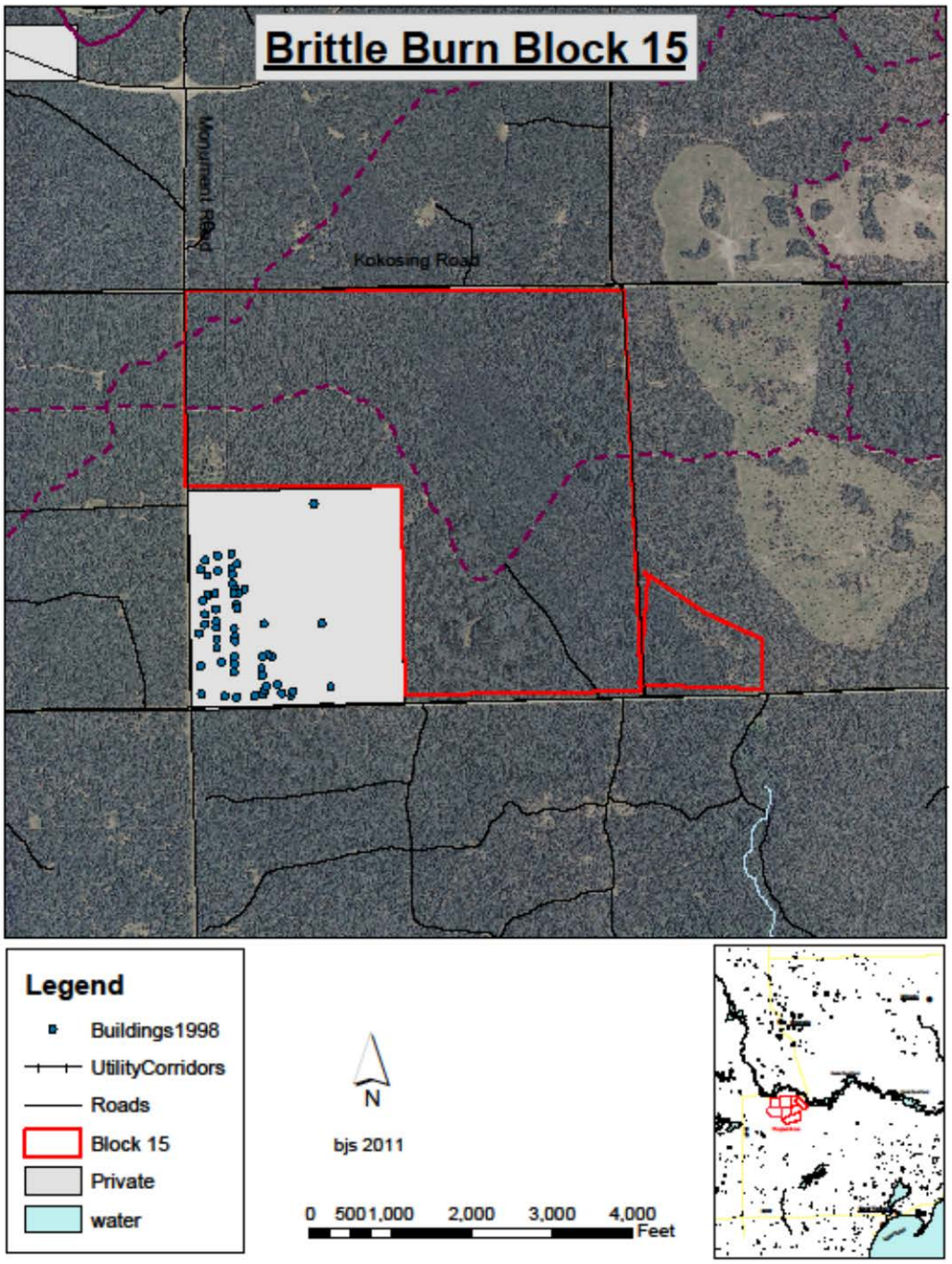
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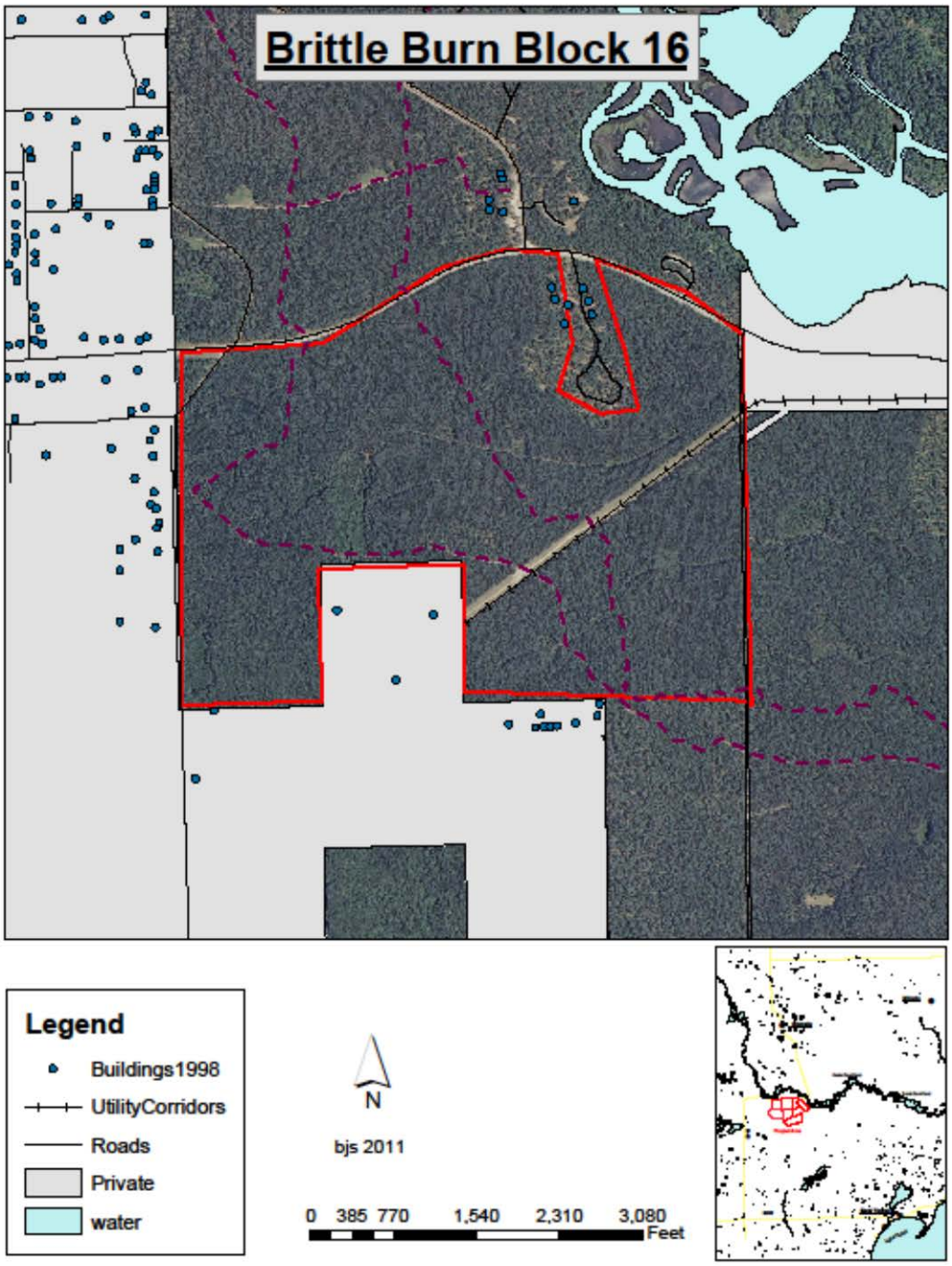
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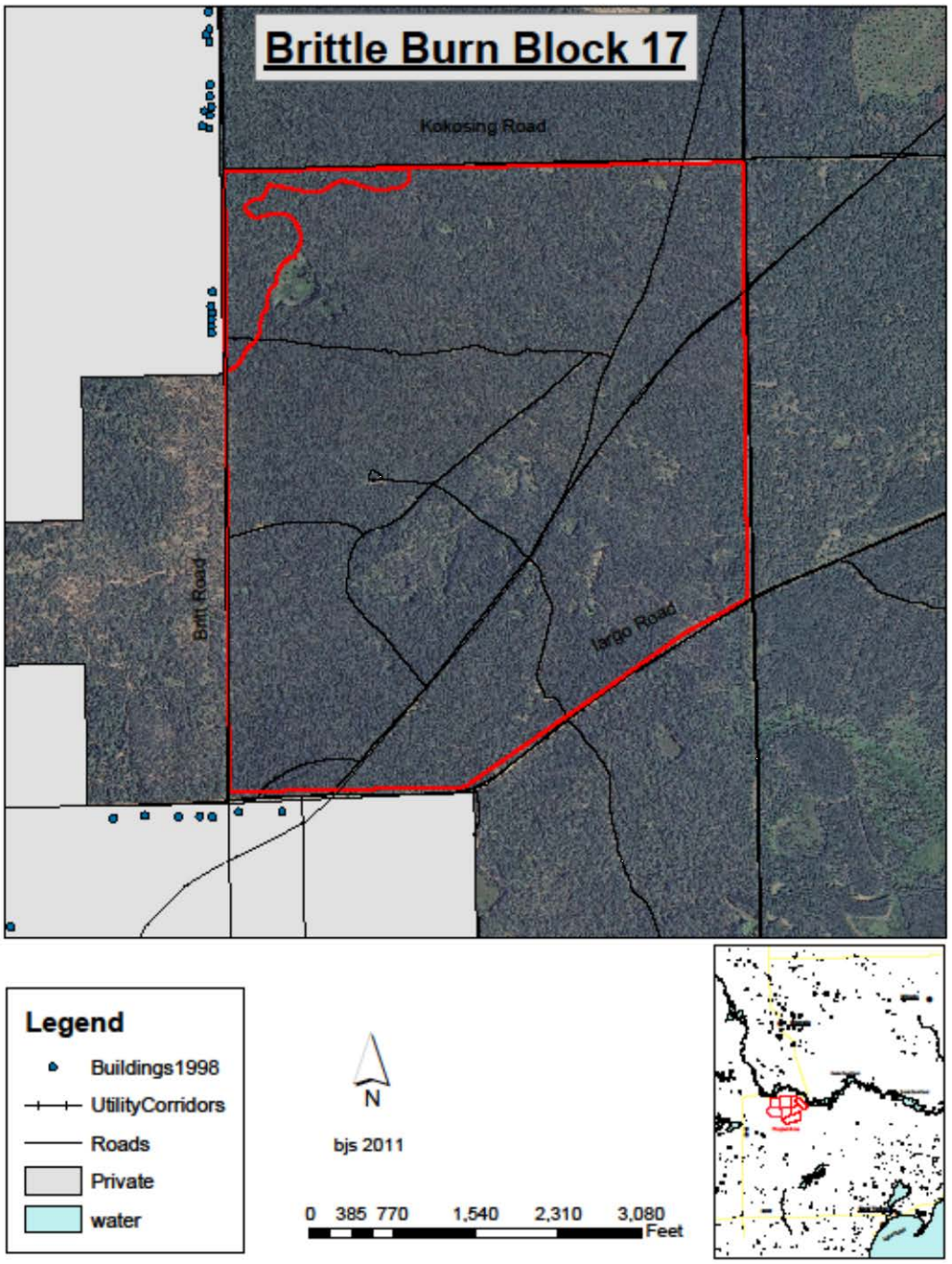
