

FOREST MANAGEMENT PLAN

FOR

APPROXIMATELY 82.2 +/- ACRES

ON THE MCPHAIL TRACT

PIN# 0577-79-6193, PID# 100577 0012 01, 82.2 ACRES

OWNED BY ROBERT L. RAYNOR, SR. AND APRIL H. RAYNOR;
ROBERT L. RAYNOR, JR.

HARNETT COUNTY, NORTH CAROLINA

JANUARY 2018

PREPARED BY

Gelbert, Fullbright & Randolph Forestry Consultants, PLLC

P.O. Box 488 / 308 W. Front St., Lillington, NC 27546

Office (910) 893-8197 Fax (910) 893-2390 bwestmoreland@gfrforestry.com

PURPOSE OF REPORT

This forest management plan describes the current forest conditions and timber types on the 82.2+/- acre 'McPhail' Tract owned by Robert L. Raynor, Sr. and his wife, April H. Raynor, and Robert L. Raynor, Jr. in Harnett County, North Carolina. The purpose of this report is to provide sound forest management recommendations for optimizing timber production within the constraints provided by the landowner. This plan offers general guidance to the landowner in making informed decisions for the management of their timberland.

SUMMARY OF MANAGEMENT OBJECTIVES

In accordance with the Present-use Value Program for forestland, the landowners' primary objective for the timber on this property is to produce high value yields of pine and hardwood sawtimber. Additional objectives include aesthetics and good stewardship of the land that will produce ample wildlife cover types for both game and non-game species. Sound forest management practices will be utilized in order to meet these objectives. Traditional silvicultural practices such as tree planting, prescribed burning, and herbicide application, along with timber stand improvement (TSI) activities such as pre-commercial thinning and commercial thinning may be necessary in the future to optimize timber production. The property is currently being managed for the production of forest products.

IDENTIFICATION AND GENERAL DESCRIPTION OF PROPERTY

Location: The Raynor 'McPhail' Tract is identified as PIN# 0577-79-6193 (PID# 100577 0012 01), by the Harnett County Tax Office. The Raynor Tract is located in southwestern Harnett County approximately 3 miles west of Erwin. The tract is located on and north of Titan Roberts Road (NCSR 2021), approximately 0.2 miles east of the intersection with Ross Road (NCSR 2016). The tract can be directly accessed from Titan Roberts Road (NCSR 2021), or through various woods roads and paths. Please see attached location map.

Soils¹: The primary soil types on the timberland portions of the Raynor 'McPhail' Tract are the Altavista fine sandy loam (AtA), Augusta fine sandy loam (Au), Aycok silt loam (AyB), Exum very fine sandy loam (ExA), and Roanoke loam (Ro).

Altavista (AtA) soils are found on well drained terraces with 0-3% slopes, along the Cape Fear and Lower Little Rivers. This soil type is considered very deep with moderate water holding capacity and moderate permeability. Altavista soil types are well suited for timber production with a site index² of 91 for loblolly pine (over a 50 year period), 84 for longleaf pine (over a 50 year period), 77 for shortleaf pine (over a 50 year period), and 84 for sweetgum (over a 50 year period).

¹The USDA's *Soil Survey of Harnett County, North Carolina* is the source for the general soils information.

²Site index is a numeric value that denotes the capacity of the soil to support tree height growth over a 25 or 50 year period.

Augusta (Au) soils are found on low stream terraces along the Cape Fear River and the Upper Little River. This soil type is considered very deep with moderate permeability, and high water holding capacity. Augusta soil types are well suited for timber production with a site index index² of 90 for loblolly pine (over a 50 year period), 90 for sweetgum (over a 50 year period), 90 for American sycamore (over a 50 year period), 80 for southern red oak (over a 50 year period), and 80 for white oak (over a 50 year period).

Aycock (AyB) soils are found on slightly rounded parts of the upland. The soil is considered gently sloping, very deep, and well drained with moderate permeability. Aycock soils are well suited for timber production with a site index of 84 for loblolly pine (over a 50 year period).

