BRADY & ASSOCIATES FORESTRY SERVICES

Buyers & Managers of Forest Products & Forest Lands

Management Plans • Timber & Land Appraisals • Timber Sales • Timber Marking
Damage Estimates • Forest Taxation • Forest Mapping • Wetlands Delineation • Stewardship Plans

Letter of Transmittal

July 28, 2003

Moore Soil and Water Conservation District
Mr. Kevin Williams, District Conservationist
707 Pinehurst Avenue
Post Office Box 908
Carthage, North Carolina 28327

Ref: J. Wimberly Prescribed Burn Plan

Dear Mr. Williams;

Please find enclosed material pertaining to a Prescribed Burn Plan written for Mr. Jesse Wimberly, West End, North Carolina. This plan was written to create a prescribed fire regime lasting 10 (ten) years. The tract was divided in half and burn blocks (units) were drawn for each one. Each block will receive 4 (four) burns during this period. These will all be growing season fires (April/May).

If I may be of further service, please do not hesitate to call.

Sincerely,

Harold R. Brady, R.F.
Consulting Forester

HAROLD R. BRADY, R.F.
N.C. REG. #1100
S.C. REG. #1476
P.O. Box 1673
Southern Pines, NC 28388
(910) 692-6347

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July 26, 2003

PRESCRIBED BURN PLAN

State: North Carolina
County: Moore
Site: Wimberly Tract
Burn: Units 1 and 2
Target Burn Window: April / May 2004 - 2014

Fire Plan drafted by:
Name: Harold R. Brady, R.F.
Title: Consulting Forester
Burner # NCDFR - 309

Fire Manager:
Name: Jesse Wimberly
Title: Landowner / Ecologist

HAROLD R. BRADY, R.F.
N.C. REG. #1100
S.C. REG. #1476
P.O. Box 1673
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TABLE OF CONTENTS

1. GENERAL INFORMATION

Location

Ownership: J. Wimberly
Size (acres): 55 +/-
County: Moore
Location in relation to roads, towns,etc: End of Speight (Soil Road) ¼ mile west of S.R. 1004

Block/Square/Point 114-7-22 NC

Fuels

Fuel type(s): Mixed hardwood /Pine litter
Model(s): 7,9
Avail. Fuel load (tons/acre): 2.5-3
Soils: sand
Last burned: Part of unit burned 3/2003 with a prescribed burn

Type of Burn

Ecological Management

Burn Unit Management Goal(s)

Return natural fire frequency to the area. Open up the mid-story to encourage Groundcover growth and site prep for natural longleaf pine regeneration on site.

Specific Burn Objective(s)

1. Reduce slash on site by 80 to 100%
2. Kill unwanted Hardwoods
3. Prepare site for natural regeneration of Longleaf Pines
4. **Planned burn dates**: **Burn Block I**.....March 24 to May 16, 2004
   March 24 to May 16,2007
   March 24 to May 16, 2010
   March 24 to May 16, 2013.
   Burn Block 2.....March 24 to May 16, 2005
   March 24 to May 16, 2008
   March 24 to May 16, 2011
   March 24 to May 16, 2014.

Permits/Notification Required

A. PERMITS

Burn permit from NC Division of Forest Resources: Chris Morris, Moore County Ranger.

Air quality permit: _____YES __X__NO Contract:

On-site call-back number: Jesse Wimberly (910) 673-2826

B. NOTIFICATIONS NEEDED:

1. In advance: Local newspaper legal notices
2. On day of burn: DFR/NC: (910) 235-0216

Emergency Assistance
Fire: 911 or DFR frequency

2. UNIT DESCRIPTION

Shape: Rectangular shaped tract of forest-land running roughly north to south. There are two forest management (FM) types on this property. One being an upland site dominated by Longleaf Pine, Loblolly Pine, and various Sandhill type hardwoods. The other forest type is hardwood bottoms/wetlands following streams on property.
Topography/elevation: Rolling typical Sandhill slopes.
Overstory species: FM I, Longleaf Pine, Loblolly Pine, various hardwoods.
FM 2, various swamp hardwoods.
Understory species: Various hardwood species predominately Turkey oak along with Loblolly Pine seeding into the unit from adjacent ownership's.
Ground cover: Wiregrass/various forbs.

Vegetation Community Type	Fuel Model	% of Unit	Slope/ Aspect	Canopy Height	%Canopy Cover
Bottomland hardwoods	7	40	2%/12%	40-60 ft.	90
Mixed hardwood/pine litter	9	60	2%/12%	40-50 ft.	40

Rare Species or Species of Special Concern

Rare Species/ Elements	Rank	Location/Distribution	Sensitive Period?	Comments
See Moore County List Attached				

Fire Breaks (see burn unit map)

Immediate Surroundings of Unit (see unit location and contingency maps).

Woodlands of the same type surround the tract.
Several residences are located to the north east of this site.

Hazards/Risks/Sensitive Areas (see contingency map)

Inside unit: Wimberly home in Northeast quadrant, watch for smoke or spot over problems.

Adjacent: Since this site is surrounded by woodlands, all fire lines should be monitored closely.

3. PREBURN PLANNING

Site Preparation

A. Day(s) before the burn

1. Clear all fire lines for ease of access.
2. Prepare any utility poles within unit.

B. Day of burn

1. Set up site for equipment and water supply.
2. Check cleared lines and touch up if needed.

Contracts/Permission Needed (neighbors, owners)

Adjacent landowners

4. SMOKE MANAGEMENT

Smoke Sensitive Areas (SSAs)

1. Closest SSA: Structures to the North and East of unit.
2. SSA of highest concern: Structures to the North and East and SR 1004.
3. Down-wind: Woodland

4. Down-drainage: Small streams/branches are not expected to be affected based on the size of the unit and the fuels.

Smoke Management Objectives

1. Comply with air pollution control regulations for North Caroline.
2. Prevent smoke from affecting SSAs.
3. Halt smoke production within 24 hours of initial burn ignition.

Smoke Management Actions

1. Direct smoke away from SSAs:
   a. Conduct burn on acceptable burn category days.
   b. Burn with a **northeast** wind.

2. Cease all burning at least 1 hour before sunset to minimize the possibility of smoke settling (unless night-time smoke dispersal is category 4 or 5 and no highway close by).

3. Conduct prompt mop-up of residual smoking large woody materials.

4. If burning next to a highway/railroad:

   a. Do not burn if winds are predicted to put smoke across highway/railroad.
   b. If winds should shift during the burn and put smoke toward the highway/railroad.

      - Monitor visibility on highway/railroad (check table: 2-lane highway:2 x MAV at 65 mph = 1017 ft).
      - If conditions change during the burn and smoke impairs visibility on highway, have crew direct traffic and either extinguish fire, or speed up burn-out. Request NCDOT to place of smoke warning sighs along highways if needed. For smoke on railroad, contract railroad.

5. WEATHER, FUEL, AND FIRE BEHAVIOR

1. Weather

Required Parameters	Range
Relative Humidity	30-80%
Midflame Wind Speed (on site)	2-7 avg. mph
Prohibitive Wind Direction	West
Burn Category	>3

Guidance Parameters	Range
Temperature	50 to 90 F
20-ft Wind Speed (forecast)	5 – 12 mph
Preferred Wind Direction	NE
1-hr Fuel Moisture	table: 7 – 14
10-hr Fuel Moisture	table: 8 – 11
Live Fuel Moisture	90 – 300%
Minimum Days Since Rain	7
KBDI	<400

2. **Acceptable/Predicted Fire Behavior**

Parameter	Fuel Model 7	Fuel Model 9	Fuel
Headfire Flame Length	2 - 6	1 – 5	
Backfire Flame Length	1 - 2	1 – 2	
Headfire Rate of Spread	17 – 130	2 – 21	
Backfire Rate of Spread	2 – 6	1 – 2	
Scorch Height (ft)	NA	5 – 20	
Max. Spotting distance	.1	.1	

6. EQUIPMENT

Item	Required	Suggested	Location		Comment
			Crew 1.	Crew 2.	
a. Water handling					
Gator (65 gals)	1		1 Patrol		
Hoses:					
1 inch	600		600		
Nozzles	4		4		
Hose Clamps	1		1		
Fold-a tank					
Wyes/Ts	1		1		
Pump: Wick/Homelite/Honda					
b. Ignition					
Torches	2		2		
Fuses					
AID, slingshot, Antifreeze,injector					
c. Hand tools					
Flapper	2		2		
Fire rake	3		3		
Fire shovel	3		3		
Pulaski	2		2		
d. Power tools					
Chain saw	1		1		
Leaf blower	1		1		
e. Weather					
Weather kit	1		1		
Protimeter/	1		1		
FM sticks + scale					
f. Emergency					
First aid	1		1		
Smoke warning signs	2		2		Speight Rd.
Other					
ATV: Honda/Other	1		1		Patrol, fire leader
Trailer/water tank					

7. LOGISTICS

1. Personnel

Qualified Fire Leaders:NCDFR-certified Burner
Crew Size: 2 – 3
Crew Organization Chart (select one from below):

(fill in names before burn)

Prescribed Burn Boss _____.
Fire Behavior/Weather Observer _____.

Crew Function	_____	_____	_____
Crew Boss	_____	_____	_____
Crew	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

Equipment

_____	_____	_____
_____	_____	_____

2. Required Standard Crew Outfit

Complete Nomex clothing
Hard hat with goggles or shield, and Nomex veil
All-leather boots
Leather gloves
Matches or lighter
Map of unit
Fire shelter
Canteen(s)

8. OPERATIONS

1. Ignition

A test fire will be ignited at or near the downwind corner of the unit in representative fuels. If the fire behavior does not fall within prescription, it should b e extinguished as soon as possible. At least a 40 X 30-ft. section should burn out as a test fire before the fire leader decides whether to proceed with the burn. Fire crew members will work in opposite directions igniting and securing the fire lines with backing fires. The interior of the unit will be ignited using spots spaced approximately a chain apart, this will be adjusted according to conditions on the burn day.

2. Holding

The Gator will be used to patrol all lines and will be available for additional holding if required.