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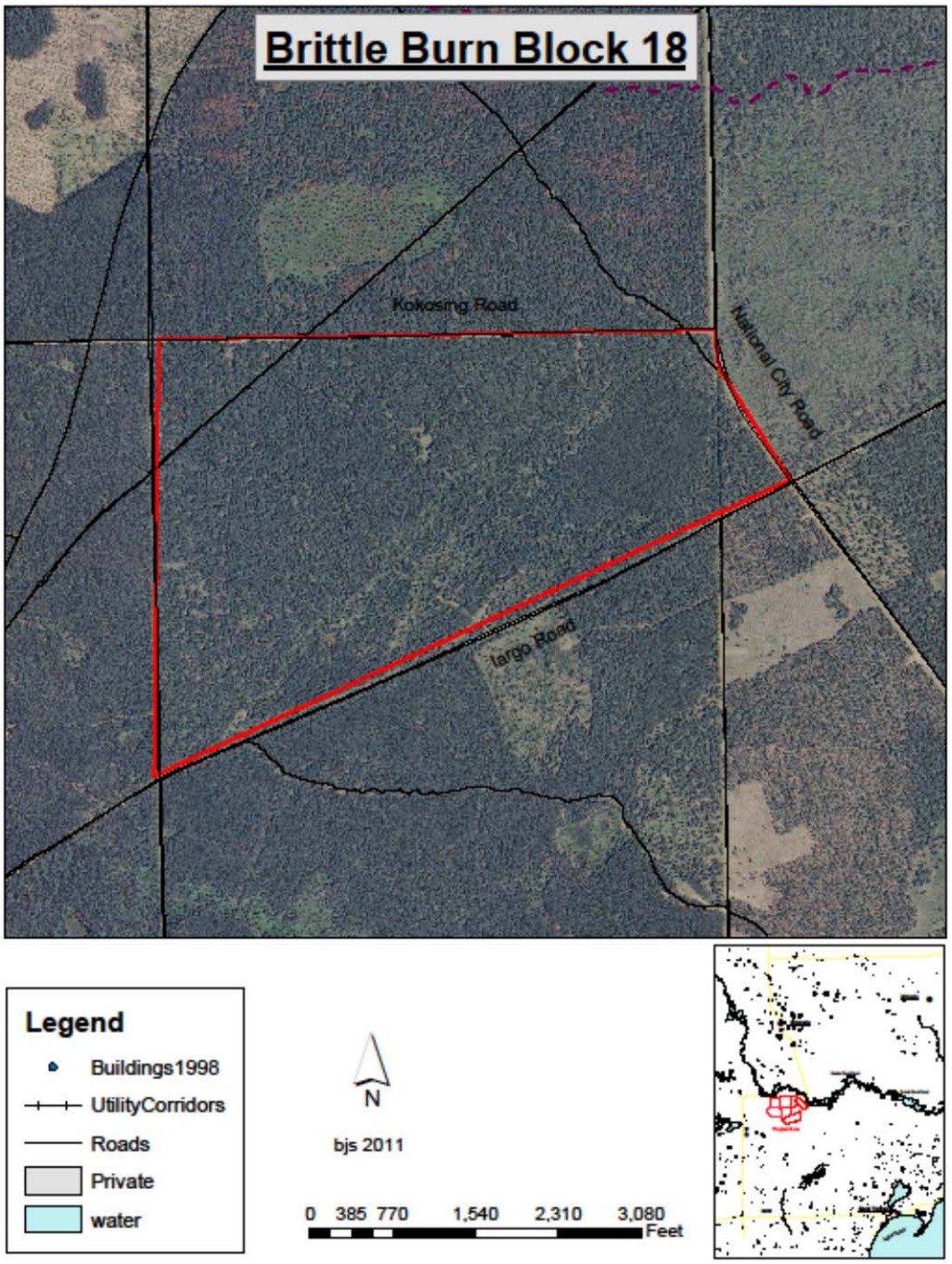
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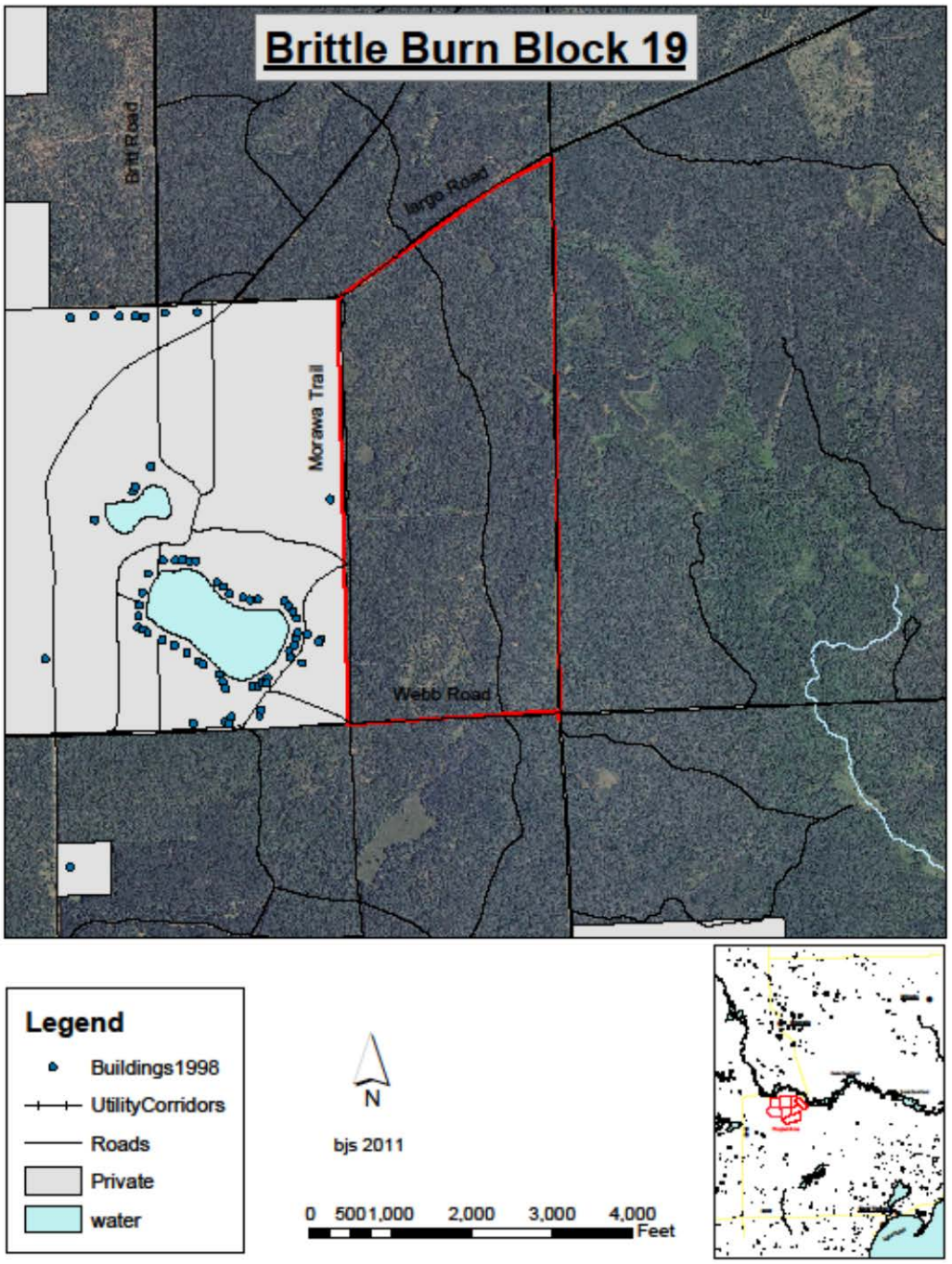
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