Exum (ExA) soils are found on broad flats, with 0-2 % slope, in the uplands. This soil is considered very deep with moderate permeability and high water holding capacity. Exum soils are well suited for timber production with a site index index² of 82 for loblolly pine (over a 50 year period).

Roanoke (Ro) soil types are found on poorly drained, nearly level low flats in depressions and drainageways. This soil type is considered very deep with moderate water holding capacity and slow permeability. If properly drained, Roanoke soil types are moderately suited for timber production with a site index² of 86 for Loblolly pine (over a 50 year period).

DESCRIPTION OF FOREST TYPES AND RECOMMENDATIONS

Stand 1: Natural Pine Hardwood (NPH) – 48.6 +/- acres: This stand is 48.6 +/- acres of naturally regenerated pine and hardwood. Dominant and co-dominant loblolly pine trees have an average merchantable height of 50-55 feet, and diameters of 10-14 inches. The trees within the stand appear healthy with no signs of disease or insect damage visible upon inspection. Given the current condition, it is recommended that the stand be evaluated for a commercial thinning in 10 years, depending on market conditions and landowner objectives.

Stand 2: Borrow Pit – 32.6 +/- acres: This area is a borrow pit that was mined some years ago, and is not currently in the production of timber.

Stand 3: Pond – 1.0 +/- acres: This stand is 1.0 +/- acres of open water and associated outflow not currently in the production of forest products. These water bodies and adjacent forested buffers provide vital cover for both aquatic and terrestrial species and are important to the overall health and diversity of the tract.

SCHEDULE OF FOREST MANAGEMENT ACTIVITIES

Stand 1: 2028 – Evaluate for commercial thinning based upon prevailing markets and landowner objectives.

COMMONLY RECOMMENDED SILVICULTURAL PRACTICES

Tree Planting: Tree planting is done either by hand or by a machine during the winter months. Normally following site preparation activities (chemical application, prescribed burn, mechanical preparation, etc.) seedlings are planted in rows at a predetermined spacing to artificially establish a fully stocked stand of desirable species. Overseeing planting operations is essential to ensure seedlings are planted properly. Once established, post-planting surveys are completed to verify survival and vigor of the newly established plantation. Today's seedlings have been selected from the very best parent trees and have significantly faster growth rates, better form, and improved resistance to insect and disease damage compared to naturally regenerated seedlings.

Chemical Application: Evaluation by a consulting forester, chemical company representative, and/or representative from the North Carolina Forest Service is recommended for a potential chemical site preparation or woody release treatment. Chemical site preparation is an herbicide application that reduces grass, herbaceous, and woody competition and is often required in order to establish an adequately stocked, vigorous stand of desirable species. Woody release is a treatment to reduce woody and herbaceous competition for the desired seedlings. A release is recommended if seedlings are planted without chemical site preparation, if chemical site preparation treatment is unsuccessful at adequately reducing competition, or if natural regeneration of pine is detrimentally high following plantation establishment.

Timber Stand Improvement (TSI): TSI encourages faster growth of desirable species and benefits forest health, improves species composition mix, and promotes optimal wildlife cover for desirable species. Some of the most common forms of TSI include pre-commercial thinning, commercial thinning, and prescribed burning. More detailed descriptions of those silvicultural activities are listed below. Some other common TSI prescriptions include crop tree release, cull tree removal, sanitation cutting, and invasive species control. A variety of techniques are used to achieve these TSI objectives, including herbicide application and girdling, and many private landowners carry out these activities on their own.

- **Pre-Commercial Thinning:** In some plantations, as well as naturally regenerated forests, the amount of competition from overstocking of both pine and hardwood species can greatly suppress growth of desirable trees. A good option for alleviating this problem is a pre-commercial thinning. A pre-commercial thinning is done before the stems being removed are of any commercial value, generally 5-10 years after regeneration. Most commonly, a hand crew with brush saws will cut most of the undesirable stems which 'releases' the crop trees for increased growth and development.
- **Commercial Thinning:** Evaluation for a potential commercial thinning will occur approximately 13-18 years after tree planting. Row thinning is the most common method. Row thinning normally removes every fourth or fifth row of trees (or approximately the same width in naturally regenerated stands), provides adequate equipment access, and selectively removes inferior stems between the access rows. This prescription will leave approximately 60% of the existing stems, and will increase the

amount of sunlight, water, and nutrients available to the residual crop trees, supporting the overall health and vigor of the plantation.