3. Contingencies

All spot fires will be fought aggressively and suppressed. In the event that a spot fire cannot be suppressed:

a) A fire line surrounding the forested block to the SW of the unit can be used as fall back line for an indirect attack in the unlikely case that spot overs cannot be stopped in this block.

b) Escapes threatening residential structure(s): respond with as many crew members as available. Local fire department called in immediately.

c) Escapes threatening timber lands near site: Nearest available crew will respond. If unable to control break-out quickly, DFR called in with appropriate suppression equipment.

d) Power pole protection measures inadequate: Closely monitor to prevent fire damage to poles. Adjust ignition methods to reduce fire intensity near power poles. If unable to manage fire behavior so that damage to poles is prevented, cease ignition and shut down burn.

e) Smoke on roadway(s): Closely ;monitor smoke on nearby roadways, especially SR 1004. If smoke begins to impair driver visibility, cease ignition immediately and hold until weather improves. If weather conditions do not improve within time frame of burn objective, begin mop-up.

4. Water Management

a. Engine access: Use Spaight Road.
b. Drafting: hydrant along SR 1004.

5. Communications

The fire leader will have a cellular phone. Any spot fires detected by crew will be reported immediately.

6. Mop-Up

A. No smoke management concerns

All flames and smoldering logs will be extinguished within 50 feet of the fire break before leaving the site. Any standing snags that have caught fire and may fall across the fire break or throw embers across the fire line will also be extinguished before the crew leaves the fire. The unit needs to be checked the next day (and following days if needed) for any potential of escapes and areas that might reburn until all fires are extinguished. From an ecological perspective, it may be desirable to leave as many snags standing or logs on the ground.

B. With smoke management concern

All burning and smoldering logs will be extinguished before leaving the site. Should significant smoke production still occur 45 minutes before nightfall, smoke warning signs will be put on highways and at least one smoke monitor will remain on site until all fires are out.

7. Follow-Up Assignments

Check unit for burning stumps next day by the fire crew.
Post-burn evaluations: (immediate) who/when: Fire Crew
(Long-term) who/when: Staff

8. Estimated Duration

Fire line preparation ahead of burn day:	6 hours
Line prep. on burn day:	1 hour
Actual burn:	3 hours
Mop-up:	2 hours
Post-burn evaluation	1 hour
Total:	7 hours

PRE-BURN CHECKLIST AND CREW BRIEFING

Preserve: **Fire Unit:** **Date:**

A. PRIOR TO CREW BRIEFING

___ Fire Unit is as described in plan.
___ Required firebreaks complete.
___ Permits obtained. Give permit #'s.
___ Official and neighbor notifications complete.
___ Required equipment is on-site and functioning.
___ Planned ignition and containment methods are appropriate.
___ List of emergency phone numbers are in each vehicle.
___ Planned contingencies and mop-up are appropriate.

B. CREW BRIEFING

___ Each crew member has a burn unit map.
___ Fire Unit size and boundaries discussed.
___ Fire Unit hazards discussed.
___ Purpose of burn.
___ Anticipated fire and smoke behavior.
___ Review of equipment and troubleshooting.
___ Check crew qualifications.
___ Review organization of crew and assignments.
___ Review methods of ignition, holding, mop-up, communications.
___ Review contract with the public; traffic concerns.
___ Location of vehicles, keys, and nearest phone.
___ Location of back-up equipment, supplies, and water.
___ Review all contingencies including escape routes.
___ Review mop-up procedures.
___ Answer questions from crew.
___ Give crew members the opportunity to decline participation.

C. PRIOR TO IGNITION

___ Weather and fuel conditions are within prescriptions.
___ Weather forecast, obtained within two hours of ignition, says prescribed weather will hold for two hours past expected duration of burn.
___ Crew members have required protective clothing.
___ Crew members have matches.
___ Conduct test burn.

D. BEFOE LEAVING BURN UNIT

___ Mop-up completed as described in prescription.
___ Next morning inspection arranged.
___ Notifications of completed burn (if required).

E. NOTE ANY MODIFICATIONS TO RX

Fire Leader: Date:

ATTACHMENT B: SUMMARY REPORT OF FIRE BEHAVIOR OBSERVER

Site/Unit_____ Date of Burn:_____

1. **Weather forcast (day of burn):**_____
   Source:_____

   Forecast Temp (max)_____RH (min)_____Wind (sp/dir)_____
   Mixing ht_____Transport Winds (sp/dir)_____

   Narrative:

Nighttime conditions: T_____ RH_____ wind_____
Chance of rain_____

Next-day forecast:

Next rain forecast for: _____

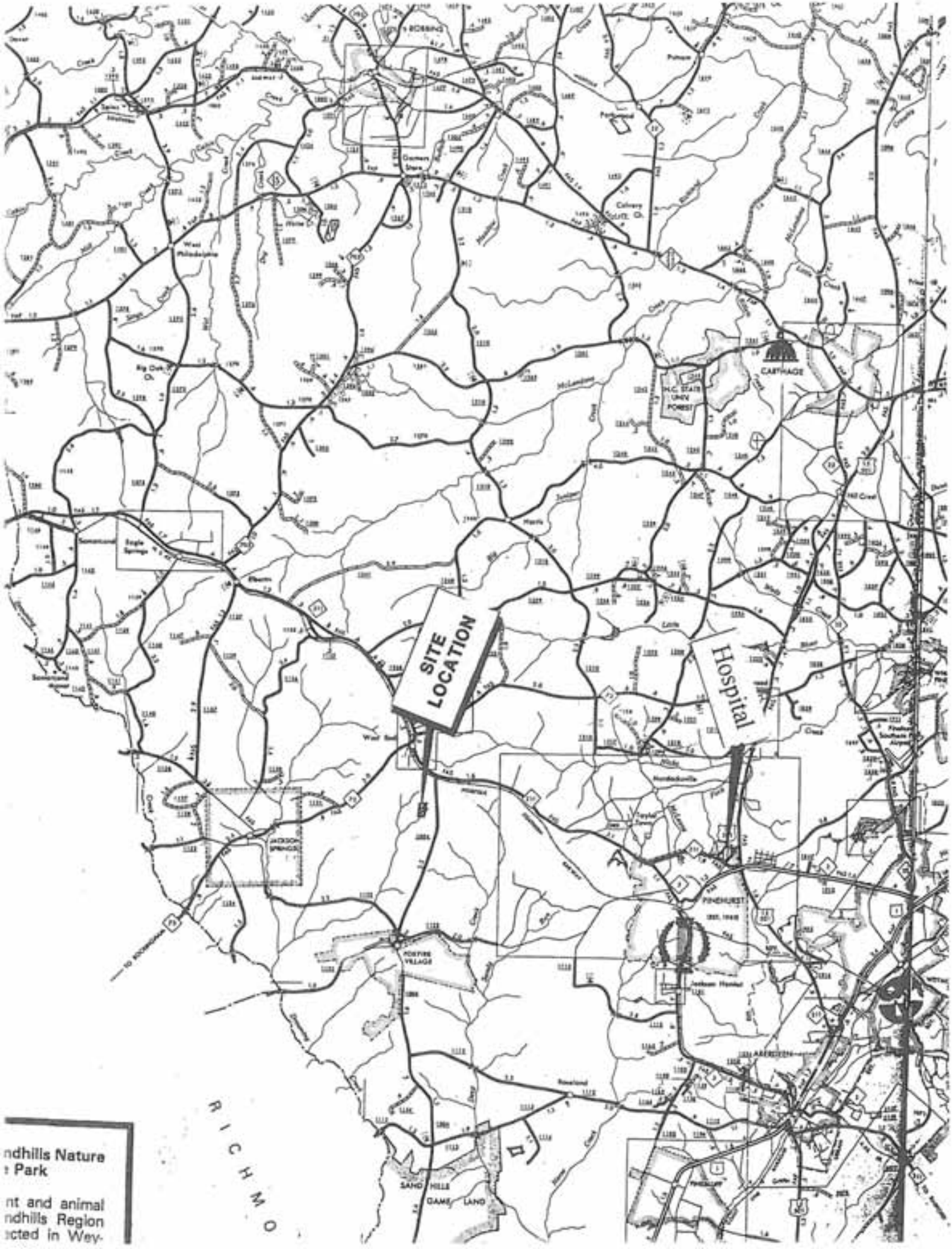
2. **Special Instructions** (watch for)
   Sea breeze_____ Thunderstorms_____ Front approaching_____

3. **Observed On-site Weather:**

Period	Time	Temp (dry bulb)	RH	Wind speed/dir	HF FL in ft./min.	BF FL in ft./min	HF FL in ft./min	BF FL in ft./min
Before burn								
Test burn								
Mid-burn								
End								

Fuel moisture: _____1-hr based on:_____estimate _____table
_____10-hr based on:_____protimeter_____fuel moisture sticks

Additional comments:

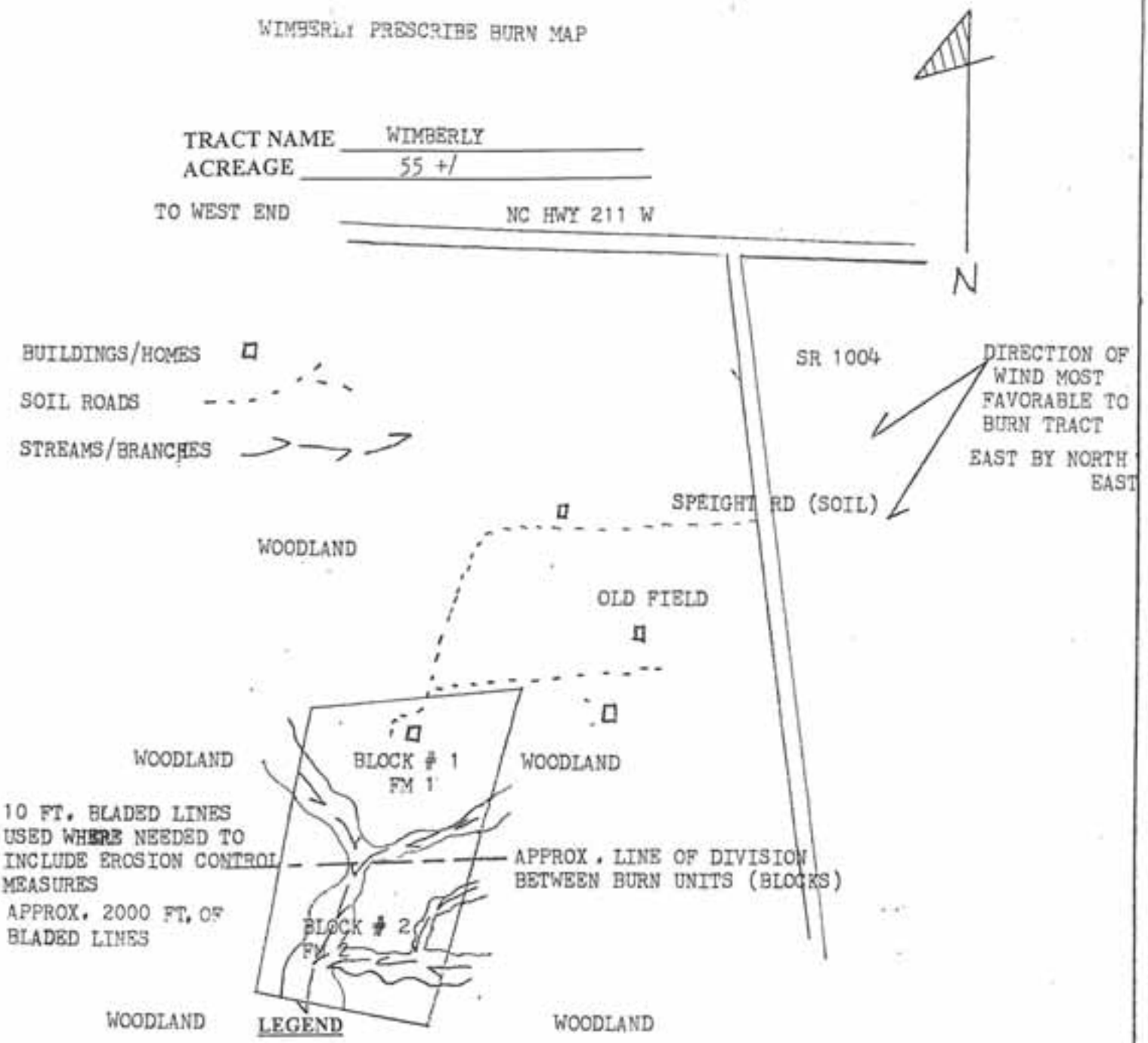


ndhills Nature
Park

nt and animal
ndhills Region
cted in Wey-

WIMBERLY PRESCRIBE BURN MAP

TRACT NAME WIMBERLY
ACREAGE 55 +/



LEGEND

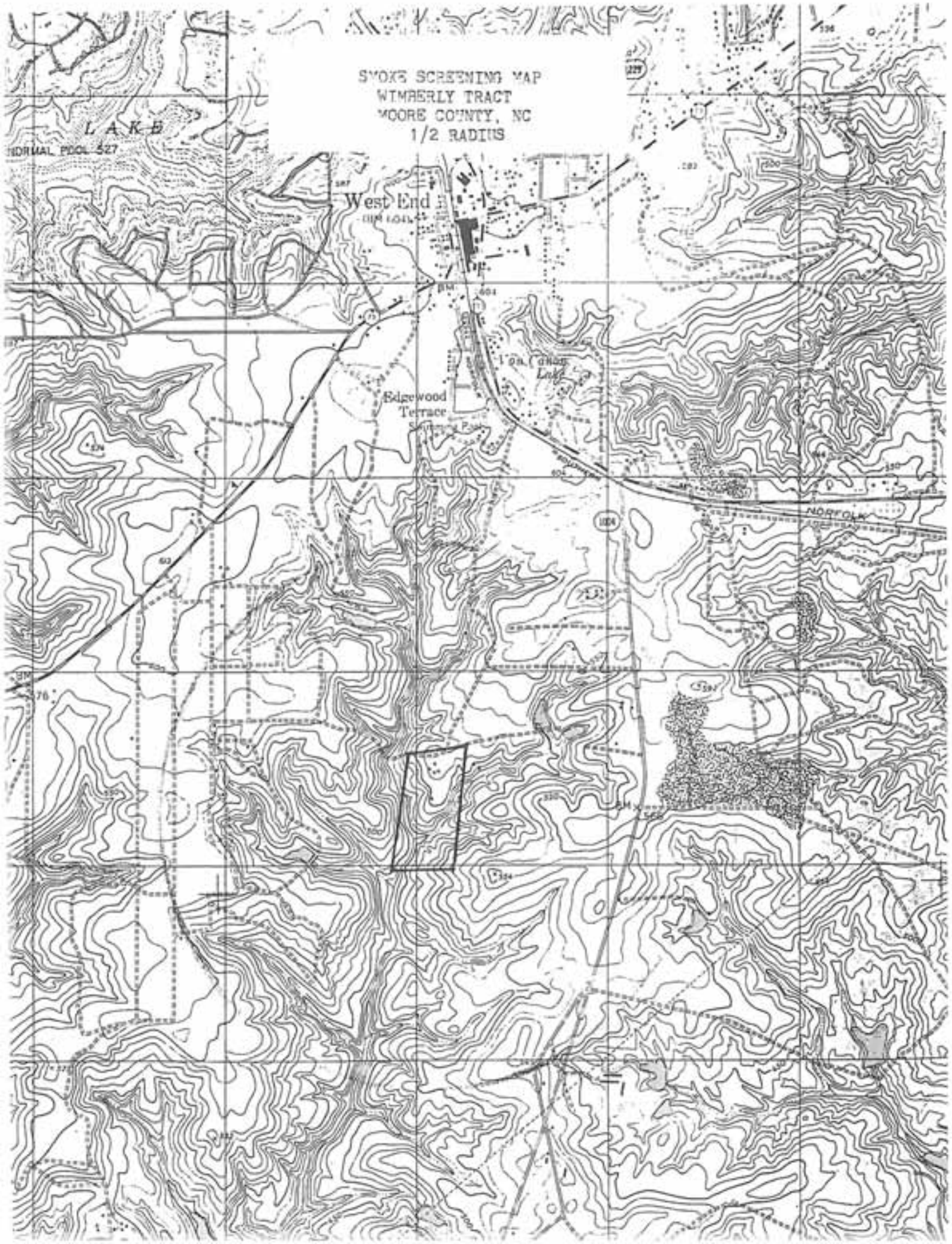
1. UPLAND LONGLEAF/LOBLOLLY PINES
2. BOTTOMLAND/WETLAND
3.
4.
5.

OWNER J WIMBERLY
COUNTY MOORE
DRAWN BY HR BRADY
DATE 7/26/03
SCALE NOT TO SCALE
AERIAL PHOTO NO.
GRID COORD. B 114 S 7 P 14