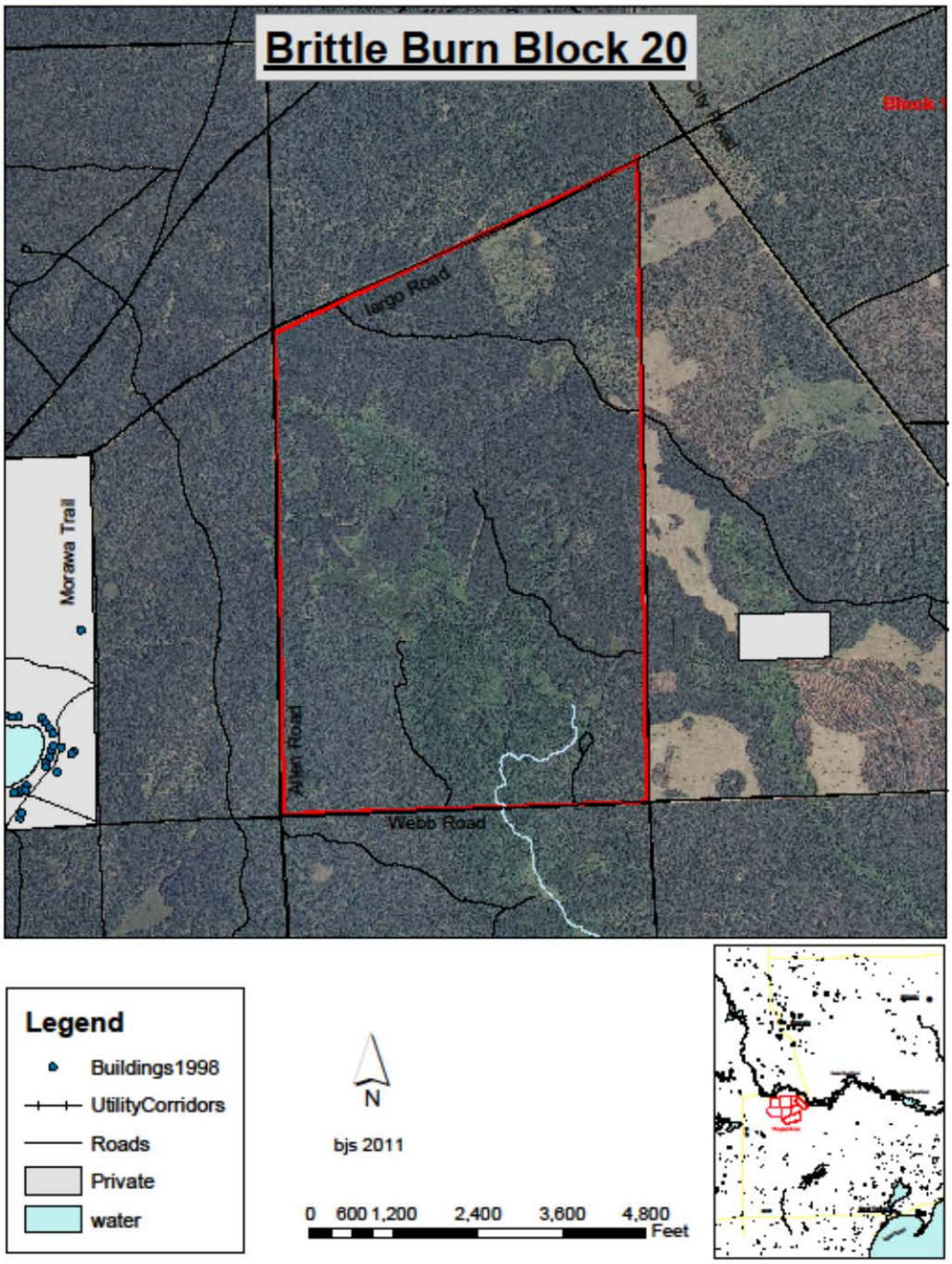
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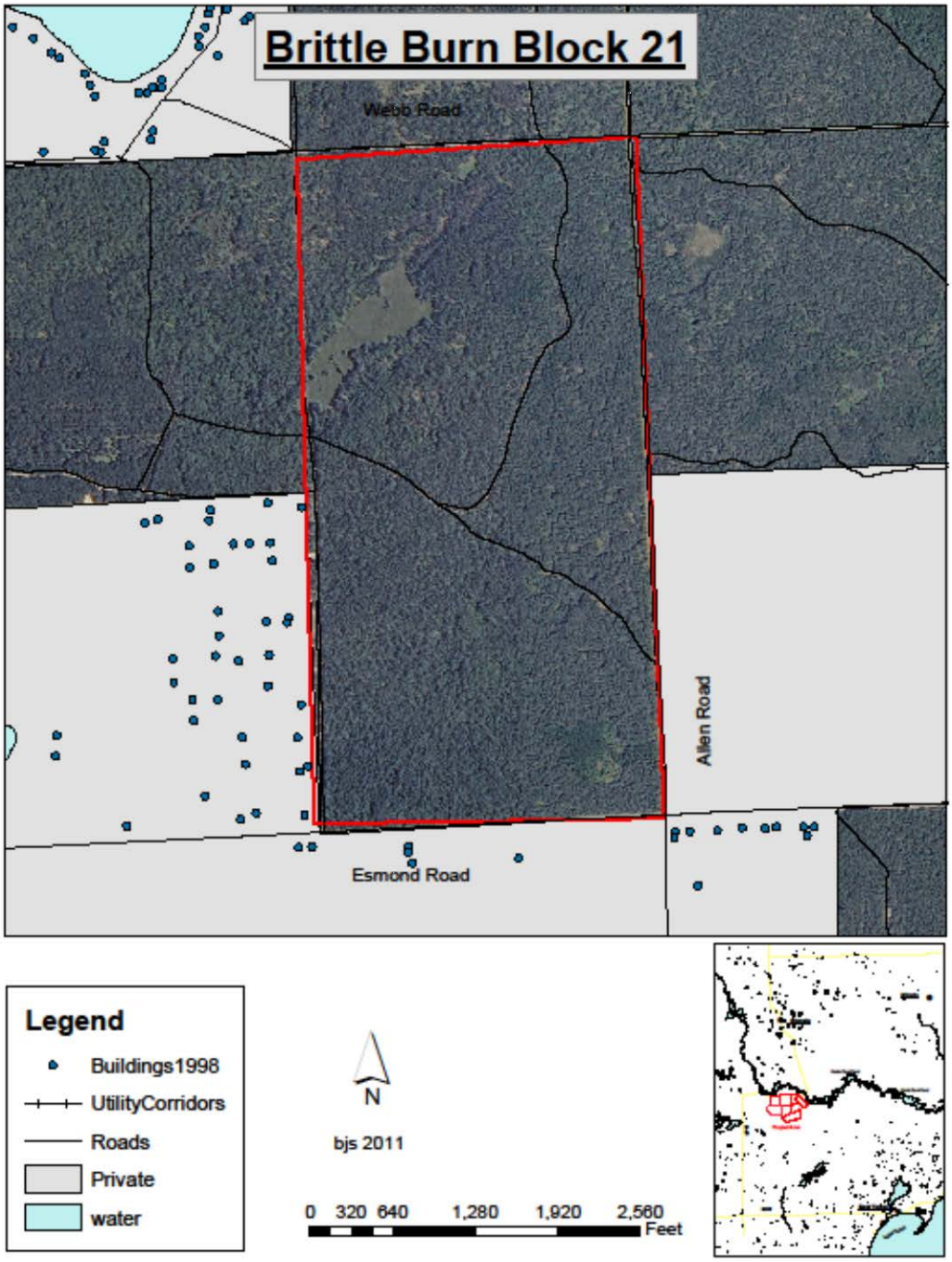
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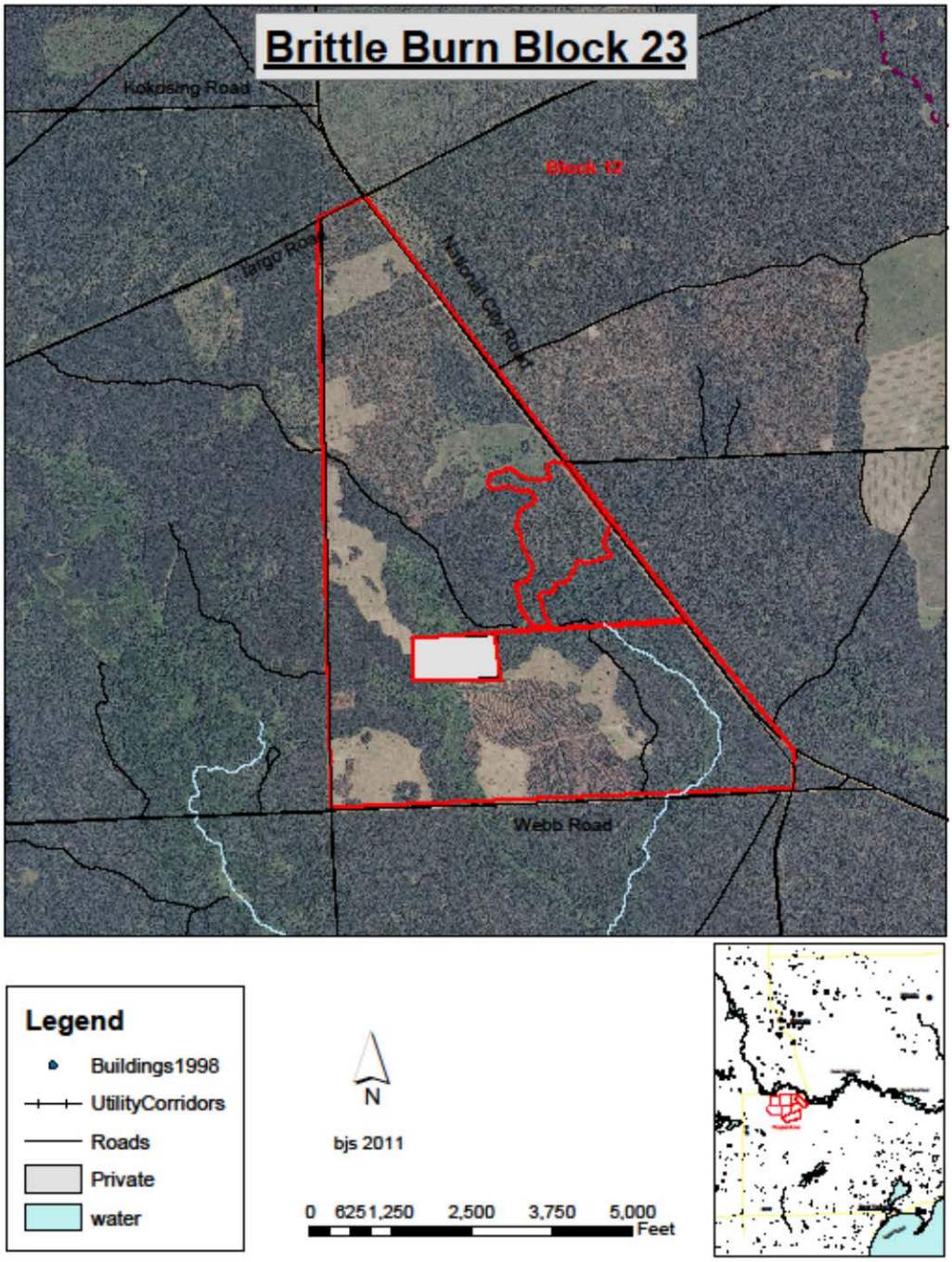