- **Prescribed Burning:** Prescribed burning is a silvicultural treatment implemented either before stand establishment or as an intermediate stand treatment. As a site preparation activity, prescribed burning reduces the amount of woody debris and/or vertical herbaceous competition before establishing a new plantation. As an intermediate stand treatment, such as following a commercial thinning, burning reduces the amount of fuel within a stand, reduces the amount of woody competition, and promotes regeneration of grasses, forbs, and herbaceous plants to improve forage and cover for a variety of wildlife species. In general, only a NC Certified Burner with an approved Burn Plan should conduct a prescribed burn.

Property Line Maintenance: Maintaining property lines and boundaries is one of the most often overlooked forms of protection from timber theft, trespass, and encroachment. Maintaining boundary lines is also an important form of asset protection. Property lines should be scraped and painted every 8-10 years to avoid trespass problems and the expense of a new survey. If property corners, old survey lines or accurate timber type changes do not exist or can't be found, we may recommend a partial or complete survey in advance of the next timber harvest activity to ensure accurate property boundaries are established. Once these lines are properly located, they should be quickly scraped and painted.

OPERATIONAL CONSIDERATIONS

Harvesting operations will adhere to the applicable statutes regarding water quality and sedimentation during any future logging activities. Loggers are required by contract to use best management practices (BMPs) for forestry which include (1) keeping all logging equipment out of the Streamside Management Zones (SMZs), (2) adhering to Forestry's BMPs as outlined in the NC Forest Service BMP Manual, (3) at all times exercising reasonable care to minimize and reduce the hazard of fire by the use of good forestry practices, and (4) minimizing soil damage which may result from the operation of logging machinery during wet ground conditions by refraining from carrying on logging and hauling operations during periods of wet ground conditions. The NC Forest Service BMP Manual, amended September 2006, includes those provisions which require keeping springs, creeks, rivers, ravines, or drainage ditches clear of forest debris caused by the cutting and removal of timber, as provided in NC General Statutes §113A-52.1, §77-13 and §77-14.

Any selective harvest of timber within the designated buffer width of either side of the existing drains or wet areas on the tract (SMZs) will be done in accordance with the river basin water quality rules (if applicable). These permanent strips of timber can be designated for selective cutting and only when soil conditions permit. We will follow all State water quality regulations when designing future timber sales. We will also ensure adherence to forestry BMPs during all forestry activities.

Any herbicide or fertilizer applications will follow all state and federal regulations regarding application rates, weather conditions during application, etc. Applicators will exercise care to limit applications within the designated stand and/or tract boundaries.