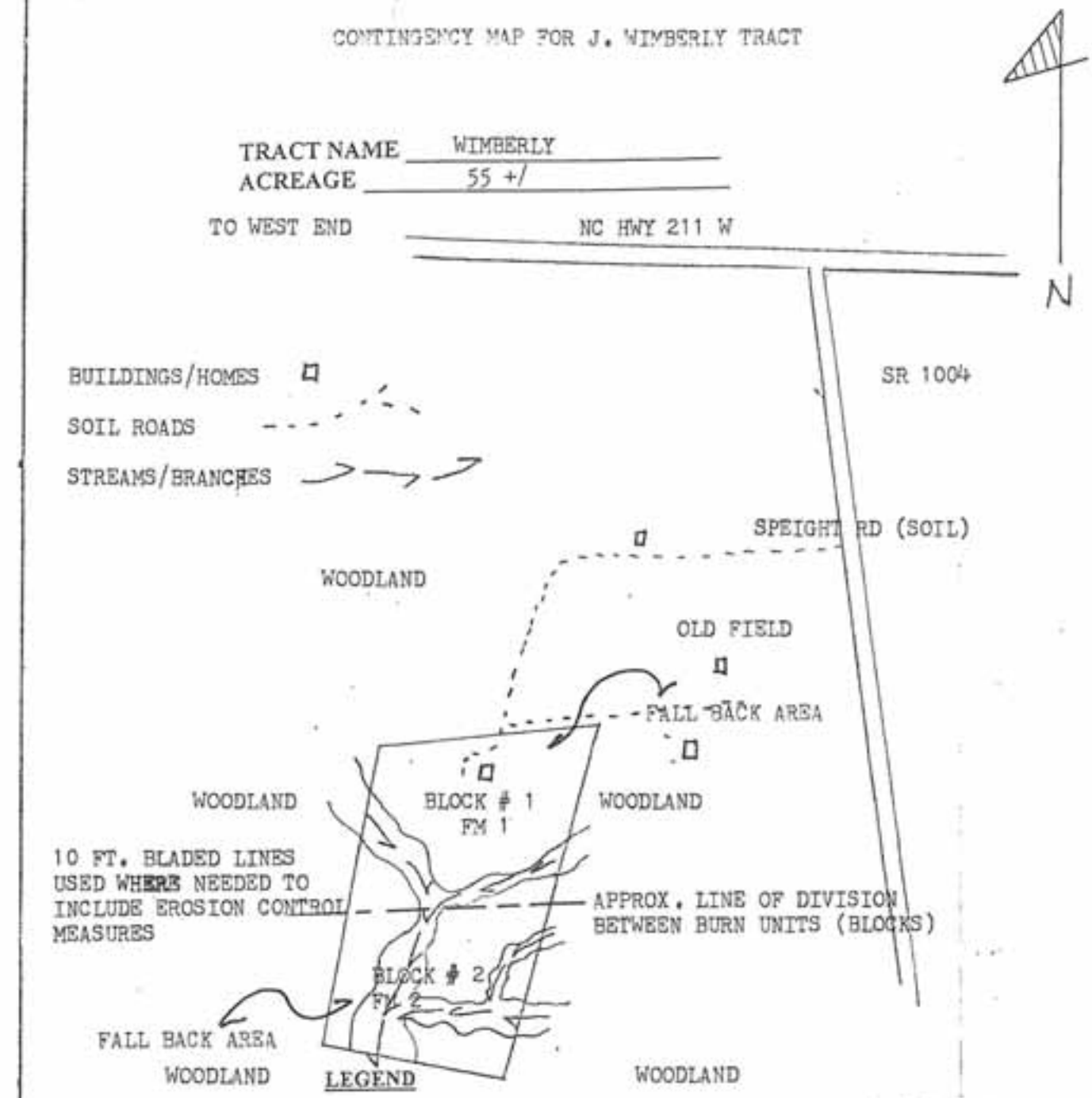
MAPPING METHOD
REDDI MAPPER COMPASS AND CHAIN
AERIAL PHOTO XXFREEHAND SKETCH

BRADY AND ASSOCIATES FORESTRY SERVICES
HAROLD R. BRADY, R.F.
N.C. REG. 1100
S.C. REG. 1476

ACREAGE DATA AND BOUNDRIES ARE APPROXIMATE


SMOKE SCREENING MAP
WIMBERLY TRACT
MOORE COUNTY, NC
1/2 RADIUS
L A K E
NORMAL POOL 527
West End
Edgewood
Terrace
NORFOLK

CONTINGENCY MAP FOR J. WIMBERLY TRACT



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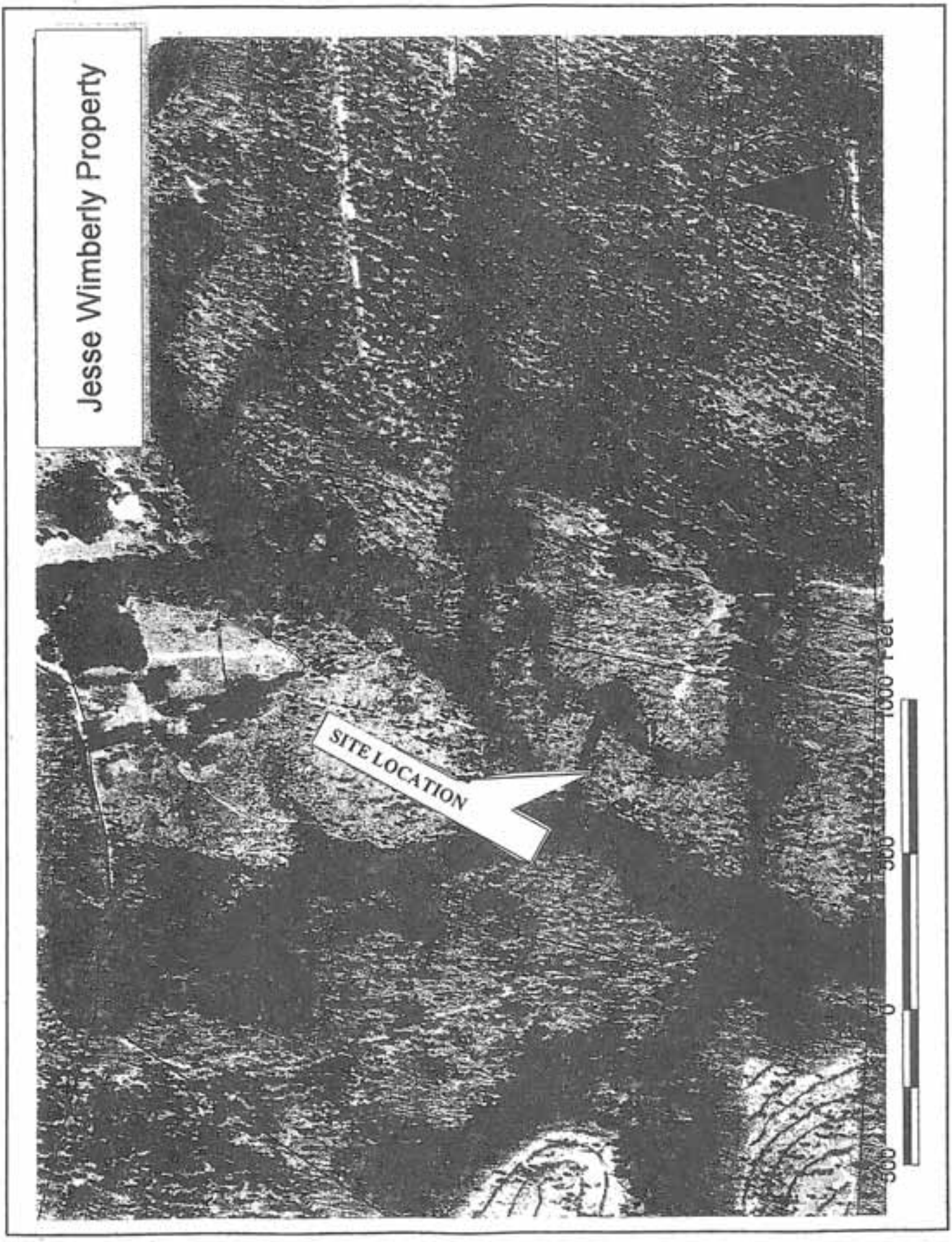
ACREAGE DATA AND BOUNDRIES ARE APPROXIMATE

MAP OF ADJACENT LANDOWNRES
J WIMBERLY TRACT MOORE COUNTY, NC



Practice Project Outline

Practice: Prescribed burning of pine stands.

Purpose: To reduce the risk of wildfire and to help control unwanted hardwoods. Also, to concentrate product capacity of site on high value trees.

Location: See Prescribed Burning Plan Map and Schedule

Specifications: Use NCDFR Prescribed Burning Plan, form 4210, to develop burning plan.

Silvercultural Standards:

1. Fireline construction and burning activities must follow guidelines set in the most current edition of the NCDFR "Forestry Best Management Practices (BMP) Manual."

2. N.C. Smoke Management Guidelines must be followed during burning activities.

Environmental Considerations:

1. **Vegetation:** By using dormant seasons burn, damage to residual crop trees should be minimized. Subsequent burns can be conducted during the warm seasons to achieve better control of hardwoods.

2. **Soil:** Burning should be conducted to conserve the desired amount of Fuel without leaving the soil exposed and susceptible to accelerated erosion or excessive evaporation.

3. **Water:** Treatments should be implemented to avoid sedimentation, or contamination, or other reductions in water quality. Where required, firebreaks should be sowed to appropriate grasses to stop erosion and provide turkey habitat.

4. **Air Quality**: Burning should be conducted to minimize reductions in air quality.

Five Steps to a Successful Prescribed Burn

- ANALYSIS
- PRESCRIPTION
- PREPARATION
- EXECUTION
- EVALUATION

Reasons for Prescribed Fire in Forest Resource Management

- Reduce hazardous fuels
- Prepare sites for seeding and planting
- Dispose of logging debris
- Improve wildlife habitat
- Manage competing vegetation
- Improve forage for grazing
- Control disease
- Enhance appearance
- Improve access
- Perpetuate fire-dependent species
- Cycle nutrients
- Manage endangered species

Practice Project Outline

Recommended Practice: Establish water turnouts.

Purpose: Stop erosion.

Location: General, should be applied wherever it is apparent that erosion problems are beginning to develop.

Practice Specifications: See instructions on following pages.

Recommended Time Frame: Identify problem spots in the fall of 2005; begin corrective action as soon as practical.

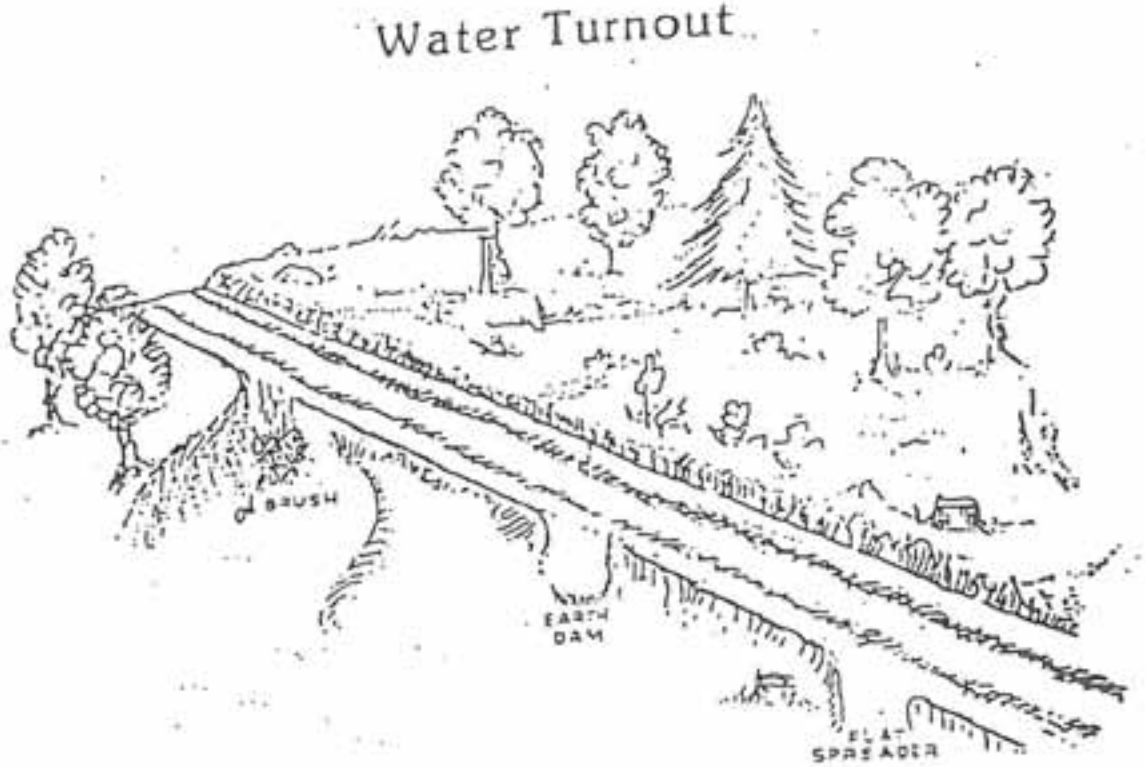


Figure 4. Examples of Water Dispersal by Use of Turnouts.

4. WATER TURNOUTS

Definition/Purpose

A ditch, trench or waterway that diverts water away from the road and/or side ditch. The turnout is usually formed of on-site soil material. Shape and size varies to meet site-specific needs. The turnout usually carries water into undisturbed areas and is used to disperse surface flow to prevent energy build-up (Figure 4).

Conditions Where Practice Applies

Usually any road, trail or ditch section where water accumulates. Turnouts are used to dissipate water energy, velocity and volume.

Specifications

A. A turnout should intersect the ditch line at the same depth and be outsloped 1% to 3%.

B. On sloping roads, turnout should be 30° to 45° down slope.

C. Turnouts should be installed as needed but frequent enough to provide good drainage and maximum roadbed drying, avoid pooling and reduce ditch or gully erosion.

D. Run off water should be spread, retained, or filtered at the outlet of the turnout. (Figure 4).

E. Turnouts should not empty directly into adjacent drainages or channels of any type.

Maintenance

Inspect frequently during on-going operations and immediately following significant rain events to evaluate their effectiveness. Promptly correct conditions or situations that are ineffective.