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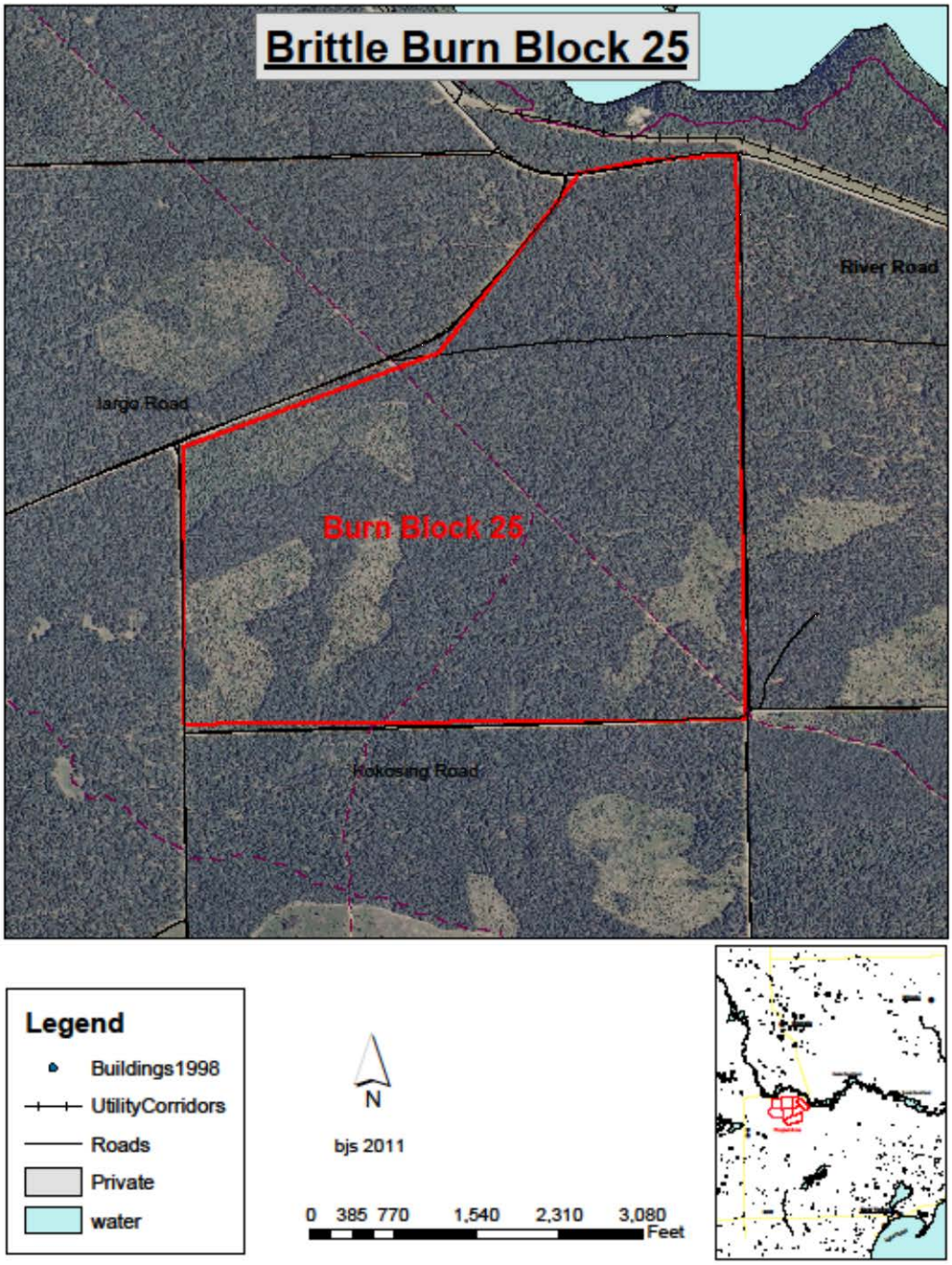
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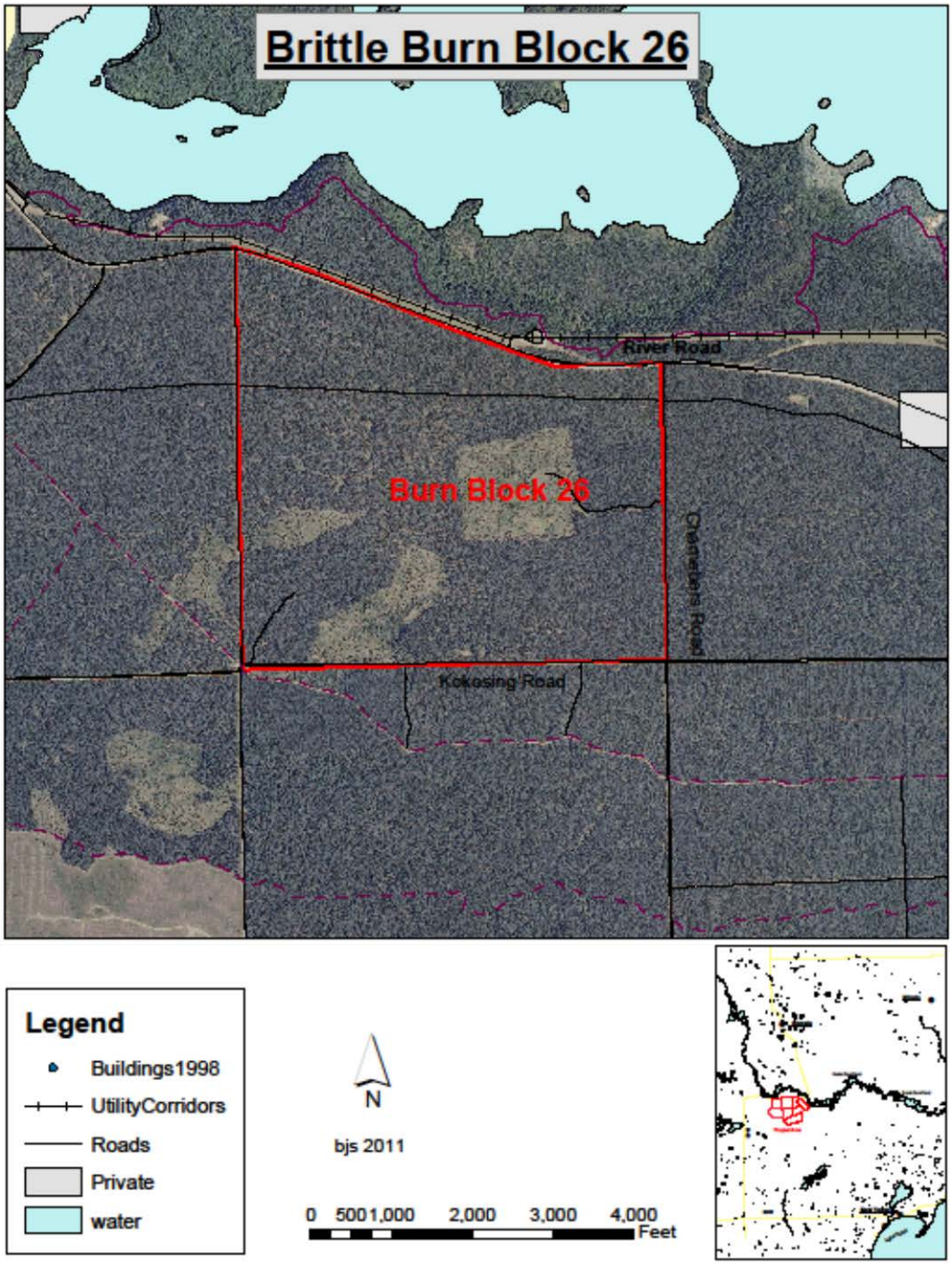