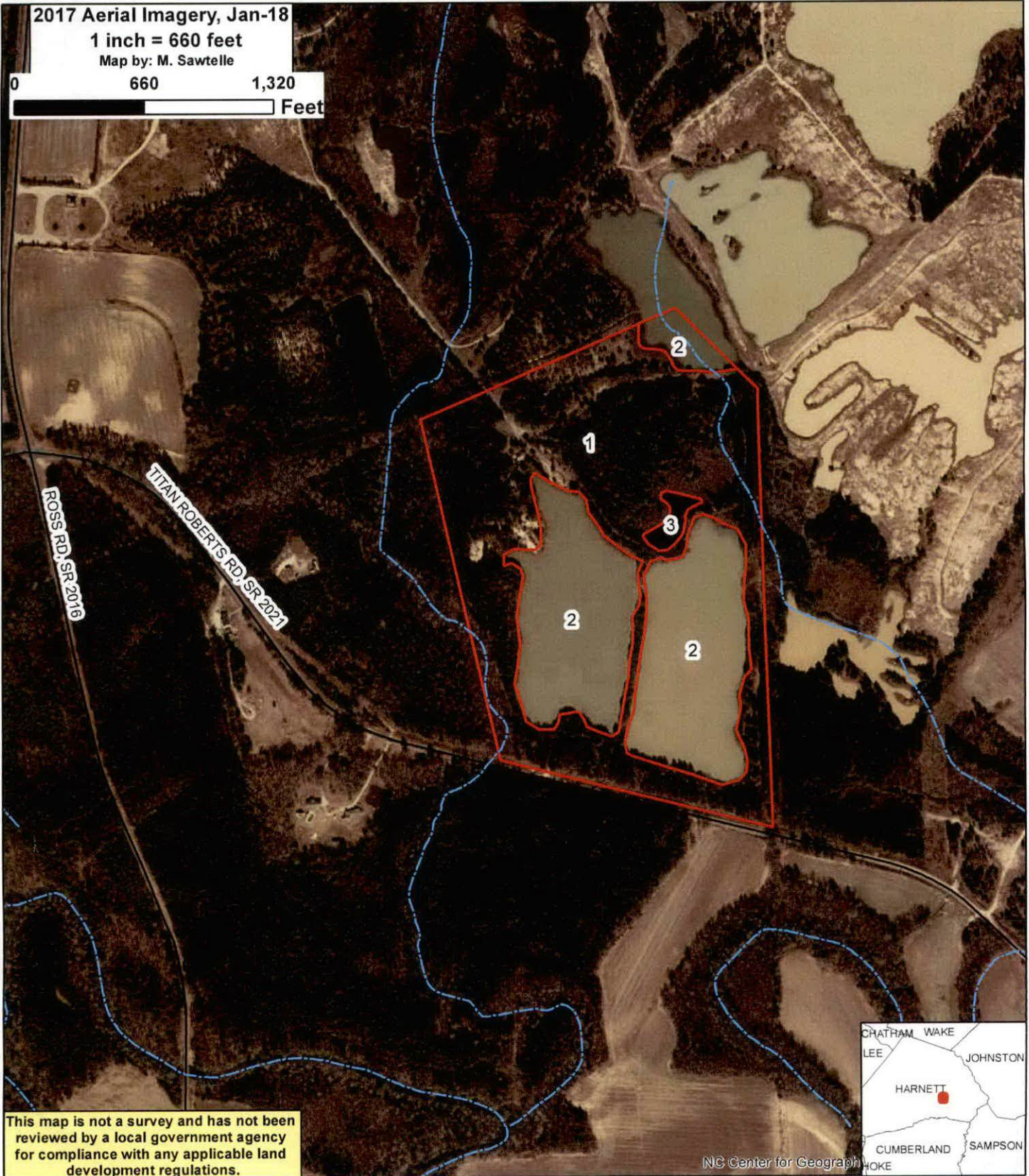
SUMMARY

The Raynor 'McPhail' Tract contains both economically valuable and environmentally unique resources. Active forest management is a practical way to generate revenue, maintain healthy forests for future generations, and provide opportunities for recreation. The landowners will work closely with consulting foresters and the NC Forest Service to achieve their goals of actively managing their land for timber production. The general prescriptions outlined above improve forest structure and composition, enhance wildlife cover, and maintain the integrity of water and forested systems, while providing periodic income and meeting the requirements of the Present-use Value Program for forestland.



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 Robert L. Raynor Sr., April H. Raynor
 and Robert L. Raynor Jr.
 McPhail Tract
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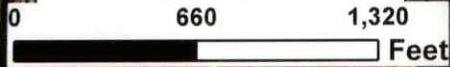
Legend	
	Stand 1: NPH, 48.6 +/- Ac
	Stand 2: Borrow Pit: 32.6 +/- Ac
	Stand 3: Pond, 1.0 +/- Ac
	Total: 82.2 +/- Ac
	Streams



2017 Aerial Imagery, Jan-18

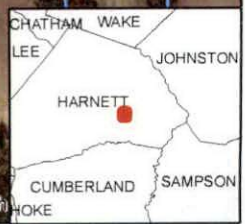
1 inch = 660 feet

Map by: M. Sawtelle



ROSS RD, SR 2016
 TITAN ROBERT'S RD, SR 2021

This map is not a survey and has not been reviewed by a local government agency for compliance with any applicable land development regulations.