THREATENED & ENDANGERED SPECIES

SCIENTIFIC NAME	COMMON NAME	STATE STATUS	FED. STATUS	STATE RANK	GLOBAL RANK
Schoenoplectus etuberculatus	Canby's Bulrush	SR	-	S3	G3G4
Schwalbea americana	Chaffseed	E	E	S1	G2
Scutellaria leonardii	Shale-barren Skullcap	C	-	S1	G4
Solidago gracillima	Graceful Goldenrod	SR	-	S1S2	G4?
Solidago uliginosa	Bog Goldenrod	SR	-	S1S2	G4G5
Solidago verna	Spring-flowering Goldenrod	E/PT	FSC	S3	G3
Stylisma pickeringii var pickeringii	Pickering's Dawnflower	E	FSC	S2	G4T2T3
Tradescantia virginiana	Virginia Spiderwort	SR	-	S1	G5
Tridens carolinianus	Carolina Triodia	C	-	S3	G3?
Utricularia geminiscapa	Two-flowered Bladderwort	C	-	S1	G4G5
Xyris chapmanii	Chapman's Yellow-eyed-grass	C	-	S2	G3
Xyris elliottii	Elliott's Yellow-eyed-grass	SR	-	S1	G4
Xyris scabrifolia	Roughleaf Yellow-eyed-grass	C	FSC	S2	G3
Natural communities		-	-	S2	G5T3
Basic Mesic Forest (Piedmont Subtype)	-	-	-	S3	G4
Basic Oak--Hickory Forest	-	-	-	S3	G5T4
Coastal Plain Levee Forest (Blackwater Subtype)	-	-	-	S4	G5
Coastal Plain Semipermanent Impoundment	-	-	-	S5	G5
Coastal Plain Small Stream Swamp (Blackwater Subtype)	-	-	-	S4	G5T5
Mesic Mixed Hardwood Forest (Piedmont Subtype)	-	-	-	S3	G5
Mesic Pine Flatwoods	-	-	-	S2	G2
Peatland Atlantic White Cedar Forest	-	-	-	S1	G1?
Piedmont Longleaf Pine Forest	-	-	-	S1	G1G2
Piedmont Mafic Cliff	-	-	-	S3	G4?
Piedmont/Coastal Plain Heath Bluff	-	-	-	S5	G5
Piedmont/Low Mountain Alluvial Forest	-	-	-	S3?	G5
Piedmont/Mountain Levee Forest	-	-	-	S3	G4
Pine/Scrub Oak Sandhill	-	-	-	S5	G5
Rocky Bar and Shore	-	-	-	S5	G5
Sand and Mud Bar	-	-	-	S2	G2
Sandhill Seep	-	-	-	S3	G4
Streamhead Pocosin	-	-	-	S1	G1
Upland Pool	-	-	-	S2	G3
Vernal Pool	-	-	-	S4	G5
Xeric Sandhill Scrub	-				
Moore*					
Vertebrates					
Micrurus fulvius	Eastern Coral Snake	SR	-	S1	G5
Vascular plants					
Panicum tenerum	Southeastern Panic Grass	SR	-	S3	G4
Moore**					
Invertebrates					
Amblyscirtes reversa	Reversed Roadside Skipper	SR	-	S3	G4
Calephelis virginiensis	Little Metalmark	SR	-	S3	G4
Erynnis martialis	Mottled Dusky Wing	SR	-	S3	G4
Euphyes bimacula	Two-spotted Skipper	SR	-	S1S2	G4
Hesperia attalus slossonae	Dotted Skipper	SR	-	S2S3	G4T3
Vascular plants					
Didiplis diandra	Water Purslane	SR	-	SH	G5
Schoenoplectus subterminalis	Swaying Bulrush	SR	-	S3	G4G5

THREATENED & ENDANGERED SPECIES

SCIENTIFIC NAME	COMMON NAME	STATE STATUS	FED. STATUS	STATE RANK	GLOBAL RANK
Schoenoplectus etuberculatus	Canby's Bulrush	SR	-	S3	G3G4
Schwalbea americana	Chaffseed	E	E	S1	G2
Scutellaria leonardii	Shale-barren Skullcap	C	-	S1	G4
Solidago gracillima	Graceful Goldenrod	SR	-	S1S2	G4?
Solidago uliginosa	Bog Goldenrod	SR	-	S1S2	G4G5
Solidago verna	Spring-flowering Goldenrod	E/PT	FSC	S3	G3
Stylisma pickeringii var pickeringii	Pickering's Dawnflower	E	FSC	S2	G4T2T3
Tradescantia virginiana	Virginia Spiderwort	SR	-	S1	G5
Tridens carolinianus	Carolina Triodia	C	-	S3	G3?
Utricularia geminiscapa	Two-flowered Bladderwort	C	-	S1	G4G5
Xyris chapmanii	Chapman's Yellow-eyed-grass	C	-	S2	G3
Xyris elliottii	Elliott's Yellow-eyed-grass	SR	-	S1	G4
Xyris scabrifolia	Roughleaf Yellow-eyed-grass	C	FSC	S2	G3
Natural communities					
Basic Mesic Forest (Piedmont Subtype)	-	-	-	S2	G5T3
Basic Oak--Hickory Forest	-	-	-	S3	G4
Coastal Plain Levee Forest (Blackwater Subtype)	-	-	-	S3	G5T4
Coastal Plain Semipermanent Impoundment	-	-	-	S4	G5
Coastal Plain Small Stream Swamp (Blackwater Subtype)	-	-	-	S5	G5
Mesic Mixed Hardwood Forest (Piedmont Subtype)	-	-	-	S4	G5T5
Mesic Pine Flatwoods	-	-	-	S3	G5
Peatland Atlantic White Cedar Forest	-	-	-	S2	G2
Piedmont Longleaf Pine Forest	-	-	-	S1	G1?
Piedmont Mafic Cliff	-	-	-	S1	G1G2
Piedmont/Coastal Plain Heath Bluff	-	-	-	S3	G4?
Piedmont/Low Mountain Alluvial Forest	-	-	-	S5	G5
Piedmont/Mountain Levee Forest	-	-	-	S3?	G5
Pine/Scrub Oak Sandhill	-	-	-	S3	G4
Rocky Bar and Shore	-	-	-	S5	G5
Sand and Mud Bar	-	-	-	S5	G5
Sandhill Seep	-	-	-	S2	G2
Streamhead Pocosin	-	-	-	S3	G4
Upland Pool	-	-	-	S1	G1
Vernal Pool	-	-	-	S2	G3
Xeric Sandhill Scrub	-	-	-	S4	G5
Moore*					
Vertebrates					
Micrurus fulvius	Eastern Coral Snake	SR	-	S1	G5
Vascular plants					
Panicum tenerum	Southeastern Panic Grass	SR	-	S3	G4
Moore**					
Invertebrates					
Amblyscirtes reversa	Reversed Roadside Skipper	SR	-	S3	G4
Calephelis virginiensis	Little Metalmark	SR	-	S3	G4
Erynnis martialis	Mottled Dusky Wing	SR	-	S3	G4
Euphyes bimacula	Two-spotted Skipper	SR	-	S1S2	G4
Hesperia attalus slossonae	Dotted Skipper	SR	-	S2S3	G4T3
Vascular plants					
Didiplis diandra	Water Purslane	SR	-	SH	G5
Schoenoplectus subterminalis	Swaying Bulrush	SR	-	S3	G4G5

ed Flag Situations

IF ANY OF THE FOLLOWING SITUATIONS EXIST, ANALYZE THE SITUATION FURTHER BEFORE MAKING THE DECISION TO BURN

- *1.No Written Plan*
- *2.No Map*
- *3.Heavy fuels*
- *4.Dry duff and soil*
- *5.Inadequate control lines*
- *6.No updated weather*
- *7.Forecast does not agree with prescription*
- *8.Poor Visibility*
- *9.Insufficient personnel*
- *10.Poor Communications*
- *11.Large burn area*
- *12.No contingency plan*
- *13.Test fire unsatisfactory*

Don't Get Burned!

You can be fined up to $10,000 for illegal open burning in N.C.

Smoke from open burning can cause serious health problems and pollute the air. That's why the state regulates open burning. Only leaves, branches or other plant growth can be burned.

IT'S ILLEGAL TO BURN:

- Garbage, paper and cardboard
- Tires and other rubber products
- Building materials, including lumber
- Wire, plastics and synthetic materials
- Asphalt shingles and heavy oils
- Paints, household and agricultural chemicals

Homeowners can burn yard trimmings – excluding logs and stumps – if it's allowed under local ordinances, no public pickup is available and it doesn't cause a public nuisance. Other allowable burning includes campfires, outdoor barbecues and bonfires for festive occasions. Landowners also can open burn vegetation to clear land or rights-of-way, provided that:

- Prevailing winds are away from built up areas and roads
- Fires are at least 1,000 feet away from occupied buildings
- Burning is done between 8 a.m. and 6 p.m.

Remember, burn permits issued by the N.C. Division of Forest Resources or any local government do not excuse a person from following these rules. For more information, contact:

N.C. Department of Environment and Natural Resources – Air Quality Regional Supervisor

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TITLE 15A
CHAPTER 2

SUBCHAPTER 2D
Air Pollution Control Requirements

SECTION .1900 - OPEN BURNING

.1901 PURPOSE, SCOPE, AND IMPERMISSIBLE OPEN BURNING

(a) Purpose. The purpose of this Section is to control air pollution resulting from the open burning of combustible materials.

(b) Scope. This Section applies to all operations involving open burning. This Section does not authorize any open burning which is a crime under G.S. 14-136 through G.S. 14-140.1, or affect the authority of the Division of Forest Resources to issue or deny permits for open burning in or adjacent to woodlands as provided in G.S. 113-60.21 through G.S. 113-60.31. This Section does not affect the authority of any local government to regulate open burning through its fire codes or other ordinances. The issuance of any open burning permit by the Division of Forest Resources or any local government does not relieve any person from the necessity of complying with this Section or any other air quality rule.

(c) Impermissible Open Burning. A person shall not cause, allow, or permit open burning of combustible material except as allowed by Rule .1903 of this Section or as covered by a permit issued under Rule .1904 of this Section.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);*
Eff. July 1, 1996.