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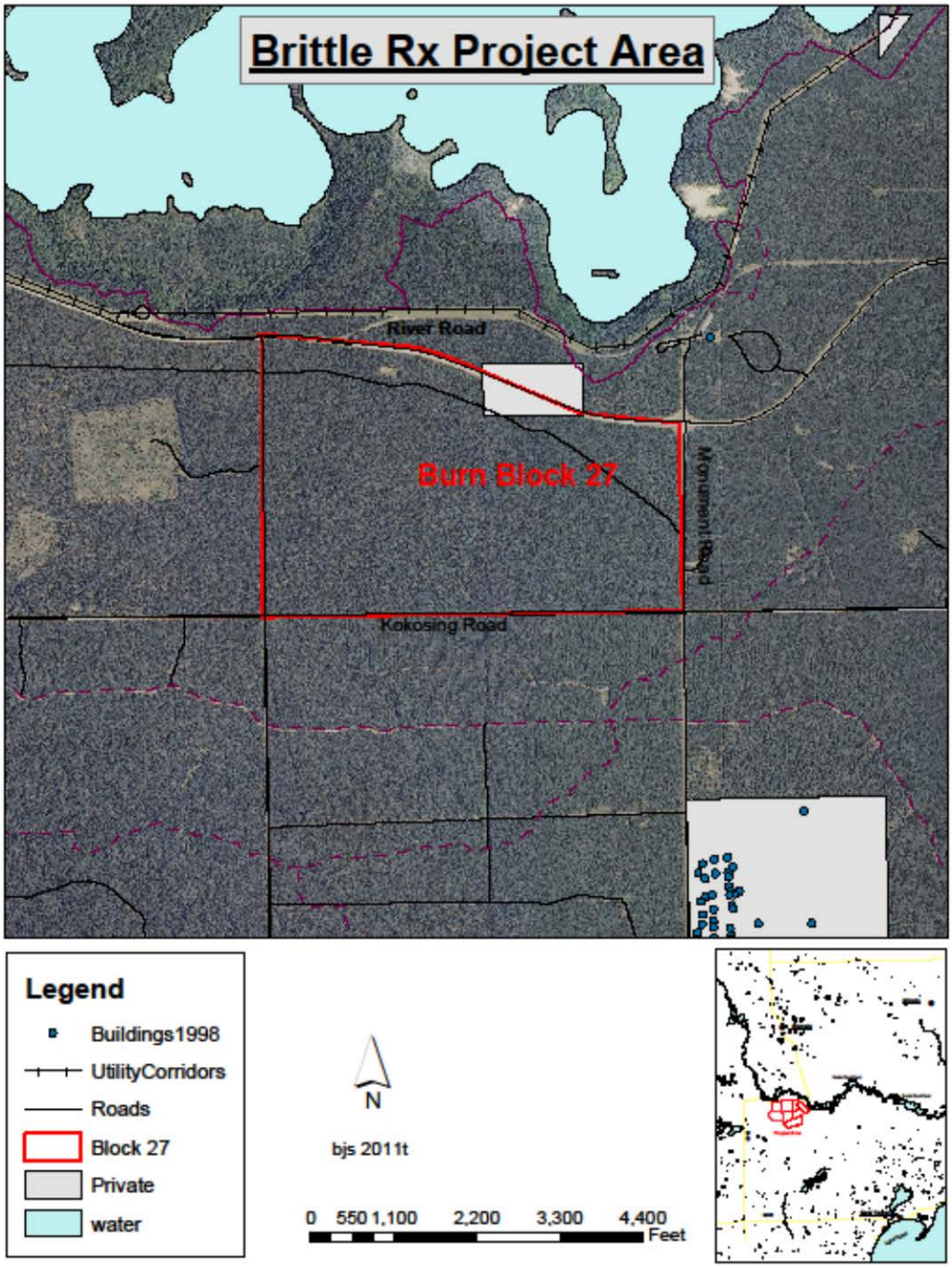
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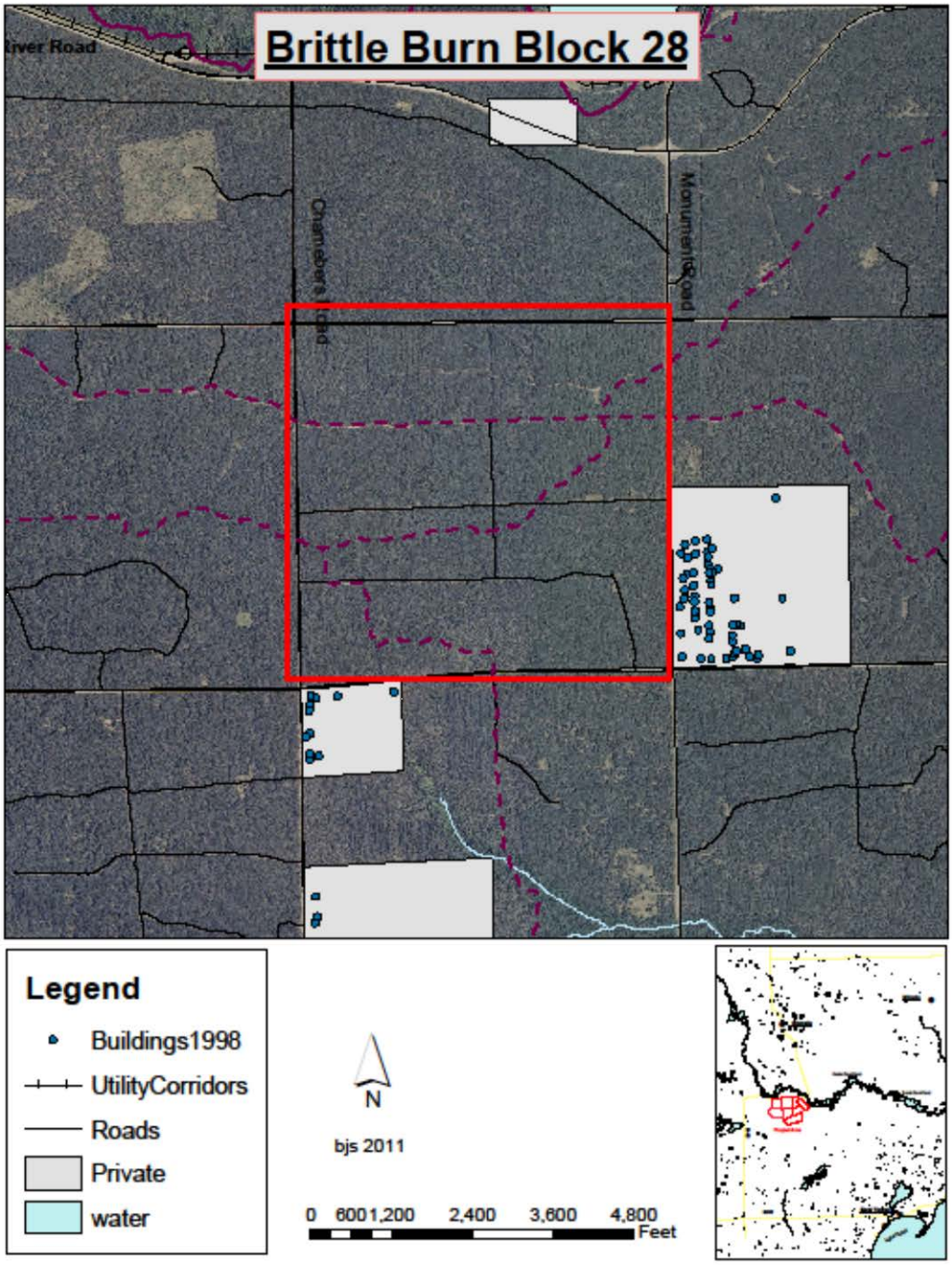
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Feet