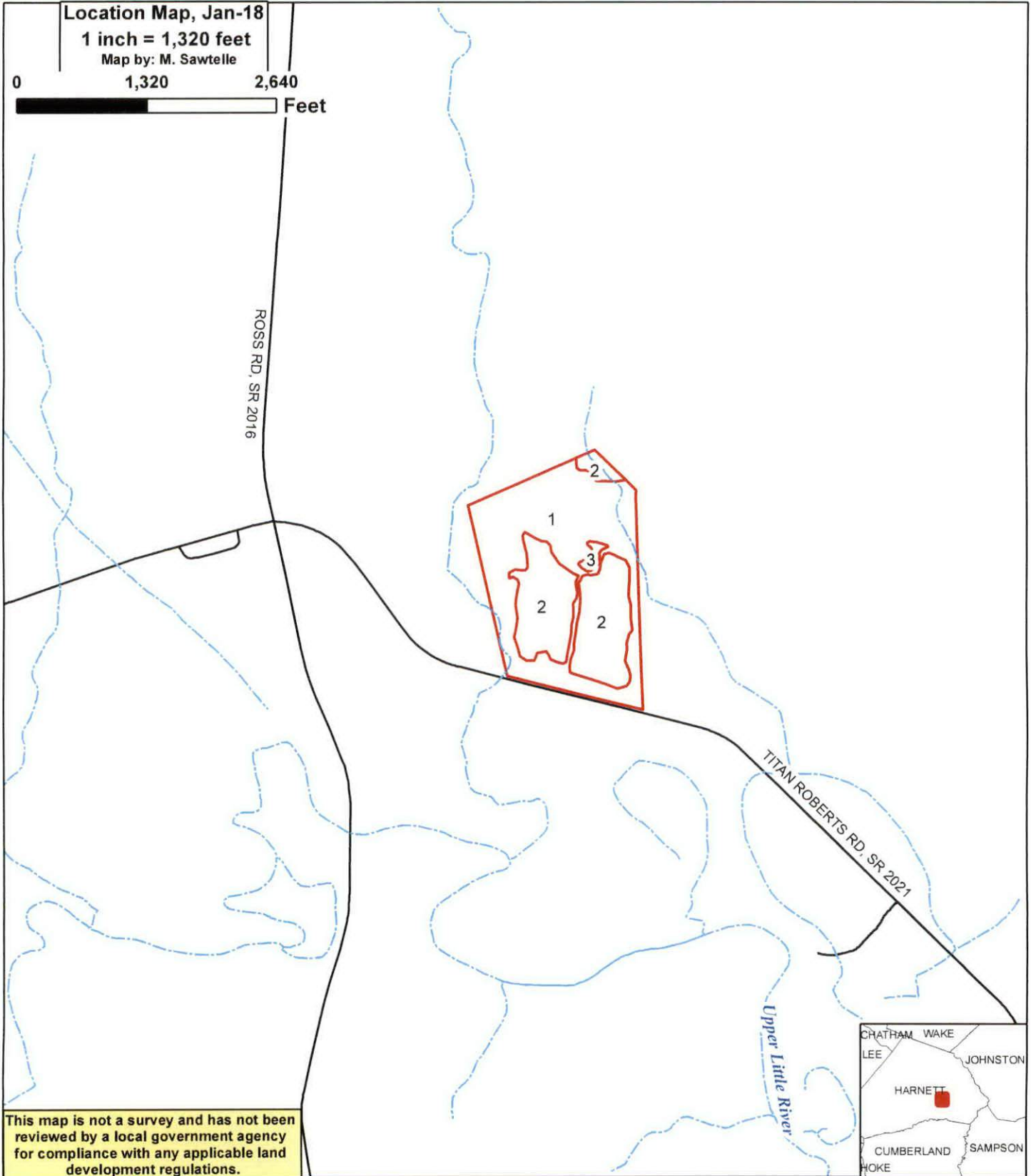
NC Center for Geographic Information Systems