.1902 DEFINITIONS

For the purpose of this Section, the following definitions apply:

(1) "AHMB" means the Asbestos Hazard Management Branch of the Division of Epidemiology.
(2) "Air Curtain Burner" means a stationary or portable combustion device that directs a plane of high velocity forced draft air through a manifold head into a pit with vertical walls in such a manner as to maintain a curtain of air over the surface of the pit and a recirculating motion of air under the curtain.
(3) "Dangerous materials" means explosives or containers used in the holding or transporting of explosives.
(4) "Land clearing" means the uprooting or clearing of vegetation in connection with construction for buildings; right-of-way; agricultural, residential, commercial, or industrial development; mining activities; or the initial clearing of vegetation to enhance property value; but does not include routine maintenance or property clean-up activities.
(5) "Log" means any limb or trunk whose diameter exceeds six inches.
(6) "Nuisance" means causing physical irritation exacerbating a documented medical condition, visibility impairment, or evidence of soot or ash on property or structure other than the property on which the burning is done.
(7) "Occupied structure" means a building in which people may live or work or one intended for housing farm or other domestic animals.
(8) "Open burning" means the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the atmosphere without passing through a stack, chimney, or a permitted air pollution control device.
(9) "Person" as used in 2D .1901(c), means:
    (a) the person in operational control over the open burning, or
    (b) the landowner or person in possession or control of the land when he has directly or indirectly allowed the open burning or has benefited from it.
(10) "Public pick-up" means the removal of refuse, yard trimmings, limbs, or other plant material from a residence by a governmental agency, private company contracted by a governmental agency or municipal service.
(11) "Public road" means any road that is part of the State highway system; or any road, street, or right-of-way dedicated or maintained for public use.

(12) "RACM" means regul d asbestos containing material as defined 0 CFR 61.142.
(13) "Refuse" means any g cage, rubbish, or trade waste.
(14) "Regional Office Supervisor" means the supervisor of personnel of the Division of Air Quality in a regional office of the Department of Environment, Health and Natural Resources.
(15) "Salvageable items" means any product or material that was first discarded or damaged and then all, or part, was saved for future use, and include insulated wire, electric motors, and electric transformers.
(16) "Synthetic material" means man-made material, including tires, asphalt materials such as shingles or asphaltic roofing materials, construction materials, packaging for construction materials, wire, electrical insulation, and treated or coated wood.

History Note: *Authority G.S. 143-215.3(a)(1); 143-212; 143-213;*
Eff. July 1, 1996.

.1903 PERMISSIBLE OPEN BURNING WITHOUT A PERMIT

(a) All open burning is prohibited except open burning allowed under Paragraph (b) of this Rule or Rule .1904 of this Section.

(b) The following types of open burning are permissible without a permit:

(1) open burning of leaves, tree branches or yard trimmings, excluding logs and stumps, if the following conditions are met:
  (A) The material burned originates on the premises of private residences and is burned on those premises;
  (B) There are no public pickup services available;
  (C) Non-vegetative materials, such as household garbage or other man-made materials are not burned;
  (D) The burning is started no earlier than 8:00 a.m. and no additional combustible material is added to the fire between 6:00 p.m. on one day and 8:00 a.m. on the following day;
  (E) The burning does not create a nuisance; and
  (F) Material is not burned when the Division of Forest Resources has banned burning for that area;

(2) open burning for land clearing or right-of-way maintenance if the following conditions are met:
  (A) Prevailing winds at the time of burning are away from any area, including public road within 250 feet of the burning as measured from the edge of the pavement or other roadway surface, which may be significantly affected by smoke, ash, or other air pollutants from the burning;
  (B) The location of the burning is at least 1,000 feet from any dwelling, group of dwellings, or commercial or institutional establishment, or other occupied structure not located on the property on which the burning is conducted. The regional office supervisor may grant exceptions to the setback requirements if:
    (I) a signed, written statement waiving objections to the open burning associated with the land clearing operation is obtained before the open burning begins from all residents or owners of dwellings, commercial or institutional establishments, or other occupied structures within 1,000 feet of the open burning site, or
    (ii) an air curtain burner as described in Rule .1904 of this Section, is utilized at the open burning site;
  (C) Heavy oils, asphaltic materials such as shingles and other roofing materials, items containing natural or synthetic rubber, or any materials other than plant growth are not burned. However, kerosene, distillate oil, or diesel fuel may be used to start the fire;
  (D) Initial burning begins only between the hours of 8:00 a.m. and 6:00 p.m., and no combustible material is added to the fire between 6:00 p.m. on one day and 8:00 a.m. on the following day, except that, under favorable meteorological conditions, deviation from these hours of burning may be granted by the regional office supervisor. The owner or operator of the open burning operation shall be responsible for obtaining written approval for burning during periods other than those specified in this Part; and
  (E) No fires are started or vegetation is added to existing fires when the Division of Forest Resources has banned burning for that area.

Debris from land clearing or right-of-way maintenance may be carried off-site for open burning to facilities permitted in accordance with Rule .1904 of this Section for the operation of an air curtain burner. However, no material may be taken off-site for open burning in areas where a

permitted air curtain burner is not available;

(3) camp fires and fires used solely for outdoor cooking and other recreational purposes, or for ceremonial occasions, or for human warmth and comfort and which do not create a nuisance and do not use synthetic materials or refuse or salvageable materials for fuel;

(4) fires purposely set to forest lands for forest management practices acceptable to the Division of Forest Resources;

(5) fires purposely set to agricultural lands for disease and pest control and fires set for other agricultural or apicultural practices acceptable to the Department of Agriculture;

(6) fires purposely set for wildlife management practices acceptable to the Wildlife Management Commission;

(7) fires for the disposal of dangerous materials when it is the safest and most practical method of disposal;

(8) fires for the disposal of material generated as a result of a natural disaster, such as tornado, hurricane, or flood if the regional office supervisor grants permission for the burning. The person desiring to do the burning shall document to the regional office supervisor of the appropriate regional office that there is no other practical method of disposal of the waste. Factors that the regional office supervisor shall consider in granting permission for the burning include type, amount, and nature of combustible substances. The regional office supervisor shall not grant permission for the burning if the primary purpose of the fire is to dispose of synthetic materials or refuse or recovery of salvageable materials. Fires authorized under this Subparagraph shall comply with the conditions of Subparagraph (b)(2) of this Rule;

(9) fires purposely set by manufacturers of fire extinguishing materials or equipment, testing laboratories, or other persons, for the purpose of testing or developing these materials or equipment in accordance with a valid standard qualification program;

(10) fires purposely set for the instruction and training of fire-fighting personnel, including fires at permanent fire-fighting training facilities, or when conducted under the supervision of or with the cooperation of one or more of the following agencies:

(A) the Division of Forest Resources,

(B) the North Carolina Insurance Department,

(C) North Carolina technical institutes, or

(D) North Carolina community colleges, including:

(I) the North Carolina Fire College, or

(ii) the North Carolina Rescue College; and

(11) fires not described in Subparagraph (10) of this Paragraph, purposely set for the instruction and training of fire-fighting personnel, provided that:

(A) The regional office supervisor of the appropriate regional office and the AHMB have been notified according to the procedures and deadlines contained in the appropriate regional notification form. This form may be obtained by writing the appropriate regional office at the address in Rule .1905 of this Section and requesting it, and

(B) The regional office supervisor has granted permission for the burning. Factors that the regional office supervisor shall consider in granting permission for the burning include type, amount, and nature of combustible substances. The regional office supervisor shall not grant permission for the burning of salvageable items, such as insulated wire and electric motors or if the primary purpose of the fire is to dispose of synthetic materials or refuse. The regional office supervisor of the appropriate regional office shall not consider previously demolished structures as having training value. However, the regional office supervisor of the appropriate regional office may allow an exercise involving the burning of motor vehicles burned over a period of time by a training unit or by several related training units. Any deviations from the dates and times of exercises, including additions, postponements, and deletions, submitted in the schedule in the approved plan shall be communicated verbally to the regional office supervisor of the appropriate regional office at least one hour before the burn is scheduled.

(c) The authority to conduct open burning under this Section does not exempt or excuse any person from the consequences, damages or injuries which may result from this conduct. It does not excuse or exempt any person from complying with all applicable laws, ordinances, rules or orders of any other governmental entity having jurisdiction even though the open burning is conducted in compliance with this Section.

History Note: Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5);

.1904 AIR CURTAIN BURNE

(a) Air permits shall not be required for air curtain burners located at temporary land clearing or right-of-way maintenance sites for less than nine months. However, air permits shall be required for air curtain burners located at permanent sites or where materials are transported in from another site.

(b) Air curtain burners described in Paragraph (a) of this Rule shall comply with the following conditions and stipulations:

(1) Prevailing winds at the time of burning shall be away from any area, including public road within 250 feet of the burning as measured from the edge of the pavement or other roadway surface, which may be significantly affected by smoke, ash, or other air pollutants from the burning;

(2) Only collected land clearing and yard waste materials may be burned. Heavy oils, asphaltic materials, items containing natural or synthetic rubber, tires, grass clippings, collected leaves, paper products, plastics, general trash, garbage, or any materials containing painted or treated wood materials shall not be burned. Leaves still on trees or brush may be burned;

(3) No fires shall be started or material added to existing fires when the Division of Forest Resources has banned burning for that area;

(4) Burning shall be conducted only between the hours of 8:00 a.m. and 6:00 p.m.;

(5) The air curtain burner shall not be operated more than the maximum source operating hours-per-day and days-per-week. The maximum source operating hours-per-day and days-per-week shall be set to protect the ambient air quality standard and prevention of significant deterioration (PSD) increment for particulate. If the air curtain burner will:

(A) burn 35 tons of material per day or more in an area were the particulate baseline date for the PSD has been triggered, or

(B) burn 210 tons of material per day or more in an area where the particulate baseline date for PSD has not been triggered,

the maximum source operating hours-per-day and days-per-week shall be determined using the modeling procedures in Rule .1106(b), (c), and (f) of this Chapter. This Subparagraph shall not apply to temporary air curtain burners;

(6) Operators of the air curtain burner shall be certified to read visible emissions and the facility shall be tested for visible emissions within 90 days after initial operation and within 90 days before permit expiration;

(7) Air curtain burners shall meet manufacturers specifications for operation and upkeep to ensure complete burning of material charged into the pit. Manufacturers specifications shall be kept on site and be available for inspection by Division staff;

(8) Except during start-up, visible emissions shall not exceed five percent opacity when averaged over a six-minute period except that one six-minute period with an average opacity of more than five percent but no more than 35 percent shall be allowed for any one-hour period. During start-up, the visible emissions shall not exceed 35 percent opacity when averaged over a six-minute period. Start-up shall not last for more than 30 minutes, and there shall be no more than one start-up per day;

(9) The owner or operator of an air curtain burner shall not allow ash to build up in the pit to a depth higher than one-third of the depth of the pit or to the point where the ash begins to impede combustion, whichever occurs first. The owner or operator of an air curtain burner shall water the ash prior to its removal to prevent the ash from becoming airborne;

(10) The owner or operator of an air curtain burner shall not load material into the air curtain burner such that it will protrude above the air curtain;

(11) Only distillate oil, kerosene, diesel fuel, natural gas, or liquefied petroleum gas may be used to start the fire; and

(12) The location of the burning at temporary sites shall be at least 500 feet from any dwelling, group of dwellings, or commercial or institutional establishment, or other occupied structure not located on the property on which the burning is conducted.