Appendix A: Significant or Sensitive Features: (Optional) Maps

Insert your significant or sensitive feature map(s) here. Refer to Element 4D in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

Appendix A: Fuels or Fuel Model: (Optional) Maps

Insert your fuel or fuel model map(s) here. Refer to Element 4D in *the Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

Appendix A: Smoke Impact Areas: (Optional) Maps

Insert your significant or sensitive feature map(s) here. Refer to Element 4D in *the Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

Prescribed Fire Name: Brittle Landscape

Ignition Unit Name: Brittle Burn Blocks 1-12, 14-21, 23,25-28

Appendix B: Technical Reviewer Checklist

Fill out this checklist based on the guidance provided in the Technical Review section in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484.

Rate each element in the following table with an "S" for Satisfactory or "U" for Unsatisfactory. Use Comment field as needed to support the element rating.

PRESCRIBED FIRE PLAN ELEMENTS	RATING	COMMENTS
1. Signature page		
2. A. Agency Administrator Ignition Authorization, PMS 485		
2. B. Prescribed Fire GO/NO-GO Checklist, PMS 486		
3. Complexity Analysis Summary		
4. Description of Prescribed Fire Area		
5. Objectives		
6. Funding		
7. Prescription: Prescription Narrative and Prescription Parameters		
8. Scheduling		
9. Pre-Burn Considerations and Weather		
10. Briefing		
11. Organization and Equipment		
12. Communication		
13. Public and Personnel Safety, Medical		
14. Test Fire		
15. Ignition Plan		
16. Holding Plan		
17. Contingency Plan		
18. Wildfire Declaration		
19. Smoke Management and Air Quality		
20. Monitoring		
21. Post-Burn Activities		
Appendix A: Maps		
Appendix C: Complexity Analysis		
Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment		
Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation		
Appendix F: Smoke Management Plan and Smoke Modeling Documentation (Optional)		
Other		

☐ **Approval is recommended** subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

☐ **Recommendation for approval is not granted**. Prescribed fire plan should be re-submitted for technical review subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

Technical Reviewer Signature: _____ Qualification and Currency: _____

Date Signed: _____

Appendix C: Complexity Analysis

Prescribed Fire Complexity Rating System Guide Worksheet

Instructions: This worksheet is designed to used with the Prescribed Fire Complexity Rating descriptors on Page 6.