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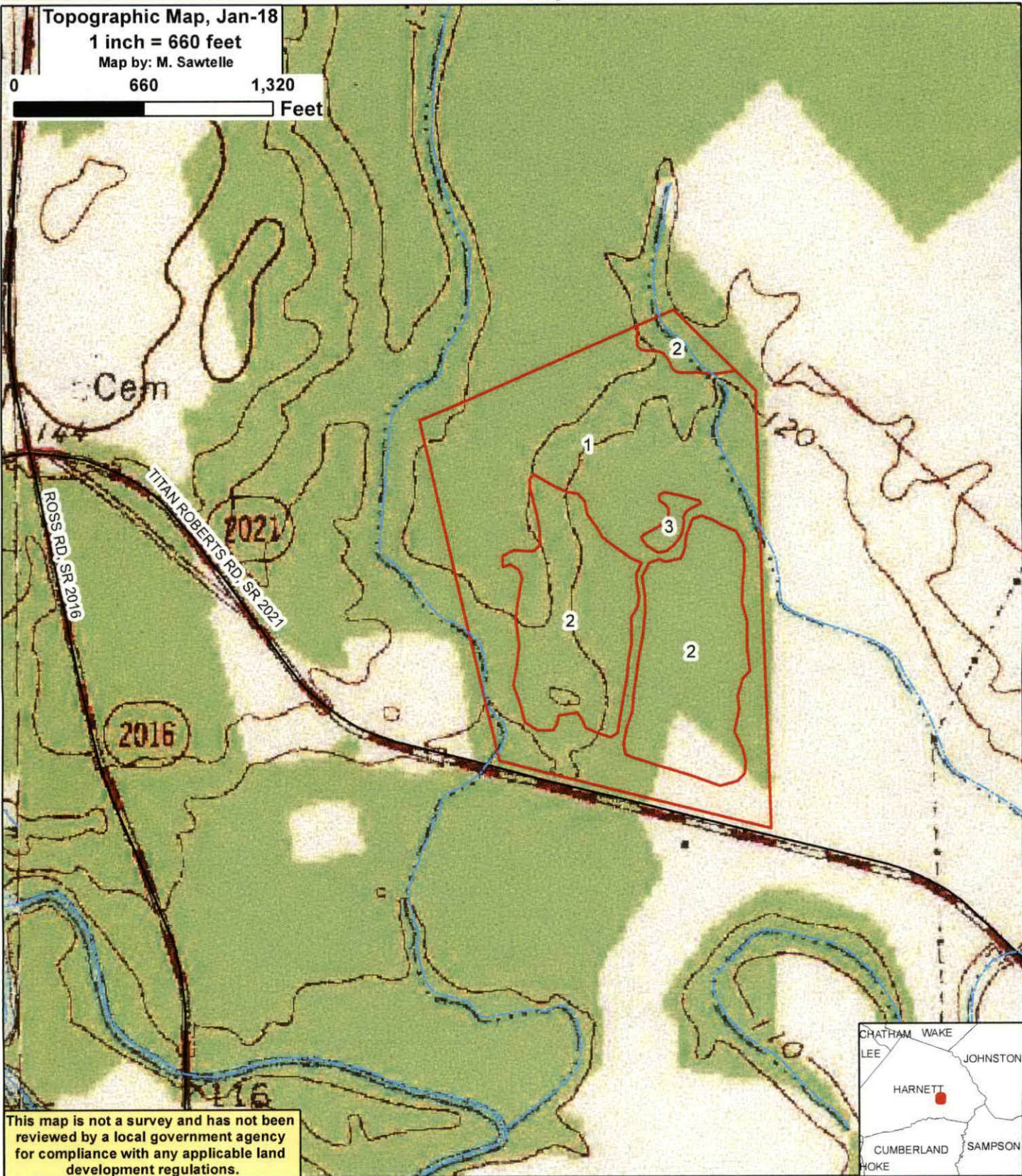
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