Compliance with this Rule does not relieve any owner or operator of an air curtain burner from the necessity of complying with other rules in this Section or any other air quality rules.

(c) Record keeping Requirements. The owner or operator of an air curtain burner at a permanent site shall keep a daily log of specific materials burned and amounts of material burned in pounds per hour and tons per year. The owner or operator of an air curtain burner at a temporary site shall keep a log of total number of tons burned per temporary site.

(d) Title V Considerations. Burners that have the potential to burn 15,000 tons of material or more per year may be subject to Section 15A NCAC 2Q .0500, Title V Procedures.

(e) Prevention of Significant Deterioration Consideration. Burners that burn 38,000 tons per year or more may be subject to 15A NCAC 2D .0530, Prevention of Significant Deterioration.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.107(a)(5), (10); 143-215.66; 143-215.108;*
Eff. July 1, 1996.

.1905 REGIONAL OFFICE LOCATIONS

Inquiries, requests and plans shall be handled by the appropriate Department of Environmental, Health, and Natural Resources regional offices. They are:

(1) Asheville Regional Office, Interchange Building, 59 Woodfin Place, Asheville, North Carolina 28801;
(2) Winston-Salem Regional Office, 585 Waughtown Street, Winston-Salem, North Carolina 27107;
(3) Mooresville Regional Office, 919 North Main Street, Mooresville, North Carolina 28115;
(4) Raleigh Regional Office, 3800 Barrett Drive, Raleigh, North Carolina 27611;
(5) Fayetteville Regional Office, Wachovia Building, Suite 714, Fayetteville, North Carolina 28301;
(6) Washington Regional Office, 1424 Carolina Avenue, Farish Building, Washington, North Carolina 27889; and
(7) Wilmington Regional Office, 127 Cardinal Drive Extension, Wilmington, North Carolina 28405.

History Note: *Authority G.S. 143-215.3(a)(1);*
Eff. July 1, 1996.

.1906 DELEGATION TO COUNTY GOVERNMENTS

(a) The governing body of any county or municipality or group of counties or municipalities may establish a partial air pollution control program to implement and enforce this Section provided that:

(1) It has the administrative organization, staff, financial and other resources necessary to carry out such a program;
(2) It has adopted appropriate ordinances, resolutions, and regulations to establish and maintain such a program; and
(3) It has otherwise complied with G.S. 143-215.112 "Local Air Pollution Control Programs."

(b) The governing body shall submit to the Director documentation demonstrating that the requirements of Paragraph (a) of this Rule have been met. Within 90 days after receiving the submittal from the governing body, the Director shall review the documentation to determine if the requirements of Paragraph (a) of this Rule have been met and shall present his findings to the Commission. If the Commission determines that the air pollution program is adequate, it shall certify the local air pollution program to implement and enforce this Section within its area of jurisdiction.

(c) County governments shall not have the authority to issue permits for air curtain burners at a permanent site as defined in 15A NCAC 2D .1904.

(d) The three certified local air pollution programs, the Western North Carolina Regional Air Pollution Control Agency, the Forsyth County Environmental Affairs Department, and the Mecklenburg County Department of Environmental Affairs, shall continue to enforce open burning rules as part of their local air pollution programs.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.112;*
Eff. July 1, 1996

" There are only two types of burn bosses, those who have had a prescribed fire escape... and those that are going to"

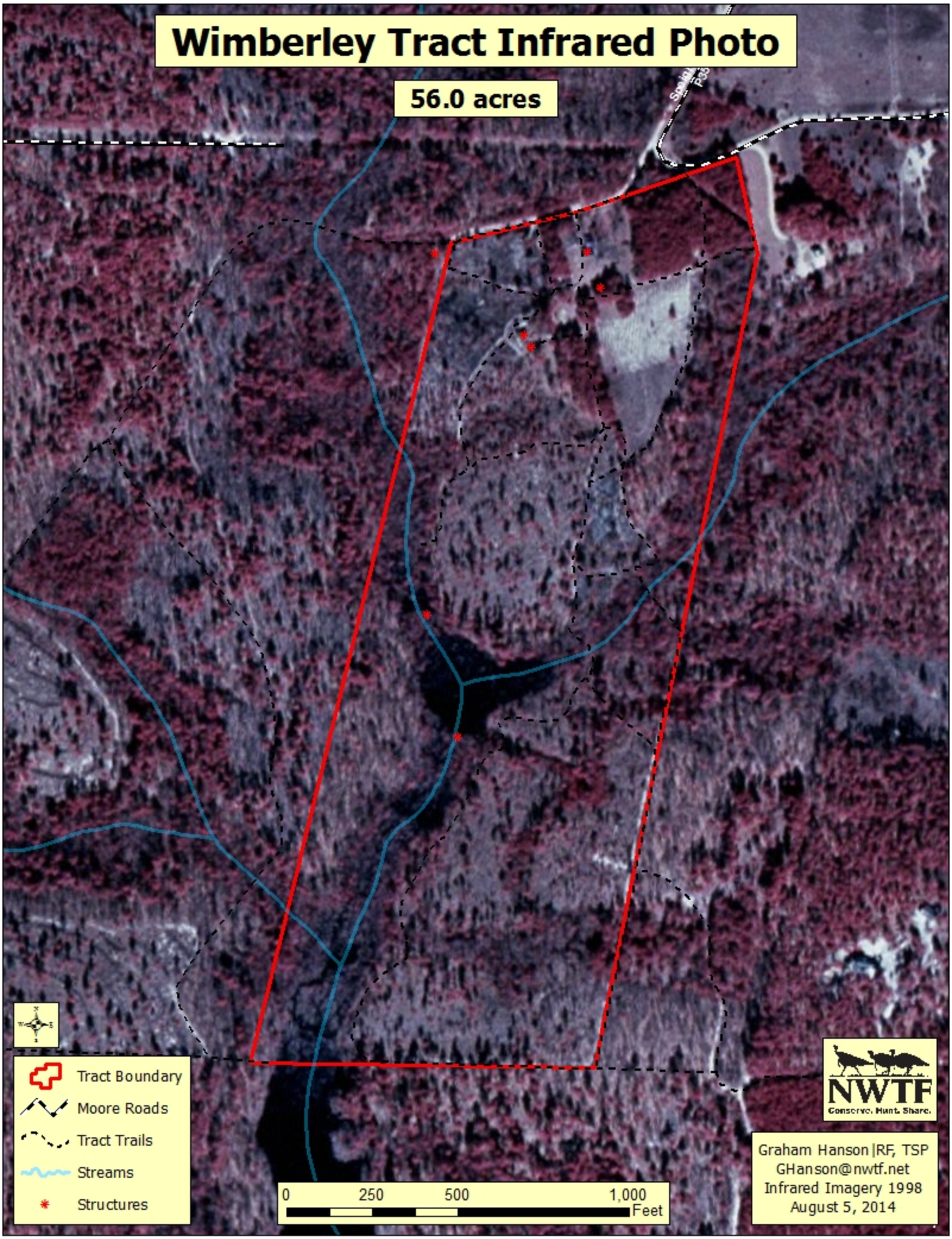
–Jordan Kodiak

Wimberley Tract Aerial Photo

56.0 acres

NWTF
Conserve. Hunt. Share.

Graham Hanson|RF, TSP
GHanson@nwtf.net
NAIP Imagery 2010
August 5, 2014


Wimberley Tract Infrared Photo
56.0 acres
Tract Boundary
Moore Roads
Tract Trails
Streams
Structures
0
250
500
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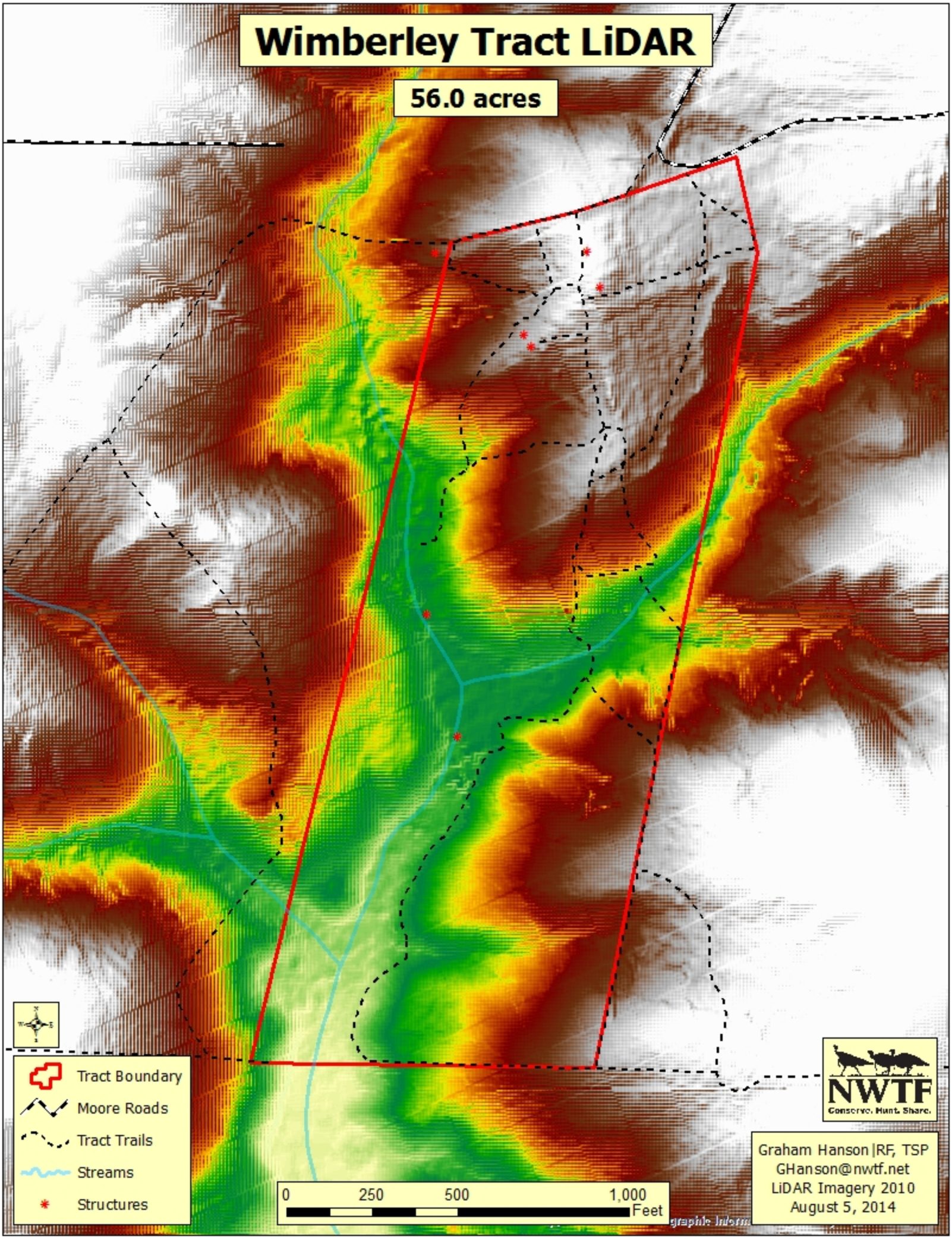
Feet
NWTF
Conserve. Hunt. Share.
Graham Hanson|RF, TSP
GHanson@nwtf.net
Infrared Imagery 1998
August 5, 2014