Project Name Brittle Landscape Prescribed Burn Number Block 1-12, 14-21, 23,25-28

1. Potential for Escape

Risk	**Rationale**
Preliminary Rating: ***Low X Moderate High***	The risk of escape is rated at a low due to the characteristics of the fuel along the perimeter of the project area. The fuels typically demonstrate low to moderate surface fires for the prescription that was developed for this burn plan. Firing methods will cause most firebrands to lift towards the center of the fire and thus minimize the risk of pushing firebrands over control lines. Lake effect winds can cause sudden unexpected wind shifts and should be anticipated during the planning of ignitions.
Final Rating: ***Low X Moderate High***	Adequate holding resources and the ease of mobility will allow spot fires to be detected and extinguished in a timely manner. The ignition methods that will be uses should minimize the fire behavior and spotting potential.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low Moderate X High***	Potential consequences would be rated at moderate due to the presence of private property adjacent to the project area. Burn blocks along the southern edge of the project area are adjacent to property under Forest Service administration, and any fire that becomes established across the control lines would not result in substantial damage to federal lands.
Final Rating: ***Low Moderate X High***	If fire were to spot across a control line onto private property then the potential consequences would be rated at moderate due to the additional political consequences of an escaped prescribed burn.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	The technical difficulty is rated low because of the fuel type and simple shape of the burn units. Using roads as control lines adds the benefit of faster reaction times by suppression equipment.
Final Rating: ***Low X Moderate High***	Technical skills needed to control any spot fires are straight forward and common knowledge among local resources. Fuel type transitions, changes, and mobility of ground forces to immediately control spot fires keep the total risk low.

2. The Number and Dependency of Activities

Risk	Rationale
Preliminary Rating: ***Low Moderate X High***	The burn blocks can be hand or aerial ignited, and coordination and communication between ignition crews and holding forces will be necessary throughout the duration of the burn to maintain a high level of safety. A moderate rating would be appropriate for aerial ignition due to the need to coordinate the black lining operation on the ground and the aerial ignitions.
Final Rating: ***Low X Moderate High***	If aerial ignition is used personnel and equipment will meet all qualifications and standards that are required by NWCG and Forest Service. Aerial ignition operations on the Huron National Forest could be described as moderate frequency Moderate risk activity.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low Moderate X High***	Coordination failure could result in the potential of escape, not meeting the objectives, failure to complete the project or potential safety problems. Use of proper communications needs to be assured by the burn boss.
Final Rating: ***Low Moderate X High***	Ensuring communication with dispatch prior to ignition and the communication plan that is outlined in the burn plan will mitigate most communication issues. Ensuring communication with any air resources being used on the burn is also important prior to ignition.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	Coordination of ignition will need to be made between the lighting and holding forces, Timing of this and other tasks are at the low skill level and can be handled within the skills of the local management team.
Final Rating: ***Low X Moderate High***	Communication can be split between the lighting and holding crews if the burn boss decides there is too much radio traffic on the tactical channel. This is also outlined in the burn plan.

3. Off-Site Values

Risk	Rationale
Preliminary Rating: ***Low Moderate X High***	The Brittle Landscape Project is adjacent to private property along numerous areas, and much of the private land has structures. For areas were the adjacent property is under Forest Service administration, the off-site values at risk would be the timber values.
Final Rating: ***Low X Moderate High***	The risk for fire to impact the private property is low due to the size of the control line between the burn block and the private property. The control line being used are Highways and two lane roads. The prescription is also constructed to minimize the possibility of smoke and unwanted fire in the areas of private property.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low Moderate X High***	The potential consequences for off -site values are moderate if it were to impact any of the private structures. The rest of the off- site values is property under Forest Service administration, and the potential consequences would be the loss of timber value.
Final Rating: ***Low Moderate X High***	The potential for the fire to cross the property line onto the private land is present, but can be mitigated with firing technique, control lines, and contingency lines.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	District personnel are familiar with this type of burn. No special management, high skill or high level team coordination is required.
Final Rating: ***Low X Moderate High***	No change.

4. On-Site Values

Risk	Rationale
Preliminary Rating: ***Low X Moderate High***	The onsite values are an ATV trail, shore-to-shore trail, bat boxes, Alleghany plum trees, timber and wildlife.
Final Rating: ***Low X Moderate High***	The fire may impact some signs and trail markers on the trail systems, but steps can be taken to minimize the impact to the signs prior to ignition. Protect known Alleghany plum stems from cutting and wet down/foam during burns. Coordination with the biologist prior to ignition is necessary to determine exact locations of this plant.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low X Moderate High***	The potential consequences for most of the values within the project area are beneficial to the on-site values.
Final Rating: ***Low X Moderate High***	If any of the signs on the trail systems are impacted they will be promptly replaced.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	There is no technical difficulty associated with any of the on-site values some measures may be taken to minimize the impact on bat boxes or trail signs and markers.
Final Rating: ***Low X Moderate High***	No change.

5. Fire Behavior

Risk	**Rationale**
Preliminary Rating: ***Low X Moderate High***	Fuels are relatively uniform and the fuel loading is light to moderate. The prescription is constructed to generate fire that should be primarily a surface fire, and any vertical development would be isolated to some torching of single small trees.
Final Rating: ***Low X Moderate High***	The potential for lake winds (from the east) in the afternoon off Lake Huron are a possibility and will be addressed in the briefing.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low Moderate X High***	During conditions when needle moisture is below 110% in red pine and jack pine extreme fire behavior is possible. Fire under these conditions can transition to the canopy and exhibit high rates of spread (over 1mile/hour) and flame lengths over 100 feet. Prescribe burning is typically conducted under conditions that would prevent such fire behavior.
Final Rating: ***Low X Moderate High***	Short grasses, needle cast, and blueberry are the primary fuel in the burn blocks, and the canopy provides partial cover for the wind. These conditions should create a relatively moderate rate of spread, and have a shorter burn duration. In areas with residual logging slash the fire intensity (heat per unit) will increase, but should still be considered moderate fire behavior.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	Standard fire safety precautions are adequate to ensure personnel safety. The anticipated fire behavior is such that holding forces can control any spot fires and slop-overs that may occur.
Final Rating: ***Low X Moderate High***	On –site fire behavior assessments or calculations are needed and can be a designated duty to personnel on the day of the burn.

6. Management Organization

Risk	Rationale
Preliminary Rating: ***Low X Moderate High***	The prescribed fire positions will be filled with qualified personnel. Trainees may be assigned to some positions under the direct supervision of a qualified individual. A single person may fill more than one management position if the burn blocks are being ignited from the ground. Two levels of supervision are needed when using aerial ignition.
Final Rating: ***Low X Moderate High***	No Change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low X Moderate High***	Problems related to supervision or communications are expected to be minimal.
Final Rating: ***Low X Moderate High***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	All of the qualified personnel are available within the local unit and are familiar with local factors affecting project implementation. Several qualified personnel are available to fill various positions. The burn boss may also act as the ignition boss and / or holding boss if the unit is being ignited from the ground.
Final Rating: ***Low X Moderate High***	No change.

7. Public and Political Interest

Risk	Rationale
Preliminary Rating: ***Low X Moderate High***	Most of the project has had little or no public or political controversy with this project. Two land owners along burn block 15 have expressed concerns about having a fuel break near their property and that it would adversely affect the aesthetics of the area.
Final Rating: ***Low X Moderate High***	No change.

Potential Consequences	Rationale
Preliminary Rating: ***Low Moderate X High***	Unexpected or adverse events would attract significant public, political, or media attention and would likely have an adverse impact on the prescribed burn program. An investigation would be very likely to follow. This was rated as moderate because of the escape of the Mack Lake fire in 1980.
Final Rating: ***Low Moderate X High***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	Requires no special fire information function. Routine media releases needed. No special notifications of the public are needed. The Michigan Department of Natural Resources, Iosco County dispatch, and The Forest Service Supervisors Office will be notified the day that the burn will be executed.
Final Rating: ***Low X Moderate High***	No Change.

8. Fire Treatment Objectives

Risk	Rationale
Preliminary Rating: ***Low X Moderate High***	The objectives are limited to easily achieved fuel reduction or ecosystem maintenance. Monitoring of the fire behavior and weather is needed to determine if prescribed fire objectives are being met.
Final Rating: ***Low X Moderate High***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low X Moderate High***	One of the main objectives is to reduce the fuel loading. Failure to meet objectives wouldn't have an adverse impact on natural resources, but could incur extra costs in the future.
Final Rating: ***Low X Moderate High***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	Measures to achieve the objectives are easy to complete and there are few or no restrictions on techniques. Limited pre-burn monitoring is needed to determine if the unit is in prescription.
Final Rating: ***Low X Moderate High***	No change.