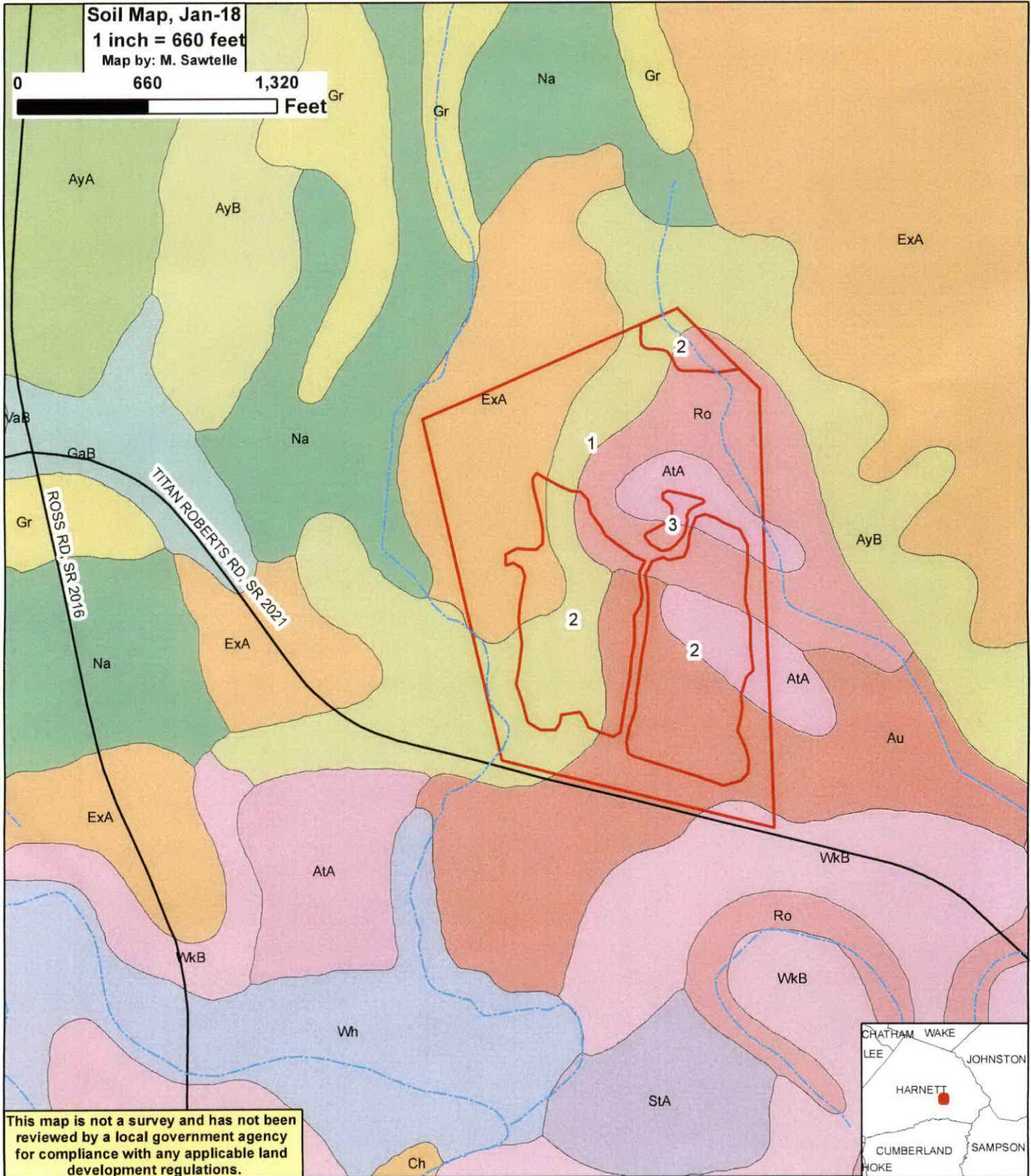


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