Wimberley Tract LiDAR
56.0 acres
Tract Boundary
Moore Roads
Tract Trails
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Structures
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NWTF
Conserve. Hunt. Share.
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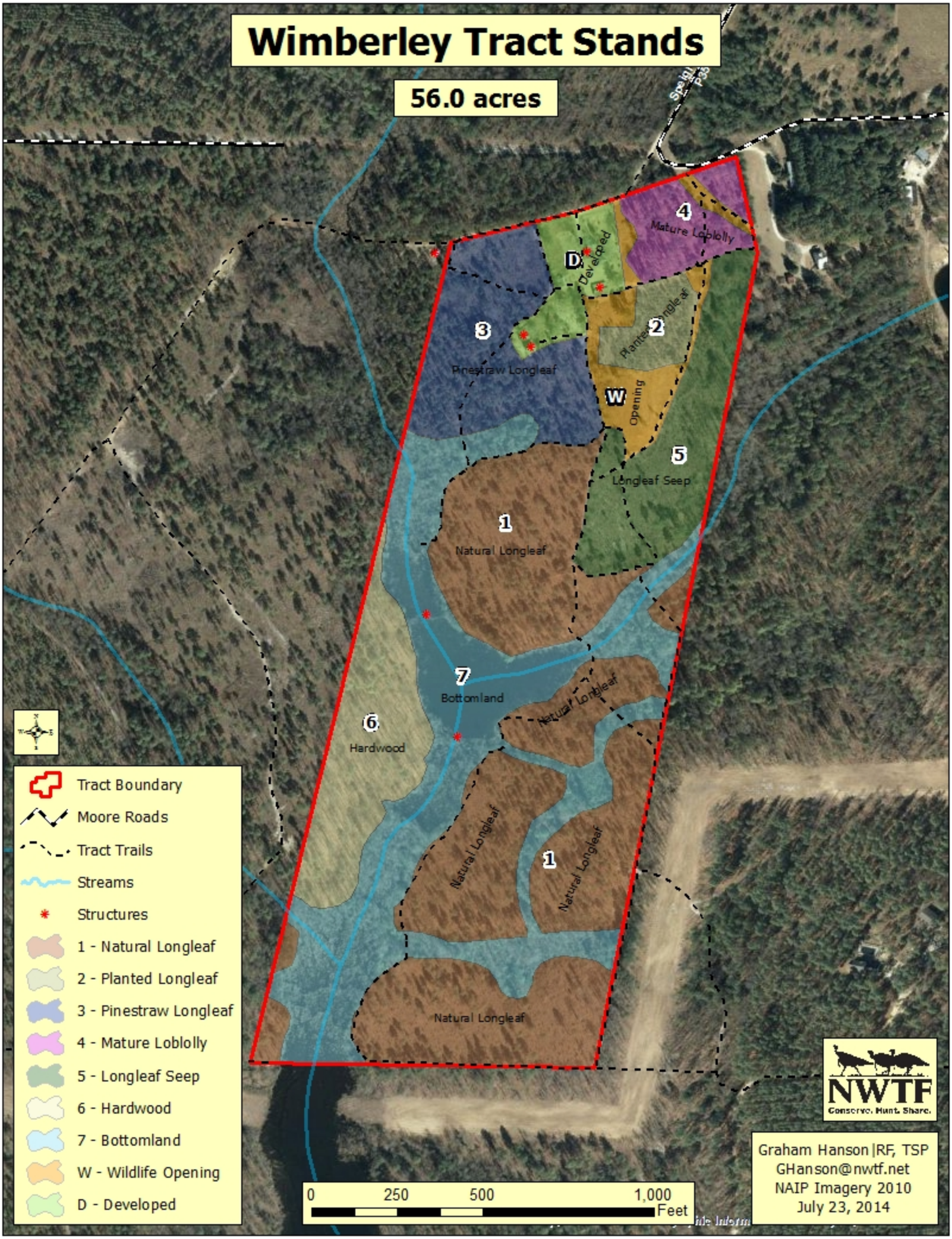
LiDAR Imagery 2010
August 5, 2014


Wimberley Tract Stands
56.0 acres
4
Mature Loblolly
D
Developed
3
Pinestraw Longleaf
2
Planted Longleaf
W
Opening
5
Longleaf Seep
1
Natural Longleaf
7
Bottomland
6
Hardwood
Natural Longleaf
Natural Longleaf
1
Natural Longleaf
Natural Longleaf
Tract Boundary
Moore Roads
Tract Trails
Streams
Structures
1 - Natural Longleaf
2 - Planted Longleaf
3 - Pinestraw Longleaf
4 - Mature Loblolly
5 - Longleaf Seep
6 - Hardwood
7 - Bottomland
W - Wildlife Opening
D - Developed
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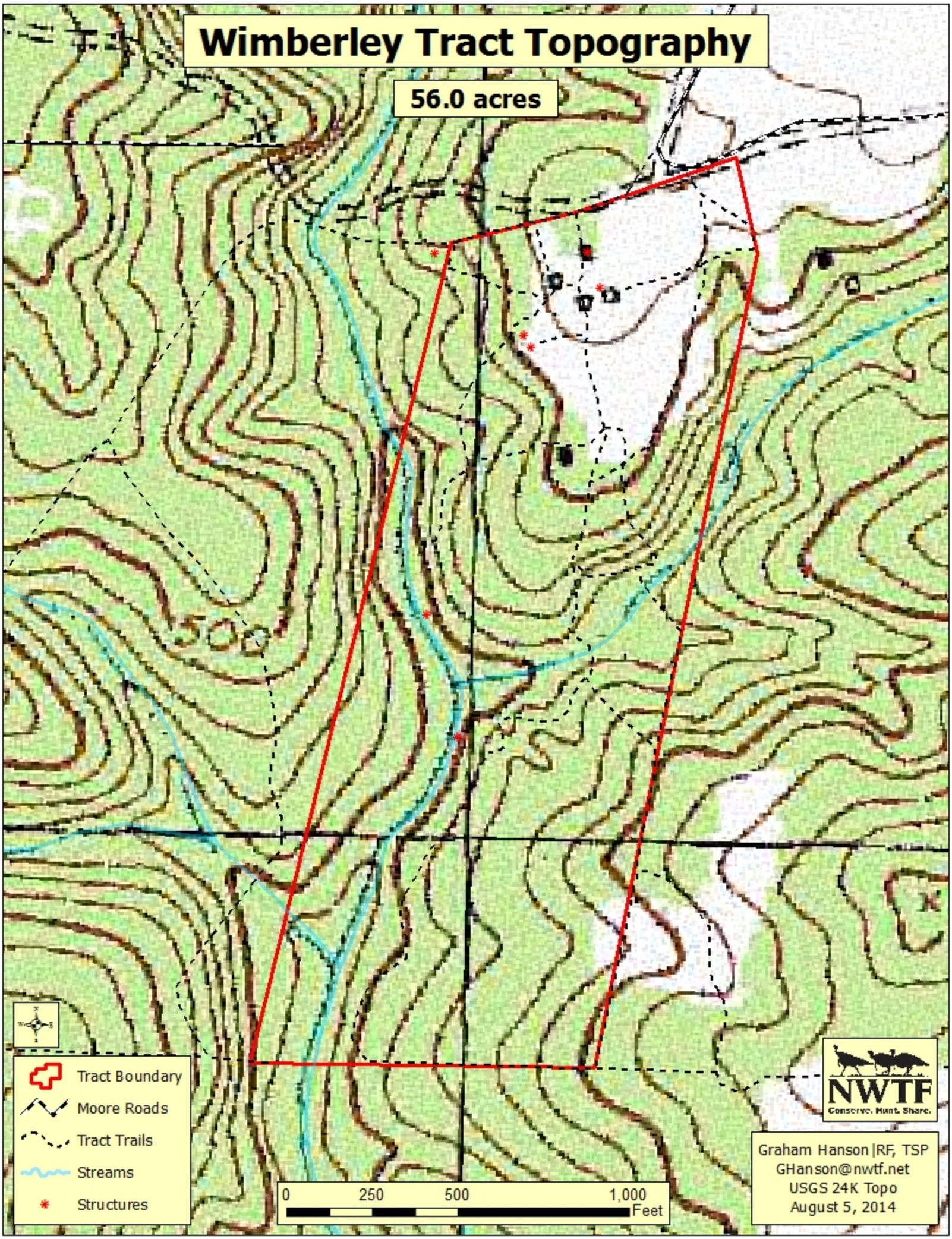
Feet
NWTF
Conserve. Hunt. Share.
Graham Hanson|RF, TSP
GHanson@nwtf.net
NAIP Imagery 2010
July 23, 2014


Wimberley Tract Topography
56.0 acres
500
Tract Boundary
Moore Roads
Tract Trails
Streams
Structures
0
250
500
1,000
Feet
NWTF
Conserve. Hunt. Share.
Graham Hanson|RF, TSP
GHanson@nwtf.net
USGS 24K Topo
August 5, 2014