9. Constraints

Risk	Rationale
Preliminary Rating: ***Low X Moderate High***	Temporary re-routes would be designated for affected portions of the Shore-to-Shore Trail, the Snowmobile Trail and the Huron ATV Trail during prescribed burning activities. Protect known Alleghany plum stems from cutting and wet down/foam during burns. Coordination with the biologist prior to ignition is necessary to determine exact locations of this plant. Prescribed burns would not be conducted under a wind direction that would produce smoke that would be a hazard to navigation on heavily used travel corridors.
Final Rating: ***Low X Moderate High***	A high wildfire load, drought, above precipitation, or stagnant weather patterns outside the suggested burn parameters may cause postponement and/or cancellation of the project. Some constraints exist for aircraft pilot duty hours.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low X Moderate High***	Trail markers or signs may be damaged or destroyed. Some burn windows may be unavailable due to the constraints of the Forest 12 hour work rule. This may result in the project being implemented under less than optimal conditions.
Final Rating: ***Low X Moderate High***	If any of the signs on the trail systems are impacted they will be promptly replaced. Personnel may be asked to report to work at a later time so that the burn can be completed during more optimal conditions.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	The constraints of the 12 hour work day moderately increase the difficulty of completing the project during optimal burning condition. Many of the best burn windows on the district are during times when the area has a high wildfire load. This should be considered by the burn boss prior to ignitions.
Final Rating: ***Low X Moderate High***	No change.

10.Safety

Risk	Rationale
Preliminary Rating: ***Low Moderate X High***	Safety issues are easily identifiable and mitigated. Potential hazards are typical and easily addressed in briefings. There is potential for adverse smoke impacts to River Road and Highway M-65 (located north of the project area). If smoke impacts the roads and causes an injury or death, then the burn program could face severe consequences.
Final Rating: ***Low X Moderate High***	Prescribed burns would not be conducted under a wind direction that would produce smoke that would be a hazard to navigation on heavily used travel corridors. The activities that take place on a prescribed burn for this district can be characterized as high frequency/low risk.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low X Moderate High***	Minimal potential for serious accidents/injuries to firefighters or the public if the burn is not executed with a north wind. If smoke did impact River Road, there is a possibility for a serious accident or injury.
Final Rating: ***Low X Moderate High***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	Safety concerns can be easily mitigated through LCES. A standard safety briefing using the outline in the Incident Response Pocket Guide (IRPG) as part of the project briefing should be sufficient to cover the safety concerns. No special mitigations to protect public health and safety are needed.
Final Rating: ***Low X Moderate High***	Smoke concerns can be mitigated with the use of “smoke signs” and road guards.

11. Ignition Procedures/Methods

Risk	Rationale
Preliminary Rating: ***Low Moderate X High***	The firing method for this unit can be hand ignition or aerial ignition. Sequence and timing of the burn unit will be non-complex and multiple firing techniques including head strip, spotting, flanking, and backing fire or a combination of all, may be used to ignite the unit. If aerial ignition is used then coordination between the helicopter and the ground ignition personnel is critical. The real concern lies with the safety of the ignition crews if a wind shift occurs. Therefore egress will be a primary safety consideration for the igniters if a wind shift materializes.
Final Rating: ***Low X Moderate High***	If holding forces encounter increased spotting, torching or increased fire behavior is observed, ignition tactics will be modified to produce minimal fire behavior. If wind shift occurs during aerial ignitions, then the helicopter can be used to help minimize fire intensity with aerial ignition.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low Moderate X High***	Firing methods and procedures must be coordinated to provide for adequate safety, meet project objectives, and reduce the risk of an unexpected or adverse event. Opportunities for remedial actions or corrections are available in the event of problems.
Final Rating: ***Low Moderate X High***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low Moderate X High***	The need for special firing equipment, techniques or patterns has been identified. Firing procedures are simple and the ignition team(s) is small. The use of different types of firing devices may be used based on what the burn boss considers appropriate. The combination of ignition patterns between air and ground resources will need to be coordinated by the supervisors.
Final Rating: ***Low Moderate X High***	No change.

12. Interagency Coordination

Risk	Rationale
Preliminary Rating: ***Low X Moderate High***	The project does not involve another land management agency or jurisdiction. No concerns or issues associated with interagency partners have been identified for this project. The state and county officials will be notified of the burn prior to ignition.
Final Rating: ***Low X Moderate High***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low X Moderate High***	There are no interagency issues, or special agreements.
Final Rating: ***Low X Moderate High***	Project can be completed as planned.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	A special agreement would be needed to burn the property owned by consumers energy in burn block 27 or the property would need to be excluded. Interagency resources are only available to help on this burn if funded by their own organization.
Final Rating: ***Low X Moderate High***	A dialog has already been established in regards to burning the property owned by consumers energy, and should not have any difficulties.

13. Project Logistics

Risk	Rationale
Preliminary Rating: ***Low X Moderate High***	The project requires minimal logistical support with no specific logistic functions assigned. Good communications are needed. Project duration is expected to be 2 days or less per burn block.
Final Rating: ***Low X Moderate High***	No change.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low X Moderate High***	Problems related to logistics will not increase the risk of escape, affect the completion of the project or create a safety concern.
Final Rating: ***Low X Moderate High***	No change.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	No special logistical support issues. Supervisors handle their own needs. Supplies and personnel are readily available and easy to obtain.
Final Rating: ***Low X Moderate High***	Logistical needs for the air resources are provided by the helitac crew and contractor.

14. Smoke Management

Risk	Rationale
Preliminary Rating: ***Low Moderate X High***	The main concern for smoke related problems is negative impacts to adjacent roads especially M-65 & River Road. Negative smoke impact to the residential areas located adjacent to the project area is another concern. The risk of impacting these smoke sensitive areas is low due to the use of predictive services and on-site weather observation to determine were the smoke will go.
Final Rating: ***Low Moderate X High***	Some of the smoke sensitive areas that have been identified along the river are located at lower elevations than the project area. This could impact areas along the river with smoke settling into smoke sensitive areas at night. The burn boss should review the predicted night time vent rates and wind directions.
Potential Consequences	**Rationale**
Preliminary Rating: ***Low X Moderate High***	Impacts to residences or other facilities may occur, but should be minimal, and short term. Firefighter exposure to smoke is expected to be minimal and not cause health or safety concerns.
Final Rating: ***Low Moderate X High***	The potential consequences will be rated as a moderate because of the possibility for smoke impact on the highway to cause an accident. River Road & Highway M-65 are adjacent to the project area. Both roads could be impacted by smoke. If this occurs then "smoke warning" signs will be placed on the road. Law enforcement may also be requested to help with smoke impacted roads if necessary. The smoke impact on the highway east of the unit can be mitigated with a good ventilation rate and proper ignition techniques.
Technical Difficulty	**Rationale**
Preliminary Rating: ***Low X Moderate High***	Prescribed burns would not be conducted under a wind direction that would produce smoke that would be a hazard to navigation on heavily used travel corridors. For more specific information see the smoke management plan.
Final Rating: ***Low X Moderate High***	No change.

Prescribed Fire Name: Brittle Landscape

Ignition Unit Name: Brittle Burn Blocks 1-12, 14-21, 23,25-28

Prescribed Fire Complexity Rating System Summery

This is a summary of the Prescribed Fire Complexity Rating Guide Worksheet.

Project Name Brittle Landscape Prescribed Burn Number Block 1-12, 14-21, 23,25-28

COMPLEXITY RATING SUMMARY

RISK	OVERALL RATING	LOW
POTENTIAL CONSEQUENCES	OVERALL RATING	MODERATE
TECHNICAL DIFFICULTY	OVERALL RATING	MODERATE
SUMMARY COMPLEXITY RATING		MODERATE

RATIONALE: This prescribed burn rates as a MODERATE complexity due to the overall rating of this project, the possibility of aerial ignition, and the proximity to urban interface.

Prepared by: Brian Stearns Date: 11/10/14

Approved by: _____ Date: _____
(Agency Administrator)

Appendix D: Agency-Specific Job Hazard Analysis or Risk Assessment

Please refer to your specific agency guidance to fill out this appendix.

Appendix E: Fire Behavior Modeling Documentation or Empirical Documentation

Refer to Element 7: Prescription, *in the Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484, to fill out this appendix.

Appendix F: Smoke Management Plan and Smoke Modeling Documentation

(OPTIONAL)

Refer to the *Smoke Management Guide for Prescribed and Wildland Fire* (National Wildfire Coordinating Group, 2001) and Appendix B. Basic Smoke Management Practices in the *Interagency Prescribed Fire Planning and Implementation Procedures Guide*, PMS 484 to fill out this appendix.